

CONSULTANT TEAM		VICINITY MAP	REGIONAL MAP	PROJECT TYPE	CHICAGO SMSA limited partnership
PROJECT CONSULTANT:	TERRA CONSULT NG GROUP, LTD. 600 BUSSE HIGHWAY PARK RIDGE, IL 60068 (847) 698-6400			PROPOSED LESSEE ANTENNAS TO BE MOUNTED ON EXISTING WATER TOWER WITH PROPOSED 9'-4" x 16'-0" EQUIPMENT PLATFORM AT BASE.	CHICAGO SMSA limited partnership d/b/a VERIZON WIRELESS
SURVEYOR:	ASM CONSULTANTS, INC. P.O. BOX 7 PLANO, IL 60545 (630) 273-2500				
STRUCTURAL: (TOWER ANALYSIS)	KRECH OJARD & ASSOCIATES, PA 101 PUTNAM STREET EAU CLAIRE, WI 54703 (715) 552-7374				
STRUCTURAL ANALYSIS DATE:	12/21/17				

CHICAGO SMSA

limited partnership

CHICAGO SMSA LIMITED PARTNERSHIP

d/b/a VERIZON WIRELESS

1515 WOODFIELD ROAD, SUITE 1400

SCHAUMBURG, ILLINOIS 60173

PHONE: (847) 619-5397 FAX: (847) 706-7415

LOCATION NUMBER: 187771
SITE NAME: RTE 7 & WEST
15501 PARK STATION BLVD
ORLAND PARK, IL 60462



22" x 34" IS FULL SCALE.
11" x 17" IS HALF SCALE.

PROJECT INFORMATION			
SITE COORD NATES: LATITUDE: 41° 36' 29.25" N (1A) LONGITUDE: 87° 52' 32.82" W (1A)			
ELEVATION: ±731' (1A)			
ADDRESS: 15501 PARK STATION BLVD ORLAND PARK, IL 60462			
UTILITIES: POWER: COMED WARREN TAYLOR (708) 235-2328 ACCT # 03540-83159			FIBER: ONEF BER ALLEN BROTHERSON (630) 464-1590
JURISDICTION: VILLAGE OF ORLAND PARK			
OCCUPANCY: UN HABITED			
ZONING: MANUFACTURING			
CONSTRUCTION TYPE: CO LO			
PROPERTY OWNER: VILLAGE OF ORLAND PARK 147000 RAVINA AVENUE ORLAND PARK, IL 60462			
TOWER OWNER: NECTARIOS PITOS (708) 403-6100			
CONTACT PERSON: DOUG MEDLAND (708) 362-2361			
APPLICANT: CHICAGO SMSA limited partnership d/b/a Verizon Wireless 1515 WOODFIELD ROAD SCHAUMBURG, IL 60173			
CONSTRUCTION MANAGER: MICHAEL EISENMAYER (847) 619-3043			
REAL ESTATE MANAGER: OCTAVIO HERRERA (847) 619-4142			
GENERATOR TYPE: TERTIARY			
MAKE: MTU			
MODEL #: DG03RJ096V1M22 30KW DIESEL MTU-GENSET-WP-30KW-DIESEL-1PH120/240-DRE-TANK			
SHEET DRAWING INDEX REVISION			
T-1	TITLE SHEET	1	
LP	LOCATION PLAN	-	
C-1	ENGINEER NG SITE PLAN	-	
C-2	SITE GRAD NG PLAN (SHEET 1 OF 1)	-	
C-3	FOUNDATION DATA LS	1	
ANT-1	SITE ELEVATION & ANTENNA LAYOUT	-	
ANT-2	ANTENNA INFORMATION	1	
ANT-2A	ANTENNA INFORMATION	1	
ANT-3	CONDUIT ROUT NG DETAILS	-	
ANT-3A	ANTENNA MOUNTING DATA LS	-	
ANT-4	SITE DETAILS	-	
S-1	STRUCTURAL SHEETS	-	
S-2	STRUCTURAL SHEETS	-	
B-1	EQUIPMENT PLATFORM PLAN & NOTES	1	
B-2	EQUIPMENT PLATFORM ELEVATIONS	1	
E-1	UTILITY ROUTING PLAN	1	
E-1A	UTILITY RISER DIAGRAMS	1	
E-2	SITE GROUNDING PLAN	1	
E-3	GROUNDING DETAILS	-	
E-4	GROUNDING DETAILS	-	
E-5	ELECTRICAL DETAILS	-	
SP-1	SPEC FICATIONS	-	
SP-2	SPEC FICATIONS	-	
P-1	EXISTING SITE PHOTOS	-	
ATTACHMENTS			
EX-1	GENERATOR CUT-SHEET	-	
SE-1	SITE SURVEY	-	
RF-1	PRE-EIME REPORT	1	
NTC-1,2	NOTICE TO CONTRACTOR	1	

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS



NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	12/22/17	DMS
1	ISSUED FOR FINALS	01/22/18	JTM
2	UPDATE CABLE LENGTHS	02/02/18	JTM

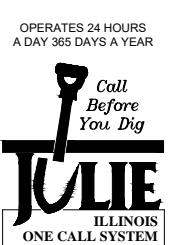
LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY:	DMS
CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531
SHEET TITLE	TITLE SHEET

SHEET NUMBER	T-1
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CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG

LEGEND

Light Post	Found Section Corner
Power Pole	Found or Set Monument
Telephone Pedestal	Found or Set Cut Cross
Manhole	59.75' Measured
Water Valve Vault	<60.00' Record
Water Service Valve	DOC. NO. Document Number
Fire Hydrant	Building
Electric Meter	Asphalt
Gas Meter	Concrete

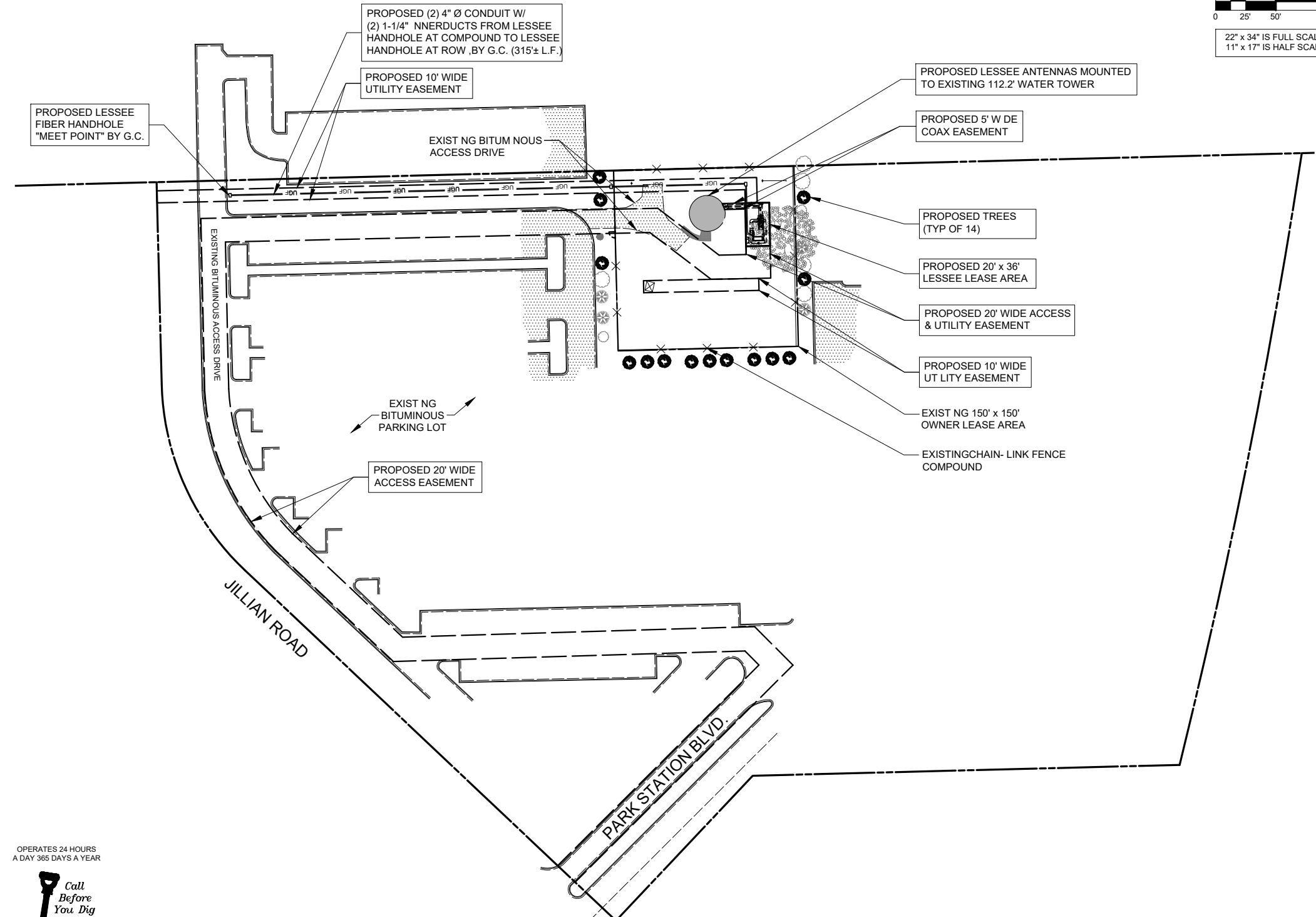
PROPERTY L NE	—
FENCE	— X — X —
OVERHEAD POWER LINE	— OHE — OHE —
UNDERGROUND TELCO	— UGT — UGT —
UNDERGROUND POWER	— UGE — UGE —
BURIED WATER L NE	— W — W —
BURIED GAS L NE	— G — G — G —
EDGE OF BUSH/TREES	—

SURVEY PERFORMED BY:

Advanced Surveying & Mapping

ASM Consultants, Inc.
16 E Wilson St, Batavia IL 60510
Tel (630) 879-0200 Fax (630) 454-3774
advanced@advct.com

Site Benchmark:
NE Bolt of Fire Hydrant
Elevation = 731.55'



1 LOCATION PLAN

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR



CALL JULIE TOLL FREE
(1800) 892-0123
48 HOURS BEFORE
YOU DIG

LOC. # 187771
RTE 7 & WEST

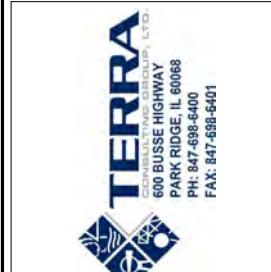
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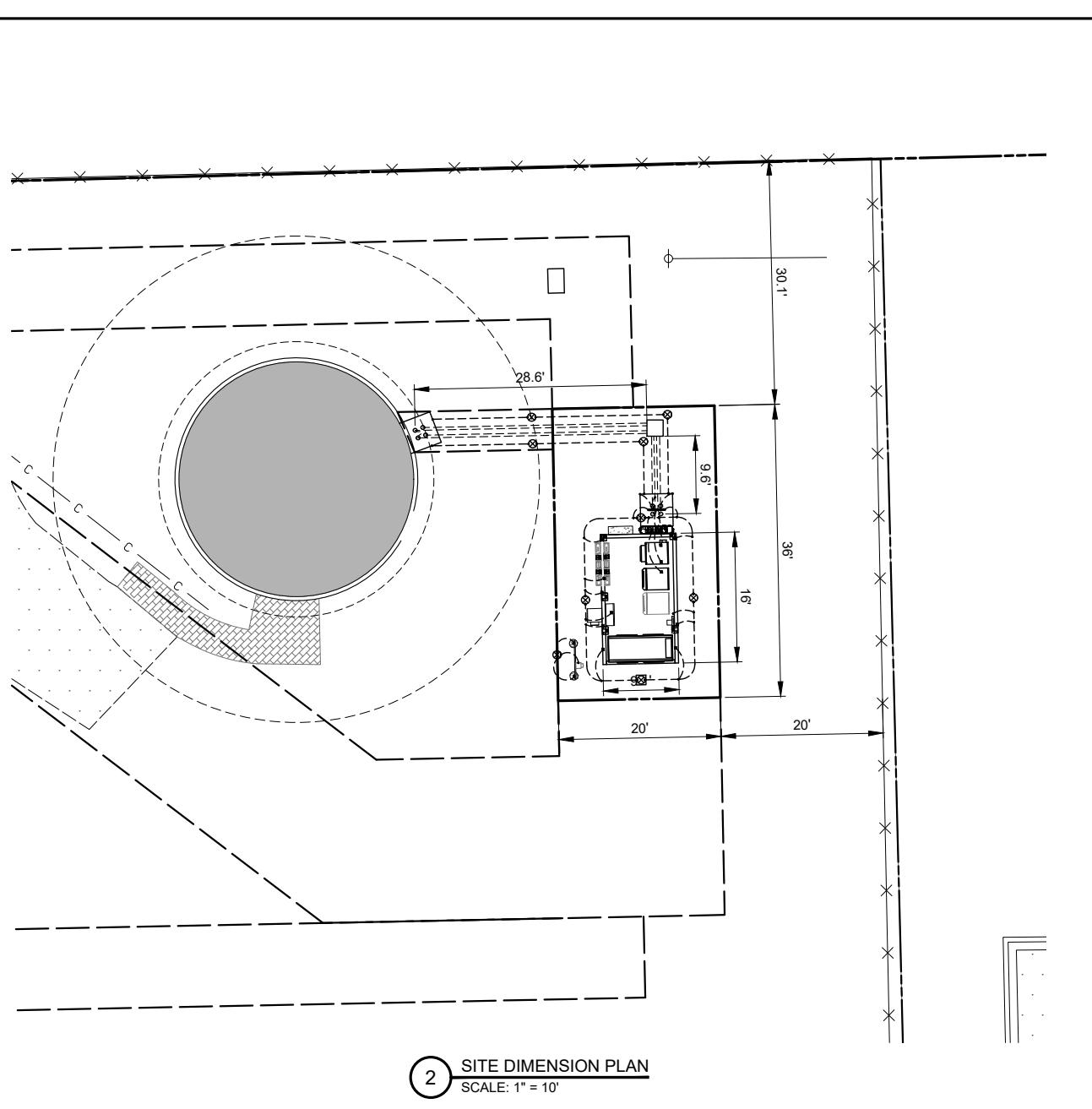
SHEET TITLE
LOCATION PLAN

SHEET NUMBER
LP

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS



REVISIONS	
NO	DESCRIPTION
-	ISSUED FOR REVIEW
1	ISSUED FOR FINALS
2	UPDATE CABLE LENGTHS
	DATE BY
	12/22/17 DMS
	01/22/18 JTM
	02/02/18 JTM



PLATFORM TYPE: CONCRETE SKID

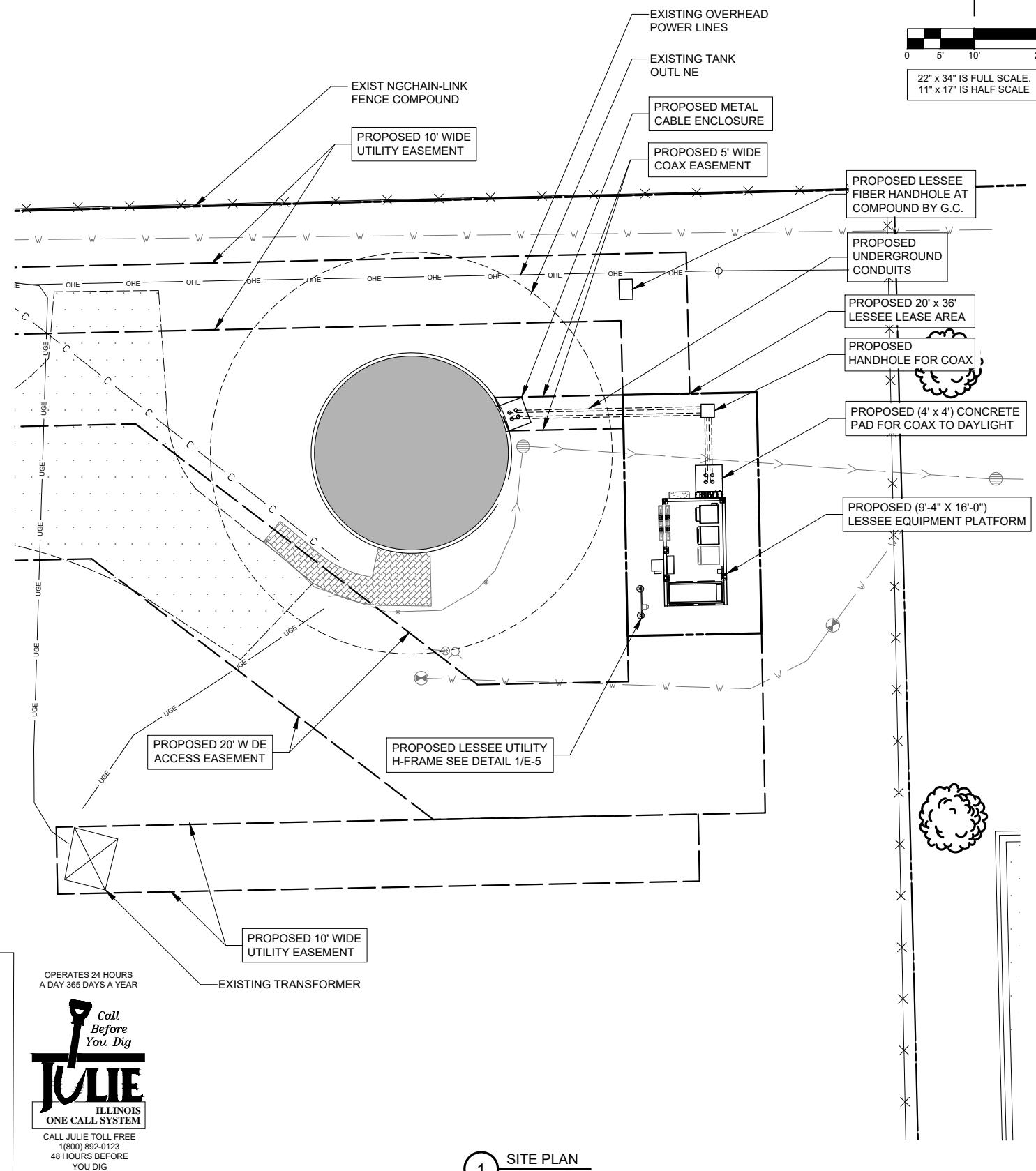
PAVEMENT MATERIAL

LEASE SITE
80 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
112 L.F. OF FENCE

THE CONTRACTOR SHALL INCLUDE AS PART OF THE B.D. 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.

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limited partnership d/b/a VERIZON WIRELESS																	
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COPRODUCTIVE GROUP, LTD. 600 BUSSE HIGHWAY PARK RIDGE, IL 60068 PH. 847-698-6400 FAX. 847-698-6401																	
REVISIONS <table border="1"> <thead> <tr> <th>NO</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>ISSUED FOR REVIEW</td> <td>12/21/17</td> <td>DMS</td> </tr> <tr> <td>1</td> <td>ISSUED FOR FINALS</td> <td>01/22/18</td> <td>JTM</td> </tr> <tr> <td>2</td> <td>UPDATE CABLE LENGTHS</td> <td>02/02/18</td> <td>JTM</td> </tr> </tbody> </table>		NO	DESCRIPTION	DATE	BY	-	ISSUED FOR REVIEW	12/21/17	DMS	1	ISSUED FOR FINALS	01/22/18	JTM	2	UPDATE CABLE LENGTHS	02/02/18	JTM
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LOC. # 187771

RTE 7 & WEST

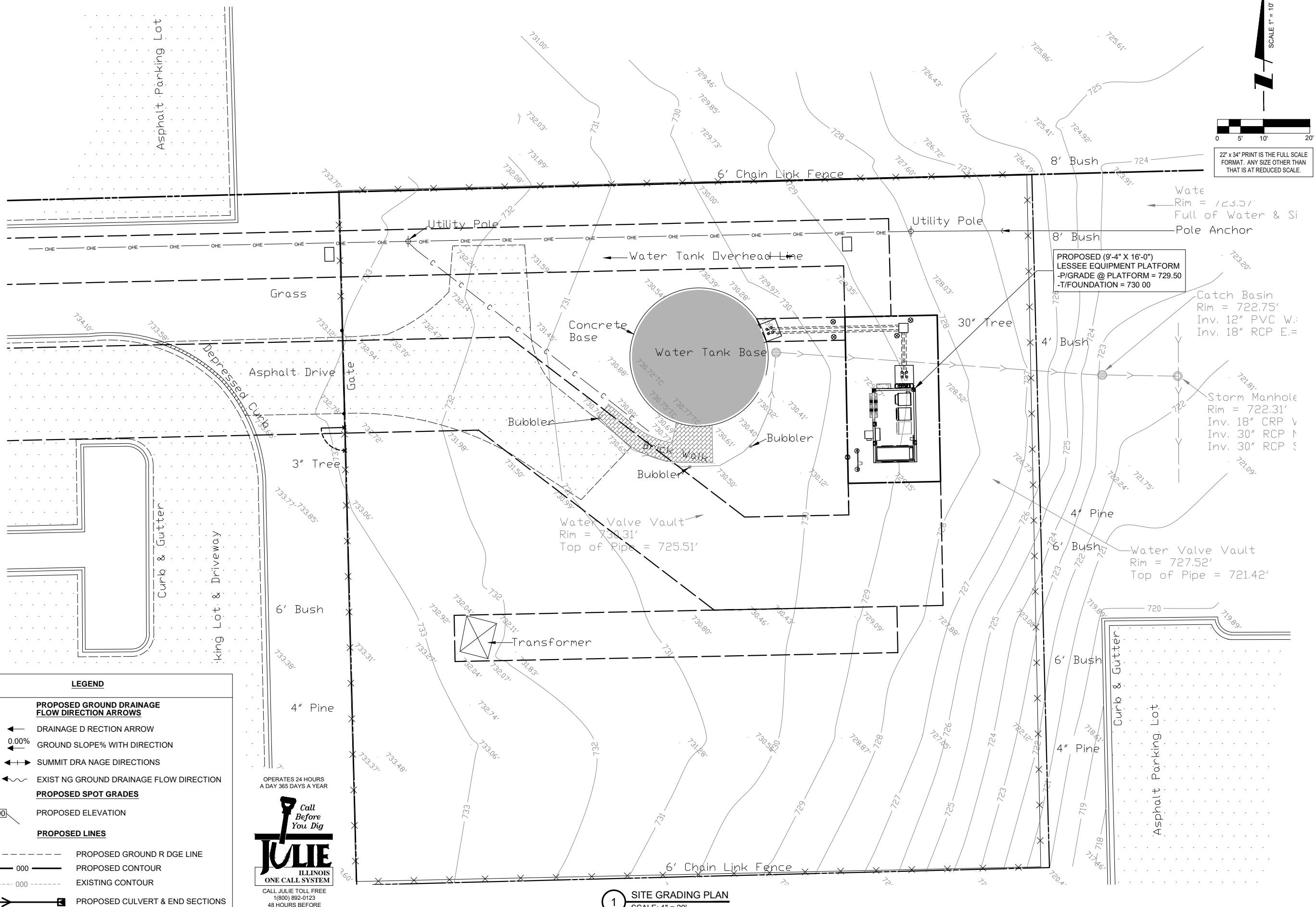
15501 PARK STATION BLVD
ORLAND PARK, IL 60462

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SHEET TITLE
ENLARGED
SITE PLAN

