Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Bay Area Regional Interoperable Communications System Authority's Application for Special Temporary Authority	)	PS Docket No. 12-94

To: Public Safety and Homeland Security Bureau

APPLICATION FOR SPECIAL TEMPORARY AUTHORITY OF THE BAY AREA REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

SUMMARY

The Bay Area Regional Interoperable Communications System Authority ("BayRICS") hereby applies for special temporary authority ("STA") to use the public safety broadband spectrum (763-768 MHz/793-798 MHz) within the geographical scope and jurisdictional limits of BayRICS's local government member agencies.

The Bay Area Wireless Enhanced Broadband Project ("BayWEB") was launched in 2010 to meet the urgent data communications needs of public safety officials in the Bay Area. BayRICS previous filings on the record and additional information provided herein demonstrate the critical public safety need and the substantial deployment accomplishments made to date. The STA is required in order to avoid further loss of momentum, loss of funding commitments and potentially wasting the substantial investment made in the BayWEB project to date.

In its Early Deployment Order,[1] the Commission developed a framework to address the urgent needs of early builders such as BayRICS. The Commission ruled that where it would clearly serve the public interest and not undermine Congress's goals or FirstNet's mandate, the Bureau should issue STAs allowing public safety entities to move ahead to use this spectrum to provide broadband services to first responders.

BayRICS satisfies all of the Commission's requirements for an STA. The BayWEB project has a documented two-year history of sustained investment of time and resources. Its initial build-out of 128 LTE sites will be completed quickly, once NTIA releases the temporary, partial suspension of grant funding for LTE equipment. The project is endorsed by the State of California, and it is vital to the region: it will address a significant public safety need for broadband services across the Bay Area, well before FirstNet can arrive upon the scene. And the project will satisfy the Interoperability Board's recommended minimum technical requirements, and will therefore advance, not undermine, Congress's vision for a nationwide, interoperable public safety network.

This Application is submitted as an Attachment to the FCC Form 601, filed electronically by BayRICS. BayRICS has provided summary antenna site information in the electronic form, as well as a full list of antenna locations, frequencies and other technical information in the accompanying Exhibit E.

We urge the Bureau to immediately take this important action and grant BayRICS' request for an STA.

[1] *In re Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012*, PS Docket No. 12-94, FCC 12-85, (July 31, 2012) ("Early Deployment Order")

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I. INTRODUCTION

The Bay Area Regional Interoperable Communications System Authority ("BayRICS") hereby applies for special temporary authority ("STA") to use the public safety broadband spectrum (763-768 MHz/793-798 MHz) within the geographical scope and jurisdictional limits of BayRICS's local government member agencies.[2] Although the Middle Class Tax Relief and Job Creation Act of 2012 authorizes the Commission to grant the First Responder Network Authority ("FirstNet") the license to use this spectrum to deploy a nationwide public safety broadband network, FirstNet likely will not deploy these critical services for "several years."[3] The BayRICS jurisdictions cannot afford to

[2] Members of the BayRICS Authority include State of California, City and County of San Francisco, City of Oakland, City of San Jose, Counties of Alameda, Contra Costa, Marin, San Mateo, Santa Clara, Sonoma, and "hub" city groups from the East Bay and South Bay. On September 7, 2011, the BayRICS Board of Directors unanimously adopted a resolution supporting BayRICS as the appropriate entity to hold the rights to the public safety broadband spectrum. In addition, Napa and Santa Cruz Counties, although not members of the BayRICS Authority, have both informed the Commission that BayRICS is the appropriate entity to oversee the spectrum within the geographic area of those Counties. See *Petition for Waiver of the City and County of San Francisco, the City of Oakland, and the City of San Jose* ("Petition") filed December 23, 2011 at 8 and Exhibit C. Note that, although the State of California is a BayRICS member, the STA requested herein would not extend to the entire geographical scope and jurisdictional limits of the State of California.

[3] *In re Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012*, PS Docket No. 12-94, FCC 12-85, (July 31, 2012) ("Early Deployment Order") at ¶ 16.

wait: they face "time-critical funding opportunities" and "time-sensitive public safety needs."[4] To its great credit, the Commission has developed a framework to address this. It has ruled that where it would clearly serve the public interest and not undermine Congress's goals or FirstNet's mandate, the Bureau should issue STAs allowing public safety entities to move ahead to use this spectrum to provide broadband services to first responders. BayRICS is willing to accept an STA that will be subsidiary to the rights of FirstNet to the spectrum. Under the framework developed by the Commission in its Early Deployment Order, BayRICS merits an STA.[5] We urge the Bureau to immediately take this important action.

BayRICS satisfies all of the Commission's factors for an STA. This project has a documented two-year history of sustained investment of time and resources. Its initial build-out of 128 LTE sites will be completed quickly, once NTIA releases the temporary, partial suspension of grant funding for LTE equipment. The project is endorsed by the State of California, and it is vital to the region: it will address a significant public safety need for broadband services across the Bay Area, well before FirstNet can arrive upon the scene. And the project will satisfy the Interoperability Board's recommended minimum technical requirements, and will therefore advance, not undermine, Congress's vision for a nationwide, interoperable public safety network.

II. ISSUING BAYRICS AN STA IS APPROPRIATE HERE.

Granting BayRICS an STA under these circumstances meets all of the

[4] *Id.* at ¶ 16.

[5] BayRICS seeks this authority for an initial 180-day period, with eligibility for future renewal. Early Deployment Order at ¶ 29.

Commission's criteria;[6] failing to do so would be seriously detrimental to the public interest.

A. Substantial Deployment Prior to Enactment of the Act

The Commission instructed that an important factor in its decision to issue an STA is whether an applicant is "poised to bring [its] network [ ] into service in the near term with only a limited expenditure of additional resources."[7] That is the case here.

1. *BayRICS' Previous Fillings and Quarterly Reports Demonstrate That The Project Is "Substantially Advanced."*

BayRICS' project qualifies as one that is "substantially advanced" with respect to deployment. BayRICS is a Bay Area, region-wide joint powers authority consisting of seven counties, the State of California, and the cities of Oakland, San Francisco, and San Jose. Each BayRICS member has agreed to regularly fund the organization and to provide in-kind resources including staff, administrative support and other in-kind contributions. Twelve cities and counties have made additional commitments to contribute radio sites, fiber infrastructure and microwave network capacity for backhaul, all of which require additional commitments of staff time, legal, zoning and permitting review, and other infrastructure costs, such as electrical usage. These resource commitments will dissipate if the BayRICS project is forced to wait for an uncertain delivery date of FirstNet services that will likely occur several years in the future.

BayRICS has created an innovative public-private partnership with Motorola Solutions, Inc. ("Motorola"). Motorola obtained $50.6 million in grant funding to construct the BayRICS core facilities under the American Recovery and Reconstruction

[6] Early Deployment Order ¶ 25.

[7] *Id.*

Act ("ARRA") from the National Telecommunications and Information Administration ("NTIA"). In turn, Motorola has committed a substantial financial match to assist the deployment of the facilities. BayRICS and Motorola have entered into a partnership agreement under which Motorola will build, operate, and manage the facilities and services for BayRICS members and other users roaming in the area. If BayRICS is not able to continue with the timely deployment of the facilities and services throughout the Bay Area, this funding may also disappear.

The Commission is aware of BayRICS' extended history of substantial progress. BayRICS has provided detailed descriptions of its accomplishments to date, funding and resource commitments and public safety need in three separate Comments filed in this Docket on April 20, 2012, June 8, 2012 and June 27, 2012. In addition, Bay Area quarterly reports have provided regular updates and documentation:

Quarterly Report # 6. BayRICS reported that the authority and Motorola were soon expected to sign a Build, Own, Operate, and Maintain ("BOOM") agreement for the network.[8] It reported that it had established two committees composed of representative members of Bay Area jurisdictions that were working to address technical and contractual issues respectively.

Quarterly Report # 7. BayRICS reported that it had finalized discussions with Motorola regarding the BOOM agreement.[9] In addition, jurisdictions that own or control proposed tower and antenna sites were negotiating with Motorola. Two counties, Sonoma and Contra Costa, had executed site agreements with the company. BayRICS also reported that the two committees—the BOOM Negotiations Team and the Technical

[8] BayRICS Authority, Quarterly Report # 6 (October 19, 2011).

[9] BayRICS Authority, Quarterly Report # 7 (January 19, 2012).

Advisory Committee ("TAC")—had addressed contractual and technical issues respectively. BayRICS reported that the TAC was finalizing system requirements, service level agreements, and long-term maintenance of the system.

Quarterly Report # 8. BayRICS reported that it had approved the BOOM agreement and that it was engaged in considerable deployment efforts.[10] Among other things:

- Motorola and many jurisdictions had evaluated hundreds of sites and conducted the related site visits. These evaluations and visits formed the basis for a series of engineering studies focused on making effective use of existing antenna resources, and analyzing environmental and historic preservation matters.
- Motorola worked with individual jurisdictions to refine the system design, and entered into Site Access & Use agreements.
- Site owners/controllers had begun the process of obtaining zoning approval, permits, and, where necessary, lease modifications to allow the build out of the network on the sites.
- An equipment provider was selected through a competitive bidding process.
- Negotiations with the Bay Area Rapid Transit District ("BART") were being finalized to provide needed fiber optic, conduit and site access resources for high-performance backhaul and additional radio sites.
- Discussions with other Bay Area fiber providers were proceeding about providing additional backhaul and regional connectivity solutions.
- BayRICS and Motorola had begun the planning, drafting, and documentation of a device and fixed-network maintenance and support plan.
- Although Motorola had anticipated beginning to order equipment for installation on the qualified sites as early as April 2012, BayRICS reported that these orders would be delayed due to NTIA's temporary, partial suspension of grant funding for LTE equipment. The parties continued to work aggressively to complete site, backhaul, and other preliminary work.

Quarterly Report # 9. BayRICS reported that Motorola and the Authority had

[10] BayRICS Authority, Quarterly Report # 8 (April 19, 2012).

"completed, or nearly finished, many of the most difficult and time-consuming deployment milestones, such as regional governance and approvals, network design, environmental assessment, and site identification, approval and review."[11] It reported, however, that the system's anticipated startup date—"within the next 12 months"—was uncertain due to NTIA's partial suspension of LTE equipment funding. BayRICS reported that despite this, project partners were continuing deployment efforts related to improvements and modifications to antenna sites and to backhaul arrangements discussed in the previous report.

To further inform the Commission on the status and work accomplished on this project, BayRICS has developed a comprehensive "BayWEB Project Chronology" attached as Exhibit A. This timeline of accomplishments demonstrates the substantial progress made on project development, most of which occurred prior to the enfacement of the Act on February 22, 2012.

2. BayRICS Is Capable of Providing Broadband Services Quickly, and Substantially Before FirstNet Will Be Available.

The Commission also indicated that it will be important that an applicant is "capable of providing broadband services quickly, substantially prior to when FirstNet might reach the point of planning and implementing its deployment in a particular area."[12] BayRICS qualifies.

In a letter dated August 10, 2012, attached as Exhibit B, ("Motorola Letter") Motorola described the substantial work it has completed to date on the project.

[11] BayRICS Authority, Quarterly Report # 9 (July 19, 2012).

[12] Early Deployment Order ¶ 25.

Motorola then explains:

> All of these activities and the delivered results represent, at the very minimum, a 24-month head start for the current program compared with any new beginning to the process of reaching such detailed plans and agreements between FirstNet, the State of California and the Authority and the individual jurisdictions and their constituents. (Motorola Letter at 3.)

Motorola also explains that once the NTIA lifts the partial suspension, the project will be positioned to begin operation "substantially in advance of when FirstNet might reach the point of planning and implementing its deployment in the Bay Area." [Motorola Letter at 1] BayRICS currently estimates that the system could become operational in the Bay Area within 15 months of the date the NTIA partial suspension is lifted. In contrast, it is unlikely that FirstNet will be positioned to deploy in the region even two years from now,[13] and will most likely take "several years."[14]

3. The Record Shows a "Pattern of Sustained Investment, Both Monetary and in Terms of Planning and Construction."

BayRICS submits that it has demonstrated "a pattern of sustained investment, both monetary and in terms of planning and construction" before Congress adopted the Public Safety Spectrum Act.[15] As described above, BayRICS has previously entered into the record in this Docket a detailed description of its sustained and ongoing accomplishments to date in three sets of Comments. To further inform the Commission, BayRICS has included a timeline of commitments of funding and in-kind resources, as part of the "BayWEB Project Chronology" (Exhibit A). In addition, Motorola has

[13] As the National Public Safety Telecommunications Council described it, "[i]t is likely to be a minimum of two years before First Net can begin actual deployment of the nationwide network. Even then, there is no guarantee which jurisdictions would be the first to receive service or how long it will take to complete the various phases of deployment across the country." NPSTC Comments at 5.

[14] Early Deployment Order ¶ 16.

[15] *Id.*

developed a partial listing of achievements for the project, including tasks related to project team creation, contracting work, negotiation of BOOM agreement, site selection , site access and use agreements, zoning and permitting and engineering analysis (See Motorola Letter at 2-3).

The Commission specifically seeks to consider "funding obtained, contracts entered into for network construction and deployment, equipment purchased and delivered, sites identified and towers placed, engineering analyses performed, infrastructure actually deployed in the field, and coordination carried out at the statewide or regional level."[16] As described below, BayRICS has made substantial progress in each category:

Funding obtained. The project has obtained major funding through a Broadband Technology Opportunity Program ("BTOP") grant awarded to Motorola. This includes a $50.6 million grant from NTIA and a substantial match from Motorola.

Contracts for Network Construction and Deployment. BayRICS has completed the BOOM agreement with Motorola. This was a substantial undertaking. It includes over 3,500 hours of staff time from BayRICS, and approximately 1,500 hours from Motorola. It required 16 months of negotiations, and the final agreement is regional in scope and includes comprehensive requirements for building, owning, operating and maintaining the network. BayRICS' member jurisdictions have also entered into 12 separate Site Access and Use Agreements with Motorola. In addition, Motorola has selected an LTE equipment vendor via a competitive process and an award has been made. The contract is substantially negotiated.

[16] *Id.*

Equipment Purchased and Delivered. Although no LTE equipment for this project has been purchased, delivered or installed, this fact, standing alone, should carry little weight in the overall determination substantial completion. According to Motorola, "The original project plan created by Motorola called for LTE-related equipment to be placed in the field by now." (Motorola Letter at 1.) If NTIA had not suspended grant funding for LTE equipment, equipment procurement would have occurred in April 2012:

> From project inception to the period ending Q1, 2012, each of these factors was taken into account and a master project schedule was created; this schedule was compatible with providing an operational LTE network in a timeframe conformance with the then-current July 31, 2013 grant deadline. A critical path item for that schedule was the placing of orders for LTE-related equipment and services during early April, 2012 . . . Had the LTE-related equipment been ordered during the first week of April as planned, there would be substantial LTE Fixed Network Equipment that would by now have been manufactured, staged and deployment into the field could have begun. (Motorola Letter at 3.)

Despite the current inability to order, deliver or install LTE-related equipment BayRICS and Motorola have made substantial progress in system deployment, much of which occurred prior to the enactment of the Act.

Sites Identified and Towers Placed. As described herein, Motorola and many jurisdictions have evaluated hundreds of sites and conducted countless site visits. These evaluations and visits formed the basis for a series of engineering studies focused on making effective use of existing antenna resources, and analyzing environmental and historic preservation issues. Motorola worked with individual jurisdictions to refine the system design, and entered into Site Access & Use agreements. Site owners/controllers have also sought zoning approval, permits, and, where necessary, lease modifications to allow the build-out of the network. Out of 128 total LTE sites, 100 either have towers already in place or do not need towers (*e.g.*, rooftop placements); only 28 towers remain

to be installed. Based on the sites identified, Motorola has evaluated network coverage and developed maps.

Engineering Analyses Performed. BayRICS jurisdictions and Motorola have performed an exhaustive number of tasks required for engineering analysis (See, e.g., Motorola Letter at 2-3). Using an initial site configuration developed at project initiation, Motorola completed an initial system design, and has continuously refined and optimized the design as sites have been finalized by participating jurisdictions.

As part of the site qualification process, Motorola has entered into 12 site access and use agreements with Bay Area jurisdictions, constituting a nine month negotiations process. To provide support for these agreements, Motorola conducted over 350 site walks to evaluate sites based on equipment and antenna space, power, tower analysis, and microwave backhaul link verifications, developed over 200 preliminary site lease and engineering drawings (sample drawings included as Exhibit C) and completed 74 tower and building structural analysis and 57 antenna mappings to update current antenna loads on co-location sites

Motorola has conducted multiple design reviews with participating jurisdictions, BayRICS Technical Advisory Committee and equipment vendors on the LTE and microwave design and, working with jurisdictions and fiber/backhaul partners, have optimized RAN system design and completed a fiber/microwave route design for the system backhaul network.

Jurisdictions entering site agreements have also been required to perform complex and detailed environmental analysis of the proposed sites. As an example of the complexity of the work required for this analysis, one Request for Exemption Letter

developed by the City and County San Francisco Department of Emergency Management, dated December 12, 2012, consists of 88 pages, of site design detail, including 26 site photographs and 12 lease drawings.

BayRICS and the jurisdictions have also completed substantial engineering analyses. The BayRICS Technical Advisory Committee (TAC) has collectively contributed thousands of hours to the review of system design and development of interoperability standards (resulting in 35 pages of comments and 10 additional pages of reply comments in the 4th FNPRM). The TAC also conducted a review of potential system Evolved Packet Core ("EPC") locations which included site visits and development of EPC site scoring process that resulted in a formal recommendation on September 24, 2011 that the EPC be placed at Twin Peaks in San Francisco. and the TAC has also conducted comprehensive review and developed recommendations for system technical requirements and service level agreements. BayRICS Staff and Motorola have also developed scope of work and proposed staffing needs for system network maintenance and device/user support plans.

BayRICS has also worked with other waiver recipients to review and approve other engineering-related activities, such as selecting a numbering administrator, developing a numbering scheme, reviewing the report from a working group of industry professionals to develop a methodology for technical roaming capability, and jointly selecting a methodology that provides for a centralized service to offer the roaming capability through an IPX Service Provider.

Infrastructure Actually Deployed in the Field. See the response to *Equipment Purchased and Delivered* section above.

