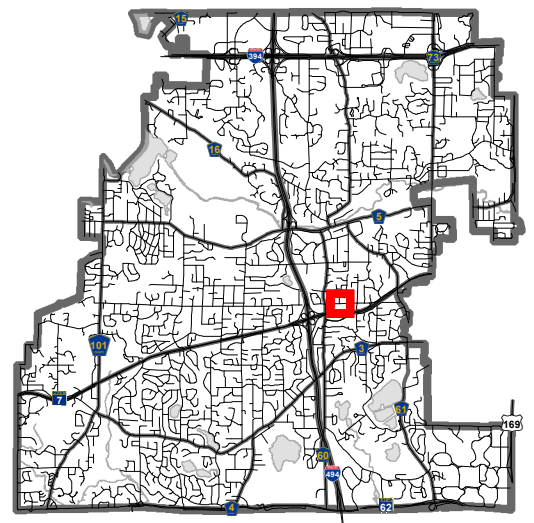


Location Map

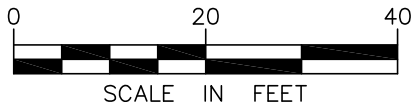
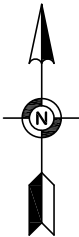
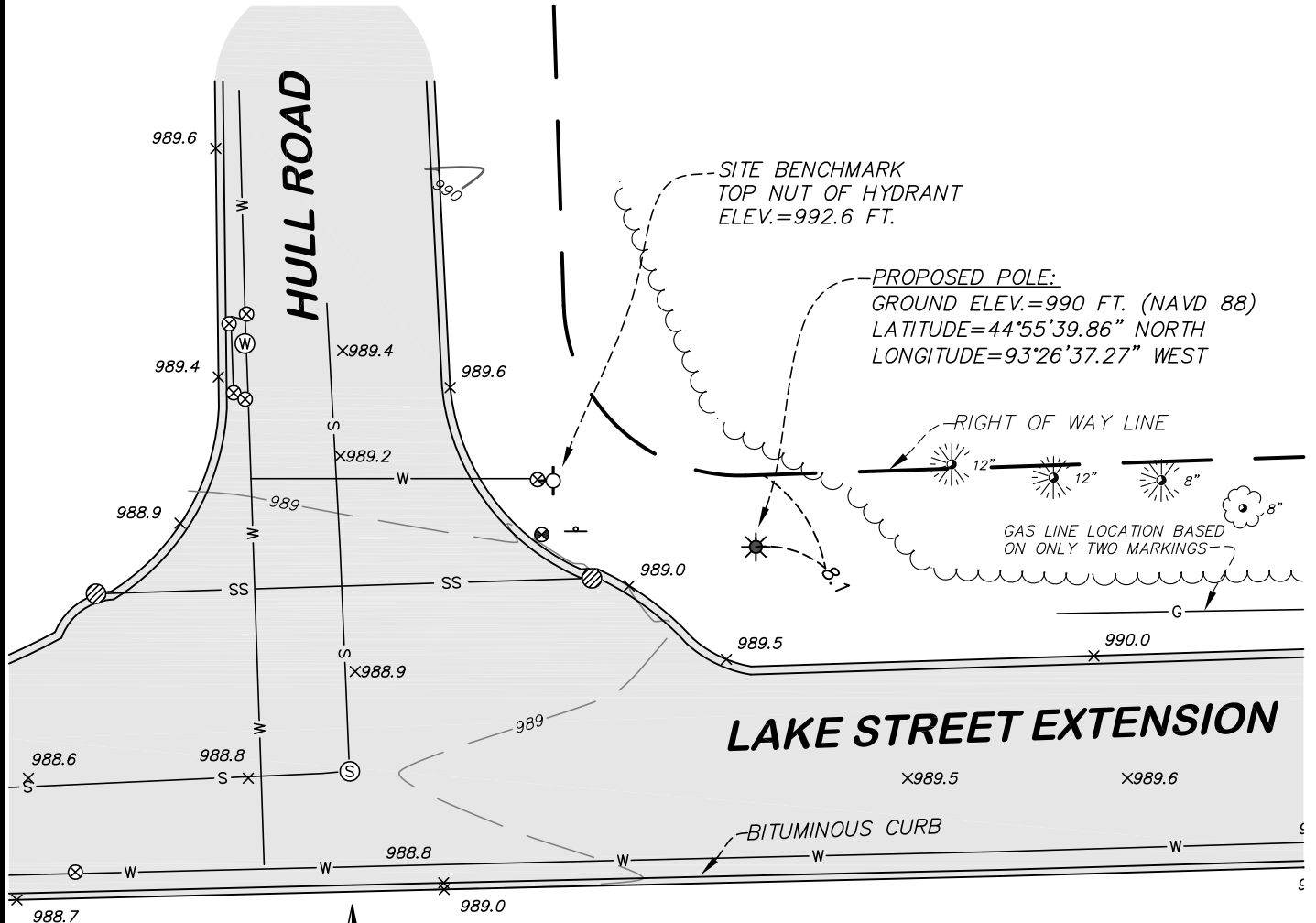
Project: Verizon Small Cell Wireless
Location: Lake Street Ext and Hull Road



**SITE LOCATION SURVEY FOR:
EDGE CONSULTING ENGINEERS, INC.**

SITE LOCATION: Lake Street Extension and Hull Road, Minnetonka, Minnesota

SITE NAME: MIN TONKA SC7



NOTES:

- The orientation of this survey is based on the Hennepin County, Minnesota Coordinate Grid, NAD 83-2011 Adjustment.
- Elevations shown hereon are based on the MNDOT VRS Network, Adjusted Vertical Datum of 1988 (NAVD 88).
- No boundary work was performed in the preparation of this exhibit. The right of way line depicted hereon is based on Hennepin County Resurvey coordinates and the plat of Castle View Estates.
- Existing utilities, services and underground structures shown hereon were located either physically, from existing records made available to us, by resident testimony, or by locations provided by Gopher State One Call, per Ticket No. 200911005. However, lacking excavation, the exact location of underground features cannot be accurately, completely and reliably depicted. Where additional or more detailed information is required, the client is advised that excavation may be necessary. Other utilities and services may be present and verification and location of all utilities and services should be obtained from the owners of the respective utilities prior to any design, planning or excavation.
- The field work for this survey was performed on April 7, 2020.

LEGEND

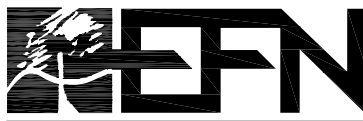
- SANITARY MANHOLE
- CATCH BASIN
- WATER MANHOLE
- GATE VALVE
- HYDRANT
- GAS VALVE
- SIGN
- SANITARY SEWER
- STORM SEWER
- WATERMAIN
- UNDERGROUND GAS
- TREELINE
- SPOT ELEVATION
- EXISTING CONTOUR LINE
- TREE
- BITUMINOUS SURFACE
- CONCRETE SURFACE

EFN PROJECT NO. 36900

SITE LOCATION SURVEY FOR:

EDGE CONSULTING ENGINEERS, INC.

**SITE LOCATION: Lake Street Extension and
Hull Road, Minnetonka, Minnesota**



Egan, Field & Nowak, Inc.
land surveyors since 1872

1229 Tyler Street NE, Suite 100
Minneapolis, Minnesota 55413
PHONE: (612) 466-3300
FAX: (612) 466-3383
WWW.EFNSURVEY.COM
COPYRIGHT © 2020 By EGAN, FIELD & NOWAK, INC.

\\edgema03\min_projects\25889\Design\CAD\PS\PH\T-901.dgn



A PHOTOGRAPH BEFORE SIMULATION



B PHOTOGRAPH AFTER SIMULATION

CONSULTANT:

 2101 HIGHWAY 13 W
 BURNSVILLE, MN 55337
 952.683.1032 VOICE
 952.405.8583 FAX
 www.edgeconsult.com

CLIENT:

 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

PHOTO SIMULATION
 MINNETONKA, SC7
 MINNETONKA, MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO:	20201217545
LOCATION CODE:	620489
RFDS DATE:	04/07/2020

STRUCTURAL ANALYSIS:	
DATE:	DESCRIPTION:
N/A	N/A

SUBMITTAL:		
INT.	DATE:	DESCRIPTION:
JDM	01/18/2021	PHOTOSIM

CHECKED BY:	OGD
PLOT DATE:	1/26/2021
PROJECT NUMBER:	25889
SET TYPE:	FINAL

SHEET NUMBER **T-901**



A AERIAL OVERVIEW



CONSULTANT:
Edge
 Consulting Engineers, Inc.
 2101 HIGHWAY 13 W
 BURNSVILLE, MN 55337
 952.683.1032 VOICE
 952.405.8583 FAX
 www.edgeconsult.com

CLIENT:
verizon
 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

SITE PLAN
 MIN TONKA SC7
 MINNETONKA, MINNESOTA

ENGINEER SEAL:
 APPROVED -
 SEE TITLE SHEET FOR
 ENGINEER SEAL

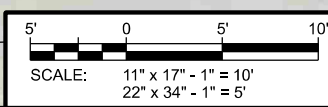
SIGNATURE: _____
 DATE: _____
 I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO:	20202127545
LOCATION CODE:	620489
RFDS DATE:	04/07/2020
STRUCTURAL ANALYSIS:	
DATE:	DESCRIPTION:
05/06/2020	REPORT NO. 25889

SUBMITTAL:		
INT.	DATE	DESCRIPTION
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY	MJM
PLOT DATE	1/27/2021
PROJECT NUMBER	25889
SET TYPE	FINAL

SHEET NUMBER **C-101**



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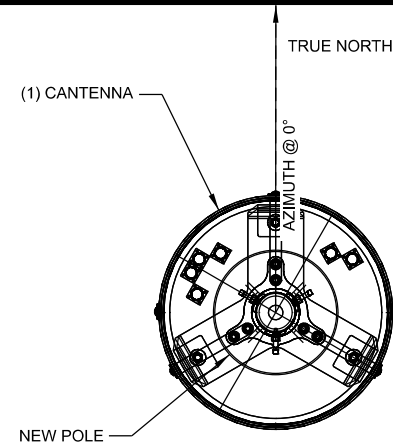
PROPOSED ANTENNA KEY											
NODE	AZIMUTH	QTY	MANUFACTURER	MODEL	ANTENNA HEIGHT	ANTENNA WIDTH	ANTENNA WEIGHT	ANTENNA TIP	ANTENNA CENTER	ELEC DOWNTILT	MECH DOWNTILT
SC	0	1	JMA	CX16OMI236-LC	35.4"	14"	35 lbs	33'-5"	32'-0"	0°	0°

PROPOSED EQUIPMENT KEY					
QTY.	MANUFACTURER	MODEL	HEIGHT	ORIENTATION	MOUNT
2	COMMSCOPE	CBC1923T-DS-43	27'-6"	Street, Street + 180°	Band Strap
1	ERICSSON	RRU 8843	26'-0"	Street	Aluma-Form
1	ERICSSON	RRU 4449	26'-0"	Street + 180°	Aluma-Form
2	ERICSSON	PSU 6302	23'-0"	Street, Street + 180°	Aluma-Form
1	RAYCAP	RSCAC-1333-P-240	21'-0"	Street	Band Strap

NOTES:

- ALL HARDWARE SHALL BE STAINLESS STEEL.
- ALL CABLES SHALL BE SECURED TO POLE EVERY 36" OR LESS.
- LIGHTNING RODS SHALL BE INCLUDED WHERE REQUIRED.
- ALL NEW POLE MOUNTED EQUIPMENT TO BE PAINTED TO MATCH POLE.
- PAINT SPECIFICATION: SHERWIN WILLIAMS "NETWORK GRAY" SW 7073
- THE ORIENTATION SHOWN IN ELEVATION "A" IS FOR CLARITY AND DOES NOT ACCURATELY REPRESENT THE AZIMUTH OF THE ANTENNAS.
- CONTRACTOR TO SECURE ALL CABLING TO POLE EXTERIOR BY USE OF CABLE BLOCK (SITE PRO 1 #: CXB12 OR APPROVED EQUAL) AND TOWER STANDOFF BRACKET (1-1/2" TO 3" DIA. USE SITE PRO 1 #: MST OR APPROVED EQUAL; 3" DIA. AND UP USE SITE PRO 1 #: LST OR APPROVED EQUAL); SECURE CABLE BLOCK TO STANDOFF BRACKET WITH HARDWARE KIT (SITE PRO 1 #: CH35 OR APPROVED EQUAL); SPACE NO MORE THAN 36" O.C., MAXIMUM

A ANTENNA AND EQUIPMENT KEY



NOTE:
1. ALL ANTENNA AZIMUTHS TO BE FROM TRUE NORTH.

B ANTENNA LAYOUT PLAN
SCALE: 11" x 17" - 3/4" = 1'-0"
22" x 34" - 1-1/2" = 1'-0"

View Direction:

STREET -90°

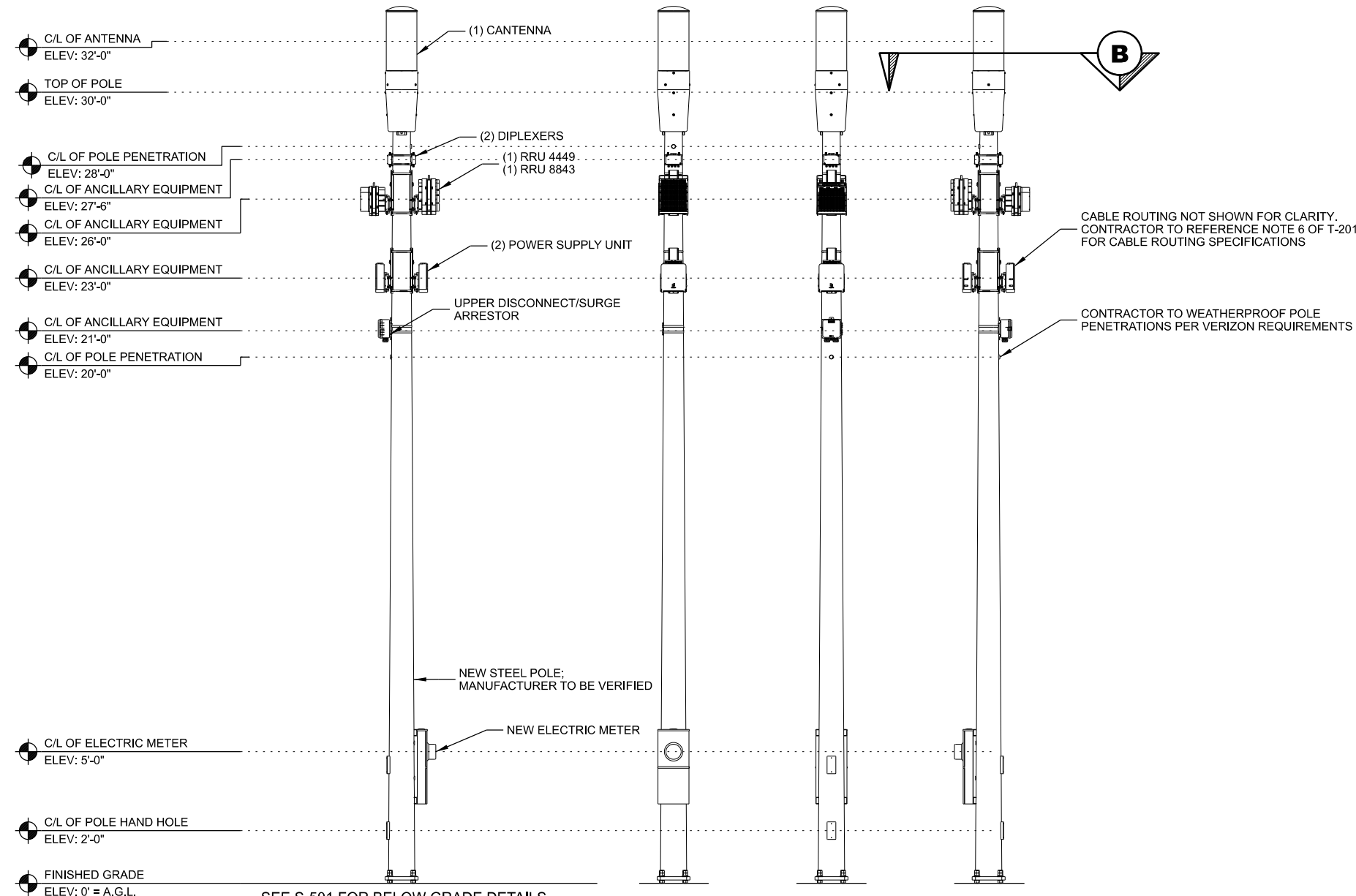
STREET +180°

STREET

STREET +90°

EXISTING POLE	
POLE HEIGHT:	N/A
MAXIMUM APPURTENANCE HEIGHT:	N/A

PROPOSED POLE	
POLE HEIGHT:	30'-0" T.O.C.
ANTENNA TIP HEIGHT:	33'-5" A.G.L.
MAXIMUM APPURTENANCE HEIGHT:	33'-5" A.G.L.



