



HISTORIC PRESERVATION COMMISSION

Marc Elrich
County Executive

Robert K. Sutton
Chairman

Date: June 24, 2022

MEMORANDUM

TO: Mitra Pedoeem
Department of Permitting Services

FROM: Michael Kyne
Historic Preservation Section
Maryland-National Capital Park & Planning Commission

SUBJECT: Historic Area Work Permit # 993932: Telecommunications equipment alteration

The Montgomery County Historic Preservation Commission (HPC) has reviewed the attached application for a Historic Area Work Permit (HAWP). This application was **Approved** at the June 22, 2022 HPC meeting.

The HPC staff has reviewed and stamped the attached construction drawings.

THE BUILDING PERMIT FOR THIS PROJECT SHALL BE ISSUED CONDITIONAL UPON ADHERENCE TO THE ABOVE APPROVED HAWP CONDITIONS AND MAY REQUIRE APPROVAL BY DPS OR ANOTHER LOCAL OFFICE BEFORE WORK CAN BEGIN.

Applicant: Smartlink, LLC (Bijan Olexo, Agent)
Address: 23630 Woodfield Road, Gaithersburg

This HAWP approval is subject to the general condition that the applicant will obtain all other applicable Montgomery County or local government agency permits. After the issuance of these permits, the applicant must contact this Historic Preservation Office if any changes to the approved plan are made. Once work is complete the applicant will contact Michael Kyne at 301.563.3403 or michael.kyne@montgomeryplanning.org to schedule a follow-up site visit.



REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

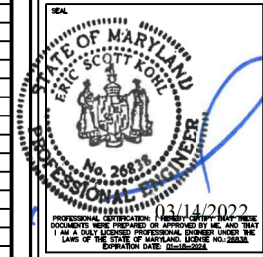


CHARLIE FARM
 SITE FA # 12573578
 SITE ID # 4828
 23630 WOODFIELD ROAD
 GAITHERSBURG, MD 20882

APPROVED
 Montgomery County
 Historic Preservation Commission

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
A	12/17/21	PRELIMINARY DRAWINGS
B	1/7/22	REVISED ADDRESS
C	2/14/22	REVISED PER COMMENTS
D	3/1/22	REVISED PER COMMENTS
O	3/9/22	ISSUED FOR PERMITTING

KCI
 TECHNOLOGIES
 KCI TECHNOLOGIES, INC.
 11830 West Market Place, Suite F
 Fulton, MD 20759
 Phone: 410.792.8086



ENGINEER:
 ERIC S. KOHL, PE
 MD LICENSE NO.: 26838



smartlink

1362 MELLON RD. SUITE 140
 HANOVER, MD 21076

CHARLIE FARM

FAR: 12573578
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 GAITHERSBURG, MD 20882

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SCALE: AS NOTED
 DATE: 3/9/22
 KCI JOB NUMBER: 011802184.ATTS1
 SHEET TITLE:

TITLE SHEET

SHEET

T-1

SITE INFORMATION

SCOPE OF WORK:
 1. INSTALL STEEL WIC
 2. INSTALL 30KW DIESEL GENERATOR
 3. INSTALL ANTENNA PLATFORM
 4. INSTALL 12'x16" CONCRETE PAD
 5. INSTALL 10' TOWER EXTENSION
 6. INSTALL 12 ANTENNAS
 7. INSTALL 12 RRH's
 8. INSTALL COMPONENTS SUPPORTING ANTENNAS' OPERATION AS DESCRIBED PER DRAWINGS

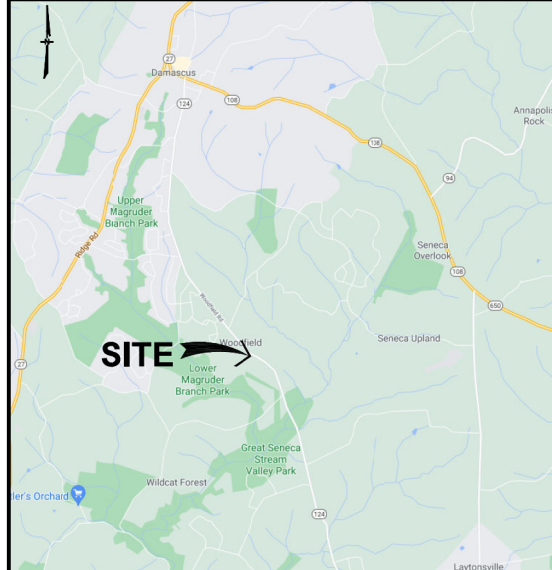
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 SITE FA #: 12573578
 SITE ID #: 4828
 SITE ADDRESS: 23630 WOODFIELD ROAD
 GAITHERSBURG, MD 20882

JURISDICTION: MONTGOMERY COUNTY
 ZONING: RE-2 (RESIDENTIAL DISTRICT)
 TOWER OWNER: AMERICAN TOWER CORPORATION
 PROPERTY OWNER: WESLEY GROVE UNITED METHODIST CHURCH
 23640 WOODFIELD ROAD
 GAITHERSBURG, MD 20882

LATITUDE: (39.243506) N 39° 14' 36.62" (NAVD-88)
 LONGITUDE: (-77.187456) W 77° 11' 14.84" (NAVD-88)
 ELEVATION: 595.0' (NAVD 88) ±Amsl
 USE GROUP: U
 CONST. TYPE: IIB

THE CONTRACTOR MUST VERIFY ALL FIELD MEASUREMENTS AND CONDITIONS PRIOR TO BID AND TO COMMENCEMENT OF CONSTRUCTION.

VICINITY MAP



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PROJECT TEAM

APPLICANT: AT&T MOBILITY
 7150 STANDARD DR.
 HANOVER, MD 21076

ARCHITECT/ENGINEER: KCI TECHNOLOGIES INC.
 11830 WEST MARKET PLACE, SUITE F
 FULTON, MD 20759
 NICHOLAS BARRICK (410) 792-8086

PROJECT MANAGEMENT: SMARTLINK LLC
 1362 MELLON ROAD, SUITE 140
 HANOVER, MD 21076
 PHONE: (410) 582-8043

CODE COMPLIANCE

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

- 2018 INTERNATIONAL BUILDING CODE ER 31-19
- CHAPTER 8 COUNTY BUILDING CODE
- 2018 INTERNATIONAL BUILDING CODE
- 2015 NFPA FIRE CODE
- 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- MONTGOMERY COUNTY CODE CHAPTER 17 (ELECTRICAL)
- NFPA 70 (NATIONAL ELECTRIC CODE)

APPROVAL BLOCK

	APPROVED	APPROVED AS NOTED	REVISE & RESUBMIT
OWNER REPRESENTATIVE	DATE	<input type="checkbox"/>	<input type="checkbox"/>
SITE ACQUISITION	DATE	<input type="checkbox"/>	<input type="checkbox"/>
CONSTRUCTION MANAGER	DATE	<input type="checkbox"/>	<input type="checkbox"/>
ZONING	DATE	<input type="checkbox"/>	<input type="checkbox"/>
RF ENGINEER	DATE	<input type="checkbox"/>	<input type="checkbox"/>

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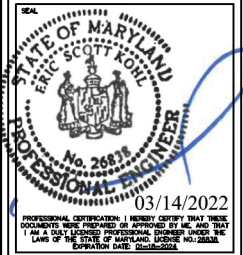


5. LIMIT OF DISTURBANCE = 200 sq.ft.
6. EXISTING IMPERVIOUS AREA = 19,017 sq.ft
7. PROPOSED IMPERVIOUS AREA = 0 sq.ft
8. NO COMMERCIAL SIGNAGE IS PROPOSED.
9. NOTIFY "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO DOING ANY EXCAVATION IN THIS AREA. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATED AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

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KCI TECHNOLOGIES, INC.
11830 West Market Place, Suite F
Fulton, MD 20759
Phone: 410.792.8086



03/14/2022
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A VALID LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 26888. EXPIRATION DATE: 03-14-2024.

ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26888



7150 STANDARD DRIVE
HANOVER, MD 21076



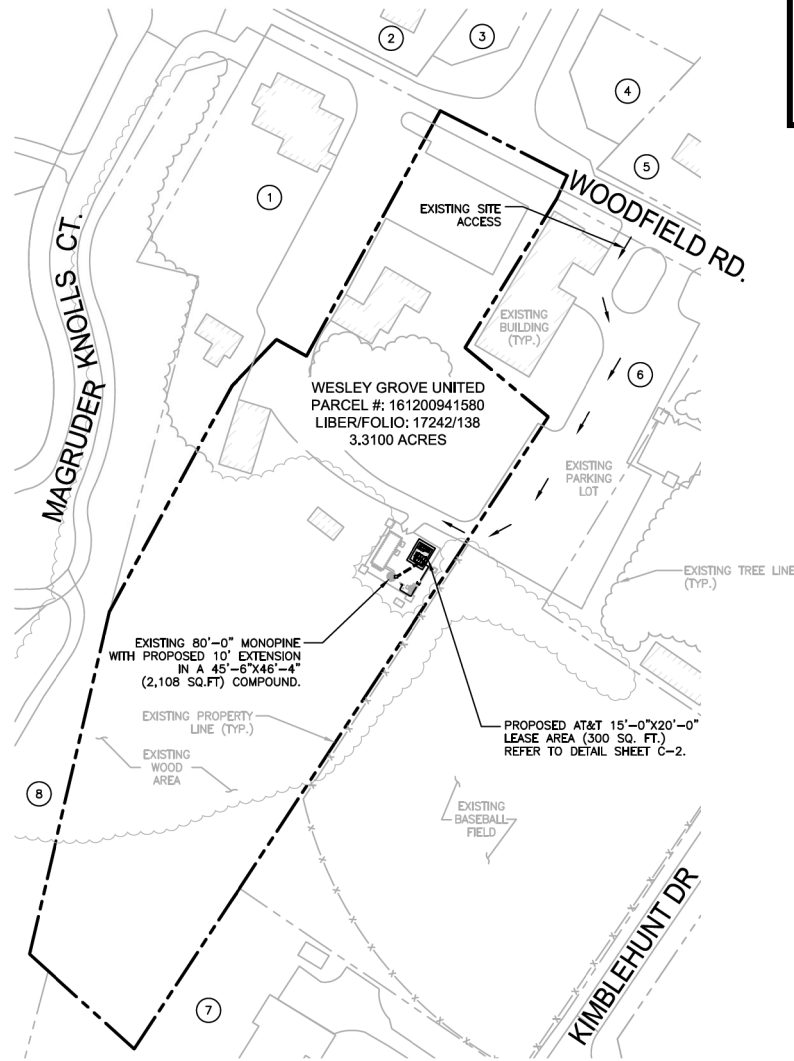
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SHEET TITLE:

PROPERTY PLAN

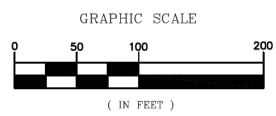
SHEET
C-1



- 1 WESLEY GROVE UNITED METHODIST CHURCH
23640 WOODFIELD ROAD
GAITHERSBURG, MD 20882
PARCEL ACCOUNT #: 161200943794
1.18 AC
- 2 DEWEESE SHENAE DIANE
23633 WOODFIELD ROAD
GAITHERSBURG, MD 20882
PARCEL ACCOUNT #: 161200928708
1.04 AC
- 3 BIRKSHIRE HOMEOWNERS ASSN INC.
3407 OLANWOOD COURT STE. 101
OLNEY, MD 20832
PARCEL ACCOUNT #: 161203307455
0.13 AC
- 4 BIRKSHIRE HOMEOWNERS ASSN INC.
3407 OLANWOOD COURT STE. 101
OLNEY, MD 20832
PARCEL ACCOUNT #: 161203307444
0.13 AC
- 5 SOLIS STEPHEN & JEANNE FORDHAM
23623 WOODFIELD ROAD
GAITHERSBURG, MD 20882
PARCEL ACCOUNT #: 161200935987
0.40 AC
- 6 WESLEY GROVE UNITED METHODIST CHURCH
23640 WOODFIELD ROAD
GAITHERSBURG, MD 20882
PARCEL ACCOUNT #: 161203059080
2.81 AC
- 7 SHIFLETT C CURTIS & KELLY
9007 KIMBLEHUNT DRIVE
GAITHERSBURG, MD 20882
PARCEL ACCOUNT #: 161203028897
2.0 AC
- 8 GRIMES RICHARD DAWSON HELEN
9015 MAGRUDER KNOLLS COURT
GAITHERSBURG, MD 20882
PARCEL ACCOUNT #: 161203412528
4.36 AC

LEGEND

---	PROPERTY LINE
---	EX. EDGE OF ROAD
---	EX. BUILDING
---	EX. FEATURES
---	EX. TREE LINE
---	PROP. EQUIPMENT
---	PROP. ELECTRIC LINE
---	LIMIT OF DISTURBANCE