Coordination at the Statewide or Regional Level. BayRICS is the product of considerable coordination at the State and regional level. BayRICS has already contributed to state-wide planning efforts for FirstNet deployment, by sharing critical lessons learned and best practices in a series of planning meetings conducted by the California Technology Agency ("CTA"). The State anticipates that BayRICS will serve a critical role as a test bed and foundation for future deployment of FirstNet in California.[17] As discussed *infra*, the State fully endorses the project and the issuance of this STA.

4. *Denying BayRICS an STA Would Result in Considerable Stranded Investment.*

Denying BayRICS an STA under these circumstances would lead to a considerable "stranded investment."[18] As of August 10, 2012, Motorola had spent almost $5 million BTOP grant and matching funds on the project. BayRICS and the member jurisdictions have also invested funding of $1 million, as well as substantial in-kind resources, including office space, utilities, administrative support, and approximately 5,000 hours of staff time for governance, administration, contract negotiations, and project management. Individual BayRICS member jurisdictions have contributed an additional 5,000 staff hours for site-related work.[19] Much of this work would be placed at risk if the project is not allowed to proceed.

BayRICS previous filings on the record, project chronology and Motorola's listing of accomplishments demonstrate substantial deployment prior to the enactment of the Act. These efforts clearly are more than "early-stage preparatory efforts," "sporadic

[17] See State of California Technology Agency Letter of Support, attached as Exhibit D ("California Letter")

[18] *Id.*

[19] Additional Comments of BayRICS Authority, PS Docket No. 12-94, PS Docket No. 06-229 at 3 (June 27, 2012)

activity" or "'ramped up' recent activity designed solely to seek an STA."[20] In fact, a review of the project chronology demonstrates a tailing-off of efforts since enactment of the Act, due solely to the impact of the NTIA's partial suspension. Lifting this suspension and completing the project requires a demonstration of continuing rights to the public safety spectrum. The STA is required in order to avoid further loss of momentum, loss of funding commitments and potentially wasting the substantial investment made in the project to date.

B. Ability to Deliver Timely Service

The Commission has indicated that other important factors are "whether funding is readily available to support network deployment and operation of the scope contemplated in application" and whether deployment "is reasonably likely to commence for the benefit of public safety users well in advance of FirstNet's offering service."[21] Funding is not in doubt here. As indicated above, the project has obtained major funding through a Broadband Technology Opportunity Program ("BTOP") grant awarded to Motorola. BayRICS member jurisdictions have committed more than $1 million in member fees and grant funding to support the project. As indicated above, if the Bureau grants this application, BayRICS is likely to deploy well before FirstNet.

C. Specific Public Safety Need.

The Commission has also indicated that an STA is appropriate where there is a "specific compelling public safety need for near-term service that cannot otherwise be substantially achieved." In comments filed June 8, 2012, BayRICS explained in detail

[20] Early Deployment Order ¶ 23.

[21] Early Deployment Order ¶ 25.

"why the San Francisco Bay Area cannot wait" for FirstNet.[22] We incorporate these comments by reference. As we explained in the June 8 comments, the Bay Area is a geological time-bomb.[23] It will inevitably experience a natural or man-made disaster that could result in catastrophic loss of life and property. Whenever this occurs, the region will need the 700 MHz broadband interoperable public safety radio system to be in place and operational.

However, because existing commercial networks generally lack the capacity, security, and reliability that public safety agencies need during such an event,[24] agencies in the region generally have not adopted broadband data services on a wide scale. Bay Area public safety officials have documented multiple instances where network congestion has interfered with public safety data transmissions attempted over commercial carrier networks during large scale public events in the region.[25] In the event of a major disaster, public safety agencies would be without many important tools:

> Please imagine the chaos that a major quake will cause the Bay Area. Existing commercial networks will not support the level of real-time sharing of pictures and video of damage, dynamic routing of displaced victims to evacuation centers, medical triage, and the ability to share this data simultaneously among Police, Fire and EMS first responders.[26]

The Bay Area's public safety agencies have planned and budgeted to incorporate

[22] *In re Transition Process for 700 MHz Public Safety Broadband Waiver Recipients*, PS Docket No. 12-94, PS Docket No. 06-229, at 1 (June 8, 2012).

[23] Because the Bay Area rests upon one of the longest and most active earthquake fault systems in the world, the U.S. Geological Survey has estimated that within the next 30 years there is an 80% chance that 6.7 or greater quake will strike the region. Other substantial threats include terrorists' use of explosives, cyber-attacks, biological agents, terrorist assault teams, and wildfires.

[24] *Id.* at 3-8.

[25] *Id.* At 6-7.

[26] *Id.* at 3-4.

these broadband services in the immediate future.[27]

D. Compliance with "Minimum Technical Recommendations."

The Commission has indicated that in determining whether a proposed STA will serve the public interest, "adherence to the 'recommended minimum technical requirements' for nationwide interoperability developed by the Interoperability Board and transmitted to FirstNet . . . will be critical."[28] BayRICS will fully comply with these requirements. The BOOM agreement requires Motorola to conduct system testing that demonstrates "the System . . . will conform to industry standards or standards then defined by the FCC and the results of the testing must confirm the System operates in compliance with the Specifications, including in compliance with applicable FCC requirements that exist as of April 30, 2013." Motorola will fully comply with the requirements and the BayRICS Authority will ensure that such compliance is met.

Specifically, Motorola has committed to compliance with all of the Minimum Technical Requirements to the extent required; these requirements are set forth below:

Reqmt #	Minimum Technical Requirement	Compliance Level	Additional Comments
1	Hardware and software systems comprising the NPSBN SHALL implement interfaces consistent with Table 2: Standards Implementation Methodology.	N/A	This is a FirstNet policy requirement. BayRICS will comply with any applicable requirements developed by FirstNet.
2	Hardware and software systems comprising the NPSBN SHALL support the interfaces enumerated in Table 1: Minimum Interoperable Interfaces.	Comply	The BayWEB system will support the interfaces enumerated in Table 1 of the Interoperability Recommendations report.
3	Hardware and software systems comprising the NPSBN SHALL support management functions.	Comply	The BayWEB system will support management functions.

[27] *Id.* at 8-9

[28] Early Deployment Order at ¶ 25.

Reqmt #	Minimum Technical Requirement	Compliance Level	Additional Comments
4	Hardware and software systems comprising the NPSBN SHALL support APNs defined for PSAN usage.	Comply	The BayWEB system will support APNs defined for PSAN usage
5	Hardware and software systems comprising the NPSBN SHALL support nationwide APNs for interoperability.	Comply	The BayWEB system will support nationwide APNs for interoperability.
6	Hardware and software systems comprising the NPSBN SHALL enable QoS control for PSAN-hosted applications via the 3GPP Rx interface.	Comply	The BayWEB system will enable QoS control for PSAN-hosted applications via the 3GPP Rx interface.
7	The NPSBN SHALL support IPv4, IPv6, and IPv4/v6 PDN types defined in 3GPP TS 23.401.	Comply	The BayWEB system will support IPv4, IPv6, and IPv4/v6 PDN types defined in 3GPP TS 23.401.
8	The NPSBN SHALL support IPv4 and/or IPv6 transport for the EPS interfaces enumerated in Table 1: Minimum Interoperable Interfaces, consistent with the FirstNet design.	Comply	The BayWEB system will support IPv4 and/or IPv6 for the EPS interfaces enumerated in Table 1 in accordance with the FirstNet design.
9	Any sharing agreement that FirstNet enters into SHALL implement network sharing according to 3GPP TS 23.251 and SHALL NOT impact public safety operations.	N/A	This is a FirstNet policy requirement. BayRICS will communicate a commitment to compliance when these requirements are developed by FirstNet.
10	The NPSBN SHALL include the capability to collect and convey UE location data to applications using a standardized interface in near real time.	Comply	The BayWEB system will support the capability to collect and convey UE location data to applications using a standardized interface in near real time.
11	The NPSBN SHALL be capable of providing public safety subscribers with access to the global Internet.	Comply	The BayWEB system will support access to the global internet for public safety subscribers.
12	All User Devices (UEs) deployed on the NPSBN SHALL conform to the 3GPP Release 9 Uu interface enumerated in Table 1: Minimum Interoperable Interfaces.	Comply	BayRICS commits to procuring UEs which conform to the 3GPP Release 9 Uu interface.
13	All User Devices (UEs) deployed on the NPSBN SHALL conform to the 3GPP TS 36.306 UE Radio Access Capabilities, Release 9.	Comply	BayRICS commits to procuring UEs which conform to 3GPP TS 36.306 UE Radio Access Capabilities, Release 9.
14	All User Devices (UEs) SHALL support interworking of the device with the USIM/USAT applications on the UICC in accordance with the relevant 3GPP 31.101, 31.102, and 31.111 standards.	Comply	BayRICS commits to procuring UEs which conform to the relevant and applicable 3GPP 31.101, 31.102, and 31.111 standards.

Reqmt #	Minimum Technical Requirement	Compliance Level	Additional Comments
15	All User Devices (UEs) deployed on the NPSBN that support roaming onto commercial LTE networks SHALL operate on any FirstNet roaming partner network using bands supported by the device.	Comply	All User Devices (UEs) deployed in BayWEB that support roaming onto commercial LTE networks will operate on any FirstNet roaming partner network using bands supported by the device.
16	All UEs SHALL support dual IPv4/IPv6 stacks.	Comply	All UEs deployed in BayWEB will support dual IPv4/IPv6 stacks.
17	Prior to IOT and System-Level testing UEs SHALL have already met 3GPP conformance and certification requirements per an independent conformance testing organization (e.g. PTCRB).	Comply	All UEs deployed in BayWEB will have already met 3GPP conformance and PTCRB certification requirements prior to IOT and System Level testing.
18	Prior to operational deployment on the NPSBN, UEs SHALL have passed FirstNet-required Interoperability Testing (e.g. using a subset of applicable test cases from CTIA IOT and UICC functional test cases, vendor IOT or similar commercial LTE industry practice).	N/A	BayRICS will comply with any applicable requirements developed by FirstNet.
19	Prior to operational deployment on the NPSBN, UEs SHALL have passed FirstNet-required UICC functional testing.	N/A	BayRICS will comply with any applicable requirements developed by FirstNet.
20	Prior to operational deployment on the NPSBN, infrastructure equipment SHALL have passed FirstNet-required Interface Conformance Testing (e.g. testing S1-MME conformance to 3GPP) on the interfaces specified by FirstNet	N/A	BayRICS will comply with any applicable requirements developed by FirstNet.
21	Prior to operational deployment on the NPSBN, infrastructure equipment SHALL have passed FirstNet-required Interoperability Testing at a system level as per the specific IOT requirements for the NPSBN.	N/A	BayRICS will comply with any applicable requirements developed by FirstNet.
22	Infrastructure deployed on the NPSBN SHALL be included in the FirstNet-required FOA process as part of the NPSBN deployment.	N/A	BayRICS will comply with any applicable requirements developed by FirstNet.

Reqmt #	Minimum Technical Requirement	Compliance Level	Additional Comments
23	The equipment comprising the NPSBN SHALL provide backwards compatibility of interfaces, from time of deprecation, for a minimum of two full major release/upgrades of the network. This requirement may be waived (i.e., interface obsolescence accelerated) if FirstNet can ascertain from the user community that there are no dependencies on a given interface.	Comply	The BayWEB system will support backwards compatibility of interfaces as required by FirstNet.
24	The NPSBN SHALL support user mobility across the entire NPSBN (including Opt-out states).	Comply	The BayWEB system will support user mobility across the entire NPSBN, including Opt-out states.
25	The NPSBN SHALL support S1 and SHALL preferentially support X2 handover between adjacent NPSBN cells (including cells owned by opt-out states) whose proximity supports a handover opportunity.	Comply	The BayWEB system will support S1 and X2 handover between adjacent cells whose proximity supports a handover opportunity.
26	If roaming between the NPSBN and commercial LTE networks is implemented, the NPSBN SHALL follow GSMA PRD IR.88.	Comply	If roaming with commercial LTE networks is implemented, the BayWEB system will follow GSMA PRD IR.88.
27	If roaming between the NPSBN and commercial 3GPP 2G/3G networks is implemented, the NPSBN SHALL follow 3GPP TS 23.002 to support roaming into 3GPP 2G/3G networks.	Comply	If roaming with commercial 3GPP 2G/3G networks is implemented, the BayWEB system will follow 3GPP TS 23.002.
28	If roaming between the NPSBN and commercial 3GPP2 (eHRPD) networks is implemented, the NPSBN SHALL follow 3GPP 23.402 to support roaming into 3GPP2 (eHRPD) networks.	Comply	If roaming with commercial 3GPP2 (eHRPD) networks is implemented, the BayWEB system will follow 3GPP 23.402
29	The NPSBN SHALL support the use of mobile VPN technology to support mobility between the NPSBN and other networks.	Comply	The BayWEB system will support the use of mobile VPN technology to support mobility between the NPSBN and other networks.
30	The NPSBN SHALL provide the ability for national, regional, and local applications to dynamically change a UE‘s prioritization and QoS using the 3GPP Rx interface.	Comply	The BayWEB system will support the ability for national, regional, and local applications to dynamically change a UE‘s prioritization and QoS using the 3GPP Rx interface.
31	The NPSBN SHALL support all 9 QCI classes specified in table 6.1.7 of 3GPP 23.203 v9.11 or future equivalents.	Comply	The BayWEB system will support all 9 QCI classes specified in table 6.1.7 of 3GPP 23.203 v9.11 or future equivalents.

Reqmt #	Minimum Technical Requirement	Compliance Level	Additional Comments
32	QoS mechanisms in the NPSBN SHALL comply with 3GPP TS 23.203.	Comply	The BayWEB system will support QoS mechanisms in compliance with 3GPP TS 23.203
33	The NPSBN SHALL support the usage of all 15 ARP values defined in 3GPP 23.203.	Comply	The BayWEB system will support the usage of all 15 ARP values defined in 3GPP 23.203.
34	The NPSBN SHALL support the ARP pre-emption capability and vulnerability functions as defined in 3GPP 23.203.	Comply	The BayWEB system will support the ARP pre-emption capability and vulnerability functions as defined in 3GPP 23.203.
35	The NPSBN SHALL implement a nationwide scheme for assigning Access Classes to public safety users and secondary users following the 3GPP recommendations in TS 22.011, Section 4.2.	Comply	The BayWEB system will support a nationwide scheme for assigning Access Classes to public safety users and secondary users following the 3GPP recommendations in TS 22.011, Section 4.2.
36	The NPSBN SHALL implement a nationwide scheme for assigning QoS Class Identifier priority to IP network and backhaul priority across the entire NPSBN.	Comply	The BayWEB system will support a nationwide scheme for assigning QoS Class Identifier priority to IP network and backhaul priority.
37	The NPSBN SHALL support the use of industry standard VPN and MVPN technology, while providing priority and Quality of Service for encapsulated applications.	Comply	The BayWEB system will support the use of industry standard VPN and MVPN technology, while providing priority and Quality of Service for encapsulated applications.
38	The NPSBN SHALL use a nationwide common security profile for user plane and control plane traffic between UEs, eNBs and MMEs, in accordance with 3GPP LTE Network Access Domain protocols. The profile SHALL be based on 3GPP TS 33.401, and will be determined by FirstNet based on a system design and other considerations as it deals with evolving cyber threats. As a minimum, the profile SHALL include specification of ciphering algorithms (for example, use of AES-128 vs. SNOW 3G)	N/A	This is FirstNet policy requirement. BayRICS will comply with any applicable requirements developed by FirstNet.
39	The nationwide common security profile SHALL include ciphering of control plane traffic in order to provide for interoperable cyber protection of the network. Ciphering of user plane traffic is optional and is based on policy decisions that involve FirstNet and user agencies.	N/A	This is FirstNet policy requirement. BayRICS will comply with any applicable requirements developed by FirstNet.

Reqmt #	Minimum Technical Requirement	Compliance Level	Additional Comments
40	To enable interoperable authentication, the USIM and HSS SHALL be capable of supporting the same key derivation functions, such as Milenage per 3GPP TS 35.205, 35.206.	Comply	The BayWEB system will support the same key derivation functions in the USIM and in the HSS.
41	Network Domain Security SHALL be implemented in accordance with 3GPP TS 33.210, which stipulates the use of IPSec to protect IP communication between administrative domains (including all network connections used to interconnect the domains).	Comply	The BayWEB system will support Network Domain Security in accordance with 3GPP TS 33.210.
42	The NPSBN SHALL comply with TS 33.310 as the authentication framework for Public Key Infrastructure to authenticate these network interfaces.	Comply	The BayWEB system will support authentication for network interfaces according to the Public Key Infrastructure framework in compliance with TS 33.310.
43	In order to ensure secure and interoperable interfaces between the NPSBN and external elements (e.g. all SGi, Rx and Srvs services as shown in Figure 2), these interfaces SHALL be protected with a FirstNet-approved security mechanism.	N/A	This is FirstNet policy requirement. BayRICS will comply with any applicable requirements developed by FirstNet.
44	User Domain Security SHALL be implemented in accordance with 3GPP TS 33.102, TS 31.101, and TS 22.022.	Comply	The BayWEB system will support User Domain Security in accordance with 3GPP TS 33.102, TS 31.101, and TS 22.022
45	USIM-based applications that require messaging between the USIM and network components SHALL implement Application Domain Security in accordance with 3GPP TS 33.102 and TS 31.111.	Comply	The BayWEB system will support Application Domain Security in accordance with 3GPP TS 33.102 and TS 31.111 for USIM-based applications that require messaging between the USIM and network components.
46	In such cases where visibility is required for devices on the NPSBN, the implementations SHALL comply with 3GPP TS 33.102 and TS 22.101.	Comply	UE's deployed in the BayWEB system will support device security visibility in compliance with 3GPP TS 33.102 and TS 22.101 as required by FirstNet.

In addition, Motorola offered to indemnify NTIA and FirstNet in the event "equipment is installed that later is determined incompatible with the ultimate nationwide architecture of the FirstNet network and is not incorporated, or integrated by FirstNet in the nationwide public safety broadband network." Motorola represents that this

indemnification language "has been verbally accepted" by NTIA (Motorola Letter at 1). BayRICS will support appropriate indemnity language when agreed to between NTIA and Motorola.