C POLE ELEVATION
SCALE: 11" x 17" - 3/16" = 1'-0"
22" x 34" - 3/8" = 1'-0"

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www.edgeconsult.com

verizon
10801 BUSH LAKE RD
BLOOMINGTON, MN 55438
952.946.4694 VOICE

SITE ELEVATION & ANTENNA CONFIGURATION
MIN TONKA SC7
MINNETONKA, MINNESOTA

ENGINEER SEAL:
APPROVED - SEE TITLE SHEET FOR ENGINEER SEAL

SIGNATURE: _____
DATE: _____

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO:	20202127545
LOCATION CODE:	620489
RFDS DATE:	04/07/2020

STRUCTURAL ANALYSIS:	
DATE:	DESCRIPTION:
05/06/2020	REPORT NO. 25889

SUBMITTAL:		
INT.	DATE:	DESCRIPTION:
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY: MJM

PLOT DATE: 1/27/2021

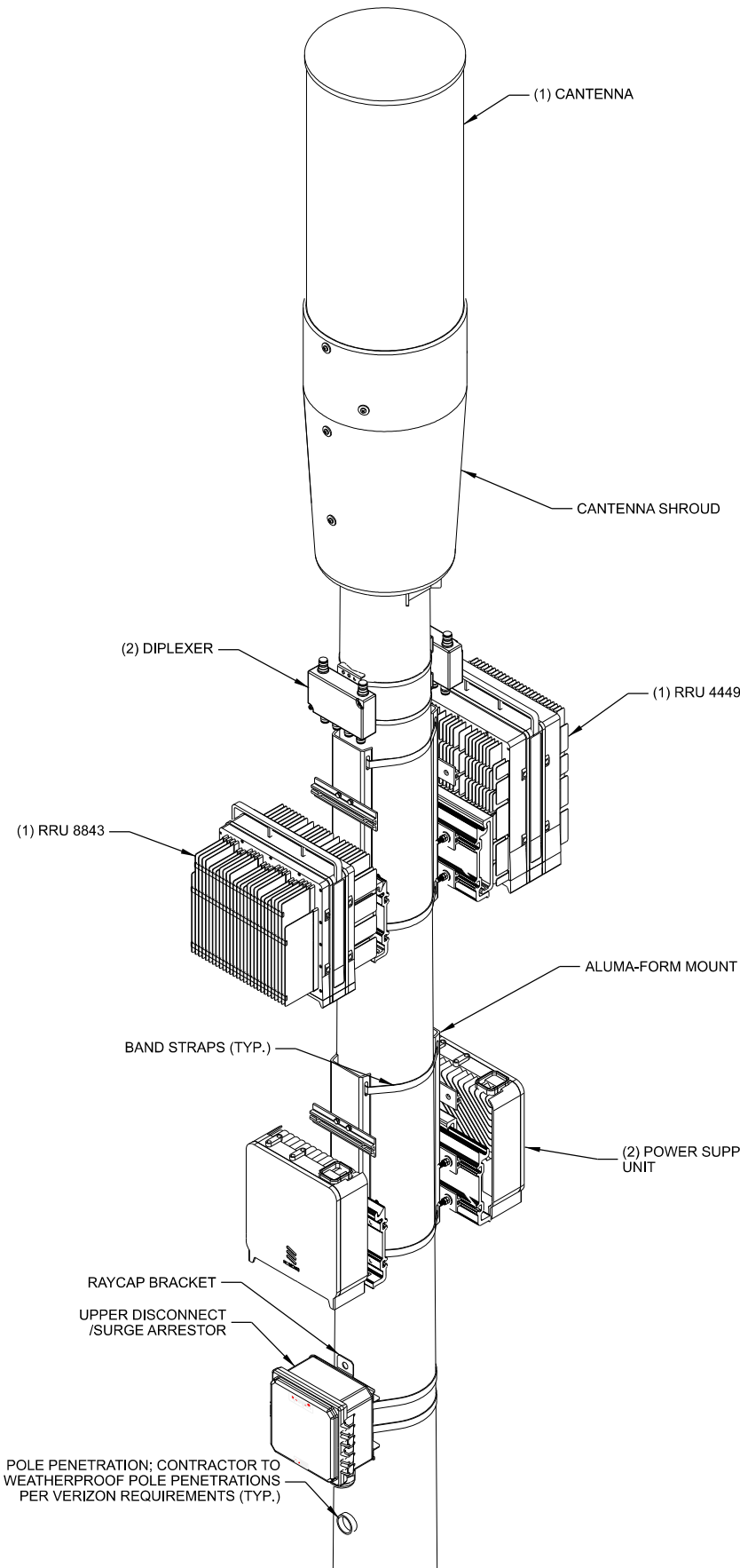
PROJECT NUMBER: 25889

SET TYPE: FINAL

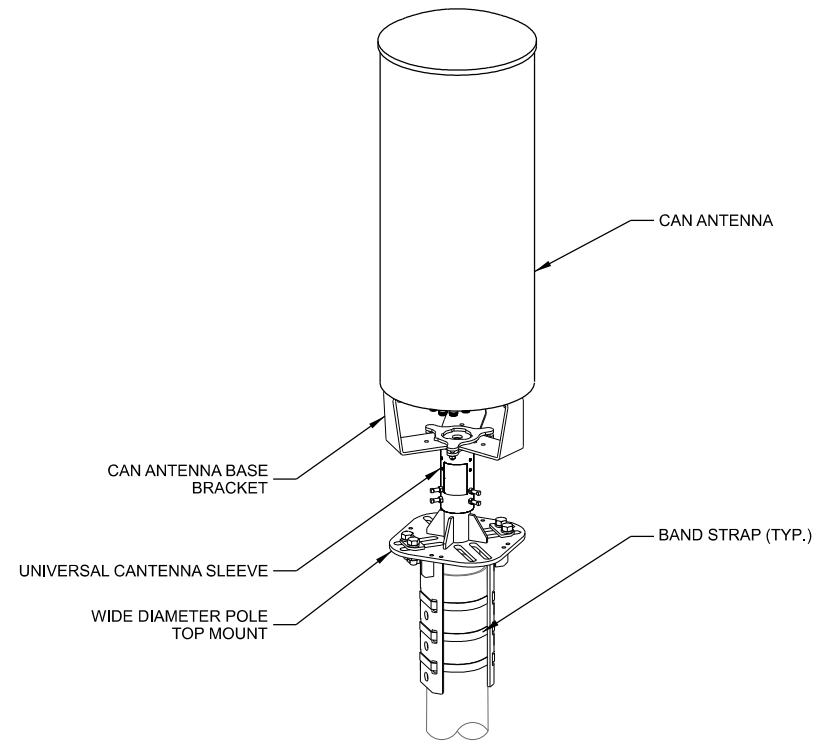
SHEET NUMBER: **T-201**

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L:\25889\025889\Design\CAD\Drawings\T-501.dgn

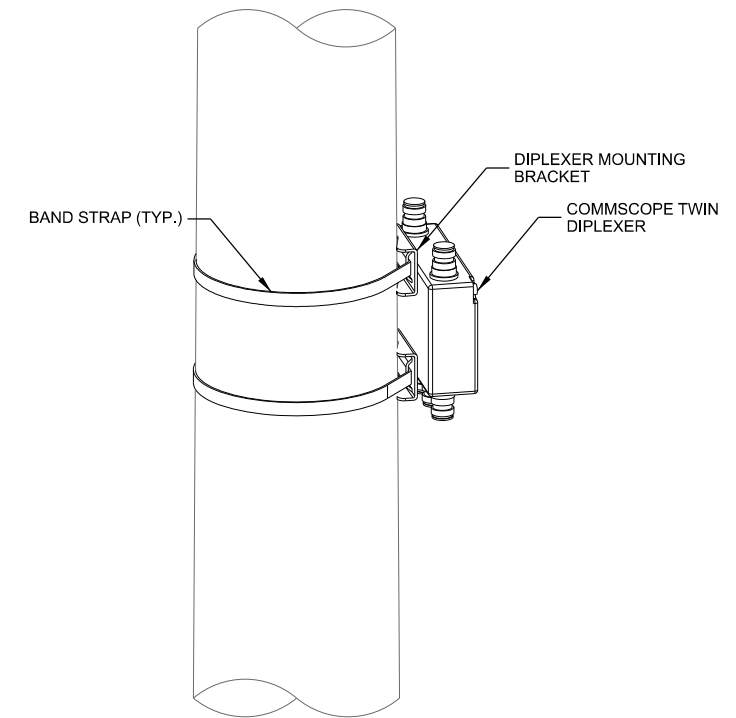


A POLE ISOMETRIC

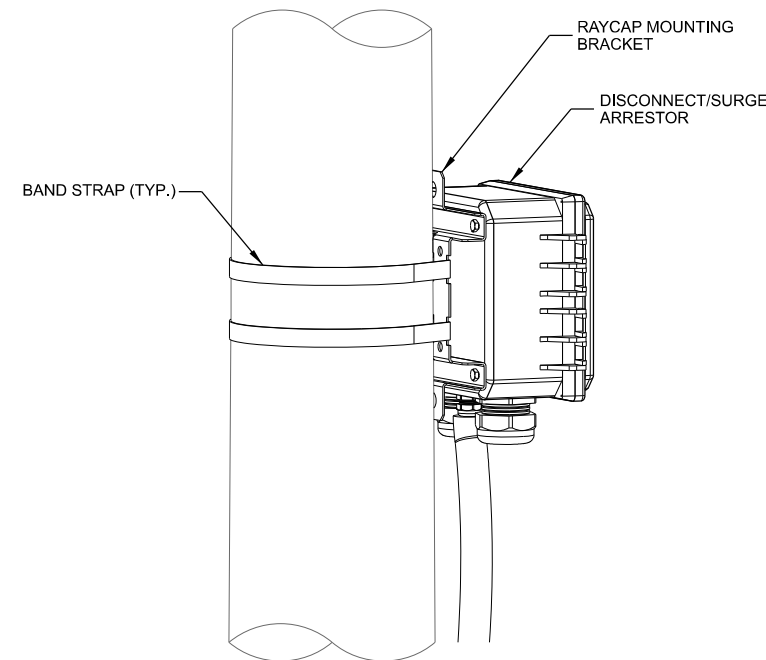


NOTES:
1. THE MOUNT IS SHOWN WITHOUT THE SHROUD FOR CLARITY

B CAN ANTENNA

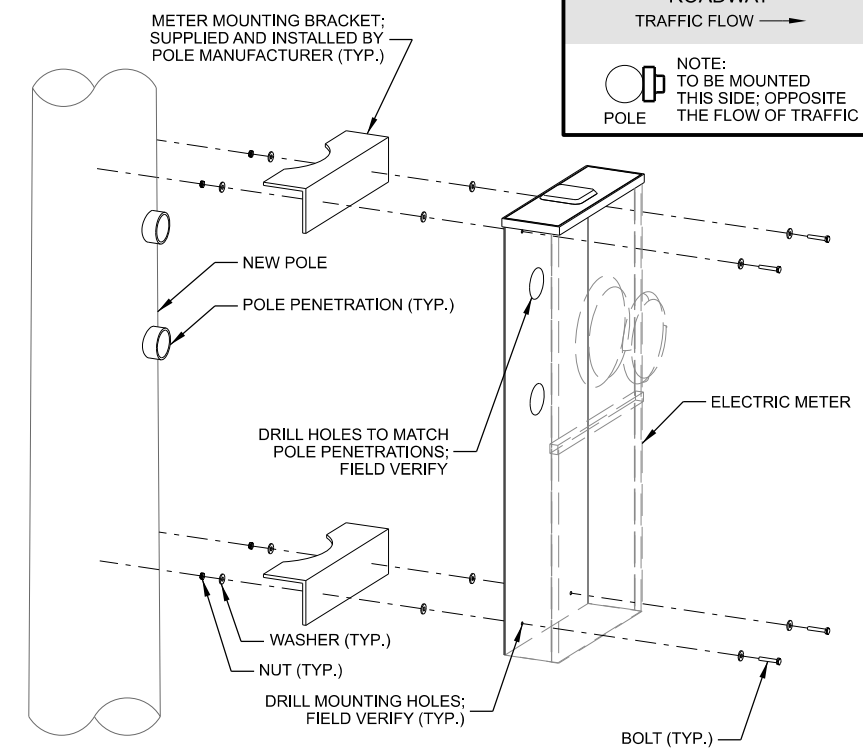


C TWIN DIPLEXER



D DISCONNECT/SURGE ARRESTOR

MOUNT: ANGLE BRACKET
DIMENSIONS: 3.5" x 14" x 3.5" (H x W x D)



E ELECTRIC METER

CONSULTANT:
Edge
Consulting Engineers, Inc.
2101 HIGHWAY 13 W
BURNSVILLE, MN 55337
952.683.1032 VOICE
952.405.8583 FAX
www.edgeconsult.com

CLIENT:
verizon
10801 BUSH LAKE RD
BLOOMINGTON, MN 55438
952.946.4694 VOICE

MOUNTING DETAILS
MIN TONKA SC7
MINNETONKA, MINNESOTA

ENGINEER SEAL:
APPROVED - SEE TITLE SHEET FOR ENGINEER SEAL

SIGNATURE: _____
DATE: _____

PROJECT NO:	2020127545	
LOCATION CODE:	620489	
RFDS DATE:	04/07/2020	
STRUCTURAL ANALYSIS:		
DATE:	DESCRIPTION:	
05/06/2020	REPORT NO. 25889	
SUBMITTAL:		
INT.	DATE	DESCRIPTION:
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

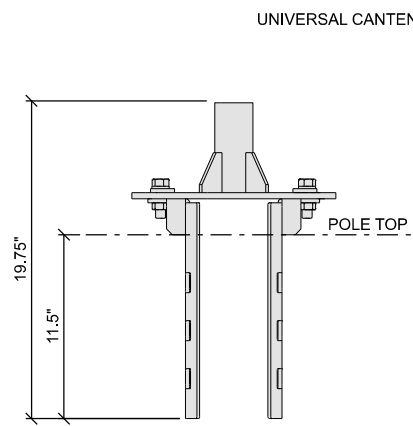
CHECKED BY:	MJM
PLOT DATE:	1/27/2021
PROJECT NUMBER:	25889
SET TYPE:	FINAL
SHEET NUMBER:	T-501

MANUFACTURER: CONCEALFAB
MODEL: WIDE DIAMETER POLE TOP MOUNT (PART # 007951-F)
DIMENSIONS: 19.75" x 12.75" (H x W)

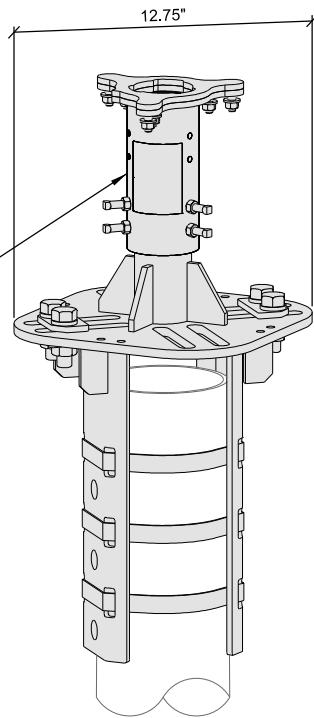
TO BE USED WITH UNIVERSAL ANTENNA SLEEVE MOUNT W/ SINGLE BOLT ADAPTER PLATE (PART # 900192-F)

POLE TOP LEG ARRANGEMENT #1:
 FITS POLES 7-1/2" DIA. TO 14-1/8" DIA.

POLE TOP LEG ARRANGEMENT #2:
 FITS POLES 5-1/4" DIA. TO 7-1/8" DIA.



SIDE VIEW

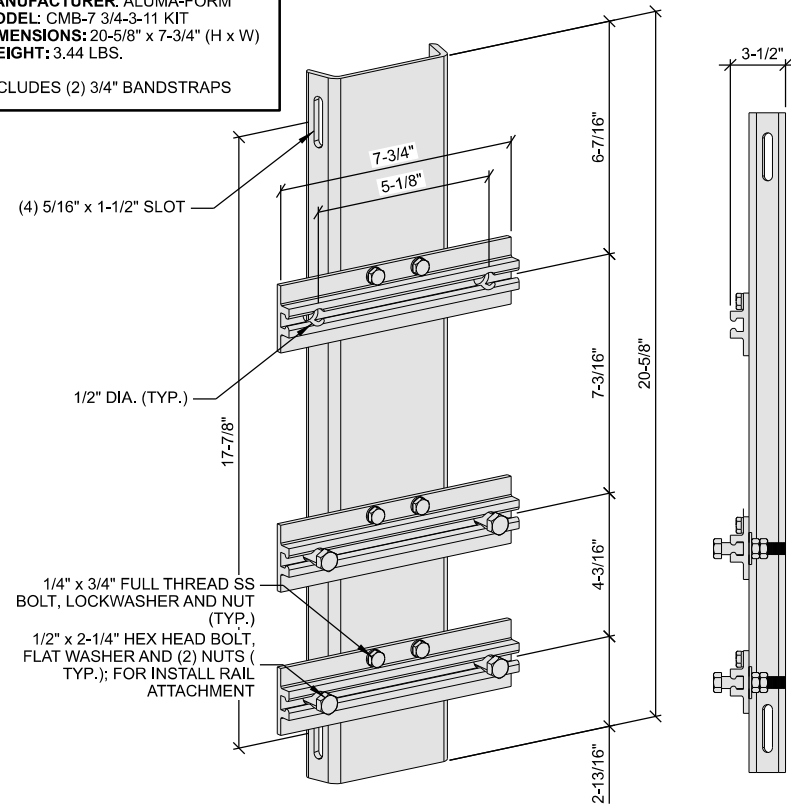


ISOMETRIC VIEW

A WIDE DIAMETER POLE TOP MOUNT

MANUFACTURER: ALUMA-FORM
MODEL: CMB-7 3/4-3-11 KIT
DIMENSIONS: 20-5/8" x 7-3/4" (H x W)
WEIGHT: 3.44 LBS.

