



DISH Wireless L.L.C. SITE ID:

**SFSFO01189B**

DISH Wireless L.L.C. SITE ADDRESS:

**199 SAN MARIN DRIVE  
NOVATO, CA 94945**

SCOPE OF WORK	
THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:	
<b>ROOFTOP SCOPE OF WORK:</b>	
<ul style="list-style-type: none"> <li>• INSTALL NEW MECHANICAL AND FRP SCREEN ON ROOFTOP</li> <li>• INSTALL (6) PROPOSED PANEL ANTENNAS (2 PER SECTOR)</li> <li>• INSTALL PROPOSED JUMPERS</li> <li>• INSTALL (6) PROPOSED RRUs (2 PER SECTOR)</li> <li>• INSTALL (3) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) (1 PER SECTOR)</li> <li>• INSTALL PROPOSED CABLE LADDER TRAY OR CABLE TRAY</li> <li>• INSTALL (3) PROPOSED POWER AND FIBER CABLE</li> <li>• INSTALL (1) PROPOSED GPS UNIT</li> </ul>	
<b>GROUND SCOPE OF WORK:</b>	
<ul style="list-style-type: none"> <li>• INSTALL (1) PROPOSED CONCRETE PAD WITH CHAIN-LINK FENCE</li> <li>• INSTALL (1) PROPOSED PPC CABINET</li> <li>• INSTALL (1) PROPOSED EQUIPMENT CABINET</li> <li>• INSTALL (1) PROPOSED POWER CONDUIT</li> <li>• INSTALL (1) PROPOSED TELCO CONDUIT</li> <li>• INSTALL (1) PROPOSED TELCO-FIBER BOX</li> <li>• INSTALL (1) PROPOSED FIBER NID</li> </ul>	

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: SAN MARIN PARTNERS, LLC	APPLICANT: DISH Wireless L.L.C.
ADDRESS: 199 SAN MARIN DRIVE NOVATO, CA 94945	5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: ROOFTOP	SITE DESIGNER: MODUS, LLC
COUNTY: MARIN	240 STOCKTON ST., 3RD FLOOR SAN FRANCISCO, CA 94108 (415) 989-1102
LATITUDE (NAD 83): 38.122684	SITE ACQUISITION: MODUS, LLC
LONGITUDE (NAD 83): -122.603007	(415) 989-1102
ZONING JURISDICTION: CITY OF NOVATO	CONSTRUCTION MANAGER: DANIEL TAYLOR
ZONING DISTRICT: PD - PLANNED DISTRICT	(714) 951-1738
PARCEL NUMBER: 124-202-28	ENGINEER: LEWIS JAMES BURROW
OCCUPANCY GROUP: U	(916) 412-7896
CONSTRUCTION TYPE: II-B	
POWER COMPANY: PG&E	
TELEPHONE COMPANY: AT&T	



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94108



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DRAWN BY: JV	CHECKED BY: SH	APPROVED BY: LJB
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RFDS REV #: 2 03/09/22

**ZONING DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	12/23/2021	90% ZD
0	03/09/2022	100% ZD
A	07/22/2022	PLAN CHECK REVISIONS

A&E PROJECT NUMBER  
**SFSFO01189B**

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PROJECT INFORMATION

**SFSFO01189B**  
**199 SAN MARIN DRIVE**  
**NOVATO, CA 94945**

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**



**UNDERGROUND SERVICE ALERT**  
UTILITY NOTIFICATION CENTER OF CALIFORNIA  
(800) 642-2444  
WWW.CALIFORNIA811.ORG  
CALL 2-14 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

**GENERAL NOTES**

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

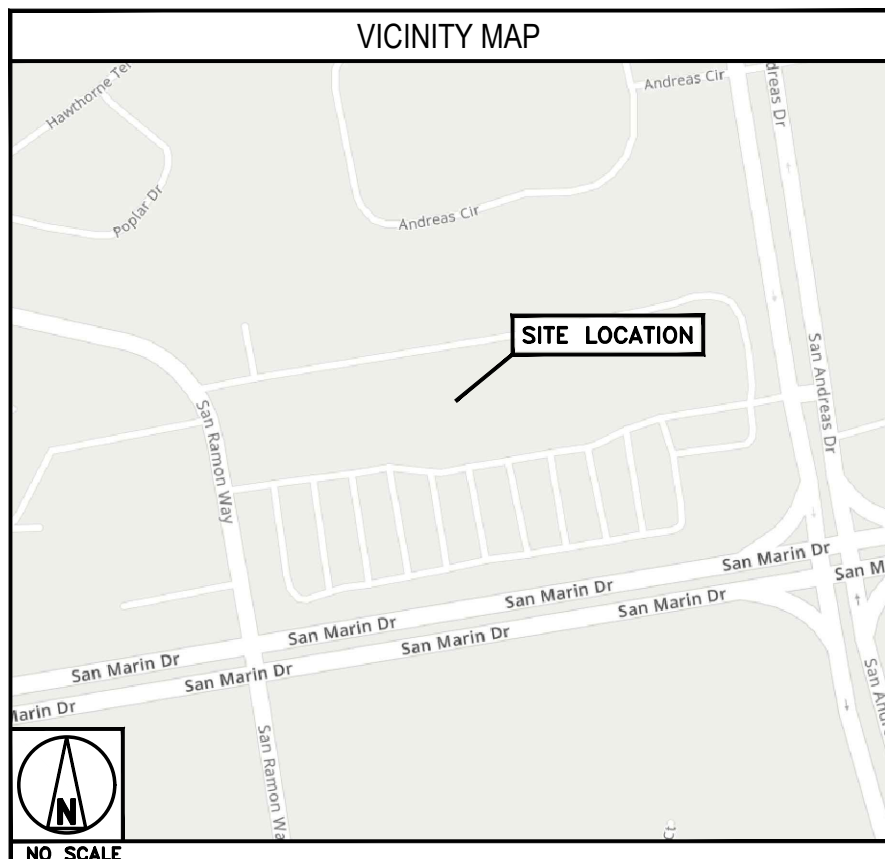
11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

**DIRECTIONS**

**DIRECTIONS FROM SFO AIRPORT:**

- START OUT GOING EAST ON AIRPORT ACCESS RD., TURN SLIGHT LEFT TOWARD US-101/I-380/I-280.
- TURN SLIGHT LEFT ONTO AIRPORT ACCESS RD., MERGE ONTO US-101 N TOWARD SAN FRANCISCO.
- MERGE ONTO US-101 N VIA THE EXIT ON THE LEFT TOWARD GOLDEN GATE BR
- TAKE THE US-101 N/MISSION ST/DUBOCE AVE EXIT, EXIT 434A, TOWARD G G BR.
- MERGE ONTO MISSION ST/US-101 N TOWARD G G BRIDGE/VAN NESS AVE.
- TURN LEFT ONTO S VAN NESS AVE/US-101 N.
- TURN LEFT ONTO LOMBARD ST/US-101 N. CONTINUE TO FOLLOW US-101 N.
- KEEP LEFT TO TAKE THE RAMP TOWARD SAN MARIN DR., TURN LEFT ONTO ATHERTON AVE.
- ATHERTON AVE BECOMES SAN MARIN DR., 199 SAN MARIN DR, NOVATO, CA 94945-1254, 199 SAN MARIN DR IS ON THE RIGHT.