E. State-Level Coordination.

Finally, the Commission notes that "a significant consideration will be whether we can conclude that a non-state STA applicant has the State's concurrence for the applicant's plans for deployment within the state."[29] The attached letter from the California Technology Agency (Exhibit D) demonstrates that the State fully supports the award of an STA to BayRICS:

> The State views the initial California projects, including BayRICS and Los Angeles Regional Interoperable Communications System (LA-RICS) in southern California, as necessary for urgent public safety communications needs within the State. In addition, these early networks will serve as the foundation for future deployment of FirstNet in California. We are confident that these networks can be easily and efficiently expanded to adjoining California jurisdictions when FirstNet is deployed. These projects also allow the State to take full advantage of over $200 million in Broadband Technology Opportunities Program (BTOP) funds for public safety broadband deployment, thus preserving limited FirstNet funding for use to extend services to more high-cost areas in the State.
>
> BayRICS and LA-RICS are already contributing to state-wide planning efforts for FirstNet deployment, by sharing critical lessons learned and best practices in a series of planning meetings conducted by Technology Agency. For these reasons, we strongly support the BayRICS Authority's Application for STA. (California Letter at 1)

Indeed, the State has been involved with this project for some time both as a charter member of the BayRICS Authority, and the State representative on the BayRICS Board currently serves as Vice-Chair of the Board.

[29] *Id.*

III. SITES AND COVERAGE INFORMATION TO SUPPORT THE STA REQUEST

As directed by the Early Deployment Order, this Document accompanies the online FCC Form 601 STA application. BayRICS seeks the STA for operation of 128 LTE sites to extend coverage to seven Bay Area Counties: Alameda, Contra Costa, Sonoma, Marin, San Francisco, San Mateo and Santa Clara. Although coverage will extend to portions of Marin County, none of the 128 sites is physically located in that County.

BayRICS input data directly into the online Form 601 for six countywide "temporary fixed sites" and associated mobiles (one temporary fixed location and one mobile location for each of the six Counties with sites). In a separate attachment to this document (Exhibit E), BayRICS has provided a complete list of 128 sites as currently proposed, along with their addresses, coordinates and other technical information. This method of providing the site information was used in an effort to streamline the process for all parties. BayRICS stands willing to provide any additional site information, or to provide site information in a different format if requested by the Commission. BayRICS will obtain any necessary FAA determinations and FCC registrations before commencing construction or operation at any site requiring such actions. The majority of the antenna structures listed in Exhibit E are 200 feet or lower in overall height above ground level, however, and do not require an FAA determination or FCC registration.

IV. CONCLUSION

After years of sustained investment aimed at bringing vital broadband services to the Bay Area, BayRICS can soon complete this important project—and well before FirstNet will arrive upon the scene. We urge the Bureau to grant an STA immediately to

allow BayRICS to complete this important work.

Respectfully submitted,

/s/

Barry Fraser
Interim General Manager
BayRICS Authority
4995 Broder Blvd.
Dublin, CA 94568
925-803-7882

EXHIBIT A
BayWEB PROJECT CHRONOLOGY

DATE	TASK	FUNDING/RESOURCE COMMITMENTS
March 26, 2010	BTOP Application Submitted	
May 12, 2010	Waiver Granted	
May- August 2010	NTIA conducts its due diligence concerning Motorola's BTOP Grant application	
July 16, 2010	First Interoperability Showing Filed with Commission	
July 23,2010	Motorola and East Bay Regional Communications System Authority (a JPA in Alameda and Contra Costa Counties) enter into a Pilot System Sale contract for "Project Cornerstone," originally planned as LTE system comprised of 1 core, 10 RAN sites and 300 devices	
August 18, 2010	BTOP Grant Award to Motorola	$50.6 M BTOP Grant; $21.9 M Match; $72.5M total commitment
Sept. 2010	Motorola Accepts BTOP Grant; Begins hiring PM Staff	
Sept. 2010	Initial "BOOM" Contract Negotiations Begin	In-kind staff time
Fall 2010	Initial Site Selection/Review Process Begins	In-kind staff time for site escorts and evaluation of sites
January 2011	Bay Area Stakeholders Agree that Additional Governance Structure Required; JPA Agreement Drafting Begins	In-kind staff time
April 11, 2011	Regional Technical Advisory Committee (TAC) Drafts and Files Technical Interoperability Comments in 4th FNPRM	In-kind staff time
May 2011	2nd BOOM Negotiations Begin	In-kind staff time
May-July 2011	JPA Agreement Finalized/Jurisdictions Begin Approval:	In-kind staff time
Board/Council Action: 5/24/2011 6/10/2011 6/28/2011 5/20/2011 7/26/2011 7/19/2011 5/24/2011 5/24/2011 6/14/2011 6/7/2011 5/24/2011 5/24/2011 5/24/2011	City/County / Joined Alameda County 5/24/2011 California, State of 6/14/2011 Contra Costa County 6/28/2011 East Bay Hub 5/20/2011 Marin County 7/26/2011 Oakland, City of 7/19/2011 San Francisco County 5/24/2011 San Francisco City 5/24/2011 San Jose, City of 6/14/2011 San Mateo County 6/7/2011 Santa Clara County 5/24/2011 Sonoma County 5/24/2011 South Bay Hub 5/24/2011	
June 28, 2011	Project Cornerstone re-scoped to reduce number of RAN Sites to 4.	

DATE	TASK	FUNDING/RESOURCE COMMITMENTS
August 8, 2011	First BayRICS JPA Meeting; JPA assumes oversight of TAC and BOOM Negotiations team	$318,500 ($24.5K x 13) in member fees committed to BayRICS admin. Also in-kind contribution in office/meeting space, and related administrative functions
Sept. 7, 2011	JPA adopts unanimous Resolution supporting three-city waiver petition and transfer of spectrum rights to BayRICS JPA.	
October 18, 2011	Proposed System Funding Plan for JPA Member Review (90 day)	In-kind staff time
Fall 2011	Motorola Selects Equipment Vendor	
Fall 2011	System Design/Engineering Plan	
Fall 2011	Site Access Agreements Developed	In-kind staff time
October-November 2011	Second round of site review/visits	In-kind staff time
November-December 2011	Site Reports and Lease Drawings Developed and delivered to jurisdictions	In-kind staff time
December 2011 – February 2012	CEQA Exemptions	In-kind staff time
December 2011 – June 2012	Site Access and Use Agreements:	In-kind staff time
Board/Council Action 12/12/2011 12/15/2011 1/13/2012 1/19/2012 1/18/2012 1/24/2012 2/7/2012 2/9/2012 1/23/2012 3/28/2012 4/11/2012 6/25/2012 Tentative Agreement	Jurisdiction City of Concord Sonoma County Sunnyvale Santa Clara Contra Costa County Alameda County San Francisco City/County East Bay Regional Communications System Authority (EBRCSA) San Mateo County City of Hayward City of Union City City of Livermore Bay Area Rapid Transit (BART)	
Jan. 19, 2012	System Funding Plan Approved by JPA	
Jan. 19 2012	BOOM Agreement Executed by JPA	
Jan. 19, 2012	JPA Approves Hiring Interim General Manager/Project Manager	$180K Homeland Security Grant (2011)
January – March 2012	JPA Staff and Motorola develop network maintenance and device/user support plan.	

DATE	TASK	FUNDING/RESOURCE COMMITMENTS
January – June 2012	Budget Development for 2012-2013	Several jurisdictions budget for zoning/permitting costs, staff time and
February-April 2012	Motorola LTE Equipment Order Planning	
Feb. 22, 2012	**Spectrum Act Signed**	
March 2012	"BayLoop" Microwave Backhaul Funding Secured	$265K Homeland Security Grant (2012)
April-May 2012	NTIA Partial Suspension Announcements	
April -July2012	Zoning Approval Process Begins; Eleven sites secure zoning approval	In-kind staff time
July 1, 2012	BayRICS Authority Begins second year of operation	$325,000 ($25K x 13)

EXHIBIT B
MOTOROLA SOLUTIONS, INC. SUPPORT LETTER

August 10, 2012

Barry Fraser,
General Manager, BayWEB
Bay Area Regional Interoperable Communications System (BayRICS) Joint Power s Authority
4985 Broder Blvd.
Dublin, CA 94568

Dear Barry:

In response to your request for Motorola Solutions, Inc (Motorola) to comment on the benefits to the Public Safety community and the Bay Area that would result from the FCC acting upon your request for the issuance of a Special Temporary Authorization (STA), I provide the following. I have limited my comments to a subset of the evaluation criteria described in FCC Order 12-85, paragraph 25.

"Substantial Deployment Prior to Enactment of the Act"

Although the BayWEB project has not yet purchased and delivered LTE-related equipment, in its current state it represents an expenditure of nearly $5M in cash, the creation of jobs, and significant investment of existing internal resources in the design and engineering phases. A continued investment of grant monies will position it for operation substantially in advance of when FirstNet might reach the point of planning and implementing its deployment in the Bay Area.

The original project plan created by Motorola called for LTE-related equipment to be placed in the field by now. However, NTIA directed Motorola to suspend the LTE portion of the Grant, and specifically stated the suspension was not due to any fault of our own. Instead, NTIA indicated concern about interoperability and the potential for "stranded investment" due to future potential interoperability issues. Since that time, Motorola has proposed a solution which has been verbally accepted and which will provide assurances by indemnifying the NTIA regarding interoperability. But for NTIA's direction to partially suspend the Grant, Motorola believes it would have purchased LTE equipment and made even greater progress towards deployment of the network.

Despite the current inability to order, manufacture and deploy LTE-related equipment, Motorola and the BayRICS Authority(the Authority) jointly have made very substantial progress toward the eventual deployment and operation of the Public Safety LTE network for BayWEB during the last two years. The Authority is now operational and has been convening regular meetings with its constituents, vendors, and Motorola(the grant recipient). Under the Authority, a Technical Advisory Committee (TAC) has also been created with the charter of representing the many first responder groups that will be the ultimate users who depend on the system. Many meetings have been held between it and Motorola, and operational standards and design criteria have been agreed upon and plans have been developed to deploy a network that fulfills those needs. All factors that impact the Build, Own, Operate and Manage (BOOM) agreement have been settled and the document has been fully executed between the parties. Individual Site Access & Use (SAU) agreements have been fully executed with most participating jurisdictions, with only the Bay Area Rapid Transit (BART) agreement between itself and the Authority and a corresponding SAU between the Authority and MSI and the San Francisco core and fiber use agreements being outstanding A partial listing of achievement for the project includes:

Team Creation

- 22 full and part time MSI positions assigned to the project reflecting over 28,000 man hours of effort
- Over 28 full and part time subcontractor positions assigned to the project
- San Francisco based project office created

Contractors

- Four contractor companies performing work in
  - Section 106 Determinations
  - Tribal Notifications
  - State Historical Preservation Office (SHPO) coordination
  - Microwave path surveys, design and licensing
  - National Environmental Protection Agency (NEPA) Phase 1 reviews
  - Site design
  - Structural Analysis
  - Zoning and Permitting

Build, Own, Operate and Maintain Agreement

- 3,520 man hours of effort on the part of the BayRICS Authority in negotiating the agreement
- Over 1,500 man hours of effort on the part of Motorola in negotiating the agreement
- 16 months of negotiations
- Final document encompasses 15 attachments covering
  - System Description
  - Specifications
  - Statement of Work
  - Service Levels
  - Customer Support Plan
  - Software License Agreement
  - Operation Stage and Maintenance Service Statement of Work
  - Insurance Requirements

Site Selection

- Nearly 350 Site design and determination visits have been completed in order to design the current system architecture.

Site use Agreements

- 12 Site Access and Use (SAU) agreements on more than 130 sites
- SAU's cover site use for a 10 year period of time, insurance requirements and site owner and system operator responsibilities
- SAU negotiations was a 9 month process with approvals required in many cases by County Boards of Supervisors and City Councils

Zoning and Permitting

- Initial and revised Lease Exhibit drawings created
- Almost 250 Lease and Permit jurisdictional researches were completed to determine the permitting and zoning process for required jurisdictions
- 74 tower and building structural analysis completed

Engineering

- Completed initial system design using inputs known upon project completion
- Optimized system design with updated inputs from participating agencies
  - Participating Agencies
  - Site Constellation
  - Fiber Access (BART, CENIC, PG&E, San Francisco)
- Over 350 site walks to evaluate sites based on equipment and antenna space, power, tower analysis, and microwave backhaul link verifications
- Conducted multiple design reviews with JPA TAC team
- Conducted individual design reviews with the participating agencies
- Conducted design reviews with Ericsson on the LTE and microwave design
- Completed and submitted route modification to the NTIA

57 antenna mappings have been completed to update current antenna loads on co-location sitesAll of these activities and the delivered results represent, at the very minimum, a 24-month head start for the current program compared with any new beginning to the process of reaching such detailed plans and agreements between FirstNet, the State of California and the Authority and the individual jurisdictions and their constituents.

From project inception to the period ending Q1, 2012, each of these factors was taken into account and a master project schedule was created; this schedule was compatible with providing an operational LTE network in a timeframe conformance with the then-current July 31, 2013 grant deadline. A critical path item for that schedule was the placing of orders for LTE-related equipment and services during early April, 2012.

On April 2, 2012, NTIA verbally requested Motorola to cease activities that were related to the procurement and deployment of LTE-related equipment and installation services. Acting in good faith, we immediately suspended all such activities while retaining focus on site preparation work, as suggested by NTIA. Had the LTE-related equipment been ordered during the first week of April as planned, there would be substantial LTE Fixed Network Equipment that would by now have been manufactured, staged and deployment into the field could have begun.

On May 11, Motorola, along with other BTOP grant recipients, received written notice of our grant's partial suspension. On June 25, 2012, the company officially indicated its acceptance of the Amendment to our grant, partially suspending the portion of the grant which is allocated to LTE-related equipment and activities. Motorola is in the process of complying with the detailed Route Modifications and budget changes necessary to cope with the partial suspension, and is attempting to mitigate some of the side effects of the stop work (e.g., a slow down in some of the site preparation tasks by site owners and a loss

of momentum for the contracting, ordering and manufacturing of the LTE equipment, and for the staffing support to act on each of these items).

Motorola joins the Authority in respectfully requesting the FCC to act favorably on the BayRICS Authority's request for a STA, and that the FCC offer its support to the project by exerting influence on FirstNet and/or the NTIA to satisfactorily arrive at an arrangement to use the spectrum. The latter item is critical to satisfy a Special Award Condition placed upon Motorola by the NTIAwhich requires "long term" access to spectrum. Favorable action on these two requirements will ensure that the federal and private money spent to date will not be wasted, the timeline to deploy a sorely needed LTE communications network in the Bay Area will not be further delayed, and both FirstNet and the State of California will benefit from the lessons learned throughout the design and deployment process so that future similar projects will benefit inside the State and throughout the nation.

Finally, this letter should serve as Motorola's commitment to the Authority that when the Authority receives the assurance for long term access to the spectrum from the FCC and FirstNet, we will strive to make up lost time by getting the grant's partial suspension lifted and by accelerating the deployment of the network. In the mean time, we are committed to do as much work as possible under the rules of the partial suspension to minimize impact to the schedule.

Sincerely,

Coyle Schwab

Coyle Schwab
Motorola Solutions, Inc.
Program Director, BayWEB

EXHIBIT C
SAMPLE SITE ENGINEERING DRAWINGS

BAY AREA WIRELESS ENHANCED BROADBAND

SITE NAME: 901 RANKIN / BWSF05
901 RANKIN STREET
SAN FRANCISCO, CA 94124
SAN FRANCISCO COUNTY

VICINITY MAP
N.T.S.

APPROX. NORTH

LOCATION MAP
N.T.S.

APPROX. NORTH

Pyramid Network Services, LLC

MOTOROLA SOLUTIONS

EBI CONSULTING

PROJECT INFORMATION

PROJECT DESCRIPTION:

INSTALLATION OF NEW PANEL & MICROWAVE ANTENNAS ON EXISTING TOWER WITH ASSOCIATED BASE STATION EQUIPMENT.

SITE NAME:	901 RANKIN / BWSF05
SITE ADDRESS:	901 RANKIN STREET SAN FRANCISCO, CA 94124 SAN FRANCISCO COUNTY
CLUSTER AREA:	NORTH
SITE COORDINATES:	LATITUDE: 37.74064 N LONGITUDE: −122.39577 W

PROJECT DIRECTORY

PROPERTY OWNER:	CITY AND COUNTY OF SAN FRANCISCO 901 RANKIN STREET SAN FRANCISCO, CA 94124
MOTOROLA PROJECT MANAGER:	MEG HILL 1001 BAYHILL DRIVE, SUITE 200 SAN BRUNO, CA 94066 (650) 823−4128
PYRAMID NETWORK SERVICES PROJECT MANAGER:	KEVIN R. GLARDON 941 DILLON WAY SUITE B LEBANON, OH 45036 513−518−9132
ENGINEER	ANDREW MACDONALD EBI CONSULTING 21 B STREET BURLINGTON, MA 01803

SHEET INDEX

SHEET	DESCRIPTION
T−1	TITLE SHEET
GN−1	GENERAL NOTES
GN−2	GENERAL NOTES
A−1	PLOT PLAN & NOTES
A−2	ENLARGED SITE PLAN & EQUIPMENT CABINET LAYOUT
A−3	ELEVATION
A−4	EQUIPMENT DETAILS
A−5	EQUIPMENT DETAILS
E−1	ELECTRICAL & GROUNDING NOTES, & DETAILS
E−2	RISER DIAGRAM & ELECTRICAL DETAILS
E−3	GROUNDING DETAILS

GENERAL REQUIREMENTS

1. GENERAL

1.1. SUMMARY OF WORK

A. THE WORK MAY CONSIST OF, BUT NOT BE LIMITED TO, THE INSTALLATION OF EQUIPMENT CABINETS, ANTENNAS AND LINES, FUEL TANKS, GROUNDING, ELECTRICAL WORK, ETC., ASSOCIATED WITH THE MOTOROLA EQUIPMENT AS INDICATED ON DRAWINGS AND AS SPECIFIED HEREIN. CONTRACTOR SHALL SUPPLY ALL PERMANENT MATERIALS/EQUIPMENT REQUIRED AND ALL LABOR, EQUIPMENT, TOOLS, UTILITIES, MINOR HARDWARE/MATERIALS, TRANSPORTATION AND FACILITIES NECESSARY FOR PROPER EXECUTION AND COMPLETION OF SERVICES AND INSTALL WORK, WHETHER TEMPORARY OR PERMANENT. CONTRACTOR SHALL BE OBLIGATED TO PERFORM ALL THE WORK OUTLINED IN THESE DRAWINGS IN ACCORDANCE WITH THE CONTRACT AGREEMENT, FEDERAL REGULATIONS, STATE REQUIREMENTS, LOCAL CODES, COMMERCIAL/INDUSTRY STANDARDS, BART STANDARDS, DETAILED SCOPE OF WORK AND THE DOCUMENTS IDENTIFIED BELOW. IN CASE OF A CONFLICT BETWEEN THE ABOVE LISTED DOCUMENTS REGARDING STANDARDS OF WORK, THE MORE STRINGENT CRITERIA SHALL APPLY. ANY ADDITIONAL COSTS OR DELAYS RESULTING FROM CORRECTION OF THE WORK TO COMPLY WITH THE ABOVE REQUIREMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.2. SITE VISIT

CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE ITSELF WITH THE SCOPE OF WORK REQUIRED PER THE DRAWINGS AND ALL LOCAL CONDITIONS AND LAWS, BART STANDARDS, AND REGULATIONS THAT MAY IN ANY MANNER AFFECT THE PRICE, PROGRESS AND PERFORMANCE OF WORK, INCLUDING ANY COSTS ASSOCIATED WITH IT. THE CONTRACTOR SHALL ALSO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND NOTIFY THE MOTOROLA REPRESENTATIVE OF ANY DISCREPANCIES OR INTERFERENCES WHICH AFFECT THE WORK OF THIS CONTRACT.

