MARIN EMERGENCY RADIO AUTHORITY

c/o Town of Corte Madera
300 Tamalpais Drive, Corte Madera, CA 94925
PHONE: (415) 927-5050
WWW.MERAONLINE.ORG

DATE: December 11, 2019

TO: MERA Governing Board

FROM: Ernest Klock, Operations Officer

SUBJECT: AGENDA ITEM D-2**:** Proposed Resolution of the MERA Governing Board with Findings for Approval of the MERA Next Generation Radio Communications System and Approval of the Preliminary Design Plans

Recommended Actions: 1) Adopt the Resolution Approving the MERA Next Generation Radio Communications System Project and the Preliminary Design Plan.

This resolution will result in the approval of the MERA Next Generation Radio Communications System and the Preliminary Design Plan for the Project. This resolution will adopt the MERA Next Generation Project as described in the Subsequent Environmental Impact Report (SEIR) with conditions that implement the recommended mitigation measures contained in the SEIR.

Project Summary: The Next Generation Project will update the existing Marin countywide public radio communications system to improve radio communications capabilities during daily public service and critical emergencies. The Next Generation Project will retain and upgrade aging equipment at 10 existing telecommunication sites, decommission 5 existing sites, and add equipment to 8 new sites not previously part of the MERA system, for a total of 18 active sites (Chapter III of the Draft SEIR). The Next Gen System will utilize new radio frequencies in the 700 MHz band and will vacate the UHF (T-band) frequencies currently utilized. The County of Marin, each City in the county, and various public agencies will share this common communications system to compartmentalize communication links and allow for interdepartmental group communications to improve public safety.

Next Generation Radio Communications System:

Adoption of this resolution will approve, with conditions, the Next Generation Radio Communications Project and the Preliminary Design Plan (Exhibit A). As stated in the resolution, approval is conditioned on the incorporation of all the mitigation measures recommended in the SEIR and described in the Mitigation Monitoring and Reporting Program. These mitigation measures will result in only minor modifications to the Project.

In order to mitigate the Project's aesthetic impacts, mitigation measures will require fencing, colors and landscaping to screen facilities from view. However, even with the implementation of measures to reduce the visual impact of the Project, the aesthetic/visual impact will remain significant and

unavoidable at specific locations. The recommended Project approval resolution incorporates a Statement of Overriding Consideration (Exhibit 2) adopted in Resolution No. 2019-07 to certify the SEIR. CEQA requires the Governing Board to adopt a Statement of Overriding Considerations in order to approve the Project despite its significant unavoidable aesthetic/visual impact on the environment. All other environmental impacts identified in the SEIR will be mitigated to a less-than-significant level with the adoption of the mitigation measures identified and described in the SEIR and the Mitigation Monitoring and Reporting Program.

With respect to radio frequency (RF) emissions, the SEIR found that in areas accessible by the public at all 18 telecommunication sites, the RF emissions are within the public exposure limits adopted by the Federal Communications Commission (FCC). Therefore, impacts are less than significant, and no mitigation is required. However, at certain sites, within controlled areas that are inaccessible by the public, signage will be required as a mitigation measure to inform maintenance workers and other radio personnel of the exposure levels on towers and at ground level.

As the Governing Board is aware, the challenge MERA is responding to requires a balance between minimizing the significant aesthetic impacts and other less than significant impacts of the Project while ensuring that there is adequate radio coverage to allow first responders and other personnel to communicate effectively during an emergency and day-to-day operations. The MERA staff has explored many options to the proposed Project as detailed in the Alternatives Chapter VII of the Draft SEIR, and believes that the proposed Next Generation Project, as conditioned, minimizes to the extent feasible the identified environmental impacts of the Project while attaining the level of radio coverage for which the Project is intended.

Staff recommends that Governing Board approve the attached Resolution No. 2019-08 approving the Next Generation Radio Communications System and the Preliminary Design Plan.

Attachments:

1) MERA Next Gen Project Approval Resolution No. 2019-08
    2a) Exhibit A – Preliminary Design Plan
    2b) Exhibits 1-3 – Duplicated from Resolution 2019-07

MARIN EMERGENCY RADIO AUTHORITY GOVERNING BOARD

RESOLUTION NO. 2019-08

A RESOLUTION OF THE GOVERNING BOARD APPROVING THE MERA NEXT GENERATION RADIO COMMUNICATIONS SYSTEM PROJECT AND DIRECTING THE EXECUTIVE OFFICER TO FILE A NOTICE OF DETERMINATION FOR THE PROJECT

WHEREAS, the Marin Emergency Radio Authority ("MERA") is a joint powers agency established February 28, 1998 under authority granted by the California Government Code (Article 1, Section 6500 of Chapter 5, Division 7, Title I) by, for and among its Members. MERA's purpose is to plan, finance, implement, manage, own, and operate a multijurisdictional and countywide public safety, public service, and emergency radio system.

WHEREAS, the MERA countywide public radio communications system is vital for emergency communications between police, firefighters and public works crews. The emergency communications system is a network of radio antennas and equipment linked with microwave connections. However, the combination of older equipment and recent changes to frequency requirements by the Congressional Jobs Bill (HR 3630) now requires an upgrade of all Ultra High Frequency (T-band) radio communications systems, including the MERA system.

WHEREAS, the Governing Board of MERA, proposes to update the existing radio communications system to improve radio communications capabilities during daily public service and critical emergencies. The proposed Next Generation System Project ("Next Gen System," or "Project") will retain and upgrade aging equipment at 10 existing telecommunication sites, decommission 5 existing sites, and add equipment to 8 new sites not previously part of the MERA system, for a total of 18 active sites. The Next Gen system will utilize new radio frequencies in the 700 MHz band and will vacate the UHF T-band frequencies currently utilized. The County of Marin, each City in the County, and various public agencies will share this common communications system to compartmentalize communication links and allow for interdepartmental group communications to improve public safety. The location, Assessor's Parcel Number, and type of proposed modifications are identified below:

Site Name	APN	Jurisdiction	Coordinates	Proposed Modification
1. Prime Site EOF^	165-220-11	City of San Rafael	38.019167, -122.541528	New site at County Emergency Ops Facility
2. Civic Center	179-270-11	City of San Rafael	37.999056, -122.531306	Upgrades
3. Big Rock	164-300-04	Marin County	38.059194, -122.604250	Upgrades
4. Mt. Tamalpais	197-120-31	Marin County	37.929006, -122.587084	Upgrades
5. Mt. Barnabe	168-240-01	Marin County	38.026751, -122.716321	Upgrades
6. Point Reyes Hill	109-160-23	Marin County	38.079836, -122.866944	Upgrades
7. Forbes Hill	010-261-02	City of San Rafael	N/A	Decommission

8. Dollar Hill	011-051-02	City of San Rafael	37.980262, -122.529354	Upgrades
9. San Pedro Ridge	015-250-21	City of San Rafael	37.990205, -122.500139	Upgrades
10. Mt. Burdell	125-180-17	City of Novato	N/A	Decommission
11. Novato PD	153-061-28	City of Novato	N/A	Dropped from original system
12. Mt. Tiburon	058-261-39	Town of Tiburon	37.890440, -122.464796	Upgrades
13. Mill Valley City Hall	028-014-16	City of Mill Valley	N/A	Decommission
14. Mill Valley Police Station	030-250-01	City of Mill Valley	N/A	Decommission
15. Bay Hill Road	100-190-07	Sonoma County	N/A	Decommission
16. Sonoma Mountain	136-190-09	Sonoma County	38.261015, -122.903629	Upgrades
17. Stewart Point	188-090-15	Marin County	38.185833, -122.825167	Upgrades
18. Tomales	100-050-42	Marin County	38.017000, -122.546000	New site with existing tower and equipment
19. Coyote Peak	106-110-03	Marin County	37.863289, -122.585512	New site with existing water wellheads
20. Skyview Terrace Water Tank	165-220-02	City of San Rafael	37.851085, -122.498376	New site with MMWD water tank
21. Muir Beach	199-262-11	Marin County	38.149888, -122.593239	New site with local water tank
22. Wolfback Ridge	200-120-02	Marin County	37.902735, -122.558010	New site with existing 100' tower
23. Mt. Burdell OTA^	125-120-03	Marin County	38.261015, -122.903629	New site with existing structure and tower
24. Mill Valley Water Tank	046-070-03	Marin County	38.185833, -122.825167	New site with existing MMWD water tank

WHEREAS, pursuant to CEQA Guidelines section 15082(a), on May 17, 2018, MERA published and distributed a Notice of Preparation (NOP) of a Subsequent Environmental Impact Report ("SEIR") for the proposed Next Gen System. A public scoping session was conducted on May 31, 2018 to provide information on the project and receive comments on environmental issues for evaluation in the SEIR.

WHEREAS, a Draft SEIR (SCH #1999092073) was completed and circulated for a 45-day public review period, from September 6, 2019 to October 21, 2019. Comments from members of the public and other governmental agencies that were timely received were reviewed and considered by MERA, and MERA's written responses to these comments were incorporated into the Final SEIR.

WHEREAS, on December 11, 2019, the MERA Governing Board adopted Resolution No. 2019-07 certifying the Final SEIR for the Project, making Findings pursuant to CEQA, adopting a Statement of Overriding Considerations, and adopting a Mitigation Monitoring and Reporting Program.

WHEREAS, the Governing Board finds that the Next Generation Project is essential to the provisions of emergency services in the County of Marin, and desires to proceed with the approval of the Project.

NOW, THEREFORE, BE IT RESOLVED by the Marin Emergency Radio Authority Governing Board as follows:

Section 1. The Governing Board hereby finds that the above recitals are true and correct, and hereby incorporates them herein as though set forth in full by this reference.

Section 2. The Governing Board hereby approves the Next Gen System Project, as described in the Final SEIR and the Preliminary Design Plan, attached hereto as Exhibit A and incorporated herein by this reference, subject to the following conditions:

A. All mitigation measures identified and described in the Final SEIR and included in the Mitigation Monitoring and Reporting Program adopted in Resolution No. 2019-07 shall be incorporated into the Project.

B. All necessary regulatory permits are obtained for the construction of the Project.

Section 3. The Governing Board authorizes and directs the MERA Executive Officer to file a Notice of Determination pursuant to California Public Resources Code Section 21152(a) and CEQA Guidelines Section 15094, in the manner required by law, with the Clerk-Recorder's Office of the County of Marin and the Office of Planning and Research of the State of California.

PASSED AND ADOPTED at a meeting of the Governing Board of the Marin Emergency Radio Authority, on the 11th day of December 2019, by the following vote to-wit:

AYES:

NAYS:

ABSTENTIONS:

_____
President, MERA Governing Board

Attest:

_____
Maureen Cassingham
Executive Officer and Secretary

PRELIMINARY DESIGN PLANS EXHIBIT A to RESOLUTION 2019-08

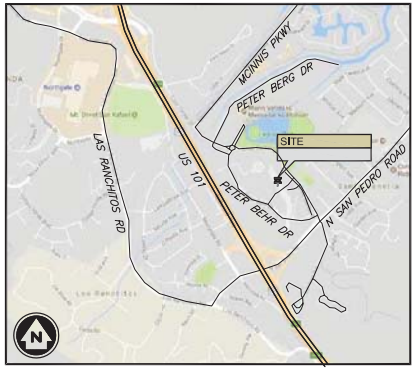
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

CIVIC CENTER

3501 CIVIC CENTER DR.
SAN RAFAEL, CA 94903



VICINITY MAP
N.T.S.

LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) 3'-0" ø MICROWAVE DISH TO EXISTING MICROWAVE MOUNT
- ADD GROUNDING SYSTEM INSIDE EQUIPMENT AREA
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (1) DC POWER WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT ROOM

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	CIVIC CENTER
SITE ADDRESS:	3501 CIVIC CENTER DR. SAN RAFAEL, CA 94903
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.999056° N
LONGITUDE:	-122.531306° W

PROJECT DIRECTORY

PROPERTY OWNER:	COUNTY OF MARIN 3501 CIVIC CENTER DR. SAN RAFAEL, CA 94903
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	5	09/17/19
N1	GENERAL NOTES	5	09/17/19
N2	GENERAL NOTES AND LEGEND	5	09/17/19
N3	SITE SIGNAGE	5	09/17/19
C2	ENLARGE ROOFTOP SITE PLAN	5	09/17/19
C3	PROPOSED INTERIOR PLAN	5	09/17/19
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C5	CABLE TRAY DETAILS	5	09/17/19
C6	ANCHORAGE DETAILS	5	09/17/19
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S2	SITE PLAN	0	11/21/18
S3	MOUNT DETAILS	0	11/21/18
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E2	ONE LINE DIAGRAM	5	09/17/19
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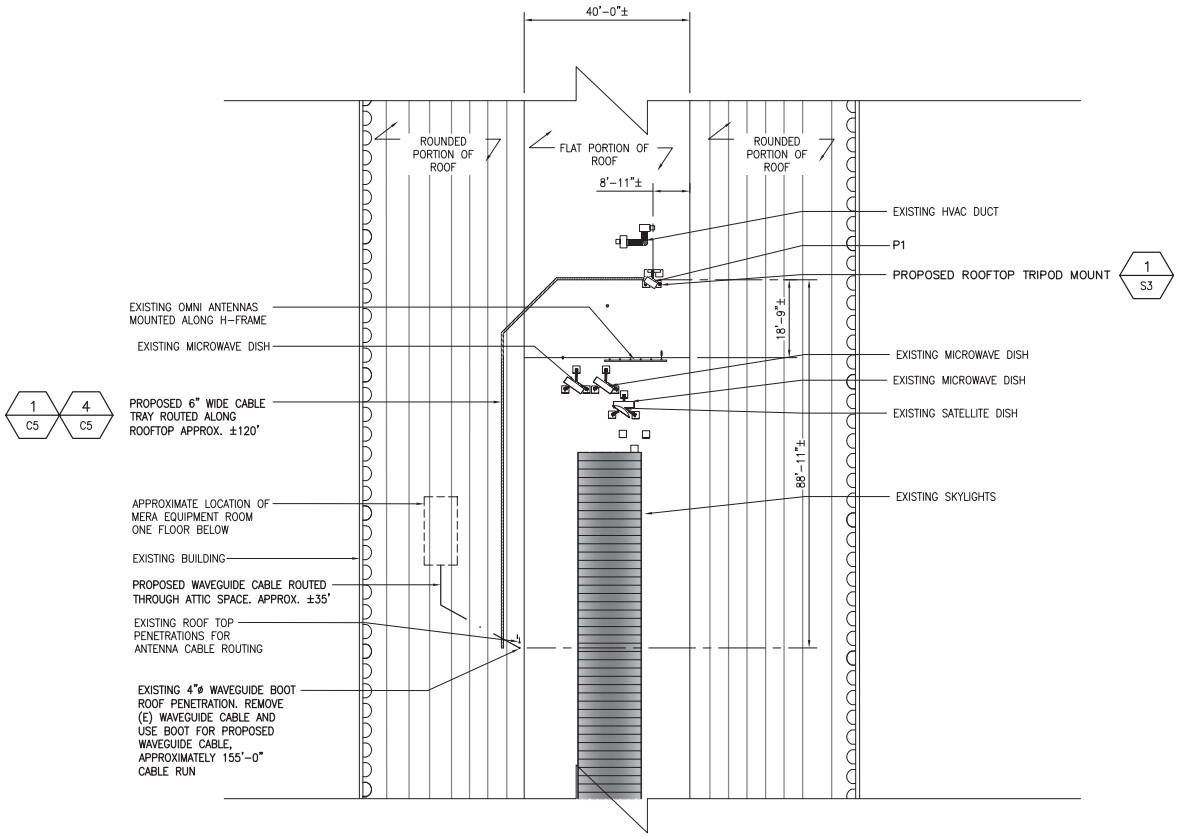
E4	GROUNDING NOTES	5	09/17/19
E5	GROUNDING DETAILS	5	09/17/19
E6	GROUNDING DETAILS	5	09/17/19

PRELIM CONSTRUCTION DRAWINGS



N CALLED NORTH

1 ENLARGED ROOFTOP SITE PLAN

SCALE: 22"x34" SHEET 1" = 15'-0"
SCALE: 11"x17" SHEET 1" = 30'-0"

7.5' 0 7.5' 15' 30'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
5	09/17/19	100% CONSTRUCTION DRAWINGS	RD	JR	
4	02/08/19	75% CONSTRUCTION DRAWINGS	RD	JR	
3	11/29/18	75% CONSTRUCTION DRAWINGS	RD	JR	
2	11/16/18	75% CONSTRUCTION DRAWINGS	RD	JR	
1	08/17/18	PRELIMINARY DRAWINGS	RD	JR	CJW

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LAKE FOREST, CA 92630
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MOTOROLA SOLUTIONS

COUNTY OF MARIN

CIVIC CENTER
3501 CIVIC CENTER DIRVE
SAN RAFAEL, CA 94903

ENLARGED ROOFTOP SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C2

REV 5

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

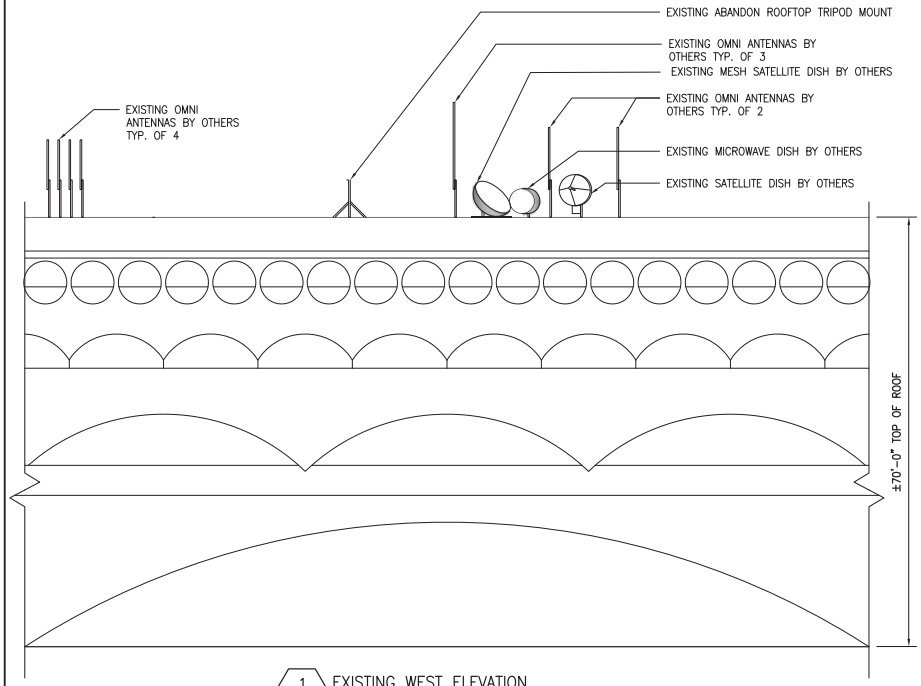
PROPOSED ROOFTOP MERA EQUIPMENT

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.)		ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
		BASE	TOP							
P1	SC3-W100AC	77'-0"	77'-0"	3'ø	DISH	212.2°	1	EW105	MT. TAM	MERA

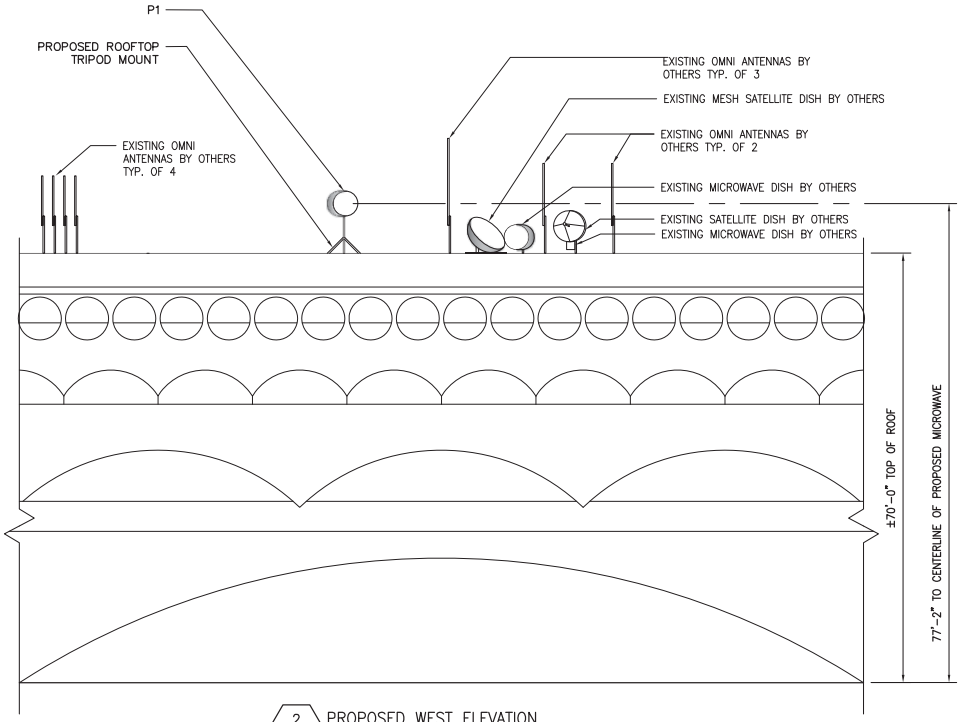
NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.



1 EXISTING WEST ELEVATION
SITE NAME: CIVIC CENTER
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20'
(IN FEET)



2 PROPOSED WEST ELEVATION
SITE NAME: CIVIC CENTER
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
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2	11/16/18	75% CONSTRUCTION DRAWINGS	RD	JR	
1	08/17/18	PRELIMINARY DRAWINGS	RD	JR	CJW

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

CIVIC CENTER
3501 CIVIC CENTER DIRVE
SAN RAFAEL, CA 94903

ELEVATIONS
MARIN EMERGENCY RADIO AUTHORITY

C4

REV 5

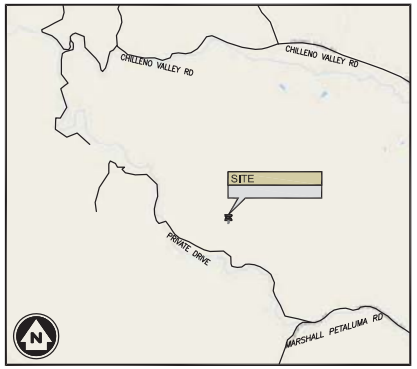
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

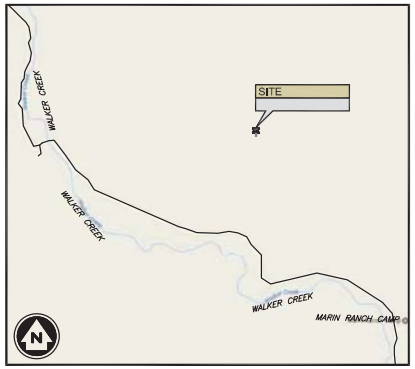
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

COYOTE PEAK

NEAR 1700 MARSHALL PETALUMA RD PETALUMA, CA 94952



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA–EIA–222–G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA–101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (2) 3'–0" ø MICROWAVE DISHES TO PROPOSED TOWER
- ADD (1) 7" TX ANTENNAS TO PROPOSED TOWER
- ADD (2) 9'–6" RX ANTENNAS TO PROPOSED TOWER
- ADD (1) TTA TO PROPOSED TOWER
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE PROPOSED EQUIPMENT SHELTER
- ADD (2) GTR RACKS INSIDE PROPOSED EQUIPMENT SHELTER
- ADD (1) 60'–0" TALL MONOPOLE
- ADD (1) DIESEL GENERATOR
- ADD (1) 250 GALLON DIESEL TANK
- ADD (2) GPS ANTENNAS
- ADD (1) 12'–0" X 20'–0" EQUIPMENT SHELTER

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MERA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	COYOTE PEAK
SITE ADDRESS:	NEAR 1700 MARSHALL PETALUMA ROAD PETALUMA, CA 94952
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.185833° N
LONGITUDE:	–122.825167° W

PROJECT DIRECTORY

PROPERTY OWNER:	MARIN COUNTY BOARD OF EDUCATION
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926–7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332–9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265–2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979–5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

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N3	SITE SIGNAGE	6	10/08/19
N4	AREA OF DISTURBANCE PLAN	6	10/08/19
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C–2	SURVEY	1	10/10/18
C–3	SURVEY	1	10/10/18
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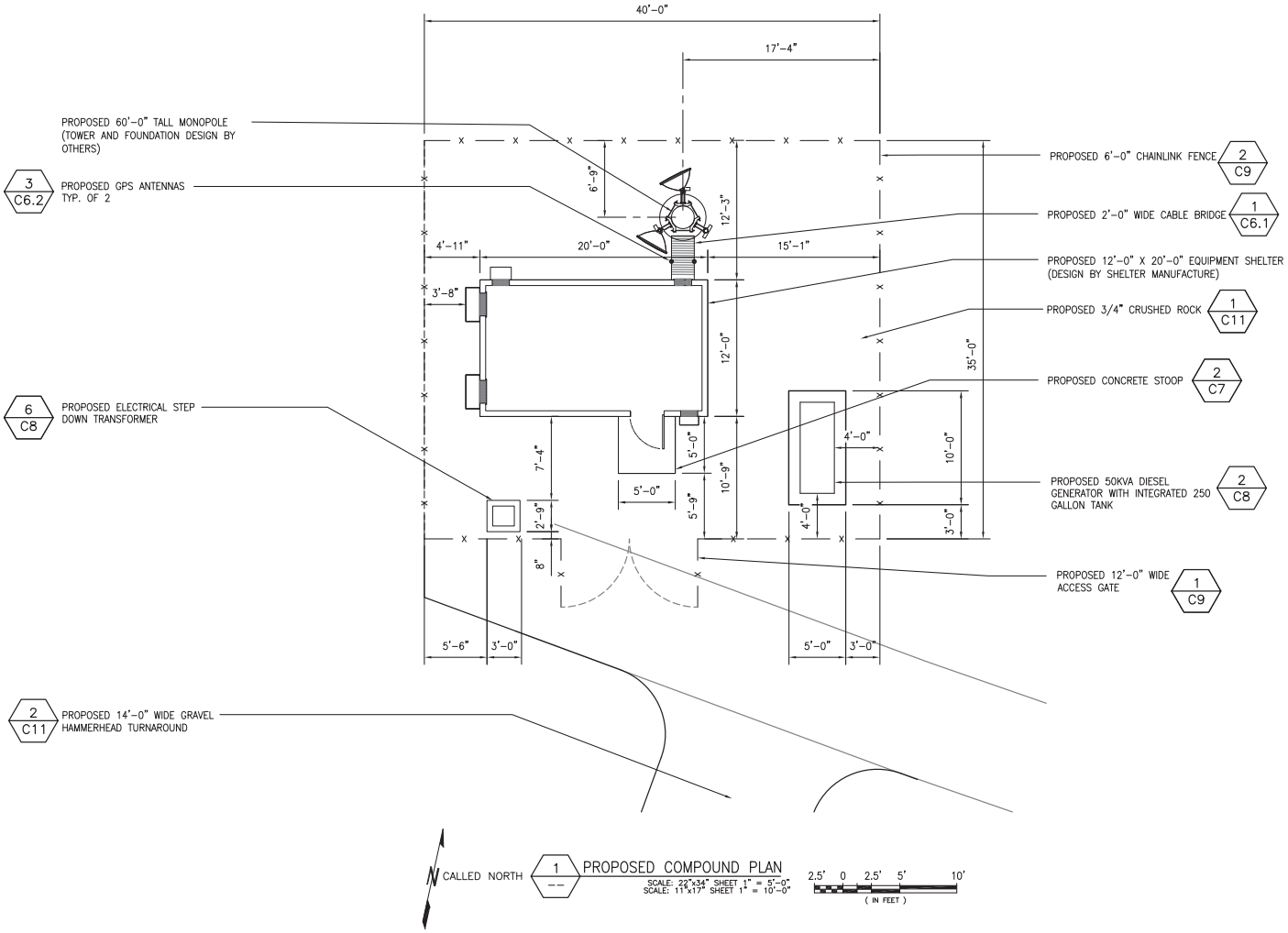
C7	SHELTER FOUNDATION DETAILS	6	10/08/19
C8	SITE DETAILS	6	10/08/19
C9	FENCE DETAILS	6	10/08/19
C10	FENCE DETAILS	6	10/08/19
C11	DETAILS	6	10/08/19
C12	DETAILS	6	10/08/19
ES1	GRADING, EROSION, & SEDIMENT CONTROL PLAN	6	10/08/19
ES2	GRADING, EROSION, & SEDIMENT CONTROL NOTES	6	10/08/19
ES3	STORMWATER POLLUTION PREVENTION PROGRAM	6	10/08/19
E1	ELECTRICAL SITE PLAN	6	10/08/19
E1.1	ENLARGE ELECTRICAL SITE PLAN	6	10/08/19
E1.2	PROPOSED INTERIOR ELECTRICAL PLAN	6	10/08/19
E2	ONE LINE DIAGRAM	6	10/08/19
E3	GROUNDING PLAN	6	10/08/19
E3.1	PROPOSED SHELTER INTERIOR GROUNDING PLAN	6	10/08/19
E4	GROUNDING NOTES	6	10/08/19
E5	GROUNDING DETAILS	6	10/08/19
E6	GROUNDING DETAILS	6	10/08/19
E7	GROUNDING DETAILS	6	10/08/19
G1–G14	ACCESS ROAD IMPROVEMENT PLAN	0	05/16/19

PRELIM CONSTRUCTION DRAWING



CALLED NORTH

1 -- PROPOSED COMPOUND PLAN

SCALE: 22"x34" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

2.5' 0 2.5' 5' 10'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	10/08/19	100% CDs REISSUE	RD	JR	
5	09/24/19	100% CONSTRUCTION DRAWINGS	RD	JR	
4	08/24/19	100% CONSTRUCTION DRAWINGS	RD	JR	
3	10/19/18	75% CONSTRUCTION DRAWINGS	RD	JR	
2	08/17/18	50% CONSTRUCTION DRAWINGS	RD	JR	

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LAKE FOREST, CA 92630
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MOTOROLA SOLUTIONS

COUNTY OF MARIN

COYOTE PEAK
NEAR 1700 MARSHALL PETALUMA RD
PETALUMA, CA 9452

PROPOSED COMPOUND PLAN

MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE MONOPOLE (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE & METAL TAGS) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

NOTES:

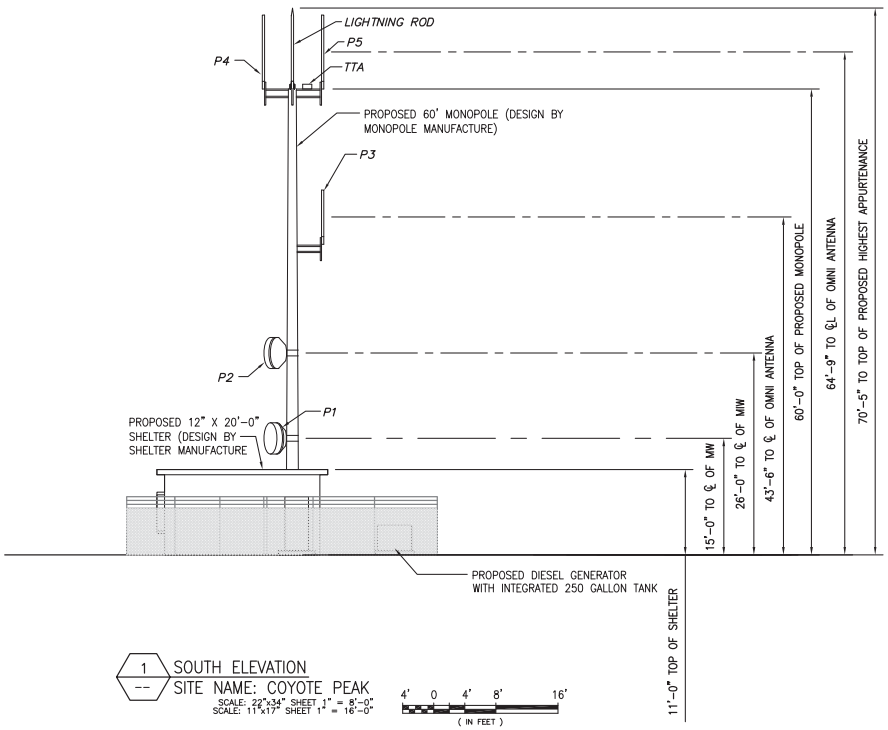
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

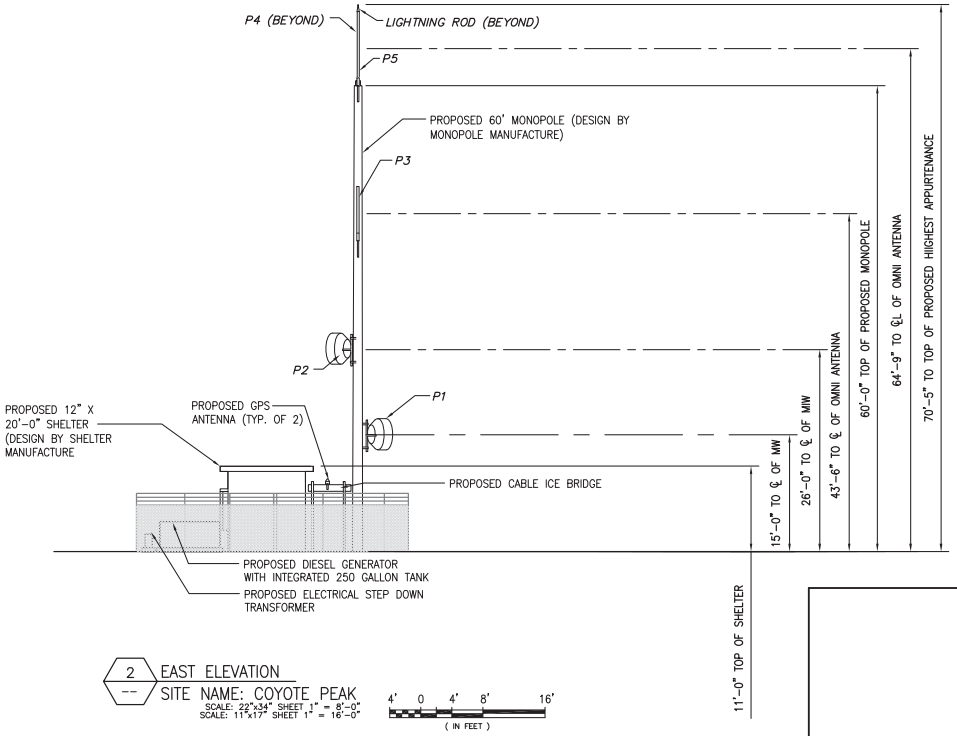
PROPOSED TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.)		ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
		MT. CL	ANT. CL							
P1	SC3-W100AC	15"-0"	15'-0"	3'ø	MW	197.3°	1	E105	POINT REYES	MERA
P2	SC3-W100AC	26'-0"	26'-0"	3'ø	MW	320.5°	1	E105	TOMALES	MERA
P3	SC476-HF1DF (D10-E5608)	39'-4"	43'-6"	7.0'	OMNI	N/A	1	7/8" ø	Tx ANTENNA	MERA
P4 & P5	CC807-08T3	59'-5"'	64'-9"	9.5'	OMNI	N/A	2	1/2" ø	Rx ANTENNA	MERA
TTA	432-831-01-T	±60'	--	--	--	N/A	1	1/2" ø	--	MERA
LIGHTNING ROD	N/A	59'-5"	--	10.0'	--	N/A	1	N/A	--	MERA

APN: 106-110-03
OWNER(S): MARIN COUNTY BOARD OF EDUCATION



1 SOUTH ELEVATION
-- SITE NAME: COYOTE PEAK
SCALE: 22"x34" SHEET 1" = 8'-0"
SCALE: 11"x17" SHEET 1" = 16'-0"



2 EAST ELEVATION
-- SITE NAME: COYOTE PEAK
SCALE: 22"x34" SHEET 1" = 8'-0"
SCALE: 11"x17" SHEET 1" = 16'-0"

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	10/08/19	100% CDs REISSUE	RD	JR	
5	09/24/19	100% CONSTRUCTION DRAWINGS	RD	JR	
4	08/24/19	100% CONSTRUCTION DRAWINGS	RD	JR	
3	10/19/18	75% CONSTRUCTION DRAWINGS	RD	JR	
2	08/17/18	50% CONSTRUCTION DRAWINGS	RD	JR	

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

COYOTE PEAK
NEAR 1700 MARSHALL PETALUMA RD
PETALUMA, CA 94952

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C6

REV 6

RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

COUNTY OF MARIN

MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

DOLLAR HILL

ROBERT DOLLAR DR.
SAN RAFAEL, CA 94901

VICINITY MAP
N.T.S.

LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (2) 6'-0" ø MICROWAVE DISHES TO EXISTING TOWER
- ADD (2) 7" TX ANTENNAS TO EXISTING TOWER
- ADD (2) 9'-6" RX ANTENNAS TO EXISTING TOWER
- ADD (1) TTA TO EXISTING TOWER
- ADD (6) CONVENTIONAL ANTENNAS TO EXISTING TOWER
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT ROOM
- ADD (3) GTR RACKS INSIDE EXISTING EQUIPMENT ROOM
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (2) GPS ANTENNAS
- REINFORCE SHELTER FLOOR AT EQUIPMENT RACK
- REINFORCE TOWER LEGS AND LEG BOLTS FROM 0'-0" TO 20'-0"
- REINFORCE TOWER ANCHOR RODS

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME: DOLLAR HILL
SITE ADDRESS: END OF ROBERT DOLLAR DR. SAN RAFAEL CA 94901
JURISDICTION: COUNTY OF MARIN
LATITUDE: 37.980262° N
LONGITUDE: -122.529354° W

PROJECT DIRECTORY

PROPERTY OWNER: CITY OF SAN RAFAEL

APPLICANT: COUNTY OF MARIN
3501 CIVIC CENTER DRIVE
SAN RAFAEL, CA 94903
CONTACT: DAVID MORTIMER
(916) 926-7274

MOTOROLA REPRESENTATIVE: DUSTIN MATIA
(925) 332-9173

PROJECT MANAGER: MOTOROLA SOLUTIONS
1001 BAYHILL DRIVE, SUITE 261
SAN BRUNO, CA 94066
CONTACT: KOUROSH MOSTASHARI – (415) 265-2155

ENGINEER: INFINIGY ENGINEERING PLLC
26455 RANCHO PARKWAY SOUTH
LAKE FOREST, CA 92630
CONTACT: JUSTIN ROTHGEB – (925) 979-5152

POWER COMPANY: PG&E
TELCO COMPANY: N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	6	09/11/18
N1	GENERAL NOTES	6	09/11/18
N2	GENERAL NOTES AND LEGEND	6	09/11/18
N3	SITE SIGNAGE	6	09/11/18
N4	AREA OF DISTURBANCE PLAN	6	09/11/18
C3	SITE PLAN	6	09/11/18
C4	PROPOSED INTERIOR PLAN	6	09/11/18
C5	TOWER ELEVATIONS	6	09/11/18
C5.1	TOWER LOADING SCHEDULE	6	09/11/18
C5.2	SHELTER FLOOR MODIFICATION PLAN	6	09/11/18
C6	ANTENNA ATTACHMENT DETAILS	6	09/11/18
C7	ICE BRIDGE DETAILS	6	09/11/18
C8	TRANSITION INTERIOR SHELTER PLAN	6	09/11/18
S1	STRUCTURAL MASTER DRAWING & NOTES	A	07/17/18
S2	TOWER REINFORCEMENT SECTION 0'-20'	A	07/17/18
S3	ANCHOR ROD & BRACKET INSTALLATION DETAILS	A	07/17/18
S4	TYPICAL LEG REINFORCEMENT DETAILS	A	07/17/18
S5	TYPICAL WELD DETAILS	A	07/17/18
S6	PROPOSED TRANSITION ANTENNA MOUNT CONFIGURATION	A	07/17/18
S7	PROPOSED TRANSITION ANTENNA MOUNT PLAN	A	07/17/18
E1	INTERIOR ELECTRICAL CEILING PLAN	6	09/11/18
E2	ONE LINE DIAGRAM	6	09/11/18
E2.1	ELECTRICAL DETAILS	6	09/11/18
E3	PROPOSED INTERIOR GROUNDING PLAN	6	09/11/18
E4	GROUNDING NOTES	6	09/11/18
E5	GROUNDING DETAILS	6	09/11/18
E6	GROUNDING DETAILS	6	09/11/18

PRELIM CONSTRUCTION DRAWINGS

APN : 011-051-02
OWNER(S): CITY OF SAN RAFAEL

(E) POWER POLE WITH TRANSFORMER
(E) OVERHEAD POWER
(E) SECONDARY POLE
(E) DIRT/GRAVEL
MICROWAVE TO SAN PEDRO 66.8
(E) WOOD RETAINING WALL
(E) BUILDING
(E) 60' HIGH LATTICE TOWER – (P) LOCATION OF NEW OMNI ANTENNAS AND MICROWAVE DISHES
2 C6 1 C7
(E) 10' x 10' CONCRETE PAD
(E) CABLE BRIDGE
(E) 50KVA GENERATOR ON CONCRETE PAD
(E) BUILDING ELECTRICAL RISER
(E) 6' HIGH CHAINLINK FENCE
(E) PROPANE 499 GALLON TANK ON CONCRETE PAD
(E) WOOD RETAINING WALL
(E) 12' CHAIN LINK ACCESS GATE
(E) 10' GRAVEL ACCESS ROAD
(E) HAND BOX
38.980262°, –122.529354°, GEOREFERENCED LOCATION (WGS 1984)*
1 S2 (E) 60' HIGH LATTICE TOWER FROM 0'–0" TO 20'–0" TO BE REINFORCED AND TOWER ANCHORED RODS TO BE REINFORCED
5 C6 (P) GPS ANTENNAS TYP. OF 2
MICROWAVE TO MT. TAM #26 221.7°
(E) 12'–6" X19'–0" EQUIPMENT SHELTER AND PROPOSED LOCATION OF NEW EQUIPMENT
(E) WATER TANK

NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

N CALLED NORTH

1 -- SITE PLAN
SCALE: 22"x34" SHEET 1" = 10'–0"
SCALE: 11"x17" SHEET 1" = 20'–0"

5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/11/19	100% CONSTRUCTION DRAWINGS	RD	JR	
5	11/12/18	75% CONSTRUCTION DRAWINGS	RD	JR	
4	08/17/18	50% CONSTRUCTION DRAWINGS	RD	JR	
3	06/28/18	50% CONSTRUCTION DRAWINGS	RD	JR	
2	06/25/18	50% CONSTRUCTION DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

DOLLAR HILL
END OF ROBERT DOLLAR DR.
SAN RAFAEL, CA 94901

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3
REV 6

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

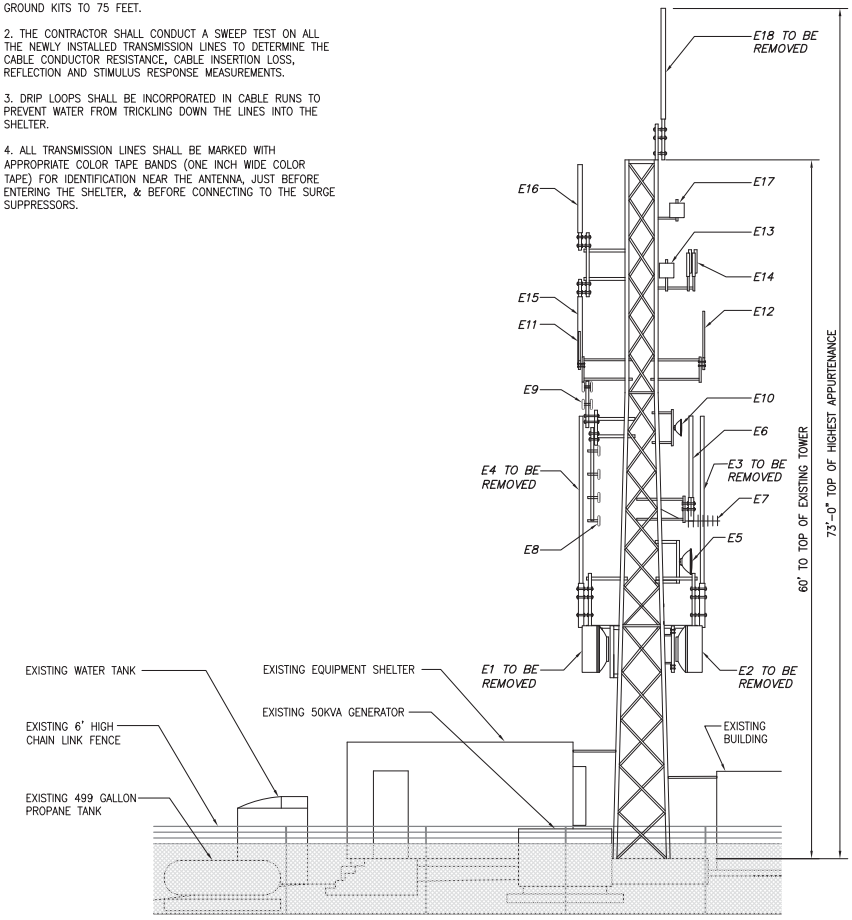
4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 011-051-02
OWNER(S): CITY OF SAN RAFAEL

NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

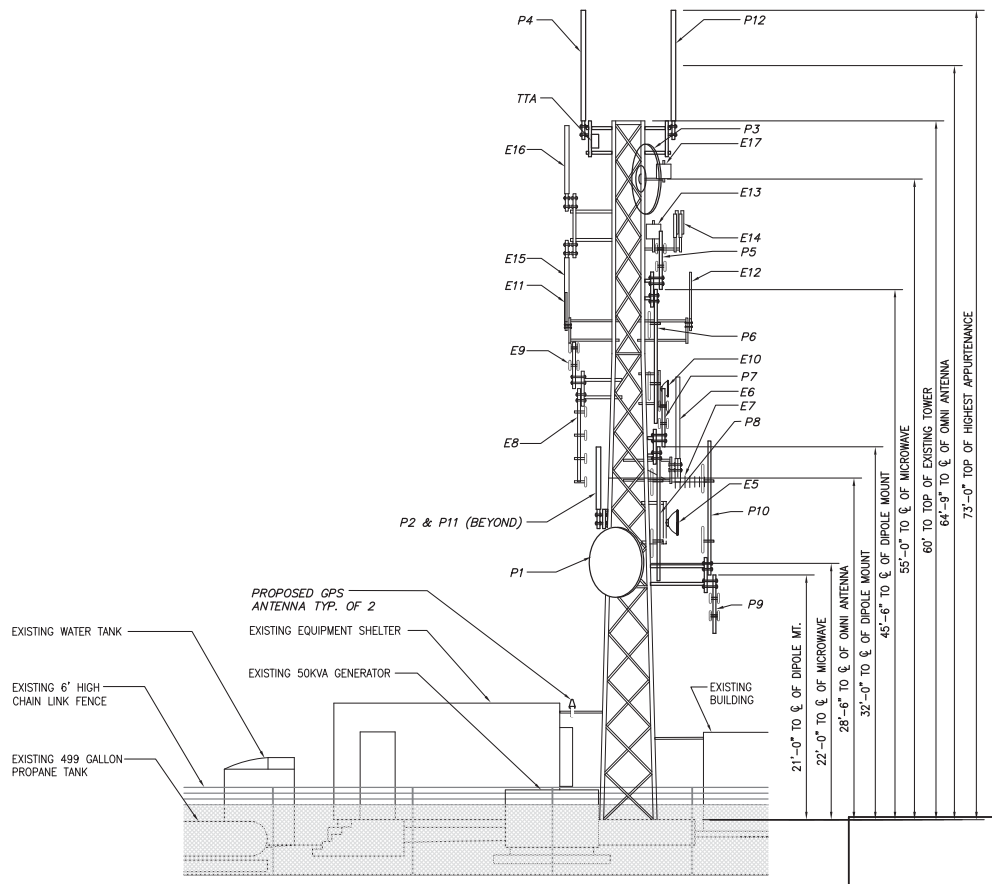
2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.



1 EXISTING NORTHEAST ELEVATION
-- SITE NAME: DOLLAR HILL

SCALE: 22"x34" SHEET 3/16" = 1'-0"
SCALE: 11"x17" SHEET 3/32" = 1'-0"

2' 0 2' 4' 8'
(IN FEET)



2 PROPOSED NORTHEAST ELEVATION
-- SITE NAME: DOLLAR HILL

SCALE: 22"x34" SHEET 3/16" = 1'-0"
SCALE: 11"x17" SHEET 3/32" = 1'-0"

2' 0 2' 4' 8'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/11/19	100% CONSTRUCTION DRAWINGS	RD	JR	
5	11/12/18	75% CONSTRUCTION DRAWINGS	RD	JR	
4	08/17/18	50% CONSTRUCTION DRAWINGS	RD	JR	
3	06/28/18	50% CONSTRUCTION DRAWINGS	RD	JR	
2	06/25/18	50% CONSTRUCTION DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

DOLLAR HILL
END OF ROBERT DOLLAR DR.
SAN RAFAEL, CA 94901

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

EOF

1600 LOS GAMOS DR.
SAN RAFAEL, CA 94903

VICINITY MAP
N.T.S.

LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
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8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) 3'-0"ø AND (1) 6'-0"ø MICROWAVE DISHES TO EXISTING ROOFTOP TOWER
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (2) RECTIFIERS TO THE EXISTING DC RECTIFIER RACK INSIDE THE EQUIPMENT ROOM
- ADD (1) MASTER SITE CABINET INSIDE EXISTING EQUIPMENT ROOM
- ADD (4) EQUIPMENT RACKS INSIDE EXISTING EQUIPMENT ROOM
- ADD (2) GPS ANTENNAS
- ADD (19) CONSOLETTE ANTENNAS TO EXISTING ROOFTOP TOWER

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	EOF
SITE ADDRESS:	1600 LOS GAMOS DR. SAN RAFAEL, CA 94903
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.019972° N
LONGITUDE:	-122.541417° W

PROJECT DIRECTORY

PROPERTY OWNER:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	7	09/16/19
N1	GENERAL NOTES	7	09/16/19
N2	GENERAL NOTES AND LEGEND	7	09/16/19
N3	SITE SIGNAGE	7	09/16/19
C3	PROPOSED EQUIPMENT ROOM PLAN	7	09/16/19
C4	EXSITING CABLE LADDER PLAN	7	09/16/19
C5	ROOFTOP TOWER ELEVATIONS	7	09/16/19
C5.1	ROOFTOP TOWER LOADING	7	09/16/19
C6	ANTENNA ATTACHMENT DETAIL	7	09/16/19
C6.1	ANTENNA ATTACHMENT DETAIL	7	09/16/19
C7	ANCHORAGE DETAILS	7	09/16/19
S1	ANTENNA ATTACHMENT DETAIL	0	07/10/19
E1	SHELTER ELECTRICAL CEILING PLAN	7	09/16/19
E2	ONE LINE DIAGRAM	7	09/16/19
E3	PROPOSED INTERIOR GROUNDING	7	09/16/19
E4	GROUNDING NOTES	7	09/16/19
E5	GROUNDING DETAILS	7	09/16/19
E6	GROUNDING DETAILS	7	09/16/19

PRELIM CONSTRUCTION DRAWINGS

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

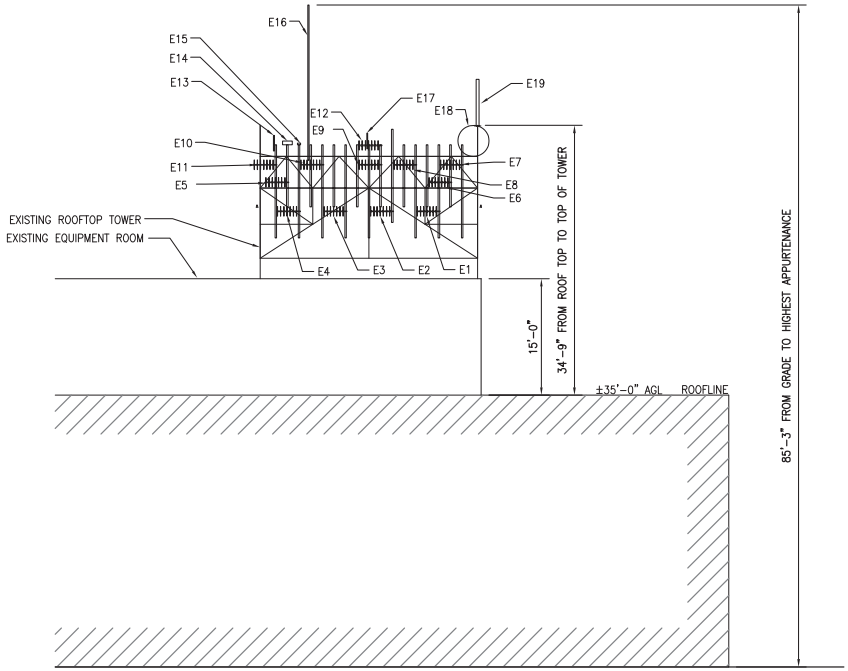
3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

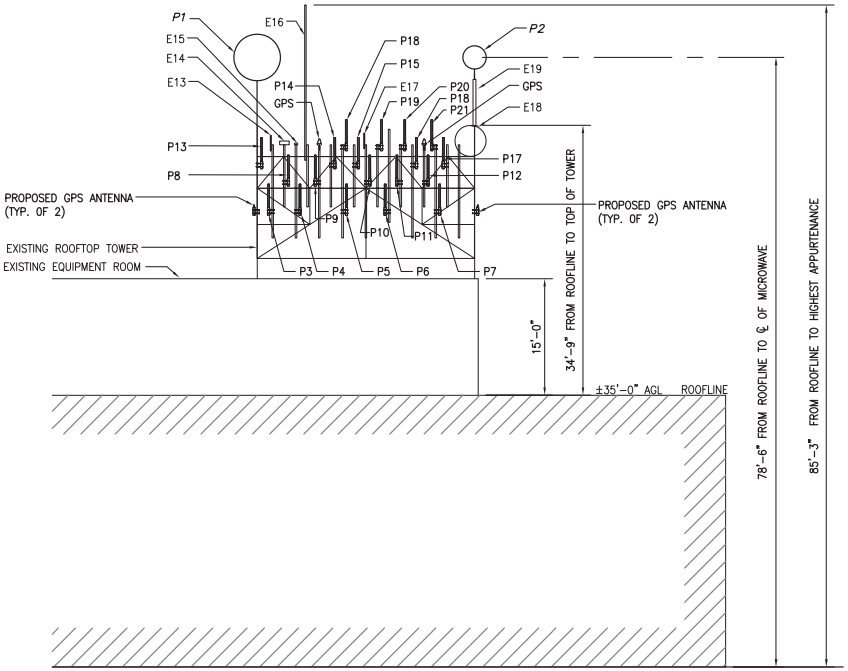
NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.



1 EXISTING SOUTH ELEVATION
-- SITE NAME: EOF
SCALE: 22"x34" SHEET 1" = 8'-0"
SCALE: 11"x17" SHEET 1" = 16'-0"
4' 0 4' 8' 16'
(IN FEET)



2 PROPOSED SOUTH ELEVATION
-- SITE NAME: EOF
SCALE: 22"x34" SHEET 1" = 8'-0"
SCALE: 11"x17" SHEET 1" = 16'-0"
4' 0 4' 8' 16'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
7	09/16/19	100% CONSTRUCTION DRAWINGS	RD	JR	
6	11/08/18	75% CONSTRUCTION DRAWINGS	RD	JR	
5	11/05/18	75% CONSTRUCTION DRAWINGS	RD	JR	
4	08/20/18	50% CONSTRUCTION DRAWINGS	RD	JR	
3	08/15/18	50% CONSTRUCTION DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

EOF
1600 LOS GAMOS DRIVE
SAN RAFAEL, CA 94903

ROOFTOP TOWER ELEVATIONS
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

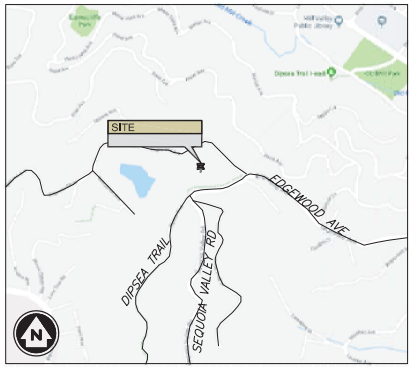
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

COUNTY OF MARIN

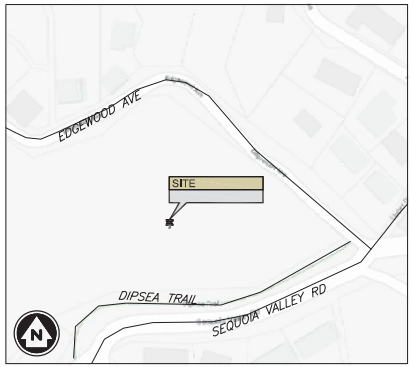
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

MILL VALLEY WATER TANK

329 SEQUOIA VALLEY ROAD
MILL VALLEY, CA 94941



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) 3'-0" ø MICROWAVE DISHES TO NEW MONOPOLE
- ADD (2) 7" TX ANTENNAS TO NEW MONOPOLE
- ADD (2) 9'-6" RX ANTENNAS TO NEW MONOPOLE
- ADD (1) TTA TO NEW MONOPOLE
- ADD (1) DC POWER PLANT AND BATTERIES RACK IN ONE RACK PLACE INSIDE NEW EQUIPMENT SHELTER
- ADD (3) GTR RACKS INSIDE NEW EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE NEW EQUIPMENT SHELTER
- ADD (2) GPS ANTENNAS
- ADD 55' MONOPOLE-DESIGNED BY MONOPOLE MANUFACTURE
- ADD EQUIPMENT SHELTER – DESIGNED BY SHELTER MANUFACTURE
- ADD PROPANE GENERATOR
- ADD PROPANE TANK

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	MILL VALLEY WATER TANK
SITE ADDRESS:	329 SEQUOIA VALLEY RD. MILL VALLEY, CA 94941
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.902735° N
LONGITUDE:	-122.558010° W
APN:	046-070-03

PROJECT DIRECTORY

PROPERTY OWNER:	MARIN MUNICIPAL WATER DISTRICT
APPLICANT:	MARIN EMERGENCY RADIO AUTHORITY 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

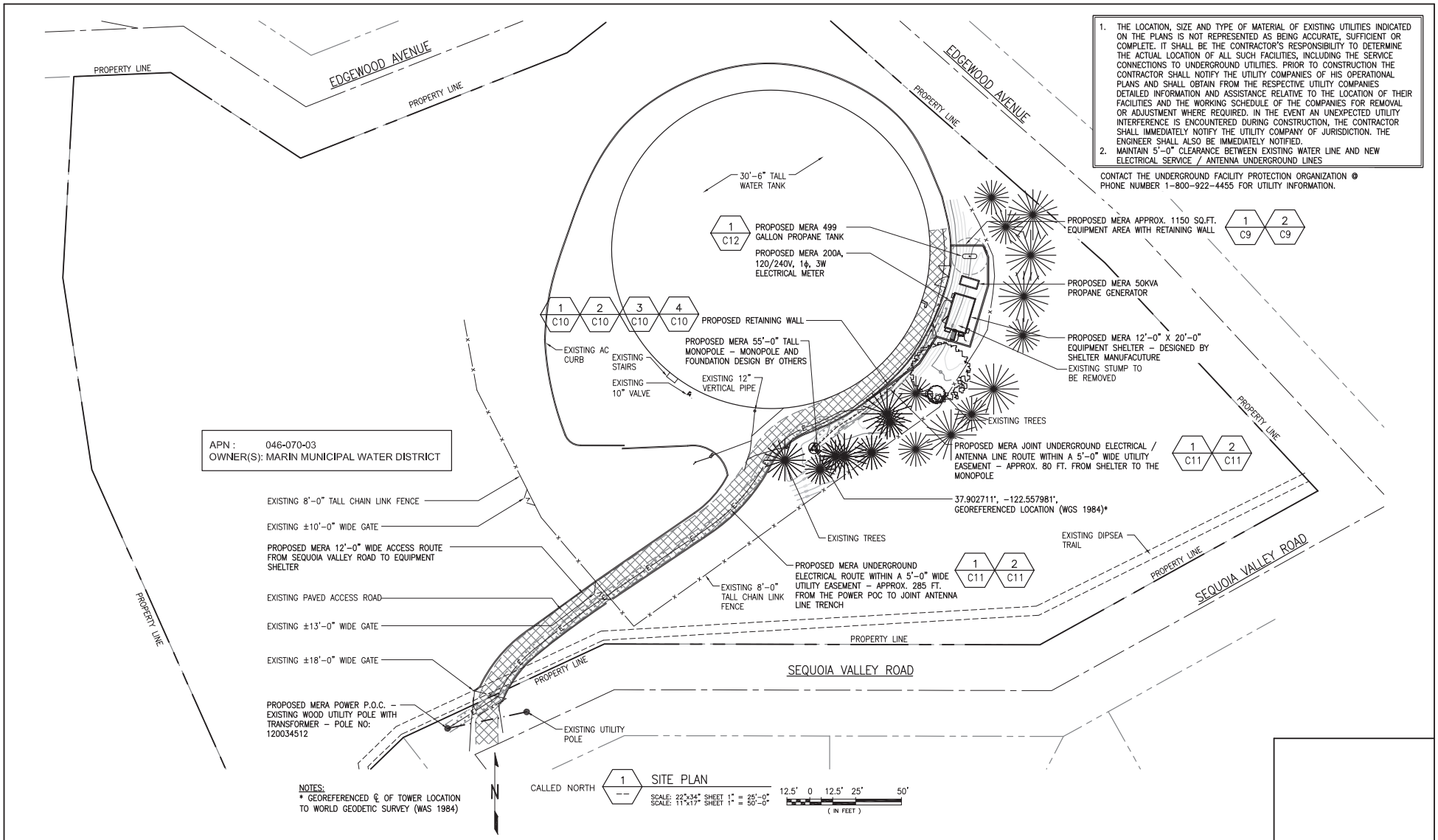
DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	6	11/11/19
N1	GENERAL NOTES	6	11/11/19
N2	GENERAL NOTES AND LEGEND	6	11/11/19
N3	SITE SIGNAGE	6	11/11/19
C1	SITE SURVEY	2	10/16/18
C2	SITE SURVEY	2	10/16/18
C3	SITE SURVEY	2	10/16/18
C4	SITE PLAN	6	11/11/19
C4.1	ENLARGED SITE PLAN	6	11/11/19
C5	PROPOSED SHELTER INTERIOR SITE PLAN	6	11/11/19
C6	TOWER ELEVATIONS	6	11/11/19
C7	ICE BRIDGE DETAILS	6	11/11/19
C8	ANTENNA ATTACHMENT DETAILS	6	11/11/19
C9	SHELTER FOUNDATION DETAILS	6	11/11/19
C10	SHELTER FOUNDATION DETAILS	6	11/11/19
C11	SITE DETAILS	6	11/11/19
C12	PROPANE TANK/SLAB DETAILS	6	11/11/19
C13	FENCE DETAIL	6	11/11/19
C14	FENCE DETAIL	6	11/11/19
E1	ELECTRICAL SITE PLAN	6	11/11/19
E2	ENLARGE ELECTRICAL SITE PLAN	6	11/11/19
E3	PROPOSED INTERIOR ELECTRICAL PLAN	6	11/11/19
E4	ONE LINE DIAGRAM AND PANEL SCHEDULE	6	11/11/19
E5	GROUNDING PLAN	6	11/11/19
E6	PROPOSED SHELTER INTERIOR GROUNDING PLAN	6	11/11/19
E7	GROUNDING NOTES	6	11/11/19
E8	GROUNDING DETAILS	6	11/11/19
E9	GROUNDING DETAILS	6	11/11/19
E10	GROUNDING DETAILS	6	11/11/19

PRELIM CONSTRUCTION DRAWING

1. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING THE SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED.
2. MAINTAIN 5'-0" CLEARANCE BETWEEN EXISTING WATER LINE AND NEW ELECTRICAL SERVICE / ANTENNA UNDERGROUND LINES

CONTACT THE UNDERGROUND FACILITY PROTECTION ORGANIZATION @ PHONE NUMBER 1-800-922-4455 FOR UTILITY INFORMATION.



NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	11/11/19	100% CONSTRUCTION DRAWING			
5	08/24/19	100% CONSTRUCTION DRAWING			
4	11/20/18	75% CONSTRUCTION DRAWING			
3	11/19/18	75% CONSTRUCTION DRAWING			
2	10/09/18	PRELIMINARY DRAWINGS			JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

MILL VALLEY WT
329 SEQUOIA VALLEY ROAD
MILL VALLEY, CA 94941

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C4
REV 6

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 046-070-03
OWNER(S): MARIN MUNICIPAL WATER DISTRICT

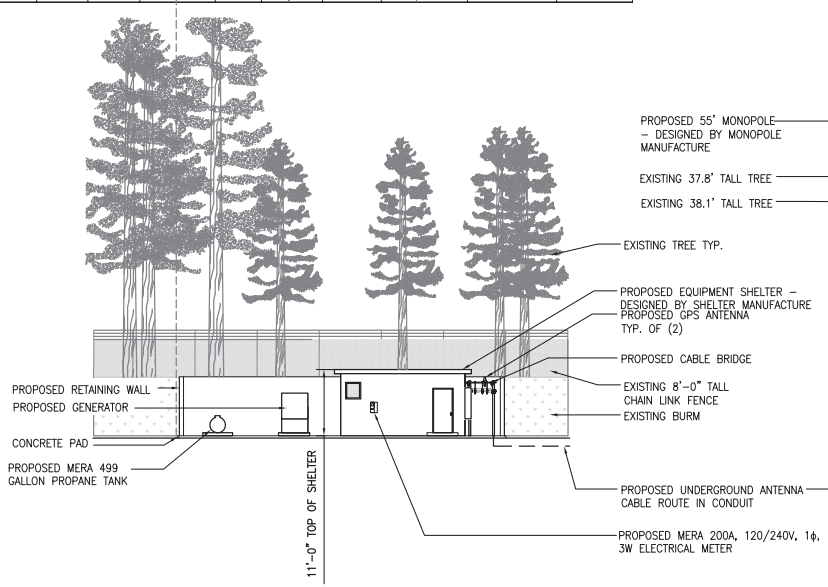
NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

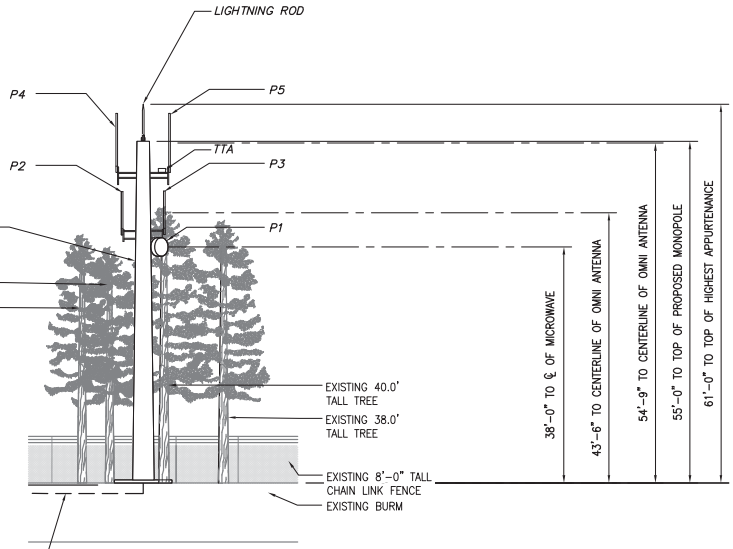
2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

PROPOSED TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
P1	SC3-W100AC	35'-0"	38'-0"	3'ø	MW	137.5°	1	E105	WOLFBACK	MERA
P2 & P3	SC476-HF1LDF(D10)	40'-0"	43'-6"	7'0"	OMNI	N/A	2	7/8" ø	Tx ANTENNA	MERA
P4 & P5	CC807-08-T5	50'-0	54'-9"	9'5"	OMNI	N/A	2	1/2" ø	Rx ANTENNA	MERA
TTA	437-831-01-T	±50'	--	--	--	N/A	1	1/2" ø	--	MERA
LIGHTNING ROD	N/A	±54'	--	6'-0"	--	N/A	1	N/A	--	MERA



1 -- SOUTHWEST SHELTER ELEVATION
SITE NAME: MILL VALLEY WATER TANK
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)



2 -- SOUTHWEST MONOPOLE ELEVATION
SITE NAME: MILL VALLEY WATER TANK
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	11/11/19	100% CONSTRUCTION DRAWING			
5	08/24/19	100% CONSTRUCTION DRAWING			
4	11/20/18	75% CONSTRUCTION DRAWING			
3	11/19/18	75% CONSTRUCTION DRAWING			
2	10/09/18	PRELIMINARY DRAWINGS			JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

MILL VALLEY WT
329 SEQUOIA VALLEY ROAD
MILL VALLEY, CA 94941

TOWER ELEVATIONS
MARIN EMERGENCY RADIO AUTHORITY

C6
REV 6

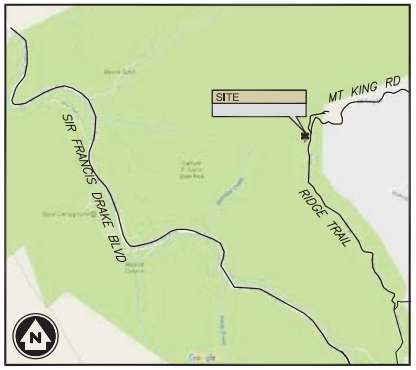
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

COUNTY OF MARIN

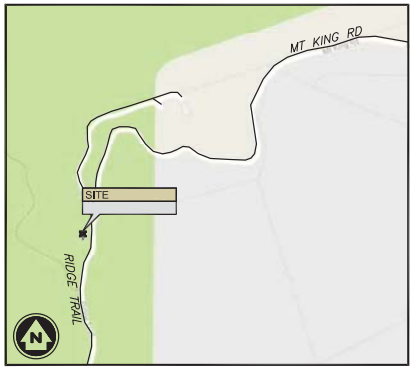
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

MT BARNABE

1 BARNABE PEAK AVE
LAGUNITAS, CA 94938



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
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9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- EXISTING SST TOWER ANCHOR RODS TO BE RETROFITTED
- ADD (1) 7' TX ANTENNAS TO EXISTING TOWER
- ADD (2) 9-6" RX ANTENNAS TO EXISTING TOWER
- ADD (2) 3'ø MICROWAVE DISH
- ADD (1) DC POWER RACK WITH BATTERY RACK INSIDE EXISTING EQUIPMENT SHELTER
- ADD (2) GTR RACKS INSIDE EXISTING EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT SHELTER
- ADD (2) GPS ANTENNAS
- REMOVE (2) EXISTING OMNI ANTENNAS

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMREGENGY RADIO AUTHORITY. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	MT. BARNABE
SITE ADDRESS:	1 BARNABE PEAK AVE. LAGUNITAS, CA 94938
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.026751° N
LONGITUDE:	-122.716321° W

PROJECT DIRECTORY

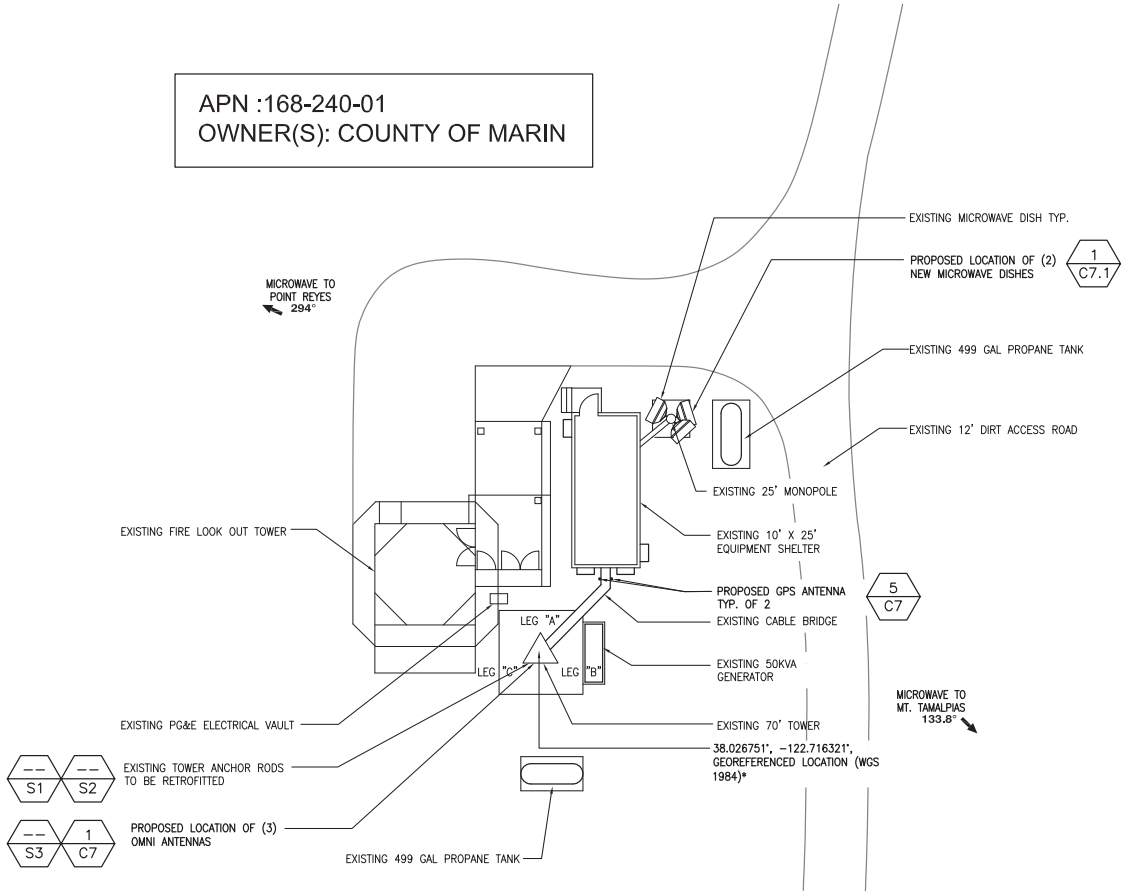
PROPERTY OWNER:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	6	09/19/19
N1	GENERAL NOTES	6	09/19/19
N2	GENERAL NOTES AND LEGEND	6	09/19/19
N3	SITE SIGNAGE	6	09/19/19
N4	AREA OF DISTURBANCE PLAN	6	09/19/19
C3	SITE PLAN	6	09/19/19
C4	PROPOSED INTERIOR SHELTER PLAN	6	09/19/19
C5	TOWER ELEVATIONS	6	09/19/19
C5.1	TOWER LOADING	6	09/19/19
C6	ICE BRIDGE DETAILS	6	09/19/19
C7	TRANSITION ANTENNA LAYOUT PLAN	6	09/19/19
C7.1	MICROWAVE ATTACHMENT DETAIL	6	09/19/19
C8	SHELTER FLOOR MODIFICATION PLAN	6	09/19/19
C9	TRANSITION INTERIOR SHELTER PLAN	6	09/19/19
S1	PROPOSED TOWER MODIFICATIONS	A	07/03/19
S2	PROPOSED ANCHOR RODS & BRACKET DETAIL	A	07/03/19
S3	PROPOSED ANTENNA MOUNT PLAN & DETAIL	0	07/05/19
E1	SHELTER ELECTRICAL CEILING PLAN	6	09/19/19
E2	ONE LINE DIAGRAM	6	09/19/19
E2.1	ELECTRICAL DETAILS	6	09/19/19
E3	PROPOSED INTERIOR GROUNDING PLAN	6	09/19/19
E4	GROUNDING NOTES	6	09/19/19
E5	GROUNDING DETAILS	6	09/19/19
E6	GROUNDING DETAILS	6	09/19/19

PRELIM CONSTRUCTION DRAWINGS

APN :168-240-01
OWNER(S): COUNTY OF MARIN



NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

N CALLED NORTH

1 -- SITE PLAN
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
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2	08/14/18	50% CD DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

MT. BARNABE
1 BARNABE PEAK AVE.
LAGUNITAS, CA 94938

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3

REV 6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

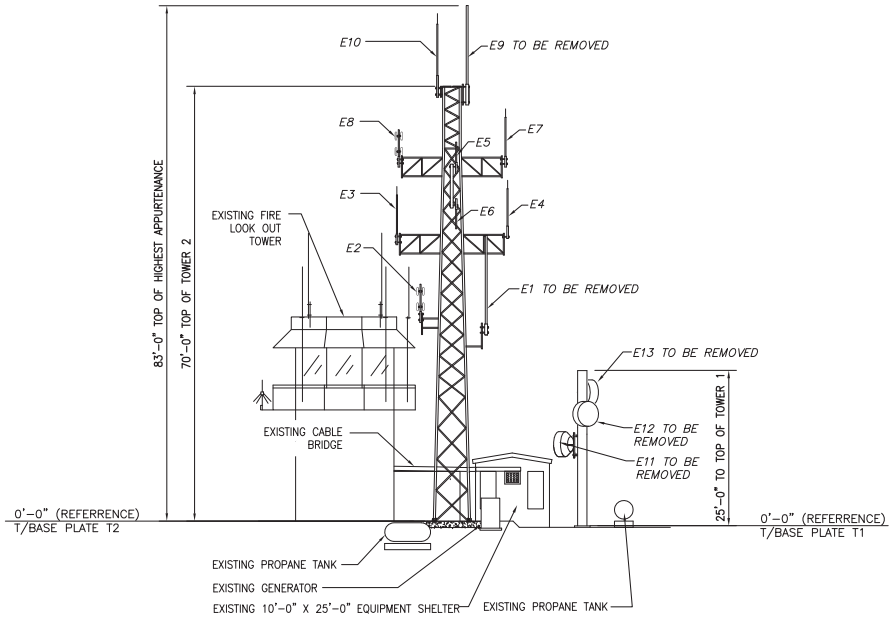
APN :168-240-01
OWNER(S): COUNTY OF MARIN

NOTES:

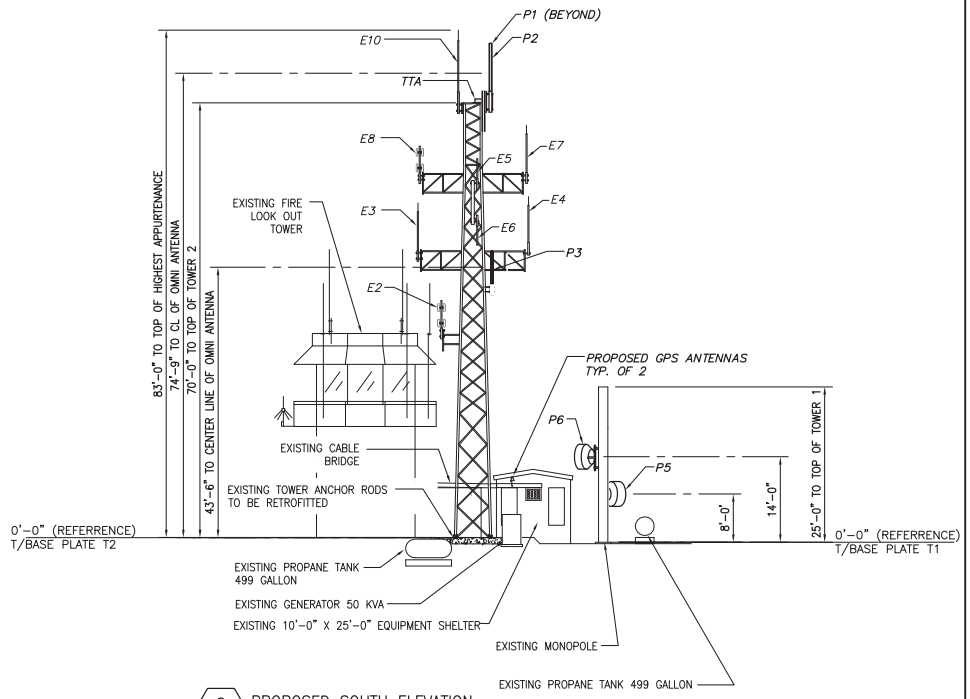
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

3. CONTRACTOR MUST VERIFY MERA IS THE OWNER OF ANY ANTENNA OR MICROWAVES TO BE DECOMMISSIONED BY TRACING ANTENNA LINES PRIOR TO REMOVAL.