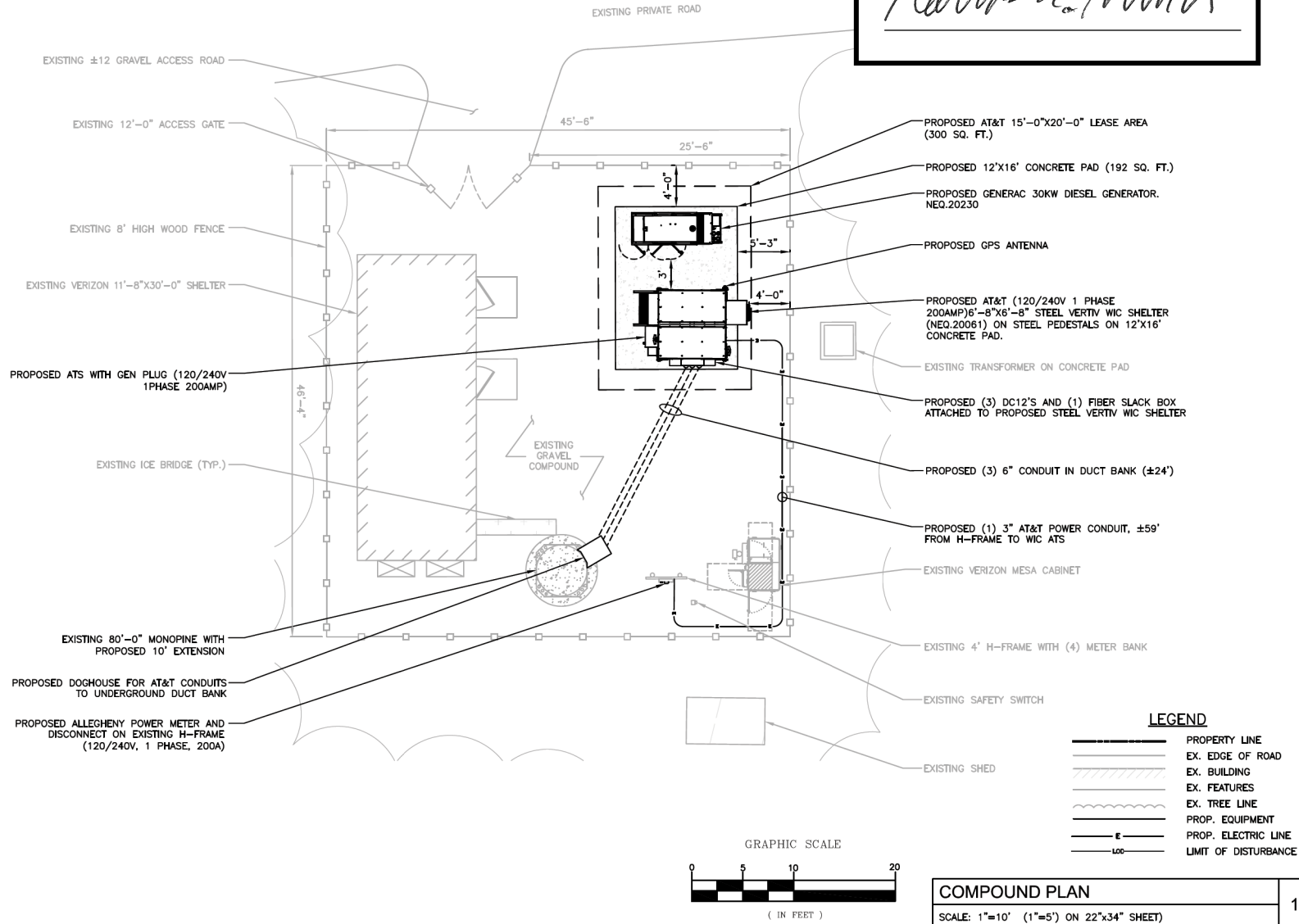
PROPERTY PLAN
SCALE: 1"=100' (1"=50') ON 22"x34" SHEET

1

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

APPROVED
Montgomery County
Historic Preservation Commission

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KCI
TECHNOLOGIES
KCI TECHNOLOGIES, INC.
11830 West Market Place, Suite F
Fulton, MD 20759
Phone: 410.792.8086

STATE OF MARYLAND
ERIC S. KOHL, PE
No. 26838
03/14/2022
PROFESSIONAL ENGINEER
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A duly licensed PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 26838. EXPIRATION DATE: 03-14-2024.

ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838

at&t
7150 STANDARD DRIVE
HANOVER, MD 21076

smartlink
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HANOVER, MD 21076

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COMPOUND PLAN

SHEET

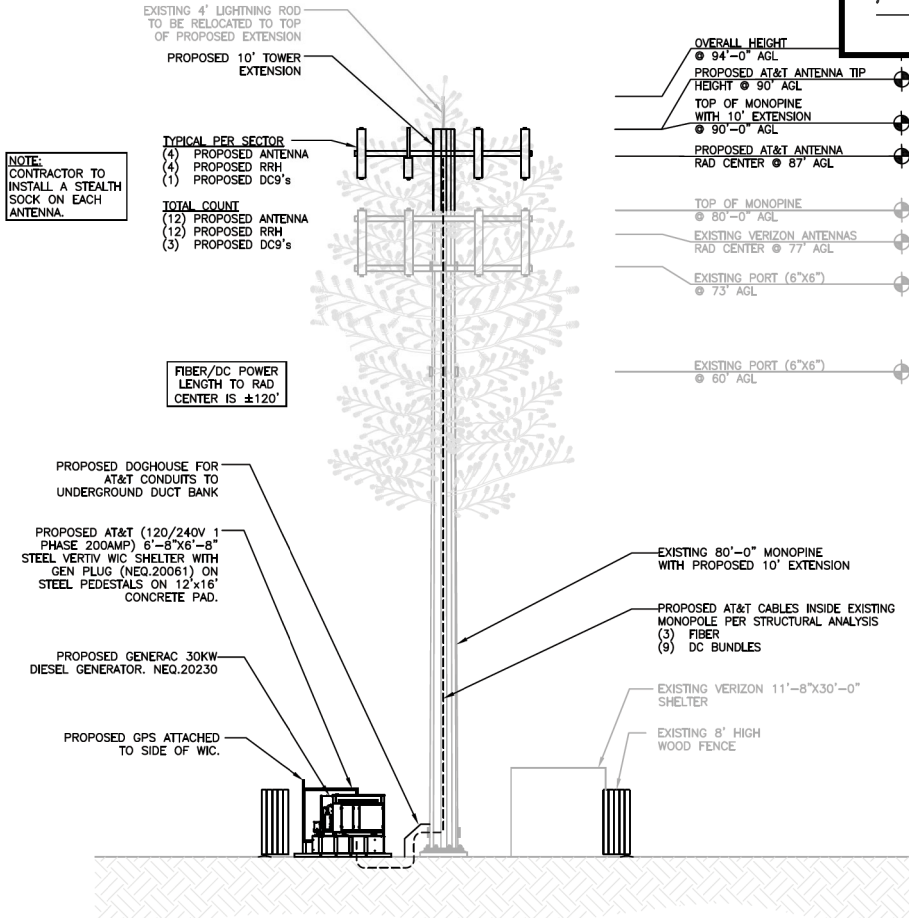
C-2

COMPOUND PLAN
SCALE: 1"=10' (1"=5') ON 22"x34" SHEET

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- OVERALL HEIGHT @ 94'-0" AGL
- PROPOSED AT&T ANTENNA TIP HEIGHT @ 90" AGL
- TOP OF MONOPOLE WITH 10' EXTENSION @ 90'-0" AGL
- PROPOSED AT&T ANTENNA RAD CENTER @ 87' AGL
- TOP OF MONOPOLE @ 80'-0" AGL
- EXISTING VERIZON ANTENNAS RAD CENTER @ 77' AGL
- EXISTING PORT (6"X6") @ 73' AGL
- EXISTING PORT (6"X6") @ 60' AGL

NOTE:
 CONTRACTOR TO INSTALL A STEALTH SOCK ON EACH ANTENNA.

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TOWER
 ELEVATION

SHEET
C-3

TOWER ELEVATION
 SCALE: N.T.S. 1

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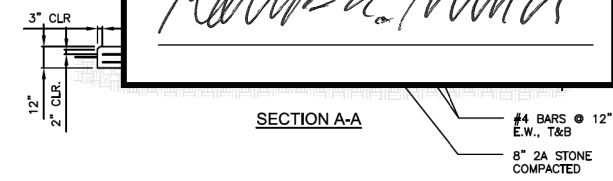
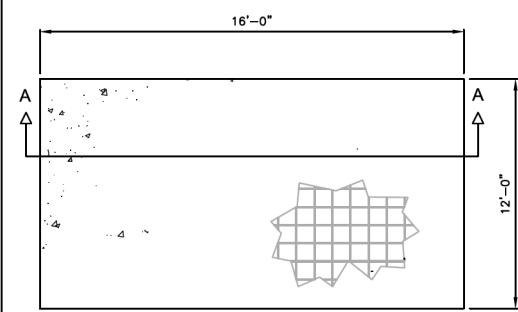
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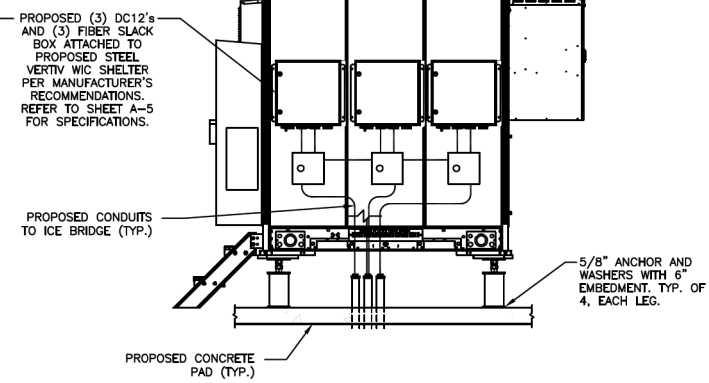
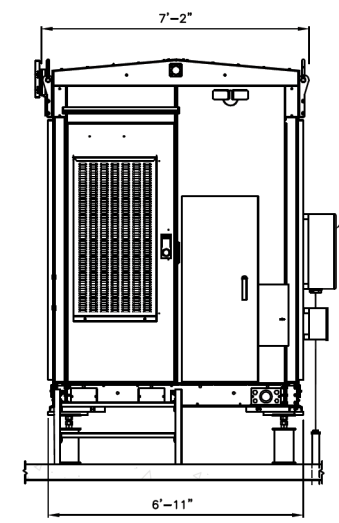
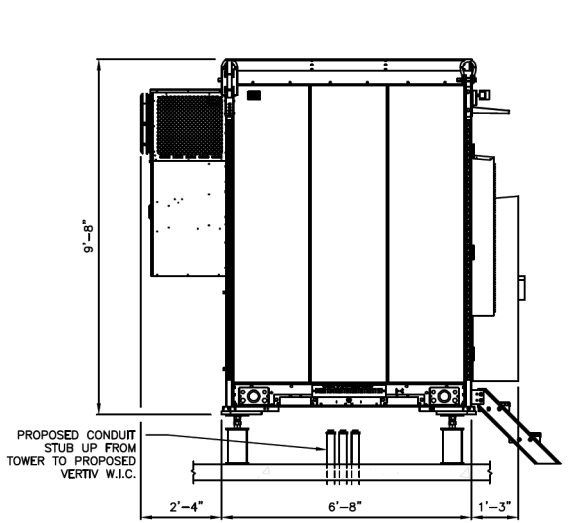
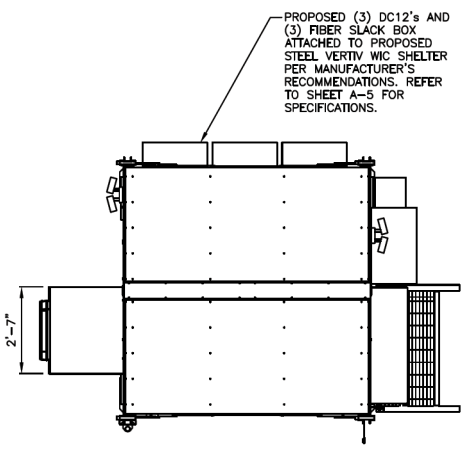
WIC SPECIFICATIONS

SHEET
C-4



- WIC SHELTER SLAB NOTES:
1. VERIFY DIMENSIONS WITH WIC MANUFACTURER.
 2. REMOVE ALL LOOSE INORGANIC OR UNSUITABLE SOIL TO UNDISTURBED BEARING STRATA W/ ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
 3. CONCRETE STRENGTH SHALL BE 4000 PSI, MIN.
 4. SLAB SHALL BE LEVEL $\pm 1/4"$
 5. THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED TO AT LEAST 95% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

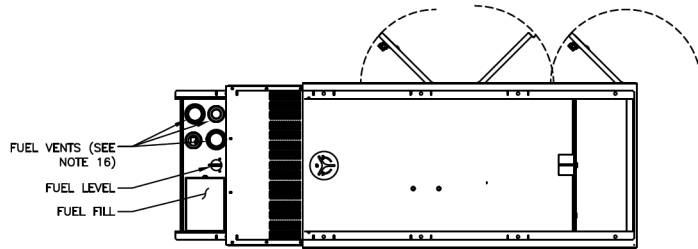
WIC SHELTER FOUNDATION DETAIL
SCALE: N.T.S.



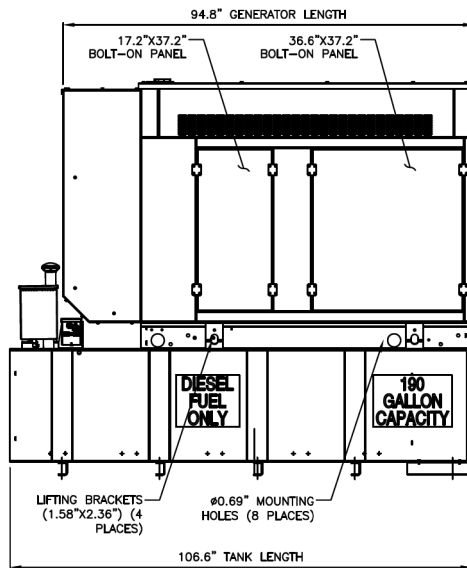
VERTIV WIC SHELTER NEQ. 20061
SCALE: N.T.S.