SHEET NUMBER
C-1





RTE 7 & WEST

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

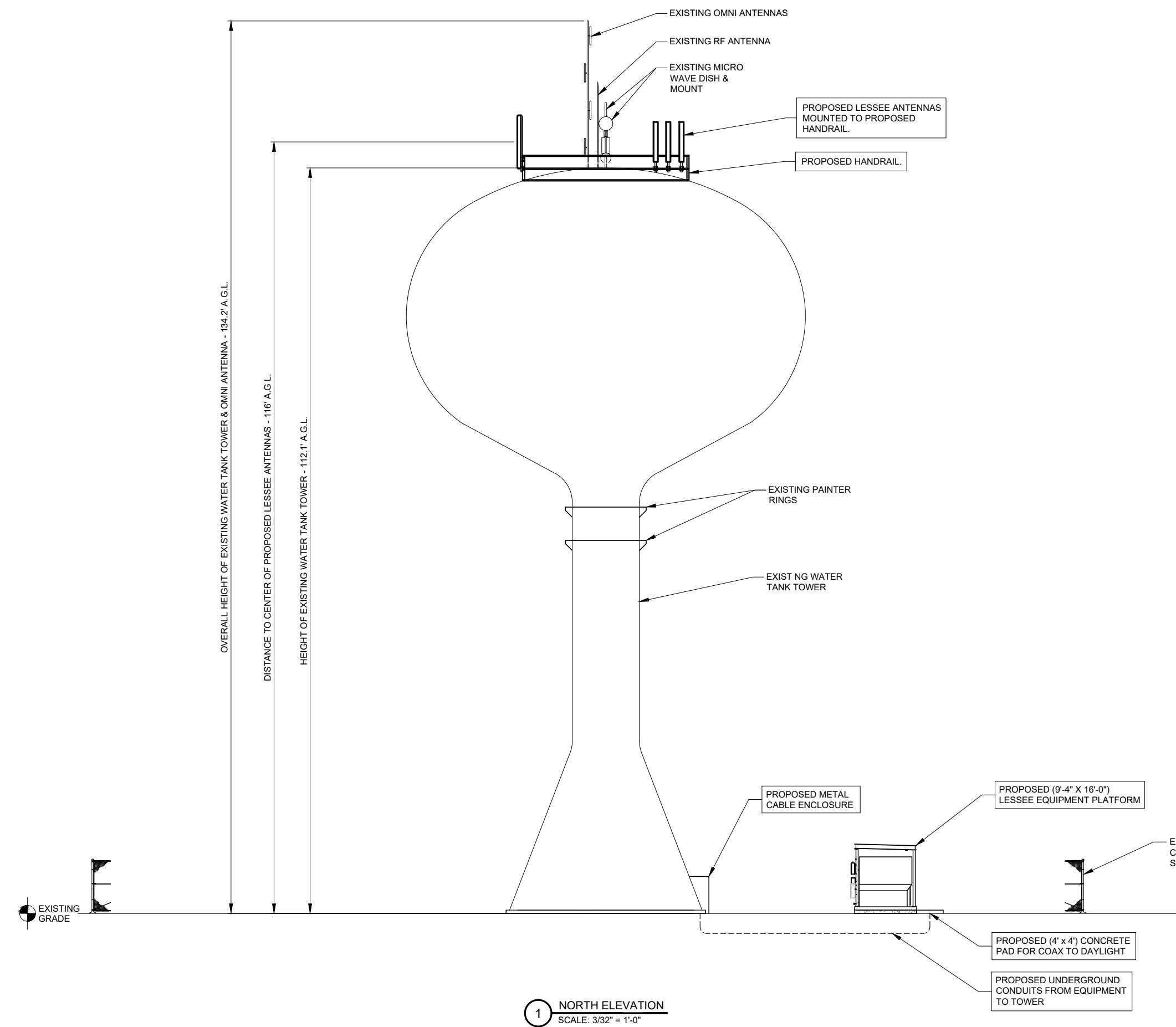
DRAWN BY:	DMS
CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531

SHEET TITLE
**SITE GRADING PLAN
(SHEET 1 OF 1)**

SHEET NUMBER

C-2





CHICAGO SNSA
limited partnership
d/b/a VERIZON WIRELESS



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RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

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SHEET TITLE
SITE ELEVATION

SHEET NUMBER
ANT-1

RF EMISSIONS REPORT REQUIRED

YES NO

DATE OF REPORT: 01/09/2018

HYBRID LENGTH ESTIMATE

SECTOR	AT GROUND		AT STRUCTURE		TOTAL (±)
	HOR (±)	VER (±)	HOR (±)	RAYCAP CL (±)	
ALPHA	39	5	15	116	175
BETA	39	5	20	116	180
GAMMA	39	5	33	116	193

EQUIPMENT CHANGE REQUEST FORM- ECR

Cell Name	RT 7 And West	Cell ID	15501 Park Station Blvd
Location Number	187771	Address	
Date of Request	1/16/2018	City/State/Zip	Orland Park, IL, 60467

PROPOSED CONFIGURATION

Antenna								
Sector	Pos	Port	RF Path	Antenna Manufacturer	Antenna Model	Antenna Serial Number	Centerline	Azimuth
Alpha	A1	L1(49)	200/850 - RxTx0	COMMSCOPE	SBNHH-1D65B		116	15
		L2(49)	200/850 - RxTx1					
		H1(49)	PCS - RxTx0					
		H2(49)	PCS - RxTx1					
		H3(49)	PCS - RxTx2					
	A2	H4(49)	PCS - RxTx3					
		L1(49)	Unused at this time					
		L2(49)	Unused at this time					
		H1(49)	Unused at this time					
		H2(49)	Unused at this time					
Beta	A3	H3(49)	Unused at this time					
		H4(49)	Unused at this time					
		L1(49)	200/850 - RxTx2					
		L2(49)	200/850 - RxTx3					
		H1(49)	AWS - RxTx0					
	A4	H2(49)	AWS - RxTx1					
		H3(49)	AWS - RxTx2					
		H4(49)	AWS - RxTx3					
		L1(49)	Unused at this time					
		L2(49)	Unused at this time					
Gamma	B1	H1(49)	200/850 - RxTx0	COMMSCOPE	SBNHH-1D65B		116	140
		L2(49)	200/850 - RxTx1					
		H1(49)	PCS - RxTx0					
		H2(49)	PCS - RxTx1					
		H3(49)	PCS - RxTx2					
	B2	H4(49)	PCS - RxTx3					
		L1(49)	Unused at this time					
		L2(49)	Unused at this time					
		H1(49)	Unused at this time					
		H2(49)	Unused at this time					
Beta	B3	H3(49)	Unused at this time					
		H4(49)	Unused at this time					
		L1(49)	200/850 - RxTx2					
		L2(49)	200/850 - RxTx3					
		H1(49)	Unused at this time					
	B4	H2(49)	Unused at this time					
		H3(49)	Unused at this time					
		H4(49)	Unused at this time					
		L1(49)	Unused at this time					
		L2(49)	Unused at this time					
GAMMA	G1	H1(49)	200/850 - RxTx0	COMMSCOPE	SBNHH-1D65B		116	260
		L2(49)	200/850 - RxTx1					
		H1(49)	PCS - RxTx0					
		H2(49)	PCS - RxTx1					
		H3(49)	PCS - RxTx2					
	G2	H4(49)	PCS - RxTx3					
		L1(49)	Unused at this time					
		L2(49)	Unused at this time					
		H1(49)	Unused at this time					
		H2(49)	Unused at this time					
GAMMA	G3	H3(49)	Unused at this time					
		H4(49)	Unused at this time					
		L1(49)	200/850 - RxTx2					
		L2(49)	200/850 - RxTx3					
		H1(49)	Unused at this time					
	G4	H2(49)	Unused at this time					
		H3(49)	Unused at this time					
		H4(49)	Unused at this time					
		L1(49)	Unused at this time					
		L2(49)	Unused at this time					

PROPOSED ANTENNA CONFIGURATION

N.T.S.

Comments

FINAL CONFIGURATION

Passive Components	Location	Manufacturer	Component Model	Count
	Top (Platform)	Ericsson	4449 B13/B5	3
Bottom (Shelter)	Raycap	RCMDC-3315-PF-48	3	
Bottom (Shelter)	Raycap	RCMDC-3315-PF-48	3	
Coax	Sector	Coax Manufacturer	Type	Size
Alpha	Beta	Raycap	HFT1206-24S49-XXX	1 5/8
Beta				
Gamma				

Comments

COMBINER CABLE DATA INFORMATION

2 N.T.S.



REVISIONS	
NO.	DESCRIPTION
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2	UPDATE CABLE LENGTHS

LOC. # 187771

RTE 7 & WEST

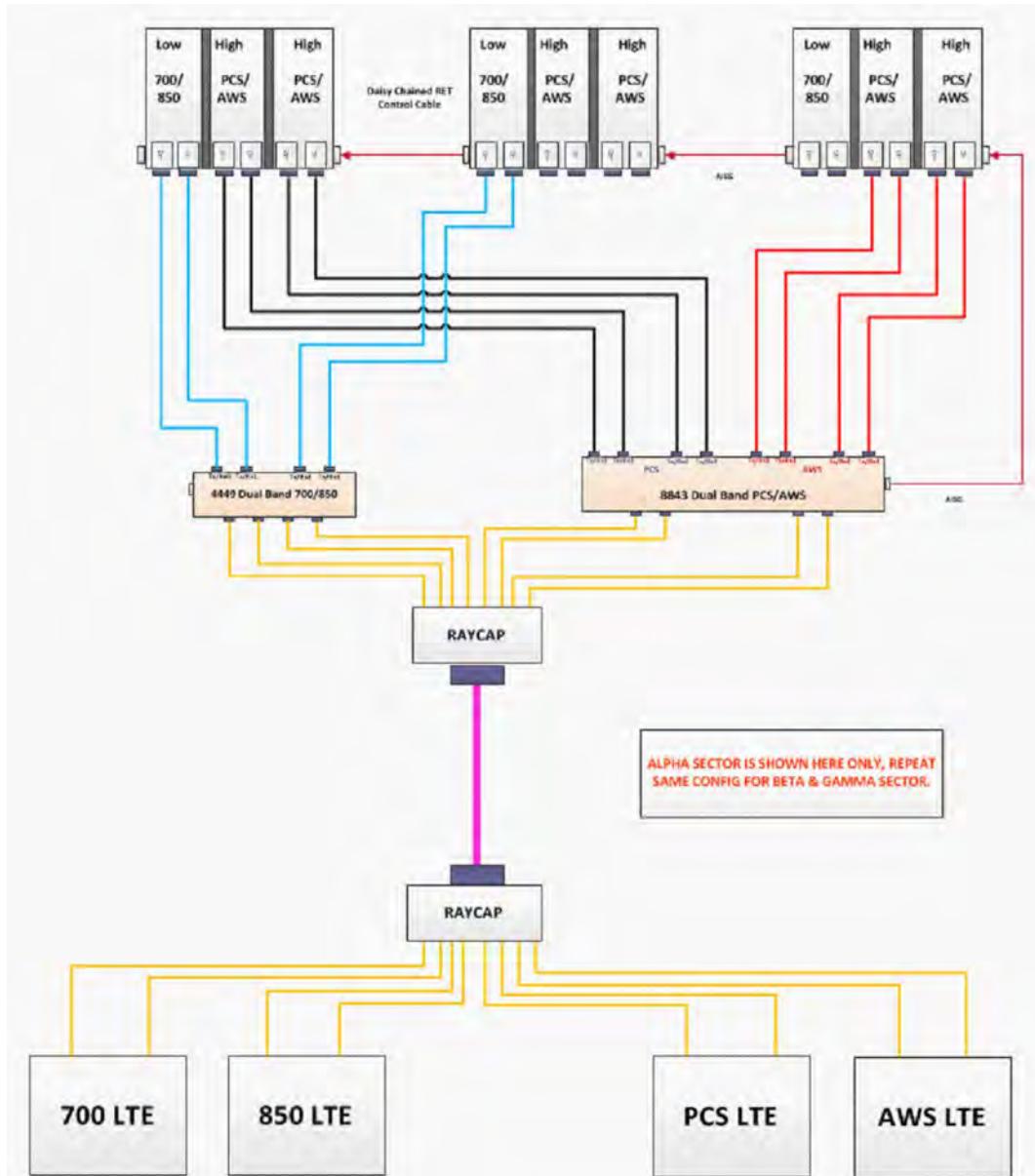
15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: DMS
CHECKED BY: TAZ
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PROJECT #: 33-2531

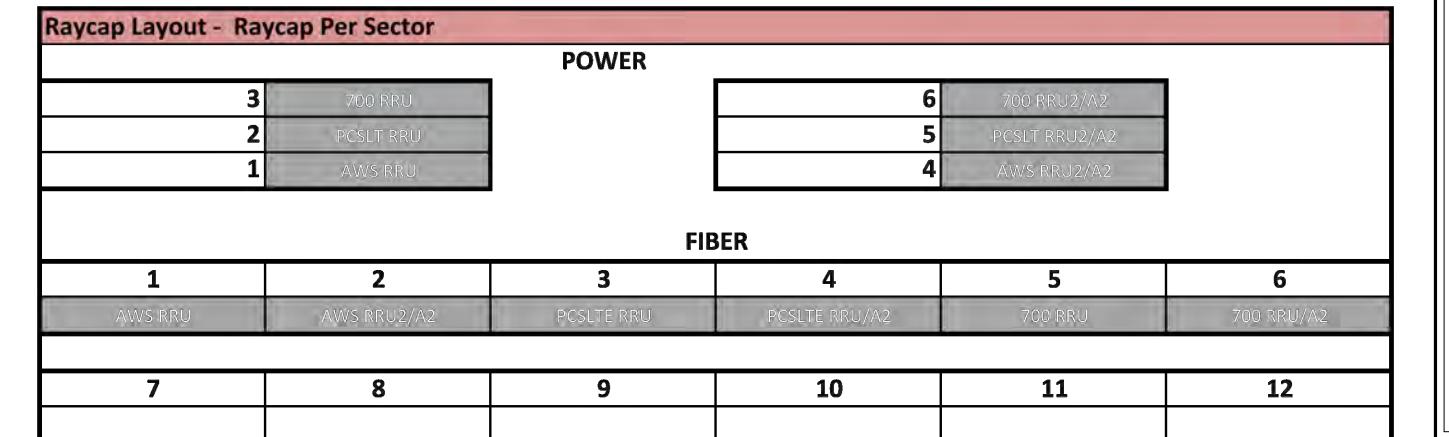
SHEET TITLE
ANTENNA INFORMATION

SHEET NUMBER

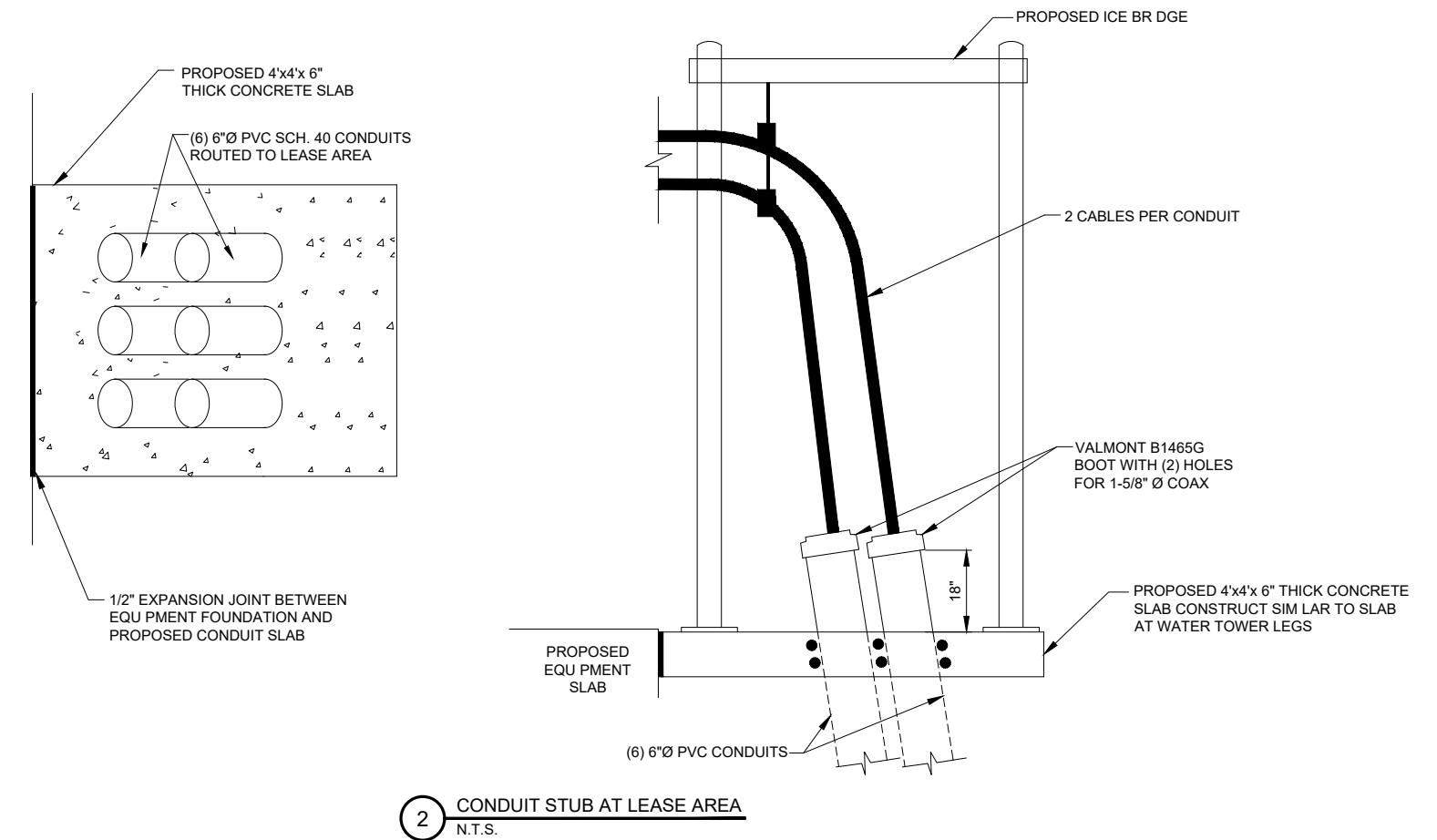
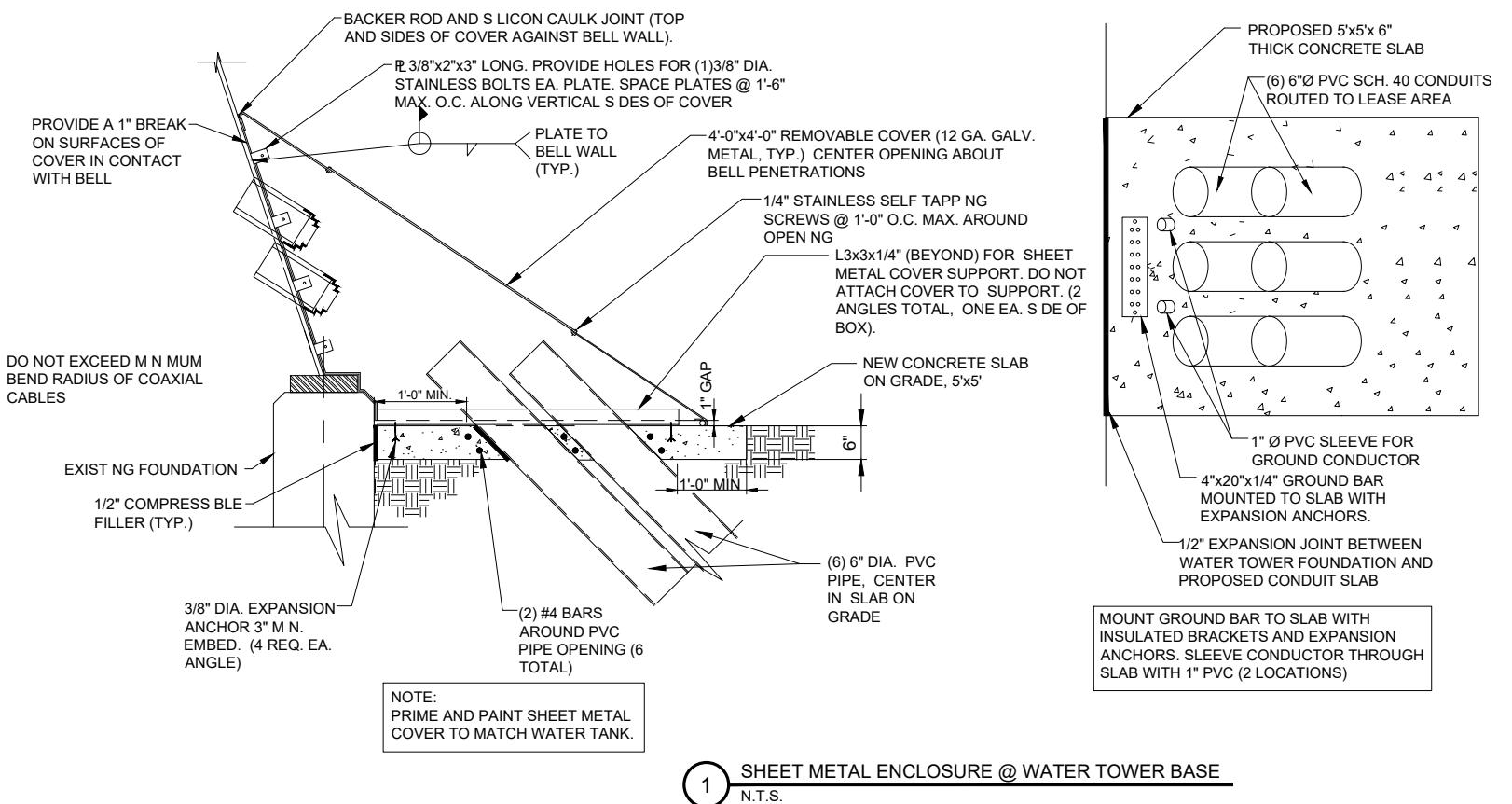
ANT-2A



1 CABLE DIAGRAM
N.T.S.



2 RAYCAP TABLE
N.T.S.



REVISIONS

NO.	DESCRIPTION	DATE ISSUED FOR REVIEW	DATE ISSUED FOR FINALS	DATE	BY
-		12/22/17		DMS	JTM
1		01/22/18			JTM
2	UPDATE CABLE LENGTHS		02/02/18		JTM

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RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

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SHEET TITLE
CONDUIT
ROUTING DETAILS

SHEET NUMBER

ANT-3



REVISIONS		
NO	DESCRIPTION	DATE ISSUED FOR REVIEW
-		1/22/17 DMS
1	ISSUED FOR FINALS	01/22/18 JTM
2	UPDATE CABLE LENGTHS	02/02/18 JTM

LOC. # 187771

RTE 7 & WEST

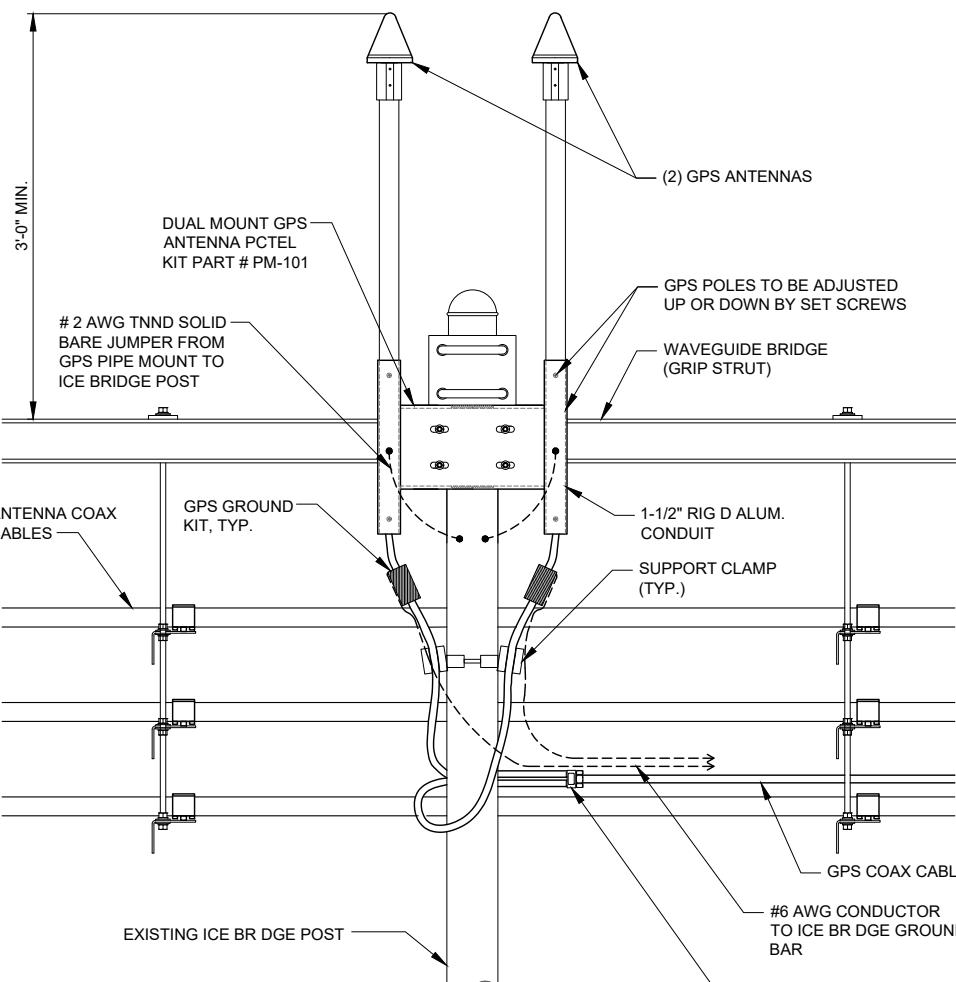
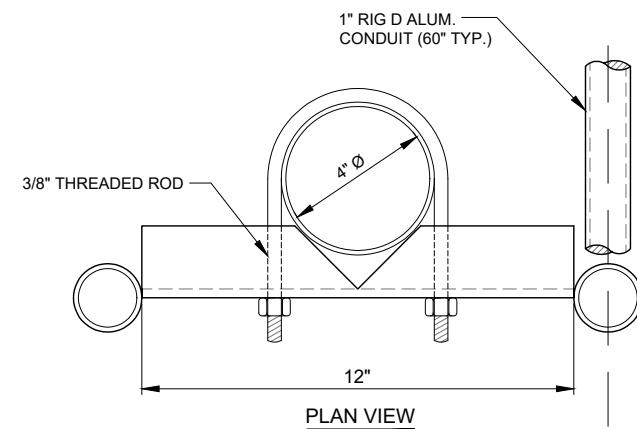
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ORLAND PARK, IL 60462

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CHECKED BY:	TAZ
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SHEET TITLE
SITE DETAILS

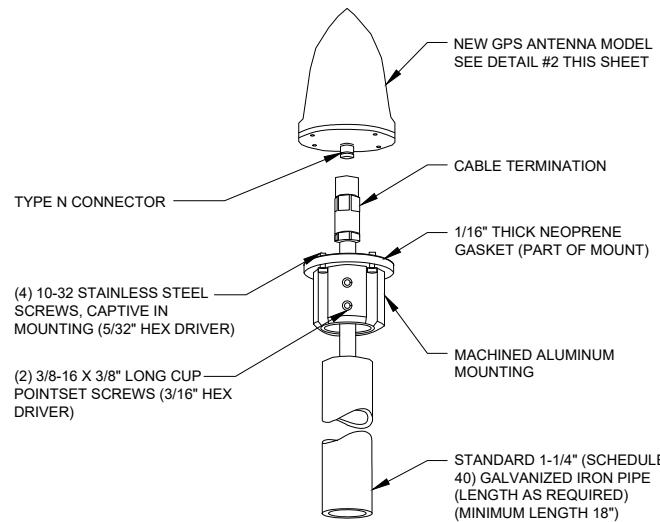
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ANT-4



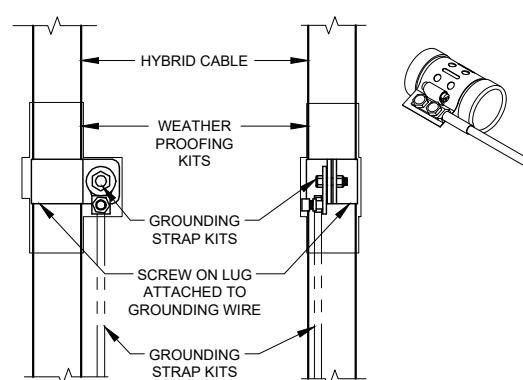
1 GPS MOUNTING DETAIL
N.T.S.