**CALIFORNIA - CODE COMPLIANCE**

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

CODE TYPE	CODE
BUILDING	2019 CALIFORNIA BUILDING CODE (CBC)/2018 IBC
MECHANICAL	2019 CALIFORNIA MECHANICAL CODE (CMC)/2018 UMC
ELECTRICAL	2019 CALIFORNIA ELECTRICAL CODE (CEC)/2017 NEC

SHEET INDEX	
SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL SITE PLAN
A-2	ENLARGED BUILDING PLAN
A-3	ANTENNA PLAN, ELEVATION AND SCHEDULE
A-4	SOUTH AND WEST ELEVATIONS
A-5	NORTH ELEVATION
A-6	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-7	DETAILS
A-8	DETAILS
GN-1	LEGEND AND ABBREVIATIONS

**NOTES**

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. PROPOSED WORK IS COMPLIANT WITH 6409(c) ELIGIBILITY FACILITIES REQUEST CRITERIA



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JV SH LJB

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A&E PROJECT NUMBER  
SFSF001189B

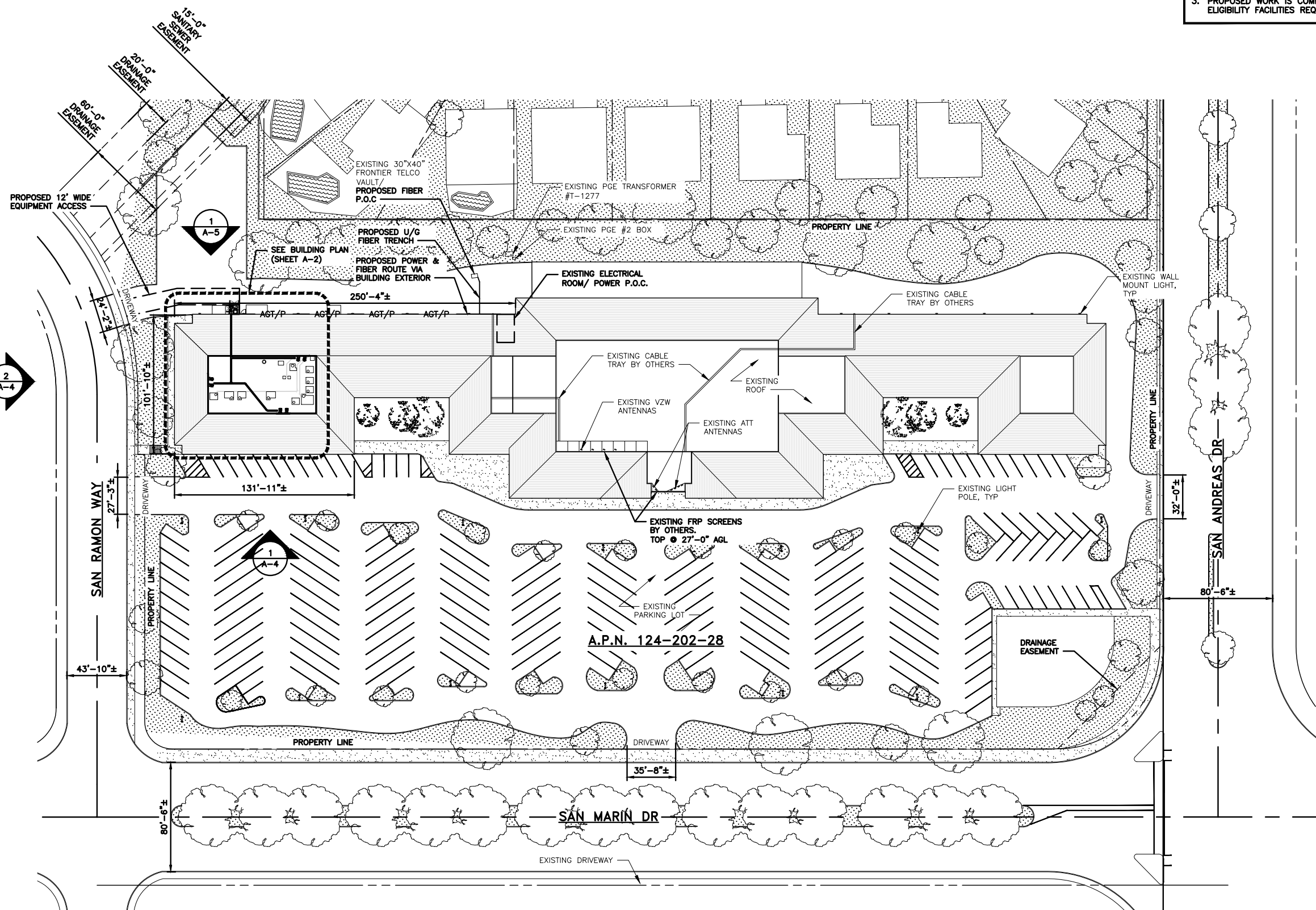
DISH Wireless L.L.C.  
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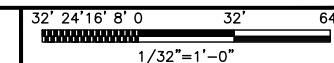
SHEET TITLE  
OVERALL  
SITE PLAN

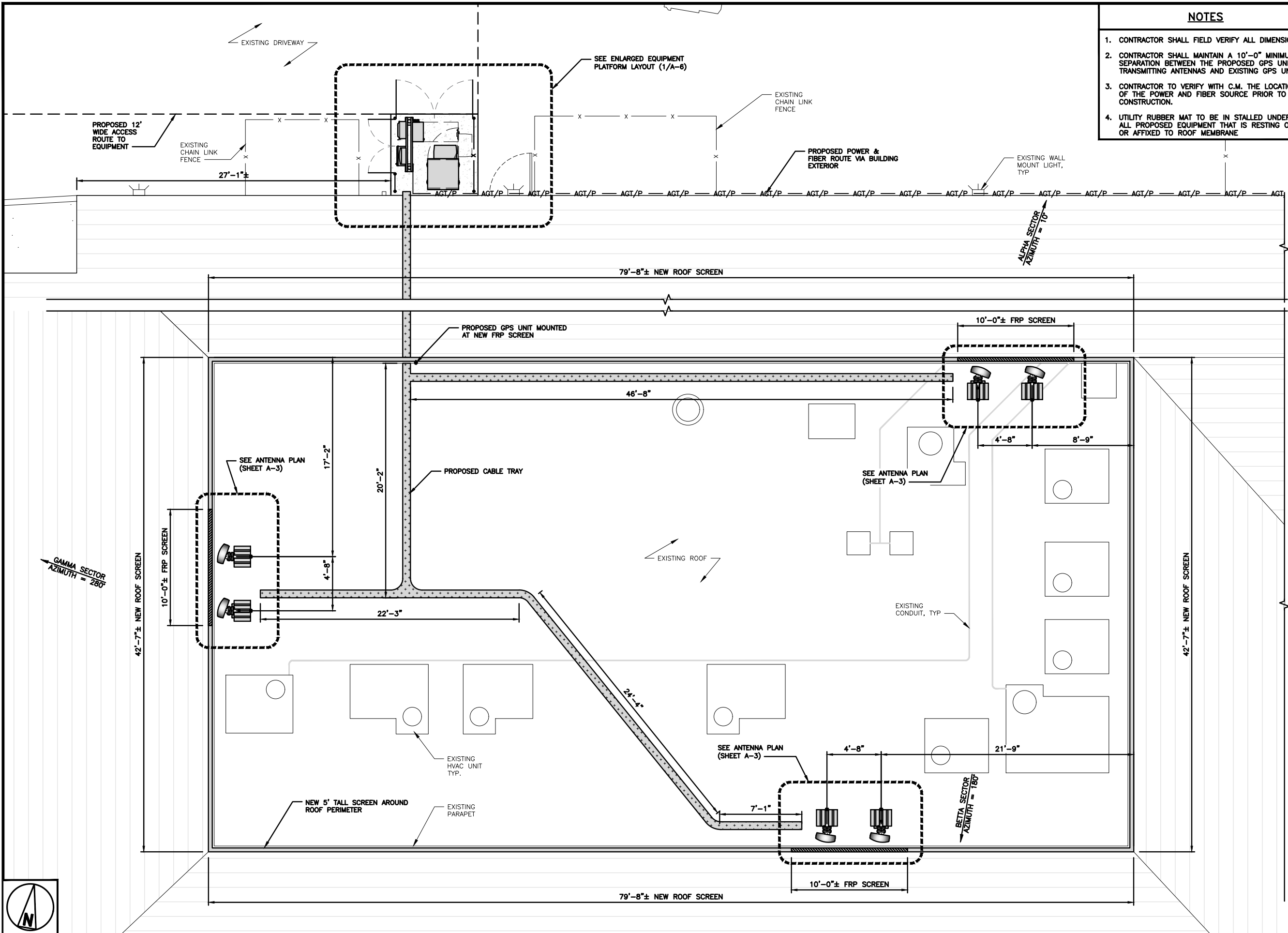
SHEET NUMBER

**A-1**



**OVERALL SITE PLAN**





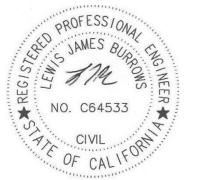
- NOTES**
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  2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
  3. CONTRACTOR TO VERIFY WITH C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRUCTION.
  4. UTILITY RUBBER MAT TO BE IN STALLED UNDER ALL PROPOSED EQUIPMENT THAT IS RESTING ON OR AFFIXED TO ROOF MEMBRANE