REVIEWED

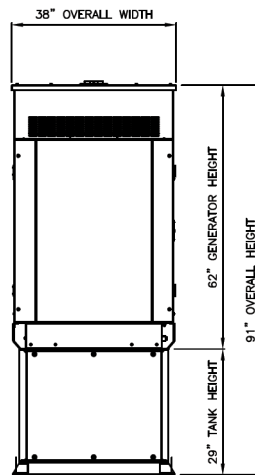
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TOP VIEW



LEFT SIDE VIEW



REAR VIEW

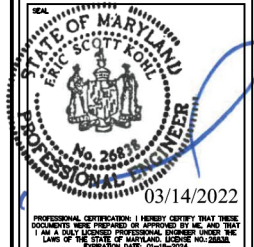
- NOTES:
- CONTROL PANEL INCLUDES BATTERY CHARGER WITH THREE PRONG CORD.
 - 1500W 120VAC ENGINE BLOCK HEATER WITH THREE PRONG CORD.
 - 12 VOLT NEGATIVE GROUND SYSTEM.
 - GENERATOR MUST BE GROUNDED.
 - CENTER OF GRAVITY & WEIGHT MAY SHIFT SLIGHTLY DUE TO UNIT OPTIONS.
 - STUB-UPS: BASE TANK REQUIRES ALL STUB-UPS TO BE IN THE REAR TANK STUB-UP AREA.
 - HIGH VOLTAGE STUB-UP AREA INCLUDES THE AC LOAD LEAD CONNECTION TO THE MAIN LINE CIRCUIT BREAKER, THE NEUTRAL CONNECTION, AND AUXILIARY 120/240V CONNECTION.
 - CONNECTION POINTS FOR CONTROL WIRES. BOTTOM OF LOW VOLTAGE CUSTOMER CONNECTION BOX HAS KNOCKOUTS FOR 1/2" AND 3/4" CONDUIT FITTINGS.
 - MUST ALLOW FREE FLOW OF DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
 - MUST ALLOW FREE FLOW OF INTAKE AIR. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
 - GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
 - IT IS THE RESPONSIBILITY OF THE INSTALLATION TECHNICIAN TO ENSURE THAT THE GENERATOR INSTALLATION COMPLIES WITH ALL APPLICABLE CODES, STANDARDS, AND REGULATIONS.
 - 190 GALLON USEABLE CAPACITY BASETANK IS INCLUDED WITH GENERATOR.
 - UNIT IS SHIPPED WITH FUEL SUPPLY AND RETURN LINES DISCONNECTED AND PLUGGED BETWEEN ENGINE AND FUEL TANK. THIS HAS BEEN DONE TO FACILITATE PRESSURE TESTING OF THE TANK IN THE FIELD. FOR INFORMATION REGARDING CONNECTING THE FUEL SUPPLY AND RETURN LINES PRIOR TO START UP, SEE THE FUEL TANK FIELD TESTING PROCEDURE (0E5082) SUPPLIED IN THE TANK LOOSE VENTS KIT, WHICH IS SHIPPED WITH THIS GENERATOR.
 - SEE DRAWING 003850 FOR DISCHARGE DUCT REMOVAL. REMOVAL OF DUCT WILL PROVIDE ACCESS TO MUFFLER FOR SERVICING.
 - ADDITIONAL 2" FEMALE NPT PORTS - PLUGGED OR EQUIPPED WITH TOP-MOUNT SWITCHES DEPENDING ON UNIT OPTIONS.

WEIGHT DATA: (INCLUDES EMPTY FUEL TANK)
GENERATOR: 1358 KG (2995 LBS)
GENERATOR WITH WOODEN SHIPPING SKID: 1424 KG (3139 LBS)

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GENERATOR
DETAIL

SHEET
C-5

GENERAC - DIESEL 30kW - NEQ: 20230
NOT TO SCALE

1

REVIEWED

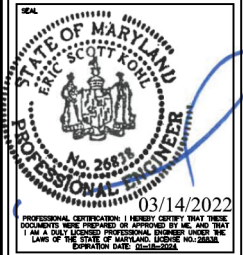
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O	3/9/22	ISSUED FOR PERMITTING

KCI
TECHNOLOGIES
KCI TECHNOLOGIES, INC.
11830 West Market Place, Suite F
Fulton, MD 20759
Phone: 410.792.8086



ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838

at&t
7150 STANDARD DRIVE
HANOVER, MD 21076

smartlink
1382 MELLON RD, SUITE 140
HANOVER, MD 21076

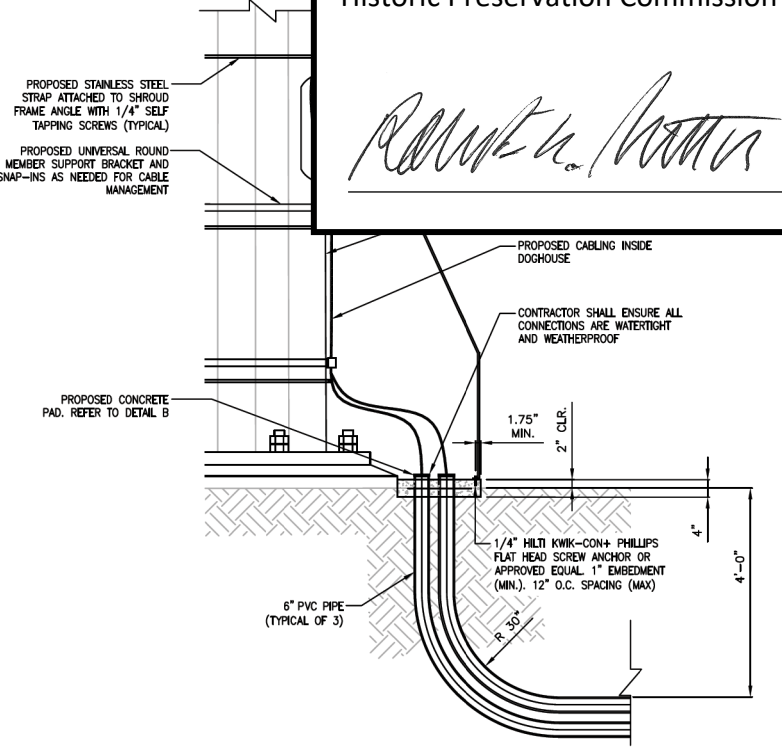
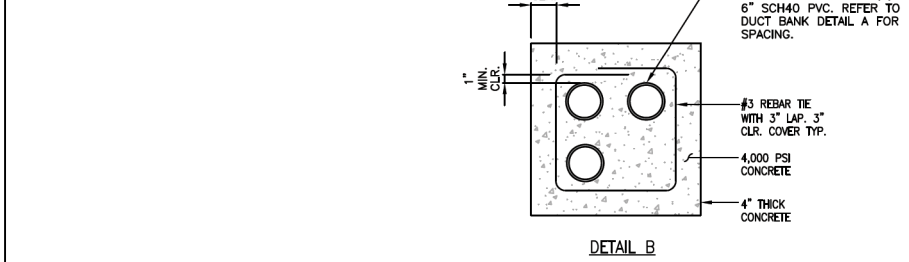
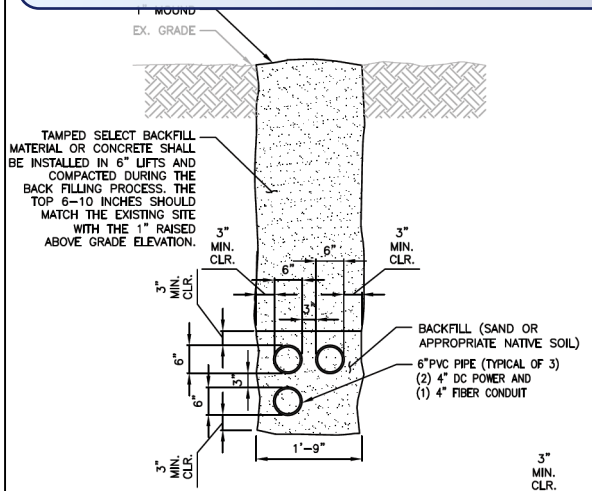
CHARLIE FARM
PAR: 12573578
SITE ID#: 4828
23630 WOODFIELD ROAD
GAITHERSBURG, MD 20882

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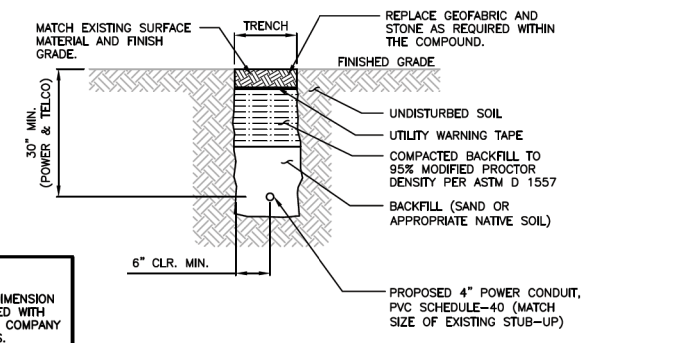
SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE:

TRENCHING DETAILS

SHEET
C-6

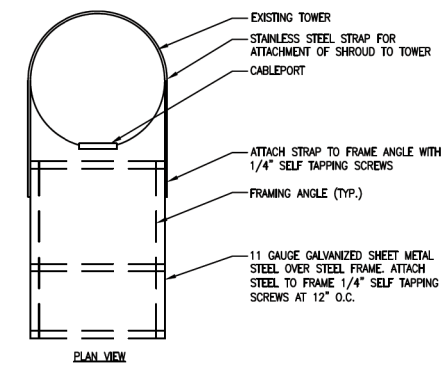
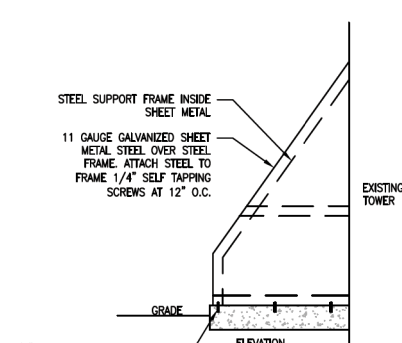


DUCT BANK DETAIL
SCALE: N.T.S.



- NOTES:**
- SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.
 - CONTRACTOR TO HAND DIG ALL NEW TRENCHES INSIDE COMPOUND.

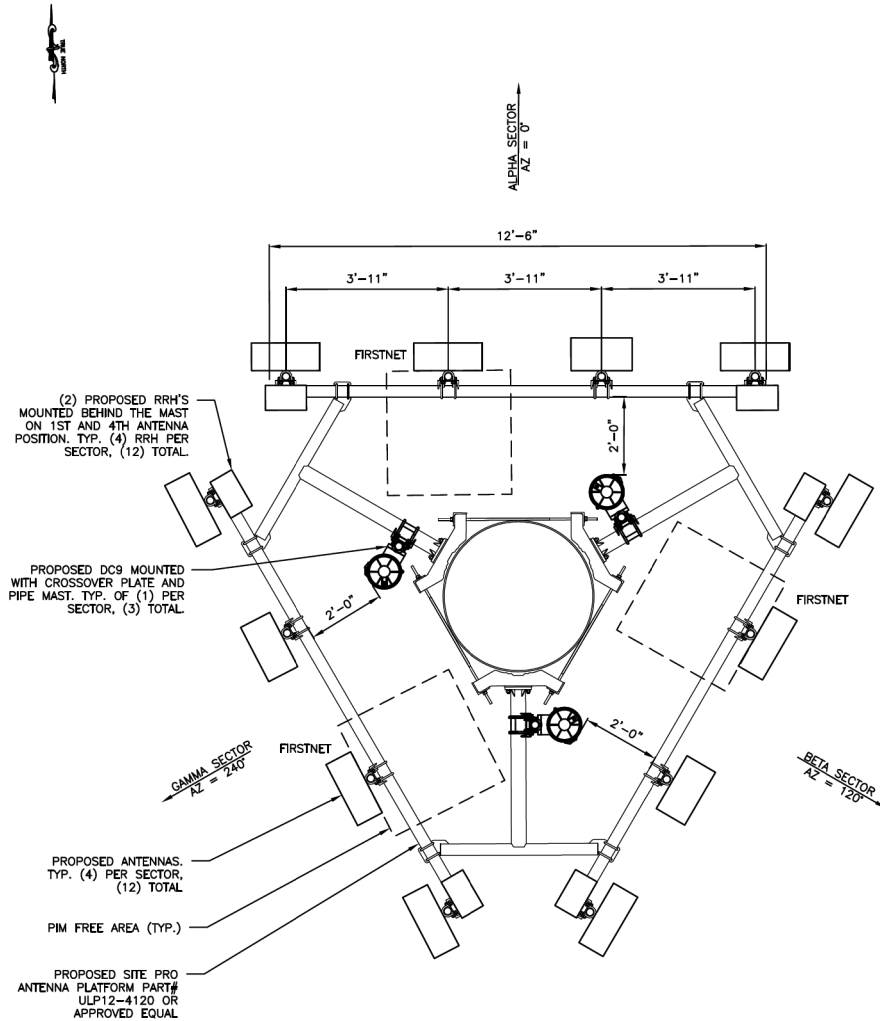
TRENCHING DETAIL
SCALE: N.T.S.



DUCT BANK SHROUD DETAIL
SCALE: N.T.S.

