

CONSULTANT TEAM

PROJECT CONSULTANT: TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
(847) 698-6400

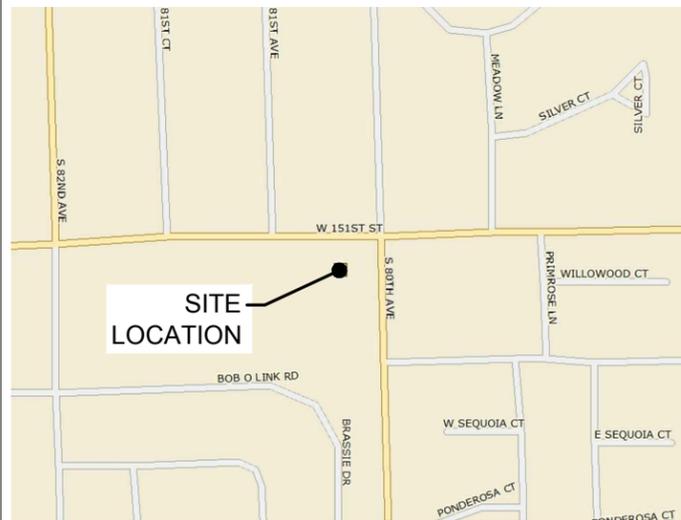
SURVEYOR: ASM CONSULTANTS, INC.
P.O. BOX 7
PLANO, IL 60545
(630) 273-2500

PROJECT TYPE

PROPOSED LESSEE ANTENNAS MOUNTED ON A NEW MONOPOLE TOWER WITH PROPOSED 9'-4" X 16'-0" EQUIPMENT PLATFORM AT BASE.

SITE COORDINATES:
LATITUDE: 41° 36' 58.54" N (1A CERTIFICATION)
LONGITUDE: 87° 48' 53.39" W (1A CERTIFICATION)
ELEVATION: ±704' (1A)
DRIVING DIRECTIONS:
FROM LESSEE OFFICE: START OUT GOING EAST ON E WOODFIELD RD TOWARD MALL DR. TURN RIGHT ONTO W FRONTAGE RD. MERGE ONTO I-290 E VIA THE RAMP ON THE LEFT. KEEP RIGHT TO TAKE I-290 E TOWARD CHICAGO. MERGE ONTO I-294 S/TRI STATE TOLLWAY S VIA EXIT 15A TOWARD INDIANA (PORTIONS TOLL). MERGE ONTO I-55 N/ADLAI E STEVENSON EXPY N TOWARD CHICAGO. MERGE ONTO US-45 S/S LA GRANGE RD VIA EXIT 279A. TURN LEFT ONTO W 151ST ST. DESTINATION WILL BE ON THE RIGHT.

VICINITY MAP N.T.S.



REGIONAL MAP N.T.S.



APPROVALS

REAL ESTATE: _____
RF: _____
CONSTRUCTION: _____
EQUIPMENT ENGINEERING: _____
OPERATIONS: _____

GENERATOR TYPE: NATURAL GAS

MAKE: GENERAC
MODEL: SGNG-35-EV-1P 35KW NAT GAS 120/240
1-PH OUTDOOR STANDARD CONFIGURATION

PROJECT INFORMATION

P.I.N. #: 27-14-201-010-0000
ADDRESS: 15100 S 80TH AVE
ORLAND PARK, IL 60462

UTILITIES: POWER: COMED LEONARD ANDERSON (708) 235-2346
FIBER: ONE FIBER WADE BOWERS (512)618-3411
GAS: NICOR KEVIN DOWNEY (708) 441-6745

JURISDICTION: VILLAGE OF ORLAND PARK
OCCUPANCY: UNINHABITED
COMMERCIAL/RESIDENTIAL
CONSTRUCTION TYPE: RAWLAND

PROPERTY OWNER: ORLAND FIRE DISTRICT
15100 SOUTH 80TH AVE
ORLAND PARK, IL 60462

TOWER OWNER: VILLAGE OF ORLAND PARK
CONTACT PERSON: MARK WILLIAMS (847) 273-0488
APPLICANT: CHICAGO SMSA
limited partnership
d/b/a Verizon Wireless
1515 WOODFIELD ROAD
SCHAUMBURG, IL 60173

CONSTRUCTION MANAGER: RONALD PAULY (636) 534-4094
REAL ESTATE MANAGER: DANNY PEREZ (847) 706-1765

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

**TOWER TO BE BUILT AND OWNED
BY DRA PROPERTIES LLC.**

LOCATION NUMBER: 311466
SITE NAME: W 151ST & S 80TH
15100 S 80TH AVE
ORLAND PARK, IL 60462



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| NO. | DESCRIPTION | BY | DATE | DMS | JTM | DMS | RA | JTM | DMS | JTM |
|-----|------------------------------------|----|----------|-----|-----|-----|----|-----|-----|-----|
| | | | | | | | | | | |
| 3 | FINAL PENDING FIBER | | 08/21/17 | | | | | | | |
| 4 | UPDATE WITH NEW ECR | | 08/31/17 | | | | | | | |
| 5 | UPDATE WITH NEW LAYOUT | | 09/08/17 | | | | | | | |
| 6 | FINALS WITH FINER | | 10/20/17 | | | | | | | |
| 7 | ADDITION OF LANDSCAPING PLAN | | 12/29/17 | | | | | | | |
| 8 | UPDATE PER GAS COORDINATION | | 01/31/18 | | | | | | | |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | | 04/05/18 | | | | | | | |

LOC. # 311466

**W 151ST
& S 80TH**

15100 S 80TH AVE
ORLAND PARK, IL 60462

DRAWN BY: PP
CHECKED BY: TAZ
DATE: 07/23/15
PROJECT #: 33-1466

SHEET TITLE
TITLE SHEET

SHEET NUMBER

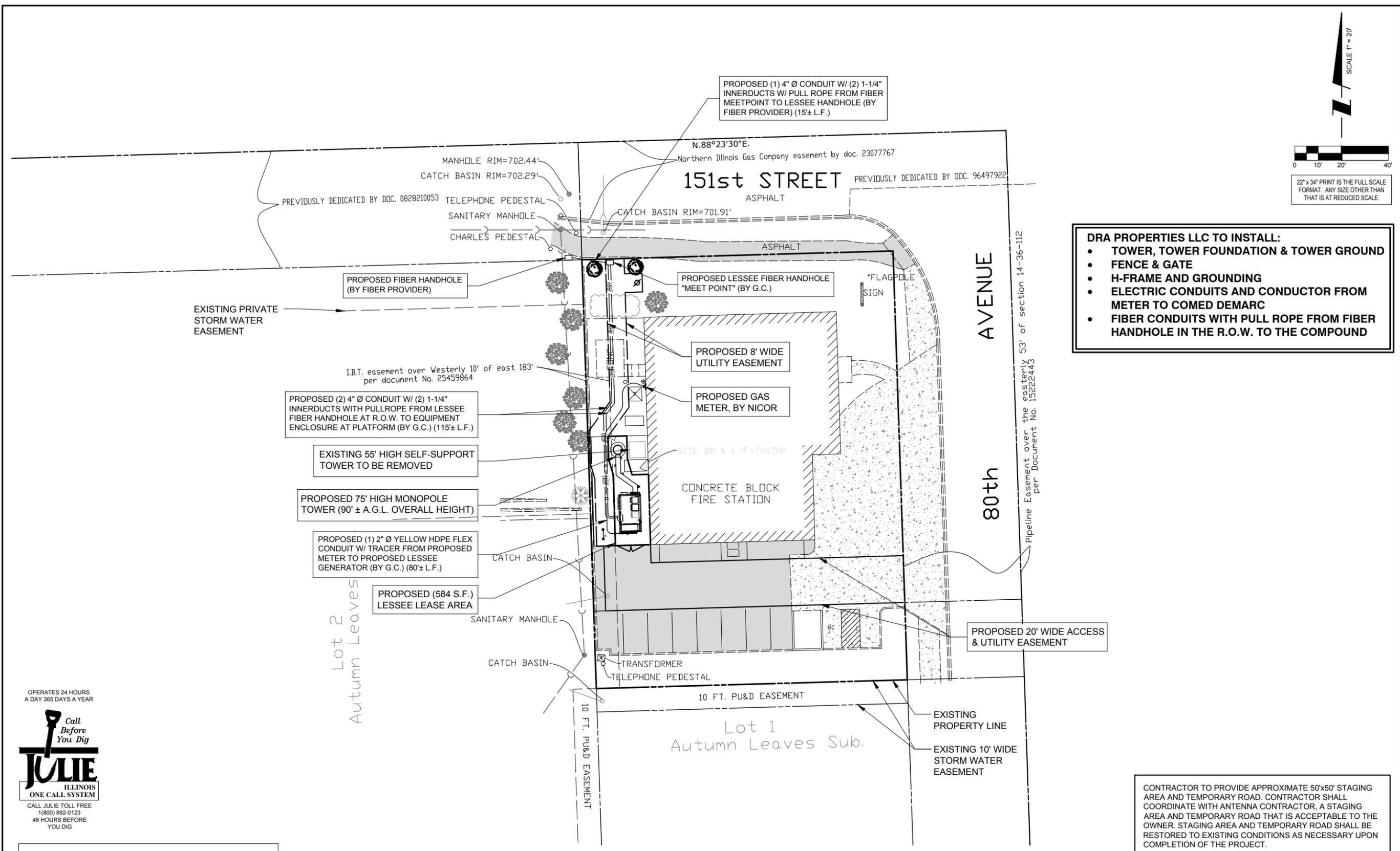
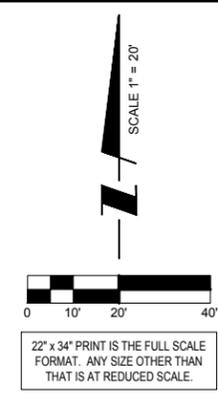
T-1

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR



CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS





- DRA PROPERTIES LLC TO INSTALL:**
- TOWER, TOWER FOUNDATION & TOWER GROUND
 - FENCE & GATE
 - H-FRAME AND GROUNDING
 - ELECTRIC CONDUITS AND CONDUCTOR FROM METER TO COMED DEMARC
 - FIBER CONDUITS WITH PULL ROPE FROM FIBER HANDHOLE IN THE R.O.W. TO THE COMPOUND

REVISIONS

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SHEET TITLE
LOCATION PLAN

SHEET NUMBER
LP



SURVEY PERFORMED BY:
Advanced Surveying & Mapping
Telephone (630) 273-2500
Fax (630) 273-2600
E-MAIL asmc@advct.com

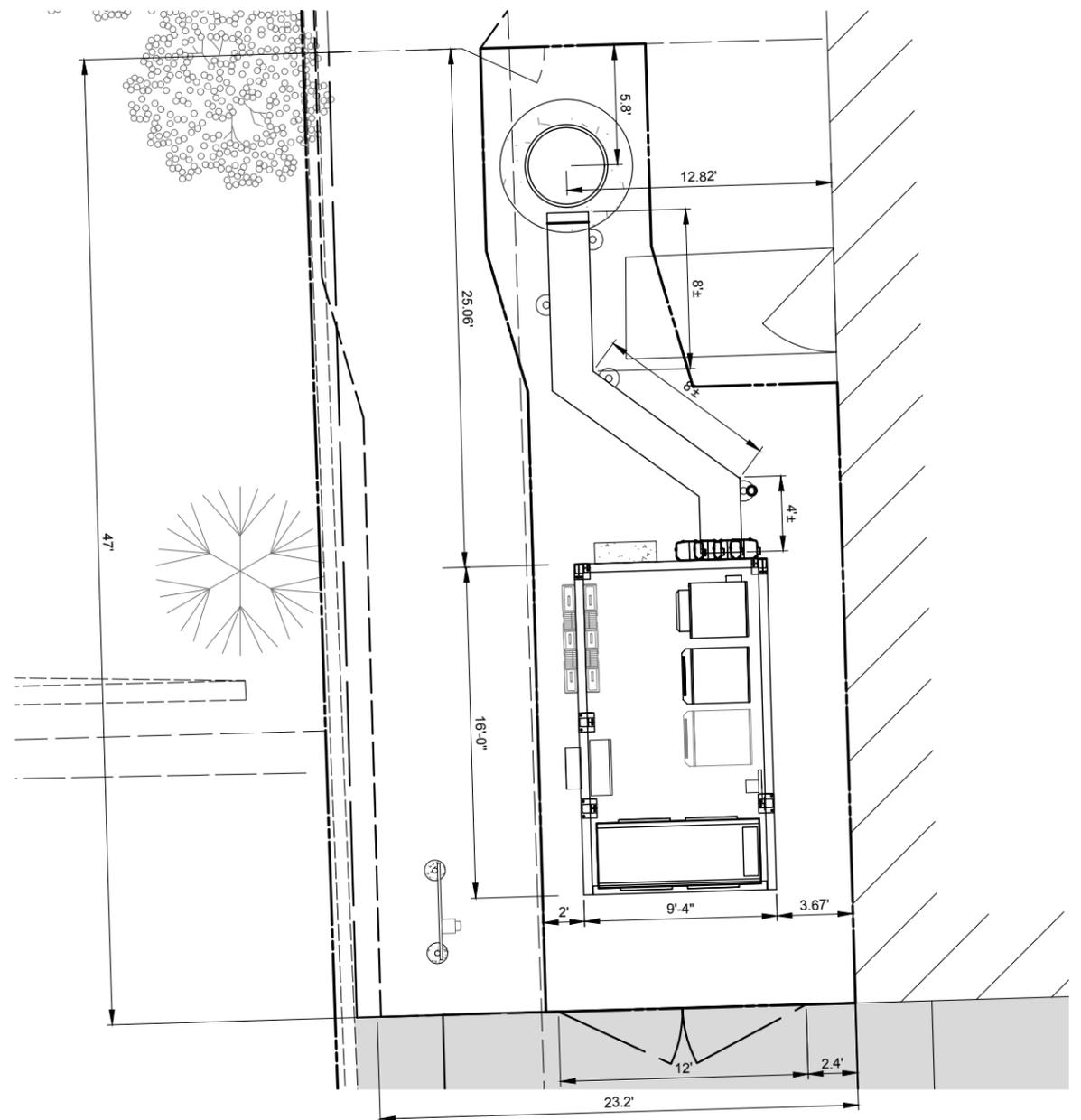
1 LOCATION PLAN
SCALE: 1" = 20'

CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT. CONTRACTOR SHALL PHOTOGRAPH AND VIDEOTAPE EXISTING PAVEMENT PRIOR TO CONSTRUCTION. ANY DAMAGE CAUSED DURING CONSTRUCTION SHALL BE REPLACED TO EXISTING OR BETTER CONDITION AT NO ADDITIONAL COST.

THE CONTRACTOR WILL, UPON BECOMING AWARE OF SUBSURFACE OR LATENT PHYSICAL CONDITIONS DIFFERING FROM THOSE DISCLOSED BY THE ORIGINAL SOIL INVESTIGATION WORK, PROMPTLY NOTIFY THE OWNER VERBALLY AND IN WRITING, AS TO THE NATURE OF THE DIFFERING CONDITIONS. NO CLAIM BY THE CONTRACTOR FOR ANY CONDITIONS DIFFERING FROM THOSE ANTICIPATED IN THE PLANS AND SPECIFICATIONS AND DISCLOSED BY THE SOIL STUDIES WILL BE ALLOWED UNLESS THE CONTRACTOR HAS SO NOTIFIED THE OWNER, VERBALLY AND IN WRITING, AS REQUIRED ABOVE, OF SUCH DIFFERING SUBSURFACE CONDITIONS.

CONTRACTOR TO PROVIDE APPROXIMATE 50'x50' STAGING AREA AND TEMPORARY ROAD. CONTRACTOR SHALL COORDINATE WITH ANTENNA CONTRACTOR, A STAGING AREA AND TEMPORARY ROAD THAT IS ACCEPTABLE TO THE OWNER. STAGING AREA AND TEMPORARY ROAD SHALL BE RESTORED TO EXISTING CONDITIONS AS NECESSARY UPON COMPLETION OF THE PROJECT.

BEFORE AND DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL AS NECESSARY IN THE FORM OF SILT FENCES FOR THE SITE AND BALES AROUND ANY EXISTING MANHOLES, INLETS, OR CATCHBASINS SUSCEPTIBLE TO EROSION. EROSION CONTROL MEASURES SHALL BE PERIODICALLY INSPECTED TO ENSURE PROPER FUNCTION. EROSION CONTROL SHALL BE REMOVED UPON COMPLETION OF WORK.



1 SITE DIMENSION PLAN
SCALE: 1" = 4'

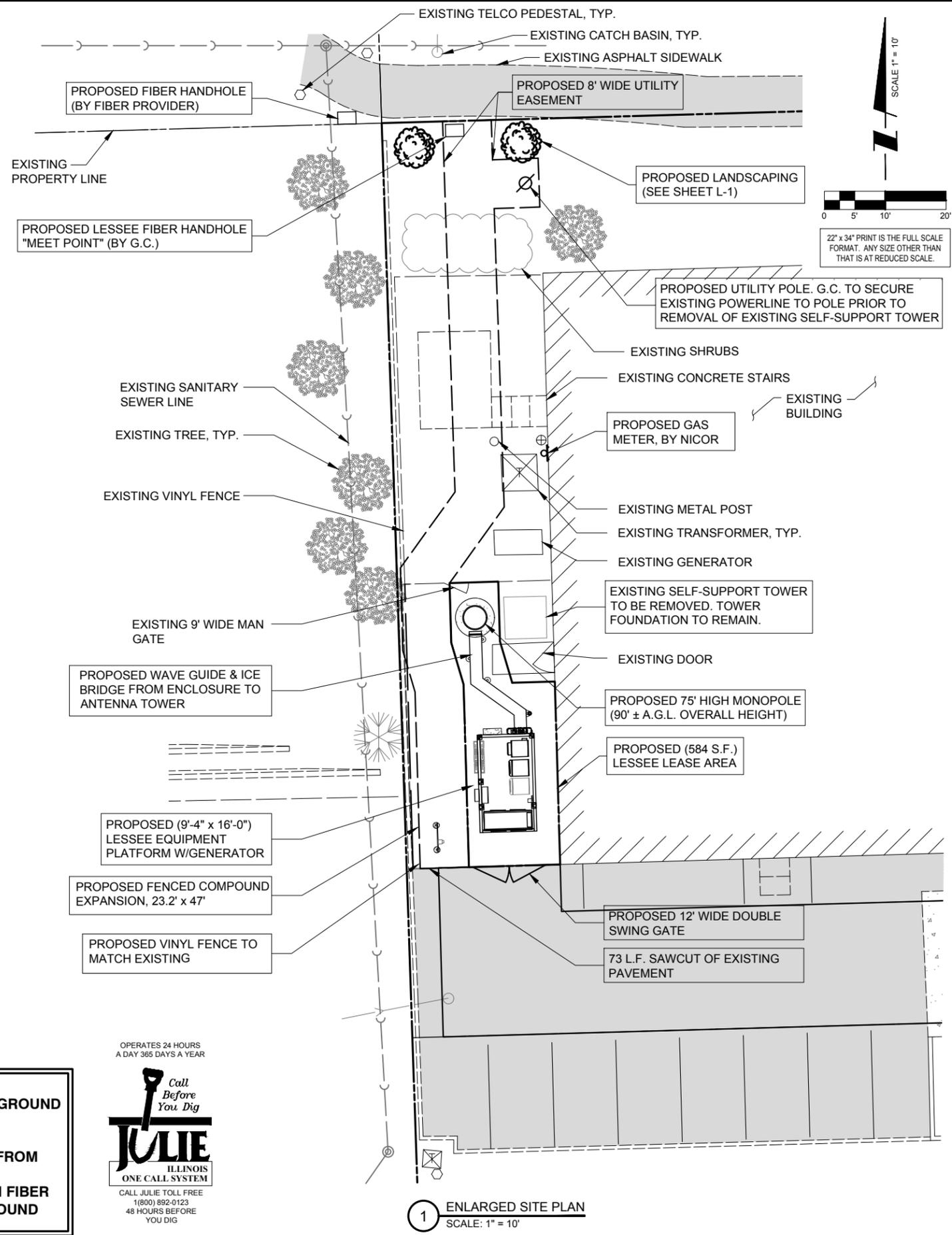
PAVEMENT MATERIAL

LEASE SITE
 50 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
 71 L.F. OF FENCING

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

SURVEY PERFORMED BY:
Advanced Surveying & Mapping
 Telephone (630) 273-2500
 Fax (630) 273-2600
 E-MAIL asmc@advct.com

- DRA PROPERTIES LLC TO INSTALL:**
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 - FENCE & GATE
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 - ELECTRIC CONDUITS AND CONDUCTOR FROM METER TO COMED DEMARC
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1 ENLARGED SITE PLAN
SCALE: 1" = 10'



CHICAGO SMSA
 limited partnership
 d/b/a VERIZON WIRELESS

TERRA
 600 BUSSE HIGHWAY, LTD.
 PARK RIDGE, IL 60068
 PH: 847-936-6400
 FAX: 847-688-6401

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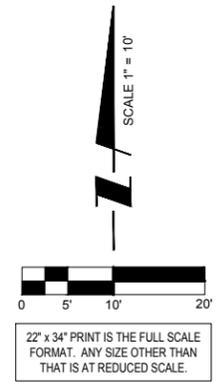
SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
C-1

CHARLES PEDESTAL

ASPHALT

°FLAGPOLE SIGN



.B.T. easement over Westerly 10' of east 183' per document No. 25459864

PROPOSED 75' HIGH MONOPOLE TOWER
 -P/GRADE AT TOWER = 704.00
 -T/FOUNDATION = 704.80

PROPOSED (9'-4" x 16'-0") LESSEE EQUIPMENT PLATFORM
 -P/GRADE @ SHELTER = 704.00
 -T/FOUNDATION = 704.50

SITE BM & F/F=704.59'