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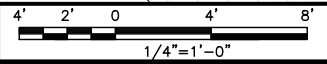
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SHEET TITLE  
ENLARGED BUILDING PLAN

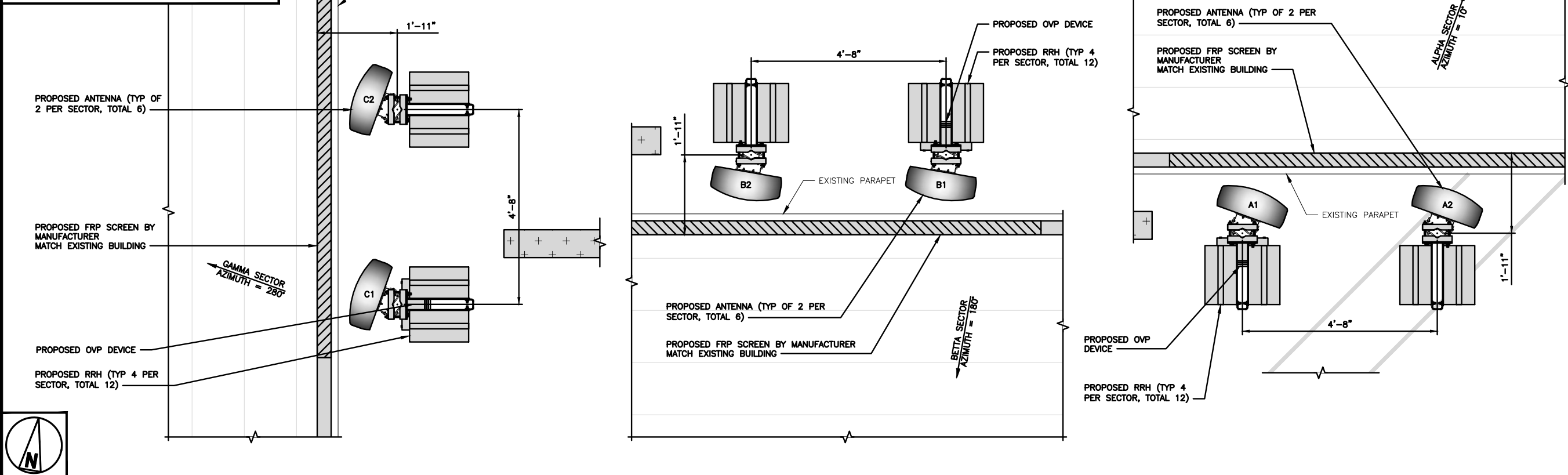
SHEET NUMBER  
**A-2**

**ENLARGED BUILDING PLAN**

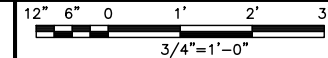


**NOTES**

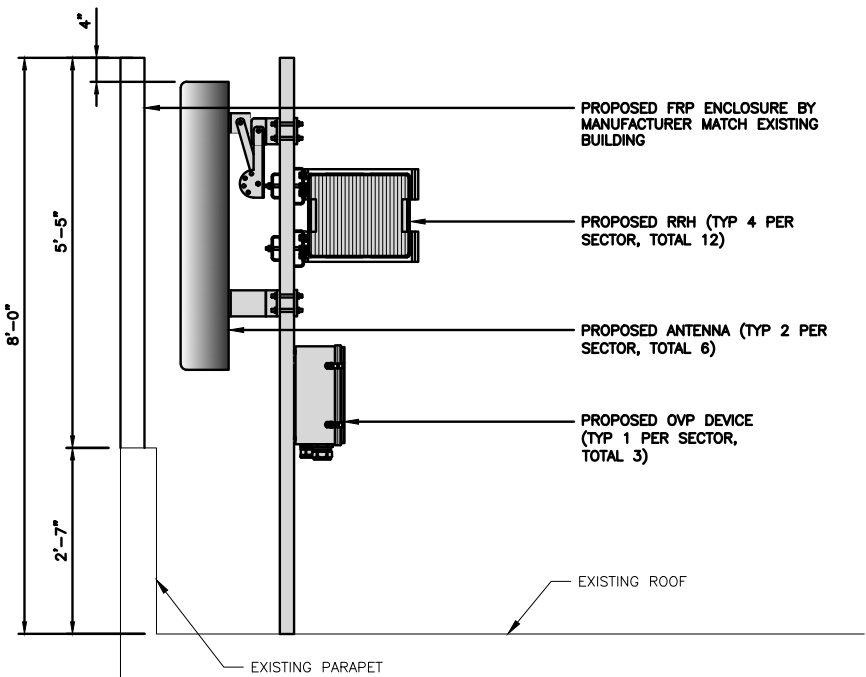
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS



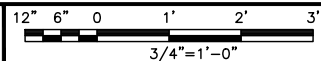
**ANTENNA PLANS**



1



**ANTENNA ELEVATION**



2

SECTOR	POSITION	ANTENNA					TRANSMISSION CABLE	
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxWxD)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	FUTURE/TBD		48.0" x 20.0" x 8.0"	10°	24'-8"	(1) POWER & (1) FIBER CABLES (120' LONG)
	A2	PROPOSED			48.0" x 20.0" x 8.0"		24'-8"	
BETA	B1	PROPOSED			48.0" x 20.0" x 8.0"	180°	24'-8"	(1) POWER & (1) FIBER CABLES (140' LONG)
	B2	PROPOSED			48.0" x 20.0" x 8.0"		24'-8"	
GAMMA	C1	PROPOSED			48.0" x 20.0" x 8.0"	280°	24'-8"	(1) POWER & (1) FIBER CABLES (100' LONG)
	C2	PROPOSED			48.0" x 20.0" x 8.0"		24'-8"	

SECTOR	POSITION	RRH		OVP	NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	MANUFACTURER - MODEL NUMBER	
ALPHA	A1	FUTURE/TBD			1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
	A2				
BETA	B1				
	B2				
GAMMA	C1				
	C2				

**ANTENNA SCHEDULE**

NO SCALE

3



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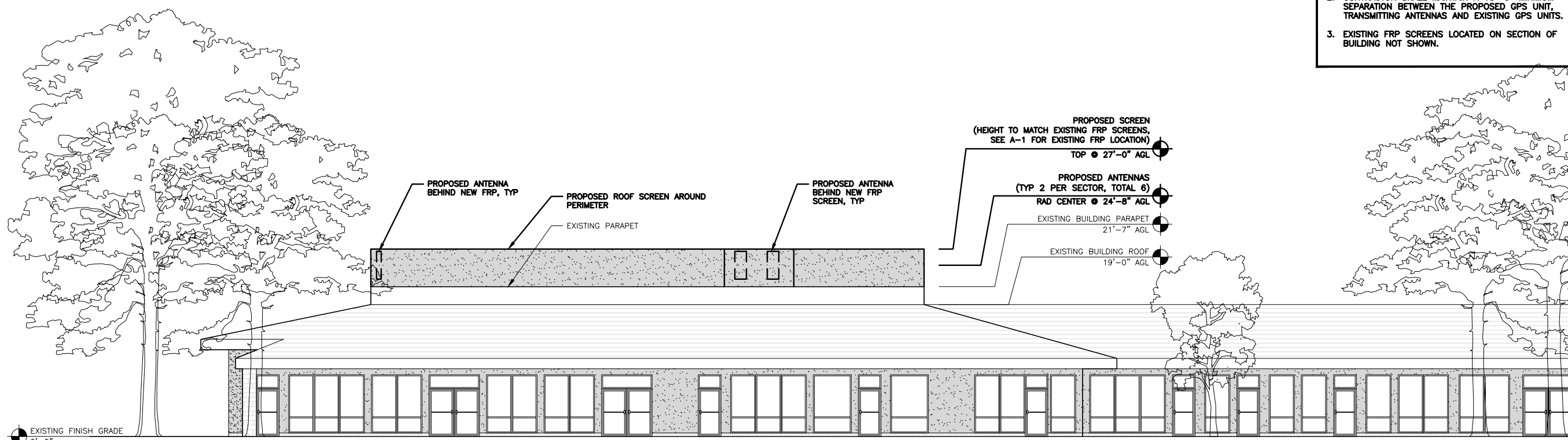
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SHEET TITLE  
ANTENNA PLAN,  
ELEVATION AND SCHEDULE