1.3. STANDARDS AND CODES

THE FOLLOWING DOCUMENTS (LATEST REVISION) SHALL BE CONSIDERED TO BE SPECIFICATION AND ARE INCORPORATED HEREIN BY REFERENCE. IN THE EVENT OF CONFLICT BETWEEN THE REQUIREMENTS OF THIS SPECIFICATION AND THE REQUIREMENTS OF THE REFERENCED DOCUMENTS, THE STRICTER SPECIFICATION SHALL GOVERN. WHERE PROVISIONS OF THE CODES AND STANDARDS ARE IN CONFLICT WITH THE BUILDING CODE IN FORCE FOR THIS PROJECT, THE BUILDING CODE SHALL GOVERN.

CONTRACTOR TO USE THE FOLLOWING STANDARDS AS NEEDED:

A. AMERICAN CONCRETE INSTITUTE:
* ACI 301 – "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
* ACI 305 "HOT WEATHER CONCRETING".
* ACI 306 "COLD WEATHER CONCRETING".
* ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
* ACI 614 "RECOMMENDED PRACTICE FOR MEASURING, MIXING AND PLACING CONCRETE".
* ACI 311 "RECOMMENDED PRACTICE FOR CONCRETE INSPECTION".
* ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
* ACI 613 "RECOMMENDED PRACTICE FOR SELECTING PROPORTIONS FOR CONCRETE".

B. AMERICAN NATIONAL STANDARDS INSTITUTE:
* ANSI Z359 REQUIREMENTS FOR PERSONAL FALL ARREST SYSTEMS, SUBSYSTEMS AND COMPONENTS
* ANSI Z87.1 OCCUPATIONAL AND EDUCATIONAL EYE AND FACE PROTECTION
* ANSI Z89.1 PROTECTIVE HEADWEAR FOR INDUSTRIAL WORKERS –REQUIREMENTS
* ANSI/IEEE C95.1 SAFETY LEVELS WITH RESPECT TO HUMAN EXPOSURE TO RADIO FREQUENCY ENERGY
* ANSI/TLA/EIA STANDARD 222: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

C. AMERICAN INSTITUTE OF STEEL CONSTRUCTION"
* AISC MANUAL OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION: LATEST EDITION

D. AMERICAN SOCIETY FOR TESTING AND MATERIALS:
* ASTM A615 – "SPECIFICATION FOR DEFORMED AND PLAIN BILLET STEEL BARS FOR CONCRETE REINFORCEMENT".
* ASTM C94–80 – "SPECIFICATION FOR READY–MIX CONCRETE".
* ASTM C39–77 – "SPECIFICATION FOR TEST FOR COMPREHENSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMEN".
* ASTM C33 – "SPECIFICATION FOR CONCRETE AGGREGATES".
* ASTM C150 – "SPECIFICATION FOR PORTLAND CEMENT".
* ASTM C172 – "SAMPLING FRESH CONCRETE".
* ASTM C143 – "SLUMP OF PORTLAND CEMENT CONCRETE".
* ASTM D698–91 – "TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT".
* ASTM D1556–64 – "DENSITY OF SOIL IN PLACE BY THE SAND–CONE METHOD".
* ASTM D1557 – "TEST FOR MOISTURE–UNIT WEIGHT RELATIONS OF SOILS AND SOIL–AGGREGATE MIXTURES USING 10–LB. HAMMER AND 18–IN. DROP". (PROCEDURE C)
* ASTM D2487 – "STANDARD CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOIL CLASSIFICATION SYSTEM)"
* ASTM D2922 – "DENSITY OF SOIL AND SOIL AGGREGATE IN PLACE BY NUCLEAR METHODS SHALLOW DEPTH".
* ASTM D2940 – "STANDARD SPECIFICATION FOR GRADED AGGREGATE MATERIAL FOR BASES OR SUB–BASES FOR HIGHWAYS OR AIRPORTS"

E. AMERICAN WELDING SOCIETY:
* AWS D12.1 – "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL, METAL INSERTS AND CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION".

F. CONCRETE REINFORCING STEEL INSTITUTE:
* "MANUAL OF STANDARD PRACTICE"

G. STRUCTURAL STEEL PAINTING COUNCIL:
* SSPC–SP–1–63: SPECIFICATION FOR PAINTING STEEL STRUCTURES.

H. MOTOROLA R56 STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES (LATEST REVISION).

I. MOTOROLA'S CIVIL WORKS BID SPECIFICATIONS

J. NATIONAL FIRE PROTECTION ASSOCIATION:
* NFPA 1 – FIRE PREVENTION CODE
* NFPA 70 – NATIONAL ELECTRICAL CODE
* NFPA 101 – LIFE SAFETY CODE
* NFPA 111 – STANDARD ON STORED ELECTRICAL ENERGY, EMERGENCY AND STANDBY POWER SYSTEMS
* NFPA 780 – STANDARD FOR THE INSTALLATION OF LIGHTNING PROTECTION SYSTEMS

K. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION:
* OSHA 1926
* OSHA DIRECTIVES CPL 2–1.29 – INTERIM INSPECTION PROCEDURES DURING COMMUNICATION TOWER CONSTRUCTION ACTIVITIES.

L. ALL WORK AND MATERIALS SHALL BE PERFORMED AND 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 THE LATEST EDITIONS OF THE FOLLOWING:

1. CA BUILDING CODE
2. UNIFORM BUILDING CODE
3. BUILDING OFFICIALS AND CODE
4. UNIFORM MECHANICAL CODE
5. ANSI/TIA/EIA–222–F
6. UNIFORM PLUMBING CODE
7. NATIONAL ELECTRIC CODE (2008)

1.4. NOTICE TO PROCEED BY ISSUE OF PERMIT & APPROVED DRAWINGS FROM BART

BART TO ISSUE NOTICE TO PROCEED TO MOTOROLA AFTER DRAWINGS ARE APPROVED BY BART & NECESSARY PERMITS OBTAINED.

WHEN THE SITE IS READY FOR INSTALLATION, MOTOROLA SHALL ISSUE A NOTICE TO PROCEED TO THE CONTRACTOR. UPON RECEIPT OF THE NOTICE OF PROCEED, THE CONTRACTOR SHALL SUBMIT TO MOTOROLA A SCHEDULE REFLECTING THE WORK PLAN. THE CONTRACTOR SHALL ADVISE THE MOTOROLA REPRESENTATIVE IMMEDIATELY OF ANY SCHEDULE CHANGES. THE CONTRACTOR SHALL ADJUST HIS WORK, AS REQUIRED, TO COORDINATE WITH THE MOTOROLA INSTALLATION TEAM IF THE SCHEDULES OVERLAP.

1.5. MOTOROLA OR ITS APPROVED CONTRACTOR TO SUBMIT A SIX–WEEK SCHEDULE TO BE UPDATED EVERY MONDAY FOR SUBMITTAL TO TRACK ALLOCATION

MOTOROLA SHALL DESIGNATE A REPRESENTATIVE. THIS PERSON IS THE ONLY CONTACT POINT AUTHORIZED TO MAKE ANY CHANGES TO THE CONTRACT PROVISIONS OR THE PLANS AND SPECIFICATIONS. ANY CHANGES MADE BY THE CONTRACTOR ARE AT THE CONTRACTOR'S RESPONSIBILITY AND RISK.

1.6. CONTRACTORS FIELD REPRESENTATIVE

CONTRACTOR SHALL ASSIGN A FIELD REPRESENTATIVE WHO IS FAMILIAR WITH THESE SPECIFICATIONS AND WILL REPRESENT THE CONTRACTOR AND HAVE THE AUTHORITY TO ACT FOR THE CONTRACTOR AND SUPERVISE ALL CONSTRUCTION ACTIVITIES. THE FIELD REPRESENTATIVE SHALL BE AVAILABLE WHEN CONSTRUCTION ACTIVITIES BEGIN. THE FIELD REPRESENTATIVE SHALL BE THE PRIMARY POINT OF CONTACT FOR MOTOROLA DURING THE CONSTRUCTION PHASE OF THE WORK.

DOJ BACKGROUND CHECK:
ALL PERSONNEL TO PASS A DEPARTMENT OF JUSTICE BACKGROUND CHECK PRIOR TO BART ISSUING A CONTRACTOR BADGE.

1.7. PROJECT MEETINGS

THE CONTRACTOR SHALL CONDUCT THE INITIAL (PRE–CONSTRUCTION) MEETING (INCLUDING ALL SUB–CONTRACTORS) WITH THE MOTOROLA REPRESENTATIVE WITHIN TWO WEEKS AFTER AWARD OF THE CONTRACT. SUBSEQUENTLY, THE CONTRACTOR SHALL PROVIDE PROGRESS SCHEDULE UPDATES TO MOTOROLA AND BART ON A WEEKLY BASIS.

1.8. MATERIALS

CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS AS REQUIRED FOR COMPLETE SYSTEMS INCLUDING: ALL PARTS OBVIOUSLY OR REASONABLY INCIDENTAL TO A COMPLETE INSTALLATION, WHETHER SPECIFICALLY INDICATED OR NOT. ALL SYSTEMS SHALL BE COMPLETELY ASSEMBLED, TESTED, ADJUSTED AND DEMONSTRATED TO BE READY FOR OPERATION PRIOR TO MOTOROLA'S ACCEPTANCE.

MATERIALS AND WORKMANSHIP SHALL BE THE BEST OF THEIR RESPECTIVE KINDS (AS DEFINED BY INDUSTRY STANDARDS), FREE OF DEFECTS AND ALL MATERIALS SHALL BE NEW AND UNUSED IN ALL CASES, UNLESS OTHERWISE SPECIFIED. WHERE THE NAME OF A CONCERN OR MANUFACTURER IS MENTIONED ON DRAWINGS OR IN SPECIFICATIONS IN REFERENCE TO A REQUIRED SERVICE OR PRODUCT, AND NO QUALIFICATIONS OR SPECIFICATION OF SUCH IS INCLUDED, THEN THE MATERIAL SPECIFICATIONS, DETAILS OF MANUFACTURE, FINISH, ETC., SHALL BE IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICE, DIRECTION OR SPECIFICATIONS. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

1.9. VERIFICATION OF EXISTING CONDITIONS

BEFORE STARTING ANY OPERATION, THE CONTRACTOR SHALL EXAMINE EXISTING WORK, OR WORK PERFORMED BY OTHERS, TO WHICH ITS WORK IS TO ADJOIN OR BE APPLIED, AND SHALL REPORT TO MOTOROLA PROJECT MANAGER ANY CONDITIONS THAT WILL PREVENT SATISFACTORY ACCOMPLISHMENT OF HIS WORK. PRIOR TO COMMENCING ANY EXCAVATION OR GRADING, THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE ACCURACY OF ALL SURVEY DATA AS INDICATED IN THE PLANS AND SPECIFICATIONS AND/OR AS PROVIDED BY MOTOROLA. SHOULD THE CONTRACTOR DISCOVER ANY INACCURACIES, ERRORS, OR OMISSIONS IN THE SURVEY DATA, HE SHALL IMMEDIATELY NOTIFY THE MOTOROLA REPRESENTATIVE IN ORDER THAT PROPER ADJUSTMENTS CAN BE ANTICIPATED AND ORDERED. FAILURE TO NOTIFY THE MOTOROLA REPRESENTATIVE OF DEFICIENCIES, ERRORS OR FAULTS PRIOR TO COMMENCEMENT OF WORK SHALL CONSTITUTE ACCEPTANCE THEREOF AND WAIVER OF ANY CLAIMS OF UNSUITABILITY, ERRORS, OMISSIONS OR INACCURACIES.

THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PRESERVING ALL ESTABLISHED SURVEY CONTROL POINTS. IF THE CONTRACTOR OR ANY OF HIS SUB–CONTRACTORS MOVE OR DESTROY ANY SURVEY CONTROL POINTS, THE COST INCURRED BY THE LAND OWNER OR MOTOROLA TO RE–ESTABLISH THEM WILL BE BORNE BY THE CONTRACTOR.

PROJECT:

BayWEB
BAY AREA WIRELESS ENHANCED BROADBAND

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SUBMITTALS

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1	08/03/12	FOR REVIEW	JM

EBI JOB NO:
81120154

SITE INFO:
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SAN FRANCISCO, CA 94124

SHEET TITLE:
GENERAL NOTES

DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12

SHEET NO:
GN-1

1.10. PERMITS

THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, BART STANDARDS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. THE CONTRACTOR SHALL MEET ALL OF THE REGULATORY REQUIREMENTS OF THE JURISDICTION GOVERNING CONSTRUCTION.

1.11. SITE INSPECTION

MOTOROLA SHALL HAVE THE RESPONSIBILITY FOR ARRANGING WITH BART FOR AN INSPECTION PRIOR TO COVERING UP ALL WORK THAT WILL BE COVERED IN FINISHED CONDITION. IT IS THE SITE GENERAL CONTRACTOR'S RESPONSIBILITY TO MANAGE THE SEQUENCE OF WORK AND REQUEST THE INSPECTIONS IN A TIMELY MANNER. THE SITE GENERAL CONTRACTOR SHALL NOT REQUEST AN INSPECTION UNLESS ALL OF THE RELATED WORK HAS BEEN COMPLETED. WORK SHALL NOT PROCEED TO THE NEXT STEP UNTIL THE PREVIOUS STEP HAS BEEN INSPECTED AND APPROVED BY THE LOCAL INSPECTORS, THE COUNTY, BART, AND THE MOTOROLA REPRESENTATIVE. THE PRESENCE OF THE COUNTY, BART OR MOTOROLA REPRESENTATIVE ON THE JOB SITE IN NO WAY RELIEVES THE SITE GENERAL CONTRACTOR OF THE ASSOCIATED RESPONSIBILITIES OF THE JOB. ANY WORK WHICH DOES NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS WILL BE CORRECTED OR REMOVED SOLELY AT THE SITE GENERAL CONTRACTOR'S EXPENSE.

AS A GENERAL RULE, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE TO MOTOROLA AND BART FOR INSPECTION OF ALL WORK PRIOR TO CONCEALMENT. THE CONTRACTOR HAS RESPONSIBILITIES RELATIVE TO ALL TYPES OF INSPECTIONS AND IS RESPONSIBLE FOR CONTACTING ALL OF THE INSPECTING ENTITIES TO DETERMINE HIS RESPONSIBILITIES. ALL OF THESE INSPECTING ENTITIES HAVE UNIQUE AND SEPARATE RESPONSIBILITIES. ONE INSPECTION FROM AN ENTITY WILL NOT SUBSTITUTE FOR AN INSPECTION FROM ANOTHER ENTITY.

1.12. SAFETY

THE CONTRACTOR, HIS EMPLOYEES, ANY SUB-CONTRACTORS, VENDORS, THEIR RESPECTIVE EMPLOYEES AND CONTRACTOR'S VISITORS SHALL COMPLY WITH ALL SAFETY STANDARDS, ACCIDENT PREVENTION REGULATIONS AND ENVIRONMENTAL REGULATIONS PROMULGATED BY FEDERAL, STATE OR LOCAL AUTHORITIES HAVING JURISDICTION AND SHALL AT ALL TIMES CONDUCT ALL OPERATIONS UNDER THE CONTRACT IN A MANNER TO AVOID THE RISK OF BODILY HARM TO ANY PERSONS AND THE RISK OF DAMAGE TO ANY PROPERTY, EQUIPMENT OR MATERIAL. SUCH PARTIES SHALL ALSO COMPLY WITH ANY SAFETY PROGRAMS AND/OR RULES PROMULGATED BY OWNER AND/OR MOTOROLA.

1.13. ELECTRO MAGNETIC EMISSIONS

THE CONTRACTOR SHALL ACKNOWLEDGE ALL OR PORTIONS OF THE WORK MAY INVOLVE POSSIBLE EXPOSURE OF CONTRACTOR, SUB-CONTRACTORS, AND THEIR RESPECTIVE EMPLOYEES, AGENTS, INVITEES, LICENSEES AND OTHER VISITORS TO THE JOBSITE AND/OR MOTOROLA PREMISES TO ELECTRO-MAGNETIC ENERGY ("EME") WHILE PERFORMING WORK UNDER THIS CONTRACT, ESPECIALLY IF WORK IS PERFORMED ON EXISTING ANTENNA TOWERS WHERE ANTENNAS ARE LOCATED. THE CONTRACTOR REPRESENTS THAT CONTRACTOR, SUBCONTRACTORS, AND ALL OF THEIR RESPECTIVE EMPLOYEES, AGENTS, INVITEES, LICENSEES, AND OTHER AUTHORIZED REPRESENTATIVES WHO ARE PERFORMING SERVICES UNDER THIS AGREEMENT WILL COMPLY WITH ALL ANSI AND ANY OTHER APPLICABLE EME STANDARDS, RULES OR REGULATIONS, INCLUDING, BUT NOT LIMITED TO THOSE RULES OR REGULATIONS IMPOSED OR SUGGESTED BY MOTOROLA, IF ANY.