80th

CATCH BASIN

SANITARY MANHOLE

CATCH BASIN

TRANSFORMER

OPERATES 24 HOURS A DAY 365 DAYS A YEAR



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

1 SITE GRADING PLAN
 SCALE: 1" = 10'

CHICAGO SMSA
 limited partnership
 d/b/a VERIZON WIRELESS



| REVISIONS | | NO. | DATE | BY |
|---|---|-----|----------|-----|
| DESCRIPTION <td>FINAL PENDING FIBER <td>3</td> <td>08/21/17</td> <td>DMS</td> </td> | FINAL PENDING FIBER <td>3</td> <td>08/21/17</td> <td>DMS</td> | 3 | 08/21/17 | DMS |
| DESCRIPTION <td>UPDATE WITH NEW ECR</td> <td>4</td> <td>08/31/17</td> <td>JTM</td> | UPDATE WITH NEW ECR | 4 | 08/31/17 | JTM |
| DESCRIPTION <td>UPDATE WITH NEW LAYOUT</td> <td>5</td> <td>09/08/17</td> <td>DMS</td> | UPDATE WITH NEW LAYOUT | 5 | 09/08/17 | DMS |
| DESCRIPTION <td>FINALS WITH FINER</td> <td>6</td> <td>10/20/17</td> <td>RA</td> | FINALS WITH FINER | 6 | 10/20/17 | RA |
| DESCRIPTION <td>ADDITION OF LANDSCAPING PLAN</td> <td>7</td> <td>12/29/17</td> <td>JTM</td> | ADDITION OF LANDSCAPING PLAN | 7 | 12/29/17 | JTM |
| DESCRIPTION <td>UPDATE PER GAS COORDINATION</td> <td>8</td> <td>01/31/18</td> <td>DMS</td> | UPDATE PER GAS COORDINATION | 8 | 01/31/18 | DMS |
| DESCRIPTION <td>REVISED LANDSCAPE PLAN PER VILLAGE</td> <td>9</td> <td>04/05/18</td> <td>JTM</td> | REVISED LANDSCAPE PLAN PER VILLAGE | 9 | 04/05/18 | JTM |

LOC. # 311466

W 151ST & S 80TH

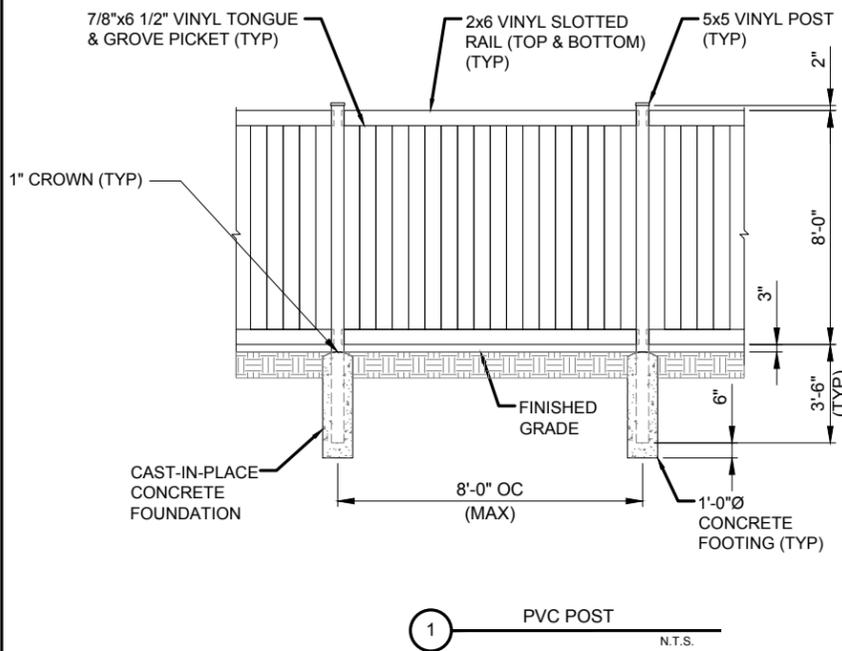
15100 S 80TH AVE ORLAND PARK, IL 60462

| | |
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| DRAWN BY: | PP |
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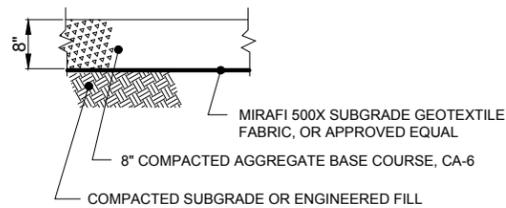
SHEET TITLE
 SITE GRADING PLAN
 (SHEET 1 OF 1)

SHEET NUMBER
C-2

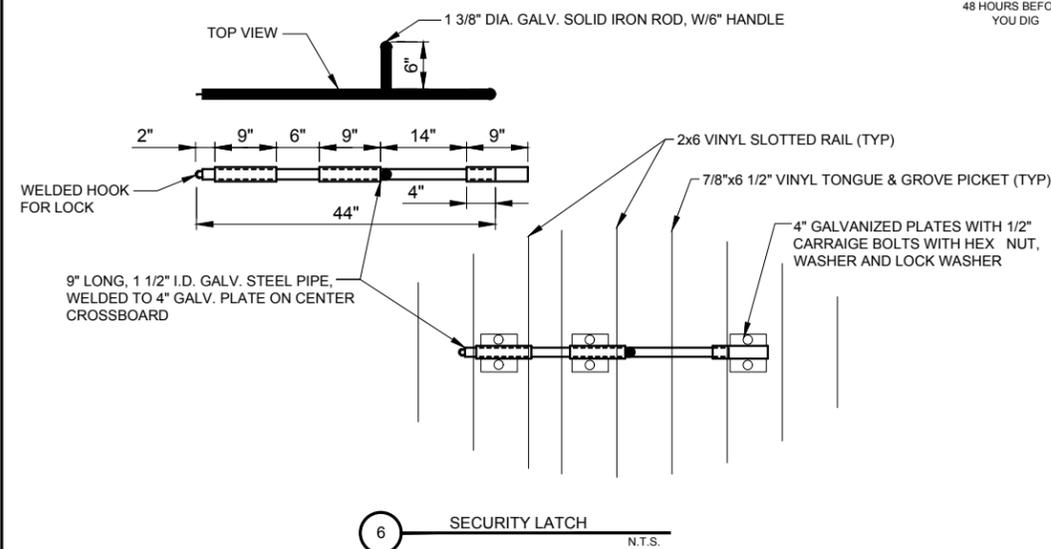
NOTES:
WOOD GRAIN STYLE TONGUE & GROVE VINYL PRIVACY FENCE. INSTALL FENCING PER MANUFACTURER'S RECOMMENDATIONS. CONCRETE FOOTINGS SHALL BE 3000 PSI.



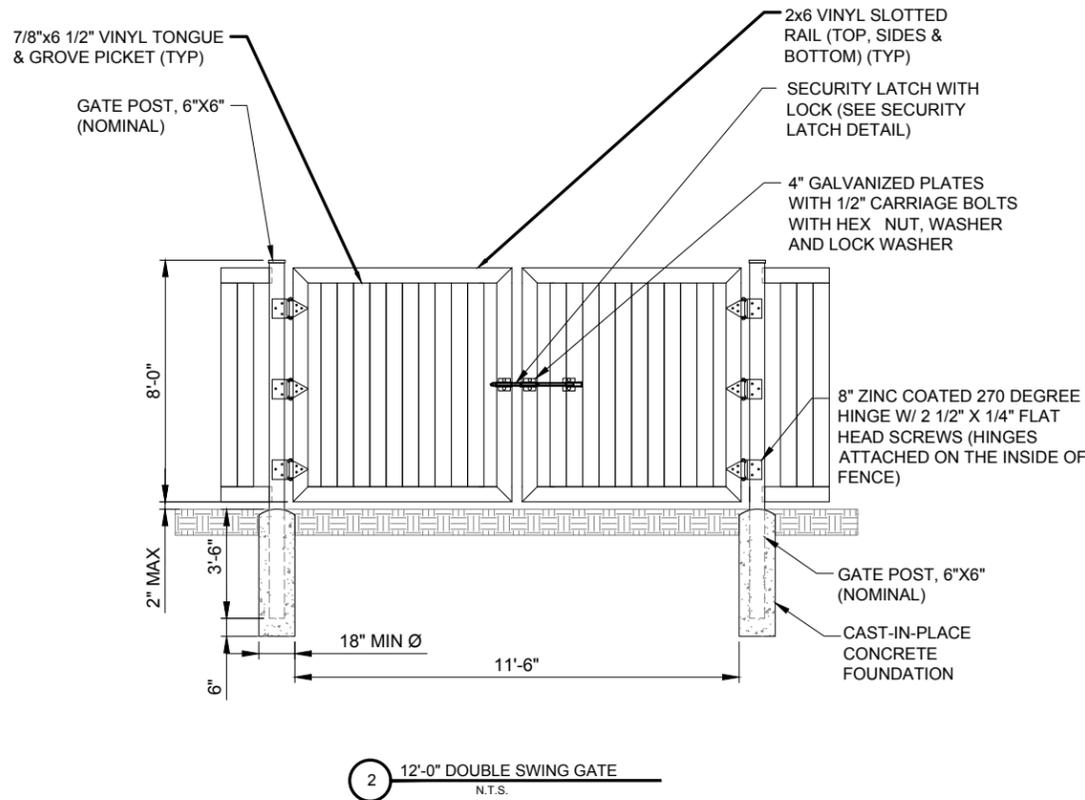
1 PVC POST N.T.S.



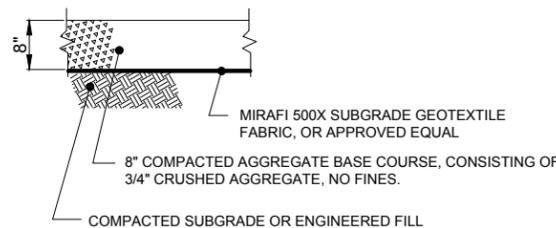
4 AGGREGATE CROSS-SECTION ACCESS EASEMENT N.T.S.



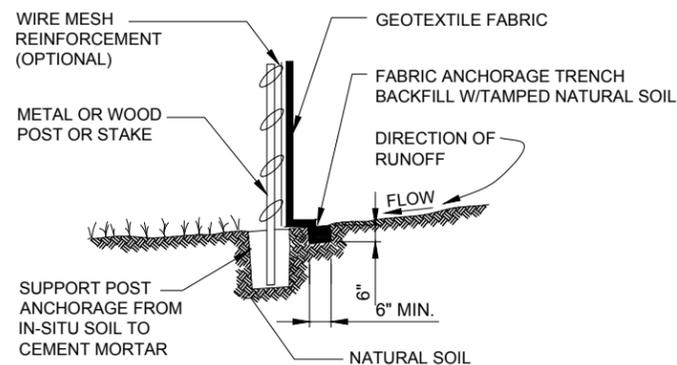
6 SECURITY LATCH N.T.S.



2 12'-0" DOUBLE SWING GATE N.T.S.



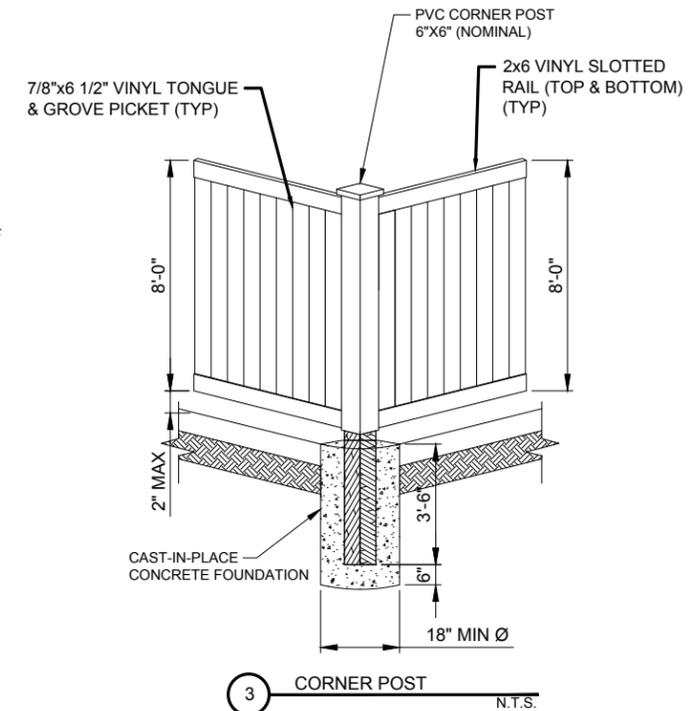
5 AGGREGATE CROSS-SECTION LEASE SITE N.T.S.



NOTE:
DEPENDING UPON CONFIGURATION, ATTACH FABRIC TO WIRE MESH W/HOG RINGS, STEEL POSTS W/ TIE WIRES, WOOD POSTS W/ NAILS.

7 EROSION CONTROL SILT FENCE DETAIL N.T.S.

CONTRACTOR TO PROVIDE A 12"x12" CUT-OUT IN THE VINYL FENCING OPPOSITE THE METER LOCATION FOR METER READING. FRAME OUT THE CUT-OUT WITH VINYL 2x4's ON INSIDE OF FENCE PRIOR TO MAKING PENETRATION.



3 CORNER POST N.T.S.

GENERAL NOTES

- REFER TO THE PROJECT MANUAL FOR ADDITIONAL INFORMATION AND REQUIREMENTS RELATED TO CONSTRUCTION.
- THE OWNER HAS CAUSED A GEOTECHNICAL EXPLORATION TO BE PERFORMED AT THE SITE.
- THE CONTRACTOR SHALL NOTIFY THE CLIENT'S GEOTECHNICAL ENGINEER TO COORDINATE HAVING A FIELD REPRESENTATIVE ON SITE FOR TESTING AND INSPECTION.

COPIES OF THE REPORT ARE ISSUED TO THE CONTRACTOR FOR CONVENIENCE ONLY. THE REPORT IS NOT A PART OF THE CONTRACT DOCUMENTS. NEITHER THE OWNER NOR THE ENGINEER/ARCHITECT GUARANTEE THE ACCURACY OR VALIDITY OF THE DATA CONTAINED THEREIN, NOR DO THEY ASSUME ANY RESPONSIBILITY FOR THE CONTRACTOR'S USE OR INTERPRETATION OF THE DATA CONTAINED THEREIN.

| GEOTEXTILE PARAMETERS | | |
|-----------------------|-------------------|----------------|
| PROPERTY | MINIMUM VALUE (a) | TEST METHOD |
| GRAB STRENGTH | 180 LBS. | ASTM D-4632-91 |
| PUNCTURE STRENGTH | 75 LBS. | ASTM D-4833-88 |
| BURST STRENGTH | 290 LBS. | ASTM D-3786 |
| TRAPEZOIDAL TEAR | 50 LBS. | ASTM D-4571-87 |

(a) ALL VALUES REPRESENT MINIMUM ROLL VALUES

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

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
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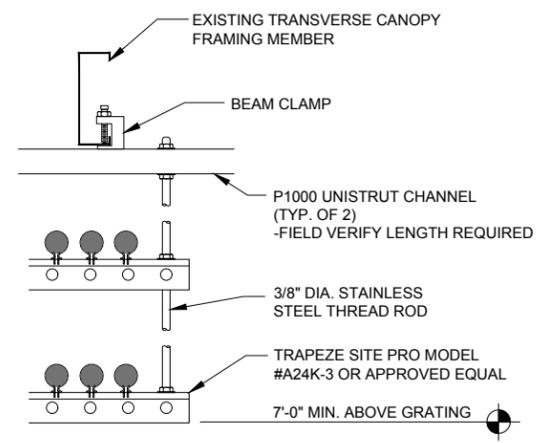
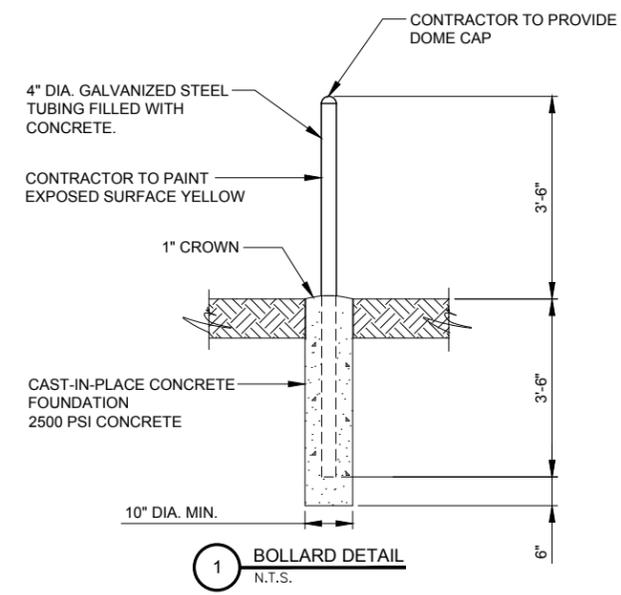
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SHEET TITLE

SHEET NUMBER
C-3

| REVISIONS | | DATE | BY |
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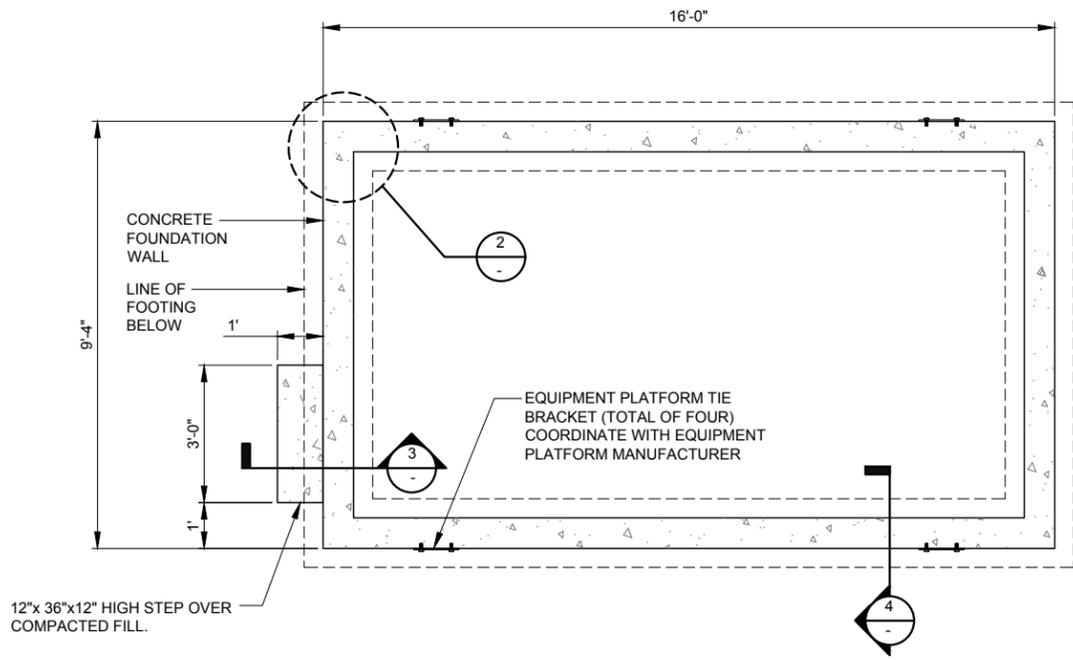
W 151ST
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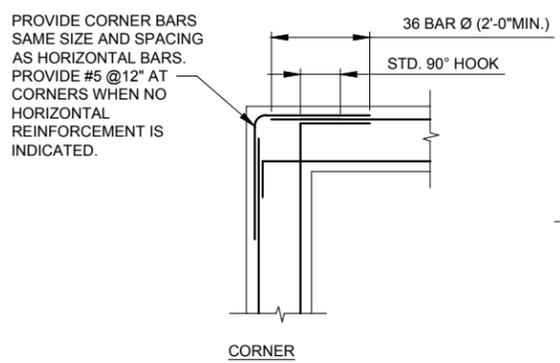
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SHEET TITLE
SITE DETAILS

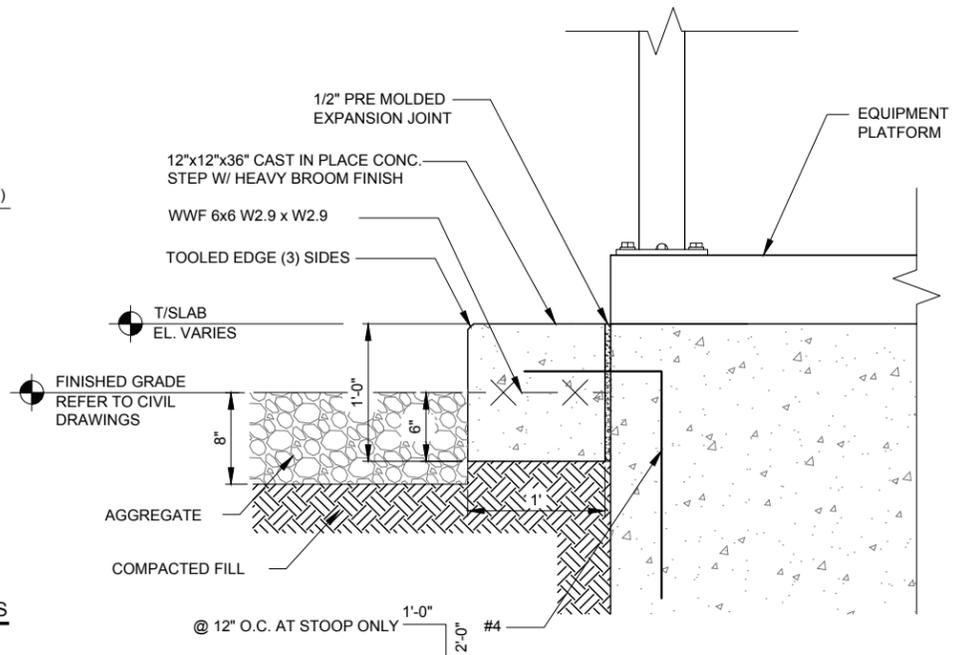
SHEET NUMBER
C-4



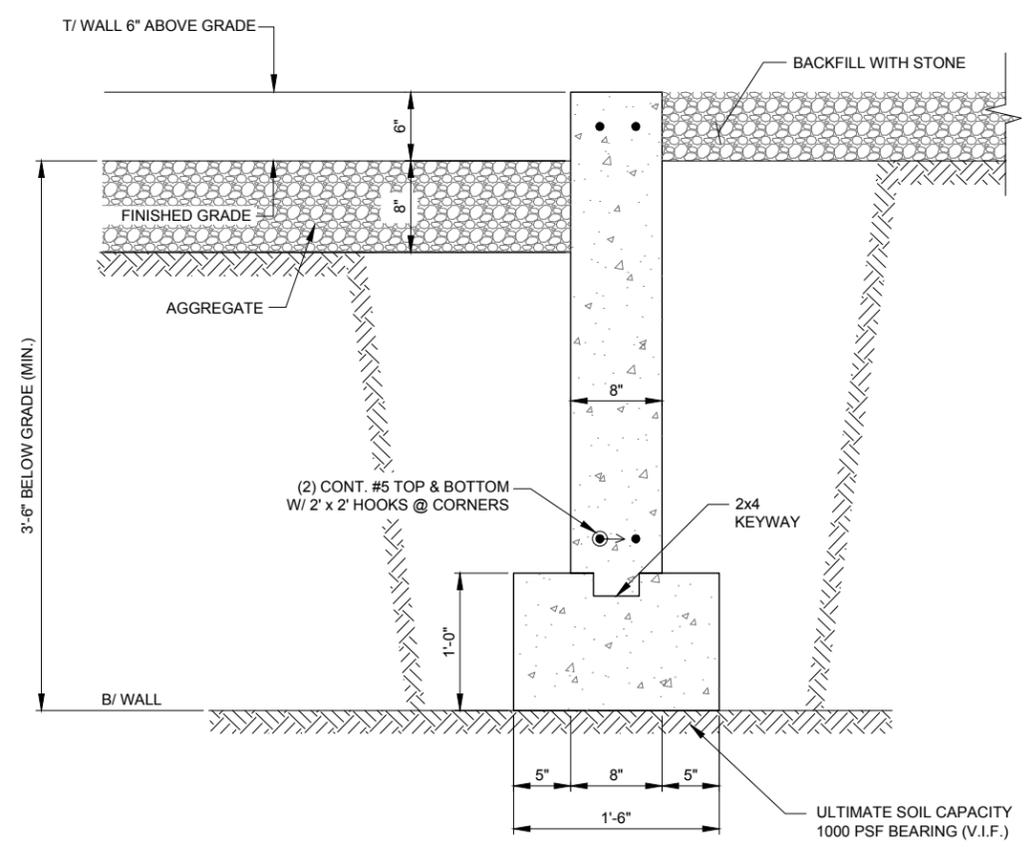
1 EQUIPMENT ENCLOSURE FOUNDATION PLAN
N.T.S.