SHEET NUMBER

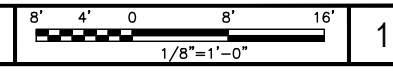
**A-3**



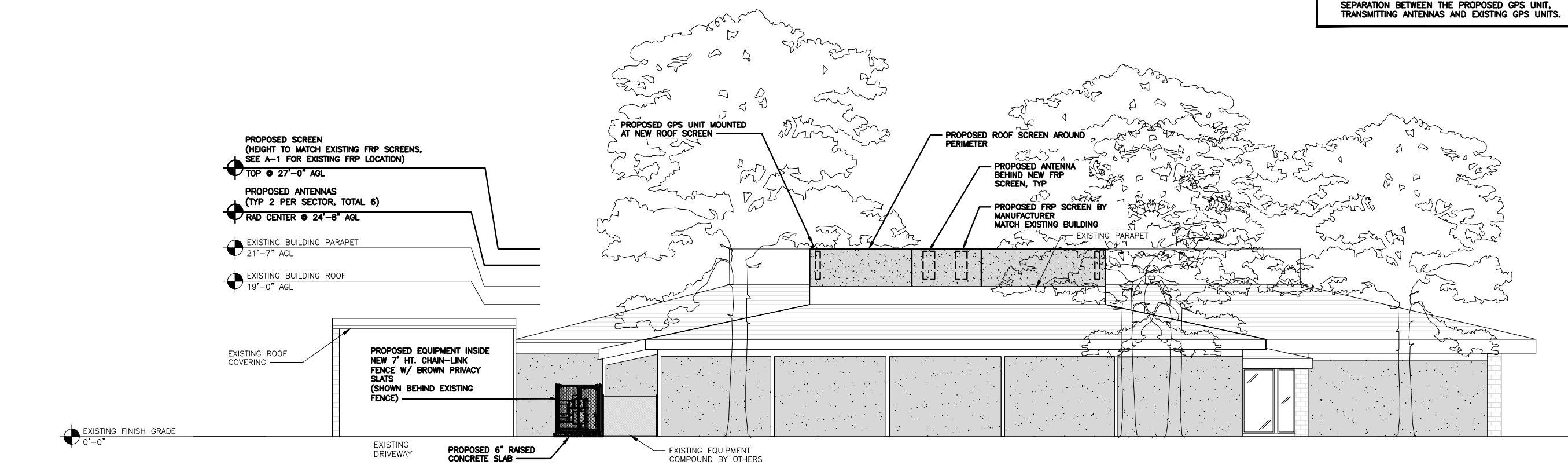
- NOTES**
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  2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
  3. EXISTING FRP SCREENS LOCATED ON SECTION OF BUILDING NOT SHOWN.

EXISTING FINISH GRADE  
0'-0"

**BUILDING SOUTH ELEVATION**

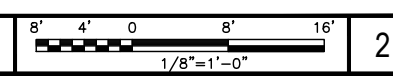


- NOTES**
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  2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.



EXISTING FINISH GRADE  
0'-0"

**BUILDING WEST ELEVATION**



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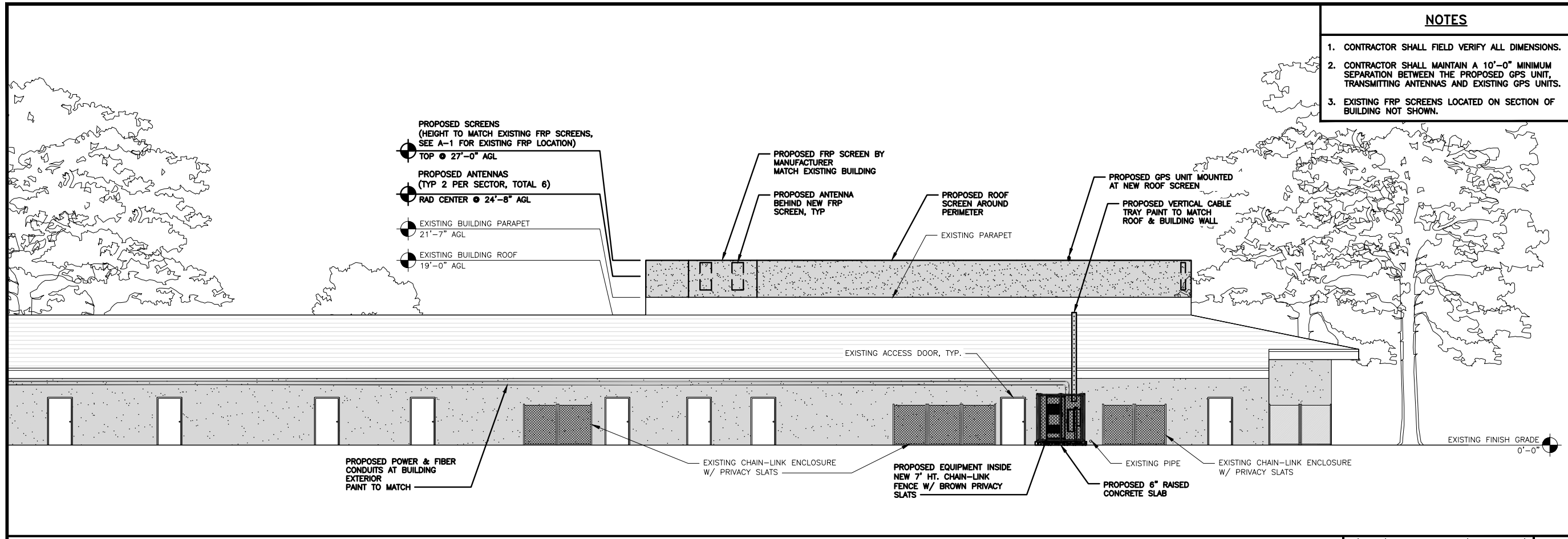
SUBMITTALS		
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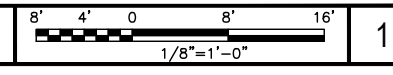
SHEET TITLE  
**SOUTH AND WEST ELEVATIONS**

SHEET NUMBER  
**A-4**



- NOTES**
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**BUILDING NORTH ELEVATION**



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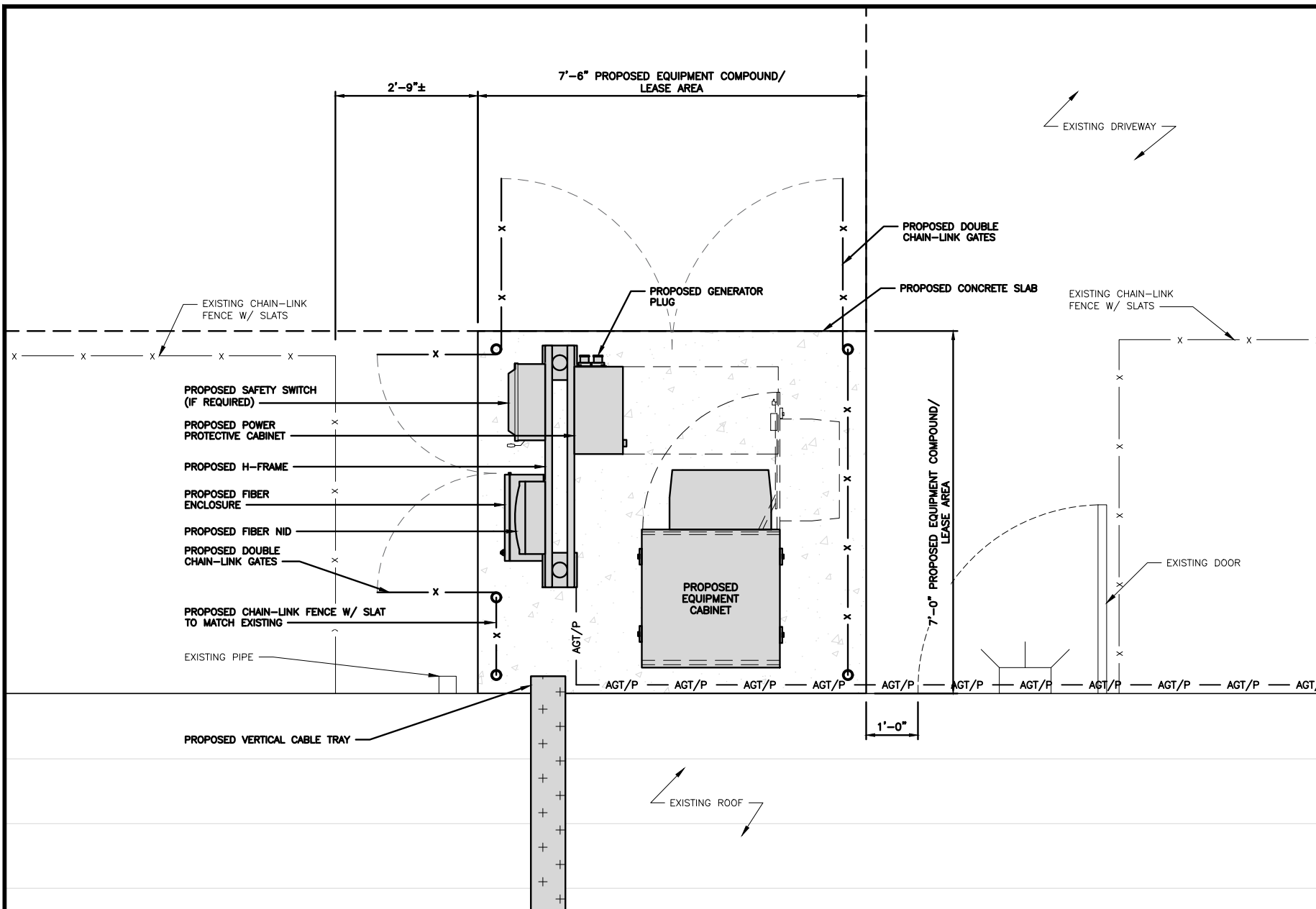
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SHEET TITLE  
NORTH  
ELEVATION

