

PROJECT DESCRIPTION:

CONSTRUCTION OF TELECOMMUNICATIONS AND PUBLIC UTILITY FACILITY, CONSISTING OF A LATTICE TOWER, SPACE FOR CARRIER EQUIPMENT, AND A UTILITY BACKBOARD WITHIN A FENCED COMPOUND. NO WATER OR SEWER IS REQUIRED. THIS WILL BE AN UNMANNED FACILITY.

CODE COMPLIANCE:

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

- | | |
|--|---|
| 1. 2009 INTERNATIONAL BUILDING CODE | 11. IEEE C2 NATIONAL ELECTRIC SAFETY CODE, LATEST EDITION |
| 2. 2008 NATIONAL ELECTRIC CODE | 12. TELECORDIA GR-1275 |
| 3. 2009 NFPA101 LIFE SAFETY CODE | 13. ANSI/T 311 |
| 4. 2009 IFC | 14. UNIFORM MECHANICAL CODE |
| 5. AMERICAN CONCRETE INSTITUTE | 15. UNIFORM PLUMBING CODE |
| 6. AMERICAN INSTITUTE OF STEEL CONSTRUCTION | 16. LOCAL BUILDING CODE |
| 7. MANUAL OF STEEL CONSTRUCTION, 13TH EDITION | 17. CITY/COUNTY ORDINANCES |
| 8. ANSI/TIA/EIA-222-G | 18. STATE BUILDING CODE |
| 9. TIA 607 | |
| 10. INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81 | |



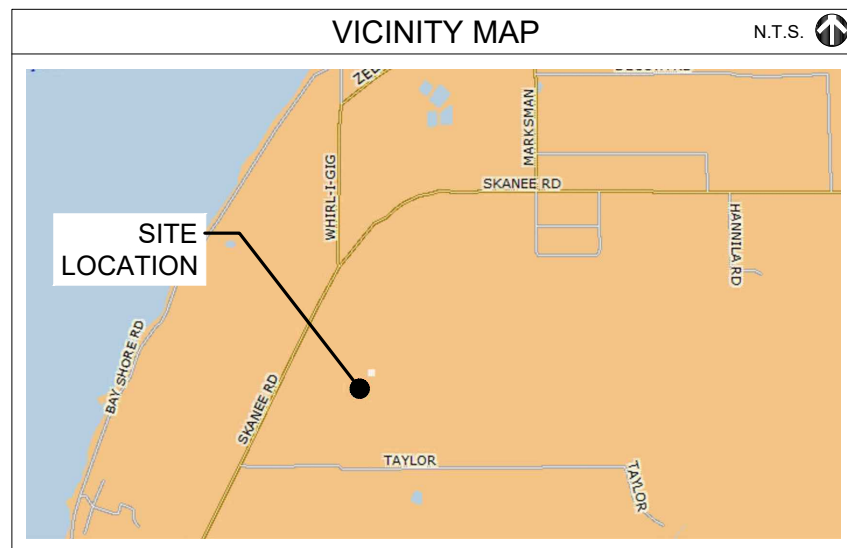
US-MI-5314
SKANEE ROAD
16103 TAILOR ROAD
L'ANSE, MI 49946
195' LATTICE TOWER

1701 GOLF ROAD, TOWER 2, SUITE 400
 ROLLING MEADOWS, ILLINOIS 60008
 PHONE: (847) 619-5397 FAX: (847) 706-7415
MDG LOCATION NUMBER: 5000916097
LOCATION NUMBER: 765214
SITE NAME: SKANEE ROAD

GENERATOR TYPE:	DIESEL (PENDING ENVIRONMENTAL VERIFICATION)
MAKE:	GENERAC
MODEL #:	SD030-1PE-190JT; GEN-GENSET-WP-30KW-DSL-1PH-190G-AHJ-TANK



SEAL:



PROJECT INFORMATION	
SITE NAME:	SKANEE ROAD
SITE NUMBER:	US-MI-5314
SITE ADDRESS:	16103 TAILOR ROAD L'ANSE, MI 49946
PARCEL #:	004-230-010-00
DEED REFERENCE:	BOOK 67, PAGE 9
ZONING CLASSIFICATION:	CONSERVATION/RECREATION
ZONING JURISDICTION:	L'ANSE TOWNSHIP
GROUND ELEVATION:	833.7'
STRUCTURE TYPE:	LATTICE TOWER
STRUCTURE HEIGHT:	195'-0"
CONSTRUCTION AREA:	39,113
LATITUDE (NAD 83):	46° 47' 21.02" N (1A)
LONGITUDE:	88° 25' 24.08" W (1A)

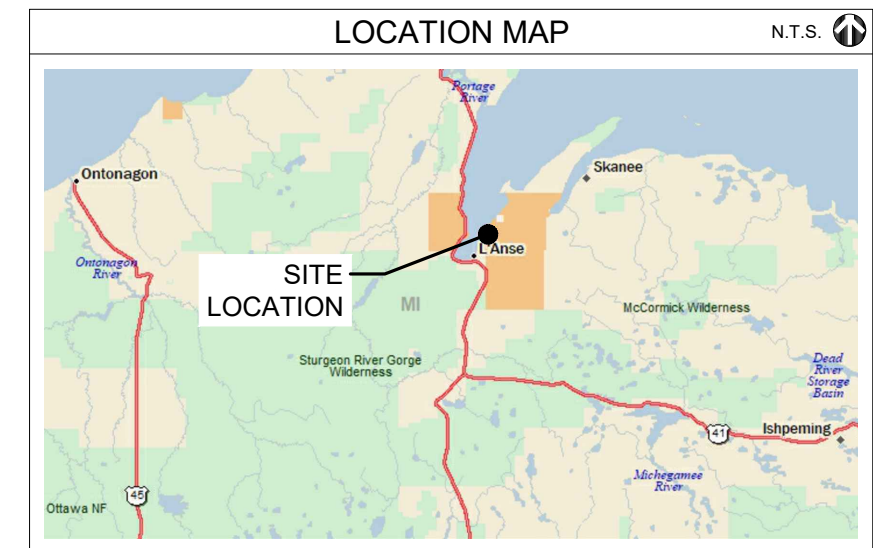
APPROVAL BLOCK				
	APPROVED	APPROVED AS NOTED	DISAPPROVED/REVISE	
VERTICAL BRIDGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DATE
SITE ACQUISITION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DATE
CONSTRUCTION MANAGER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DATE
PERMITTING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DATE
RF ENGINEERING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DATE

SHEET INDEX		
SHEET	DESCRIPTION	REV.
VERTICAL BRIDGE CONSTRUCTION SECTION:		
T-1	TITLE SHEET	-
LP	LOCATION PLAN	-
C-0	SITE PLAN	-
C-1	ENLARGED SITE PLAN	-
C-2 - C-2B	SITE GRADING PLAN	-
C-2C	CULVERT DETAIL	-
C-2D	FLARED END SECTION DETAIL	-
C-3	ACCESS ROAD DETAILS	-
C-3A	DRAINAGE GRADING & EROSION CONTROL NOTES & DETAILS	-
C-4	FENCE DETAILS	-
C-5	FENCE DETAILS	-
C-6	FENCE DETAILS	-
C-6	FENCE DETAILS	-
C-6	FENCE DETAILS	-
C-7	SITE SIGNAGE DETAILS	-
C-8	VERIZON WIRELESS EQUIPMENT PAD FOUNDATION DETAIL	-
C-8	VERIZON WIRELESS GENERATOR FOUNDATION DETAIL	-
ANT-1	SITE ELEVATION	-
E-1	UTILITY ROUTING PLAN	-
E-1A	GENERATOR UTILITY ROUTING PLAN	-
E-2	SITE GROUNDING PLAN	-
E-3	UTILITY DETAILS	-
E-4	SINGLE LINE DIAGRAM	-
E-5	GROUNDING DETAILS	-
GN-1	GENERAL NOTES	-
P-1	EXISTING SITE PHOTOS	-

VERIZON WIRELESS CONSTRUCTION SECTION:		
VW-LP	LOCATION PLAN	-
VW-C-1	ENLARGED SITE PLAN	-
VW C-2	GENERAL NOTES	-
VW-B-1	EQUIPMENT PAD PLAN & NOTES	-
VW-B-2	EQUIPMENT PAD ELEVATIONS	-
VW-B-3	PROPOSED EQUIPMENT PAD 3D VIEWS	-
VW-ANT-1	SITE ELEVATION	-
VW-ANT-2	ANTENNA INFORMATION	-
VW-ANT-2A	ANTENNA INFORMATION	-
VW-ANT-3	SITE DETAILS	-
VW-ANT-3A	ANTENNA MOUNTING DETAILS	-
VW-ANT-4	SITE DETAILS	-
VW E-1	UTILITY ROUTING PLAN	-
VW E-1A	UTILITY RISER DIAGRAMS	-
VW E-1B	GENERATOR UTILITY ROUTING PLAN	-
VW E-1C	GENERATOR SINGLE LINE DIAGRAM & ALARM WIRING	-
VW E-2	ELECTRICAL DETAILS	-
VW E-3	ELECTRICAL AND GROUNDING NOTES	-
VW E-4	SITE GROUNDING PLAN	-
VW E-5	GROUNDING DETAILS	-
VW E-6	GROUNDING AND ELECTRICAL DETAILS	-
VW SP-1	GENERAL NOTES	-
VW SP-2	GENERAL NOTES	-
VW EX-1	GENERATOR CUT-SHEET	-

SURVEY ATTACHMENTS		
S1 TO S3	PLAT OF SURVEY	-
1 TO 3	RFDS	-

DIG ALERT:
 CALL FOR UNDERGROUND UTILITIES PRIOR TO DIGGING:
 811
EMERGENCY:
 CALL 911



PROJECT DIRECTORY	
PROPERTY OWNER:	L'ANSE TOWNSHIP
APPLICANT:	THE TOWERS, LLC FRN# 0033815929 750 PARK OF COMMERCE DRIVE, SUITE 200 BOCA RATON, FL 33487
CONTACT:	PETE RYNER (404) 862-4089
PROJECT CONSULTANT:	TERRA CONSULTING, LTD 600 BUSSE HIGHWAY, PARK RIDGE, IL 60068
CONTACT:	DAN SZLAGA (847) 698-6400 FAX: (847) 698-6401
SURVEYING FIRM:	MERIDIAN SURVEYING, LLC N8774 FIRELANE 1 MENASHA, WI 54952 (920) 993-0881
POWER COMPANY:	-
TELCO COMPANY:	TRANSPORT BY OTHERS

NO.	REVISIONS	DESCRIPTION	BY	DATE
			JJR	08/07/23
		ISSUED FOR REVIEW		

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

—LEGEND—

- = 1" X 18" IRON PIPE SET
- = 6" NAIL SET
- = COUNTY MONUMENT FOUND
- = WOOD POST
- = TRAFFIC SIGN
- = WATER VALVE
- = TELEPHONE PEDESTAL
- = LIGHT POLE
- = ELECTRIC METER
- = ELECTRIC TRANSFORMER
- = EXISTING POWER POLE
- = EXISTING TREE

- PROPERTY LINE
- FENCE LINE
- UNDERGROUND ELECTRIC
- UNDERGROUND FIBER
- UNDERGROUND TELCO
- UNDERGROUND GAS LINE
- OVERHEAD ELECTRIC
- OVERHEAD FIBER
- OVERHEAD TELCO
- OVERHEAD UTILITY LINE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATERMAIN LINE
- BURIED GAS LINE
- EDGE OF BUSH/TREES

All utilities as shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be in exact location nor should it be assumed that they are the only utilities in the area.



Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

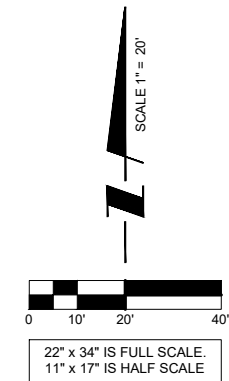
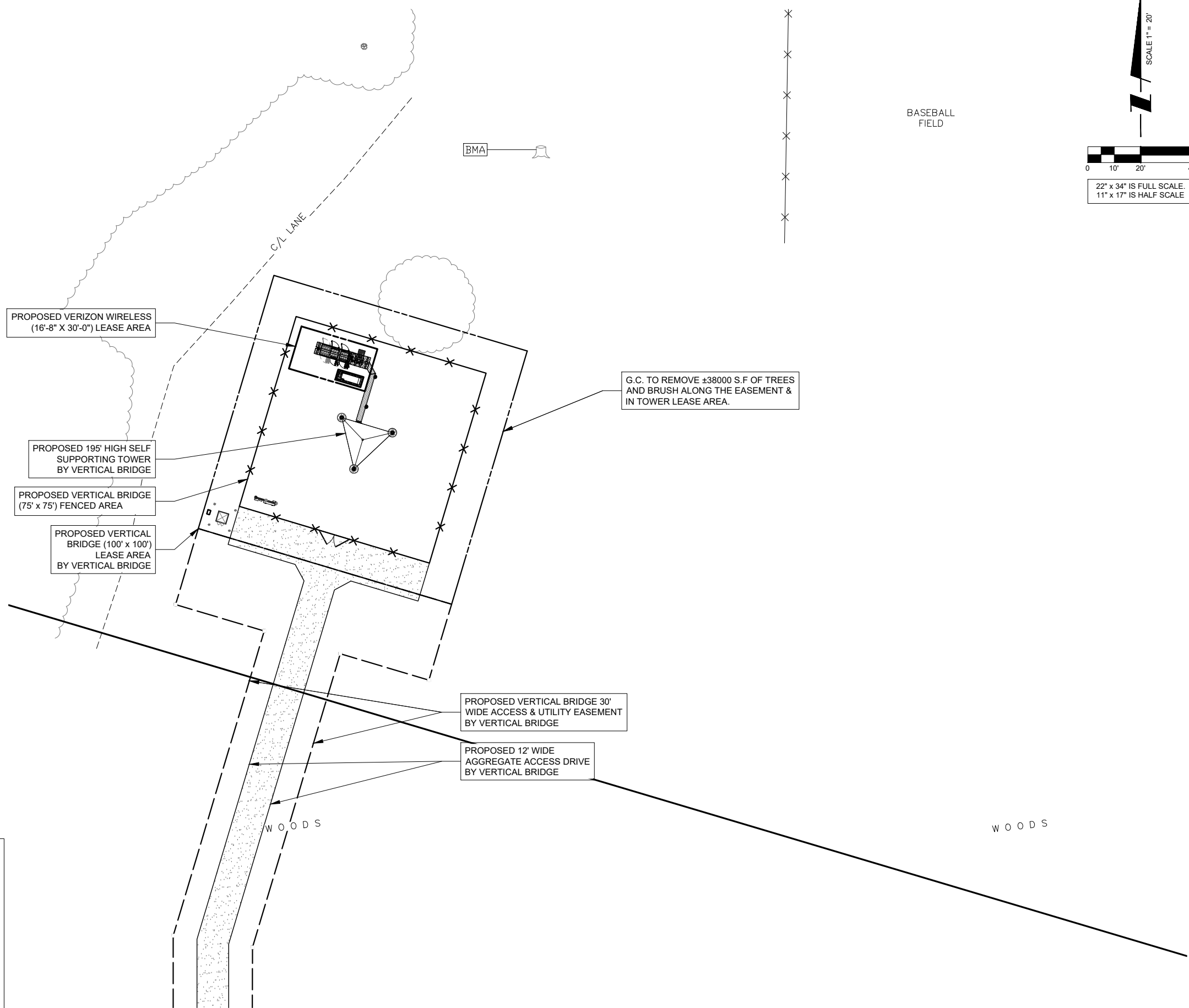
SURVEY PERFORMED BY:

MERIDIAN
SURVEYING, LLC

N8774 Firelane 1 Office: 920-993-0881
Menasha, WI 54952 Fax: 920-273-6037

BENCHMARK INFORMATION

SITE BENCHMARK: (BM A)
SET 6" NAIL IN NORTHWEST
FACE OF TREE STUMP
ELEVATION: 838.86'



verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

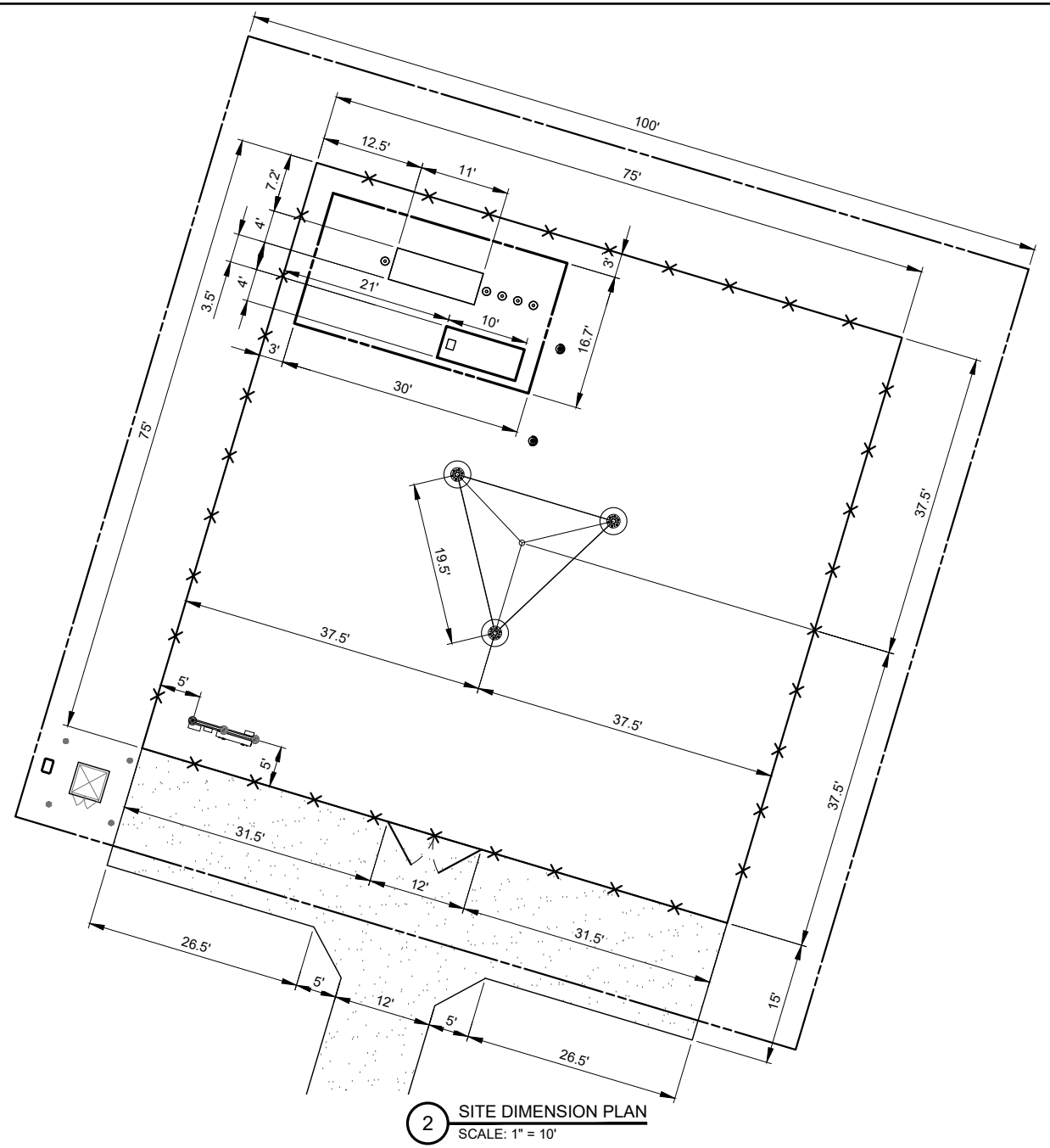
NO.	DESCRIPTION	DATE	BY
	ISSUED FOR REVIEW	08/07/23	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE PLAN

SHEET NUMBER
C-0



2 SITE DIMENSION PLAN
SCALE: 1" = 10'

PAVEMENT MATERIAL

ACCESS ROAD (HATCHED)
 1495 S.Y.
 8" COMPACTED AGGREGATE BASE COURSE, CA-6
 MIRAFI 500X SUBGRADE GEOTEXTILE FABRIC OR APPROVED EQUAL

LEASE SITE
 625 S.Y.
 8" COMPACTED AGGREGATE BASE COURSE, WITH 3/4" CRUSHED AGGREGATE, NO FINES, OR APPROVED EQUAL. MIRAFI 500X SUBGRADE GEOTEXTILE FABRIC OR APPROVED EQUAL
 300' L.F. OF FENCING

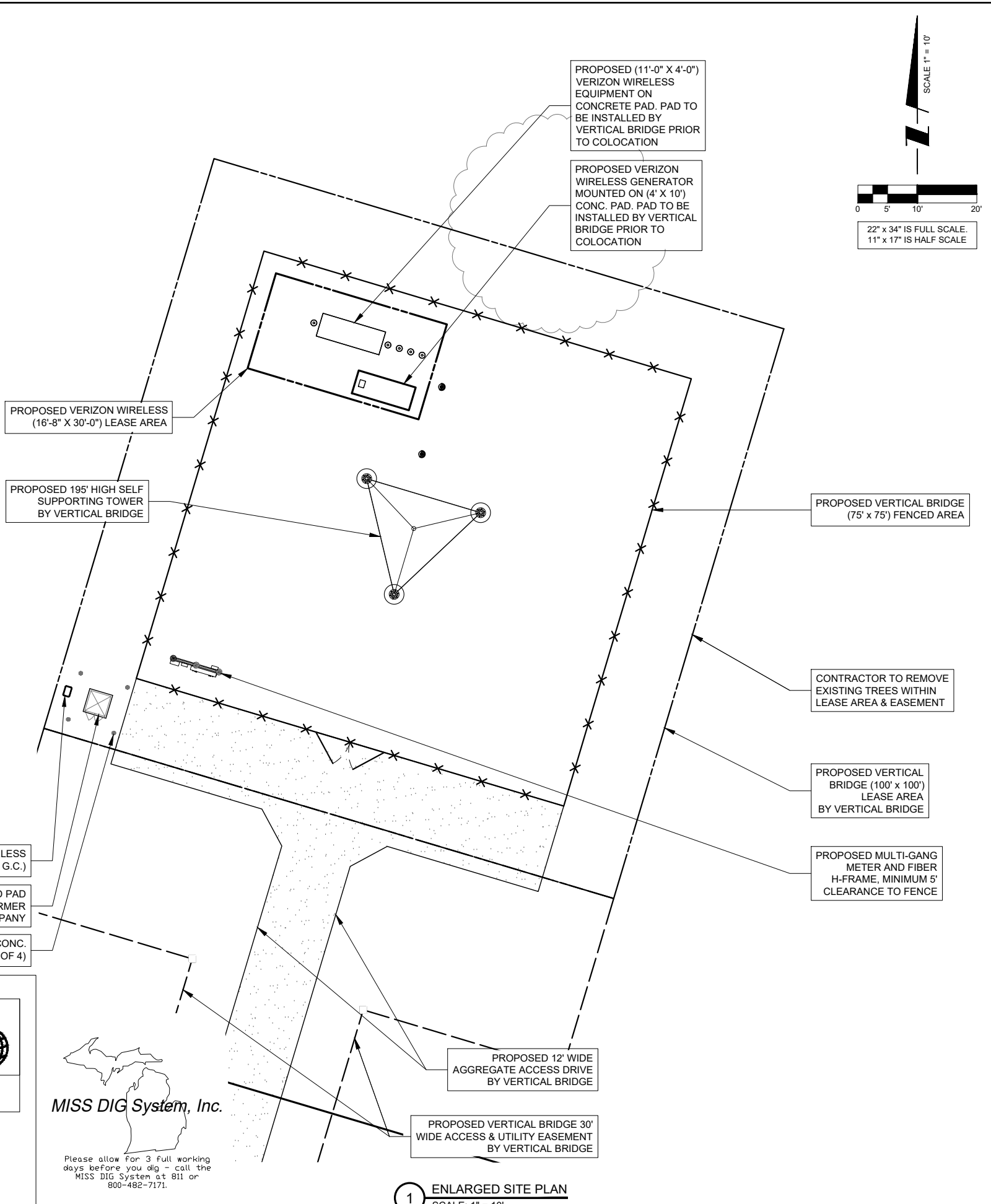
THE CONTRACTOR SHALL INCLUDE AS PART OF THE BID, THE COST OF REMOVAL OF ANY SURFACE VEGETATION AND ORGANIC SOILS OR OTHER DELETERIOUS MATERIALS AND THE REPLACEMENT WITH ENGINEERED BACKFILL FOR THE AGGREGATE ACCESS DRIVE AND LEASE SITE, IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.

SURVEY PERFORMED BY:

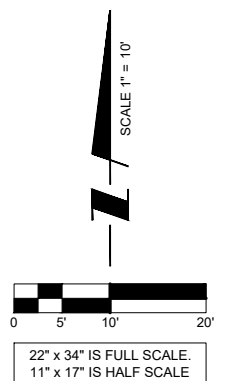
MERIDIAN SURVEYING, LLC

N8774 Firelane 1 Office: 920-993-0881
 Menasha, WI 54952 Fax: 920-273-6037

BENCHMARK INFORMATION
 SITE BENCHMARK: (BM A)
 SET 6" NAIL IN NORTHWEST FACE OF TREE STUMP
 ELEVATION: 838.86'



1 ENLARGED SITE PLAN
SCALE: 1" = 10'



verticalbridge
 750 PARK OF COMMERCE DRIVE
 SUITE 200
 BOCA RATON, FL 33487
 www.verticalbridge.com

PLANS PREPARED BY:

TERRA
 CONSULTING GROUP, LTD.
 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 PH: 847-698-6400
 FAX: 847-698-6401

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

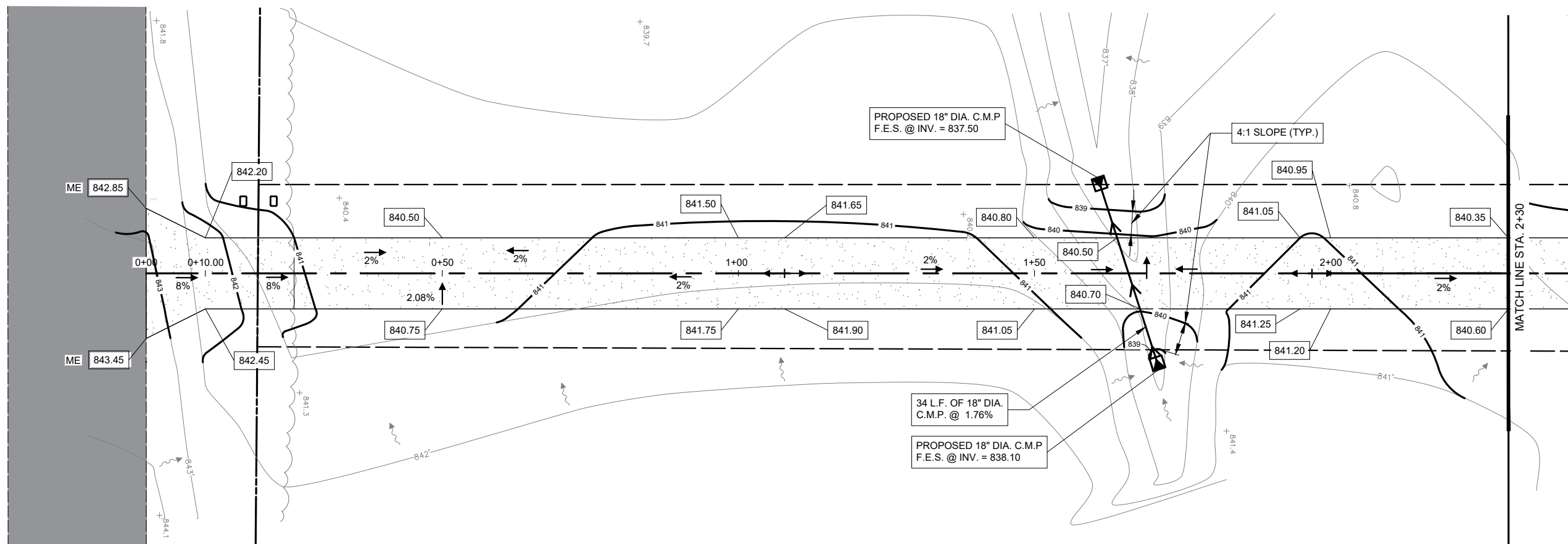
DRAWN BY: TJS
 CHECKED BY: TAZ
 DATE: 03/14/23
 PROJECT #: 107-056

SHEET TITLE
ENLARGED SITE PLAN

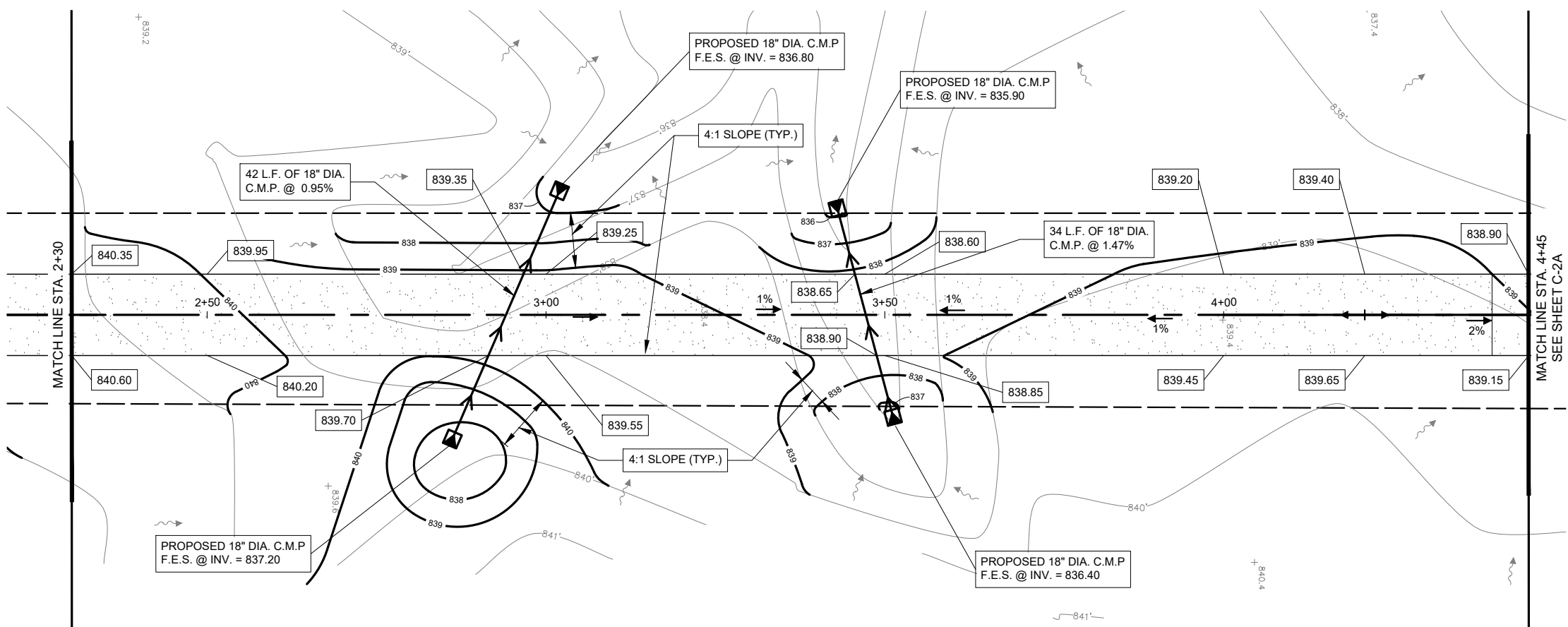
SHEET NUMBER
C-1

MISS DIG System, Inc.

Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.



1 SITE GRADING PLAN
SCALE: 1" = 20'



2 SITE GRADING PLAN
SCALE: 1" = 20'



MISS DIG System, Inc.

Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

LEGEND	
PROPOSED GROUND DRAINAGE FLOW DIRECTION ARROWS	
	DRAINAGE DIRECTION ARROW
	GROUND SLOPE% WITH DIRECTION
	SUMMIT DRAINAGE DIRECTIONS
	EXISTING GROUND DRAINAGE FLOW DIRECTION
PROPOSED SPOT GRADES	
	PROPOSED ELEVATION
PROPOSED LINES	
	PROPOSED GROUND RIDGE LINE
	PROPOSED CONTOUR
	EXISTING CONTOUR
	PROPOSED CULVERT & END SECTIONS

SCALE 1" = 20'

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.

verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

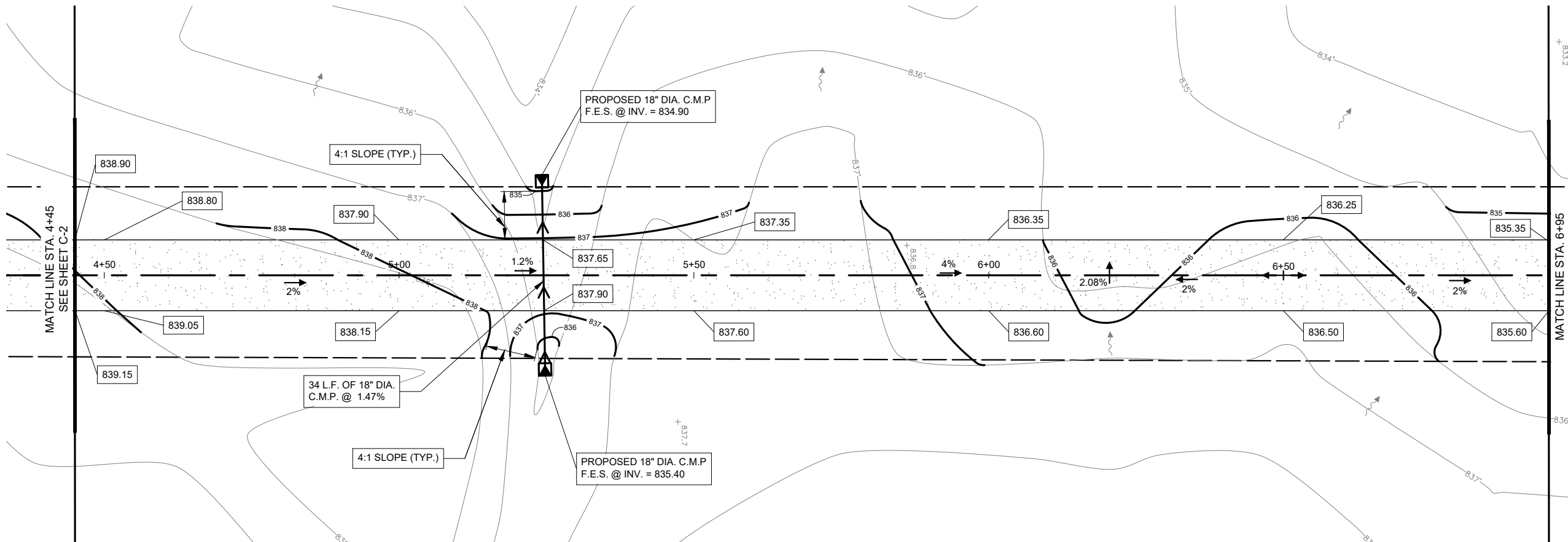
NO.	REVISIONS	DESCRIPTION	DATE	BY

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE GRADING PLAN
(SHEET 1 OF 3)

SHEET NUMBER
C-2



SCALE 1" = 20'

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.

1 SITE GRADING PLAN
SCALE: 1" = 20'



Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

LEGEND

PROPOSED GROUND DRAINAGE FLOW DIRECTION ARROWS

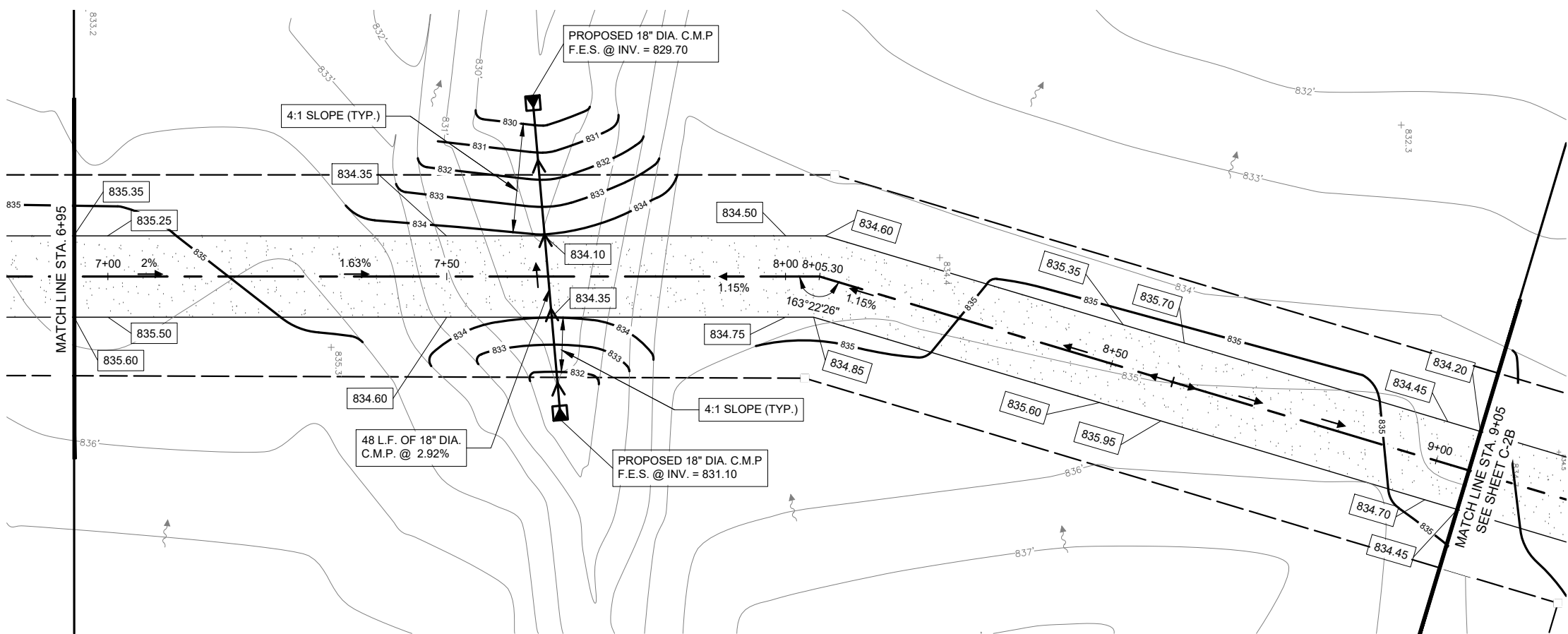
- ← DRAINAGE DIRECTION ARROW
- 0.00% GROUND SLOPE% WITH DIRECTION
- ↔ SUMMIT DRAINAGE DIRECTIONS
- ↗ EXISTING GROUND DRAINAGE FLOW DIRECTION

PROPOSED SPOT GRADES

- 0000.00 PROPOSED ELEVATION

PROPOSED LINES

- - - - - PROPOSED GROUND RIDGE LINE
- 000 PROPOSED CONTOUR
- 000 EXISTING CONTOUR
- ▣ → ▣ PROPOSED CULVERT & END SECTIONS



2 SITE GRADING PLAN
SCALE: 1" = 20'

verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:

TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
		ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE GRADING PLAN
(SHEET 1 OF 3)

SHEET NUMBER
C-2A

SEAL:

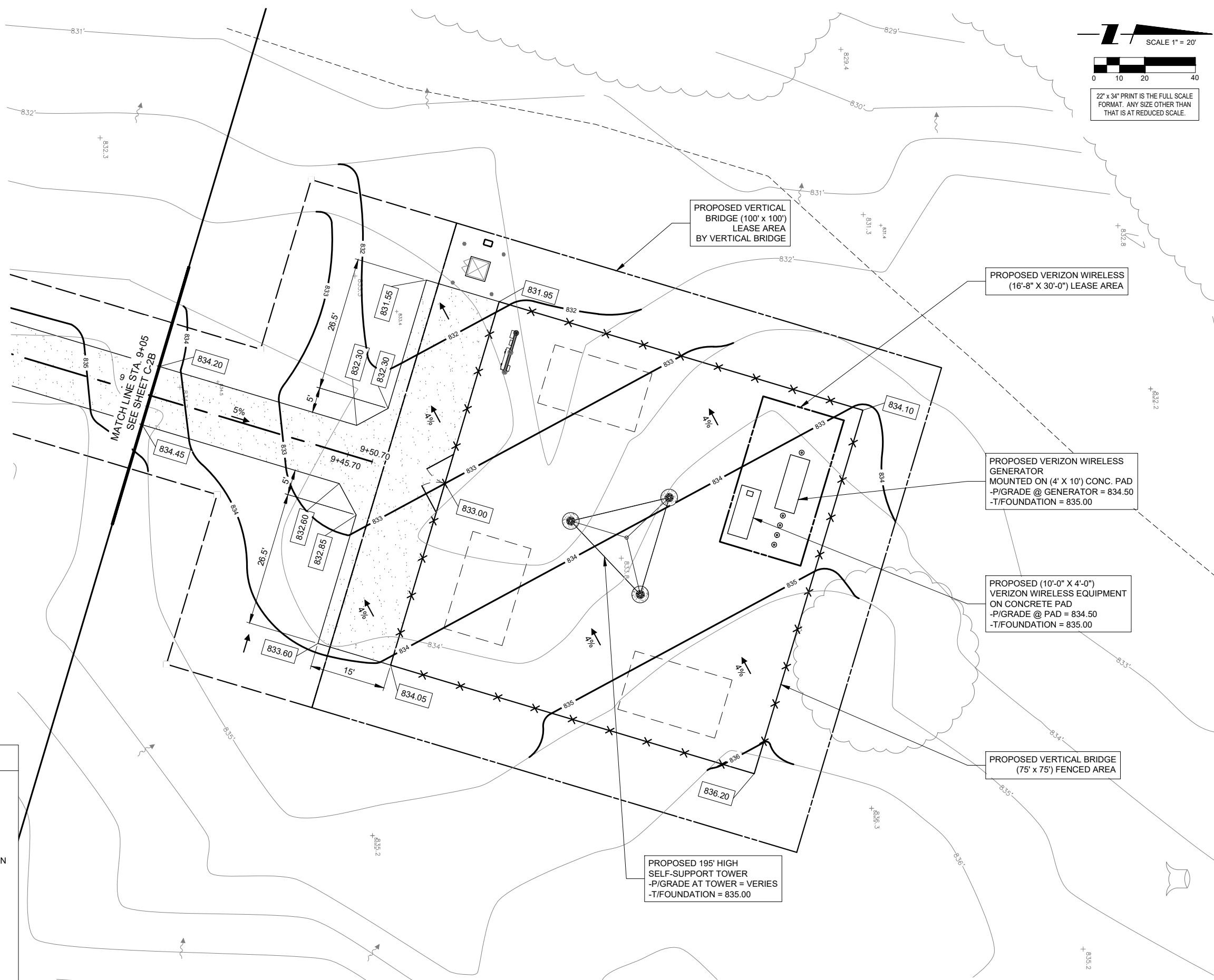
REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR REVIEW
DATE	08/07/23
BY	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE GRADING PLAN
 (SHEET 1 OF 3)

SHEET NUMBER
C-2B

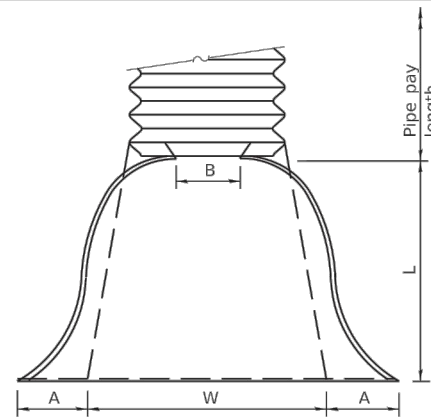


MISS DIG System, Inc.
 Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

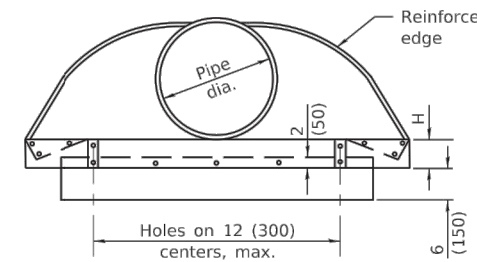
LEGEND	
PROPOSED GROUND DRAINAGE FLOW DIRECTION ARROWS	
	DRAINAGE DIRECTION ARROW
	GROUND SLOPE% WITH DIRECTION
	SUMMIT DRAINAGE DIRECTIONS
	EXISTING GROUND DRAINAGE FLOW DIRECTION
PROPOSED SPOT GRADES	
	PROPOSED ELEVATION
PROPOSED LINES	
	PROPOSED GROUND RIDGE LINE
	PROPOSED CONTOUR
	EXISTING CONTOUR
	PROPOSED CULVERT & END SECTIONS

1 SITE GRADING PLAN
 SCALE: 1" = 20'

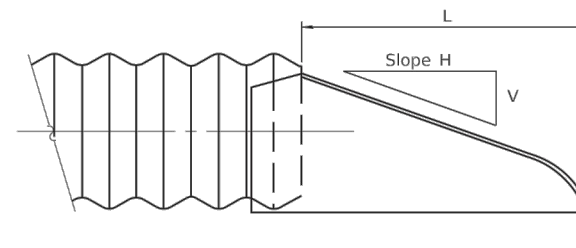
PIPE DIA.	THICKNESS	DIMENSIONS					SLOPE (Approx.) (V:H)	BODY
		A	B	H	L	W		
12 (300)	0.064 (1.63)	6 (150)	6 (150)	6 (150)	21 (535)	24 (610)	1:2½	1 Pc.
15 (375)	0.064 (1.63)	7 (180)	8 (205)	6 (150)	26 (660)	30 (760)	1:2½	1 Pc.
18 (450)	0.064 (1.63)	8 (205)	10 (255)	6 (150)	31 (785)	36 (915)	1:2½	1 Pc.
21 (525)	0.064 (1.63)	9 (230)	12 (305)	6 (150)	36 (915)	42 (1,065 m)	1:2½	1 Pc.
24 (600)	0.064 (1.63)	10 (255)	13 (330)	6 (150)	41 (1,040 m)	48 (1,220 m)	1:2½	1 Pc.
30 (750)	0.079 (2.01)	12 (305)	16 (405)	8 (205)	51 (1,295 m)	60 (1,525 m)	1:2½	1 Pc.
36 (900)	0.079 (2.01)	14 (355)	19 (480)	9 (230)	60 (1,525 m)	72 (1,830 m)	1:2½	2 Pc.
42 (1050)	0.109 (2.77)	16 (405)	22 (560)	11 (280)	69 (1,750 m)	84 (2,135 m)	1:2½	2 Pc.
48 (1200)	0.109 (2.77)	18 (455)	27 (685)	12 (305)	78 (1,980 m)	90 (2,285 m)	1:2¼	2 Pc.
54 (1350)	0.109 (2.77)	18 (455)	30 (760)	12 (305)	84 (2,135 m)	102 (2,590 m)	1:2	2 Pc.
60 (1500)	0.109 (2.77)	18 (455)	33 (840)	12 (305)	87 (2,210 m)	114 (2,895 m)	1:1¾	3 Pc.
66 (1650)	0.109 (2.77)	18 (455)	36 (915)	12 (305)	87 (2,210 m)	120 (3,050 m)	1:1½	3 Pc.
72 (1800)	0.109 (2.77)	18 (455)	39 (990)	12 (305)	87 (2,210 m)	126 (3,200 m)	1:1⅓	3 Pc.
78 (1950)	0.109 (2.77)	18 (455)	42 (1,065 m)	12 (305)	87 (2,210 m)	132 (3,355 m)	1:1¼	3 Pc.
84 (2250)	0.109 (2.77)	18 (455)	45 (1,145 m)	12 (305)	87 (2,210 m)	138 (3,505 m)	1:1⅙	3 Pc.