2 CONCRETE WALL REINFORCEMENT DETAILS
N.T.S.

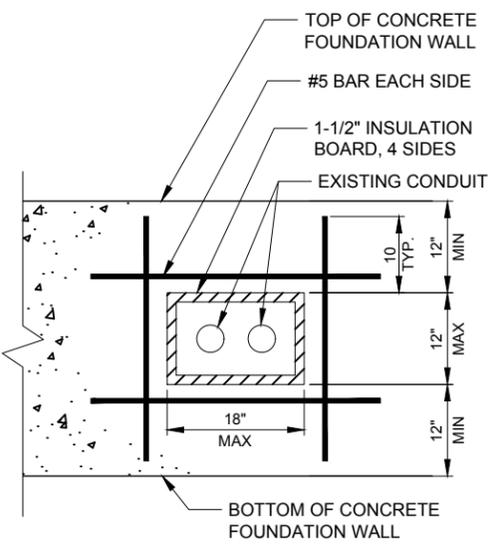


3 STEP DETAIL
N.T.S.



4 FOUNDATION WALL SECTION
SCALE: N.T.S.

NOTE:
LOCALIZED AREAS OF SOFT OR LOOSE MATERIALS MAY BE ENCOUNTERED AT THE PROPOSED BEARING ELEVATION. THE SOILS MAY REQUIRE COMPACTION USING A PLATE COMPACTOR IN THE FOOTING TRENCH IF FIELD CONDITIONS INDICATE LOOSE GRANULAR SOILS. THE SOILS MAY REQUIRE REMOVAL AND REPLACEMENT WITH AN APPROVED ENGINEERED FILL. FOUNDATION DEPTH AND OVER DIG REQUIREMENTS SHALL BE VERIFIED WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND INCLUDED IN THE BID BEFORE CONSTRUCTION. THE EVALUATION OF THE SUB GRADE AND SELECTION OF FILL MATERIALS SHALL BE MONITORED AND TESTED BY A QUALIFIED REPRESENTATIVE OF THE SOILS ENGINEER.



5 SLEEVE DETAIL (IF APPLICABLE)
N.T.S.

A. EQUIPMENT PLATFORM FOUNDATION

- REFER TO CIVIL DRAWINGS FOR ORIENTATION OF THE FOUNDATIONS.
- EQUIPMENT ENCLOSURE FOUNDATION IS DESIGNED FOR THE FOLLOWING LOADS:
ROOF LIVE LOAD: 81 PSF
FLOOR LIVE LOAD: 986 PSF
- THE CONTRACTOR SHALL NOTIFY THE CLIENT'S GEOTECHNICAL ENGINEER TO COORDINATE HAVING A FIELD REPRESENTATIVE ON SITE FOR TESTING AND INSPECTION.
- FOOTINGS SHALL BEAR ON VIRGIN SOIL OR COMPACTED FILL MATERIAL CAPABLE OF SUPPORTING A MINIMUM SOIL BEARING PRESSURE OF 1000 PSF MINIMUM.
- SUBGRADE PREPARATION:
A. REMOVE ALL SOILS CONTAINING TOPSOIL: ORGANIC MATERIALS, AND/OR FILL MATERIALS FROM WITHIN AREA OF ENCLOSURE FOUNDATION.
B. PROOF ROLL RESULTING SUBGRADE WITH A HEAVILY LOADED SINGLE AXLE ROLLER OR SIMILAR VEHICLE. (20 TON LOAD). CONTRACTOR SHALL UNDERCUT AND REPLACE WITH ENGINEERED FILL. ALL LOOSE SOFT OR UNSTABLE AREAS REVEALED DURING PROOFROLLING AS DIRECTED BY THE TESTING AGENCY. CONTRACTOR SHALL INCLUDE ANTICIPATED UNDERCUT AND REPLACEMENT AS INDICATED IN THE GEOTECHNICAL REPORT AS PART OF THE BID.
C. BACKFILL AND COMPACT THE AREA WITHIN THE PLATFORM FOUNDATION. BETWEEN RESULTANT SUBGRADE AND FOUNDATION WALL WITH APPROVED GRANULAR MATERIAL.
- FOUNDATION WALLS SHALL BE BACKFILLED EVENLY ON EACH SIDE OF THE WALL OR WALLS SHALL BE ADEQUATELY BRACED BY THE CONTRACTOR UNTIL FOUNDATION WALL HAS BEEN PLACED AND CURED FOR 72 HOURS MINIMUM.
- PLATFORM SHALL NOT BE SET UNTIL FOUNDATION WALL HAS BEEN CURED FOR 72 HOURS MINIMUM.
- CONTRACTOR TO ENSURE FOUNDATION WALL ARE POURED TO MEET FLATNESS LEVEL TOLERANCES AS INDICATED IN ACI 4.5.6 AND 4.5.7.

B. EQUIPMENT PLATFORM

THE EQUIPMENT PLATFORM IS A PRE-FABRICATED PLATFORM MANUFACTURED BY SABRE INDUSTRIES, BOSSIER CITY, LA 71111
THE EQUIPMENT PLATFORM SHALL BE FURNISHED AND INSTALLED BY THE OWNER UNDER SEPARATE CONTRACT PER THE OWNER AND MANUFACTURER SPECIFICATIONS.

C. CONCRETE NOTES

- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND ACI 301, LATEST EDITION. THESE DOCUMENTS SHALL BE AVAILABLE IN THE FIELD OFFICE.
- EXCEPT WHERE OTHERWISE INDICATED, CONCRETE SHALL BE NORMAL WEIGHT AND WITH MINIMUM 28-DAY COMPRESSIVE STRENGTHS OF $f'_c=4000$ PSI. ALL EXTERIOR EXPOSED CONCRETE SHALL BE AIR ENTRAINED WITH 6% AIR CONENT.
- REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- UNLESS NOTED OTHERWISE, ALL SLABS-ON GRADE SHALL BE REINFORCED WITH ONE (1) LAYER OF 6X6 W2.1XW2.1 W.W.F.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-998-6400
FAX: 847-998-6401

| NO. | DESCRIPTION | BY | DATE |
|-----|------------------------------------|-----|----------|
| 3 | FINAL PENDING FIBER | DMS | 08/21/17 |
| 4 | UPDATE WITH NEW ECR | JTM | 08/31/17 |
| 5 | UPDATE WITH NEW LAYOUT | DMS | 09/08/17 |
| 6 | FINALS WITH FINER | RA | 10/20/17 |
| 7 | ADDITION OF LANDSCAPING PLAN | JTM | 12/29/17 |
| 8 | UPDATE PER GAS COORDINATION | DMS | 01/31/18 |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | JTM | 04/05/18 |

LOC. # 311466

W 151ST & S 80TH

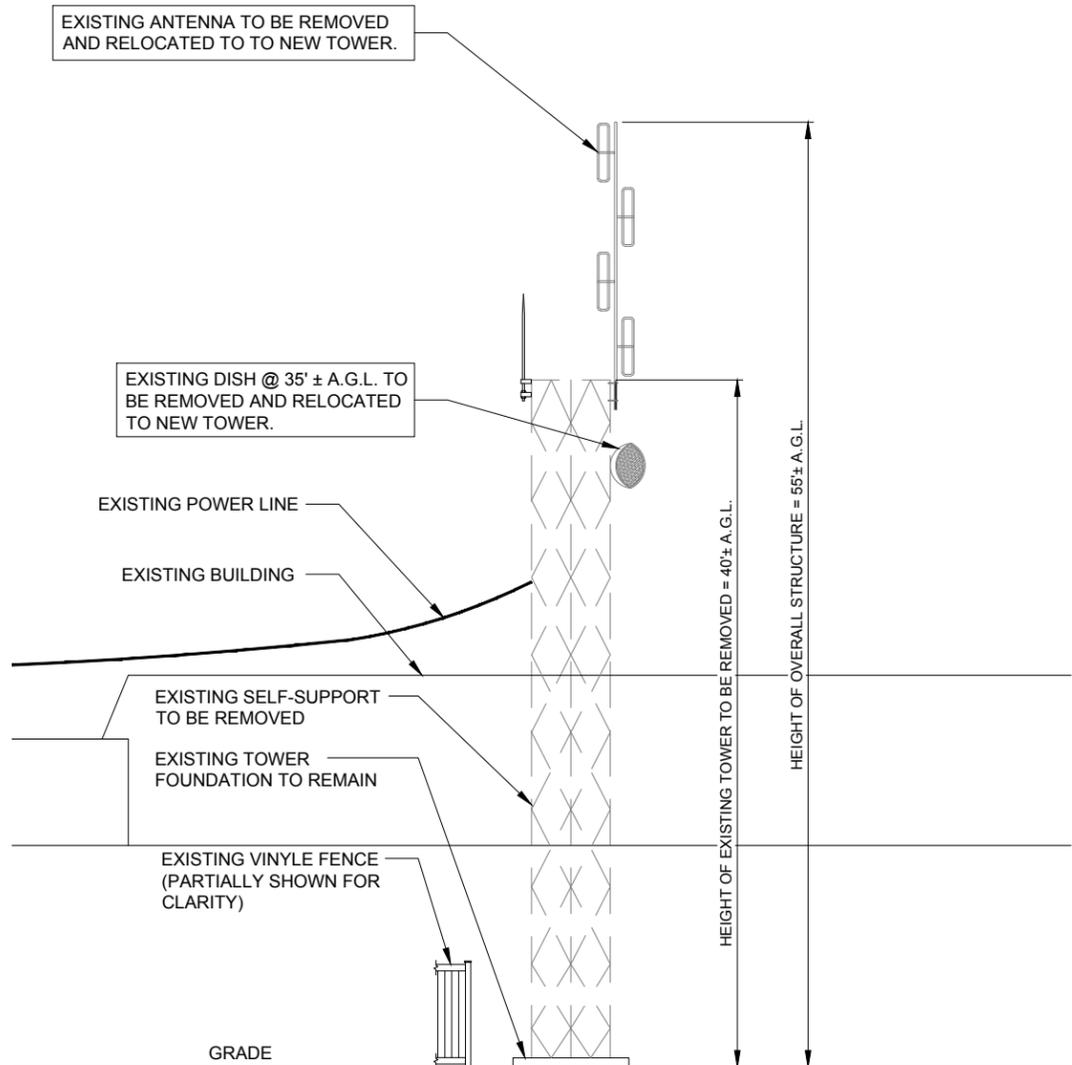
15100 S 80TH AVE
ORLAND PARK, IL 60462

| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

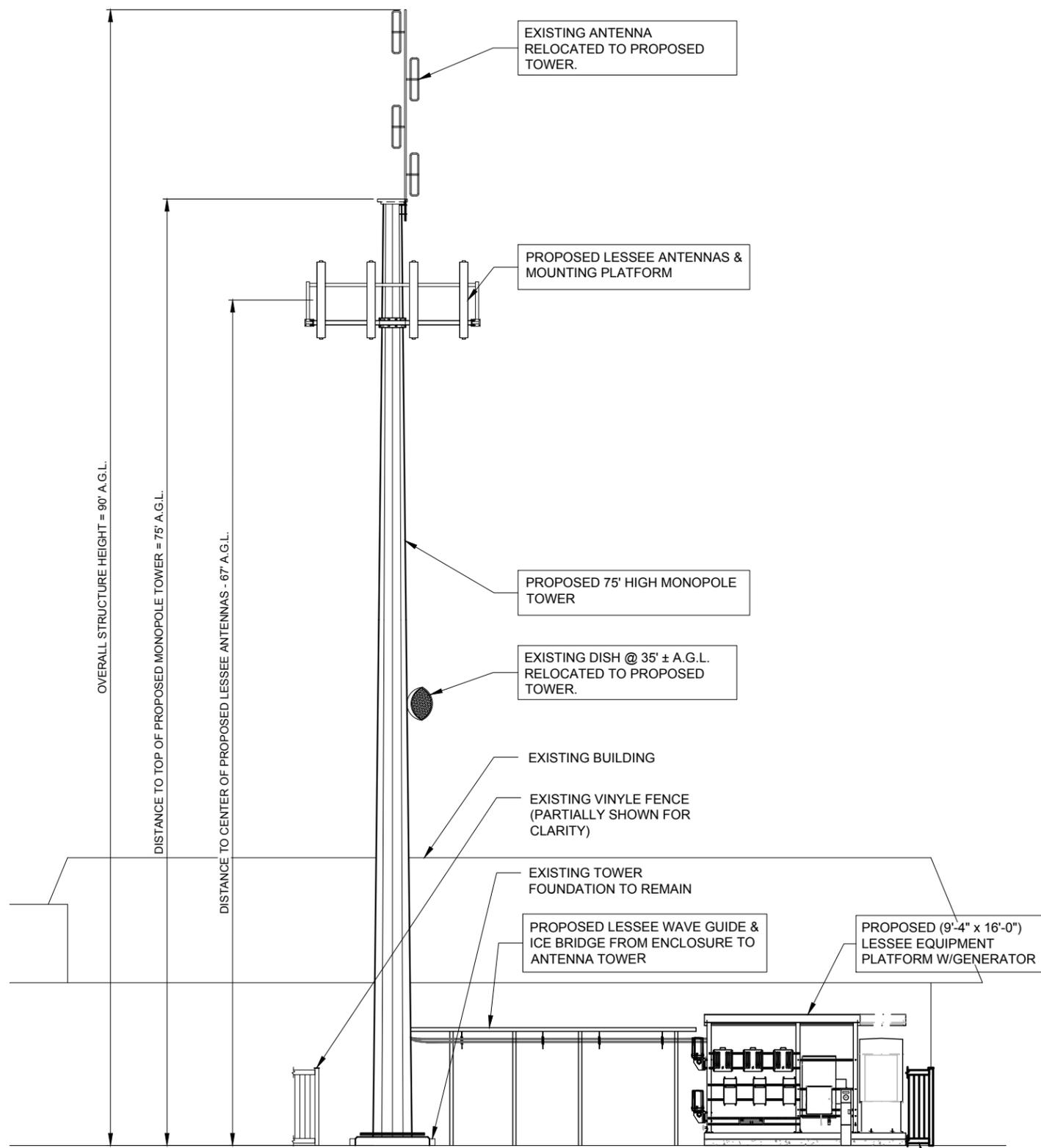
SHEET TITLE
PLATFORM FOUNDATION PLAN

SHEET NUMBER
C-5

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR
Call Before You Dig
JULIE
ILLINOIS
ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE
YOU DIG



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



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

0 1/2" 1" 2"
SCALE: 3/16" = 1'
24" x 36" PRINT IS THE FULL SCALE
FORMAT. ANY SIZE OTHER THAN
THAT IS AT REDUCED SCALE.

CHICAGO
SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-898-6400
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LOC. # 311466

W 151ST
& S 80TH

15100 S 80TH AVE
ORLAND PARK, IL 60462

| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
SITE ELEVATION

SHEET NUMBER

ANT-1

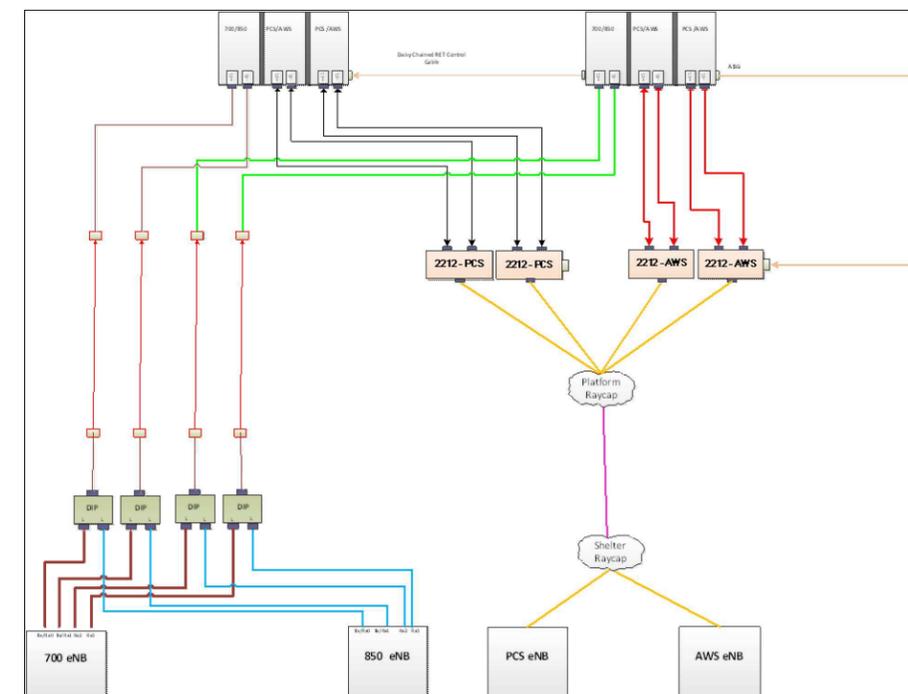
| EQUIPMENT CHANGE REQUEST FORM- ECR | | | | | | | | | | | |
|------------------------------------|----------|---------------------|---------------------|----------------------|----------------|-----------------------|----------------------|-----------|---------------|-----------------|----------------|
| Cell Name | | 151st St & 80th Ave | | | Cell ID | | | | | | |
| Location Number | | RF Engineer | | | Address | | 15100 S 80th St | | | | |
| Date of Request | | Market | | | City/State/Zip | | Orland Park/IL/60462 | | | | |
| Date of Request | | 8/31/2017 | | | RF Engineer | | Jeremy Litz | | | | |
| Date of Request | | 8/31/2017 | | | Market | | HH | | | | |
| PROPOSED CONFIGURATION | | | | Configuration | | | | Option-A2 | | | |
| Sector | Pos | Port | RF Path | Antenna Manufacturer | Antenna Model | Antenna Serial Number | Centerline | Azimuth | Variable Tilt | Mechanical Tilt | Action |
| Alpha | A1 | L1 (+45) | LTE C - RxTx0 | CommScope | SBNHH-1D65B | | 67 | 25 | 2 | 0 | Change-Install |
| | | L2 (+45) | LTE C - RxTx1 | | | | | | 0 | | |
| | | H1 (+45) | AWS - RxTx0 | | | | | | | | |
| | | H2 (+45) | AWS - RxTx1 | | | | | | | | |
| | A2 | L1 (+45) | Unused at this time | | | | | | | | |
| | | L2 (+45) | Unused at this time | | | | | | | | |
| | | H1 (+45) | Unused at this time | | | | | | | | |
| | | H2 (+45) | Unused at this time | | | | | | | | |
| | A3 | L1 (+45) | Unused at this time | | | | | | | | |
| | | L2 (+45) | Unused at this time | | | | | | | | |
| | | H1 (+45) | Unused at this time | | | | | | | | |
| | | H2 (+45) | Unused at this time | | | | | | | | |
| A4 | L1 (+45) | Unused at this time | | CommScope | SBNHH-1D65B | | 67 | 25 | 2 | 0 | Change-Install |
| | L2 (+45) | Unused at this time | 0 | | | | | | | | |
| | H1 (+45) | PCS Future - RxTx0 | | | | | | | | | |
| | H2 (+45) | PCS Future - RxTx1 | | | | | | | | | |
| Beta | B1 | L1 (+45) | LTE C - RxTx0 | CommScope | SBNHH-1D65B | | 67 | 140 | 4 | 0 | Change-Install |
| | | L2 (+45) | LTE C - RxTx1 | | | | | | 1 | | |
| | | H1 (+45) | AWS - RxTx0 | | | | | | | | |
| | | H2 (+45) | AWS - RxTx1 | | | | | | | | |
| | B2 | L1 (+45) | Unused at this time | | | | | | | | |
| | | L2 (+45) | Unused at this time | | | | | | | | |
| | | H1 (+45) | Unused at this time | | | | | | | | |
| | | H2 (+45) | Unused at this time | | | | | | | | |
| | B3 | L1 (+45) | Unused at this time | | | | | | | | |
| | | L2 (+45) | Unused at this time | | | | | | | | |
| | | H1 (+45) | Unused at this time | | | | | | | | |
| | | H2 (+45) | Unused at this time | | | | | | | | |
| B4 | L1 (+45) | Unused at this time | | CommScope | SBNHH-1D65B | | 67 | 140 | 4 | 0 | Change-Install |
| | L2 (+45) | Unused at this time | 1 | | | | | | | | |
| | H1 (+45) | PCS Future - RxTx0 | | | | | | | | | |
| | H2 (+45) | PCS Future - RxTx1 | | | | | | | | | |
| Gamma | G1 | L1 (+45) | LTE C - RxTx0 | CommScope | SBNHH-1D65B | | 67 | 270 | 4 | 0 | Change-Install |
| | | L2 (+45) | LTE C - RxTx1 | | | | | | 1 | | |
| | | H1 (+45) | AWS - RxTx0 | | | | | | | | |
| | | H2 (+45) | AWS - RxTx1 | | | | | | | | |
| | G2 | L1 (+45) | Unused at this time | | | | | | | | |
| | | L2 (+45) | Unused at this time | | | | | | | | |
| | | H1 (+45) | Unused at this time | | | | | | | | |
| | | H2 (+45) | Unused at this time | | | | | | | | |
| | G3 | L1 (+45) | Unused at this time | | | | | | | | |
| | | L2 (+45) | Unused at this time | | | | | | | | |
| | | H1 (+45) | Unused at this time | | | | | | | | |
| | | H2 (+45) | Unused at this time | | | | | | | | |
| G4 | L1 (+45) | Unused at this time | | CommScope | SBNHH-1D65B | | 67 | 270 | 4 | 0 | Change-Install |
| | L2 (+45) | Unused at this time | 1 | | | | | | | | |
| | H1 (+45) | PCS Future - RxTx0 | | | | | | | | | |
| | H2 (+45) | PCS Future - RxTx1 | | | | | | | | | |
| Comments | | | | | | | | | | | |