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



2 TYPICAL GPS 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.

3"x5"x1/4" GALV.
STL. ANGLE 2-6"
LONG WITH 5/8" Ø
U-BOLTS TO POST.
SEE DETAIL #3
THIS SHEET

GALV. STL. GRIP STRUT
24" MIN. 12 GA. CHANNEL
W/ 1/2" Ø BOLTS TO
SUPPORT BRACKET

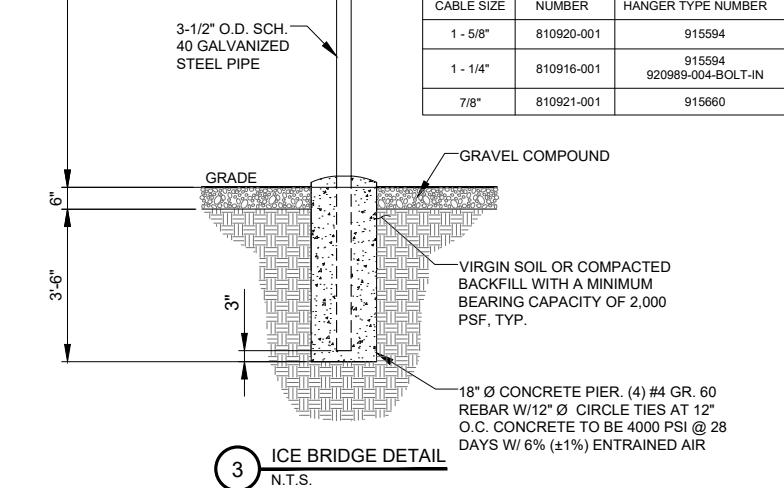
ASTM A325 GALV STEEL
1/2" Ø x6" LONG (FULL
THREAD W/ WASHER AND
LOCK WASHER BOTH
SIDES) INSTALLED BELOW
THE ICE BRIDGE IN 5/8" Ø
HOLE DRILLED IN
SUPPORT PIPE (COLD
GALV. DRILLED HOLE).

GALVANIZED STEEL 'SNAP-IN' BARS
3'-0" O.C. SUSPENDED WITH 3/8" Ø
GALVANIZED ALL THREAD ROD

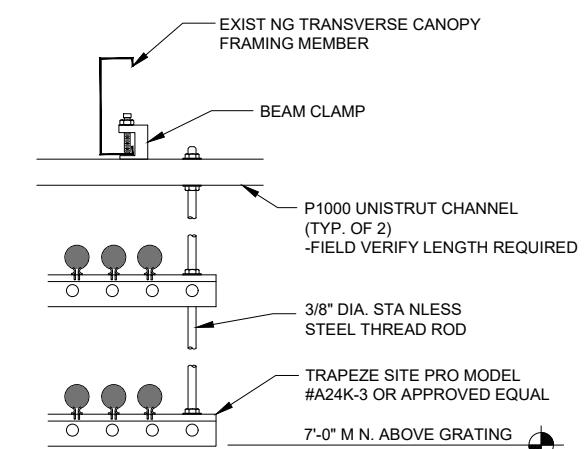
FOR CABLE HANGER
REQUIREMENTS, SEE TABLE

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



3 ICE BRIDGE DETAIL
N.T.S.



4 COAX TRAPEZE DETAIL (AT PLATFORM)
N.T.S.

REVISIONS	DESCRIPTION	DATE	BY
	ISSUED FOR CONSTRUCTION	12/2/17	JTF

LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: JTF
CHECKED BY: LBL
DATE: 12/2/17
PROJECT #: 172002.65

SHEET TITLE
STRUCTURAL NOTES,
ELEVATION, & PLAN

SHEET NUMBER
S-1

GENERAL STRUCTURAL NOTES

- DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:

2006 INTERNATIONAL BUILDING CODE

- DESIGN LOADS:

WIND LOAD (ASCE 7-05/2006 BC):

BASIC WIND SPEED (3 SEC. GUST) = 115 MPH

WIND IMPORTANCE FACTOR: I = 1.0 (1.15 FOR TANK STRUCTURE)

WIND EXPOSURE: C

SEISMIC LOAD (ASCE 7-05/2006 IBC)

RISK CATEGORY: II

SEISMIC IMPORTANCE FACTOR: 1.0 (1.25 FOR TANK STRUCTURE)

SITE CLASS = D

SDS = 0.175g

SD1 = 0.112g

SEISMIC DESIGN CATEGORY: B

EQUIPMENT SUMMARY (NDIV DUAL SELF WEIGHT + 3/4" RADIAL ICE LOAD)

(9) TOTAL SBNHH-ID65B ANTENNAS = 359 LBS

(3) TOTAL RCMDC-3315-PF-48 RAYCAP = 135 LBS INTERIOR MOUNT

(3) TOTAL 4449 1313/BS RRU = 135 LBS INTERIOR MOUNT

(3) TOTAL 8843 B66/B2 RRU = 135 LBS INTERIOR MOUNT

- CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF EXISTING BUILDING UTILITY ES, STREETS, EQUIPMENT ETC. DURING CONSTRUCTION. PROVIDE TEMPORARY PROTECTION AS REQUIRED.

- FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION.

- ANY HOLES CUT IN THE EXISTING OR NEW STRUCTURE WHICH ARE NOT DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE REVIEWED PRIOR TO CONSTRUCTION WITH THE ENGINEER.

- CONTRACTOR TO VERIFY ALL EQUIPMENT DIMENSIONS AND FASTENING REQUIREMENTS WITH MANUFACTURER.

- STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS, COORDINATE WITH THE ENGINEER IF DIMENSIONS ARE NOT CLEAR.

- ANY CLAMPING-STYLE FRICTION CONNECTIONS INCLUDING U-BOLTS SHOULD INCLUDE A NEOPRENE BARRIER (WITH A GALVANIZED METAL SHIM) BETWEEN THE CLAMP / U-BOLT AND THE BASE MATERIAL TO PROTECT THE COATING AND PREVENT CORROSION.

STRUCTURAL STEEL AND MISCELLANEOUS METALS

- ALL WIDE FLANGE MEMBERS TO BE ASTM A992.

- HSS STRUCTURAL TUBING TO BE A500, GRADE B.

- PIPE TO BE A53, GRADE B.

- ALL OTHER STRUCTURAL STEEL SHAPES TO BE ASTM A36

- ALL WELDING ELECTRODES SHALL BE E70XX.

- FABRICATION AND ERECTION OF STRUCTURAL STEEL MEMBERS IS TO BE IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE.

- ALL WELDING TO BE PERFORMED BY QUALIFIED WELDERS AND SHALL CONFORM TO A.W.S. D1.1.

- ALL STRUCTURAL STEEL AND MISCELLANEOUS METALS EXPOSED TO EXTERIOR CONDITIONS SHALL BE GALVANIZED. TOUCH UP ALL DISTURBED AREAS.

- BOLTED CONNECTION TO USE A325 HIGH STRENGTH BOLTS WITH THE THREADS INCLUDED IN THE SHEAR PLANE WITH A563 NUTS AND F436 WASHERS UNLESS NOTED OTHERWISE ON PLANS.

WELDING

- ALL WELDING SHALL BE BY A CERTIFIED WELDER.

- ALL WELDING SHALL COMPLY WITH THE AWS STRUCTURAL WELDING CODES, INCLUDING ANSI/AWWA D100-96 "AWWA STANDARD FOR WELDED STEEL TANKS FOR WATER STORAGE" AS MODIFIED TO DATE.

- MAKE ALL WELDS TO THE TANK WALL WITH E7018 LOW HYDROGEN ROD. WELD SMOOTH AND AVOID UNDERCUTS AND BURRS. GRIND SMOOTH ALL WELDS SO THAT NO SHARP PROTRUSIONS REMAIN.

SMOOTH IS DEFINED AS NO CUTS OR ABRASIONS OCCUR WHEN RUBBING YOUR HAND OVER THE WELD.

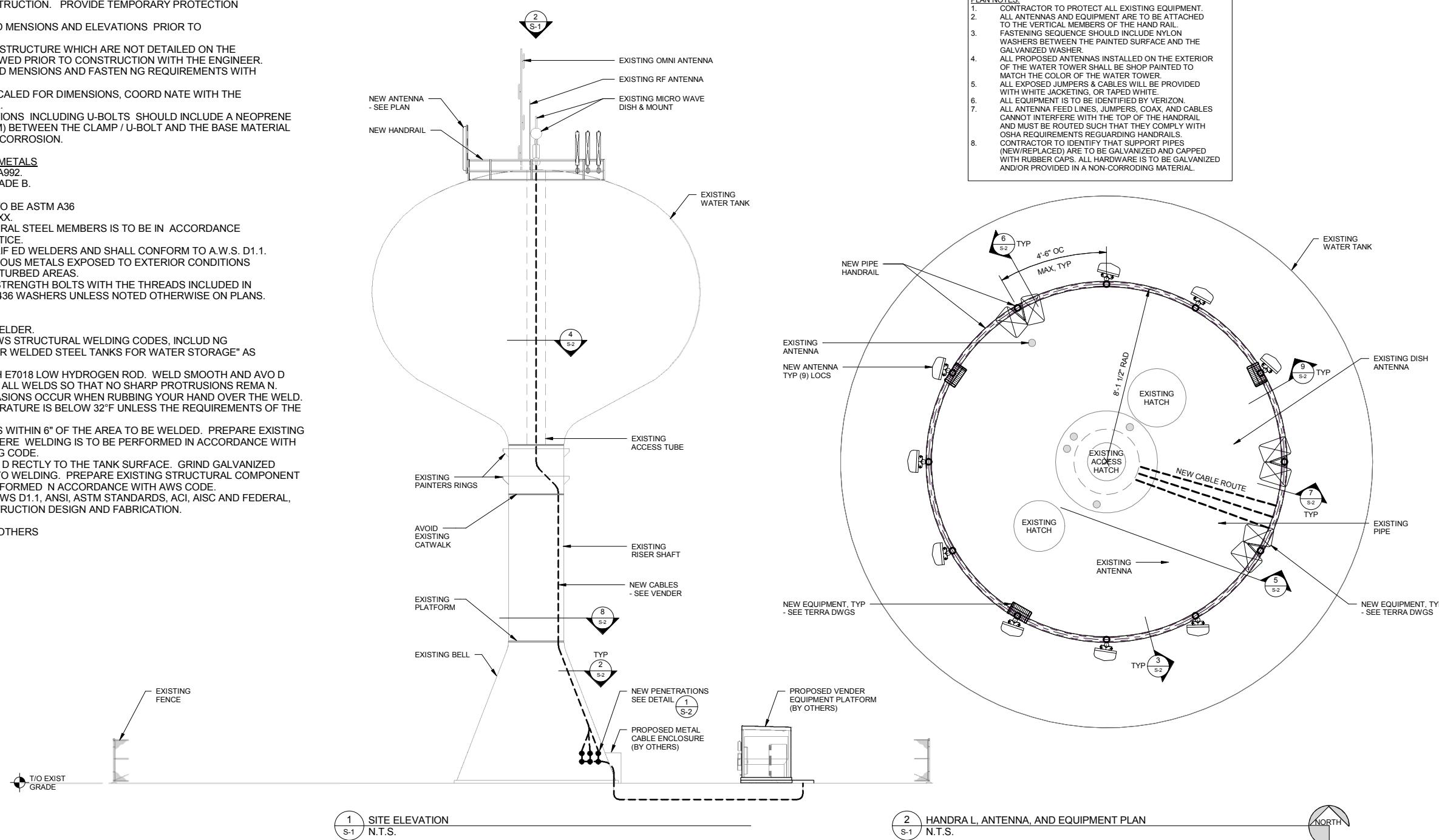
- DO NOT WELD WHEN THE AMBIENT TEMPERATURE IS BELOW 32°F UNLESS THE REQUIREMENTS OF THE AWWA D100 SEC. 10.2.1 ARE FOLLOWED.

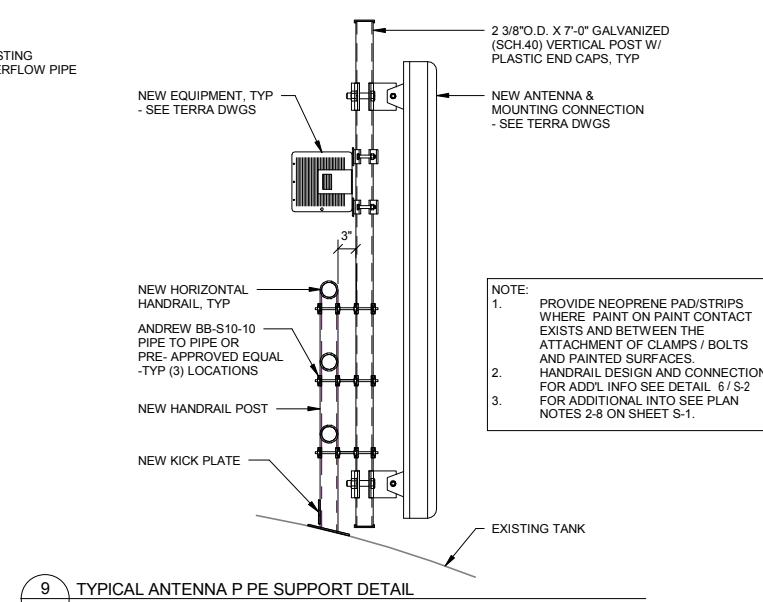
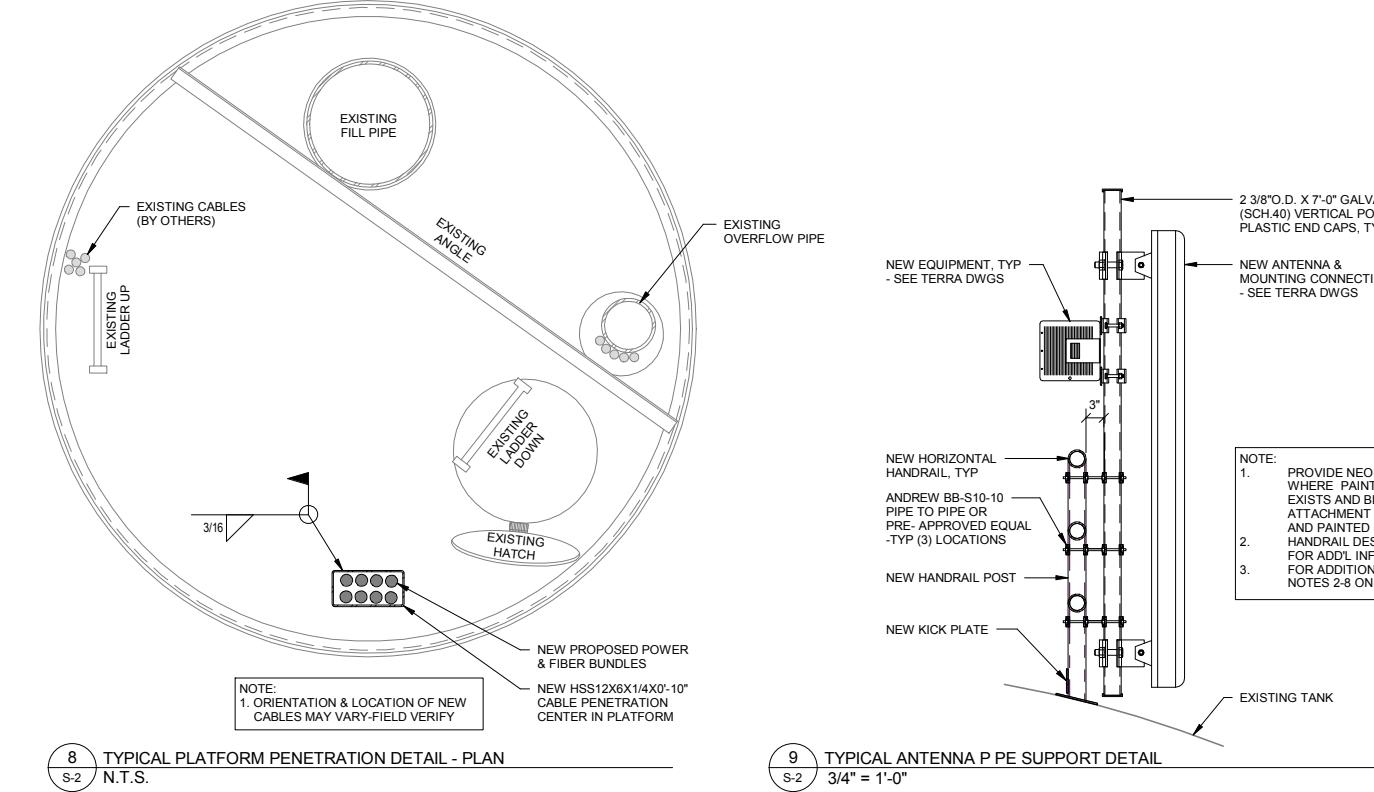
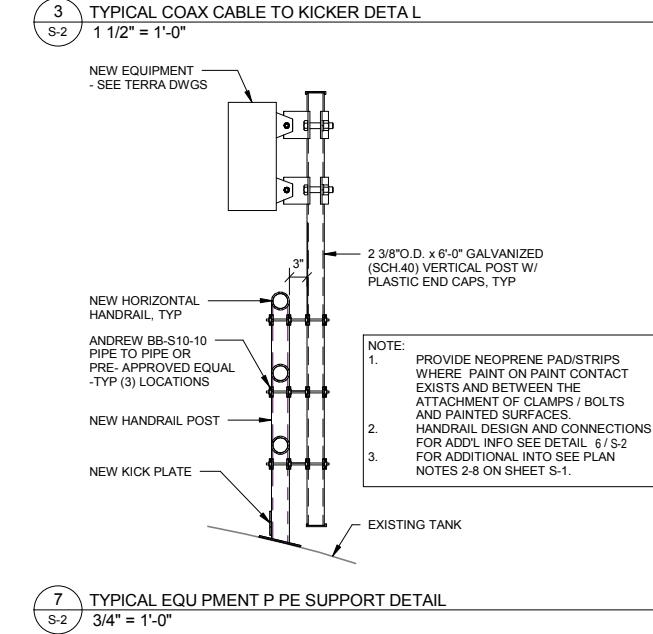
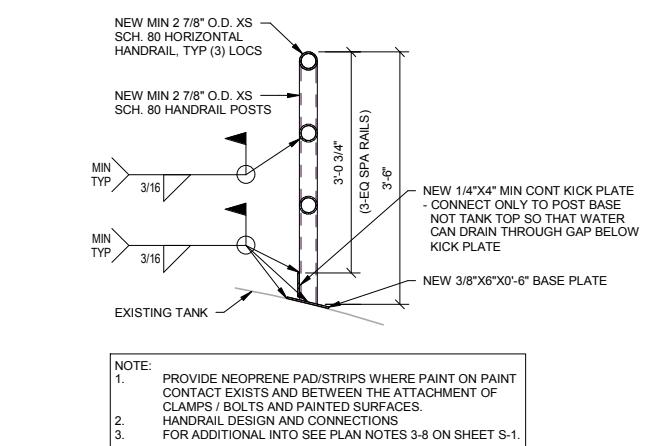
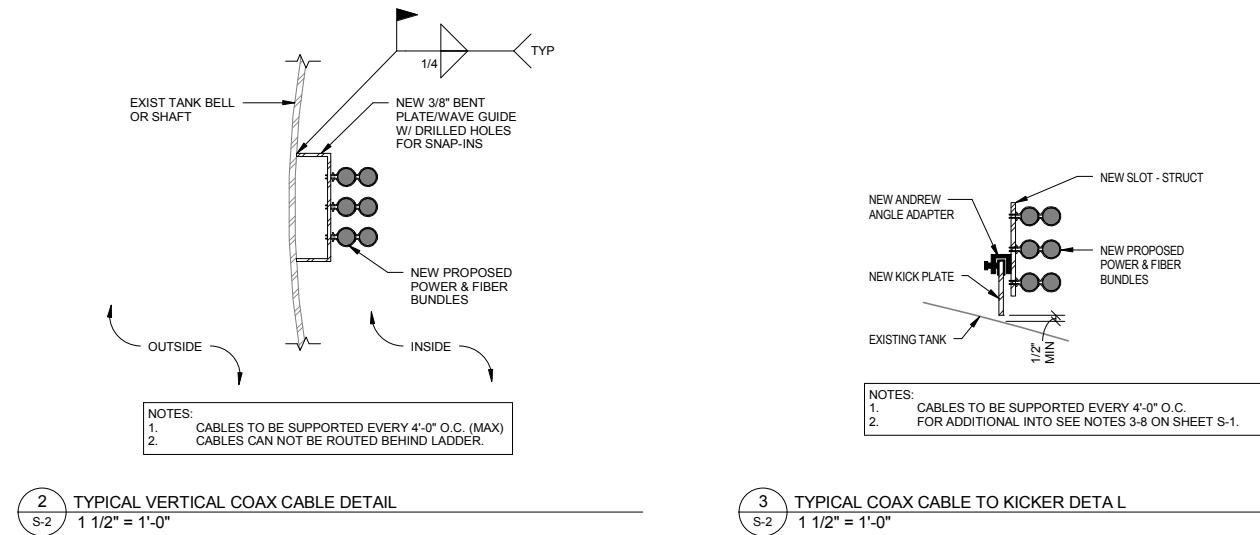
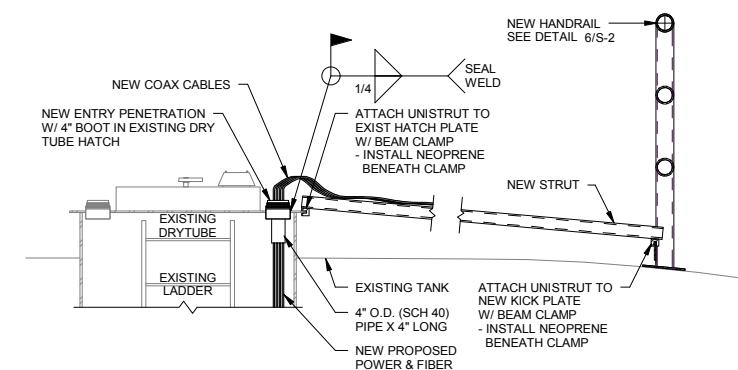
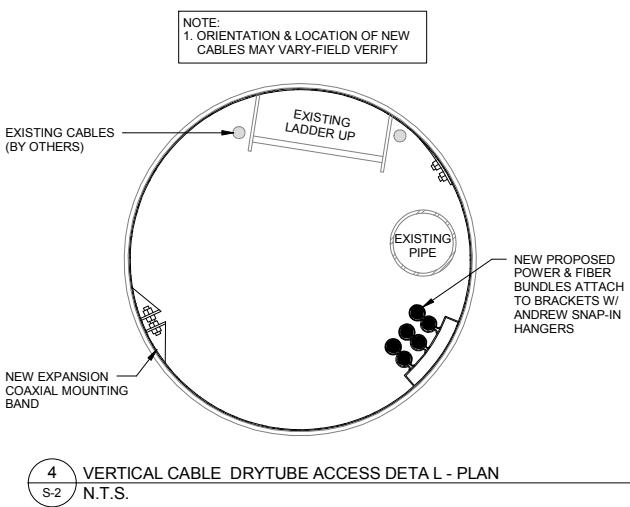
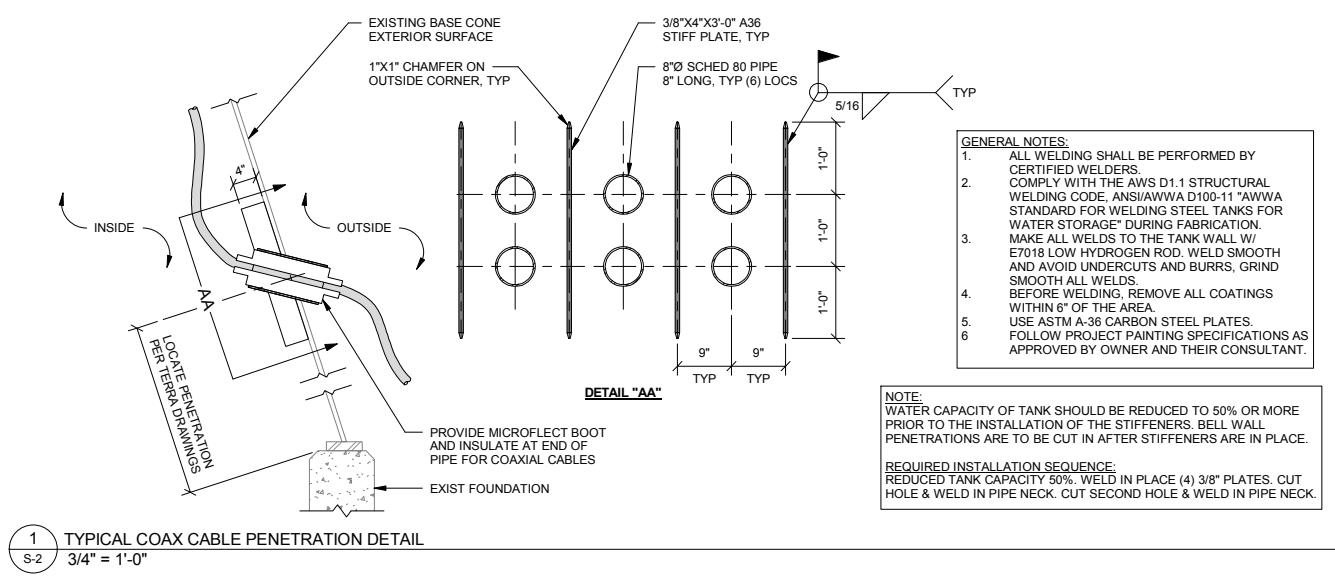
- BEFORE WELDING REMOVE ALL COATING WITHIN 6" OF THE AREA TO BE WELDED. PREPARE EXISTING STRUCTURAL COMPONENT SURFACES WHERE WELDING IS TO BE PERFORMED IN ACCORDANCE WITH SSPC-SP-10 WHITE METAL BLAST CLEANING CODE.