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

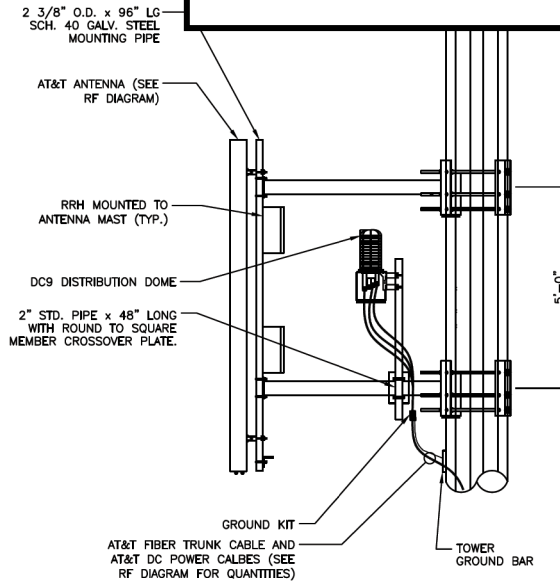


PROPOSED ANTENNA CONFIGURATION

SCALE: 1"=3' (1"=1.5') ON 22"x34" SHEET

1

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Montgomery County
Historic Preservation Commission



NOTES:

1. ANTENNA ORIENTATION IS BASED ON TRUE NORTH BEARING, CONTRACTOR SHALL VERIFY TRUE NORTH PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO REFER TO FINAL RF CONFIGURATIONS SHEET FOR ANTENNA AZIMUTHS PRIOR TO CONSTRUCTION.
3. RRH'S TO BE ATTACHED TO ANTENNA MAST WITH BRACKETS INCLUDED FROM MANUFACTURER.
4. SUBCONTRACTOR SHALL COORDINATE COLOR CODING IN THE FIELD WITH AT&T REPRESENTATIVE.
5. INSTALL SURGE ARRESTORS ON MAIN COAXIAL CABLES, GROUND TO NEAREST GROUND BAR.
6. SUBCONTRACTOR SHALL INSTALL A BRASS IDENTIFICATION TAG (1 1/2" IN DIAMETER) WITH 1/4" STAMPED LETTERS AND NUMBERS, ONE AT THE ANTENNA PORT CONNECTION NEAR THE END OF THE JUMPER AND ONE ON EACH END OF THE JUMPER SERVING THE RADIO EQUIPMENT. EACH TAG WILL BE STAMPED WITH AT&T AND THE ANTENNA PORT IDENTIFICATION NUMBER. I.E. TAGS SHALL BE ATTACHED WITH CORROSION PROOF UV RESISTANT WIRE OR CABLE-TY.

ANTENNA AND RRH MOUNT DETAIL

SCALE: 1"=3' (1"=1.5') ON 22"x34" SHEET

2

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
A	12/17/21	PRELIMINARY DRAWINGS
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ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838



1382 MELLON RD, SUITE 140
HANOVER, MD 21076

CHARLIE FARM

FAR #: 12573578
SITE ID#: 4828
23630 WOODFIELD ROAD
GAITHERSBURG, MD 20882

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SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE:

ANTENNA LAYOUT
AND MOUNTING
DETAIL

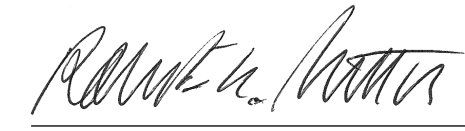
SHEET

A-1

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

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Montgomery County
Historic Preservation Commission




ANTENNA SCHEDULE									
SECTOR POSITION	STATUS	ANTENNA MANUFACTURE	ANTENNA MODEL	ANTENNA DIMENSIONS	RAD CENTER	AZIMUTH	TMA/RRU QUANTITY & MODEL	ANTENNA HEIGHT	SECTOR SPACING
A-1	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	0°	(1) AIRSCALE DUAL RRH4T4R B25/66 320W (AHFIB)		
A-2	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	0°	(1) B12/14/29 TRIBAND RRH 370W (AHLBBA)		
A-3	PROPOSED	NOKIA	AEQK	29.7"x17.7"x9.5"	87' AGL	0°	(1) INTEGRATED MMA 64T64R 192AE (AEQK)		
A-4	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	0°	(1) AIRSCALE RRH 4T4R B5 160W (ACHA) (1) AIRSCALE RRH 4T4R B30 100W (AHNA)	2'	0'
B-1	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	120°	(1) AIRSCALE DUAL RRH4T4R B25/66 320W (AHFIB)	2.5'	0'
B-2	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	120°	(1) B12/14/29 TRIBAND RRH 370W (AHLBBA)	2'	0'
B-3	PROPOSED	NOKIA	AEQK	29.7"x17.7"x9.5"	87' AGL	120°	(1) INTEGRATED MMA 64T64R 192AE (AEQK)	0'	0'
B-4	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	120°	(1) AIRSCALE RRH 4T4R B5 160W (ACHA) (1) AIRSCALE RRH 4T4R B30 100W (AHNA)	2'	0'
G-1	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	240°	(1) AIRSCALE DUAL RRH4T4R B25/66 320W (AHFIB)	2.5'	0'
G-2	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	240°	(1) B12/14/29 TRIBAND RRH 370W (AHLBBA)	2'	0'
G-3	PROPOSED	NOKIA	AEQK	29.7"x17.7"x9.5"	87' AGL	240°	(1) INTEGRATED MMA 64T64R 192AE (AEQK)	0'	0'
G-4	PROPOSED	COMMSCOPE	NNHH-65B-R4	72"x19.6"x7.8"	87' AGL	240°	(1) AIRSCALE RRH 4T4R B5 160W (ACHA) (1) AIRSCALE RRH 4T4R B30 100W (AHNA)	2'	0'
GPS -- (MOUNTED ON WIC SHELTER)							(1) 1/2" COAX		±25'

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Fulton, MD 20759
Phone: 410.792.8086



03/14/2022
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ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838



1750 STANDARD DRIVE
HANOVER, MD 21076



1382 MELLON RD, SUITE 140
HANOVER, MD 21076

CHARLIE FARM
FAR: 12573578
SITE ID#: 4628
23630 WOODFIELD ROAD
GAITHERSBURG, MD 20882

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SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE:

RF SCHEDULE AND NOTES

SHEET
A-2

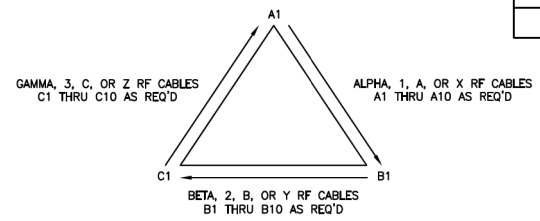
CABLE SYSTEM & RF SYSTEM DESIGN PLAN NOTES:

- SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION TO REGION AND IS SITE SPECIFIC. REFER TO SEPARATE RF REPORT FOR EACH SITE TO DETERMINE THE ANTENNA LOCATION AND FUNCTION OF EACH TOWER SECTOR FACE.
- THE STANDARD IS BASED ON EIGHT COLORED TAPES - RED, BLUE, GREEN, YELLOW, BROWN, ORANGE, WHITE, AND SLATE (GREY). THESE TAPES SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
- USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
- COLOR CODE TAPE SHALL BE 3" WIDE AT TOP AND MIDDLE OF TOWER AND 2" WIDE AT THE BOTTOM. ALL JUMPERS SHALL BE INCLUDED.
- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
- ALL COLOR BANDS INSTALLED AT OR NEAR THE GROUND SHALL BE A MINIMUM OF 3/4" WIDE.
- ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.

CABLE IDENTIFICATION NOTES:

- SUBCONTRACTOR SHALL COORDINATE COLOR CODING WITH THE MASTER COLOR CODE DOCUMENT.
- SUB CONTRACTOR SHALL INSTALL A BRASS IDENTIFICATION TAG (1-1/2" IN DIAMETER WITH 1/4" STAMPED LETTERS AND NUMBERS) ONE AT THE ANTENNA PORT CONNECTION NEAR THE END OF THE JUMPER AND ONE ON EACH END OF THE JUMPER SERVING THE RADIO EQUIPMENT. EACH TAG WILL BE STAMPED WITH "ATT" AND THE ANTENNA PORT IDENTIFICATION NUMBER EXAMPLE BELOW. TAGS SHALL BE ATTACHED WITH CORROSION PROOF UV RESISTANT WIRE OR CABLE-TY.

RF DESIGN NOTE:
THIS ANTENNA AND COAX CABLE SCHEDULE HAS BEEN CREATED USING THE FOLLOWING RFDS DATED 12/03/21, V2021_1.2
ALL ANTENNA DESIGN, ZONING, STRUCTURAL ANALYSIS PERMITS AND COMPLIANCE SUBMISSIONS ARE COORDINATED WITH THE AFOREMENTIONED DOCUMENT.



PROPOSED ANTENNAS	TOTAL	PROPOSED RRH (PER SECTOR)	TOTAL
(4) PER SECTOR	(12)	(1) B12/14/29 NOKIA TRIBAND RRH (AHLBBA)	(3)
		(1) AIRSCALE DUAL RRH 4T4R B25/66 320W (AHFIB)	(3)
		(1) AIRSCALE RRH 4T4R B5 160W (ACHA)	(3)
		(1) AIRSCALE RRH 4T4R B30 100W (AHNA)	(3)

RF SCHEDULE AND NOTES
SCALE: N.T.S.

1

REVIEWED

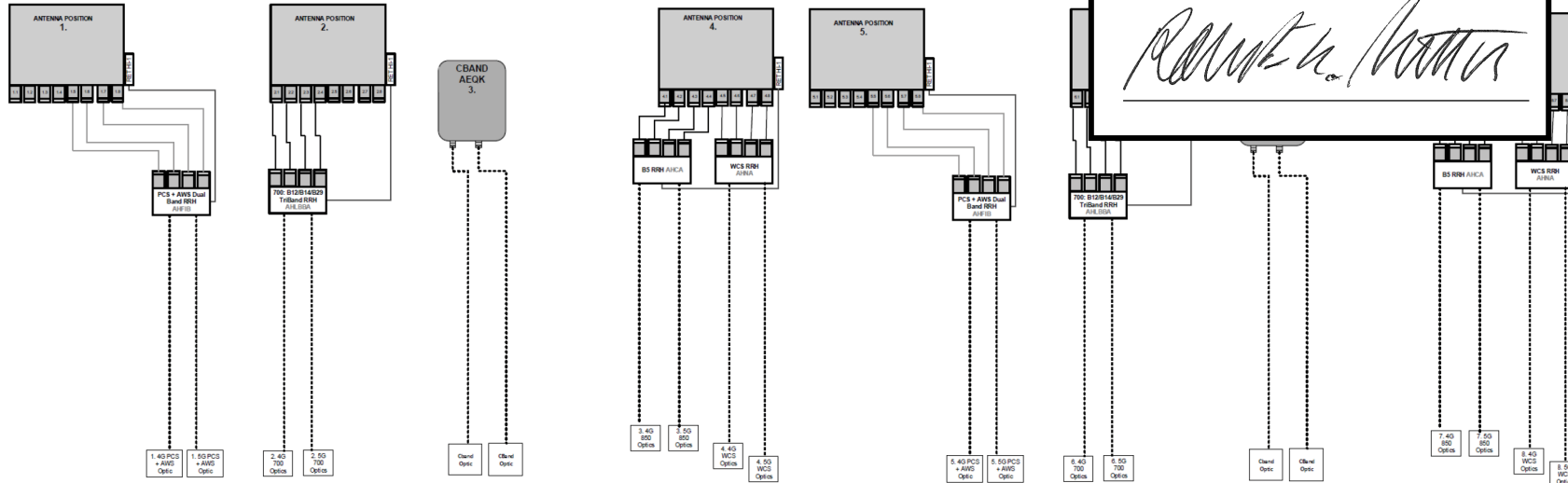
By Michael Kyne at 1:49 pm, Jun 24, 2022

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Montgomery County
Historic Preservation Commission

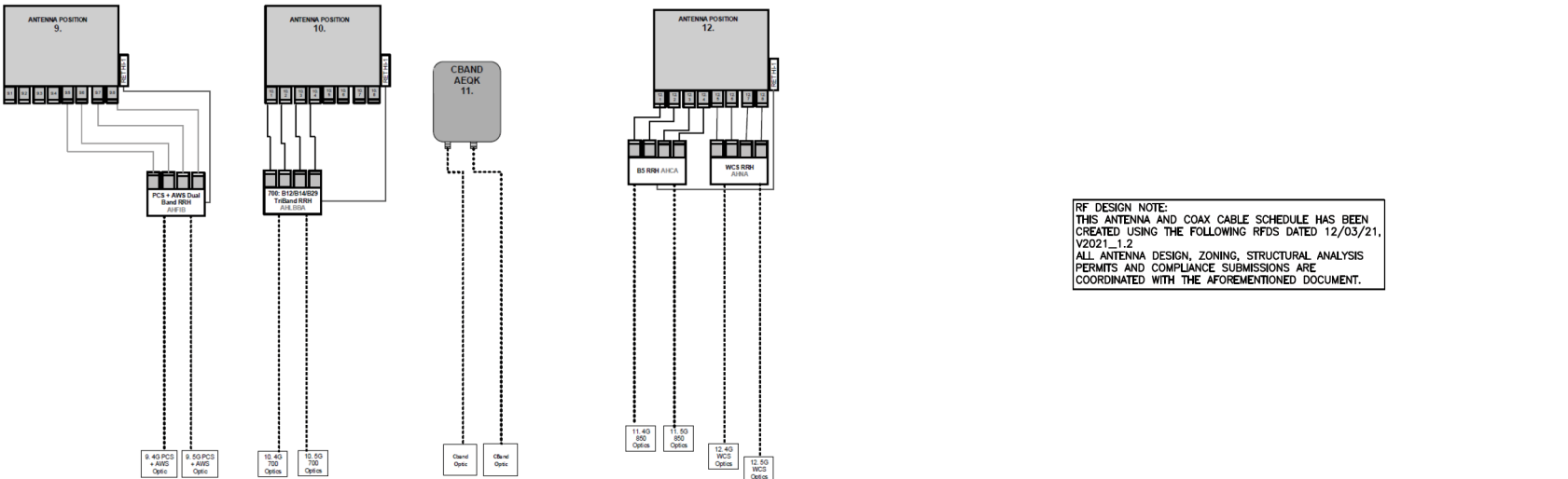
Robert A. ...