1 PROPOSED ANTENNA SCHEDULE
N.T.S.

| ESTIMATED MAIN LINE HYBRID LENGTH | | | |
|-----------------------------------|-----------------------|-------------|-----------|
| ANTENNA CENTERLINE (±) | ICE BRIDGE LENGTH (±) | SHELTER (±) | TOTAL (±) |
| 67' | 13' | 15' | 100' |

| Proposed | | | | | | |
|--------------------|------------------|-------------------|-----------------------|---------|---------|---------|
| Passive Components | Location | Manufacturer | Component Model | Count | Action | |
| | Top (Platform) | | | | | |
| | Bottom (Shelter) | | | | | |
| | Top (Platform) | Ericsson | 2212 - AWS | 6 | Install | |
| | Top (Platform) | Ericsson | 2212 - PCS | 6 | Install | |
| | Top (Platform) | | | | | |
| Top (Platform) | Raycap | RCMDC-3315-PF-48 | 3 | Install | | |
| Bottom (Shelter) | Raycap | RCMDC-3315-PF-48 | 3 | Install | | |
| Bottom (Shelter) | CommScope | CBC78T-DS-43 | 6 | Install | | |
| Coax | Sector | Coax Manufacturer | Type | Size | Count | Action |
| | Alpha | ANDREW | | 1 5/8 | 4 | Install |
| | Beta | ANDREW | | 1 5/8 | 4 | Install |
| | Gamma | ANDREW | | 1 5/8 | 4 | Install |
| | AWS | Andrew | RFF-16SM-808-4 18-APE | 1 5/8 | 3 | Install |
| Comments | | | | | | |

2 COMBINER CABLE DATA INFORMATION
N.T.S.



3 CABLE DIAGRAM
N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-936-6400
FAX: 847-688-6401

| NO. | DESCRIPTION | BY | DMS | JTM | DMS | RA | JTM | DMS | JTM |
|-----|------------------------------------|------|----------|------|------|------|------|------|------|
| | | DATE | DATE | DATE | DATE | DATE | DATE | DATE | DATE |
| 3 | FINAL PENDING FIBER | | 08/21/17 | | | | | | |
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| 7 | ADDITION OF LANDSCAPING PLAN | | 12/29/17 | | | | | | |
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| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | | 04/05/18 | | | | | | |

LOC. # 311466
W 151ST & S 80TH
15100 S 80TH AVE
ORLAND PARK, IL 60462

DRAWN BY: PP
CHECKED BY: TAZ
DATE: 07/23/15
PROJECT #: 33-1466

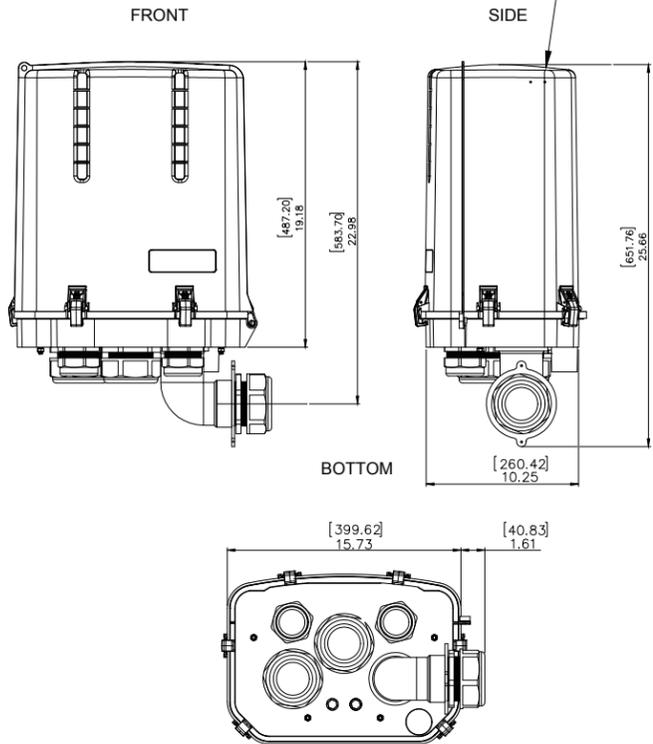
SHEET TITLE
ANTENNA INFORMATION

SHEET NUMBER
ANT-2

SPECIFICATIONS DC SURGE PROTECTION FOR RRU/INTEGRATED ANTENNA RADIO HEAD
 APPLICATION: TOWER / BASE / ROOFTOP / ROOFTOP DISTRIBUTION MODELS
 WEIGHT: 32LBS (14.51 KG)

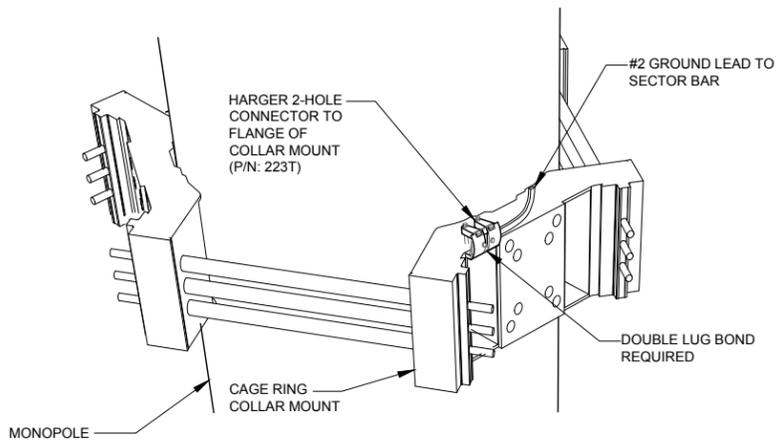
[mm]
 INCHES

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

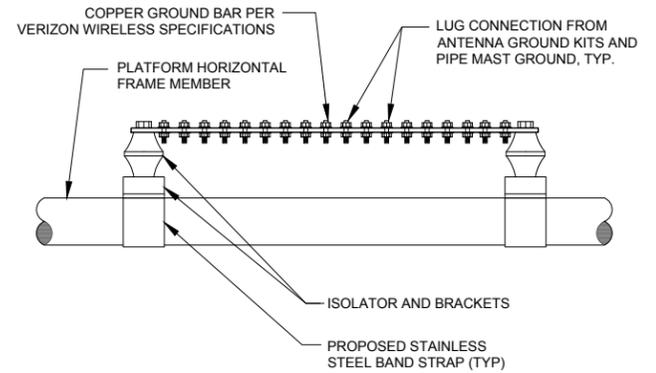


1 RAYCAP JUNCTION BOX DETAIL
 SCALE: N.T.S.

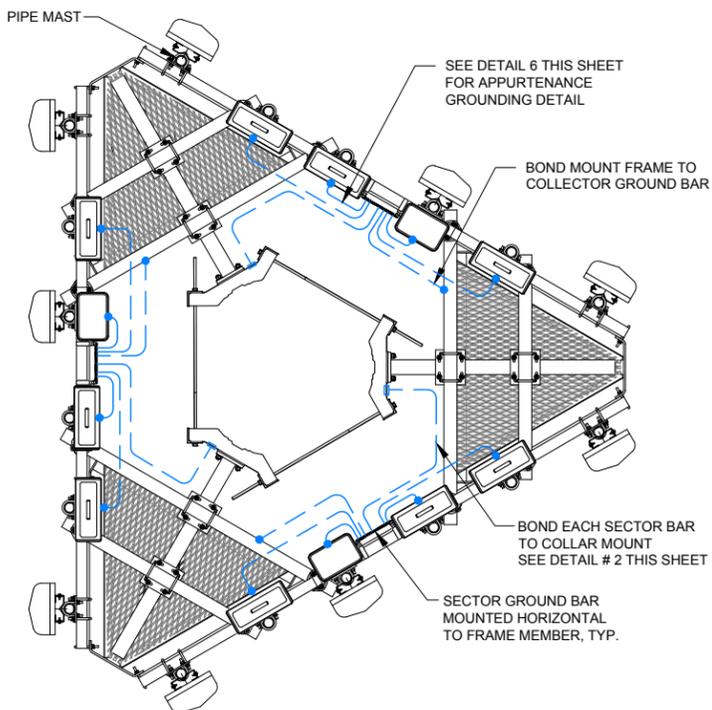
NOTE: EACH SECTOR BAR TO HAVE TO HAVE
 SEPARATE GROUND LEAD TO COLLAR MOUNT



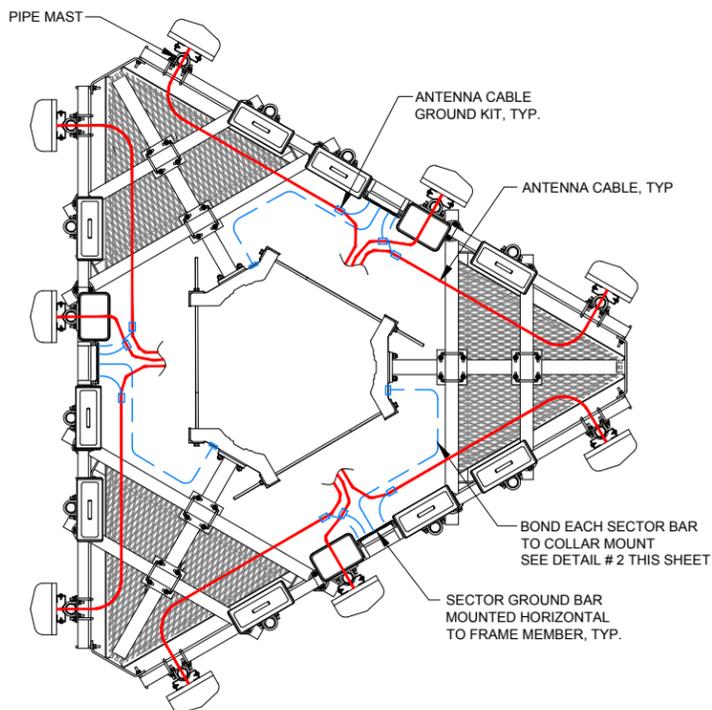
2 MONOPOLE GROUND AT ANTENNA LEVEL
 SCALE: N.T.S.



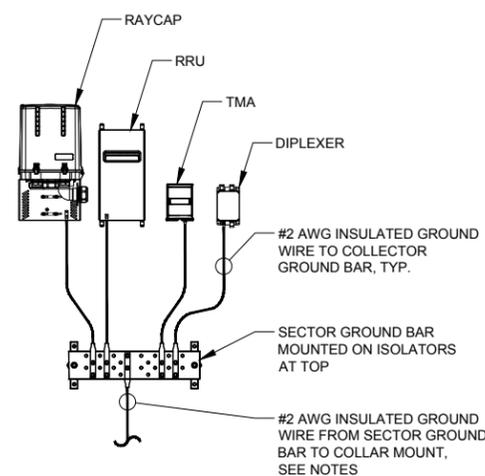
3 GROUND BAR AT SECTOR
 N.T.S.



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



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



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

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

| APPROVED UL LISTED GROUND CLAMPS | |
|----------------------------------|---|
| APPLICATION | UL LISTED HARGER PART # |
| METAL FLANGE | 213, 213T, 213TTP |
| PIPE MEMBER | CPC SERIES (SIZED TO FIT DIAMETER OF PIPE) |
| LARGER PIPE MEMBER | UPC SERIES (UNIVERSAL PIPE CLAMP) SIZED TO FIT DIAMETER OF PIPE |
| TO COLLAR MOUNT | 233T |

NOTES:

1. THE BOND BETWEEN THE SECTOR BAR AND THE TOWER IS TO BE MECHANICALLY BONDED TO COLLAR MOUNT. THE MECHANICAL BOND IS TO BE A UL APPROVED MECHANICAL CONNECTION CLAMP.
2. GROUND CONNECTIONS MUST BE DOUBLE HOLE CONNECTION. SPECIAL EXCEPTION ONLY TO EQUIPMENT THAT WILL NOT ALLOW FOR A DOUBLE HOLE CONNECTION.

CHICAGO SMSA
 limited partnership
 d/b/a VERIZON WIRELESS



| NO. | DESCRIPTION | DATE | BY | | | |
|-----|------------------------------------|----------|-----|-----|-----|-----|
| | | | DMS | JTM | DMS | JTM |
| 3 | FINAL PENDING FIBER | 08/21/17 | DMS | JTM | DMS | JTM |
| 4 | UPDATE WITH NEW ECR | 08/31/17 | DMS | JTM | DMS | JTM |
| 5 | UPDATE WITH NEW LAYOUT | 09/08/17 | DMS | JTM | DMS | JTM |
| 6 | FINALS WITH FINER | 10/20/17 | DMS | JTM | DMS | JTM |
| 7 | ADDITION OF LANDSCAPING PLAN | 12/29/17 | DMS | JTM | DMS | JTM |
| 8 | UPDATE PER GAS COORDINATION | 01/31/18 | DMS | JTM | DMS | JTM |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | 04/05/18 | DMS | JTM | DMS | JTM |

LOC. # 311466

W 151ST
 & S 80TH

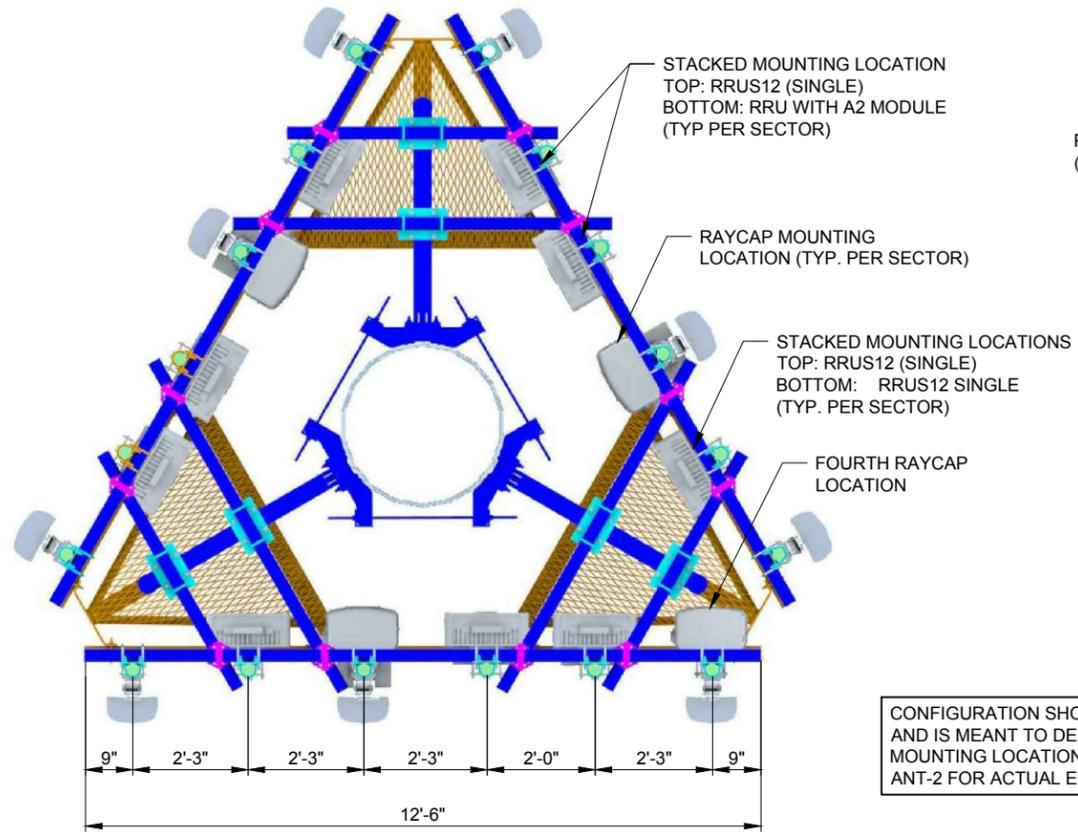
15100 S 80TH AVE
 ORLAND PARK, IL 60462

DRAWN BY: PP
 CHECKED BY: TAZ
 DATE: 07/23/15
 PROJECT #: 33-1466

SHEET TITLE
 SITE
 DETAILS

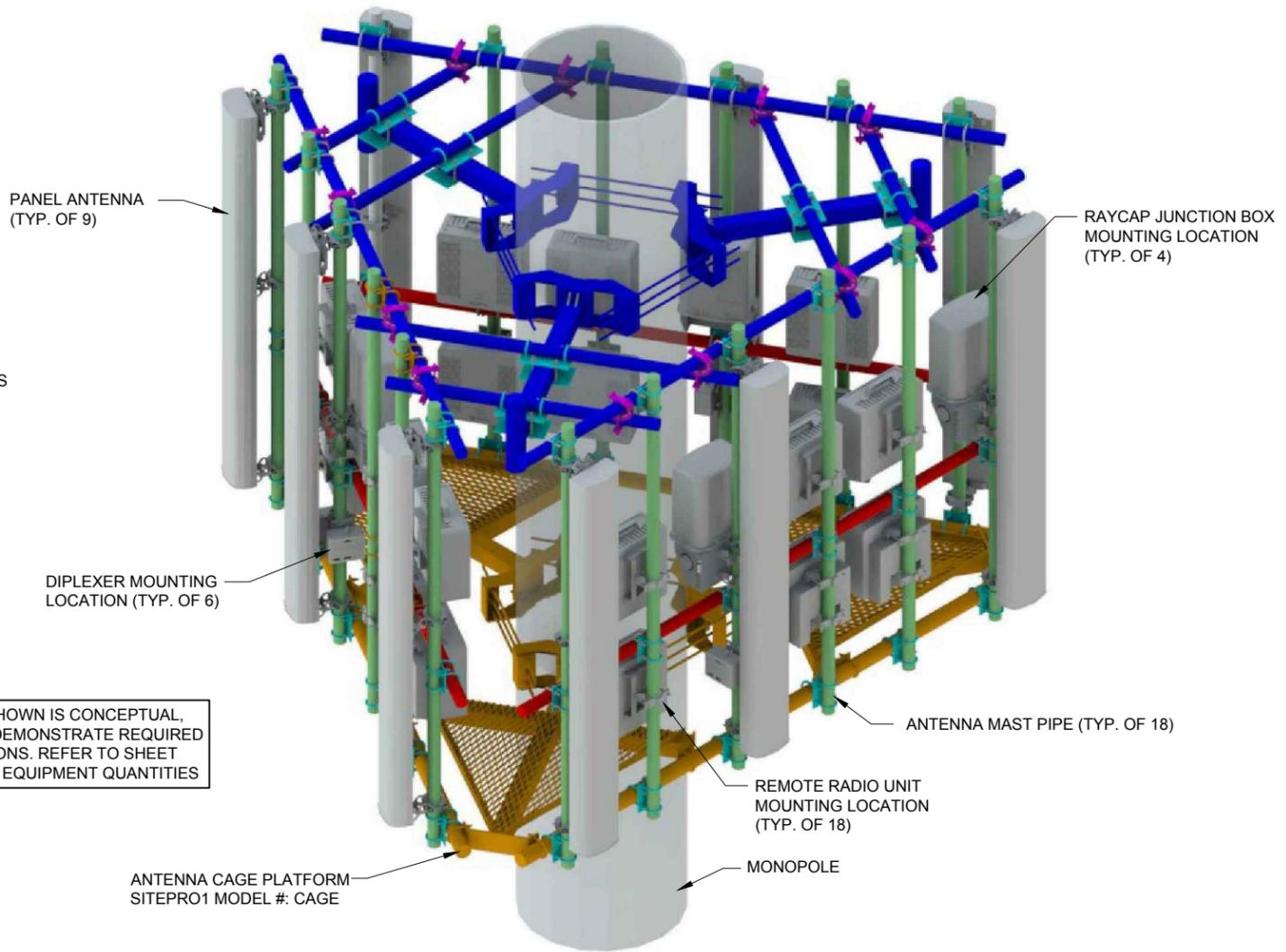
SHEET NUMBER
ANT-3

| NO. | DESCRIPTION | DATE | BY | DMS | JTM | DMS | RA | JTM | DMS | JTM |
|-----|------------------------------------|----------|----|-----|-----|-----|----|-----|-----|-----|
| 3 | FINAL PENDING FIBER | 08/21/17 | | | | | | | | |
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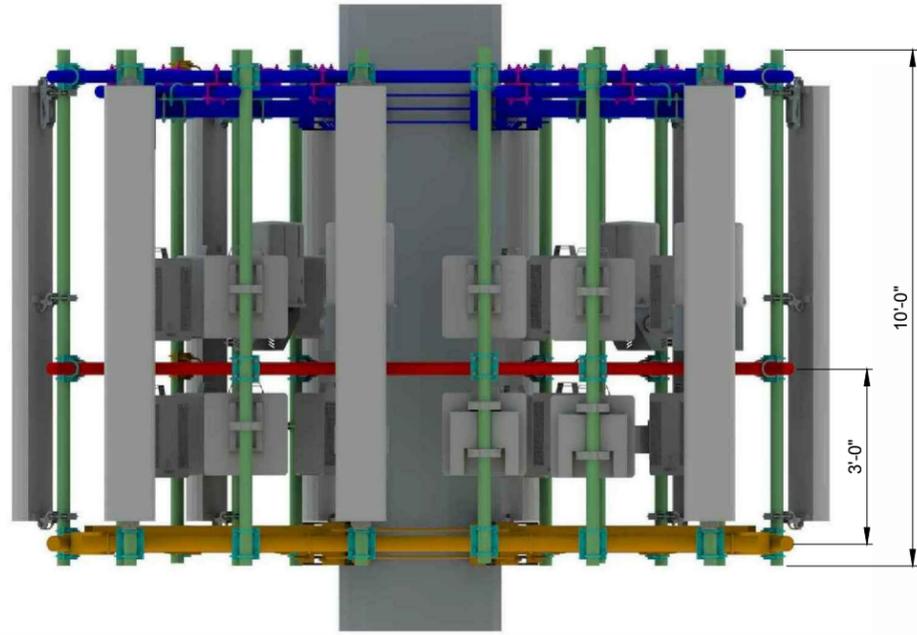


1 PLAN VIEW
 SCALE: N.T.S.

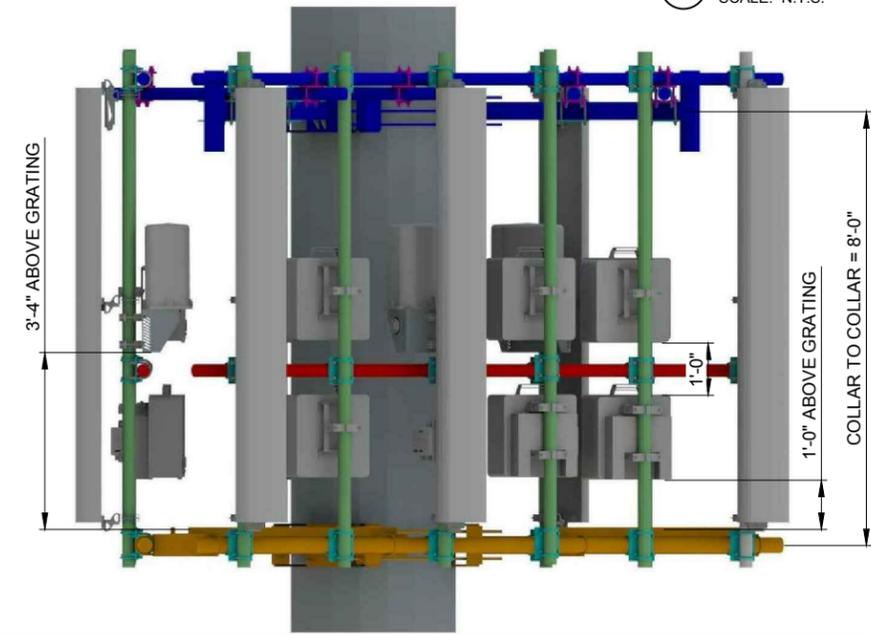
CONFIGURATION SHOWN IS CONCEPTUAL, AND IS MEANT TO DEMONSTRATE REQUIRED MOUNTING LOCATIONS. REFER TO SHEET ANT-2 FOR ACTUAL EQUIPMENT QUANTITIES



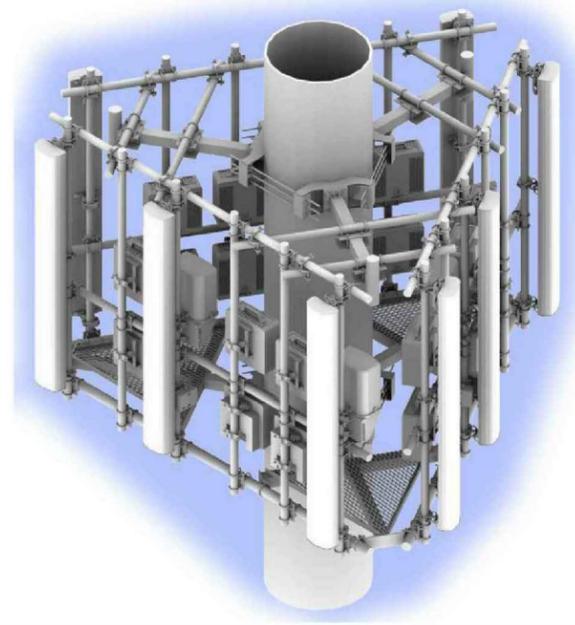
2 ISOMETRIC VIEW
 SCALE: N.T.S.