PLAN



END VIEW



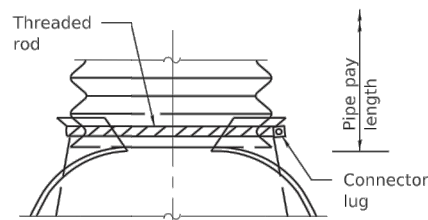
SIDE VIEW

END SECTION

NOTES

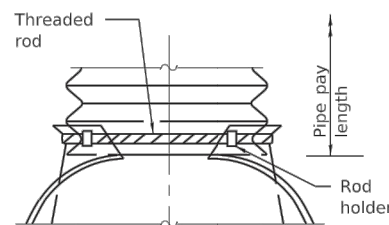
For 60 (1500) thru 84 (2250) sizes, reinforced edges shall be supplemented with stiffener angles. The angles shall be 2x2x¼ (51x51x6.4) for 60 (1500) thru 72 (1800) diameter and 2½x2½x¼ (64x64x6.4) for 78 (1950) thru 84 (2250) diameter. The angles shall be attached by ⅜ (M10) rivets or bolts.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).



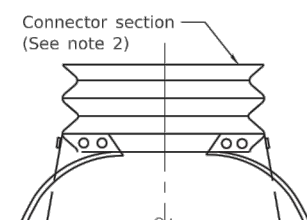
TYPE 1

For 12 (300) thru 24 (600) only (See Note 1)



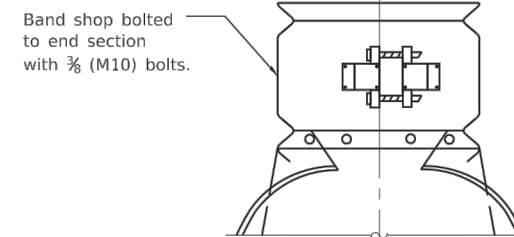
TYPE 2

For 30 (750) and 36 (900) only (See Note 1)



TYPE 3

(See Note 2)



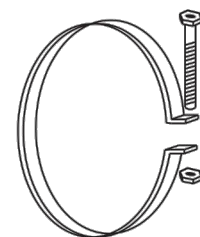
TYPE 4

(See Note 3)

NOTES

- Types 1 and 2 for pipes with annular ends only.
- Type 3 connection may be used for all pipe sizes and includes 12 (300) of the pipe length. The connector section shall be attached to the end section by rivets or bolts and shall be the same metal thickness as the end section. Stub shall be either 2½ (68) pitch x ½ (13) depth or 3 (75) pitch x 1 (25) depth annular corrugated pipe.
- Type 4 connection can be used for all pipe sizes. Coupler shall be 2½ x ½ (68x13) dimple, hugger, or annular band of 3x1 (75x25). The dimple, hugger, or annular band may be used with corrugated metal pipes having annular ends. For corrugated metal pipes having helical ends, only the dimple band will be allowed.

All dimensions are in inches (millimeters) unless otherwise shown.



ALTERNATE STRAP CONNECTOR

(For Type 1 only)

1 (25) wide, 0.109 (2.77) thick strap with standard ½x6 (M12x150) band bolt and nut.

CONNECTIONS OF END SECTIONS

DATE	REVISIONS
1-1-21	Revised THICKNESS values in table.
1-1-18	Renamed standard.

METAL FLARED END SECTION FOR PIPE CULVERTS

STANDARD 542401-04

Illinois Department of Transportation

PASSED January 1, 2021
Michael Bond
 ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2021
Scott E. Elger
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-21

SEAL:

NO.	DESCRIPTION	DATE	BY	JUR	
					REVISIONS
	ISSUED FOR REVIEW	08/07/23			

SITE #
 US-MI-5314
SKANEE ROAD
LOC. #
 765214
MDG LOC. #
 5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
FLARED END SECTION DETAIL

SHEET NUMBER

C-2D

GRADING & EXCAVATING NOTES:

1. ALL EXCAVATIONS ON WHICH CONCRETE IS TO BE PLACED SHALL BE SUBSTANTIALLY HORIZONTAL ON UNDISTURBED AND UNFROZEN SOIL AND BE FREE FROM LOOSE MATERIAL AND EXCESS GROUNDWATER. DEWATERING FOR EXCESS GROUNDWATER SHALL BE PROVIDED IF REQUIRED.
2. CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC MATERIAL. IF SOUND SOIL IS NOT REACHED AT THE DESIGNATED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION BE FILLED WITH CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATION.
3. ANY EXCAVATION OVER THE REQUIRED DEPTH SHALL BE FILLED WITH EITHER MECHANICALLY COMPACTED GRANULAR MATERIAL OR CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATION. CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. STONE, IF USED, SHALL NOT BE USED AS COMPILING CONCRETE THICKNESS.
4. AFTER COMPLETION OF THE FOUNDATION AND OTHER CONSTRUCTION BELOW GRADE, AND BEFORE BACKFILLING, ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH.
5. -USE APPROVED MATERIALS CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND -BE FREE FROM CLOUDS OR STONES OVER 2-1/2" MAXIMUM DIMENSIONS -BE PLACED IN 6" LAYERS AND COMPACTED TO 95% STANDARD PROCTOR EXCEPT IN GRASSED/BANDSCAPED AREAS, WHERE 90% STANDARD PROCTOR
6. REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO PLACING FILLS, PLOW, STRIP, OR BREAK UP SLOPED SURFACES STEEPER THAN 1 VERTICAL TO 4 HORIZONTAL SO FILL MATERIAL WILL BOND WITH EXISTING SURFACE. WHEN SUBGRADE OR EXISTING GROUND SURFACE TO RECEIVE FILL HAS A DENSITY LESS THAN THAT REQUIRED FOR FILL, BREAK UP GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE-CONDITION OR AERATE SOIL AND RECOMPACT TO REQUIRED DENSITY.
7. PROTECT EXISTING GRAVEL SURFACING AND SUBGRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE USE PLANKING OR OTHER SUITABLE MATERIALS DESIGNED TO SPREAD EQUIPMENT LOADS, REPAIR DAMAGE TO EXISTING GRAVEL SURFACING OR SUBGRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTOR'S OPERATIONS. DAMAGED GRAVEL SURFACING SHALL BE RESTORED TO MATCH THE ADJACENT UNDAUNAGED GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS
8. REPLACE EXISTING GRAVEL SURFACING ON AREAS FROM WHICH GRAVEL SURFACING IS REMOVED DURING CONSTRUCTION OPERATIONS. GRAVEL SURFACING IS REMOVED DURING CONSTRUCTION OPERATIONS. GRAVEL SURFACING SHALL BE REPLACED TO MATCH EXISTING ADJACENT GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS. SURFACES OF GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES. EXISTING GRAVEL SURFACING MAY BE EXCAVATED SEPARATELY AND REUSED IF INJURIOUS AMOUNTS OF EARTH, ORGANIC MATTER, OR OTHER DELETERIOUS MATERIALS ARE REMOVED PRIOR TO REUSE. FURNISH ALL ADDITIONAL GRAVEL RESURFACING MATERIAL AS REQUIRED. BEFORE GRAVEL SURFACING IS REPLACED, SUBGRADE SHALL BE GRADED TO CONFORM TO REQUIRED SUBGRADE ELEVATIONS, AND LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED. DEPRESSIONS IN THE SUBGRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL MAY BE USED FOR FILLING DEPRESSIONS IN THE SUBGRADE, SUBJECT TO ENGINEER'S APPROVAL.
9. DAMAGE TO EXISTING STRUCTURES AND UTILITIES RESULTING FROM CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED/REPLACED TO OWNER'S SATISFACTION AT CONTRACTOR'S EXPENSE.
10. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH PROPERTY OWNER SO AS TO AVOID INTERRUPTIONS TO PROPERTY OWNER'S OPERATIONS.
11. ENSURE POSITIVE DRAINAGE DURING AND AFTER COMPLETION OF CONSTRUCTION.
12. ALL CUT AND FILL SLOPES SHALL BE MAXIMUM 2 HORIZONTAL TO 1 VERTICAL
13. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING SITE VEHICLE TRAFFIC AS TO NOT ALLOW VEHICLES LEAVING THE SITE TO TRACK MUD ONTO PUBLIC STREETS. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING PUBLIC STREETS DUE TO MUDDY VEHICLES LEAVING THE SITE.

GENERAL EROSION & SEDIMENT CONTROL NOTES:

1. THE SOIL EROSION AND SEDIMENT CONTROL MEASURES AND DETAILS AS SHOWN HEREIN AND STIPULATED WITHIN STATE STANDARDS SHALL BE FOLLOWED AND INSTALLED IN A MANNER SO AS TO MINIMIZE SEDIMENT LEAVING THE SITE.
2. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBING SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS.
3. EROSION CONTROL DEVICES SHALL BE INSTALLED BEFORE GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
4. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEERING IMMEDIATELY.
5. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. CONTRACTOR SHALL CLEAN OUT ALL SEDIMENT PONDS WHEN REQUIRED BY THE ENGINEER OR THE LOCAL JURISDICTION INSPECTOR. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
6. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE.
7. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED.
8. SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.
9. ALL CUT AND FILL SLOPES MUST BE SURFACED ROUGHENED AND VEGETATED WITHIN SEVEN (7) DAYS OF THEIR CONSTRUCTION.
10. CONTRACTOR SHALL REMOVE ALL EROSION & SEDIMENT CONTROL MEASURES AFTER COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER.
11. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.

SEEDING GUIDELINES:

FINAL STABILIZATION OF ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, SHALL BE LOAMED AND SEEDED. LOAM SHALL BE PLACED AT A MINIMUM COMPACTED DEPTH OF 4". RECOMMENDED SEEDING DATES FOR PERMANENT VEGETATION SHALL BE BETWEEN JUNE 15 THROUGH AUGUST 1 AND SEPTEMBER 15 THROUGH OCTOBER 15. TEMPORARY VEGETATIVE MEASURES SHALL CONSIST OF AN ANNUAL OR PERENNIAL RYE GRASS WITH RECOMMENDED SEEDING DATES BEING FROM JUNE 1 THROUGH AUGUST 15 AND SEPTEMBER 30 THROUGH NOVEMBER 30.

EVALUATE PROPOSED COVER MATERIAL

BEFORE SPREADING COVER MATERIAL OVER THE DESIGNATED AREA, OBTAIN A REPRESENTATIVE SOIL SAMPLE AND SUBMIT TO A REPUTABLE SOIL TESTING LABORATORY FOR CHEMICAL AND PHYSICAL ANALYSIS. THE PRELIMINARY TEST IS NECESSARY TO DETERMINE THE REQUIRED INORGANIC AND/OR ORGANIC AMENDMENTS THAT ARE NEEDED TO ASSIST IN ESTABLISHING THE SEED MIXTURE IN AN ENVIRONMENTALLY AND ECONOMICALLY SOUND MANNER. THE RESULTS WILL GIVE THE COVER MATERIAL CHARACTERISTICS SUCH AS A pH AND FERTILIZATION NEEDS. THESE RESULTS SHALL BE KEPT ON-SITE BY THE CONTRACTOR AND AVAILABLE FOR REVIEW BY THE COUNTY.

SEED BED PREPARATION

PROPOSED COVER MATERIAL SHOULD BE SPREAD EVENLY OVER THE SITE AREA IN A MINIMUM 4" LIFT VIA BULLDOZER/BUCKET LOADER, USING THE INFORMATION FROM THE SOIL ANALYSIS, CAREFULLY CALCULATE THE QUANTITIES OF LIMESTONE AND PRE-PLANT FERTILIZER NEEDED PRIOR TO APPLYING. PRE-PLANT AMENDMENTS CAN BE APPLIED WITH A BROADCAST AND/OR DROP SEEDER AND INCORPORATED WITH AN OFFSET DISK, YORK RAKE, AND/OR HAND RAKE. AFTER INCORPORATION THE PRE-PLANT SOIL AMENDMENTS, THE SEED BED SHOULD BE SMOOTH AND FIRM PRIOR TO SEEDING. THE FOLLOWING SEED MIXTURES SHALL BE USED AS NOTED:

SEED MIXTURE

SPECIES/VARIETY LBS/ACRE

CREeping RED FESCUE	20
KENTUCKY BLUEGRASS	20
PERENNIAL RYEGRASS	5

SEED TIME AND METHOD

THE PREFERRED TIME FOR SEEDING THE COOL SEASON MIXTURE IS LATE SUMMER. SOIL AND AIR TEMPERATURES ARE IDEAL FOR SEED GERMINATION AND SEEDING GROWTH. WEED COMPETITION IS REDUCED BECAUSE SEEDS OF MANY WEED SPECIES GERMINATE EARLIER IN THE GROWING SEASON. ADDITIONALLY, HERBICIDE USE IS GREATLY REDUCED. HOWEVER, SEEDING MAY BE DONE AT ANY OF THE ABOVE NOTED TIMES.

MULCHING

NEWLY SEEDED AREAS SHOULD BE MULCHED TO INSURE ADEQUATE MOISTURE FOR SUCCESSFUL TURF ESTABLISHMENT AND TO PROTECT AGAINST SURFACE MOVEMENT OF SEDIMENT-BOUND AGROCHEMICALS AND SOIL EROSION. IF MULCHING PROCEDURES ARE NOT SPECIFIED ON PLANS, COMMERCIALLY AVAILABLE MULCHES CAN BE USED.

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

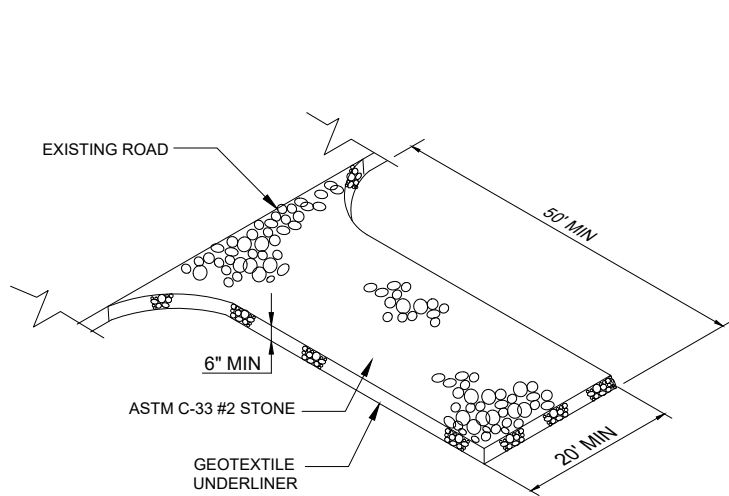
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. ALL SILT FENCE MATERIALS MUST BE LISTED ON THE CURRENT STATES. D.O.T. QUALIFIED PRODUCTS LIST.

POSTS: STEEL EITHER T OR U TYPE.

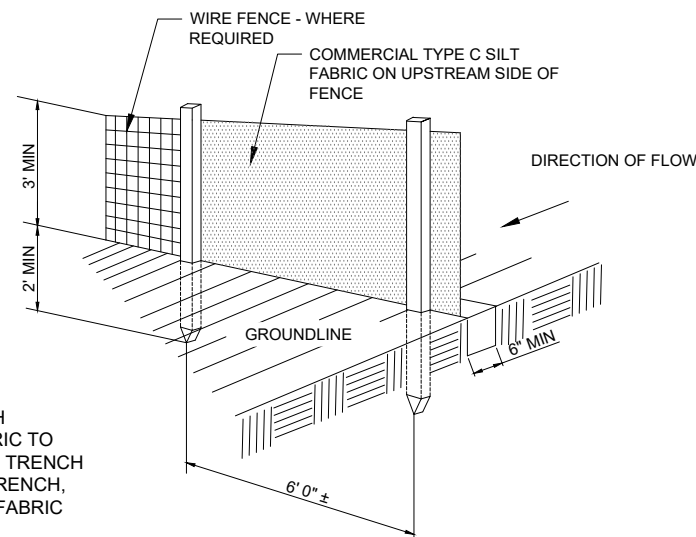
FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING.

FILTER CLOTH: FILTER X, MIRAFI 100X' STABILINKA T140N OR APPROVED EQUAL.

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE OR APPROVED EQUAL.



1 CONSTRUCTION EXIT DETAIL
SCALE: NTS



2 SILT FENCE DETAIL
SCALE: NTS

- NOTE:**
1. DIG TRENCH
 2. LAY IN FABRIC TO BOTTOM OF TRENCH
 3. BACKFILL TRENCH, COVERING FABRIC



PLANS PREPARED BY:



SEAL:



NO.	DESCRIPTION	DATE	BY	REVISIONS	
				DATE	DESCRIPTION
	ISSUED FOR REVIEW	08/07/23	JJR		

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214

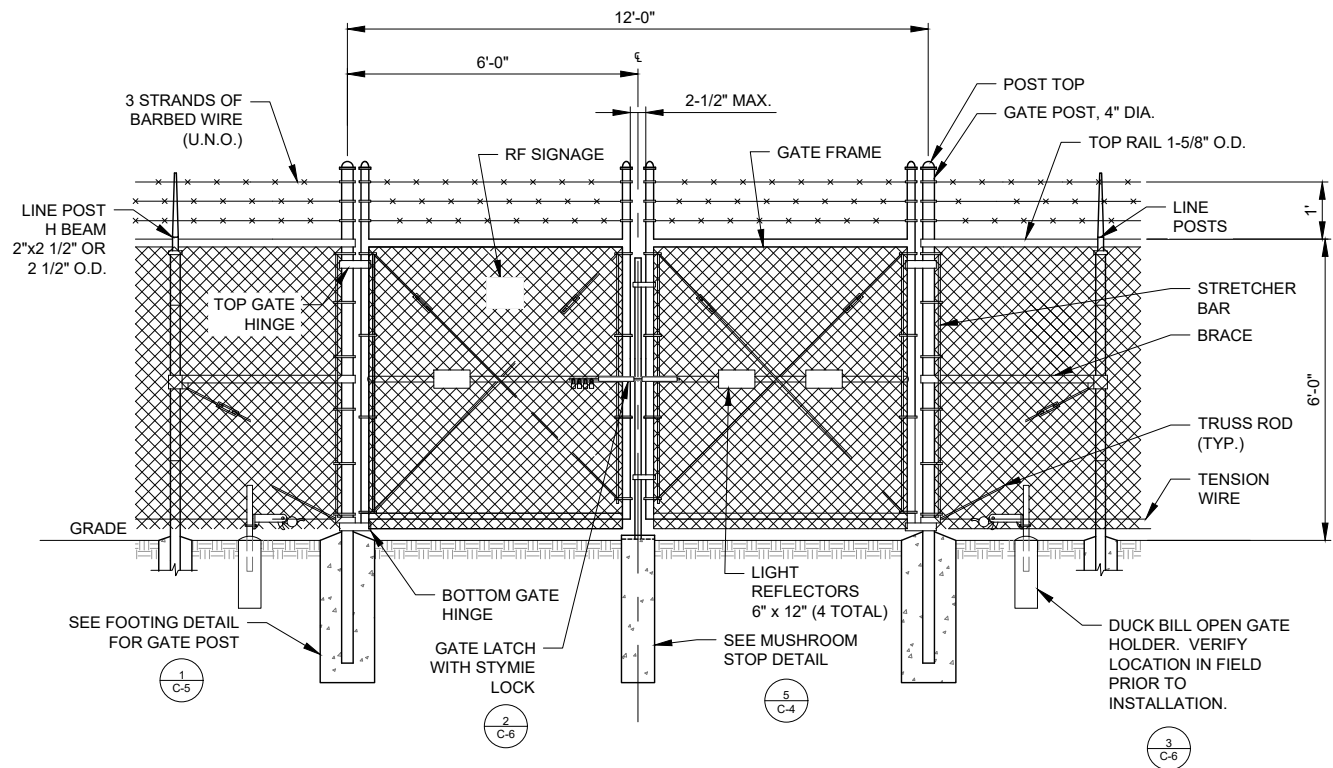
MDG LOC. #
5000916097

16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

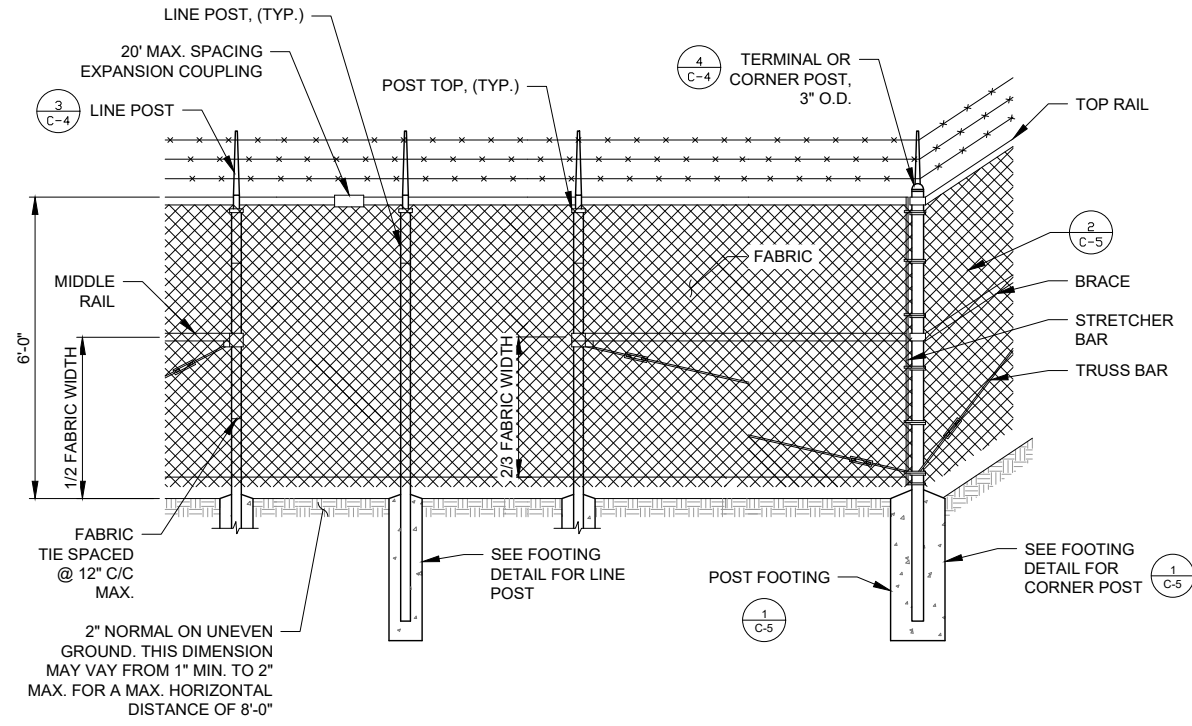
SHEET TITLE
DRAINAGE, GRADING & EROSION CONTROL NOTES AND DETAILS

SHEET NUMBER
C-3A

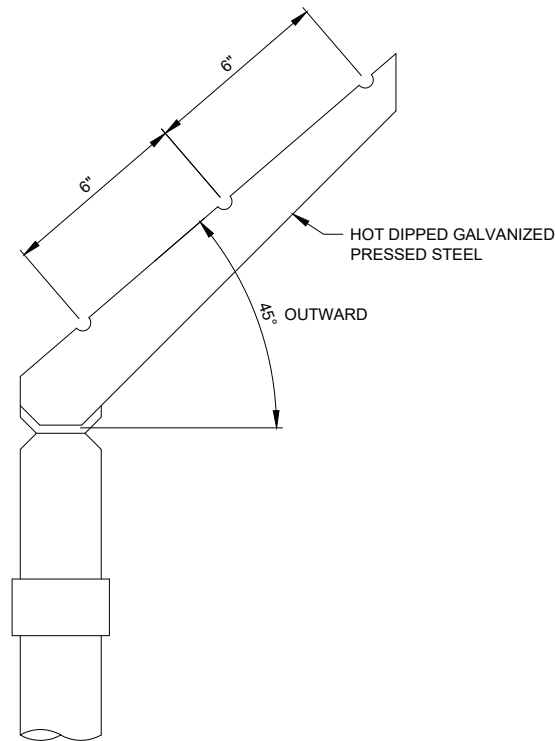


NOTE:
FENCE SECURITY - NUTS ON ALL BOLTS SHALL BE TOWARD THE INTERIOR OF THE COMPOUND

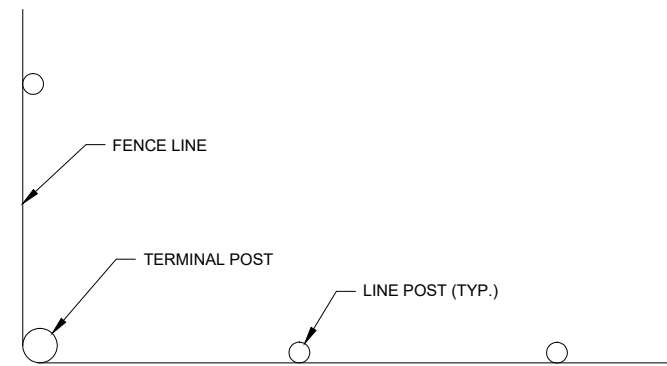
1 VEHICLE GATE DETAIL
SCALE: NTS



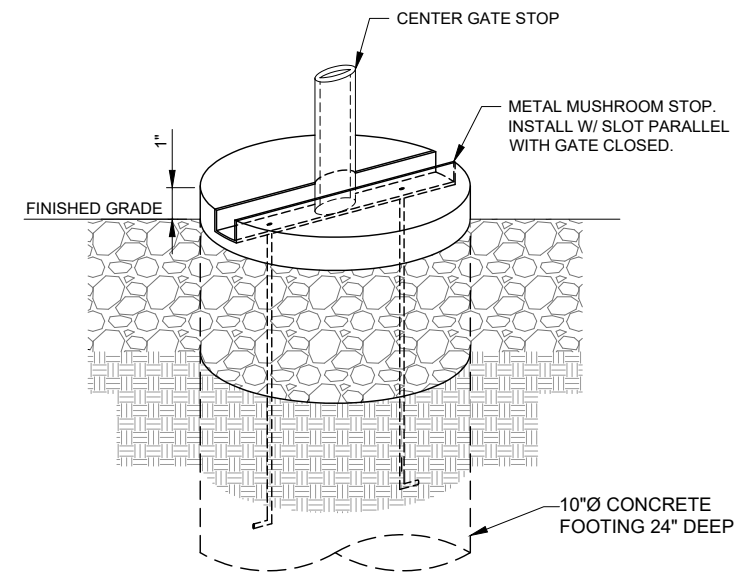
2 POST / CORNER POST DETAIL
SCALE: NTS



3 BARBED WIRE ARM OF LINE POST
SCALE: NTS



4 INSTALLATION @ CORNERS
SCALE: NTS



5 MUSHROOM STOP DETAIL
SCALE: NTS

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
			08/07/23	JJR
		ISSUED FOR REVIEW		

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
FENCE DETAILS

SHEET NUMBER
C-4

NOTES:

ZINC COATING - THE WEIGHT OF THE COATING SHALL NOT BE LESS THAN 1.2 OUNCES PER SQUARE FOOT OF ACTUAL SURFACE COVERED. ALL FERROUS METALS USED AS PART OF THE FENCE INSTALLATION SHALL BE HOT DIPPED GALVANIZED OF STAINLESS STEEL. ALL SCREWS, BOLTS, LOCK WASHERS, NUTS, ETC. SHALL BE HOT DIP GALVANIZED OR MADE OF STAINLESS STEEL.

FABRIC - STANDARD INDUSTRIAL GRADE #9 GAUGE WITH 2 INCH MESH ZINC COATED CHAIN LINK WITH A BREAKING STRENGTH OF NOT LESS THAN 1290 LBS SHALL BE USED. THE FABRIC SHALL BE ZINC COATED BY THE HOT DIP PROCESS AFTER FABRICATION.

METAL POSTS - METAL POSTS (LINE, CORNER, TERMINAL, GATE POSTS, MIDDLE RAILS, BRACES AND TOP RAIL) SHALL BE HOT DIP GALVANIZED SCHEDULE 40 TUBULAR STEEL WITH AN OUTSIDE DIAMETER AS INDICATED ON THIS DRAWING. A POST TOP FITTING OF GALVANIZED STEEL WILL BE INSTALLED TO EXCLUDE MOISTURE.

POST CAPS - ALL POST CAPS TO USE THE BARBED WIRE OUTRIGGER BRACKET AND SHALL BE ATTACHED TO THE POST WITH TAMPER RESISTANT SCREWS, BRADS, OR BOLTS.

TOP RAIL - A MINIMUM OF ONE COUPLING IN EACH STRAIGHT RUN OF TOP RAIL, SHALL HAVE A HEAVY SPRING INSERTED WITHIN THE COUPLING TO TAKE UP EXPANSION AND CONTRACTION OF THE TOP RAIL. THE TOP RAIL SHALL BE FASTENED TO TERMINAL POSTS WITH PRESSED STEEL CONNECTIONS.

MIDDLE RAIL - THE MIDDLE RAIL SHALL BE OF THE SAME MATERIAL AS THE TOP RAIL AND INSTALLED WITH HOT DIP GALVANIZED FITTINGS ATTACHED TO THE POSTS.

BRACE RAIL - BRACE RAIL MATERIAL SHALL BE OF THE MATERIAL AS THE TOP RAIL AND LOCATED 2/3 OF THE DISTANCE UP FROM THE BOTTOM OF THE FABRIC. BRACE RAILS SHALL BE SECURELY FASTENED TO POSTS BY SUITABLE PRESSED STEEL CONNECTIONS.

TRUSS RODS - SHALL BE 3/8" ROUND GALVANIZED STEEL RODS WITH GALVANIZED TURNBUCKLES. THE ZINC COATING SHALL NOT BE NOT LESS THAN 1.2 OUNCES PER SQUARE FOOT OF SURFACE.

TENSION WIRE - THE TENSION WIRE SHALL BE OF #7 GAUGE HOT DIP GALVANIZED SPRING TENSION WIRE WITH A BREAKING STRENGTH OF NOT LESS THAN 1900 LBS. THIS WIRE SHALL BE KEPT TAUT WITH GALVANIZED TURNBUCKLES AND ATTACHED TO POSTS WITH GALVANIZED HARDWARE OR CABLE CLAMPS.

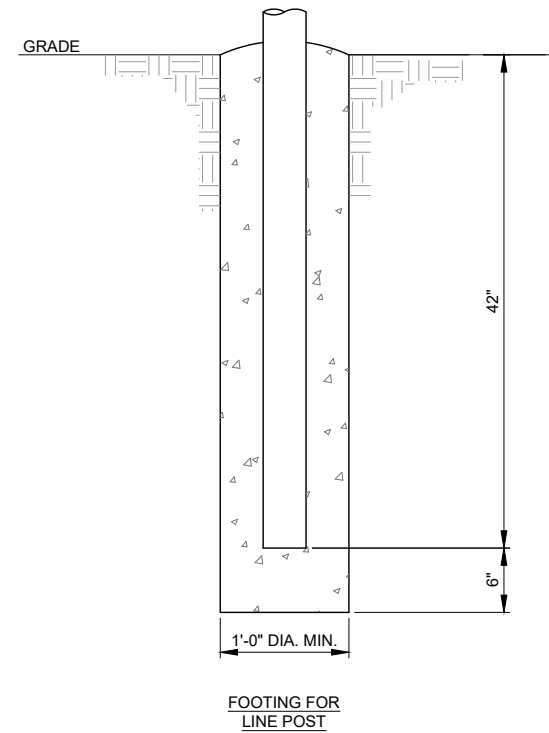
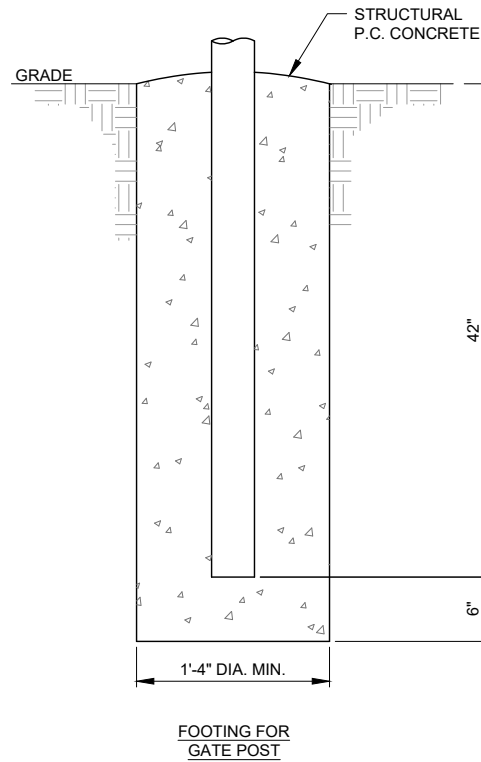
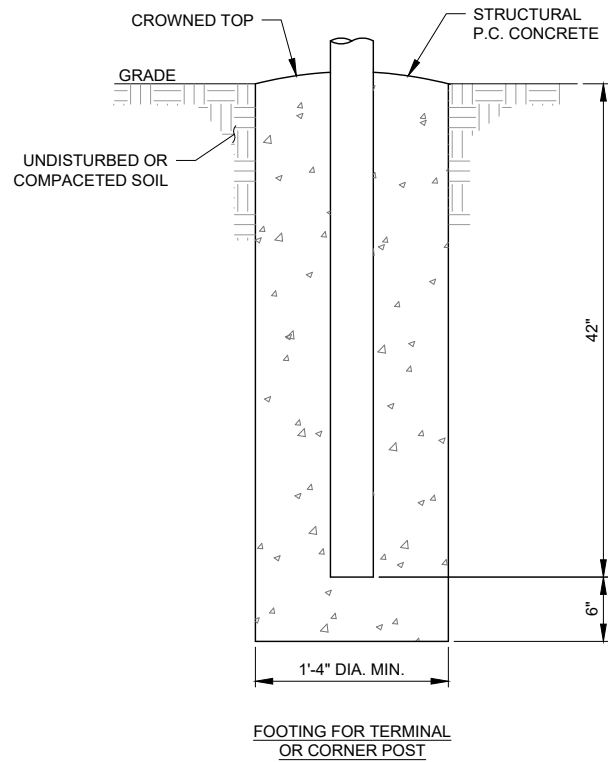
FABRIC TIES - THE FABRIC TIES SHALL BE ALUMINUM WIRE. NOT LESS THAN #9 GAGE.

STRETCHER BARS - THE STRETCHER BARS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 5/16" x 3/4" AND NOT LESS THAN 2" SHORTER THAN THE FABRIC. STRETCHER BAR BANDS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 5/16" x 1 1/2" WITH 5/16" DIAMETER GALVANIZED CARRIAGE BOLT.

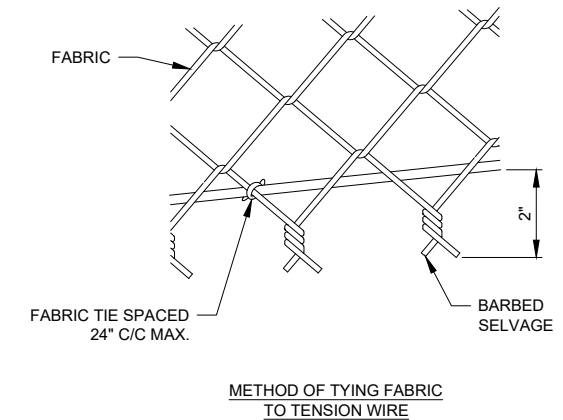
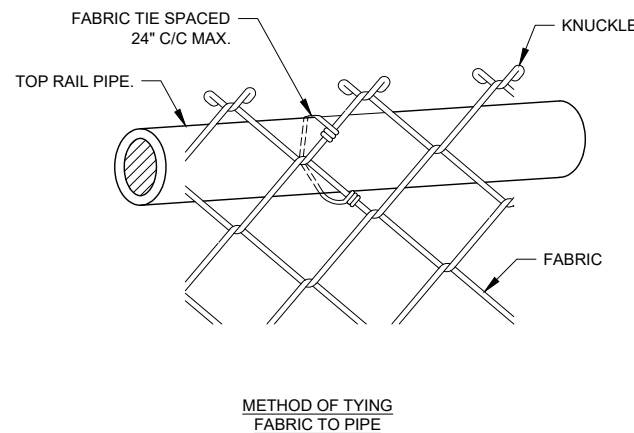
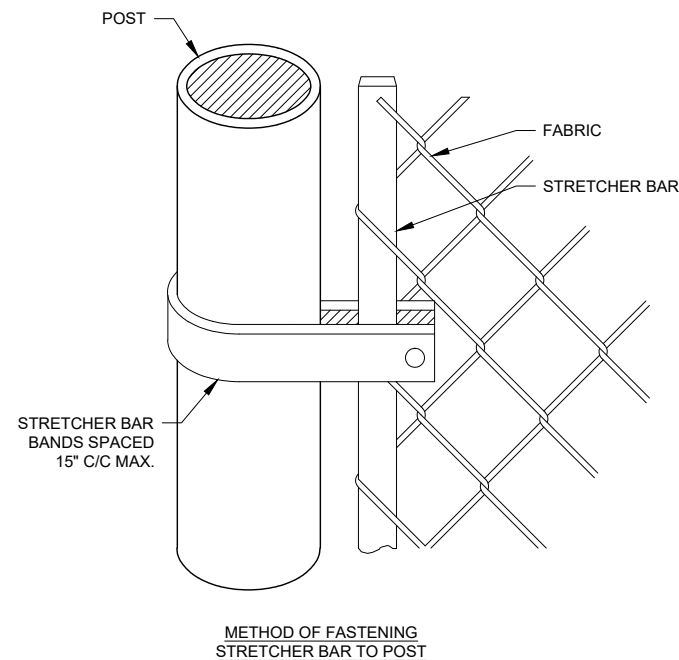
BARBED WIRE - BARBED WIRE OF GALVANIZED STEEL (OR ALUMINUM) CONSISTING OF 12 1/2 GAGE WIRE WITH 4-POINT BARBS OF 14 GAGE WIRE SPACED 5 INCHES APART.

GATE FRAMES SHALL BE CONSTRUCTED OF 2 1/2" OUTSIDE DIAMETER HEAVY DUTY GALVANIZED STEEL PIPE. THE GATES SHALL BE ASSEMBLED USING CORNER FITTINGS OF HEAVY PRESSED STEEL OR MALLEABLE CASTINGS OR MAY BE WELDED IF THE ENTIRE GATE FRAME IS HOT DIP GALVANIZED AFTER THE WELDING. ALL GATES SHALL BE EQUIPPED WITH HEAVY DUTY GALVANIZED STEEL TYPE HINGES WITH LARGE BEARING SURFACES OF ADEQUATE STRENGTH TO SUPPORT THE GATE. THE HINGES SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. GATES WILL PROVIDE A FULL RANGE OF MOTION AND BE EASILY OPENED AND CLOSED BY ONE PERSON. GATE LATCH SHALL BE CARGO PROTECTORS, INC MODEL FL-100. LATCH SHALL BE EQUIPPED TO RECIEVE A PADLOCK.

PROVIDE R.F. WARNING SIGNAGE ON ALL GATES.



1 POSTS FOOTINGS
SCALE: NTS



2 FABRIC / BAR CONNECTIONS
SCALE: NTS

PLANS PREPARED BY:



SEAL:

NO.	DESCRIPTION	DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR

NO.	DESCRIPTION	DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

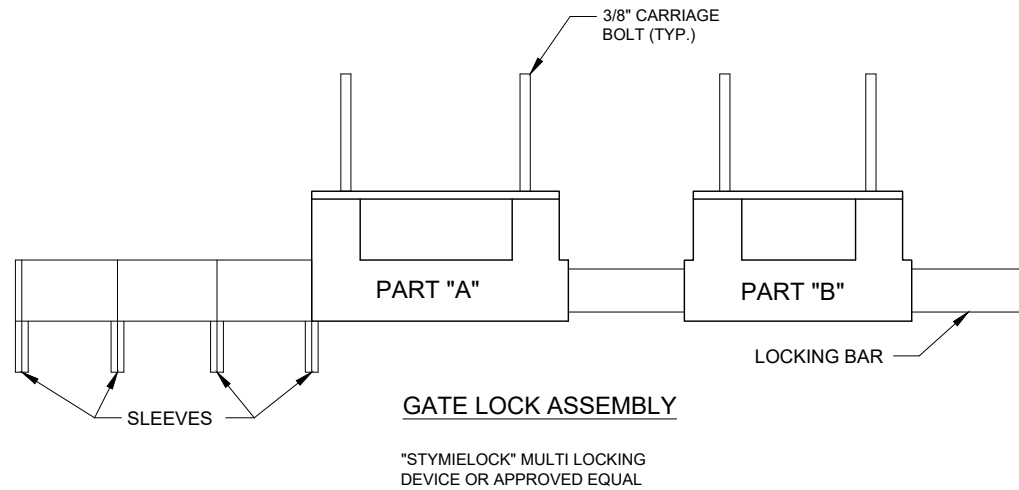
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
FENCE DETAILS

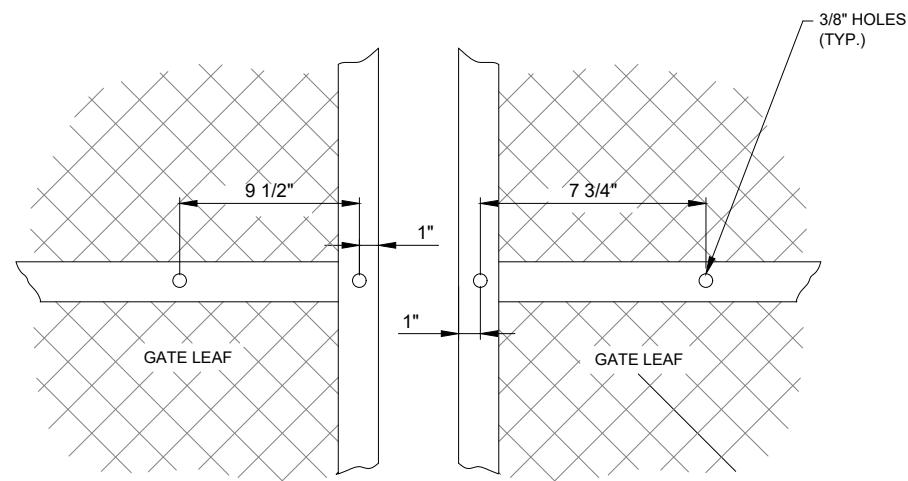
SHEET NUMBER
C-5

STYMILOCK INSTALLATION

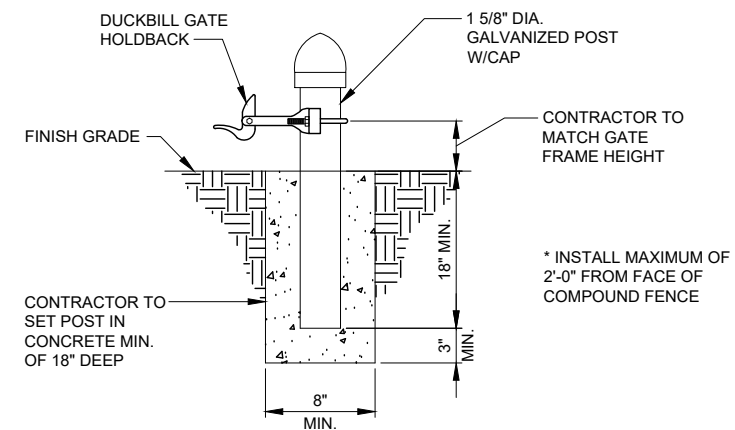
1. DRILL 3/8" HOLES IN THE GATE LEAF USING THE GATE DIMENSIONS PROVIDED.
2. SLIDE THE CARRIAGE BOLTS IN THE SLOTS ON THE BACK OF PART "B" AND PUSH THE BOLTS THROUGH THE HOLES DRILLED IN THE GATE FIGURE. PUT THE NUT AND THE LOCKNUT ON AND TIGHTEN AND CUT THE EXCESS BOLT OFF. DO THE SAME WITH PART "A".
3. ADD THE NUMBER OF SLEEVES NEEDED FOR THE NUMBER OF LOCKS AND SLIDE THE LOCKING BAR INTO PLACE THROUGH BOTH PART "A" AND PART "B". NOW INSTALL THE LOCKS.
4. IF THE GATE HAS NO CENTER BAR IN THE GATE LEAF YOU MAY NEED TO MOUNT THE STYMILOCK VERTICALLY USING THE SAME DIMENSIONS GIVEN ON THE GATE FACE.
5. VERTICAL APPLICATION MAY ALSO BE USED ON SLIDING GATES WITH MULTIPLE LOCKS.