- DO NOT WELD GALVANIZED COMPONENTS DIRECTLY TO THE TANK SURFACE. GRIND GALVANIZED SURFACES FREE OF GALVANIZING PRIOR TO WELDING. PREPARE EXISTING STRUCTURAL COMPONENT SURFACES WHERE WELDING IS TO BE PERFORMED IN ACCORDANCE WITH AWS CODE.

- COMPLY WITH APPLICABLE AWWA D-100, AWS D1.1, ANSI, ASTM STANDARDS, ACI, AISC AND FEDERAL, STATE, AND LOCAL CODES DURING CONSTRUCTION DESIGN AND FABRICATION.

PAINTING & COATING SPECIFICATIONS: BY OTHERS





CHICAGO
SMSA *limited partnership*
d/b/a **VERIZON WIRELESS**

NO.	DESCRIPTION	ISSUED FOR CONSTRUCTION

LOC. # 187771

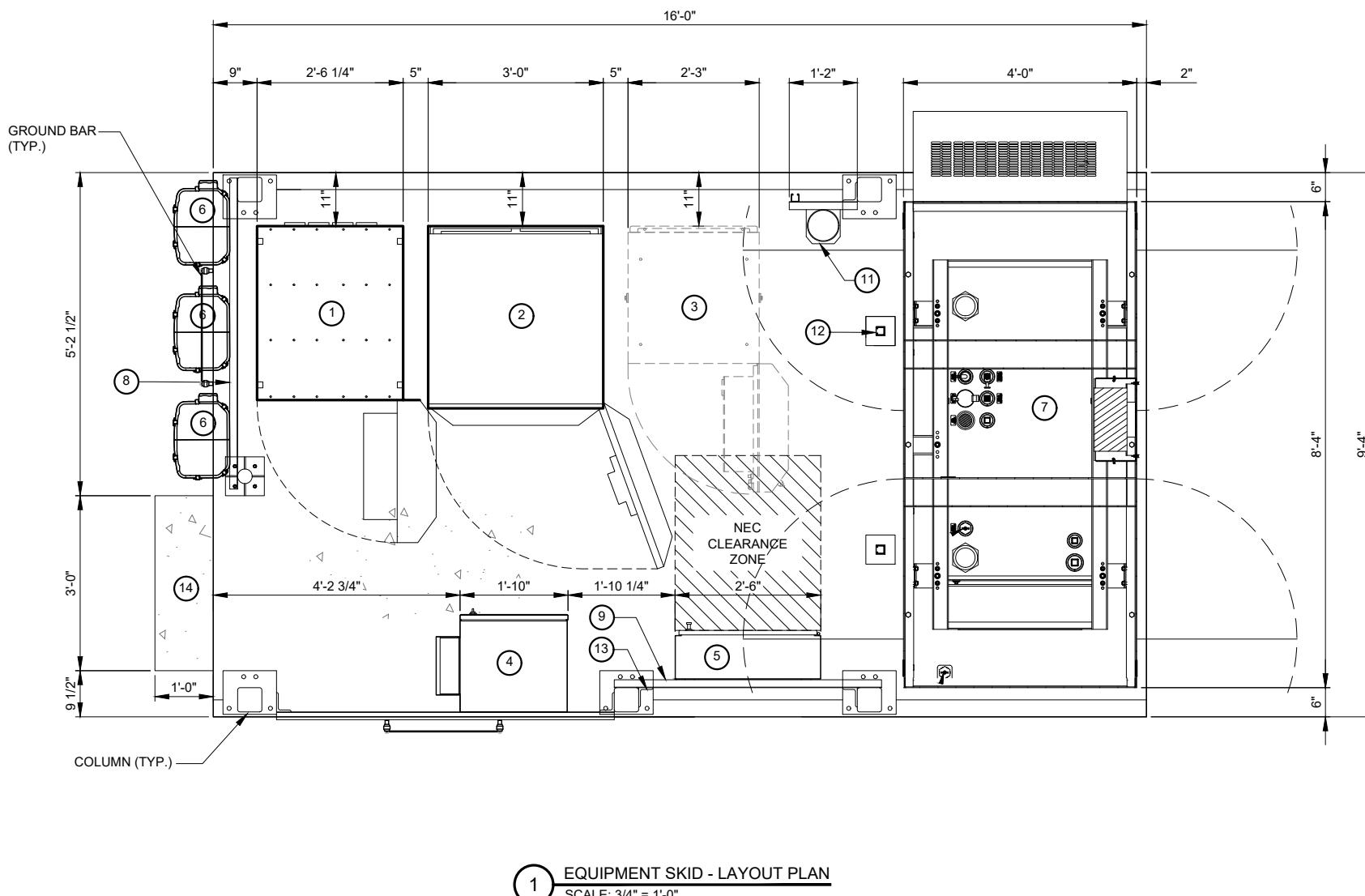
5501 PARK STATION BLVD
ORLAND PARK, IL 60462

AWN BY:	JTF
ECHECKED BY:	SMB
TE:	12/22/17
OBJECT #:	172002.65

SHEET TITLE

SHEET NUMBER

S-2



KEY NOTES

1. COMMSCOPE RBA72-30 EQUIPMENT CABINET (72"x31.3"x44")
2. COMMSCOPE RBA72-36 BATTERY CABINET (72"x36.3"x40.6")
3. ERICSSON 61220 ENODE B CABINET (6'-6"x2'-3"x2"x3")
4. CHARLES CUBE RL1003 FIBER ENCLOSURE
5. INTEGRATED LOAD CENTER
6. RAYCAP SURGE SUPPRESSION UNIT (VERIFY QUANTITY AND LOCATION WITH CONSTRUCTION DRAWINGS AND LOCATION OF ICE BRIDGE)
7. GENERATOR MODEL #: TRIPLE CONTAMINATION DIESEL - 30KVA MTU DG03RJ096V1M22 SEE EX-1 PAGE FOR GENERATOR DETAILS
8. UNI-STRUT (P1000T) OVP MOUNTING RACK
9. UNI-STRUT (P1000T) ILC MOUNTING RACK
10. 3" O.D. PIPE W/ 8"x8" MOUNTING PLATE
11. FIRE EXTINGUISHER BRACKET ON UNI-STRUT (P1000T) SUPPORT
12. UNI-STRUT (P1000T) SUPPORT BASE FOR CONDUITS BETWEEN LC AND GENERATOR.
13. 3"x4"x3/8" THK. SLOTTED ANGLE
14. 12"x36" CONCRETE STEP

REVISIONS

NO	DESCRIPTION	DATE ISSUED FOR REVIEW	DATE ISSUED FOR FINALS
-		12/22/17	JTM
1	UPDATE CABLE LENGTHS	01/22/18	JTM
2		02/02/18	

LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY:	DMS
CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531

SHEET TITLE
EQUIPMENT SKID PLAN & NOTES

SHEET NUMBER
B-1

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

10. SKID AND ASSOCIATED EQUIPMENT IS PROVIDED BY OWNER UNDER SEPARATE CONTRACT. EQUIPMENT SKID 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.



REVISIONS			
NO.	DESCRIPTION	DATE	BY
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1	ISSUED FOR FINALS	01/22/18	JTM
2	UPDATE CABLE LENGTHS	02/02/18	JTM

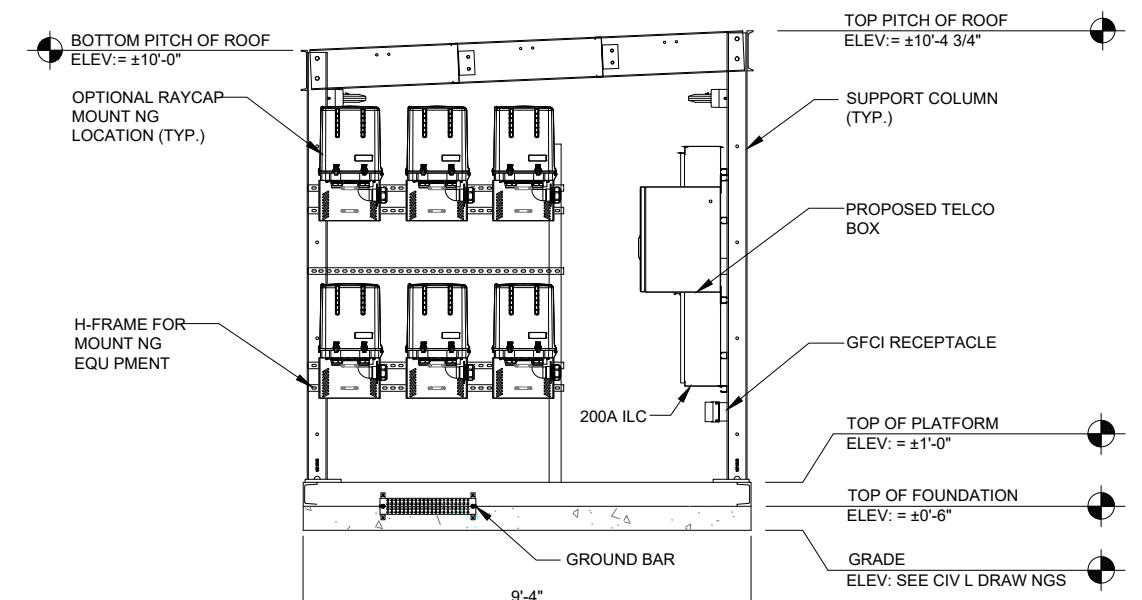
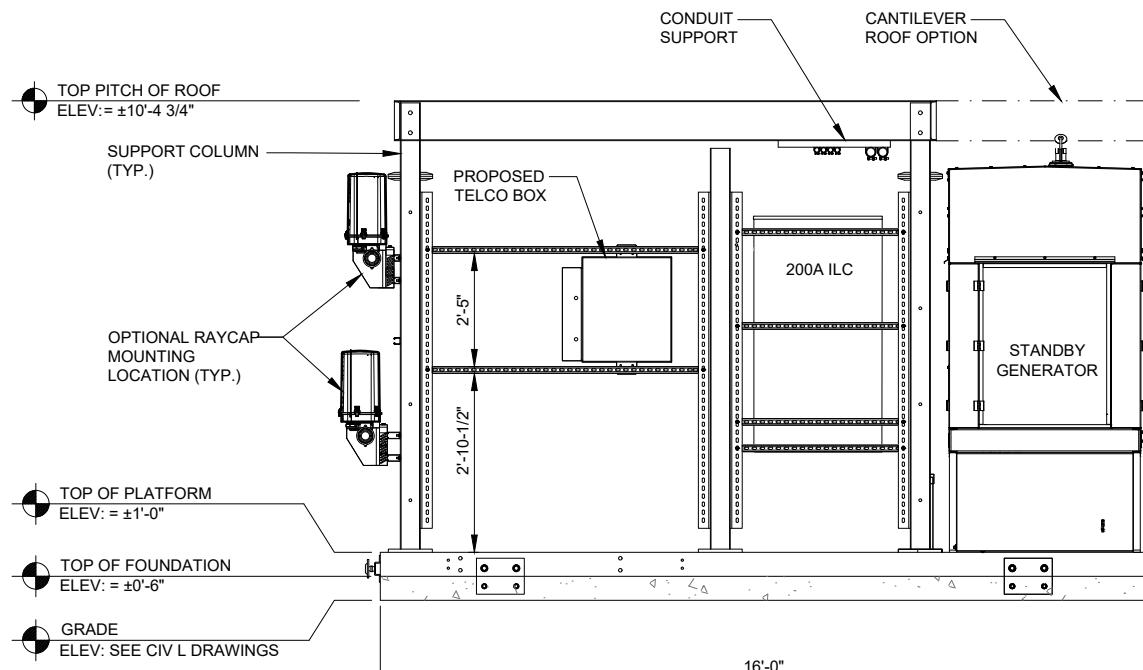
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ORLAND PARK, IL 60462

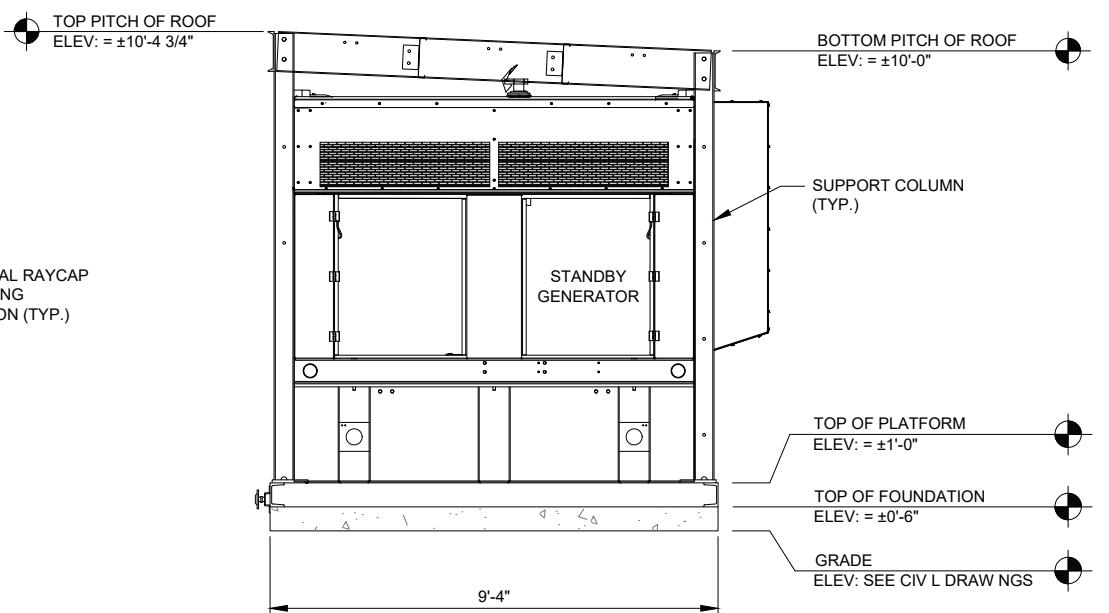
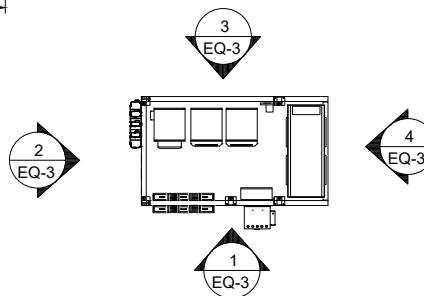
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CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531
SHEET TITLE	
EQUIPMENT PLATFORM ELEVATIONS	

SHEET NUMBER
B-2



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

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



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

NOTE: FOR REFERENCE ONLY

UTILITY NOTES:

WORK INCLUDES:
THESE NOTES AND ACCOMPANYING DRAWINGS COMPLEMENT THE PROVISIONS AND INSTALLATIONS BY THE ELECTRICAL CONTRACTOR, OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS VERIZON WIRELESS SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE PROVISION, INSTALLATION, AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH A BUILDING AND SECONDARY GROUNDING, CELLULAR TELEPHONE COMMUNICATIONS TOWER AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.
2. THE PROVISION AND INSTALLATION OF AN OVERHEAD ELECTRICAL SERVICE OR UNDERGROUND ELECTRICAL SERVICE AND ALL ASSOCIATED WORK AND CONDUIT AS REQUIRED AND/OR INDICATED ON PLANS.
3. THE PROVISION, INSTALLATION OF CONDUIT AND CONNECTIONS FOR LOCAL TELEPHONE SERVICE.
4. THE FURNISHING AND INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE CONDUCTORS, CONDUITS, METER SOCKET, AND CONNECTIONS TO THE SERVICE EQUIPMENT WITHIN THE ENCLOSURE.
5. TWO NCH (2") AND THREE NCH (3") DIAMETER PVC CONDUITS SCHEDULE 40.
6. ALL PVC CONDUITS SHOULD BE LEFT WITH NYLON PULL CORD FOR FUTURE USE.
7. EXCAVATION, TRENCHING, AND BACKFILLING FOR CONDUIT(S), CABLE(S), AND EXTERNAL GROUNDING SYSTEM.

CODES, PERMITS, AND FEES:

1. ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL FEES FOR SAME PAID BY CONTRACTOR.
2. THE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES: STATE, LOCAL AND NATIONAL, AND THE DESIGN, PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATIONS OF THE FOLLOWING AUTHORITIES:

N.E.C.	NATIONAL ELECTRIC CODE
A.N.S.I.	AMERICAN NATIONAL STANDARDS INSTITUTE
I.E.E.E.	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
A.S.T.M.	AMERICAN SOCIETY FOR TESTING MATERIALS
N.E.M.A.	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
U.L.	UNDERWRITERS LABORATORIES, INC.
N.F.P.A.	NATIONAL FIRE PROTECTION ASSOCIATION

RACEWAYS 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. PROVIDE JUNCTION AND PULLBOXES FOR CONDUIT RUNS WITH MORE THAN (360) DEGREES OF BENDS.
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.
6. ELECTRICAL PANELBOARD SHALL BE FURNISHED AND INSTALLED BY OTHERS. ELECTRICAL CONTRACTOR SHALL FILL VERIFY EXACT LOCATION.
7. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.

GENERAL NOTES:

SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, COORDINATION, AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO ENGINEER BEFORE SUBMITTING BID. ALL EQUIPMENT FURNISHED BY OTHERS (FOB) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WIRE DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FOB) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

COORDINATION WITH UTILITY COMPANY:

THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANY FOR A COMPLETE OPERATING SYSTEM, INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS, IF REQUIRED, METER SOCKETS, PRIMARY CABLE RACEWAY REQUIREMENTS, SECONDARY SERVICE, ETC. PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE BID ANY OPTIONAL OR EXCESS FACILITY CHARGES ASSOCIATED WITH PROVIDING ELECTRICAL SERVICE FROM LOCAL UTILITY COMPANY. VERIFY BEFORE BIDDING TO INCLUDE ALL COSTS. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE AVAILABLE FAULT CURRENT WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING BID. ADJUST A.C. RATINGS OF ALL OVER CURRENT PROTECTION DEVICES IN DISTRIBUTION EQUIPMENT AS REQUIRED TO COORDINATE WITH AVAILABLE FAULT CURRENT FROM LOCAL UTILITY COMPANY. ALL GROUNDBREAKING RODS PROVIDED BY THE POWER OR TELEPHONE UTILITY COMPANIES MUST BE TIED INTO THE MAIN EXTERNAL GROUND RING.

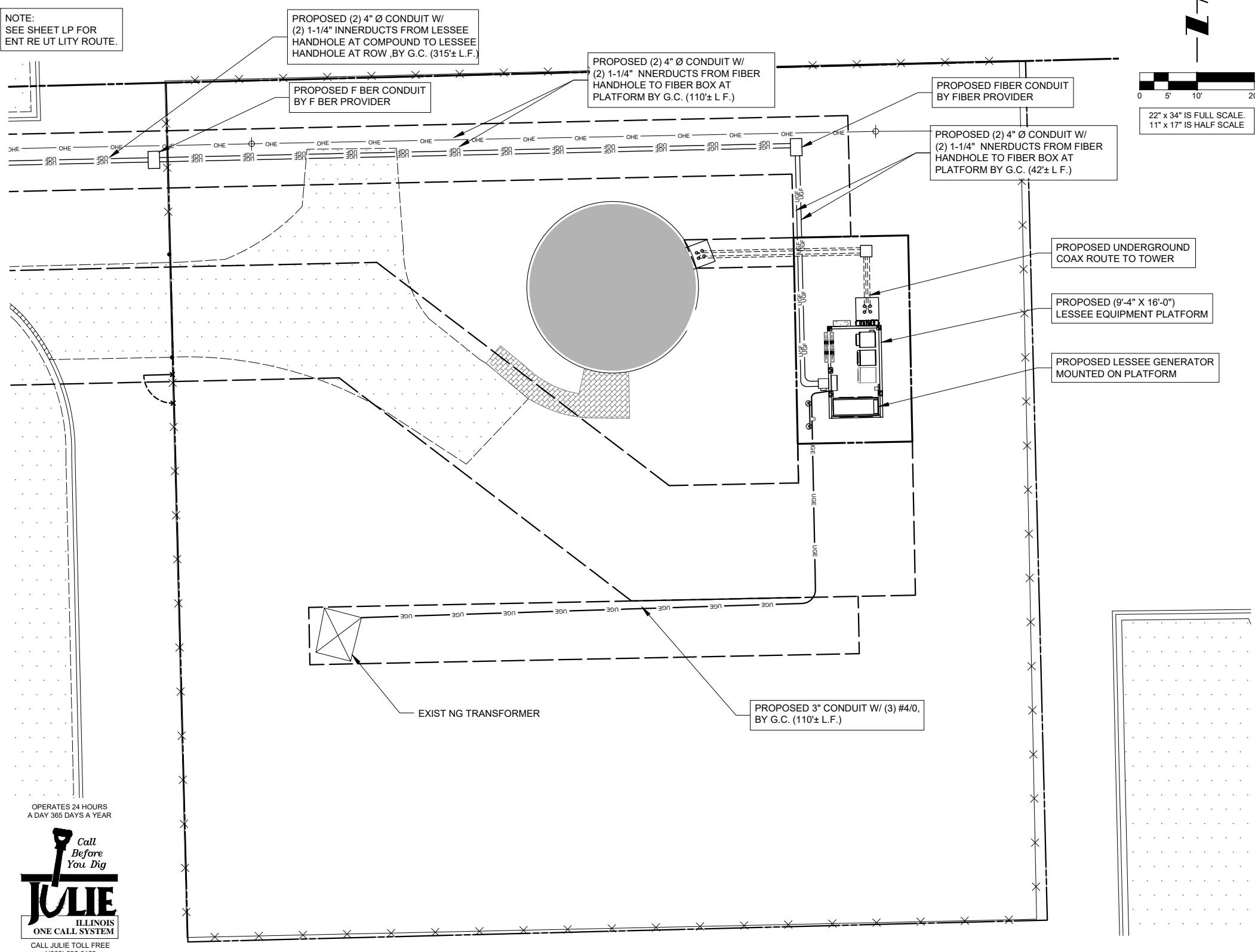
UTILITY CONTACTS:

POWER: COMED
WARREN TAYLOR (708) 235-2328
ACCT # 03540-83159

FIBER: ONEFIBER
ALLEN BROTHERSON
(630) 464-1590

ELECTRICAL CONTRACTOR SHALL COORDINATE WITH POWER COMPANY FOR ENTRY INTO FENCED AREA BY EITHER MAILING A KEY TO A SLAVE LOCKED CHAIN AT THE FENCE GATE OR CALLING AND LEAVING A COMBINATION.