3 FRONT VIEW
 SCALE: N.T.S.



4 SIDE VIEW
 SCALE: N.T.S.



5 ISOMETRIC RENDERING
 SCALE: N.T.S.

LOC. # 311466

W 151ST
 & S 80TH

15100 S 80TH AVE
 ORLAND PARK, IL 60462

| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
ANTENNA MOUNTING DETAILS

SHEET NUMBER

ANT-3A

| REVISIONS | | NO. | DESCRIPTION | DATE | BY |
|-----------|------------------------------------|----------|-------------|------|----|
| 3 | FINAL PENDING FIBER | 08/21/17 | DMS | | |
| 4 | UPDATE WITH NEW ECR | 08/31/17 | JTM | | |
| 5 | UPDATE WITH NEW LAYOUT | 09/08/17 | DMS | | |
| 6 | FINALS WITH FINER | 10/20/17 | RA | | |
| 7 | ADDITION OF LANDSCAPING PLAN | 12/29/17 | JTM | | |
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| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | 04/05/18 | JTM | | |

LOC. # 311466

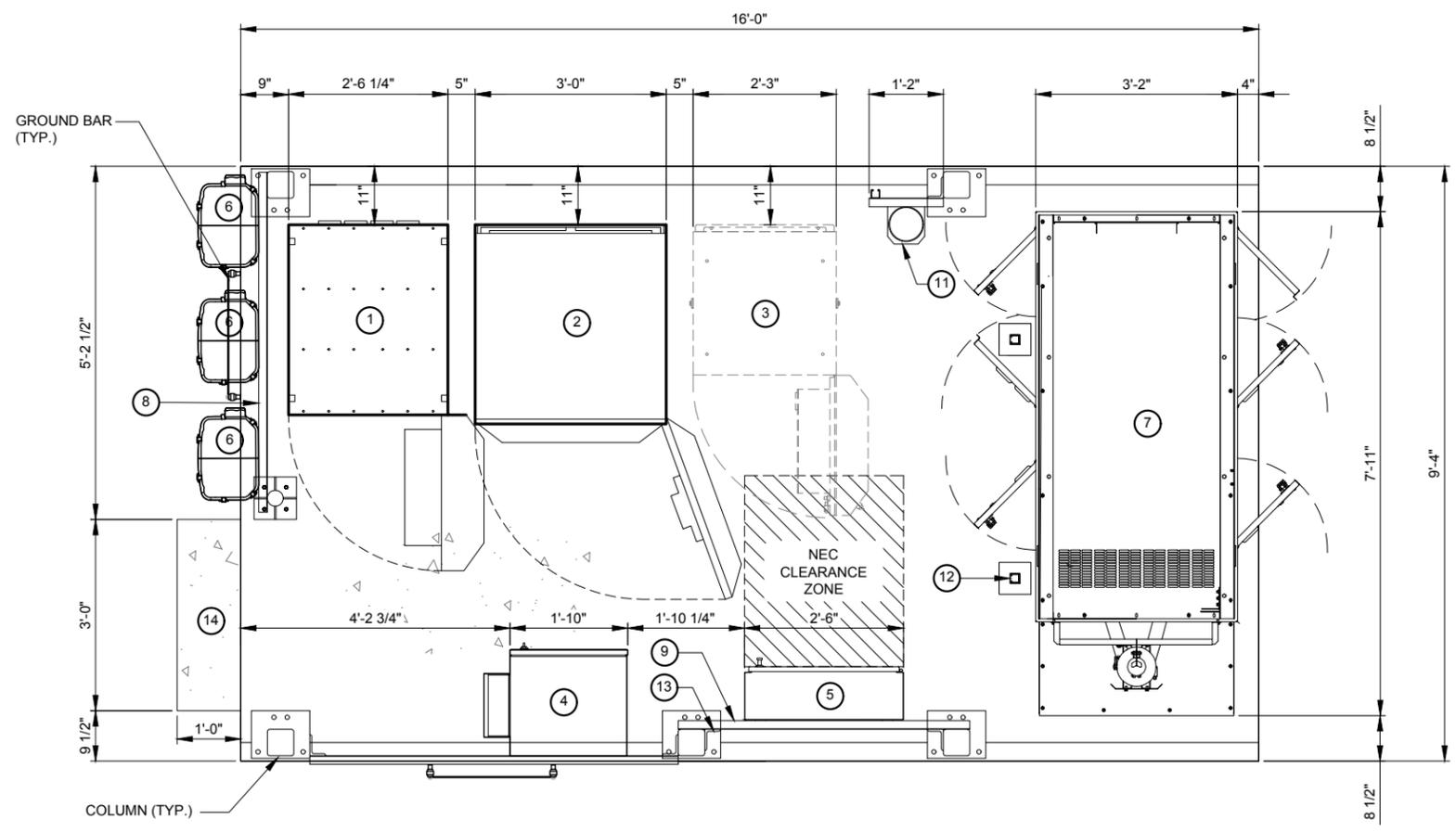
W 151ST
 & S 80TH

15100 S 80TH AVE
 ORLAND PARK, IL 60462

| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
EQUIPMENT SKID PLAN & NOTES

SHEET NUMBER
B-1



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

KEY NOTES

- COMMSCOPE RBA72-30 EQUIPMENT CABINET (72"x31.3"x44")
- COMMSCOPE RBA72-36 BATTERY CABINET (72"x36.3"x40.6")
- ERICSSON 61220 ENODE B CABINET IF REQUIRED (6'-6"x2'-3"x2'x3")
- CHARLES CUBE RL1003 FIBER ENCLOSURE
- INTEGRATED LOAD CENTER
- RAYCAP SURGE SUPPRESSION UNIT (VERIFY QUANTITY AND LOCATION WITH CONSTRUCTION DRAWINGS AND LOCATION OF ICE BRIDGE)
- GENERATOR MODEL #: LP/NATURAL GAS OUTDOOR - 35KW-GENERAC SGNG SEE EX-1 PAGE FOR GENERATOR DETAILS
- UNI-STRUT (P1000T) OVP MOUNTING RACK
- UNI-STRUT (P1000T) ILC MOUNTING RACK
- 3" O.D. PIPE W/ 8"x8" MOUNTING PLATE
- FIRE EXTINGUISHER BRACKET ON UNI-STRUT (P1000T) SUPPORT
- UNI-STRUT (P1000T) SUPPORT BASE FOR CONDUITS BETWEEN ILC AND GENERATOR.
- 3"x4"x3/8" THK. SLOTTED ANGLE
- 12"x36" CONCRETE STEP

NOTES:

- EQUIPMENT SKID PRE MANUFACTURED BY OTHERS
- THIS IS UNMANNED STORAGE AND EQUIPMENT SKID ONLY.
- SKID SHALL BE PLACED ACCORDING TO STATE AND LOCAL CODE FROM ANY PROPERTY LINE, INTERIOR LOT LINE OR ANY OTHER BUILDING.
- ALL ITEMS NOTED AS "FIELDWORK" SHALL BE INSTALLED AND TESTED AT THE FACTORY THEN REMOVED FOR TRANSPORT AND REINSTALLED AT THE FINAL SITE.
- SKID NOT DESIGNED FOR INSTALLATION IN A FLOOD PRONE AREA.
- FIRE EXTINGUISHER INSTALLED BY OTHERS WHEN NOT SUPPLIED BY SABRE.
- THIS SKID DOES NOT CONTAIN PLUMBING FACILITIES.
- THIS ENCLOSURE IS CLASSIFIED AS USE S-2 (IBC, FBC), U (OBC)
 2006-2015 INTERNATIONAL BUILDING CODE
 2009-2012 UNIFORM MECHANICAL CODE
 2006-2015 INTERNATIONAL MECHANICAL CODE
 2004 CHICAGO BUILDING CODE
- DESIGN PARAMETERS
 USE GROUP: S-2 (IBC, FBC)
 U (OBC)
 CONSTRUCTION TYPE: V-B (IBC, FBC)
 OCCUPANCY CATEGORY: II
 ROOF LIVE LOAD: 81 PSF
 FLOOR LIVE LOAD: 986 PSF
 GROUND SNOW LOAD: 96 PSF (N/A FOR FBC 2014)
 WIND SPEED: 150 MPH/EXPOSURE C
 SEISMIC ZONE FOR SBC & UBC: 4
 SEISMIC DESIGN CATEGORY FOR IBC: E (IBC)
 USE GROUP-III (OBC)
 SITE CLASS-D (OBC)
 BULLET RESISTANCE LEVEL 4 FOR 4" CONCRETE PER IBC
 CONCRETE f_c: 5000 PSI AT 28 DAYS
 CONCRETE UNIT WEIGHT: 115 PCF
- 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 |
|-----------|------------------------------------|----------|-------------|------|----|
| 3 | FINAL PENDING FIBER | 08/21/17 | DMS | JTM | |
| 4 | UPDATE WITH NEW ECR | 08/31/17 | DMS | RA | |
| 5 | UPDATE WITH NEW LAYOUT | 09/08/17 | DMS | JTM | |
| 6 | FINALS WITH FINER | 10/20/17 | DMS | JTM | |
| 7 | ADDITION OF LANDSCAPING PLAN | 12/29/17 | DMS | JTM | |
| 8 | UPDATE PER GAS COORDINATION | 01/31/18 | DMS | JTM | |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | 04/05/18 | DMS | JTM | |

LOC. # 311466

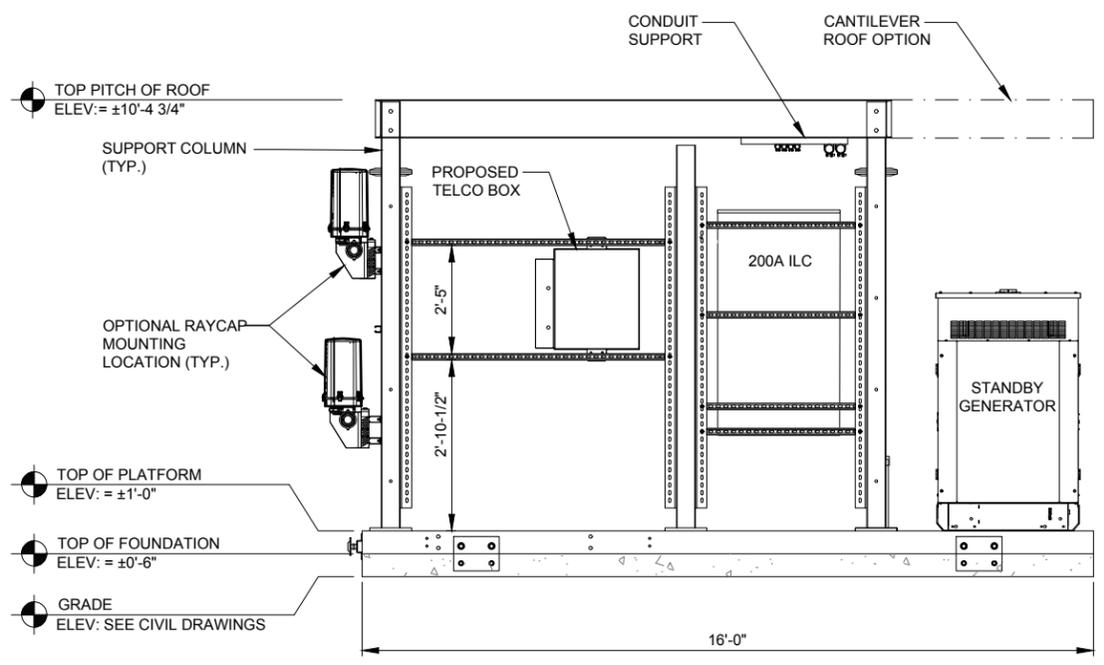
W 151ST
 & S 80TH

15100 S 80TH AVE
 ORLAND PARK, IL 60462

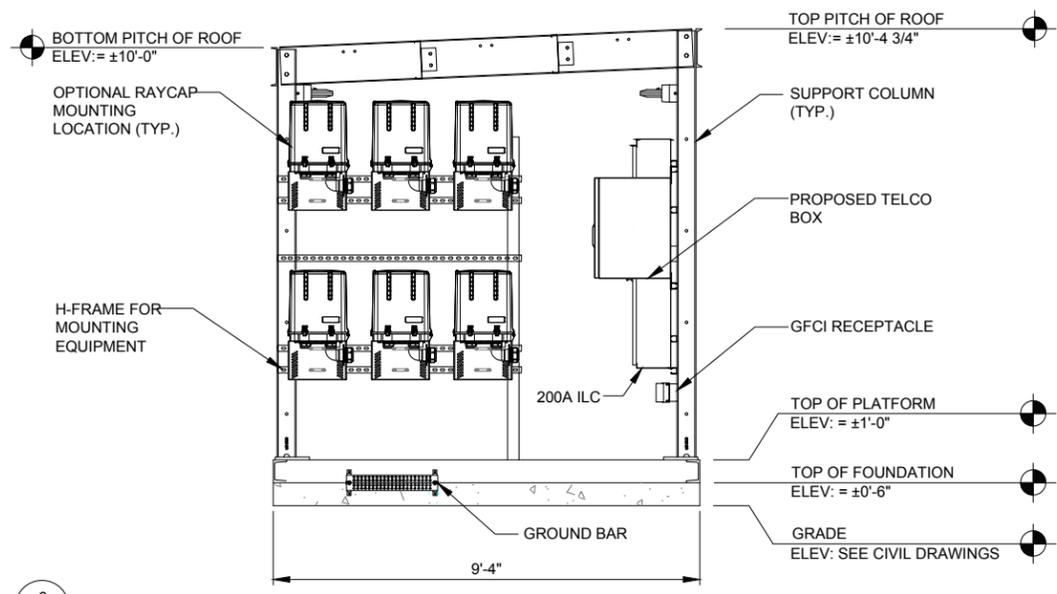
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| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
 EQUIPMENT PLATFORM ELEVATIONS

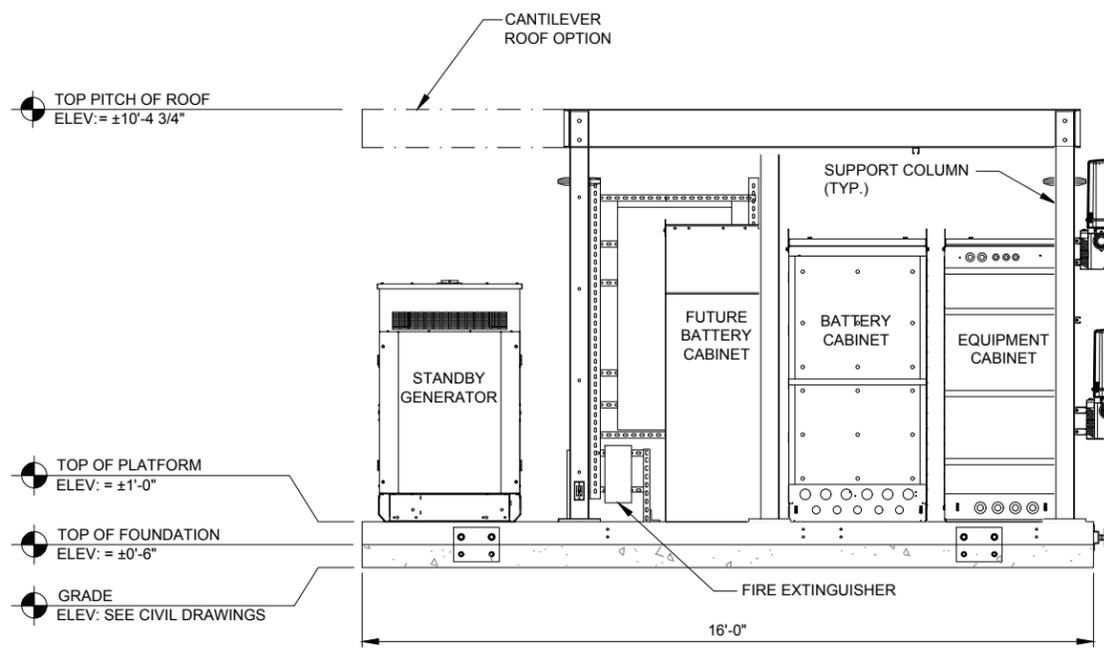
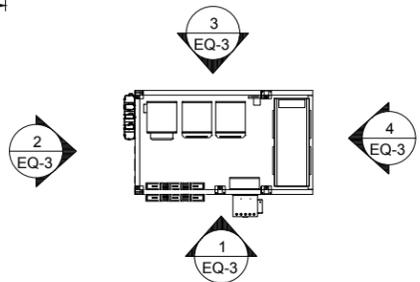
SHEET NUMBER
B-2



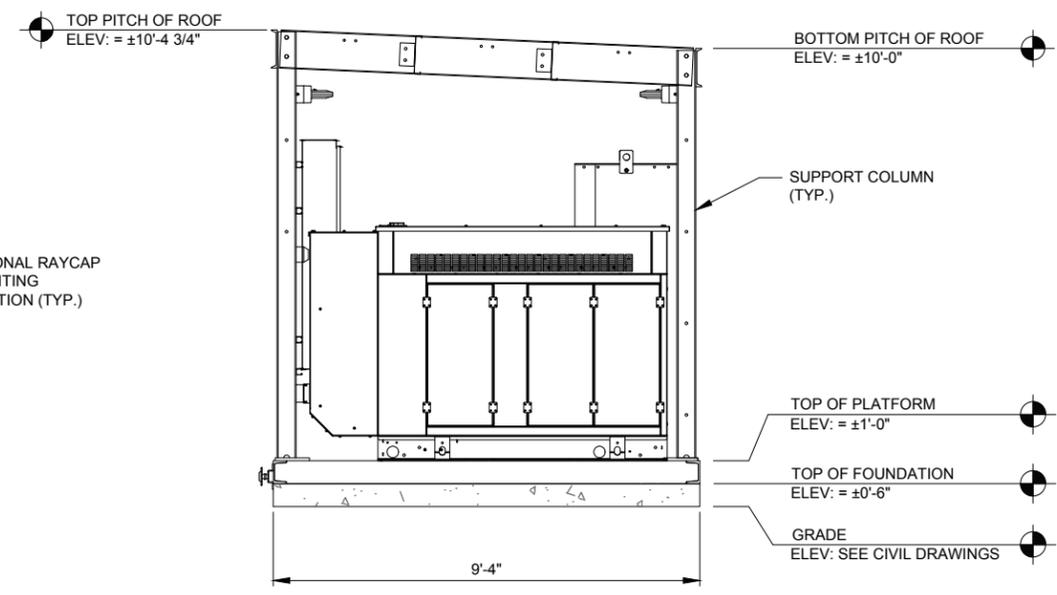
1 EQUIPMENT PLATFORM ELEVATION
 SCALE: N.T.S.



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



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



4 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 PROVISIONS, 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 WIRE 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 INCH (2") AND THREE INCH (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 FIELD 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 (FBO) 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 (FBO) 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 OPERATIONS 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.I.C. RATINGS OF ALL OVER CURRENT PROTECTION DEVICES IN DISTRIBUTION EQUIPMENT AS REQUIRED TO COORDINATE WITH AVAILABLE FAULT CURRENT FROM LOCAL UTILITY COMPANY. ALL GROUNDING RODS PROVIDED BY THE POWER OR TELEPHONE UTILITY COMPANIES MUST BE TIED INTO THE MAIN EXTERNAL GROUND RING.