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7CC_P1OPA1



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RF DESIGN NOTE:
THIS ANTENNA AND COAX CABLE SCHEDULE HAS BEEN
CREATED USING THE FOLLOWING RFDS DATED 12/03/21,
V2021_1.2
ALL ANTENNA DESIGN, ZONING, STRUCTURAL ANALYSIS
PERMITS AND COMPLIANCE SUBMISSIONS ARE
COORDINATED WITH THE AFOREMENTIONED DOCUMENT.

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CHECKED BY:	JM	
APPROVED BY:	GT	
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C	2/14/22	REVISED PER COMMENTS
D	3/1/22	REVISED PER COMMENTS
O	3/9/22	ISSUED FOR PERMITTING

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KCI TECHNOLOGIES, INC.
11830 West Market Place, Suite F
Fulton, MD 20759
Phone: 410.792.8086



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ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 2688

at&t
7150 STANDARD DRIVE
HANOVER, MD 21076

smartlink
1382 MELLON RD, SUITE 140
HANOVER, MD 21076

CHARLIE FARM
FAR: 12573578
SITE ID#: 4828
23630 WOODFIELD ROAD
GAITHERSBURG, MD 20882

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SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE:

PLUMBING
DIAGRAMS

SHEET
A-3

PLUMBING DIAGRAMS
SCALE: N.T.S.

1

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

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Montgomery County
Historic Preservation Commission




700 RRH

SPECIFICATIONS	
LxWxD (IN.)	24"x14.09"x7.83"
WEIGHT (LBS.)	101.4

NOKIA AIRSCALE RRH 4T4R B12/14/29 TRIBAND AHLBBA

SCALE: N.T.S.

1



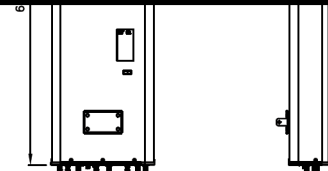
850 RRH

SPECIFICATIONS	
LxWxD (IN.)	13.3"x11.6"x6.5"
WEIGHT (LBS.)	16.7

NOKIA AIRSCALE RRH 4T4R B5 160W AHCA

SCALE: N.T.S.

2



SPECIFICATIONS	
LxWxD (IN.)	72.0"x19.6"x7.8"
WEIGHT (LBS.)	78.3

PROPOSED COMMSCOPE NNHH-65B-R4

SCALE: N.T.S.

3



1900 RRH

SPECIFICATIONS	
LxWxD (IN.)	11.8"x15.7"x4.7"
WEIGHT (LBS.)	40

NOKIA AIRSCALE RRH 4T4R B25/66 320W AHFIB

SCALE: N.T.S.

4



SPECIFICATIONS	
HxWxD (IN.)	13.3"x12.1"x5.5"
WEIGHT (LBS.)	34.17

NOKIA AIRSCALE RRH 4T4R B30 100W AHNA

SCALE: N.T.S.

5



SPECIFICATIONS	
LxWxD (IN.)	29.5"x17.7"x9.5"
WEIGHT (LBS.)	99.2

PROPOSED NOKIA AEQK AIRSCALE MAA 64T64R

SCALE: N.T.S.

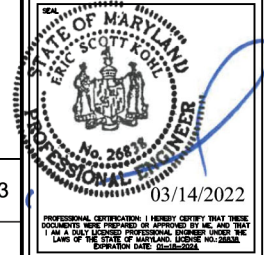
6

NOTE:
RRH INTEGRATED INTO
PROPOSED ANTENNAS.

RF DESIGN NOTE:
THIS ANTENNA AND COAX CABLE SCHEDULE HAS BEEN
CREATED USING THE FOLLOWING RFDS DATED 12/03/21,
V2021_1.2
ALL ANTENNA DESIGN, ZONING, STRUCTURAL ANALYSIS
PERMITS AND COMPLIANCE SUBMISSIONS ARE
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MD LICENSE NO.: 26838

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smartlink
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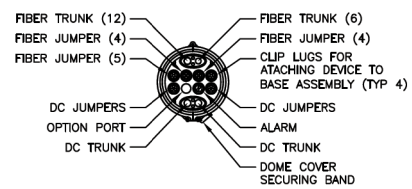
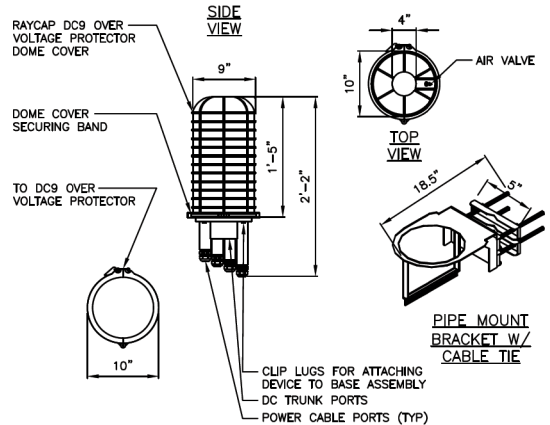
SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE:

EQUIPMENT SPECIFICATIONS
SHEET
A-4

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

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Montgomery County
Historic Preservation Commission

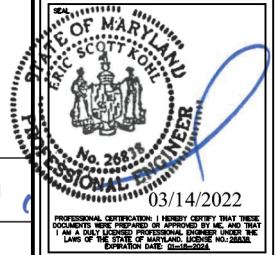



- NOTES:**
1. AT&T SUPPLIES DC9 SURGE DOME AND PIPE MOUNTING BRACKETS. CONTRACTOR SHALL SUPPLY MOUNTING PIPE OR UNISTRUT.
 2. DC9 AND BRACKET: 32.8 LBS
 3. DC9 WILL BE MOUNTED TO PLATFORM WITH SITEPRO MOUNT# FMA1: 14 LBS.
 4. TOTAL WEIGHT: 46.8 LBS

RAYCAP DC9 FIBER/DC DOME DETAIL
SCALE: N.T.S.

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
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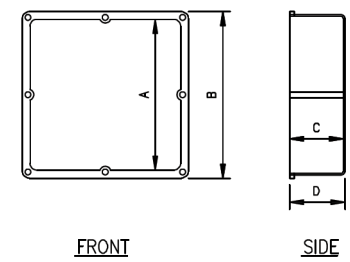
EQUIPMENT SPECIFICATIONS
SHEET

A-5



SPECIFICATIONS	
LxWxD (IN.)	26"x24"x8.8"
WEIGHT (LBS.)	56.3

DC12-48-60-0-25E DETAIL
SCALE: N.T.S.



PRODUCT CODE	PART NUMBER	A	B	C	D	GASKET CODE	SCREW CODE	VOLUME
078250	JB12124	12"	12.687"	4"	4.25"			577.4 CID
078251	JB12126	12"	12.687"	6"	6.25"	072749	072513 (8) 072549 (4)	846.0 CID
078252	JB12128	12"	12.687"	8"	8.25"			1,102.0 CID

FIBER/DC SLACK BOX DETAIL
SCALE: N.T.S.

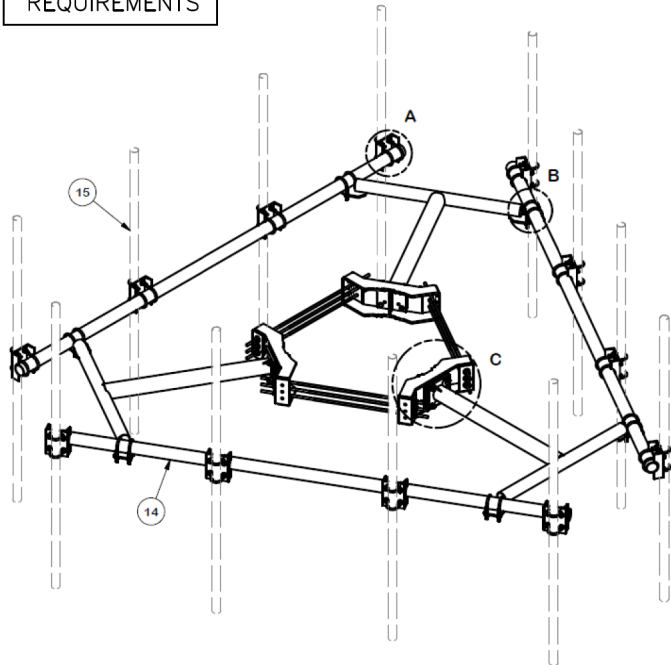
REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

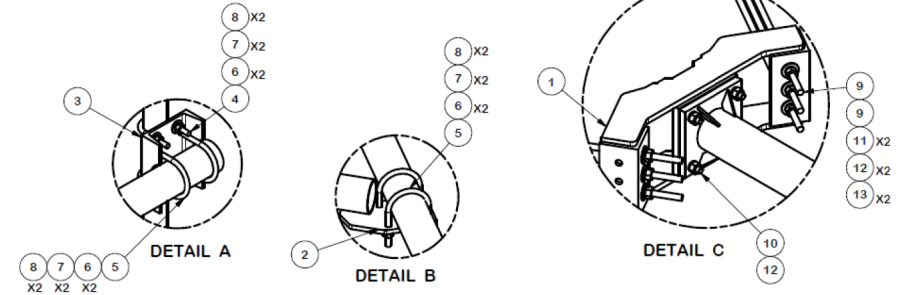
APPROVED
Montgomery County
Historic Preservation Commission



TYPICAL OF (2)
PER AT&T
REQUIREMENTS



ITEM	QTY	PART NO.	DESCRIPTION	UNIT	QTY	WT.
1	3	X-LWRM				
2	3	X-ULP				
3	12	X-SP219				
4	24	X-UB1212				
5	36	X-UB1306				
6	120	G12FW				
7	120	G12LW				
8	120	G12NUT				
9	9	G58R-24	5/8" X 24" GALV THREADED ROD		2.20	19.76
9	9	G58R-48	5/8" X 48" GALV THREADED ROD		4.39	39.52
10	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT		2.75	4.27
11	18	G58FW	5/8" HDG USS FLATWASHER	.122	0.07	1.27
12	30	G58LW	5/8" HDG LOCKWASHER	.156	0.03	0.78
13	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT	5/8	0.13	3.90
14	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150.000 in	94.80	284.40
15	12	A	B	C	D	



"ASSEMBLY NO."	PART NO. "A"	PART DESCRIPTION "B"	LENGTH "C"	UNIT WT. "D"	TOTAL WT.
ULP12-472	P272	2-3/8" O.D. SCH. 40 PIPE	72"	23.07	1,311.05
ULP12-484	P284	2-3/8" O.D. SCH. 40 PIPE	84"	26.91	1,357.13
ULP12-496	P296	2-3/8" O.D. SCH. 40 PIPE	96"	30.76	1,403.33
ULP12-4126	P2126	2-3/8" O.D. SCH. 40 PIPE	126"	40.76	1523.33

TOLERANCE NOTES
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
BENDS ARE $\pm 1/2$ DEGREE
ALL OTHER MACHINING ($\pm 0.030"$)
ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
ULTRA LOW PROFILE RIDGED T-ARM FOR 12 ANTENNAS

CPD NO. 5416
DRAWN BY LMD 12/20/2012
CLASS 81 SUB 01
DRAWING USAGE CUSTOMER

ENG. APPROVAL
CHECKED BY BMC 12/27/2012

SITE PRO
A valmont COMPANY

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

Engineering Support Team:
1-888-753-7446

PART NO. SEE "ASSEMBLY NO."
DWG. NO. ULP12-4XX

1 OF 2
PAGE

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	ADDED 10" 6" ANTENNA MOUNTING PIPES	5416	CEK	7/2/2015

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CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
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D	3/1/22	REVISED PER COMMENTS
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KCI TECHNOLOGIES
KCI TECHNOLOGIES, INC.
11830 West Market Place, Suite F
Fulton, MD 20759
Phone: 410.792.8086

STATE OF MARYLAND
ERIC S. KOHL
PROFESSIONAL ENGINEER
No. 26838
03/14/2022
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A VALID LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE #26838. EXPIRATION DATE: 03/14/2024.

ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838

at&t
7150 STANDARD DRIVE
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smartlink
1362 MELLON RD. SUITE 140
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CHARLIE FARM
FAR: 12573578
SITE ID#: 4628
23630 WOODFIELD ROAD
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SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE

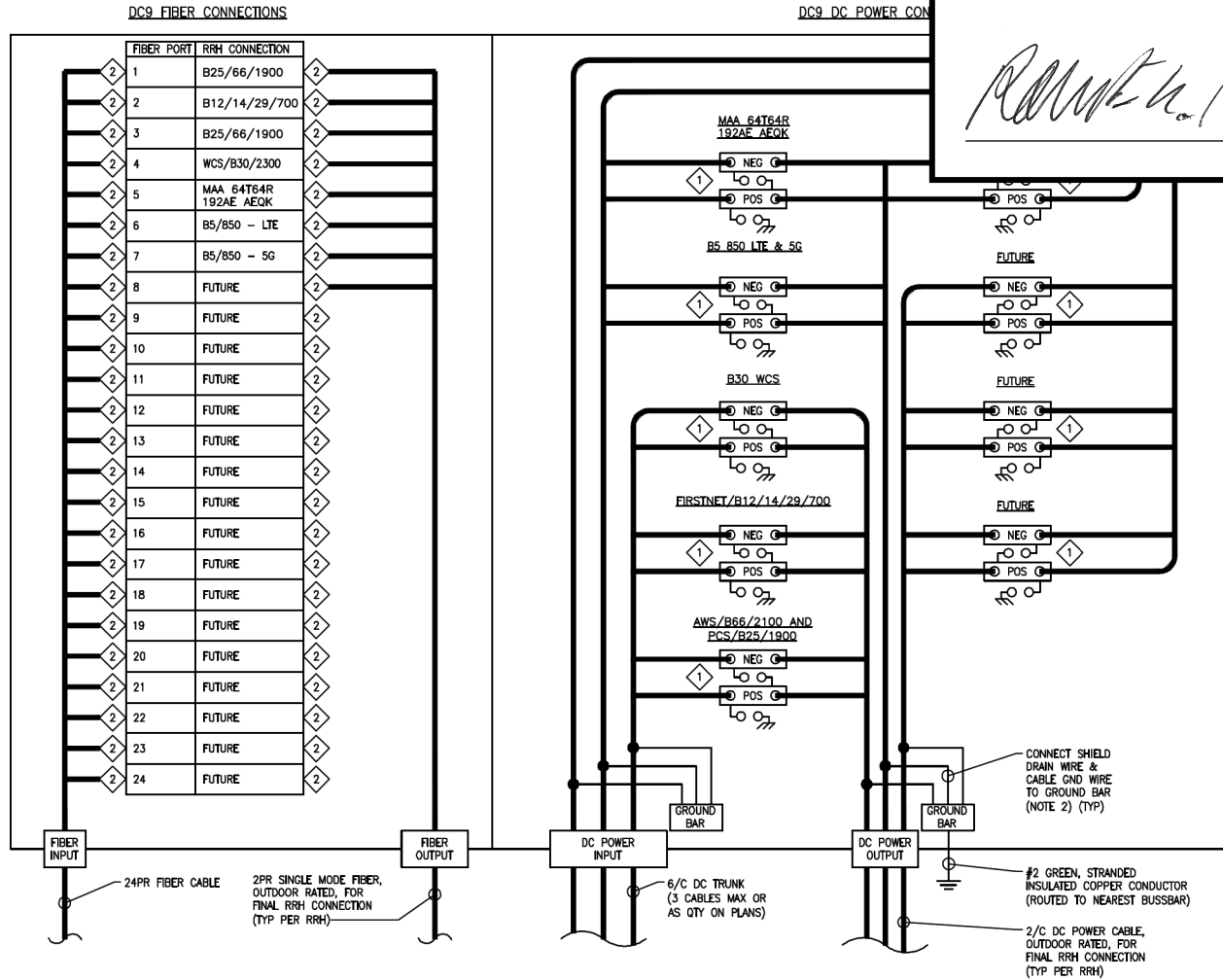
MOUNT DETAIL
A-6

MOUNT DETAIL
SCALE: N.T.S.

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

APPROVED
Montgomery County
Historic Preservation Commission

- NOTES:**
- TRUNK GLAND KITS:
TRUNK GLAND KIT A: OVAL GASKET FOR #4 AND #6AWG TRUNK (CEQ. 2142B)
TRUNK GLAND KIT B: OVAL GASKET FOR (2) #4 AWG TRUNKS (CEQ. 21429)
TRUNK GLAND KIT C: OVAL GASKET FOR (2) #6 AWG TRUNKS (CEQ. 21434)
 - WHEN SHIELDED CABLE IS USED CONNECT CABLE SHIELD DRAIN WIRE AND GROUND WIRE TO GROUND BAR.
 - FIRST SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH ON ALPHA SECTOR. IN THE EVENT THE ALARM CABLE CANNOT BE CONNECTED TO ALPHA IT WILL BE ACCEPTABLE TO ALARM TO THE CLOSEST PHYSICAL SECTOR ON AN EXCEPTION BASIS.
 - 2ND SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH ON BETA SECTOR.
 - 3RD SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH ON GAMMA SECTOR.
 - AN RRH WILL NEVER HAVE MORE THAN ONE SQUID ALARMED ON IT.
 - SQUID ALARMS ARE NOT TO BE DAISY CHAINED.

◇ = LC CONNECTOR
◇ = STRIKESORB PROTECTION MODULE BY RAYCAP

DC9 WIRING DIAGRAM
SCALE: N.T.S.

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MD LICENSE NO.: 26838

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CHARLIE FARM
FA#R: 1257378
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SHEET TITLE:

DC9 WIRING
DIAGRAM

SHEET
A-7

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

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Montgomery County
Historic Preservation Commission



120/240V, 1ø, 3W
200A MAIN C.B.

PANEL SCHEDULE PTLC

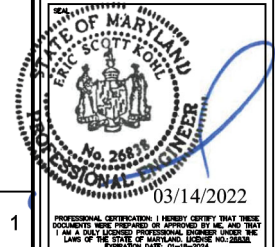
CKT. NO.	CKT. BKR AMPS	DESCRIPTION	DESCRIPTION	CKT. BKR AMPS	CKT. NO.
1	30	RECTIFIER SHELVES 1&2	RECTIFIER SHELVES 7&8	30	2
3					4
5	30	RECTIFIER SHELVES 3&4	RECTIFIER SHELVES 9&10	30	6
7					8
9	30	RECTIFIER SHELVES 5&6	RECTIFIER SHELVES 11&12	30	10
11					12
13	—	SPACE	SPACE	—	14
15	—	SPACE	SPACE	—	16
17	—	SPACE	SPACE	—	18
19	—	SPACE	SPACE	—	20
21	—	SPACE	SPACE	—	22
23	—	SPACE	SPACE	—	24
25	25	TO HVAC	EX. LIGHTS	15	26
27			OUTLETS	20	28
29	—	SPACE	SPACE	—	30
31	—	SPACE	SPACE	—	32
33	—	SPACE	SPACE	—	34
35	—	SPACE	SPACE	—	36
37	—	SPACE	SPACE	—	38
39	—	SPACE	BATTERY CHARGER	20	40
41	—	SPACE	BLOCK HEATER	20	42

NOTES:

- LOAD CENTER IS WITHIN POWER ENCLOSURE, FACTORY INSTALLED BY VERTIV.

ELECTRICAL PANEL

SCALE: N.T.S.



ENGINEER:
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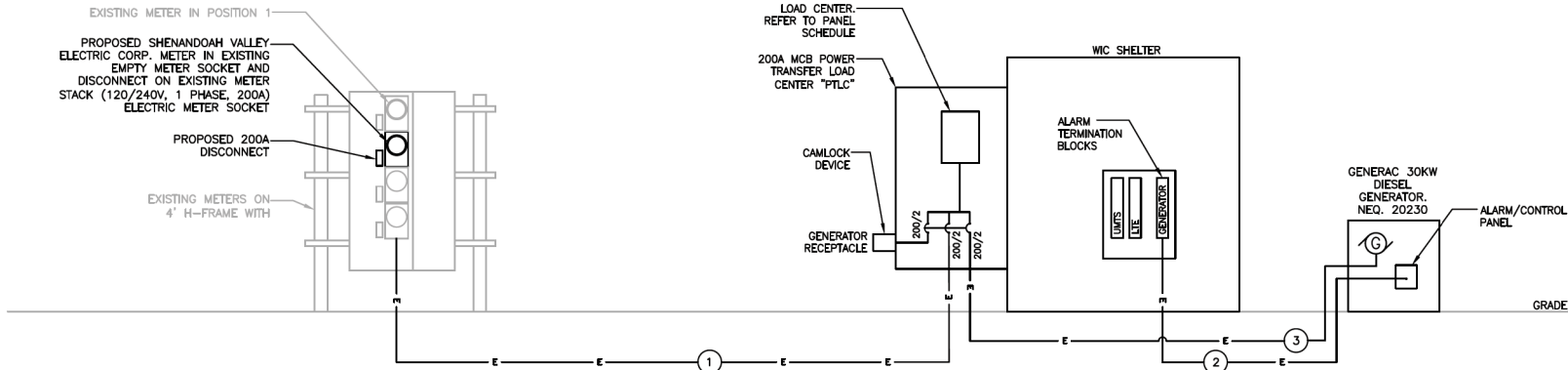
ELECTRICAL SPECIFICATIONS

SHEET

E-1

ONE-LINE DIAGRAM

SCALE: N.T.S.



- ① 3 - 3/0 AWG & #6 GND. IN 3" CONDUIT
- ② ALARM WIRES AND CONDUIT PRE-INSTALLED BY AT&T CONTRACTOR
- ③ - 2" CONDUIT W/(2) #14 AWG AND GENERAL CABLE 12 PR 24 AWG COPPER SHIELDED FOR GENERATOR START
 - 2" CONDUIT W/(4) #10 AWG & (F) #12 GND FOR BATTERY CHARGE & BLOCK HEATER
 - 2" CONDUIT W/(3) #4/0 AWG & (1) #4 GND FOR STANDBY POWER

NOTE:
TELCO TO BE DETERMINED

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

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Montgomery County
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MAXIMUM CABLE LENGTHS FOR FIGURE 1

CABLE	LENGTH (FT)			
	6 AWG	8 AWG	10 AWG	12 AWG
C1	450	265	165	104
C2	16	16	16	16

NOTES:

1. CABLE LENGTHS ARE APPLICABLE FOR ALU RRH MODELS.
2. NOMINAL SYSTEM VOLTAGE IS -48V DC, SUPPLIED FROM A 48V BATTERY. NORMAL OPERATING VOLTAGE IS 52V.
3. CABLE LENGTHS BASED ON ROSENBERGER CABLES.

DC CONDUCTOR SPECIFICATIONS

SCALE: N.T.S.

2

NOTES:

1. VOLTAGE IDENTIFICATION WIRES SHALL BE APPLIED TO BOTH ENDS OF ALL NEW DC POWER WIRING USING UL224-VW-1 FLAME RETARDANT UL LISTED THIN WALL HEAT SHRINK TUBING OF APPROPRIATE COLOR. ALTERNATIVELY IT SHALL BE ACCEPTABLE TO APPLY VOLTAGE IDENTIFICATION MARKINGS TO DC WIRING WITH APPROPRIATELY COLORED ELECTRICAL TAPE THAT SHALL BE APPLIED IN TWO HALF-LAPPED LAYERS WITH THE FINAL TWO WRAPS APPLIED FULLY OVERLAPPING WITHOUT TENSION. WHENEVER POSSIBLE THE ELECTRICAL TAPE VOLTAGE IDENTIFICATION MARKINGS SHALL BE FULL COVERED WITH CLEAR UL224 VW-1 FLAME RETARDANT UL LISTED THIN WALL HEAT SHRINK TUBING TO PREVENT UNWINDING OR MOVEMENT OF ELECTRICAL TAPE DESIGNATIONS.
2. AT&T COMPLIANT THIN WALL CLEAR OR COLORIZED HEAT SHRINK IS AVAILABLE FOR ALL DC POWER WIRING SIZES FROM BURNDY (HSC-FR & HS-FR) AND THOMAS & BETTS (CPO SERIES). OTHER MANUFACTURER HEAT SHRINK SHALL BE ACCEPTABLE ONLY IF IN FULL COMPLIANCE WITH SPECIFICATION PROVIDED ABOVE.
3. DESIGNATION TAGS SHALL BE AFFIXED TO BOTH CABLE ENDS AS SPECIFIED IN AT&T DOCUMENT ATT-TP-76300, SECTION L.

DC POWER WIRING IDENTIFICATION DETAIL

SCALE: N.T.S.

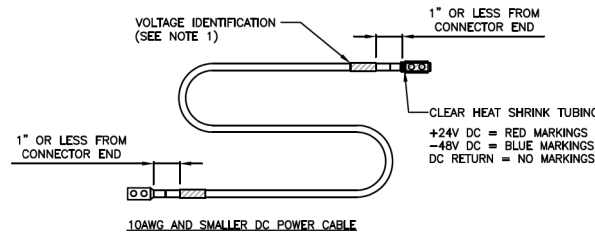
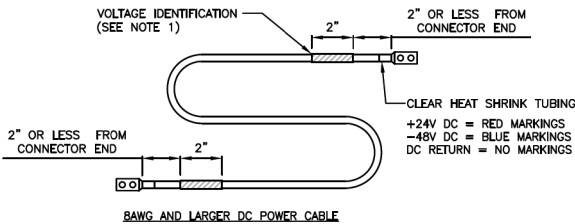
3

DISTRIBUTION ROW #3	POSITION	VOLTAGE	CG SIZE	DISTRIBUTION ROW #2	POSITION	VOLTAGE	CG SIZE
FIF FUSE PANEL #1-A	1	24	100	AIRSCALE DUAL RRH 4T4R B25/66 320W AHIB	1	48	50
	2	24	100	NOKIA TRIBAND RRH B12/14/29 370W AHLBBA	2	48	50
	3	24	100	AIRSCALE RRH 4T4R B5 160W AHCA	3	48	50
FIF FUSE PANEL #2-A	4	24	100	AIRSCALE RRH 4T4R B30 100W AHNA	4	48	50
	5	24	100	AIRSCALE INTERGRATED RRH MAA 64T64R 192AE AEQK	5	48	50
	6	24	100	AIRSCALE DUAL RRH 4T4R B25/66 320W AHIB	6	48	50
	7	24	100	NOKIA TRIBAND RRH B12/14/29 370W AHLBBA	7	48	50
	8	24	100	AIRSCALE RRH 4T4R B5 160W AHCA	8	48	50
	9	24	100	AIRSCALE RRH 4T4R B30 100W AHNA	9	48	50
	10	24	100	AIRSCALE INTERGRATED RRH MAA 64T64R 192AE AEQK	10	48	50
	11	24	100	AIRSCALE DUAL RRH 4T4R B25/66 320W AHIB	11	48	50
	12	24	100	NOKIA TRIBAND RRH B12/14/29 370W AHLBBA	12	48	50
	13	24	100	AIRSCALE RRH 4T4R B5 160W AHCA	13	48	50
	14	24	100	AIRSCALE RRH 4T4R B30 100W AHNA	14	48	50
	15	24	100	AIRSCALE INTERGRATED RRH MAA 64T64R 192AE AEQK	15	48	50
	16	24	100	AIRSCALE DUAL RRH 4T4R B25/66 320W AHIB	16	48	50
	17	24	100	NOKIA TRIBAND RRH B12/14/29 370W AHLBBA	17	48	50
	18	24	100	AIRSCALE RRH 4T4R B5 160W AHCA	18	48	50
	19	24	100	AIRSCALE RRH 4T4R B30 100W AHNA	19	48	50
	20	24	100	AIRSCALE INTERGRATED RRH MAA 64T64R 192AE AEQK	20	48	50
	21	24	100	SIAD	21	48	50
	22	24	100	SIAD	22	48	50
	23	24	100	TRANSPORT NID	23	48	50
	24	24	100	FSM4	24	48	50
	25	24	100	FSM4	25	48	50
	26	24	100	FSM4	26	48	50

DC POWER BREAKER SCHEDULE

SCALE: N.T.S.