2 GATELOCK ASSEMBLY DETAIL
SCALE: N.T.S.



1 GATE FACE - ACCOMODATING STYMILOCK
SCALE: N.T.S.



3 GATE KEEPER DETAIL
SCALE: N.T.S.

PLANS PREPARED BY:

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
			08/07/23	JJR
		ISSUED FOR REVIEW		

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

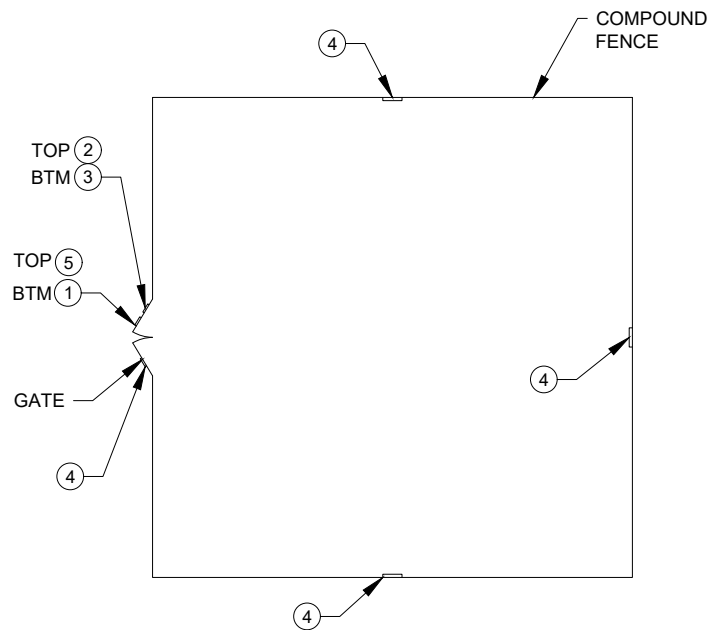
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
FENCE DETAILS

SHEET NUMBER

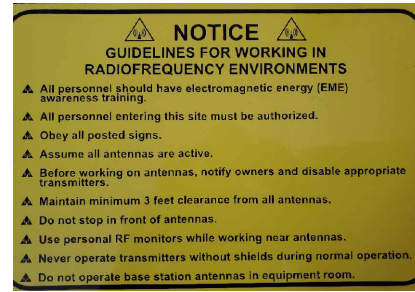
C-6

NOTE: SEE TYPICAL SIGNS AND SPECIFICATIONS DETAIL ON THIS SHEET FOR SIGN DESIGNATIONS.



NOTE: SEE TYPICAL SIGNS AND SPECIFICATIONS DETAIL ON THIS SHEET FOR SIGN DESIGNATIONS.

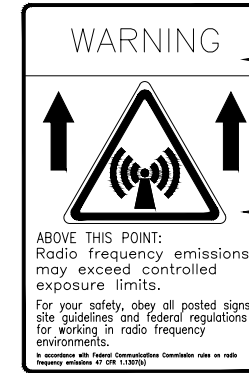
1 OVERALL SIGN PLACEMENT PLAN VIEW
N.T.S.



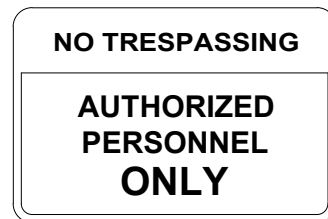
1 NOTICE - RF SIGN (BLUE)
12" x 18" DIGITAL PRINT MOUNTED TO 0.40 THICK ALUMINUM (OPERATIONS PROVIDED)



2 CAUTION - RF SIGN (YELLOW)
12" x 18" DIGITAL PRINT MOUNTED TO 0.40 THICK ALUMINUM (OPERATIONS PROVIDED)



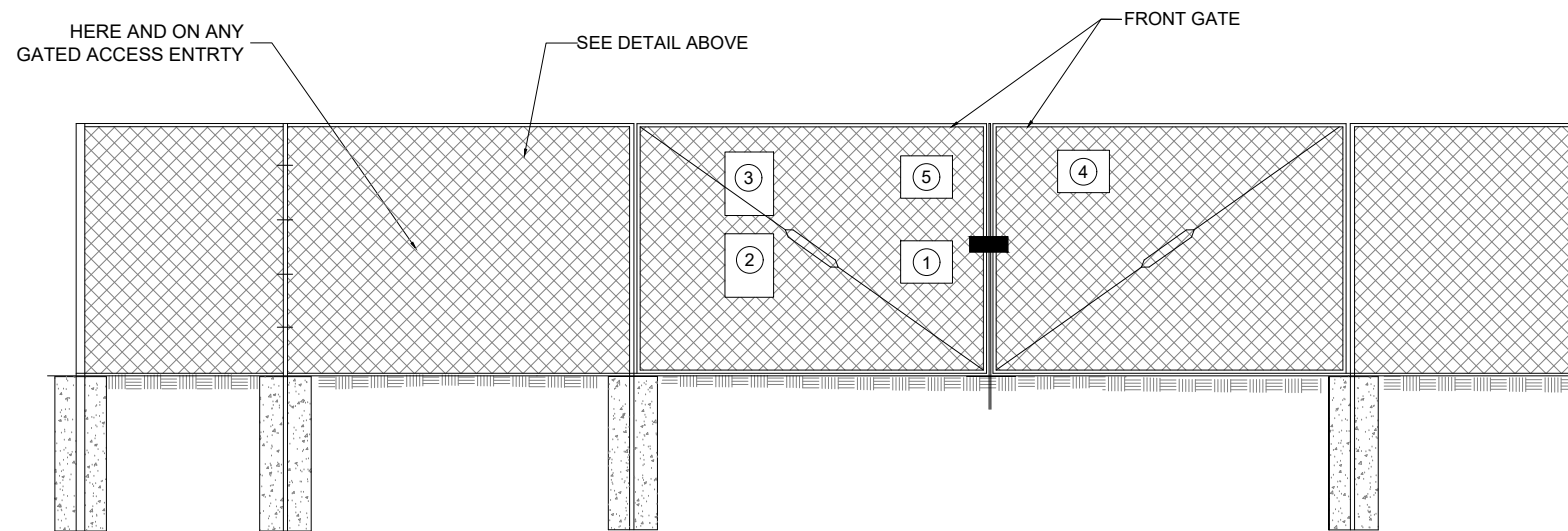
3 WARNING - RF SIGN (RED)
12" x 18" DIGITAL PRINT MOUNTED TO 0.40 THICK ALUMINUM (OPERATIONS PROVIDED)



4 NO-TRESSPASSING SIGN
12" x 18" DIGITAL PRINT MOUNTED TO 0.40 THICK ALUMINUM (OPERATIONS PROVIDED)



5 VERTICAL BRIDGE ID SIGN
18" HIGH X 24" WIDE (OPERATIONS PROVIDED)



SIGNAGE NOTES:
 1. SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL, AND PAINTED WITH LONG LASTING UV RESISTANT COATINGS.
 2. SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE, AND FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE, HOG RINGS (AS UTILIZED IN FENCE INSTALLATIONS) OR BRACKETS WHERE NECESSARY. BRACKETS SHALL BE OF SIMILAR METAL AS THE STRUCTURE TO AVOID GALVANIC CORROSION.

3 SITE SIGNAGE FRONT GATE VIEW
N.T.S.

verticalbridge
 750 PARK OF COMMERCE DRIVE
 SUITE 200
 BOCA RATON, FL 33487
 www.verticalbridge.com

PLANS PREPARED BY:
TERRA
 CONSULTING GROUP, LTD.
 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 PH: 847-698-6400
 FAX: 847-698-6401

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
		ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY: TJS
 CHECKED BY: TAZ
 DATE: 03/14/23
 PROJECT #: 107-056

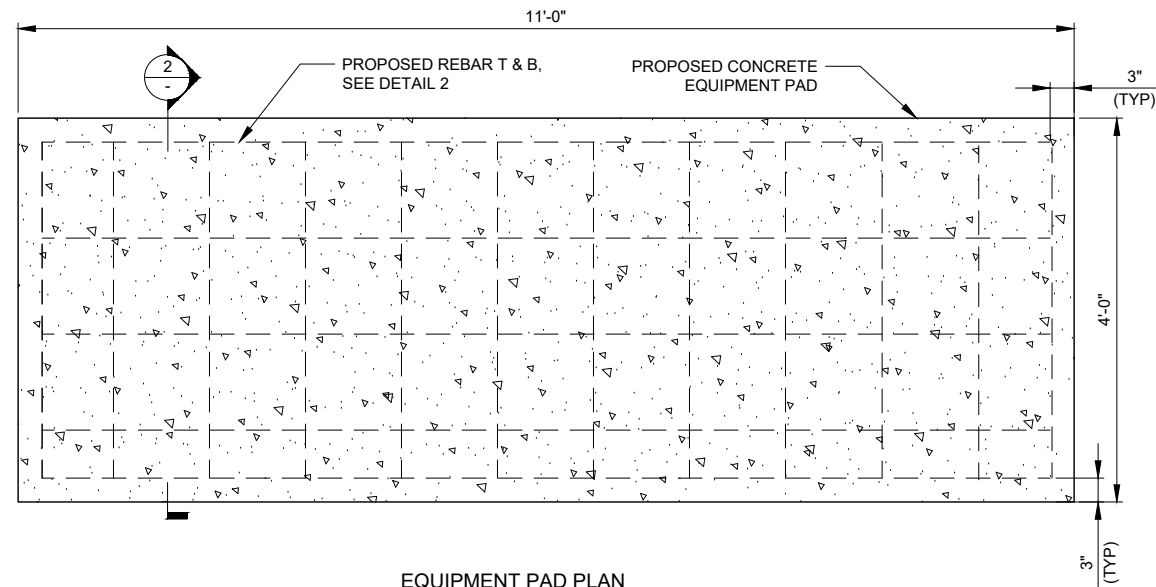
SHEET TITLE
SITE SIGNAGE DETAILS

SHEET NUMBER
C-7

PLANS PREPARED BY:



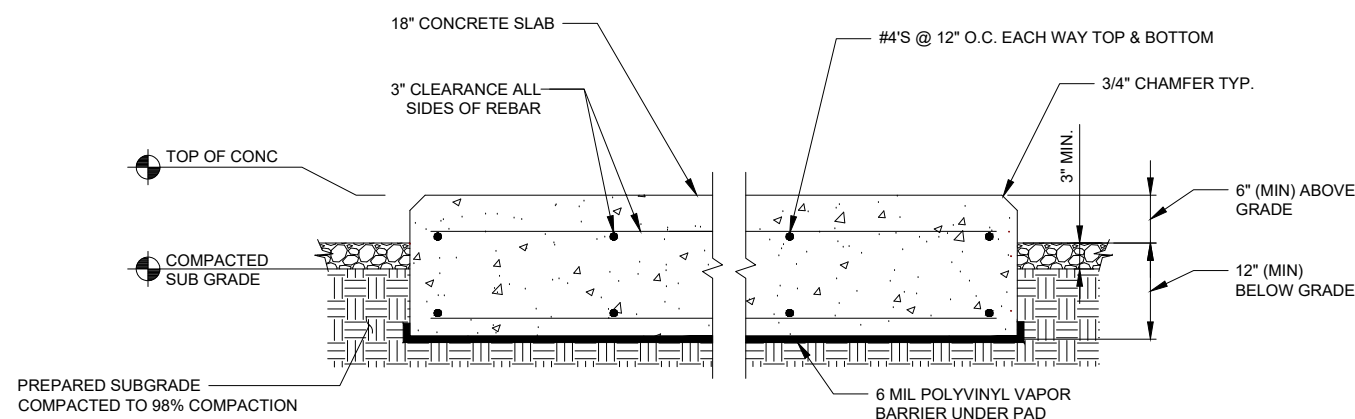
SEAL:



EQUIPMENT PAD PLAN

1 EQUIPMENT SLAB DETAIL
 SCALE: N.T.S.

NO.	REVISIONS	DESCRIPTION	DATE	BY
			ISSUED FOR REVIEW	JJR
			08/07/23	



NOTES:

1. SLAB TO BE LEVEL (±) 1/4".
2. FOUNDATION SHALL HAVE A MINIMUM 6" PROJECTION ABOVE GRADE.
3. CONCRETE STRENGTH SHALL BE A MINIMUM OF 4000 PSI @ 28 DAYS.

2 EQUIPMENT PAD DETAIL
 SCALE: N.T.S.

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
FOUNDATION DETAILS

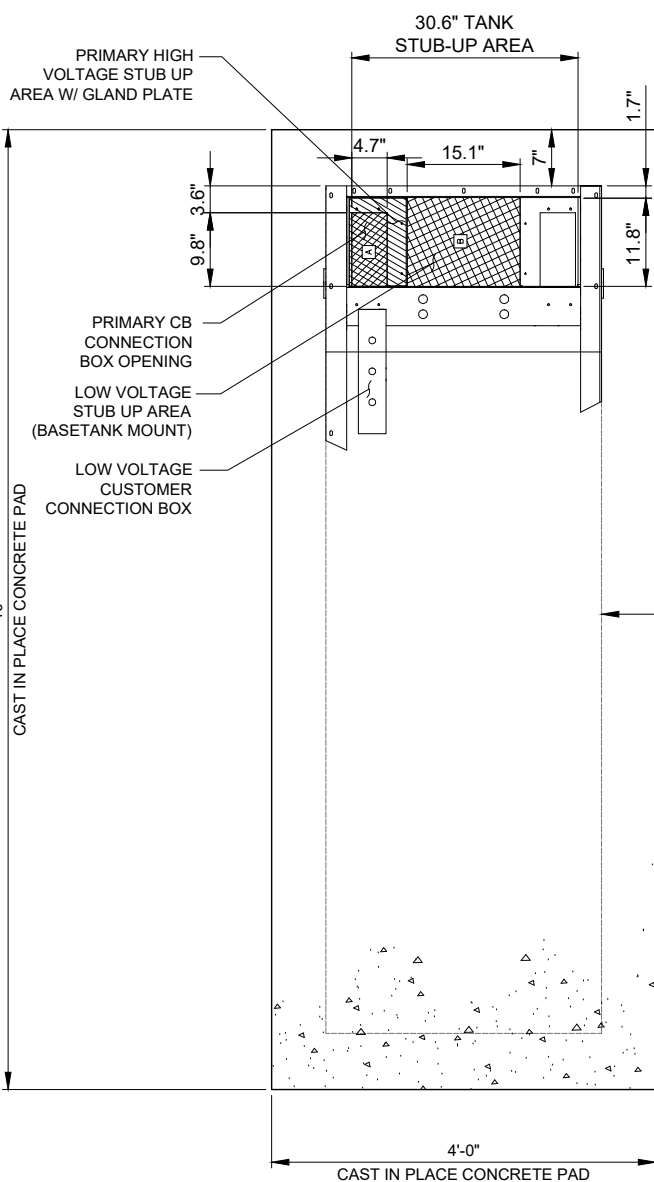
SHEET NUMBER

C-8

RECOMMENDED ELECTRICAL STUB-UPS
(SEE DETAILED VIEW & TOP VIEW)

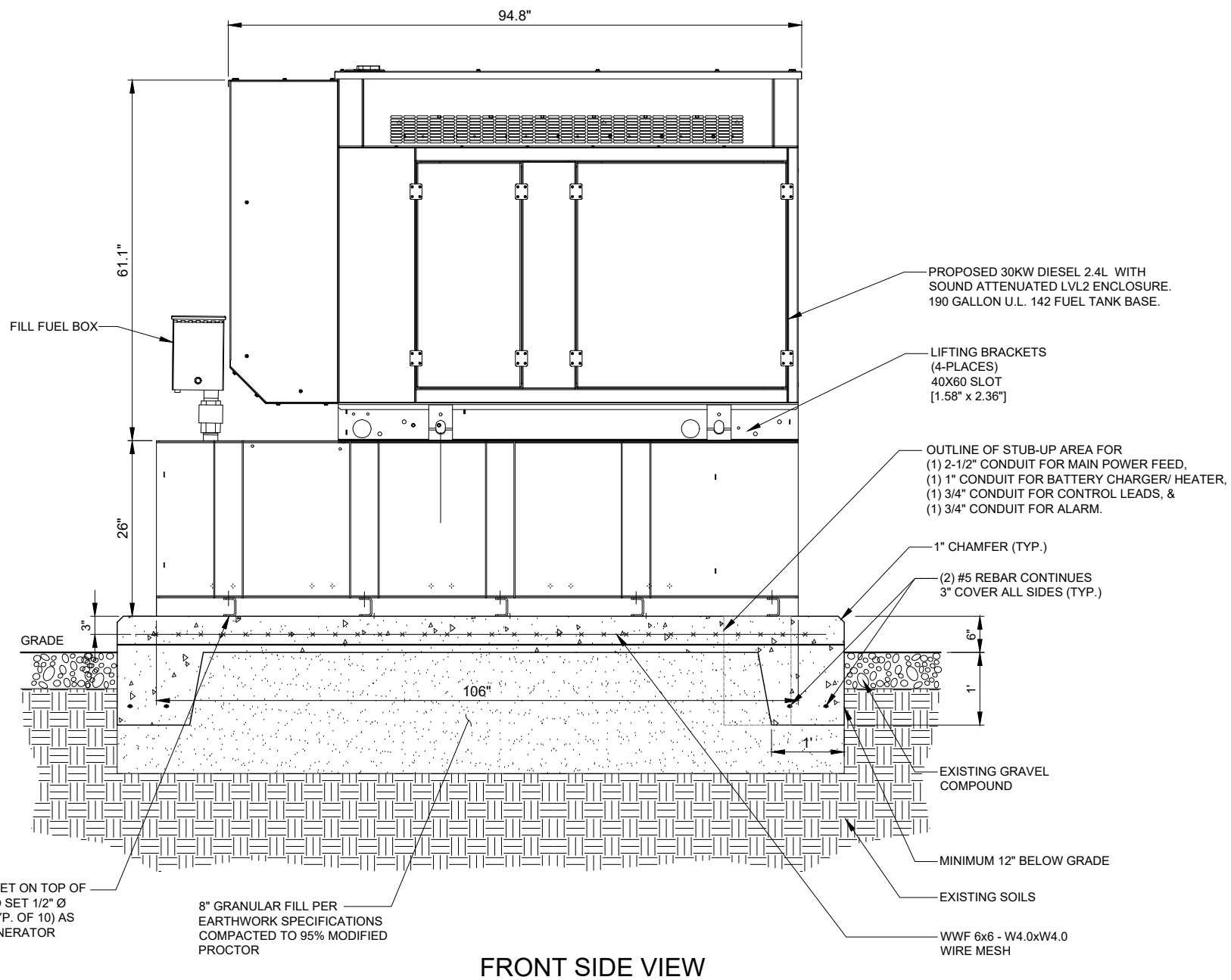
(LOW VOLTAGE STUB UP)
1. TRANSFER SWITCH/COMMUNICATIONS
CONDUITS, COMMUNICATIONS AND 2-WIRE START
MUST NOT BE RUN IN CONDUIT W/ AC WIRING.

(HIGH VOLTAGE STUB UP)
1. AC LOAD LEAD CONDUIT AREA.
2. 120/240 VAC FROM UTILITY FOR OPTIONAL LOADS
SUCH AS GFCI OUTLET, BLOCK HEATER, BATTERY
CHARGER, AND OTHER 120/240 VAC OPTIONS. (GLAND
PLATE INCLUDED)



PLAN VIEW

1 TYPICAL GENERAC FOUNDATION DETAIL
SCALE: 1" = 1'



FRONT SIDE VIEW

2 TYPICAL GENERAC FOUNDATION DETAIL
SCALE: 1" = 1'

NOTES:

- SEE GENERATOR MANUFACTURE'S DRAWINGS FOR PHYSICAL LOCATION OF FUEL LINES, CONTROL AND POWER INTERCONNECTIONS AND OTHER INTERFACES THAT ARE TO CAST INTO THE CONCRETE. THE PREFERRED METHOD IS TO BRING THE CONDUIT THROUGH THE PAD TO THE UNDERSIDE OF THE GENERATOR (MINIMIZES RODENT DAMAGE). FINISH CONNECTIONS WITH FLEXIBLE CONDUIT PER GENERATOR MANUFACTURES SPECS. RIGID CONDUITS SHALL BE SECURED TO THE EXISTING SLAB, THEN BURIED BETWEEN SLAB AND SHELTER.
- THE GENERATOR SHALL BE LOCATED A MIN 5' AWAY FROM A COMBUSTIBLE WALL.
-THE GENERATOR SHALL BE LOCATED A MIN OF 3' AWAY FROM A NON-COMBUSTIBLE WALL.



PLANS PREPARED BY:



SEAL:

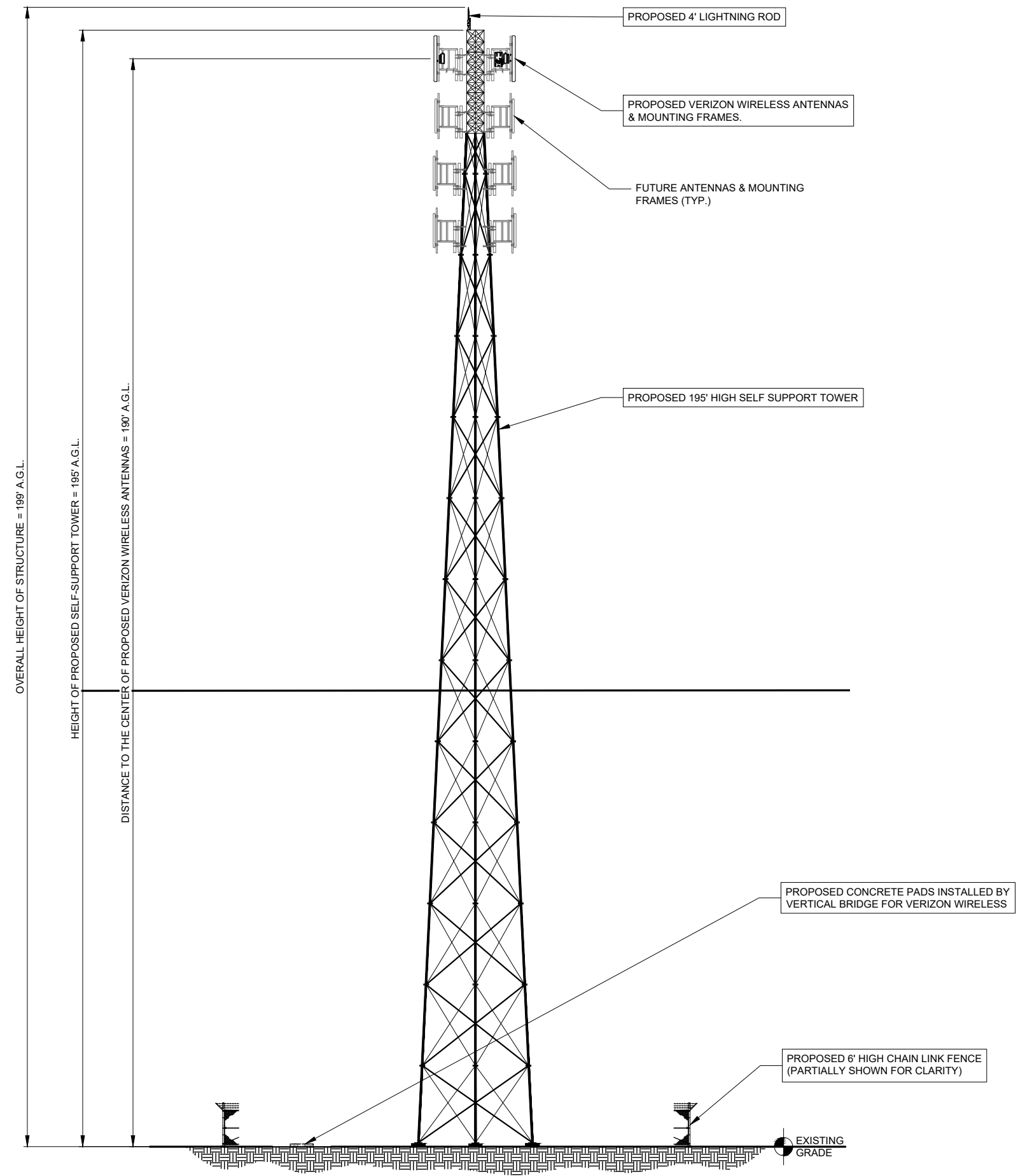
NO.	DESCRIPTION	DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
GENERATOR
FOUNDATION DETAILS

SHEET NUMBER
C-9



1 NORTHWEST ELEVATION
SCALE: 3/16" = 1'-0"

NOTES

1. TERRA CONSULTING GROUP'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL EVALUATION OF THIS TOWER OR STRUCTURE. NEW ANTENNAS AND EQUIPMENT SHOWN ON THIS PLAN HAVE NOT BEEN EVALUATED TO VERIFY THE TOWER OR STRUCTURE HAS THE CAPACITY TO ADEQUATELY SUPPORT THESE ANTENNAS. PRIOR TO ANY ANTENNA OR EQUIPMENT INSTALLATION, A STRUCTURAL EVALUATION OF THE TOWER OR STRUCTURE, INCLUDING ALL ANTENNA MOUNTING SYSTEMS & HARDWARE SHOULD BE PERFORMED.

verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

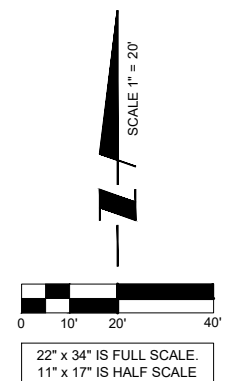
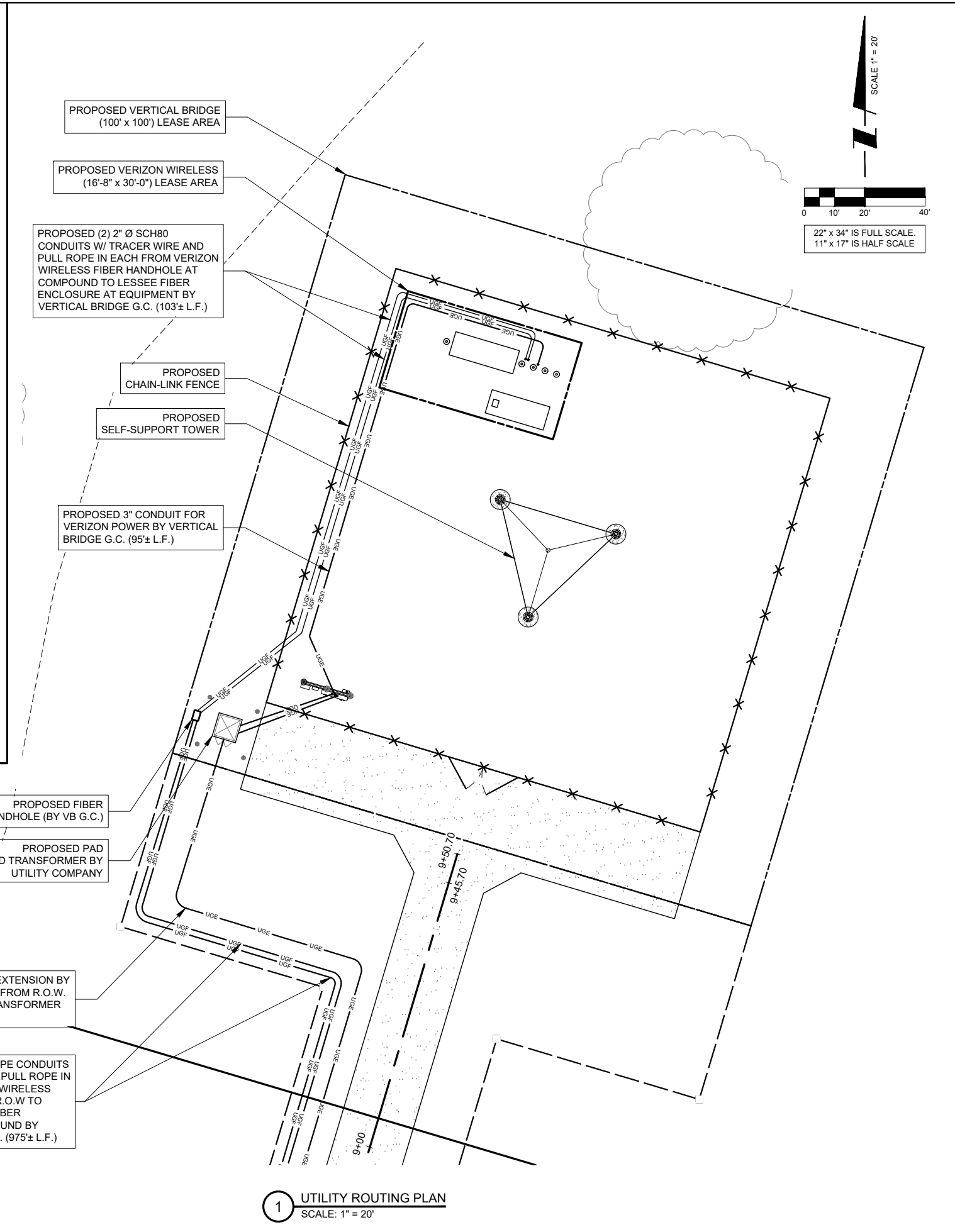
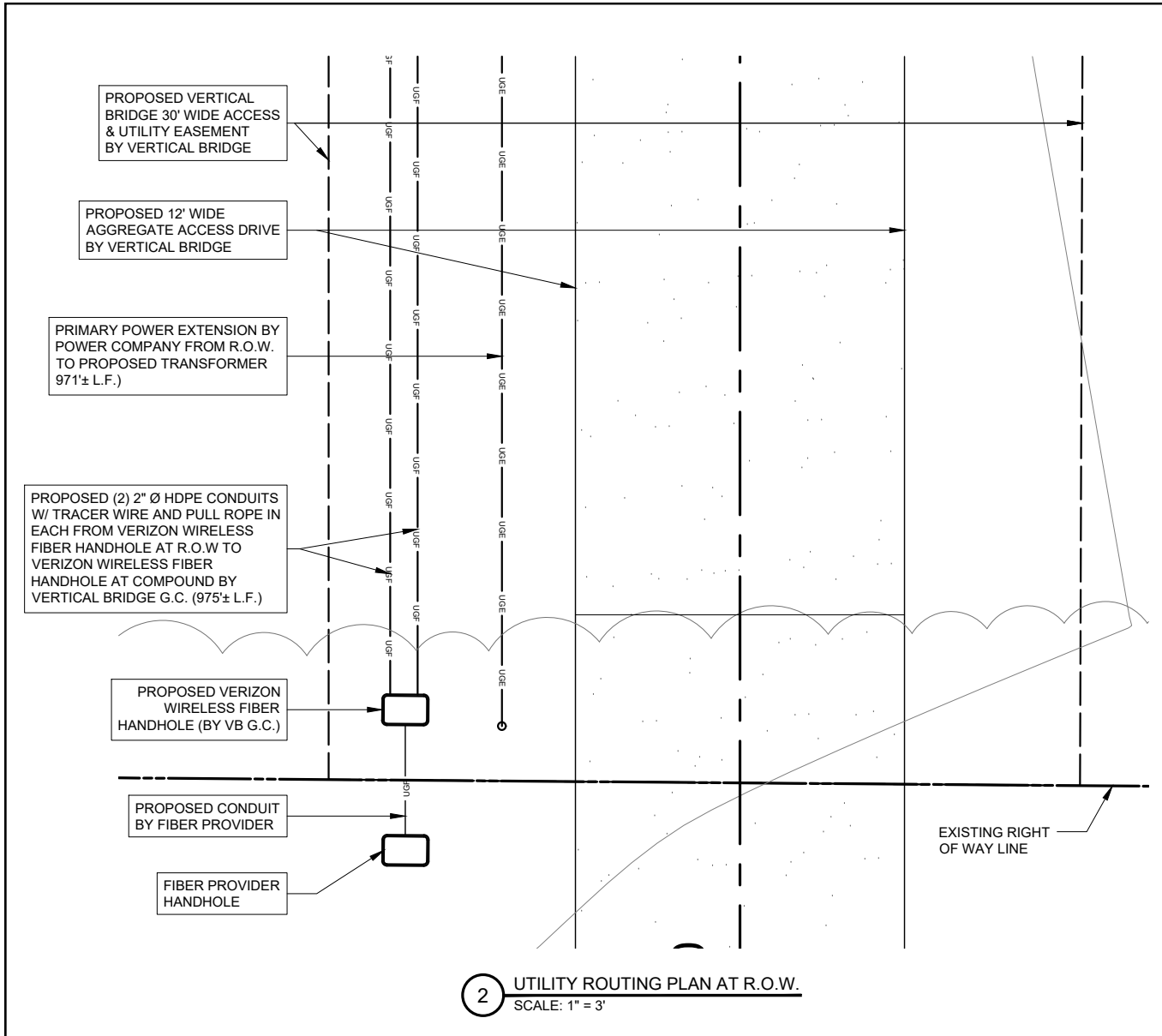
NO.	DESCRIPTION	DATE	BY	
			DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY: TJS
CHECKED BY: TAZ
DATE: 03/14/23
PROJECT #: 107-056

SHEET TITLE
SITE ELEVATION

SHEET NUMBER
ANT-1



COORDINATION WITH UTILITY COMPANY

THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANIES FOR A COMPLETE OPERATIONS SYSTEM, INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS

CONDUITS AND WIRING

1. WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE, OR AS APPROVED BY THE ENGINEER.
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE COPPER (CU) TYPE THWN, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
3. RACEWAYS SHALL BE GALVANIZED STEEL, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, UNLESS OTHERWISE NOTED. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION.
4. PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE INSTALLATION OF RACEWAYS AND WIRING.
5. PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.

CODES AND STANDARDS

- ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
- NEC NATIONAL ELECTRICAL CODE, LATEST ADOPTED EDITION
- NEMANATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
- NFPA NATIONAL FIRE PROTECTION ASSOCIATION
- UL UNDERWRITERS LABORATORIES, INC.

UTILITY PROVIDE INFORMATION

POWER COMPANY: COMPANY NAME
CONTACT: CONTACT NAME
PHONE: (XXX) XXX-XXXX



SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
UTILITY ROUTING PLAN

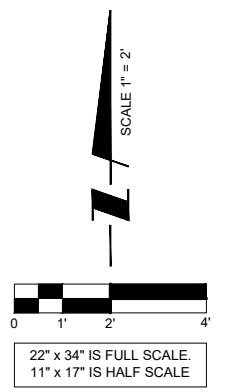
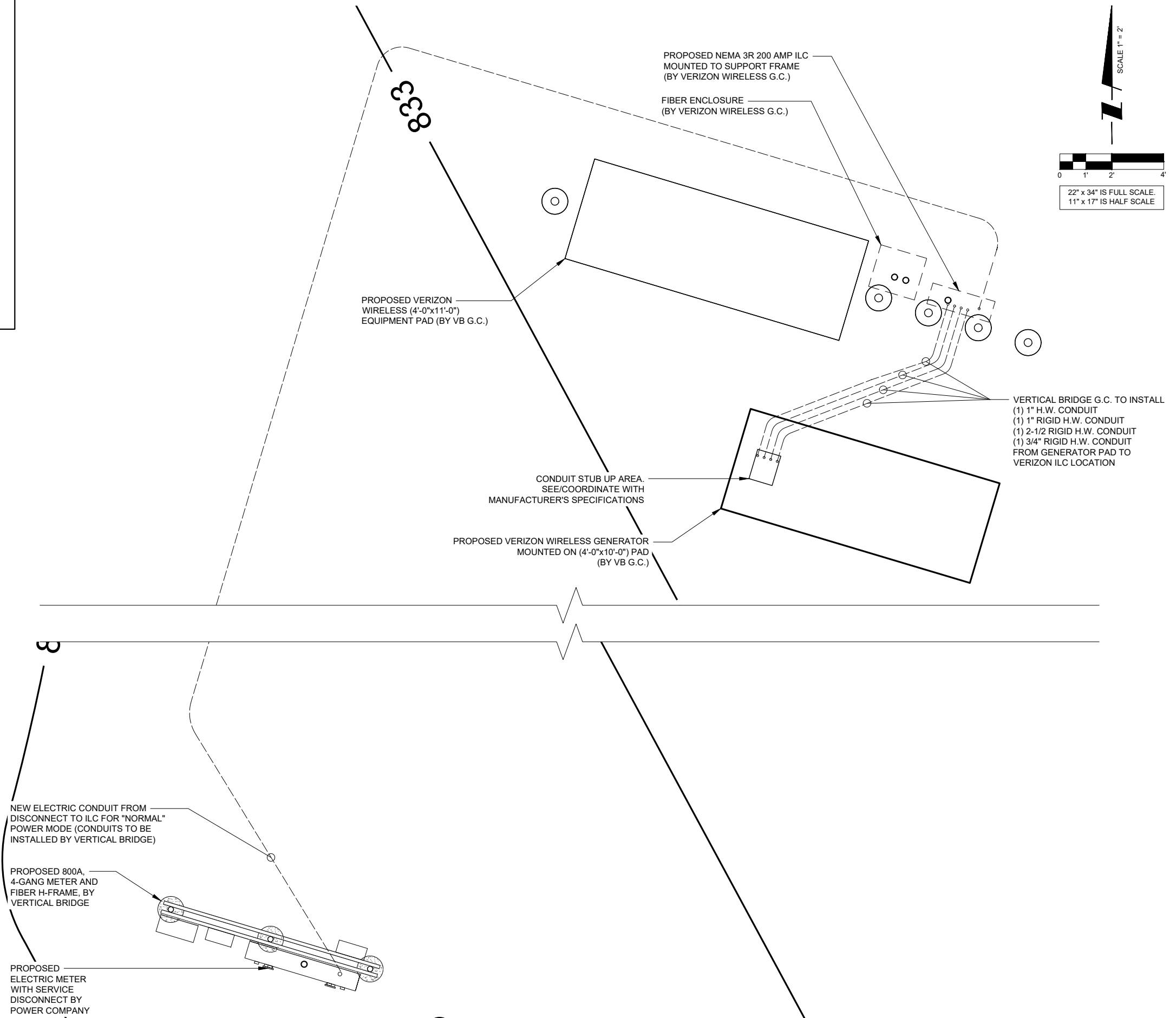
SHEET NUMBER
E-1

NOTES:

- 1) SEE DETAILS ON EXISTING GROUND GRID AND GENERATOR GROUND GRID FOR REQUIRED GROUNDING SYSTEM.
- 2) NEW AUTOMATIC TRANSFER SWITCH, INSTALLED AND WIRED BY E.C. CONNECT EXTERNAL GROUND LUG AND GROUNDING CONDUCTOR THAT WAS REMOVED FROM MANUAL TRANSFER SWITCH.
- 3) E.C. MUST LOCATE GROUND GRID INSTALLED FOR NEW EQUIPMENT PAD & PROVIDE THE ATTACHMENT OF THE GENERATOR GROUND TO THE EQUIPMENT GRID FOR SINGLE POINT GROUNDING.
- 4) E.C. TO EXTEND #2 TINNED SOLID COPPER GROUND CONDUCTORS FROM (2) LOCATIONS ON GENERATOR FRAME (SEE MANUFACTURERS RECOMMENDATIONS) PROVIDE GROUND LUGS ON GENERATOR AS REQUIRED. EXTEND #1/0 STRANDED GROUND CONDUCTOR AND CONNECT TO COPPER CLAD GROUND RODS VIA HEAVY DUTY EXOTHERMIC TERMINATIONS AND THEN EXTENDED AND ATTACH TO BUILDING GROUND GRID VIA EXOTHERMIC TERMINATIONS.
- 5) NEW GENERATOR FURNISHED BY LESSEE. INSTALLED AND WIRED BY E.C. DELIVERED AND SET BY CONTRACTOR.
- 6) E.C. MUST MONITOR DC POWER WHEN ON BATTERY BACK-UP DURING PORTIONS OF CONSTRUCTION. IF LEVEL FALLS BELOW RECOMMENDED LEVEL 2256 DC, E.C. MUST TURN ON THE MAIN POWER. THE CELL SITE CANNOT GO OFF LINE AT ANYTIME.



NOTE:
CONTRACTOR TO VERIFY ROUTES WITH LOCAL UTILITY COMPANY PRIOR TO INSTALLATION.



1 GENERATOR UTILITY ROUTING PLAN
SCALE: 1" = 2'

verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

NO.	DESCRIPTION	DATE	BY	
			DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
**GENERATOR
UTILITY ROUTING PLAN**

SHEET NUMBER
E-1A

KEYED NOTES

- | KEY | DESCRIPTION |
|-----|--|
| 1 | SYSTEM GROUND RESISTANCE SHALL NOT EXCEED 10 OHMS. A THREE POINT SYSTEM RESISTANCE TEST SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH VERTICAL BRIDGE SPECIFICATIONS. |
| A. | PERFORM THREE TESTS AT EACH SITE. |
| B. | CONTRACTOR SHALL PROVIDE A WRITTEN REPORT CONSISTING OF THE FOLLOWING: SITE NAME, ADDRESS AND IDENTIFICATION NUMBER, DESCRIPTION OF SITE SOIL AND MOISTURE CONDITION, DESCRIPTION OF WEATHER, MODEL NUMBER OF TESTING EQUIPMENT, DATE OF LAST CALIBRATION, SITE SKETCH SHOWING LOCATION OF TEST PROBES AND ALL FIELD DATA COLLECTED (READINGS, RANGE, TEST, MILLIAMPS, ETC.) |
| C. | CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IF THERE ARE ANY DIFFICULTIES PERFORMING SYSTEM RESISTANCE TESTS OR IF MEASUREMENTS ARE ABOVE 10 OHMS. THE CONSTRUCTION MANAGER SHALL PROVIDE INSTRUCTION TO THE CONTRACTOR TO INSTALL ADDITIONAL GROUNDING MEASURES TO MEET THE 10 OHM REQUIREMENT. |
| 2 | PROPOSED TOWER GROUND RING BURIED TO A DEPTH OF 30" OR 6" BELOW THE FROST LINE, WHICHEVER IS GREATER. |
| 3 | BOND PROPOSED TOWER TO TOWER GROUND RING (3 PLACES TOTAL). |
| 4 | SERVICE ENTRANCE GROUND ROD. |
| 5 | BOND GROUND RING(S) TO SITE CORNER POST (TYP. x 4). |
| 6 | BOND GATE POST TO PROPOSED GROUND RING (TYP. x 2). |
| 7 | BOND FLEXIBLE JUMPER TO GATE (TYP. x 2). |
| 8 | BOND PROPOSED H-FRAME TO GROUND RING (TYP. x 8). |

EXTERIOR GROUNDING NOTES:

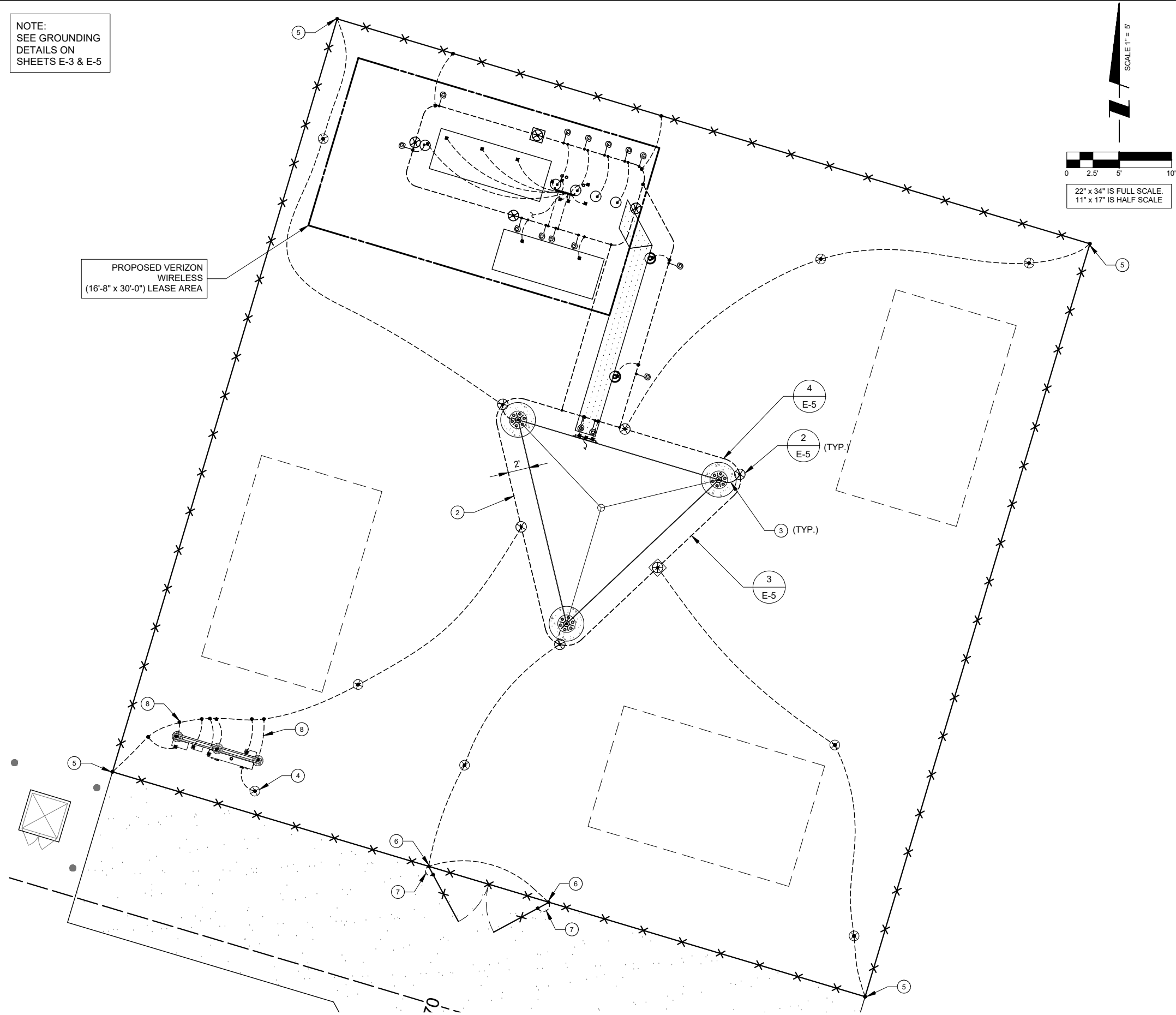
- GROUNDING SHALL CONFORM WITH VERTICAL BRIDGE STANDARDS AND PER FEDERAL, STATE AND LOCAL CODES. IN THE EVENT OF A CONFLICT, MEET THE MOST STRINGENT REQUIREMENT.
- GROUND RODS PAST METER SHALL BE COPPER CLAD STEEL 5/8 INCH DIAMETER X 10 FEET IN LENGTH (MIN.)
- ALL GROUND CONDUCTORS PAST METER SHALL BE #2 AWG SOLID BARE TINNED COPPER. MINIMUM BEND RADIUS FOR CONDUCTOR SHALL BE 8 INCHES.
- GROUND RODS SHALL BE SPACED NOT MORE THAN 16'-0" AND NOT LESS THAN 6'-0" APART EXCEPT FOR THE TOWER GROUND RING WHICH SHALL COMPLY WITH TIA/EIA 222 (REV G).
- CONTRACTOR SHALL ADD ADDITIONAL RODS AND CONDUCTORS OR APPROVED GROUND ENHANCING MATERIAL TO ACHIEVE LESS THAN 10 OHMS RESISTANCE TO GROUND.
- MAINTAIN 2'-0" (TOWER) AND 3'-0" (SHELTER) BETWEEN GROUND RINGS AND FOUNDATIONS.
- ALL GROUNDING INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY ANY JURISDICTION HAVING INSPECTION & APPROVAL AUTHORITY (IF REQUIRED) AND VERTICAL BRIDGE BEFORE PLACING ANY BACKFILL.
- ALL GROUNDING SPLICES AND CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS (CADWELD OR EQUIVALENT), COAT ALL WELDS WITH A ZINC RICH PAINT.

THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING THE SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED.

SYMBOLS LEGEND

- | | | | |
|--|------------------------|--|-----------------------|
| | GROUND ROD WITH ACCESS | | MECHANICAL CONNECTION |
| | GROUND ROD | | GROUND BAR |
| | EXOTHERMIC CONNECTION | | GROUND WIRE |

NOTE:
SEE GROUNDING
DETAILS ON
SHEETS E-3 & E-5



1 SITE GROUNDING PLAN
SCALE: 1" = 5'-0"

SEAL:

NO.	REVISIONS	DESCRIPTION	BY	DATE
			JJR	08/07/23
		ISSUED FOR REVIEW		

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
**SITE
GROUNDING & NOTES**

SHEET NUMBER
E-2

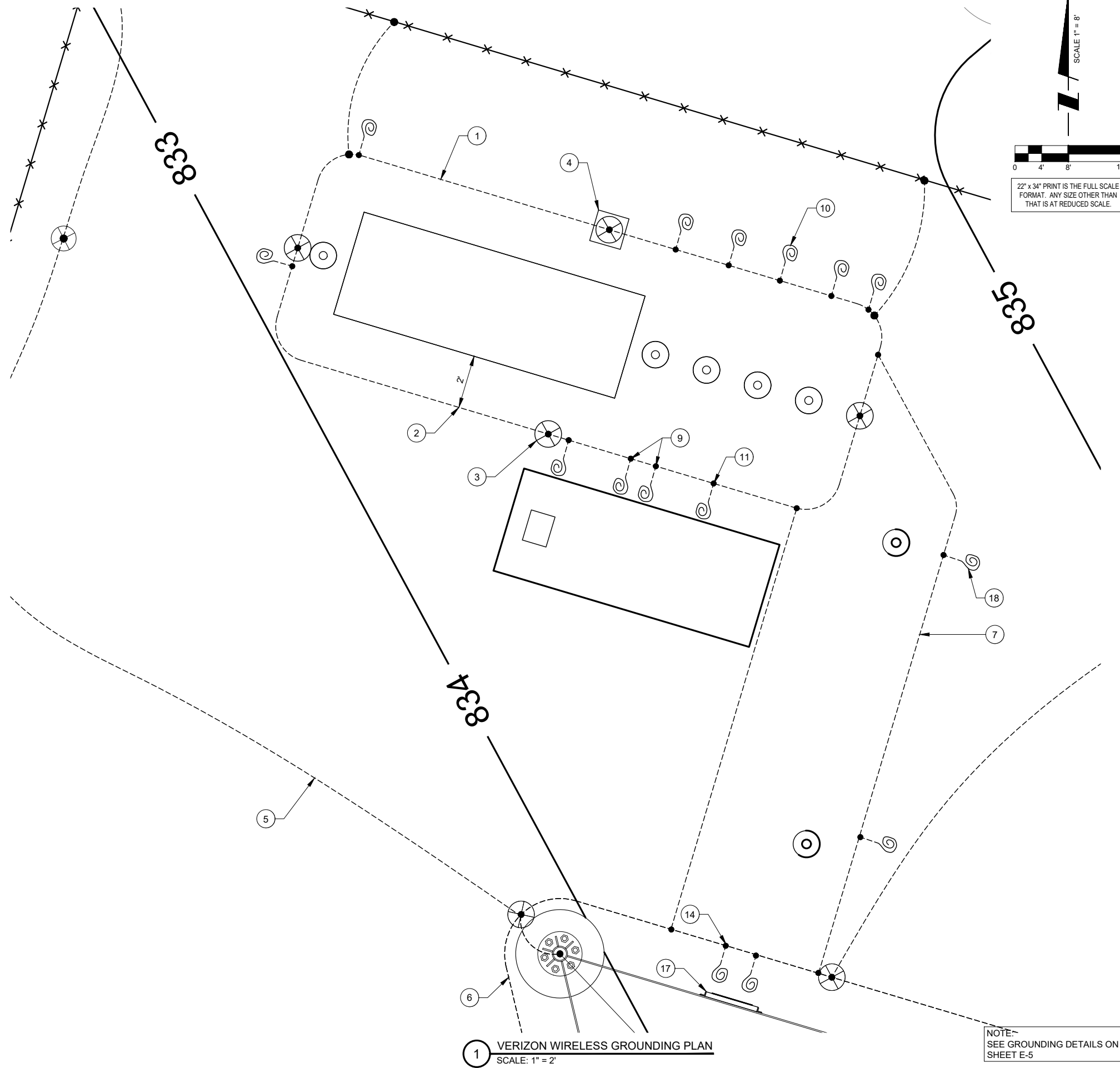
TYPICAL KEYED GROUNDING NOTES (—)

- ① #2 AWG TNN D SOLID BARE COPPER CONDUCTOR 42" BELOW GRADE (TYPICAL) MINIMUM 24" BENDING RADIUS (BY VERTICAL BRIDGE)
- ② MAINTAIN TWO FOOT DISTANCE OFF OF STRUCTURES. (BY VERTICAL BRIDGE)
- ③ 5/8" x 10' COPPER CLAD GROUND ROD (BY VERTICAL BRIDGE)
- ④ 5/8"Ø 10' LONG COPPERCLAD GROUND ROD WITH INSPECTION WELL, TOP OF GROUND ROD MAX 24" BURY (BY VERTICAL BRIDGE)
- ⑤ PROPOSED COMPOUND GROUND RING (BY VERTICAL BRIDGE)
- ⑥ PROPOSED TOWER GROUND RING (BY VERTICAL BRIDGE)
- ⑦ BOND TOWER GROUND RING TO PROPOSED PLATFORM/ PAD GROUND RING WITH #2 AWG TNN D SOLID COPPER CONDUCTOR IN 2 LOCATIONS. (BY VERTICAL BRIDGE)
- ⑧ PROVIDE AN EXTERNAL #2 TNN COATED GROUND LEAD FROM GROUND RING TO ALL METAL CABINETS ON UTILITY BACKBOARD (TELCO,ELECTRIC,BREAKER PANELS, METER RACKS, JUNCTION BOXES, ETC.) SLEEVED IN CONDUIT FROM JUST BELOW GRADE TO SAND CABINETS USING BURNDY TYPE 2 LONG BARREL LUGS WITH NO-OK OR COPPER SHIELD (BY VERTICAL BRIDGE)
- ⑨ TWO #2 LEADS FROM THE EGR TO THE GROUND BAR AT UTILITY FRAME LOCATED ON PLATFORM/PAD STEEL. CADWELDED AT EGR AND DOUBLE HOLE LUGS ON PLATFORM/PAD. (BY VERTICAL BRIDGE)
- ⑩ # 2 LEADS FROM THE EGR TO PLATFORM/ PAD CORNER POST, STEEL COLUMN, STEEL BEAM, ICE BRIDGE POST & CANOPY GROUND (BY VERTICALBRIDGE)
- ⑪ EXTEND GROUND CONDUCTORS IN 1/2" RIGID H.W. CONDUIT ADJACENT TO PAD, OFFSET AND ATTACH TO EXTERIOR OF GENERATOR HOUSING AND EXTEND TO GROUND LUGS AS REQUIRED, VERIFY LOCATION WITH GENERAC. (BY VERTICAL BRIDGE)
- ⑫ VZW DISCONNECT AND ELECTRIC SERVICE GROUND TO GROUND ROD (BY VERTICAL BRIDGE)
- ⑬ GROUND CHAIN LINK FENCE (TYPICAL) EXOTHERMIC CONNECTION. GROUND FENCE POST WITHIN 6 FEET OF EQUIPMENT (BY VERTICAL BRIDGE)
- ⑭ EXOTHERMICALLY WELD COPPER GROUND BAR TAIL TO HALO GROUND RING (EXOTHERMIC CONNECTION TYPE TA) BY ANTENNA CONTRACTOR. FINAL CONNECTION (BY VERIZON WIRELESS G.C.)
- ⑮ CABINET GROUND BOLTED TO UNIT HOUSING (BY VERIZON WIRELESS G.C.)
- ⑯ GROUND COAXIAL ANTENNA CABLES TO GROUND BAR BY ANTENNA CONTRACTOR TERMINATE CABLES 1'-0" FROM PLATFORM AND INSTALL LIGHTNING SURGE ARRESTORS ON EACH CABLE GROUND. (BY VERIZON WIRELESS G.C.)
- ⑰ 4"X20"X1/4" TNN D INSULATED COPPER GROUND BAR, NON ISOLATED WITH 10.0' LONG #2 AWG TNN D SOLID COPPER WIRE WELDED TAILS (HARGER GBIT 14420VW) (BY VERIZON WIRELESS G.C.)
- ⑱ GROUND CABLE WAVEGUIDE BRIDGE (TYP.) (BY VERIZON WIRELESS)
- ⑲ MGB MOUNTED UNDER PERIMETER BEAM OR ANGLE RAILS (BY VERIZON WIRELESS)
- ⑳ ALL GROUNDING CONNECTIONS TO VERIZON WIRELESS EQUIPMENT BY VERIZON WIRELESS G.C.

THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING THE SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED.

SYMBOLS LEGEND

- | | | | |
|--|------------------------|--|----------------------------|
| | GROUND ROD WITH ACCESS | | MECHANICAL CONNECTION |
| | GROUND ROD | | GROUND BAR |
| | EXOTHERMIC CONNECTION | | VERTICAL BRIDGE GROUNDING |
| | SPARE GROUND LEAD | | VERIZON GROUNDING |
| | | | GROUND BAR OR ARRESTOR BAR |



SEAL:

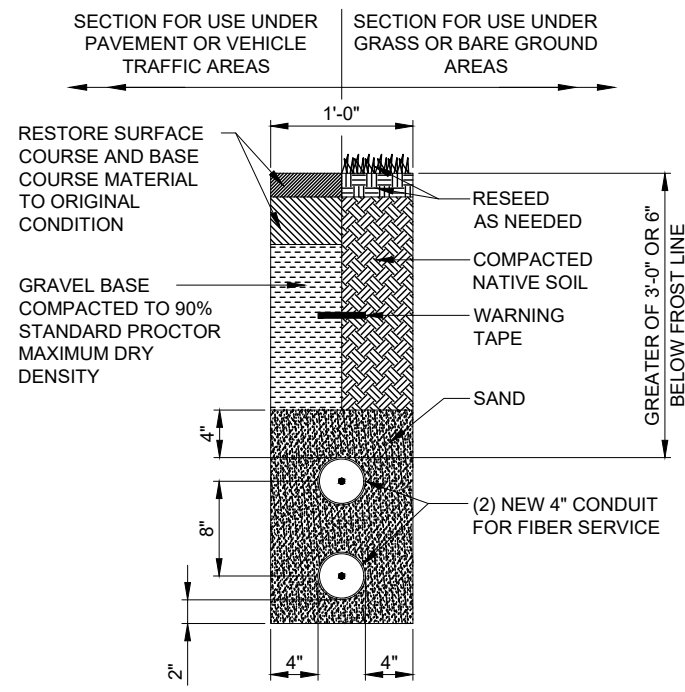
NO.	REVISIONS	DESCRIPTION	DATE	BY
			ISSUED FOR REVIEW	JJR
			08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

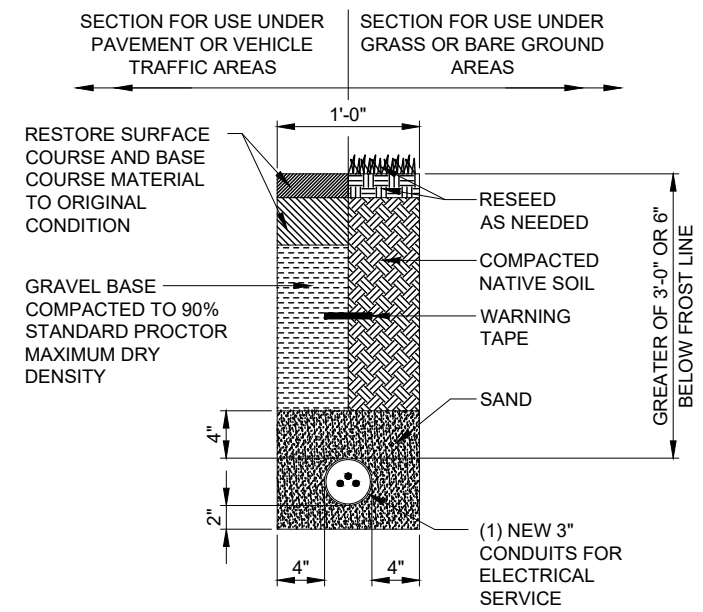
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE GROUNDING NOTES

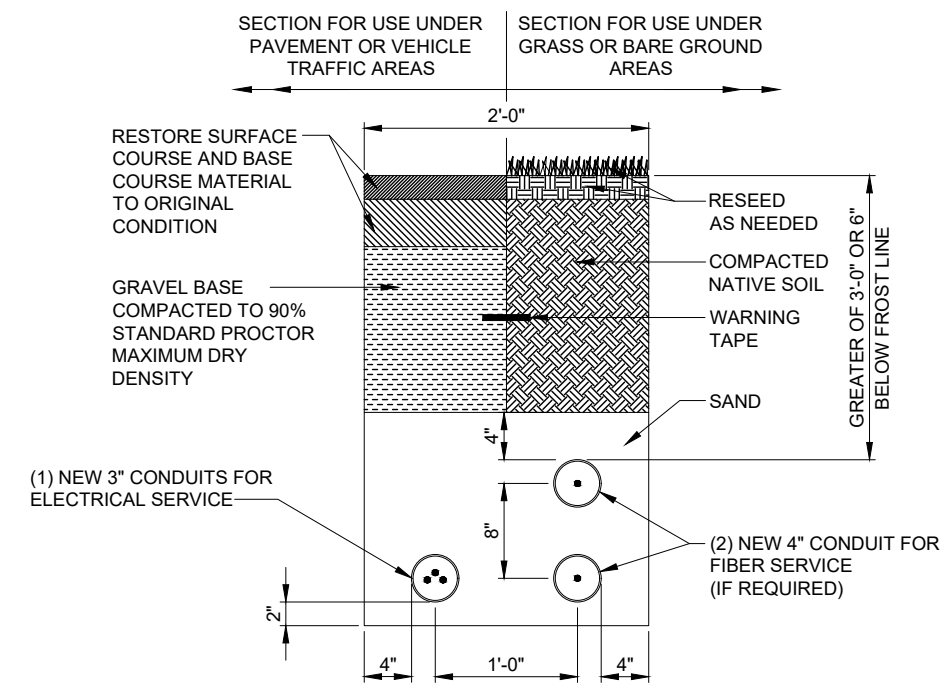
SHEET NUMBER
E-2A



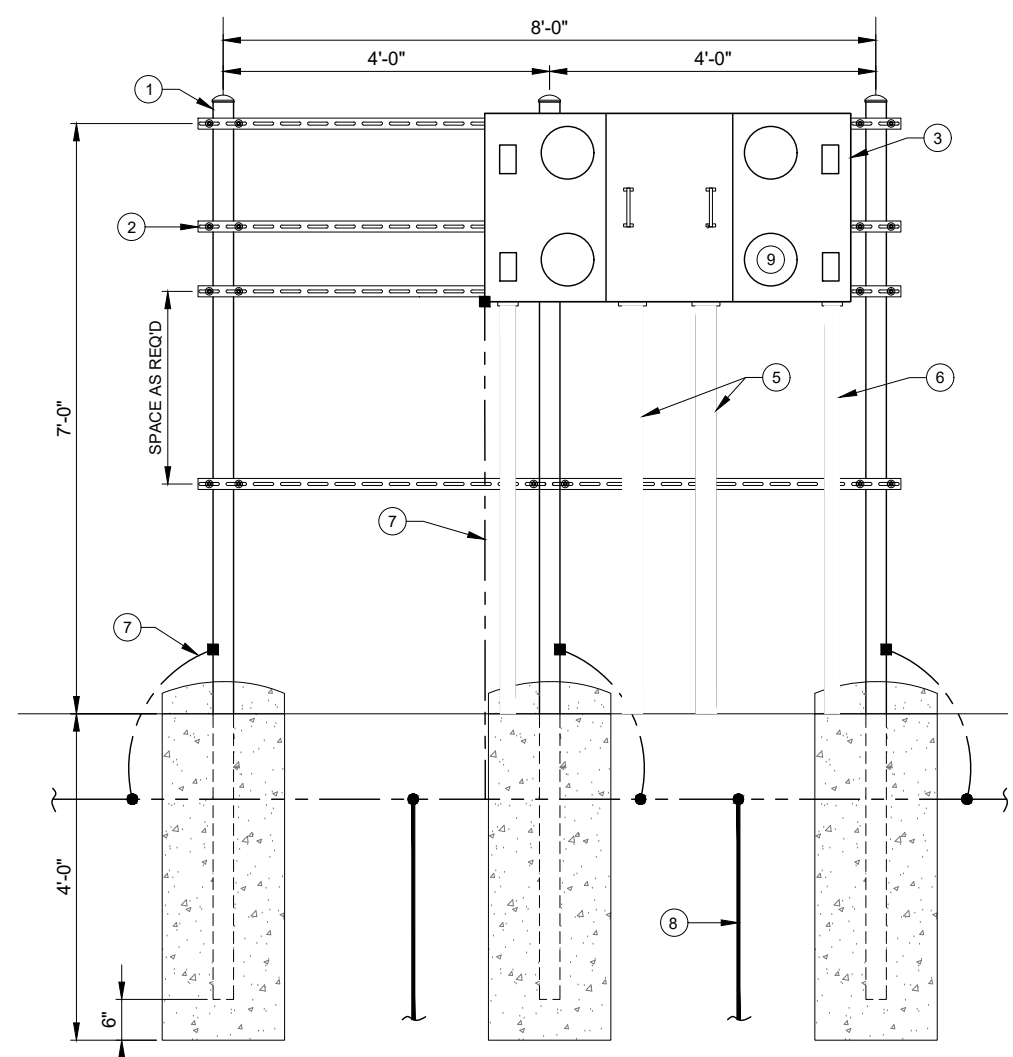
2 FIBER TRENCH DETAIL (IF REQUIRED)
N.T.S.



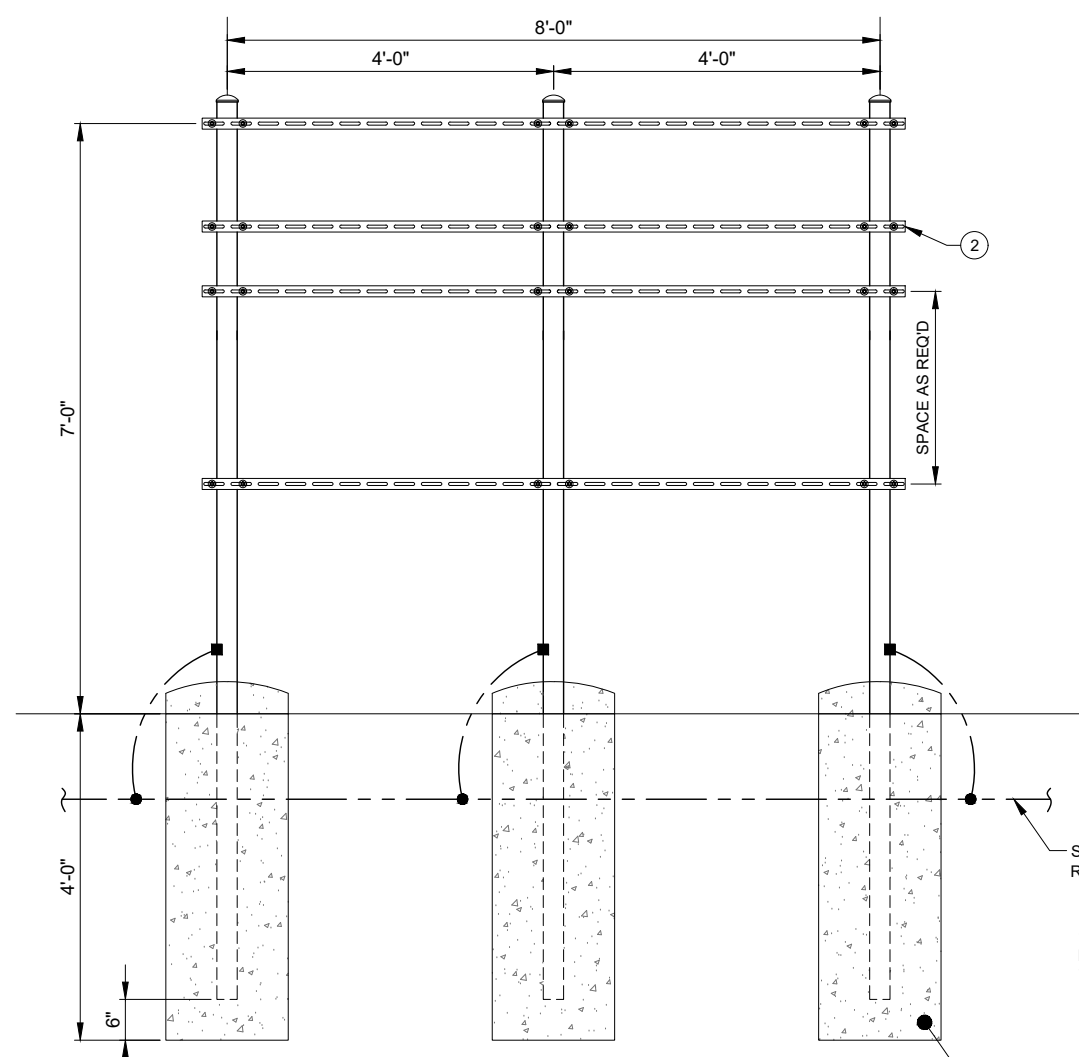
3 ELECTRICAL TRENCH DETAIL
N.T.S.



4 JOINT UTILITY TRENCH DETAIL
N.T.S.



FRONT



BACK

1 POWER/TELCO H-FRAME DETAIL
SCALE: N.T.S.

- KEYED NOTES**
- 1 3-1/2" SCH 40 GALVANIZED PIPE W/ END CAP (TYP.)
 - 2 P1000 UNISTRUT U-BOLTED TO POSTS (TYP.)
 - 3 PROPOSED 4-GANG MULTI-TENANT METER CENTER, 800A, 240/120V 1 Ø, 3W, NEMA 3R ENCLOSURE. (SQUARE D MODEL #EZM1800TB OR #EZML114225 AS REQUIRED BY POWER PROVIDER)
 - 4 SERVICE GROUND CONDUCTOR(S) IN 1" PVC SIZED PER NEC BASED ON ACTUAL SERVICE CONDUCTORS INSTALLED.
 - 5 (2) 3" OR (1) 3" SCH 40 PVC TO POWER SOURCE/TRANSFORMER (TYP.)
 - 6 3" CONDUIT TO VERIZON WIRELESS EQUIPMENT (TYP.)
 - 7 #2 AWG SOLID TINNED GROUND LEAD TO EQUIPMENT GROUND RING (TYP.)
 - 8 SERVICE ENTRANCE GROUND ROD 5/8" X 8'-0" COPPER CLAD (TYP. OF 2)
 - 9 VERIZON WIRELESS METER

SERVICE GROUND RING

120/240V 1-GANG COMMERCIAL GRADE OUTDOOR ELECTRICAL BOX W/ 20A COMMERCIAL GRADE DUPLEX RECEPTACLE

3000 PSI CONCRETE (TYP.)

SEAL:

NO.	DESCRIPTION	DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
UTILITY DETAILS

SHEET NUMBER
E-3

GENERAL PROJECT NOTES

1. THE ENGINEER SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT ON A ONE TIME BASIS.
2. THE CONTRACTOR SHALL TOPSOIL AND SEED ALL DISTURBED AREAS.
3. THE PLANS SHOW SOME KNOWN SUBSURFACE STRUCTURES, ABOVE-GROUND STRUCTURES AND/OR UTILITIES BELIEVED TO EXIST IN THE WORKING AREA, EXACT LOCATION OF WHICH MAY VARY FROM THE LOCATIONS INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATION OF SUCH PIPELINES, SUBSURFACE STRUCTURES AND/OR UTILITIES IN THE AREA MAY BE SHOWN OR MAY NOT BE SHOWN; AND IT SHALL BE HIS RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXECUTING ANY WORK. 48 HOURS BEFORE YOU DIG, DRILL OR BLAST, CALL 811.
4. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE ENGINEER.
5. THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
6. THE CONTRACTOR SHALL RESTORE ALL PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD OF CONDITION AS BEFORE DISTURBED AS DETERMINED BY THE ENGINEER.
7. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIRED PERMITS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC.
9. THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE ENGINEER OR OWNER SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF THE STATE LICENSED LAND SURVEYOR.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND SPECIFICATIONS, AND COORDINATE WORK WITH ALL CONTRACTS FOR THE SITE.
11. ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE JURISDICTIONS STATE CODE AND OSHA REGULATIONS FOR CONSTRUCTION.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF WORK.
13. ALL UTILITY WORK INVOLVING CONNECTIONS TO EXISTING SYSTEMS SHALL BE COORDINATED WITH THE ENGINEER AND THE UTILITY OWNER. NOTIFY THE ENGINEER AND THE UTILITY OWNER 24 HOURS BEFORE EACH AND EVERY CONNECTION TO EXISTING SYSTEMS IS MADE.
14. MAINTAIN FLOW FOR ALL EXISTING UTILITIES
15. ALL SITE FILL SHALL MEET SELECTED FILL STANDARDS UNLESS NOTED OTHERWISE ON THE DRAWINGS.
16. CONTRACTOR TO GRADE ALL AREAS ON THE SITE TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE COMPOUND AND THE TOWER.
17. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS-BUILT PLANS. AS-BUILT PLANS SHALL BE REVIEWED BY THE OWNER AND HIS REPRESENTATIVES, AND THE CONTRACTOR SHALL PROVIDE ANY CORRECTION OR ADMISSIONS TO THE SATISFACTION OF THE OWNER AND HIS REPRESENTATIVES BEFORE UTILITIES WILL BE ACCEPTED. AS-BUILTS SHALL INCLUDE ALL POWER, TELEPHONE, GROUNDING, ETC.
18. TOWER FOOTING DIMENSIONS SHALL BE VERIFIED WITH THE TOWER MANUFACTURER AND THE TOWER PLANS.

GENERAL CONSTRUCTION NOTES

2. GENERAL
 - A. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
 - B. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.
 - C. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE APPROVAL.
 - D. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
 - E. PAINT ALL ANTENNAS, MOUNTING HARDWARE, CABLES, CABLE TRAYS, ETC. TO MATCH EXISTING STRUCTURE PER OWNER REQUIREMENTS. OWNER SHALL APPROVE COLOR.
 - F. ALL DAMAGED, MARRED, SCRAPPED, ABRADED, ETC. AREAS OF EXISTING PAINT SHALL BE REPAIRED PER OWNERS REQUIREMENTS. OWNER SHALL APPROVE COLOR.
2. EXCAVATIONS/FOUNDATION
 - A. FOUNDATION EXCAVATION SHALL BE HAND-TRIMMED TO REMOVE LOOSE MATERIALS.
 - B. EXTERIOR FOUNDATION BACKFILL SHALL BE SELECTED GRANULAR FILL.
 - C. ALL STRUCTURAL BACKFILL AND SUBBASE UNDER SLABS-ON-GRADE AND FOOTINGS SHALL BE "SW" OR BETTER PER ASTM D-2487 COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY PER ASTM D 698.
 - D. DO NOT PLACE FOOTINGS IN WATER OR ON FROZEN GROUND.
 - E. SOIL BEARING SURFACES, PREVIOUSLY ACCEPTED BY GEOTECHNICAL ENGINEER, WHICH ARE ALLOWED TO BECOME SATURATED, FROZEN OR DISTURBED SHALL BE REWORKED TO SATISFACTION OF GEOTECHNICAL ENGINEER.
 - F. DO NO ALLOW GROUND BENEATH FOOTINGS TO FREEZE.
 - G. FOOTING EXCAVATIONS SHALL BE CUT NEAT.

3. CONCRETE

- A. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING APPLICABLE CODES: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE";
- B. MIX DESIGN SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE.
- C. CONCRETE SHALL BE NORMAL WEIGHT, 6% AIR ENTRAINED (±1.5%) WITH A MAXIMUM 4" SLUMP, AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI UNLESS OTHERWISE NOTED.
- D. MAXIMUM AGGREGATE SIZE SHALL BE 1".
- E. THE FOLLOWING MATERIALS SHALL BE USED:

PORTLAND CEMENT:	ASTM C 150, TYPE I
REINFORCEMENT:	ASTM A 615, GRADE 60
NORMAL WEIGHT AGGREGATE:	ASTM C 33
WATER:	DRINKABLE
ADMIXTURES:	NON-CHLORIDE CONTAINING
- F. REINFORCING SHALL CONFORM TO ASTM A-615 WITH SUPPLEMENT. MINIMUM YIELD STRENGTH Fy=60 KSI. REINFORCING DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315.
- G. CONCRETE COVER AROUND REINFORCING BARS (U.N.O.) SHALL BE:

1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED EARTH	3"
2. CONCRETE EXPOSED TO EARTH, WEATHER	2"
3. SLABS	3/4"
4. ALL OTHER CONCRETE	1 1/2"
- H. UNLESS INDICATED OTHERWISE ON THE DRAWINGS, REINFORCEMENT SPLICES SHALL MEET CLASS B, TENSION LAP REQUIREMENTS IN ACCORDANCE WITH ALL PROVISIONS OF ACI 318 LATEST EDITION, UNLESS NOTED OTHERWISE.

GENERAL CONSTRUCTION NOTES CONT.

- I. CURING COMPOUNDS SHALL CONFORM TO ASTM C-309.
- J. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN ACI-301
- K. DO NOT WELD OR TACKWELD REINFORCING STEEL.
- L. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, PIPING, WATERSTOPS, INSERTS, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
- M. LOCATE ADDITIONAL CONSTRUCTION JOINTS REQUIRED TO FACILITATE CONSTRUCTION AS ACCEPTABLE TO ENGINEER. PLACE REINFORCEMENT CONTINUOUSLY THROUGH JOINT.
- N. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
- O. PLACE CONCRETE IN A UNIFORM MANNER TO PREVENT THE FORMATION OF COLD JOINTS AND OTHER PLANES OF WEAKNESS. VIBRATE THE CONCRETE TO FULLY EMBED REINFORCING. DO NOT USE VIBRATORS TO TRANSPORT CONCRETE THROUGH CHUTES OR FORMWORK.
- P. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
- Q. DO NOT ALLOW CONCRETE SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT.
- R. FOR COLD-WEATHER AND HOT-WEATHER CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS MINIMUM.
- S. PROVIDE A STEEL TROWEL FINISH TO THE SLAB.

4. ANTENNA SUPPORT BRACKET NOTES (IF APPLICABLE)

- A. DESIGN RESPONSIBILITY OF ANTENNA MOUNTING BRACKETS AND POLES AND ALL COMPONENTS THERE OF AND ATTACHMENT THERE TO SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER. MFR SHALL PROVIDE TO THE ENGINEER FOR APPROVAL, DRAWINGS DETAILING ALL COMPONENTS OF THE ASSEMBLY, INCLUDING CONNECTIONS, DESIGN LOADS, AND ALL OTHER PERTINENT DATA.
- B. BRACKETS SHALL BE DESIGNED TO SUPPORT CURRENT AND FUTURE PANEL ANTENNAS AND COAXIAL CABLES AS SHOWN.
5. STRUCTURAL STEEL NOTES
 - A. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
 - B. STEEL ANGLES, BASE PLATES, BEARING PLATES AND MISC. FABRICATION SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF ASTM-A36 WITH A MINIMUM YIELD STRESS OF 36 KSI. ALL STEEL TUBES AND PIPES SHALL BE A500 STEEL MINIMUM.
 - C. ALL DINGS, SCRAPES, MARS, AND WELDS IN THE FINISHED AREAS SHALL BE REPAIRED BY FIELD TOUCH-UP PRIOR TO COMPLETION OF THE WORK.
 - D. ALL EXTERIOR STRUCTURAL STEEL SHALL BE, WHEN DELIVERED, HOT-DIP GALVANIZED ACCORDING TO ASTM A123, TOUCH-UP FIELD WELDS AND ABRADED AREAS W/2 COATS OF GALVANIZED PAINT, ZRC COLD GALVANIZING COMPOUND OR APPROVED EQUAL.
 - E. DO NOT PLACE HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
 - F. CONNECTIONS:
 1. BOLTED CONNECTIONS SHALL USE BEARING TYPE GALVANIZED ASTM A325 BOLTS AND SHALL HAVE A MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
 2. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. GALVANIZED ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
 - G. SAFETY NOTES:
 1. THE CONTRACTOR WILL ADHERE TO ALL SAFETY REGULATIONS, LOCAL, STATE AND FEDERAL.
 2. THE CONTRACTORS WILL CONDUCT DAILY SAFETY TAILGATE MEETINGS IN ADDITION TO WEEKLY SAFETY MEETINGS. THESE REPORTS WILL BE MADE AVAILABLE TO THE OWNER UPON REQUEST.
 3. ALL WORKERS & VISITORS TO THE SITE SHALL WEAR HARD HATS & ANY OTHER SAFETY EQUIPMENT REQUIRED BY THE WORK BEING PERFORMED ON THE SITE.

GENERAL GROUNDING NOTES:

1. ALL GROUND CABLE IN CONCRETE OR THROUGH WALL SHALL BE IN 3/4" PVC CONDUIT. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTOR SLEEVES.
2. GROUND ALL EXPOSED METALLIC OBJECTS USING A TWO-HOLE NEMA DRILLED CONNECTOR SUCH AS THOMAS & BETTS #32207 OR APPROVED EQUAL.
3. THE CONTRACTOR SHALL NOTIFY THE VERTICAL BRIDGE REPRESENTATIVE WHEN THE GROUND RING IS INSTALLED SO THAT THE REPRESENTATIVE CAN INSPECT GROUNDING BEFORE IT IS CONCEALED.
4. ALL EXTERIOR GROUND CONDUCTORS INCLUDED GROUND RING SHALL BE #2 AWG SOLID BARE TINNED COPPER. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. THE RADIUS OF ANY BEND SHALL NOT BE LESS THAN 8" AND THE INCLUSIVE ANGLE OF ANY BEND SHALL NOT EXCEED 90°. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.
5. ALL BELOW GROUND EXTERNAL CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. ALL EXOTHERMIC WELDS TO BURIED GROUND RING SHALL BE THE PARALLEL, EXCEPT FOR THE GROUND RODS WHICH ARE TEE-TYPE EXOTHERMIC WELDS. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING. USE SPRAY GALVANIZED SUCH AS HOLUB LECTROSOL #15-501.

6. WHERE MECHANICAL CONNECTORS (TWO-HOLE OR CLAMP) ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF A CONDUCTIVE ANTI-OXIDE COMPOUND ON ALL CONNECTORS, PROVIDE LOCK WASHERS ON ALL MECHANICAL CONNECTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTORS, REPAINT TO MATCH EXISTING AFTER CONNECTION IS MADE TO MAINTAIN CORROSION RESISTANCE. ALL GROUND CONNECTIONS SHALL BE APPROVED FOR THE TYPES OF METALS BEING ATTACHED TO.
7. THE CONTRACTOR SHALL COORDINATE AS REQUIRED TO HAVE UTILITY COMPANY REPRESENTATIVE AT THE SITE TO DISCONNECT THE UTILITY NEUTRAL FROM GROUNDING SYSTEM DURING FINAL INSPECTION SO THAT REQUIRED TESTING ON THE GROUND SYSTEM CAN BE PERFORMED. THE CONTRACTOR SHALL PROVIDE NOTICE TO THE VERTICAL BRIDGE REPRESENTATIVE (TWO) DAYS PRIOR TO FINAL TESTING. IF THE CONTRACTOR SHALL PAY THE COST FOR AN INDEPENDENT GROUNDING CONSULTANT TO PERFORM THE GROUND RESISTANCE TEST. GROUNDING CONSULTANT SHALL BE SELECTED BY THE VERTICAL BRIDGE REPRESENTATIVE. IF THE UTILITY COMPANY REPRESENTATIVE FAILS TO APPEAR DUE TO NO FAULT THE CONTRACTOR, NO PENALTY APPLY.
8. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
9. THE GROUND CONDUCTORS SHALL BE RUN STRAIGHT FOR MINIMUM INDUCTANCE AND VOLTAGE DROP, SINCE CABLE BENDS INCREASE INDUCTANCE, THE MINIMUM REQUIRED BENDING RADIUS IS 8 INCHES WHEN BENDS ARE UNAVOIDABLE. ALL METAL WORK WITHIN 10 FEET OF THE GROUND RING SHALL BE DIRECTLY BONDED TO THIS GROUND SYSTEM, WITHOUT USING SERIES OR DAISY CHAIN CONNECTION ARRANGEMENTS.
10. PAINT, ENAMEL LACQUER AND OTHER ELECTRICALLY NON-CONDUCTIVE COATING SHALL BE REMOVED FROM THREADS AND SURFACE AREAS WHERE CONNECTIONS ARE MADE TO ENSURE GOOD ELECTRICAL CONTINUITY.
11. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL NOT BE MADE UNLESS THE CONDUCTORS ARE SEPARATED BY A SUITABLE MATERIAL THAT IS A PART OF THE ATTACHMENT DEVICE LISTED AND APPROVED FOR USE WITH THE SPECIFIC DISSIMILAR METALS MAY BE USED FOR THE PURPOSE.
12. ALL BELOW GRADE GROUND SYSTEM CONDUCTORS SHALL BE A MINIMUM DEPTH OF 30" (OR 6" BELOW THE FROST LINE, WHICHEVER IS GREATER).
13. CONTRACTOR TO COORDINATE WITH TOWER CONTRACTOR TO PROVIDE, RUN AND TERMINATE POWER & CONTROL WIRES WITHIN CONDUITS FROM LIGHTENING CONTROLLER TO ELECTRICAL AND CONTROL PANELS.
14. INTERMEDIATE COAX, GROUNDING TO BE INSTALLED ON VERTICAL RUNS THAT EXCEED 200 FEET IN LENGTH. CONTRACTOR SHALL COORDINATE WITH VERTICAL CONSTRUCTION MANAGER ON LOCATION OF INTERMEDIATE GROUNDING LOCATION.

GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANY OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
8. TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIA/TIA 222-G REQUIREMENTS.
9. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
10. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
11. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE THEM AND CONTACT THE APPLICANT AND OWNER'S REPRESENTATIVE.
12. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY TWICE A MONTH.
13. PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION TO THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES AND OTHER APPURTENANCES.
14. PROPERTY LINE INFORMATION WAS PREPARED USING DEEDS, TAX MAPS AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
15. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
16. THE PROPOSED FACILITY WILL CAUSE ONLY A "DE MINIMIS" INCREASE IN STORM WATER RUNOFF, THEREFORE NO DRAINAGE STRUCTURES ARE PROPOSED.
17. NO SIGNIFICANT NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY.
18. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
19. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
20. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.



PLANS PREPARED BY:

SEAL:

REVISIONS	DESCRIPTION	DATE	BY						
				ISSUED FOR REVIEW					
		08/07/23	JJR						
NO									

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

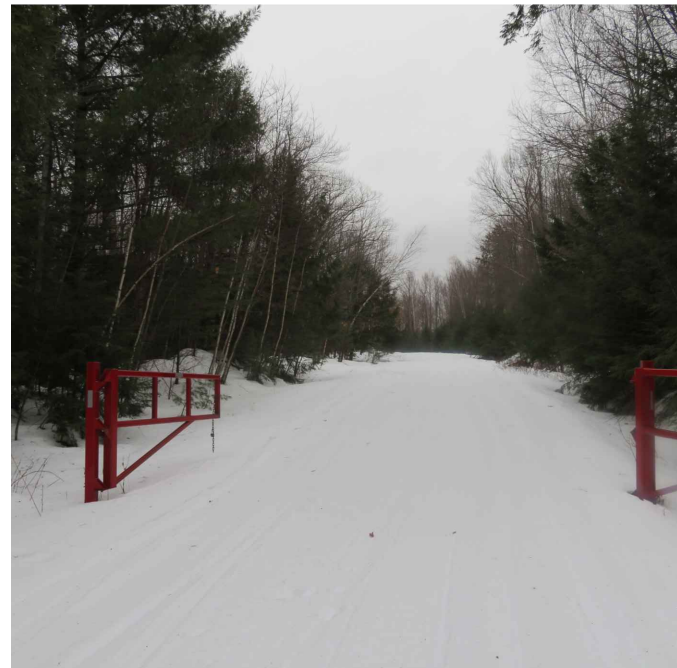
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
GENERAL & GROUNDING NOTES

SHEET NUMBER
GN-1



1 EXISTING OVERALL SITE
SCALE: N.T.S.



2 EXISTING ACCESS DRIVE
SCALE: N.T.S.



3 EXISTING POWER POLE/ TRANSFORMER
SCALE: N.T.S.



4 EXISTING FIBER PEDESTAL
SCALE: N.T.S.

PLANS PREPARED BY:

SEAL:

NO.	DESCRIPTION	DATE	BY	
			JJR	
	ISSUED FOR REVIEW	08/07/23		

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
EXISTING SITE PHOTOS

SHEET NUMBER
P-1

-LEGEND-

- = 1" X 18" IRON PIPE SET
- = 6" NAIL SET
- = COUNTY MONUMENT FOUND
- = WOOD POST
- = TRAFFIC SIGN
- = WATER VALVE
- = TELEPHONE PEDESTAL
- = LIGHT POLE
- = ELECTRIC METER
- = ELECTRIC TRANSFORMER
- = EXISTING POWER POLE
- = EXISTING TREE

- PROPERTY LINE
- FENCE LINE
- UNDERGROUND ELECTRIC
- UNDERGROUND FIBER
- UNDERGROUND TELCO
- UNDERGROUND GAS LINE
- OVERHEAD ELECTRIC
- OVERHEAD FIBER
- OVERHEAD TELCO
- OVERHEAD UTILITY LINE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATERMAIN LINE
- BURIED GAS LINE
- EDGE OF BUSH/TREES

All utilities as shown are approximate locations derived from actual measurements and available records. They should not be interpreted to be in exact location nor should it be assumed that they are the only utilities in the area.



Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

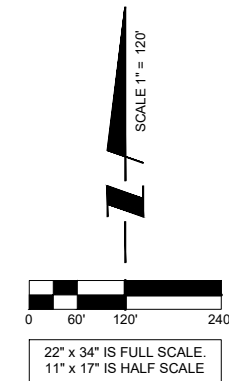
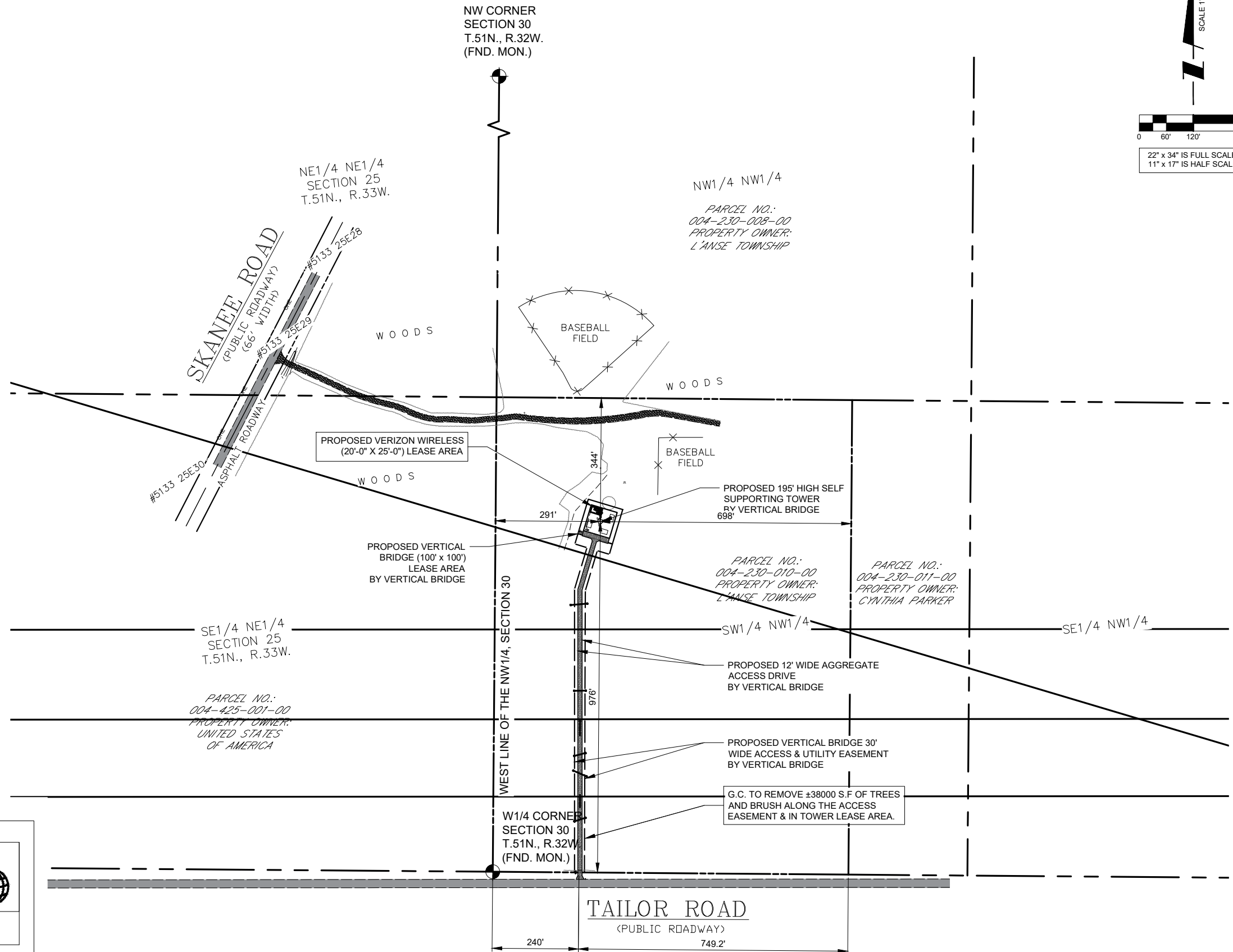
SURVEY PERFORMED BY:

MERIDIAN
SURVEYING, LLC

N8774 Firelane 1 Office: 920-993-0881
Menasha, WI 54952 Fax: 920-273-6037

BENCHMARK INFORMATION

SITE BENCHMARK: (BM A)
SET 6" NAIL IN NORTHWEST
FACE OF TREE STUMP
ELEVATION: 838.86'



verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

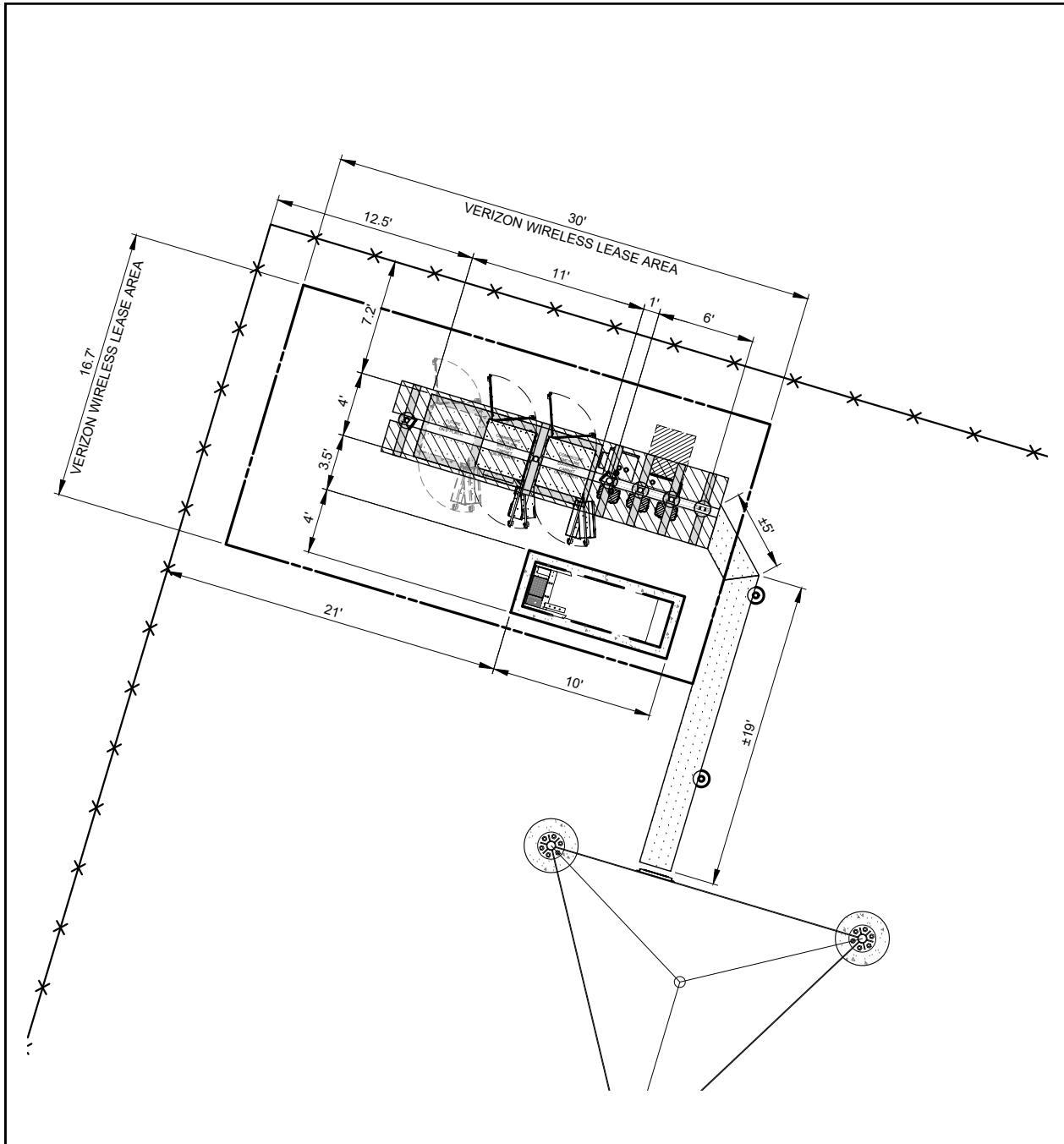
NO.	DESCRIPTION	DATE	BY	
				REVISIONS
	ISSUED FOR REVIEW	08/07/23	JJR	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

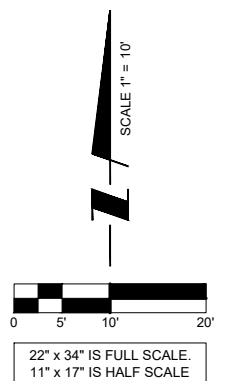
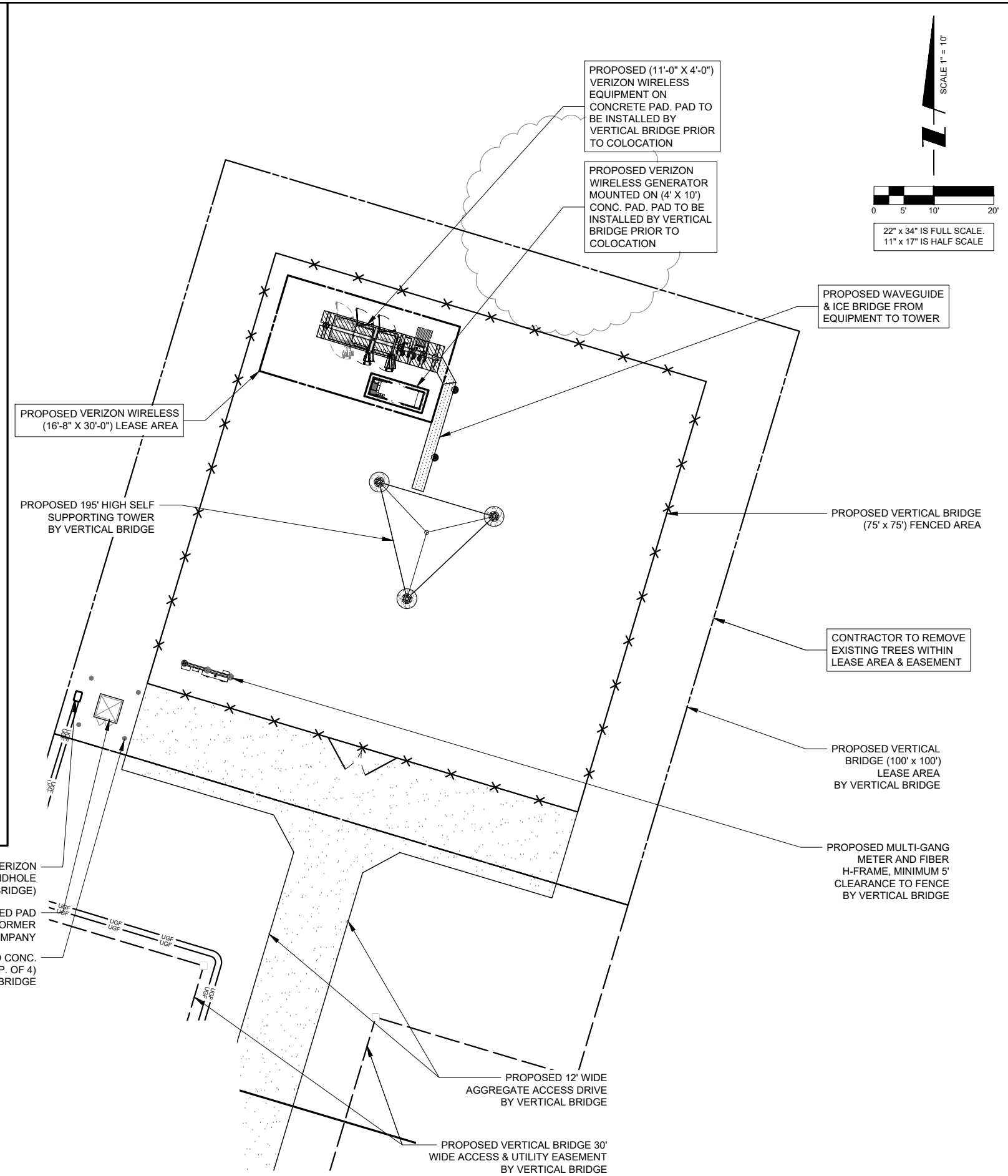
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
LOCATION PLAN

SHEET NUMBER
VW LP



1 SITE DIMENSION PLAN
SCALE: 1" = 5'



1 ENLARGED SITE PLAN
SCALE: 1" = 10'

SURVEY PERFORMED BY:

MERIDIAN SURVEYING, LLC

N8774 Firelane 1 Office: 920-993-0881
Menasha, WI 54952 Fax: 920-273-6037

BENCHMARK INFORMATION
SITE BENCHMARK: (BM A)
SET 6" NAIL IN NORTHWEST FACE OF TREE STUMP
ELEVATION: 838.86'

MISS DIG System, Inc.

Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

verticalbridge

750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:

TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
			08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
VW C-1

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. ALL REMOVED SPOILS TO BE UTILIZED FOR BACKFILL SHALL BE PROTECTED FROM FREEZE

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 CONCRETE CAST AGAINST EARTH.....3 IN.
 CONCRETE EXPOSED TO EARTH OR WEATHER:
 #6 AND LARGER2 IN.
 #5 AND SMALLER & WWF1 1/2 IN.
 CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
 SLAB AND WALL3/4 IN.
 BEAMS AND COLUMNS1 1/2 IN.
5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES ON CONCRETE. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
7. COLD WEATHER CONCRETING (BELOW 40°). SHALL COMPLY WITH ACI 301. CONTRACTOR SHALL NEVER PLACE CONCRETE ON FROZEN SUBGRADE AND REBAR TEMPERATURE SHALL NEVER BE BELLOW 32°F DURING CONCRETE PLACEMENT. STEEL TEMPERATURE CAN BE RAISED BY BATHING IT IN WATER UNTIL ICE DOES NOT FORM ON BARS. CONCRETE MATERIALS MAY BE HEATED, BUT MIX TEMPERATURE SHALL BE BETWEEN 50°F & 70°F AT TIME OF PLACING. ALL CONCRETE EXPOSED TO FREEZING DURING PLACEMENT OR DURING SERVICE LIFE SHALL BE AIR ENTRAINED. INSULATED BLANKETS (OR APPROVED EQUAL METHOD) SHALL BE PLACED OVER FRESHLY FINISHED CONCRETE TO ALLOW PROPER CURING/COMBAT FREEZING. THE CONCRETE TEMP. SHOULD BE MAINTAINED AT 50°F FOR FIVE (5) DAYS OR 70° FOR THREE (3) DAYS. CONCRETE SHALL NOT BE ALLOWED TO FREEZE BEFORE IT HAS REACHED A STRENGTH OF AT LEAST 500 PSI

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - TO BE DETERMINED
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - CENTRAL STATES TOWERS
 OEM - ORIGINAL EQUIPMENT MANUFACTURE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING.
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. CONSTRUCTION SHALL COMPLY WITH "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF CINGULAR GSM SITES."

APPLICABLE BUILDING CODES AND STANDARDS:

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

2003 INTERNATIONAL BUILDING CODE (2003 IBC OR LATEST EDITION)
 2008 NATIONAL ELECTRICAL CODE (NEC 2008)
 UNDERWRITER LABORATORIES APPROVED ELECTRICAL PRODUCTS LIFE SAFETY CODE NFPA-101
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD.
 TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) EIA-222-G, EXPOSURE CATEGORY C, STRUCTURE CLASS II, TOPO CATEGORY 1. STRUCTURAL STANDARD FOR STRUCTURAL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES.
 INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND SURFACE POTENTIALS OF A GROUND SYSTEM
 IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONICS
 IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND HIGH SYSTEM EXPOSURE")
 TIA 607 COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR
 TELCORDIA GR-1503 COAXIAL CABLE CONNECTIONS

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENTS SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN GENERAL REQUIREMENTS AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.



PLANS PREPARED BY:



SEAL:

NO.	DESCRIPTION	DATE	BY	REVISIONS			
				DATE	BY	DATE	BY
1	ISSUED FOR REVIEW	08/07/23	JJR				

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
GENERAL NOTES

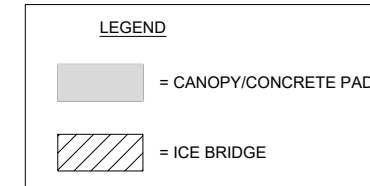
SHEET NUMBER
VW C-2

NOTES:

1. THIS IS AN UNMANNED STORAGE AND EQUIPMENT PAD ONLY.
2. PAD SHALL BE PLACED ACCORDING TO STATE AND LOCAL CODE FROM ANY PROPERTY LINE, INTERIOR LOT LINE OR ANY OTHER BUILDING.
3. ALL ITEMS NOTED AS "FIELDWORK" SHALL BE INSTALLED AND TESTED AT THE FACTORY THEN REMOVED FOR TRANSPORT AND REINSTALLED AT THE FINAL SITE.
4. PAD NOT DESIGNED FOR INSTALLATION IN A FLOOD PRONE AREA.
5. THIS PAD DOES NOT CONTAIN PLUMBING FACILITIES.
6. THIS ENCLOSURE IS CLASSIFIED AS USE S-2 (IBC, FBC), U (OBC)
2006-2015 INTERNATIONAL BUILDING CODE
2009-2012 UNIFORM MECHANICAL CODE
2006-2015 INTERNATIONAL MECHANICAL CODE
2004 CHICAGO BUILDING CODE

7. CONCRETE PAD AND ASSOCIATED EQUIPMENT IS PROVIDED BY OWNER UNDER SEPARATE CONTRACT. EQUIPMENT ENCLOSURE INFORMATION INDICATED HEREIN IS PROVIDED FOR REFERENCE ONLY AND IS TAKEN FROM MANUFACTURER'S AVAILABLE DATA. REFER TO CIVIL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR WORK TO BE PERFORMED UNDER THIS CONTRACT.

DESIGN PARAMETERS
 USE GROUP: S-2 (IBC, FBC)
 U (OBC)
 CONSTRUCTION TYPE: V-B (IBC, FBC)
 OCCUPANCY CATEGORY: II
 ROOF LIVE LOAD: 81 PSF
 FLOOR LIVE LOAD: 986 PSF
 GROUND SNOW LOAD: 96 PSF (N/A FOR FBC 2014)
 WIND SPEED: 150 MPH/EXPOSURE C
 SEISMIC ZONE FOR SBC & UBC: 4
 SEISMIC DESIGN CATEGORY FOR IBC: E (IBC)
 USE GROUP-III (OBC)
 SITE CLASS-D (OBC)
 BULLET RESISTANCE LEVEL 4 FOR 4" CONCRETE PER IBC
 CONCRETE f'c: 5000 PSI AT 28 DAYS
 CONCRETE UNIT WEIGHT: 115 PCF



PLANS PREPARED BY:

 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 PH: 847-698-6400
 FAX: 847-698-6401

SEAL:

NO.	DESCRIPTION	DATE	BY
		08/07/23	

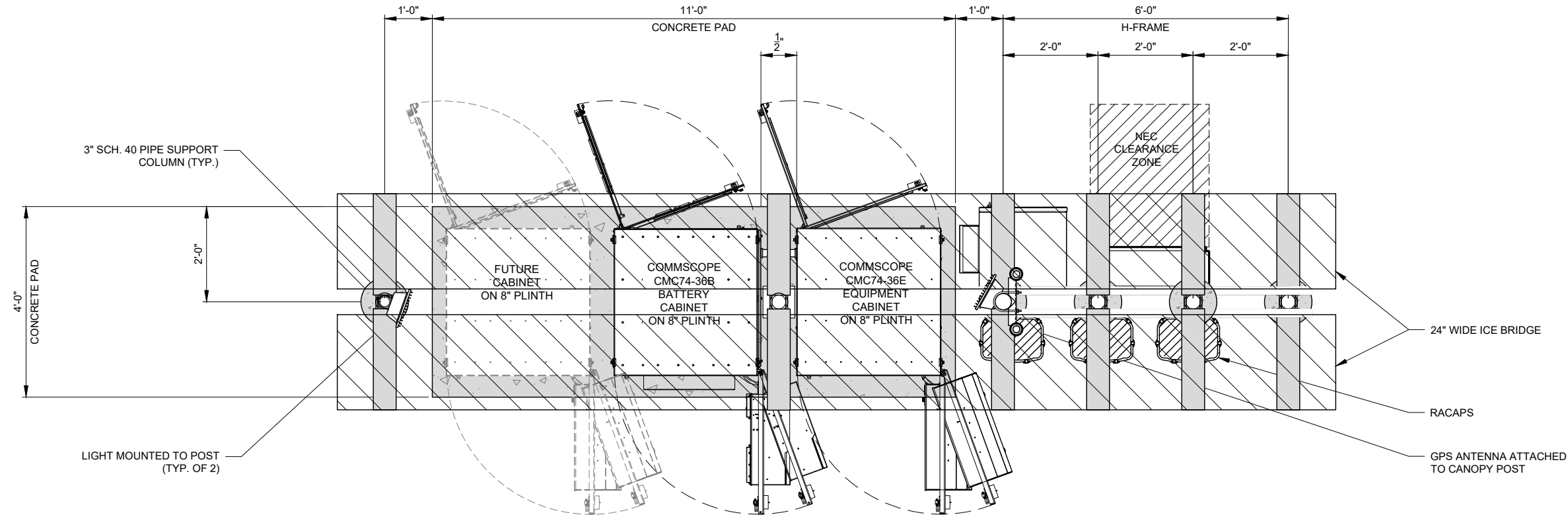
SITE #
 US-MI-5314
SKANEE ROAD
LOC. #
 765214
MDG LOC. #
 5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY: TJS
 CHECKED BY: TAZ
 DATE: 03/14/23
 PROJECT #: 107-056

SHEET TITLE
**EQUIPMENT
 PAD
 PLAN & NOTES**

SHEET NUMBER

VW B-1



1 EQUIPMENT PAD - LAYOUT PLAN
 SCALE: 3/4" = 1'-0"

SEAL:

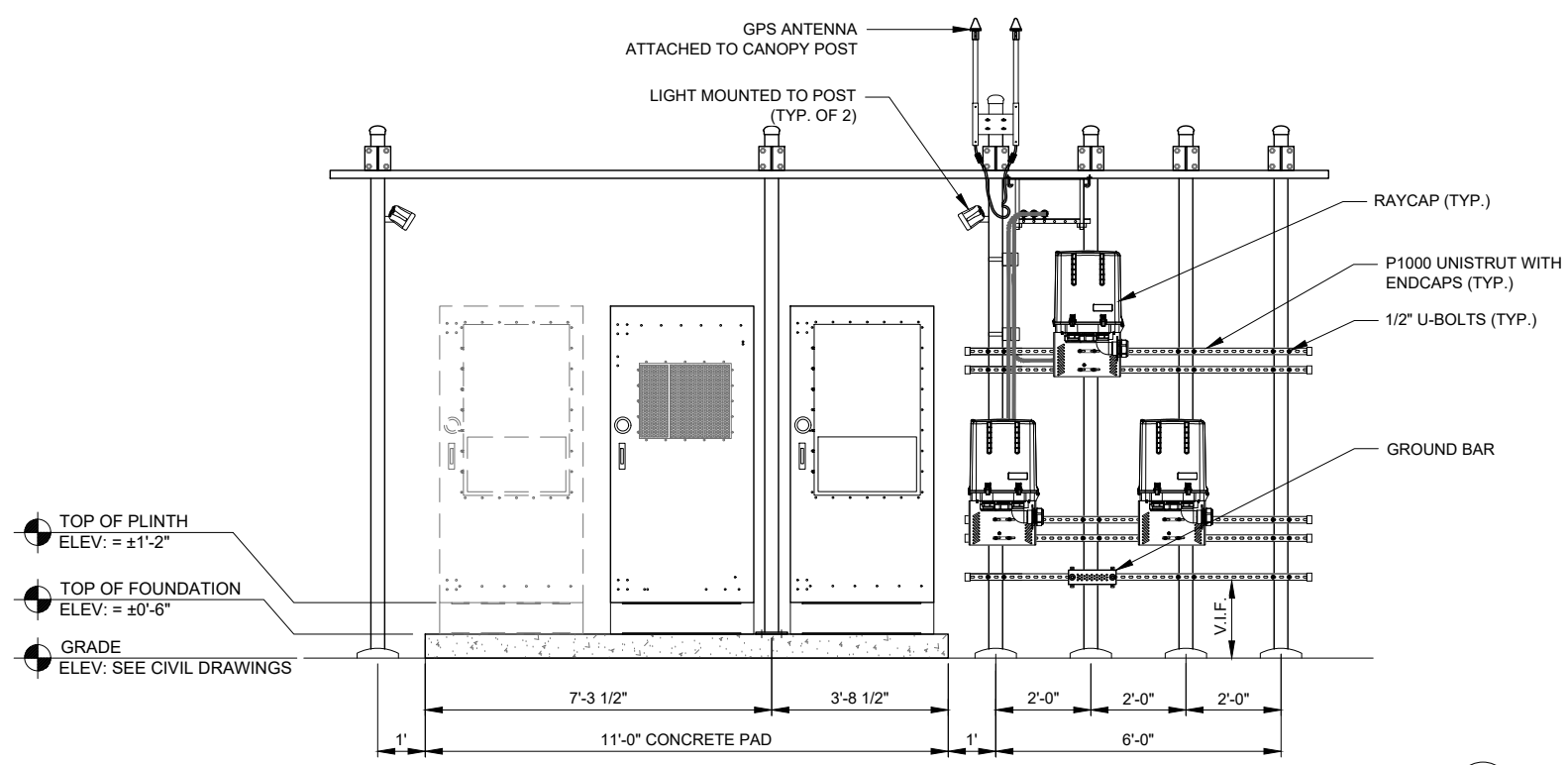
NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

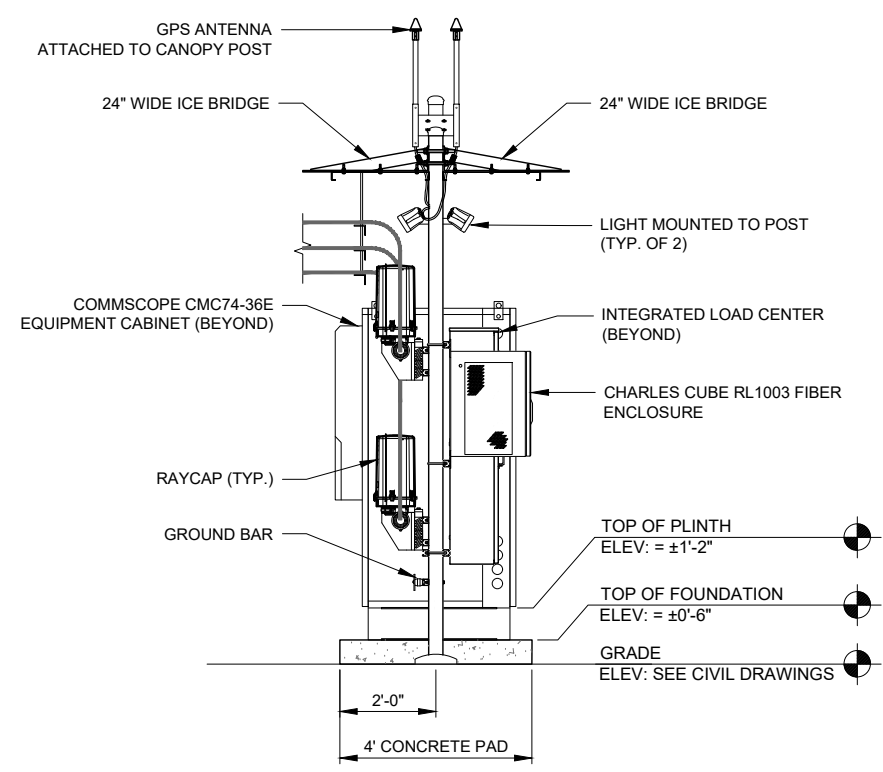
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
EQUIPMENT PAD ELEVATIONS

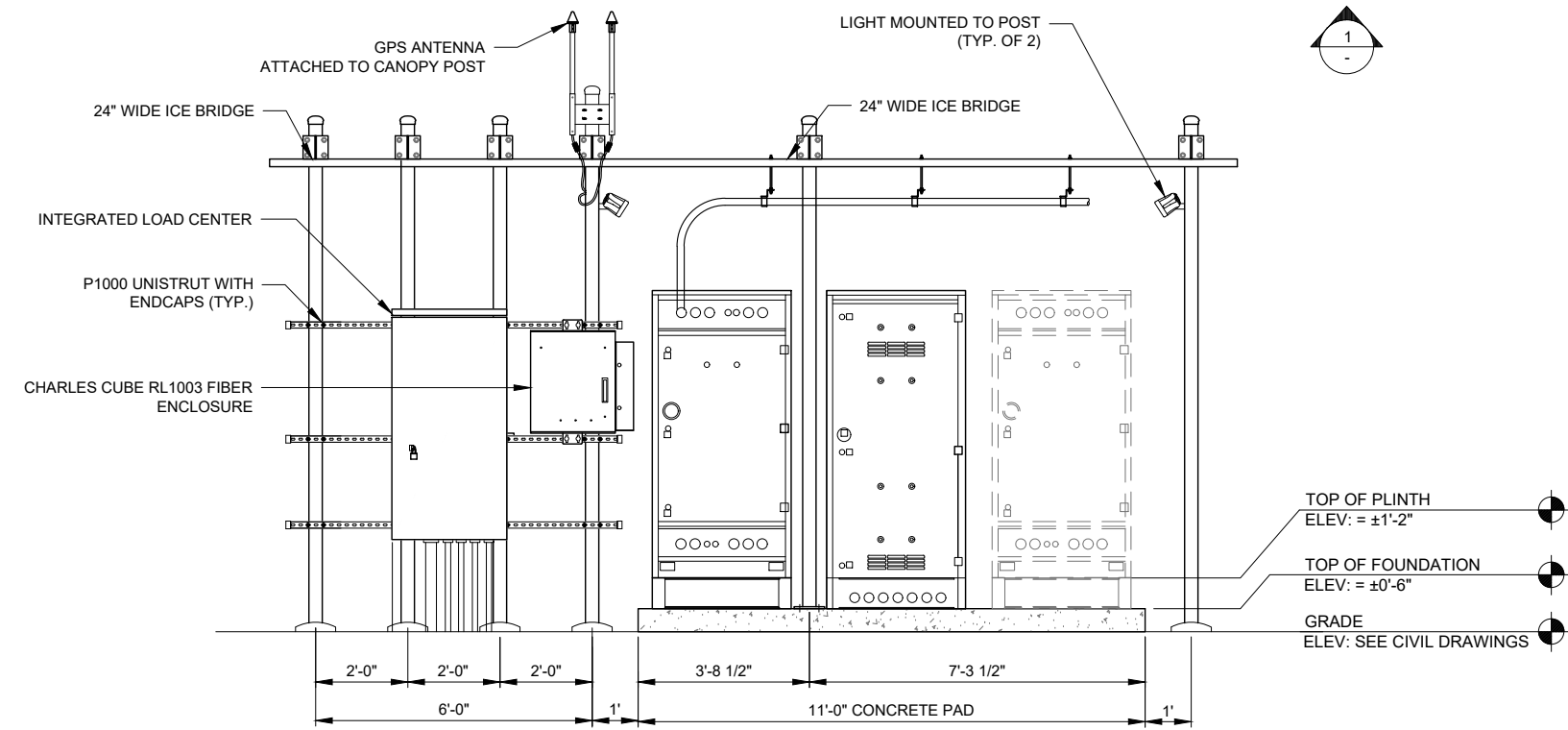
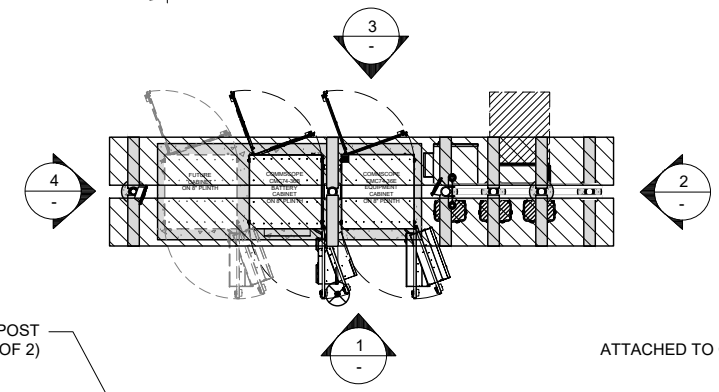
SHEET NUMBER
VW B-2



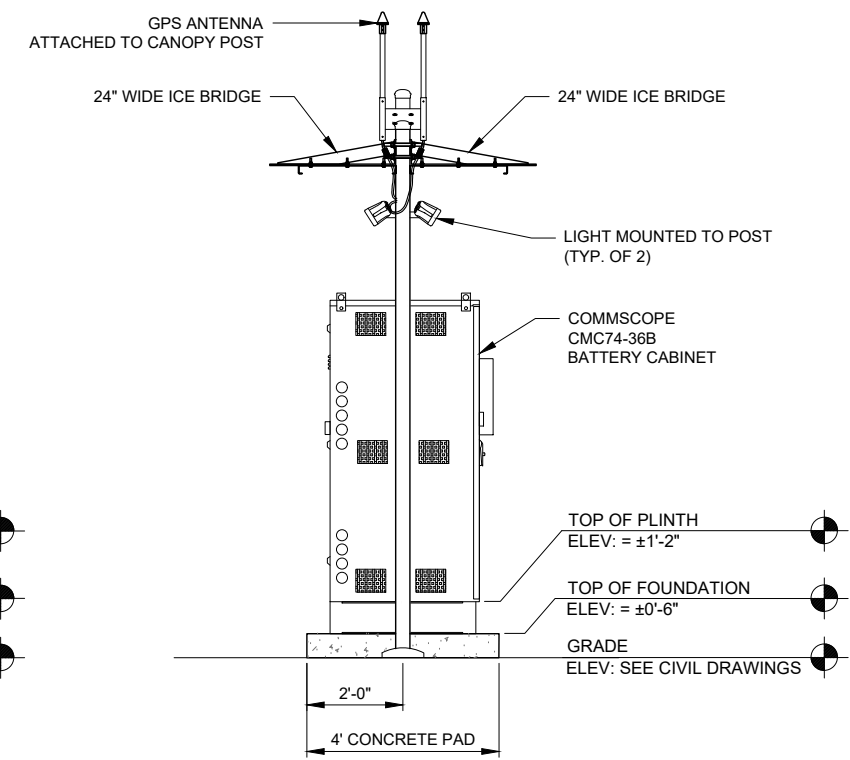
1 EQUIPMENT PAD ELEVATION
 SCALE: N.T.S.



2 EQUIPMENT PAD ELEVATION
 SCALE: N.T.S.



3 EQUIPMENT PAD ELEVATION
 SCALE: N.T.S.

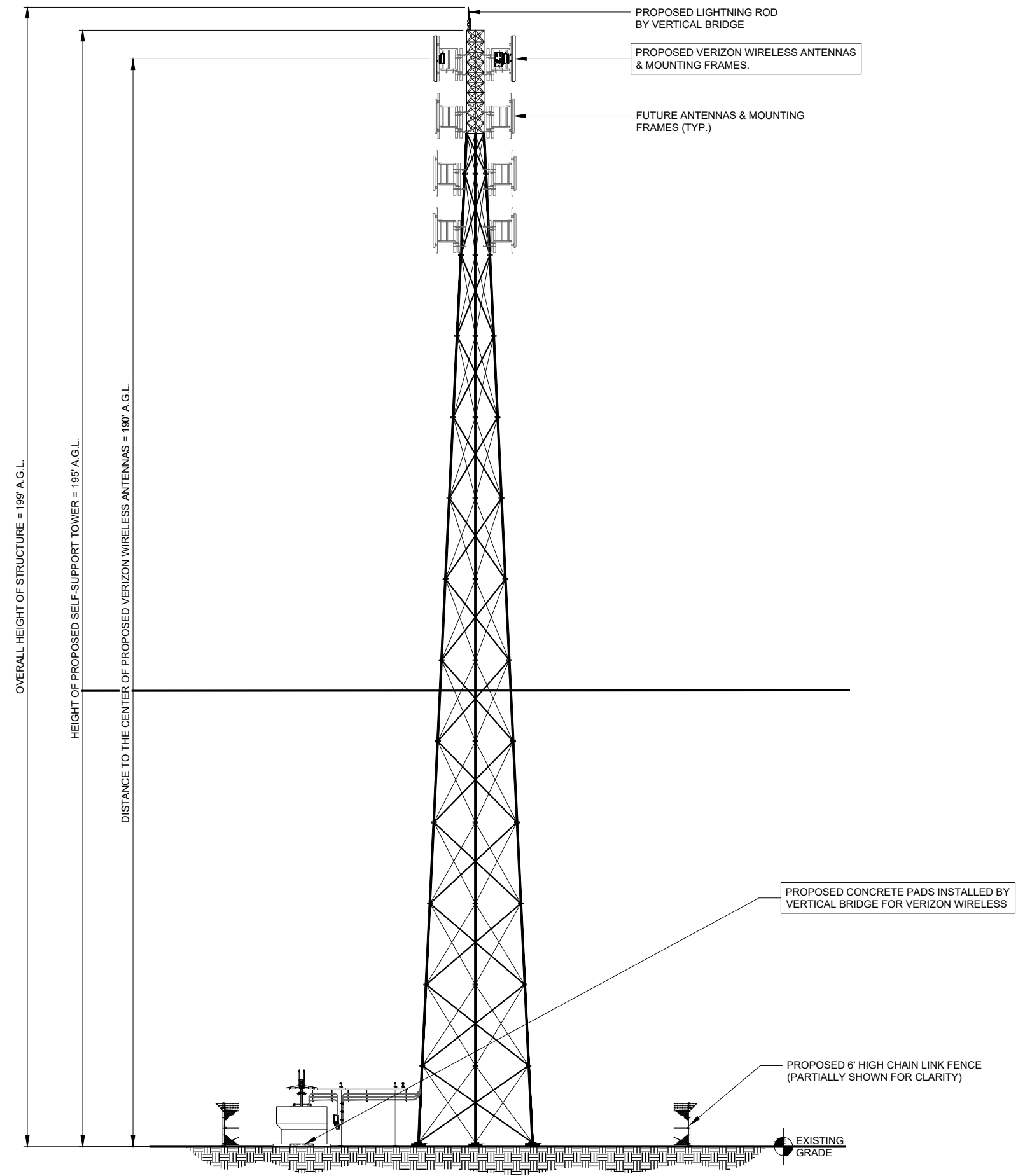


4 EQUIPMENT PAD ELEVATION
 SCALE: N.T.S.

NOTE: FOR REFERENCE ONLY

G.C. TO ADJUST HEIGHT OF MOUNT BY ±6" AS NEEDED TO AVOID CLIMBING FACILITIES. G.C. IS NOT TO REMOVE OR DAMAGE CLIMBING FACILITIES DURING INSTALLATION.

TOP OF ANTENNA OR ANTENNA PIPE SHALL NOT EXCEED TOP OF TOWER STEEL.



1 NORTHWEST ELEVATION
SCALE: 3/16" = 1'-0"

NOTES

1. TERRA CONSULTING GROUP'S SCOPE OF WORK DOES NOT INCLUDE A STRUCTURAL EVALUATION OF THIS TOWER OR STRUCTURE. NEW ANTENNAS AND EQUIPMENT SHOWN ON THIS PLAN HAVE NOT BEEN EVALUATED TO VERIFY THE TOWER OR STRUCTURE HAS THE CAPACITY TO ADEQUATELY SUPPORT THESE ANTENNAS. PRIOR TO ANY ANTENNA OR EQUIPMENT INSTALLATION, A STRUCTURAL EVALUATION OF THE TOWER OR STRUCTURE, INCLUDING ALL ANTENNA MOUNTING SYSTEMS & HARDWARE SHOULD BE PERFORMED.

verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

NO.	DESCRIPTION	DATE	BY	
			DATE	BY
	ISSUED FOR REVIEW	08/07/23	JJR	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE ELEVATION

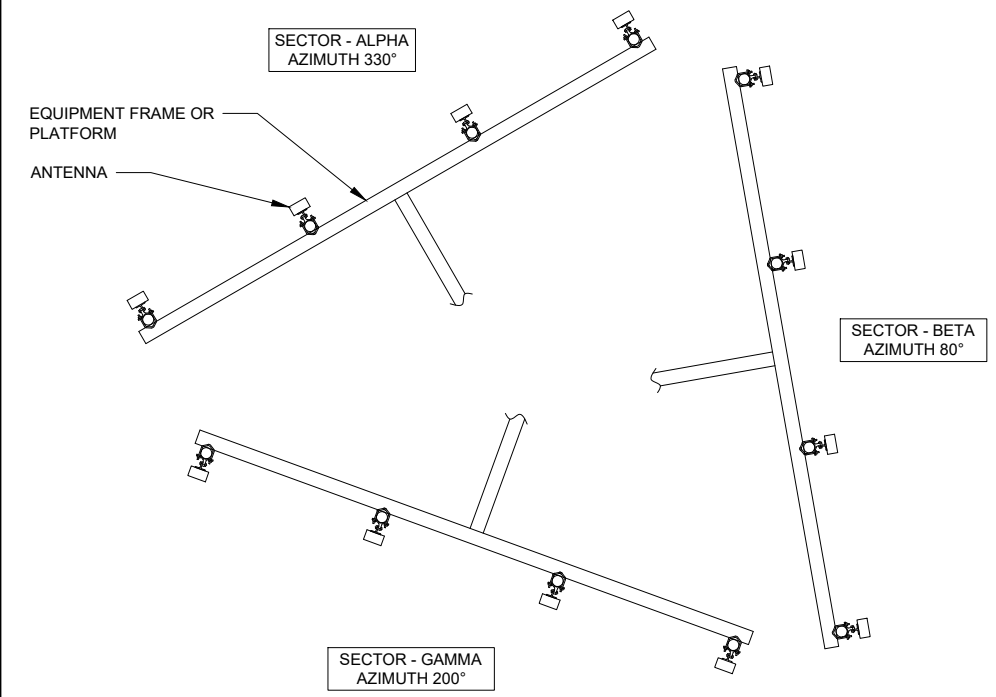
SHEET NUMBER
VW ANT-1

Antenna Summary

Added															
700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE	LTE	LTE	LTE	LTE		COMMSCOPE	NHH-65C-R2B	190	194	330(01) 80(02) 200(03)	false	false	PHYSICAL	9	NHH-65C-R2B
					5G	Ericsson	AIR6449	190	191.3	330(0001) 80(0002) 200(0003)	false	false	PHYSICAL	3	
Removed															
700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
No data available.															
Retained															
700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
No data available.															

1 ANTENNA SUMMARY
N.T.S.

NOTE:
THIS DETAIL IS SCHEMATIC AND IS INTENDED TO IDENTIFY ANTENNA AZIMUTHS. REFER TO DETAILS 1 & 2 ON THIS SHEET FOR EQUIPMENT MODELS AND QUANTITIES. REFER TO SHEET ANT-3A FOR MOUNT DETAILS.



3 ANTENNA PLAN SCHEMATIC
N.T.S.

Equipment Summary

Added														
Equipment Type	Location	700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
Hybrid Cable	Tower							COMMSCOPET-001	HFT1206-24SV4-xxxG			PHYSICAL	3	
RRU	Tower	LTE	LTE					Ericsson	4449			PHYSICAL	3	KRC161749/1
RRU	Tower			LTE	LTE	LTE		Ericsson	8843			PHYSICAL	6	KRC161707/2
RRU	Tower						5G	Ericsson	AIR6449			PHYSICAL	3	
Alarm	Tower							RAYCAPINC-001	3315-ALM-RS485			PHYSICAL	3	3315-ALM-RS485
OVP Box	Tower							RAYCAPINC-001	RVZDC-3315-PF-48		1-5/8 inch	PHYSICAL	3	RVZDC-3315-PF-48
Removed														
Equipment Type	Location	700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
No data available.														
Retained														
Equipment Type	Location	700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID
No data available.														

2 EQUIPMENT SUMMARY
N.T.S.

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
			ISSUED FOR REVIEW	JJR
			08/07/23	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY: TJS
CHECKED BY: TAZ
DATE: 03/14/23
PROJECT #: 107-056

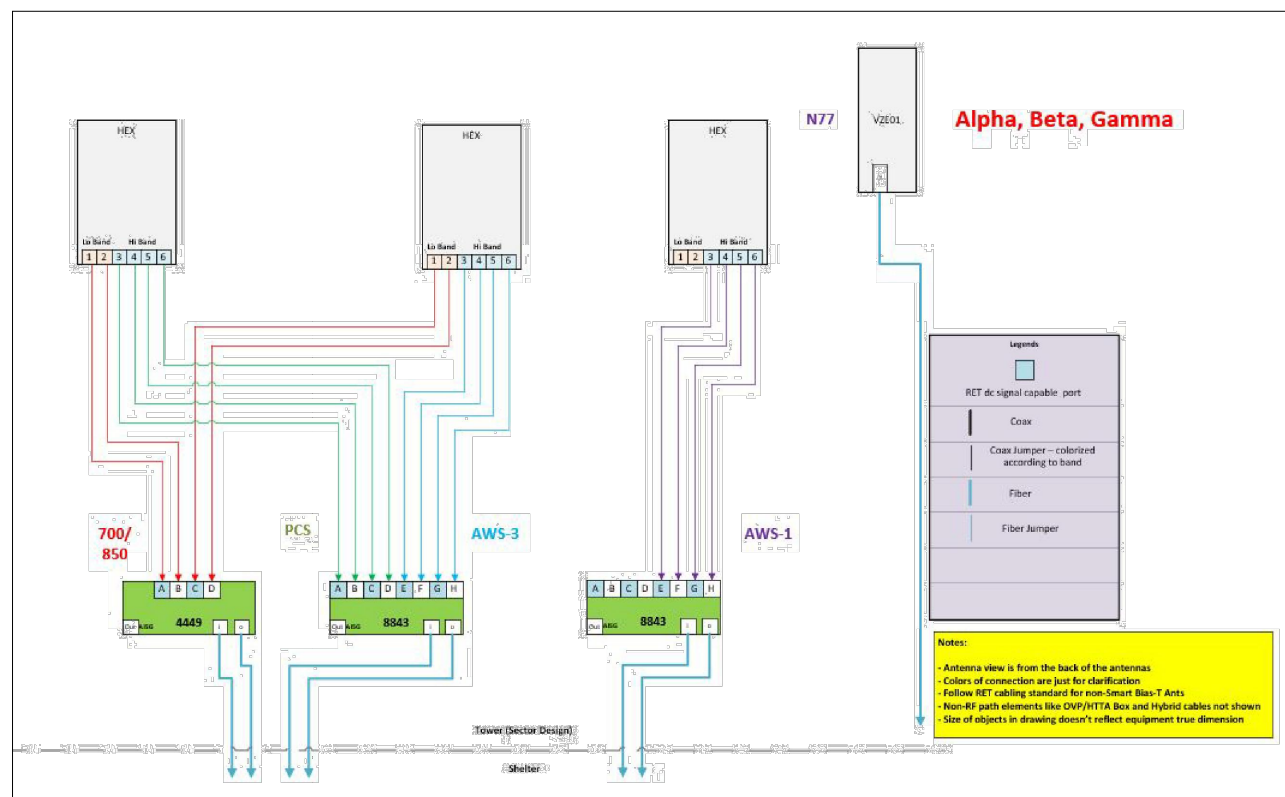
SHEET TITLE
ANTENNA INFORMATION

SHEET NUMBER
VW ANT-2

RF EMISSIONS REPORT REQUIRED

YES NO

DATE OF REPORT: _____



1 CABLE DIAGRAM
N.T.S.

SECTOR	HYBRID LENGTH		RAYCAP CL (±)	TOTAL (±)
	AT GROUND	AT STRUCTURE		
MAIN	HOR (±) 25'	VER (±) 8'	8'	190'

NOTE TO RF, G.C. & IMPLEMENTATION:
RAYCAP CHART IS CURRENTLY BEING UPDATED BY VERIZON WIRELESS. PRIOR TO FINAL AND CONSTRUCTION, CHART TO BE INSERTED. GC TO NOTIFY VERIZON WIRELESS IF THIS NOTE IS STILL ON THE DRAWINGS PRIOR TO CONSTRUCTION.