1 EXISTING SOUTH ELEVATION
-- SITE NAME: MT. BARNABE SCALE: 22"x34" SHEET 1" = 10'-0" SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)



2 PROPOSED SOUTH ELEVATION
-- SITE NAME: MT. BARNABE SCALE: 22"x34" SHEET 1" = 10'-0" SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/19/19	100% CD DRAWINGS	RD	JR	
5	07/24/19	100% CD DRAWINGS	RD	JR	
4	10/31/18	75% CD DRAWINGS	RD	JR	
3	10/19/18	75% CD DRAWINGS	RD	JR	
2	08/14/18	50% CD DRAWINGS	RD	JR	JR

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542-000

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COUNTY OF MARIN

MT. BARNABE
1 BARNABE PEAK AVE.
LAGUNITAS, CA 94938

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

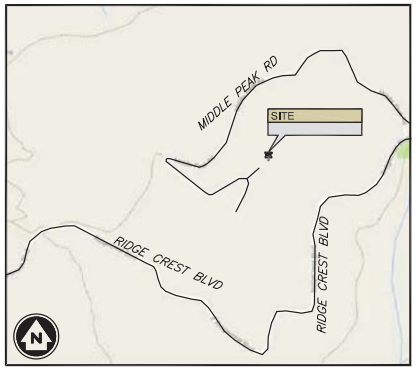
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

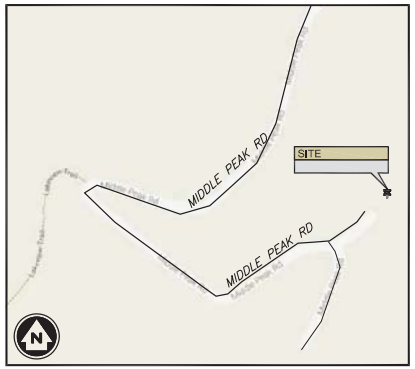
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

MT. TAMALPAIS

2001 RIDGECREST BLVD.
MILL VALLEY, CA 94941



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- EXISTING 60'-0" TALL MONOPOLE'S TOWER SHAFT, ANCHOR RODS, AND FOUNDATION TO BE RETROFITTED.
- REPLACE (5) EXISTING STUB TOWERS WITH (5) NEW LATTICE TOWERS
- ADD (2) 3'-0" ø MICROWAVE DISHES TO NEWLY REPLACED STUB LATTICE TOWERS
- ADD (2) 4'-0" ø MICROWAVE DISH TO NEWLY REPLACED STUB LATTICE TOWERS
- ADD (3) 6'-0" ø MICROWAVE DISH TO NEWLY REPLACED STUB LATTICE TOWERS
- ADD (2) 7' TX ANTENNAS TO EXISTING MONOPOLE
- ADD (2) 9'-6" RX ANTENNAS TO EXISTING MONOPOLE
- ADD (1) TTA TO EXISTING TOWER
- ADD (1) DC POWER RACK WITH BATTERY RACK INSIDE EXISTING EQUIPMENT SHELTER
- ADD (3) GTR RACKS INSIDE EXISTING EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT SHELTER
- ADD (2) GPS ANTENNA
- ADD (1) 50KVA LIQUID PROPANE GENERATOR
- ADD (1) 499 GALLON PROPANE TANK

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMREGENCY RADIO AUTHORITY. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	MT. TAMALPAIS
SITE ADDRESS:	2001 RIDGECREST BLVD. MILL VALLEY, CA 94941
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.929006° N
LONGITUDE:	-122.587084° W

PROJECT DIRECTORY

PROPERTY OWNER:	MARIN MUNICIPAL WATER DISTRICT 220 NELLEN AVE. CORTE MADERA, CA 94925
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
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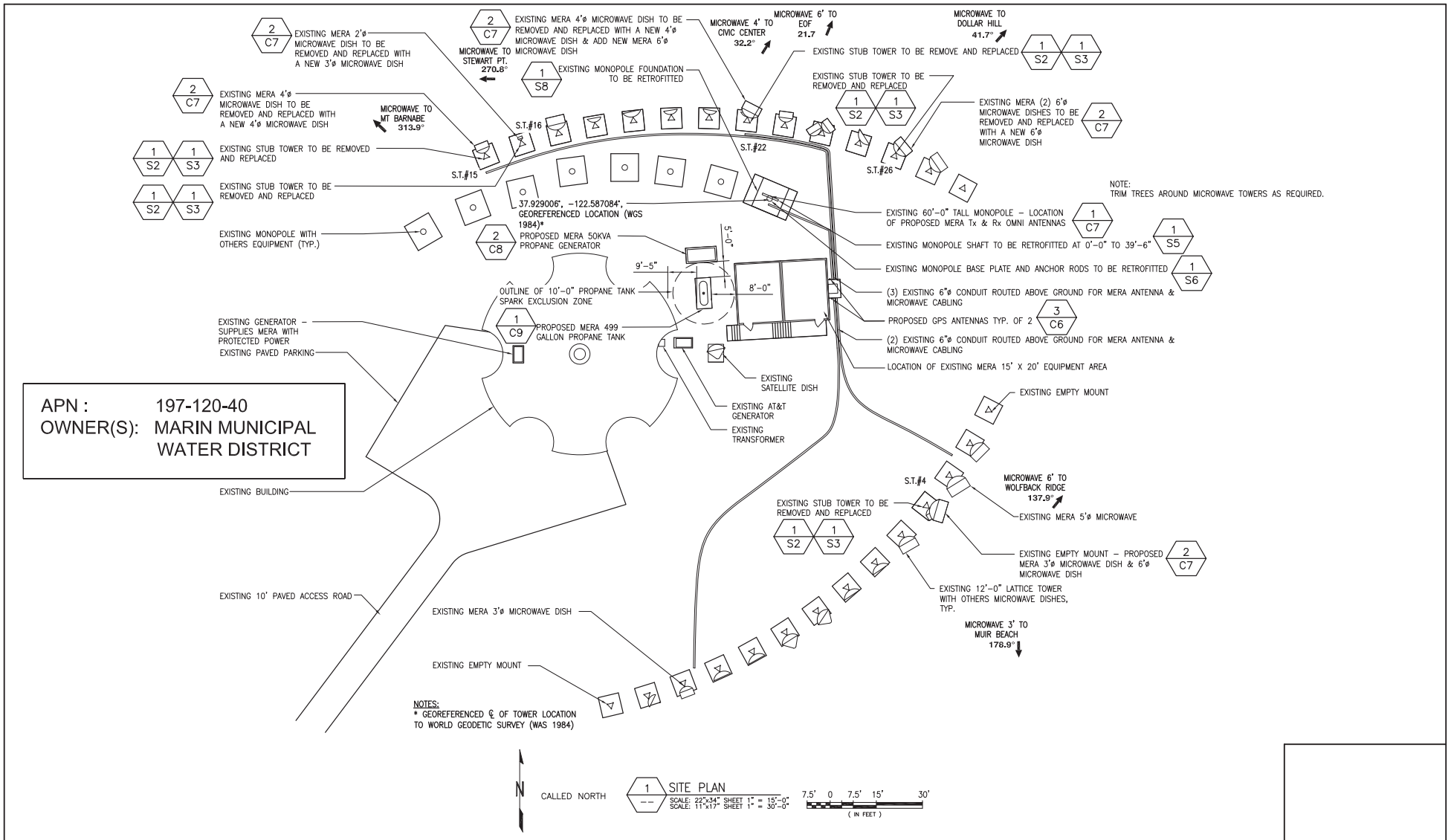
N2	GENERAL NOTES AND LEGEND	7	09/09/19
N3	SITE SIGNAGE	7	09/09/19
N4	AREA OF DISTURBANCE PLAN	7	09/09/19
C3	SITE PLAN	7	09/09/19
C4	PROPOSED INTERIOR PLAN	7	09/09/19
C5	MONOPOLE ELEVATION	7	09/09/19
C5.1	STUB TOWER LOADING	7	09/09/19
C5.2	STUB TOWER LOADING	7	09/09/19
C6	DETAILS	7	09/09/19
C7	TRANSITION ANTENNA LAYOUT PLAN	7	09/09/19
C8	SITE DETAILS	7	09/09/19
C9	PROPANE TANK/SLAB DETAILS	7	09/09/19
C10	CABLE LADDER DEALS	7	09/09/19
S1	STRUCTURAL GENERAL NOTES	A	07/24/19
S2	STUB TOWER DESIGN AND SITE PLAN	A	07/24/19
S3	STUB TOWER VIEWS AND DETAILS	A	07/24/19
S4	MONOPOLE TOWER MODIFICATION PLAN	A	07/25/19
S5	MONOPOLE SECTION PART 0'-39.6'	A	07/25/19
S6	SOLID ROD INSTALLATION DETAIL	A	07/25/19
S7	TYPICAL REINFORCEMENT DETAILS	A	07/25/19
S8	MONOPOLE TOWER FOUNDATION REINFORCEMENT	A	07/25/19
S9	PROPOSED TRANSITION ANTENNA MOUNT		
	CONFIGURATION	A	07/26/19
S10	PROPOSED TRANSITION ANTENNA MOUNT PLAN	A	07/26/19
E1	ENLARGED ELECTRICAL SITE PLAN	7	09/09/19
E1.1	INTERIOR ELECTRICAL CEILING PLAN	7	09/09/19
E2	ONE LINE DIAGRAM	7	09/09/19
E3	ELECTRICAL DETAILS	7	09/09/19
E4	PROPOSED INTERIOR GROUNDING PLAN	7	09/09/19
E5	GROUNDING NOTES	7	09/09/19
E6	GROUNDING DETAILS	7	09/09/19
E7	GROUNDING DETAILS	7	09/09/19

PRELIM CONSTRUCTION DRAWINGS



NO.	DATE	REVISIONS	BY	CHK	APP'D
7	09/09/19	100 % CONSTRUCTION DRAWINGS	RD	JR	JR
6	11/15/18	75 % CONSTRUCTION DRAWINGS	RD	JR	JR
5	11/13/18	75 % CONSTRUCTION DRAWINGS	RD	JR	JR
4	08/14/18	50 % CONSTRUCTION DRAWINGS	RD	JR	JR
3	07/10/18	50 % CONSTRUCTION DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

MT. TAMALPAIS
2001 RIDGECREST BLVD.
MILL VALLEY, CA 94941

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3

REV 7

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

EXISTING TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
E1	4-ELEMENT X 5' DIPOLE	17'-3"	20'-0"	5'-0"	DIPOLE	0°	1	7/8"	--	OTHERS
E2	3"ø x12' OMNI	17'-3"	24'-0"	12'-0"	OMNI	90°	1	7/8"	--	OTHERS
--	UNUSED MOUNT	17'-3"	N/A	N/A"	---	180°	1	7/8"	--	OTHERS
E3	2.5"ø x 18' TAPERED OMNI	17'-3"	27'-0"	18'-0"	OMNI	270°	1	7/8"	--	OTHERS
E4	2.5"ø x 18' TAPERED OMNI	33'-0"	42'-0"	18'-0"	OMNI	60°	1	7/8"	--	OTHERS
E5	6"ø x10' BOGNER	36'-0"	41'-0"	10'-0"	BOGNER	60°	1	7/8"	--	OTHERS
E6	48"x 6"x 8" PANEL	36'-0"	37'-0"	48"x6"x8"	PANEL	60°	1	7/8"	--	MERA
E7	2"ø x 5' OMNI	42'-0"	46'-0"	5'-0"	OMNI	60°	1	7/8"	--	OTHERS
E8	3"ø x 10' OMNI	42'-0"	48'-0"	10'-0"	OMNI	240°	1	7/8"	--	OTHERS
E9	3"ø x 4' OMNI	51'-0"	53'-0"	4'-0"	OMNI	60°	1	7/8"	--	OTHERS
E10	4-ELEMENT x 8' DIPOLE	56'-0"	60'-0"	8'-0"	DIPOLE	240°	1	7/8"	--	OTHERS
E11	2.5"ø x 12' OMNI	56'-0"	62'-0"	12'-0"	OMNI	240°	1	7/8"	--	OTHERS
E12	6"ø x 10' BOGNER	58'-0"	63'-0"	10'-0"	BOGNER	60°	1	7/8"	--	OTHERS
E13	48" x 16" x 8" PANEL	58'-0"	58'-6"	48"x6"x8"	PANEL	60°	1	7/8"	--	OTHERS
E14	2.5"ø x 12' OMNI	58'-0"	65'-0"	16'-0"	OMNI	60°	1	7/8"	--	MERA

EXISTING TOWER LOADING TO BE REMOVED

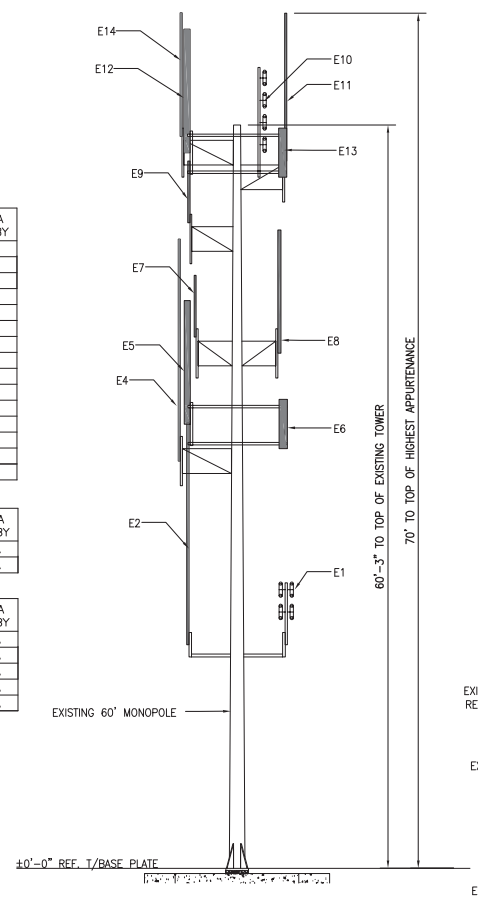
ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
E6	48"x 6"x 8" PANEL	36'-0"	37'-0"	48"x6"x8"	PANEL	60°	1	7/8"	--	MERA
E14	2.5"ø x 12' OMNI	58'-0"	64'-0"	12'-0"	OMNI	60°	1	7/8"	--	MERA

PROPOSED ADDITIONAL TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
P1	SC476-HF1LDF (D10-E5608)	54'-0"	51'-6"	7'-0	OMNI	--	1	7/8"	Tx ANTENNA	MERA
P2	SC476-HF1LDF (D10-E5608)	54'-0"	51'-6"	7'-0"	OMNI	--	1	7/8"	Tx ANTENNA	MERA
P3	CC807-08-T5	57'-0'	64'-9"	9'-6"	OMNI	--	1	1/2"	Rx ANTENNA	MERA
P4	CC807-08-T5	57'-0'	64'-9"	9'-6"	OMNI	--	1	1/2"	Rx ANTENNA	MERA
TTA	437-831-01T	57'-0"	--	--	N/A	--	1	1/2"	--	MERA

NOTES:

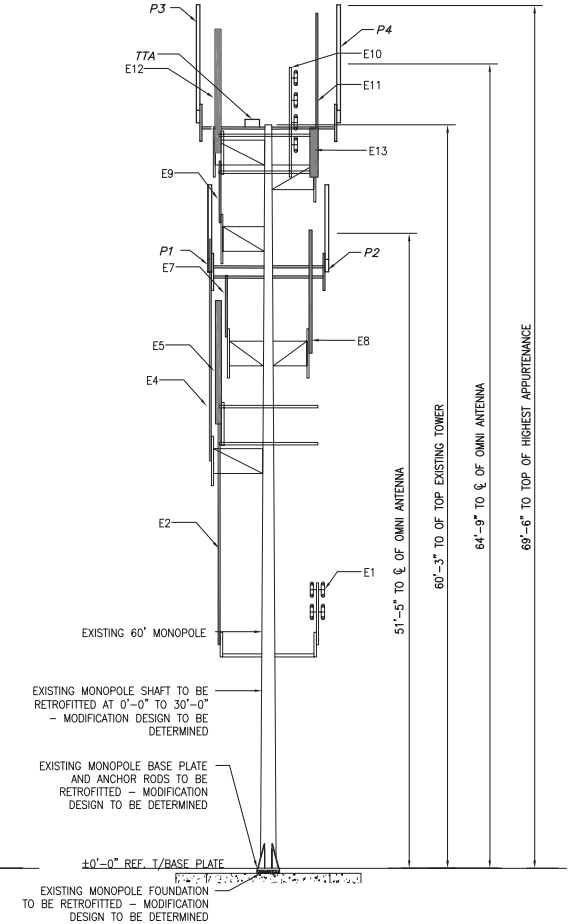
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.
2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.
3. CONTRACTOR MUST VERIFY MERA IS THE OWNER OF ANY ANTENNA OR MICROWAVES TO BE DECOMMISSIONED BY TRACING ANTENNA LINES PRIOR TO REMOVAL.



1 -- EXISTING SOUTH ELEVATION
SITE NAME: MT. TAMALPAIS

SCALE: 22"x34" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

2.5' 0 2.5' 5' 10'
(IN FEET)



2 -- PROPOSED SOUTH ELEVATION
SITE NAME: MT. TAMALPAIS

SCALE: 22"x34" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

2.5' 0 2.5' 5' 10'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
7	09/09/19	100 % CONSTRUCTION DRAWINGS	RD	JR	JR
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3	07/10/18	50 % CONSTRUCTION DRAWINGS	RD	JR	JR

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COUNTY OF MARIN

MT. TAMALPAIS
2001 RIDGECREST BLVD.
MILL VALLEY, CA 94941

MONOPOLE ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 7

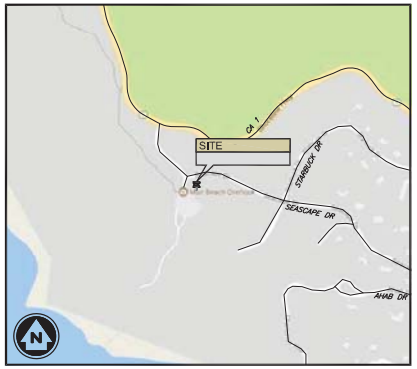
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

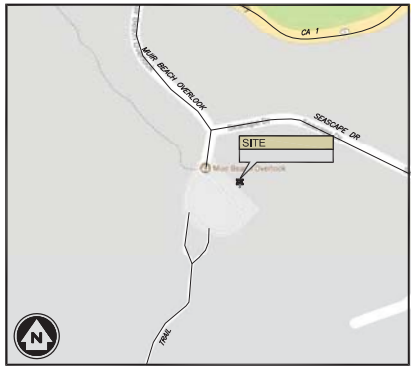
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

MUIR BEACH

MUIR BEACH OVERLOOK
MUIR BEACH, CA 94965



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2018 IBC)
2. TIA–EIA–222–G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2019 CALIFORNIA BUILDING CODE
8. 2019 CALIFORNIA MECHANICAL CODE
9. 2019 CALIFORNIA PLUMBING CODE
10. 2019 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA–101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) 60'–0" TALL MONOPOLE
- ADD (1) 3'–0" ø MICROWAVE DISHES TO EXISTING WATER TANK
- ADD (1) 7' TX ANTENNAS TO NEW MONOPOLE
- ADD (2) 9'–6" RX ANTENNAS TO NEW MONOPOLE
- ADD (1) TTA TO NEW MONOPOLE
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE NEW EQUIPMENT SHELTER
- ADD (2) GTR RACKS INSIDE NEW EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE NEW EQUIPMENT SHELTER
- ADD (2) GPS ANTENNAS
- ADD (1) 12' X 20' EQUIPMENT SHELTER
- ADD (1) DIESEL GENERATOR WITH INTEGRATED FUEL TANK

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	MUIR BEACH
SITE ADDRESS:	MUIR BEACH OVERLOOK,MUIR BEACH, CA 94965
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.863283° N
LONGITUDE:	–122.585417° W
APN:	199–262–11

PROJECT DIRECTORY

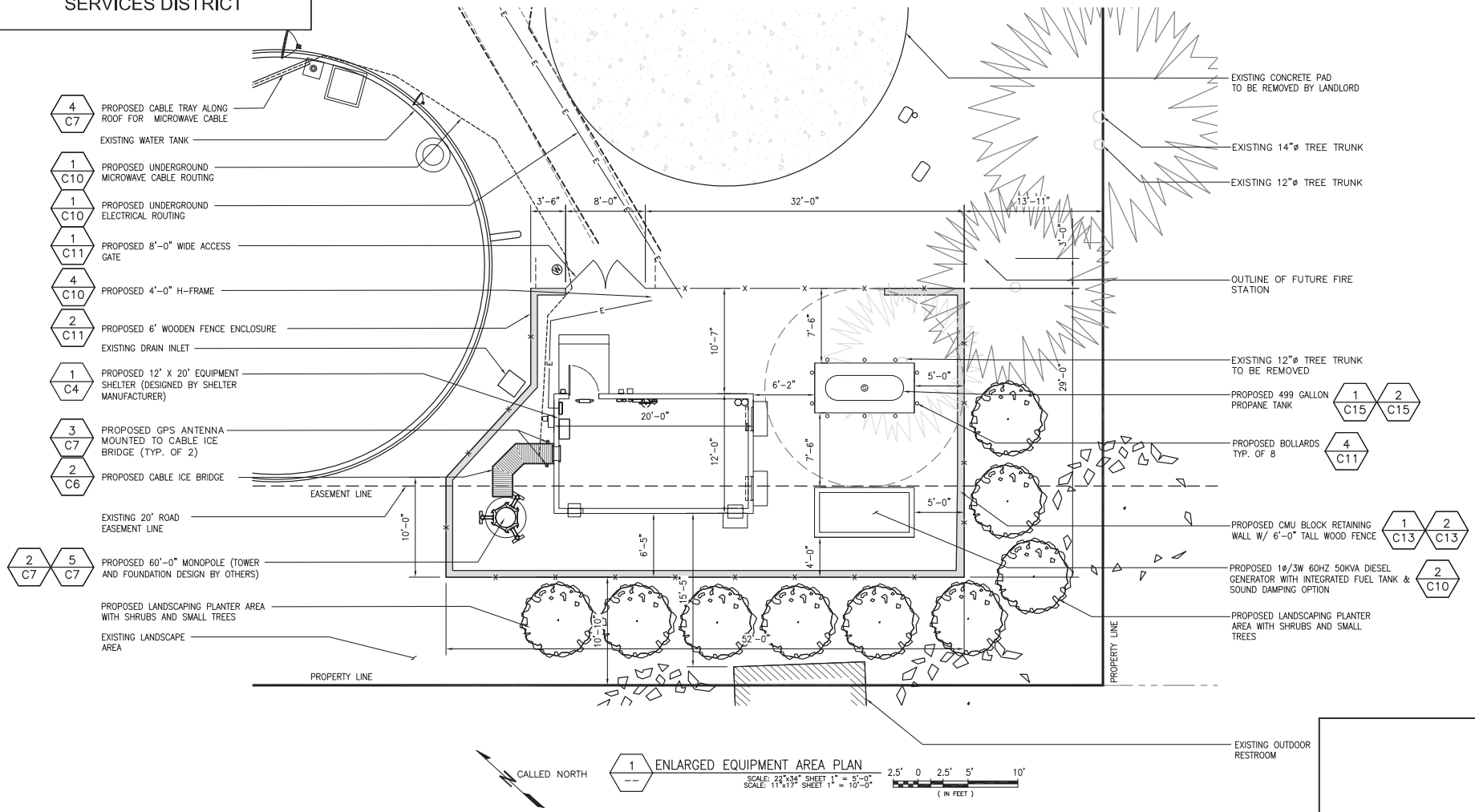
PROPERTY OWNER:	MUIR BEACH COMMUNITY SERVICES DISTRICT
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926–7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332–9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265–2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979–5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	7	11/11/19
N1	GENERAL NOTES	7	11/11/19
N2	GENERAL NOTES AND LEGEND	7	11/11/19
N3	SITE SIGNAGE	7	11/11/19
N4	AREA OF DISTURBANCE PLAN	7	11/11/19
C–1	SITE SURVEY	1	2/27/19
C–2	SITE SURVEY	1	2/27/19
C2.1	OVERALL SITE PLAN	7	11/11/19
C3	ENLARGED EQUIPMENT AREA PLAN	7	11/11/19
C4	INTERIOR SHELTER PLAN	7	11/11/19
C5	TOWER ELEVATION	7	11/11/19
C6	ICE BRIDGE DETAILS	7	11/11/19
C7	ANTENNA ATTACHMENT DETAILS	7	11/11/19
C8	CABLE LADDER DETAILS	7	11/11/19
C9	SHELTER FOUNDATION DETAILS	7	11/11/19
C10	SITE DETAILS	7	11/11/19
C11	FENCE DETAILS	7	11/11/19
C12	SITE COMPOUND DETAILS	7	11/11/19
C13	RETAINING WALL DETAILS	7	11/11/19
C14	INTERIOR SHELTER DETAILS	7	11/11/19
C15	PROPANE TANK/ SLAB DETAIL	7	11/11/19
ES1	GRADING, EROSION, & SEDIMENT CONTROL PLAN	7	11/11/19
ES2	GRADING, EROSION, & SEDIMENT CONTROL NOTES	7	11/11/19
ES3	STORMWATER POLLUTION PREVENTION PROGRAM	7	11/11/19
E1	ELECTRICAL SITE PLAN	7	11/11/19
E1.1	ENLARGED ELECTRICAL SITE PLAN	7	11/11/19
E1.2	SHELTER INTERIOR ELECTRICAL PLAN	7	11/11/19
E2	ONE LINE DIAGRAM	7	11/11/19
E3	GROUNDING PLAN	7	11/11/19
E3.1	SHELTER INTERIOR GROUNDING PLAN	7	11/11/19
E4	GROUNDING NOTES	7	11/11/19
E5	GROUNDING DEAILS	7	11/11/19
E6	GROUNDING DEAILS	7	11/11/19
E7	GROUNDING DEAILS	7	11/11/19

PRELIM CONSTRUCTION DRAWINGS

APN : 199-262-11
OWNER(S): MUIR BEACH COMMUNITY SERVICES DISTRICT



NO.	DATE	REVISIONS	BY	CHK	APP'D
7	11/11/19	100% CONSTRUCTION DRAWINGS	DG	JR	
6	11/01/19	100% CONSTRUCTION DRAWINGS	DG	JR	
5	03/07/19	75% CONSTRUCTION DRAWINGS	RD	JR	
4	01/17/19	75% CONSTRUCTION DRAWINGS	RD	JR	
3	12/28/18	75% CONSTRUCTION DRAWINGS	RD	JR	JR

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LAKE FOREST, CA 92630
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542-000

MOTOROLA SOLUTIONS

COUNTY OF MARIN

MUIR BEACH
MUIR BEACH OVERLOOK
MUIR BEACH, CA 94965

ENLARGED EQUIPMENT AREA PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3
REV 7

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

Agenda Item D-2
MERA GB 12-11-2019
Attachment 2a

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE & METAL TAGS) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 199-262-11
OWNER(S): MUIR BEACH COMMUNITY SERVICES DISTRICT

NOTES:

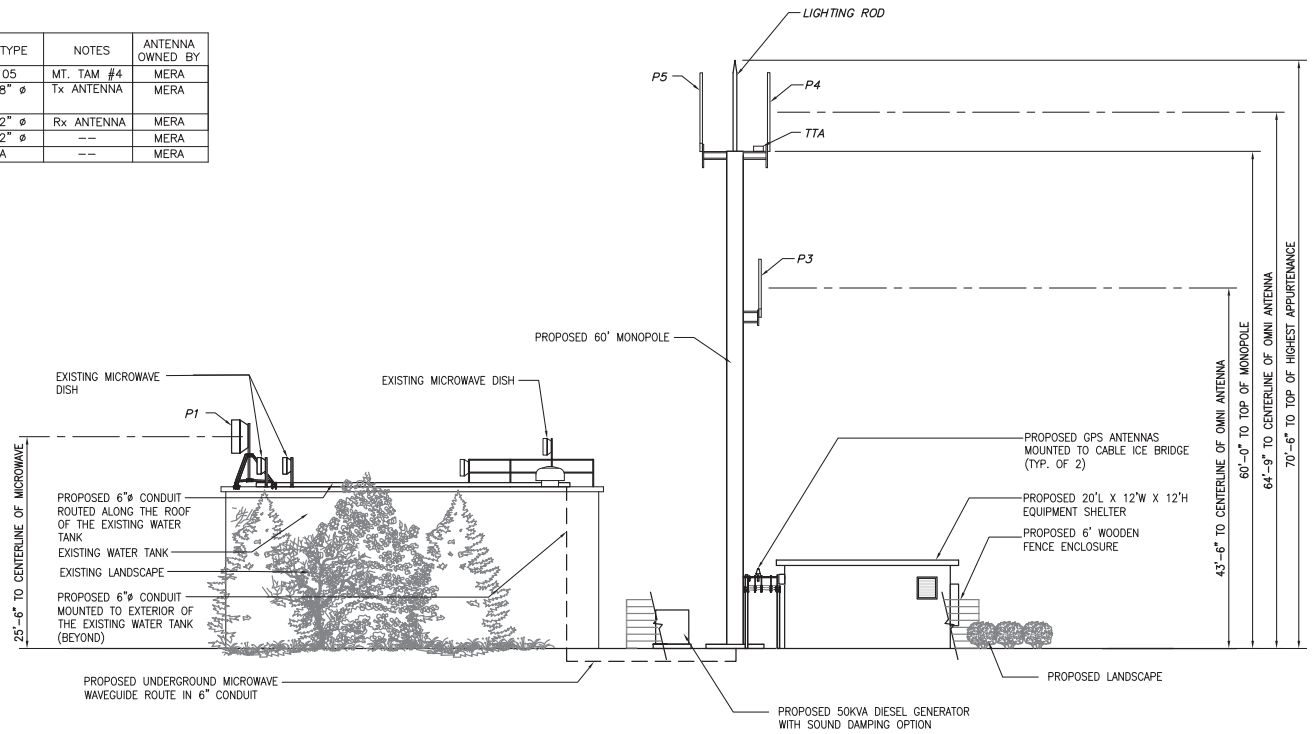
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

3. PROPOSED LANDSCAPE IN FRONT OF EQUIPMENT AREA NOT SHOWN FOR CLARITY.

PROPOSED TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
P1	SC3-W100AC	23'-6"	25'-6"	3'ø	MW	359°	1	EW105	MT. TAM #4	MERA
P3	SC476-HF1LDF (D06)	39'-10	43'-6"	7.0'	OMNI	60°	1	7/8" ø	Tx ANTENNA	MERA
P4 & P5	CC807-08-T5	59'-6"	64'-9"	9.5'	OMNI	0° & 110°	2	1/2" ø	Rx ANTENNA	MERA
TTA	437-831-01-T	±59'-6"	--	--	OMNI	N/A	1	1/2" ø	--	MERA
LIGHTNING ROD	N/A	59'-6"	--	6.0'	--	N/A	1	N/A	--	MERA



1 -- PROPOSED SOUTHWEST ELEVATION
SITE NAME: MUIR BEACH
SCALE: 22"x34" SHEET 1" = 7'-6"
SCALE: 11"x17" SHEET 1" = 15'-0"
3.75' 0 3.75' 7.5' 15'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
7	11/11/19	100% CONSTRUCTION DRAWINGS	DG	JR	
6	11/01/19	100% CONSTRUCTION DRAWINGS	DG	JR	
5	03/07/19	75% CONSTRUCTION DRAWINGS	RD	JR	
4	01/17/19	75% CONSTRUCTION DRAWINGS	RD	JR	
3	12/28/18	75% CONSTRUCTION DRAWINGS	RD	JR	JR

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COUNTY OF MARIN

MUIR BEACH
MUIR BEACH OVERLOOK
MUIR BEACH, CA 94965

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C5
REV 7

RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

COUNTY OF MARIN

MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

OTA BROADCASTING

-

NOVATO, CA 94945

VICINITY MAP
N.T.S.

LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA–EIA–222–G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA–101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- EXISTING TOWER GUY WIRE FOUNDATION TO BE RETROFITTED
- ADD (2) 6' MICROWAVE ANTENNAS TO EXISTING MONOPOLE
- ADD (2) 7' TX ANTENNAS TO EXISTING MONOPOLE
- ADD (2) 14'–6" RX ANTENNAS TO EXISTING MONOPOLE
- ADD (1) TTA TO EXISTING MONOPOLE
- ADD (1) DC POWER AND BATTERY RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (3) GTR RACKS INSIDE EXISTING EQUIPMENT ROOM
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (2) GPS ANTENNAS

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY. IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	OTA BROADCASTING
SITE ADDRESS:	--
	NOVATO, CA 94945
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.149888° N
LONGITUDE:	-122.593239° W

PROJECT DIRECTORY

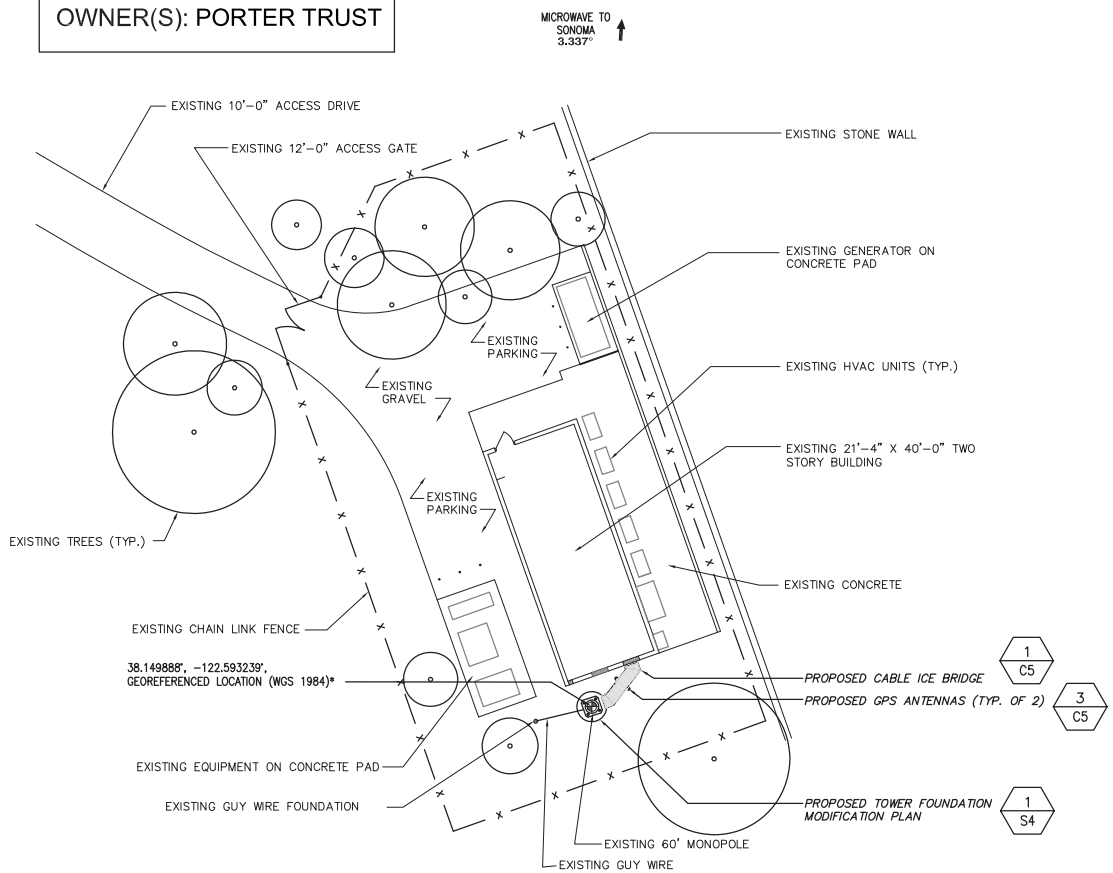
PROPERTY OWNER:	KTLN/TLN INC.
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926–7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925)332–9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265–2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979–5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	10	09/20/19
N1	GENERAL NOTES	10	09/20/19
N2	GENERAL NOTES AND LEGEND	10	09/20/19
N3	SITE SIGNAGE	10	09/20/19
N4	AREA OF DISTURBANCE PLAN	10	09/20/19
C3	SITE PLAN	10	09/20/19
C3.1	PROPOSED EQUIPMENT ROOM PLAN	10	09/20/19
C4	TOWER ELEVATION	10	09/20/19
C5	ICE BRIDGE DETAIL	10	09/20/19
C6	ANTENNA ATTACHEMENT DETAILS	10	09/20/19
C7	CABLE LADDER DETAILS	10	09/20/19
C8	FENCE DETAILS	10	09/20/19
C9	FENCE DETAILS	10	09/20/19
S1	PROPOSED TOWER MODIFICATIONS	A	07/18/19
S2	PROPOSED TOWER FOUNDATION REINFORCEMENT	A	07/18/19
E1	PROPOSED INTERIOR ELECTRICAL CEILING PLAN	10	09/20/19
E2	ONE LINE DIAGRAM	10	09/20/19
E2.1	ELECTRICAL DETAILS	10	09/20/19
E3	PROPOSED INTERIOR GROUNDING PLAN	10	09/20/19
E4	GROUNDING NOTES	10	09/20/19
E5	GROUNDING DETAILS	10	09/20/19
E6	GROUNDING DETAILS	10	09/20/19
E7	GROUNDING DETAILS	10	09/20/19

PRELIM CONSTRUCTION DRAWING

APN : 125-120-03
OWNER(S): PORTER TRUST



NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

N CALLED NORTH

1 / -- SITE PLAN
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
10	09/20/19	100% CONSTRUCTION DRAWINGS	RD	JR	
9	08/27/19	100% CONSTRUCTION DRAWINGS	RD	JR	
8	11/13/18	75% CONSTRUCTION DRAWINGS	RD	JR	
7	10/29/18	75% CONSTRUCTION DRAWINGS	RD	JR	
6	08/21/18	50% CONSTRUCTION DRAWINGS	EL	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

OTA BROADCASTING

NOVATO, CA 94945

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3
REV 9

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

5. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

6. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

EXISTING TOWER LOADING

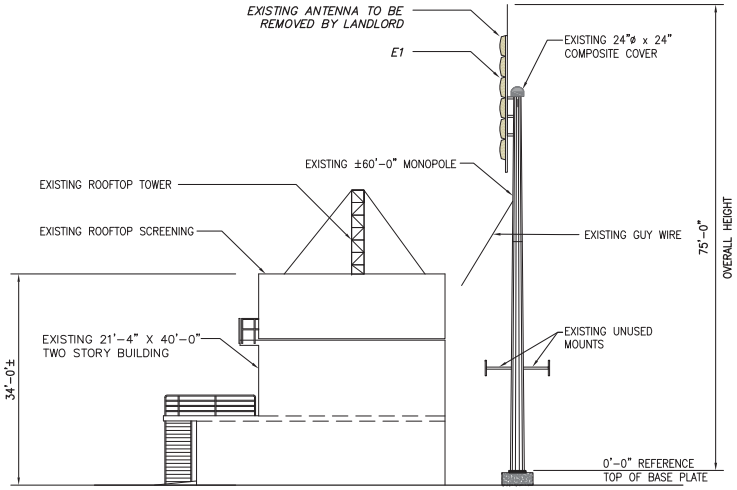
ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
E1	6 BAY X 20' BROADCAST PANEL	57'-0"	60'-0"	20'-0"	PANEL	150°	6	3" ø	N/A	OTA

EXISTING TOWER LOADING TO BE REMOVED

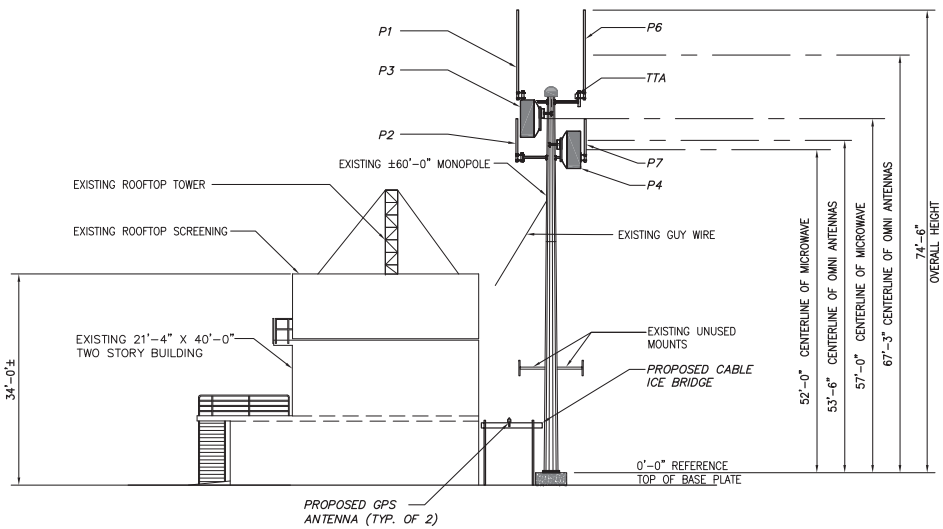
ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
E1	6 BAY X 20' BROADCAST PANEL	57'-0"	60'-0"	20'-0"	PANEL	150°	6	3" ø	N/A	OTA

PROPOSED ADDITIONAL TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
P1 & P6	SC479-HF1LDF (D06-E5765)	59'-8"	67'-3"	14'-6"	OMNI	90°	2	1/2"" ø	RX	MERA
P2 & P7	SC476-HF1LDF (D06)	49'-8"	53'-6"	7'-0"	OMNI	270°	2	7/8" ø	TX	MERA
P3	UHX6 59L RF	54'-8"	57'-0"	6'-0"	MW	3.337°	1	E60	SONOMA	MERA
P4	UHX6 59L RF	54'-8"	52'-0"	6'-0"	MW	185.543°	1	E60	BIG ROCK	MERA
TTA	TTA-432-831-01-T	60'-5"	60'-5"	--	--	N/A°	1	1/2"	FILTER	MERA



1 EXISTING WEST ELEVATION
-- SITE NAME: OTA BROADCASTING
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)



2 NEW WEST ELEVATION
-- SITE NAME: OTA BROADCASTING
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
10	09/20/19	100% CONSTRUCTION DRAWINGS	RD	JR	
9	08/27/19	100% CONSTRUCTION DRAWINGS	RD	JR	
8	11/13/18	75% CONSTRUCTION DRAWINGS	RD	JR	
7	10/29/18	75% CONSTRUCTION DRAWINGS	RD	JR	
6	08/21/18	50% CONSTRUCTION DRAWINGS	EL	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

OTA BROADCASTING

NOVATO, CA 94945

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C4
REV 9

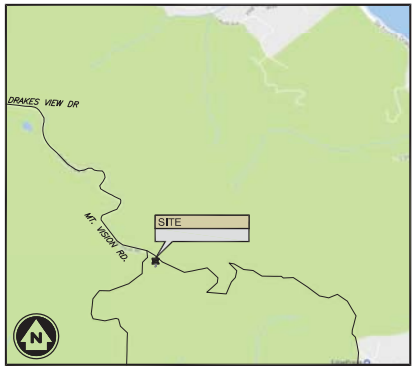
RECEIVED & ACCEP	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED
MOTOROLA:	RECEIVED:
	ACCEPTED
PROPERTY OWNER:	RECEIVED:
	ACCEPTED

COUNTY OF MARIN

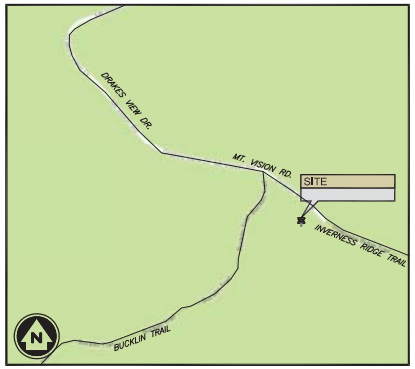
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