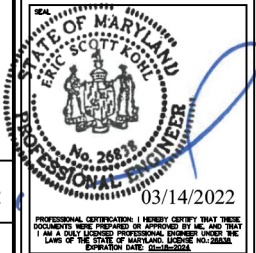
1



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A	12/17/21	PRELIMINARY DRAWINGS
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03/14/2022

ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838



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1382 MELLON RD, SUITE 140
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CHARLIE FARM

FAR: 12573578
SITE ID#: 4628
23630 WOODFIELD ROAD
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KCI JOB NUMBER: 011802184.ATT51
SHEET TITLE:

DC POWER DETAILS

SHEET

E-2

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

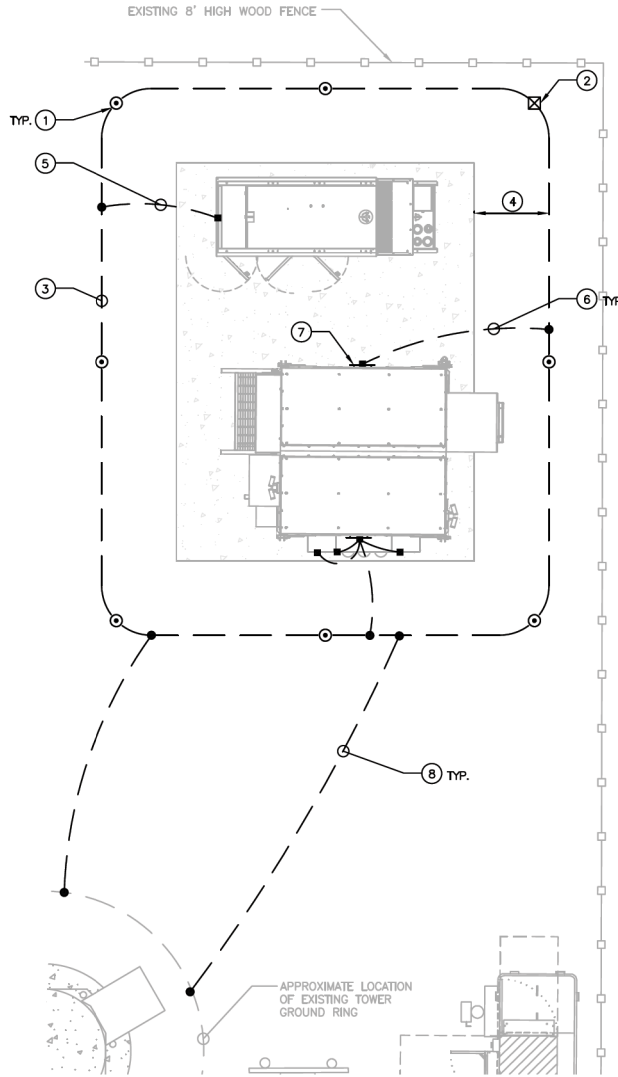
DRAWING NOTES:

- 1 PROPOSED 8'-0" (MINIMUM) x 5/8" COPPER CLAD STEEL GROUND ROD. TOP OF GROUND ROD SHALL BE AT THE SAME DEPTH AS THE GROUND RING. GROUND RODS MUST BE PLACED A MIN. OF 6' APART AND A MAXIMUM OF 11' APART.
- 2 PROPOSED 8'-0" (MINIMUM) x 5/8" COPPER CLAD STEEL GROUND ROD WITH INSPECTION WELL. TOP OF GROUND ROD SHALL BE AT THE SAME DEPTH AS THE GROUND RING.
- 3 BURIED GROUND RING SHALL BE #2 AWG, BARE, TINNED, SOLID COPPER BURIED AT LEAST 30" BELOW GRADE.
- 4 BURIED GROUND RING SHALL BE WITHIN 24" TO 36" OF THE STRUCTURE (WHERE POSSIBLE). THE GROUND RING SHALL BE AT A DEPTH OF AT LEAST 30" BELOW FINISHED GRADE.
- 5 EXTEND 2#2 AWG, BARE, TINNED SOLID, COPPER GROUND CONDUCTOR FROM EXTERIOR GROUND BAR ON BOTH SIDES OF PROPOSED WIC SHELTER AND BOND TO NEW BURIED GROUND RING. TYP. OF 2 PLACES
- 6 EXTEND 2#2 AWG, BARE, TINNED SOLID, COPPER GROUND CONDUCTOR FROM EXTERIOR GROUND BAR ON BOTH SIDES OF PROPOSED WIC SHELTER AND BOND TO NEW BURIED GROUND RING. TYP. OF 2 PLACES
- 7 EXISTING, MANUFACTURER INSTALLED 4"x24" EXTERIOR GROUND BAR. TYP. OF 2.
- 8 EXTEND #2 AWG, BARE, TINNED SOLID, COPPER GROUND CONDUCTOR FROM EXISTING TOWER GROUND RING AND BOND TO NEW BURIED GROUND RING. TYP. OF 2 PLACES

CONNECTION LEGEND:

- MECHANICAL CONNECTION
- ⊠ GROUND ROD WITH INSPECTION WELL
- EXOTHERMIC WELD
- ⊙ GROUND ROD

NOTE:
THE INTERNAL WIC FRAME AND ALL ATTACHED EQUIPMENT ARE FACTORY GROUNDED TO THE WIC MASTER GROUND BAR.



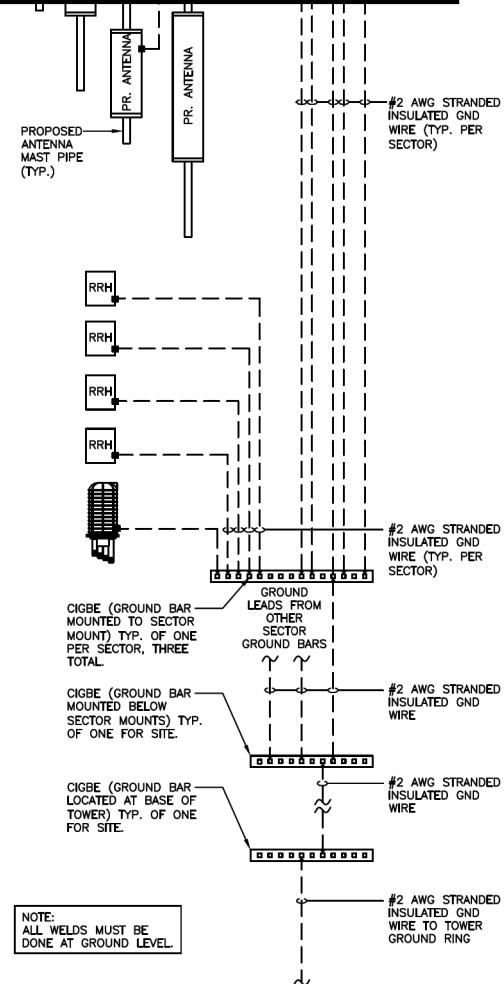
COMPOUND GROUNDING PLAN

SCALE: 1"=5' (1"=2.5') ON 22"x34" SHEET

1

APPROVED
Montgomery County
Historic Preservation Commission

[Signature]



ANTENNA GROUNDING PLAN

SCALE: N.T.S.

LEGEND:
MECHANICAL CONNECTION
EXOTHERMIC WELD

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CHARLIE FARM

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DATE: 3/9/22
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SHEET TITLE:

GROUNDING PLAN & DETAILS

SHEET

GR-1

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022


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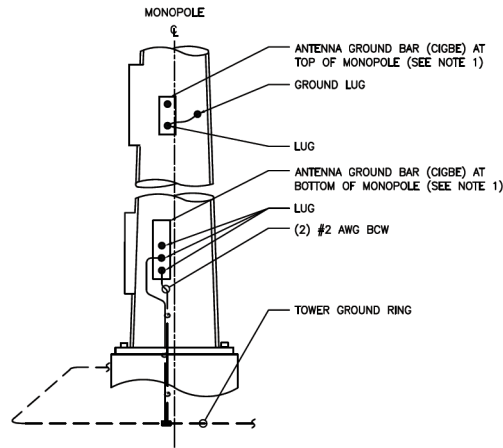
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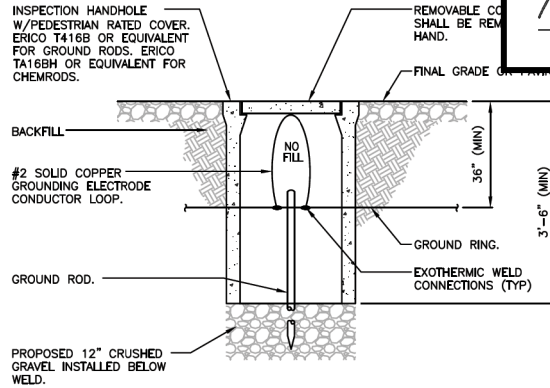
GROUNDING
DETAILS
SHEET
GR-2



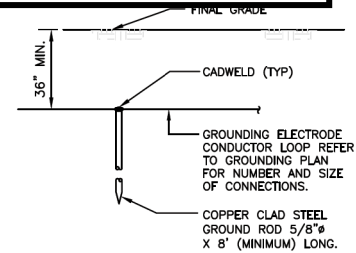
NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

GROUND BAR PLATE CONNECTION 1
SCALE: N.T.S.



GROUND ROD WITH INSPECTION WELL DETAIL 2
SCALE: N.T.S.

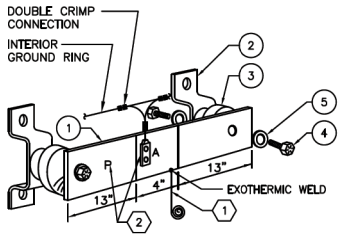


GROUND ROD DETAIL 3
SCALE: N.T.S.

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

APPROVED
 Montgomery County
 Historic Preservation Commission

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

- SECTION "P" - SURGE PROTECTORS**
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
 - GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
 - TELCO GROUND BAR (#2)
 - COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
 - +24V POWER SUPPLY RETURN BAR (#2)
 - 48V POWER SUPPLY RETURN BAR (#2)
 - COAX SUPPRESSION

- SECTION "A" - SURGE ABSORBERS**
- INTERIOR GROUND RING (#2)
 - EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
 - METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
 - BUILDING STEEL (IF AVAILABLE) (#2)

SECTION "I" - ISOLATED GROUND ZONE
 ALL COMMUNICATIONS EQUIPMENT FRAMES.
 ISOLATED GROUND BAR - IGB (#2)

NOTES:

- EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.
- APPLY NO-OX OR EQUIVALENT TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO.	REQ.	PART NO.	DESCRIPTION
①	1	1/4"x4"x30"	PREDRILLED GND. BAR
②	2	A-6056	WALL MTG. BRKT.
③	2	3061-4	INSULATORS
④	4	3012-1	5/8"-11 x 1" H.H.C.S.
⑤	4	3015-8	5/8 LOCKWASHER

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

CONNECTION FOR:
 COAXIAL CABLE SHIELD
 CABLE ENTRY PORTS (HATCH PLATES)
 24V & 48V DC POWER RETURN BAR
 TELCO BAR

CONNECTION FOR (CONTINUED):
 COAXIAL CABLE SURGE SUPPRESSORS
 RECTIFIER FRAMES
 GENERATOR FRAME WORK
 MASTER GROUND BAR

DETAIL NOTES:

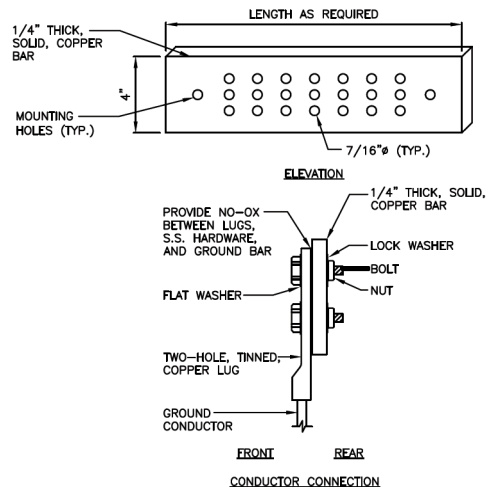
- TWO-HOLE, LONG BARREL COMPRESSION LUG WITH 2AWG STRANDED COPPER CONDUCTOR AND GREEN THW INSULATION TO GROUND BAR. ROUTE CONDUCTOR AS APPLICABLE TO BURIED GROUND CONDUCTOR OR MASTER GROUND BAR AND CONNECT WITH TWO-HOLE LUG TO "I" SECTION.
- USE PERMANENT MARKER TO LABEL THE WHOLE BAR AS "P" WITH 1" HIGH LETTERS.
- FOR GROUND BAR LOCATED OUTDOORS, ON-GRADE ONLY, EXOTHERMICALLY WELD A 2 AWG BARE TINNED COPPER CONDUCTOR TO GROUND BAR AND EXOTHERMICALLY WELD TO BURIED GROUND CONDUCTOR.
- APPLY NO-OX OR EQUIVALENT TO MATING SURFACE OF LUG AND WIPE CLEAN EXCESS COMPOUND.