INCLUDES (2) 3/4" BANDSTRAPS

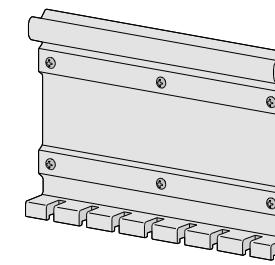


ISOMETRIC VIEW

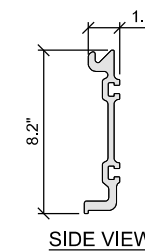
SIDE VIEW

B ALUMAFORM MOUNT

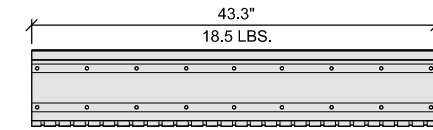
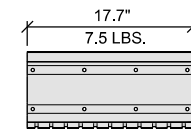
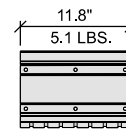
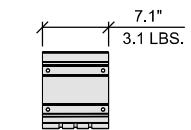
MANUFACTURER: ERICSSON
MODEL: INSTALL RAIL
DIMENSIONS: 8.2" x VARIES x 1.8" (H x W x D)
WEIGHT: VARIES



RAIL



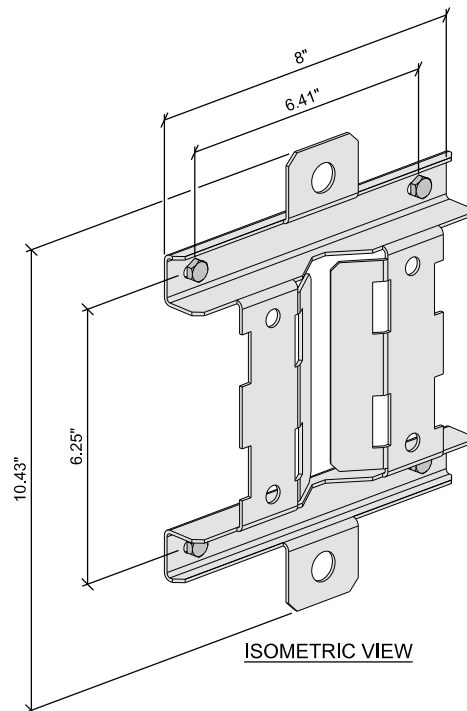
SIDE VIEW



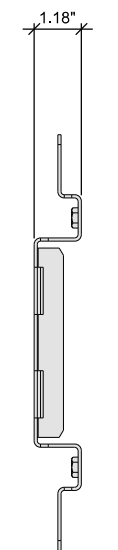
FRONT VIEW

C ERICSSON INSTALL RAIL

MANUFACTURER: RAYCAP
MODEL: RVZDC-2210-P-48
DIMENSIONS: 10.43" x 8.59" x 5.06" (H x W x D)
WEIGHT: 8 LBS.



ISOMETRIC VIEW



SIDE VIEW

D RAYCAP MOUNTING BRACKET

THIS SPACE INTENTIONALLY LEFT BLANK

CONSULTANT:
Edge
 Consulting Engineers, Inc.
 2101 HIGHWAY 13 W
 BURNSVILLE, MN 55337
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 952.405.8583 FAX
 www.edgeconsult.com

CLIENT:
verizon
 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

MOUNTING DETAILS
 MIN TONKA SC7
 MINNETONKA, MINNESOTA

ENGINEER SEAL:

APPROVED-
 SEE TITLE SHEET FOR
 ENGINEER SEAL

SIGNATURE: _____
 DATE: _____

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO: 20202127545
 LOCATION CODE: 620489
 RFDS DATE: 04/07/2020

STRUCTURAL ANALYSIS:
 DATE: DESCRIPTION:
 05/06/2020 REPORT NO. 25889

SUBMITTAL:

INT.	DATE	DESCRIPTION
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY: MJM

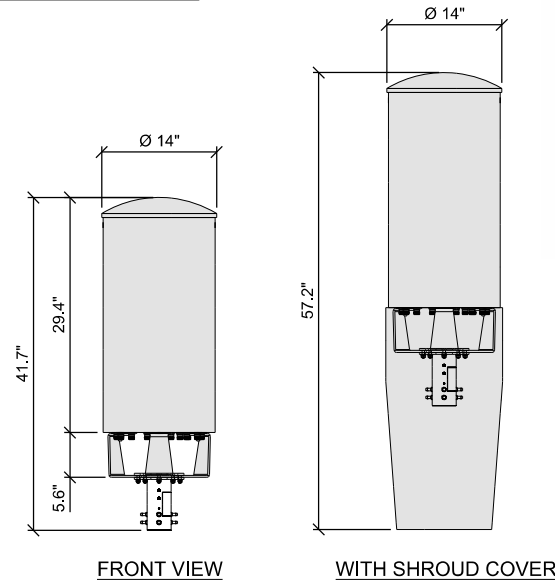
PLOT DATE: 1/27/2021

PROJECT NUMBER: 25889

SET TYPE: FINAL

SHEET NUMBER: **T-502**

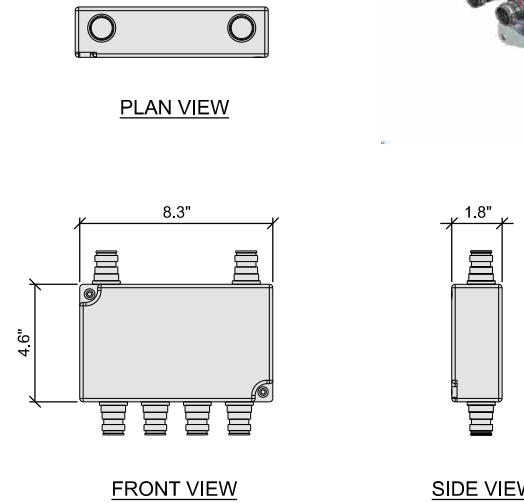
MANUFACTURER: JMA
 MODEL: CX060MI236-1C
 DIMENSIONS: 29.4" x Ø 14" (H x W)
 WEIGHT: 38.6 LBS.
 INSTALLATION TYPE: POLE TOP MOUNT



NOTES:
 1. ANTENNA(S) TO BE MOUNTED TO POLE EXTERIOR WITH CONCEALFAB WIDE DIAMETER POLE TOP MOUNT (PART # 007951-F)

A CANTENNA

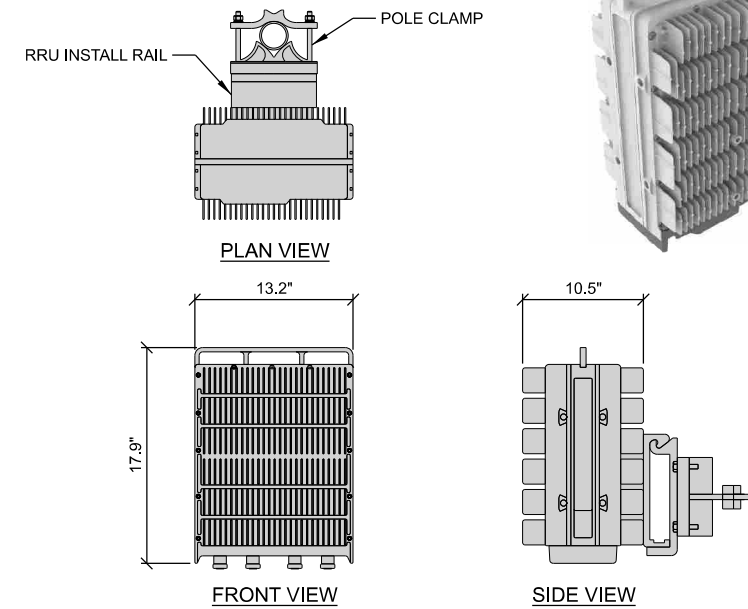
MANUFACTURER: COMMSCOPE
 MODEL: DIPLEXER CBC1923T-43
 DIMENSIONS: 4.6" x 8.3" x 1.8" (H x W x D)
 WEIGHT: 4.3 LBS



NOTES:
 1. DIPLEXERS MUST BE POWERED UP WITHIN 48 HOURS OF INSTALLATION.

B TWIN DIPLEXER

MANUFACTURER: ERICSSON
 MODEL: RADIO 4449
 DIMENSIONS: 17.9" x 13.2" x 10.5" (H x W x D)
 WEIGHT: 70.5 LBS



NOTES:
 1. REMOTE RADIO UNITS MUST BE POWERED UP WITHIN 48 HOURS OF INSTALLATION.

C REMOTE RADIO UNIT (RRU)

CONSULTANT:
Edge
 Consulting Engineers, Inc.
 2101 HIGHWAY 13 W
 BURNSVILLE, MN 55337
 952.683.1032 VOICE
 952.405.8583 FAX
 www.edgeconsult.com

CLIENT:
verizon
 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

ANTENNA & EQUIPMENT SPECIFICATIONS
 MINNETONKA, MN
 MINNETONKA, MINNESOTA

ENGINEER SEAL:
 APPROVED -
 SEE TITLE SHEET FOR
 ENGINEER SEAL

SIGNATURE: _____
 DATE: _____

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO: 20202127545
 LOCATION CODE: 620489
 RFDS DATE: 04/07/2020

STRUCTURAL ANALYSIS:
 DATE: 05/06/2020
 DESCRIPTION: REPORT NO. 25889

INT.	DATE	DESCRIPTION
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY: MJM

PLOT DATE: 1/27/2021

PROJECT NUMBER: 25889

SET TYPE: FINAL

SHEET NUMBER: **T-701**

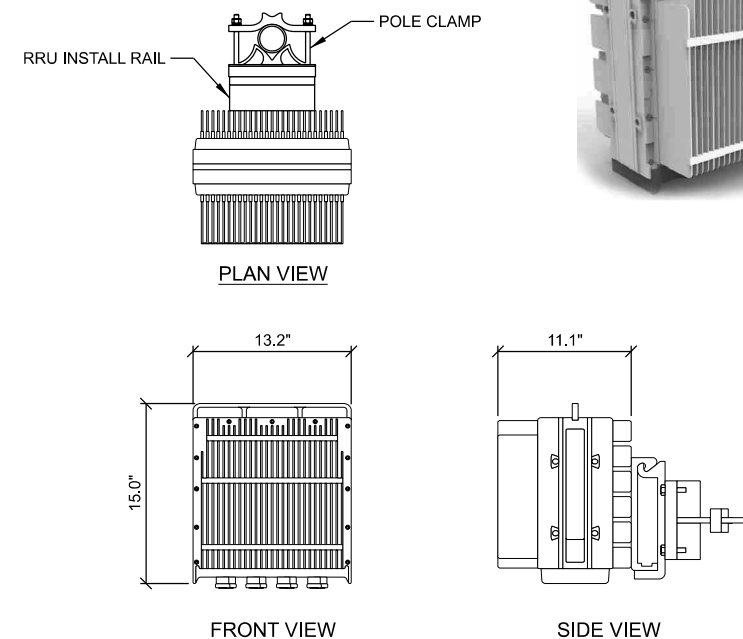
CAUTION
 Transmitting Antenna(s)
 Radio frequency fields beyond this point MAY EXCEED the FCC Occupational exposure limit.
 Obey all posted signs and site guidelines.
 Call Verizon at 1-800-264-6620 PRIOR to working beyond this point.
 Site ID/ PSLC: _____
 verizon

NOTICE
 Transmitting Antenna(s)
 Radio frequency fields beyond this point MAY EXCEED the FCC General Population exposure limit.
 Obey all posted signs and site guidelines.
 Call Verizon at 1-800-264-6620 PRIOR to working beyond this point.
 Site ID/ PSLC: _____
 verizon

NOTES:
 1. RF WARNING SIGNS TO BE MOUNTED @ 7'-0" A.G.L.

D RF WARNING SIGNS

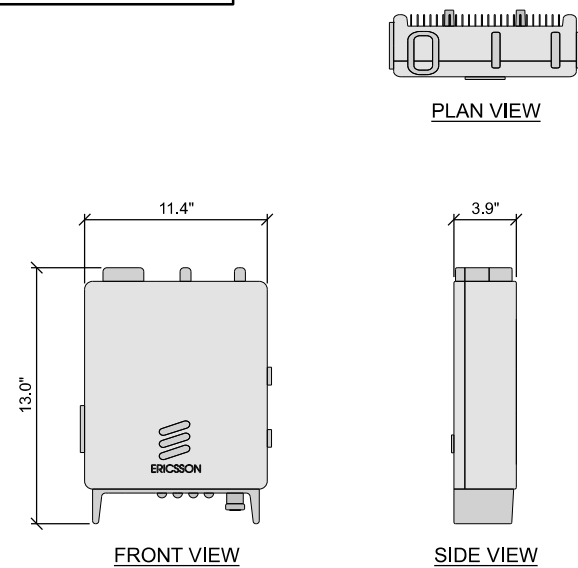
MANUFACTURER: ERICSSON
 MODEL: RRU 8843
 DIMENSIONS: 15.0" x 13.2" x 11.1" (H x W x D)
 WEIGHT: 75 LBS.



NOTES:
 1. REMOTE RADIO UNITS MUST BE POWERED UP WITHIN 48 HOURS OF INSTALLATION.

E REMOTE RADIO UNIT (RRU)

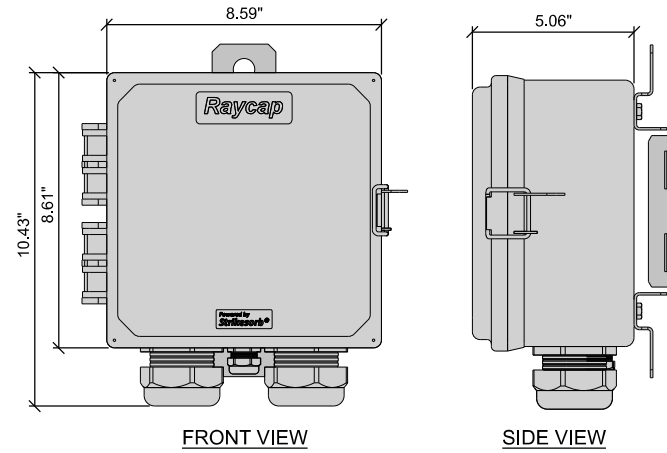
MANUFACTURER: ERICSSON
 MODEL: PSU 6302
 DIMENSIONS: 13.0" x 11.4" x 3.9" (H x W x D)
 WEIGHT: 22 LBS.



F POWER SUPPLY UNIT (PSU)

MANUFACTURER: RAYCAP
 MODEL: RSCAC-1333-P-240
 DIMENSIONS: 10.43" x 8.59" x 5.06" (H x W x D)
 WEIGHT: 8 LBS.

SUPPLIED WITH MOUNTING BRACKET:
 RVZDC-2210-P-48

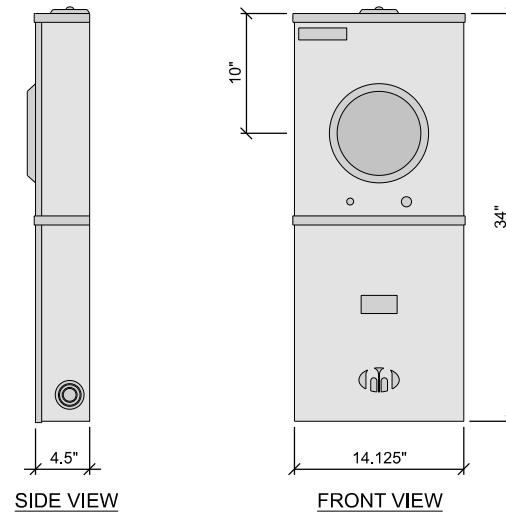


A DISCONNECT / SURGE ARRESTOR

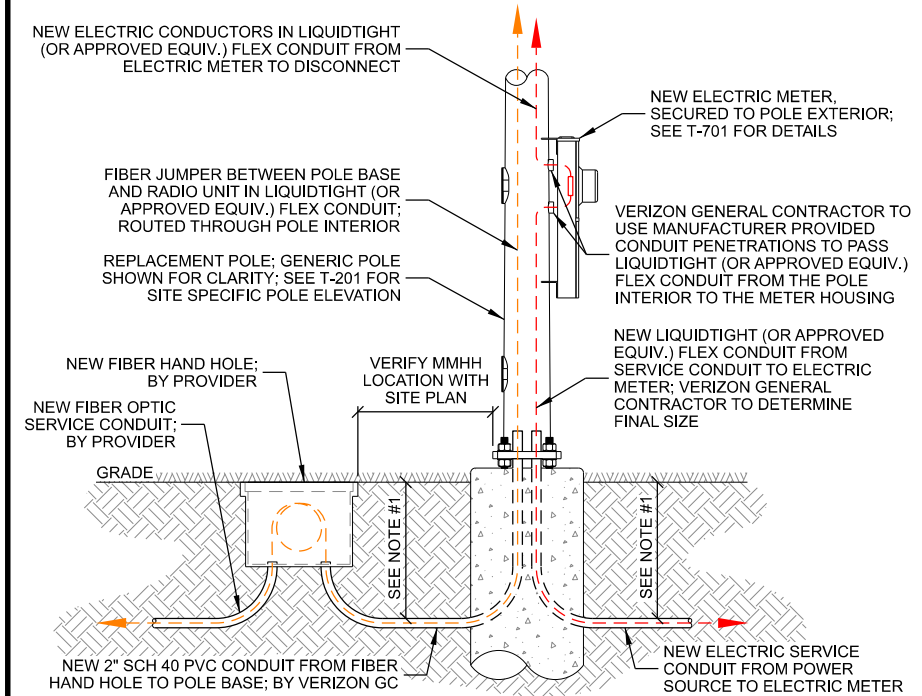
MANUFACTURER: MILBANK
 MODEL: U6821-(-)(-AMP)
 DIMENSIONS: 34" x 14.125" x 4.5" (H x W x D)
 WEIGHT: 41 LBS.