POINT REYES

FAA VORTAC SITE 3 MT. VISION RD.
INVERNESS, CA 94937



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
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8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (2) 3'-0" ø MICROWAVE DISHES TO NEW MONOPOLE
- ADD (1) 7' TX ANTENNAS TO EXISTING TOWER
- ADD (2) 7' RX ANTENNAS TO EXISTING TOWER
- ADD (1) TTA TO EXISTING TOWER
- ADD (2) GPS ANTENNAS
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT SHELTER
- ADD (2) GTR RACKS INSIDE EXISTING EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT SHELTER
- REMOVE (3) EXISTING OMNI ANTENNAS & (1) MICROWAVE DISH
- MODIFICATION OF (2) EXISTING MONOPOLE FOUNDATION

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	POINT REYES
SITE ADDRESS:	FAA VORTAC SITE 3 MT. VISION RD. INVERNESS, CA 94937
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.079778° N
LONGITUDE:	-122.866861° W

PROJECT DIRECTORY

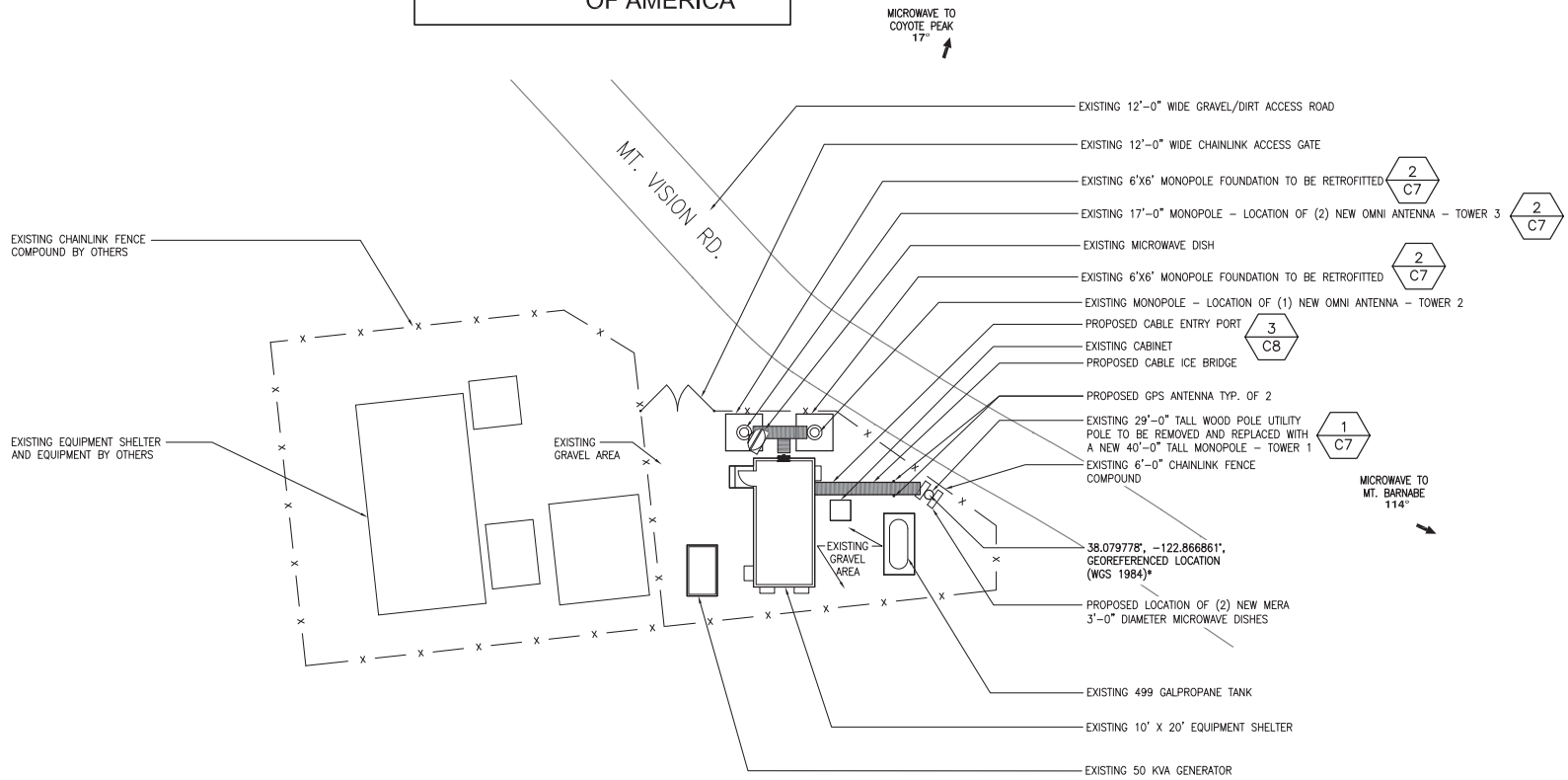
PROPERTY OWNER:	UNITED STATES OF AMERICA
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	6	09/05/19
N1	GENERAL NOTES	6	09/05/19
N2	GENERAL NOTES AND LEGEND	6	09/05/19
N3	SITE SIGNAGE	6	09/05/19
N4	AREA OF DISTUBANCE PLAN	6	09/05/19
C3	SITE PLAN	6	09/05/19
C4	PROPOSED INTERIOR SHELTER PLAN	6	09/05/19
C5	TOWER ELEVATIONS	6	09/05/19
C6	ICE BRIDGE DETAIL ELEVATION	6	09/05/19
C7	TRANSITION ANTENNA LAYOUT	6	09/05/19
C8	CABLE LADDER DETAILS	6	09/05/19
C9	SHELTER FLOOR MODIFICATION PLAN	6	09/05/19
C10	TRANSITION INTERIOR SHELTER PLAN	6	09/05/19
S1	PROPOSED TOWER MODIFICATION	A	07/10/19
S2	TOWER FOUNDATION REINFORCEMENT	A	07/10/19
S3	PROPOSED ANTENNA MOUNT DETAILS	A	07/10/19
E1	SHELTER ELECTRICAL CEILING PLAN	6	09/05/19
E2	ONE LINE DIAGRAM	6	09/05/19
E2.1	ELECTRICAL DETAILS	6	09/05/19
E3	PROPOSED INTERIOR GROUNDING PLAN	6	09/05/19
E4	GROUNDING NOTES	6	09/05/19
E5	GROUNDING DETAILS	6	09/05/19
E6	GROUNDING DETAILS	6	09/05/19

PRELIM CONSTRUCTION DRAWINGS

APN : 109-160-23
OWNERS: UNITED STATES OF AMERICA



NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

N CALLED NORTH

1 / -- SITE PLAN
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)

NOTE: ALL PROPOSED CONSTRUCTION ACTIVITIES & MODIFICATIONS SHALL BE DONE IN ACCORDANCE WITH MOTOROLA'S R56 DESIGN STANDARDS (LATEST REVISION) UNLESS SUPERSEDED BY THE MARIN EMERGENCY RADIO AUTHORITY'S SPECIFICATIONS.

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/05/19	100% CONSTRUCTION DRAWINGS	RD	JR	
5	11/01/18	75% CONSTRUCTION DRAWINGS	RD	JR	
4	08/15/18	50% CONSTRUCTION DRAWINGS	RD	JR	
3	06/25/18	50% CONSTRUCTION DRAWINGS	EL	JR	
2	06/22/18	50% CONSTRUCTION DRAWINGS	EL	JR	JR

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LAKE FOREST, CA 92630
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542-000

MOTOROLA SOLUTIONS

COUNTY OF MARIN

POINT REYES
3 MT. VISION RD
INVERNESS, CA 94937

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3

REV 6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.
2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.
3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.
4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

3. CONTRACTOR MUST VERIFY MERA IS THE OWNER OF ANY ANTENNA OR MICROWAVES TO BE DECOMMISSIONED BY TRACING ANTENNA LINES PRIOR TO REMOVAL.

EXISTING TOWER LOADING

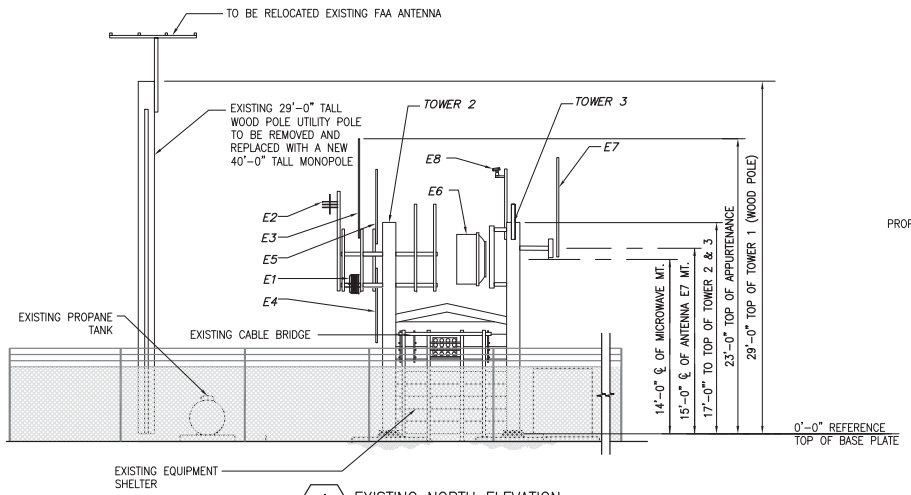
TOWER #	ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) AN. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
2	E1	GRID DISH	13'-6"	11'-6"	3'-6"X1'-6"	DISH	30°	1	FH 3/8"ø	N/A	KWMR
2	E2	BROADCAST ANTENNA	13'-6"	16'-0"	8'X3.0'ø	TBD	30°	1	FH 3/8"ø	N/A	KWMR
2	E3	OMNI	13'-6"	20'-0"	8'	OMNI	30°	1	FH 3/8"ø	N/A	KWMR
2	E4	OMNI	13'-6"	10'-6"	6'	OMNI	150°	1	FH 7/8"ø	N/A	MERA
2	E5	OMNI	13'-6"	16'-6"	6'	OMNI	150°	1	FH 7/8"ø	N/A	MERA
2	E6	D4-10Z-P51	14'-0"	14'-0"	4'ø	DISH	90°	1	EW 90	N/A	MERA
3	E7	BCD-75066	15'-0"	19'-0"	8'	OMNI	270°	1	SM 1"ø	N/A	MARIN CO.
3	E8	ES4036-2N	19'-6"	22'-0"	N/A	CAMERA	120°	1	FH 3/8"ø	PELCO	MARIN CO.

EXISTING TOWER LOADING TO BE REMOVED

TOWER #	ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) AN. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
2	E4	OMNI	13'-6"	10'-6"	6'	OMNI	150°	1	FH 7/8"ø	N/A	MERA
2	E5	OMNI	13'-6"	16'-6"	6'	OMNI	150°	1	FH 7/8"ø	N/A	MERA
3	E6	D4-10Z-P51	14'-0"	14'-0"	4'ø	DISH	90°	1	EW 90	N/A	MERA

PROPOSED ADDITIONAL TOWER LOADING

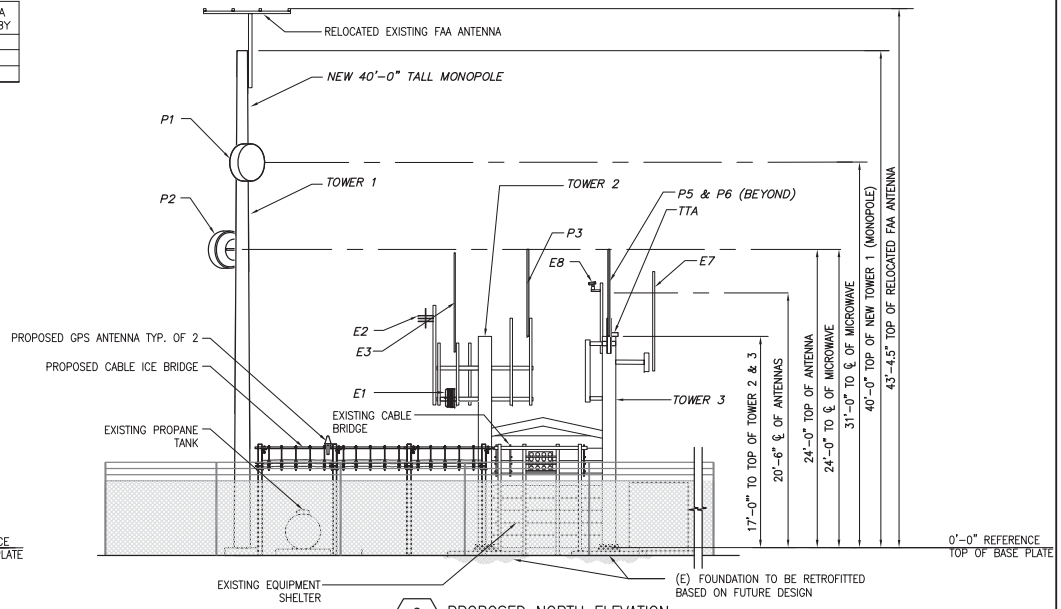
TOWER #	ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) AN. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
1	P1 & P2	SC3-W100AC	31'-0' 24'-0'	31'-0' 24'-0'	3'ø	MW	114° 17°	2	EW(E105)	MICROWAVE	MERA
2	P3	SC476-HF1LDF(D06)	13'-6'	20'-6'	7'	OMNI	N/A	1	7/8"	Tx ANTENNA	MERA
3	P5 & P6	SC476-HF1LDF(D06)	15'-6'	20'-6"	7'	OMNI	N/A	2	1/2"	Rx ANTENNA	MERA
3	TTA	437-831-01-T	17'-9"	--	--	--	N/A	1	1/2"	--	MERA



1 -- EXISTING NORTH ELEVATION
SITE NAME: POINT REYES

SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)



2 -- PROPOSED NORTH ELEVATION
SITE NAME: POINT REYES

SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/05/19	100% CONSTRUCTION DRAWINGS	RD	JR	
5	11/01/18	75% CONSTRUCTION DRAWINGS	RD	JR	
4	08/15/18	50% CONSTRUCTION DRAWINGS	RD	JR	
3	06/25/18	50% CONSTRUCTION DRAWINGS	EL	JR	
2	06/22/18	50% CONSTRUCTION DRAWINGS	EL	JR	JR

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COUNTY OF MARIN

POINT REYES
3 MT. VISION RD
INVERNESS, CA 94937

TOWER ELEVATIONS
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

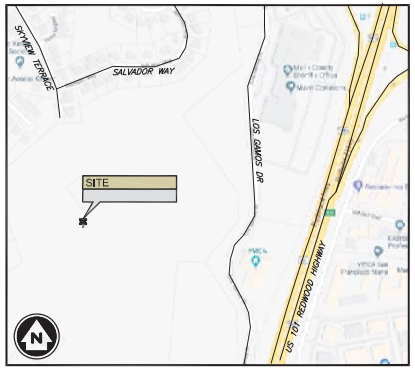
COUNTY OF MARIN

MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

SKYVIEW TERRACE WATER TANK

NEAR 70 SKYVIEW TERRACE SAN RAFAEL, CA 94903

VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) NEW 35'-0" TALL MONOPOLE
- ADD (2) 3'-0" ø MICROWAVE DISHES TO PROPOSED 35'-0" TALL MONOPOLE
- ADD (1) 15'-0" X 10'-0" EQUIPMENT SHELTER
- ADD (1) 50KVA PROPANE GENERATOR
- ADD (1) PROPANE TANK

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE COUNTY OF MARIN IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE COUNTY OF MARIN AND MERA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	SKYVIEW TERRACE WATER TANK
SITE ADDRESS:	NEAR 70 SKYVIEW TERRACE SAN RAFAEL, CA 94903
JURISDICTION:	MARIN COUNTY
LATITUDE:	38.017000° N
LONGITUDE:	-122.546000° W
APN:	165-220-03

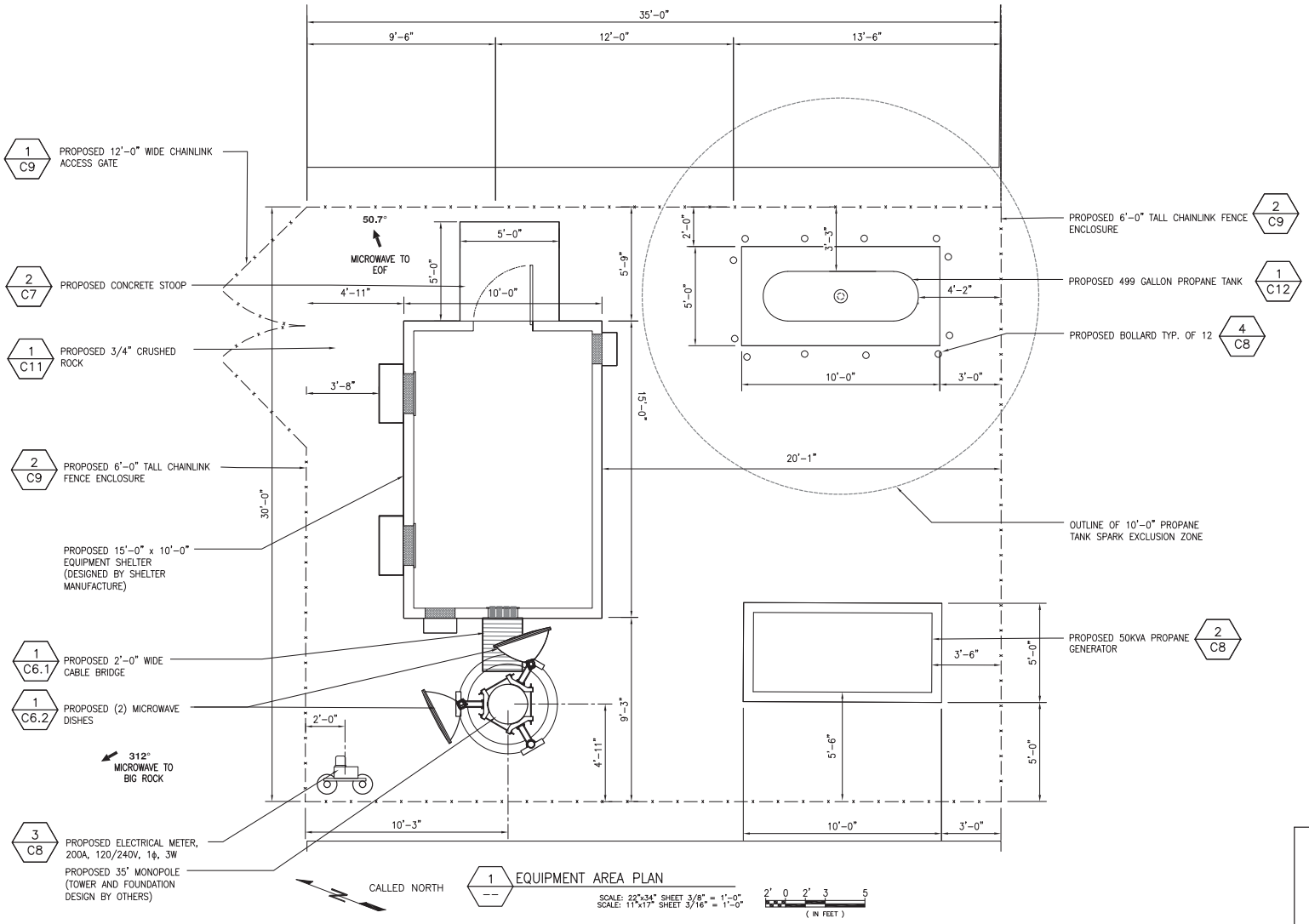
PROJECT DIRECTORY

PROPERTY OWNER:	COUNTY OF MARIN 220 ELLEN AVE. CORTE MADERA, CA 94925
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	5	10/24/19
N1	GENERAL NOTES	5	10/24/19
N2	GENERAL NOTES AND LEGEND	5	10/24/19
N3	SITE SIGNAGE	5	10/24/19
N4	AREA OF DISTURBANCE PLAN	5	10/24/19
C-1	SITE SURVEY	0	10/17/18
C-2	SITE SURVEY	0	10/17/18
C-3	SITE SURVEY	0	10/17/18
C4	OVERALL SITE PLAN	5	10/24/19
C4.1	ENLARGED SITE PLAN	5	10/24/19
C5	EQUIPMENT AREA PLAN	5	10/24/19
C5.1	PROPOSED INTERIOR SHELTER PLAN	5	10/24/19
C6	TOWER ELEVATION	5	10/24/19
C6.1	ICE BRIDGE DETAILS	5	10/24/19
C6.2	MICROWAVE ATTACHMENT DETAILS	5	10/24/19
C7	SHELTER FOUNDATION DETAILS	5	10/24/19
C8	SITE DETAILS	5	10/24/19
C9	FENCE DETAILS	5	10/24/19
C10	FENCE DETAILS	5	10/24/19
C11	DETAILS DETAILS	5	10/24/19
C12	PROPANE TANK/SLAB DETAIL	5	10/24/19
C13	EQUIPMENT AND LADDER RACK DETAIL	5	10/24/19
C14	BERM DETAIL	5	10/24/19
ES1	GRADING, EROSION & SEDIMENT CONTROL PLAN	5	10/24/19
ES2	GRADING, EROSION & SEDIMENT CONTROL NOTES	5	10/24/19
ES3	GRADING, EROSION & SEDIMENT CONTROL NOTES	5	10/24/19
E1	ELECTRICAL SITE PLAN	5	10/24/19
E1.1	ENLARGED ELECTRICAL SITE PLAN	5	10/24/19
E1.2	ELECTRICAL INTERIOR SHELTER PLAN	5	10/24/19
E2	ONE LINE DIAGRAM	5	10/24/19
E3	GROUNDING PLAN	5	10/24/19
E3.1	PROPOSED SHELTER INTERIOR GROUNDING	5	10/24/19
E4	GROUNDING NOTES	5	10/24/19
E5	GROUNDING DETAILS	5	10/24/19
E6	GROUNDING DETAILS	5	10/24/19
E7	GROUNDING DETAILS	5	10/24/19

PRELIM CONSTRUCTION DRAWINGS



NO.	DATE	REVISIONS	BY	CHK	APP'D
5	10/24/18	100% CONSTRUCTION DRAWINGS	RD	JR	
4	10/18/18	100% CONSTRUCTION DRAWINGS	RD	JR	
3	10/16/18	75% CONSTRUCTION DRAWINGS	RD	JR	
2	08/13/18	50% CONSTRUCTION DRAWINGS	RD	JR	
1	07/23/18	50% CONSTRUCTION DRAWINGS	EL	JR	JR

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542-000

COUNTY OF MARIN

SKYVIEW TERRACE WATER TANK
70 SKYVIEW TERRACE
SAN RAFAEL, CA 94903

EQUIPMENT AREA PLAN

MARIN EMERGENCY RADIO AUTHORITY

C5

REV 4

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

Agenda Item D-2
MERA GB 12-11-2019
Attachment 2a

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 165-220-03
OWNER(S): COUNTY OF MARIN

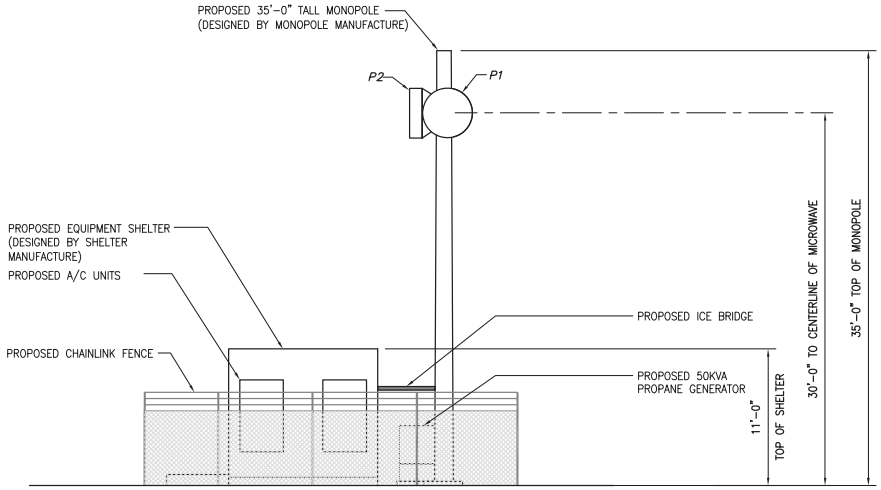
NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

PROPOSED TOWER LOADING

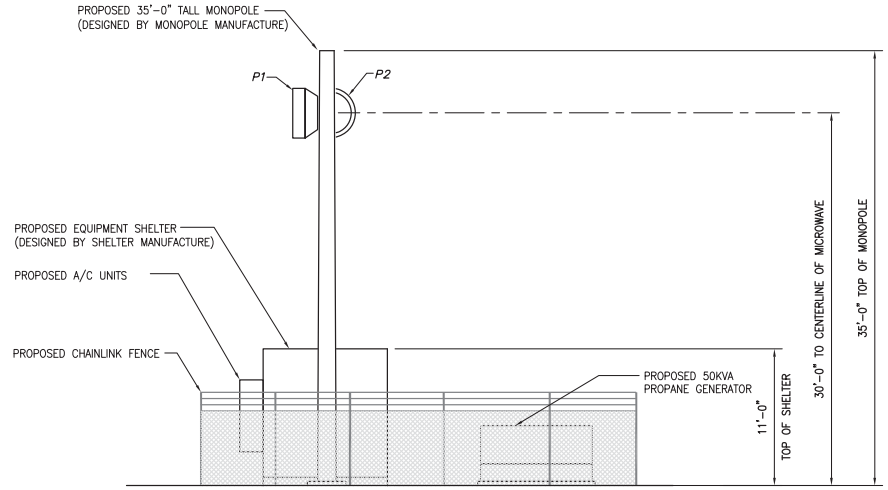
ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.)		ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
		MT. CL	ANT. CL							
P1	SC3-W100AC	30'-0"	30'-0"	3'ø	MW	312°	1	EW105	BIG ROCK	MERA
P2	SC3-W100AC	30'-0"	30'-0"	3'ø	MW	50.7°	1	EW105	EOF	MERA



1 -- NORTHWEST ELEVATION
SITE NAME: SKYVIEW TERRACE WATER TANK

SCALE: 22"x34" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

2.5' 0 2.5' 5' 10'
(IN FEET)



2 -- SOUTHWEST ELEVATION
SITE NAME: SKYVIEW TERRACE WATER TANK

SCALE: 22"x34" SHEET 1" = 5'-0"
SCALE: 11"x17" SHEET 1" = 10'-0"

2.5' 0 2.5' 5' 10'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
5	10/24/18	100% CONSTRUCTION DRAWINGS	RD	JR	
4	10/18/18	100% CONSTRUCTION DRAWINGS	RD	JR	
3	10/16/18	75% CONSTRUCTION DRAWINGS	RD	JR	
2	08/13/18	50% CONSTRUCTION DRAWINGS	RD	JR	
1	07/23/18	50% CONSTRUCTION DRAWINGS	EL	JR	JR

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COUNTY OF MARIN

SKYVIEW TERRACE WATER TANK
70 SKYVIEW TERRACE
SAN RAFAEL, CA 94903

TOWER ELEVATION

MARIN EMERGENCY RADIO AUTHORITY

C6

REV 4

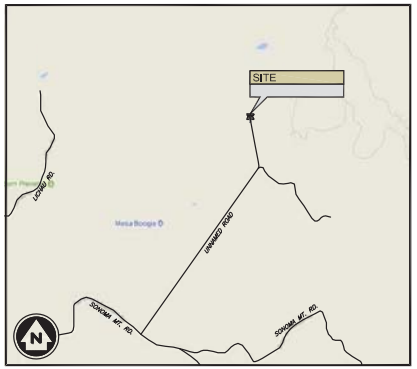
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

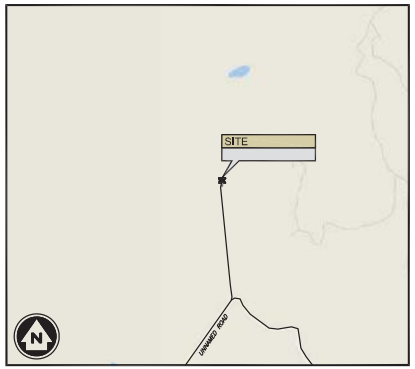
MARIN EMERGENCY RADIO AUTHORITY
RADIO SYSTEM UPGRADE

SONOMA MOUNTAIN

NEAR 2430 SONOMA MT. RD
PETALUMA, CA 94954



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA–EIA–222–G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2014 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA–101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (2) 6'–0"ø MICROWAVE DISHES TO EXISTING 40'–0" TALL TOWER
- ADD (1) MICROWAVE / DC POWER RACK WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT ROOM.
- MODIFY EXISTING SHELTER FLOORING TO SUPPORT EQUIPMENT RACKS.
- MODIFY EXISTING 40'–0" TALL TOWER TO SUPPORT ADDITIONAL TOWER LOADING

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
CALL 911

PROJECT INFORMATION

SITE NAME:	SONOMA MOUNTAIN
SITE ADDRESS:	NEAR 2430 SONOMA MT. RD PETALUMA, CA 94954
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.348369° N
LONGITUDE:	–122.578303° W

PROJECT DIRECTORY

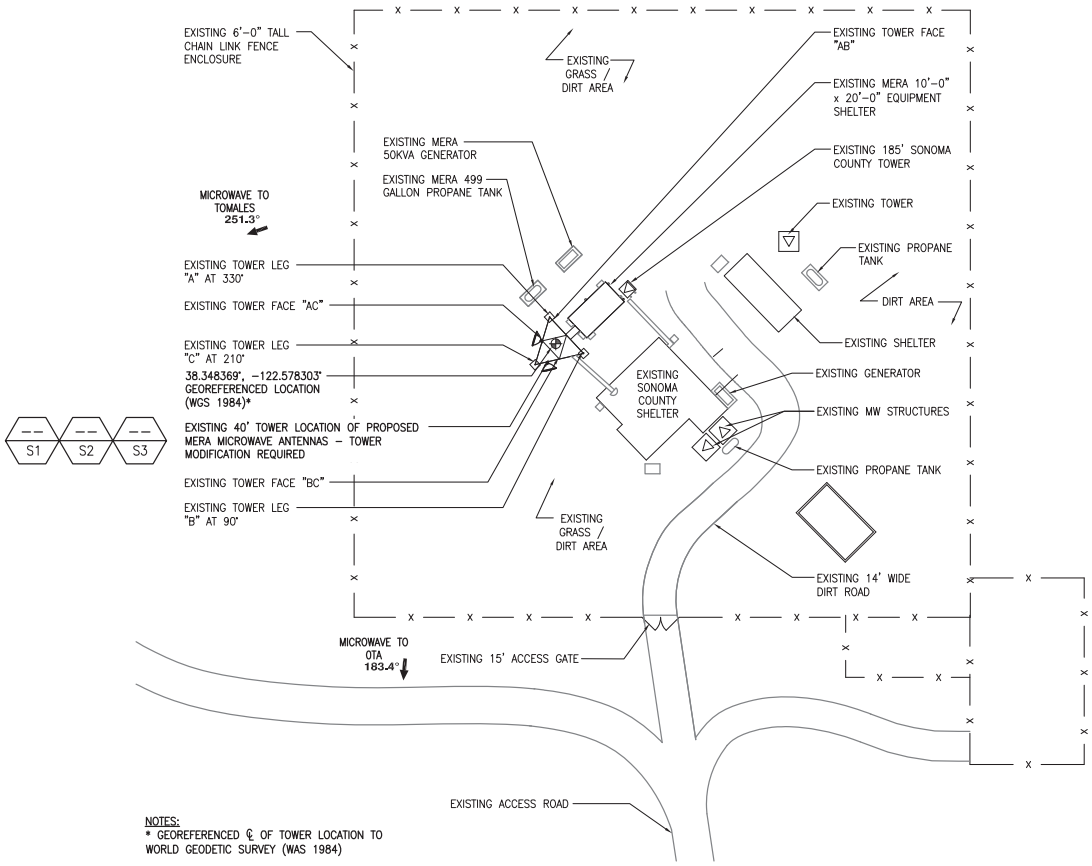
PROPERTY OWNER:	COUNTY OF SONOMA
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926–7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332–9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265–2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979–5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	7	07/23/19
N1	GENERAL NOTES	7	07/23/19
N2	GENERAL NOTES AND LEGEND	7	07/23/19
N3	SITE SIGNAGE	7	07/23/19
N4	AREA OF DISTURBANCE PLAN	7	07/23/19
C3	SITE PLAN	7	07/23/19
C4	ENLARGED SITE PLAN	7	07/23/19
C5	PROPOSED INTERIOR SHELTER PLAN	7	07/23/19
C5.1	PROPOSED FLOOR MODIFICATION PLAN	7	07/23/19
C5.2	TRANSITION INTERIOR SHELTER PLAN	7	07/23/19
C6	TOWER ELEVATION	7	07/23/19
C6.1	TOWER LOADING	7	07/23/19
C6.2	ICE BRIDGE DETAIL	7	07/23/19
S1	PROPOSED TOWER MODIFICATIONS	A	07/01/19
S2	PROPOSED TOWER SECTION 0'–20'	A	07/01/19
S3	PROPOSED MICROWAVE MOUNT PLAN AND DETAIL	0	07/01/19
E1	PROPOSED SHELTER ELECTRICAL CEILING PLAN	7	07/23/19
E2	ONE LINE DIAGRAM	7	07/23/19
E3	PROPOSED INTERIOR GROUNDING PLAN	7	07/23/19
E4	GROUNDING NOTES	7	07/23/19
E5	GROUNDING DETAILS	7	07/23/19
E6	GROUNDING DETAILS	7	07/23/19

PRELIM CONSTRUCTION DRAWINGS

APN : 136-190-016
OWNER(S): COUNTY OF SONOMA



NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

N CALLED NORTH

1 SITE PLAN
SCALE: 22"x34" SHEET 1" = 25'-0"
SCALE: 11"x17" SHEET 1" = 50'-0"

12.5' 0 12.5' 25' 50'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
7	07/23/19	100% CD DRAWINGS	RD	JR	
6	01/18/19	75% CD DRAWINGS	RD	JR	
5	10/25/18	75% CD DRAWINGS	RD	JR	
4	10/18/18	75% CD DRAWINGS	RD	JR	
3	08/15/18	50% CD DRAWINGS	RD	JR	JR

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LAKE FOREST, CA 92630
Office # (949) 753-8807
542-000

MOTOROLA SOLUTIONS

COUNTY OF MARIN

SONOMA MOUNTAIN
NEAR 2430 SONOMA MT. RD
PETALUMA, CA 94954

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3
REV 7

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

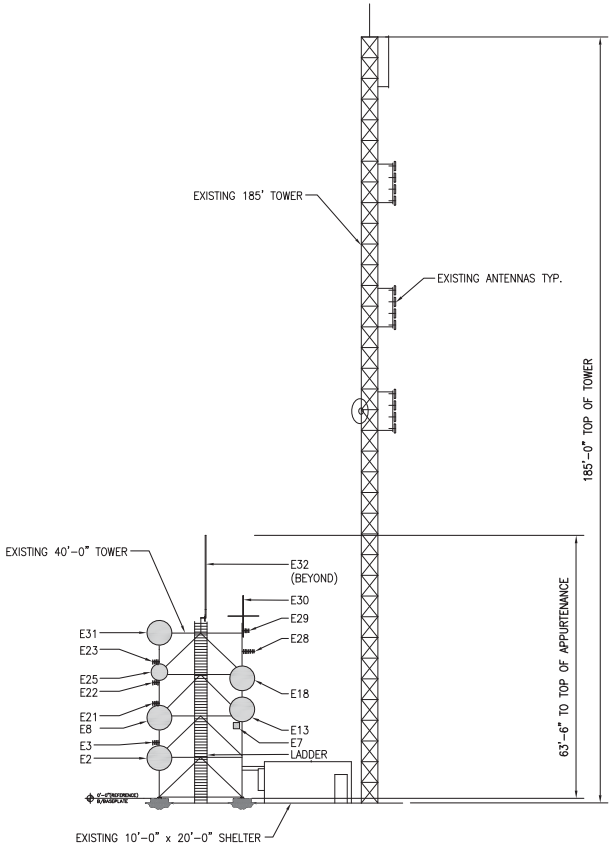
4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 136-190-016
OWNER(S): COUNTY OF SONOMA

NOTES:

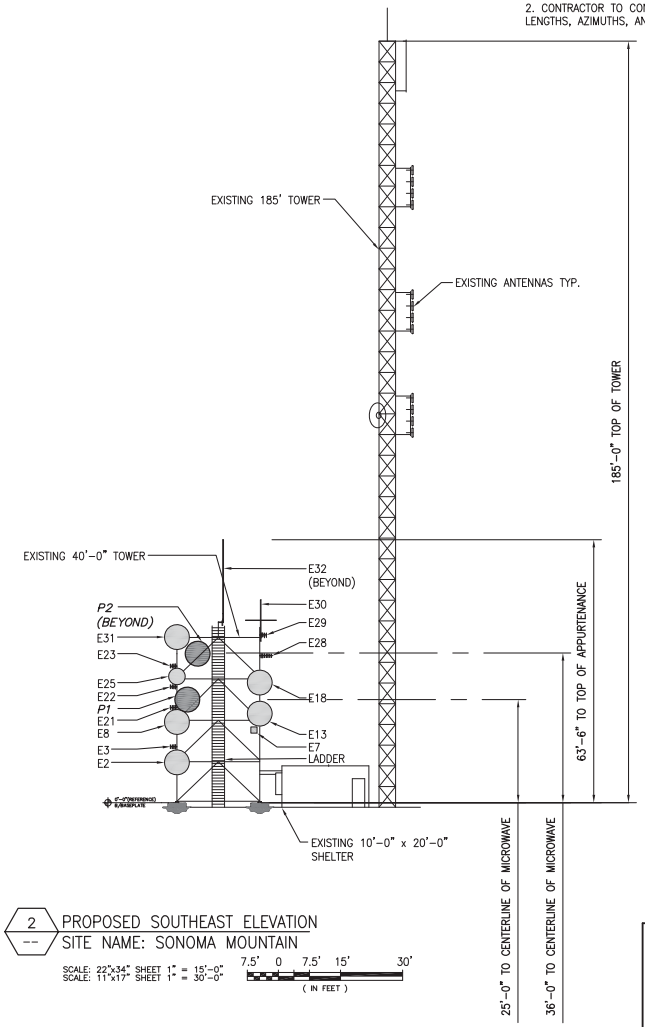
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.