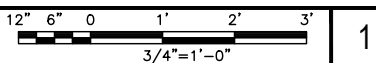
SHEET NUMBER  
**A-5**

NOT USED

2

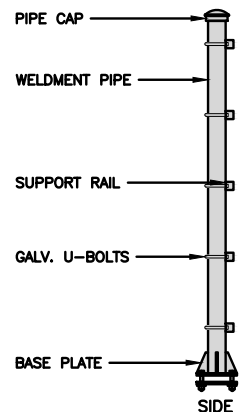


PLATFORM EQUIPMENT PLAN

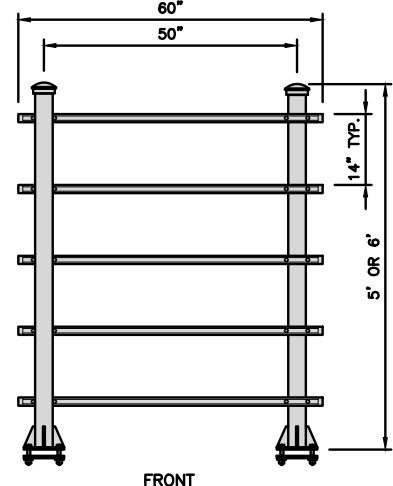


COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT



H-FRAME DETAIL

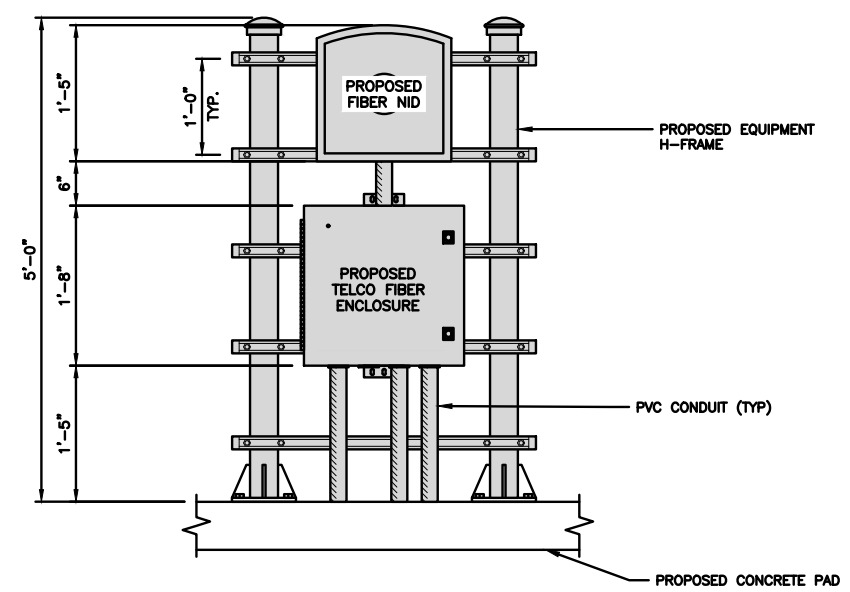
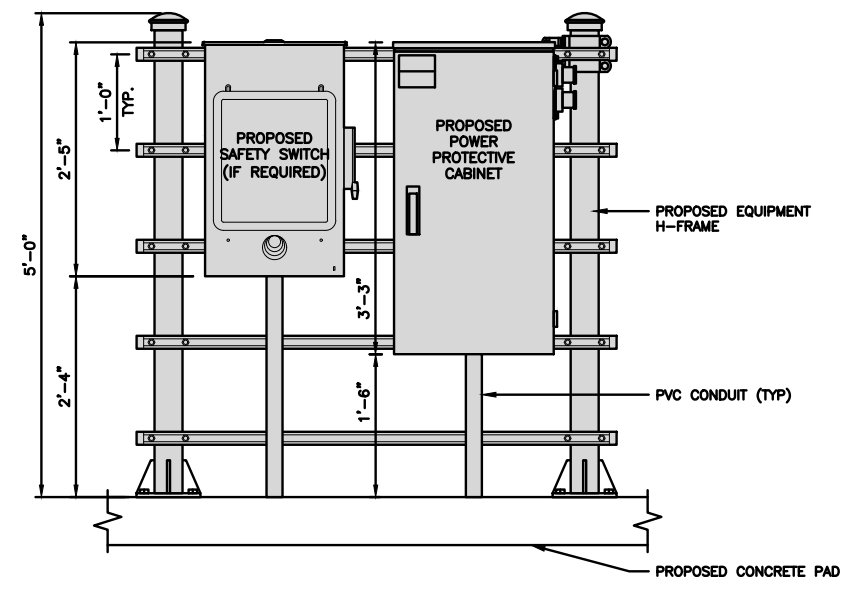


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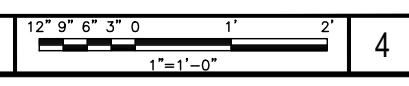
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NO SCALE 3

**NOTE**  
1. EQUIPMENT CABINET OMITTED FOR CLARITY



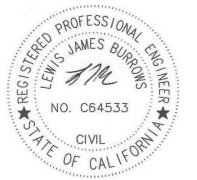
H-FRAME EQUIPMENT ELEVATION



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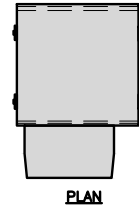
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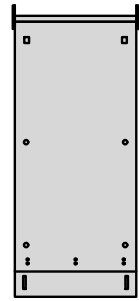
SHEET TITLE  
EQUIPMENT PLATFORM AND  
H-FRAME DETAILS

SHEET NUMBER  
**A-6**

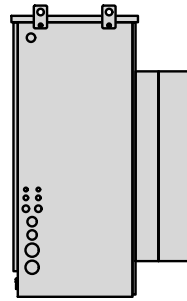
CHARLES INDUSTRY HEX CUBE-PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs
TOTAL WEIGHT (FULLY LOADED)	1,067 lbs



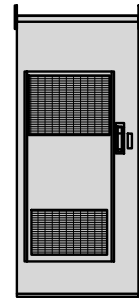
PLAN



BACK



SIDE



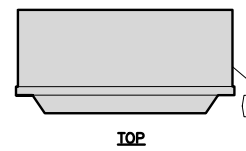
FRONT

CABINET DETAIL

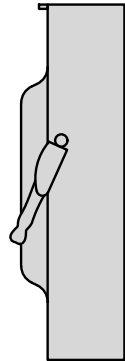
NO SCALE

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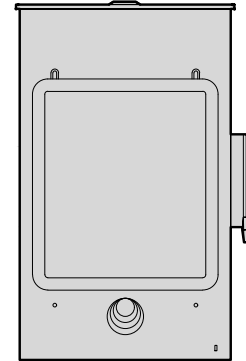
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875