THE CONTRACTOR SHALL ADHERE TO ALL OSHA RULES, REGULATIONS AND ADOPTED POLICIES. ALL CONTRACTOR PERSONNEL SHALL HAVE UNDERGONE ELECTROMAGNETIC ENERGY (EME) TRAINING FOR PERSONNEL WORKING IN THE VICINITY OF ACTIVE ANTENNAS. AS SUCH IT IS RECOMMENDED THAT RF MONITORS BE USED BY THE TOWER PERSONNEL TO MONITOR EXPOSURE LEVELS. IF EME LEVELS AT THE SITE EXCEED THE MAXIMUM PERMISSIBLE EXPOSURE LIMITS, THE CONTRACTOR SHALL COORDINATE WITH THE INDIVIDUALS RESPONSIBLE FOR USE OF THE TRANSMITTER TO MAKE SURE THAT THE EQUIPMENT IS DEACTIVATED BEFORE WORK CAN BE RESUMED, WITHOUT CAUSING A SERIOUS DISRUPTION OF THE SERVICE.

1.14. SITE CLEANUP

THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE AT ALL TIMES DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, VEGETATION, AND RUBBISH, AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. WHENEVER THE WORK-SITE IS LEFT UNATTENDED, THE CONTRACTOR SHALL BLOCK THE OPENING WITH WARNING TAPE TO DISCOURAGE TRESPASSING. THE PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE AT THE CONCLUSION OF SITE WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LANDSCAPE GRADING AND SEEDING OF THE DISTURBED SOIL. THE CONTRACTOR SHALL USE LOCAL GRASS SEED TO STABILIZE SOIL AND SHALL COVER DISTURBED AREAS WITH HAY MULCH TO REDUCE RUNOFF OF SEDIMENT TO DOWNSTREAM AREAS. THE CONTRACTOR SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION. ALL SLOPES AND DISTURBED AREAS NOT RECEIVING AGGREGATE SURFACING ARE TO BE PREPARED AND BROADCAST SEEDED AND FERTILIZED FOR EROSION PROTECTION. SEEDING FOR AREAS DISTURBED SHALL BE ESTABLISHED SEASONALLY AS REQUIRED BY LOCAL CODES.

THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE OR INTERRUPTION OF EXISTING UNDERGROUND OR OVERHEAD ELECTRIC SERVICES, UNDERGROUND GROUNDING AND FUEL LINES, EQUIPMENT AND BUILDINGS ON THE SITE, PLUS OFF SITE SERVICES, BURIED OR OVERHEAD, SURROUNDING THE EXISTING OR EXPANDED COMPOUND. ANY PROPERTY DAMAGE CAUSED BY THE CONTRACTOR OR HIS OPERATIONS SHALL BE CORRECTED AND/OR RESTORED TO THE SATISFACTION OF THE PROPERTY OWNER(S) AND MOTOROLA AT NO ADDITIONAL COST TO THE PROPERTY OWNER OR MOTOROLA.

BURNING WILL NOT BE PERMITED.

1.15. FACILITY STARTUP & COMMISSIONING

THE CONTRACTOR AND/OR SUB-CONTRACTORS SHALL DEMONSTRATE TO MOTOROLA THAT ALL SYSTEMS AND SUB-SYSTEMS INSTALLED UNDER THIS CONTRACT, OPERATE PROPERLY PRIOR TO THE FINAL ACCEPTANCE INSPECTION AND PROVIDE THE OPERATIONS AND MAINTENANCE MANUALS AT THIS TIME.

1.16. AS-BUILT DRAWINGS

THE CONTRACTOR SHALL KEEP UP-TO-DATE MARKED-UP PRINTS OF THE PROJECT DRAWINGS. UPON COMPLETION OF WORK AT THE SITE, THE CONTRACTOR SHALL REVIEW THE COMPLETED AS-BUILT DRAWINGS, AND ASCERTAIN THAT ALL DATA FURNISHED ON THE DRAWINGS IS ACCURATE AND TRULY REPRESENTS THE WORK AS ACTUALLY INSTALLED. MARKINGS INDICATING CHANGES TO THE DRAWINGS SHALL BE RED OR GREEN AND CLEARLY VISIBLE. TWO (2) SETS OF "AS-BUILT" DRAWINGS SHALL BE FURNISHED TO THE MOTOROLA REPRESENTATIVE WITHIN 5 DAYS OF THE COMPLETION OF THE PROJECT. THESE DRAWINGS SHALL ALSO SHOW THE FOLLOWING:

* MODIFICATIONS TO SITE LAYOUT.
* GROUNDING SYSTEM LAYOUT.
* UNDERGROUND ELECTRICAL RUN.

WHERE THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING THE SITE EQUIPMENT THAT REQUIRES PERIODIC MAINTENANCE, THE CONTRACTOR SHALL INCLUDE ALL OPERATION AND MAINTENANCE MANUALS AND ALL AS-BUILT DRAWINGS WHICH FULLY DESCRIBE THE ACTUAL INSTALLED EQUIPMENT.

1.17. TEST PROCEDURES AND RESULTS

CONTRACTOR WILL CONTRACT WITH A THIRD PARTY "INDEPENDENT" TESTING FIRM TO PERFORM & SUBMIT THE RESULTS OF ALL TESTS REQUIRED BY THE PROJECT SPECIFICATIONS AND DRAWINGS THAT FALL WITHIN THE SCOPE OF WORK. THESE RESULTS SHALL BE SUBMITTED TO THE DESIGNATED MOTOROLA REPRESENTATIVE. IN GENERAL, THE "INDEPENDENT" TESTING FIRM SHALL SUBMIT THE FOLLOWING TEST RESULTS:

* CONCRETE COMPRESSION TEST FOR ALL CONCRETE WORK.
* TIME DOMAIN REFLECTOMETER (TDR) WITH PRECISION LOAD / SWEEP TEST FOR ANTENNA AND TRANSMISSION LINE INSTALLATION WORK.
* SLUMP TEST FOR CONCRETE WORK.
* GROUNDING RESISTANCE TEST FOR GROUNDING WORK.
* ANY OTHER TEST THAT MAY BE REQUIRED.

1.18. CONTRACT CLOSEOUT

THE MOTOROLA REPRESENTATIVE WILL PROVIDE A CERTIFICATE OF COMPLETION AND APPROVE FINAL PAYMENT WHEN ALL PUNCH-LIST ITEMS HAVE BEEN CORRECTED, RECORD DRAWINGS SUBMITTED, AND ALL SYSTEMS ARE ACCEPTABLE. AFTER FINAL PAYMENT, CONTRACTOR WILL SIGN A RELEASE OF LIEN.

1.19. WARRANTY

ALL WORK PERFORMED BY THE CONTRACTOR IN COMPLETING THE SCOPE IDENTIFIED ON THE DRAWINGS SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL COMPLETION OF THE PROJECT. THIS GUARANTEE SHALL COVER ALL MATERIALS, EQUIPMENT OR WORKMANSHIP WHICH IN THE OPINION OF MOTOROLA IS RENDERED DEFECTIVE OR INFERIOR OR NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT DURING THE GUARANTEE PERIOD. IF, WITHIN THE GUARANTEE PERIOD, REPAIRS OR CHANGES ARE REQUIRED TO CORRECT THE GUARANTEE WORK, THEN UPON RECEIPT OF NOTICE, THE CONTRACTOR SHALL PROMPTLY AND WITHOUT EXPENSE TO MOTOROLA OR THE COUNTY, PROCEED TO:

* PLACE IN SATISFACTORY CONDITION ALL OF SUCH GUARANTEED WORK AND CORRECT ALL DEFECTS THEREIN.
* MAKE GOOD ALL DAMAGES TO THE STRUCTURE OR SITE OR EQUIPMENT OR CONTENTS THEREOF, WHICH, IN THE OPINION OF THE MOTOROLA, IS THE RESULT OF THE USE OF MATERIALS, EQUIPMENT, OR WORKMANSHIP WHICH ARE INFERIOR, DEFECTIVE, OR NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT;
* MAKE GOOD ANY WORK, MATERIALS OR EQUIPMENT, AND ADJACENT STRUCTURES DISTURBED IN FULFILLING THE GUARANTEE.

1.20. RELATED DOCUMENTS

CONTRACTOR SHALL BECOME FAMILIAR WITH THE INFORMATION AND REQUIREMENTS CONTAINED IN THE FOLLOWING DOCUMENTS RELATED TO THE PROJECT:

A. TOWER AND TOWER FOUNDATION DRAWINGS BY THE MANUFACTURER OR TOWER MAPPING REPORT FURNISHED BY THE TOWER'S OWNER.

B. R-56 STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES BY MOTOROLA AS MODIFIED IN THE BAYWEB CONTRACT.

C. ALL OTHER PERTINENT DOCUMENTS

D. BART STANDARDS

E. BAYWEB CONTRACT.

ANY DISCREPANCIES BETWEEN THIS DRAWING PACKAGE AND EXISTING FIELD CONDITIONS MUST BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

SYMBOLS & ABBREVIATIONS

E	ELECTRIC
F	FIBER
T	TELEPHONE
OH	OVER HEAD UTILITY
P P	POWER SUPPLY
	COAX CABLE
	PROPERTY LINE
X	CHAIN LINK FENCE
DET / SHT	DETAIL REFERENCE
DET / SHT	DETAIL SECTION REFERENCE
ELEV. 350-0"	SURFACE ELEVATION
SECT / SHT	SECTION REFERENCE
SECT / SHT	ELEVATION REFERENCE

AGL	ABOVE GRADE LEVEL
BTS	BASE TRANSCEIVER STATION
(E)	EXISTING
MIN.	MINIMUM
MAX.	MAXIMUM
N.T.S.	NOT TO SCALE
REF	REFERENCE
RF	RADIO FREQUENCY
T.B.D.	TO BE DETERMINED
T.B.R.	TO BE RESOLVED
TYP,	TYPICAL
REQ	REQUIRED
EGR	EQUIPMENT GROUND RING
AWG	AMERICAN WIRE GAUGE
MGB	MASTER GROUND BUS
EG	EQUIPMENT GROUND
BCW	BARE COPPER WIRE
GEN	GENERATOR
IGR	INTERIOR GROUND RING (HALO)
RBS	RADIO BASE STATION
MW	MICROWAVE

PROJECT:

BayWEB
BAY AREA WIRELESS ENHANCED BROADBAND

PREPARED BY:

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PREPARED FOR:

MOTOROLA SOLUTIONS

PROJECT COORDINATION & MANAGEMENT:

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OFFICE: (315) 701-1302

SUBMITTALS

NO.	DATE	DESCRIPTION	BY
1	08/03/12	FOR REVIEW	JM

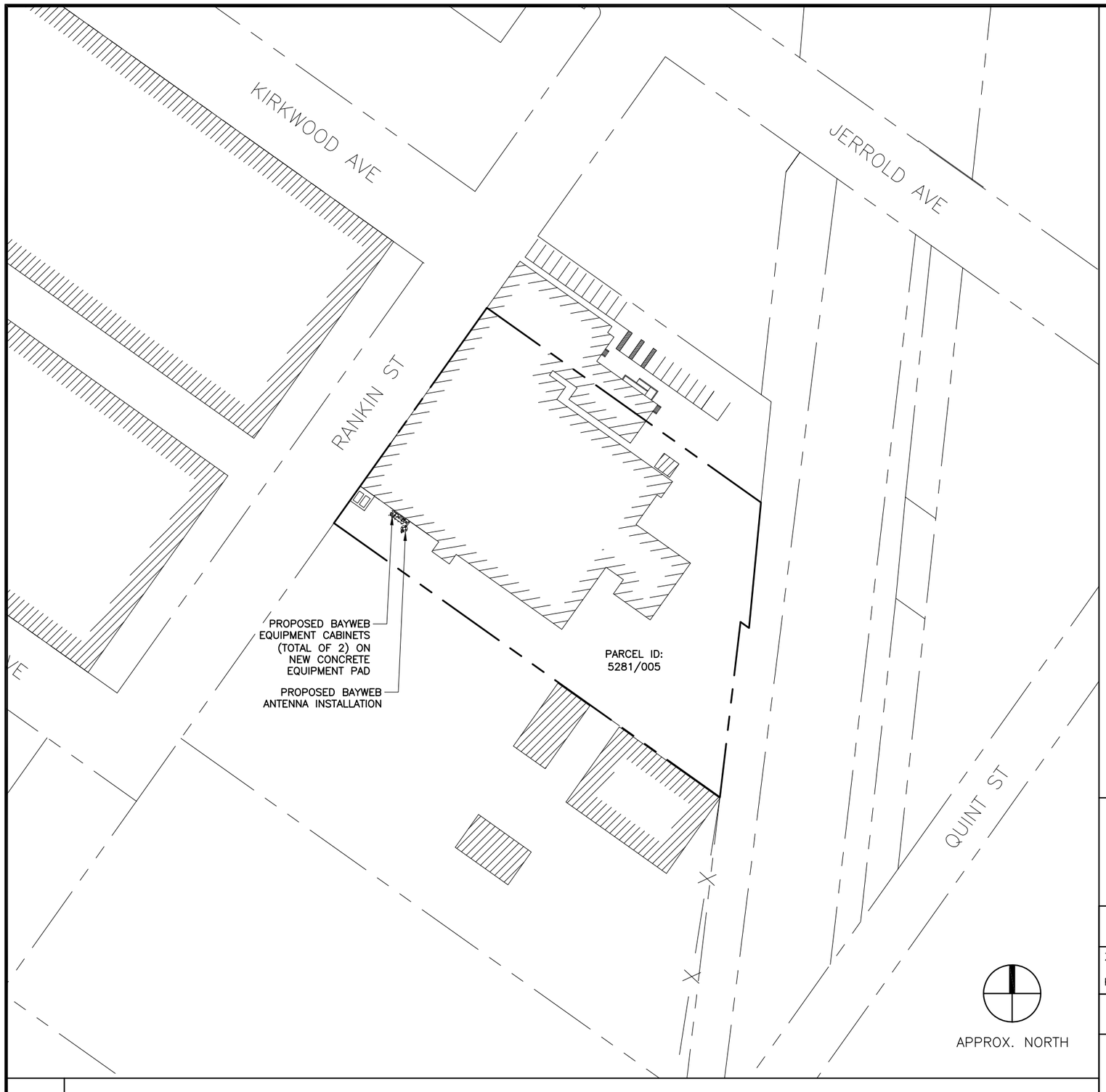
EBI JOB NO:
81120154

SITE INFO:
901 RANKIN / BWSF05
901 RANKIN STREET
SAN FRANCISCO, CA 94124

SHEET TITLE:
GENERAL NOTES

DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12

SHEET NO:
GN-2



1 PLOT PLAN

11x17 SCALE: 1" = 100'
22x34 SCALE: 1" = 50'

NOTES:

1. PLOT PLAN IS NOT THE RESULT OF A SURVEY. IT IS BASED ON EXISTING PARCEL MAPS AVAILABLE FROM THE TOWN GIS DATABASE. ALL INFORMATION SHOWN IS APPROXIMATE ONLY AND SUBJECT TO ANY CONDITION THAT A SURVEY MAY REVEAL.

ZONING INFORMATION

ZONING DISTRICT: PDR-2

PARCEL ID: 5281/005

LEGEND

- PROPERTY LINE – SUBJECT PARCEL
- PROPERTY LINE – ABUTTERS
- ZONING DISTRICT BOUNDARY LINE
- EXISTING BUILDINGS

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EBI JOB NO: 81120154

SITE INFO:
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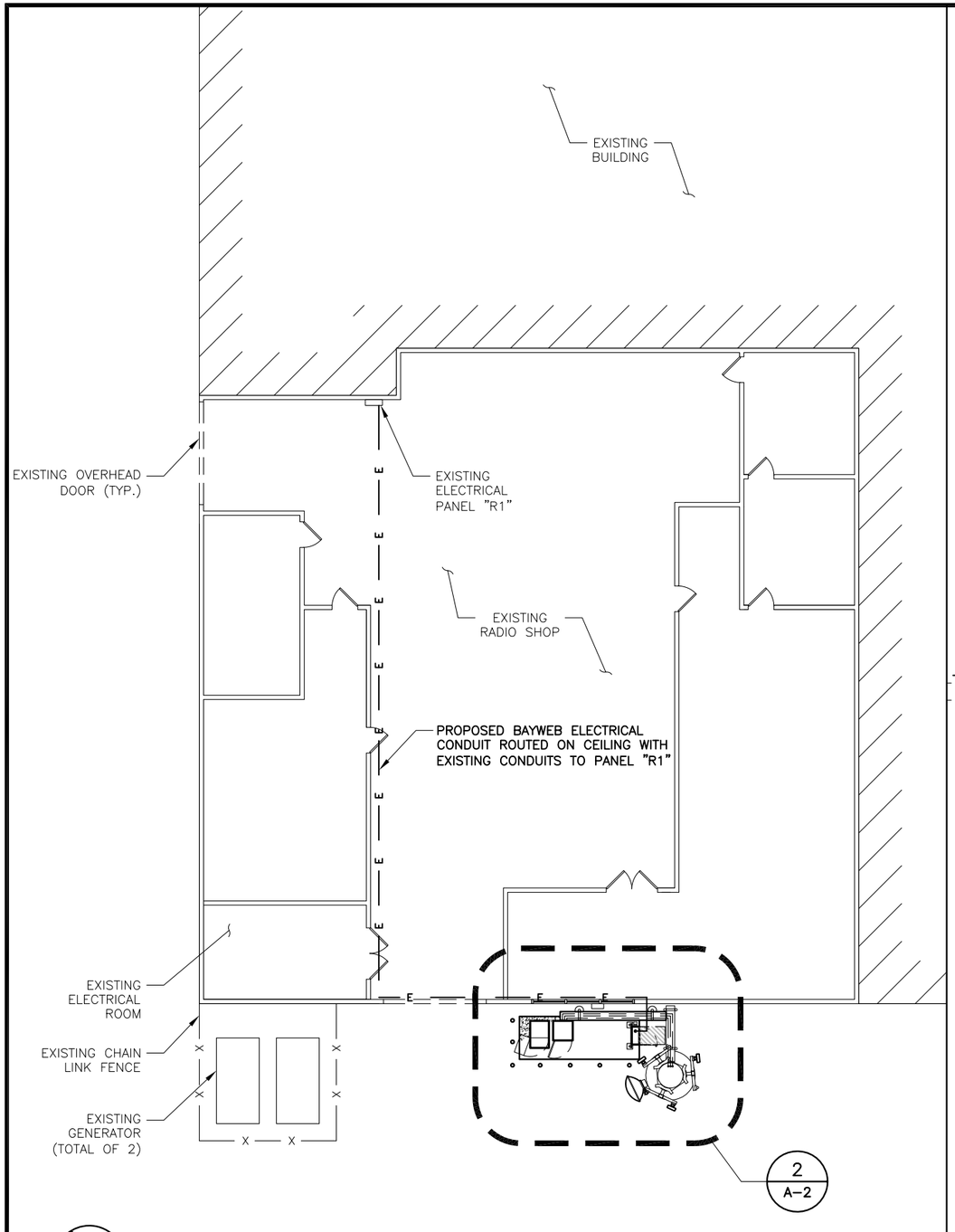
901 RANKIN STREET
SAN FRANCISCO, CA 94124