1 EXISTING SOUTHEAST ELEVATION
-- SITE NAME: SONOMA MOUNTAIN

SCALE: 22"x34" SHEET 1" = 15'-0"
SCALE: 11"x17" SHEET 1" = 30'-0"
7.5' 0 7.5' 15' 30'
(IN FEET)



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3	08/15/18	50% CD DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

SONOMA MOUNTAIN
NEAR 2430 SONOMA MT. RD
PETALUMA, CA 94954

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C6
REV 7

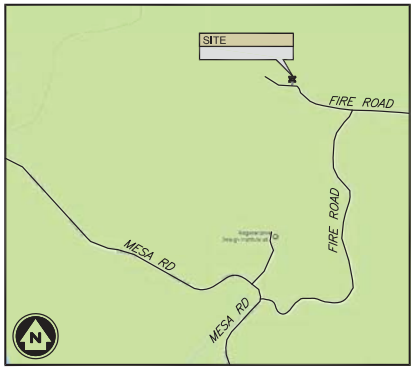
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

COUNTY OF MARIN

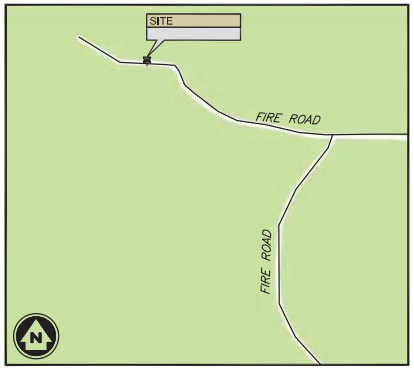
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

STEWART POINT

315 PARADISE VALLEY RD
BOLINAS, CA 94924



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- EXISTING MONOPOLE SHAFT TO BE RETROFITTED FROM 0'-0" TO 9'-0"
- EXISTING MONOPOLE FOUNDATION TO BE RETROFITTED
- EXISTING MONOPOLE BASE PLAT AND ANCHOR RODS TO BE RETROFITTED
- REMOVE AND REPLACE EXISTING DIESEL GENERATOR W/ A NEW 50KVA DIESEL GENERATOR
- ADD (1) 3'-0" ø MICROWAVE DISHES TO MONOPOLE
- ADD (1) 7' TX ANTENNAS TO EXISTING MONOPOLE
- ADD (2) 9'-6" RX ANTENNAS TO EXISTING MONOPOLE
- ADD (1) TTA TO ANTENNA MOUNT
- ADD (2) GPS ANTENNA
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT SHELTER
- ADD (2) GTR RACKS INSIDE EXISTING EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT SHELTER

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	STEWART POINT
SITE ADDRESS:	315 PARADISE VALLEY ROAD BOLINAS, CA 94924
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.930389° N
LONGITUDE:	–122.720194° W

PROJECT DIRECTORY

PROPERTY OWNER:	MARTINELLI RANCH
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 93903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

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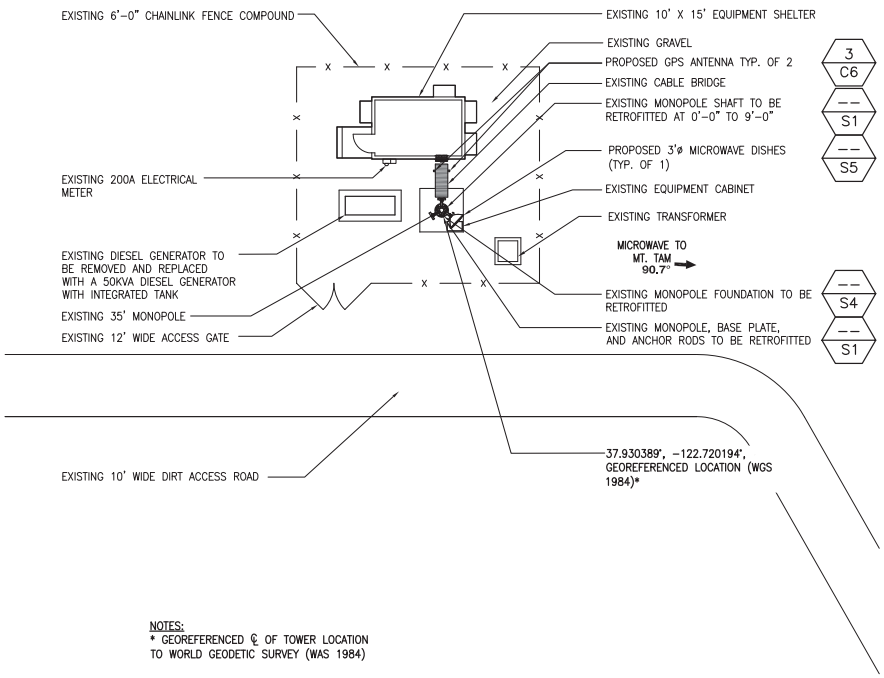
C3	SITE PLAN	6	09/19/19
C4	PROPOSED INTERIOR PLAN	6	09/19/19
C5	TOWER ELEVATIONS	6	09/19/19
C6	ICE BRIDGE DETAIL ELEVATION	6	09/19/19
C7	TRANSITION ANTENNA LAYOUT PLAN	6	09/19/19
C8	SHELTER FLOOR MODIFICATION PLAN	6	09/19/19
C9	TRANSITION INTERIOR SHELTER PLAN	6	09/19/19
S1	TOWER MODIFICATION PLAN	A	07/01/19
S2	ANCHOR ROD AND STIFFENER PLATE DETAILS	A	07/01/19
S3	ANCHOR ROD AND PLAT WASHER DETAILS	A	07/01/19
S4	TOWER FOUNDATION REINFORCEMENT DETAILS	A	07/01/19
E1	PROPOSED SHELTER ELECTRICAL CEILING PLAN	6	09/19/19
E2	ONE LINE DIAGRAM	6	09/19/19
E2.1	ELECTRICAL DETAILS	6	09/19/19
E3	PROPOSED EXTERIOR GROUNDING PLAN	6	09/19/19
E3.1	PROPOSED INTERIOR GROUNDING PLAN	6	09/19/19
E4	GROUNDING NOTES	6	09/19/19
E5	GROUNDING DETAILS	6	09/19/19
E6	GROUNDING DETAILS	6	09/19/19

PRELIM CONSTRUCTION DRAWINGS

APN : 188-090-15
OWNER(S): MARTINELLI RANCH



NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

CALLED NORTH

1 SITE PLAN
--
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/19/19	100% CONSTRUCTION DRAWINGS	JR	JR	
5	07/30/19	100% CONSTRUCTION DRAWINGS	JR	JR	
4	10/24/18	75% CONSTRUCTION DRAWINGS	RD	JR	
3	10/19/18	75% CONSTRUCTION DRAWINGS	RD	JR	
2	08/16/18	50% CONSTRUCTION DRAWINGS	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

STEWART POINT
315 PARADISE VALLEY RD
BOLINAS, CA 94924

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3
REV 6

EXISTING TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
E1	SWR FMEC/1 (BAY FM)	12'–0"	12'–6"	1'–0"	N/A	160°	1	3/8" ø	N/A	KWMR
E2	14'x(2) ELEMENT DIPOLE	12'–0"	21'–0"	14'–0"	DIPOLE	160°	1	3/8" ø	N/A	MARIN CO.
E3	ANDREWS VHP4–105–111	14'–0"	14'–0"	4'–0"	MW	50°	1	90 EW	N/A	MERA
E4	12' OMNI	16'–0"	20'–0"	12'–0"	OMNI	100°	1	7/8" ø	N/A	MERA
E5	10'x(2) ELEMENT DIPOLE	12'–0"	17'–0"	10'–0"	DIPOLE	300°	1	3/8" ø	N/A	MARIN CO.
E6	4–1/2"x10' OMNI	30'–0"	35'–0"	10'–0"	OMNI	180°	1	3/8" ø	N/A	MARIN CO.
E7	12' OMNI	30'–0"	37'–6"	12'–0"	OMNI	320°	1	3/8" ø	N/A	KWMR
E8	32'x(7) ELEMENT YAGI	30'–0"	25'–0"	2'–8"	YAGI	60°	1	1/2" ø	N/A	KWMR
E9	16" DISH	33'–0"	31'–0"	1'–4"	DISH	50°	1	1/4" ø SM	N/A	KWMR
E10	12"x16" GRID DISH	33'–0"	35'–0"	1'–4"	DISH	50°	1	1/4" ø SM	N/A	KWMR
E11	12' OMNI	34'–0"	40'–0"	12'–0"	OMNI	60°	1	7/8" ø	N/A	MERA

EXISTING TOWER LOADING TO BE REMOVED

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. ℄	LOADING HEIGHT (FT.) ANT.℄	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
E3	ANDREWS VHP4–105–111	14'–0"	14'–0"	4'–0"	MW	50°	1	90 EW	N/A	MERA
E4	12' OMNI	16'–0"	20'–0"	12'–0"	OMNI	100°	1	7/8" ø	N/A	MERA
E11	12' OMNI	34'–0"	40'–0"	12'–0"	OMNI	60°	1	7/8" ø	N/A	MERA

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

NOTES:

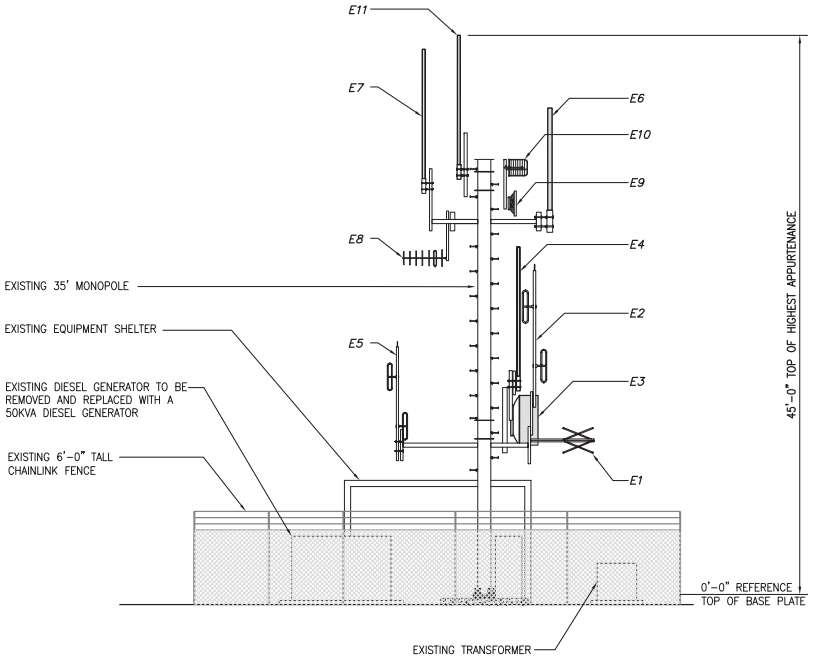
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND–OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

3. CONTRACTOR MUST VERIFY MERA IS THE OWNER OF ANY ANTENNA OR MICROWAVES TO BE DECOMMISSIONED BY TRACING ANTENNA LINES PRIOR TO REMOVAL.

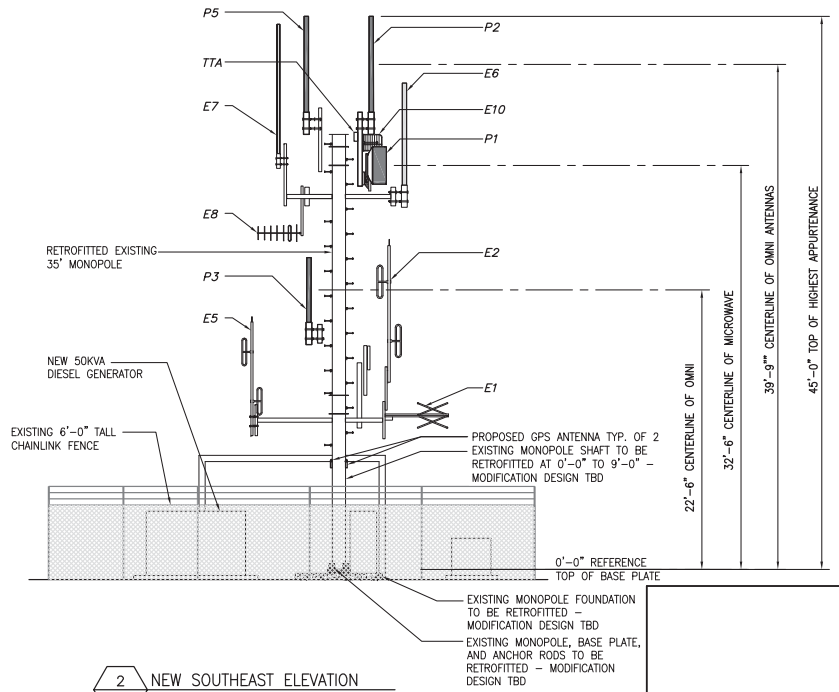
PROPOSED ADDITIONAL TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
P1	SC3–W100AC	31'–6"	32'–6"	3'–0"	MW	90.7°	1	E105	MT. TAM	MERA
P2 & P5	CC807–08–T5	31'–6"	39'–9'	9'–6"	OMNI	N/A	2	1/2"ø	Rx ANTENNA	MERA
P3	SC476–HF1LDF (D06)	19'–0"	21'–6"	7'–0"	OMNI	N/A	1	7/8"ø	Tx ANTENNA	MERA
TTA	437–831–01–T	31'–6"	34'–6"	––	––	N/A	1	1/2"ø	FILTER	MERA



1 EXISTING SOUTHEAST ELEVATION
-- SITE NAME: STEWART POINT

SCALE: 22"x34" SHEET 1" = 5'–0"
SCALE: 11"x17" SHEET 1" = 10'–0"
2.5' 0 2.5' 5' 10'
(IN FEET)



2 NEW SOUTHEAST ELEVATION
-- SITE NAME: STEWART POINT

SCALE: 22"x34" SHEET 1" = 5'–0"
SCALE: 11"x17" SHEET 1" = 10'–0"
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(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
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MOTOROLA SOLUTIONS

COUNTY OF MARIN

STEWART POINT
315 PARADISE VALLEY RD
BOLINAS, CA 94924

TOWER ELEVATIONS
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

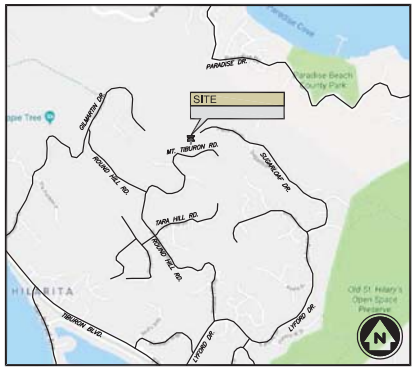
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

COUNTY OF MARIN

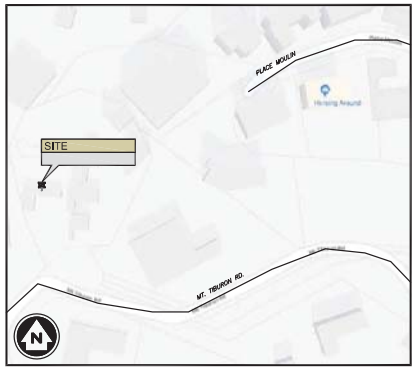
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

TIBURON

99 1/2 MT. TIBURON ROAD
TIBURON, CA 94920



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

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3. NFPA 780 – LIGHTNING PROTECTION CODE
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5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
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8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) 4'-0" ø MICROWAVE DISH TO EXISTING TOWER
- ADD (1) 3'-0" ø MICROWAVE DISH TO EXISTING TOWER
- ADD (2) 4'-5" TX ANTENNAS TO EXISTING TOWER
- ADD (2) 9'-6" RX ANTENNAS TO EXISTING TOWER
- ADD (1) TTA TO EXISTING TOWER
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT ROOM
- ADD (3) GTR RACKS INSIDE EXISTING EQUIPMENT ROOM
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (2) GPS ANTENNAS TO THE SIDE OF AN EXISTING SHELTER

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	TIBURON
SITE ADDRESS:	99 1/2 MT. TIBURON ROAD BELVEDERE TIBURON, CA 94920
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.890440° N
LONGITUDE:	-122.464796° W

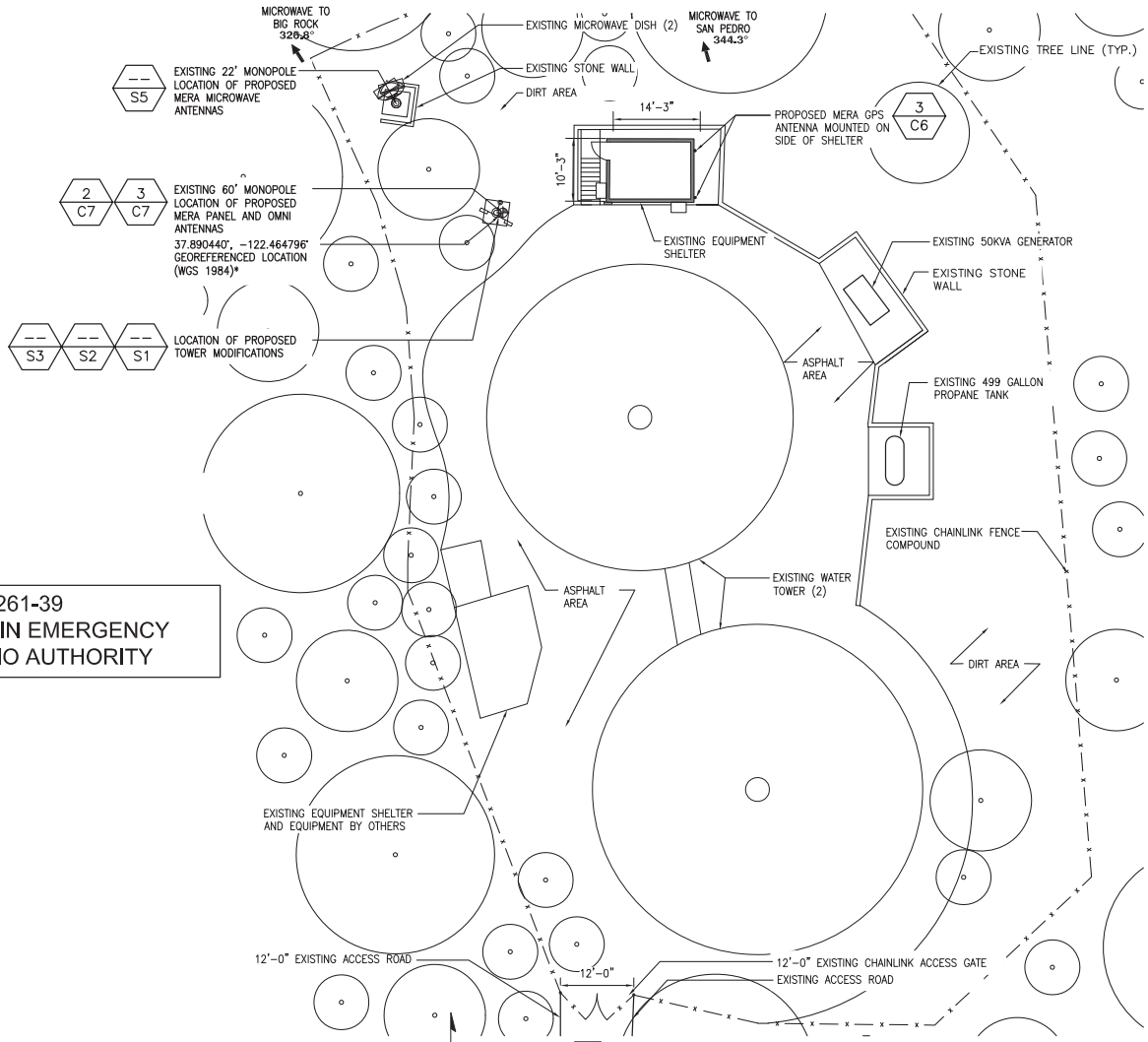
PROJECT DIRECTORY

PROPERTY OWNER:	MARIN EMERGENCY RADIO AUTHORITY
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925)332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	6	07/26/19
N1	GENERAL NOTES	6	07/26/19
N2	GENERAL NOTES AND LEGEND	6	07/26/19
N3	SITE SIGNAGE	6	07/26/19
N4	AREA OF DISTURBANCE PLAN	6	07/26/19
C3	SITE PLAN	6	07/26/19
C4	PROPOSED INTERIOR SHELTER PLAN	6	07/26/19
C5	TOWER ELEVATIONS	6	07/26/19
C5.1	TOWER LOADING	6	07/26/19
C5.2	SHELTER FLOOR MODIFICATION PLAN	6	07/26/19
C5.3	TRANSITION INTERIOR SHELTER PLAN	6	07/26/19
C6	ICE BRIDGE DETAILS	6	07/26/19
C7	TRANSITION ANTENNA PLAN	6	07/26/19
S1	TOWER MODIFICATION PLAN	A	07/04/19
S2	TOWER SECTION PART 0' – 20.7'	A	07/04/19
S3	DYWIDAG SOLID ROD INSTALLATION DETAILS	A	07/04/19
S3	TYPICAL REINFORCEMENT DETAILS	A	07/04/19
S3	TRANSITION MICROWAVE MOUNT PLAN & DETAIL	0	07/03/19
E1	PROPOSED SHELTER ELECTRICAL CEILING PLAN	6	07/26/19
E2	ONE LINE DIAGRAM	6	07/26/19
E2.1	ELECTRICAL DETAILS	6	07/26/19
E3	PROPOSED INTERIOR GROUNDING PLAN	6	07/26/19
E4	GROUNDING NOTES	6	07/26/19
E5	GROUNDING DETAILS	6	07/26/19
E6	GROUNDING DETAILS	6	07/26/19

PRELIM CONSTRUCTION DRAWINGS



APN : 058-261-39
OWNER(S): MARIN EMERGENCY RADIO AUTHORITY

NOTES:
* GEOREFERENCED ℄ OF TOWER LOCATION TO WORLD GEODETIC SURVEY (WAS 1984)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	07/26/19	100% CONSTRUCTION DRAWING	RD	JR	
5	11/12/18	75% CONSTRUCTION DRAWING	RD	JR	
4	11/02/18	75% CONSTRUCTION DRAWING	RD	JR	
3	08/15/18	50% CONSTRUCTION DRAWING	RD	JR	
2	06/28/18	50% CONSTRUCTION DRAWING	RD	JR	CJW

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542-000

MOTOROLA SOLUTIONS

COUNTY OF MARIN

TIBURON
99 1/2 MT. TIBURON RD.
TIBURON, CA
94920

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3

REV 6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

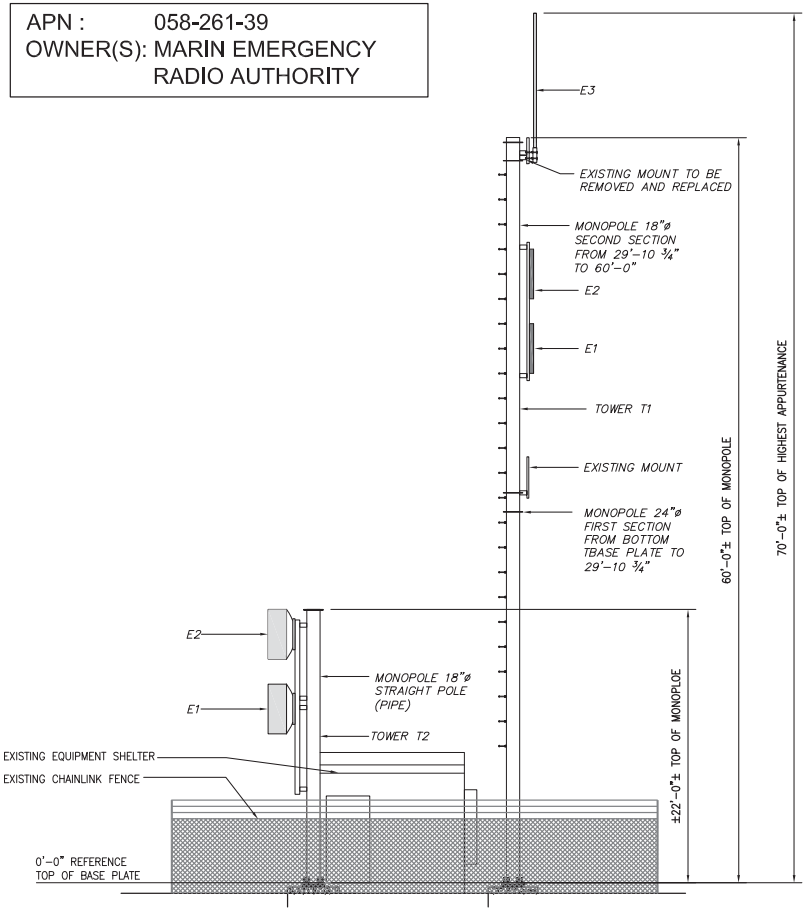
NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.
2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

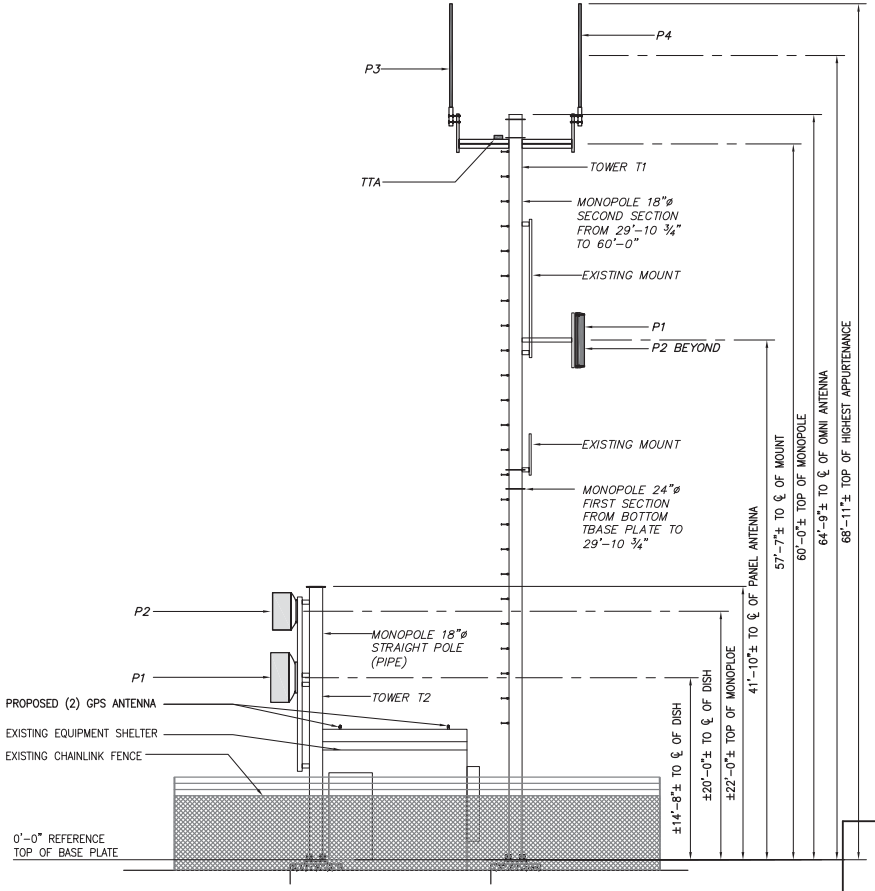
GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.
2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.
3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.
4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 058-261-39
OWNER(S): MARIN EMERGENCY RADIO AUTHORITY



1 -- EXISTING EAST ELEVATION
TIBURON SCALE: 22"x34" SHEET 1" = 5'-0" SCALE: 11"x17" SHEET 1" = 10'-0"
2.5' 0 2.5' 5' 10' (IN FEET)



2 -- PROPOSED EAST ELEVATION
TIBURON SCALE: 22"x34" SHEET 1" = 5'-0" SCALE: 11"x17" SHEET 1" = 10'-0"
2.5' 0 2.5' 5' 10' (IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
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3	08/15/18	50% CONSTRUCTION DRAWING	RD	JR	
2	06/28/18	50% CONSTRUCTION DRAWING	RD	JR	CJW

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

TIBURON
99 1/2 MT. TIBURON RD.
TIBURON, CA
94920

TOWER ELEVATIONS
MARIN EMERGENCY RADIO AUTHORITY

C5

REV 6

RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	RECEIVED:
	ACCEPTED:
MOTOROLA:	RECEIVED:
	ACCEPTED:
PROPERTY OWNER:	RECEIVED:
	ACCEPTED:

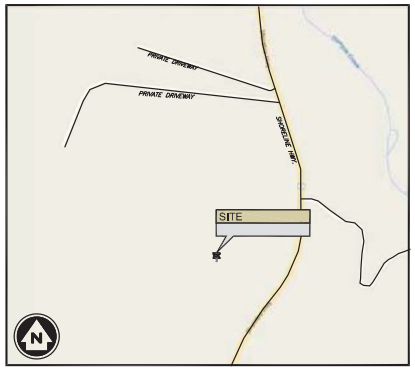
COUNTY OF MARIN

MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

TOMALES

28775 SHORELINE HWY
TOMALES, CA 94971

VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101
14. MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES (LATEST REVISION).

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- ADD (1) 6'-0" ø & (1) 3'-0" ø MICROWAVE DISHES TO NEW MONOPOLE
- ADD (1) 7' TX ANTENNAS TO NEW MONOPOLE
- ADD (2) 9'-6" RX ANTENNAS TO NEW MONOPOLE
- ADD (1) TIA TO NEW MONOPOLE
- ADD (2) 5' DIPOLE ANTENNA
- ADD (1) 11.5' DIPOLE ANTENNA
- ADD (1) DSBCD7506EDN 5251 INV ANTENNA
- ADD (1) DSBCD7506EDN 525 ANTENNA
- ADD (1) DC POWER PLANT AND BATTERIES RACK IN ONE RACK PLACE INSIDE NEW EQUIPMENT SHELTER
- ADD (2) GTR RACKS INSIDE NEW EQUIPMENT SHELTER
- ADD (1) MICROWAVE RACK INSIDE NEW EQUIPMENT SHELTER
- ADD (2) GPS ANTENNAS
- ADD 75' MONOPOLE
- ADD EQUIPMENT SHELTER
- ADD PROPANE GENERATOR
- ADD PROPANE TANK

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE MARIN EMERGENCY RADIO AUTHORITY IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY AND MOTOROLA. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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EMERGENCY:
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PROJECT INFORMATION

SITE NAME:	TOMALES
SITE ADDRESS:	28775 SHORELINE HWY. TOMALES, CA 94971
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	38.261031° N
LONGITUDE:	-122.903594° W
APN:	100-050-42

PROJECT DIRECTORY

PROPERTY OWNER:	GLENN A. PARKS
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
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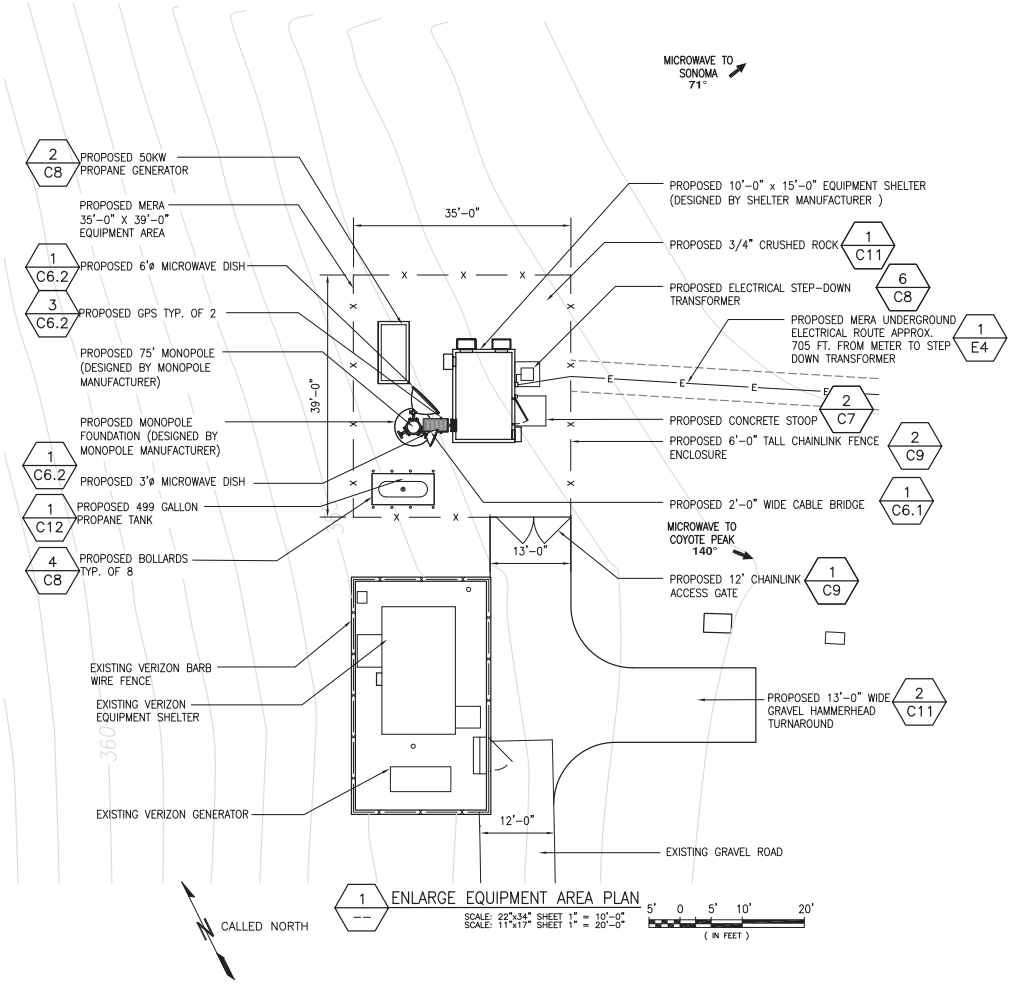
N1	GENERAL NOTES	6	09/12/19
N2	GENERAL NOTES AND LEGEND	6	09/12/19
N3	SITE SIGNAGE	6	09/12/19
N4	AREA OF DISTURBANCE PLAN	6	09/12/19
C1	SITE SURVEY	3	10/09/18
C2	SITE SURVEY	3	10/09/18
C3	SITE SURVEY	3	10/09/18
C4	OVERALL SITE PLAN	6	09/12/19
C4.1	ENLARGED SITE PLAN	6	09/12/19
C4.2	ENLARGED EQUIPMENT AREA PLAN	6	09/12/19
C5	PROPOSED COMPOUND PLAN	6	09/12/19
C5.1	PROPOSED SHELTER INTERIOR PLAN	6	09/12/19
C6	TOWER ELEVATION	6	09/12/19
C6.1	ICE BRIDGE DETAILS	6	09/12/19
C6.2	ANTENNA ATTACHMENT DETAILS	6	09/12/19
C7	SHELTER FOUNDATION DETAILS	6	09/12/19
C8	SITE DETAILS	6	09/12/19
C9	FENCE DETAILS	6	09/12/19
C10	FENCE DETAILS	6	09/12/19
C11	DETAILS	6	09/12/19
C12	PROPANE TANK/ SLAB DETAIL	6	09/12/19
C13	INTERIOR SHELTER DETAILS	6	09/12/19
ES1	GRADING, EROSION, & SEDIMENT CONTROL PLAN	6	09/12/19
ES2	GRADING, EROSION, & SEDIMENT CONTROL NOTES	6	09/12/19
ES3	STORMWATER POLLUTION PREVENTION PROGRAM	6	09/12/19
E1	ELECTRICAL SITE PLAN	6	09/12/19
E1.1	ENLARGED ELECTRICAL SITE PLAN	6	09/12/19
E1.2	PROPOSED INTERIOR ELECTRICAL PLAN	6	09/12/19
E2	ONE LINE DIAGRAM & PANEL SCHEDULE	6	09/12/19
E3	GROUNDING PLAN	6	09/12/19
E3.1	PROPOSED SHELTER INTERIOR GROUNDING PLAN	6	09/12/19
E4	TRENCH DETAILS & GROUNDING NOTES	6	09/12/19
E5	GROUNDING DETAILS	6	09/12/19
E6	GROUNDING DETAILS	6	09/12/19
E7	GROUNDING DETAILS	6	09/12/19

CONSTRUCTION DRAWINGS PRELIM

NOTES:

1. BASEMAP INFORMATION SHOWN BASED ON A SURVEY PREPARED FOR THIS SITE BY JONATHAN MURPHY PROFESSIONAL LAND SURVEYING DATED 10/10/2016.

APN : 100-050-42
OWNER(S): GLENN A. PARKS



NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/12/19	CD 100%	RD	JR	
5	11/12/18	PRELIMINARY CD 75%	RD	JR	
4	11/06/18	PRELIMINARY CD 75%	RD	JR	
3	10/25/18	PRELIMINARY CD 75%	RD	JR	
2	05/10/18	PRELIMINARY CD 75%	RD	JR	JR

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MOTOROLA SOLUTIONS

COUNTY OF MARIN

TOMALES
28775 SHORELINE HIGHWAY
TOMALES, CA 94971

ENLARGED EQUIPMENT AREA PLAN
MARIN EMERGENCY RADIO AUTHORITY

C4.2
REV 6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

Agenda Item D-2
MERA GB 12-11-2019
Attachment 2a

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.

2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.

3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.

4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

NOTES:

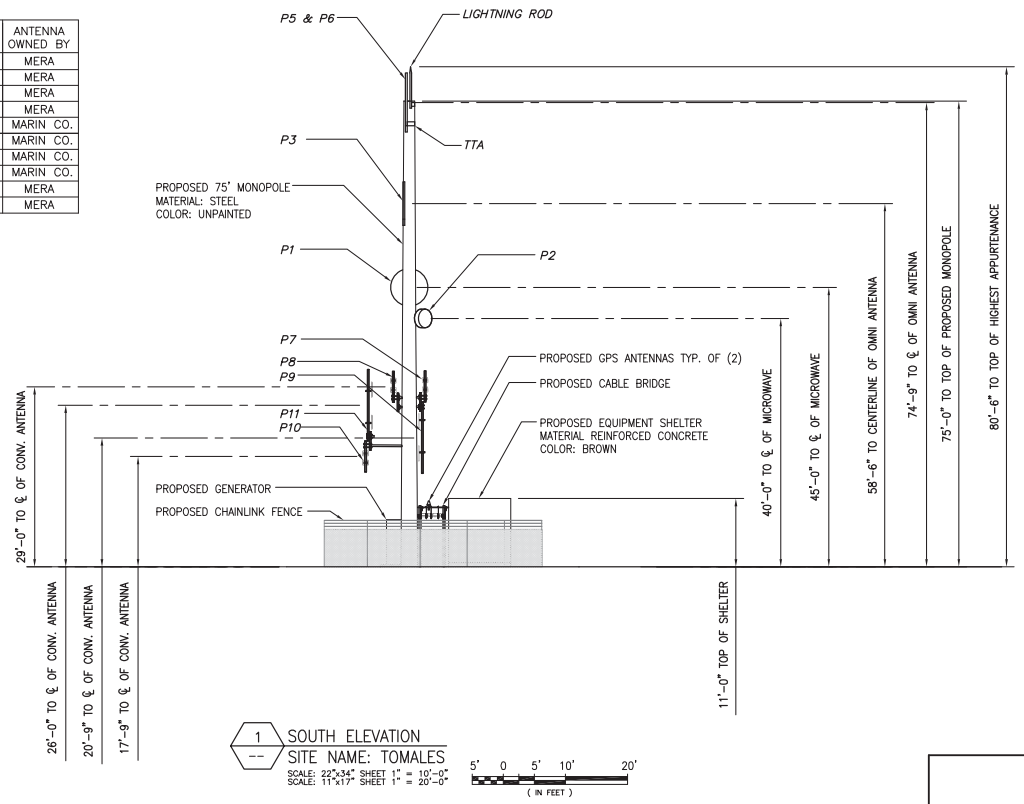
1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.