TOP



SIDE



FRONT

SAFETY SWITCH DETAIL

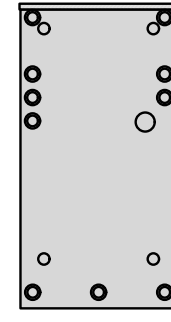
NO SCALE

2

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD)	39"x22.855"x12.593
WEIGHT	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G



TOP



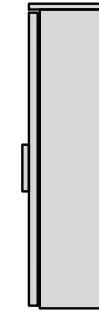
BACK



SIDE



FRONT



SIDE

CABINET DETAIL

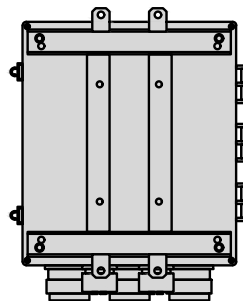
NO SCALE

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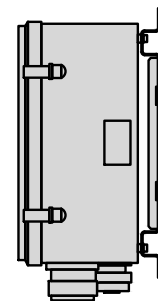
RAYCAP RDIDC-3045-PF-48 SURGE PROTECTION DEVICE (OVP)	
DIMENSIONS (HxWxD)	19"x16.21"x9.64"
WEIGHT	21 lbs



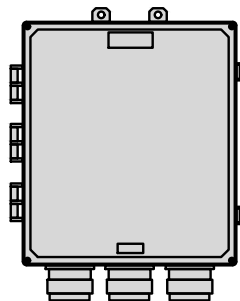
PLAN



BACK



SIDE



FRONT

SURGE PROTECTION DEVICE (OVP) DETAIL

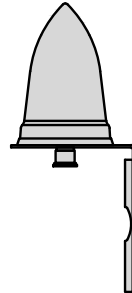
NO SCALE

4

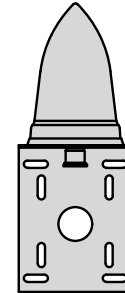
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DiaxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



TOP



BACK

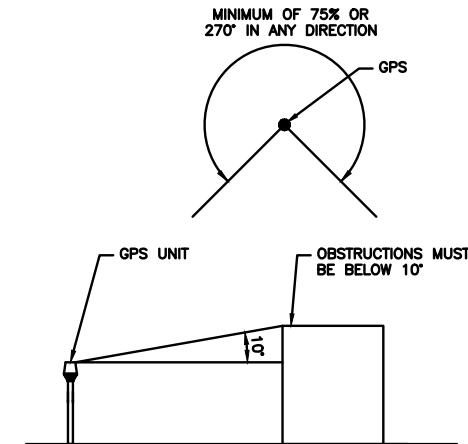


SIDE

GPS DETAIL

NO SCALE

5



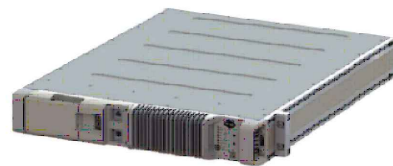
GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

6

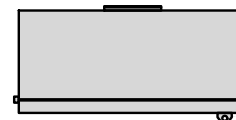
**BATTERIES**  
Macro Site Configuration

Incell 23" 2U / 200Ah Lithium Battery

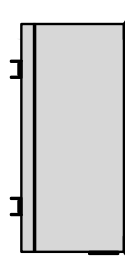


Model (kg)	Approx. 55-60 Kg
Dimensions (mm)	725 H x 725 W x 725 D (H x W x D)
Weight (kg)	55-60 Kg (121.25 lbs)
Operating Temperature (°C)	-20 to +60°C
Storage Temperature (°C)	-20 to +60°C
Charging Voltage (V)	54.6 V
Operating Voltage (V)	52 V
Charging Current (A)	100 A
Operating Current (A)	100 A
Charging Power (W)	5460 W
Operating Power (W)	5200 W
Charging Time (h)	~100h
Operating Time (h)	~100h
Charging Efficiency (%)	~95%
Operating Efficiency (%)	~95%
Charging Cycle Life (cycles)	~2000
Operating Cycle Life (cycles)	~2000
Charging Voltage (V)	54.6 V
Operating Voltage (V)	52 V
Charging Current (A)	100 A
Operating Current (A)	100 A
Charging Power (W)	5460 W
Operating Power (W)	5200 W
Charging Time (h)	~100h
Operating Time (h)	~100h
Charging Efficiency (%)	~95%
Operating Efficiency (%)	~95%
Charging Cycle Life (cycles)	~2000
Operating Cycle Life (cycles)	~2000

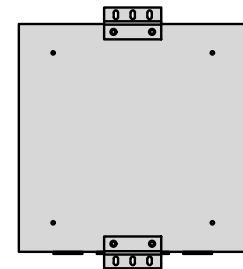
CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



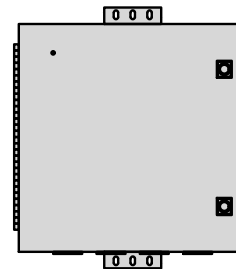
FRONT



SIDE



BACK



FRONT

FIBER TELCO ENCLOSURE DETAIL

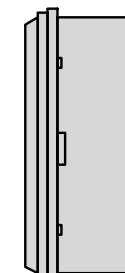
NO SCALE

8

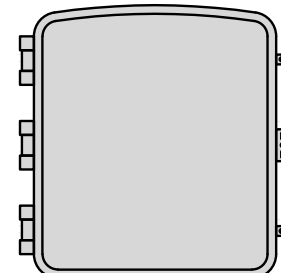
CIENA 3139 FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs



TOP



SIDE



FRONT

FIBER NID DETAIL

NO SCALE

9

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
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MODUS, LLC  
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RFDS REV #: 2 03/09/22

**ZONING DOCUMENTS**

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A&E PROJECT NUMBER  
SFSF001189B

DISH Wireless L.L.C.  
PROJECT INFORMATION  
SFSF001189B  
199 SAN MARIN DRIVE  
NOVATO, CA 94945

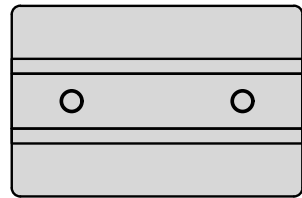
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

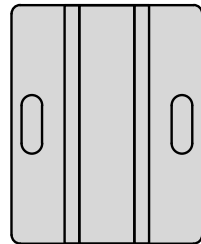
**A-7**



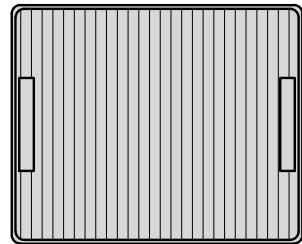
<b>MTI TB GEN-1.5</b> G060708-50-02B	
DIMENSIONS (HxWxD)	13.9"x16.9"x11"
WEIGHT	97 lbs
DC POWER IN	-40.5V to -57V
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)



PLAN



SIDE



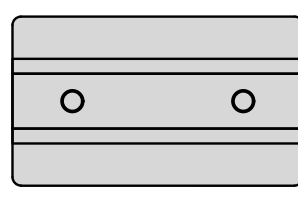
FRONT

RRH DETAIL

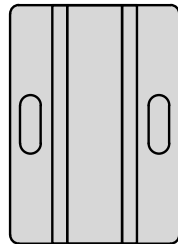
NO SCALE

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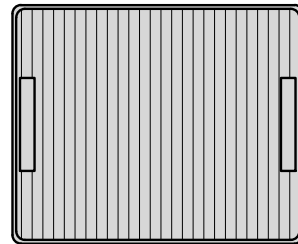
<b>MTI DB GEN-1.5</b> G2021-49-02B	
DIMENSIONS (HxWxD)	13.9"x16.9"x9.8"
WEIGHT	86 lbs
DC POWER IN	-40.5V to -57V
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)