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

2 RAYCAP TABLE
N.T.S.

SEAL:

NO.	DESCRIPTION	DATE	BY

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY: TJS
CHECKED BY: TAZ
DATE: 03/14/23
PROJECT #: 107-056

SHEET TITLE
ANTENNA INFORMATION

SHEET NUMBER
VW ANT-2A

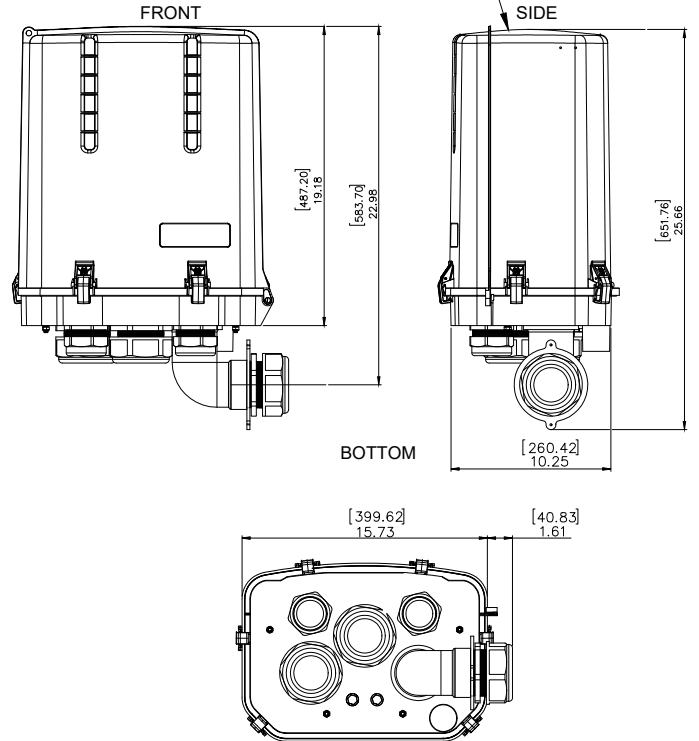
SPECIFICATIONS DC SURGE PROTECTION FOR RRU/INTEGRATED ANTENNA RADIO HEAD

APPLICATION: TOWER / BASE / ROOFTOP / ROOFTOP DISTRIBUTION MODELS

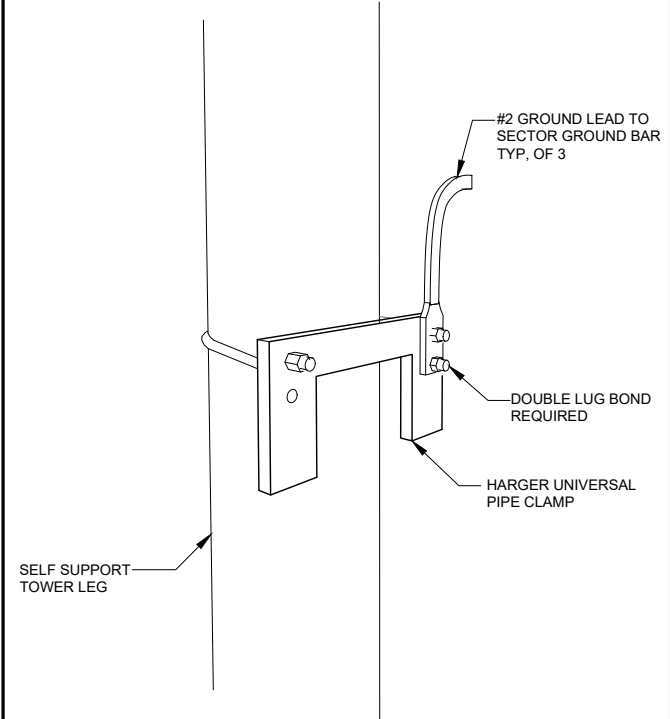
WEIGHT: 32LBS (14.51 KG)

[mm]
INCHES

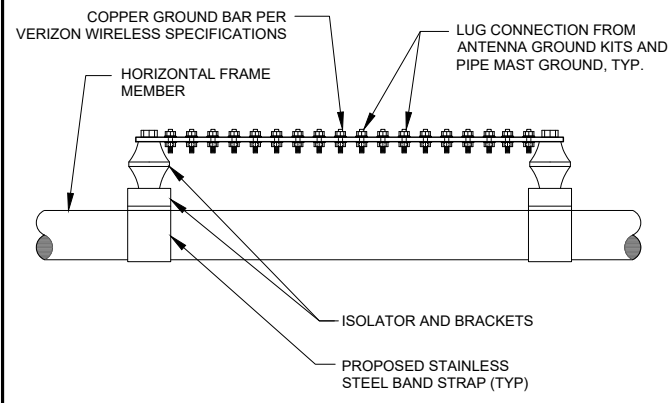
PROPOSED RAYCAP JUNCTION BOX MODEL# RCMDC-3315-PF-48



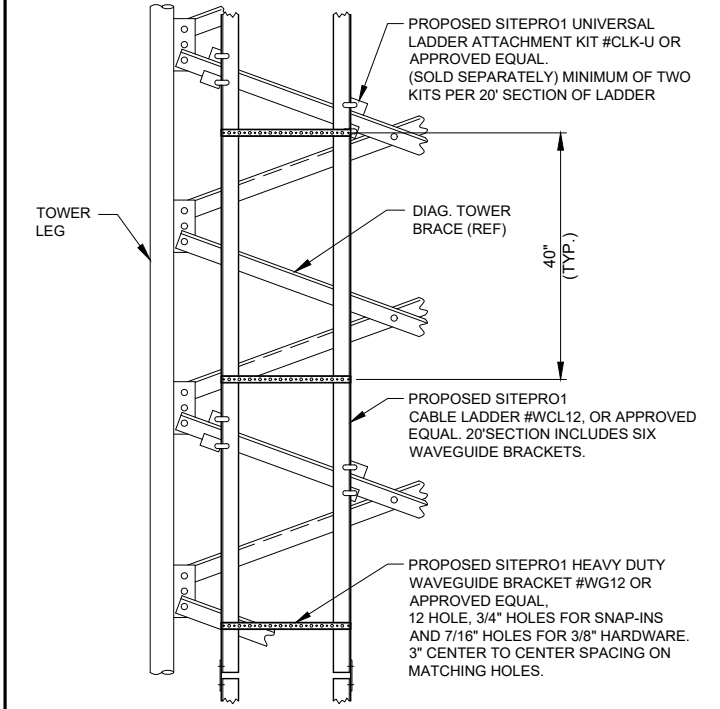
1 RAYCAP JUNCTION BOX DETAIL
SCALE: N.T.S.



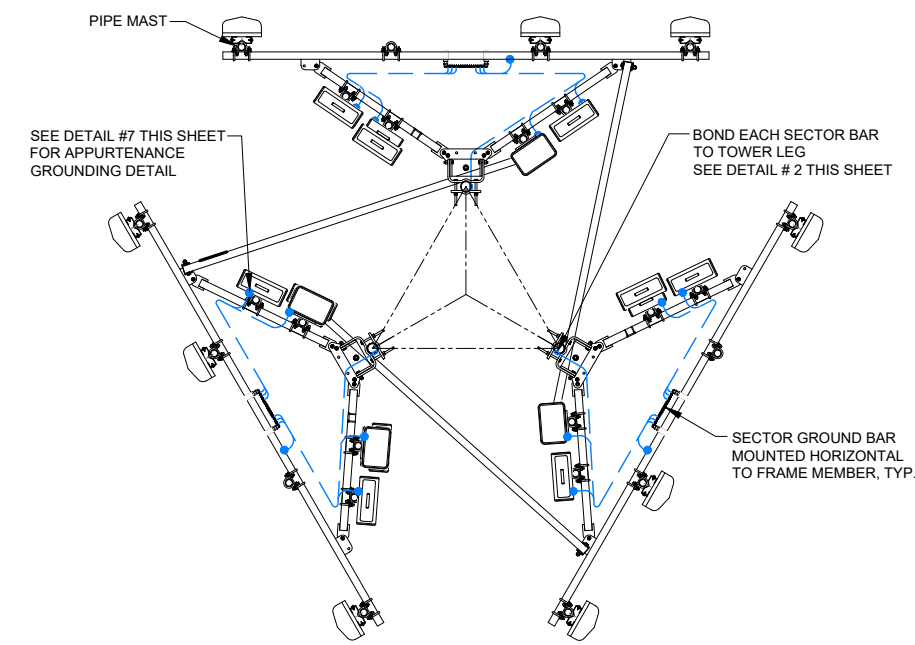
2 SELF SUPPORT TOWER (ROUND MEMBER)
SCALE: N.T.S.



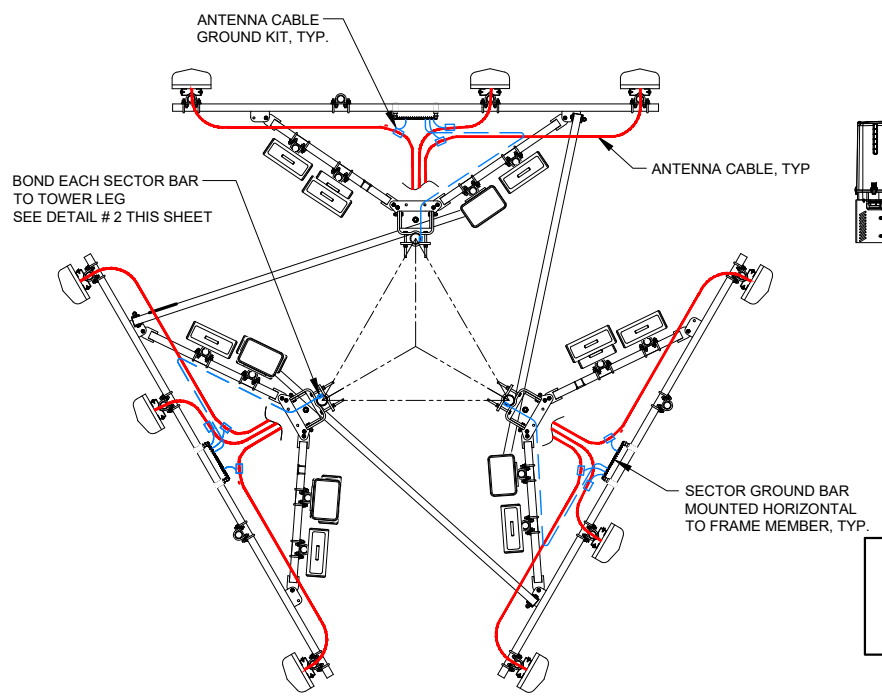
3 GROUND BAR AT SECTOR
N.T.S.



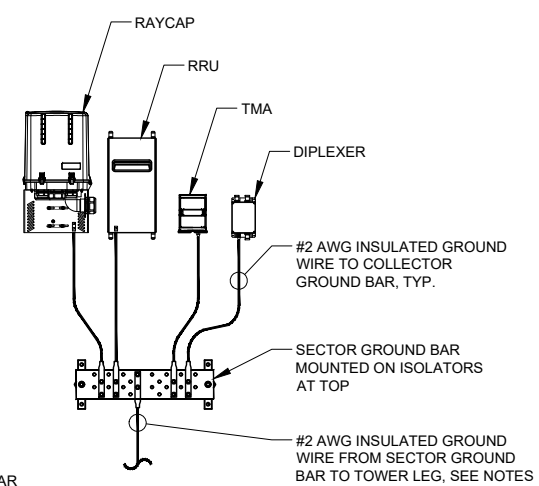
4 TRANSMISSION LINE HANGER
N.T.S.



5 EQUIPMENT GROUNDING AT ANTENNA ELEVATION
N.T.S.



6 ANTENNA CABLE GROUNDING AT ANTENNA ELEVATION
N.T.S.



THIS DETAIL IS CONCEPTUAL TO DEMONSTRATE GROUNDING AT THE ANTENNA LEVEL. VERIFY EQUIPMENT, MOUNTING FRAME, AND AZIMUTH WITH ANT-1 SHEET & ECR.

7 TYPICAL APPURTENANCE GROUNDING AT ANTENNA LEVEL
N.T.S.

APPROVED UL LISTED GROUND CLAMPS	
APPLICATION	UL LISTED HARGER PART #
METAL FLANGE	213, 213T, 213TTP
PIPE MEMBER	CPC SERIES (SIZED TO FIT DIAMETER OF PIPE)
LARGER PIPE MEMBER	UPC SERIES (UNIVERSAL PIPE CLAMP) SIZED TO FIT DIAMETER OF PIPE
TO TOWER LEG	HARGER UNIVERSAL PIPE CLAMP

- NOTES:**
- THE BOND BETWEEN THE SECTOR BAR AND THE TOWER IS TO BE MECHANICALLY BONDED TO TOWER LEG. THE MECHANICAL BOND IS TO BE A UL APPROVED MECHANICAL CONNECTION CLAMP.
 - GROUND CONNECTIONS MUST BE DOUBLE HOLE CONNECTION. SPECIAL EXCEPTION ONLY TO EQUIPMENT THAT WILL NOT ALLOW FOR A DOUBLE HOLE CONNECTION.

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY: TJS
CHECKED BY: TAZ
DATE: 03/14/23
PROJECT #: 107-056

SHEET TITLE
SITE DETAILS

SHEET NUMBER
VW ANT-3

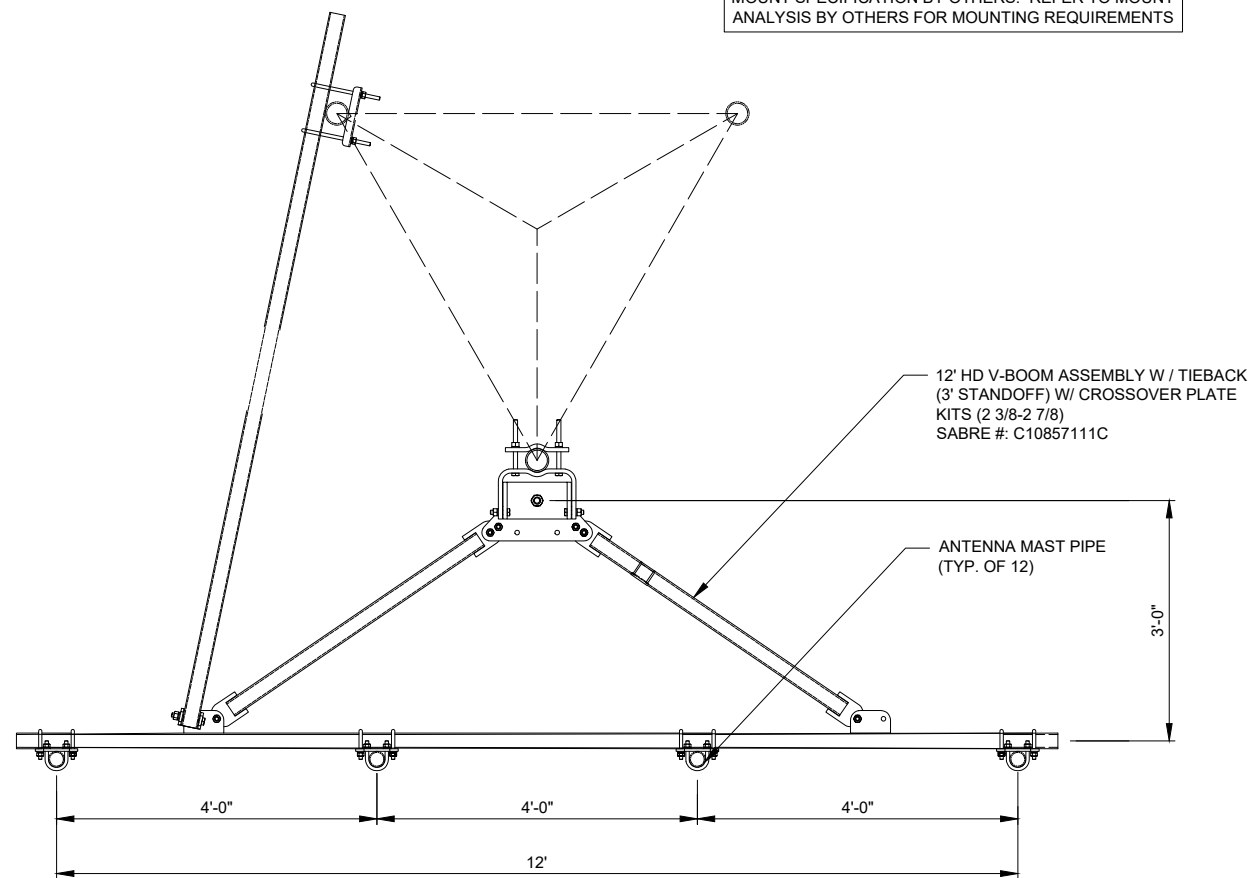
VERIZON WIRELESS NSTD-445 ANTENNA MOUNTING SYSTEM CLASSIFICATION STANDARD ASSUMPTIONS:

- MAXIMUM ALLOWABLE VERTICAL OFFSET FROM MOUNT CENTERLINE TO ANTENNA CENTERLINE IS 6".
- MOUNT PIPES ARE ASSUMED TO BE EQUALLY SPACED ON EACH SECTOR, WITH AN ALLOWABLE 6" MAXIMUM HORIZONTAL OFFSET FROM EQUAL SYMMETRIC SPACING.
- ALL APPURTENANCES/EQUIPMENT MUST BE ATTACHED TO MOUNT PIPES ON MOUNT FACE (NOT ON SECTOR FRAME ARMS).
- ANTENNAS MOUNTED ON SIDE-BY-SIDE BRACKETS ARE NOT PERMITTED.
- MAXIMUM NUMBER OF MOUNT PIPES IS INDICATED IN MOUNT CLASSIFICATION.
- IF SITE CONDITIONS ARE OUTSIDE OF THESE PARAMETERS, CONTACT ENGINEER OF RECORD FOR ALTERNATIVE OPTIONS.

NOTES:

1. 7/8" O.D. MOUNTING PIPES MUST BE PURCHASED SEPARATELY.
2. QUANTITIES SHOWN IN LISTS OF MATERIAL ARE FOR ONE (1) V-BOOM ONLY
3. THIS V-BOOM WILL MOUNT TO THE FOLLOWING: 1 1/2" Ø TO 5 9/16"Ø ROUND LEG.
4. TIEBACK MUST BE CONNECTED TO A RIGID MEMBER THAT PROVIDES ADEQUATE SUPPORT WITHIN THE LIMITS NOTED ABOVE IN THE TIEBACK ANGLE RANGE DETAIL UNLESS APPROVED BY THE ENGINEER OF RECORD

NOTE:
MOUNT SPECIFICATION BY OTHERS. REFER TO MOUNT ANALYSIS BY OTHERS FOR MOUNTING REQUIREMENTS



1 MOUNTING OPTION
SHOWING MOUNTING PIPE PLACEMENTS

NOTE:

UNLESS SPECIFIED DIFFERENTLY IN RFDS, G.C. TO MOUNT ANTENNAS WITH 700 TECHNOLOGY ON OPPOSITE ENDS OF FRAME.

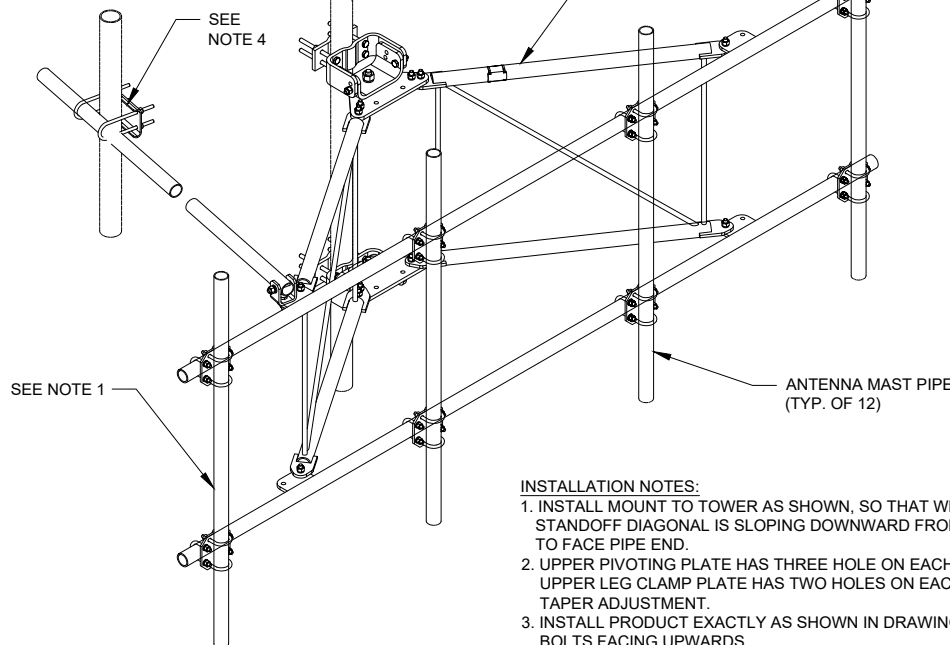
ANTENNAS & EQUIPMENT TO BE INSTALLED PER MOUNT MANUFACTURER'S RECOMMENDED MOUNTING LOCATIONS

G.C. TO ADJUST HEIGHT OF PLATFORM BY ±6" AS NEEDED TO AVOID CLIMBING FACILITIES. G.C. IS NOT TO REMOVE OR DAMAGE CLIMBING FACILITIES DURING INSTALLATION.

1 PLAN VIEW
N.T.S.

TIEBACK ANGLE RANGE DETAIL

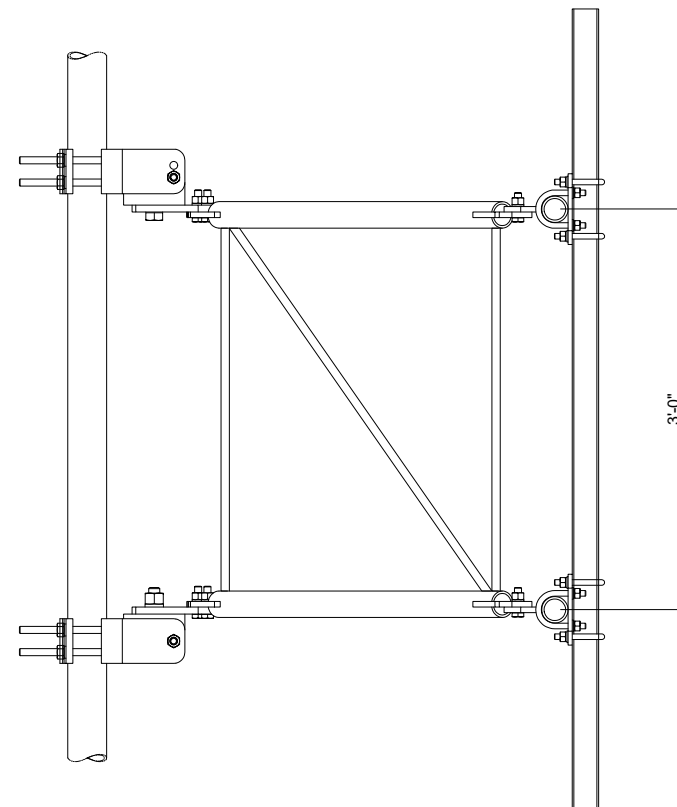
- +/- 15 DEGREES VERTICAL
- +/- 25 DEGREES HORIZONTAL
- +15 DEGREES
- 25 DEGREES
- +25 DEGREES
- 15 DEGREES



INSTALLATION NOTES:

1. INSTALL MOUNT TO TOWER AS SHOWN, SO THAT WELDED STANDOFF DIAGONAL IS SLOPING DOWNWARD FROM TOWER END TO FACE PIPE END.
2. UPPER PIVOTING PLATE HAS THREE HOLES ON EACH SIDE AND UPPER LEG CLAMP PLATE HAS TWO HOLES ON EACH SIDE FOR TAPER ADJUSTMENT.
3. INSTALL PRODUCT EXACTLY AS SHOWN IN DRAWING, M WITH ALL BOLTS FACING UPWARDS.

2 ISOMETRIC VIEW
N.T.S.



3 PROPOSED PLATFORM SUPPORT SIDE VIEW
N.T.S.

PLANS PREPARED BY:

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW		08/07/23	JJR

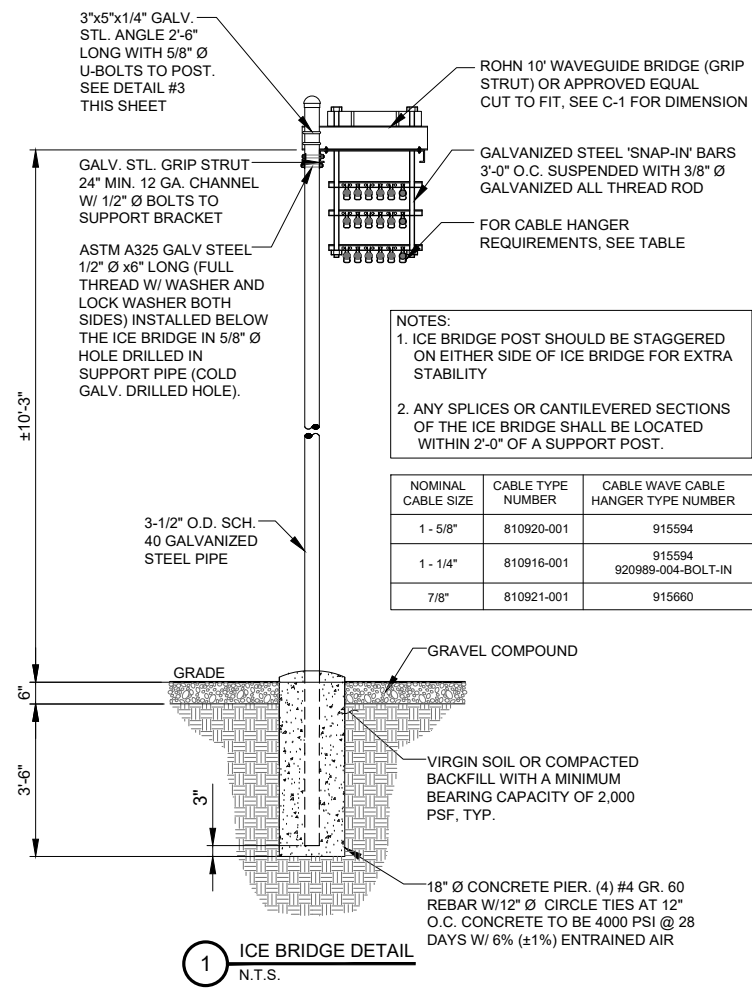
SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY: TJS
CHECKED BY: TAZ
DATE: 03/14/23
PROJECT #: 107-056

SHEET TITLE
ANTENNA MOUNTING DETAILS

SHEET NUMBER

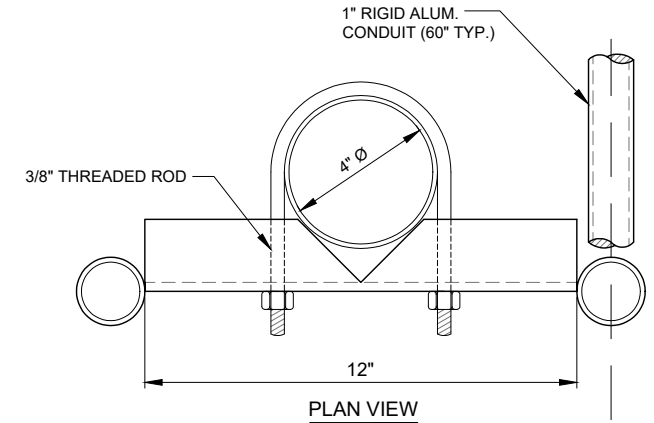
VW ANT-3A



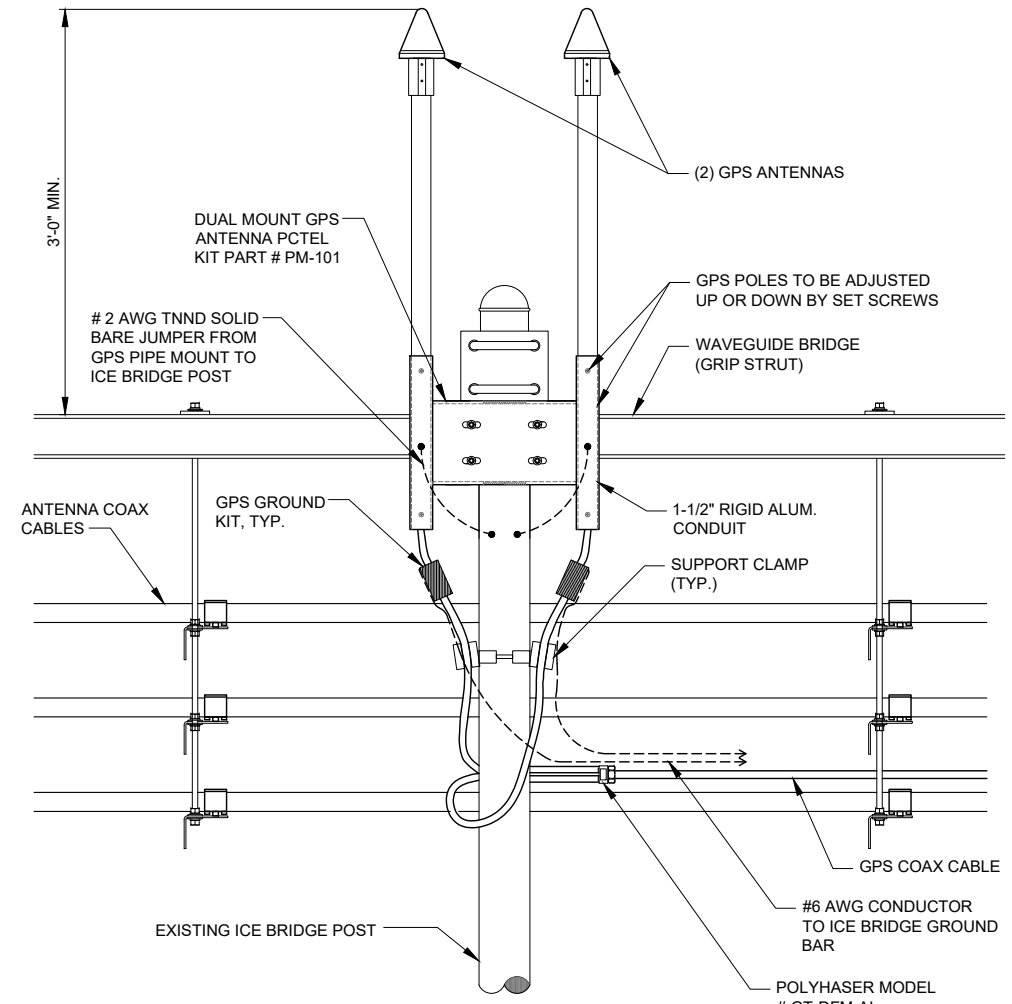
NOTES:
 1. ICE BRIDGE POST SHOULD BE STAGGERED ON EITHER SIDE OF ICE BRIDGE FOR EXTRA STABILITY
 2. ANY SPLICES OR CANTILEVERED SECTIONS OF THE ICE BRIDGE SHALL BE LOCATED WITHIN 2'-0" OF A SUPPORT POST.

NOMINAL CABLE SIZE	CABLE TYPE NUMBER	CABLE WAVE CABLE HANGER TYPE NUMBER
1 - 5/8"	810920-001	915594
1 - 1/4"	810916-001	915594 920989-004-BOLT-IN
7/8"	810921-001	915660

1 ICE BRIDGE DETAIL
N.T.S.

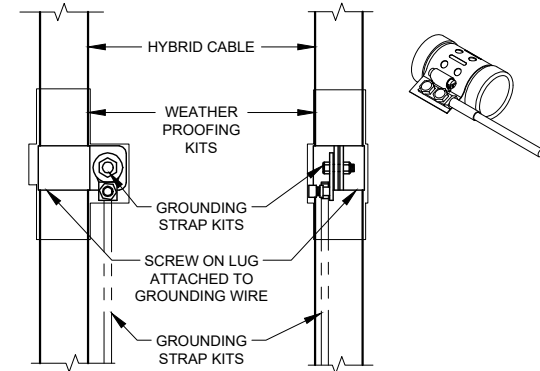


PLAN VIEW



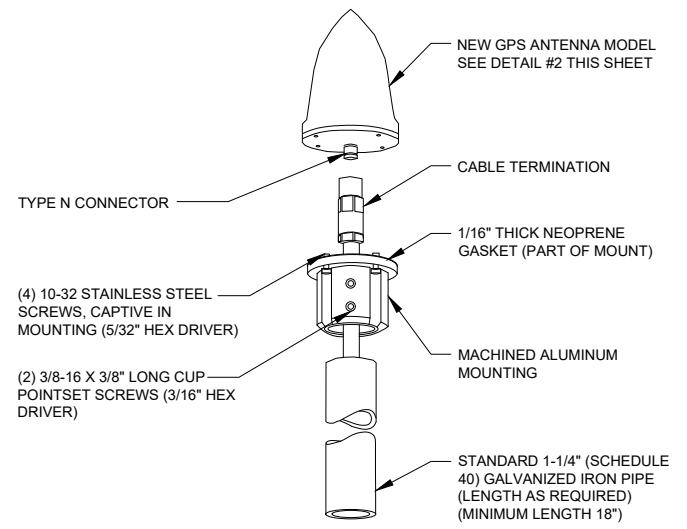
2 GPS MOUNTING DETAIL
N.T.S.

NOTES:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. THIS DETAIL IS TYPICAL FOR EACH CABLE WHERE IT IS SPECIFIED TO BE GROUNDED
 3. CABLE TO BE GROUNDED AT ANTENNA LEVEL AND PRIOR TO ENTERING SHELTER ENTRY PANEL.
 4. CABLE ALSO TO BE GROUNDED TO GROUND BAR AT TOWER BASE IF APPLICABLE.
 5. USE ONLY TIN PLATED GROUNDING KITS.



4 COAX/HYBRID GROUND KIT DETAIL
N.T.S.

NOTE:
 INSTALL EACH GPS ON THE CLOSEST ICE BRIDGE POSTS TO SHELTER (TYP. AT 2 LOCATIONS).



3 TYPICAL GPS DETAIL
N.T.S.

SEAL:

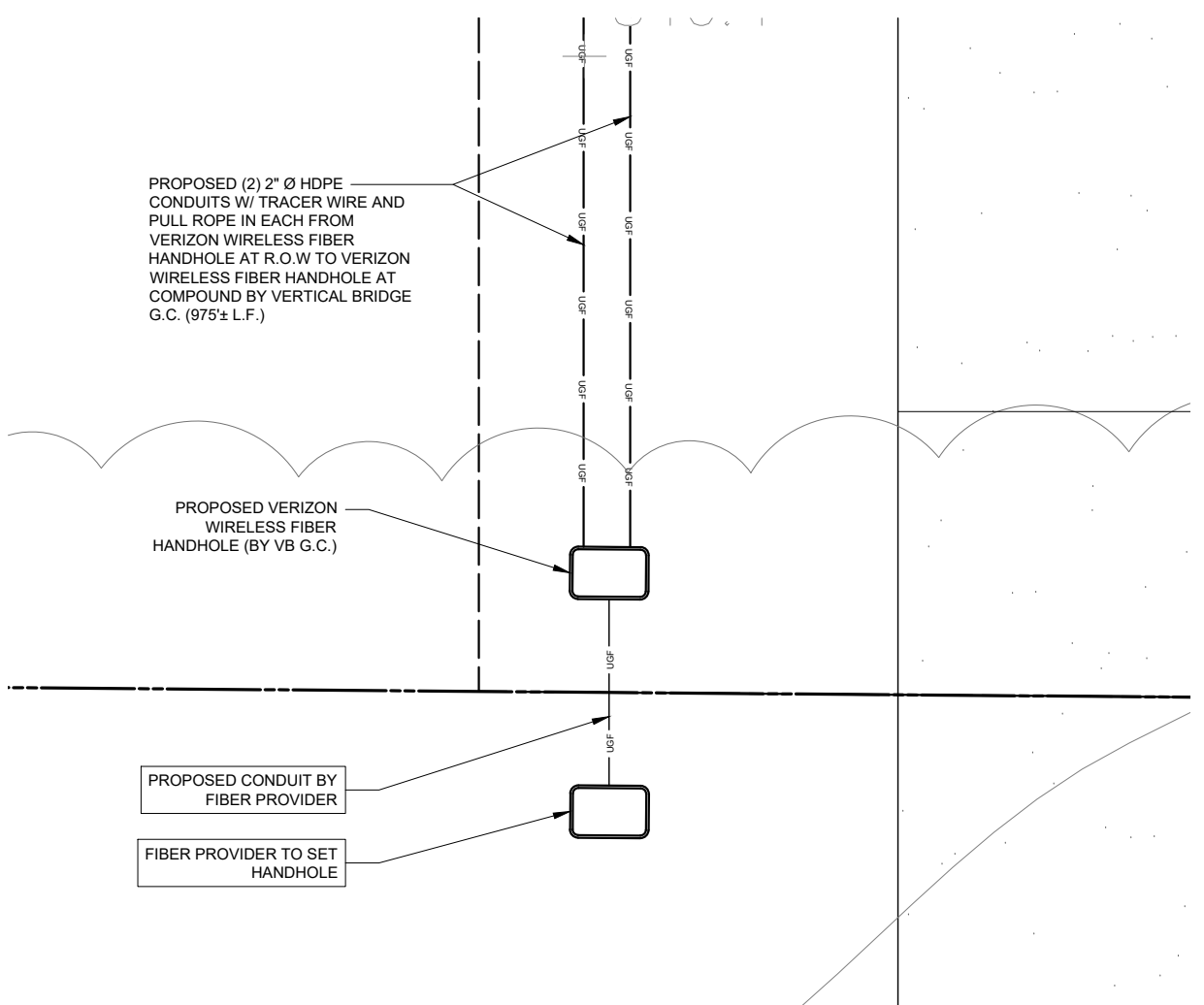
NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE DETAILS

SHEET NUMBER
VW ANT-4



2 UTILITY ROUTING PLAN AT R.O.W.
SCALE: 1" = 5'

COORDINATION WITH UTILITY COMPANY

THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANIES FOR A COMPLETE OPERATIONS SYSTEM, INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS

CONDUITS AND WIRING

1. WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE, OR AS APPROVED BY THE ENGINEER.
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE COPPER (CU) TYPE THWN, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
3. RACEWAYS SHALL BE GALVANIZED STEEL, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, UNLESS OTHERWISE NOTED. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION.
4. PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE INSTALLATION OF RACEWAYS AND WIRING.
5. PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.

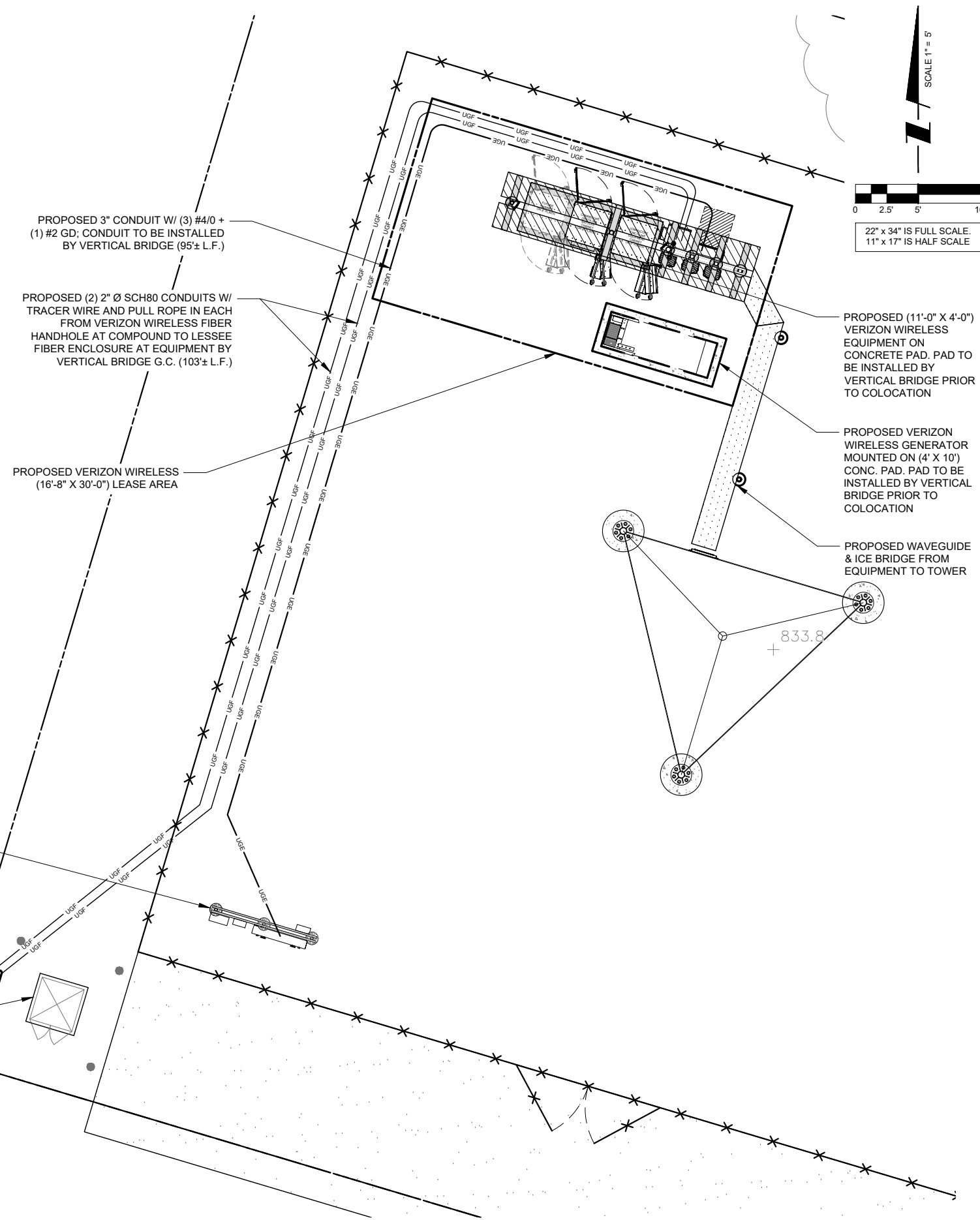
CODES AND STANDARDS

ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
 NEC NATIONAL ELECTRICAL CODE, LATEST ADOPTED EDITION
 NEMANATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
 NFPA NATIONAL FIRE PROTECTION ASSOCIATION
 UL UNDERWRITERS LABORATORIES, INC.