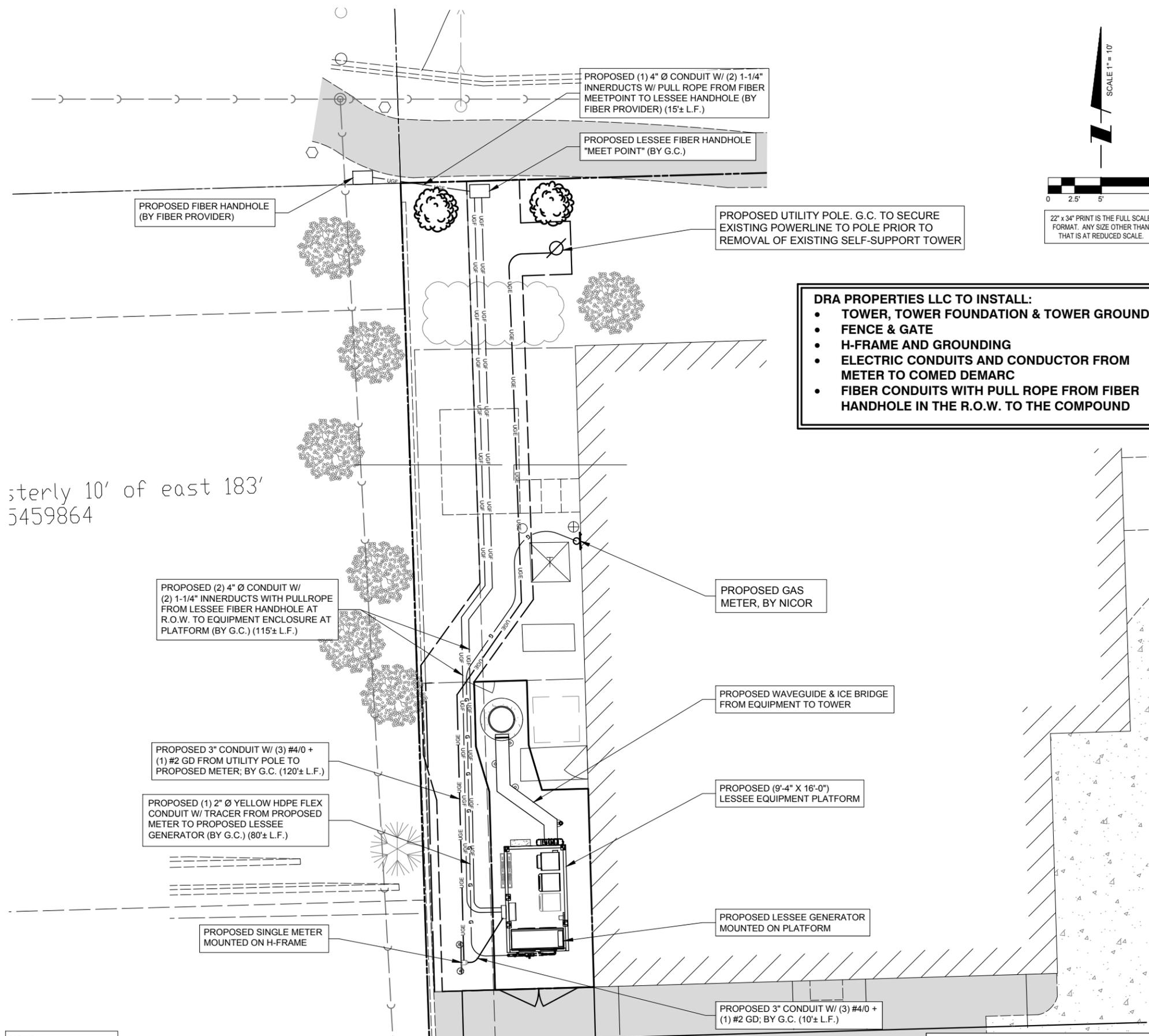
UTILITY CONTACTS:

POWER: COMED
LEONARD ANDERSON
(708) 235-2346

FIBER: ONE FIBER
WADE BOWERS
(512)618-3411

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.

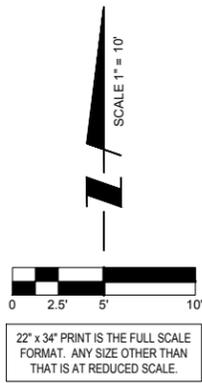
FOR CONTINUATION AND CONNECTION OF ELECTRIC AND FIBER SERVICE. COORDINATE WITH ELECTRIC AND FIBER COMPANY.



NOTE:
SEE SHEET LP FOR
ENTIRE UTILITY ROUTE.

1 SITE UTILITY ROUTING PLAN

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



- DRA PROPERTIES LLC TO INSTALL:**
- TOWER, TOWER FOUNDATION & TOWER GROUND
 - FENCE & GATE
 - H-FRAME AND GROUNDING
 - ELECTRIC CONDUITS AND CONDUCTOR FROM METER TO COMED DEMARC
 - FIBER CONDUITS WITH PULL ROPE FROM FIBER HANDHOLE IN THE R.O.W. TO THE COMPOUND

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-956-6400
FAX: 847-688-6401

| NO. | DESCRIPTION | DATE | BY | DMS | JTM | DMS | RA | JTM | DMS | JTM |
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| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | 04/05/18 | | | | | | | | |

LOC. # 311466

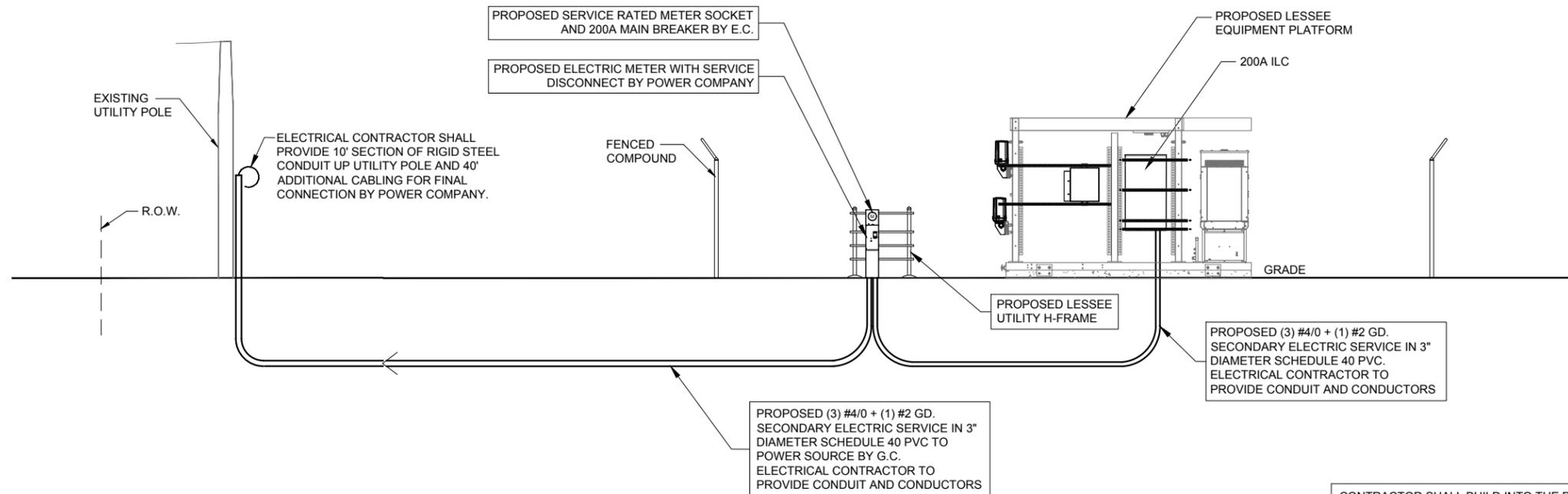
W 151ST
& S 80TH

15100 S 80TH AVE
ORLAND PARK, IL 60462

DRAWN BY: PP
CHECKED BY: TAZ
DATE: 07/23/15
PROJECT #: 33-1466

SHEET TITLE
UTILITY ROUTING PLAN

SHEET NUMBER
E-1

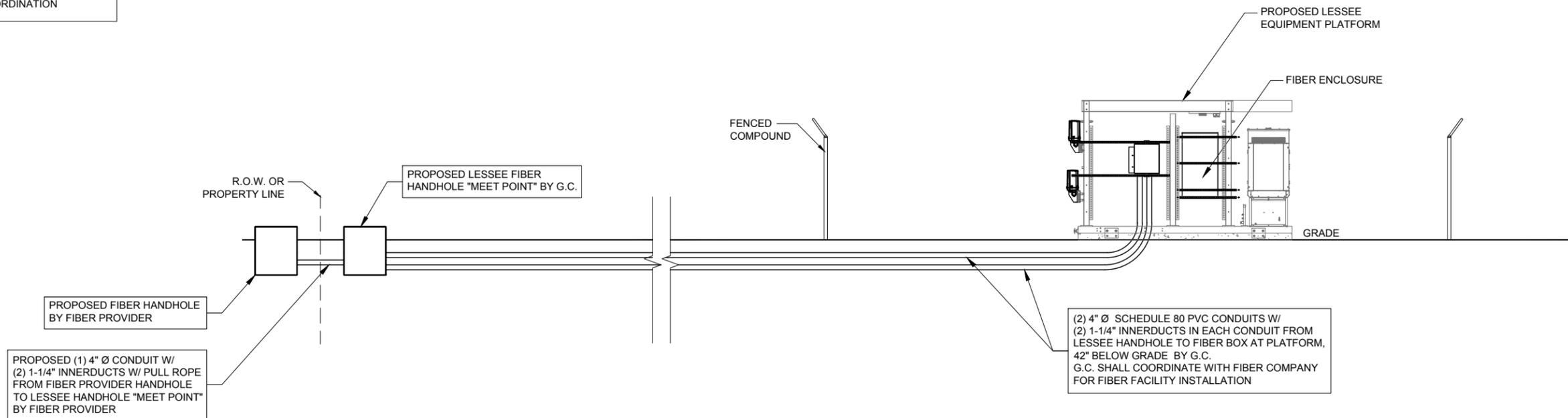


ELECTRICAL SERVICE: 200 AMP 120/240V SINGLE PHASE 3 WIRE

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

CONTRACTOR SHALL BUILD INTO THE PRICE OF THE BID THE COST OF TWO (2) MOBILIZATIONS:
1) POWER/FIBER PERMIT PULLED PRIOR TO BUILDING PERMIT AND PRELIMINARY WORK (SMART JACK ON A STICK, ETC) COMPLETED PRIOR TO GENERAL CONSTRUCTION
2) RETURN TO COMPLETE GENERAL ELECTRICAL CONSTRUCTION

• DESIGN PENDING FIBER COORDINATION



NOTE: VERIFY FIBER ROUTING REQUIREMENTS WITH FIBER COMPANY

2 FIBER RISER DIAGRAM
SCALE: N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-936-6400
FAX: 847-688-6401

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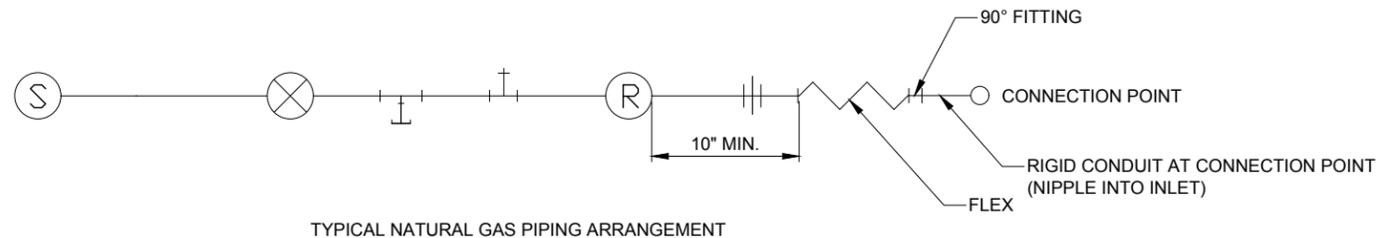
W 151ST & S 80TH

15100 S 80TH AVE
ORLAND PARK, IL 60462

DRAWN BY: PP
CHECKED BY: TAZ
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SHEET TITLE
UTILITY RISER DIAGRAMS

SHEET NUMBER
E-1A



TYPICAL NATURAL GAS PIPING ARRANGEMENT

1 PIPING SCHEMATIC
N.T.S.

| PIPE SIZING & REGULATOR MODEL CHART | | |
|-------------------------------------|-----------|--|
| GENERATOR MODEL | PIPE SIZE | REGULATOR MODEL |
| SG035 (35KW) | 1-1/4" | SENSUS MODEL 143-80-2 W/ GREEN SPRING & 1/2" ORIFICE AT 10 DEGREES |
| SG050 (50KW) | 1-1/4" | SENSUS MODEL 143-80-2 W/ GREEN SPRING & 1/2" ORIFICE AT 10 DEGREES |
| SG100 (100KW)* | 1-1/4" | SENSUS MODEL 243-12-2 W/ GREEN SPRING & 3/4" ORIFICE AT 10 DEGREES |
| | 1-1/2" | SENSUS MODEL 243-12-2 W/ GREEN SPRING & 1/2" ORIFICE AT 10 DEGREES |

*FOR 400A SITES

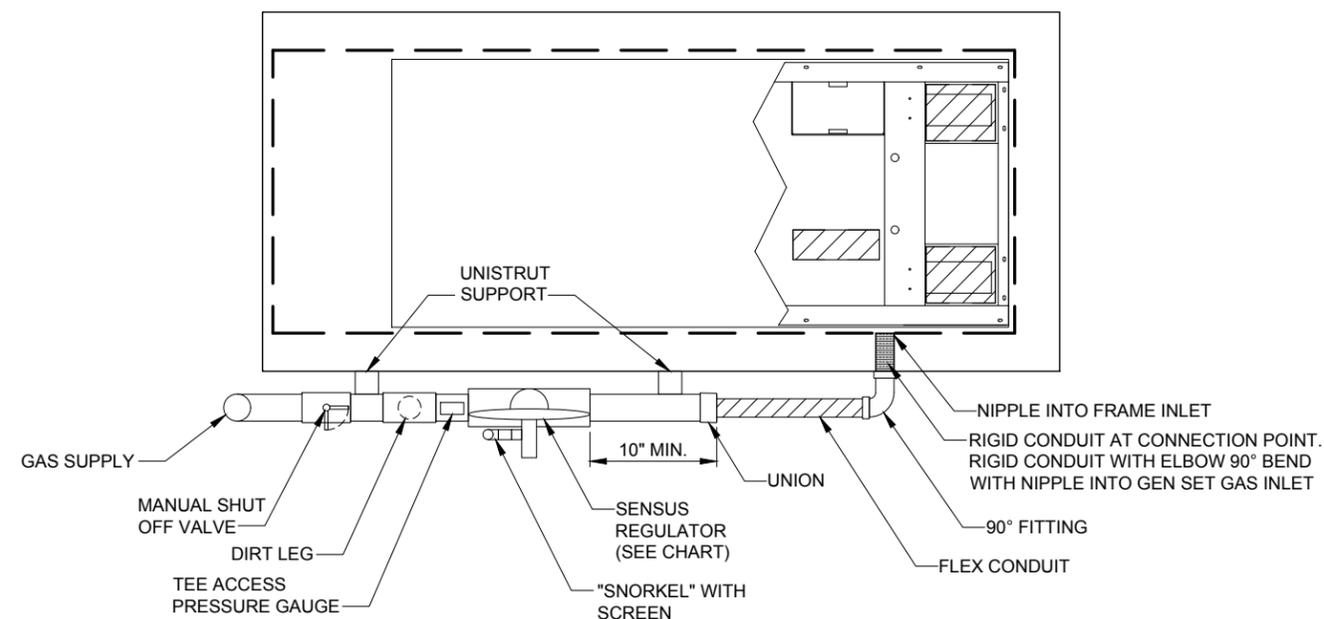
LEGEND:

- Ⓢ GAS SUPPLY PER VERIZON SPEC.
- ⊗ 1-1/4" FULL PORT MANUAL SHUT OFF VALVE
- ┌ TEE DIRT LEG (1-1/4" TEE w/ 6" DROP NIPPLE + 1-1/4" CAP)
- ┌ TEE 1-1/4" x 1-1/4" x 1/2" TEE ACCESS FOR PRESSURE GAUGE w/ 1/2" PETE'S PLUG ADAPTER
- Ⓡ SENSUS GAS REGULATOR (SEE CHART)
- UNION
- ~ FLEX CONNECTOR

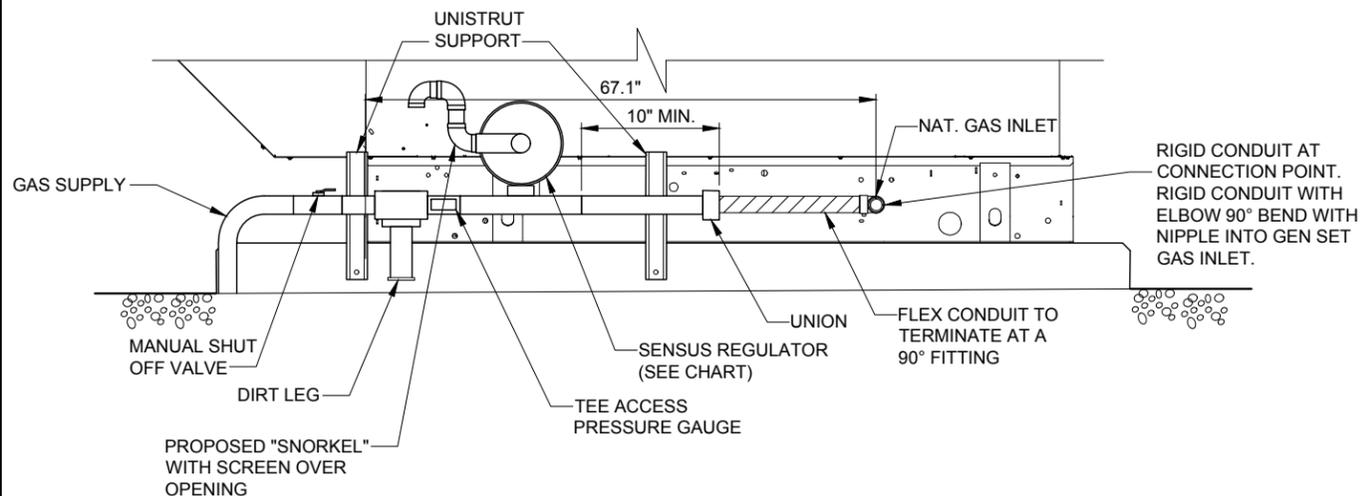
NOTES:

1. ALL PIPING SHALL BE 1-1/4" BLACK PIPE SCHEDULE 40 (UNLESS OTHERWISE SPECIFIED).
2. ALL FITTING SHALL BE 1-1/4" BLACK MALLEABLE IRON (UNLESS OTHERWISE SPECIFIED).

NOTE:
THE GENERAL CONTRACTOR IS TO VERIFY REGULATOR SIZE BASED ON THE SIZE OF THE GENERATOR. THIS IS BASED ON HAVING A 2 PSI GAS (INLET) PRESSURE SUPPLY FROM THE GAS METER TO THE SENSUS REGULATOR & GENERATOR OUTLET PRESSURE OF 11"-14" W.C.