200 AMP HD BYPASS RNGLS 4T/5T SIDE WIREWAY
 OH/UG METER MAIN 22kA SCCR

***OR APPROVED EQUIVALENT

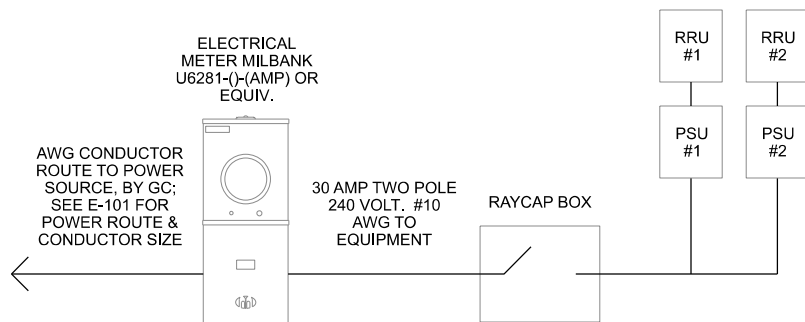


B ELECTRIC METER



- NOTES:
- CONDUIT TO BE 42" BELOW GRADE OR 6" BELOW FROST DEPTH, WHICHEVER IS DEEPER.
 - DUE TO PRESENCE OF ELECTRIC SERVICE WIRES IN POLE BASE, ALL CONDUCTIVE WIRES (ELECTRIC, GROUNDING, ARMORED, FIBER, ETC.) TO BE PLACED IN CONDUIT, PER THE NATIONAL ELECTRICAL CODE.

C CONDUIT ROUTING DETAIL



- NOTES:
- ELECTRICAL CONTRACTOR TO VERIFY FINAL ELECTRICAL ROUTING WITH UTILITY COMPANY ON-SITE.
 - ELECTRICAL CONDUCTOR SIZING IS BASED ON THE FOLLOWING ASSUMPTIONS: 240 VOLT SERVICE, SINGLE PHASE POWER, 100 A CIRCUIT, AND 3% ALLOWABLE VOLTAGE DROP.
 - THE VERIZON GENERAL CONTRACTOR IS RESPONSIBLE TO VERIFY ALL REQUIRED CONDUCTOR AND CONDUIT SIZES DURING THE BIDDING PROCESS.

D ELECTRICAL ONE-LINE DIAGRAM

THIS SPACE INTENTIONALLY LEFT BLANK

CONSULTANT:

2101 HIGHWAY 13 W
 BURNSVILLE, MN 55337
 952.683.1032 VOICE
 952.405.8583 FAX
 www.edgeconsult.com

CLIENT:

10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

ANTENNA & EQUIPMENT SPECIFICATIONS
 MIN TONKA SC7
 MINNETONKA, MINNESOTA

ENGINEER SEAL:

APPROVED - SEE TITLE SHEET FOR ENGINEER SEAL

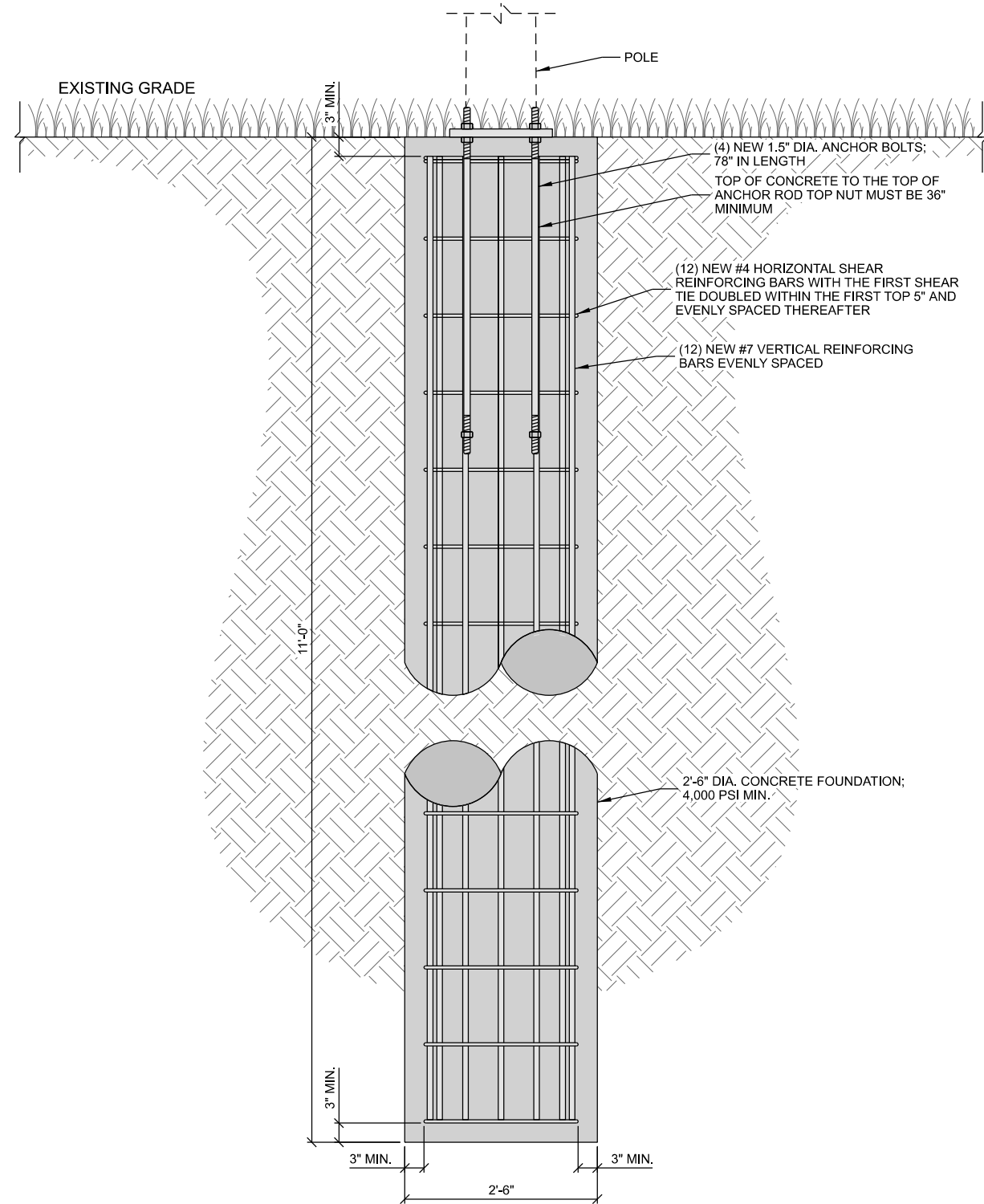
SIGNATURE: _____
 DATE: _____

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO:	20202127545
LOCATION CODE:	620489
RFDS DATE:	04/07/2020
STRUCTURAL ANALYSIS:	
DATE:	DESCRIPTION:
05/06/2020	REPORT NO. 25889

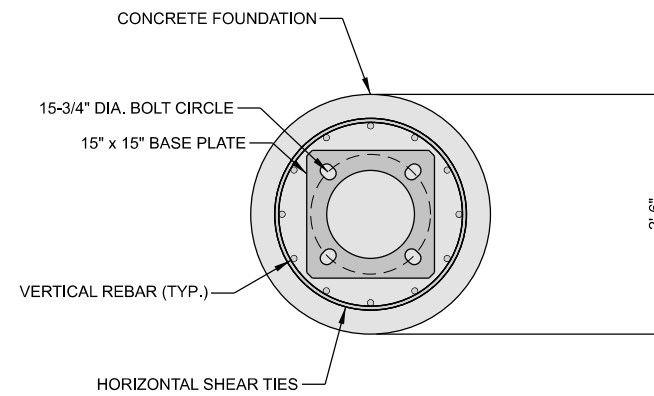
SUBMITTAL:		
INT.	DATE:	DESCRIPTION:
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY:	MJM
PLOT DATE:	1/27/2021
PROJECT NUMBER:	25889
SET TYPE:	FINAL
SHEET NUMBER:	T-702



ELEVATION VIEW

TABLE OF QUANTITIES		
MATERIAL	DESCRIPTION	SUPPLIED BY
HORIZONTAL REBAR	(12) #4	CONTRACTOR
VERTICAL REBAR	(12) #7	CONTRACTOR
ANCHOR BOLT	(4) 1.5" DIA. x 78"	EDGE
CONCRETE	4,000 PSI MIN.	CONTRACTOR



PLAN VIEW

NOTE:
1. VERIFY DETAILS WITH STRUCTURAL ANALYSIS LISTED ON THE TITLE SHEET.

A FOUNDATION DETAIL

CONSULTANT:
Edge
 Consulting Engineers, Inc.
 2101 HIGHWAY 13 W
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 952.405.8583 FAX
 www.edgeconsult.com

CLIENT:
verizon
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 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

FOUNDATION DETAILS
 MINNETONKA SC7
 MINNETONKA, MINNESOTA

ENGINEER SEAL:

 APPROVED -
 SEE TITLE SHEET FOR
 ENGINEER SEAL

SIGNATURE: _____
 DATE: _____

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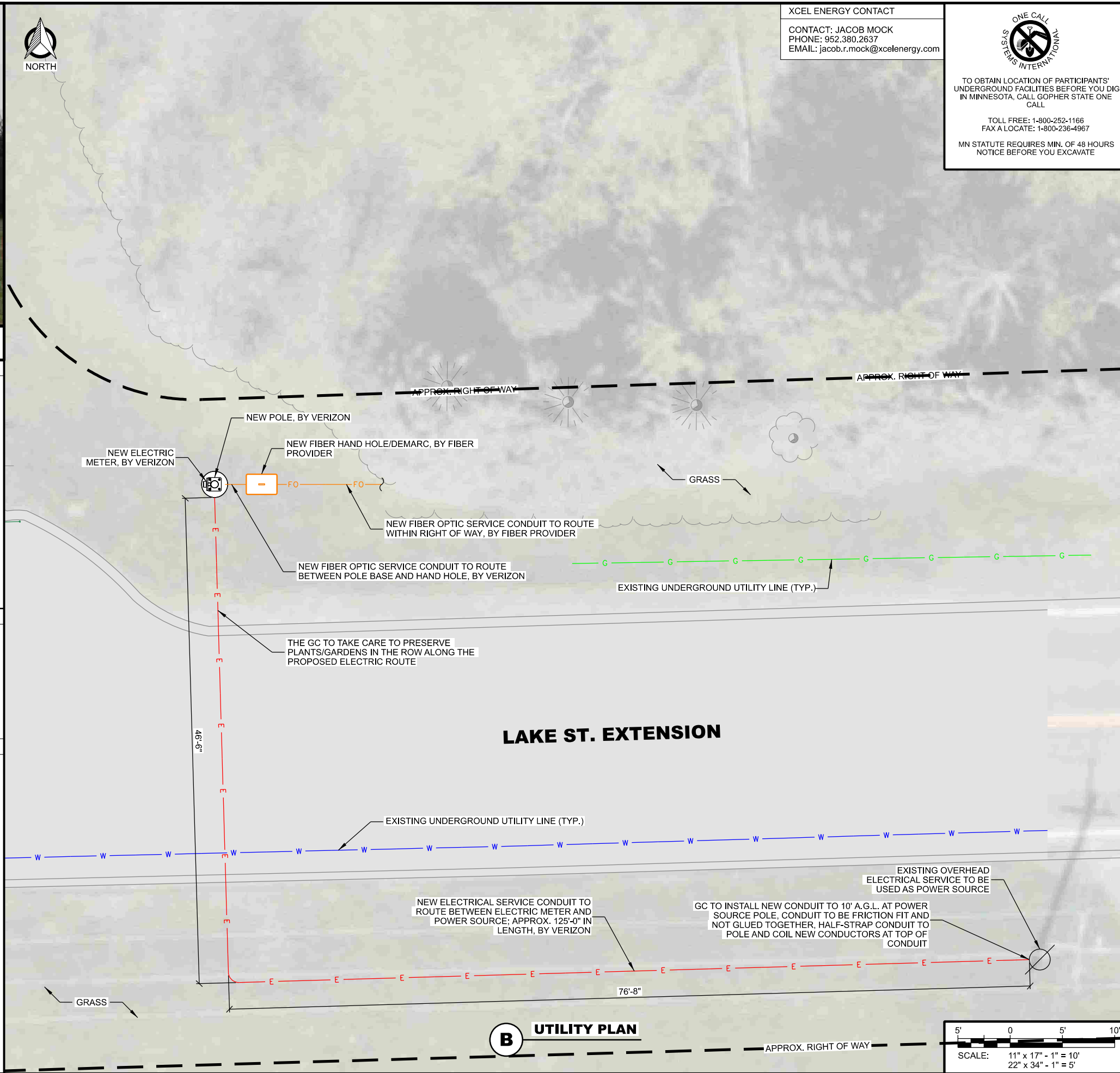
PROJECT NO:	20202127545
LOCATION CODE:	620489
RFDS DATE:	04/07/2020

STRUCTURAL ANALYSIS:	
DATE:	DESCRIPTION:
05/06/2020	REPORT NO. 25889

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RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY:	MJM
PLOT DATE:	1/27/2021
PROJECT NUMBER:	25889
SET TYPE:	FINAL
SHEET NUMBER:	S-501

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XCEL ENERGY CONTACT
 CONTACT: JACOB MOCK
 PHONE: 952.380.2637
 EMAIL: jacob.r.mock@xcelenergy.com

ONE CALL
 SYSTEMS INTERNATIONAL

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN MINNESOTA, CALL GOPHER STATE ONE CALL

TOLL FREE: 1-800-252-1166
 FAX A LOCATE: 1-800-236-4967

MN STATUTE REQUIRES MIN. OF 48 HOURS NOTICE BEFORE YOU EXCAVATE

CONSULTANT:
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 Consulting Engineers, Inc.
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CLIENT:
verizon
 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

A POWER SOURCE

LEGEND:

GAS MAIN	G	G
SANITARY SEWER	SS	SS
STORM SEWER	ST	ST
STREET LIGHTS	E	E
FIBER OPTIC	FO	FO
WATER	W	W
TELEPHONE	T	T
OVERHEAD ELECTRIC	OHE	OHE
NEW ELECTRIC	E	E
NEW FIBER OPTIC	FO	FO

ELECTRICAL CONDUCTOR SIZING:
 THE FOLLOWING ASSUMPTIONS WERE MADE IN CALCULATING THE PROPOSED ELECTRICAL CONDUCTOR SIZING:
 240 VOLT SERVICE
 SINGLE PHASE POWER
 100A CIRCUIT
 3% ALLOWABLE VOLTAGE DROP
 CONDUCTOR WIRE SIZE: 1 AWG COPPER
 GC REQUIRED TO VERIFY WIRE SIZE WITH A MASTER ELECTRICIAN

- NOTES:
- CONTRACTOR TO COMPLETE UTILITY LOCATE PRIOR TO COMPLETING ANY CONSTRUCTION ACTIVITIES.
 - CONTRACTOR TO MAINTAIN A MINIMUM 48" OF COVER BETWEEN DIRECTIONAL CORE AND ROADWAY PAVEMENT TO THE EXTENT PRACTICAL.
 - CONTRACTOR TO PROVIDE A MINIMUM OF 12" OF CLEARANCE BETWEEN NEW CONDUIT AND EXISTING UTILITIES.
 - ALL CONCRETE DAMAGED AS PART OF THIS WORK TO BE REPAIRED/REPLACED TO ITS ORIGINAL CONDITION.
 - ALL ASPHALT REMOVED DURING CONSTRUCTION IS TO BE PATCHED AND REPAIRED TO ITS ORIGINAL CONDITION.
 - POT HOLE AND PATCH OVER ALL SANITARY SEWER LINES.
 - POT HOLE AND PATCH OVER ALL WATER LINES/MAINS.
 - THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.