FOR CONTINUATION AND CONNECTION OF ELECTRIC AND FIBER SERVICE.
COORDINATE WITH ELECTRIC AND FIBER COMPANY.





REVISIONS	
NO	DESCRIPTION
-	ISSUED FOR REVIEW
1	ISSUED FOR FINALS
2	UPDATE CABLE LENGTHS
	DATE BY
	12/22/17 DMS
	01/22/18 JTM
	02/02/18 JTM

LOC. # 187771

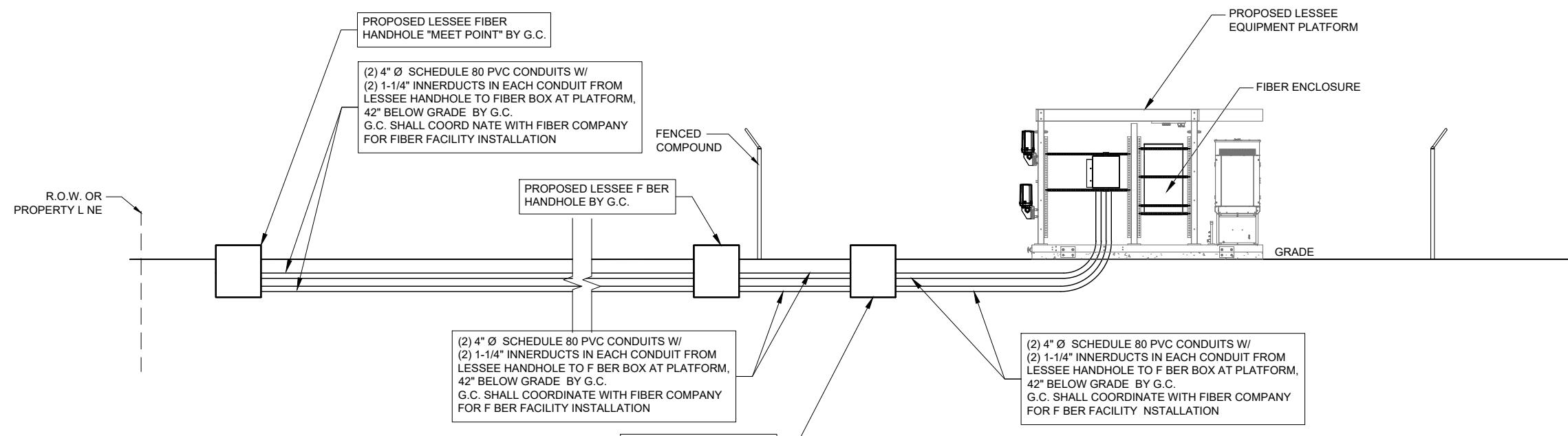
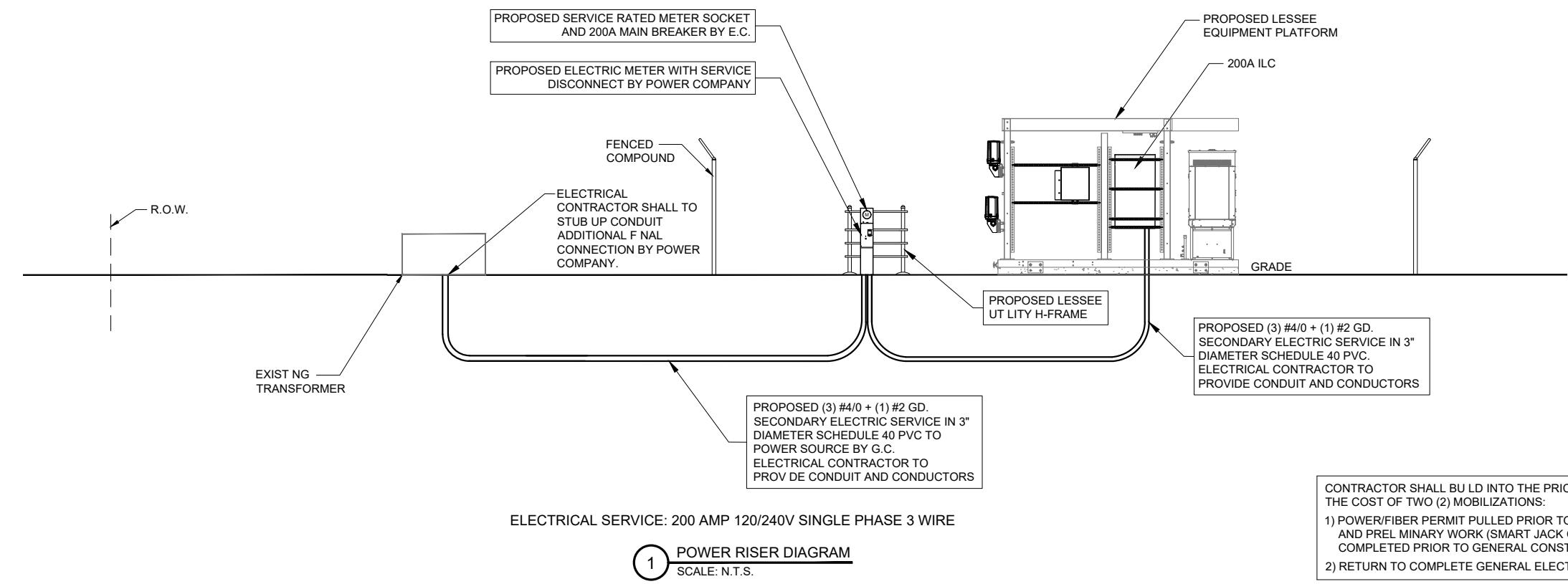
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15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: DMS
CHECKED BY: TAZ
DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
UTILITY RISER
DIAGRAMS

SHEET NUMBER
E-1A

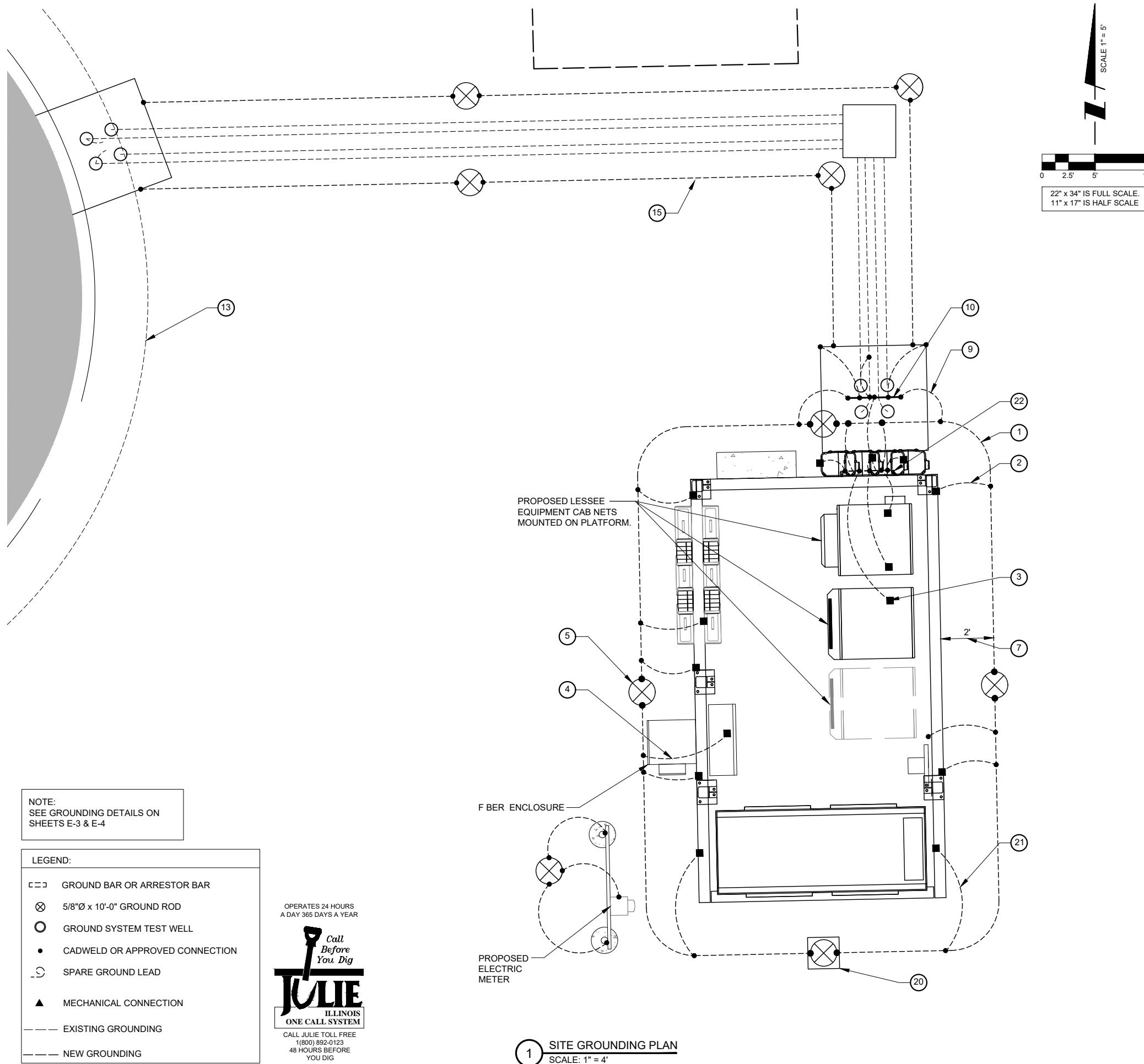


GROUNDING ELECTRODE SYSTEM NOTES:

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC PROCESS CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, ETC. ALL CABLE TO GROUND RODS, GROUND RODS SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY PM. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE BY EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES. GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.
2. ALL EXOTHERMIC CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF SHERWIN-WILLIAMS GALVITE (WHITE) PAINT B50W3 (OR EQUAL) OR SHERWIN-WILLIAMS SILVERBRITE (ALUMINUM) B59S11 (OR EQUAL).
3. ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION
4. FENCE/GATE: GROUND FENCE POSTS WITHIN 6 FEET OF PLATFORM AND 25 FEET OF TOWER AS INDICATED ON DRAWINGS. GROUND EACH GATE POST AND CORNER POST. GROUND CONNECTIONS TO FENCE POSTS SHALL BE MADE BY THE EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE EXOTHERMIC PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.
5. UTILITY COMPANY COORDINATION: ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL WORK IS IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY BEFORE SUBMITTING THE BID, THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN THE BID.
6. GROUND TEST: GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY LESSEE STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.
7. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
 1. ONE (1) COPY TO OWNER REPRESENTATIVE
 2. ONE (1) COPY TO ENGINEER
 3. ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE

TYPICAL KEYED GROUNDING NOTES △

- 1 #2 AWG TNND SOLID BARE COPPER CONDUCTOR 42" BELOW GRADE (TYPICAL) MINIMUM 24" BENDING RADIUS
- 2 PLATFORM CORNER POST, STEEL COLUMN, STEEL BEAM & CANOPY GROUND
- 3 CAB NET GROUNDED TO UNIT HOUSING
- 4 DISCONNECT AND ELECTRIC SERVICE GROUND TO GROUND ROD
- 5 5/8" x 10' COPPER CLAD GROUND ROD
- 6 GROUND CHAIN LINK FENCE (TYPICAL) EXOTHERMIC CONNECTION (TYPE VS) GROUND FENCE POSTS WITHIN 6 FEET OF PLATFORM AND 25 FEET OF TOWER. (SEE DATA L, SHEET E-5.)
- 7 MAINTAIN TWO FOOT DISTANCE OFF OF STRUCTURES.
- 8 GROUND COAXIAL ANTENNA CABLES TO GROUND BAR BY ANTENNA CONTRACTOR TERM NATE CABLES 1'-0" FROM PLATFORM AND INSTALL LIGHTNING SURGE ARRESTORS ON EACH CABLE GROUND.
- 9 EXOTHERMICALLY WELD COPPER GROUND BAR TAIL TO HALO GROUND RING (EXOTHERMIC CONNECTION TYPE TA) BY ANTENNA CONTRACTOR. FINAL CONNECTION BY ELECTRICAL CONTRACTOR.
- 10 4"X20"X1/4" TNND INSULATED COPPER GROUND BAR, NON ISOLATED WITH 10' LONG #2 AWG TNND SOLID COPPER WIRE WELDED TA LS (HARGER GBIT 14420VW)
- 11 GROUND CABLE WAVEGUIDE BRIDGE (TYP.) BY ELECTRICAL CONTRACTOR.
- 12 PROPOSED PERIPHERAL GROUND RING SHOULD BE INSTALLED 1' TO 2' INSIDE THE FENCE LINE. THE TOWER GROUND RING SHOULD BE INSTALLED A MINIMUM 2' OFF OF ANY STRUCTURES.
- 13 EXISTING TOWER OR COMPOUND GROUND RING (V.I.F.)
- 14 GATE JUMPERS (SEE DATA L, SHEET E-4)
- 15 BOND EXISTING/ PROPOSED TOWER GROUND RING TO PROPOSED PLATFORM GROUND RING WITH #2 AWG TNND SOLID COPPER CONDUCTOR IN 2 LOCATIONS.
- 16 TWO #2 LEADS FROM THE EGR TO THE GROUND BAR AT UTILITY FRAME LOCATED ON PLATFORM STEEL. CADWELD AT EGR AND DOUBLE HOLE LUGS ON PLATFORM.
- 17 BOND RAYCAP TO MGB.
- 18 EACH TOWER FOUNDATION REBAR MESH/CAGE TO BE BONDED TO TOWER GROUND RING WITH #2 TINNED SOLID COPPER CONDUCTOR
- 19 EACH TOWER FOUNDATION TO HAVE AT LEAST ONE ANCHOR BOLT BONDED TO TOWER GROUND RING WITH #2 TINNED SOLID COPPER CONDUCTOR
- 20 COPPER CLAD GROUND ROD WITH INSPECTION WELL TOP OF GROUND ROD MAX 24" BURY.
- 21 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.
- 22 MGB MOUNTED UNDER PERIMETER BEAM



CHICAGO SNSA
limited partnership
d/b/a VERIZON WIRELESS



REVISIONS	
NO	DESCRIPTION
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	12/22/17 DMS
	01/22/18 JTM
	02/02/18 JTM

LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

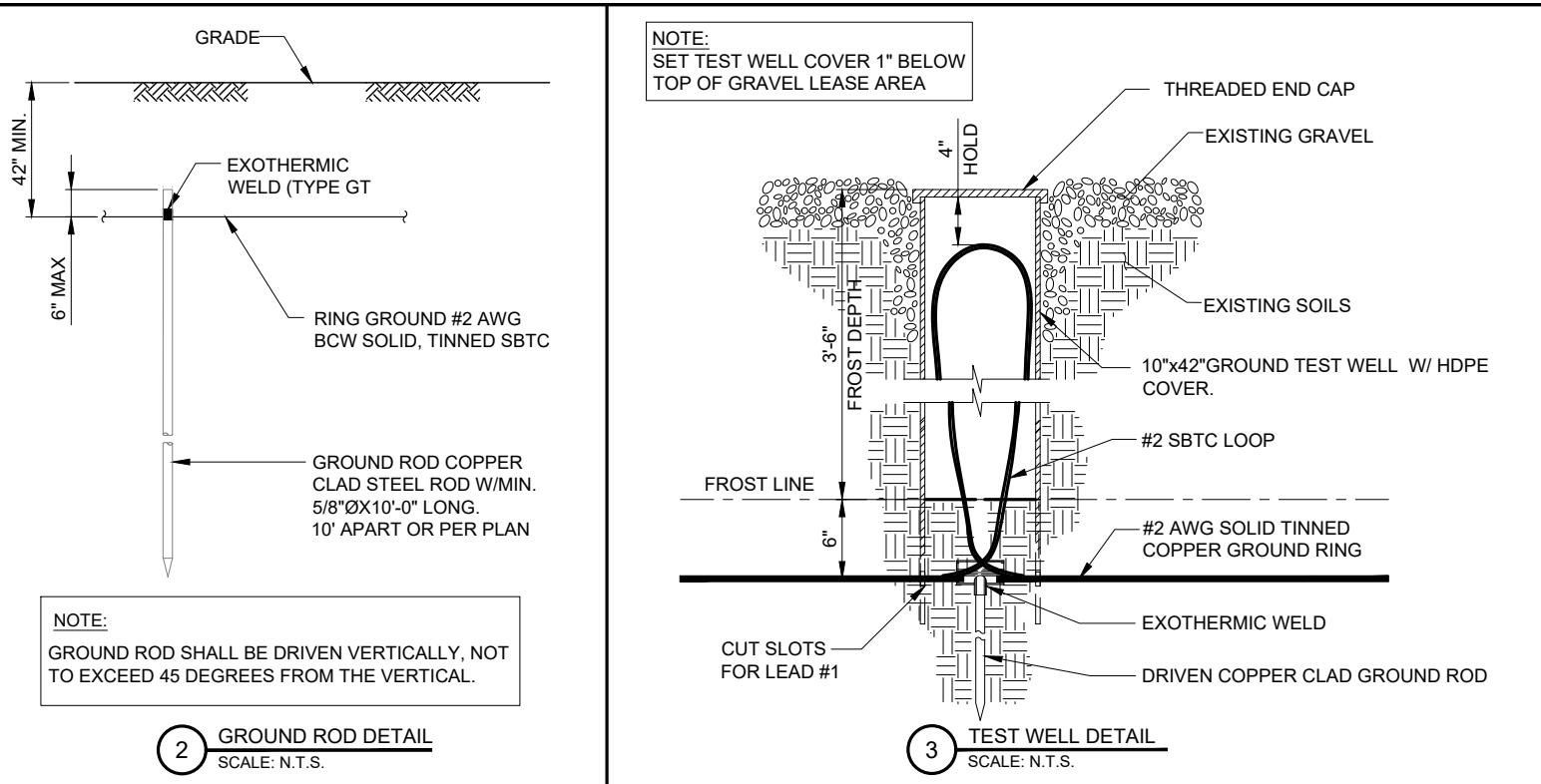
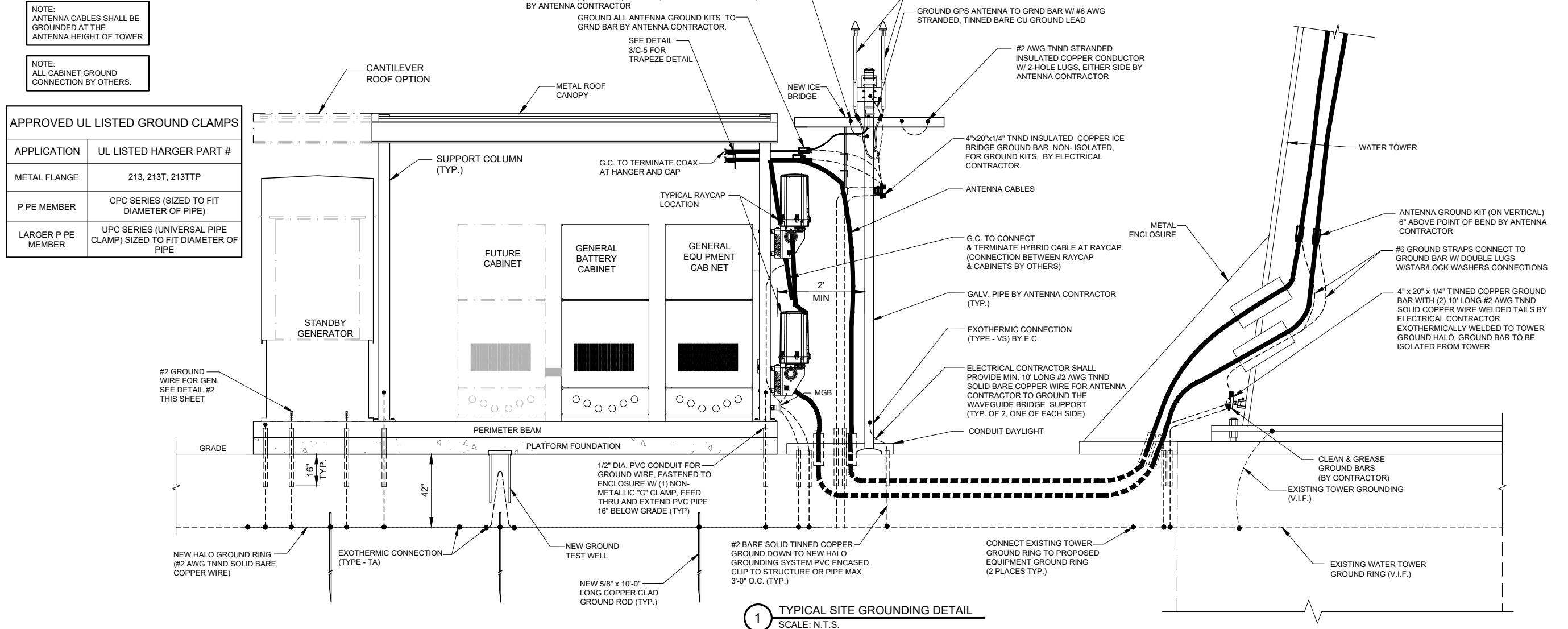
DRAWN BY: DMS
CHECKED BY: TAZ
DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
SITE
GROUNDING PLAN

SHEET NUMBER
E-2



REVISIONS	
NO	DESCRIPTION
-	ISSUED FOR REVIEW
1	DATE 12/22/17 BY DMS
2	ISSUED FOR FINALS 01/22/18 JTM
	UPDATE CABLE LENGTHS 02/02/18 JTM



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ORLAND PARK, IL 60462

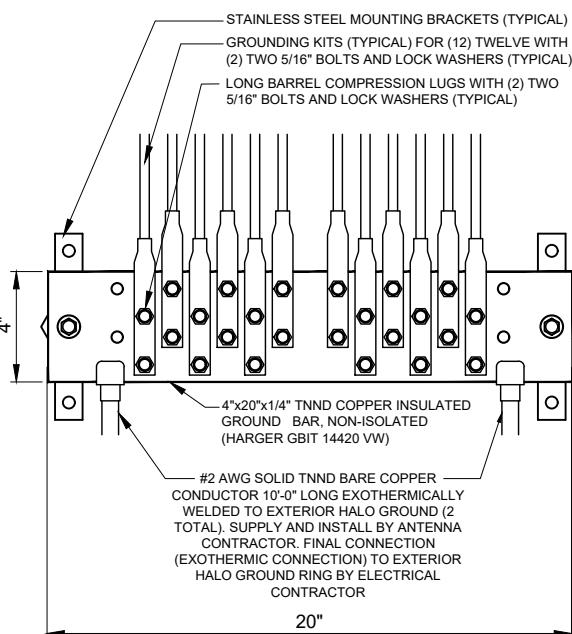
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DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-3

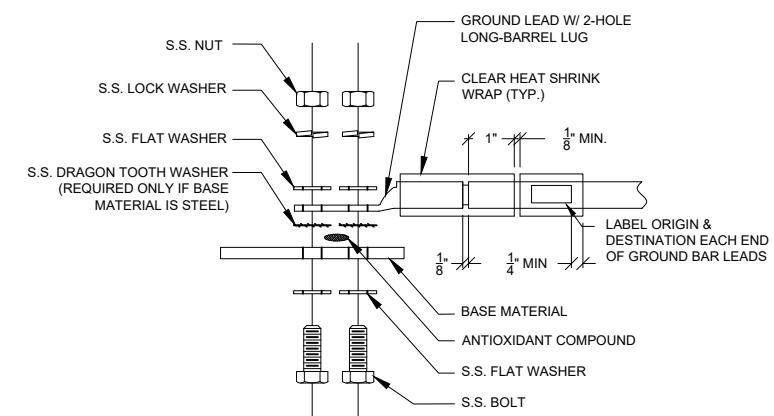
GROUNDING ELECTRODE SYSTEM NOTES:

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC PROCESS CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, ETC. ALL CABLE TO GROUND RODS, GROUND RODS SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY PM. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE BY EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES. GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.
2. ALL EXOTHERMIC CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF SHERWIN-WILLIAMS GALVITE (WHITE) PAINT B50W3 (OR EQUAL) OR SHERWIN- WILLIAMS SILVERBRITE (ALUMINUM) B59S11 (OR EQUAL).
3. ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION
4. FENCE/GATE: GROUND FENCE POSTS WITHIN 6 FEET OF ENCLOSURE AND 25 FEET OF TOWER AS INDICATED ON DRAWINGS. GROUND EACH GATE POST AND CORNER POST. GROUND CONNECTIONS TO FENCE POSTS SHALL BE MADE BY THE EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE EXOTHERMIC PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.
5. AFTER INSTALLATION OF THE CANOPY AT THE DOOR, GC/EC IS TO BOND THE CANOPY TO THE DOOR FRAME WITH A #2 CONDUCTOR. USE DOUBLE-LUG CONNECTION. PREP AND PAINT SURFACE TO MATCH AFTER INSTALLATION.
6. UTILITY COMPANY COORDINATION: ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL WORK IS IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY BEFORE SUBMITTING THE BID, THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN THE BID.
7. GROUND TEST: GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY LESSEE STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.
8. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
 1. ONE (1) COPY TO OWNER REPRESENTATIVE
 2. ONE (1) COPY TO ENGINEER
 3. ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE



1 EXTERIOR GROUND BAR DETAIL
N.T.S.

- NOTES:
1. ALL HARDWARE 18-8 STALESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MAT NG.
 2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.
 3. GROUND BARS, INSTALL BOLT HEAD TOWARD WALL
 4. ENCLOSURES, INSTALL BOLT HEAD ON OUTSIDE OF ENCLOSURE



2 GROUND LUG INSTALLATION DETAIL
N.T.S.

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	12/22/17	DMS
1	ISSUED FOR FINALS	01/22/18	JTM
2	UPDATE CABLE LENGTHS	02/02/18	JTM

LOC. # 187771

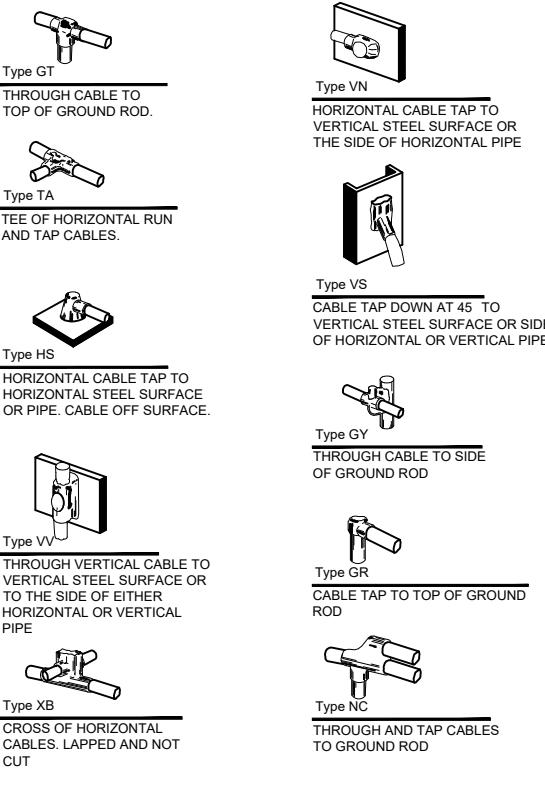
RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY:	DMS
CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531

SHEET TITLE
GROUNDING DETAILS

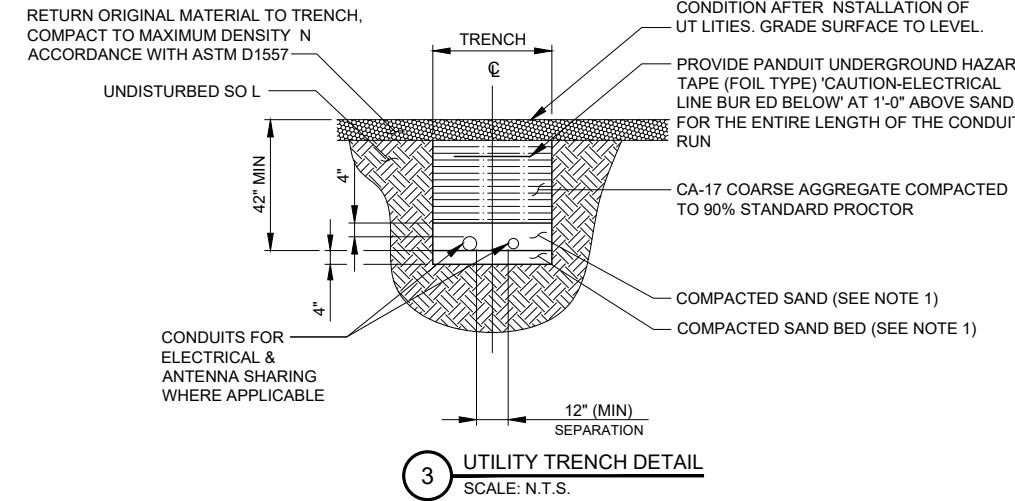
SHEET NUMBER
E-4



3 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL

CHICAGO SWSA
limited partnership
d/b/a VERIZON WIRELESS





VERIZON WIRELESS PANEL "A" SCHEDULE					
MAIN: 200/2		VOLTAGE: 120/240		PHASE: 1 WIRE: 3	
TO AUTOMATIC TRANSFER SWITCH				200A	
DESCRIPTION	BRKR.	WATTS	S _G	A	B
RECTIFIER 1	20/1	1000	1		
RECTIFIER 2	20/1	1000	3		
RECTIFIER 3	20/1	1000	5		
RECTIFIER 4	20/1	1000	7		
SPACE			9		
SPACE			11		
SPACE			13		
SPACE			15		
SPACE			17		
SPACE			19		
SPACE			21		
SPACE			23		
SPACE			25		
SPACE			27		
SPACE			29		
EXTERIOR LIGHTS *	20/1	1800	31		
GFCI RECEPTACLE *	20/1	1800	33		
GEN BATTERY CHARGER *	20/1	1800	35		
			34	1800	20/1
			36	1850	20/1
					SURGE ARRESTOR
SURFACE MOUNTED NEMA 3R w/DOOR 22K AIC BREAKERS (CONTRACTOR SHALL VERIFY AIC RATINGS W/LOCAL POWER CO.)					

NOTE:
1. VERIZON WIRELESS EQUIPMENT
ENGINEERING TO SUPPLY BREAKER
FOR RADIO AND POWER CAB NETS
2. GENERAL CONTRACTOR TO SUPPLY
BREAKERS NOTED WITH *

4 PANEL BOARD SCHEDULE
N.T.S.

REVISIONS	
NO.	DESCRIPTION
-	ISSUED FOR REVIEW
1	ISSUED FOR FINALS
2	UPDATE CABLE LENGTHS
	02/02/18

LOC. # 187771

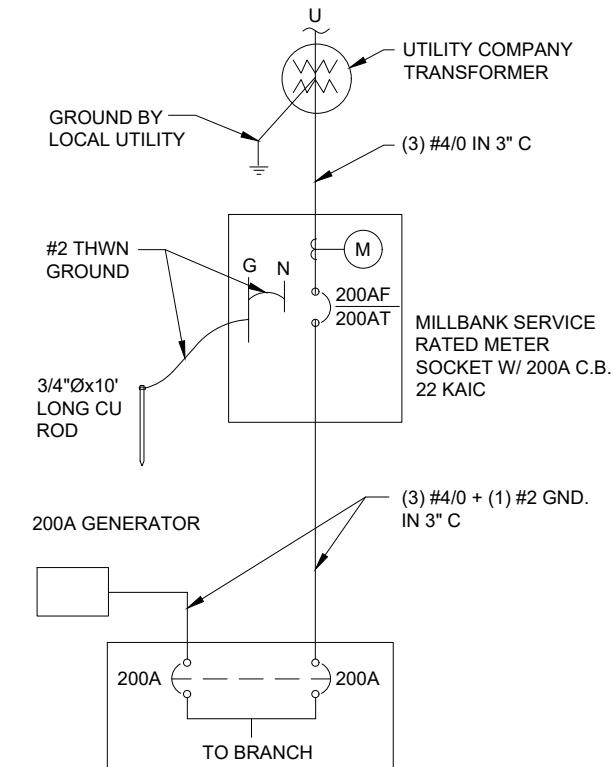
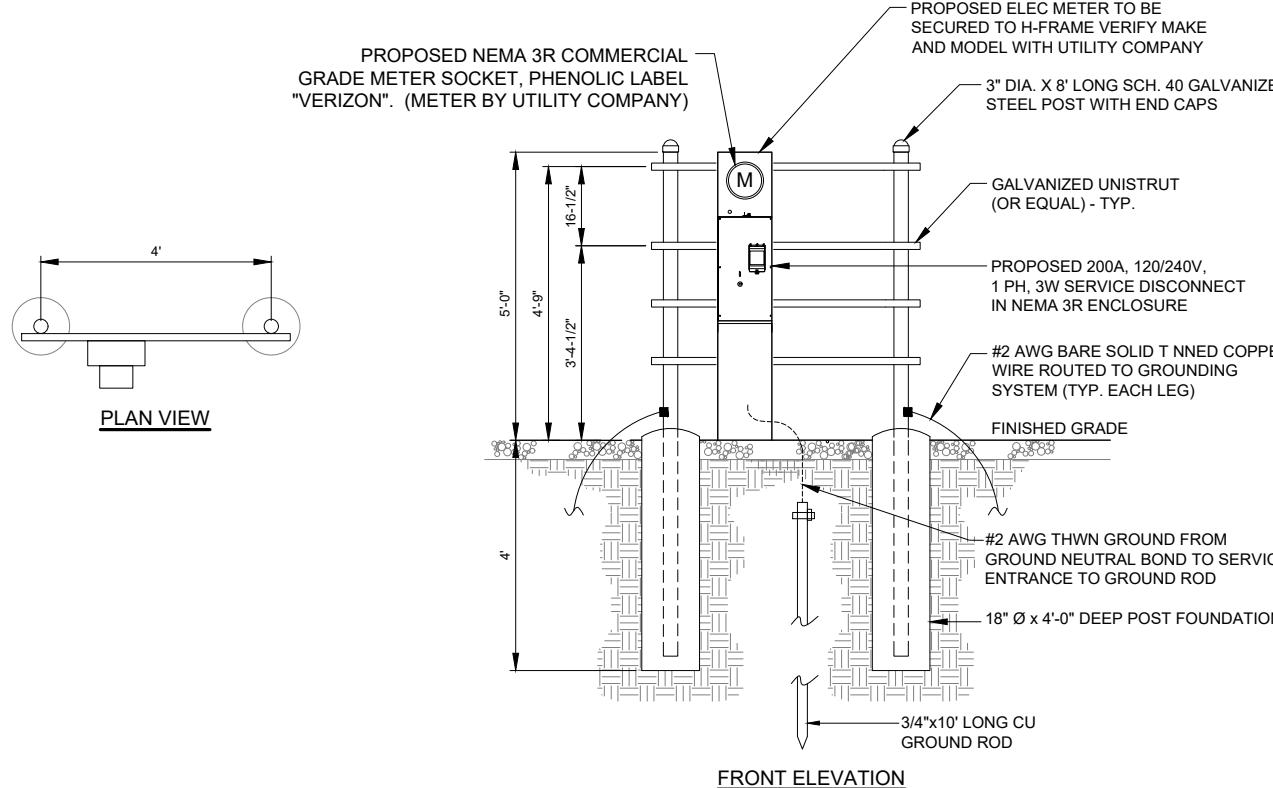
RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: DMS
CHECKED BY: TAZ
DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-5



CHICAGO SMC
limited partnership
d/b/a VERIZON WIRELESS





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

DIVISION 1: GENERAL REQUIREMENTS
SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

A. OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES.

B. SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND SIMILAR FINAL RECORD INFORMATION.

C. COMPLETE FINAL CLEAN UP REQUIREMENTS. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

PART 2 - FINAL CLEANING

1. COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.

a. CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS, RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN-TEXTURED SURFACE.

b. REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE

c. REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.

d. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT-FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.

e. REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING ROOFS, EQUIPMENT ENCLOSURE, MANHOLES, AND SIMILAR SPACES.

f. TOUCH-UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER "UL" AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.

g. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY

2. REMOVAL OF PROTECTION: REMOVE TEMPORARY PROTECTION AND FACILITIES INSTALLED DURING CONSTRUCTION TO PROTECT PREVIOUSLY COMPLETED INSTALLATIONS DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.

DIVISION 2: SITE WORK

SECTION 02200 - EARTHWORK AND DRAINAGE

PART 1 - GENERAL

1. WORK INCLUDED: SEE SITE PLAN.

2. SEQUENCING

a. CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG EAST FENCE LINE.
b. GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS) IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION, WATER TO ENSURE GROWTH

PART 2 - EXECUTION

1. INSPECTIONS: LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.

2. PREPARATION

a. CLEAR TREES, BRUSH AND DEBRIS FROM SITE AS REQUIRED.
b. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX INCHES (6") BELOW GRADE.
c. UNLESS OTHERWISE INSTRUCTED BY OWNER, TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
d. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
e. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.

3. INSTALLATION

a. GRADE OR FILL THE SITE AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SOILS, RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
b. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
c. AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
d. THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
e. PLACE FILL OR STONE IN SIX INCH (6") MAXIMUM LIFTS, AND COMPACT BEFORE PLACING NEXT LIFT.
f. THE TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF ONE FOOT (1') BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
g. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAP.

h. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SHELTER OR EQUIPMENT. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.

i. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAP.
j. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SHELTER OR EQUIPMENT. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.

k. IN DITCHES WITH SLOPES GREATER THAN 10% MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAN THAT 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX FEET (6') ABOVE THE CULVERT ENTRANCE.

i. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
m. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
n. ENSURE GROWTH OF SEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

4. FIELD QUALITY CONTROL: COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS-BUILT DRAWINGS.

5. PROTECTION
a. PROTECT SEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1-2 INCHES, STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATIVE.

b. PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

SECTION 02830 - FENCING AND GATE(S)

PART 1 - GENERAL

1. WORK INCLUDED - SEE PLAN FOR SITE AND LOCATION OF FENCE

2. QUALITY ASSURANCE

a. ALL STEEL MATERIALS UTILIZED IN CONJUNCTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FABRIC SHALL NOT BE LESS THAN 12 OUNCES PER SQUARE FOOT OF MATERIAL COVERED. POSTS SHALL BE HOT-DIPPED IN GRADE "E" ZINC, 18 OUNCES PER SQUARE FOOT.

3. SEQUENCING
a. IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION (PRIOR TO THE FENCE CONSTRUCTION), FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.

4. SUBMITTALS
a. MANUFACTURER'S DESCRIPTIVE LITERATURE.
b. CERTIFICATE OR STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS.

PART 2 - PRODUCTS

1. FENCE MATERIAL

a. ALL FABRIC WIRE, RAILS, HARDWARE, AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
b. FABRIC SHALL BE SEVEN-FOOT (7') HIGH OR TO MATCH EXISTING FENCE TWO-INCH CHAIN LINK MESH OF NO. 9 GAUGE (0.148") WIRE. THE FABRIC SHALL HAVE A KNUCKLED FINISH FOR THE TOP SELVAGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS 1.
c. ALL POSTS SHALL BE SCHEDULE - 40 MECHANICAL SERVICE PIPE AND SHALL BE TYPE 1 ASTM A-128 AND OF THE FOLLOWING DIAMETER
i. LINE 2" SCHEDULE 40 (2 3/8" O.D.)
ii. CORNER 3" SCHEDULE 40 (3 1/2" O.D.)
iii. GATE 3" SCHEDULE 40 (3 1/2" O.D.)
d. ALL TOP AND BRACE RAILS SHALL BE 1 DIAMETER SCHEDULE - 40 MECHANICAL - SERVICE PIPE.
e. GATE FRAMES AND BRACES SHALL BE 1.90 INCH DIAMETER SCHEDULE 40 MECHANICAL - SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
f. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE, AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.
g. GATE HINGES SHALL BE MERCHANTS METAL MODEL 64386 HINGE ADAPTER WITH MODEL 6409, 188-DEGREE ATTACHMENT.
h. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
i. A SIX-INCH BY 1/2-INCH DIAMETER EYEBOLT TO HOLD TENSION WIRE SHALL BE PLACED AT LINE POSTS.
j. STRETCHER BARS SHALL BE 3/16-INCH BY 3/4-INCH OR HAVE EQUIVALENT CROSS-SECTIONAL AREA.

k. ALL CORNER GATE AND PANELS SHALL HAVE A 3/8-INCH TRUSS ROD WITH TURNBUCKLES.

i. ALL POST EXCEPT GATE POSTS SHALL HAVE A COMBINATION CAP AND BARBED WIRE SUPPORTING ARM. GATE POSTS SHALL HAVE A DOME CAP.
m. OTHER HARDWARE INCLUDES BUT MAY NOT BE LIMITED TO TIE CLIPS, BAND CLIPS, AND TENSION BAND CLIPS.
n. ALL CAPS SHALL BE MALLEABLE IRON, DOME OR ACORN SHAPED AS REQUIRED BY PIPE SIZE.

PART 3 - EXECUTION

1. INSPECTION: TO CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES WILL BE EXCAVATED AS PER CONSTRUCTION DOCUMENTS.

2. INSTALLATION

a. FOUNDATIONS SHALL HAVE A MINIMUM SIX INCH (6") CONCRETE COVER UNDER POST.
b. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB; ON QUARTER INCH (1/4")
c. AT CORNER POSTS, GATE POSTS, AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
d. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
e. FABRIC SHALL BE ATTACHED TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE-CLIPS AT TWO FOOT (2') INTERVALS.
f. A MAXIMUM GAP OF ONE INCH WILL BE PERMITTED BETWEEN TIE CHAIN LINE FABRIC AND THE FINAL GRADE.
g. GATE SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
h. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
i. CONCRETE TO BE A MINIMUM OF 4,000 PSI AT 7 DAYS. CEMENT SHALL EXCEED ASTM C150, TYPE IIIA.

3. PROTECTION: UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT, COLOR TO MATCH THE GALVANIZED METAL. APPLICABLE STANDARDS:

ASTM-A120 SPECIFICATION FOR PIPE, STEEL, BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.

ASTM-A123 ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.

ASTM-A153 STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.

ASTM-A392 SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.

ASTM-A491 SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN LINK FENCE FABRIC.

ASTM-A525 STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS.

ASTM-A570 SPECIFICATION FOR HOT-ROLLED CARBON STEEL SHEET AND STRIP. STRUCTURAL QUALITY.

A. FEDERAL SPECIFICATION RR-F-191-FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC, AND ACCESSORIES)

DIVISION 3: CONCRETE

SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1 - GENERAL

1. WORK INCLUDED: FORMWORK, REINFORCEMENT, ACCESSORIES, CAST-IN-PLACE CONCRETE, FINISHING, AND CURING.

2. INSPECTIONS

a. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.
b. ALL REINFORCING STEEL SHALL BE INSPECTED AND APPROVED BY THE LESSEE'S CONSTRUCTION MANAGER PRIOR TO PLACEMENT OF CONCRETE.
c. THE LESSEE'S CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.

3. QUALITY ASSURANCE

a. CONSTRUCT AND ERECT CONCRETE FORMWORK IN ACCORDANCE WITH ACI 301 AND ASTM 318.
b. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ASTM A184.
c. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 117-90.
d. OPEN FOUNDATION TRENCHES SHALL BE INSPECTED BY MES PRIOR TO CONCRETE INSTALLATION.

4. SUBMITTALS: SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY LESSEE CONSTRUCTION MANAGER/ENGINEER. THE SHOP DRAWING SHALL BE SUBMITTED IN THE FORM OF TWO (2) CONCRETE MIX DESIGN INFORMATION SHEETS AND TWO (2) BLUELINE DRAWINGS FOR REINFORCING STEEL.

PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS

a. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
b. WELDED STEEL WIRE FABRIC ASTM A185 PLAIN TYPE IN FLAT SHEETS, PLAIN FINISH.
c. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS. SIZED AND SHAPED FOR SUPPORTS OR REINFORCING.

d. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 315, ACI 318, ASTM A184.

2. CONCRETE MATERIALS

a. CEMENT: ASTM C150, PORTLAND TYPE
b. FINE AND COURSE AGGREGATES: ASTM C33 - MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED; ONE INCH (1") SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR ONE-THIRD (1/3) CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.
c. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE
d. AIR ENTRAINING ADMIXTURE: ASTM C260
e. BONDING AGENT: LATEX EMULSION FOR BONDING NEW TO OLD CONCRETE AS MANUFACTURED BY DAYTON SUPERIOR.
f. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE. CEMENT, WATER REDUCING AND PLASTICIZING AGENTS.

3. CONCRETE MIX

a. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE A.C.I. REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
b. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94, ALT. 3.
c. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
i. COMPRESSIVE STRENGTH: 4000 psi AT 7 DAYS. SEE SHEET 2-1 FOR CAISSON CONCRETE COMPRESSIVE STRENGTH.
ii. SLUMP: 3 INCHES

PART 3 - EXECUTION

1. INSERTS, EMBEDDED COMPONENTS AND OPENINGS

a. THE CONTRACTOR SHALL COORDINATE AND CROSS-CHECK ARCHITECTURAL, BUILDING & ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATION BEFORE PLACING CONCRETE.
b. PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
c. COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENING, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
d. INSTALL CONCRETE ACCESSORIES STRAIGHT, LEVEL AND PLUMB.
2. REINFORCEMENT PLACEMENT
a. PLACEMENT REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
b. ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
c. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
d. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE THREE INCHES (3") UNLESS OTHERWISE NOTED.
e. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED THREE INCHES (3") NOR BE LESS THAN TWO INCHES (2").

DIVISION 5: METALS

PART 1 - GENERAL

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

PART 2 - PRODUCTS

- MATERIALS:

A. STRUCTURAL STEEL MEMBERS:	ASTM A572, GRADE 50
B. STRUCTURAL TUBING:	ASTM A500, GRADE B
C. PIPE:	ASTM A53, TYPE E OR S, GRADE B
D. BOLTS, NUTS, AND WASHERS:	ASTM A325
E. ANCHOR BOLTS:	ASTM A307
F. WELDING MATERIALS:	AWS 01.1, TYPE REQUIRED FOR MATERIALS BEING WELDED
G. GROUT:	NON - SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI AT 28 DAYS.
- SHOP AND TOUCH-UP PRIMER: SSPC 15, TYPE 1, RED OXIDE
- TOUCH-UP PRIMER FOR GALV. SURFACES: ZINC RICH TYPE

- FABRICATION:
CONTINUOUSLY SEAL JOINTED MEMBERS BY CONTINOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
- FINISH:
A. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-1 TO SP-10 PROCEDURES.
B. STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 - EXECUTION

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

DIVISION 16: ELECTRICAL

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

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

SECTION 1640 - SERVICE AND DISTRIBUTION

- WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG, COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
- ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
- METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
- CONDUIT:
 - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE $\frac{1}{2}$ LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
 - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.
 - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR SQUEEZE TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
 - ALL UNDERGROUND CONDUIT SHALL BE AS NOTED ON THE DRAWINGS AT A MINIMUM DEPTH OF 42" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY J.U.L.I.E. AT 1-800-892-0123 OR OTHER SUCH NOTIFYING AGENCY FORTY-EIGHT (48) HOURS PRIOR TO DIGGING.
- CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE ONE FORTH INCH (1/4)). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
- GROUNDING ELECTRODE SYSTEM
 - PREPARATION
 - SURFACE PREPARATION:
ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTS SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NO-OXIDIZING GENT APPLIED PRIOR TO INSTALLATION.
 - GROUND BAR PREPARATION:
ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
 - SLEEVES:
ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
 - GROUND BARS
 - ALL GROUND BARS SHALL BE ONE FORTH INCH (1/4" THICK TINNED COPPER PLATE AND OF AND SIZE INDICATED ON DRAWINGS.
 - ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:
A. BOLT-HEAD
B. 2-HOLE LUG
C. TINNED COPPER BUSS BAR
D. STAR WASHER
E. NUT
F. EXTERNAL CONNECTIONS
 - ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADCWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
 - ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE AECG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDIER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.
 - GROUND RODS
 - ALL GROUND RODS SHALL BE 5/8 -INCH DIAMETER X 10' -0" LONG "COPPERWELD" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.
 - GROUND RODS
 - ALL GROUND RODS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.
 - LUGS
 - LUGS SHALL BE 2 - HOLE, LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #548 - BE OR EQUIVALENT

A. 535 MCM DLO	54880BE
B. 262 MCM DLO	54872BE
C. #1/0 DLO	54862BE
D. #4/0 THWN AND BARE	54866BE
E. #2/0 THWN	54862BE
F. #2 THHN	54207BE
G. #6 DLO	54205BE

2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

GROUNDING CONDUCTOR SIZE	MINIMUM BENDING RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 750 MCM	24 INCHES

G. GROUND RING

- THE EXTERNAL GROUND RING ENCIRCLING THE TOWER (IF APPLICABLE) AND BETWEEN BETWEEN THE EQUIPMENT SHELTER PLATFORM ANCHORS SHALL BE MINIMUM NO. 2 A.W.G SOLID TINNED BARE COPPER CONDUCTOR IN DIRECT CONTACT WITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT INCHES (8").

- ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE CADWELDED. NO LUNGS OR CLAMPS WILL BE ACCEPTED.

H. FENCE/GATE

- GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POST AND ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY EXOTHERMIC WELD PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD-GALVANIZED PAINT.

3. I.E.E.E. FALL POTENTIAL TESTS

A. FOR RAW LAND SITE

- GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMETER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81-1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD, USING THE BIDDLE NULL-BALANCE EARTH TESTER (MEGGER #250220-2 OR EQUIVALENT)

- CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:

B. EQUIPMENT PAD

- FIRST TEST - SHALL BE WITH FOUR GROUND RODS INSTALLED, ONE AT EACH CORNER OF THE PAD BUT NOT CONNECTED TO THE MAIN GROUNDING BUS. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL FOUR GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 35 OHMS OR MORE, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL FOUR RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.

- SECOND TEST- SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS. THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.

C. TOWER

- FIRST TEST - SHALL BE WITH THREE GROUND RODS INSTALLED (MINIMUM), EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE SHELTER PAD EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE (3) RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.

- SECOND TEST- SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST (10) DAYS, THE MAXIMUM ALLOWABLE READING IS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/ OR DEEPER RODS CAN BE INSTALLED.

D. EQUIPMENT PAD AND TOWER

- AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT PAD EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST BE MADE USING EXOTHERMIC WELD. NO LUGS OR CLAMPS WILL BE ACCEPTED.
- AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER, COMPETE A MEGGER CHECKER OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE LEADING IS 5 OHMS TO GROUND.

10. GROUNDING RESISTANCE TEST REPORT

UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS AREA OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

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

1. GENERAL

- A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED

- B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.

C. GROUNDING:

GROUND TOWER WITH A MINIMUM OF #2 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE.

NO EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONPOLE TOWER SHAFT

SECTION 16745 - TELECOMMUNICATIONS WIRING COMPONENT
(COAXIAL ANTENNA CABLE)

1. GENERAL

A. ALL MATERIALS, PRODUCTS OR PROCEDURES INCORPORATED INTO WORK SHALL BE NEW AND OF STANDARD COMMERCIAL QUALITY.

B. CERTAIN MATERIALS AND PRODUCTS WILL BE SUPPLIED BY THE OWNER (REFER TO GENERAL CONDITIONS FOR THE LIST OF OWNER FURNISHED EQUIPMENT, MATERIALS AND SUPPLIES FOR THESE ITEMS). THE CONTRACTOR IS RESPONSIBLE FOR PICKUP AND DELIVERY OF ALL SUCH MATERIALS

C. ALL OTHER MATERIALS AND PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE SUPPLIED BY THE CONTRACTOR.

2. MATERIALS

a. COAXIAL CABLE:

- INSTALL COAXIAL CABLE AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS WITH COAXIAL CABLES SUPPORTED AT NO MORE THAN 3'-0" O.C. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE FEET (3') IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.

- ALL COAX RUN LENGTHS GREATER THAN 175 FEET SHALL BE 1-5/8", ALL COAX. RUN LENGTH BETWEEN 101 FEET AND 174 FEET SHALL BE 1-1/4", AND IN LENGTH LESS THAN OR EQUAL TO 100 FEET SHALL BE 7/8".
- ANTENNA AND COAXIAL CABLE GROUNDING
a. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

4. COAXIAL CABLE IDENTIFICATION

- TO PROVIDE EASY IDENTIFICATION AND UNIFORM MARKING OF ANTENNA CABLING, PLASTIC TAGS SHALL BE USED AT THE FOLLOWING LOCATIONS:

- FIRST LOCATION IS AT THE END OF THE COAX NEAREST THE ANTENNA (WHERE THE COAXIAL CABLE AND JUMPER ARE CONNECTED).

- SECOND LOCATION IS INSIDE THE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT.

- USE ANDREW CABLE TIES (PT. # 7290) TO SECURE IDENTIFICATION TAGS.

5. TESTING

- LESSEE SHALL PROVIDE AN INDEPENDENT TESTING AGENCY TO PERFORM THE COAXIAL SWEEP TEST & REPORT. THE CONTRACTOR IS TO PROVIDE ONE CLIMBER / QUALIFIED PERSONNEL TO ASSIST IN ANY REPAIRS AND WEATHERPROOFING ONCE THE TEST IS COMPLETE. THE CONTRACTOR IS TO PROVIDE LESSEE WITH A MINIMUM OF 48 HOURS NOTICE PRIOR TO THE TIME OF THE SWEEP TEST.



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



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



3 EXISTING PAVED ACCESS DRIVE
SCALE: N.T.S.



4 EXISTING DRAINAGE PIPE
SCALE: N.T.S.



5 EXISTING TRANSFORMER
SCALE: N.T.S.



6 EXISTING TELCO PEDESTAL
SCALE: N.T.S.



7 EXISTING METER
SCALE: N.T.S.



8 PROPOSED LESSEE EQUIPMENT LOCATION
SCALE: N.T.S.

REVISIONS

NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	12/22/17	DMS
1	ISSUED FOR FINALS	01/22/18	JTM
2	UPDATE CABLE LENGTHS	02/02/18	JTM

LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY:	DMS
CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531

SHEET TITLE
EXISTING SITE PHOTOS

SHEET NUMBER
P-1

CHICAGO
SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-4501



REVISIONS	
NO	DESCRIPTION
-	ISSUED FOR REVIEW
1	ISSUED FOR FINALS
2	UPDATE CABLE LENGTHS
	02/02/2018

LOC. # 187771

RTE 7 & WEST

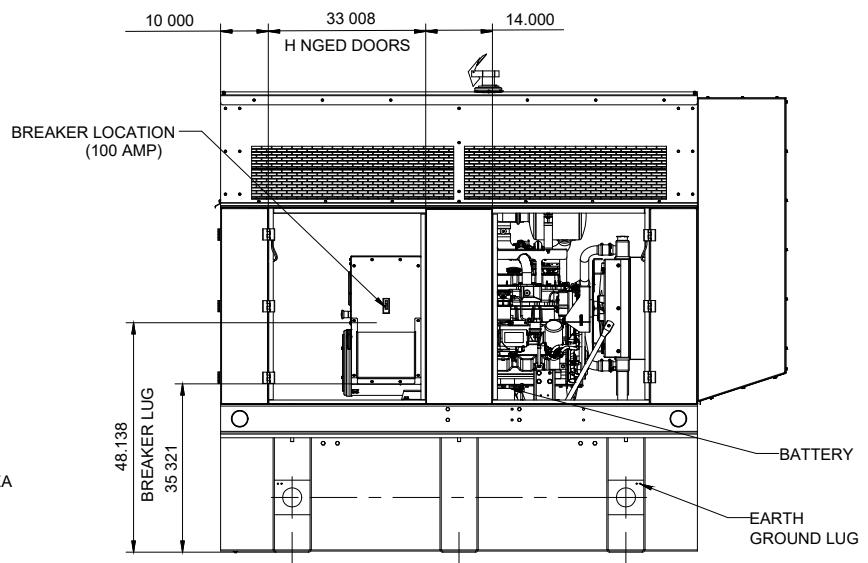
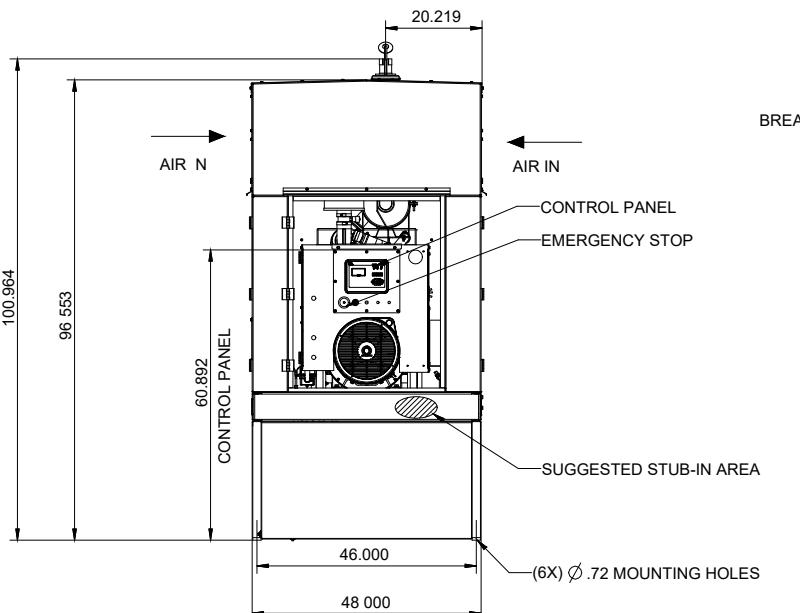
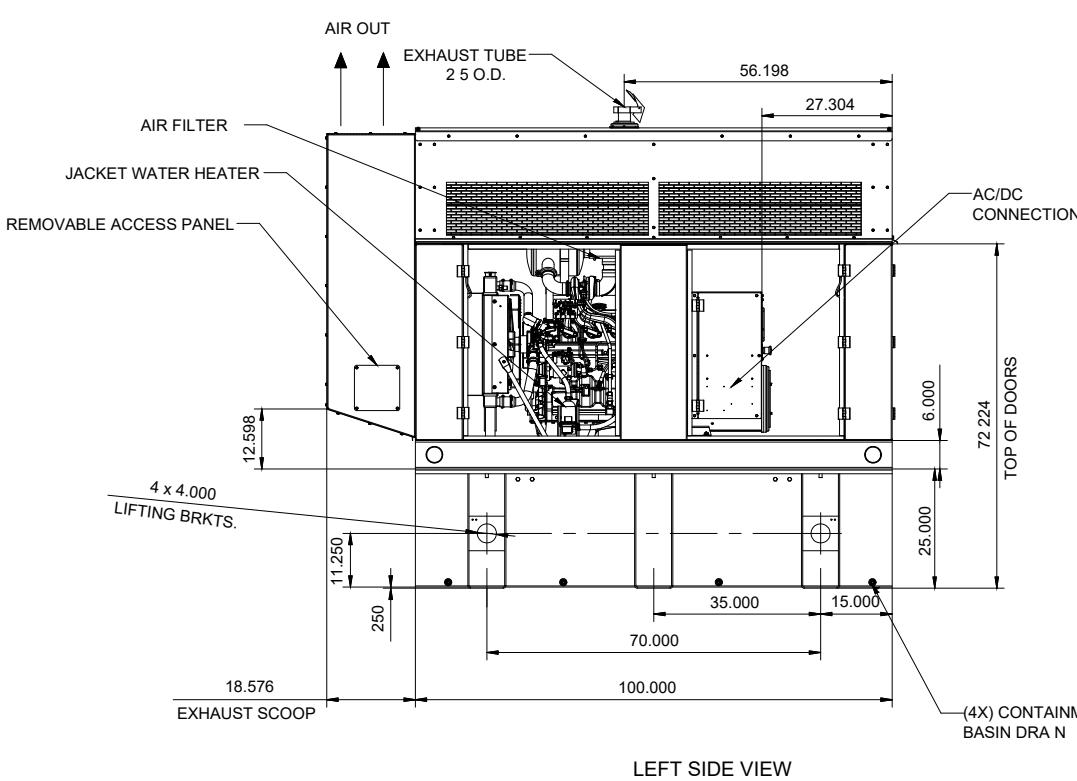
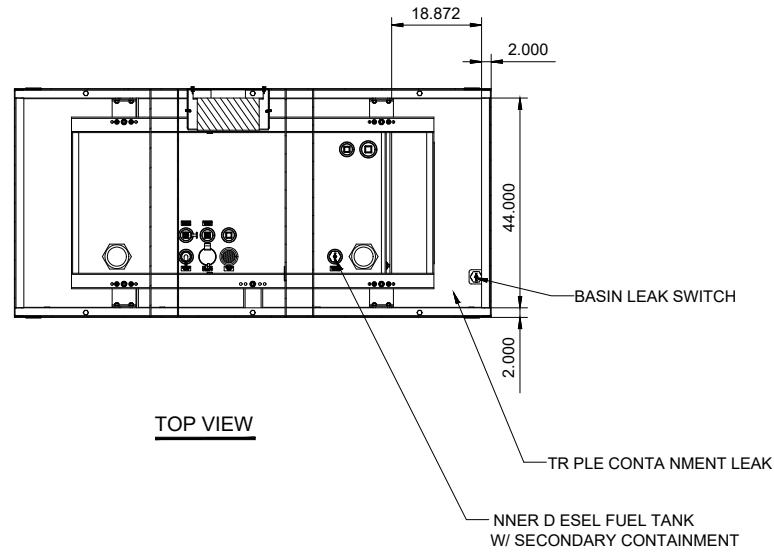
15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: DMS
CHECKED BY: TAZ
DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
GENERATOR DETAILS

SHEET NUMBER

EX-1



NOTE:
1. APPROX MATE WEIGHT (WET): 3920#
2. FUEL TANK: UL LISTED DOUBLE WALL WITH 125% CONTAINMENT
3. FUEL TANK CAPACITY: 210 GALLONS
4. ENCLOSURE: SINGLE SIDE SERVICE RIGHT SIDE, STEEL, 190 MPH WIND RATED
5. SOUND LEVEL: dB(A) AT m
6. VERIZON PART NUMBER
DG03RJ096V1M22

verizon[®]
Radio Frequency Exposure
FCC Compliance Assessment

Pre-Activation Post-Activation

SITE-SPECIFIC-INFO			
Site Name	RTE 7 & WEST	Multi-Licensee Facility	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Street Address	15501 Park Station Blvd.	Is Verizon a Significant Contributor to Co-Locator Areas Requiring Mitigation?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A
City, State, Zip	Orland Park, IL 60461		
Verizon's Max % MPE (Measured - Occupational)	N/A	Verizon's Max % MPE (Predictive - Occupational)	1286.4%
Structure Type	WATERTANK	Assessment Date	N/A
Broadcast (AM/FM/TV)	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Assessment Purpose	MODIFICATION
Total Access Points	2	Total Report Revisions	1
Original Report Date	01/09/2018	Report Revision Date	N/A
Compliance Status	<input type="checkbox"/> COMPLIANT AS DESIGNED <input type="checkbox"/> COMPLIANT PER RF SAFETY PLAN SUBMISSION <input checked="" type="checkbox"/> MITIGATION IS REQUIRED		

VERIZON'S WORST-CASE RF EMISSIONS IN ACCESSIBLE AREAS AT THIS FACILITY

BELOW the General Population MPE limit

ABOVE the General Population MPE limit and BELOW the Occupational MPE limit

ABOVE the Occupational MPE limit and BELOW 10x the Occupational MPE limit

ABOVE 10x the Occupational MPE limit

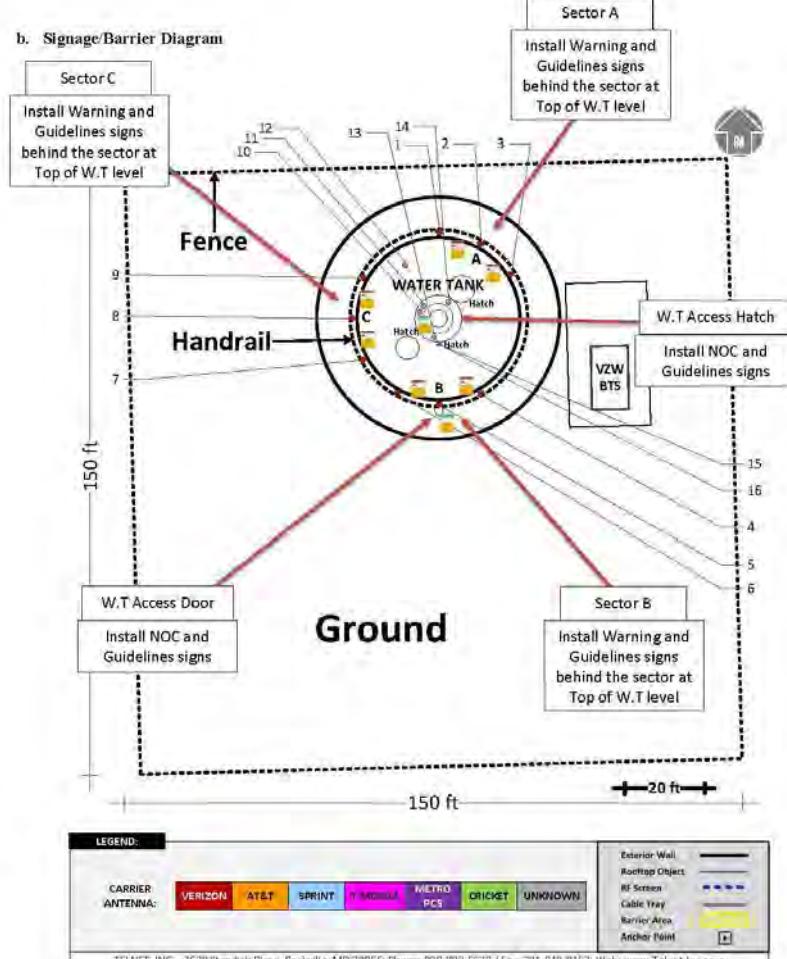
Final Compliant Configuration	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER
Access Point(s)	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> dimensions
Alpha	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Beta	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Gamma	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions

NOTE: The table above represents EVERY compliance item that MUST be implemented at this location: also in Sec. 4 (B)

Additional Compliance Requirements(s):						
N/A						
Consultant Legal Name						
Telnet Inc. Phone/Fax						

Address

7630 Standish Place, Rockville, MD 20855



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Final Compliant Configuration	GUIDELINES	NOTICE	CAUTION	WARNING	INFORMATION	BARRIER/MARKER
Access Point(s)	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> dimensions
Alpha	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Beta	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Gamma	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions

NOTE: The table above represents EVERY compliance item that MUST be implemented at this location.

Mitigation Actions Required/Taken	GUIDELINES	NOTICE	CAUTION	WARNING	INFORMATION	BARRIER/MARKER
Access Point(s)	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]
Alpha	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]
Beta	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]
Gamma	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]

NOTE: The table represents either the signage/barriers installed / removed OR items required by the market (if mitigation is not installed by consultant/vendor).

SPECIAL MITIGATION INSTRUCTIONS						
Items to be Installed	Water Tank Access Door: Install NOC and Guidelines signs Top of Water Tank Access Hatch: Install NOC and Guidelines signs Sector A: Install Warning and Guidelines signs behind the sector at Top of W.T level Sector B: Install Warning and Guidelines signs behind the sector at Top of W.T level Sector C: Install Warning and Guidelines signs behind the sector at Top of W.T level					
Items to be Removed	N/A					
Items to be Repaired/Replaced	N/A					

LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: DMS
CHECKED BY: TA2
DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
PRE-EME
REPORT

SHEET NUMBER
RF-1

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David
Schmidt

**NOTICE TO CONTRACTOR – ENVIRONMENTAL CONDITIONS/RESTRICTIONS AT
Rte 7 and West – ILW**

Note: Verizon Wireless makes no representation or warranty as to the accuracy or completeness of the information below. Company is fully responsible for its own compliance with all applicable laws and regulations. To the extent that Company becomes aware of any additional environmental conditions, it agrees to immediately inform Verizon Wireless.

The Company's response to this construction bid shall constitute the Company's acknowledgement and acceptance of the stated conditions and restrictions at the site.

The following environmental conditions have been identified at the project site:

Environmental Condition	Description and Location of Contaminant																																	
<input checked="" type="checkbox"/> Contaminated soil	<p>Soil Sampling Investigation – The soil sampling investigation scope of work included the manual advancement of two soil borings, which was advanced in the location of the proposed equipment platform and utility route. The results of the analysis of the soil sample is illustrated below:</p> <table border="1"> <thead> <tr> <th colspan="3">Soil Screening Results</th> </tr> <tr> <th>Sample No.</th> <th>Sample Location</th> <th>Total Lead Content ($\mu\text{g/g}$)</th> </tr> </thead> <tbody> <tr> <td>SS-1</td> <td>Proposed equipment platform</td> <td>44</td> </tr> <tr> <td>SS-2</td> <td>Proposed utility easement</td> <td><25</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3">Soil Screening Results</th> </tr> <tr> <th>Sample No.</th> <th>Sample Location</th> <th>TCLP Lead Result</th> </tr> </thead> <tbody> <tr> <td>SS-3</td> <td>Proposed equipment platform and utility easement</td> <td><0.5 ppm</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3">Soil Screening Results</th> </tr> <tr> <th>Sample No.</th> <th>Sample Location</th> <th>TCLP Lead Content (mg/L)</th> </tr> </thead> <tbody> <tr> <td>SS-1</td> <td>Proposed equipment lease area</td> <td><0.40</td> </tr> <tr> <td>SS-2</td> <td>Proposed utility easement</td> <td><0.40</td> </tr> </tbody> </table> <p>Note: < (Lab non-detect)</p> <p>As presented above, levels of Total Lead was detected in soil sample SS-1 at levels above regional background levels (36 mg/kg). Therefore, the sampled soil is lead-containing. Total Lead was not detected in soil sample SS-2, taken from the proposed utility easement. The levels of Total Lead detected in soil sample SS-1 was below IEPA construction worker soil remediation objectives (700 mg/kg). Additionally, the results of the TCLP Lead analysis indicated the TCLP Lead levels were below the TCLP standard for lead. As such, from a disposal or soil relocation standpoint, the soil is acceptable for TCLP Lead content.</p>	Soil Screening Results			Sample No.	Sample Location	Total Lead Content ($\mu\text{g/g}$)	SS-1	Proposed equipment platform	44	SS-2	Proposed utility easement	<25	Soil Screening Results			Sample No.	Sample Location	TCLP Lead Result	SS-3	Proposed equipment platform and utility easement	<0.5 ppm	Soil Screening Results			Sample No.	Sample Location	TCLP Lead Content (mg/L)	SS-1	Proposed equipment lease area	<0.40	SS-2	Proposed utility easement	<0.40
Soil Screening Results																																		
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SS-1	Proposed equipment lease area	<0.40																																
SS-2	Proposed utility easement	<0.40																																

Page | 1

	See attached Figure 3 Site Plan provided by EBI Consulting.
Contaminated groundwater	
Presence of asbestos	
Presence of lead	
<input checked="" type="checkbox"/> Other: Vicinity Well	<p>Vicinity Well – An abandoned well located adjacent to the water tower, approximately 30-ft southwest of the equipment platform, and in close proximity to the proposed utility easement.</p> <p>Lead-Based Paint Sampling Investigation – The lead paint sampling investigation did not identify concentrations of lead in the paint samples.</p>

Applicable legal requirements or Verizon Wireless policies and procedures may require that these conditions be communicated to all parties involved in the construction activities at the project site. To the extent that the scope of the project work includes measures to address these conditions, details of the work to be performed shall be as specified in the project documents and/or the Authorization Letter.

Environmental conditions affecting scope of work: Well & Lead in Soils		
Vicinity Well –		
<ul style="list-style-type: none"> Contractors are advised of the location of an abandoned well located adjacent to the water tower, approximately 30-ft southwest of the equipment platform, and in close proximity to the proposed utility easement. To prevent any negative impact to the vicinity well, the appropriate use of silt fences and other soil erosion control best management practices (as appropriate) and best practices for stormwater management must be implemented prior to and maintained throughout construction activities at the site. Construction related staging and stockpiling of excavated soils may not occur to the south or west of the project site, or near the proposed utility easement and must occur in a manner that will not cause impact the vicinity well. 		
Confirmed Lead in Soils –		
<ul style="list-style-type: none"> Contractors/personnel must be advised of the presence of concentrations of lead in shallow soils at the Project Site. Contractors must be advised to take appropriate precautions during construction activities. If excavated soil is not to be shipped off-site, then no further action is recommended. Soil may be reused on site in the location from which it was excavated. Excess Soils – If construction activities will cause soils to be excavated and transported off-site then excess soils should be handled in accordance with applicable state and federal guidelines. The construction contractor is responsible for determining if the analytical results contained within the Phase I ESA are sufficient to meet disposal parameters at the specific disposal facility. TCLP (Toxicity Characterization Leaching Procedure) analysis for Lead via EPA method SW846-1311/7420 is required for disposal of materials containing detectable concentrations of lead. Disposal facility standards and costs vary, and it is the responsibility of the construction contractor to determine the applicable standards of the specific disposal facility. Contractors must be required to comply with applicable regulations including the OSHA Lead in construction standard during any disturbance of the lead-containing soils. Worker protection will be required consistent with the OSHA Lead in Construction standard (29 CFR 1926) during the penetration of areas with lead-containing paint. 		