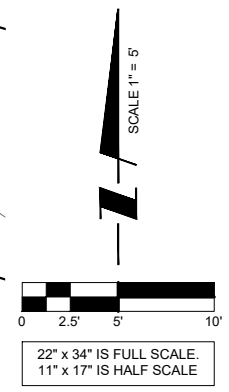
UTILITY PROVIDE INFORMATION

POWER COMPANY: COMPANY NAME
 CONTACT: CONTACT NAME
 PHONE: (XXX) XXX-XXXX

- PROPOSED MULTI-GANG METER AND FIBER H-FRAME, MINIMUM 5' CLEARANCE TO FENCE BY VERTICAL BRIDGE
- PROPOSED VERIZON WIRELESS FIBER HANDHOLE (BY VB G.C.)
- PROPOSED PAD MOUNTED TRANSFORMER BY UTILITY COMPANY



1 UTILITY ROUTING PLAN
SCALE: 1" = 5'



verticalbridge
 750 PARK OF COMMERCE DRIVE
 SUITE 200
 BOCA RATON, FL 33487
 www.verticalbridge.com

PLANS PREPARED BY:
TERRA
 CONSULTING GROUP, LTD.
 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 PH: 847-698-6400
 FAX: 847-698-6401

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
UTILITY ROUTING PLAN

SHEET NUMBER
VW-E-1

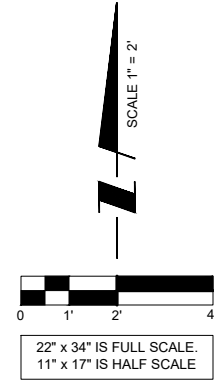
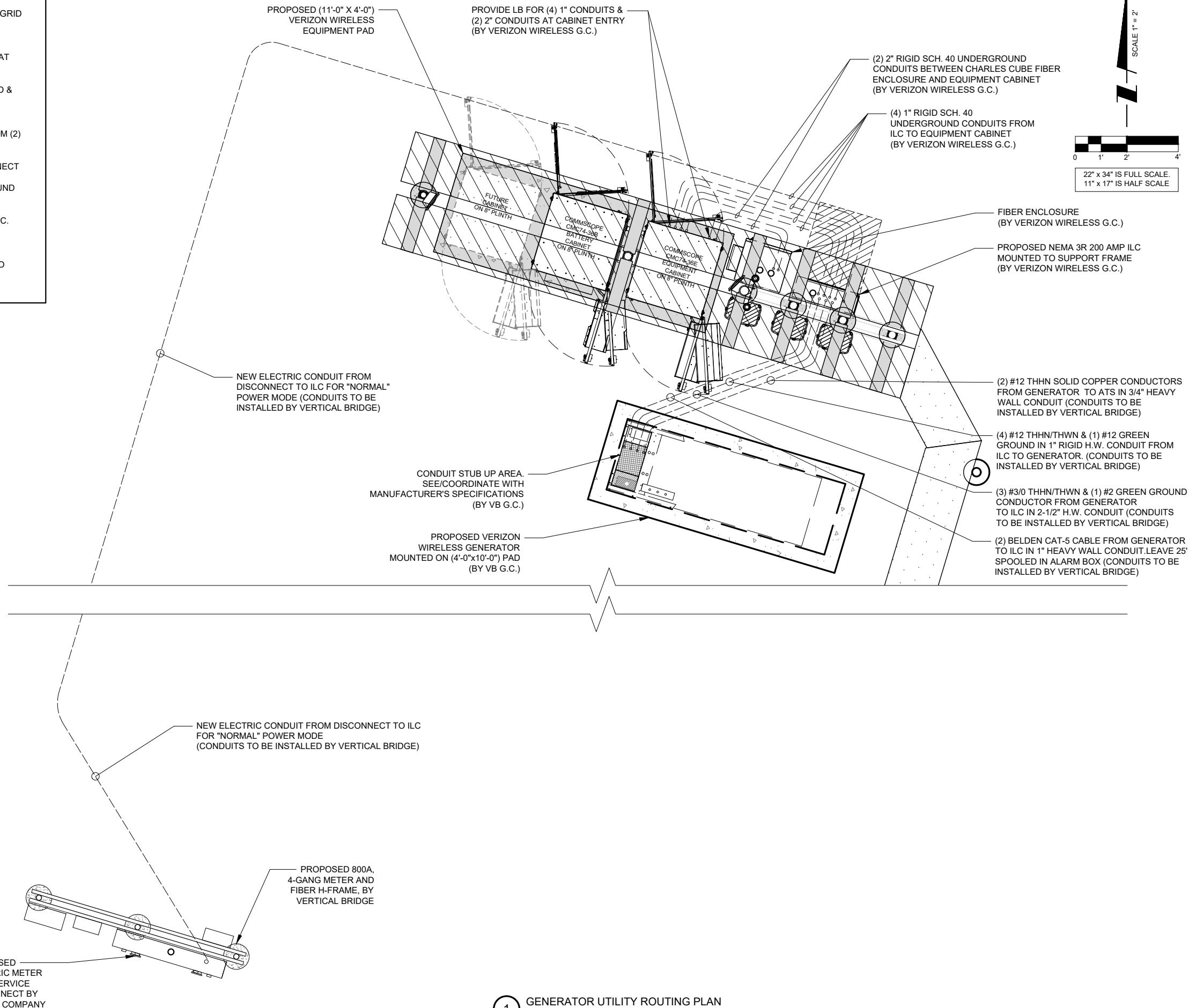
NOTES:

- 1) SEE DETAILS ON EXISTING GROUND GRID AND GENERATOR GROUND GRID FOR REQUIRED GROUNDING SYSTEM.
- 2) NEW AUTOMATIC TRANSFER SWITCH, INSTALLED AND WIRED BY E.C. CONNECT EXTERNAL GROUND LUG AND GROUNDING CONDUCTOR THAT WAS REMOVED FROM MANUAL TRANSFER SWITCH.
- 3) E.C. MUST LOCATE GROUND GRID INSTALLED FOR NEW EQUIPMENT PAD & PROVIDE THE ATTACHMENT OF THE GENERATOR GROUND TO THE EQUIPMENT GRID FOR SINGLE POINT GROUNDING.
- 4) E.C. TO EXTEND #2 TINNED SOLID COPPER GROUND CONDUCTORS FROM (2) LOCATIONS ON GENERATOR FRAME (SEE MANUFACTURERS RECOMMENDATIONS) PROVIDE GROUND LUGS ON GENERATOR AS REQUIRED. EXTEND #1/0 STRANDED GROUND CONDUCTOR AND CONNECT TO COPPER CLAD GROUND RODS VIA HEAVY DUTY EXOTHERMIC TERMINATIONS AND THEN EXTENDED AND ATTACH TO BUILDING GROUND GRID VIA EXOTHERMIC TERMINATIONS.
- 5) NEW GENERATOR FURNISHED BY LESSEE. INSTALLED AND WIRED BY E.C. DELIVERED AND SET BY CONTRACTOR.
- 6) E.C. MUST MONITOR DC POWER WHEN ON BATTERY BACK-UP DURING PORTIONS OF CONSTRUCTION. IF LEVEL FALLS BELOW RECOMMENDED LEVEL 2256 DC, E.C. MUST TURN ON THE MAIN POWER. THE CELL SITE CANNOT GO OFF LINE AT ANYTIME.



Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

NOTE:
CONTRACTOR TO VERIFY ROUTES WITH LOCAL UTILITY COMPANY PRIOR TO INSTALLATION.



verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW		08/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
**GENERATOR
UTILITY ROUTING PLAN**

SHEET NUMBER
VW E-1B

ELECTRICAL INSTALLATION NOTES

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS THE NATIONAL ELECTRICAL CODE (N.E.C.), AND ALL APPLICABLE LOCAL CODES.
- WIRING RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE N.E.C.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE N.E.C.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER CABLE TRAY RUNGS.
- EACH END OF EVERY POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH N.E.C. & OSHA
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE, ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE NOTED.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER) 600 V, OIL RESISTANT THHN OR THHN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR LOCATION USED, UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE)
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND N.E.C.
- ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED; IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREWS FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND N.E.C.
- WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL) AND RATED NEMA 1 (OR BETTER).
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1(OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS

- METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED; OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY

GROUNDING NOTES

- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE N.E.C.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT & PROVIDE TESTING RESULTS.
- METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- METAL RACEWAY SHALL NOT BE USED AS THE N.E.C. REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE N.E.C., SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS, IF REQUIRED BY EQUIPMENT INSTALLATION INSTRUCTIONS (NEC 110-3 (B)).
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE N.E.C.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH (1) #2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.



PLANS PREPARED BY:

SEAL:

NO.	DESCRIPTION	DATE	BY	REVISIONS			
				DATE	BY	DESCRIPTION	NO.
1	ISSUED FOR REVIEW	08/07/23	JJR				

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
 16103 TAILOR ROAD
 L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
ELECTRICAL AND GROUNDING NOTES

SHEET NUMBER
VW E-3

TYPICAL KEYED GROUNDING NOTES (—)

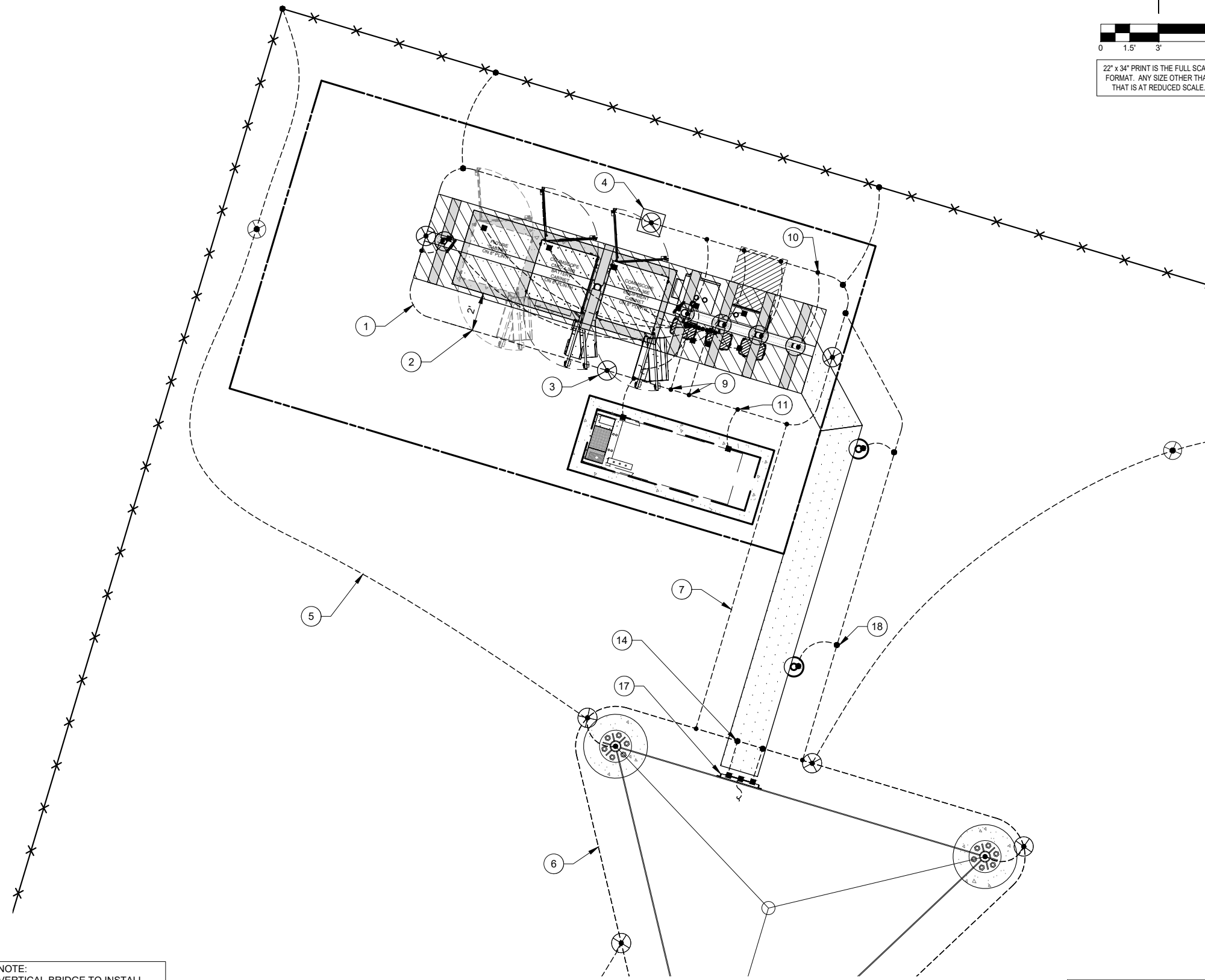
- ① #2 AWG TNN D SOLID BARE COPPER CONDUCTOR 42" BELOW GRADE (TYPICAL) MINIMUM 24" BENDING RADIUS (BY VERTICAL BRIDGE)
- ② MAINTAIN TWO FOOT DISTANCE OFF OF STRUCTURES. (BY VERTICAL BRIDGE)
- ③ 5/8" x 10' COPPER CLAD GROUND ROD (BY VERTICAL BRIDGE)
- ④ 5/8"Ø 10' LONG COPPERCLAD GROUND ROD WITH INSPECTION WELL, TOP OF GROUND ROD MAX 24" BURY (BY VERTICAL BRIDGE)
- ⑤ PROPOSED COMPOUND GROUND RING (BY VERTICAL BRIDGE)
- ⑥ PROPOSED TOWER GROUND RING (BY VERTICAL BRIDGE)
- ⑦ BOND TOWER GROUND RING TO PROPOSED PLATFORM/ PAD GROUND RING WITH #2 AWG TNN D SOLID COPPER CONDUCTOR IN 2 LOCATIONS. (BY VERTICAL BRIDGE)
- ⑧ PROVIDE AN EXTERNAL #2 TNN COATED GROUND LEAD FROM GROUND RING TO ALL METAL CABINETS ON UTILITY BACKBOARD (TELCO,ELECTRIC,BREAKER PANELS, METER RACKS, JUNCTION BOXES, ETC.) SLEEVED IN CONDUIT FROM JUST BELOW GRADE TO SAND CABINETS USING BURNDY TYPE 2 LONG BARREL LUGS WITH NO-OK OR COPPER SHIELD (BY VERTICAL BRIDGE)
- ⑨ TWO #2 LEADS FROM THE EGR TO THE GROUND BAR AT UTILITY FRAME LOCATED ON PLATFORM/PAD STEEL. CADWELDED AT EGR AND DOUBLE HOLE LUGS ON PLATFORM/PAD. (BY VERTICAL BRIDGE)
- ⑩ # 2 LEADS FROM THE EGR TO PLATFORM/ PAD CORNER POST, STEEL COLUMN, STEEL BEAM, ICE BRIDGE POST & CANOPY GROUND (BY VERTICALBRIDGE)
- ⑪ EXTEND GROUND CONDUCTORS IN 1/2" RIGID H.W. CONDUIT ADJACENT TO PAD, OFFSET AND ATTACH TO EXTERIOR OF GENERATOR HOUSING AND EXTEND TO GROUND LUGS AS REQUIRED, VERIFY LOCATION WITH GENERAC. (BY VERTICAL BRIDGE)
- ⑫ VZW DISCONNECT AND ELECTRIC SERVICE GROUND TO GROUND ROD (BY VERTICAL BRIDGE)
- ⑬ GROUND CHAIN LINK FENCE (TYPICAL) EXOTHERMIC CONNECTION. GROUND FENCE POST WITHIN 6 FEET OF EQUIPMENT (BY VERTICAL BRIDGE)
- ⑭ EXOTHERMICALLY WELD COPPER GROUND BAR TAIL TO HALO GROUND RING (EXOTHERMIC CONNECTION TYPE TA) BY ANTENNA CONTRACTOR. FINAL CONNECTION (BY VERIZON WIRELESS G.C.)
- ⑮ CABINET GROUND BOLTED TO UNIT HOUSING (BY VERIZON WIRELESS G.C.)
- ⑯ GROUND COAXIAL ANTENNA CABLES TO GROUND BAR BY ANTENNA CONTRACTOR TERMINATE CABLES 1'-0" FROM PLATFORM AND INSTALL LIGHTNING SURGE ARRESTORS ON EACH CABLE GROUND. (BY VERIZON WIRELESS G.C.)
- ⑰ 4"X20"X1/4" TNN D INSULATED COPPER GROUND BAR, NON ISOLATED WITH 10.0' LONG #2 AWG TNN D SOLID COPPER WIRE WELDED TAILS (HARGER GBIT 14420VW) (BY VERIZON WIRELESS G.C.)
- ⑱ GROUND CABLE WAVEGUIDE BRIDGE (TYP.) (BY VERIZON WIRELESS)
- ⑲ MGB MOUNTED TO H-FRAME (BY VERIZON WIRELESS)
- ⑳ ALL GROUNDING CONNECTIONS TO VERIZON WIRELESS EQUIPMENT BY VERIZON WIRELESS G.C.

THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING THE SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED.

SYMBOLS LEGEND

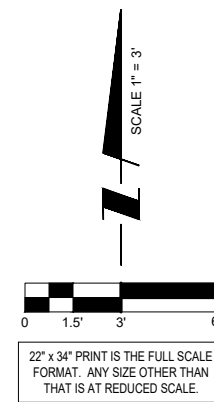
- | | | | |
|--|------------------------|--|----------------------------|
| | GROUND ROD WITH ACCESS | | MECHANICAL CONNECTION |
| | GROUND ROD | | GROUND BAR |
| | EXOTHERMIC CONNECTION | | VERTICAL BRIDGE GROUNDING |
| | SPARE GROUND LEAD | | VERIZON GROUNDING |
| | | | GROUND BAR OR ARRESTER BAR |

NOTE:
VERTICAL BRIDGE TO INSTALL GROUND RING. VERIZON WIRELESS G.C. TO MAKE ABOVE GROUND CONNECTIONS



1 VERIZON WIRELESS GROUNDING PLAN
SCALE: 1" = 3'

NOTE:
SEE GROUNDING DETAILS ON SHEET E-5



verticalbridge
750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487
www.verticalbridge.com

PLANS PREPARED BY:
TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

SEAL:

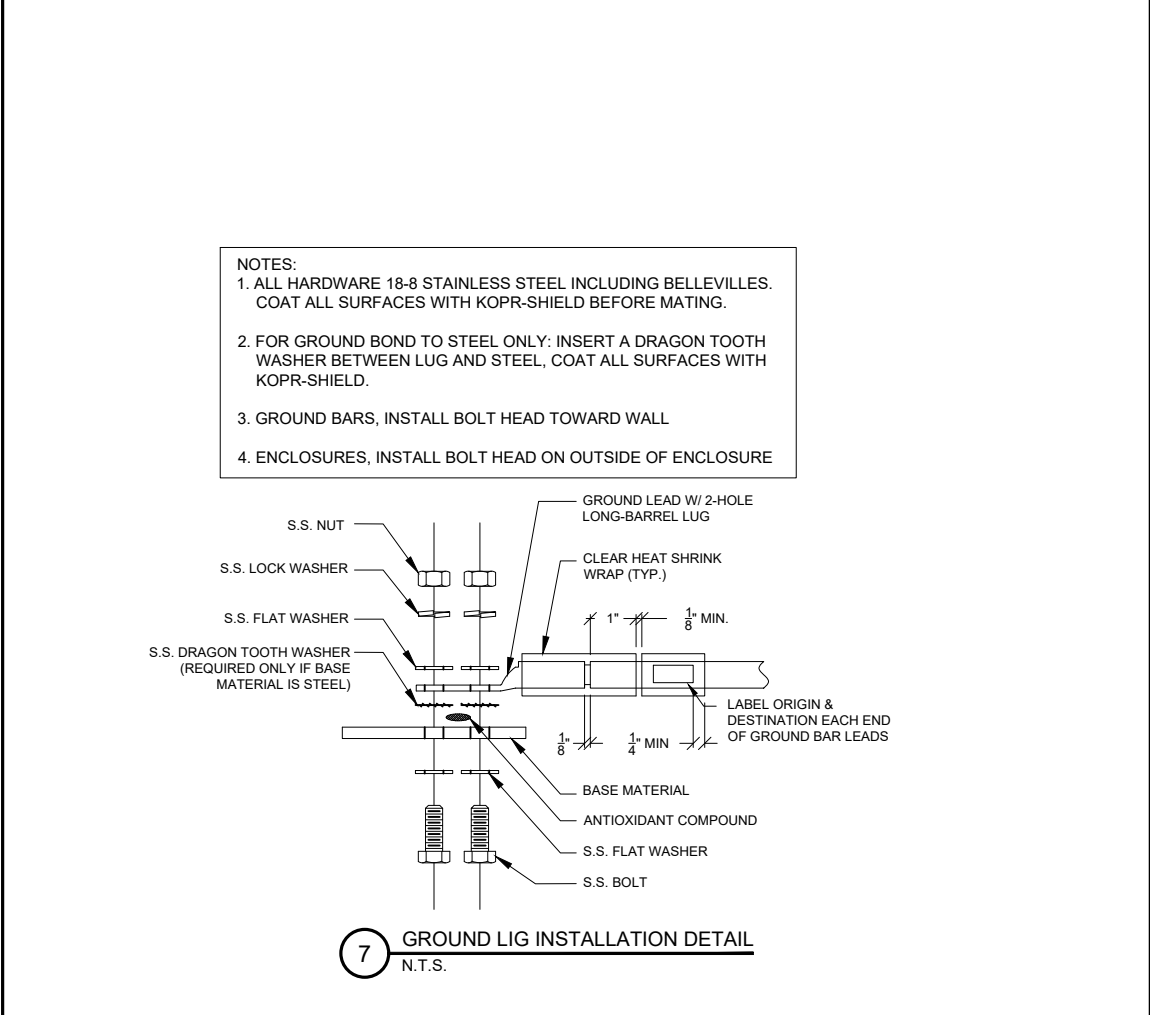
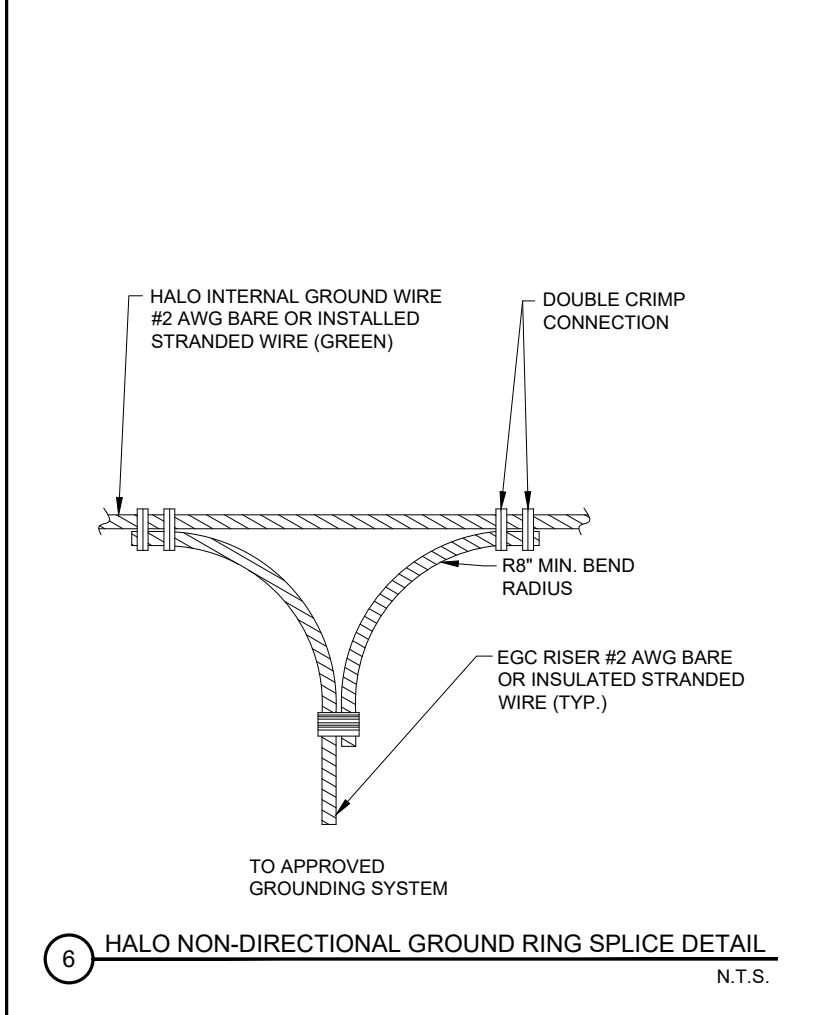
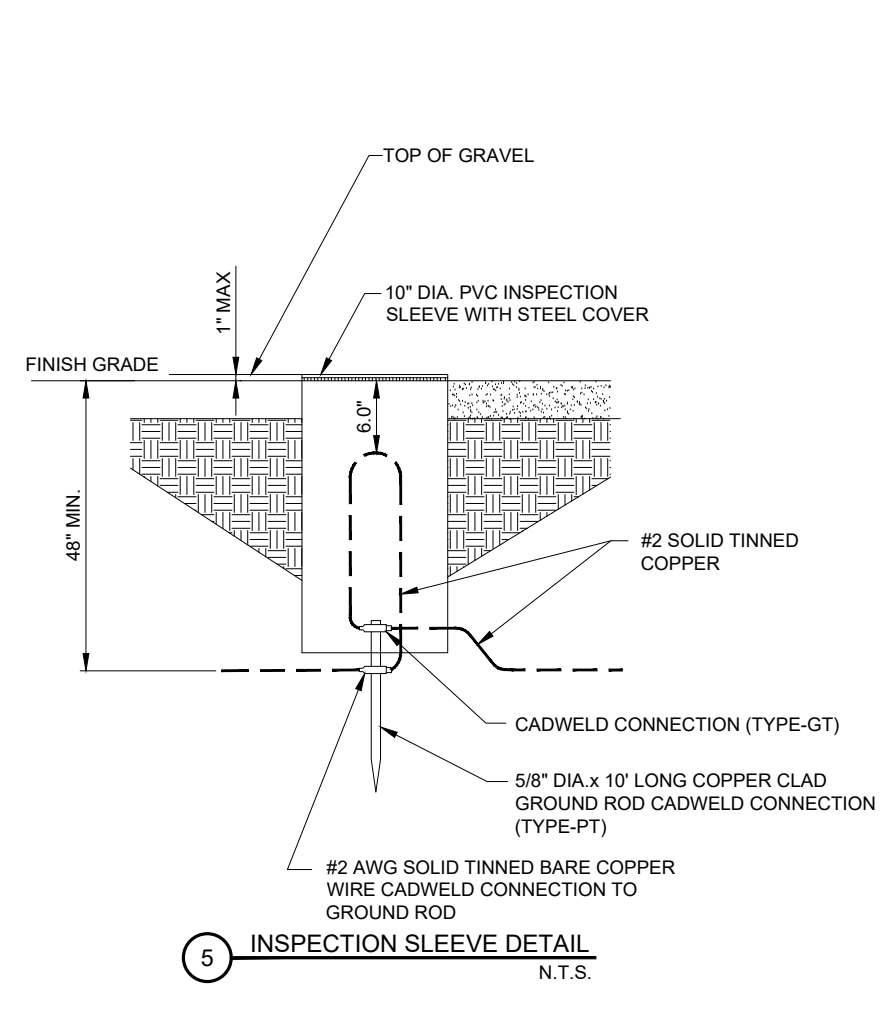
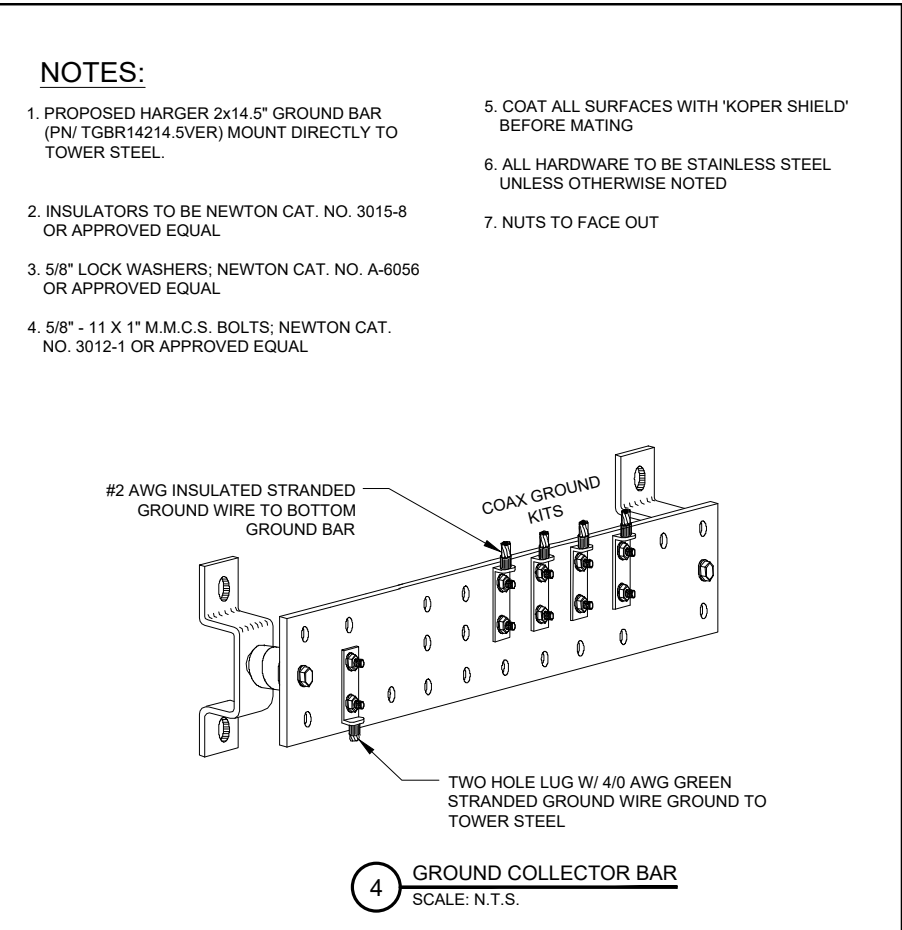
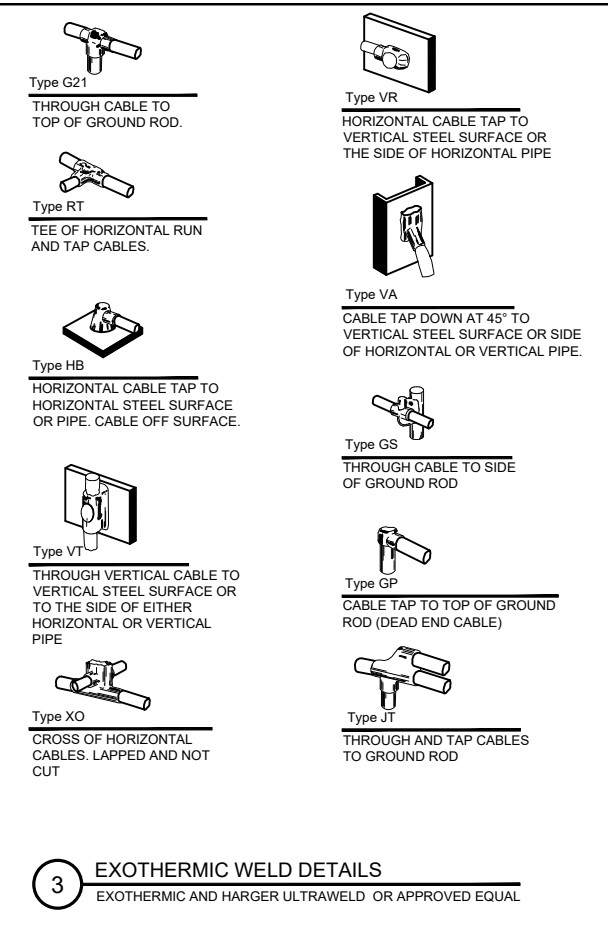
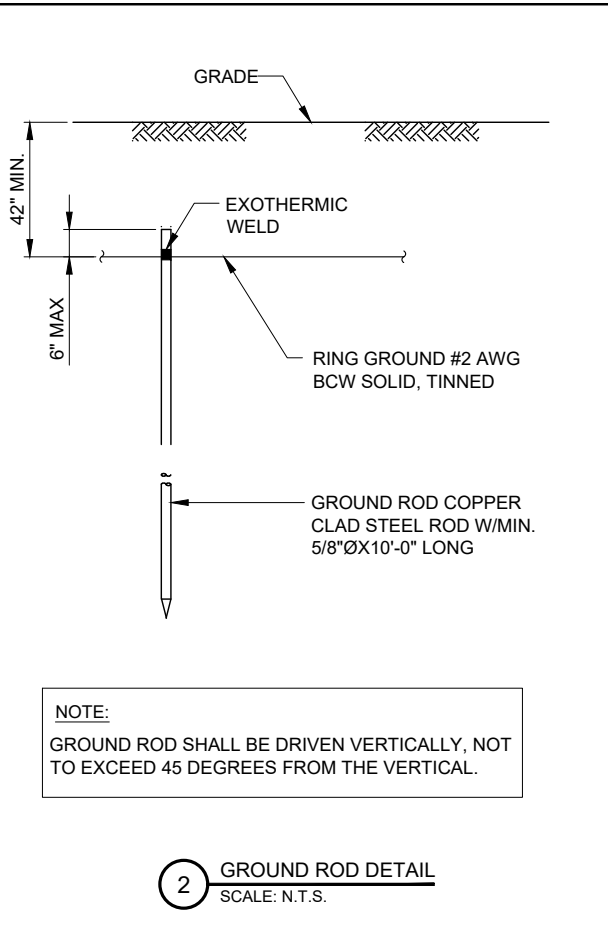
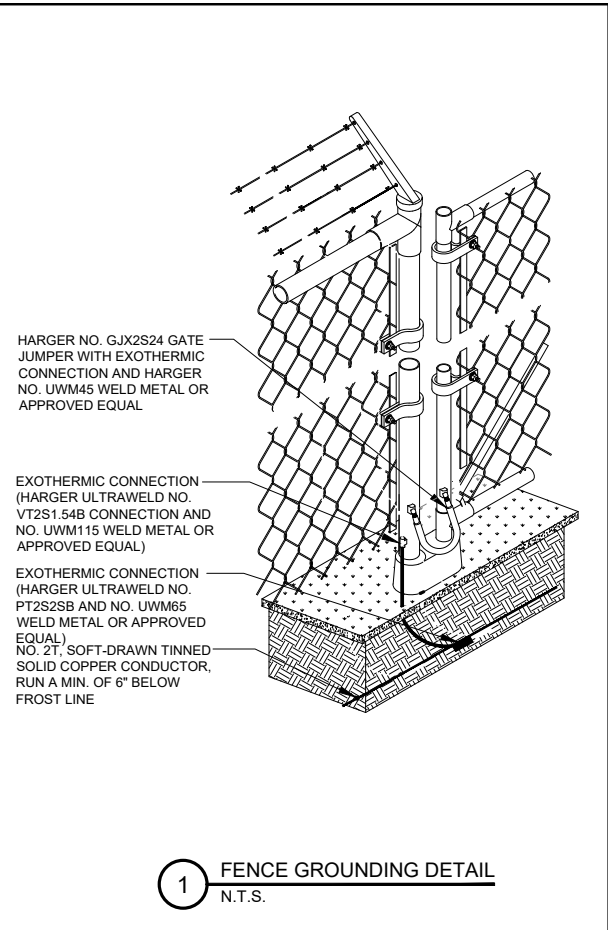
NO.	REVISIONS	DESCRIPTION	DATE	BY
			ISSUED FOR REVIEW	JJR
			08/07/23	

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
SITE GROUNDING PLAN

SHEET NUMBER
VW E-4



SEAL:

NO.	REVISIONS	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/07/23	JJR	

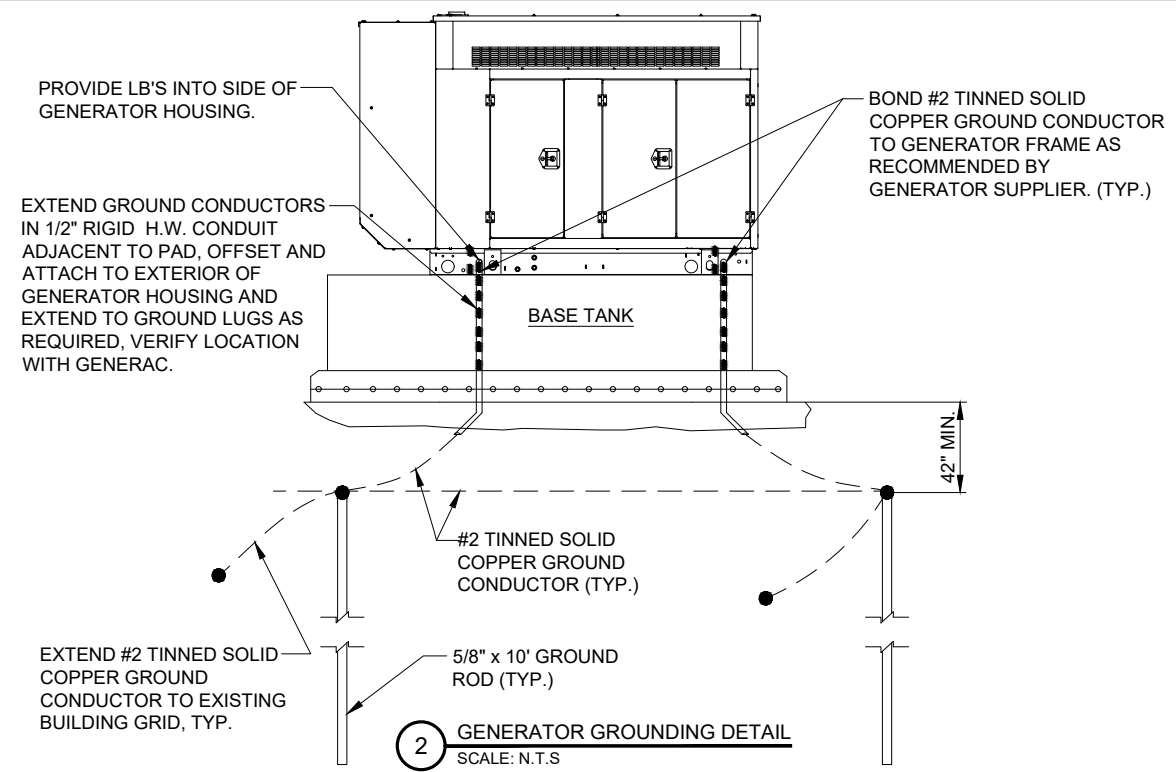
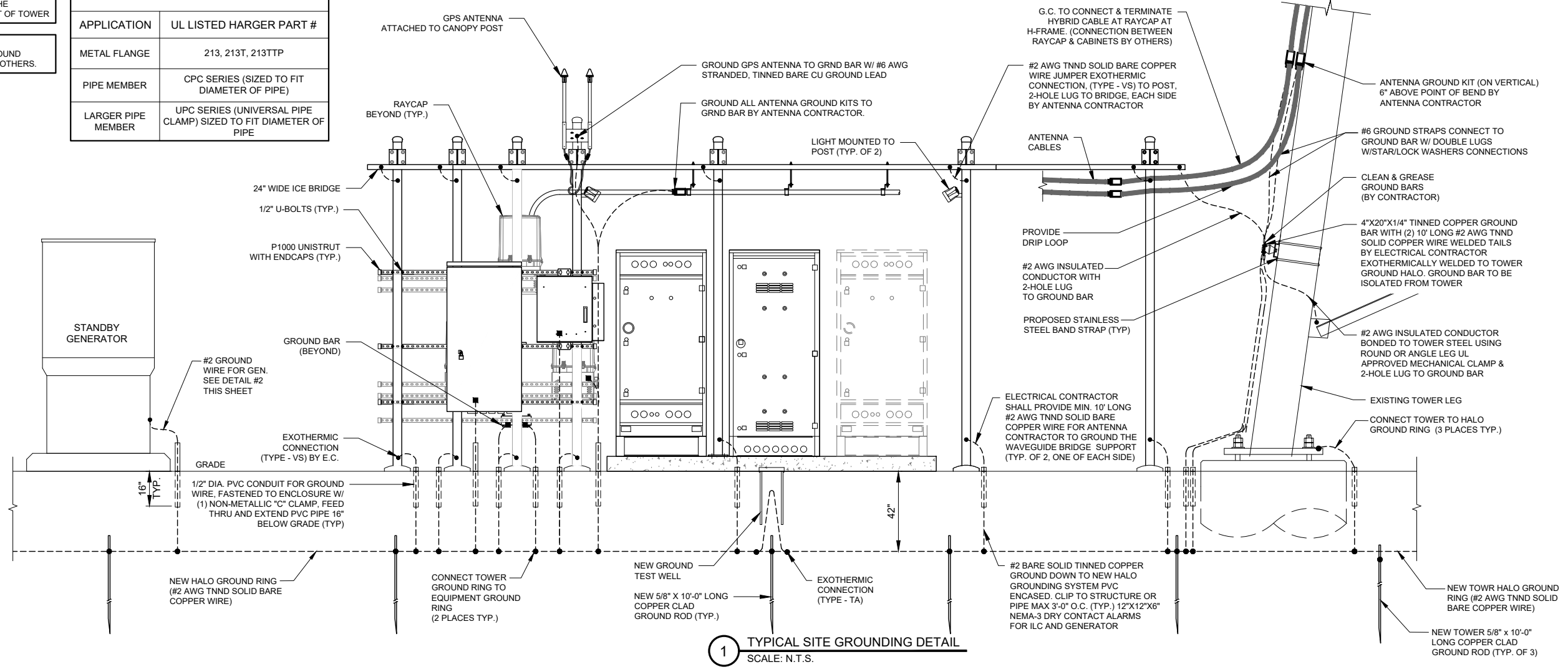
SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

NOTE:
ANTENNA CABLES SHALL BE
GROUNDED AT THE
ANTENNA HEIGHT OF TOWER

NOTE:
ALL CABINET GROUND
CONNECTION BY OTHERS.