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FIBER & POWER ROUTING PLAN
 MINNETONKA, MN
 MINNETONKA, MINNESOTA

ENGINEER SEAL:
 APPROVED -
 SEE TITLE SHEET FOR
 ENGINEER SEAL

SIGNATURE: _____
 DATE: _____

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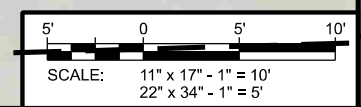
PROJECT NO:	20202127545
LOCATION CODE:	620489
RFDS DATE:	04/07/2020
STRUCTURAL ANALYSIS:	
DATE:	DESCRIPTION:
05/06/2020	REPORT NO. 25889

SUBMITTAL:		
INT.	DATE	DESCRIPTION
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY:	MJM
PLOT DATE:	1/27/2021
PROJECT NUMBER:	25889
SET TYPE:	FINAL
SHEET NUMBER:	E-101

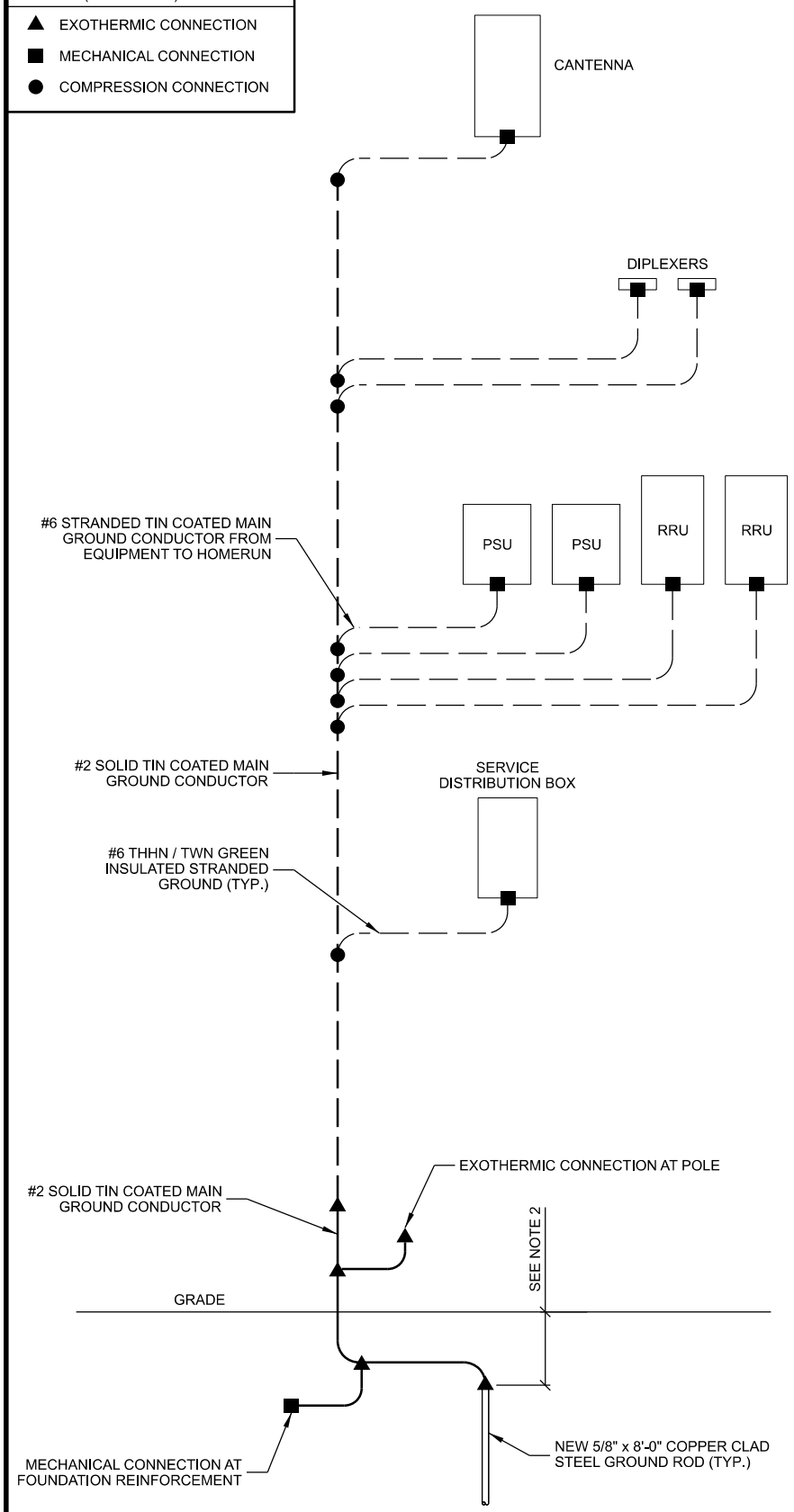
LAKE ST. EXTENSION

B UTILITY PLAN



LEGEND: (THIS SHEET)

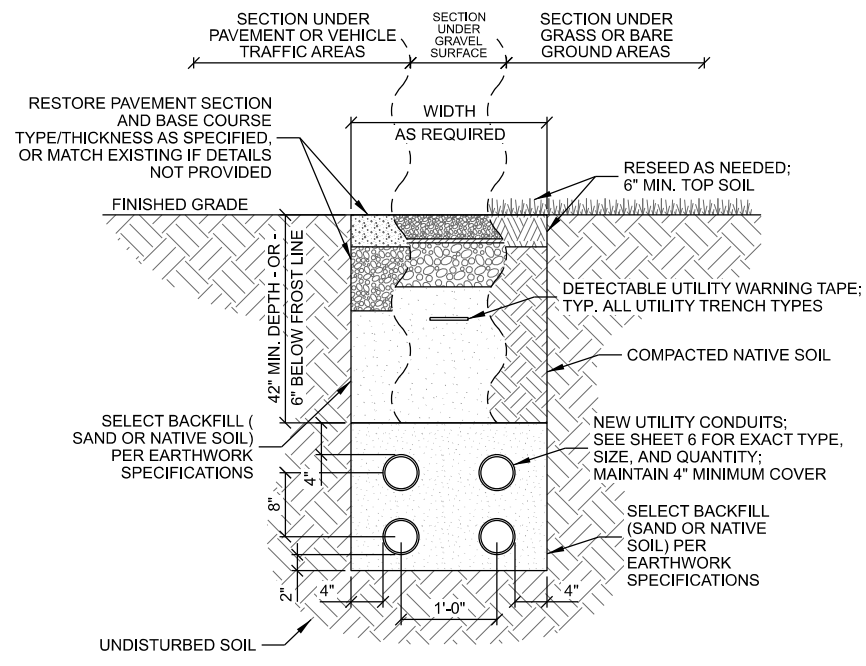
- ▲ EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- COMPRESSION CONNECTION



NOTES:

- GROUNDING RISER FOR DIAGRAMMATIC PURPOSES ONLY. SEE ELEVATION DRAWINGS FOR EQUIPMENT AND ANTENNA LOCATIONS.
- DRIVE GROUND RODS TO A MINIMUM DEPTH OF 30" OR 6" BELOW FROST LINE

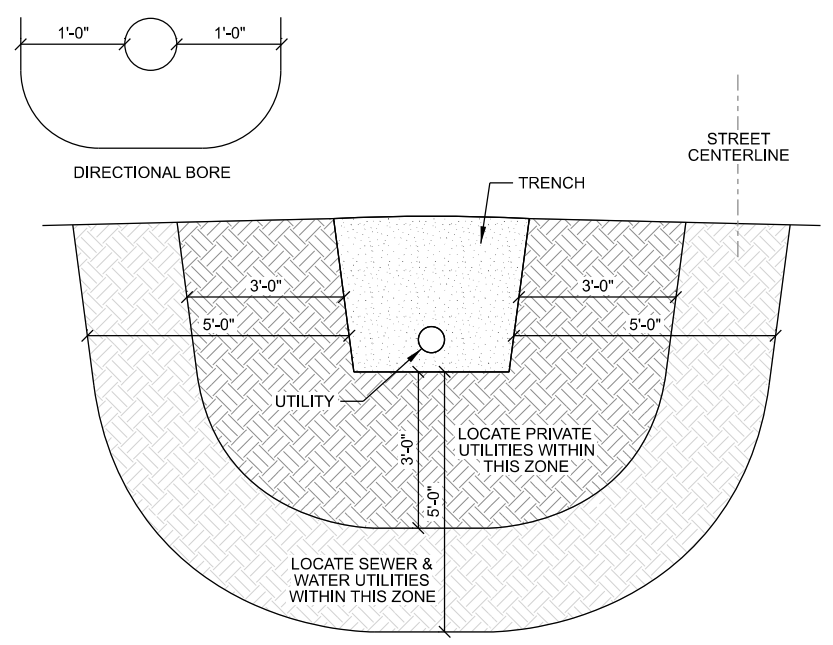
A GROUNDING RISER DIAGRAM



NOTES:

- UTILITY CONDUITS TO BE BURIED A MINIMUM DEPTH OF 42" BELOW GROUND LEVEL OR 6" BELOW THE FROST LINE.
- CONDUIT TYPE, SIZE, AND QUANTITY TO BE VERIFIED WITH PROVIDER.

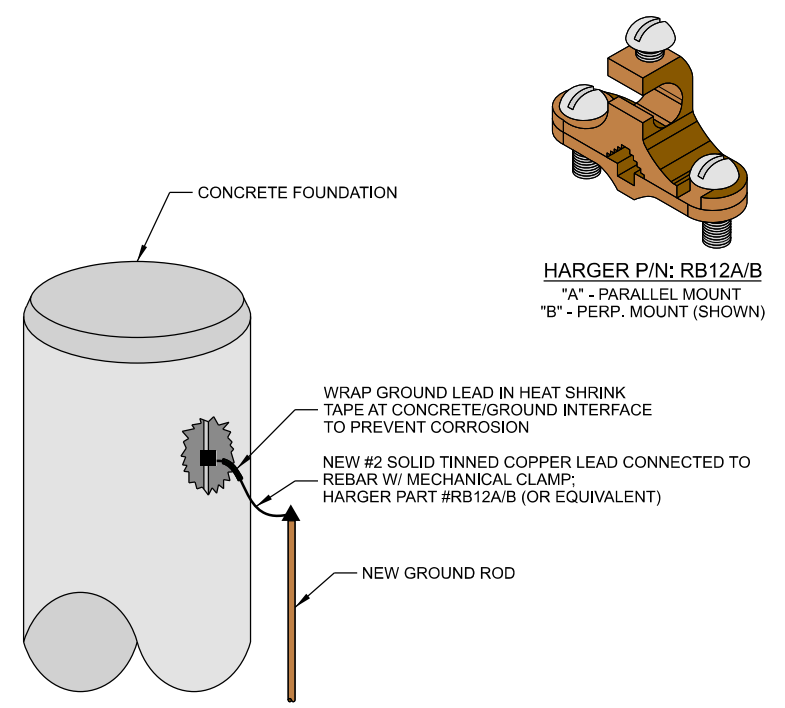
B UTILITY TRENCH DETAIL



NOTES:

- CROSS SECTION REQUIRED WHEN TRENCH IS WITHIN 3' OF PRIVATE UTILITIES, OR WITHIN 5' OF SEWER AND WATER UTILITIES (OR WHEN DIRECTIONAL BORE IS WITHIN 1' OF ANY UTILITY)

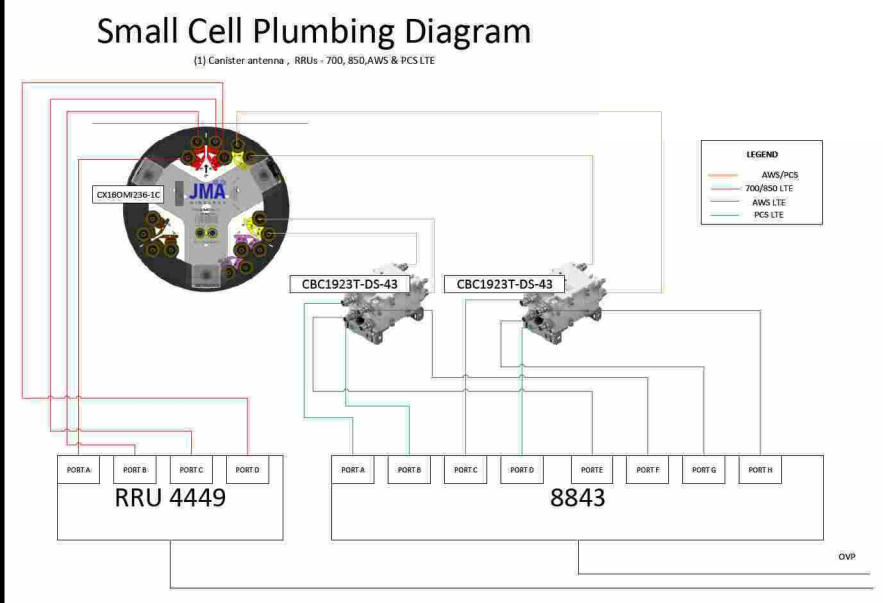
C TRENCH LOCATE REQUIREMENTS



NOTES:

- FOUNDATION SHOWN IS TYPICAL.
- GROUNDING CONNECTIONS TO BE COVERED BY A MINIMUM OF 3" CONCRETE.
- CONTRACTOR TO PROVIDE ALL REQUIRED COMPRESSION CONNECTIONS.

D REBAR CONNECTION



E PLUMBING DIAGRAM

CONSULTANT:
Edge
 Consulting Engineers, Inc.
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 BURNSVILLE, MN 55337
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 www.edgeconsult.com

CLIENT:
verizon
 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

GROUNDING & UTILITY DETAILS
 MINNETONKA, MINNESOTA
 MINNETONKA, MINNESOTA

ENGINEER SEAL:
 APPROVED -
 SEE TITLE SHEET FOR
 ENGINEER SEAL

SIGNATURE: _____
 DATE: _____

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PROJECT NO: 20202127545
 LOCATION CODE: 620489
 RFDS DATE: 04/07/2020

STRUCTURAL ANALYSIS:
 DATE: 05/06/2020
 DESCRIPTION: REPORT NO. 25889

SUBMITTAL:		
INT.	DATE	DESCRIPTION:
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY: MJM
 PLOT DATE: 1/27/2021
 PROJECT NUMBER: 25889
 SET TYPE: FINAL
 SHEET NUMBER: **E-501**

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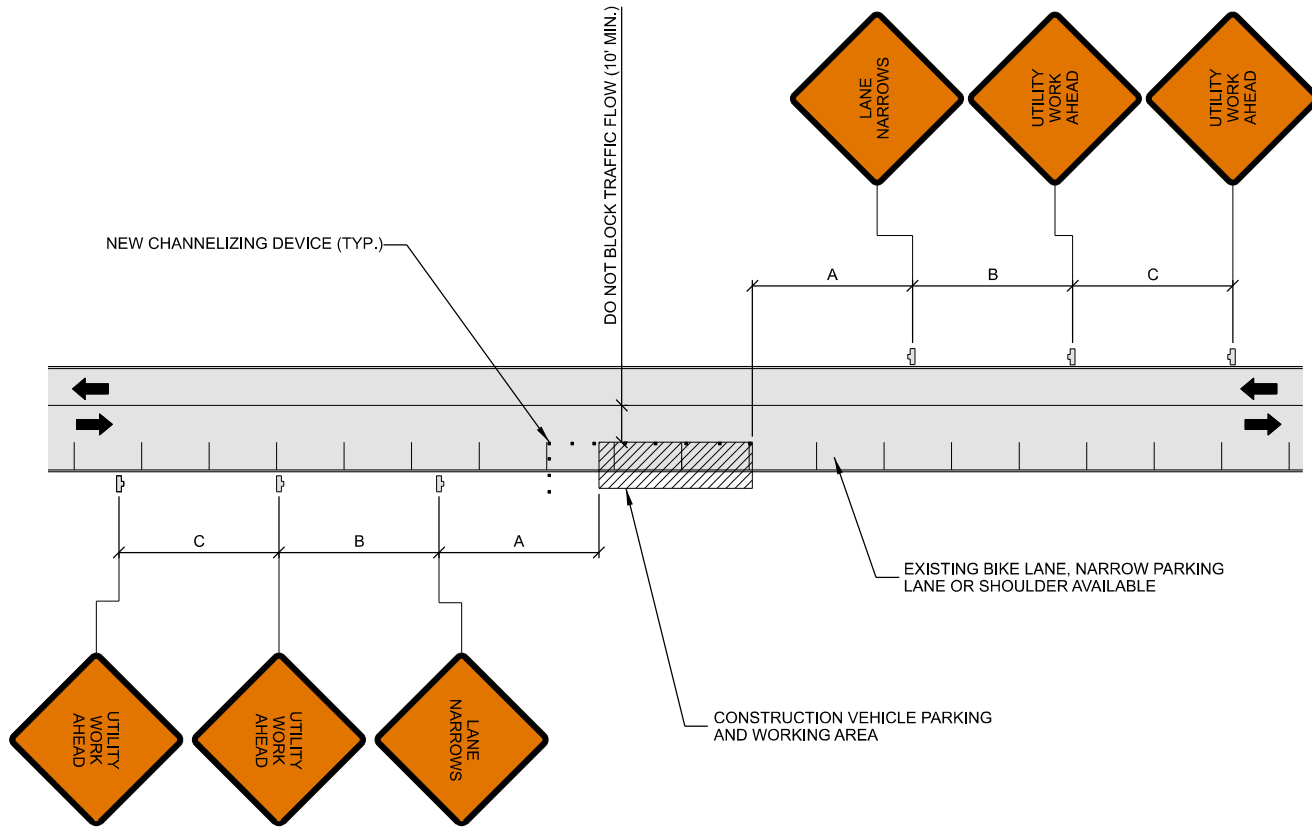