2 GAS PIPING PLAN AT GENERATOR
N.T.S.



3 GAS PIPING PROFILE AT GENERATOR
N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-898-6400
FAX: 847-898-6401

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SHEET TITLE
GAS PIPING
DETAILS

SHEET NUMBER

E-1B

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.
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

TYPICAL KEYED GROUNDING NOTES 

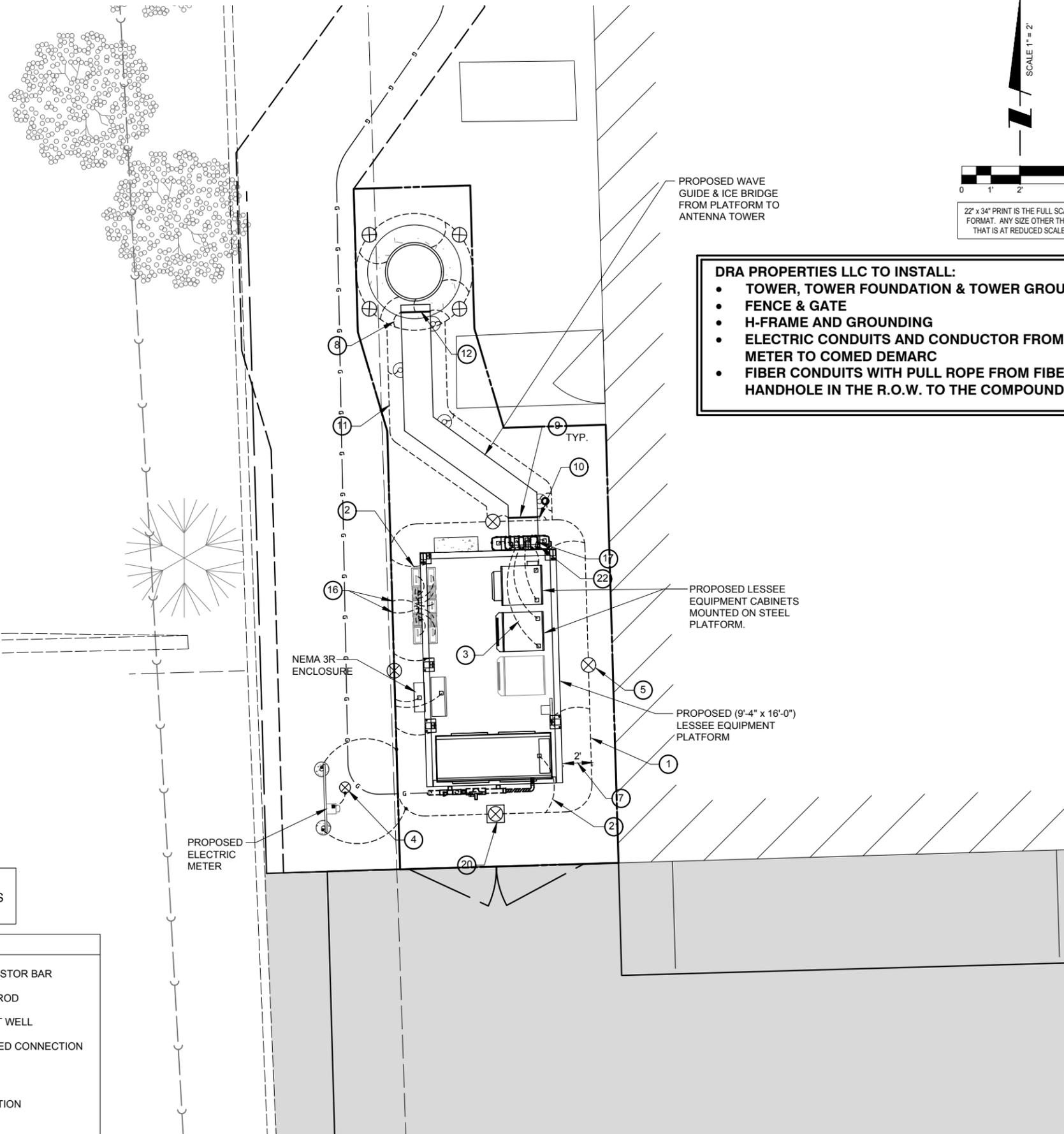
- 1 #2 AWG TNNND SOLID BARE COPPER CONDUCTOR 42" BELOW GRADE (TYPICAL) MINIMUM 24" BENDING RADIUS
- 2 PLATFORM CORNER POST, STEEL COLUMN, STEEL BEAM & CANOPY GROUND
- 3 CABINET GROUND BOLTED TO UNIT HOUSING
- 4 DISCONNECT AND ELECTRIC SERVICE GROUND TO GROUND ROD
- 5 5/8" x 10' COPPER CLAD GROUND ROD
- 6 GROUND CHAIN LINK FENCE (TYPICAL) EXOTHERMIC CONNECTION (TYPE VS) GROUND FENCE POSTS WITHIN 6 FEET OF PLATFORM AND 25 FEET OF TOWER. (SEE DETAIL, SHEET E-5.)
- 7 MAINTAIN TWO FOOT DISTANCE OFF OF STRUCTURES.
- 8 GROUND COAXIAL ANTENNA CABLES TO GROUND BAR BY ANTENNA CONTRACTOR TERMINATE CABLES 1'-0" FROM PLATFORM AND INSTALL LIGHTNING SURGE ARRESTORS ON EACH CABLE GROUND.
- 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" TNNND INSULATED COPPER GROUND BAR, NON ISOLATED WITH 10.0' LONG #2 AWG TNNND SOLID COPPER WIRE WELDED TAILS (HARGER GBIT 14420VV)
- 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 DETAIL, SHEET E-4)
- 15 BOND EXISTING/ PROPOSED TOWER GROUND RING TO PROPOSED PLATFORM GROUND RING WITH #2 AWG TNNND 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



NOTE:
SEE GROUNDING DETAILS
ON SHEETS E-3 & E-4

LEGEND:

| | |
|---|--------------------------------|
|  | GROUND BAR OR ARRESTOR BAR |
|  | 5/8"Ø x 10'-0" GROUND ROD |
|  | GROUND SYSTEM TEST WELL |
|  | CADWELD OR APPROVED CONNECTION |
|  | SPARE GROUND LEAD |
|  | MECHANICAL CONNECTION |
|  | EXISTING GROUNDING |
|  | NEW GROUNDING |



DRA PROPERTIES LLC TO INSTALL:

- TOWER, TOWER FOUNDATION & TOWER GROUND
- FENCE & GATE
- H-FRAME AND GROUNDING
- ELECTRIC CONDUITS AND CONDUCTOR FROM METER TO COMED DEMARC
- FIBER CONDUITS WITH PULL ROPE FROM FIBER HANDHOLE IN THE R.O.W. TO THE COMPOUND

CHICAGO SMSA
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d/b/a VERIZON WIRELESS

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REVISIONS

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SHEET TITLE
SITE GROUNDING PLAN

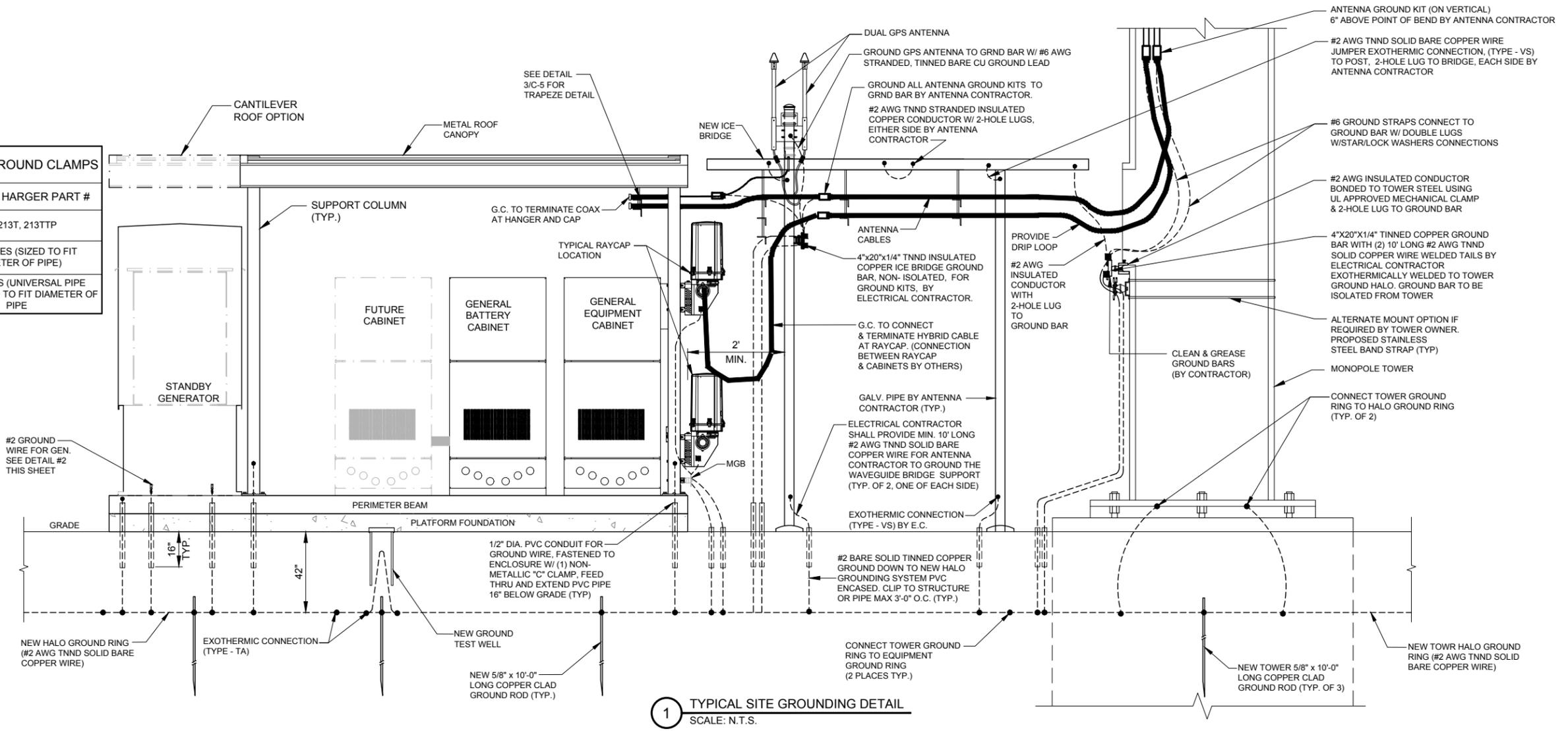
SHEET NUMBER
E-2

1 SITE GROUNDING PLAN
SCALE: 1" = 2'

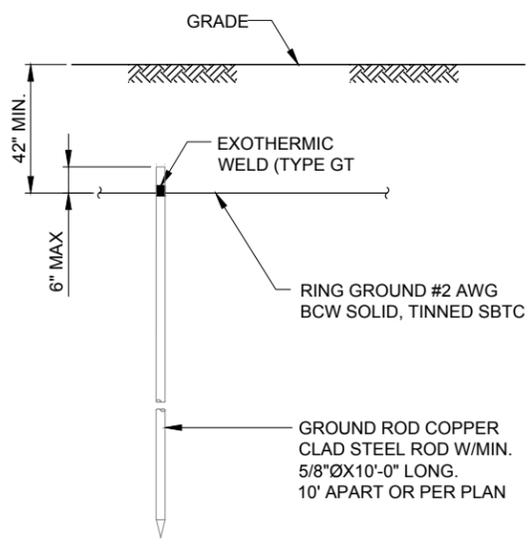
NOTE:
ANTENNA CABLES SHALL BE GROUND AT THE ANTENNA HEIGHT OF TOWER

NOTE:
ALL CABINET GROUND CONNECTION BY OTHERS.

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

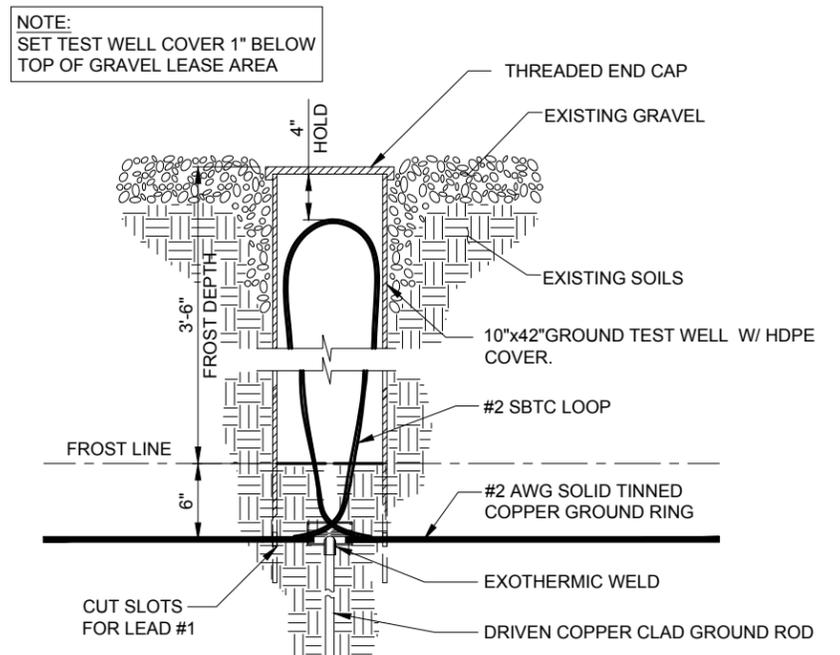


1 TYPICAL SITE GROUNDING DETAIL
SCALE: N.T.S.



NOTE:
GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.

2 GROUND ROD DETAIL
SCALE: N.T.S.



3 TEST WELL DETAIL
SCALE: N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-958-6400
FAX: 847-688-6401

| NO. | DESCRIPTION | BY | | DATE | |
|-----|------------------------------------|-----|-----|----------|-----|
| | | DMS | JTM | DMS | JTM |
| 3 | FINAL PENDING FIBER | | | 08/21/17 | |
| 4 | UPDATE WITH NEW ECR | | | 08/31/17 | |
| 5 | UPDATE WITH NEW LAYOUT | | | 09/08/17 | |
| 6 | FINALS WITH FINER | | | 10/20/17 | |
| 7 | ADDITION OF LANDSCAPING PLAN | | | 12/29/17 | |
| 8 | UPDATE PER GAS COORDINATION | | | 01/31/18 | |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | | | 04/05/18 | |

LOC. # 311466

W 151ST & S 80TH

15100 S 80TH AVE
ORLAND PARK, IL 60462

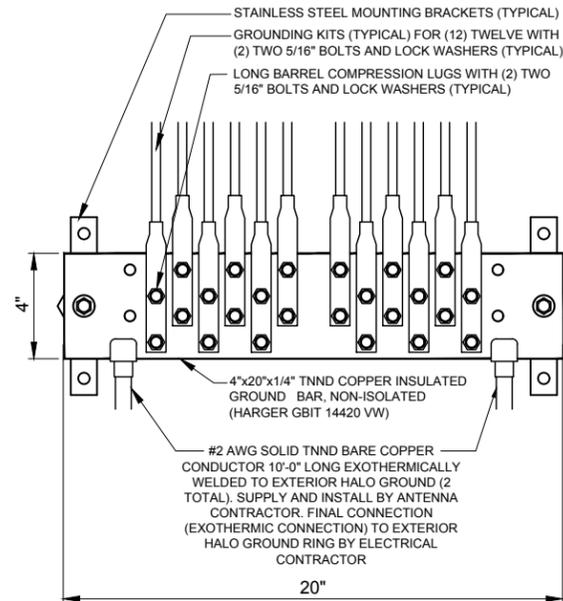
| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-3

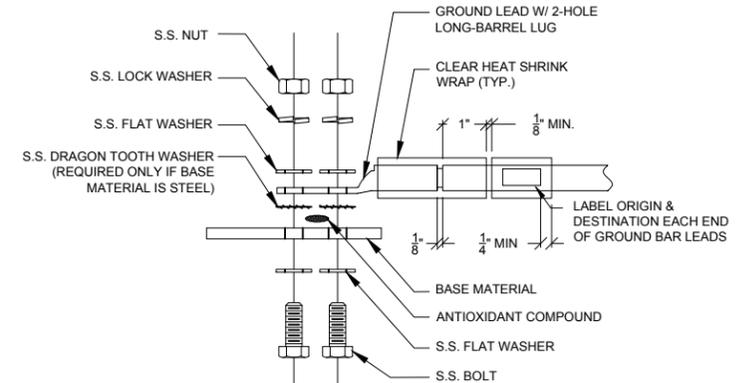
GROUNDING ELECTRODE SYSTEM NOTES:

- 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.
- 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).
- ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION
- 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.
- 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.
- 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.
- GROUND TEST: GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY LESSEE STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.
- CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
 - ONE (1) COPY TO OWNER REPRESENTATIVE
 - ONE (1) COPY TO ENGINEER
 - ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE

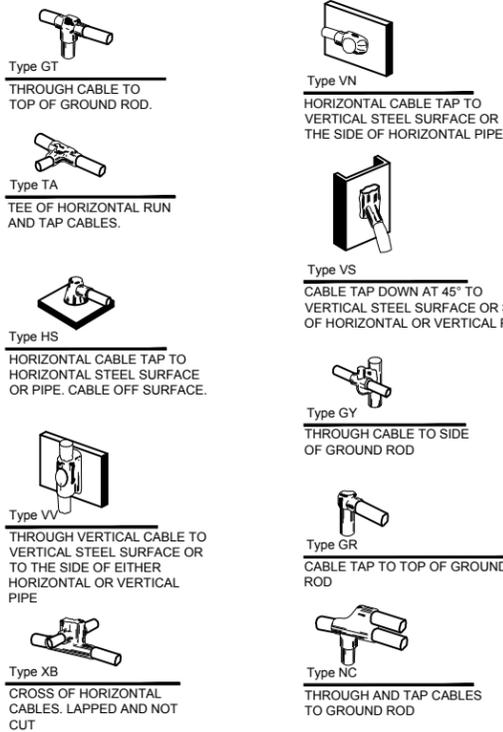


1 EXTERIOR GROUND BAR DETAIL
N.T.S.

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



2 GROUND LUG INSTALLATION DETAIL
N.T.S.



3 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL

CHICAGO SMSA
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d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-956-6400
FAX: 847-688-6401

| REVISIONS | | NO. | DESCRIPTION | DATE | BY |
|-----------|------------------------------------|----------|-------------|------|----|
| 3 | FINAL PENDING FIBER | 08/21/17 | DMS | JTM | |
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W 151ST
& S 80TH

15100 S 80TH AVE
ORLAND PARK, IL 60462

| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
E-4

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.
l. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED 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 SEEDED 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 SEEDED 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.
l. 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 THE 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 PLASTICISING 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 CONSTRUCTOR 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").

3. PLACING CONCRETE

- a. VIBRATE ALL CONCRETE.
b. ALL CONCRETE WORK SHALL ADHERE TO THE LATEST A.C.I. STANDARDS FOR WINTER POURING AND CURING PROCEDURES IF SEASONAL CONDITIONS APPLY.

4. CURING

- a. AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
b. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
5. PROVIDE HAND RUBBED SMOOTH FINISH TO ALL EXPOSED VERTICAL FORMED CONCRETE SURFACES.
6. FIELD QUALITY CONTROL
a. SUBMIT THREE (3) CONCRETE TEST CYLINDERS - TAKEN FOR EVERY 15 CUBIC YARD OR LESS. SUBMIT CONCRETE TESTS TO THE PROJECT MANAGER IN ACCORDANCE WITH ASTM, C-31 AND C-39.
b. SUBMIT ONE (1) ADDITIONAL TEST CYLINDER - TAKEN DURING COLD WEATHER POURS, AND CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
c. SUBMIT ONE (1) SLUMP TEST - TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
7. DEFECTIVE CONCRETE: MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AT COST OF GC, AS DIRECTED BY ARCHITECT/ENGINEER.

CHICAGO SMSA limited partnership d/b/a VERIZON WIRELESS



Table with 9 columns: NO, DESCRIPTION, DATE, BY, DMS, JTM, DMS, RA, JTM, DMS, JTM. Rows include: 3. FINAL PENDING FIBER, 4. UPDATE WITH NEW ECR, 5. UPDATE WITH NEW LAYOUT, 6. FINALS WITH FINER, 7. ADDITION OF LANDSCAPING PLAN, 8. UPDATE PER GAS COORDINATION, 9. REVISED LANDSCAPE PLAN PER VILLAGE

LOC. # 311466

W 151ST & S 80TH

15100 S 80TH AVE ORLAND PARK, IL 60462

Table with 2 columns: DRAWN BY: PP, CHECKED BY: TAZ, DATE: 07/23/15, PROJECT #: 33-1466

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
SP-1

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
 - 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:
 - STRUCTURAL STEEL MEMBERS: ASTM A572, GRADE 50
 - STRUCTURAL TUBING: ASTM A500, GRADE B
 - PIPE: ASTM A53, TYPE E OR S, GRADE B
 - BOLTS, NUTS, AND WASHERS: ASTM A325
 - ANCHOR BOLTS: ASTM A307
 - WELDING MATERIALS: AWS 01.1, TYPE REQUIRED FOR MATERIALS BEING WELDED
- 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 CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
- FINISH:
 - PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-1 TO SP-10 PROCEDURES.
 - STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 - EXECUTION

- EXAMINATION AND PREPARATION:
VERIFY THAT THE FIELD CONDITIONS ARE ACCEPTABLE.
- ERECTION:
 - ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING IN ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGING AND BRACING.
 - FIELD WELD COMPONENTS INDICATED ON SHOP DRAWINGS.
 - DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.
 - AFTER ERECTION, TOUCH-UP WELDS, ABRASIONS, AND SURFACES NOT SHOP PRMED OR GALVANIZED WITH TOUCH-UP PRMERS AS SPECIFIED UNDER SECTION 05000, 0METALS, PART 2 - PRODUCTS, H & I. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
- FIELD QUALITY CONTROL:
FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS, AND TOUNRQUING

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, NBFU, 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 SUBJECTED, 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 ½ LAPPED WRAPPED WITH HUNT'S 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 GROUND. 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 OF SIZE INDICATED ON DRAWINGS.
 - ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:
 - BOLT-HEAD
 - 2-HOLE LUG
 - TINNED COPPER BUSS BAR
 - STAR WASHER
 - NUT
 - 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 "CADWELD" 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 ACEG 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
 - 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
 - 535 MCM DLO 54880BE
 - 262 MCM DLO 54872BE
 - #1/0 DLO 54862BE
 - #4/0 THWN AND BARE 54866BE
 - #2/0 THWN 54862BE
 - #2 THHN 54207BE
 - #6 DLO 54205BE

- 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 |

- 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.

- FENCE/GATE
GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POST AND ALL OTHER CONNECTIONS WITH 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.

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 - FOR RAW LAND SITE
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 - CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:
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 - 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.
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 - AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE THE 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.

- 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.
- EQUIPMENT PAD AND TOWER
 - AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE THE 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)**

- GENERAL
 - LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED
 - PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.
 - 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 MONOPOLE TOWER SHAFT

**SECTION 16745- TELECOMMUNICATIONS WIRING COMPONENT
(COAXIAL ANTENNA CABLE)**

- GENERAL
 - ALL MATERIALS, PRODUCTS OR PROCEDURES INCORPORATED INTO WORK SHALL BE NEW AND OF STANDARD COMMERCIAL QUALITY.
 - 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
 - ALL OTHER MATERIALS AND PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE SUPPLIED BY THE CONTRACTOR.