SHEET TITLE: PLOT PLAN

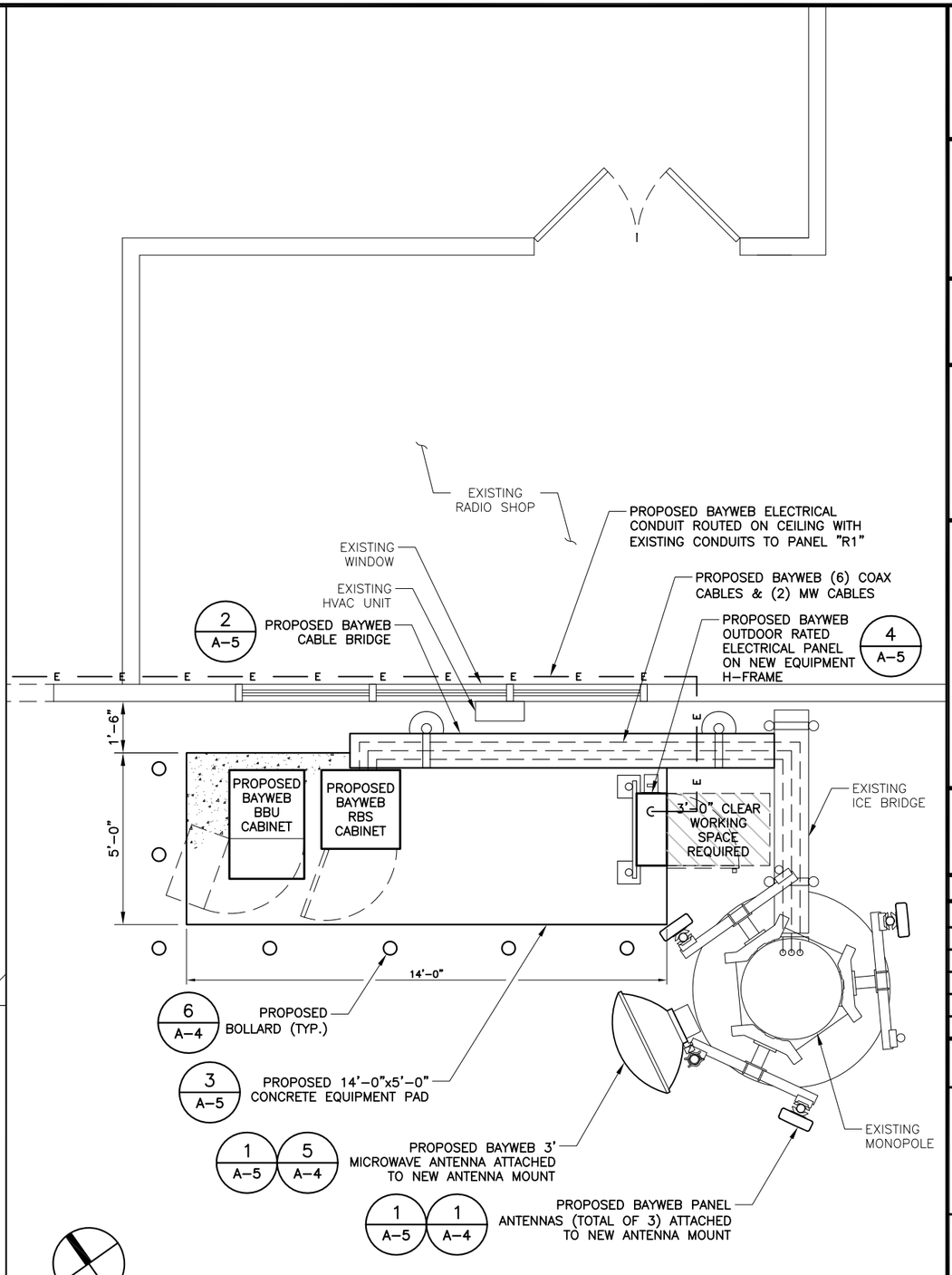
DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12

SHEET NO: A-1



1 ENLARGED SITE PLAN

11x17 SCALE: 1/16" = 1'-0"
22x34 SCALE: 1/8" = 1'-0"



2 EQUIPMENT CABINET LAYOUT

11x17 SCALE: 1/4" = 1'-0"
22x34 SCALE: 1/2" = 1'-0"

PROJECT:

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SITE INFO:

901 RANKIN / BWSF05

901 RANKIN STREET

SAN FRANCISCO, CA 94124

SHEET TITLE:

ENLARGED SITE PLAN & EQUIPMENT CABINET LAYOUT

DRAWN BY: JM

CHECKED BY: AM

DATE: 08/03/12

SHEET NO:

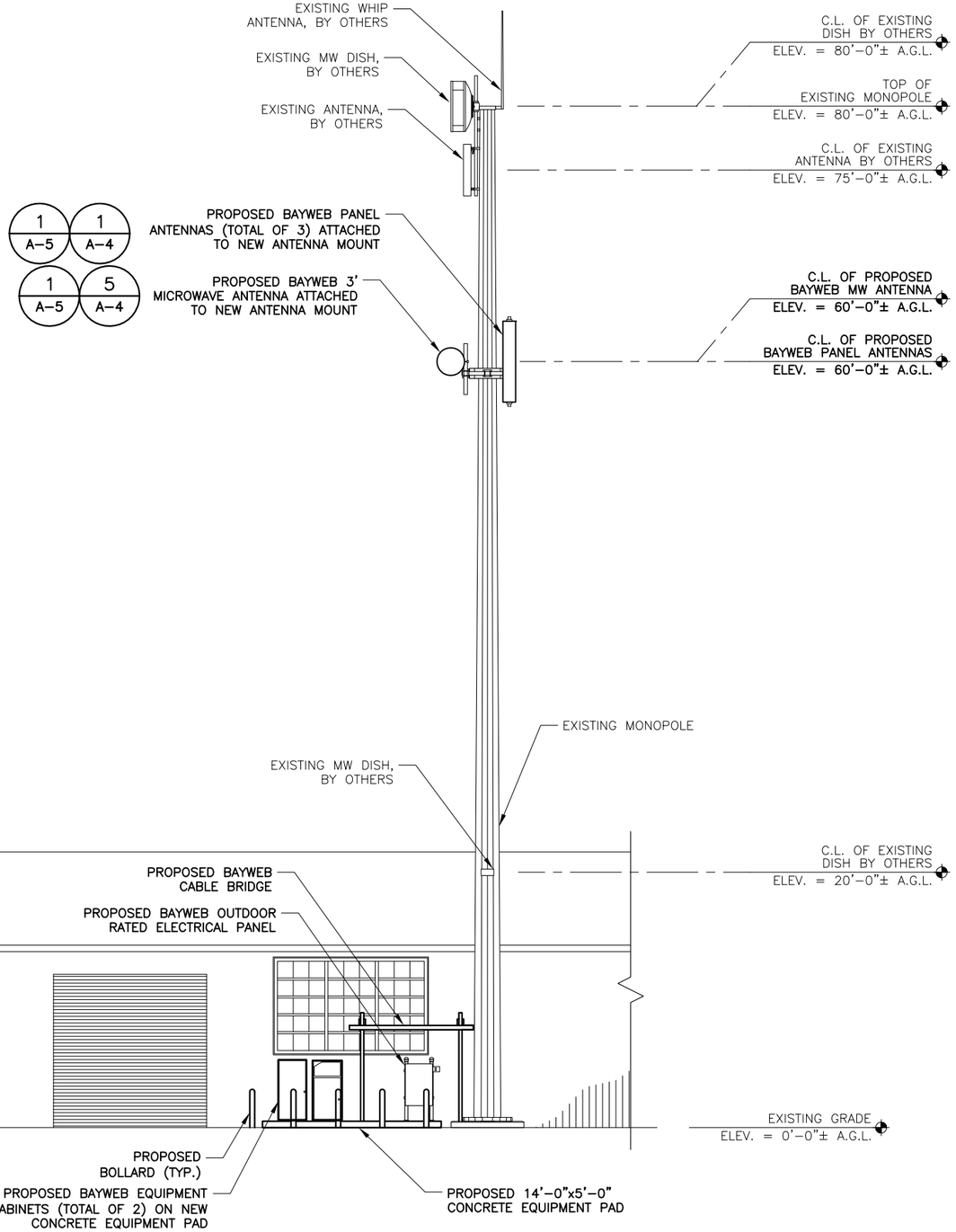
A-2

PROPOSED TOWER LOADING

ANTENNA	ANTENNA MAKE	ANTENNA MODEL	ANTENNA QUANTITY	ANTENNA C.L. (A.G.L.)	AZIMUTH (TRUE NORTH)	CABLE	
						CABLE TYPE/SIZE	QTY. PER ANTENNA
LTE	KATHREIN	80010735	3	60'-0"±	0°, 120°, 240°	7/8	2
MW-1	ERICSSON	TBD 3'	1	60'-0"±	279.3°	LMR 600	1
						POWER CABLE	1

GENERAL NOTES:

1. ALL VERTICAL TRANSMISSION LINE RUNS FROM THE ANTENNAS SHALL BE GROUNDED NEAR THE TOP & BOTTOM OF THE TOWER (BEFORE THE CABLE MAKES HORIZONTAL TRANSITION & NEAR THE GROUND EQUIPMENT). ADDITIONAL TRANSMISSION LINE GROUND KITS SHALL BE INSTALLED AS NEEDED TO LIMIT THE DISTANCE BETWEEN GROUND KITS IN ACCORDANCE WITH THE R-56 STANDARDS.
2. THE CONTRACTOR SHALL CONDUCT A TDR SWEEP TEST ON ALL THE NEWLY INSTALLED TRANSMISSION LINES TO DETERMINE THE CABLE CONDUCTOR RESISTANCE, CABLE INSERTION LOSS, REFLECTION & STIMULUS RESPONSE MEASUREMENTS (MUST BE DONE WITH PRECISION LOAD). RESULTS TO BE SUBMITTED TO MOTOROLA.
3. DRIP LOOPS SHALL BE INCORPORATED IN CABLE RUNS TO PREVENT WATER FROM TRICKLING DOWN THE LINES INTO THE EQUIPMENT.
4. ALL CONSTRUCTION ACTIVITIES SHALL BE DONE IN ACCORDANCE WITH MOTOROLA'S R-56 DESIGN STANDARDS.
5. PRIOR TO PLACEMENT OF ANY ANTENNAS OR MW ANTENNAS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE RF ENGINEER FOR EXACT PLACEMENT, MINIMUM TECHNOLOGY SEPARATION & TILT ADJUSTMENT TO ACHIEVE APPROVED COVERAGE.
6. NEW COAX/WAVGUIDE, JUMPERS, CONNECTORS, GROUND KITS ETC., WILL BE REQUIRED FOR INSTALLATION OF PROPOSED ANTENNAS/MW ANTENNAS. NEW COAX SHALL BE ROUTED FROM PROPOSED EQUIPMENT SHELTER TO LOCATION OF ANTENNAS/MW ANTENNAS & PROPOSED TTA ON EXISTING TOWER



1 SOUTH WEST ELEVATION

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

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PREPARED FOR:
MOTOROLA SOLUTIONS

PROJECT COORDINATION & MANAGEMENT:
Pyramid Network Services, LLC
6519 TOWPATH ROAD
EAST SYRACUSE, NY 13057
OFFICE: (315) 701-1302

SUBMITTALS

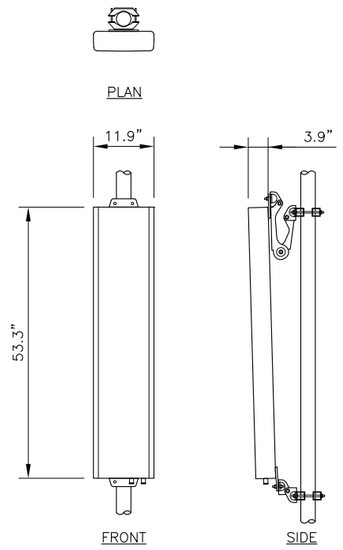
NO.	DATE	DESCRIPTION	BY
1	08/03/12	FOR REVIEW	JM

EBI JOB NO: 81120154

SITE INFO:
901 RANKIN / BWSF05
901 RANKIN STREET
SAN FRANCISCO, CA 94124

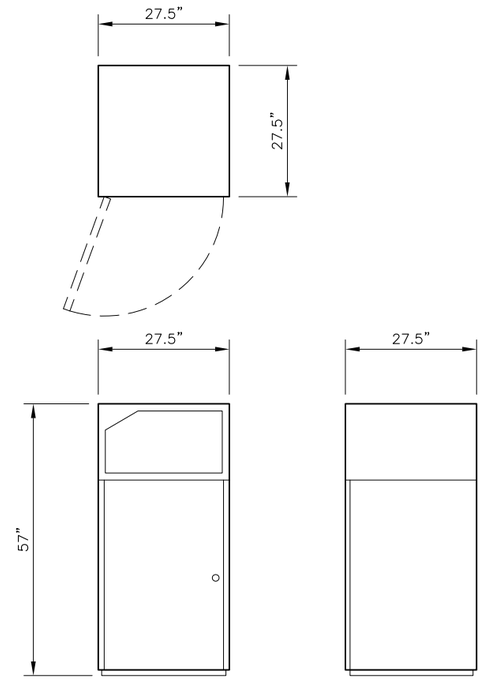
SHEET TITLE: ELEVATION

DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12
SHEET NO: A-3



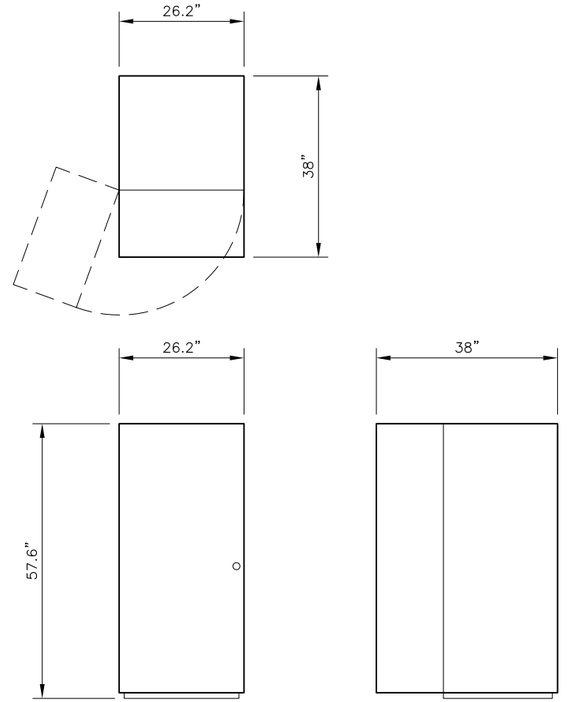
KATHREIN – 800 10734
28.7 LBS.

1	PANEL ANTENNA SPEC.	11x17 SCALE: N.T.S. 22x34 SCALE: N.T.S.



ERICCSON RBS 6101 OUTDOOR CABINET
397 LBS. (FULLY LOADED WITH OPTIONAL BATTERIES)

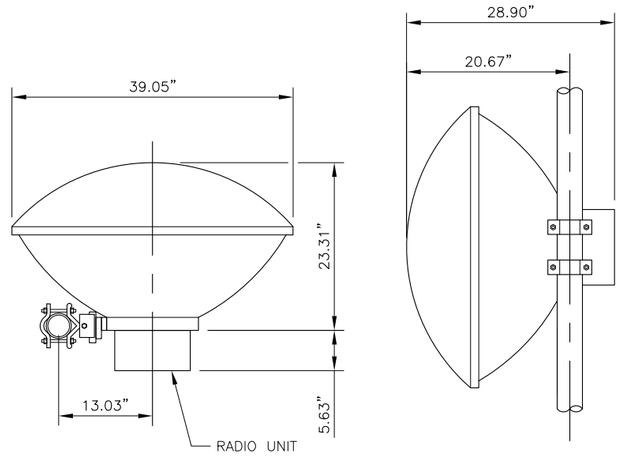
2	EQUIPMENT CABINET SPEC	11x17 SCALE: N.T.S. 22x34 SCALE: N.T.S.



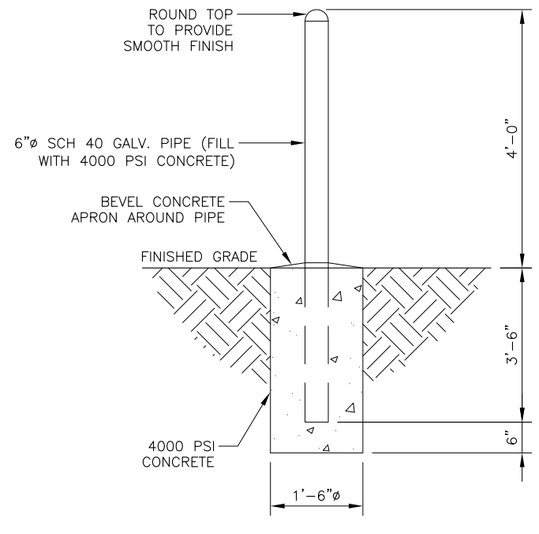
ERICCSON BBS 6101 OUTDOOR CABINET
420 LBS. (FULLY LOADED WITHOUT BATTERIES)

3	BATTERY BACKUP CABINET SPEC.	11x17 SCALE: N.T.S. 22x34 SCALE: N.T.S.

4	SPACE NOT USED	11x17 SCALE: N.T.S. 22x34 SCALE: N.T.S.



5	3' MW ANTENNA SPEC.	11x17 SCALE: N.T.S. 22x34 SCALE: N.T.S.