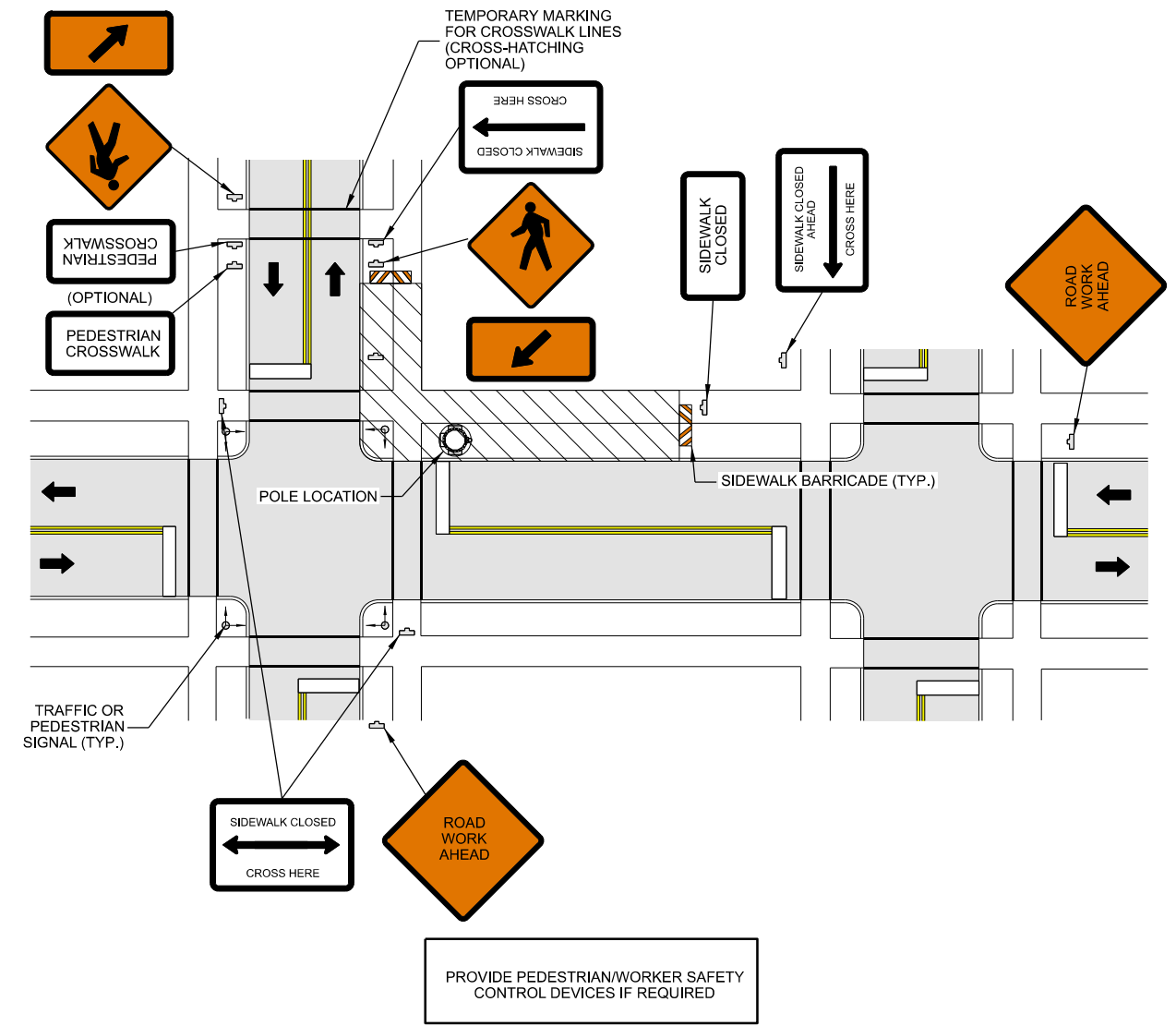
TABLE 1

POSTED SPEED (MPH)	DISTANCE BETWEEN SIGNS			TAPER	BUFFER
	A	B	C	L (SEE NOTE)	
15	100'	100'	100'	45'	100'
20	100'	100'	100'	80'	115'
25	100'	100'	100'	125'	155'
30	200'	200'	200'	180'	200'
35	200'	200'	200'	245'	250'
40	350'	350'	350'	320'	305'
45	350'	350'	350'	540'	360'
50	500'	500'	500'	600'	425'
55	500'	500'	500'	660'	495'
60	500'	500'	500'	720'	570'
65	500'	500'	500'	780'	645'

- NOTES:
- DISTANCES IN FEET UNLESS OTHERWISE NOTED.
 - CONTRACTOR TO VERIFY EXISTING SPEED LIMIT.
 - DISTANCES SHOWN ARE NOT VALID FOR LIMITED ACCESS HIGHWAYS. CONSULT STATE D.O.T. MANUAL FOR DISTANCES.
 - ADJUST DISTANCES TO COMPLY WITH REQUIREMENT OF THE STATE OR LOCAL HIGHWAY AUTHORITY HAVING JURISDICTION. SEE NOTE 1/D-502.
 - TAPER LENGTHS SHOWN BASED ON 12' LANE WIDTH. SEE NOTE 18/D-502.

- NOTES:
- PLANS DEPICTED ARE GENERAL GUIDELINES FOR TEMPORARY VEHICULAR TRAFFIC CONTROL PLANS (TCP) TO INCLUDE PEDESTRIAN AND WORKER SAFETY. CONTRACTOR IS REQUIRED TO HAVE PREPARED A SITE-SPECIFIC TCP FOR REVIEW AND APPROVAL BY THE HIGHWAY AUTHORITY HAVING JURISDICTION. IF REQUIRED, THE FIRM PREPARING THE TCP SHALL BE AUTHORIZED OR CERTIFIED BY THE AUTHORITY HAVING JURISDICTION.
 - EXTEND CHANNELIZATION DEVICES INTO SHOULDER WHERE APPLICABLE.
 - DISTANCES AS INDICATED IN TABLE 1 SHOULD BE INCREASED FOR CONDITIONS THAT WOULD AFFECT STOPPING. DISTANCE SUCH AS DOWNGRADES OR LIMITED SIGHT DISTANCES. DISTANCES CAN BE DECREASED FOR LOW-SPEED (RESIDENTIAL) AREAS WITH APPROVAL BY THE AUTHORITY HAVING JURISDICTION. NIGHT-TIME WORK IS PROHIBITED UNLESS IT IS REQUIRED AS A CONDITION OF APPROVAL BY THE HIGHWAY AND LOCAL AUTHORITY HAVING JURISDICTION.
 - SHOULDER TAPERS SHOULD BE 1/3 OF THE ON-STREET TAPER LENGTH.
 - MAINTAIN A MINIMUM LANE WIDTH OF 10'.

A TRAFFIC CONTROL PLAN



- NOTES
- ALL TEMPORARY TRAFFIC CONTROL SIGNAGE, LAYOUTS AND PROCEDURES SHALL COMPLY WITH LOCAL JURISDICTIONAL REQUIREMENTS AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, WHICHEVER IS MORE STRINGENT.
 - PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
 - TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
 - SELECTION, PLACEMENT, MAINTENANCE, AND PROTECTION OF TRAFFIC, PEDESTRIANS, AND WORKERS SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) - PART VI "TEMPORARY TRAFFIC CONTROL", AND LOCAL JURISDICTIONAL REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, AND SHALL BE APPROVED BY THE APPROPRIATE HIGHWAY AUTHORITY HAVING JURISDICTION.
 - ADVANCE WARNING SIGNS, DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY AND FOR ACTUAL TRAFFIC SPEEDS IF IN EXCESS OF POSTED SPEED LIMITS.
 - TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.
 - CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON THE EXISTING TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.
 - ALL EXISTING ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE NEW TRAFFIC CONTROL SIGN SHALL BE COVERED, REMOVED, OR RELOCATED. ALL TRAFFIC CONTROL DEVICES SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITION AFTER COMPLETION OF WORK.
 - CONTRACTOR SHALL CONTACT LOCAL AUTHORITY HAVING HIGHWAY JURISDICTION AND PROVIDE ADDITIONAL "FLAGMEN" OR POLICE SUPERVISION, IF REQUIRED.
 - ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON A MINIMUM 6H:1V SLOPE PRIOR TO END OF EACH WORK DAY. OTHER EXCAVATED AREAS WITHIN THE CLEAR ZONE ARE TO BE EITHER BACKFILLED OR PRECAST CONCRETE CURB BARRIER CONSTRUCTION BARRIER SET TEMPORARILY IN PLACE TO SHIELD VEHICULAR AND PEDESTRIAN TRAFFIC.
 - WHERE DICTATED BY LOCAL CONDITIONS, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN AND WORKER CROSSING LOCATIONS IN ACCORDANCE WITH ALL APPLICABLE CODES AND OSHA REQUIREMENTS.
 - CONSTRUCTION ZONE SPEED LIMIT IF REDUCED FROM POSTED LIMITS SHALL BE IN ACCORDANCE WITH MUTCD AND WILL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.
 - THERE SHALL BE NO WORKERS, EQUIPMENT, OR OTHER VEHICLES IN THE BUFFER SPACE OR THE ROLL AHEAD SPACE.
 - DRIVEWAYS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-1 SIGN (ROAD WORK AHEAD) AS A MINIMUM.
 - CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION PROVIDED THEY COMPLY WITH MUTCD.
 - THE SPACING BETWEEN CONES, TUBULAR MARKERS, VERTICAL PANELS, DRUMS, AND BARRICADES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO 1.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TAPER CHANNELIZATION, AND A DISTANCE IN FEET EQUAL TO 2.0 TIMES THE SPEED LIMIT IN MPH WHEN USED FOR TANGENT CHANNELIZATION.
 - WHEN CHANNELIZATION DEVICES HAVE THE POTENTIAL OF LEADING VEHICULAR TRAFFIC OUT OF THE INTENDED VEHICULAR TRAFFIC SPACE, THE CHANNELIZATION DEVICES SHOULD BE EXTENDED A DISTANCE IN FEET OF 2.0 TIMES THE SPEED LIMIT IN MPH BEYOND THE DOWNSTREAM END OF THE TRANSITION AREA.
 - TAPER LENGTHS ARE CALCULATED AS FOLLOWS: $L = WS^2/60$ (40 MPH AND HIGHER) OR $L2 = WS$ (OVER 40 MPH), WHERE W= OFFSET WIDTH (FT), S= TRAFFIC SPEED (MPH).

B PEDESTRIAN SAFETY PLAN

CONSULTANT:
Edge
 Consulting Engineers, Inc.
 2101 HIGHWAY 13 W
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 www.edgeconsult.com

CLIENT:
verizon
 10801 BUSH LAKE RD
 BLOOMINGTON, MN 55438
 952.946.4694 VOICE

TRAFFIC & PEDESTRIAN PLANS
 MIN TONKA SC7
 MINNETONKA, MINNESOTA

ENGINEER SEAL:
 I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: _____
 DATE: _____

PROJECT NO: 2020127545
 LOCATION CODE: 620489
 RFDS DATE: 04/07/2020

STRUCTURAL ANALYSIS:

DATE:	DESCRIPTION:
05/06/2020	REPORT NO. 25889

SUBMITTAL:

INT.	DATE:	DESCRIPTION:
RJK	04/28/2020	REV. A
ZRS	05/13/2020	REV. 0
ZRS	09/04/2020	REV. 1
MJM	01/27/2021	REV. 2

CHECKED BY:	MJM
PLOT DATE:	1/27/2021
PROJECT NUMBER:	25889
SET TYPE:	FINAL
SHEET NUMBER:	D-101

GENERAL REQUIREMENTS

1.1 PURPOSE AND INTENT

- A. THE DRAWINGS ARE SUPPLEMENTAL TO ANY WRITTEN SPECIFICATIONS OR REQUIREMENTS. SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED IN ONE AND NOT THE OTHER, OR IF ANY DISCREPANCIES OR DISAGREEMENTS ARE IDENTIFIED, THIS SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER AND/OR ENGINEER.
B. THE CONTRACTOR SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

1.2 CONFLICTS

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIALS OR DOING ANY WORK. NO EXTRA COMPENSATION WILL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS SHOWN ON THE PLANS. CONTRACTOR MUST SUBMIT NOTICE OF ANY DISCREPANCY IN DIMENSIONS TO OWNER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK IN THE AFFECTED AREAS.
B. THE CONTRACTOR IS REQUIRED TO VISIT THE SITE TO ASSESS CONDITIONS PRIOR TO BIDDING. IN ADDITION, CONTRACTOR SHALL PERFORM TESTING AND ADDITIONAL INVESTIGATION AS DEEMED NECESSARY TO SUBMIT A FIXED BID. IGNORANCE OF THE SITE OR PROJECT CONDITIONS WILL NOT BE GROUNDS FOR CHANGE ORDERS OR ALTERING THE SCHEDULE.
C. THE CONTRACTOR MUST PROVIDE NOTICE IN WRITING ON PROPER FORMS OF ANY POTENTIAL CLAIM FOR CONCEALED OR UNKNOWN CONDITIONS, OR ANY OTHER ITEM (EVEN IF A REQUEST BY OWNER) THAT MAY RESULT IN A TIME DELAY OR COST CHANGE WITHIN 1 DAY OF FIRST KNOWLEDGE. ANY CLAIM (CHANGE ORDER) MUST BE APPROVED BY THE OWNER PRIOR TO PROCEEDING OR INCURRING ANY COSTS. ANY CHANGES IN SCOPE OF WORK OR MATERIALS WHICH ARE PERFORMED BY THE CONTRACTOR WITHOUT WRITTEN APPROVAL BY THE OWNER SHALL PLACE FULL RESPONSIBILITY OF THESE ACTIONS ON THE CONTRACTOR AND ANY ASSOCIATED COST INCURRED WILL NOT BE PAID.

1.3 CLEANUP

- A. THE CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATION OF WASTE CAUSED BY EMPLOYEES. AT THE COMPLETION OF THE WORK, REMOVE ALL WASTE AND NON-CONSTRUCTION MATERIAL, INCLUDING ALL CONTRACTOR TOOLS. LEAVE THE SITE CLEAN AND READY FOR USE.
B. IF CLEARING IS REQUIRED, ALL BRUSH, STUMPS, AND OTHER WASTE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY. THE OWNER SHALL BE CONSULTED FOR SPECIFICATIONS ON TREE PLACEMENT AND DISPOSAL. IF REQUIREMENTS ARE NOT SPECIFIED, A CONSERVATIVE ASSUMPTION SHALL BE UTILIZED FOR BIDDING PURPOSES.
C. THE SITE SHALL BE LEFT IN A CONDITION EQUIVALENT TO THE PRE-CONSTRUCTION CONDITION AND SATISFACTORY TO THE OWNER.

1.4 CODES

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING ALL FEDERAL, STATE, AND LOCAL LAWS, REGULATIONS, AND RULES. THIS RESPONSIBILITY IS IN EFFECT REGARDLESS OF WHETHER THE LAW, ORDINANCE, REGULATION OR RULE IS MENTIONED IN THE DRAWINGS OR WRITTEN SPECIFICATIONS. IN ADDITION TO ALL CODES, CONTRACTOR SHALL FOLLOW ALL MANUFACTURER RECOMMENDATIONS AND APPLICABLE STANDARDS (ACI, IBC, NEC, ETC).

1.5 QUALITY ASSURANCE

- A. THE CONTRACTOR SHALL PROVIDE A PROJECT SCHEDULE PRIOR TO COMMENCING ANY WORK. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CHANGES TO THE SCHEDULE AS SOON AS THEY ARE KNOWN. THE CONTRACTOR SHALL PROVIDE 48-HOUR ADVANCE NOTICE OF SPECIFIC INSPECTION MILESTONES (SUCH AS FOUNDATION POURING). ADVANCE NOTICE WILL ALLOW FOR COORDINATION WITH INSPECTION COMPANIES.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL REQUEST A LIST OF INSPECTIONS FROM THE OWNER OR ENGINEER. AT A MINIMUM THIS WILL TYPICALLY INCLUDE THE FOUNDATION, GROUNDING, SUBSTANTIAL COMPLETION, AND FINAL.

- B. THE CONTRACTOR SHALL TAKE PHOTOGRAPHS OF ALL COMPLETED WORK AND PROVIDE THESE TO THE OWNER ON A WEEKLY BASIS. PHOTOGRAPHS SHALL INCLUDE DOCUMENTATION OF ALL SUBGRADE WORK THAT CANNOT BE VISIBLY INSPECTED UPON COMPLETION (GROUNDING, FOUNDATION, UTILITIES, ETC.).

- C. THE CONTRACTOR IS THE GUARANTOR OF ALL WORK. FAILURE TO IDENTIFY A DISCREPANCY/DEFECT OR IMMEDIATELY NOTIFY THE OWNER/ENGINEER OF SAID DEFECT DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITIES IN THIS REGARD.

- D. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT INSPECTIONS OCCUR PRIOR TO COMPLETION OF WORK. IF AN ITEM IS COMPLETED WITHOUT THE REQUESTED INSPECTION, THE OWNER WILL HAVE THE RIGHT TO ASSUME THAT THE WORK WAS NOT COMPLETED PROPERLY AND MUST BE REPLACED.

1.6 BUILDING PERMITS

THE CONTRACTOR IS RESPONSIBLE TO OBTAIN THE BUILDING PERMIT. CONTRACTOR SHALL COORDINATE AND SCHEDULE REQUIRED INSPECTIONS AT THE JOB SITE, COMPLY WITH SPECIFIC PROJECT RELATED REQUESTS AND SUGGESTIONS MADE BY BUILDING INSPECTOR, AND INFORM THE OWNER OF ANY REQUIREMENTS THAT MAY DEVIATE FROM THE CONSTRUCTION DOCUMENTS.

1.7 SITE SECURITY

THE CONTRACTOR IS RESPONSIBLE FOR SITE SECURITY THROUGHOUT THE CONSTRUCTION PHASE. THE SITE MUST BE SECURELY FENCED (PERMANENTLY OR TEMPORARILY) WITHIN 24 HOURS OF EQUIPMENT ERECTION.

1.8 SITE CONTROL

- A. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR CONTAINMENT OF SEDIMENT AND CONTROL OF EROSION AT THE SITE. ANY DAMAGE TO ADJACENT OR DOWNSTREAM PROPERTIES WILL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO OWNER. THE CONTRACTOR IS TO MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES. DO NOT ALLOW WATER TO STAND OR POND. ANY DAMAGE TO STRUCTURES OR THE SITE CAUSED BY INADEQUATE MAINTENANCE OF DRAINAGE PROVISIONS WILL BE THE RESPONSIBILITY OF CONTRACTOR.

- B. IF WETLANDS ARE PRESENT IN THE PROJECT VICINITY THE CONTRACTOR IS RESPONSIBLE TO TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT THEY ARE NOT DISTURBED IN ANY MANNER. IF DISTURBANCE OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS AND CONSEQUENCES, INCLUDING FINES (EVEN IF ASSESSED TO THE OWNER).