PLAN



SIDE



FRONT

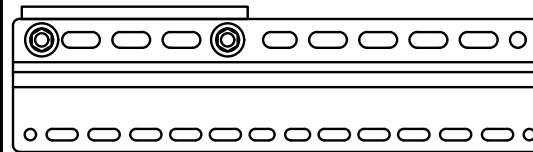
RRH DETAIL

NO SCALE

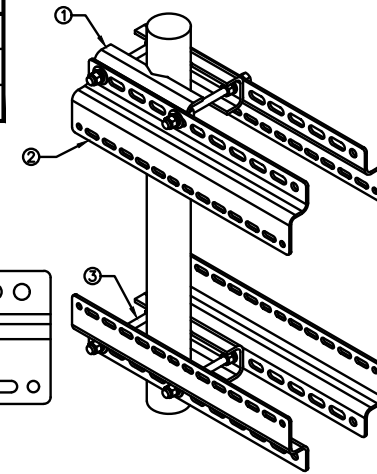
2

<b>SABRE DOUBLE Z-BRACKET</b> C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

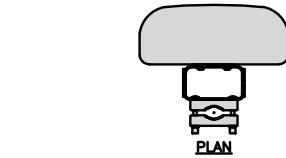


RRH MOUNT DETAIL

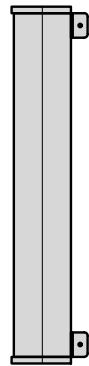
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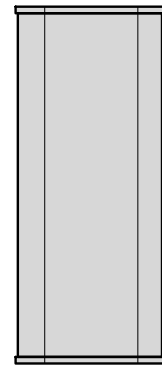
<b>JMA</b> MX08FRO465-20	
DIMENSIONS (HxWxD)	48"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	51.3 lbs
WEIGHT WITH BRACKETS	69.3 lbs



PLAN



SIDE



FRONT

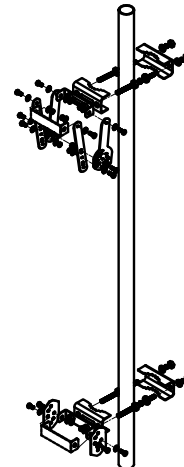
ANTENNA DETAIL

NO SCALE

4

<b>JMA ANTENNA MOUNT BRACKET</b> #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:  
KIT #91900318: TOP AND BOTTOM BRACKETS  
FOR 4-, 6-, AND 8-FOOT ANTENNAS  
ANTENNA BRACKET NOT PART OF KIT



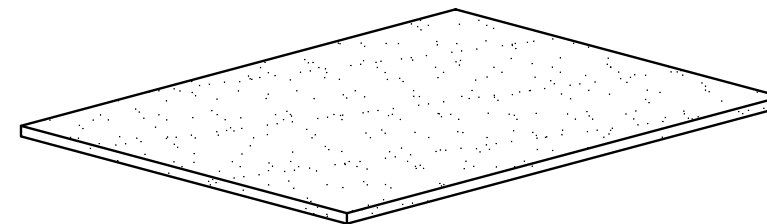
NOTE:  
OR DISH Wireless L.L.C.  
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL

NO SCALE

5

<b>UTILITY RUBBER MAT, BLACK</b>	
DIMENSIONS	4'x 3'x 1/2"
WEIGHT/ VOLUME	36.5 LB AVERAGE
MATERIAL	100% RECYCLE RUBBER

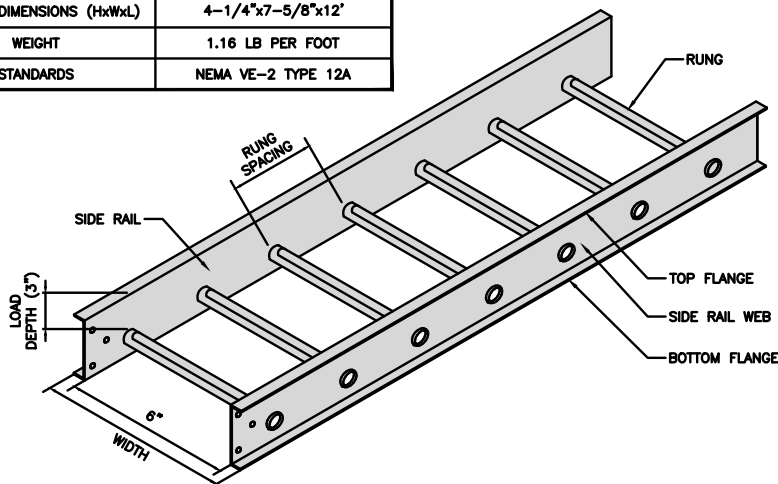


UTILITY RUBBER MAT DETAIL

NO SCALE

6

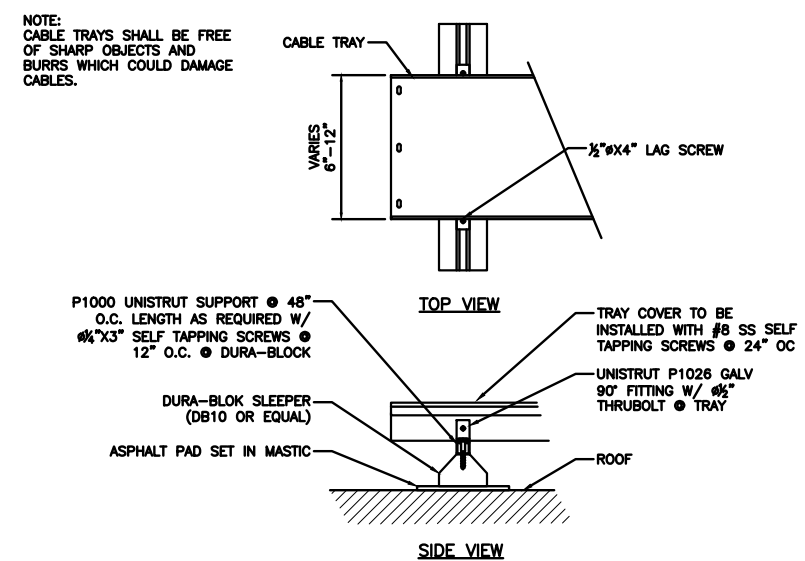
<b>COPE 1B38-06SL-12-09</b> LADDER TRAY	
OVERALL DIMENSIONS (HxWxD)	4-1/4"x7-5/8"x12"
WEIGHT	1.16 LB PER FOOT
STANDARDS	NEMA VE-2 TYPE 12A



LADDER TRAY DETAIL

NO SCALE

7

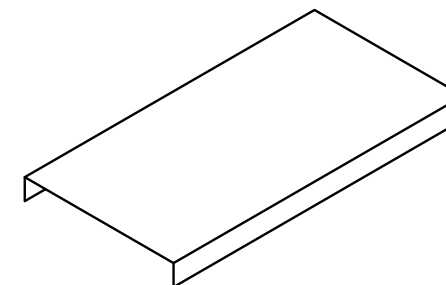


CABLE TRAY DETAIL

NO SCALE

8

<b>COPE FS28-06SL-12</b> FLAT SOLID LADDER TRAY COVER W/ FLANGE	
DIMENSIONS (WxD)	8'x 12'
WEIGHT	0.4 LB PER FT



LADDER TRAY COVER DETAIL

NO SCALE

9

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A&E PROJECT NUMBER  
SFSF001189B

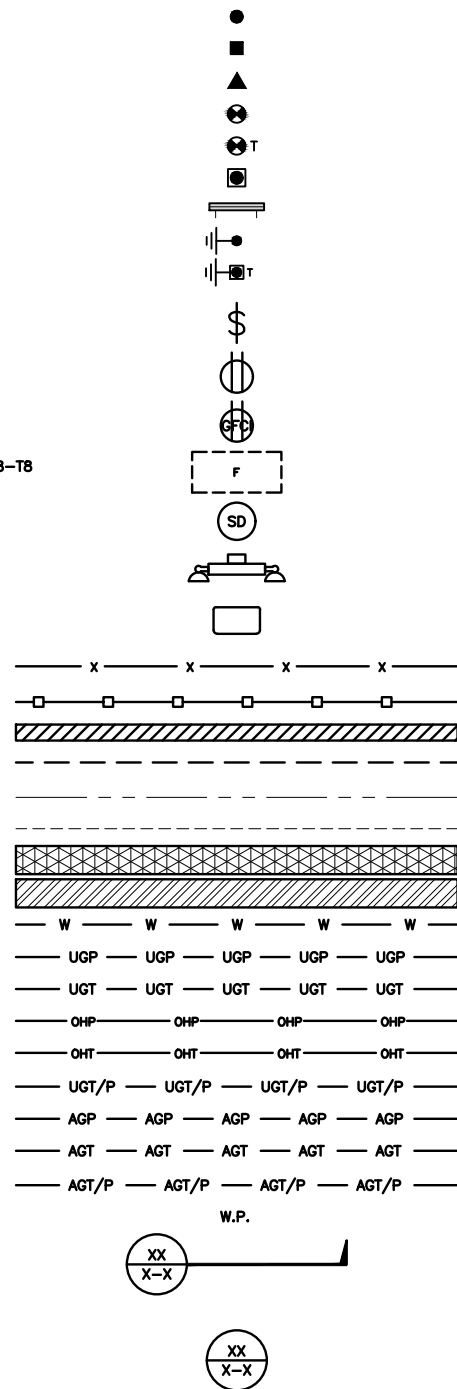
DISH Wireless L.L.C.  
PROJECT INFORMATION  
SFSF001189B  
199 SAN MARIN DRIVE  
NOVATO, CA 94945