6	SPACE NOT USED	11x17 SCALE: N.T.S. 22x34 SCALE: N.T.S.

PROJECT:

BayWEB
BAY AREA WIRELESS ENHANCED BROADBAND

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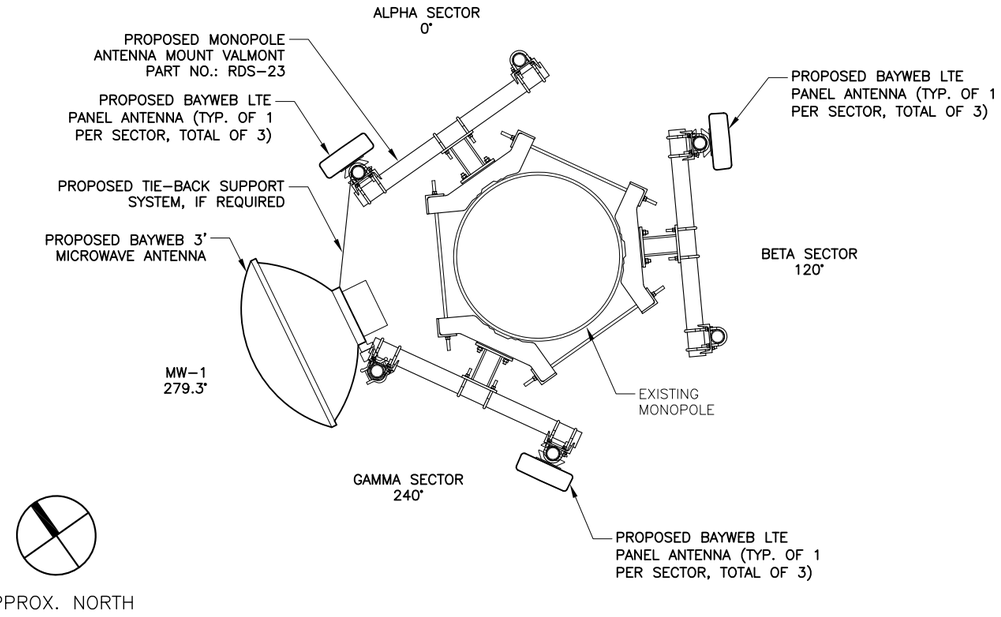
81120154

SITE INFO:
901 RANKIN / BWSF05
901 RANKIN STREET
SAN FRANCISCO, CA 94124

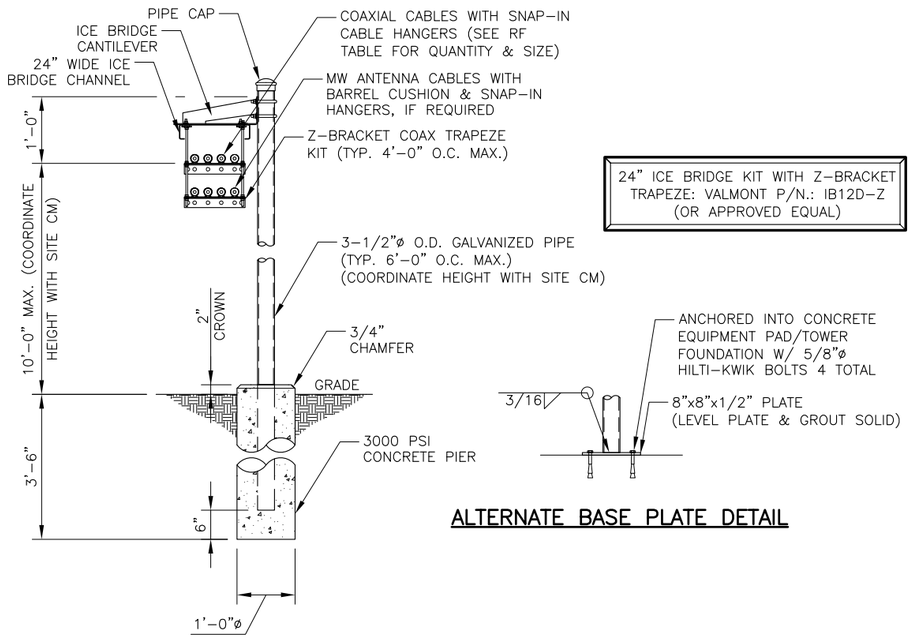
SHEET TITLE:
EQUIPMENT DETAILS

DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12

SHEET NO:
A-4

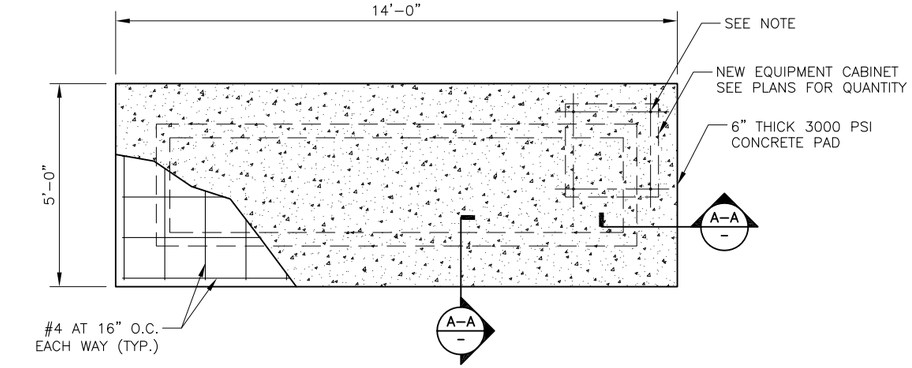


1 ANTENNA PLAN — 11x17 SCALE: N.T.S. / 22x34 SCALE: N.T.S.



ALTERNATE BASE PLATE DETAIL

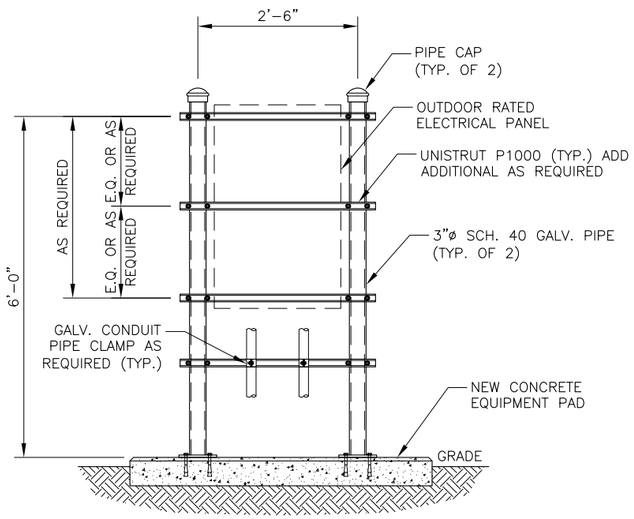
2 ICE BRIDGE DETAIL — 11x17 SCALE: N.T.S. / 22x34 SCALE: N.T.S.



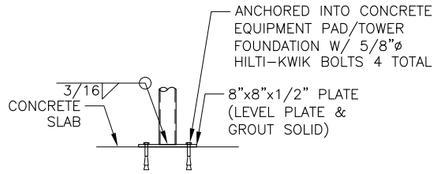
CABINET SUB-BASE FRAME MOUNTED TO SLAB WITH (4) 5/8"ø KWIK BOLT 3 EXPANSION ANCHOR WITH 4" MIN EMBEDMENT DEPTH. SHIM IF REQUIRED TO LEVEL SUB-BASE FRAME (TYP. AT EACH CABINET).

SECTION A-A

3 CONCRETE EQUIPMENT PAD DETAIL — 11x17 SCALE: N.T.S. / 22x34 SCALE: N.T.S.



NOTE:
-ALL STRUCTURAL STEEL & BOLTS ARE TO BE HOT DIPPED/RIGID GALVANIZED OR STAINLESS STEEL
-ALL BOLTS TO BE FURNISHED W/ WASHERS & NUTS.



BASE PLATE

4 H-FRAME DETAIL — 11x17 SCALE: N.T.S. / 22x34 SCALE: N.T.S.

PROJECT:
BAYWEB
BAY AREA WIRELESS ENHANCED BROADBAND

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EQUIPMENT DETAILS

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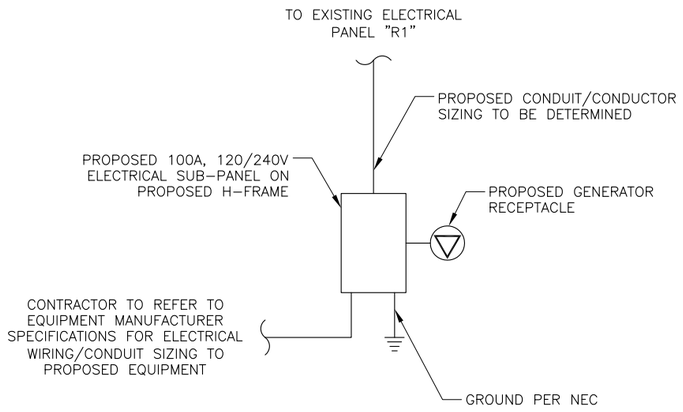
CHECKED BY: AM
DATE: 08/03/12

SHEET NO: A-5

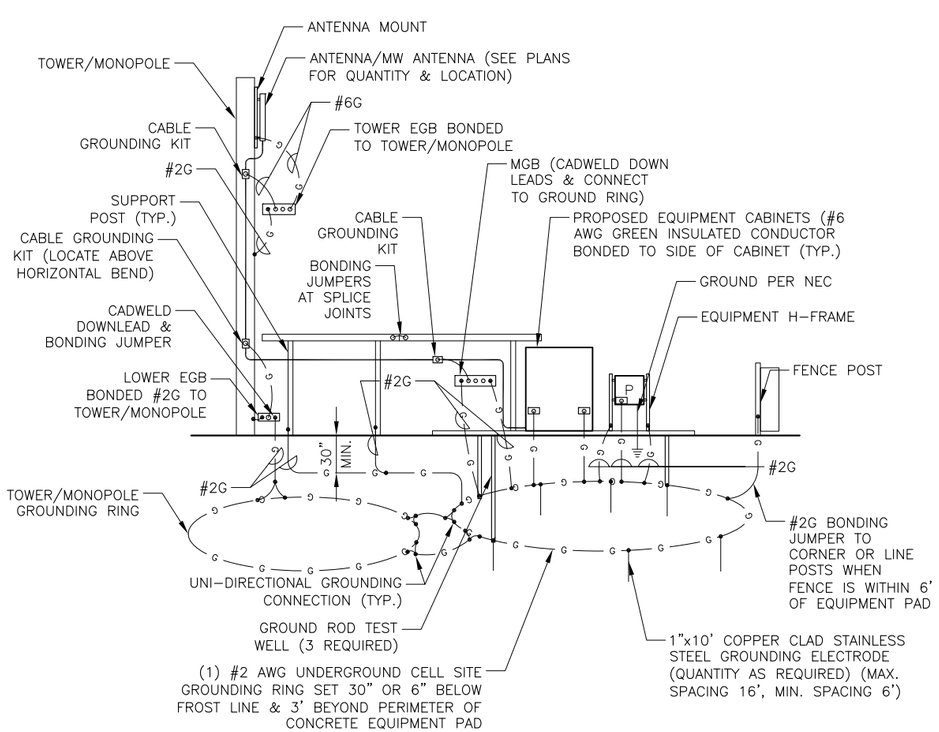


1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 (2008 NEC), THE RESPECTIVE EQUIPMENT MANUFACTURERS DIRECTIONS & ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES & REQUIREMENTS IN FORCE. ANY INSTALLATION WHICH VOID THE U.L. LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE SHALL NOT BE PERMITTED.
2. COORDINATE ELECTRICAL SERVICE WITH BARD & LOCAL POWER UTILITY COMPANY. COORDINATE WITH UTILITY FOR METER TYPE & CONNECTION.
3. ALL CONDUIT SHALL BE SEALED WATERTIGHT UNTIL FINAL TERMINATION'S ARE MADE.
4. PROVIDE PULL CORD IN ALL CONDUITS AT EACH END & SECURE AT EACH END.
5. ADJUST DEPTH OF CONDUITS TO PASS ABOVE GROUNDING SYSTEM.
6. PROVIDE 18" (MIN.) RADIUS ELBOWS FOR ALL BENDS.
7. PROVIDE PHENOLIC ENGRAVED NAMEPLATES AT THE SERVCE DISCONNECT LABLED: "SERVICE DISCONNECT", & "NOTE ENGINE GENERATOR NEUTRAL IS ALSO BONDED TO GROUND AT THE SERVICE DISCONNECT". PROVIDE ADDITIONAL NAMEPLATES NOTHING TYPE & LOCATION OF STANDBY POWER SOURCE.
8. ALL ABOVE GROUND CONDUIT TO BE RIGID GALVANIZED STEE (RGS).
9. ALL MOUNTING HARDWARE TO BE STAINLESS STEEL (SS).

1 ONE LINE 120/240V ELECTRICAL SERVICE DIAGRAM

NOTES:

1. CONTRACTOR SHALL ADD ADDITIONAL GROUND RODS & CONDUCTORS OR APPROVED GROUND ENHANCING MATERIAL TO ACHIEVE LESS THAN 10 OHMS RESISTANCE TO GROUND. REFER TO MOTOROLA R-56 STANDARD FOR TESTING PROCEDURES.
2. MAXIMUM VERTICAL/HORIZONTAL DISTANCE BETWEEN CABLE GROUNDING KITS SHALL NOT EXCEED 100 FEET. INSTALL ADDITIONAL KITS AS REQUIRED BY FIELD CONDITIONS.



2 GROUNDING RISER DIAGRAM

3 ELECTRICAL LEGEND

	NEW PANEL BOARD, SURFACE MOUNTED
	EXISTING PANEL BOARD, SURFACE MOUNTED
T	DRY TYPE TRANSFORMER
M	METER
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F
	FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH20 AMPS, 125 VOLTS, SINGLE PHASE
	DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
J	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTER
A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
G	GROUND
	GROUND
	MECHANICAL GROUND BAR (MGB)
	EQUIPMENT GROUND BAR (EGB)
	GROUND WIRE
G	EXPOSED WIRING
	COAXIAL CABLE
	CADWELD CONNECTION
	MECHANICAL CONNECTION
	1"x10' COPPER CLAD STAINLESS STEEL GROUND ROD
	MECHANICAL OR EXOTHERMIC

4 ELECTRICAL & GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE & LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED & PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR & MATERIAL DESCRIBED BY DRAWINGS & SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING & APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, & IS RESPONSIBLE FOR OBTAINING SAID PERMITS & COORDINATION OF INSPECTIONS.
5. ELECTRICAL & TELCO WIRING OUTSIDE A BUILDING & EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) & WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 80 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION. ALL CONDUCTORS & DEVICES SHALL BE RATED 75° OR HIGHER.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM & PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT & PROPOSED CELL SITE TELCO CABINET & BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING & LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH PROJECT OWNER'S GROUNDING STANDARDS.
12. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) & #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
14. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST & STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 8" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO & POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, & ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM & RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 10 OHMS MAXIMUM RESISTANCE REQUIRED.
21. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
22. VERIFY ANY PROPOSED SERVICE UPGRADES WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.
23. ALL NEW STRUCTURES WITH A FOUNDATION &/OR FOOTING HAVING 20 FT. OR MORE OF 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL, MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
24. GROUNDING SHALL CONFORM WITH THE MOTOROLA R-56 STANDARD LATEST REVISION & PER FEDERAL, STATE & LOCAL CODES. IN THE EVENT OF A CONFLICT, MEET THE MOST STRINGENT REQUIREMENT.
25. ALL GROUNDING INSTALLATIONS SHALL BE INSPECTED & APPROVED BY BART & ANY JURISDICTION HAVING INSPECTION & APPROVAL AUTHORITY (IF REQD.) & PYRAMID NETWORK SERVICES BEFORE PLACING ANY BACKFILL.
26. POWER ROUTING – TYPE & SIZING TO BE DETERMINED BY BAYWEB EE. REVIEWED BY BART FOR ACCEPTANCE OR COMMENTS
27. COORDINATE ELECTRICAL SERVICE WITH BART.