- C. THE CONTRACTOR SHALL CONTAIN ALL CONSTRUCTION ACTIVITIES, MATERIALS, EQUIPMENT, ETC. TO THE LEASED AREA AND LEGAL EASEMENTS UNLESS PERMISSION TO DO OTHERWISE IS GRANTED BY THE PROPERTY OWNER.

1.9 FOUNDATION NOTES

- A. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR THE PROPER FIT AND CLEARANCE IN THE FIELD. CONTACT EDGE CONSULTING ENGINEERS, INC. IF ANY DISCREPANCIES EXIST.

DO NOT SCALE DRAWINGS

- B. THIS DRAWING IS NOT VALID IF LOADS OTHER THAN THOSE CONSIDERED IN THE STRUCTURAL ANALYSIS ARE TO BE ADDED OR REMOVED FROM THE STRUCTURE UNLESS APPROVED IN WRITING BY EDGE CONSULTING ENGINEERS, INC.

- C. THE DRAWINGS REPRESENT THE FINISHED STRUCTURE UNLESS NOTED OTHERWISE. THE DRAWINGS DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION PROCEDURES AND PRACTICES.

- D. THE DRAWINGS DO NOT INCLUDE THE NECESSARY COMPONENTS OR EQUIPMENT FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR STRUCTURAL STABILITY DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, ERECTION PROCEDURES AND SEQUENCE, SHORING, BRACING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS TO SAFELY PERFORM THE WORK SHOWN ON THE DRAWINGS.

- E. BEFORE PROCEEDING WITH ANY WORK ADJACENT TO OR WITHIN THE EXISTING STRUCTURE, THE CONTRACTOR SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS. DURING THE PROCESS OF CONSTRUCTION, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF THE EXISTING STRUCTURE WHERE THE EXISTING STRUCTURE IS MODIFIED TO ACCOMMODATE NEW CONSTRUCTION AND FOR PROTECTING FROM DAMAGE THOSE PORTIONS OF THE EXISTING STRUCTURE WHICH ARE TO REMAIN.

- F. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ON-SITE SAFETY ASSOCIATED WITH THE WORK TO BE PERFORMED. ALL SAFETY REQUIREMENTS AS DICTATED BY OSHA AND THE LOCAL JURISDICTION'S SHALL BE FOLLOWED.

- G. IT SHOULD BE UNDERSTOOD THAT THE CONTRACTOR IS THE GUARANTOR OF ALL WORK AND RESPONSIBLE TO CONSTRUCT THE STRUCTURE SITE ACCORDING TO APPLICABLE PLANS, SPECIFICATIONS AND STANDARDS.

- H. SECTIONS, DETAILS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR CONDITIONS ELSEWHERE, UNLESS OTHERWISE SHOWN.

- I. ALL MATERIALS, WORKMANSHIP, AND DETAILS SHALL CONFORM TO THE LATEST EDITION OF THE BUILDING CODE.

- J. ALL PROPOSED INSTALLATIONS SHALL NOT DENY OR INTERFERE WITH ACCESS TO ANY OPERATIONAL OR SAFETY EQUIPMENT/APPURTENANCES.

EARTHWORK

2.1 SCOPE OF WORK

REFER TO THE SURVEY AND SITE PLAN FOR EXISTING GRADES AND FINAL ELEVATIONS.

2.2 SITE PREPARATION

- A. CLEAR TREES, BRUSH AND DEBRIS FROM SITE AREA AS REQUIRED. SEE SITE PLAN FOR APPROPRIATE AREA TO BE CLEARED. REMOVE DETRIMENTAL MATERIAL COMPLETELY. ALL WASTE MATERIALS INCLUDING, BUT NOT LIMITED TO, STUMPS AND DEBRIS SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED OF PROPERLY.

- B. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, CONTRACTOR SHALL REMOVE ALL TOPSOIL, ORGANIC MATERIALS AND WET OR POOR SOILS. IF MORE THAN 2'-0" OF POOR SOILS ARE ENCOUNTERED, CONTRACTOR SHOULD IMMEDIATELY CONTACT CONSTRUCTION MANAGER AND/OR ENGINEER FOR GUIDANCE.

2.3 EXCAVATION

- A. CONTRACTOR SHALL EXCAVATE TO DEPTH, AND GRADES SHOWN ON THE PLANS.

MINIMUM COMPACTION SHALL BE 90% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557 FOR SITE WORK AND 95% MAXIMUM DRY DENSITY UNDER STRUCTURAL ELEMENTS. AREAS OF SETTLEMENT IDENTIFIED WITHIN ONE YEAR OF ACCEPTANCE OF FINAL CONSTRUCTION BY OWNER WILL BE EXCAVATED, FILLED, AND RECOMPACTED AT CONTRACTOR'S EXPENSE.

- B. CONTRACTOR SHALL REVIEW AVAILABLE GRADING PLANS, GEOTECHNICAL REPORT, AND FOUNDATION PLANS THOROUGHLY PRIOR TO BIDDING. ANY DISCREPANCIES OR INCONSISTENCIES SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.

- C. IT IS RECOMMENDED THAT THE OWNER HIRE AN INDEPENDENT GEOTECHNICAL ENGINEER TO REVIEW SOIL CONDITIONS AND AN ACI CERTIFIED INSPECTOR TO REVIEW ALL FOUNDATION ELEMENTS.

- D. REGARDLESS OF THE ABOVE RECOMMENDATION, THE CONTRACTOR IS RESPONSIBLE TO OBSERVE SITE AND SOIL CONDITIONS THROUGHOUT THE CONSTRUCTION PROCESS AND COMPARE THE ABOVE TO THE GEOTECHNICAL REPORT, THE PLANS, AND THE STRUCTURE DRAWINGS. ANY INCONSISTENCIES, DISCREPANCIES, OR ASSUMPTIONS THAT PROVE TO BE INCORRECT, SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.

2.4 SITE GRADING

- A. CONTRACTOR SHALL USE ON-SITE MATERIALS OR IMPORTED FILL TO MATCH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE DRAWINGS. HOWEVER, IN NO CASE SHALL ORGANIC MATERIALS, WET SOIL, FROZEN SOIL, OR POOR SOIL BE USED AS ON-SITE FILL. IN ADDITION, ALL FILL (ON-SITE OR IMPORTED) SHALL BE ADEQUATELY COMPACTED PER THE EARTHWORK SPECIFICATIONS.

- B. THE CONTRACTOR SHALL LIMIT ALL SITE GRADING AND CONSTRUCTION ACTIVITIES TO SITE AREA. IF THIS IS NOT POSSIBLE, CONTACT THE PROJECT MANAGER AND OBTAIN OWNER APPROVAL PRIOR TO WORKING OUTSIDE THE ABOVE LIMITS.

- C. IT IS RECOMMENDED THAT THE OWNER HIRE AN INDEPENDENT GEOTECHNICAL ENGINEER TO REVIEW SOIL CONDITIONS AND AN ACI CERTIFIED INSPECTOR TO REVIEW ALL FOUNDATION ELEMENTS.

- D. REGARDLESS OF THE ABOVE RECOMMENDATION, THE CONTRACTOR IS RESPONSIBLE TO OBSERVE SITE AND SOIL CONDITIONS THROUGHOUT THE CONSTRUCTION PROCESS AND COMPARE THE ABOVE TO THE GEOTECHNICAL REPORT, THE PLANS, AND THE STRUCTURE DRAWINGS. ANY INCONSISTENCIES, DISCREPANCIES, OR ASSUMPTIONS THAT PROVE TO BE INCORRECT, SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.

2.4 SITE GRADING

- A. ALL FINISHED SURFACES SHOULD BE GRADED TO DRAIN FROM FOUNDATION, PROVIDER PROPER DITCHING AND ROUTING OF SURFACE WATER, AND AVOID PONDING AND EROSION.

- B. CONTRACTOR SHALL USE ON-SITE MATERIALS OR IMPORTED FILL TO MATCH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE DRAWINGS. HOWEVER, IN NO CASE SHALL ORGANIC MATERIALS, WET SOIL, FROZEN SOIL, OR POOR SOIL BE USED AS ON-SITE FILL. IN ADDITION, ALL FILL (ON-SITE OR IMPORTED) SHALL BE ADEQUATELY COMPACTED PER THE EARTHWORK SPECIFICATIONS.

- C. THE CONTRACTOR SHALL LIMIT ALL SITE GRADING AND CONSTRUCTION ACTIVITIES TO SITE AREA. IF THIS IS NOT POSSIBLE, CONTACT THE PROJECT MANAGER AND OBTAIN OWNER APPROVAL PRIOR TO WORKING OUTSIDE THE ABOVE LIMITS.

- D. REGARDLESS OF THE CONTOURS DEPICTED IN THE PLANS, ALL REQUIREMENTS IN THE FOUNDATION DRAWINGS (INCLUDING THE MINIMUM SOIL COVER) MUST BE ADHERED TO STRICTLY.

2.5 FOUNDATION EARTHWORK

- A. ALL SUBTERRANEAN STRUCTURE, UTILITIES, PIPING, ETC. IN THE AREA OF EXCAVATIONS SHALL BE LOCATED AND MARKED BY CONTRACTOR PRIOR TO EARTH REMOVAL WORK. CONTRACTOR SHALL MAINTAIN MARKERS UNTIL EXCAVATION ACTIVITIES HAVE CEASED. IF UNDERGROUND UTILITY CONFLICTS ARE DISCOVERED BEFORE OR ENCOUNTERED DURING EXCAVATION, NOTIFY THE ENGINEER IMMEDIATELY.

- B. BEFORE PLACING FOOTING, FOUNDATIONS OR SLAB-ON-GRADE, THE SUB-GRADE SHALL BE PREPARED AND INSPECTED AS REQUIRED.

- C. WHERE STRUCTURES DERIVE SUPPORT FROM FILL-SUPPORTED FOUNDATIONS AND AT SLAB-ON-GRADE, FILL SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM 1557).

- D. NO FILL SHALL BE PLACED OVER FROZEN, MUDDY, OR OTHER DELETERIOUS MATERIAL. NO FILL SHALL BE PLACED OVER A PREVIOUS LIFT THAT HAS NOT BEEN ADEQUATELY COMPACTED.

- E. BACKFILL AGAINST FOUNDATION/ANCHORS SHALL BE COMPLETED BEFORE ERECTION/MODIFICATION OF THE STRUCTURE BEGINS.

- F. BACKFILL SHALL BE COMPACTED UNIFORMLY AROUND THE FOUNDATION IN LIFTS TO MINIMUM 90% COMPACTION.

- G. BACKFILL SHALL BE NATIVE SOIL; IMPORTED FILL SHALL BE VERIFIED WITH THE GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER PRIOR TO BACKFILLING.

TRENCHING

3.1 MATERIALS

FILL MATERIALS SHALL BE OBTAINED, WHEN POSSIBLE, FROM MATERIALS EXCAVATED FROM TRENCHES ON-SITE. STRUCTURAL FILL, SAND OR SLURRY SHALL BE APPROVED BY THE CONSTRUCTION MANAGER AND SHALL CONFORM TO LOCAL UTILITY COMPANY REQUIREMENTS. THE FILL MATERIAL SHALL CONTAIN NO ORGANIC MATERIALS OR ROCKS. ALL FILL MATERIAL SHALL BE FREE OF OBJECTIONABLE MATERIALS AND/OR MATERIALS DESIGNATED AS HAZARDOUS OR POTENTIALLY HAZARDOUS. THE FILL MATERIAL SHALL CONTAIN FINES SUFFICIENT TO FILL ALL VOIDS IN THE MATERIAL. COMPACTION OF SOIL SHALL BE IN 8 INCH LOOSE LIFTS WHEN UTILIZING HEAVY COMPACTION EQUIPMENT OR 6 INCH LOOSE LIFTS WHEN UTILIZING HAND OPERATED TAMPERS.

3.2 PIPE DETECTION AND IDENTIFICATION

ALL ELECTRIC SERVICE TRENCHES SHALL BE MARKED WITH DETECTABLE WARNING TAPE.

3.3 TRENCH EXCAVATION

- A. DIG TRENCH TO DEPTHS AND GRADES SHOWN ON THE PLANS OR AS DIRECTED BY THE CONSTRUCTION MANAGER. USE HAND EXCAVATION METHODS WHEN REQUIRED BY LOCAL OR STATE GUIDELINES, OR WHEN NECESSARY TO AVOID ENDANGERING EXISTING OR NEW STRUCTURES OR OTHER FACILITIES

- B. TRENCH LENGTH SHALL BE SUFFICIENT TO ALLOW FOR SATISFACTORY CONSTRUCTION AND INSPECTION OF THE PROJECT, WITHOUT ENDANGERING OTHER CONSTRUCTION WORK OR ADJACENT FACILITIES.

- C. DISPOSE OF EXCESS AND UNSUITABLE EXCAVATION MATERIAL PROPERLY.

3.4 TRENCH PROTECTION

- A. PROVIDE MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PROTECT TRENCHES AT ALL TIMES.

- B. SHEETING AND BRACING SHOULD MEET OR EXCEED OSHA REQUIREMENTS.

3.5 BACKFILLING

- A. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER AT LEAST 24 HOURS IN ADVANCE OF BACKFILLING.

- B. PROTECT CONDUIT FROM LATERAL MOVEMENT, DAMAGE FROM IMPACT, OR UNBALANCED LOADING TO AVOID DISPLACEMENT OF CONDUIT AND/OR STRUCTURES. DO NOT FREE FALL BACKFILL INTO TRENCH UNTIL THERE IS AT LEAST 12 INCHES OF COVER OVER THE CONDUIT.

3.6 COMPACTION

- A. COMPACT BACKFILL TO AT LEAST 95% STANDARD PROCTOR. IF REQUIRED COMPACTION DENSITY IS NOT OBTAINED, REMOVE BACKFILL FROM TRENCH, REPLACE WITH APPROVED BACKFILL, AND RECOMPACT AS SPECIFIED. ANY SUBSEQUENT SETTLEMENT OF TRENCH OR BACKFILL DURING MAINTENANCE PERIOD (1 YEAR MINIMUM) SHALL BE REMOVED, REPLACED, AND RECOMPACTED BY CONTRACTOR AT NO ADDITIONAL EXPENSE TO OWNER.

- B. ANY SUBSEQUENT SETTLEMENT OF TRENCH OR BACKFILL DURING MAINTENANCE PERIOD (1 YEAR MINIMUM) SHALL BE REMOVED, REPLACED, AND RECOMPACTED BY CONTRACTOR AT NO ADDITIONAL EXPENSE TO OWNER.

CONCRETE WORK

4.1 CONCRETE FORMWORK

- A. CONTRACTOR SHALL FOLLOW ALL APPLICABLE CODES AND STANDARDS (IBC, ACI, ETC.)

- B. FORMS SHALL BE SMOOTH AND FREE OF SURFACE IRREGULARITIES. CONTRACTOR SHALL UTILIZE FROM RELEASE AGENTS AS NECESSARY. UPON COMPLETION, CONTRACTOR SHALL REMOVE ALL FORMS, INCLUDING THOSE CONCEALED OR BURIED.

- C. EXPOSED EDGES OF ALL FOUNDATIONS SHALL RECEIVE A 3/4" CHAMFER. OTHER EXPOSED EDGES SHALL RECEIVE A TOOLED RADIUS FINISH.

- D. REFER TO PLANS AND DRAWINGS FOR ADDITIONAL REQUIREMENTS.

CONSULTANT:



CLIENT:



GENERAL NOTES MINNETONKA, MINNESOTA

ENGINEER SEAL:



SIGNATURE: _____

DATE: _____

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PROJECT NO: 2020127545

LOCATION CODE: 620489

RFDS DATE: 04/07/2020

STRUCTURAL ANALYSIS:

DATE: 05/06/2020 DESCRIPTION: REPORT NO. 25889

SUBMITTAL:

INT. DATE: DESCRIPTION:

RJK 04/28/2020 REV. A

ZRS 05/13/2020 REV. 0

ZRS 09/04/2020 REV. 1

MJM 01/27/2021 REV. 2

CHECKED BY: MJM

PLOT DATE: 1/27/2021

PROJECT NUMBER: 25889

SET TYPE: FINAL

SHEET NUMBER: R-001

EDGE CONSULTING ENGINEERS, INC.

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4.2 CONCRETE REINFORCEMENT

MATERIAL PROPERTIES (U.N.O)
 SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE: $f' = 4,000$ psi
 SPECIFIED YIELD STRENGTH OF CONCRETE REINFORCEMENT: $f_y = 60,000$ psi

A. ALL BAR LAPS SHALL CONFORM TO ACI 318 CLASS "B" SPLICE CRITERIA. USE TO BAR LAP LENGTHS FOR TOP BARS IN SLABS AND BEAMS OVER 14" DEEP.

MINIMUM BAR LAPS AS FOLLOWS U.N.O.:

#3:1'-4"	#4:1'-4"	#5:1'-10"	#6:2'-7"	#7:4'-2"
#8:5'-2"	#8:6'-4"	#10: 7'-8"	#11:9'-0"	

FOR EPOXY COATED BARS, PROVIDE 1.5 TIMES THE INDICATED LAP LENGTH. FOR TOP BARS PROVIDE 1.3 TIMES THE INDICATED LAP LENGTH.

B. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON SHOP DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING.

C. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 315. ALL REINFORCEMENT BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST CRSI MANUAL OF STANDARD PRACTICE AND SHALL BE CLEAN AND FREE OF GREASE AND SCALING RUST.