APN : 100-050-42
OWNER(S): GLENN A. PARKS

PROPOSED TOWER LOADING

ANTENNA #	ANTENNA MODEL	LOADING HEIGHT (FT.) MT. CL	LOADING HEIGHT (FT.) ANT. CL	ANTENNA SIZE (FT.)	TYPE	AZIMUTH	QUANTITY	LINE TYPE	NOTES	ANTENNA OWNED BY
P1	PAD659B	47'-0"	45'-0"	6'ø	MW	71°	1	E60	SONOMA	MERA
P2	SC3-W100AC	37'-0"	40'-0"	3'ø	MW	140°	1	E105	COYOTE PEAK	MERA
P3	SC476-HF1LDF(D06)	55'-7"	58'-6"	7.0'	OMNI	N/A	1	7/8" ø	Tx ANTENNA	MERA
P5 & P6	CC807-08-T5	70'-7"	74'-9"	9.5'	OMNI	N/A	2	1/2" ø	Rx ANTENNA	MERA
P7 & P8	DB404	26'-6"	29'-0"	5.0'	DIPOLE	N/A	2	7/8" ø	CONVENTIONAL	MARIN CO.
P9	440-2	26'-6"	20'-9"	11.5'	DIPOLE	N/A	1	7/8" ø	CONVENTIONAL	MARIN CO.
P10	DSBCD7506EDN 5251 INV	19'-6"	17'-9"	5.0'	DIPOLE	N/A	1	7/8" ø	CONVENTIONAL	MARIN CO.
P11	DSBCD7506EDN525	19'-6"	26'-0"	11.5'	DIPOLE	N/A	1	7/8" ø	CONVENTIONAL	MARIN CO.
TTA	437-831-01-T	70'-7"	--	--	--	N/A	1	1/2" ø	--	MERA
LIGHTNING ROD	N/A	74'-6"	--	6'-0"	--	N/A	1	N/A	--	MERA



1 SOUTH ELEVATION
-- SITE NAME: TOMALES
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

5' 0 5' 10' 20'
(IN FEET)

NO.	DATE	REVISIONS	BY	CHK	APP'D
6	09/12/19	CD 100%	RD	JR	
5	11/12/18	PRELIMINARY CD 75%	RD	JR	
4	11/06/18	PRELIMINARY CD 75%	RD	JR	
3	10/25/18	PRELIMINARY CD 75%	RD	JR	
2	05/10/18	PRELIMINARY CD 75%	RD	JR	JR

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LAKE FOREST, CA 92630
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MOTOROLA SOLUTIONS

COUNTY OF MARIN

TOMALES
28775 SHORELINE HIGHWAY
TOMALES, CA 94971

TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C6

REV 6

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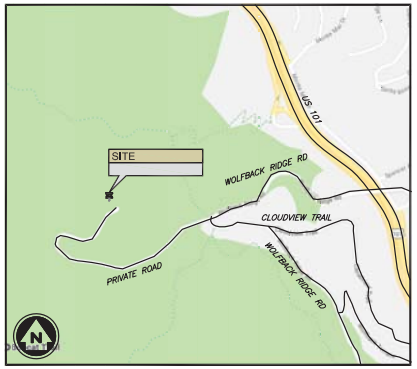
RECEIVED & ACCEPTED	
COUNTY OF MARIN REPRESENTATIVE:	REVIEWED BY:
	DATE:
	SIGNATURE:
MOTOROLA:	REVIEWED BY:
	DATE:
	SIGNATURE:

COUNTY OF MARIN

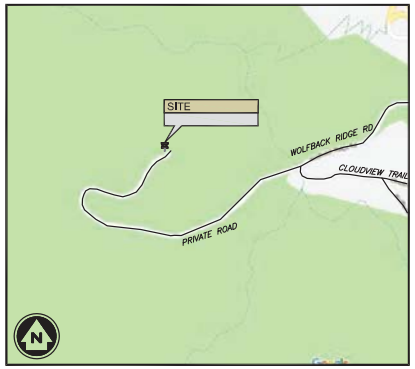
MARIN EMERGENCY RADIO AUTHORITY RADIO SYSTEM UPGRADE

WOLFBACK RIDGE

200 SUNDIAL RD
SAUSALITO, CA 94965



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

APPLICABLE CODES:

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2016 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CALIFORNIA CODE OF REGULATIONS
7. 2016 CALIFORNIA BUILDING CODE
8. 2016 CALIFORNIA MECHANICAL CODE
9. 2016 CALIFORNIA PLUMBING CODE
10. 2016 CALIFORNIA ELECTRICAL CODE
11. LOCAL AMENDMENTS TO THE ABOVE, WHERE APPLICABLE
12. CITY/COUNTY ORDINANCES
13. LIFE SAFETY CODE NFPA-101

PROJECT DESCRIPTION:

THE COUNTY OF MARIN PROPOSES TO CONSTRUCT A PUBLIC SAFETY COMMUNICATION SYSTEM CONSISTING OF THE FOLLOWING SCOPE OF WORK:

- EXISTING TOWER ANCHOR RODS TO BE RETROFITTED
- EXISTING TOWER DIAGONALS FROM 80'– TO 90' TO BE RETROFITTED
- EXISTING TOWER FOUNDATION TO BE RETROFITTED
- ADD (1) 3'-0" ø MICROWAVE DISHES TO EXISTING MONOPOLE
- ADD (1) 6'-0" ø MICROWAVE DISHES TO EXISTING MONOPOLE
- ADD (2) 7' TX ANTENNAS TO EXISTING TOWER
- ADD (2) 9'-6" RX ANTENNAS TO EXISTING TOWER
- ADD (1) TTA TO EXISTING TOWER
- ADD (2) GPS ANTENNAS
- ADD (1) DC POWER RACK WITH BATTERY SHELF INSIDE EXISTING EQUIPMENT ROOM
- ADD (3) GTR RACKS INSIDE EXISTING EQUIPMENT ROOM
- ADD (1) MICROWAVE RACK INSIDE EXISTING EQUIPMENT ROOM
- ADD (1) PROPANE TANK
- ADD (1) PROPANE GENERATOR

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING OR CONSTRUCTION OF A NEW UNMANNED PUBLIC SAFETY COMMUNICATIONS FACILITY OWNED OR LEASED BY THE COUNTY OF MARIN IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY THE MARIN EMERGENCY RADIO AUTHORITY. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

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PROJECT INFORMATION

SITE NAME:	WOLFBACK RIDGE
SITE ADDRESS:	200 SUNDIAL RD SAUSALITO, CA 94965
JURISDICTION:	COUNTY OF MARIN
LATITUDE:	37.851085° N
LONGITUDE:	-122.498376° W

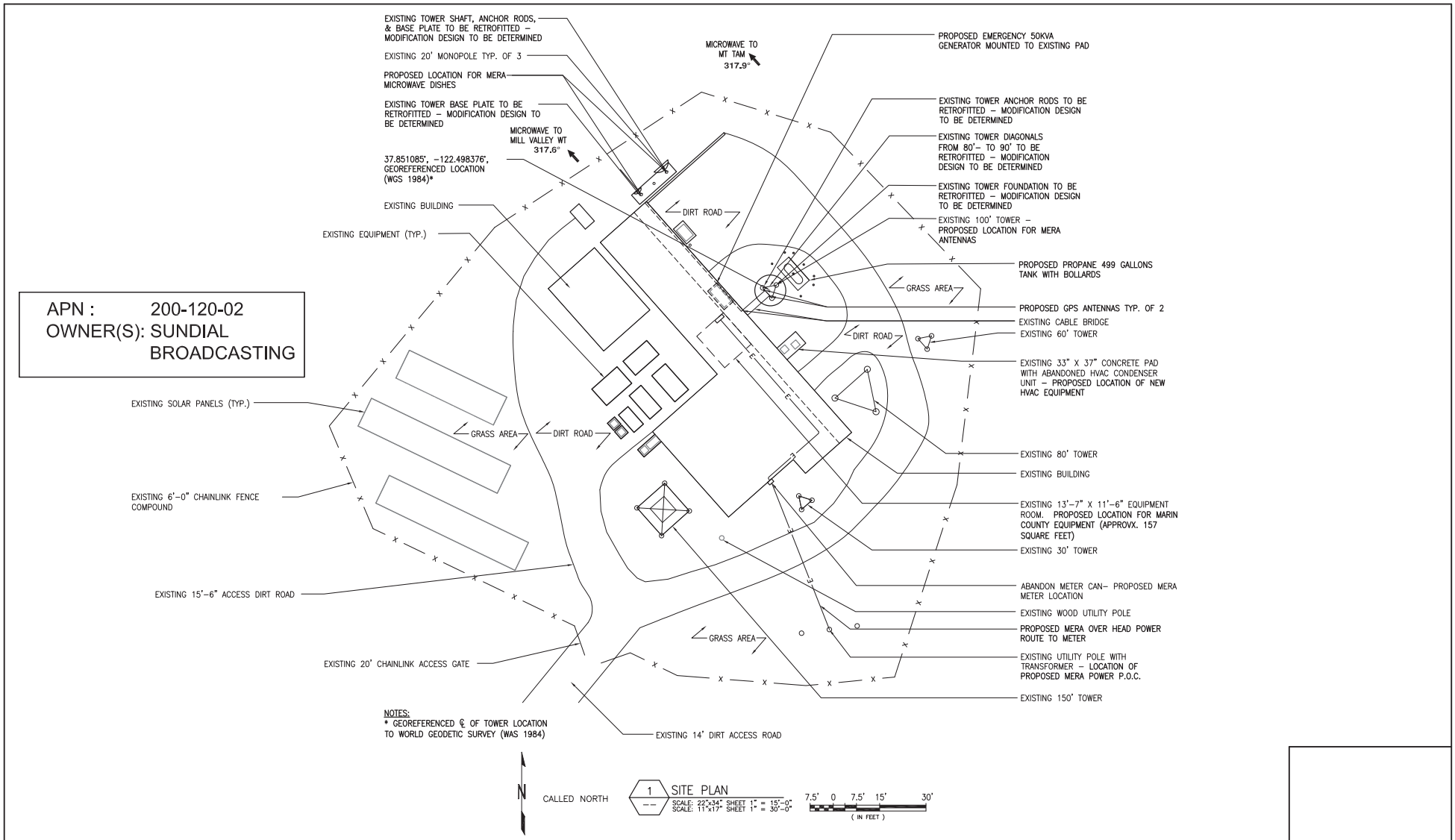
PROJECT DIRECTORY

PROPERTY OWNER:	SUNDIAL BROADCASTING COMPANY
APPLICANT:	COUNTY OF MARIN 3501 CIVIC CENTER DRIVE SAN RAFAEL, CA 94903
CONTACT:	DAVID MORTIMER (916) 926-7274
MOTOROLA REPRESENTATIVE:	DUSTIN MATIA (925) 332-9173
PROJECT MANAGER:	MOTOROLA SOLUTIONS 1001 BAYHILL DRIVE, SUITE 261 SAN BRUNO, CA 94066
CONTACT:	KOUROSH MOSTASHARI – (415) 265-2155
ENGINEER:	INFINIGY ENGINEERING PLLC 26455 RANCHO PARKWAY SOUTH LAKE FOREST, CA 92630
CONTACT:	JUSTIN ROTHGEB – (925) 979-5152
POWER COMPANY:	PG&E
TELCO COMPANY:	N/A

DRAWING INDEX

DRWG. #	TITLE	REV.#	DATE
T1	TITLE SHEET	5	08/24/19
N1	GENERAL NOTES	5	08/24/19
N2	GENERAL NOTES AND LEGEND	5	08/24/19
N3	SITE SIGNAGE	5	08/24/19
C3	SITE PLAN	5	08/24/19
C4	PROPOSED INTERIOR PLAN	5	08/24/19
C5	TOWER ELEVATION	5	08/24/19
C5.1	TOWER LOADING	5	08/24/19
C6	ANTENNA ATTACHMENT DETAILS	5	08/24/19
C7	MICROWAVE ATTACHMENT DETAILS	5	08/24/19
C8	SITE DETAILS	5	08/24/19
C9	PROPANE TANK / SLAB DETAILS	5	08/24/19
S1	STRUCTURAL MASTER DRAWING & NOTES	A	07/29/19
S2	TOWER REINFORCEMENT SECTION 0'-20'	A	07/29/19
S3	TOWER REINFORCEMENT SECTION 20'-40'	A	07/29/19
S4	TOWER REINFORCEMENT SECTION 80'-100'	A	07/29/19
S5	TYPICAL LEG REINFORCEMENT DETAILS	A	07/29/19
S6	TYPICAL WELD DETAILS	A	07/29/19
S7	PROPOSED TRANSITION ANTENNA MOUNT PLAN	0	07/26/19
E1	PROPOSED INTERIOR ELECTRICAL CEILING PLAN	5	08/24/19
E2	ONE LINE DIAGRAM	5	08/24/19
E3	PROPOSED INTERIOR GROUNDING PLAN	5	08/24/19
E4	GROUNDING NOTES	5	08/24/19
E5	GROUNDING DETAILS	5	08/24/19
E6	GROUNDING DETAILS	5	08/24/19

PRELIM CONSTRUCTION DRAWINGS



NO.	DATE	REVISIONS	BY	CHK	APP'D
5	08/24/19	100% CONSTRUCTION DRAWINGS	RD	JR	
4	11/16/18	75% CONSTRUCTION DRAWINGS	RD	JR	
3	08/13/18	50% CONSTRUCTION DRAWINGS	RD	JR	
2	07/10/18	50% CONSTRUCTION DRAWINGS	RD	JR	
1	06/28/18	50% CONSTRUCTION DRAWINGS	RD	JR	JR

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COUNTY OF MARIN

WOLFBACK RIDGE
200 SUNDIAL ROAD
SAUSALITO, CA 94965

SITE PLAN
MARIN EMERGENCY RADIO AUTHORITY

C3

REV 5

GENERAL NOTES:

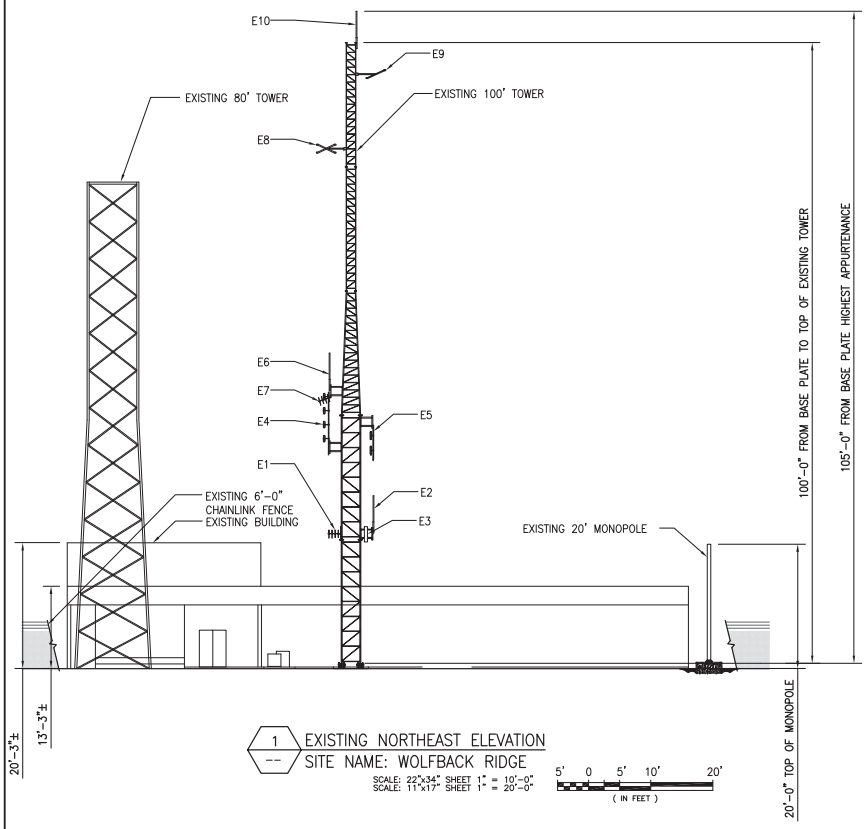
1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP AND BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION AND NEAR THE ENTRY PORT ON THE SHELTER). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS TO 75 FEET.
2. THE CONTRACTOR SHALL CONDUCT A SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION AND STIMULUS RESPONSE MEASUREMENTS.
3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE SHELTER.
4. ALL TRANSMISSION LINES SHALL BE MARKED WITH APPROPRIATE COLOR TAPE BANDS (ONE INCH WIDE COLOR TAPE) FOR IDENTIFICATION NEAR THE ANTENNA, JUST BEFORE ENTERING THE SHELTER, & BEFORE CONNECTING TO THE SURGE SUPPRESSORS.

APN : 200-120-02
OWNER(S): SUNDIAL BROADCASTING

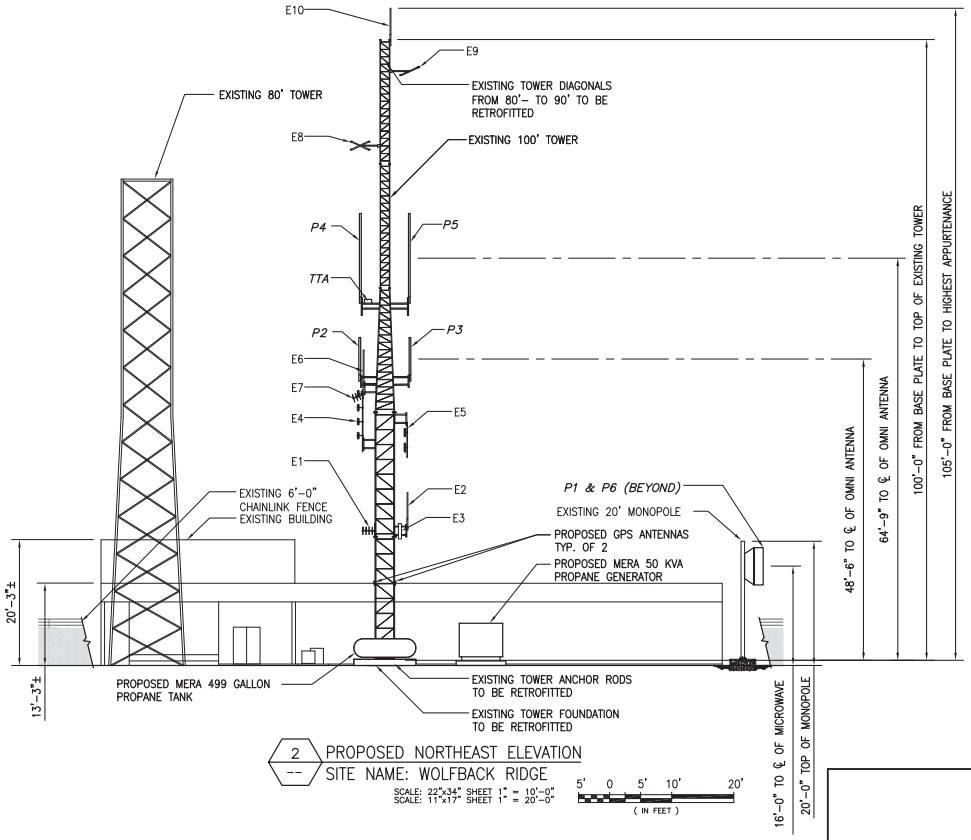
NOTES:

1. FIELD VERIFY MOUNTING HARDWARE OF ANTENNAS AND STAND-OFF BRACKETS. COORDINATE MAXIMUM SPACING BETWEEN ANTENNAS WITH MOTOROLA RF ENGINEER.

2. CONTRACTOR TO CONFIRM ANTENNA TYPES, COAX TYPE & LENGTHS, AZIMUTHS, AND HEIGHTS WITH FINAL RF INFORMATION.



1 EXISTING NORTHEAST ELEVATION
-- SITE NAME: WOLFBACK RIDGE
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)



2 PROPOSED NORTHEAST ELEVATION
-- SITE NAME: WOLFBACK RIDGE
SCALE: 22"x34" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"
5' 0 5' 10' 20' (IN FEET)

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TOWER ELEVATION
MARIN EMERGENCY RADIO AUTHORITY

C5
REV 5

"EXHIBIT 1"

RESOLUTION NO. 2019-07

FINDINGS PURSUANT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT
MERA NEXT GENERATION RADIO COMMUNICATIONS SYSTEM

I. OVERVIEW

In making a determination on the proposed Next Generation Radio Communications System (the "Next Gen System," or "Project") the MERA Governing Board (the "Board") makes and adopts the following findings of fact regarding mitigation measures and alternatives, based on substantial evidence in the whole record of this proceeding and under the California Environmental Quality Act (Pub. Resources Code, §§ 21000 et seq. ("CEQA")) and the CEQA Guidelines (14 Cal. Code Regs., §§ 15000 et seq.).

A. Purpose of the Findings

The purpose of these findings is to satisfy the requirements of CEQA associated with a decision to approve the Next Gen System (see Pub. Resources Code, §§ 21081, 21081.5; CEQA Guidelines, §§ 15091, 15092, 15093.). The Subsequent Environmental Impact Report ("SEIR") for the Project identifies significant and unavoidable environmental effects that would result from implementation. Public Resources Code section 21081 requires that whenever a lead agency approves or carries out a project that has one or more significant effects on the environment, the agency must make written findings for each of those impacts. The findings in this document provide the written analysis and conclusions of the MERA Governing Board.

B. Record of Proceedings

For purposes of CEQA and the findings set forth herein, the record of proceedings for the Governing Board's decision on the Project consists of: (a) matters of common knowledge to the MERA, including, but not limited to, federal, State, and local laws and regulations; (b) the following documents and materials, , which are available for review at the Marin County Public Works office, 3501 Civic Center Drive, Room 304, San Rafael, California 94903, during counter hours (Monday to Friday, 8am to 5pm):

- The original Initial Study (September 16, 1999), the original Draft EIR (November, 1999), and the original Final EIR (February 2000) for the existing MERA radio communications system;

- Notice of Preparation and other public notices issued by MERA in conjunction with the Project;
- September 2019 Draft SEIR and supporting documentation;
- All written and verbal comments submitted by agencies, organizations, and members of the public during the public comment period and at public hearings on the Draft EIR, and responses to those comments in the Final SEIR;
- The Mitigation Monitoring and Reporting Program ("MMRP");
- All findings and resolutions adopted by MERA in connection with the Project, and all documents cited or referred therein;
- All final reports, studies memoranda, maps, correspondence, and planning documents prepared by MERA or MERA consultants with respect to MERA's compliance with CEQA, the development of the Project, or MERA's action on the Project;
- All documents submitted to MERA by agencies, organizations, or members of the public in connection with development of the Project.

C. Project Objectives

The objectives of the Project are as follows:

1. Install a new radio communications system as approved in Measure A by a vote of the public in November 2014.

2. Modify the existing aging MERA system with new 700 MHz equipment to meet revised FCC requirements by 2023.

3. Improve Marin County communications coverage to reduce 911 response times and ensure reliable communications among first responders during major events, and everyday operations.

4. Provide Next Gen System communications coverage to meet 97% reliability in the Motorola contracted coverage area with delivered audio quality of 3.4 or better as measured by TSB-88 testing methods.

5. Relocate the radio system's Network Core and Prime Site from the Marin County Civic Center to the Emergency Operations Facility (EOF).

6. Maintain compliance with all applicable land use, permitting, and California Environmental Quality Act (CEQA) requirements.

7. Satisfy the MERA site selection criteria (below) to provide required coverage and reliability with minimum impacts to surrounding communities.

D. The Proposed Project

The existing MERA Radio Communications System is a network of radio antennas and equipment linked with microwave connections. However, the combination of older equipment and recent changes to frequency requirements by the *Congressional Jobs Bill HR 3630* now requires an upgrade of all Ultra High Frequency (T-band) radio communications systems, including the MERA system. The proposed Next Gen System would update the current backbone network to utilize new radio frequencies in the 700MHz band to vacate the UHF (T-band) frequencies currently utilized. The Next Gen System would also utilize Project 25 (P25) technology to provide improved public service and emergency radio coverage within the County of Marin. Funding for the project is generated by a parcel tax that was authorized by Marin County voters in 2014.

The current MERA system includes 15 active communications sites. The Next Gen System would retain and upgrade 10 of the functioning sites, decommission five existing sites and add equipment to eight new sites, which include previously developed infrastructure not part of the MERA system. Existing infrastructure at the eight new sites include communication facilities or water storage tanks, and a water wellhead site in northern Marin County.

Existing sites used in Next Gen System:

- Civic Center (APN: 179-270-11)
- Big Rock Ridge (APN: 164-300-04)
- Mt. Tamalpais (APN: 197-120-31)
- Mt. Barnabe (APN: 168-240-01)
- Point Reyes Hill (APN: 109-160-23)
- Dollar Hill (APN: 011-051-02)
- San Pedro Ridge (APN: 015-250-21)
- Mt. Tiburon (APN: 058-261-39)
- Sonoma Mountain (APN: 136-190-09)
- Stewart Point (APN: 188-090-15)

New sites proposed for Next Gen System:

- Prime Site (County Emergency Operations Facility) (APN: 165-220-11)
- Tomales (existing cell phone site) (APN: 100-050-42)
- Coyote Peak (a water wellhead site) (APN: 106-110-03)
- Skyview Terrace (an MMWD water tank site) (APN: 165-220-02)
- Muir Beach (a local water tank site) (APN: 199-262-11)

- Wolfback Ridge (an existing broadcast tower) (APN: 200-120-02)
- OTA Mt. Burdell (an existing broadcast tower) (APN: 125-120-03)
- Mill Valley Water Tank (MMWD water tank) (APN: 046-070-03)

E. Severability

If any term, provision, or portion of these findings or the application of same to a particular situation is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of these findings, or the application of the same to other situations, shall continue in full force and effect unless amended or modified by MERA.

II. POTENTIAL IMPACTS DETERMINED TO BE LESS THAN SIGNIFICANT WITHOUT MITIGATION

The Governing Board has reviewed and considered the information in Chapter VI-E of the SEIR, which concludes that the Project would cause "no impact" or "less-than-significant impacts" without imposition of mitigation. Therefore, the Governing Board, relying on the facts and analysis in the SEIR and concurs with the conclusions of the SEIR regarding the less-than-significant environmental impacts of the Proposed Project identified therein.

These finding apply to the following impacts evaluated in the SEIR and determined to result in "no impact" or "less-than-significant impacts without mitigation.

1. Agriculture and Forestry
   None of the proposed Next Gen sites will disrupt or cause the conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest use, nor does the proposed project involve any other changes in the existing environment which could result in the conversion of Farmland or forest land. Therefore, there would be ***no impact*** on agricultural or forestland.

2. Air Quality
   The proposed project would generate small quantities of greenhouse gases during construction and operation, but these quantities are planned for in the 2017 Clean Air Plan estimates and would not be sufficiently large as to conflict with the plans, policies, or regulations mentioned above. Consequently, the proposed project would have impacts that are ***less than significant*** and no further consideration of the topic is required.

3. Geology and Soils
   All proposed sites have been classified as low or very low risk for liquefaction and no other risk factors have been identified at any site, the proposed project

would not expose people or structures to substantial adverse effects involving seismic ground failure; therefore impacts would be ***less than significant***. No further consideration of this topic is required.

Proposed new structures within the Next Gen System would be compliant with all applicable building codes and regulations, and are in locations that are less likely to slide, the project would not directly or indirectly cause potential substantial adverse effects involving landslides. Thus, impacts would be ***less than significant***. No further consideration of this topic is required.

The Coyote Peak Site requires improvements to the access road that would necessitate grading, with cuts of three to eight feet deep in short sections, and some additional vegetation removal within the boundaries of an existing 1.5-mile dirt road. These improvements have the potential to expose soils to wind and water erosion, but the project would not alter the existing drainage pattern of the area or cause a long-term substantial change to erosion and accretion patterns. Temporary construction impacts related to run-off from any cut soil could occur, but the project would be required by the County to submit and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes appropriate water pollution control and dust control BMPs. This would ensure the project would not result in substantial erosion or loss of topsoil, and impacts would be ***less than significant***. No further consideration of this topic is required.

At all sites, structures would be constructed in accordance with applicable building codes and regulations to minimize risks from unstable geologic units and unstable soils. Therefore the proposed project would result in impacts that are ***less than significant***. No further consideration of this topic is required.

None of the sites are on expansive soils, and all structures would be built according to applicable building codes, the proposed project would not be adversely affected expansive soil. Thus, the proposed project would result impacts that are ***less than significant***. No further consideration of this topic is required.

4. <u>Hazards and Hazardous Materials</u>

   The project's compliance with fuel containment and BMPs related to the routine transport, use, or disposal of hazardous materials would result in impacts that are ***less than significant***.

   While chemicals used to operate construction equipment such as fuels and lubricants would be used at this site, this use would be temporary and in small quantities. Following a brief construction period, there would be no handling

or emissions of hazardous materials, except for the generation of small quantities of air pollutants during occasional generator use. Consequently, impacts would be ***less than significant*** and no further consideration of this topic is required.

None of the proposed project sites are located on a hazardous materials site, impacts would be ***less than significant*** and no further consideration of this topic is required.

The Next Gen System would not result in physical structures or changes to traffic patterns that would interfere with emergency response or evacuation plans and, in the long-term, would benefit such systems. The main purpose of the proposed project is to upgrade emergency response communications, enhancing the ability of dispatchers and first responders to carry out adopted emergency plans. Impacts would be beneficial and therefore ***less than significant***. No further consideration of this topic is required.

5. Hydrology and Water Quality

All sites are located away from large water bodies and/or at a relatively high elevation, the project would not be susceptible to releasing pollutants due to inundation by flood, seiche, tsunami, or mudflow, resulting in impacts that are ***less than significant***. No further consideration of this topic is required.

The project would not have other water quality or groundwater sustainability impacts beyond those discussed above. Project activities would leave the area similar to its existing condition, given that most development would occur in existing development footprints, and the project would be required by the County to submit and implement a SWPPP that includes appropriate water pollution control and dust control BMPs. Impacts would be ***less than significant***. No further consideration of this topic is required.

6. Energy

During the operational phase, with the exception of the Prime Site EOF, Next Gen facilities would be unoccupied and energy demands would remain relatively constant. When technicians are not present, energy at each site is consumed only by communications equipment and, in summer months, by air conditioning units that prevent the overheating of equipment. Communications equipment and air conditioning units that use electricity more efficiently will result in approximately the same overall consumption for the system as a whole as the baseline condition. Thus, impacts related to energy consumption would be ***less than significant*** and no further consideration of this topic is required.

All aspects of the project except the emergency generators would be powered by renewable energy, impacts with regard to state or local plans for renewable energy or energy efficiency would be ***less than significant***. No further consideration of this topic is required.

7. Mineral Resources

None of the proposed project sites are located within known mineral resource sites presented in the U.S. Geological Survey Mineral Resources Data System, nor are they located on active mines identified by the California Department of Conservation, Division of Mine Reclamation. The project would therefore not use rare, non-renewable mineral resources, nor would it preclude future excavation of oil or minerals should such extraction become viable. The proposed project would not result in the loss of availability of known mineral resources that would be of value to the region and the residents of the State. This results in ***no impact*** and no further consideration of this topic is required.

There are no known mineral resource sites or mine sites in the vicinity of the project. The proposed project would therefore not result in the loss of availability of locally-important mineral resource recovery sites and consequently, would have ***no impact.***

8 Population and Housing

The project would simply improve Marin County's emergency communications system and would not induce population growth in the area directly or indirectly, there would be ***less than significant impacts***.

9. Public Services

The proposed project would not require any new park development or increase usage of area parks. Consequently, the proposed project's impacts would be ***less than significant***.

10. Recreation

The proposed project does not include recreational facilities, and, as previously noted, there would be no population increase associated with the project, that would require new or expanded recreational facilities; thus, the impacts would be ***less than significant***.

11. Transportation and Circulation

The project would have a minimal impact on the circulation system. There may be a short-term increase in area traffic during construction at new and existing sites, and at the sites to be decommissioned, but this would be minimal and temporary. In the long-term, the project would generate one vehicle trip per month for each existing and new site, and delete one existing vehicle trip for

each decommissioned site each month. This would not be sufficient to have an impact on regional traffic or interfere with any applicable program, plan, policy or ordinance establishing measures of effectiveness for the transportation system in Marin County. Impacts would be ***less than significant.***

Vehicle miles traveled during both the construction phase and the operational phase of the project would be minimal and similar to the existing condition, transportation impacts would be ***less than significant***.

All proposed project sites are already improved with existing infrastructure, and the proposed communications improvements, including roadway access, are compatible with existing improvements. The project will not introduce any incompatible uses to local roads. As a result the project will not create roadway hazards due to design features or incompatible uses. Emergency vehicle access routes already exist at each of the proposed telecommunication sites. Therefore, project impacts would be ***less than significant***.

12. Utilities and Service Systems

Changes to electrical infrastructure would be standard and localized, and there would be no changes to natural gas, storm water drainage, or communications infrastructure. The project does not require water service. There would be no increase in wastewater treatment from the project and none of the proposed facilities would require water service. Accordingly, the proposed project would not result in any increased demand on the treatment capacity of local or regional wastewater treatment providers that would result in an adverse determination, and the proposed project would result in ***no impact***.

As the project would generate little solid waste during the operational phase, the landfill serving the project is projected to have capacity for several years past the conclusion of construction, and State and local standards would be adhered to. Therefore, project impacts would be ***less than significant***.

III. CEQA §21081(a) FINDINGS REGARDING SIGNIFICANT IMPACTS

The EIR identifies certain significant environmental impacts caused by the Project and recommends specific mitigation measures to reduce these impacts to a less-than-significant level, where feasible. The Governing Board has exercised its independent judgment, certified the SEIR as being adequate according to CEQA and has reviewed and considered the information in the SEIR and in the entire record; therefore, the Governing Board makes specific findings, as follows, for each significant impact,

pursuant to CEQA §21081(a), based not only on the SEIR, but on the evidence in the entire record, including written and oral testimony.

According to CEQA §21081 and CEQA Guidelines § 15091, no public agency shall approve or carry out a project for which an environmental impact report has been certified which identified one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:

A. The public agency makes one or more of the following findings with respect to each significant effect:

   1. Changes or alternations have been required in, or incorporated into, the project, which mitigate or avoid the significant effects on the environment (referred to herein as: "Finding 1: The impact is mitigated to a less-than-significant level.")

   2. The proposed changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency (referred to herein as "Finding 2: Another public agency can and should mitigate the impact.")

   3. Specific economic, legal, social, technological, or other considerations, including the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report (referred to herein as: "Finding 3: The impact would be mitigated, but not to a less-than-significant level. Specific considerations make further mitigation measures or alternatives infeasible.")

B. With respect to the significant effects, which were subject to Finding 3 described above, the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.

The following subsections discuss each of the significant impacts identified in the SIER. For each significant impact, the discussion under the caption "Facts" briefly recites background environmental impact information related to the impact. The finding made by the Governing Board is then set forth under the caption "CEQA §21081(a) Finding," and the discussion under the caption "Evidence Supporting the Finding" provides a brief explanation of the rationale for each finding based on substantial evidence, as required by section 15091 of the CEQA Guidelines. The following discussion does not repeat the full analysis of impacts and description of mitigation measures contained in the SEIR and other documents making up the administrative record. Instead, the following

discussion specifically references particular locations in documents containing such information (e.g., specific pages in the SEIR). The referenced documents are either included or attached herein or are readily available to the public for review at the Marin County Public Works office, 3501 Civic Center Drive, Room 304, San Rafael, California 94903, during counter hours (Monday to Friday, 8am to 5pm).

A. AESTHETICS

IMPACT AES -1: ALL SITES – POSSIBLE IMPACT OF EXTERIOR LIGHT ON NIGHT VIEWS

Facts:

The SEIR found that all sites where a manually operated outdoor porch light is specified in the design drawings have the potential to affect view of the night sky. The light would be turned off when a worker leaves a site, and no other external lighting will be installed. Therefore, visual impacts at night due to artificial light or nighttime glare would be minimal, and reduced to less-than-significant levels with the implementation of the recommended mitigation measure. (See Draft SEIR, pp. IVA-10)

CEQA §21081(a) Finding

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Based upon the SEIR the possible visual impact on the night sky is mitigated to a less than significant level by implementation of Mitigation Measure AES-1. The mitigation requires the outdoor porch light be shielded around the top of the light source to stop upward glared. Implementation of Mitigation Measure would reduce this impact to **less-than-significant**.

Adopted Mitigation Measure:

AES-1 requires that all sites with an exterior porch light include a shield around the top of the light source to stop upward glare and to protect dark nighttime skies.

IMPACT AES-2: TOMALES – IMPACT ON SCENIC RESOURCES WITN AN ELIGIBLE STATE SCENIC HIGHWAY

Facts

The SEIR found that the Tomales site presently appears as a grassy knoll in an agricultural setting as motorists drive south along State Route 1, an eligible State scenic highway. Views of the coastal agricultural setting of the Tomales site would be significantly altered by the construction of a 75-foot monopole, equipment shelter and fencing on the visible grassy knoll. The visual impact of the proposed project on the rural character of the Tomales landscape would be **significant and unavoidable**. (See Draft SEIR pp. V-192 to V-193)

CEQA § 21081(a) Finding:

Finding 3: The impact would be mitigated, but not to a less than significant level. Specific considerations make further mitigation measures or alternatives infeasible.

Evidence Supporting the Finding:

Based on the SEIR, this impact is partially mitigated with imposition of Mitigation Measure AES-2, described below, but not to a less-than-significant level. Even after implementation of Mitigation Measure AES-2 the monopole, microwave dishes, equipment shelter, and fencing would deter from the existing rural agricultural character of the Tomales site as viewed from State Route 1.

Further mitigation measures related to aesthetics at the Tomales Site are infeasible due to the open grassland character of the site, making the site more visible by the addition of screening with tall trees and shrubs that would conflict with the current visual characteristic of the site. Furthermore, if additional trees were planted, over time these trees could grow tall enough to block the microwave antennas and adversely impact operations. In addition, the height of the tower cannot be reduced without affecting the coverage of the radio system in surrounding valleys. This conflicts with the project's objective to ensure reliable communications.

Nor is it feasible to eliminate the equipment shelter from the site, as a 10 ft x 15 ft shelter is required to house the quantity of equipment needed at this communications site. A stand-alone equipment cabinet is not suitable for this equipment, and an underground vault of this size would be prohibitively expensive. The surrounding fence cannot be eliminated or its height reduced without compromising the security of the site.

Importantly, the Tomales Site is part of a network of sites upon which the function of the system is dependent upon specific geographical locations. If the site were to be moved

geographically, it would trigger a relocation of other communications sites resulting in similar aesthetic impacts at different locations. The SEIR considered alternatives for the Tomales Site but the analysis found that the most likely alternative, the Bay Hill Site in Sonoma County, would not achieve the desired coverage objectives of the proposed project. Relocating the Tomales site would also likely result in similar aesthetic impacts at different locations, which is in conflict with the Project objective of minimizing impacts to communities.

Thus, additional mitigation and alternatives to the project are not feasible, and the impact would remain **significant and unavoidable**.
Adopted Mitigation Measure:

AES-2 requires the construction of a 6-foot high, dark or earth-tone colored, opaque perimeter fence on the north and west sides of the proposed telecommunications site to screen views from State Route 1. Painted wood, permanently colored composite material, or black vinyl slats are material options suitable to screen views of the equipment and structure. The proposed galvanized gray color of the 75-foot monopole shall be maintained to minimize contrast with the sky.

IMPACT AES-3: TOMALES AND COYOTE PEAK - IMPACT ON VISUAL CHARACTER OF SITES AND PUBLIC VIEWS

Facts

The SEIR found that the Project would substantially degrade the existing character or quality of public views of the site and its surroundings in a non-urbanized for the Tomales and Coyote Peak sites. The SEIR found that the Tomales site presently appears as a grassy knoll in an agricultural setting as motorists drive south along State Route 1, an eligible State scenic highway. Views of the coastal agricultural setting of the Tomales site would be significantly altered by the construction of a 75-foot monopole, equipment shelter and fencing on the visible grassy knoll. The visual impact of the proposed project on the rural character of the Tomales landscape would be **significant and unavoidable**. (See Draft SEIR pp. V-192 to V-193). The SEIR found that proposed construction on the Coyote Peak site would substantially affect the visual character and quality of the sites and its surroundings when viewed from publicly accessible areas. The Coyote Peak site sits on a hilltop at an elevation of roughly 970 feet. Figures lll-48 through lll-50 simulate these proposed physical changes at Coyote Peak. These facilities would be located on the property a County outdoor education center that, in part, relies on visual quality of the setting to convey the value of nature to students. The construction of a telecommunications site on the hilltop would substantially affect the existing rural visual character of the Coyote Peak site. The impact on the visual

character of the Coyote Peak site would be **significant and unavoidable**. (See Draft SEIR pp. V-194 and V-213 to V-214)

CEQA §21081(a) Finding

Finding 3: The impact would be mitigated, but not to a less than significant level.

Evidence Supporting the Finding

Based upon the SEIR, Mitigation Measure AES-3 will require all debris be removed from the Coyote Peak and Tomales sites after construction is completed including access road grading and drainage, and that all disturbed surfaces be loosened and amended to facilitate native seed germination.

Adopted Mitigation Measure

AES-3 requires that after completion of the tower and structures, MERA shall remove all debris from the site, define all vehicular access points and turnarounds, and complete finish grading including road surfacing where needed and soil preparation for planting. Vehicular areas shall be graded to drain. Areas outside of vehicular zones shall be loosed or scarified if compacted, amended as needed and prepared to facilitate native seed germination. Hydroseed/mulch or hand-broadcast seeding and mulch shall complete site restoration. For areas steeper than 3:1, restored areas shall also include installation of straw waddles perpendicular to the slope at 20-foot intervals.

IMPACT AES-4: COYOTE PEAK – IMPACT ON VISUAL CHARACTER OF SITE AND PUBLIC VIEWS

Facts:

The SEIR found that proposed construction on the Coyote Peak site would substantially affect the visual character and quality of the sites and its surroundings when viewed from publicly accessible areas. The Coyote Peak site sits on a hilltop at an elevation of roughly 970 feet. Figures lll-48 through lll-50 simulate these proposed physical changes at Coyote Peak. These facilities would be located on the property a County outdoor education center that, in part, relies on visual quality of the setting to convey the value of nature to students. The construction of a telecommunications site on the hilltop would substantially affect the existing rural visual character of the Coyote Peak site. The impact on the visual character of the Coyote Peak site would be **significant and unavoidable**. (See Draft SEIR pp. V-194 and V-213 to V-214)

CEQA § 21081(a) Finding:

Finding 3: The impact would be mitigated, but not to a less than significant level. Specific considerations make further mitigation measures or alternatives infeasible.

Evidence Supporting the Finding:

Based on the SEIR, the impact at Coyote Peak is partially mitigated with imposition of Mitigation Measures AES-3 and AES-4, described below, but not to a less-than-significant level at either the Coyote Peak or Tomales site. Even after implementation of Mitigation Measures AES-3 and AES-4 the addition of a monopole, radio building and fencing will continue to substantially affect the visual character of the Coyote Peak site.

Further mitigation measures related to aesthetics at the Coyote Peak Site are infeasible due to the open grassland character of the site, making the site more visible by the addition of screening with tall trees and shrubs that would conflict with the current visual characteristic of the site. Furthermore, if additional trees were planted, over time these trees could grow tall enough to block the paths of the microwave antennas and adversely impact operations. In addition, the height of the tower cannot be reduced without affecting the coverage of the radio system in surrounding valleys. This conflicts with the Project's objective to ensure reliable communications.

Nor is it feasible to eliminate the equipment shelter at the site, as a 12 ft x 20 ft shelter is required to house the quantity of equipment needed at this communications site. A stand-alone equipment cabinet is not suitable for this equipment, and an underground vault of this size would be prohibitively expensive. The surrounding fence cannot be eliminated or its height reduced without compromising the security of the site.

Importantly, the Coyote Peak Site is part of a network of sites upon which the function of the system is dependent upon specific geographical locations. If the site were to be moved geographically, it would trigger a relocation of other communications sites resulting in similar aesthetic impacts at different locations. The SEIR considered alternatives for the Coyote Peak Site but the analysis found that the alternatives would not achieve the desired coverage objectives of the proposed project. Relocating the Coyote Peak site would also likely result in similar aesthetic impacts at different locations, which is in conflict with the project objective of minimizing impacts to communities.

Thus, the impact on visual character and public views at these two sites would remain **significant and unavoidable**.

Adopted Mitigation Measures:

AES-3 (described above).

AES-4 requires that the equipment shelter, fuel tank and emergency generator at Coyote Peak be painted dark earth tone colors to minimize contrast in the landscape and the proposed chain link fence shall be black vinyl-coated. AES-4 further requires that the perimeter fence be opaque to screen the generator and fuel tank and that the fence be located at least 10-feet back from the structures.

IMPACT: AES-5: SKYVIEW TERRACE – IMPACT ON SCENIC VISTAS

Facts:

The SEIR found that proposed construction of the telecommunication site on the existing public trail that extends southward from the water tank access road at the Skyview Terrace Site would obstruct public access to scenic vistas from the ridge. This would result in a **significant and unavoidable impact**. (See Draft SEIR pp. V-233 toV-234)

CEQA § 21081(a) Finding:

Finding 3: The impact would be mitigated, but not to a less than significant level. Specific considerations make further mitigation measures or alternatives infeasible.