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- Verizon Wireless' environmental consultant (EBI Consulting) must be notified three weeks (3) in advance of initiation of construction so that they can properly mobilize to perform oversight of soil disposal. EBI Consulting (Contact Ms. Elaine Langer, Program Manager, 347.415.5453).
- Diesel Sensitive Site** – Tertiary Containment Generator – Diesel Enhanced Enclosure (DDE) [Meets NSTD399 generator solution]

Company is required to comply fully with all applicable environmental, industrial hygiene, and worker health and safety laws and regulations; Verizon Wireless' directions and/or instructions contained in this Notice To Contractors. Company shall retain qualified, appropriately specialized (and/or licensed, as required) and adequately insured environmental firms for the completion of specialized work as applicable. Company shall evaluate whether a Health and Safety Plan (HASP) is warranted. Verizon Wireless shall have the final authority to approve the selection of such environmental firms performing services on its behalf. The construction bid package shall include qualifications of proposed firms with respect to the following required services:

Environmental Services Required		
<input checked="" type="checkbox"/> Check All That Apply		
Asbestos abatement		
Lead based paint abatement		
<input checked="" type="checkbox"/> Hazardous or special waste transportation and disposal. Verizon Wireless-Approved Waste Transporter and Disposal Facilities:		
Soil Transportation Contractor		
Environmental Management Specialists Inc. 1949 N. Woodlawn Ave Griffith, IN 46319 219.314.0367 -Or-		
Kestrel Hawk LF 1989 Oakes Rd. Racine, WI 53406 DNR Fac. ID: 252076990 EPA ID: ILD984852509 (Chrissy Chapman Email Approval December 21, 2017)		
Soil Disposal Facilities		
Laraway Landfill 21233 W Laraway Rd Joliet, IL 60436		
Five Oaks RDF 890 E. 1500 North Rd. Taylorville, IL 62568 EPA ID: ILD984852509 (Chrissy Chapman Email Approval December 21, 2017)		
LESSOR CONTACT to sign the waste manifest(s) or other shipping documentation:		
Village of Orland Park Ken Dado Public Works Utilities Manager 15655 S. Ravinia Ave. Orland Park, IL 60462 Phone: 708-403-6350 kdado@orlandpark.org		

Page | 3

DRAWN BY: DMS
CHECKED BY: TA2
DATE: 12/27/17
PROJECT #: 33-2531

SHEET TITLE
**NOTICE TO
CONTRACTOR**

SHEET NUMBER
NTC-1

LOC. # 187771
RTE 7 & WEST
15501 PARK STATION BLVD
ORLAND PARK, IL 60462



<input type="checkbox"/>	Consult Verizon Wireless' environmental consultant (EBI Consulting)
<input checked="" type="checkbox"/>	Excavation, drilling or advancement through and staging/stockpiling of contaminated media.
Other: Environmental oversight for coordination of soil excavation activities - Verizon Wireless' environmental consultant (EBI Consulting) must be notified three weeks (3) in advance of initiation of construction so that they can properly mobilize for the coordination of offsite excess soil disposal. EBI Consulting (Contact Ms. Elaine Langer, Program Manager, 347.415.5453).	

Company shall ensure at all times that only appropriately trained qualified, and licensed worker's perform the required environmental services. It is the responsibility of Company to adhere to the following restrictions in response to the above environmental conditions:

An outside environmental "oversight" consultant is required if transportation and disposal of wastes is carried out in accordance with applicable laws, regulations and the Verizon Wireless Environmental Compliance Program. **THE USE OF SUCH CONSULTANT IS MANDATORY.**

Site Restrictions
Check All That Apply
<input checked="" type="checkbox"/> Restrictions on excavations/construction methods. Description: Construction related staging and stockpiling of excavated soils may not occur to the south or west of the project site, or near the proposed utility easement and must occur in a manner that will not cause impact the vicinity well.
<input type="checkbox"/> Diesel fuel prohibited at construction site except in fuel tank of vehicle.
<input type="checkbox"/> Gasoline prohibited at construction site except in fuel tank of vehicle.
<input checked="" type="checkbox"/> Other: Diesel Sensitive Site - Tertiary Containment Generator - Diesel Enhanced Enclosure (DEE) [Meets NSTD399 generator solution]

Contractor's Signature: _____

Print Name: _____

Witness: _____

Name: Rte 7 and West

Site Address: 15501 Park Station Blvd

City: Orland Park State: Illinois

NOTE: This signed original is to be returned to Territory Compliance along with the EES Closeout Report.



Figure 3 – Site Plan

Rte 7 & West / P 20130862262, L 187771
15501 Park Station Boulevard
Orland Park, Illinois

Not to scale

REVISIONS

NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	12/22/17	DMS
1	ISSUED FOR FINALS	01/22/18	JTM
2	UPDATE CABLE LENGTHS	02/02/18	JTM

LOC. # 187771

RTE 7 & WEST

15501 PARK STATION BLVD
ORLAND PARK, IL 60462

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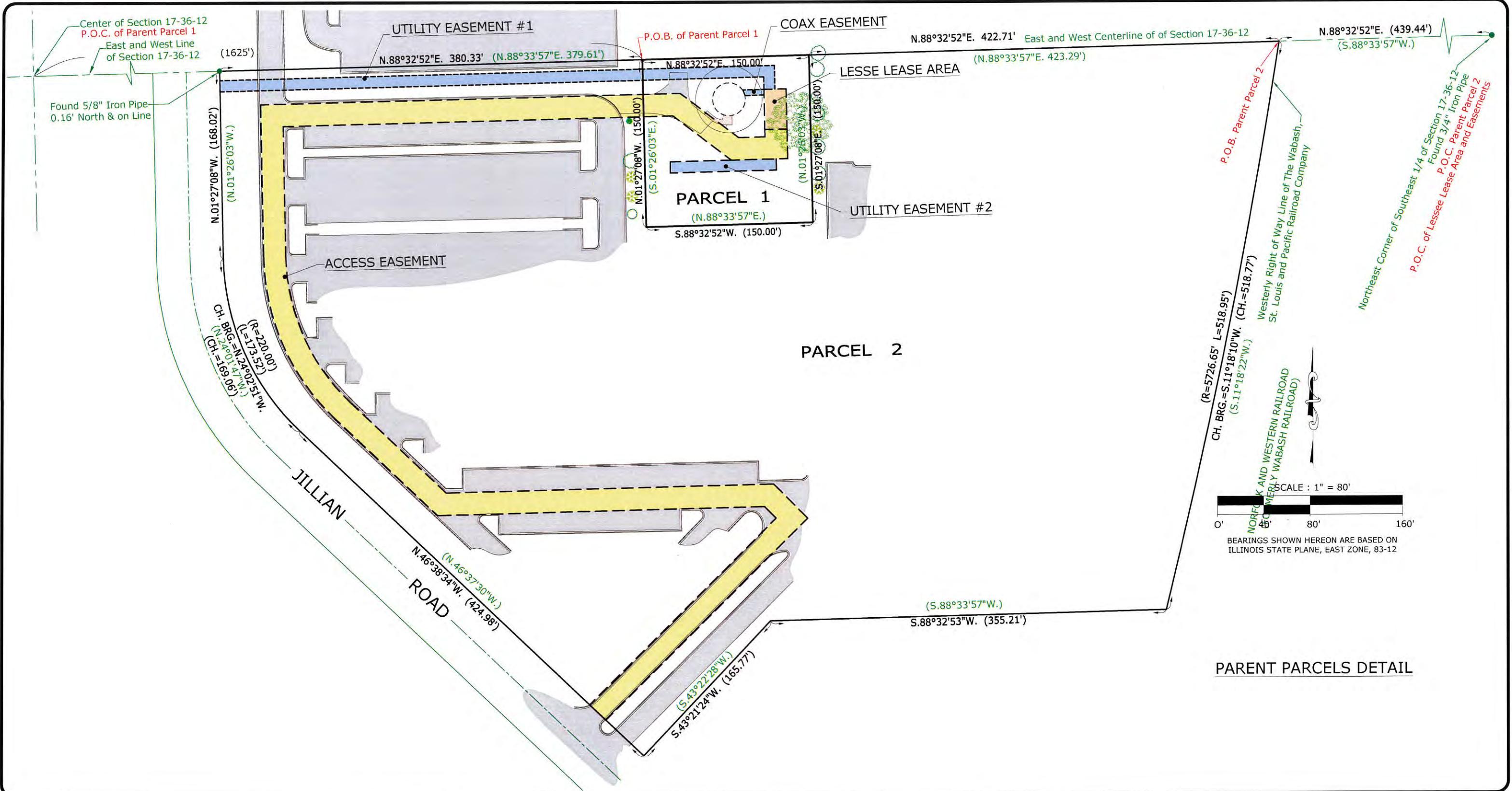
Page | 5

DRAWN BY:	DMS
CHECKED BY:	TAZ
DATE:	12/27/17
PROJECT #:	33-2531

SHEET TITLE
NOTICE TO
CONTRACTOR

SHEET NUMBER

NTC-2



PREPARED BY:

ASMOD

ASM Consultants, Inc.
16 E Wilson St, Batavia IL 60510
Tel (630) 879-0200 Fax (630) 454-3777

Professional Design Firm #184-006014 expires 4/30/201

PLAT OF SURVEY OF LEASE AREA AND EASEMENTS

PREPARED BY

Chicago SMSA

CHICAGO SMSA LIMITED PARTNERSHIP
d/b/a VERIZON WIRELESS
1515 WOODFIELD ROAD, SUITE 1400
SCHAUMBURG, ILLINOIS 60173
PHONE: 847-619-5397 FAX: 847-706-74



Consulting Group, LTD
600 Busse Highway
Park Ridge, IL 60068
(847) 698-6400

JOB No.: 33-1

NO.	DATE	REVISION
1.	4/10/2017	FIELD SURVEY COMPLETED
2.	1/30/2018	FINAL SURVEY COMPLETED

SITE DESIGNATION INFORMATION:

Rte 7 & West
LOCATION NO.: 187771
PROJECT NO.: 20130862262
15501 PARK STATION BLVD
ORLAND PARK, IL 60462

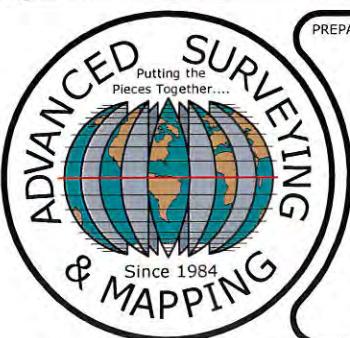
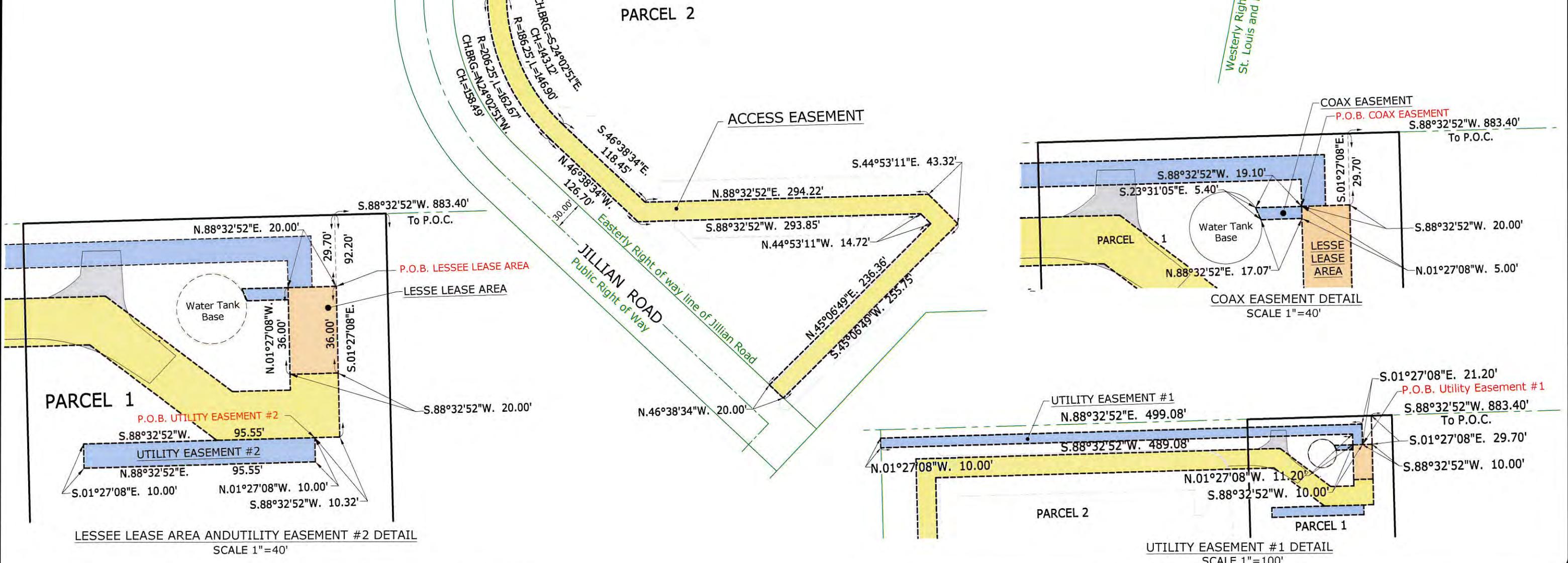
DRAWN BY: EM
CHECKED BY: CSM

PROJECT NO.
720600

L-2

DIMENSIONS DETAIL

BEARINGS SHOWN HEREON ARE
BASED ON ILLINOIS STATE PLANE
EAST ZONE, 83-12



PREPARED BY:



ASM Consultants, Inc.
16 E Wilson St, Batavia IL 60510
Tel (630) 879-0200 Fax (630) 454-3774

Professional Design Firm #184-006014 expires 4/30/2019

PLAT OF SURVEY OF LEASE AREA AND EASEMENTS

PREPARED FOR



CHICAGO SMSA LIMITED PARTNERSHIP
d/b/a VERIZON WIRELESS
1515 WOODFIELD ROAD, SUITE 1400
SCHAUMBURG, ILLINOIS 60173
PHONE: 847-619-5397 FAX: 847-706-7415



Consulting Group, LTD.
600 Busse Highway
Park Ridge, IL 60068
(847) 698-6400

NO.	DATE	REVISION
1.	4/10/2017	FIELD SURVEY COMPLETED
		FINAL SURVEY COMPLETED

SITE DESIGNATION INFORMATION:

Rte 7 & West
LOCATION NO.: 187771
PROJECT NO.: 20130862262
15501 PARK STATION BLVD
ORLAND PARK, IL 60462

DRAWN BY: EM
CHECKED BY: CSM
PROJECT NO.
720600
L-3

LEGAL DESCRIPTIONS

PARENT PARCELS:

(CHICAGO TITLE INSURANCE COMPANY, ORDER NO.: 1401 008454370 D1, EFFECTIVE DATE OF MARCH 16, 2017.)

PARCEL 1:

PART OF THE SOUTHEAST 1/4 OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12, EAST OF THE THIRD PRINCIPAL MERIDIAN, LYING WEST OF THE WESTERLY LINE OF THE NORFOLK AND WESTERN RAILROAD (FORMERLY WABASH RAILROAD) RIGHT OF WAY, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTER OF SAID SECTION 17 AND RUNNING THENCE EAST ALONG THE EAST AND WEST CENTER LINE OF SAID SECTION, A DISTANCE OF 1625 FEET FOR A PLACE OF BEGINNING; THENCE CONTINUING EAST ALONG THE SAID EAST AND WEST CENTERLINE OF SECTION 17, A DISTANCE OF 150 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE, 150 FEET; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE 150 FEET; THENCE NORTH AT RIGHT ANGLES TO THE LAST DESCRIBED COURSE, 150 FEET TO THE PLACE OF BEGINNING, ALL IN COOK COUNTY, ILLINOIS.

PARCEL 2:

PART OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST, THIRD PRINCIPAL MERIDIAN, COOK COUNTY, ILLINOIS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST, THIRD PRINCIPAL MERIDIAN; THENCE SOUTH 88 DEGREES 33 MINUTES 57 SECONDS WEST, ON THE SOUTH LINE OF SAID NORTHEAST QUARTER, AS MONUMENTED, 439.44 FEET TO THE WESTERLY RIGHT OF WAY OF THE WABASH, ST. LOUIS AND PACIFIC RAILROAD COMPANY AS SHOWN ON DOCUMENT NUMBER 356991 RECORDED NOVEMBER 3, 1881 AND NOW OCCUPIED, SAID POINT ALSO BEING THE POINT OF BEGINNING OF THE HEREINAFTER DESCRIBED PARCEL; THENCE SOUTHWESTERLY 518.95 FEET ON SAID WESTERLY RIGHT OF WAY, BEING A CURVE TO THE RIGHT, HAVING A RADIUS OF 5726.65 FEET, THE CHORD OF SAID CURVE BEARS SOUTH 11 DEGREES 18 MINUTES 22 SECONDS WEST, 518.77 FEET; THENCE SOUTH 88 DEGREES 33 MINUTES 57 SECONDS WEST, 355.21 FEET THENCE SOUTH 43 DEGREES 22 MINUTES 28 SECONDS WEST, 165.77 FEET TO THE WESTERLY LINE OF LOT 401 IN HUGUELET'S COLETTE HIGHLANDS SUBDIVISION RECORDED MAY 7, 2004 AS DOCUMENT NUMBER 0412818075; THENCE NORTH 46 DEGREES 37 MINUTES 30 SECONDS WEST, ON SAID WESTERLY LOT LINE, 424.98 FEET TO THE BEGINNING OF A CURVE; THENCE NORTHWESTERLY 173.52 FEET CONTINUING ON SAID WESTERLY LOT LINE, BEING A CURVE TO THE RIGHT, HAVING A RADIUS OF 220.00 FEET, THE CHORD OF SAID CURVE BEARS NORTH 24 DEGREES 01 MINUTES 47 SECONDS WEST, 169.09 FEET; THENCE NORTH 1 DEGREE 26 MINUTES 3 SECONDS WEST, CONTINUING ON SAID WESTERLY LOT LINE, 168.02 FEET TO THE NORTH LINE OF SAID SOUTHEAST QUARTER, AS MONUMENTED; THENCE NORTH 88 DEGREES 33 MINUTES 57 SECONDS EAST, ON SAID NORTH LINE, 379.61 FEET; THENCE SOUTH 1 DEGREE 26 MINUTES 03 SECONDS EAST, 150 FEET; THENCE NORTH 88 DEGREES 33 MINUTES 57 SECONDS EAST, 150.00 FEET; THENCE NORTH 1 DEGREE 26 MINUTES 03 SECONDS, 150 FEET TO THE NORTH LINE OF SAID SOUTHEAST QUARTER; THENCE NORTH 88 DEGREES 33 MINUTES 57 SECONDS EAST, ON SAID NORTH LINE, 423.29 FEET TO THE POINT OF BEGINNING.

PROPOSED ACCESS EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR ACCESS EASEMENT PURPOSES BEING A PART OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, 883.40; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 65.70 FEET FOR A POINT OF BEGINNING; THENCE CONTINUING SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, 26.50 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 50.92 FEET; THENCE NORTH 52 DEGREES 56 MINUTES 14 SECOND WEST, 65.93 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, 350.54 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 116.66 FEET TO A POINT OF CURVATURE; THENCE ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 186.25 FEET AND A CHORD THAT BEARS SOUTH 24 DEGREES 02 MINUTES 51 SECONDS EAST 143.12 FEET, AN ARC LENGTH OF 146.90 FEET TO A POINT OF TANGENCY; THENCE SOUTH 46 DEGREES 38 MINUTES 34 SECONDS EAST, 118.45 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, 294.22 FEET; THENCE SOUTH 44 DEGREES 53 MINUTES 11 SECONDS EAST 43.32 FEET; THENCE SOUTH 45 DEGREES 06 MINUTES 49 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 255.75 FEET TO THE NORTHEASTERLY RIGHT OF WAY LINE OF JILLIAN ROAD; THENCE NORTH 46 DEGREES 38 MINUTES 34 SECONDS WEST, ALONG SAID RIGHT OF WAY LINE, 20.00 FEET; THENCE NORTH 45 DEGREES 06 MINUTES 49 SECONDS EAST, 236.36 FEET; THENCE NORTH 44 DEGREES 53 MINUTES 11 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 14.72 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, 293.85 FEET; THENCE NORTH 46 DEGREES 38 MINUTES 34 SECONDS WEST, 126.70 FEET TO A POINT OF CURVATURE; THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 206.25 FEET AND A CHORD THAT BEARS NORTH 24 DEGREES 02 MINUTES 51 SECONDS WEST 158.49 FEET, AN ARC LENGTH OF 162.67 FEET TO A POINT OF TANGENCY; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, 136.66 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 377.52 FEET; THENCE SOUTH 52 DEGREES 56 MINUTES 14 SECONDS EAST, 65.93 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST 23.94 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 6.50 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, 20.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 29140.4 SQUARE FEET OR 0.669 ACRES, MORE OR LESS.

LEGAL DESCRIPTIONS

PROPOSED LESSEE LEASE AREA LEGAL DESCRIPTION:

A PARCEL OF LAND FOR LESSEE LEASE AREA PURPOSES BEING A PART OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, 883.40 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 29.70 FEET FOR A POINT OF BEGINNING; THENCE CONTINUING SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, 36.00 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 20.00 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, 36.00 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, 20.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 720.0 SQUARE FEET OR 0.016 ACRES, MORE OR LESS.

PROPOSED COAX EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR COAX EASEMENT PURPOSES BEING A PART OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, 883.40 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 29.70 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 20.00 FEET FOR A POINT OF BEGINNING; THENCE CONTINUING SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, 19.10 FEET; THENCE SOUTH 23 DEGREES 31 MINUTES 05 SECONDS EAST, 5.40 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, 17.07 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 5.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 90.4 SQUARE FEET OR 0.002 ACRES, MORE OR LESS.

PROPOSED UTILITY EASEMENT #1 LEGAL DESCRIPTION:

A PARCEL OF LAND FOR UTILITY EASEMENT PURPOSES BEING A PART OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, 883.40 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 29.70 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 10.00 FEET FOR A POINT OF BEGINNING; THENCE CONTINUING SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, 10.00 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 11.20 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, 489.08 FEET TO THE EASTERLY RIGHT OF WAY LINE OF JILLIAN ROAD; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, ALONG SAID RIGHT OF WAY LINE, 10.00 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, PARALLEL TO SAID NORTH LINE OF SAID SOUTHEAST QUARTER, 499.08 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE 21.20 FEET TO THE POINT OF BEGINNING.

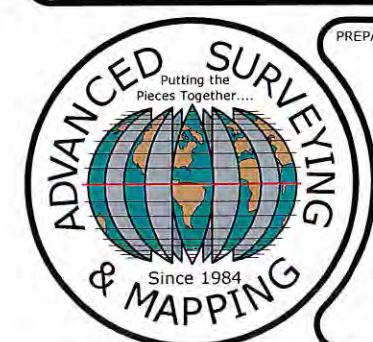
SAID PARCEL CONTAINS 5102.8 SQUARE FEET OR 0.117 ACRES, MORE OR LESS.

PROPOSED UTILITY EASEMENT #2 LEGAL DESCRIPTION:

A PARCEL OF LAND FOR UTILITY EASEMENT PURPOSES BEING A PART OF THE SOUTHEAST QUARTER OF SECTION 17, TOWNSHIP 36 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID SOUTHEAST QUARTER; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, 883.40 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 92.20 FEET; THENCE SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, PERPENDICULAR TO THE LAST DESCRIBED COURSE, 10.32 FEET FOR A POINT OF BEGINNING; THENCE CONTINUING SOUTH 88 DEGREES 32 MINUTES 52 SECONDS WEST, 95.55 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 08 SECONDS EAST, 10.00 FEET; THENCE NORTH 88 DEGREES 32 MINUTES 52 SECONDS EAST, 95.55 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 08 SECONDS WEST, 10.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 955.6 SQUARE FEET OR 0.022 ACRES, MORE OR LESS.



PREPARED BY:



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Professional Design Firm #184-006014 expires 4/30/2019

PLAT OF SURVEY OF LEASE AREA AND EASEMENTS

PREPARED FOR:

Chicago SMSA

CHICAGO SMSA LIMITED PARTNERSHIP
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1515 WOODFIELD ROAD, SUITE 1400
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TERRA
Consulting Group, LTD.
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Park Ridge, IL 60068
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JOB NO.: 33-2531

NO.	DATE	REVISION
1.	4/10/2017	FIELD SURVEY COMPLETED
2.	1/30/2018	FINAL SURVEY COMPLETED
SITE DESIGNATION INFORMATION:		
Rte 7 & West		
LOCATION NO.: 187771		
PROJECT NO.: 20130862262		
15501 PARK STATION BLVD		
ORLAND PARK, IL 60462		
DRAWN BY: EM		
CHECKED BY: CSM		
PROJECT NO. 720600		
L-4		