D. PROVIDE HOT/COLD WEATHER PROCEDURES AND PROTECTION IN ACCORDANCE WITH ACI RECOMMENDATIONS AND PROJECT SPECIFICATIONS.

E. CONCRETE REINFORCEMENT PROTECTION/CLEAR COVER, U.N.O.:

FOOTINGS:	ALL SIDES 3"
PIERS:	ALL SIDES 3"

F. EXTEND ALL PIER STEEL TO PROVIDE STD. HOOK UNDER FOOTING REINFORCEMENT, UNLESS NOTED OTHERWISE.

G. SPLICES IN REINFORCEMENT STEEL ARE PROHIBITED, UNLESS APPROVED BY THE STRUCTURAL ENGINEER. ALL SPLICES MUST THEN MEET ALL APPLICABLE ASTM STANDARDS FOR SPLICING.

H. HEATING AND WELDING OF BARS IS PROHIBITED UNLESS WRITTEN APPROVAL IS OBTAINED FROM THE STRUCTURAL ENGINEER. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWG) D.1.1-92. STRUCTURAL WELDING CODE.

4.3 CAST-IN-PLACE CONCRETE

A. ANY NON-STRUCTURAL SITE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSL. ALL CONCRETE SUBJECT TO FREEZE-THAW SHALL CONTAIN 4-8% AIR ENTRAINMENT.

B. ALL CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) UNLESS NOTED OTHERWISE. ALL CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, TYPE III, IN CONFORMANCE WITH ASTM C150, FINE AND COARSE AGGREGATE IN CONFORMANCE WITH ASTM C33, AND WATER IN CONFORMANCE WITH ASTM C94. EXPOSED EXTERIOR CONCRETE SHALL BE AIR ENTRAINMENT WITH % AIR CONTENT. CONCRETE SHALL HAVE A MEASURED SLUMP OF 4" (CONTRACTOR SHALL PERFORM SLUMP TESTS). IF AN ALTERNATIVE MIX DESIGN IS DESIRED, MIX DESIGN SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL.

C. ALL CONCRETE SHALL BE VIBRATE IN PLACE USING HIGH FREQUENCY, LOW AMPLITUDE MECHANICAL IMMERSION TYPE VIBRATORS. INSERT VIBRATORS IN CONCRETE AT REGULAR INTERVALS AND OVER ENTIRE SURFACE TO SOLIDLY FILL AROUND AND BETWEEN REINFORCEMENT AND EMBEDDED ITEMS AND INTO CORNERS AND IRREGULARITIES. DISCONTINUE VIBRATION WHEN RISING ENTRAPPED AIR BUBBLES STOP BREAKING THE LEVELING SURFACE. DO NOT OVERVIBRATE AS THIS MAY CAUSE SEGREGATION.

D. ALL FORMED CONCRETE SURFACES EXPOSED TO VIEW SHALL HAVE A SURFACE FINISH SF-2.0 IN ACCORDANCE WITH ACI 301.

E. ALL CONCRETE MIXING, TRANSPORTING, PLACING AND CURING SHALL CONFORM WITH THE LOCAL BUILDING CODE REQUIREMENTS AND THOSE OF THE FOLLOWING STANDARDS (LATEST EDITION):

"ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONC."
 "ACI 315, DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
 "ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BLDGS."
 "ACI 307, RECOMMENDED PRACTICE FOR CONCRETE FORM WORK"

F. ALUMINUM CONDUIT IS NOT PERMITTED TO BE EMBEDDED IN CONCRETE.

G. ALL DOWELS INTO EXISTING CONCRETE OR SOLID MASONRY TO BE EPOXY AND ANCHORED WITH HILTI HIT-HY 200 ADHESIVE OR APPROVED EQUIVALENT, (UNLESS NOTED OTHERWISE).

H. UNLESS NOTED OTHERWISE, ANY EXISTING CONCRETE SURFACE IS TO BE CLEANED AND INTENTIONALLY ROUGHED TO A 1/4" AMPLITUDE AND WETTED PRIOR TO FRESH CONCRETE BEING POURED AGAINST SURFACE.

4.4 QUALITY CONTROL

A. ALL STRUCTURAL CONCRETE SHALL BE INSPECTED BY INDEPENDENT, QUALIFIED PERSONNEL (ACI OR OTHERWISE). ALL STRUCTURAL CONCRETE SHALL BE TESTED BY AN INDEPENDENT LAB, AT A MINIMUM, 5 CYLINDERS SHALL BE CAST AND TESTED AT 7, 14, AND 28 DAYS. THE REMAINING CYLINDER SHALL BE RESERVED FOR RE-TESTING, IF NECESSARY.

THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THE CONSTRUCTION MANAGER AND/OR TESTING AGENCY A MINIMUM OF 48 HOURS PRIOR TO EACH FOUNDATION POUR. IF A POUR OCCURS WITHOUT THE REQUESTED INSPECTION, THE OWNER CAN ASSUME THAT THE INSTALLATION WAS NOT INSTALLED CORRECTLY AND REQUIRE REPLACEMENT.

B. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE AND REPLACE, AT THEIR SOLE EXPENSE, ANY CONCRETE THAT DOES NOT MEET THE ABOVE SPECIFICATIONS, OR SIMILAR SPECIFICATIONS CONTAINED IN THE PLANS OR STRUCTURE DRAWINGS. ANY CONCRETE THAT DOES NOT MEET THE MINIMUM COMPRESSIVE STRENGTH REQUIRED UPON COMPLETION OF LAB TESTING SHALL BE REPLACED. THE AVERAGE OF THE TWO 28 DAY BREAK RESULTS SHALL GOVERN. NO DISPUTES REGARDING THE METHOD USED TO COLLECT THE TEST CYLINDERS OR PERFORM THE LAB TESTING ARE ALLOWED. IF THE CONTRACTOR CHOOSES, THEY MAY COLLECT AND TEST ADDITIONAL CYLINDERS AT THEIR SOLE EXPENSE.

C. DESPITE THE ABOVE REQUIREMENT, THE CONTRACTOR IS RESPONSIBLE TO PERFORM QUALITY WORK AND IS THE GUARANTOR OF THE FINISHED PRODUCT. IF A DEFECT IS NOT IMMEDIATELY IDENTIFIED BY THE INSPECTOR, OWNER, OR CONSTRUCTION MANAGER, BUT IDENTIFIED SUBSEQUENTLY, THE CONTRACTOR SHALL STILL BE RESPONSIBLE TO CORRECT SAID DEFECT.

D. CONTRACTOR MUST VERIFY THAT CONCRETE MEETS DESIGN REQUIREMENT (FOR STRENGTH AND OTHER PARAMETERS) BEFORE PLACING ANY SERVICE LOADS.

STRUCTURAL STEEL

5.1 GENERAL REQUIREMENTS

A. STRUCTURAL STEEL DESIGN AND FABRICATION SHALL BE IN ACCORDANCE WITH THE AISC 13TH EDITION STEEL CONSTRUCTION MANUAL.

B. MATERIAL PROPERTIES ARE TO BE AS INDICATED BELOW UNLESS NOTED OTHERWISE.

W-SHAPES	Fy = 50 KSI (A992 OR A 572 Gr 50)
C-SHAPES & ANGLES	Fy = 36 KSI (A36)
PLATES & BARS	Fy = 36 KSI (A36)
SQUARE TUBES	Fy = 46 KSI (A500 Gr B)
ROUND TUBES	Fy = 35 KSI (A53 TYPE S, Gr B)
RODS	Fy = 36 KSI (A36)
ANCHOR RODS	Fy = 55 KSI (F1554-Gr 55)

C. STEEL BEAMS WITH RESIDUAL CAMBER RESULTING FROM MILL FABRICATION OR ROLLING SHALL BE SHOP FABRICATED AND ERECTED SUCH THAT THIS RESIDUAL CAMBER COUNTERACTS GRAVITY LOAD DEFLECTION.

5.2 CONNECTION BOLTS AND ANCHORS

A. MINIMUM BOLT EDGE DISTANCES ARE TO BE THE LARGER OF THE EXISTING CONDITION OR THE TABLE PROVIDED BELOW UNLESS APPROVED BY THE ENGINEER.

BOLT DIAMETER (IN)	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	> 1 1/4
MIN. EDGE DISTANCE	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 5/8	1.25 x d

B. ALL CONNECTION BOLTING IS TO BE WITH A-325N BOLTS UNLESS NOTED OTHERWISE. BOLTS NEED ONLY BE TIGHTENED TO THE SNUG-TIGHT CONDITION. SNUG-TIGHT IS DEFINED AS THE TIGHTNESS OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH.

C. U.N.O., POST INSTALLED ANCHORS ARE TO BE HILTI HIT HY 200 ADHESIVE ANCHORS FOR SOLID BASE MATERIAL AS MANUFACTURED BY HILTI FASTENING SYSTEMS OF TULSA, OKLAHOMA OR APPROVED EQUAL. INSTALL ANCHORS WITH EMBEDMENT DEPTHS INDICATED.

5.3 GROUT & FINISHES

A. U.N.O., NON-SHRINK GROUT SHALL BE A NON-METALLIC PREMIXED FORMULATION EQUIVALENT TO MASTERFLOW 713 PLUS BY DEGUSSA BUILDING SYSTEMS. BEAM AND LINTEL PLATES SHALL BE FULLY GROUTED WITH A MINIMUM 1/2" NON-SHRINK GROUT. COLUMN BASE PLATES SHALL BE FULLY GROUTED WITH A MINIMUM OF 1 1/2" NON-SHRINK GROUT.

B. ALL STEEL FRAMING MEMBERS, CONNECTION PLATES, FASTENERS AND ANCHOR BOLTS EXPOSED TO EARTH OR WEATHER TO HAVE HOT-DIP GALVANIZED FINISH UNLESS OTHERWISE SPECIFIED. APPLY COATING BY THE HOT-DIP PROCESS FOR GALVANIZING ACCORDING TO ASTM A123 OR ASTM A153.

C. ALL DINGS, SCRAPES, MARS AND WELDS IN THE GALVANIZED AREA SHALL BE COATED WITH A ZINC-RICH PAINT, APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS. AFTER ZINC-RICH PAINT IS DRY, OVERCOAT WITH AN APPROPRIATE PAINT WITH THE SAME COLOR AS THE EXISTING.

5.4 WELDING

A. ALL WELDING OF NEW STEEL IS TO BE WITH E70XX ELECTRODES, U.N.O. WELDING SHALL BE IN ACCORDANCE WITH THE LATEST AWS SPECIFICATIONS BY CERTIFIED WELDERS AND INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR.

B. WHEN FIELD WELDING TO EXISTING STEEL, ADJUST WELDING PROCEDURES AS REQUIRED TO BE COMPATIBLE WITH THE NEW AND EXISTING STEEL.

C. ALL WELDING OF GALVANIZED MATERIAL SHALL BE PERFORMED IN SUCH A MANOR AS TO SATISFY ALL OSHA AND AWS REQUIREMENTS. ALL FIELD WELDED LOCATIONS SHALL BE PREPARED AND PRIMED WITH A ZINC-RICH PRIMER PRIOR TO PAINTING PER THE MANUFACTURERS RECOMMENDATIONS. THE SPECIFIC PRIMER TO BE USED SHALL BE TNEMEC SERIES 90-97 Tneme-Zinc @ 3.0-4.0 mils DFT OR APPROVED EQUAL.

ELECTRICAL

A. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UNDERGROUND POWER, TELCO, GROUNDING CONDUITS, AND ALL OTHER UTILITY EASEMENTS AND/OR WIRES PRIOR TO TRENCHING. ANY DAMAGE CAUSE TO THE EXISTING UNDERGROUND SERVICES OR SYSTEMS SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE.

B. CONTRACTOR SHALL CONTACT UTILITY PROVIDER PRIOR TO BIDDING AND CONSTRUCTION TO VERIFY THAT SERVICE HAS BEEN ORDERED AND DISCUSS ANY SITE SPECIFIC REQUIREMENTS. CHANGE ORDERS RELATED TO UTILITY REQUIREMENTS OR REQUESTS WILL NOT BE ALLOWED UNLESS THIS CONDITION HAS BEEN MET.

C. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY CONTRACTOR.

D. SUBMITTAL OF BID INDICATES CONTRACTOR IS AWARE OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.

E. CONTRACTOR SHALL PERFORM ALL VERIFICATION OBSERVATION TESTS, AND EXAMINE WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ENGINEER LISTING ALL MALFUNCTIONS, FAULT EQUIPMENT, AND DISCREPANCIES.

F. THESE PLANS ARE DIAGRAMMATIC ONLY. FOLLOW AS CLOSELY AS POSSIBLE.

G. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

H. CONTRACTOR SHALL PROVIDE, LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN, AND/OR

AS OTHERWISE REQUIRED.

I. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.

J. UPON COMPLETION OF WORK, CONDUIT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS ARE REQUIRE FOR APPROVAL. SUBMIT TEST REPORTS TO CONSTRUCTION ENGINEER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.

K. PROVIDE 2 PULL STRINGS SECURELY FASTENED AT EACH END OF ALL CONDUITS. ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE.

L. ALL MATERIALS UTILIZED SHALL BE U.L. LISTED. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.

M. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, J-BOX, SWITCH BOX, ETC. IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (O.S.H.A.)

N. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY THE UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ASNI, NEMA, AND NBFU.

O. USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR.

P. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.

Q. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES AND DRAWINGS. GROUND RODS SHALL BE AS SPECIFIED ON THE GROUNDING DRAWINGS.

R. WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM, NO BX OR ROMEX CABLE IS PERMITTED UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.

S. METER SOCKET AMPERAGE, VOLTAGE, AND NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY SQUARE D COMPANY OR APPROVED EQUAL. IF HOST FACILITY REQUIRES THE NEW SERVICE TO BE SUB-METERED FROM THE EXISTING SERVICE, SUB-METER SHALL BE OF THE 10x OR 16x TYPE.

T. PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.

U. SERVICE CONDUITS SHALL BE GRAY SCH.40 PVC BURIED MIN. 36", EXCEPT THE SCH.80 SHALL BE USED UNDER ROADWAYS AND IN LOCATIONS SUBJECT TO CASUAL IMPACTS. BENDS SHALL BE MADE USING "WIDE SWEEP" (12" MIN. RADIUS) ELBOW FITTINGS. ANY CODE-REQUIRED RIGID STEEL CONDUIT SHALL BE U.L. LABEL, GALVANIZED INSIDE AND OUTSIDE. CONDUIT SHALL EXTEND MIN. 36" BELOW GRADE. WITH "SWEEP" ELBOWS (12" MIN. RADIUS) ENDING IN PVC TRANSITION FITTINGS. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAB-WRAPPED WITH HUNTS PROCESS NO. 3 EXTENDING MIN. ABOVE GRADE.

V. INTERIOR CONDUITS SHALL BE ELECTRICAL METALLIC TUBING HAVING U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE.

W. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTING SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. NO SUCH CONDUIT SHALL EXCEED SIX FEET IN LENGTH.

POLE AND ANTENNA INSTALLATION

A. IF REQUIRED, ERECT FURNISHED STRUCTURE. PRIOR TO ERECTION, CONTRACTOR MUST VERIFY THAT CONCRETE HAS MET THE MINIMUM STRENGTH REQUIREMENTS AS WELL AS ANY OTHER INSPECTION OR TESTING REQUIREMENTS.

B. INSTALL ANTENNAS AND LINES AS INDICATED ON THE DRAWINGS AND PER OWNER SPECIFICATION. INSTALL ANTENNA AND CABLE MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS OR APPROVED BY THE CONSTRUCTION MANAGER. ANTENNA INSTALLATION TO BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLE AND ERECTION OF ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURE.

C. ASSIST OWNER TECHNICIANS IN PERFORMING SWEEP TEST OF INSTALLED COAX.

D. CONTRACTOR SHALL FOLLOW ALL APPLICABLE STANDARDS INCLUDING, BUT NOT LIMITED TO: EIA 222 (LATEST VERSION), FAA ADVISORY CIRCULAR AC70/7460-1A, FCC RULES & REGULATIONS.

LANDSCAPING & SITE RESTORATION.

CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN LANDSCAPE WORK AS SHOWN ON THE CONSTRUCTION DRAWINGS OR REQUIRED IN THE SPECIFICATIONS.

CONTRACTOR SHALL UTILIZE THE SERVICES OF A LANDSCAPE CONTRACTOR TO ENSURE THE LANDSCAPING IS PROPERLY INSTALLED, WATERED, AND OTHERWISE MAINTAINED. CONTRACTOR SHALL GUARANTEE LANDSCAPING FOR A MINIMUM OF ONE (1) YEAR AND SHALL REPLACE ANY DEAD OR VISIBLY DISTRESSED PLANTS WITHIN THIS PERIOD.

A. CONTRACTOR SHALL PROTECT SEEDED AREAS FROM EROSION THROUGH THE USE OF AN EROSION CONTROL MESH OR MULCH NET.


B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE PLAN WILL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE, AND SECURE TO A STEEL ANGLE EXTENDING TWO FEET INTO THE GROUND ON FOUR SIDES OF THE TREE.

C. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND SOIL EROSION.

D. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS TO ENCOURAGE ROOTING. RAKE AREAS TO BE SEED TO EVEN THE SURFACE AND LOOSEN THE SOIL. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.


E. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS BY WATERING, CONTINUE TO REWORK BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

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GENERAL NOTES
 MIN TONKA SC7
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ENGINEER SEAL:

APPROVED
 SEE TITLE SHEET FOR
 ENGINEER SEAL

SIGNATURE: _____
 DATE: _____

I HEREBY CERTIFY THAT THIS PLAN SET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION OTHER THAN THE EXCEPTIONS NOTED IN THE SHEET INDEX, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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SUBMITTAL:

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RJK	04/28/2020	REV. A
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ZRS	09/04/2020	REV. 1
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