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

**A-8**

EXOTHERMIC CONNECTION  
 MECHANICAL CONNECTION  
 BUSS BAR INSULATOR  
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 EXOTHERMIC WITH INSPECTION SLEEVE  
 GROUNDING BAR  
 GROUND ROD  
 TEST GROUND ROD WITH INSPECTION SLEEVE  
 SINGLE POLE SWITCH  
 DUPLEX RECEPTACLE  
 DUPLEX GFCI RECEPTACLE  
 FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8  
 SMOKE DETECTION (DC)  
 EMERGENCY LIGHTING (DC)  
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW  
 LED-1-25A400/51K-SR4-120-PE-DOBTD  
 CHAIN LINK FENCE  
 WOOD/WROUGHT IRON FENCE  
 WALL STRUCTURE  
 LEASE AREA  
 PROPERTY LINE (PL)  
 SETBACKS  
 ICE BRIDGE  
 CABLE TRAY  
 WATER LINE  
 UNDERGROUND POWER  
 UNDERGROUND TELCO  
 OVERHEAD POWER  
 OVERHEAD TELCO  
 UNDERGROUND TELCO/POWER  
 ABOVE GROUND POWER  
 ABOVE GROUND TELCO  
 ABOVE GROUND TELCO/POWER  
 WORKPOINT



SECTION REFERENCE  
 DETAIL REFERENCE



**LEGEND**

AB ANCHOR BOLT  
 ABV ABOVE  
 AC ALTERNATING CURRENT  
 ADDL ADDITIONAL  
 AFF ABOVE FINISHED FLOOR  
 AFG ABOVE FINISHED GRADE  
 AGL ABOVE GROUND LEVEL  
 AIC AMPERAGE INTERRUPTION CAPACITY  
 ALUM ALUMINUM  
 ALT ALTERNATE  
 ANT ANTENNA  
 APPROX APPROXIMATE  
 ARCH ARCHITECTURAL  
 ATS AUTOMATIC TRANSFER SWITCH  
 AWG AMERICAN WIRE GAUGE  
 BATT BATTERY  
 BLDG BUILDING  
 BLK BLOCK  
 BLKG BLOCKING  
 BM BEAM  
 BTC BARE TINNED COPPER CONDUCTOR  
 BOF BOTTOM OF FOOTING  
 CAB CABINET  
 CANT CANTILEVERED  
 CHG CHARGING  
 CLG CEILING  
 CLR CLEAR  
 COL COLUMN  
 COMM COMMON  
 CONC CONCRETE  
 CONSTR CONSTRUCTION  
 DBL DOUBLE  
 DC DIRECT CURRENT  
 DEPT DEPARTMENT  
 DF DOUGLAS FIR  
 DIA DIAMETER  
 DIAG DIAGONAL  
 DIM DIMENSION  
 DWG DRAWING  
 DWL DOWEL  
 EA EACH  
 EC ELECTRICAL CONDUCTOR  
 EL ELEVATION  
 ELEC ELECTRICAL  
 EMT ELECTRICAL METALLIC TUBING  
 ENG ENGINEER  
 EQ EQUAL  
 EXP EXPANSION  
 EXT EXTERIOR  
 EW EACH WAY  
 FAB FABRICATION  
 FF FINISH FLOOR  
 FG FINISH GRADE  
 FIF FACILITY INTERFACE FRAME  
 FIN FINISH(ED)  
 FLR FLOOR  
 FDN FOUNDATION  
 FOC FACE OF CONCRETE  
 FOM FACE OF MASONRY  
 FOS FACE OF STUD  
 FOW FACE OF WALL  
 FS FINISH SURFACE  
 FT FOOT  
 FTG FOOTING  
 GA GAUGE  
 GEN GENERATOR  
 GFCI GROUND FAULT CIRCUIT INTERRUPTER  
 GLB GLUE LAMINATED BEAM  
 GLV GALVANIZED  
 GPS GLOBAL POSITIONING SYSTEM  
 GND GROUND  
 GSM GLOBAL SYSTEM FOR MOBILE  
 HDG HOT DIPPED GALVANIZED  
 HDR HEADER  
 HGR HANGER  
 HVAC HEAT/VENTILATION/AIR CONDITIONING  
 HT HEIGHT  
 IGR INTERIOR GROUND RING

IN INCH  
 INT INTERIOR  
 LB(S) POUND(S)  
 LF LINEAR FEET  
 LTE LONG TERM EVOLUTION  
 MAS MASONRY  
 MAX MAXIMUM  
 MB MACHINE BOLT  
 MECH MECHANICAL  
 MFR MANUFACTURER  
 MGB MASTER GROUND BAR  
 MIN MINIMUM  
 MISC MISCELLANEOUS  
 MTL METAL  
 MTS MANUAL TRANSFER SWITCH  
 MW MICROWAVE  
 NEC NATIONAL ELECTRIC CODE  
 NM NEWTON METERS  
 NO. NUMBER  
 # NUMBER  
 NTS NOT TO SCALE  
 OC ON-CENTER  
 OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION  
 OPNG OPENING  
 P/C PRECAST CONCRETE  
 PCS PERSONAL COMMUNICATION SERVICES  
 PCU PRIMARY CONTROL UNIT  
 PRC PRIMARY RADIO CABINET  
 PP POLARIZING PRESERVING  
 PSF POUNDS PER SQUARE FOOT  
 PSI POUNDS PER SQUARE INCH  
 PT PRESSURE TREATED  
 PWR POWER CABINET  
 QTY QUANTITY  
 RAD RADIUS  
 RECT RECTIFIER  
 REF REFERENCE  
 REINF REINFORCEMENT  
 REQ'D REQUIRED  
 RET REMOTE ELECTRIC TILT  
 RF RADIO FREQUENCY  
 RMC RIGID METALLIC CONDUIT  
 RRH REMOTE RADIO HEAD  
 RRU REMOTE RADIO UNIT  
 RWY RACEWAY  
 SCH SCHEDULE  
 SHT SHEET  
 SIAD SMART INTEGRATED ACCESS DEVICE  
 SIM SIMILAR  
 SPEC SPECIFICATION  
 SQ SQUARE  
 SS STAINLESS STEEL  
 STD STANDARD  
 STL STEEL  
 TEMP TEMPORARY  
 THK THICKNESS  
 TMA TOWER MOUNTED AMPLIFIER  
 TN TOE NAIL  
 TOA TOP OF ANTENNA  
 TOC TOP OF CURB  
 TOF TOP OF FOUNDATION  
 TOP TOP OF PLATE (PARAPET)  
 TOS TOP OF STEEL  
 TOW TOP OF WALL  
 TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION  
 TYP TYPICAL  
 UG UNDERGROUND  
 UL UNDERWRITERS LABORATORY  
 UNO UNLESS NOTED OTHERWISE  
 UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM  
 UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)  
 VIF VERIFIED IN FIELD  
 W WIDE  
 W/ WITH  
 WD WOOD  
 WP WEATHERPROOF  
 WT WEIGHT

**ABBREVIATIONS**



5701 SOUTH SANTA FE DRIVE  
 LITTLETON, CO 80120



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 240 STOCKTON ST., 3RD FLOOR  
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 199 SAN MARIN DRIVE  
 NOVATO, CA 94945

SHEET TITLE  
 LEGEND AND ABBREVIATIONS

SHEET NUMBER  
**GN-1**