APPROVED UL LISTED GROUND CLAMPS	
APPLICATION	UL LISTED HARGER PART #
METAL FLANGE	213, 213T, 213TTP
PIPE MEMBER	CPC SERIES (SIZED TO FIT DIAMETER OF PIPE)
LARGER PIPE MEMBER	UPC SERIES (UNIVERSAL PIPE CLAMP) SIZED TO FIT DIAMETER OF PIPE



SEAL:

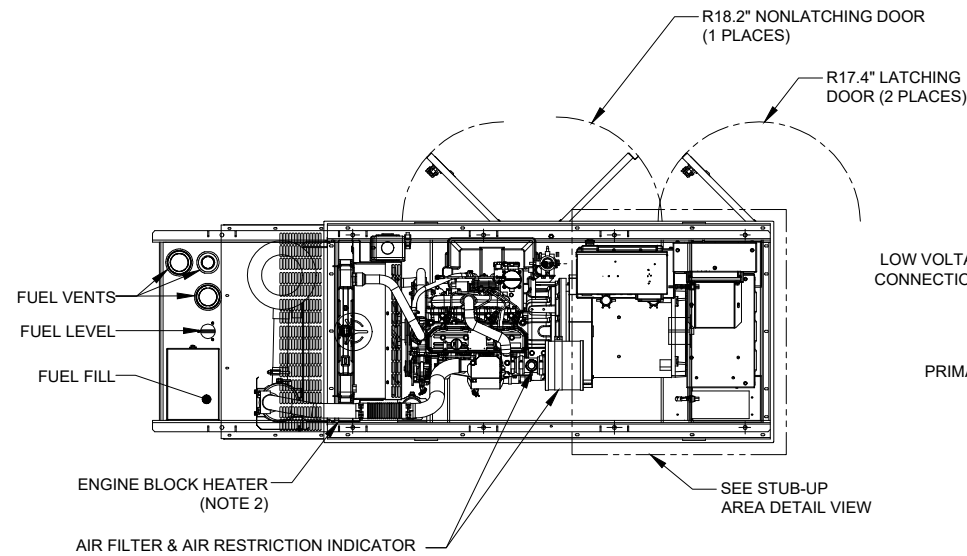
NO.	REVISIONS	DESCRIPTION	DATE	BY
			06/07/23	JJR

SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

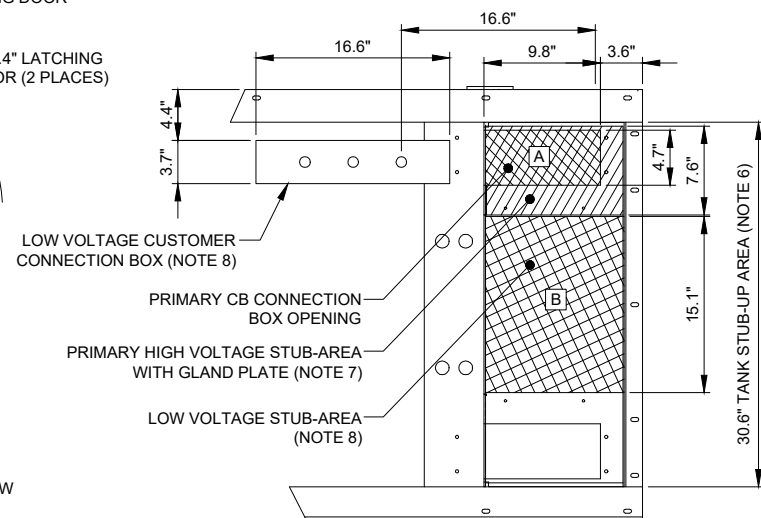
DRAWN BY:	TJS
CHECKED BY:	TAZ
DATE:	03/14/23
PROJECT #:	107-056

SHEET TITLE
GROUNDING & ELECTRICAL DETAILS

SHEET NUMBER
VW E-6



TOP OR PLAN VIEW



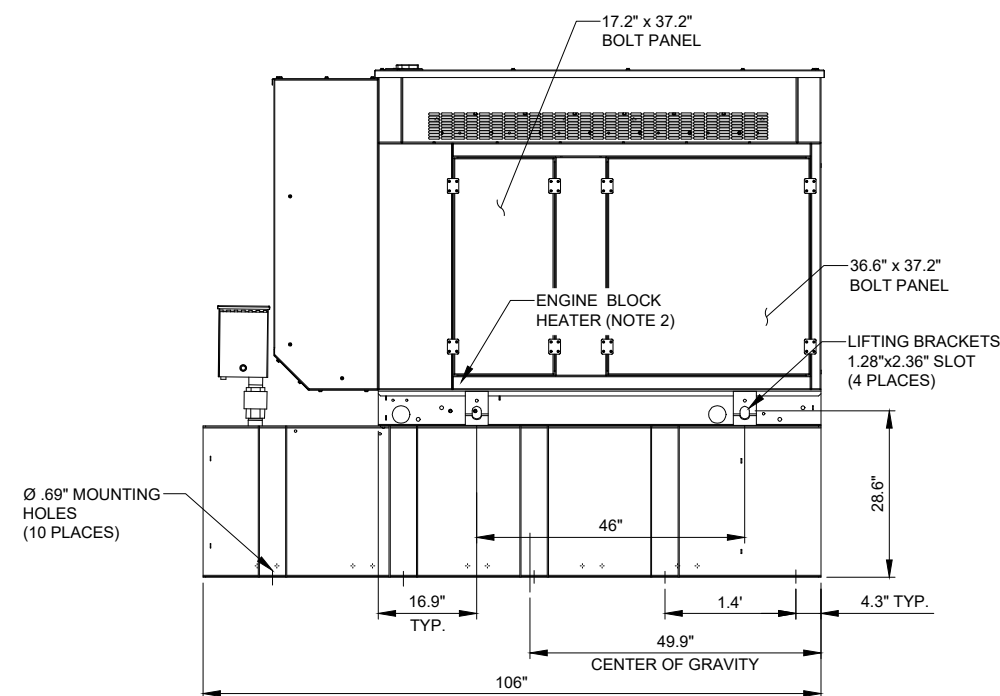
STUB-UP AREA DETAILED VIEW

RECOMMENDED ELECTRICAL STUB-UPS
(SEE DETAILED VIEW & TOP VIEW)

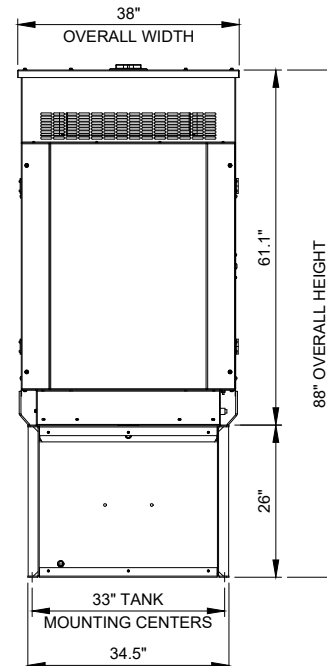
DESCRIPTION	INSIDE BASE
(HIGH VOLTAGE STUB UP) 1. AC LOAD LEAD CONDUIT AREA. 2. 120/240 VAC FROM UTILITY FOR OPTIONAL LOADS. (GLAND PLATE INCLUDED)	A
LOW VOLTAGE STUB UP 1. TRANSFER SWITCH/ COMMUNICATIONS CONDUITS. COMMUNICATIONS AND 2-WIRE START MUST NOT BE RUN IN CONDUIT W/ AC WIRING. (SEE NOTE 8)	B

NOTES

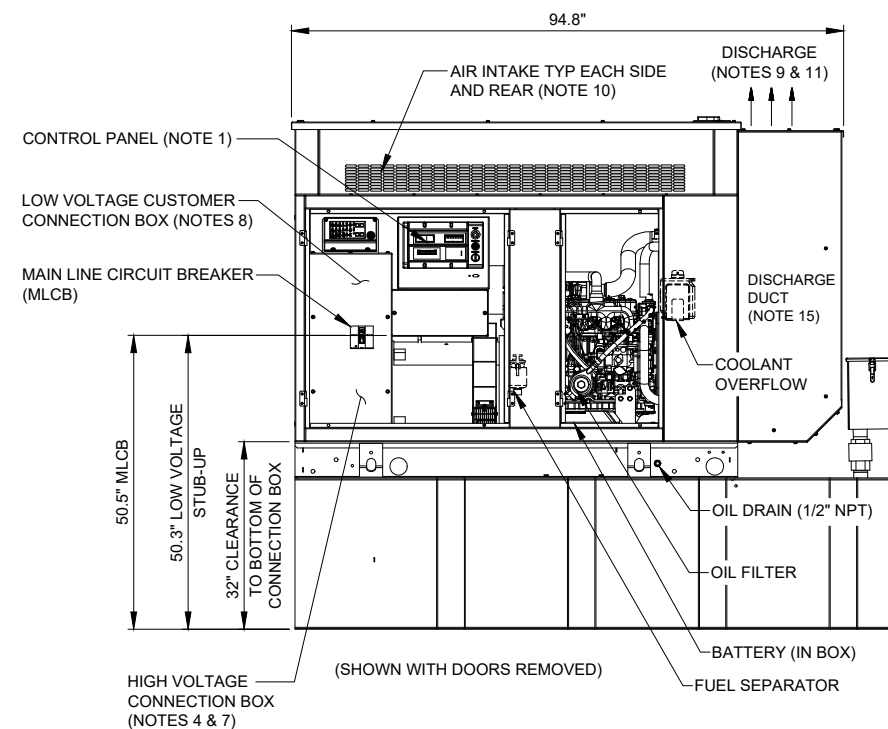
- CONTROL PANEL INCLUDES BATTERY CHARGER WITH THREE PRONG CORD.
- 1500W 120VAC ENGINE BLOCK HEATER WITH THREE PRONG CORD.
- 12 VOLT NEGATIVE GROUND SYSTEM.
- GENERATOR MUST BE GROUNDED.
- CENTER OF GRAVITY & WEIGHT MAY BE SHIFTED SLIGHTLY DUE TO UNIT OPTION.
- STUB-UPS: BASE TANK REQUIRES ALL STUB-UPS TO BE IN THE REAR TANK STUB UP AREA.
- HIGH VOLTAGE STUB-UP AREA INCLUDES THE AC LOAD LEAD CONNECTION TO THE MAIN LINE CIRCUIT BREAKER, THE NEUTRAL CONNECTION, AND AUXILIARY 120/240V CONNECTION.
- CONNECTION POINTS FOR CONTROL WIRES. BOTTOM OF LOW VOLTAGE CUSTOMER CONNECTION BOX HAS KNOCKOUTS FOR 1/2" AND 3/4" CONDUIT FITTINGS.
- MUST ALLOW FREE FLOW OF DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
- MUST ALLOW FREE FLOW OF INTAKE AIR. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
- GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
- IT IS THE RESPONSIBILITY OF THE INSTALLATION TECHNICIAN TO ENSURE THAT THE GENERATOR INSTALLATION COMPLIES WITH ALL APPLICABLE CODES, STANDARDS, AND REGULATIONS.
- 132 GALLON USEABLE CAPACITY BASE TANK IS INCLUDED WITH GENERATOR.
- UNIT IS SHIPPED WITH FUEL SUPPLY AND RETURN LINES DISCONNECTED AND PLUGGED BETWEEN ENGINE AND FUEL TANK. THIS HAS BEEN DONE TO FACILITATE PRESSURE TESTING OF THE TANK IN THE FIELD. FOR INFORMATION REGARDING CONNECTING THE FIELD TANK FIELD TESTING PROCEDURE (0E5082) SUPPLIED IN THE TANK LOOSE VENTS KIT, WHICH IS SHIPPED WITH THIS GENERATOR.
- SEE DRAWING 0C3850 FOR DISCHARGE DUCT REMOVAL. REMOVAL OF DUCT WILL PROVIDE ACCESS TO MUFFLER FOR SERVICING.



LEFT SIDE VIEW



REAR VIEW



RIGHT SIDE VIEW

SEAL:

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/07/23	JJR

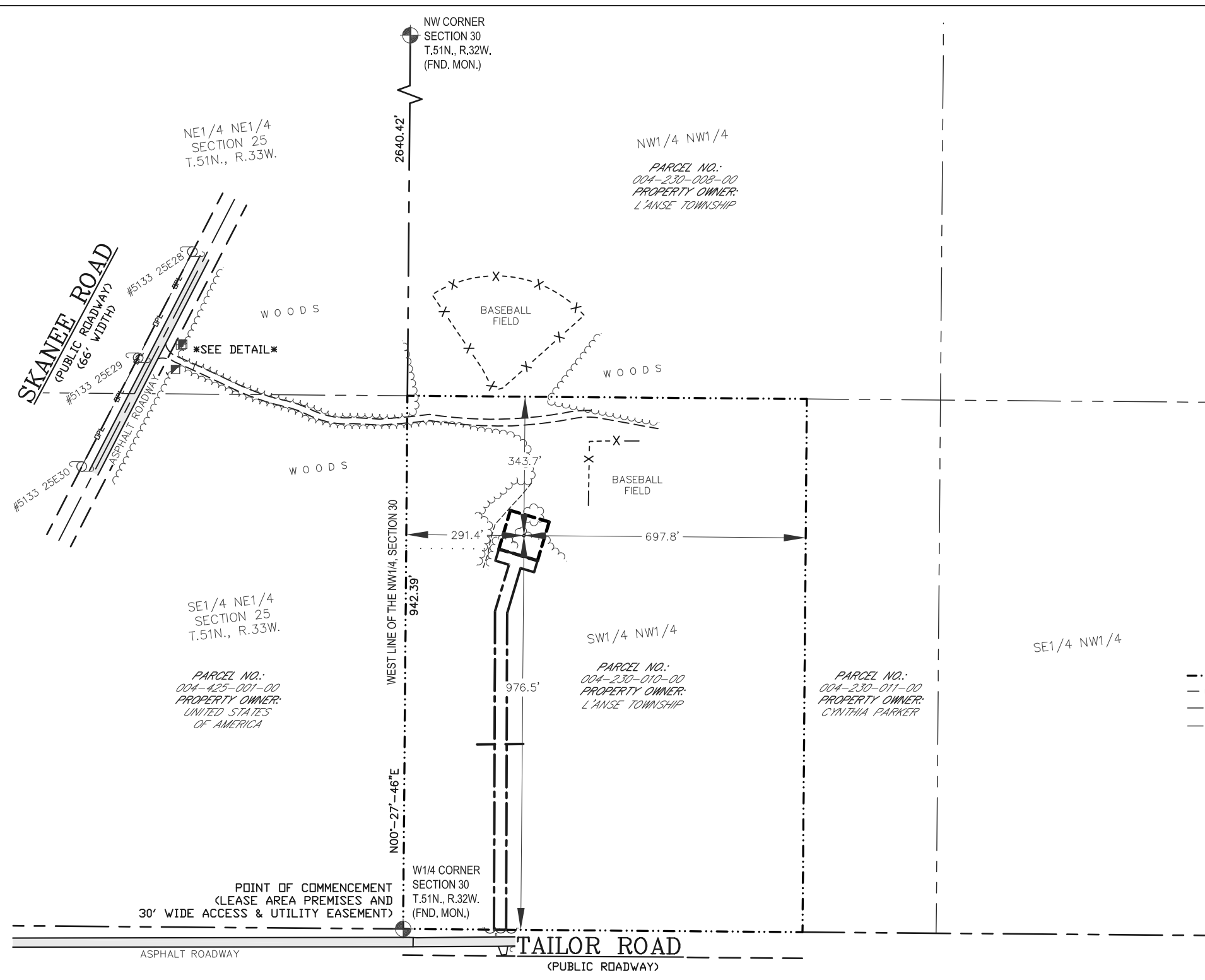
SITE #
US-MI-5314
SKANEE ROAD
LOC. #
765214
MDG LOC. #
5000916097
16103 TAILOR ROAD
L'ANSE, MI 49946

DRAWN BY: TJS
CHECKED BY: TAZ
DATE: 03/14/23
PROJECT #: 107-056

SHEET TITLE
GENERATOR
CUT-SHEET

SHEET NUMBER

VW EX-1

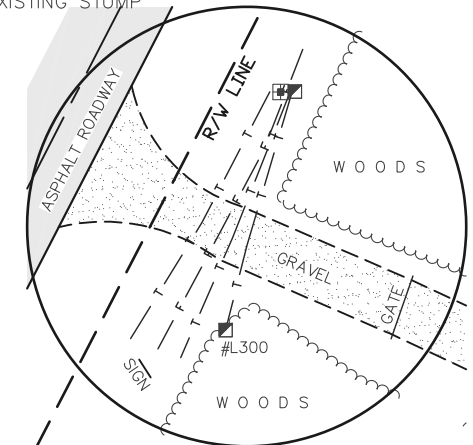


TOWER BASE

LATITUDE: N46°-47'-21.02"
 LONGITUDE: W88°-25'-24.08"
 (Per North American Datum of 83/2011)

Ground Elevation: 833.7'
 (Per North American Vertical Datum of 1988)

- LEGEND-**
- = 1" X 18" IRON PIPE SET
 - = 6" NAIL SET
 - ⊙ = COUNTY MONUMENT FOUND
 - ⊕ = EXISTING POWER POLE
 - ⊞ = FIBER OPTIC VAULT
 - ⊞ = TELEPHONE PEDESTAL
 - = PROPERTY LINE
 - OPL- OPL- = OVERHEAD ELECTRIC
 - T- T- = BURIED TELEPHONE
 - F- F- = BURIED FIBER OPTIC LINE
 - = EXISTING GUY ANCHOR
 - 🌳 = EXISTING TREE
 - 🪦 = EXISTING STUMP
- BEARINGS REFERENCED TO THE MICHIGAN STATE PLANE COORDINATE SYSTEM (NAD83/2011) - NORTH ZONE AND THE WEST LINE OF THE NW1/4 OF SECTION 30, T.51N., R.32W., WHICH BEARS N00°-27'-46"E



DETAIL SCALE: 1" = 50'

LeClaire GEOSERVICES

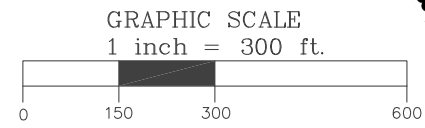
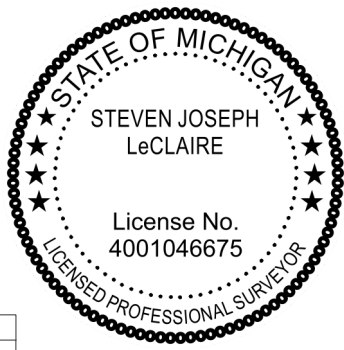
23187 LAKE STREET
 P.O. BOX 18
 DOLLAR BAY, MI 49922

906-370-7564

WWW.LECLAIREGEOSERVICES.COM | STEVE@LECLAIREGEOSERVICES.COM

I HEREBY CERTIFY THAT I HAVE SURVEYED AND MAPPED THE LAND ABOVE PLATTED AND/OR DESCRIBED ON FEBRUARY 28, 2023, THAT THE ERROR OF CLOSURE OF THE UNADJUSTED FIELD MEASUREMENTS WAS LESS THAN 1:19,624 AND THAT THE REQUIREMENTS OF P.A. 132 OF 1970 HAVE BEEN COMPLIED WITH.

Steven J. LeClaire



MISS DIG System, Inc.

Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

SURVEYED FOR:

TERRA
 CONSULTING GROUP, LTD.

600 Busse Highway
 Park Ridge, IL 60068
 OFFICE: (847) 698-6400
 FAX: (678) 444-4472

SURVEYED FOR:

verticalbridge

750 PARK OF COMMERCE DRIVE
 SUITE 200
 BOCA RATON, FL 33487

MERIDIAN
 SURVEYING, LLC

N9637 Friendship Drive Office: 920-993-0881
 Kaukauna, WI 54130 Fax: 920-273-6037

SITE NAME:
 SKANEE ROAD

SITE NUMBER:
 US-MI-5314

SITE ADDRESS:
 16103 TAILOR RD.
 L'ANSE, MI 49946

PROPERTY OWNER:
 L'ANSE TOWNSHIP UNITED STATES OF AMERICA
 126 N. MAIN ST. OF AMERICA
 PO BOX 82
 L'ANSE, MI 49946

PARCEL NO.: 004-230-010-00 (LEASE)
 004-425-001-00 (EASEMENT)

ZONED: CONSERVATION/RECREATION

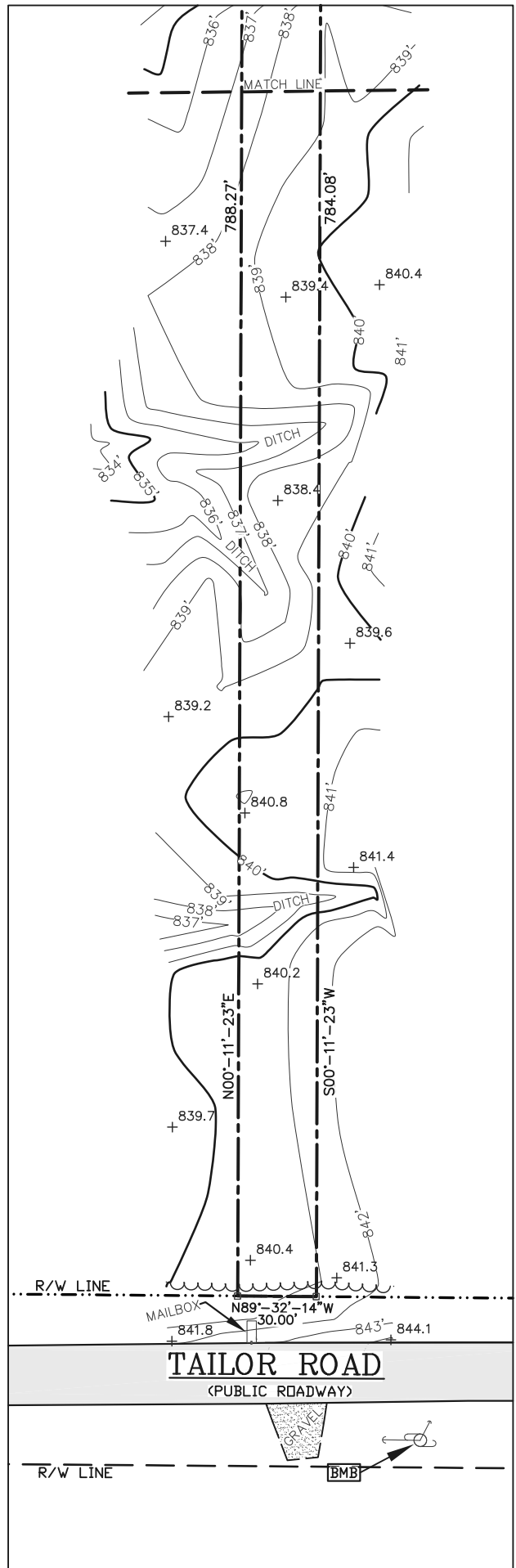
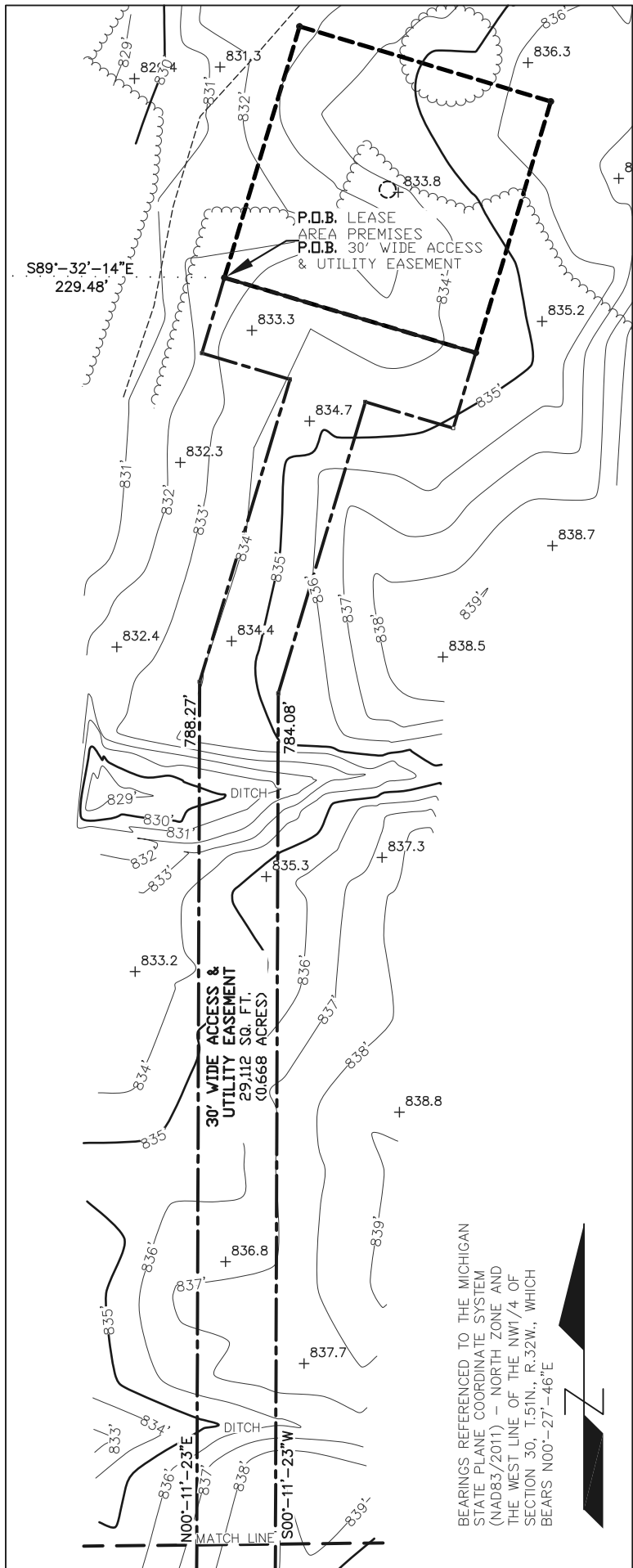
DEED REFERENCE: BOOK 67, PAGE 9

SURVEY PLAT
 FOR
VERTICAL BRIDGE VBTS, LLC.

BEING A PART OF THE SW1/4 OF THE NW1/4, SECTION 30, T.51N., R.32W., TOWNSHIP OF L'ANSE, BARAGA COUNTY, MICHIGAN

NO.	DATE	DESCRIPTION	BY
4	10/4/23	Updated Title Report	SD
3	6/2/23	Added Topography	KR
2	3/27/23	Added Title Report	KR
1	3/6/23	Preliminary Survey	JB

DRAWN BY: J.B.	FIELD WORK DATE: 3-2-23
CHECKED BY: S.J.L.	FIELD BOOK: X
JOB NO.: 14382	SHEET 1 OF 3



LEASE AREA PREMISES

Being part of the Southwest Quarter (SW1/4) of the Northwest Quarter (NW1/4) of Section Thirty (30), Township Fifty-One (51) North; Range Thirty-Two (32) West, Township of L'anse, Baraga County, Michigan containing 10,000 square feet (0.230 acres) of land and being described by:

Commencing at the West Quarter Corner of said Section 30; thence N00°-27'-46"E 942.39 feet along the West line of the NW1/4 of said Section 30; thence S89°-32'-14"E 229.48 feet to the point of beginning; thence N16°-37'-34"E 100.00 feet; thence S73°-22'-26"E 100.00 feet; thence S16°-37'-34"W 100.00 feet; thence N73°-22'-26"W 100.00 feet to the point of beginning. Being subject to any and all easements and restrictions of record.

30' WIDE ACCESS & UTILITY EASEMENT

Being part of the Southwest Quarter (SW1/4) of the Northwest Quarter (NW1/4) of Section Thirty (30), Township Fifty-One (51) North; Range Thirty-Two (32) West, Township of L'anse, Baraga County, Michigan containing 29,112 square feet (0.668 acres) of land and being described by:

Commencing at the West Quarter Corner of said Section 30; thence N00°-27'-46"E 942.39 feet along the West line of the NW1/4 of said Section 30; thence S89°-32'-14"E 229.48 feet to the point of beginning; thence S73°-22'-26"E 100.00 feet; thence S16°-37'-34"W 30.00 feet; thence N73°-22'-26"W 35.00 feet; thence S16°-37'-34"W 115.99 feet; thence S00°-11'-23"W 784.08 feet to a point on the north right of way line of Tailor Road; thence N89°-32'-14"W 30.00 feet along said north right of way line; thence N00°-11'-23"E 788.27 feet; thence N16°-37'-34"E 120.32 feet; thence N73°-22'-26"W 35.00 feet; thence N16°-37'-34"E 30.00 feet to the point of beginning. Being subject to any and all easements and restrictions of record.

PARENT PARCEL

West Three-quarters (W3/4) of the Southwest Quarter (SW1/4) of the Northwest Quarter (NW1/4) of Section Thirty-(30), Township Fifty-one (51) North, Range Thirty-two (32) West.

Parcel ID: 004-230-010-00

This being a portion of the property conveyed to Township of L'Anse, a municipal corporation from Frederick A. Prince, Jr., a single man in a deed dated October 20, 1958 and recorded October 23, 1958 in book 64 and page 554.

This being a portion of the property conveyed to Township of L'Anse, a municipal corporation from Charles Waisanen, a single man in a deed dated July 12, 1958 and recorded September 19, 1958 in book 67 and page 9.

TITLE REPORT REVIEW

TITLE REPORT: FIDELITY NATIONAL TITLE INSURANCE COMPANY

COMMITMENT NO. VTB-146995-C

EFFECTIVE DATE: March 27, 2023

FEE SIMPLE TITLE VESTED IN: Township of L'Anse, a municipal corporation

NOTE: THE STATEMENT OF APPLICABILITY REFERS TO THE LEASE SITE AND ANY EASEMENTS PERTINENT THEREUNTO WHERE SPECIFIC ENCUMBRANCES AFFECT THE LEASE SITE AND/OR A PERTINENT EASEMENT, THEY ARE IDENTIFIED AS SUCH.

SCHEDULE B-II

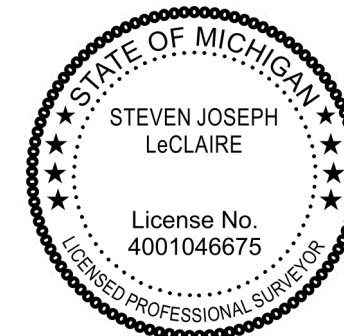
(1-9) These are general statements and not specific encumbrances.

BENCHMARK INFORMATION

SITE BENCHMARK: (BM A)
SET 6" NAIL IN NORTHWEST FACE OF TREE STUMP
ELEVATION: 838.86'
SITE BENCHMARK: (BM B)
SET 14" MAG NAIL IN WEST FACE OF POWER POLE # 777_1307
ELEVATION: 844.24'

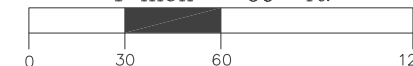
-LEGEND-

- = 1" X 18" IRON PIPE SET
- = 6" NAIL SET
- ⊙ = COUNTY MONUMENT FOUND
- ⊕ = EXISTING POWER POLE
- ⊞ = FIBER OPTIC VAULT
- ⊟ = TELEPHONE PEDESTAL
- — — — — = PROPERTY LINE
- - - - - = OVERHEAD ELECTRIC
- T - T - = BURIED TELEPHONE
- F - F - = BURIED FIBER OPTIC LINE
- = EXISTING GUY ANCHOR
- ⊕ = EXISTING TREE
- ⊞ = EXISTING STUMP



GRAPHIC SCALE

1 inch = 60 ft.



I HEREBY CERTIFY THAT I HAVE SURVEYED AND MAPPED THE LAND ABOVE PLATTED AND/OR DESCRIBED ON FEBRUARY 28, 2023, THAT THE ERROR OF CLOSURE OF THE UNADJUSTED FIELD MEASUREMENTS WAS LESS THAN 1:19,624 AND THAT THE REQUIREMENTS OF § 132 OF 1970 HAVE BEEN COMPLIED WITH.

Steven J. LeClaire
STEVEN J. LeCLAIRE, Professional Surveyor No. 4001046675

SURVEYED FOR:



600 Busse Highway
Park Ridge, IL 60068
OFFICE: (847) 698-6400
FAX: (678) 444-4472

SURVEYED FOR:



750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487



N9637 Friendship Drive Office: 920-993-0881
Kaukauna, WI 54130 Fax: 920-273-6037

SITE NAME:
SKANEE ROAD

SITE NUMBER:
US-MI-5314

SITE ADDRESS:
16103 TAILOR RD.
L'ANSE, MI 49946

PROPERTY OWNER:
L'ANSE TOWNSHIP UNITED STATES
126 N. MAIN ST. OF AMERICA
PO BOX 82
L'ANSE, MI 49946

PARCEL NO.: 004-230-010-00 (LEASE)
004-425-001-00 (EASEMENT)

ZONED: CONSERVATION/RECREATION

DEED REFERENCE: x

SURVEY PLAT
FOR
VERTICAL BRIDGE VBTS, LLC.

BEING A PART OF THE SW1/4 OF THE
NW1/4, SECTION 30, T.51N., R.32W.,
TOWNSHIP OF L'ANSE, BARAGA COUNTY,
MICHIGAN

NO.	DATE	DESCRIPTION	BY
4	10/4/23	Updated Title Report	SD
3	6/2/23	Added Topography	KR
2	3/27/23	Added Title Report	KR
1	3/6/23	Preliminary Survey	JB

DRAWN BY: J.B.	FIELD WORK DATE: 3-2-23
CHECKED BY: S.J.L.	FIELD BOOK: x
JOB NO.: 14382	SHEET 3 OF 3



WEST > Upper Midwest > Illinois/Wisconsin > Wisconsin > Skanee Road

RF Submit by: Rychter, Bartlomiej - bart.rychter@verizonwireless.com - 12/20/2022, 6:57:14 AM
 EE Submit by: Sauriol, Jeremiah - jeremiah.sauriol@verizonwireless.com - 12/20/2022, 10:54:23 AM

Project Details	
Project ID:	FUZE Project ID: 17048642
Project Name:	TRADITIONAL Capacity
Project Alt Name:	Skanee Road
Project Type:	Initial Build
Modification Type:	
Designed Sector Carrier 4G:	N/A
Designed Sector Carrier 5G:	N/A
Additional Sector Carrier 4G:	N/A
Additional Sector Carrier 5G:	N/A
FP Solution Type & Tech Type:	MCR;4G_700,4G_850,4G_AWS,4G_AWS3,4G_PCS,5G_L-Sub6
Carrier Aggregation:	false
MPT Id:	
eCIP-O:	false
Suffix:	

Location Information	
Site ID:	617356203
E-NodeB ID:	1117111,101010
PSLC:	765214
Switch Name:	Plymouth Meeting
Tower Owner:	
Tower Type:	Self Support (Lattice Tower)
Site Type:	MACRO
Site Sub Type:	TRADITIONAL
Street Address:	16103 Taylor Rd
City:	LANSE
State:	MI
Zip Code:	49946
County:	Baraga
Latitude:	46.789758 / 46° 47' 23.1288" N
Longitude:	-88.423233 / 88° 25' 23.6388" W

RFDS Project Scope:

Antenna Summary

Added															
700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
LTE	LTE	LTE	LTE	LTE		COMMSCOPE	NHH-65C-R2B	190	194	330(01) 80(02) 200(03)	false	false	PHYSICAL	9	NHH-65C-R2B
					5G	Ericsson	AIR6449	190	191.3	330(0001) 80(0002) 200(0003)	false	false	PHYSICAL	3	

Removed															
700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
No data available.															

Retained															
700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity	Item ID
No data available.															

Added: 12 Removed: 0 Retained: 0

Equipment Summary

Added															
Equipment Type	Location	700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID	
Hybrid Cable	Tower							COMMSCOPE-001	HFT1206-24SV4-xxxG			PHYSICAL	3		
RRU	Tower	LTE	LTE					Ericsson	4449			PHYSICAL	3	KRC161749/1	
RRU	Tower			LTE	LTE	LTE		Ericsson	8843			PHYSICAL	6	KRC161707/2	
RRU	Tower						5G	Ericsson	AIR6449			PHYSICAL	3		
Alarm	Tower							RAYCAPINC-001	3315-ALM-RS485			PHYSICAL	3	3315-ALM-RS485	
OVP Box	Tower							RAYCAPINC-001	RVZDC-3315-PF-48		1-5/8 inch	PHYSICAL	3	RVZDC-3315-PF-48	

Removed															
Equipment Type	Location	700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID	
No data available.															

Retained															
Equipment Type	Location	700	850	1900	AWS	AWS3	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	Item ID	
No data available.															

Service Info

AWS3 LTE			
Sector	01	02	03
Azimuth	330	80	200
Cell / ENode B ID	101010	101010	101010
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	190	190	190
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	0	0	0
Tip Height	194	194	194
Regulatory Power	456.62	456.62	456.62
DEARFCN	66886	66886	66886
Channel Bandwidth(MHz)	10	10	10
Total ERP (W)	2504.96	2504.96	2504.96
TMA Make			
RRU Model	Ericsson	Ericsson	Ericsson
RRU Make	8843	8843	8843
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15751714	15751719	15751724
Source	ATOLL_API	ATOLL_API	ATOLL_API

700 MHz LTE			
Sector	01	02	03
Azimuth	330	80	200
Cell / ENode B ID	101010	101010	101010
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(Ft)	190	190	190
Mechanical Down-Tilt(Deg.)	0	0	0
Electrical Down-Tilt	0	0	0
Tip Height	194	194	194
Regulatory Power	96.55	96.55	96.55
DEARFCN	5230	5230	5230
Channel Bandwidth(MHz)	10	10	10
Total ERP (W)	868.96	868.96	868.96
TMA Make			
RRU Model	Ericsson	Ericsson	Ericsson
RRU Make	4449	4449	4449
Number of Tx, Rx Lines	4,4	4,4	4,4
Position			
Transmitter Id	15751710	15751715	15751720
Source	ATOLL_API	ATOLL_API	ATOLL_API

850 MHz LTE		0002		
Sector	01	02	03	
Azimuth	330	80	200	
Cell / ENode B ID	101010	101010	101010	
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B	
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	
Antenna Centerline(FI)	190	190	190	
Mechanical Down-Tilt(Deg.)	0	0	0	
Electrical Down-Tilt	0	0	0	
Tip Height	194	194	194	
Regulatory Power	747.91	747.91	747.91	
DLEARFCN	2560	2560	2560	
Channel Bandwidth(MHz)	5	5	5	
Total ERP (W)	841.4	841.4	841.4	
TMA Make				
TMA Model	Ericsson	Ericsson	Ericsson	
RRU Make	4449	4449	4449	
RRU Model	4.4	4.4	4.4	
Number of Tx, Rx Lines				
Position				
Transmitter Id	15751713	15751718	15751723	
Source	ATOLL_API	ATOLL_API	ATOLL_API	
1900 MHz LTE		0002		
Sector	01	02	03	
Azimuth	330	80	200	
Cell / ENode B ID	101010	101010	101010	
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B	
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	
Antenna Centerline(FI)	190	190	190	
Mechanical Down-Tilt(Deg.)	0	0	0	
Electrical Down-Tilt	0	0	0	
Tip Height	194	194	194	
Regulatory Power	258.03	258.03	258.03	
DLEARFCN	875	875	875	
Channel Bandwidth(MHz)	15	15	15	
Total ERP (W)	2123.24	2123.24	2123.24	
TMA Make				
TMA Model	Ericsson	Ericsson	Ericsson	
RRU Make	8843	8843	8843	
RRU Model	4.4	4.4	4.4	
Number of Tx, Rx Lines				
Position				
Transmitter Id	15751711	15751716	15751721	
Source	ATOLL_API	ATOLL_API	ATOLL_API	

2100 MHz LTE		0002		
Sector	01	01	02	
Azimuth	330	330	80	
Cell / ENode B ID	101010	101010	101010	
Antenna Model	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B	
Antenna Make	COMMSCOPE	COMMSCOPE	COMMSCOPE	
Antenna Centerline(FI)	190	190	190	
Mechanical Down-Tilt(Deg.)	0	0	0	
Electrical Down-Tilt	0	0	0	
Tip Height	194	194	194	
Regulatory Power	456.62	913.25	456.62	
DLEARFCN	2000	2225	2000	
Channel Bandwidth(MHz)	10	5	10	
Total ERP (W)	2504.96	2504.96	2504.96	
TMA Make				
TMA Model	Ericsson	Ericsson	Ericsson	
RRU Make	8843	8843	8843	
RRU Model	4.4	4.4	4.4	
Number of Tx, Rx Lines				
Position				
Transmitter Id	15751712	15751794	15751717	
Source	ATOLL_API	ATOLL_API	ATOLL_API	
		02	03	03
Azimuth		80	200	200
Cell / ENode B ID		101010	101010	101010
Antenna Model		NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B
Antenna Make		COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Centerline(FI)		190	190	190
Mechanical Down-Tilt(Deg.)		0	0	0
Electrical Down-Tilt		0	0	0
Tip Height		194	194	194
Regulatory Power		913.25	456.62	913.25
DLEARFCN		2225	2000	2225
Channel Bandwidth(MHz)		5	10	5
Total ERP (W)		2504.96	2504.96	2504.96
TMA Make		Ericsson	Ericsson	Ericsson
TMA Model		8843	8843	8843
RRU Make		4.4	4.4	4.4
RRU Model				
Number of Tx, Rx Lines				
Position				
Transmitter Id		15751795	15751722	15751796
Source		ATOLL_API	ATOLL_API	ATOLL_API

nl-Sub6		0002		
Sector	0001	0002	0003	
Azimuth	330	80	200	
Cell / ENode B ID	1117111	1117111	1117111	
Antenna Model	AIR6449	AIR6449	AIR6449	
Antenna Make	Ericsson	Ericsson	Ericsson	
Antenna Centerline(FI)	190	190	190	
Mechanical Down-Tilt(Deg.)	0	0	0	
Electrical Down-Tilt	6	6	6	
Tip Height	191.3	191.3	191.3	
Regulatory Power	1365.07	1365.07	1365.07	
DLEARFCN	648672	648672	648672	
Channel Bandwidth(MHz)	60	60	60	
Total ERP (W)	23713.74	23713.74	23713.74	
TMA Make				
TMA Model	Ericsson	Ericsson	Ericsson	
RRU Make	AIR6449	AIR6449	AIR6449	
RRU Model	2.2	2.2	2.2	
Number of Tx, Rx Lines				
Position				
Transmitter Id	15751725	15751726	15751727	
Source	ATOLL_API	ATOLL_API	ATOLL_API	

Service Comments

Callsigns Per Antenna

Sector	Antenna Make	Antenna Model	Ant CL Height AGL	Tip Height	Azimuth (TN)	Elec Tilt	Mech Tilt	Gain	Beam Width	Regulatory Power	Callsigns						
											700	850	1900	2100	28 GHz	31 GHz	39 GHz
01	COMMSCOPE	NHH-65C-R2B	190	194	330	0	0	13.738	65.25	96.55	WQJQ691						
02	COMMSCOPE	NHH-65C-R2B	190	194	80	0	0	15.921	61	456.62				WOGA826			
														WOPW449			
02	COMMSCOPE	NHH-65C-R2B	190	194	80	0	0	13.738	65.25	96.55	WQJQ691						
03	COMMSCOPE	NHH-65C-R2B	190	194	200	0	0	13.738	65.25	96.55	WQJQ691						
01	COMMSCOPE	NHH-65C-R2B	190	194	330	0	0	13.505	60.5	747.91		KNKN898					
01	COMMSCOPE	NHH-65C-R2B	190	194	330	0	0	15.921	61	913.25				WOGA826			
														WOPW449			
02	COMMSCOPE	NHH-65C-R2B	190	194	80	0	0	15.921	61	913.25				WOGA826			
														WOPW449			
02	COMMSCOPE	NHH-65C-R2B	190	194	80	0	0	15.296	66	258.03			KNLF240				
0003	Ericsson	AIR6449	190	191.3	200	6	0	22.95	95	1365.07							
0002	Ericsson	AIR6449	190	191.3	80	6	0	22.95	95	1365.07							
0001	Ericsson	AIR6449	190	191.3	330	6	0	22.95	95	1365.07							
03	COMMSCOPE	NHH-65C-R2B	190	194	200	0	0	15.921	61	913.25				WOGA826			
														WOPW449			
01	COMMSCOPE	NHH-65C-R2B	190	194	330	0	0	15.921	61	456.62				WOGA826			
														WOPW449			
03	COMMSCOPE	NHH-65C-R2B	190	194	200	0	0	13.505	60.5	747.91		KNKN898					
03	COMMSCOPE	NHH-65C-R2B	190	194	200	0	0	15.296	66	258.03			KNLF240				
03	COMMSCOPE	NHH-65C-R2B	190	194	200	0	0	15.921	61	456.62				WOGA826			
														WOPW449			
02	COMMSCOPE	NHH-65C-R2B	190	194	80	0	0	13.505	60.5	747.91		KNKN898					
01	COMMSCOPE	NHH-65C-R2B	190	194	330	0	0	15.296	66	258.03			KNLF240				

Callsigns

Callsign	Market	Radio Code	Market Number	Block	State	County	Licensee Name	Wholly Owned	Total MHz	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Threshold (W)	POPs /Sq Mi	Status	Action	Approved for Insvc
WQJQ691	Great Lakes	WU	REA003	C	MI	Baraga	Cellco Partnership	Yes	22.000	746.000-757.000	776.000-787.000	.000-.000	.000-.000	96.55	2000	9.08	Active	added	Yes
KNKN898	Michigan 1 - Gogebic	CL	CMA472	B	MI	Baraga	Alltel Corporation	Yes	25.000	835.000-845.000	880.000-890.000	846.500-849.000	891.500-894.000	747.91	800	9.08	Active	added	Yes
KNLF240	Milwaukee	CW	MTA020	B	MI	Baraga	Cellco Partnership	Yes	30.000	1870.000-1885.000	1950.000-1965.000	.000-.000	.000-.000	258.03	3280	9.08	Active	added	Yes
WQGA826	Michigan 1 - Gogebic	AW	CMA472	A	MI	Baraga	Cellco Partnership	Yes	20.000	1710.000-1720.000	2110.000-2120.000	.000-.000	.000-.000	913.25	3280	9.08	Active	added	Yes
WRNG491	Marquette, MI	PM	PEA185	A1	MI	Baraga	Cellco Partnership	Yes	20.000	3700.000-3720.000	.000-.000	.000-.000	.000-.000	1365.07	1640	9.08	Active	added	Yes
WRNG492	Marquette, MI	PM	PEA185	A2	MI	Baraga	Cellco Partnership	Yes	20.000	3720.000-3740.000	.000-.000	.000-.000	.000-.000	1365.07	1640	9.08	Active	added	Yes
WRNG493	Marquette, MI	PM	PEA185	A3	MI	Baraga	Cellco Partnership	Yes	20.000	3740.000-3760.000	.000-.000	.000-.000	.000-.000	1365.07	1640	9.08	Active	added	Yes
WQPW449	Great Lakes	AW	REA003	D	MI	Baraga	Cellco Partnership	Yes	10.000	1735.000-1740.000	2135.000-2140.000	.000-.000	.000-.000	913.25	3280	9.08	Active	added	Yes
WQVN954	Green Bay, WI-MI	AT	BEA059	H	MI	Baraga	Cellco Partnership	Yes	10.000	1760.000-1765.000	2160.000-2165.000	.000-.000	.000-.000		3280	9.08	Active		Yes
WQVN955	Green Bay, WI-MI	AT	BEA059	I	MI	Baraga	Cellco Partnership	Yes	10.000	1765.000-1770.000	2165.000-2170.000	.000-.000	.000-.000		3280	9.08	Active		Yes
WRHG281	Marquette, MI	UU	PEA185	M1	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	37600.000-37700.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG282	Marquette, MI	UU	PEA185	M10	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38500.000-38600.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG283	Marquette, MI	UU	PEA185	M2	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	37700.000-37800.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG284	Marquette, MI	UU	PEA185	M3	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	37800.000-37900.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG285	Marquette, MI	UU	PEA185	M4	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	37900.000-38000.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG286	Marquette, MI	UU	PEA185	M5	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38000.000-38100.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG287	Marquette, MI	UU	PEA185	M6	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38100.000-38200.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG288	Marquette, MI	UU	PEA185	M7	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38200.000-38300.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG289	Marquette, MI	UU	PEA185	M8	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38300.000-38400.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG290	Marquette, MI	UU	PEA185	M9	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38400.000-38500.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG291	Marquette, MI	UU	PEA185	N1	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38600.000-38700.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes
WRHG292	Marquette, MI	UU	PEA185	N2	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38700.000-38800.000	.000-.000	.000-.000	.000-.000			9.08	Active		Yes

WRHG293	Marquette, MI	UU	PEA185	N3	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38800.000-38900.000	.000-.000	.000-.000	.000-.000				9.08	Active	Yes
WRHG294	Marquette, MI	UU	PEA185	N4	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	38900.000-39000.000	.000-.000	.000-.000	.000-.000				9.08	Active	Yes
WRHG295	Marquette, MI	UU	PEA185	N5	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	39000.000-39100.000	.000-.000	.000-.000	.000-.000				9.08	Active	Yes
WRHG296	Marquette, MI	UU	PEA185	N6	MI	Baraga	Straight Path Spectrum, LLC	Yes	100.000	39100.000-39200.000	.000-.000	.000-.000	.000-.000				9.08	Active	Yes
WRNG494	Marquette, MI	PM	PEA185	A4	MI	Baraga	Cellco Partnership	Yes	20.000	3780.000-3780.000	.000-.000	.000-.000	.000-.000			1640	9.08	Active	Yes
WRNG495	Marquette, MI	PM	PEA185	A5	MI	Baraga	Cellco Partnership	Yes	20.000	3780.000-3800.000	.000-.000	.000-.000	.000-.000			1640	9.08	Active	Yes
WRNG496	Marquette, MI	PM	PEA185	B1	MI	Baraga	Cellco Partnership	Yes	20.000	3800.000-3820.000	.000-.000	.000-.000	.000-.000			1640	9.08	Active	No
WRNG497	Marquette, MI	PM	PEA185	B2	MI	Baraga	Cellco Partnership	Yes	20.000	3820.000-3840.000	.000-.000	.000-.000	.000-.000			1640	9.08	Active	No
WRNG498	Marquette, MI	PM	PEA185	B3	MI	Baraga	Cellco Partnership	Yes	20.000	3840.000-3860.000	.000-.000	.000-.000	.000-.000			1640	9.08	Active	No