- MATERIALS
 - 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
 - ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)
 - 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.
 - COAXIAL CABLE IDENTIFICATION

- 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.



| NO. | DESCRIPTION | DATE | BY | NO. | DESCRIPTION | DATE | BY |
|-----|------------------------------------|----------|-----|-----|------------------------------------|----------|-----|
| | | DATE | BY | | | DATE | BY |
| 3 | FINAL PENDING FIBER | 08/21/17 | DMS | 3 | FINAL PENDING FIBER | 08/21/17 | DMS |
| 4 | UPDATE WITH NEW ECR | 08/31/17 | JTM | 4 | UPDATE WITH NEW ECR | 08/31/17 | JTM |
| 5 | UPDATE WITH NEW LAYOUT | 09/08/17 | DMS | 5 | UPDATE WITH NEW LAYOUT | 09/08/17 | DMS |
| 6 | FINALS WITH FINER | 10/20/17 | RA | 6 | FINALS WITH FINER | 10/20/17 | RA |
| 7 | ADDITION OF LANDSCAPING PLAN | 12/29/17 | JTM | 7 | ADDITION OF LANDSCAPING PLAN | 12/29/17 | JTM |
| 8 | UPDATE PER GAS COORDINATION | 01/31/18 | DMS | 8 | UPDATE PER GAS COORDINATION | 01/31/18 | DMS |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | 04/05/18 | JTM | 9 | REVISED LANDSCAPE PLAN PER VILLAGE | 04/05/18 | JTM |

LOC. # 311466

W 151ST & S 80TH

**15100 S 80TH AVE
ORLAND PARK, IL 60462**

| | |
|-------------|----------|
| DRAWN BY: | PP |
| CHECKED BY: | TAZ |
| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
SP-2



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



3 EXISTING SITE COMPOUND
SCALE: N.T.S.



4 EXISTING FENCED COMPOUND
SCALE: N.T.S.



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



5 EXISTING ACCESS GATE
SCALE: N.T.S.



6 EXISTING TRANSFORMER
SCALE: N.T.S.



7 EXISTING GENERATOR
SCALE: N.T.S.



8 EXISTING TOWER FOUNDATION
SCALE: N.T.S.



9 EXISTING TOWER TAG
SCALE: N.T.S.

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

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-896-6400
FAX: 847-898-6401

| NO. | DESCRIPTION | BY | | DATE | |
|-----|------------------------------------|-----|-----|----------|----------|
| | | DMS | JTM | DMS | JTM |
| 3 | FINAL PENDING FIBER | DMS | JTM | 08/21/17 | 08/21/17 |
| 4 | UPDATE WITH NEW ECR | DMS | JTM | 08/21/17 | 08/21/17 |
| 5 | UPDATE WITH NEW LAYOUT | DMS | JTM | 08/21/17 | 08/21/17 |
| 6 | FINALS WITH FINER | RA | JTM | 10/20/17 | 10/20/17 |
| 7 | ADDITION OF LANDSCAPING PLAN | JTM | DMS | 12/29/17 | 01/31/18 |
| 8 | UPDATE PER GAS COORDINATION | DMS | JTM | 01/31/18 | 04/05/18 |
| 9 | REVISED LANDSCAPE PLAN PER VILLAGE | JTM | DMS | 04/05/18 | 04/05/18 |

LOC. # 311466

W 151ST
& S 80TH

15100 S 80TH AVE
ORLAND PARK, IL 60462

| | |
|-------------|----------|
| DRAWN BY: | PP |
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| DATE: | 07/23/15 |
| PROJECT #: | 33-1466 |

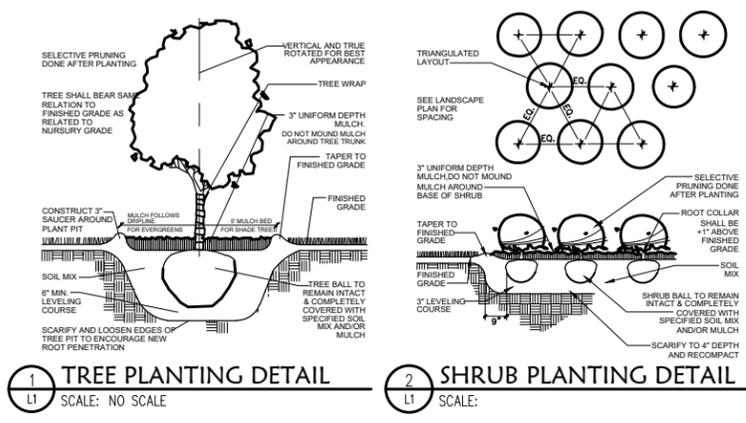
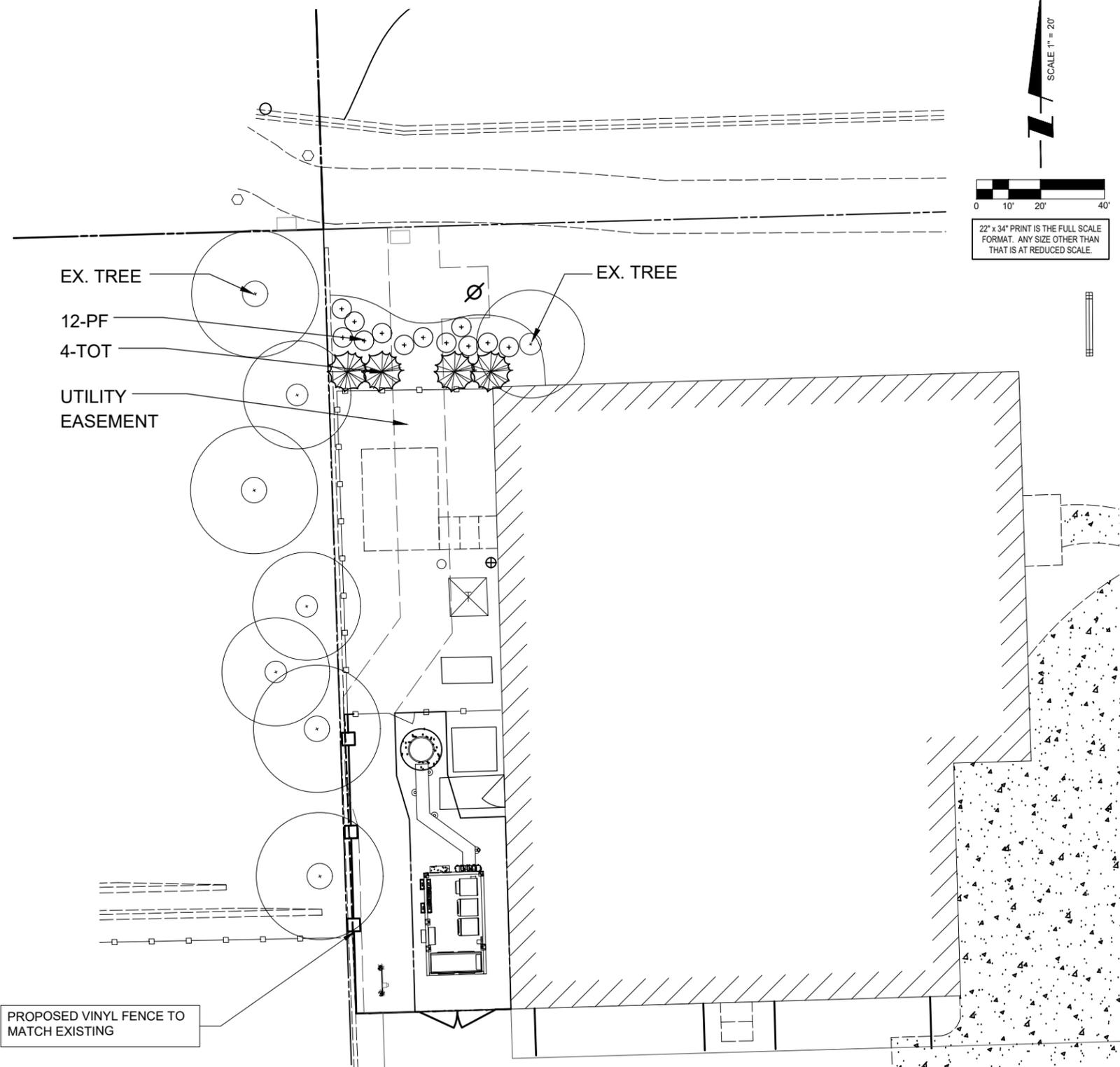
SHEET TITLE
EXISTING SITE PHOTOS

SHEET NUMBER
P-1

| Symbol | Quantity | Botanical Name | Common Name | Size | Notes |
|-------------------------|----------|-----------------------------------|----------------------|-------|-------|
| Evergreen Trees | | | | | |
| TOT | 4 | THUJA OCCIDENTALIS 'TECHNY' | TECHNY ARBORVITAE | 6' BB | |
| Deciduous Shrubs | | | | | |
| PF | 12 | POTENTILLA FRUITICOSA 'GOLD DROP' | GOLD DROP POTENTILLA | 5 GAL | |

GENERAL CONSTRUCTION NOTES

- REQUIRED LANDSCAPE MATERIAL SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS AND BE STAKED, WRAPPED, WATERED AND MULCHED PER ORDINANCE.
- BEFORE ANY EXCAVATION ON THE SITE, CALL TO LOCATE ANY EXISTING UTILITIES ON THE SITE. THE CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF WITH THE LOCATIONS OF ALL BURIED UTILITIES IN THE AREAS OF WORK BEFORE STARTING OPERATIONS. THE CONTRACTOR SHALL BE LIABLE FOR THE COST OF REPAIRING OR REPLACING ANY BURIED CONDUITS, CABLES OR PIPING DAMAGED DURING THE INSTALLATION OF THIS WORK.
- FENCING OR OTHER RIGID MATERIAL IS TO BE ERECTED AROUND THE DRIP-LINE OF ALL TREES TO BE SAVED.
- CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT UPON DELIVERY OF PLANT MATERIAL TO THE SITE. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL THAT DOESN'T MEET STANDARDS OR SPECIFICATIONS OF THE PROJECT.
- ALL SPECIFIED LANDSCAPE MATERIAL INDICATED ON THE CONSTRUCTION DOCUMENTS WILL BE REQUIRED TO BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT AND MUST BE REPLACED SHOULD IT DIE OR BECOME DAMAGED.
- ALL PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE FROM SUBSTANTIAL COMPLETION AS DETERMINED BY THE LANDSCAPE ARCHITECT, AND SHALL BE REPLACED SHOULD IT DIE WITHIN THAT PERIOD.
- PROTECT STRUCTURES, SIDEWALKS, PAVEMENTS AND UTILITIES TO REMAIN FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUTS AND OTHER HAZARDS CAUSED BY SITE IMPROVEMENT OPERATIONS.
- CAREFULLY MAINTAIN PRESENT GRADE AT BASE OF ALL EXISTING TREES TO REMAIN. PREVENT ANY DISTURBANCE OF EXISTING TREES INCLUDING ROOT ZONES. USE TREE PROTECTION BARRICADES WHERE INDICATED. PROTECT EXISTING TREES TO REMAIN AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, BRUISING OF BARK OR SMOTHERING OF TREES. DRIVING, PARKING, DUMPING, STOCKPILING AND/OR STORAGE OF VEHICLES, EQUIPMENT, SUPPLIES, MATERIALS OR DEBRIS ON TOP THE ROOT ZONES AND/OR WITHIN THE DRIPLINE OF EXISTING TREES OR OTHER PLANT MATERIAL TO REMAIN IS STRICTLY PROHIBITED.
- THE CONTRACTOR AT ALL TIMES SHALL KEEP THE PREMISES ON WHICH WORK IS BEING DONE, CLEAR OF RUBBISH AND DEBRIS. ALL PAVEMENT AND DEBRIS REMOVED FROM THE SITE SHALL BE DISPOSED OF LEGALLY.
- ALL WORK AND OPERATIONS SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.



PROPOSED VINYL FENCE TO MATCH EXISTING

K M TALTY DESIGN
LANDSCAPE ARCHITECTURE
Winnetka, Illinois 60093
847.612.5154 www.kmtaltydesign.com



CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA
600 BUSSE HIGHWAY, LTD.
PARK RIDGE, IL 60068
PH: 847-696-6400
FAX: 847-696-6401

| NO. | DESCRIPTION | DATE | BY |
|-----|------------------------------|----------|-----|
| 2 | UPDATE WITH NEW PLATFORM | 10/06/16 | TJS |
| 3 | FINAL PENDING FIBER | 09/21/17 | DMS |
| 4 | UPDATE WITH NEW ECR | 08/31/17 | JTM |
| 5 | UPDATE WITH NEW LAYOUT | 09/08/17 | DMS |
| 6 | FINALS WITH FIBER | 10/20/17 | RA |
| 7 | ADDITION OF LANDSCAPING PLAN | 12/29/17 | JTM |
| 8 | UPDATED PER GAS ROUTE | 01/03/18 | DMS |

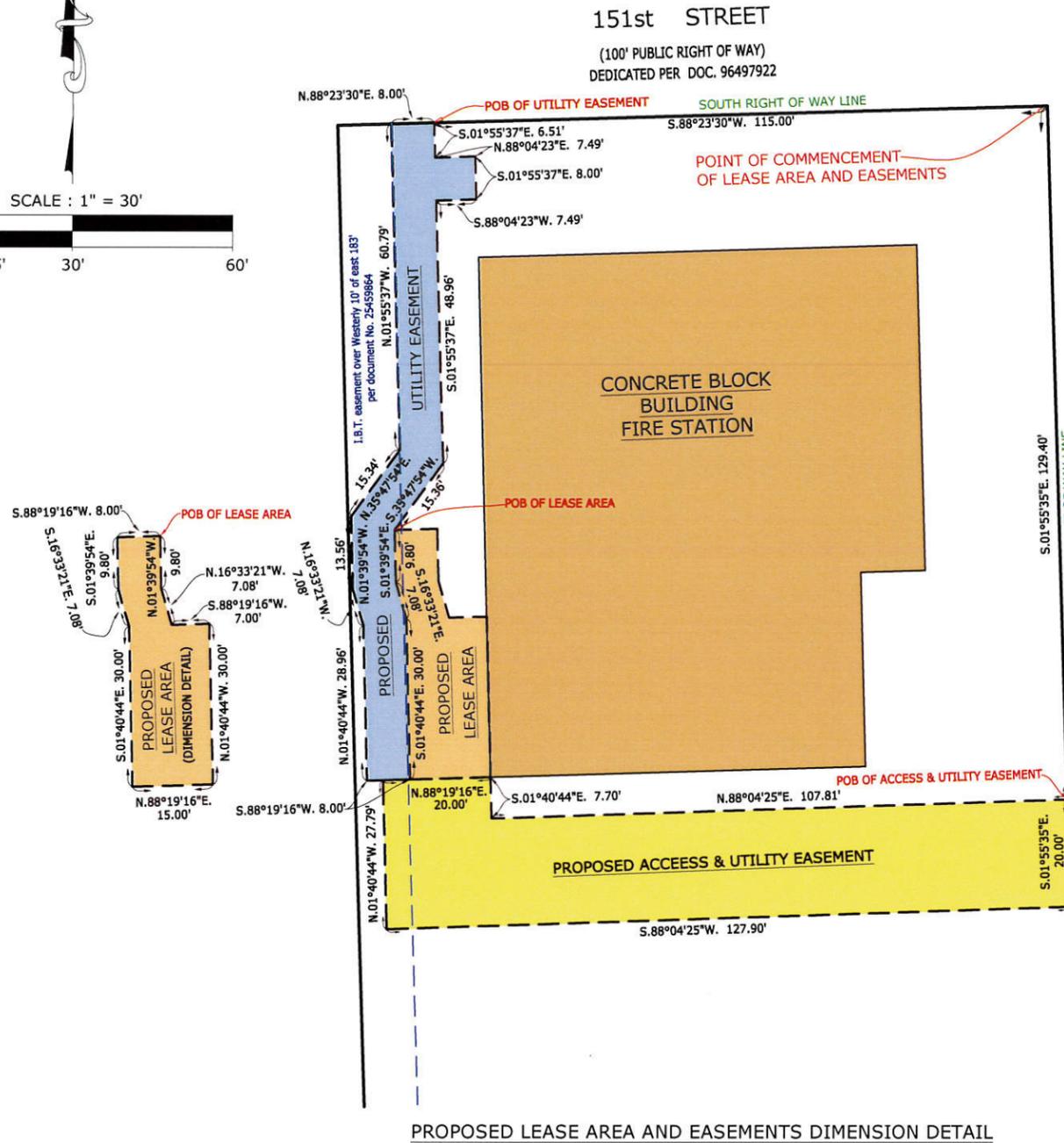
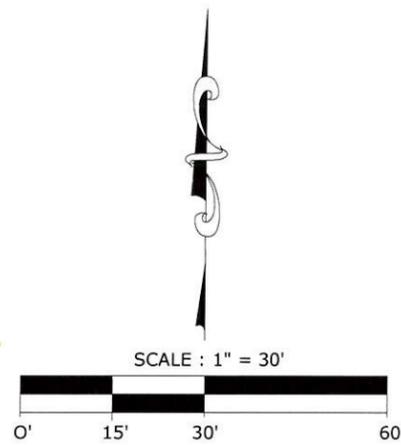
LOC. # 311466
W 151ST & S 80TH
15100 S 80TH AVE
ORLAND PARK, IL 60462

DRAWN BY: PP
CHECKED BY: TAZ
DATE: 07/23/15
PROJECT #: 33-1466

SHEET TITLE
LANDSCAPE PLAN

SHEET NUMBER
L-1

ALTA/NSPS LAND TITLE SURVEY



PROPOSED LEASE AREA AND EASEMENTS DIMENSION DETAIL

PROPOSED LEASE AREA LEGAL DESCRIPTION:

A PARCEL OF LAND FOR LEASE AREA PURPOSES, BEING A PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 14, TOWNSHIP 36 NORTH, RANGE 12, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTH 50.00 FEET OF SAID NORTHEAST 1/4 WITH THE WEST LINE OF THE EAST 50.00 FEET OF SAID NORTHEAST 1/4, ALSO BEING THE INTERSECTION OF THE SOUTH RIGHT-OF-WAY LINE OF 151ST STREET WITH THE WEST RIGHT-OF-WAY LINE OF 80TH AVENUE; THENCE SOUTH 88 DEGREES 23 MINUTES 30 SECONDS WEST ALONG SAID SOUTH RIGHT-OF-WAY LINE, 115.00 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 37 SECONDS EAST. 6.51 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 23 SECONDS EAST, 7.49 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 37 SECONDS EAST, 8.00 FEET; THENCE SOUTH 88 DEGREES 04 MINUTES 23 SECONDS WEST, 7.49 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 37 SECONDS EAST, 48.96 FEET; THENCE SOUTH 35 DEGREES 47 MINUTES 54 SECONDS WEST, 15.36 FEET FOR A POINT OF BEGINNING; THENCE SOUTH 01 DEGREES 39 MINUTES 54 SECONDS EAST, 9.80 FEET; THENCE SOUTH 16 DEGREES 33 MINUTES 21 SECONDS EAST, 7.08 FEET; THENCE SOUTH 01 DEGREES 40 MINUTES 44 SECONDS EAST, 30.00 FEET; THENCE NORTH 88 DEGREES 19 MINUTES 16 SECONDS EAST, 15.00 FEET; TO THE EXISTING BUILDING; THENCE NORTH 01 DEGREES 40 MINUTES 44 SECONDS WEST, ALONG SAID BUILDING, 30.00 FEET; THENCE SOUTH 88 DEGREES 19 MINUTES 16 SECONDS WEST, 7.00 FEET; THENCE NORTH 16 DEGREES 33 MINUTES 21 SECONDS WEST, 7.08 FEET; THENCE NORTH 01 DEGREES 39 MINUTES 54 SECONDS WEST, 9.80 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 583.1 SQUARE FEET.

PROPOSED UTILITY EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR UTILITY EASEMENT PURPOSES, BEING A PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 14, TOWNSHIP 36 NORTH, RANGE 12, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTH 50.00 FEET OF SAID NORTHEAST 1/4 WITH THE WEST LINE OF THE EAST 50.00 FEET OF SAID NORTHEAST 1/4, ALSO BEING THE INTERSECTION OF THE SOUTH RIGHT-OF-WAY LINE OF 151ST STREET WITH THE WEST RIGHT-OF-WAY LINE OF 80TH AVENUE; THENCE SOUTH 88 DEGREES 23 MINUTES 30 SECONDS WEST ALONG SAID SOUTH RIGHT-OF-WAY LINE, 115.00 FEET FOR A POINT OF BEGINNING; THENCE SOUTH 01 DEGREES 55 MINUTES 37 SECONDS EAST. 6.51 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 23 SECONDS EAST, 7.49 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 37 SECONDS EAST, 8.00 FEET; THENCE SOUTH 88 DEGREES 04 MINUTES 23 SECONDS WEST, 7.49 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 37 SECONDS EAST, 48.96 FEET; THENCE SOUTH 35 DEGREES 47 MINUTES 54 SECONDS WEST, 15.36 FEET; THENCE SOUTH 01 DEGREES 39 MINUTES 54 SECONDS EAST, 9.80 FEET; THENCE SOUTH 16 DEGREES 33 MINUTES 21 SECONDS EAST, 7.08 FEET; THENCE SOUTH 01 DEGREES 40 MINUTES 44 SECONDS EAST, 30.00 FEET; THENCE SOUTH 88 DEGREES 19 MINUTES 16 SECONDS WEST, 8.00 FEET; THENCE NORTH 01 DEGREES 40 MINUTES 44 SECONDS WEST, 28.96 FEET; THENCE NORTH 16 DEGREES 33 MINUTES 21 SECONDS WEST, 7.08 FEET; THENCE NORTH 01 DEGREES 39 MINUTES 54 SECONDS WEST, 13.56 FEET; THENCE NORTH 35 DEGREES 47 MINUTES 54 SECONDS EAST, 15.34 FEET; THENCE NORTH 01 DEGREES 55 MINUTES 37 SECONDS WEST, 60.79 FEET TO THE AFOREMENTIONED SOUTH RIGHT-OF-WAY LINE; THENCE NORTH 88 DEGREES 23 MINUTES 30 SECONDS EAST, ALONG SAID RIGHT OF WAY LINE, 8.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 1,065.7 SQUARE FEET.

PROPOSED ACCESS & UTILITY EASEMENT LEGAL DESCRIPTION:

A PARCEL OF LAND FOR ACCESS & UTILITY EASEMENT PURPOSES, BEING A PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 14, TOWNSHIP 36 NORTH, RANGE 12, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN COOK COUNTY, ILLINOIS, FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF THE NORTH 50.00 FEET OF SAID NORTHEAST 1/4 WITH THE WEST LINE OF THE EAST 50.00 FEET OF SAID NORTHEAST 1/4, ALSO BEING THE INTERSECTION OF THE SOUTH RIGHT-OF-WAY LINE OF 151ST STREET WITH THE WEST RIGHT-OF-WAY LINE OF 80TH AVENUE; THENCE SOUTH 01 DEGREES 55 MINUTES 35 SECONDS EAST ALONG SAID WEST RIGHT-OF-WAY LINE, 129.40 FEET FOR THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 01 DEGREES 55 MINUTES 35 SECONDS EAST, 20.00 FEET; THENCE SOUTH 88 DEGREES 04 MINUTES 25 SECONDS WEST, 127.90 FEET; THENCE NORTH 01 DEGREES 40 MINUTES 44 SECONDS WEST, 27.79 FEET; THENCE NORTH 88 DEGREES 19 MINUTES 16 SECONDS EAST, 20.00 FEET; THENCE SOUTH 01 DEGREES 40 MINUTES 44 SECONDS EAST, 7.70 FEET; THENCE NORTH 88 DEGREES 04 MINUTES 25 SECONDS EAST, 107.81 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 2,712.1 SQUARE FEET.



PREPARED BY:



ASM Consultants, Inc.
16 E Wilson St, Batavia IL 60510
Tel (630) 879-0200 Fax (630) 454-3774
advanced@advct.com
Professional Design Firm #184-006014 expires 4/30/2019

LEASE AREA & EASEMENTS DETAIL

PREPARED FOR:

Chicago SMSA

CHICAGO SMSA LIMITED PARTNERSHIP
2/5/3 VERIZON WIRELESS
1515 WOODFIELD ROAD, SUITE 1400
SCHAUMBURG, ILLINOIS 60173
PHONE: 847-619-5397 FAX: 847-706-7415



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

| NO. | DATE | REVISION |
|-----|-----------|------------------------|
| 1. | 1/10/2018 | FIELD SURVEY COMPLETED |
| 2. | 1/11/2018 | FINAL SURVEY COMPLETED |

SITE DESIGNATION INFORMATION:

W 151st ST & S 80th AVE
Location No.: 278765
Project No.: 20130972076
15100 S 80th AVE
ORLAND PARK, IL 60462

DRAWN BY: PS
CHECKED BY: SLF

PROJECT NO.
720290B

L-2