EXTERIOR GROUND BAR DETAIL 1

SCALE: N.T.S.

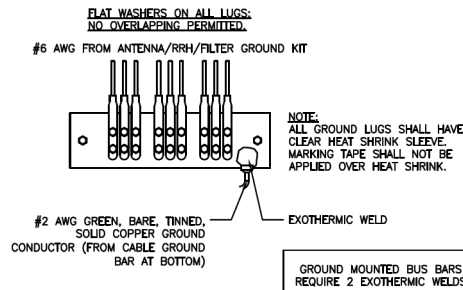
INSTALLATION OF GROUND WIRE TO CABLE GROUND BAR DETAIL 2

SCALE: N.T.S.



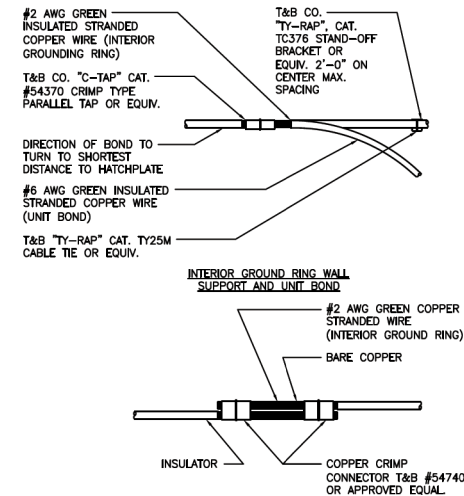
EXTERIOR GROUND BAR DETAIL 3

SCALE: N.T.S.



SECTOR GROUND BAR DETAIL 4

SCALE: N.T.S.



INTERIOR GROUND RING SPLICE DETAIL 5

SCALE: N.T.S.

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
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 DATE: 3/9/22
 KCI JOB NUMBER: 011802184.ATTS1
 SHEET TITLE:

GROUNDING DETAILS

SHEET

GR-3

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

SITE WORK NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO THE COMMENCEMENT OF WORK.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE PROVIDED SAFETY AND ENVIRONMENTAL AWARENESS TRAINING.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION AND NOT EXCEEDING THE LIMITS OF DISTURBANCE AS IDENTIFIED ON THE CONSTRUCTION DRAWING AND ASSURING THAT SEDIMENT AND EROSION CONTROL IS PROPERLY MAINTAINED.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT, TOWER AREAS AND INTO NATURAL DRAINAGE WAYS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
- SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
ENGINEER - SUPPORT ENGINEERING
CONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
OWNER - AT&T
OEM - ORIGINAL EQUIPMENT MANUFACTURER
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

GENERAL NOTES (CONT.):

- DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL OBTAIN FIELD APPROVAL BY THE LOCAL AUTHORITY HAVING JURISDICTION FOR ANY DEVIATION FOR SHOWN ROUTES FOR ANY UTILITY.
- THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER. SUBSTITUTIONS OF ANY EQUIPMENT AND MATERIALS REQUIRE THE APPROVAL OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN A CLEAR CONDITION ON A DAILY BASIS.
- CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF SPECIFICATIONS UNDER "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
- WHERE THE CONSTRUCTION DRAWINGS OR SPECIFICATIONS ARE IN CONFLICT WITH ANY REQUIREMENTS OF THE PERMIT ISSUED BY THE LOCAL AUTHORITY HAVING JURISDICTION, THE PERMIT SHALL HAVE PRIMARY AUTHORITY.

CONCRETE AND REINFORCING STEEL NOTES:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
- REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 CONCRETE CAST AGAINST EARTH.....3 IN.
 CONCRETE EXPOSED TO EARTH OR WEATHER:
 #6 AND LARGER2 IN.
 #5 AND SMALLER & WWF.....1 1/2 IN.
 CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
 SLAB AND WALL3/4 IN.
 BEAMS AND COLUMNS.....1 1/2 IN.
- A CHAMFER OF 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

APPROVED
Montgomery County
Historic Preservation Commission

- & DETAILS**
- BRICK
 - CONCRETE
 - EARTH
 - GRAVEL
 - STEEL
 - METER
 - GROUND
 - REVISION
 - KEYNOTE
 - MATCH LINE
 - WORK POINT
 - MECHANICAL BONDING CONNECTION
 - EXOTHERMICALLY WELDED BONDING CONNECTION
 - POWER POLE
 - DISCONNECT SWITCH
 - DOUBLE-THROW MANUAL TRANSFER SWITCH
 - CIRCUIT BREAKER
 - EMERGENCY GENERATOR RECEPTACLE
 - TELCO PEDESTAL
 - GROUND ROD
 - GROUND ROD INSPECTION WELL
 - REPRESENTS DETAIL NUMBER
 - REF. DRAWING NUMBER

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
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SCALE: AS NOTED
DATE: 3/9/22
KCI JOB NUMBER: 011802184.ATTS1
SHEET TITLE:

GENERAL NOTES

SHEET
SP-1

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

APPROVED
Montgomery County
Historic Preservation Commission

GENERAL ELECTRICAL AND GROUNDING NOTES:

PART 1 -- GENERAL

1.1 GENERAL CONDITIONS:

- A. CONTRACTOR SHALL INSPECT THE EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION. NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- B. THE CONTRACTOR SHALL OBTAIN PERMITS, LICENSES, MAKE ALL DEPOSITS, AND PAY ALL FEES REQUIRED FOR THE CONSTRUCTION PERFORMANCE FOR THE WORK UNDER THIS SECTION.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWING SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES:

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES. CONDUIT BENDS SHALL BE THE RADIUS BEND FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE LATEST EDITIONS OF NEC.

1.3 REFERENCES:

- A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENT SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
3. ICE (INSULATED CABLE ENGINEERS ASSOCIATION)
4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
7. UL (UNDERWRITERS LABORATORIES, INC.)
8. AT&T GROUNDING AND BONDING STANDARDS

1.4 SCOPE OF WORK:

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND BE OPERATIONAL.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
- D. THE CONTRACTOR SHALL FURNISH TO THE OWNER WITH CERTIFICATES OF A FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.
- E. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT.

PART 2 -- PRODUCTS

2.1 GENERAL:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, NEW, AND FREE FROM DEFECTS.
- B. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
- C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PER THE GOVERNING JURISDICTION.

2.2 MATERIALS AND EQUIPMENT:

A. CONDUIT:

1. RIGID METAL CONDUIT (RMC) SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE UL LISTED.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION AND CONCRETE TIGHT TYPE. GROUNDING BUSHINGS WITH INSULATED THROATS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
4. NONMETALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC OR SCHEDULE 80 PVC WHERE SPECIFIED. INSTALL USING SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

B. CONDUCTORS AND CABLE:

1. CONDUCTORS AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC. SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZE AS INDICATED, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR USED.
2. #10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. STRAIN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL. CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS.
5. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).

C. DISCONNECT SWITCHES:

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION. FURNISHED IN NEMA 3R ENCLOSURE, SQUARE-D OR ENGINEERED APPROVED.

D. CHEMICAL ELECTROLYTIC GROUNDING SYSTEM:

1. INSTALL CHEMICAL GROUNDING AS REQUIRED. THE SYSTEM SHALL BE E ELECTRODE CONSISTING OF RODS WITH A MINIMUM #2 AWG CU EXOTHERM PROTECTIVE BOXES, AND BACKFILL MATERIAL. MANUFACTURER SHALL BE E TYPES K2-(*)CS OR K2L-(*)CS (*) LENGTH AS REQUIRED.
2. GROUND ACCESS BOX SHALL BE A POLYPLASTIC BOX FOR NON-TRAFFIC APPLICATIONS, INCLUDING BOLT DOWN FLUSH COVER WITH "BREATHER" HOLES, XIT MODEL #XB-22. ALL DISCONNECT SWITCHES AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS ID NUMBERING, AND THE ELECTRICAL POWER SOURCE.
3. BACKFILL MATERIAL SHALL BE LYNCONITE AND LYNCOLE GROUNDING GRAVEL.

E. SYSTEM GROUNDING:

1. ALL GROUNDING COMPONENTS SHALL BE TINNED AND GROUNDING CONDUCTOR SHALL BE #2 AWG BARE, SOLID, TINNED, COPPER. ABOVE GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
2. GROUNDING BUSES SHALL BE BARE, TINNED, ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION. STANDARD BUS BARS MGB, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. ALL GROUNDING BUSES SHALL BE IDENTIFIED WITH MINIMUM 3/4" LETTERS BY WAY OF STENCILING OR DESIGNATION PLATE.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS. INTERIOR CONNECTIONS USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE ERICO #615800, COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 5/8"x10'-0". ALL GROUNDING RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES.
6. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS IN COMPLIANCE WITH THE AT&T SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.

F. OTHER MATERIALS:

1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.
2. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.

G. PANELS AND LOAD CENTERS:

1. ALL PANEL DIRECTORIES SHALL BE TYPEDWRITTEN.

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
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03/14/2022

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GENERAL NOTES

SHEET

SP-2

REVIEWED

By Michael Kyne at 1:49 pm, Jun 24, 2022

APPROVED
Montgomery County
Historic Preservation Commission

GENERAL ELECTRICAL AND GROUNDING NOTES CONTINUED.

PART 3 - EXECUTION

3.1 GENERAL:

- A. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

3.2 LABOR AND WORKMANSHIP:

- A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE INSTALLED BY EXPERIENCED WIREMEN, IN A NEAT AND WORKMAN-LIKE MANNER.
- B. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.
- C. UPON COMPLETION OF WORK THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, GRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION:

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION:

A. CONDUIT:

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH TRADE SIZE.
2. PROVIDE RIGID GALVANIZED STEEL CONDUITS FOR ALL RISERS UNLESS OTHERWISE NOTED. EMT MAY BE INSTALLED FOR EXTERIOR CONDUITS WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
3. INSTALL SCH. 80 PVC CONDUIT WITH A MINIMUM COVER OF 24" UNDER ROADWAYS, PARKING LOTS, STREETS, AND ALLEYS. CONDUIT SHALL HAVE A MINIMUM COVER OF 18" IN ALL OTHER NON-TRAFFIC APPLICATIONS (REFER TO 2008 NEC, TABLE 300.5).
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION TO EQUIPMENT WITH MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUID TIGHT, FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
7. PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
8. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
9. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
10. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
11. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
13. PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS, SLEEVES AND/OR PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THIS PURPOSE.

B. CONDUCTORS AND CABLE:

1. SPLICES SHALL BE MADE ONLY AT OUTLETS, SLACK BOXES, OR ACCESSIBLE RACEWAY CONDULETS APPROVED FOR THIS PURPOSE.
2. PULLING LUBRICANTS SHALL BE UL APPROVED. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTOR OR CABLES INTO THE CONDUIT.
3. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES & EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS IS PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
4. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	208/240/120 VOLT SYSTEMS
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUNDING	GREEN

C. DISCONNECT SWITCHES:

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AS INDICATED.

D. GROUNDING:

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MAIN GROUNDING AND BONDING STANDARDS, AND THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH AS MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GRADE. GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOSELY ROUTED. GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUND RING, TO THE EXISTING GROUNDING SYSTEM. THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUND RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).
5. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
6. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.
8. APPLY CORROSION-RESISTANCE FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE KOPR-SHIELD ANTI-OXIDATION COMPOUND ON ALL COMPRESSION GROUNDING CONNECTIONS.
9. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.
10. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE 6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.
11. DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 36" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.
12. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.
13. THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
14. DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 36" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.
15. IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FT. FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE, TO GROUND THE COAX CABLE GROUNDING KITS AND IN-LINE ARRESTORS.
16. CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.

3.5 ACCEPTANCE TESTING:

- A. CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.
- B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON-COMPLYING ITEMS SHALL BE REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE FOR NON-COMPLIANCE.
- C. TEST PROCEDURES:
 1. ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST RESULTS.
 2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
 3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
 4. PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OFF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

DRAWN BY:	JW	
CHECKED BY:	JM	
APPROVED BY:	GT	
NO.	DATE	DESCRIPTION
A	12/17/21	PRELIMINARY DRAWINGS
B	1/7/22	REVISED ADDRESS
C	2/14/22	REVISED PER COMMENTS
D	3/1/22	REVISED PER COMMENTS
E	3/9/22	ISSUED FOR PERMITTING

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03/14/2022
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES: 03/14/2024

ENGINEER:
ERIC S. KOHL, PE
MD LICENSE NO.: 26838

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DATE: 3/9/22
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SHEET TITLE:

GENERAL NOTES

SHEET
SP-3