Evidence Supporting the Finding:

Based on the SEIR, this impact is partially mitigated with imposition of Mitigation Measure AES-5, described below, but not to a less-than-significant level. After implementation of Mitigation Measure AES-5 the monopole, microwave dishes, equipment shelter, and fencing would deter from the existing quality of the scenic vistas from the ridgeline open space.

Additional mitigation of this impact is infeasible. At this location, the site cannot be moved down either side of the ridge (leaving the existing trail untouched) without obstructing the paths of the microwave antennas.

As with other sites, the Skyview Terrace Site is part of a network of sites upon which the function of the system is dependent upon specific geographical locations. If the site were to be moved geographically, it would trigger a relocation of other communications sites resulting in similar aesthetic impacts at different locations. The SEIR considered an alternative location for the Skyview Terrace Site but the analysis found that the alternative site would require a tower that would be taller than 300 feet, which would

have a more severe aesthetic/visual impact than the Skyview Site. Other sites considered would require new access roads and extension of utility lines, resulting in additional environmental impacts.

Thus, the impact would remain **significant and unavoidable**.

Adopted Mitigation Measure:

AES-5 requires the reconstruction of the public trail that extends southward from the water tank access road to allow pedestrians to access the open space area south of the proposed telecommunications site.

IMPACT: AES-6: SKYVIEW TERRACE – IMPACT ON EXISTING VISUAL CHARACTER AND QUALITY OF PUBLIC VIEWS

Facts:

Construction of the proposed 35-foot tall monopole, microwave dishes, and equipment shelter at the Skyview Terrace Site would be visible from distant residential neighborhoods, Highway 101 and from trails within the adjacent open space; proposed improvements would degrade the existing visual charter and quality of the hilltop open space creating a **significant and unavoidable impact**. (See Draft SEIR, pp. V-233 – V-236; Figure V.N-6 & V.N-7)

CEQA § 21081(a) Finding:

Finding 3: The impact would be mitigated, but not to a less than significant level. Specific considerations make further mitigation measures or alternatives infeasible.

Evidence Supporting the Finding:

Based on the SEIR, this impact is partially mitigated with imposition of Mitigation Measure AES-6, described below, but not to a less-than-significant level. Even after implementation of the mitigation measure the 35-foot tall monopole and microwave dishes would still be visible from surrounding residential/open space viewpoints and to traffic along Highway 101.

Further mitigation measures related to aesthetics at the Skyview Site are infeasible due to the open character of the site, making the site more visible by the addition of screening with tall trees and shrubs that conflict with the current visual characteristic of the site. Furthermore, if additional trees were planted, over time these trees could grow tall enough to block the microwave antennas and adversely impact operations. In

addition, the height of the tower cannot be reduced without blocking the microwave antennas. This conflicts with the project's objective to ensure reliable communications.

Nor can the equipment shelter be eliminated, as a 10 ft x 15 ft shelter is required to house the quantity of equipment needed at this communications site. A stand-alone equipment cabinet is not suitable for this equipment, and an underground vault of this size would be prohibitively expensive. The surrounding fence cannot be eliminated or its height reduced without compromising the security of the site.

As previously discussed, the Skyview Terrace Site is part of a network of sites upon which the function of the system is dependent upon specific geographical locations. If the site were to be moved geographically, it would trigger a relocation of other communications sites resulting in similar aesthetic impacts at different locations. The SEIR considered an alternative location for the Skyview Terrace Site but the analysis found that the alternative site would require a tower that would be taller than 300 feet, which would have a more severe aesthetic/visual impact than the Skyview Site. Other sites considered would require new access roads and extension of utility lines, resulting in additional environmental impacts.

Thus, the impact would remain **significant and unavoidable**.

Adopted Mitigation Measure:

AES-6 requires a combination of visual mitigation including construction of berms, opaque fencing and native grassland hydroseeding to screen views of the equipment shelter from points east and west of the ridgeline. Equipment on the site shall be aligned to maximize space for the berm construction and the trail (Mitigation Measure AES-5). The top of the berm and the six-foot tall fence shall be contoured to mimic the broad naturalized landform of the ridgeline and shall be high enough to screen the shelter (but not the monopole) from lower elevation views such as Highway 101 to the east and Park Ridge Road to the west.

Berms shall be mulched and hydroseeded to minimize erosion potential and to allow for germination during winter rains. Any erosion of the berm shall be immediately repaired.

IMPACT: AES-7: MUIR BEACH – IMPACT ON EXISTING VISUAL CHARACTER AND QUALITY OF PUBLIC VIEWS

Facts:

The SEIR found that construction of a monopole with antennas reaching 70 feet in height would affect the visual character of the GGNRA's Muir Beach scenic overlook, even though the parking lot and water tank are existing visible elements in the public landscape. Views to the east towards Mt. Tamalpais are most affected, as the new monopole would dominate the mountain vista and break the skyline resulting in a **significant and unavoidable impact**. (See Draft SEIR pp. V-250)

CEQA § 21081(a) Finding:

Finding 3: The impact would be mitigated, but not to a less than significant level. Specific considerations make further mitigation measures or alternatives infeasible.

Evidence Supporting the Finding:

Based on the SEIR, this impact is partially mitigated with imposition of Mitigation Measure AES-7, described below, but not to a less-than-significant level. Even after implementation of the mitigation measure the 70-foot tall monopole and microwave dishes would still be visible from the Muir Beach scenic overlook and nearby residential properties.

Further mitigation measures and alternatives to the site are infeasible. The height of the tower cannot be reduced without affecting the coverage of the radio system in surrounding valleys. This conflicts with the Project's objective to ensure reliable communications.

Nor can the equipment shelter be eliminated, as a 10 ft x 15 ft shelter is required to house the quantity of equipment needed at this communications site. A stand-alone equipment cabinet is not suitable for this equipment, and an underground vault of this size would be prohibitively expensive. The surrounding fence cannot be eliminated or its height reduced without compromising the security of the site. Landscaping will be provided as a visual shield, but tall trees cannot be added since, over time, these trees could grow tall enough to block the microwave antenna, adversely impacting operations.

The Pacific Ocean and State and Federal parklands surround the community of Muir Beach, thereby limiting available alternative sites for relocation of the monopole and other equipment. Options to relocate the Muir Beach site to another location would require a position within the parklands and would result in significant biological as well

as aesthetic impacts. Reduction in tower height would require the removal of trees in the parklands to maintain the radio connection between the Muir Beach Site, Mount Tamalpais and Stewart Point, which also would result in more severe environmental impacts. A site at Muir Beach is vital to providing emergency radio coverage in West Marin. Elimination of the Muir Beach site would significantly reduce emergency radio coverage in the southern portion of West Marin and not achieve the Proposed Project's objectives.

Thus, the impact would remain **significant and unavoidable**.

Adopted Mitigation Measure

AES-7 requires the proposed monopole to be painted the same rusty-brown color as the existing scenic overlook restroom and shall blend with the adjacent water tank as shown in Draft SEIR Figure V.O-7. The backside of microwave dishes, and other equipment on the top of the water tank (to the extent feasible) shall be painted to match the monopole. Front surfaces of microwave dishes cannot be painted and shall remain gray. Landscaping and opaque fencing are provided as part of the project to screen view of the equipment structure.

IMPACT: AES-8: MILL VALLEY – IMPACT ON EXISTING VISUAL CHARACTER AND QUALITY OF PUBLIC VIEWS

Facts:

The SEIR found that construction of a 55-foot tall monopole with one microwave dish and 4 antennas on the south side of the existing MMWD water tank in Mill Valley would result in a small degree of visual change to the character of the site from public vantage points. However, it is possible that some local residents would consider the visibility of portions of the monopole and antennas above the existing tree canopy as a significant visual impact (see Draft SEIR Figures V.R-2 through V.R-7). Given the potential for disagreement and the inability to fully mitigate the visibility of the higher portions of the monopole and the antennas that exceed the surrounding treetops, the change in the visual character of the neighborhood is deemed **significant and unavoidable**. (See Draft SEIR pp. V-298)

CEQA § 21081(a) Finding:

Finding 3: The impact would be mitigated, but not to a less than significant level. Specific considerations make further mitigation measures or alternatives infeasible.

Evidence Supporting the Finding:

Based on the SEIR, this impact is partially mitigated with imposition of Mitigation Measure AES-8, described below, but not to a less-than-significant level. Even after implementation of the mitigation measure, a portion of the 55-foot tall monopole and the antennas would still be visible in the surrounding neighborhood. Reduction of the tower height is infeasible, as it would decrease surrounding radio coverage and block microwave antennas, adversely impacting operations. Additional tall trees to help screen the visible portion of the monopole and antennas would also block microwave antennas. The SEIR identified a site on Kite Hill as a possible alternative to the Mill Valley site. However, upon analysis it was found that the Kite Hill site would require a tower height of between 120 to 300 feet to provide the necessary line-of-sight microwave link to the Mt. Tamalpais and Wolfback Ridge sites. The increase in tower height required at the Alternate Kite Hill site resulted in a more severe aesthetic impact than the proposed project and was rejected. Thus, the impact would remain **significant and unavoidable**.

Adopted Mitigation Measure

AES-8 requires the proposed monopole to be painted a dark color on the bottom to blend with the adjacent water tank and vegetation. The portion of the monopole above the water tank and the tree canopy shall remain galvanized steel to minimize contrast with the sky.

B. CULTURAL RESOURCES

IMPACT CULT-1 & 2: ALL SITES – POTENTIAL IMPACT ON HISTORICAL AND CULTURAL RESOURCES

Facts

No Next Gen sites were determined to have archaeological resources or human remains present. Furthermore, no historical or cultural resources were identified within any sites. However, the SEIR found that there was a potential for impacts on unknown historical and cultural resources at all Project sites during ground disturbance activities. (See Draft SEIR pp. IV.B-8 to -10, V-1, V-2)

CEQA §21081(a) Finding

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Based upon the SEIR Cultural Resources Inventory Report (GANDA, October 2018) commissioned for this project, which incorporated records searches and site visits, there are no known historical or cultural resources pursuant to Section 15064.5 within any of the proposed 18 MERA sites. Unknown historical or cultural resources could potentially be impacted during ground-disturbing activities associated with Project construction. At all Next Gen sites, the maximum depth of ground disturbance is expected to be 25 feet for drilled shaft monopole foundations, but only over a small area – three-foot diameter drilled shafts for example. Given the limited physical area of the proposed ground disturbance, accidental discovery of historical resources is unlikely. Nonetheless, ground disturbance work at all MERA sites would comply with Mitigation Measure CULT-1 and CULT-2. Implementation of CULT-1 & 2 will reduce this potential impact to **less-than-significant.**

Adopted Mitigation Measure:

CULT-1: During construction, if buried archaeological or tribal resources are discovered during ground disturbing activities, work shall stop in that area and within 100 feet of the find until the designated tribal monitor or a Registered Professional Archaeologist (RPA) can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with FIGR and/or the State Office of Historic Preservation (SHPO).

CULT-2: If buried paleontological resources or unique geologic features are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and, if

necessary, develop appropriate treatment measures in consultation with relevant agencies.

IMPACT CULT-3: ALL SITES – IMPACT ON HUMAN REMAINS

Facts

No Next Gen sites were determined to have archaeological resources or human remains present. As such, these impacts are discussed globally for all sites in Chapter IV.B. Furthermore, no historical or cultural resources were identified within any sites. Accordingly, potential impacts on historical and cultural resources are considered on a site-by-site basis to evaluate the possibility of impacts to unknown resource during ground disturbance activities. (See Draft SEIR pp. V-1, V-2)

CEQA §21081(a) Finding

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Based upon the SEIR Cultural Resources Inventory Report (GANDA, October 2018) commissioned for this project, which incorporated records searches and site visits, there are no known historical or cultural resources pursuant to Section 15064.5 within any of the proposed 18 MERA sites. Given the limited nature of the proposed ground disturbance, accidental discovery of historical resources is unlikely. Nonetheless, ground disturbance work at all MERA sites would comply with Mitigation Measure CULT-3, described below. Implementation of CULT-3 will reduce this potential impact to **less-than-significant.**

Adopted Mitigation Measure

CULT-3 upon accidental discovery of human remains, disturbance shall stop within the vicinity of the find and within other areas reasonably suspected to contain additional human remains. The Sonoma or Marin County coroner shall be contacted immediately. If the coroner determines the remains to be Native American, the coroner shall contact the NAHC within 24 hours. The NAHC shall subsequently identify the most likely living descendent, who may make recommendations to the landowner or the person responsible for excavation regarding acceptable means of treating or disposing of the remains and any associated grave items.

If the NAHC is unable to identify the most likely descendent, the descendent fails to make a recommendation within 24 hours of notification, the landowner rejects the

recommendation, or mediation by NAHC fails to yield a mutually agreeable recommendation, the landowner or representative shall rebury the remains and associated items with appropriate dignity on the same property in a location not subject to further subsurface disturbance.

IMPACT TRIBE-1 & 2: ALL SITES – IMPACT ON TRIBAL CULTURAL RESOURCES

Facts

Public agencies are required to consult with California Native American tribes that are on the Native American Heritage Commission's (NAHC) consultation list and are traditionally and culturally affiliated with the geographic area of a proposed project that is subject to the California Environmental Quality Act (CEQA). Consultation with the Federated Indians of Graton Rancheria (FIGR) began on June 5, 2018 and concluded on February 8, 2019. No tribal cultural resources were identified by FIGR at any of the sites. However, FIGR identified a potential for adverse effects to the significance of tribal cultural resources during site excavation. Potential impacts would be reduced to **less-than-significant** with implementation of recommended mitigation measures. (See Draft SEIR pp. V-1, V-2, Chapter V Tribal Analysis for all Sites).

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Based upon the SEIR Cultural Resources Inventory Report (GANDA, October 2018) commissioned for this project, which incorporated records searches and site visits, and consultation with FIGR, there are no known tribal cultural resources pursuant to Public Resources Code Section 5020.1(k) within any of the proposed 18 MERA sites. Given the limited nature of the proposed ground disturbance, accidental discovery of tribal resources is unlikely. Nonetheless, ground disturbance work at all MERA sites could uncover unknown tribal resources. MERA compliance with Mitigation Measures CULT-1 and TRIBE-1 through TRIBE -3 will reduce these potential impacts to **less-than-significant levels.**

Adopted Mitigation Measure

TRIBE-*1:* If the design of the proposed project is substantially altered after the conclusion of initial consultation with FIGR, final plans and specifications shall be submitted to FIGR's Tribal Heritage Preservation Officer, or designated representative, prior to construction. FIGR shall be provided reasonable opportunity to review the plans and specifications for potential tribal cultural impacts resulting from project excavation, grading, or mobilization. Based on the outcome of this review, FIGR may amend the list of sites requiring a tribal cultural monitor provided to MERA.

TRIBE-*2:* A tribal monitor with stop work authority shall be present during project excavation and grading to watch for the appearance of tribal cultural resources at the sites designated by FIGR. Unless modified by an updated list from FIGR, monitors will be present at the following 13 sites, which were preliminarily identified as having potential for disturbance of tribal cultural resources: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Point Reyes Hill, Dollar Hill, San Pedro Ridge, Mt. Tiburon, Sonoma Mountain, Stewart Point, Tomales, Coyote Peak, Skyview Terrace Water Tank, and Muir Beach.

TRIBE-*3:* Contractors and construction personnel involved with any form of ground disturbance at the sites designated as culturally sensitive by FIGR shall be advised of the possibility of encountering subsurface tribal cultural resources. If any such resources are encountered or suspected to have been encountered, work shall be halted within 100 feet of the find until FIGR has been notified and given the opportunity to assess the significance of the find. If the find is determined to be a significant tribal cultural resource, MERA shall consult with FIGR to develop a plan to preserve the resource's significance to the extent feasible.

C. BIOLOGICAL RESOURCES

IMPACT BIO-1 THRU 9: EIGHT SITES – POSSIBLE IMPACTS ON SPECIES IDENTIFED AS CANDIDATE, SENSITIVE, OR SPECIAL STATUS BY CDFW OR USFWS

<u>Facts</u>

The SEIR found that species identified as candidate, sensitive or special status by the California Fish and Wildlife Service or United States Fish and Wild Service were present at eight of the eighteen sites that comprise the Next Gen Project: Point Reyes Hill (Draft SEIR, pg. V-87); Dollar Hill (Draft SEIR, pg. V-106); Mount Tiburon (Draft SEIR, pp. V-139 to V-140); Stewart Point (Draft SEIR, pg. V-174.); Tomales (Draft SEIR, pp. V-195 to V-196); Coyote Peak (Draft SEIR, pp. V-216 to V-219); Muir Beach (Draft SEIR, pg. V252),

and Mill Valley Water Tank (Draft SEIR, pg. 300). However, the same species were not identified at each of the eight sites. Therefore, mitigation measures to reduce the potential biological impacts of the project differ depending on the species identified at each of the eight sites. Implementation of recommended mitigation measures would reduce all potential impacts to **less-than-significant levels**.

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

A Biological Resource Analysis (BRA) at each of the 18 MERA sites was completed in 2018. The BRA is based on database searches and site visits conducted during 2018. Early database searches were performed to identify the potential for species to be present at each site, with the results provided in the species lists in Appendix B to the Draft SEIR. Site-by-site reporting on potentially significant environmental resource impacts, including biological impacts, is provided in Chapter V of the SEIR. The purpose of the BRA was to determine three things: whether any newly recognized sensitive habitats or special-status species have potential to occur in the project's vicinity; to identify any new or significant impacts to biological resources; and to implement mitigation measures from the original project EIR (MERA 2000) calling for pre-construction surveys for sensitive resources. Two considerations affected the analysis of whether new impacts might occur: have there been any subsequent changes to the regulatory environment regarding biological resources; and are there new species given special consideration under CEQA that could be present. These changes include a broadened definition of what constitutes a special-status plant species since certification of the original project EIR.

Each of the 10 existing and eight proposed Next Gen Sites were first assessed separately for their potential to support special-status plant and wildlife species and sensitive biological communities—and they were then evaluated for the potential for project impacts. Where potentially significant impacts to biological resources were identified, mitigation measures are provided to reduce impacts to less-than-significant levels by requiring pre-construction site surveys, requiring species flagging and the installation of protective fencing, and imposing restrictions on the season or time of day in which work may occur, and where relevant, mitigation measures from the original project EIR are also implemented. MERA compliance with Mitigation Measures BIO -1 through BIO-9 and with BIO-3, BIO-4, BIO-7 and BIO-8 from the original EIR will reduce these potential impacts to **less-than-significant levels.**

Adopted Mitigation Measures

BIO-1: Within one month prior to commencement of construction, a qualified biologist shall flag the Marin manzanita individual within the Study Area. The qualified biologist shall notify the construction foreman as to the location of the special-status plant and identify the type of flagging used to ensure that contact with this species is avoided by construction crews. Just before construction, orange avoidance fencing shall be temporarily erected around the individual manzanita to keep construction equipment and crews away. (Apply at Point Reyes Hill, Stewart Point)

BIO-2: Project activities shall, to the extent feasible, occur outside of the nesting season from September1 – January 31. Where this is infeasible and project activities occur during the nesting season (February 1 through August 31), a nesting bird survey shall be conducted by a qualified wildlife biologist no more than 14 days prior to the start of project activities. If nests are identified, a no disturbance buffer shall be implemented to avoid impacts to nesting birds. The radius of a surrounding buffer will be determined by a qualified biologist and shall range from 25 feet to 500 feet depending on the species and protection status of that species. (Apply Point Reyes Hill, Mount Tiburon, Tomales. Muir Beach)

BIO-3: No more than 14 days before the start of ground disturbance activities at the Tomales Site, a biologist shall conduct pre-construction surveys of the project site and a surrounding 50-foot buffer to determine if American badger dens are present. If a den is determined to be active and occupied by a female with young, ground disturbance and construction activity shall be avoided within 50 feet of the den until the young have matured and dispersed. If a den is determined to be active, but a female with young are not present, burrow exclusion using passive measures such as one-way doors or equivalent shall be attempted for a minimum of three days to discourage their use prior to any project-related ground disturbance. If the biologist determines that the dens have become inactive as a result of the exclusion methods, the dens shall be excavated by hand to prevent them from being re-occupied during construction. (Apply Tomales)

BIO-4: Work at the Tomales Site shall be avoided during night hours (half an hour before sunrise to half an hour before sunset) when California red-legged frog may be dispersing across the site. In addition, no ground disturbing work shall occur within 24 hours of rain events that generate greater than 0.25 inch of accumulated precipitation or during rain events predicted to accumulate 0.25 inch of precipitation. (Apply Tomales)

BIO-5: A pre-construction burrowing owl survey shall be performed prior to start of ground disturbance activities at the Tomales Site, regardless of the time of year, as burrowing owls may use the project site during the non-nesting season. The survey shall be performed according to the standards set forth by the 2012 CDFW Staff report for Burrowing Owl Mitigation. Occupied burrows shall not be disturbed during the nesting

season (February 1 through August 31) unless, after consultation with the CDFW, a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and capable of independent survival. (Apply Tomales)

BIO-6: No more than 14 days before the start of ground disturbance activities at the Coyote Peak Site, a biologist shall conduct pre-construction surveys within 50 feet of the project site to determine if American badger dens are present. If a den is determined to be active and occupied by a female with young, ground disturbance and construction activity shall be avoided within 50 feet of the den until the young have matured and dispersed. If the den is determined to be active, but a female with young is not present, burrow exclusion using passive measures such as one-way doors or equivalent shall be attempted for a minimum of three days to discourage their use prior to any project-related ground disturbance. If the biologist determines that the dens have become inactive as a result of the exclusion methods, the dens shall be excavated by hand to prevent them from being re-occupied during construction. (Apply Coyote Peak)

BIO-7: Work at the Coyote Peak Site shall be avoided during night hours (half an hour before sunrise to half an hour before sunset) when California red-legged-frog individuals may be dispersing across the project site. In addition, no ground disturbing work may occur within 24 hours of rain events that generate greater than 0.25 inch of accumulated precipitation or during rain events predicted to accumulate 0.25 inch of precipitation.

Within 48 hours prior to installation of temporary steel grates spanning the top of bank of the ephemeral streams, a qualified biologist shall survey intermittent streams within the project site. If California red-legged frog are observed during the survey, work shall not proceed in that area until the qualified biologist verifies that the frogs have left the area on their own and there is no potential for the proposed work activities to result in injury or mortality. In addition, if California red-legged frog are observed in the study area during the preconstruction survey, a biological monitor shall be present for the remainder of ground disturbing activities. (Apply Coyote Peak)

BIO-8: Project activities at the Coyote Peak Site shall occur, to the extent feasible, outside of the nesting season from September 1 – January 31. If this is not possible, and project activities are initiated during the nesting season, then a nesting bird survey shall be conducted by a qualified wildlife biologist no more than 14 days prior to the start of project activities. If nests are identified, a no disturbance buffer shall be implemented to avoid impacts to nesting birds. The radius of a surrounding buffer will be determined by a qualified biologist and shall range from 25 feet to 500 feet depending on the species and protection status of that species. (Apply Coyote Peak)

BIO-9: Within two weeks prior to commencement of construction, a qualified biologist

shall flag the Oakland star-tulip population within the study area. The qualified biologist shall notify the construction foreman as to the location of the special-status plant population and work with the foreman to install flagging to ensure that this population is properly avoided by construction crews. (Apply Mill Valley)

Mitigation Measures form Original Year 2000 EIR

Previous Mitigation Measure Point Reyes Hill BIO-4

a. Prior to project activity, it will be determined whether any construction or tree removal is proposed during the raptor nesting season (February 15 to July 15).
b. If no construction or tree removal will occur during the raptor nesting season, no further mitigation will be necessary.
c. If construction or tree removal is proposed during the raptor nesting season, a focused survey for raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction or tree removal.
d. If nesting raptors are found during the focused survey, no construction or tree removal will occur within 500 feet of an active nest until the young have fledged (as determined by a qualified biologist).

Previous Mitigation Measure Point Reyes Hill BIO-3

a. Prior to project activity, a biologist will conduct a focused survey to determine if any Mt. Vision ceanothus or western leatherwood shrubs have established themselves since the Initial Study investigations at the Point Reyes Hill Site and, if present, whether they will be affected by construction activities.
b. If Mt. Vision ceanothus or western leatherwood shrubs are found within the construction impact area, they shall be fenced and flagged by a qualified biologist before construction activity, and the project will be shifted, if necessary, to avoid impacts to the shrubs. If all shrubs are fenced and avoided, impacts to Mt. Vision ceanothus and western leatherwood will be less than significant, and no further mitigation is necessary.

Previous Mitigation Measure Dollar Hill BIO-7

a. Prior to project activity, temporary fencing shall be placed around the dripline of mature oaks in the immediate vicinity of the Dollar Hill Site. No vehicles or materials shall be stored or parked inside this fencing. Silt-fencing shall be installed if any excavation or soil disturbance that could impact the oaks results from construction.

Previous Mitigation Measure Dollar Hill BIO-8:

a. Prior to project activity, it will be determined whether any construction or tree removal is proposed during the raptor nesting season (February 15 to July 15)
b. If no construction or tree removal will occur during the raptor nesting season, no further mitigation will be necessary.
c. If construction or tree removal is proposed during the raptor nesting season, a focused survey for raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction or tree removal.
d. If nesting raptors are found during the focused survey, no construction or tree removal will occur within 500 feet of an active nest until the young have fledged (as determined by a qualified biologist).

IMPACT BIO-7: COYOTE PEAK: POSSIBLE CALIFORNIA RED-LEGGED FROG IMPACT

Facts

The SEIR found the existing access road to the Coyote Peak Site contains several potential wetland and non-wetland water features that parallel or intersect the access road through underground culverts. Aquatic features observed include three ephemeral streams, drainage ditches, ditch wetlands and seasonal wetland seep bordering the west side of the access road midpoint. All these features are likely to be considered jurisdictional under Section 404 and 401 of the Clean Water Act. Also, the ephemeral streams present are likely to be considered jurisdictional features under Section 1600-1616 of the California Fish and Game Code. Proposed road grading activities have been designed to avoid direct impact to wetland features. (See SEIR, pp. V-218) However, there is the potential for impacts to red-legged frogs during Project construction. Implementation of Mitigation Measure BIO-7 would mitigate impacts to less-than-significant levels.

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level.**

Evidence Supporting the Finding

Based upon the SEIR the seasonal wetland seep and wetland seep and wetland ditches in the vicinity of the Coyote Peak Site are dominated by hydrophytic rushes and forbs including brownhead rush (Juncus phaeocephalus), common bog rush (Juncus effusus),

and pennyroyal (Mentha pulegium). The area mapped as seasonal wetland seep and wetland ditch likely contains a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology sufficient to meet the requirements as jurisdictional features under Section 404 of the Clean Water Act. Overall possible impacts on wetlands would be avoided, but there is still a possibility of impacts to red-legged frogs due to construction activities at the Coyote Peak Site. MERA compliance with Mitigation Measure BIO-7 would reduce potential impacts to red-legged frog to **less-than-significant.**

Adopted Mitigation Measure

BIO-7: Work at the Coyote Peak Site shall be avoided during night hours (half an hour before sunrise to half an hour before sunset) when California red-legged-frog individuals may be dispersing across the Project site. In addition, no ground disturbing work may occur within 24 hours of rain events that generate greater than 0.25 inch of accumulated precipitation or during rain events predicted to accumulate 0.25 inch of precipitation.

Within 48 hours prior to installation of temporary steel grates spanning the top of bank of the ephemeral streams, a qualified biologist shall survey intermittent streams within the project site. If California red-legged frog are observed during the survey, work shall not proceed in that area until the qualified biologist verifies that the frogs have left the area on their own and there is no potential for the proposed work activities to result in injury or mortality. In addition, if California red-legged frog are observed in the study area during the preconstruction survey, a biological monitor shall be present for the remainder of ground disturbing activities.

D. POTENTIAL HAZARDS

IMPACT RF-1: PRIME SITE EOF BUILDING: ROOFTOP CONTROLLED AREA ABSENT WARNING SIGNAGE

<u>Facts</u>

The SEIR found that the radio antennas proposed to be located on the roof of the Prime Site EOF building will result in radio frequency ("RF") emissions. Based on SiteSafe's worst case scenario measurements and models all uncontrolled areas with public access were well within the within the FCC's adopted Maximum Public Exposure (MPE) limit. However, within the controlled/occupational rooftop area of the Prime Site EOF building, current RF emissions exceed 100% of the MPE limits at specific points, and

they will continue to exceed 100% of the MPE during the transition phase and upon completion of the proposed project. (Draft SEIR, pp. V-8)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less than significant level**.

Evidence Supporting the Finding

Based on the SEIR MERA's proposed operations at the Prime Site EOF would comply with FCC public exposure regulations, as all publicly accessible spaces would be subject to less than five percent of the MPE limit for public exposure. The SiteSafe Report found that existing ground level RF emissions at the Prime Site EOF are less than 5% of the FCC's MPE limits for uncontrolled/general public environments, and that ground level RF exposure will remain at less than 5% of the MPE limits during the transition phase and upon completion of the proposed MERA Next Gen Project. Consequently, the impacts to the public from RF emissions at the Prime Site EOF would be **less-than-significant**. However, within the controlled/occupational rooftop area of the Prime Site EOF, current RF emissions exceed 100% of the MPE limits at specific points, and they will continue to exceed 100% of the MPE during the transition phase and upon completion of the proposed project. The controlled/occupational rooftop environment can be brought into compliance with applicable FCC regulations by posting warning signage at the rooftop entrance and at selected antenna mounts. Mitigation Measure RF-1 below requires the posting of such signage. As a result, controlled/occupational area RF exposure impacts at the Prime Site EOF during all stages of the project would be **less-than-significant** with mitigation incorporated.

Adopted Mitigation Measure

RF-1: MERA shall install exposure warning signs at rooftop entries and selected antenna mounts in the controlled access rooftop area according to SiteSafe's individual report for the Prime Site EOF (pages 10-30 of the SiteSafe Report, which is Appendix D to the SEIR) and the SiteSafe Report's General Safety Recommendations (pages 313-315 of Appendix D to the SEIR). In summary, MERA shall install a NOTICE sign at antennas 11-27 and a CAUTION sign at antennas 28-32. Signage location details can be viewed on pages 19-20 of Appendix D to the SEIR.

IMPACT RF-2: CIVIC CENTER: ROOFTOP CONTROLLED AREA ABSENT WARNING SIGNAGE

Facts

The SEIR found that MERA's proposed radio antennas would be located together with other non-MERA antennas atop of the Marin Civic Center building. MERA's antennas together with the other non-MERA antennas will result in radio frequency emissions. Within the controlled area of the Civic Center rooftop, there would be 36 antennas capable of operating at one time during the transition period (for a full inventory, see Page 37 of Appendix D), although this condition would be rare given the intermittent nature of voice communications.

The SiteSafe analysis found maximum theoretical emissions during the transition period would remain unchanged from baseline levels (below 5% of MPE) during the transition period. The transition period is temporary and anticipated to last for up to two years until the Next Gen System is fully tested and operational. Because the impact of the MERA antenna will be small compared with the other transmitters, with the new system fully in place and the project complete, maximum rooftop-level exposure would represent no change from current baseline theoretical maximum emission values on the roof. However, within the controlled/occupational rooftop area of the Civic Center Site, current RF emissions exceed 100% of the MPE limits at specific points, and they will continue to exceed 100% of the MPE during the transition phase and upon completion of the proposed project. (Draft SEIR, pp. V-23 to V-25)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

The SiteSafe Report found that existing ground level RF emissions at the Civic Center Site are less than 5% of the FCC's MPE limits for uncontrolled/general public environments, and that ground level RF exposure will remain at less than 5% of the MPE limits during the transition phase and upon completion of the proposed MERA Next Gen Project. Consequently, the impacts to the public from RF emissions at the Civic Center Site would be **less-than-significant**.

However, within the controlled/occupational rooftop area of the Civic Center Site, current RF emissions exceed 100% of the MPE limits at specific points, and they will continue to exceed 100% of the MPE during the transition phase and upon completion of the proposed project. The controlled/occupational rooftop environment can be brought into compliance with applicable FCC regulations by posting warning signage at the

rooftop entrance and at selected antenna mounts. Mitigation Measure RF-1 below requires the posting of such signage. As a result, controlled/occupational area RF exposure impacts at the Civic Center Site during all stages of the project would be **less-than-significant** with mitigation incorporated.

Adopted Mitigation Measure

RF-2: MERA shall install exposure warning signs at rooftop entries and at identified antenna mounts in the controlled access rooftop area according to SiteSafe's individual report for the Civic Center Site (pages 31-46 of the SiteSafe Report, which is Appendix D to the SEIR) and the SiteSafe Report's General Safety Recommendations (pages 313-315 of Appendix D to the SEIR). In summary, MERA shall install a NOTICE sign at antennas 31-35 and a CAUTION sign at antennas 18-30 and 8-12. Signage location details can be viewed on page 37 of Appendix D to the SEIR.

IMPACT RF-3: MOUNT TIBURON - CONTROLLED AREA ABSENT WARNING SIGNAGE

Facts

The SEIR found MERA's operations at the Mt. Tiburon Site currently comply with the FCC's uncontrolled/general public RF exposure limits. The SiteSafe report found that the existing ground-level RF emissions were less than 5% of the MPE limits for uncontrolled/general public environments and would remain less than 5% of the MPE limits during the transition phase and upon completion of the proposed project. Likewise, the ground-level RF emissions within the fenced controlled/occupational environment are and will remain less than 5% of the MPE limit.

However, Based on SiteSafe measurements and models, as well as the site's layout and signage, SiteSafe concluded that controlled access areas on top of the water tank near the monopole should be noticed. This is because within specific controlled access areas on top of the water tank nearest the monopole, RF emissions could exceed 100% of the MPE limits during the transition phase and upon completion of the proposed project. (Draft SEIR, pp. V-142 – V-143)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level.**

Evidence Supporting the Finding

At the Mt. Tiburon Site, there would be 11 antennas capable of operating at one time during the transition period (for a full inventory, see Page 179 of Appendix D), although this condition would be rare given the intermittent nature of voice communications. These antennas would cumulatively create a theoretical maximum exposure of 10.1% of the public MPE limit in controlled-access areas. Such emissions would occur high off the ground. Maximum ground-level exposure would be less than 5% of the public MPE both within and outside of the controlled access, fenced off area.

With the new Next Gen System fully in place and the project complete, maximum ground-level exposure in controlled areas would decline to 2.2% of the public MPE limit. Uncontrolled areas accessible to the public would produce a theoretical maximum of less than 5% of the public MPE limit. Based on these models and the site's layout and signage (depicted in Chapter III of the SEIR), SiteSafe concluded that all facilities at the Mt. Tiburon Site are compliant with FCC regulations and that MERA need not take any corrective action.

Within specific controlled access areas on top of the water tank nearest the monopole, RF emissions could exceed 100% of the MPE limits during the transition phase and upon completion of the proposed project. The controlled access top of the water tank area would be brought into compliance with applicable FCC regulations by posting warning signage at the base of the tank ladder and at selected antenna mounts. The controlled/ occupational area RF exposure impacts at the Tiburon Water Tank site during all stages of the project would be **less-than-significant** with mitigation incorporated.

Adopted Mitigation Measure

RF-3: MERA shall install an exposure warning sign at selected locations in the controlled access rooftop area according to SiteSafe's individual report for the Mt. Tiburon Site (pages 172-183 of the SiteSafe Report, which is Appendix D to the SEIR) and the SiteSafe Report's General Safety Recommendations (pages 313-315 of Appendix D to the SEIR). In Summary, MERA shall install a NOTICE sign at the access of the water tank. Signage location details can be viewed on page 178 of Appendix D to the SEIR.

E. AIR QUAILTY AND GREENHOUSE GAS EMISSIONS

IMPACT AIR-1: COMPLIANCE WITH APPLICABLE AIR QUALITY STANDARDS AND PLANS

Facts

The Bay Area Air Quality Management District (BAAQMD) is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources, and it has responded to this requirement by preparing a series of Air Quality Management Plans (AQMP), with the most recent issued in April 2017 (the 2017 Clean Air Plan). The 2017 Clean Air Plan strives to improve Bay Area air quality and protect public health by defining a control strategy to reduce emissions and ambient concentrations of air pollutants, reducing exposure to air pollutants the pose the greatest health risk, and reducing greenhouse gas emissions to protect the climate.

Projects that are consistent with the population forecasts identified by the Association of Bay Area Governments (ABAG) are considered consistent with the 2017 Clean Air Plan's growth-related gorals and policies, since ABAG's projections form the basis of the land use and transportation control strategies of the Plan. The proposed Next Gen Project would not attract new permanent residents to the area, and, is therefore consistent with the 2017 Clean Air Plan's employment and population goals. While it is possible that construction jobs could temporarily attract individuals to the area, this impact would be temporary and would not occur in sufficiently high quantities to violate applicable plans. (Draft SEIR, pp. VI-17 to VI-18)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

The SEIR found that construction jobs related to the Project could temporarily attract individuals to the area, but this impact would be temporary and would not occur in sufficiently high quantities to violate applicable plans. The Project is also consistent with the transportation control strategies of the 2017 Clean Air Plan, as it would not increase demand for motor vehicle travel, and Mitigation Measure AIR-1 (below) would reduce the potential impacts of vehicle emissions during construction. Project construction activities would result in short-term increases in emissions from the use of heavy equipment that generates dust, exhaust, and tire-wear emissions; soil disturbance; materials used in construction; and minor construction traffic.

Project construction would produce fugitive dust (PM10 and PM2.5) during ground

disturbance and would generate carbon monoxide, ozone precursors, and other emissions from vehicle and equipment operation. The duration of construction at any given site would vary according to the nature and extent of the proposed facilities. Most sites have only minor equipment changes, such as new antennas or microwave dishes on existing towers or monopoles. Construction duration at these sites would range from a few days to a few weeks. Removal of original equipment would take another few weeks. Other sites, shown in Table III-2 (Chapter III, Project Description) would require monopole or tower foundation improvements to meet seismic safety standards. These sites could require deeper excavations directly adjacent to the existing monopole or tower and construction duration may take up to 8 weeks to complete the foundation work. Coyote Peak is the one site that would require more extensive grading of two overly steep sections of the existing 1.5-mile graded dirt access road. Access road construction would necessarily precede any site construction. Underground power lines would also be installed to serve the Coyote Peak Site. At Coyote Peak, the site construction would last six months during the dry summer season.

Air pollutants associated with facility operations include vehicle emissions from periodic maintenance visits to each site and exhaust from the use of on-site emergency generators. Emergency generators are periodically cycled for preventative maintenance purposes in addition to being occasionally used during power outages. Propane and diesel-fueled generators have the potential for minor contributions to regulated emissions, which would be further reduced with the use of modern pollution control equipment.

As these emissions are minimal, and very sporadic in nature, long-term project emissions would not conflict with or obstruct implementation of the 2017 Clean Air Plan. However, Mitigation Measure AIR-2 is required below to ensure that operational emissions would be less-than-significant.

Overall, with implementation of Mitigation Measures AIR-1 and AIR-2, the Next Gen Project would not conflict with or obstruct implementation of the applicable measures in the 2017 Clean Air Plan, and this impact would be **less-than-significant with mitigation incorporated.**

Adopted Mitigation Measures

AIR-1:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using

wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations).
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications, and all equipment will be checked by a certified vehicle emissions evaluator.
8. A publicly visible sign with the telephone number and person to contact at the lead agency regarding any dust complains shall be posted in or near the project site. The contact person shall respond to complaints and take corrective action within 48 hours. The Air District's phone number shall be visible to ensure compliance with applicable regulations.

AIR-2: Emergency power generators shall be equipped with emission control devices.

F. GEOLOGY AND SOILS

IMPACT GEO-1: POTENTIAL ADVERSE IMPACT FROM SEISMIC SHAKING

Facts

Based on a review of geologic data available from Marin County, there are no unusual geologic conditions present at any of proposed sites, such that there is no increased risk of damage from seismic shaking beyond what is common to the region. Although future large earthquakes could damage structures and towers, construction would adhere to the California Building Standards Code and earthquake engineering standards. Due to their location in seismically active areas, all of the proposed Project sites are subject to the effects of seismic-induced ground shaking which could potentially be significant. (Draft SEIR, pp. VI-22 and VI-23.)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Although future earthquakes could damage structures and towers, all Project sites shall have a geotechnical report prepared and construction will adhere to the California Building Standards Code and earthquake engineering standards, as required by Mitigation Measure GEO-1. Therefore, as people and structure would not be exposed to substantial adverse effects involving strong seismic ground shaking, impacts would be **less-than-significant** with the incorporation of mitigation measure GEO-1.

Adopted Mitigation Measure

GEO-1: A design-level geotechnical report shall be prepared for the facilities proposed at each of the communication sites. A qualified geotechnical engineer and engineering geologist shall prepare the document, and this design-level report shall provide criteria for site preparation, pavement, and foundations. Site-specific earthquake forces shall also be identified and incorporated into the design of structures. All structures, including towers and earthworks, shall conform to the applicable earthquake design standard such as the California Building Standards Code.

IMPACT GEO-2: IMPACTS TO PALEONTOLOGICAL RESOURCES OR UNIQUE GEOLOGIC FEATURES

Facts

Based on the SEIR, there are no known paleontological sites or resources or unique geological features within or near the identified Areas of Direct Impact (ADI) for the project sites, and the likelihood of unearthing any such resources during ground disturbance is very low. Potential impacts can be reduced to **less than significant** levels with mitigation. (Draft SEIR, pp. VI-26.)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Based upon the lack of known resources, the low likelihood of accidental discovery, and the implementation of Mitigation Measure GEO-2, the project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature,

and impacts would be **less-than-significant with mitigation incorporated**. This finding applies uniformly across all sites.

Adopted Mitigation Measure

GEO-2: If buried paleontological resources or unique geologic features are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified registered geologist or paleontologist can assess the significance of the find and, if necessary, develop appropriate procedures for its treatment or avoidance.

G. NOISE

IMPACT NOISE-1: CONSTRUCTION COULD TEMPORARILY INCREASE AMBIENT NOISE LEVEL IN AREAS SURROUNDING NEXT GEN SYSTEM SITES

Facts

The SEIR found that construction activities associated with the proposed Project would create noise typical of small-scale development. Examples of construction-generated noise would be from construction equipment usage, such as hand power tools, construction vehicles, and construction equipment such as a tower crane, and back-up warning "beepers". Construction equipment would generally generate a maximum noise level of approximately 101 dB at 50 feet and would be reduced by 6 dBA per doubling of distance. Operational activities at the Next Gen System Sites were found to have less than significant impacts. (See SEIR, pp. VI-33 to VI-34)

CEQA § 21081(a) Finding:

Finding #1: This impact is mitigated to **a less-than-significant level**.

Evidence Supporting the Finding

Operation of the 18 proposed communications sites that would make up the Next Gen System would result in less-than-significant long-term ambient noise level impacts. Potential sources of noise at new sites are 1) air conditioning units attached to exterior walls of the equipment shelters, and 2) the periodic operation of the emergency generators. These noise sources exist today at MERA's current sites and will not increase as a result of the project. Any new equipment would meet adopted noise level

requirements, and Mitigation Measure NOISE-1 requires air conditioners and generators located nearby the general public be equipped with noise reduction features.

Given that construction noise impacts will be temporary in nature and that Mitigation Measure NOISE-1 ensures local noise standards be followed for construction noise and noise reduction features be used to minimize the already minimal operational impacts to sensitive receptors, the Project would not expose people to or generate noise in excess of established standards and impacts would be **less-than-significant with mitigation incorporated**.

Adopted Mitigation Measure

NOISE-1:

1. The Contractor shall comply with local standards regarding noise generation and hours of construction during all phases of the project construction. The Construction Project Manager or designated representative shall provide the Contractor with the applicable restrictions.
2. At all newly constructed sites and at sites where the general public would be regularly exposed to the sound of air conditioning units and emergency power generators (Prime Site EOF, Civic Center, Mt. Tiburon, Mill Valley Water Tank, and Muir Beach), those units and generators shall be equipped with noise reduction features.
3. The Construction Project Manager or designated representative shall verify that all workers on-site are aware of and understand applicable noise restrictions. This will be accomplished by on-site meetings with each contractor and their employees prior to the start of construction.
4. The Construction Project Manager shall verify that project documents specify the use of equipment that meets the requirements of this mitigation measure and shall maintain a written record of compliance.

IV. GROWTH INDUCING IMPACTS

CEQA requires a discussion of the ways in which a project could be growth inducing. CEQA also requires a discussion of ways in which a project may remove obstacles to growth, as well as ways in which a project may set a precedent for future growth. CEQA Guidelines section 15126.2(d) identifies a project as growth inducing if it fosters economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment.

There are several ways in which growth-inducing impacts can result from new development projects. For example, a project can have a growth-inducing impact if

development of that project removes obstacles to future development by creating and making available infrastructure that fosters future development. These physical, infrastructure improvements can include the construction of roads, water lines, sewer service, and other kinds of urban infrastructure and services into previously non-urban areas.

A second type of impact can be the setting of precedents that could allow similar developments to occur in the future. Examples include a development that allows growth in an area previously closed to development such as an agricultural area or outside an urban service area. A precedent setting project can have growth-inducing impacts by increasing the expectations of adjoining property owners who expect the "highest and best use" of their lands.

None of the proposed project sites would have a direct or indirect impact on growth in Marin or Sonoma Counties. The proposed project is an emergency telecommunications system that would serve the existing population in Marin County and would not require or prompt growth. The project is intended to improve emergency communication coordination and dispatch capabilities and would not increase mobile units or patrols. The proposed project would benefit the community population through more efficient use of the existing law enforcement, fire, and emergency capabilities. Given the project would simply improve Marin County's emergency communications system and would not induce population growth in the area directly or indirectly, there would be **less-than-significant impacts**.

V. PROJECT ALTERNATIVES

CEQA Alternatives Analysis

Section 15126.6(f) of the CEQA Guidelines requires that an EIR include "a range of reasonable alternatives to the project, or to the location of the project, which would avoid or substantially lessen any significant effects of the project." Based on the analysis in the SEIR, the Project as proposed was expected to result in significant and unavoidable aesthetic impacts. The alternatives to that Project were designed to avoid or reduce these significant and unavoidable impacts and to further reduce impacts that are found to be less than significant following mitigation. The Draft SEIR fully analyzed four alternatives to the proposed Project. The Board finds that the SEIR reviewed a reasonable range of alternatives as compared with the Project as originally proposed, and in evaluating the alternatives has also considered each alternative's feasibility, taking into account economic, environmental, social, legal, and other factors.

Definition of Feasibility of Alternatives

Public Resources Code section 21081(b)(3) provides that when approving a project for which an EIR has been prepared, a public agency may find that "specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report." Under Public Resources Code section 21061.1, the term "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Environmentally Superior Alternative

Section 15126.6 of the CEQA Guidelines requires that an "environmentally superior" alternative be selected and the reasons for such a selection disclosed. In general, the environmentally superior alternative is the alternative that would be expected to generate the least amount of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative selected may not be the alternative that best achieves the goals or needs of the project applicant.

Based on the analysis presented in Chapter VII of the SEIR, Alternative 1 (the "No Project" Alternative), would result in the greatest reduction in project impacts and would be the environmentally superior alternative. However, where the environmentally superior alternative is the "no project" alternative, CEQA requires that the EIR shall also identify an environmentally superior alternative from among the other alternatives analyzed and compared (CEQA Guidelines, Section 15126.6[e][2]). Based on the analysis of alternatives provided in Chapter VII and the Alternatives Comparison table (Table VII-2), and because Alternatives 1 through 4 do not meet the basic project objectives, it was determined that the Proposed Next Gen. Project would be the environmentally superior alternative.

Findings on Feasibility of Alternatives

The SEIR examined four alternatives to the proposed Project, including Alternative 1 – No Project Alternative - Existing MERA System 16 Sites (400 MHz); Alternative 2 – Upgrade Existing Sites- 16 Sites (700MHz); Alternative 3 – Original Motorola Solutions Proposal – 15 Sites (700 MHz); and Alternative 4 – Revised Project Design – 16 Sites (700MHz).

For the reasons set forth below, and considering the entire record, the Board hereby determines that, while the SEIR presents a reasonable range of alternatives in accordance with CEQA, each of the four alternatives is infeasible within the meaning of CEQA. Each reason set forth below is a separate and independent ground for the Board's determination.

Alternative 1: No Project Alternative - Existing MERA System 16 Sites (400 MHz)

Description of the Alternative

The No Project Alternative (Alternative 1) assumes that the proposed Next Gen Project would not proceed and that MERA would continue to operate under its current network of communication sites using 400 MHz frequencies (Figure VII-1). Under this alternative, the proposed project would not be constructed or implemented, and the project sites would remain in their current condition. The analysis of the No Project Alternative assumes the continuation of existing physical conditions on the project sites.

Reasons for Rejecting Alternative

Although the No Project Alternative, would not create any additional environmental impacts beyond those of the existing system, and would have fewer impacts as compared to the proposed project, the No-Project Alternative meets only one of the six project objectives. It would not install a new system as approved in Measure A, upgrade the system with new 700 MHz equipment to meet revised FCC requirements, increase reliability, improve radio coverage, or relocate the system's Network Core and Prime Site EOF from the Marin County Civic Center to the EOF.

It has been determined that Marin County requires a more reliable communications network for emergency situations, to provide first responders the resources they need to keep the citizens of Marin County safe. Maintaining the 20-year-old network would be difficult due to lack of replacement parts and the difficulty or inability to incorporate new technologies. Keeping the MERA network as-is would leave coverage and reliability gaps in the system.

Conclusion Regarding Alternative 1

The Governing Board hereby finds that failure to meet five of the six Project objectives is an independent ground for rejecting the No Project Alternative as infeasible and by itself, independent of any other reason, justifies rejection of the alternative.

Alternative 2: Upgrade Existing Sites- 16 Sites (700MHz)

Description of Alternative

Alternative 2 assumes that there would be no change in the location or number of existing MERA sites, but modifications would be made at each of the 16 sites to provide 700 MHz communication channels (Draft SEIR, Figure VII-3). This alternative would not alter existing MERA site locations, number of towers or sites, or tower heights in any way. Some additional equipment may be necessary to upgrade to 700 MHz

Reasons for Rejecting Alternative

Although this alternative would have lesser impacts as compared to the proposed project, it would not meet the following four project objectives: 1) Improve Marin County communications coverage to reduce 911 response times and ensure reliable communications among first responders during major events, and everyday operations; 2) Provide Next Gen System communications coverage to meet 97% reliability in the Motorola contracted coverage area with delivered audio quality of 3.4 or better as measured by TSB-88 testing methods; 3) Relocate the radio system's Network Core and Prime Site from the Marin County Civic Center to the Emergency Operations Facility (EOF); and 4) Satisfy the MERA site selection criteria to provide required coverage and reliability with minimum impacts to surrounding communities. Under this alternative, MERA would modify the existing system by installing new 700 MHz equipment to comply with revised FCC requirements, but the upgrades would not improve Marin County communications coverage to reduce emergency response times and ensure reliable communications among first responders during major events and everyday operations. In fact, rather than achieving the project objective of increasing coverage to meet 97% reliability within the coverage area, the coverage area would be diminished as compared to the existing system as a result of shifting to the 700 MHz frequency band, as shown in Draft SEIR Figure VII-4. Finally, Alternative 2 would not relocate the existing system's Network Core and Prime Site EOF from the Marin County Civic Center to the EOF.

Conclusion Regarding Alternative 2

The Governing Board hereby finds that failure to meet four of the Project objectives, in particular the key objective of increasing coverage reliability, is an independent ground for rejecting the Alternative 2 as infeasible and by itself, independent of any other reason, justifies rejection of the alternative.

Alternative 3 – Original Motorola Solutions Proposal – 15 Sites (700 MHz)

Description of Alternative

Motorola's proposed system (Draft SEIR, Figure VII-5) would utilize eight of MERA's existing telecommunication sites (with existing towers), decommission eight existing sites, and add seven new sites (with towers of similar height as the proposed project). In contrast, the proposed project adds eight new sites and decommissions five existing sites.

The proposed Motorola Solutions network would include 12 radio communication sites:
- Big Rock Ridge
- Dollar Hill

- Marshall - Coyote Peak (New Site)
- Mt. Barnabe
- Mt. Tamalpais
- Muir Beach Water Tank (New Site)
- Mt. Burdell OTA (Existing Site, New to MERA)
- Point Reyes Hill
- San Pedro Ridge
- Stewart Point
- Tomales - Parks Ranch (New Site)
- Wolfback Ridge (Existing Site, New to MERA)

And three microwave-only sites:
- Prime Site EOF (Existing Site, New to MERA)
- Marin County Civic Center
- Skyview Terrace Water Tank (New Site)

Eight existing MERA sites are not included in Motorola's proposed radio communication system and would be decommissioned: Sonoma Mountain, Bay Hill Road, Mt. Burdell OTA, Forbes Hill, Mt. Tiburon Water Tank, Mill Valley City Hall, Mill Valley Public Safety Building, and the current Prime Site EOF at the Marin County Civic Center.

Reasons for Rejecting Alternative

Alternative 3 has a reduced physical footprint, with less potential for environmental impacts than the proposed project because it has one fewer new site. However, the power required to boost radio signals in order to compensate for the smaller number of tower sites would cause the MERA system signal to extend beyond the geographic boundaries established to limit conflicts with radio systems in surrounding areas. MERA's review of the proposed Motorola Solutions 15-site communications network (Alternative 3) also found that it did not meet the radio coverage and reliability objectives set forth in MERA's May 2016 RFP and in Draft SEIR Section VII--B.

Conclusion Regarding Alternative 3

The Governing Board hereby finds that failure to the Project's coverage and reliability objectives, and the fact that the system's signal would extend beyond the geographic boundaries established to limit conflicts with surrounding radio systems, each are independent grounds for rejecting the Alternative 3 as infeasible and by itself, independent of any other reason, justifies rejection of the alternative.

Alternative 4 – Revised Project Design – 16 Sites (700MHz)

Description of Alternative

Alternative 4 (Draft SEIR, Figure VII-8) is similar to the proposed project but analyzes alternate tower locations for three of the proposed sites in an effort to reduce significant project-related aesthetics impacts. As such, Alternative 4 considers the following modifications to the proposed project:

Alternative 4 Revised Design

NEXT GEN PROPOSED PROJECT SITE	ALTERNATIVE SITE	ALTERNATIVE TOWER HEIGHT
Mill Valley Water Tank	Kite Hill (North East Mill Valley)	120-300 Feet
Skyview Terrace	Existing Verizon Site (Hwy 101-North of Skyview Terrace)	300+ Feet
Tomales	Bay Hill Road with Coyote Peak Modified	100 feet

The Kite Hill Site is presented as an alternative location for the Mill Valley Water Tank Site at Edgewood Avenue because it is a high elevation site that could serve the Mill Valley area and it is owned and operated by a MERA member agency, MMWD. In order to function as part of the radio system, the Kite Hill Water Tank Site would require a line-of-sight path to the Mt. Tamalpais Site and to the Wolfback Ridge Site for microwave radio connectivity.

The Verizon Site is an existing cell tower site located just east of Highway 101, on the rise separating Marinwood and Miller Creek from the Pacheco Valley and Novato.

Areas of northern Marin County currently experience zones of reduced radio coverage. The proposed project would improve radio coverage by constructing a new communications site in the Tomales area. Rather than develop the new Tomales Site, Alternative 4 examined the use of the existing Bay Hill Road Site and increasing the proposed height of the tower at the Coyote Peak Site.

Reasons for Rejecting Alternative

Alternative 4 has a reduced physical footprint, with less potential for environmental impacts than the proposed project due to the elimination of the Tomales Site. This alternative would also reduce aesthetics impacts by removing the Tomales Site and by finding alterative locations for the Mill Valley Water Tank and Skyview Terrace Sites.

However, these benefits to aesthetics in some areas are achieved only by creating more significant visual impacts at the Kite Hill, Verizon, and Coyote Peak Sites, potentially affecting nearby residences. In addition to the aesthetic impacts of the taller towers, these alternative locations would also cause logistical and feasibility problems based on the extreme tower heights necessary to overcome terrain obstructions.

Overall, Alternative 4 is very similar to the proposed project but includes one less tower in the coastal zone (a benefit) and two alternative sites with significantly increased tower heights (up to 300 feet taller) near the populated Highway 101 corridor. A third tower with increased height at Coyote Peak in the Walker Creek Ranch outdoor education center would also increase that facility's visibility in a particularly sensitive outdoor educational environment. With three towers that are significantly taller than those under the proposed project, Alternative 4 increases overall project impacts to visual resources. Alternative 4 also reduces radio coverage in portions of Mill Valley, Tomales and along Highway 1 in northwest Marin County. Accordingly, Alternative 4 does not meet the project's coverage objectives.

Conclusion Regarding Alternative 4

The Governing Board hereby finds that failure to the Project's coverage objectives, and the increased visual impacts and other logistical and feasibility challenges caused by extreme tower heights, each are independent grounds for rejecting the Alternative 3 as infeasible and by itself, independent of any other reason, justifies rejection of the alternative.

VI. CONCLUSION

In accordance with Public Resources Code section 21081 and CEQA Guidelines section 15091, the Board finds as follows:

Evidence

The SEIR for the MERA Next Generation Radio Communications System was prepared pursuant to CEQA and the CEQA Guidelines. The Board has exercised its independent judgment and determined that the SEIR fully and adequately addresses the impacts of the proposed Project.

The number of project alternatives identified and considered in the SEIR meets the test of "reasonable" analysis and provides the Board with important information from which to make an informed decision.

Public hearings were held before the MERA Operations Officer and the Governing Board. Substantial evidence in the record from those meetings and other sources demonstrates various economic, legal, social, and environmental benefits that the County would achieve from Project implementation.

The Board has balanced these Project benefits and other considerations against the unavoidable environmental impacts identified in the SEIR and has concluded that those impacts are outweighed by the Project benefits.

In accordance with Public Resources Code section 21081 and CEQA Guidelines section 15091, the Board finds as follows:

Based on the foregoing Findings and the information contained in the record, the Board hereby makes one or more of the following findings with respect to each of the significant environmental effects of the Project:

1. Changes or alterations have been required in, or incorporated into, the Project as conditions of approval as identified in the MMRP which mitigate or avoid the significant effects of the Project; or

2. Specific economic, legal, social, technological, or other considerations made infeasible some of the mitigation measures or alternatives identified in the SEIR.

Based on the foregoing Findings and the information contained in the record, the Board finds that:

1. All significant effects on the environment due to the approval of the Project will be eliminated or substantially lessened where feasible through the incorporation and implementation of mitigation measures.

2. Any remaining significant effects on the environment found to be unavoidable are acceptable due to the factors described in the Statement of Overriding Considerations in Exhibit 2.

These findings are based on the Draft SEIR, Final SEIR Responses to Comments, the MMRP, comments from other responsible agencies and the public received on the SEIR, staff analysis and commentary, and the administrative record as a whole.

"EXHIBIT 2"

RESOLUTION NO. 2019-07

STATEMENT OF OVERRIDING CONSIDERATIONS
Marin Emergency Radio Authority

As explained in section 15093 of the CEQA Guidelines, CEQA requires the decision-making body to balance the benefits of a project against its significant and unavoidable impacts when determining whether to approve a project. If specific economic, legal, social, technological, or other benefits outweigh the unavoidable adverse environmental effects, such adverse effects may be considered "acceptable." The agency must adopt a Statement of Overriding Considerations the specific reasons to support its action, based on substantial evidence in the record.

In accordance with CEQA Guidelines section 15093, the MERA Governing Board has weighed the economic, legal, social, technological, and other benefits of the Next Generation Communications System Project ("Next Gen System, or "Project") against its unavoidable significant environmental impacts. The Board finds that these significant unavoidable impacts are outweighed by the Project's benefits, as further described in Section II below, each of which independently of the others, constitutes an overriding consideration warranting approval of the proposed Project.

I. Significant and Unavoidable Environmental Impacts

The SEIR and the Findings required under CEQA demonstrate that the Project would result in the following significant impacts that cannot be substantially lessened or avoided, even after incorporation of all feasible mitigation measures. These significant and unavoidable impacts include: significant aesthetic impacts at the Skyview Terrace, Tomales, Coyote Peak, Muir Beach, and Mill Valley Water Tank Sites.

II. Statement of Overriding Considerations

The Governing Board finds that the Next Gen System would have the following economic, social, legal, and other benefits:

A. The Project will result in the installation of an updated radio communications system, as authorized by the Measure A parcel tax approved by Marin County voters in 2014.

B. The Project will upgrade the current MERA radio communications system to be compliant with the frequency requirements mandated by the Congressional Jobs Bill HR 3630, which requires that all existing UHF9T-band or 400 MHz radio communications systems be upgraded to 700 MHz.

C. The Project will utilize APCO Project 25 (P25) technology to provide improved public service and emergency radio coverage within Marin County. This improved radio coverage will enhance public safety by reducing 911 response times and ensuring reliable communications among law enforcement, fire, and health care (paramedic) first responders during both major events and everyday operations.

D. The Project will improve MERA's ability to maintain the radio communications system.

E. The existing and proposed telecommunications sites will make up the Next Gen System are located in areas that are already developed with public improvements and have existing access roads.

The Governing Board finds that the specific benefits outlined above fit into a larger context of furthering the public safety and service goals of the County of Marin, the cities and communities of Marin county, and all the special districts that provide fire protection, water service and waste water collection in the County. The Board has balanced these benefits against the Project's adverse impacts and finds that each one of the benefits outweighs the identified significant adverse environmental impacts. The Board further finds that each of the benefits outlined above warrants approval of the Project notwithstanding the unavoidable environmental impacts of the Project, and, therefore, that the unavoidable adverse environmental effects to be acceptable. The Board further finds that each of the benefits listed above, standing alone, is sufficient justification for the Board to override these unavoidable environmental impacts.

"EXHIBIT 3"

RESOLUTION NO. 2019-07

MERA NEXT GENERATION RADIO COMMUNICATIONS SYSTEM

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) was formulated based on the findings of the Subsequent Environmental Impact Report (SEIR) prepared for the MERA Next Generation Radio Communications System. The purpose of the MMRP is to ensure the implementation of mitigation measures identified as part of the environmental review for the project.

The MMRP lists mitigation measures recommended in the SEIR and identifies mitigation monitoring requirements. Each mitigation measure is numbered according to the topical section to which it pertains in the SEIR. As an example, Mitigation Measure AES-1 is the same as Mitigation Measure AES-1 in Chapter V of the SEIR. Also the MERA site to which the mitigation measure applies is identified in ***'bold italic'*** type at the end of each mitigation measure. The column entitled "Implemented by" identifies the party responsible for carrying out the required actions. The column entitled "Monitoring or Reporting Action" identify the party ultimately responsible for ensuring that the mitigation measure is implemented and the approximate timeframe for the oversight agency to ensure implementation of the mitigation measure. The column entitled "When Implemented" will be used by MERA to document the person who verified the implementation of the mitigation measure and the date on which this verification occurred.

Public Resources Code, Section 21081.6(a) requires an agency to adopt a program for reporting or monitoring mitigation measures that were adopted or made conditions of project approval. Therefore, MERA must adopt a MMRP or an equally effective program if it approves the proposed project with the mitigation measures that are included in the EIR.

Mitigation Measure	*Implemented by*	*Monitoring or Reporting Action*	*When Implemented Date*
Aesthetics			
Mitigation Measure AES-1 requires that all **new** sites with an exterior porch light include a shield around the top of the light source to stop upward glare and to protect dark nighttime skies. ***(Apply at all new sites)***	Construction Contractor	Marin County DPW March 2022	
Mitigation Measure AES-2 requires the construction of a 6-foot high, dark or earth-tone colored, opaque perimeter fence on the north and west sides of the proposed telecommunications site to screen views of the equipment shelter from State Route 1. Painted wood, permanently colored composite material, or black vinyl slats are material options suitable to screen views of the equipment structures. The proposed galvanized gray color of the 75-foot monopole shall be maintained to minimize contrast with the sky. ***(Apply at Tomales Site)***	Construction Contractor	Marin County DPW March 2022	
Mitigation Measure AES-3 requires that after completion of the tower and structure construction, MERA shall remove all debris from the site, define all vehicular access points and turnarounds, and complete finish grading including road surfacing where needed and soil preparation for planting. Vehicular areas shall be graded to drain. Areas outside of vehicular zones shall be loosened or scarified if compacted, amended as needed and prepared to facilitate native seed germination. Hydroseed/mulch or hand-broadcast seeding and mulch shall complete site restoration. For areas steeper than 3:1 restored areas shall also include installation of straw waddles perpendicular to the slope at 20-foot intervals. AES-3 also requires that the equipment shelter, fuel tank, and emergency generator be painted dark earth tone colors to minimize contrast in the landscape, and chain link fencing shall be black vinyl-coated. ***(Apply at Tomales and Coyote Peak Sites)***	Construction Contractor	Marin County DPW March 2022	

Mitigation Measure AES-4 further requires that the perimeter fence be opaque to screen the generator and fuel tank and that the fence be located at least 10-feet away from the structures. ***(Apply at Coyote Peak Site)***	Construction Contractor	Marin County DPW March 2022	
Mitigation Measure AES-5 requires the reconstruction of the public trail that extends southward from the water tank access road to allow pedestrians to access the open space area south of the proposed telecommunications site. (Apply at ***Skyview Terrace Site)***	Construction Contractor	Marin County DPW March 2022	
Mitigation Measure AES-6 requires a combination of visual mitigation including construction of berms, opaque fencing and native grassland hydroseeding to screen views of the equipment shelter from points east and west of the ridgeline. Equipment on the site shall be aligned to maximize space for the berm construction and the trail (Mitigation Measure AES-5). The top of the berm and the six-foot tall fence shall be contoured to mimic the broad naturalized landform of the ridgeline and shall be high enough to screen the shelter (but not the monopole) from lower elevation views such as Highway 101 to the east and Park Ridge Road to the west. Berms shall be mulched and hydroseeded to minimize erosion potential and to allow for germination during winter rains. Any erosion of the berm shall be immediately repaired. ***(Apply at Skyview Terrace Site)***	Construction Contractor	Marin County DPW March 2022	

Mitigation Measure AES-7 requires the proposed Muir Beach monopole be painted the same rusty-brown color as the existing scenic overlook restroom and shall blend with the adjacent water tank as shown in Draft SEIR Figure V.O-7. The back side of microwave dishes, and other equipment on the top of the water tank (to the extent feasible) shall be painted to match the monopole. Front surfaces of microwave dishes cannot be painted and shall remain gray. Landscaping and opaque fencing are to be provided as part of the project to screen view of the equipment structure. **(*Apply at Muir Beach Site*)**	Construction Contractor	Marin County DPW March 2022	
Mitigation Measure AES-8 requires the proposed monopole to be painted a dark color on the bottom to blend with the adjacent water tank and vegetation. The portion of the monopole above the top of the water tank and the tree canopy shall remain galvanized steel to minimize contrast with the sky. ***(Apply at Mill Valley Water Tank Site)***	Construction Contractor	Marin County DPW March 2022	
Cultural and Tribal Resources			
Mitigation Measure CULT-1: During construction, if buried archaeological or tribal resources are discovered during ground disturbing activities, work shall stop in that area and within 100 feet of the find until the designated tribal monitor or a Registered Professional Archaeologist (RPA) can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with the Federated Indians of Graton Rancheria (FIGR) and/or the State Office of Historic Preservation (SHPO). (***Apply at All Sites)***	Construction Contractor	Marin County DPW November 2021	
Mitigation Measure CULT-2: If buried paleontological resources or unique geologic features are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until	Construction Contractor	Marin County DPW November 2021	

a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with relevant agencies. ***(Apply at All Sites)***			
Mitigation Measure CULT-3: Upon accidental discovery of human remains, any disturbance shall stop within the vicinity of the find and within other areas reasonably suspected to contain additional human remains. The Sonoma or Marin County coroner shall be contacted immediately, depending on the location of the site. If the coroner determines the remains to be Native American, the coroner shall contact the NAHC within 24 hours. The NAHC shall subsequently identify the most likely living descendent, who may make recommendations to the landowner or the person responsible for excavation regarding acceptable means of treating or disposing of the remains and any associated grave items. If the NAHC is unable to identify the most likely descendent, the descendent fails to make a recommendation within 24 hours of notification, the landowner rejects the recommendation, or mediation by NAHC fails to yield a mutually agreeable recommendation, the landowner or representative shall rebury the remains and associated items with appropriate dignity on the same property in a location not subject to further subsurface disturbance. ***(Apply*** at ***All Sites)***	Construction Contractor	Marin County DPW November 2021	
Mitigation Measure TRIBE-*1:* If the design of the proposed project is substantially altered after the conclusion of initial consultation with FIGR, final plans and specifications shall be submitted to FIGR's Tribal Heritage Preservation Officer, or designated representative, prior to construction. FIGR shall be provided reasonable opportunity to review the plans and specifications for potential tribal cultural impacts resulting from project	Marin County DPW	Marin County DPW November 2021	

excavation, grading, or mobilization. Based on the outcome of this review, FIGR may amend the list of sites requiring a tribal cultural monitor provided to MERA. **(*Apply at All Sites*)**			
Mitigation Measure TRIBE-*2:* A tribal monitor with stop work authority shall be present during project excavation and grading to watch for the appearance of tribal cultural resources at the sites designated by FIGR. Unless modified by an updated list from FIGR, monitors will be present at the following 13 sites, which were preliminarily identified as having potential for disturbance of tribal cultural resources: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Point Reyes Hill, Dollar Hill, San Pedro Ridge, Mt. Tiburon, Sonoma Mountain, Stewart Point, Tomales, Coyote Peak, Skyview Terrace Water Tank, and Muir Beach. ***(Apply at All Sites)***	Tribal Monitor	Marin County DPW November 2021	
Mitigation Measure TRIBE-*3:* Contractors and construction personnel involved with any form of ground disturbance at the sites designated as culturally sensitive by FIGR shall be advised of the possibility of encountering subsurface tribal cultural resources. If any such resources are encountered or suspected to have been encountered, work shall be halted within 100 feet of the find until FIGR has been notified and given the opportunity to assess the significance of the find. If the find is determined to be a significant tribal cultural resource, MERA shall consult with FIGR to develop a plan to preserve the resource's significance to the extent feasible. ***(Apply at Sites Designated by FIGR)***	Construction Contractor	Marin County DPW November 2021	
Biology Resources			
Mitigation Measure BIO-1 Within one month prior to commencement of construction, a qualified biologist shall flag the Marin manzanita individual within the Study Area. The qualified biologist shall notify the	Qualified Biologist	Marin County DPW April 2021	

construction foreman as to the location of the special-status plant and identify the type of flagging used to ensure that contact with this species is avoided by construction crews. Just before construction, orange avoidance fencing shall be temporarily erected around the individual manzanita to keep construction equipment and crews away. ***(Apply** at **Stewart Point Site)***			
Mitigation Measure BIO-2 Project activities shall, to the extent feasible, occur outside of the nesting season from September1 – January 31. Where this is infeasible and project activities occur during the nesting season (February 1 through August 31), a nesting bird survey shall be conducted by a qualified wildlife biologist no more than 14 days prior to the start of project activities. If nests are identified, a no disturbance buffer shall be implemented to avoid impacts to nesting birds. The radius of a surrounding buffer will be determined by a qualified biologist and shall range from 25 feet to 500 feet depending on the species and protection status of that species. ***(Apply at Point Reyes Hill, Dollar Hill, Mount Tiburon, Tomales, and Muir Beach Sites)***	Qualified Wildlife Biologist	Marin County DPW August 2021	
Mitigation Measure BIO-3 No more than 14 days before the start of ground disturbance activities at the Tomales Site, a biologist shall conduct pre-construction surveys of the project site and a surrounding 50-foot buffer to determine if American badger dens are present. If a den is determined to be active and occupied by a female with young, ground disturbance and construction activity shall be avoided within 50 feet of the den until the young have matured and dispersed. If a den is determined to be active, but a female with young are not present, burrow exclusion using passive measures such as one-way doors or equivalent shall be attempted for a minimum of three days to discourage their use prior to any project-related ground disturbance. If the biologist determines that the dens have become inactive as a result of the exclusion methods, the dens shall be excavated by hand to prevent them from being re-occupied during	Qualified Biologist	Marin County DPW August 2021	

construction. ***(Apply at Tomales Site)***			
Mitigation Measure BIO-4 Work at the Tomales Site shall be avoided during night hours (half an hour before sunrise to half an hour before sunset) when California red-legged frog individuals may be dispersing across the site. In addition, no ground disturbing work shall occur within 24 hours of rain events that generate greater than 0.25 inch of accumulated precipitation or during rain events predicted to accumulate 0.25 inch of precipitation. ***(Apply at Tomales Site)***	Construction Contractor	Marin County DPW March 2022	
Mitigation Measure BIO-5 A pre-construction burrowing owl survey shall be performed prior to start of ground disturbance activities at the Tomales Site, regardless of the time of year, as burrowing owls may use the project site during the non-nesting season. The survey shall be performed according to the standards set forth by the 2012 CDFW Staff report for Burrowing Owl Mitigation. Occupied burrows shall not be disturbed during the nesting season (February 1 through August 31) unless, after consultation with the CDFW, a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and capable of independent survival. ***(Apply at Tomales Site)***	Qualified Biologist	Marin County DPW August 2021	
Mitigation Measure BIO-6 No more than 14 days before the start of ground disturbance activities at the Coyote Peak Site, a biologist shall conduct pre-construction surveys within 50 feet of the project site to determine if American badger dens are present. If a den is determined to be active and occupied by a female with young, ground disturbance and construction activity shall be avoided within 50 feet of the den until the young have matured and dispersed. If the den is determined to be active, but a female with young is not present, burrow exclusion using passive	Qualified Biologist	Marin County DPW February 2021	

measures such as one-way doors or equivalent shall be attempted for a minimum of three days to discourage their use prior to any project-related ground disturbance. If the biologist determines that the dens have become inactive as a result of the exclusion methods, the dens shall be excavated by hand to prevent them from being re-occupied during construction. ***(Apply at Coyote Peak Site)***			
Mitigation Measure BIO-7 Work at the Coyote Peak Site shall be avoided during night hours (half an hour before sunrise to half an hour before sunset) when California red-legged-frog individuals may be dispersing across the project site. In addition, no ground disturbing work may occur within 24 hours of rain events that generate greater than 0.25 inch of accumulated precipitation or during rain events predicted to accumulate 0.25 inch of precipitation. Within 48 hours prior to installation of temporary steel grates spanning the top of bank of the ephemeral streams, a qualified biologist shall survey intermittent streams within the project site. If California red-legged frog are observed during the survey, work shall not proceed in that area until the qualified biologist verifies that the frogs have left the area on their own and there is no potential for the proposed work activities to result in injury or mortality. In addition, if California red-legged frog are observed in the study area during the preconstruction survey, a biological monitor shall be present for the remainder of ground disturbing activities. ***(Apply at Coyote Peak Site)***	Construction Contractor Qualified Biologist	Marin County DPW March 2022	
Mitigation Measure BIO-8 Project activities at the Coyote Peak Site shall occur, to the extent feasible, outside of the nesting season from September 1 – January 31. If this is not possible, and project activities are initiated during the nesting season, then a nesting bird survey shall be conducted by a qualified wildlife biologist no more than 14 days prior to the start of project activities. If nests are identified, a no disturbance buffer shall be	Qualified Biologist	Marin County DPW March 2022	

implemented to avoid impacts to nesting birds. The radius of a surrounding buffer will be determined by a qualified biologist and shall range from 25 feet to 500 feet depending on the species and protection status of that species. ***(Apply at Coyote Peak Site)***			
Mitigation Measure BIO-9 Within two weeks prior to commencement of construction, a qualified biologist shall flag the Oakland star-tulip population within the study area. The qualified biologist shall notify the construction foreman as to the location of the special-status plant population and work with the foreman to install flagging to ensure that this population is properly avoided by construction crews. ***(Apply at Mill Valley Water Tank Site)***	Qualified Biologist	Marin County DPW November 2020	
Biological Resources Mitigation from Year 2000 EIR			
Previous Mitigation Measure ***Point Reyes Hill*** BIO-4 a. Prior to project activity, it will be determined whether any construction or tree removal is proposed during the raptor nesting season (February 15 to July 15). b. If no construction or tree removal will occur during the raptor nesting season, no further mitigation will be necessary. c. If construction or tree removal is proposed during the raptor nesting season, a focused survey for raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction or tree removal. d. If nesting raptors are found during the focused survey, no construction or tree removal will occur within 500 feet of an active nest until the young have fledged (as determined by a qualified biologist).	Construction Contractor Qualified Biologist	Marin County DPW November 2020	

Previous Mitigation Measure ***Point Reyes Hill*** BIO-3 a. Prior to project activity, a biologist will conduct a focused survey to determine if any Mt. Vision ceanothus or western leatherwood shrubs have established themselves since the Initial Study investigations at the Point Reyes Hill Site and, if present, whether they will be affected by construction activities. b. If Mt. Vision ceanothus or western leatherwood shrubs are found within the construction impact area, they shall be fenced and flagged by a qualified biologist before construction activity, and the project will be shifted, if necessary, to avoid impacts to the shrubs. If all shrubs are fenced and avoided, impacts to Mt. Vision ceanothus and western leatherwood will be less than significant and no further mitigation is necessary.	Qualified Biologist	Marin County DPW November 2020	
Previous Mitigation Measure ***Dollar Hill*** BIO-7 a. Prior to project activity, temporary fencing shall be placed around the dripline of mature oaks in the immediate vicinity of the Dollar Hill Site. No vehicles or materials shall be stored or parked inside this fencing. Silt-fencing shall be installed if any excavation or soil disturbance that could impact the oaks results from construction.	Construction Contractor	Marin County DPW August 2020	
Previous Mitigation Measure ***Dollar Hill*** BIO-8: a. Prior to project activity, it will be determined whether any construction or tree removal is proposed during the raptor nesting season (February 15 to July 15) b. If no construction or tree removal will occur during the raptor nesting season, no further mitigation will be necessary. c. If construction or tree removal is proposed during the raptor nesting season, a focused survey for raptor nests shall be conducted by a qualified biologist during the nesting season to identify active nests in the project area. The survey will be conducted no less than 14 days	Construction Contractor Qualified Biologist	Marin County DPW August 2020	

and no more than 30 days prior to the beginning of construction or tree removal. d. If nesting raptors are found during the focused survey, no construction or tree removal will occur within 500 feet of an active nest until the young have fledged (as determined by a qualified biologist).			
Potential Hazards			
Mitigation Measure RF-1: MERA shall install exposure warning signs at rooftop entries and selected antenna mounts in the controlled access rooftop area according to SiteSafe's individual report for the Prime Site EOF (pages 10-30 of the SiteSafe Report, which is Appendix D to the SEIR) and the SiteSafe Report's General Safety Recommendations (pages 313-315 of Appendix D to the SEIR). In summary, MERA shall install a NOTICE sign at antennas 11-27 and a CAUTION sign at antennas 28-32. Signage location details can be viewed on pages 19-20 of Appendix D to the SEIR. ***(Apply at Prime Site)***	Marin County Communications Division	Marin County DPW May 2020	30 July 2019
Mitigation Measure RF-2: MERA shall install exposure warning signs at rooftop entries and at identified antenna mounts in the controlled access rooftop area according to SiteSafe's individual report for the Civic Center Site (pages 31-46 of the SiteSafe Report, which is Appendix D to the SEIR) and the SiteSafe Report's General Safety Recommendations (pages 313-315 of Appendix D to the SEIR). In summary, MERA shall install a NOTICE sign at antennas 31-35 and a CAUTION sign at antennas 18-30 and 8-12. Signage location details can be viewed on page 37 of Appendix D to the SEIR. ***(Apply at Civic Center Site)***	Marin County Communications Division	Marin County DPW April 2020	
Mitigation Measure RF-3: MERA shall install an exposure warning sign at selected locations in the controlled access rooftop area according to SiteSafe's individual report for the Mt. Tiburon Site (pages 172-183 of the SiteSafe Report, which is Appendix D to the SEIR) and the SiteSafe	Marin County Communications Division	Marin County DPW July 2020	31 July 2019

Report's General Safety Recommendations (pages 313-315 of Appendix D to the SEIR). In Summary, MERA shall install a NOTICE sign at the access of the water tank. Signage location details can be viewed on page 178 of Appendix D to the SEIR. ***(Apply at Tiburon Site)***			
Air Quality and Greenhouse Gas Emissions			
<u>Mitigation Measure AIR-1:</u> 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications, and all equipment will be checked by a certified vehicle emissions evaluator. 8. A publicly visible sign with the telephone number and person to contact at the lead agency regarding any dust complains shall be posted in or near the project site. The contact person shall respond to complaints and take corrective action within 48 hours. The Air District's phone number shall be visible to ensure compliance with applicable regulations. ***(Apply at All Sites)***	Construction Contractor	Marin County DPW March 2022	

Mitigation Measure AIR-2: Emergency power generators shall be equipped with emission control devices. ***(Apply at All Sites)***	Construction Contractors	Marin County DPW March 2022	
Geology and Soils			
Mitigation Measure GEO-1: A design-level geotechnical report shall be prepared for the facilities proposed at each of the communication sites. A qualified geotechnical engineer and engineering geologist shall prepare the document, and this design-level report shall provide criteria for site preparation, pavement, and foundations. Site-specific earthquake forces shall also be identified and incorporated into the design of structures. All structures, including towers and earthworks, shall conform to the applicable earthquake design standard such as the California Building Standards Code. ***(Apply at All Sites)***	Qualified Geotechnical Engineer Qualified Structural Engineer	Marin County DPW June 2020	
Mitigation Measure GEO-2: If buried paleontological resources or unique geologic features are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified registered geologist or paleontologist can assess the significance of the find and, if necessary, develop appropriate procedures for its treatment or avoidance. ***(Apply at All Sites)***	Construction Contractor	Marin County DPW November 2021	
Noise			
Mitigation Measure NOISE-1: 1. The Contractor shall comply with local standards regarding noise generation and hours of construction during all phases of the project construction. The Construction Project Manager or designated representative shall provide the Contractor with the applicable	Construction Contractor	Marin County DPW March 2022	

restrictions. 2. At all newly constructed sites and at sites where the general public would be regularly exposed to the sound of air conditioning units and emergency power generators (Prime Site EOF, Civic Center, Mt. Tiburon, Mill Valley Water Tank, and Muir Beach), those units and generators shall be equipped with noise reduction features. 3. The Construction Project Manager or designated representative shall verify that all workers on-site are aware of and understand applicable noise restrictions. This will be accomplished by on-site meetings with each contractor and their employees prior to the start of construction. 4. The Construction Project Manager shall verify that project documents specify the use of equipment that meets the requirements of this mitigation measure and shall maintain a written record of compliance. ***(Apply at All Sites)***			