PROJECT:

BayWEB
BAY AREA WIRELESS ENHANCED BROADBAND

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SITE INFO:
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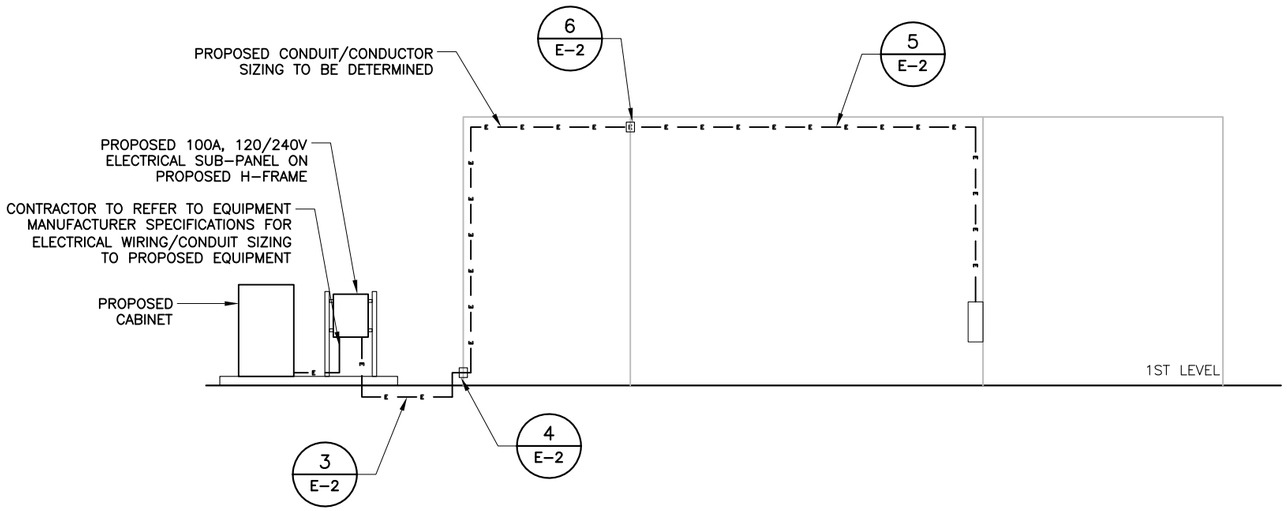
SAN FRANCISCO, CA 94124

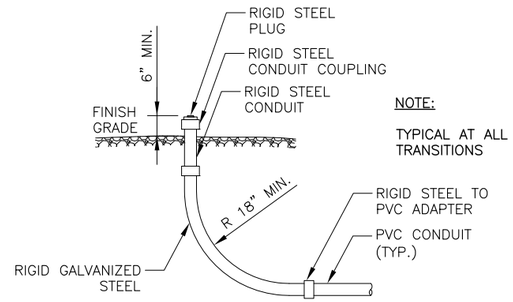
SHEET TITLE:
ELECTRICAL & GROUNDING NOTES, & DETAILS

DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12

SHEET NO: E-1



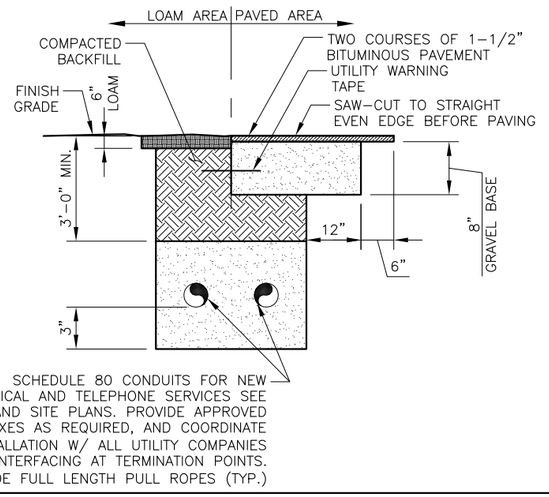
1 RISER DIAGRAM — SCALE: N.T.S.



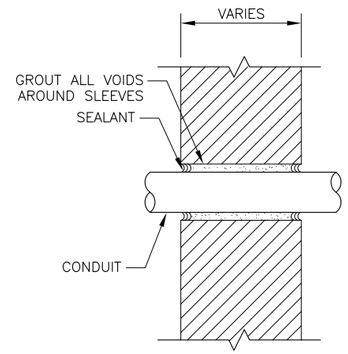
NOTE:

TYPICAL AT ALL TRANSITIONS

2 CONDUIT STUB-UP DETAIL — SCALE: N.T.S.



3 UTILITY TRENCH DETAIL — SCALE: N.T.S.

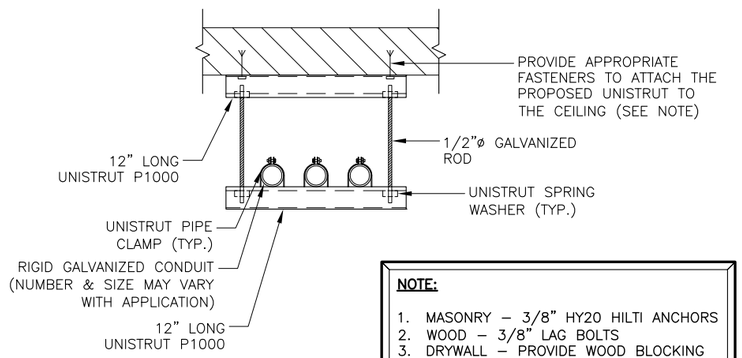


NOTE:

CORE HOLE 1 1/2" LARGER THAN THE DIAMETER OF THE CONDUIT. CORE DRILLS TO BE SEALED WITH ELASTOMERIC SEALANT.

UL SYSTEM NUMBER: WL2038
F RATING – 1 & 2 HR.

4 PIPE & CONDUIT PENETRATION DETAIL IN NON-RATED PARTION — SCALE: N.T.S.

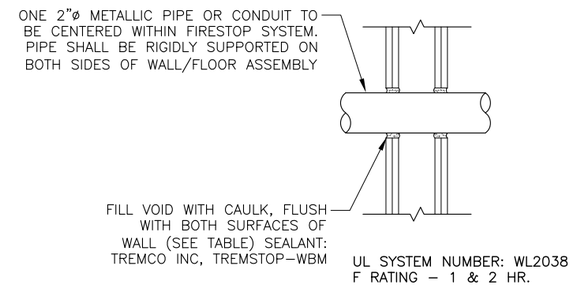


NOTE:

1. MASONRY – 3/8" HY20 HILTI ANCHORS
2. WOOD – 3/8" LAG BOLTS
3. DRYWALL – PROVIDE WOOD BLOCKING & USE WOOD LAG BOLTS

5 CONDUIT SUPPORT DETAIL — SCALE: N.T.S.

PIPE OR CONDUIT	ANNUAL SPACE IN.	MIN. FILL MATERIAL THICKNESS	F RATING HR
PIPE	3/4"	1-1/4"	2
CONDUIT	3/4"	3/4"	1



UL SYSTEM NUMBER: WL2038
F RATING – 1 & 2 HR.

6 PIPE & CONDUIT PENETRATION DETAIL IN GYPSUM WALLBOARD — SCALE: N.T.S.

PROJECT:

BayWEB — BAY AREA WIRELESS ENHANCED BROADBAND

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RISER DIAGRAM & ELECTRICAL DETAILS

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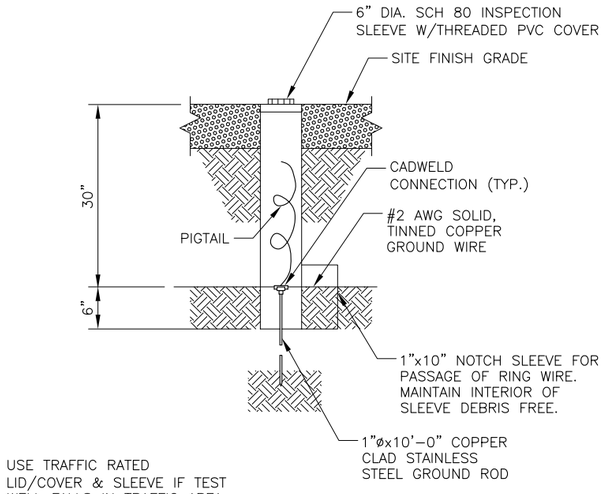
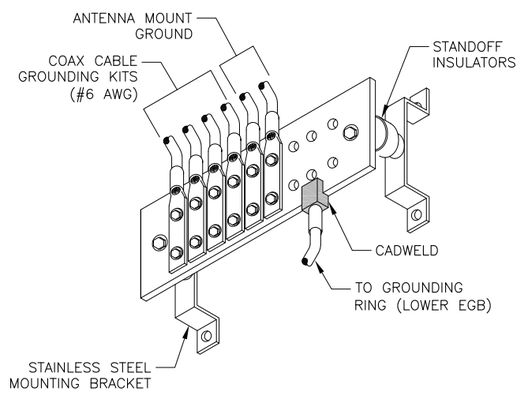
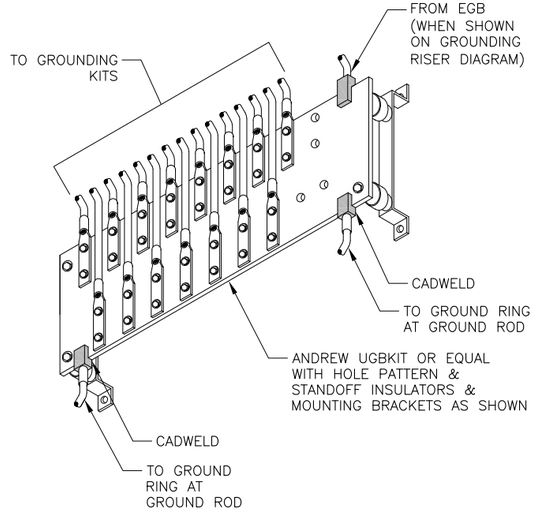
SHEET NO: E-2



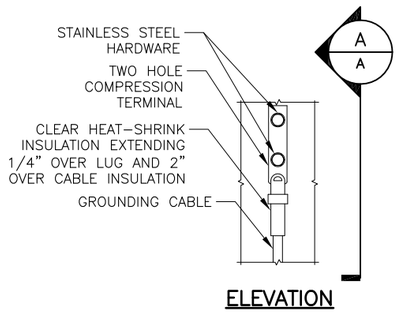
1 GROUND TEST WELL DETAIL



2 EQUIPMENT GROUND BAR (EGB) DETAIL



3 MASTER GROUND BAR (MGB) DETAIL



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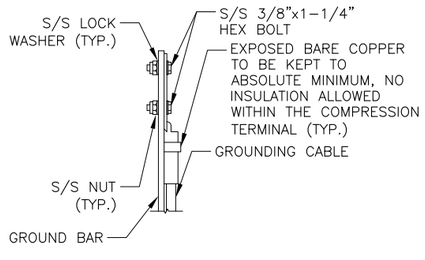
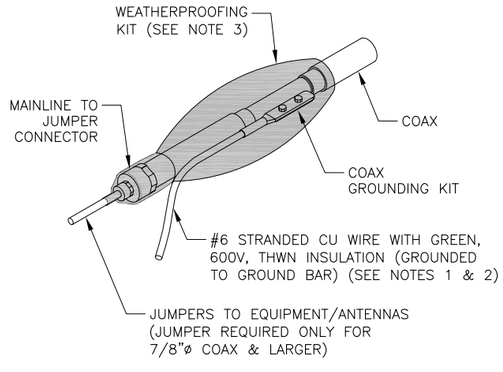


SECTION A-A

NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

4 GROUND LUG DETAIL



NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND & ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE & PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHERPROOFING SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

5 COAX GROUNDING DETAIL

6 SPACE NOT USED

PROJECT:
BayWEB
BAY AREA WIRELESS ENHANCED BROADBAND

PREPARED BY:
EBI Consulting
environmental | engineering | due diligence
21 B Street | Burlington, MA 01803
Tel: 781.273.2500 | Fax: 781.273.3311
www.ebiconsulting.com

PREPARED FOR:
MOTOROLA SOLUTIONS

PROJECT COORDINATION & MANAGEMENT:
Pyramid Network Services, LLC
6519 TOWPATH ROAD
EAST SYRACUSE, NY 13057
OFFICE: (315) 701-1302

SUBMITTALS

NO.	DATE	DESCRIPTION	BY
1	08/03/12	FOR REVIEW	JM

EBI JOB NO: 81120154

SITE INFO:
901 RANKIN / BWSF05
901 RANKIN STREET
SAN FRANCISCO, CA 94124

SHEET TITLE:
RISER DIAGRAM & ELECTRICAL DETAILS

DRAWN BY: JM
CHECKED BY: AM
DATE: 08/03/12

SHEET NO: E-2

EXHIBIT D
STATE OF CALIFORNIA LETTER OF SUPPORT

CALIFORNIA TECHNOLOGY AGENCY
1325 J Street
Sacramento, CA 95814
(916) 319-9223

Carlos Ramos
Secretary of California Technology

August 20, 2012

The Honorable Lawrence E. Strickling
Assistant Secretary for Communications and Information
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Dear Assistant Secretary Strickling:

The California Technology Agency (Technology Agency) provides this letter to convey the State's support for the Bay Area Regional Interoperable Communications Systems Authority (BayRICS) application for Special Temporary Authority (STA) for the 700MHz Public Safety Broadband Spectrum. The State has a strong interest in the ongoing deployment of the BayRICS project, and concurs in the current plans for accelerated deployment of the Bay Area Wireless Enhanced Broadband System (BayWEB).

We have previously expressed support for the BayWEB project and for BayRICS to assume regional authority over the 700MHz spectrum, in a letter to the Commission dated December 1, 2011, in support of the Waiver Petition of the City and County of San Francisco, City of Oakland and City of San Jose, filed on December 23, 2011. With the recently enacted legislation establishing National Public Safety Broadband Network "aka" (FirstNet), the State understands that the Commission will allow all existing waivers to expire in September, but will allow some projects to continue to completion where the public interest warrants. We agree with this approach and recommend strongly the Commission issue an STA for BayRICS.

The State views the initial California projects, including BayRICS and Los Angeles Regional Interoperable Communications System (LA-RICS) in southern California, as necessary for urgent public safety communications needs within the State. In addition, these early networks will serve as the foundation for future deployment of FirstNet in California. We are confident that these networks can be easily and efficiently expanded to adjoining California jurisdictions when FirstNet is deployed. These projects also allow the State to take full advantage of over $200 million in Broadband Technology Opportunities Program (BTOP) funds for public safety broadband deployment, thus preserving limited FirstNet funding for use to extend services to more high-cost areas in the State.

BayRICS and LA-RICS are already contributing to state-wide planning efforts for FirstNet deployment, by sharing critical lessons learned and best practices in a series of planning meetings conducted by Technology Agency. For these reasons, we strongly support the BayRICS Authority's Application for STA.

Sincerely,

CARLOS RAMOS
Secretary, California Technology Agency

cc: Karen Wong, Director, Public Safety Communications Office, Technology Agency

EXHIBIT E
LIST OF BAYRICS SITES AND TECHNICAL SPECIFICATIONS

NOTE ON SITE AND COVERAGE INFORMATION
TO SUPPORT THE STA REQUEST

As directed by the Early Deployment Order, this Document accompanies the online FCC Form 601 STA application. BayRICS seeks the STA for operation of 128 LTE sites to extend coverage to seven Bay Area Counties: Alameda, Contra Costa, Sonoma, Marin, San Francisco, San Mateo and Santa Clara. Although coverage will extend to portions of Marin County, none of the 128 sites is physically located in that County. However, BayRICS input data directly into the online Form 601 for six countywide "temporary fixed sites" and associated mobiles (one temporary fixed location and one mobile location for each of the six Counties with sites).

In this Exhibit E, BayRICS has provided a complete list of 128 sites as currently proposed, along with their addresses, coordinates and other technical information. This method of providing the site information was used in an effort to streamline the process for all parties. BayRICS stands willing to provide any additional site information, or to provide site information in a different format if requested by the Commission. BayRICS will obtain any necessary FAA determinations and FCC registrations before commencing construction or operation at any site requiring such actions. The majority of the antenna structures listed in Exhibit E are 200 feet or lower in overall height above ground level, however, and do not require an FAA determination or FCC registration.

EXHIBIT E	LIST OF BAYRICS SITES AND TECHNICAL SPECIFICATIONS AS CURRENTLY PROPOSED																	
Site Name	**Street Address**	**City**	**County**	**Lat Deg**	**Lat Min**	**Lat Sec**	**Long Deg**	**Long Min**	**Long Sec**	**Ant Structure Type**	**AMSL (m)**	**Ht w/o Appurt (m)**	**Ht w/ Appurt (m)**	**ASR No.***	**AAT (m)**	**Ant Ht (m)**	**TPO (W)**	**ERP (W)**
BART Bay Fair Station	15242 Hesperian Blvd.	San Leandro	Alameda	37	41	50.9	122	7	36.8	MTOWER	9	10.1	33	N/A	-85.8	-85.8	40	641
BART Coliseum Airport Station	7200 San Leandro St	Oakland	Alameda	37	45	10.4	122	11	45.3	LTOWER	2	5.3	17.1	1015167	-84.4	-84.4	40	491
BART Dublin Pleasanton Station	5801 Owens Dr.	Pleasanton	Alameda	37	42	11.4	121	53	50.0	LTOWER	102	13.1	42.7	N/A	-111.3	-111.3	40	641
BART Fremont Station	2000 BART Way	Fremont	Alameda	37	33	25.8	121	58	35.4	MTOWER	19	9.3	30.5	1015164	-89.0	-89.0	40	625
BART Fruitvale Station	3401 East 12th Street	Oakland	Alameda	37	46	32.2	122	13	32.9	BPIPE	10	7	22.9	N/A	-60.3	-60.3	40	618
BART Hayward Station	699 B Street	Hayward	Alameda	37	40	13.4	122	5	16.8	MTOWER	29	18.3	18.3	1015165	-71.5	-71.5	40	641
BART North Berkeley	1750 Sacramento Street	Berkeley	Alameda	37	52	27.0	122	17	3.0	BMAST	31	2.9	9.2	N/A	-50.7	-50.7	40	662
BART Oakland Shops	1245 Broadway	Oakland	Alameda	37	47	26.8	122	15	19.8	MTOWER	3	23.5	76.8	1253753	-34.8	-34.8	40	525
BART Schaefer Ranch Rd	8543 Dublin Canyon Rd	Dublin	Alameda	37	42	5.7	121	59	36.9	LTOWER	183	16.8	54.9	1544063	63.4	63.4	40	479
BART Union City Station	10 Union Square	Union City	Alameda	37	35	26.2	122	1	4.3	MTOWER	16	9.3	30.5	N/A	-74.3	-74.3	40	641
BART Warm Springs Station	44900-44998 Lopes Ct	Fremont	Alameda	37	30	6.8	121	56	20.8	MTOWER	17	45.8	45.8	N/A	-100.1	-100.1	40	562
BayLoop Sunol Ridge	37000 Palomares Rd	Sunol	Alameda	37	37	11.2	121	55	21.6	LTOWER	664	30.5	30.5	N/A	511.7	511.7	40	616
Cannery Water Tower	125 B St at Intersection of Palmer and Parkhurst	Hayward	Alameda	37	39	46.5	122	5	37.8	TANK	24	39.6	39.6	N/A	-49.2	-49.2	40	618
County Fire Station 11	14903 Catalina St	San Leandro	Alameda	37	41	30.0	122	10	12.4	MTOWER	1	18.3	18.3	N/A	-53.6	-53.6	40	632
County Fire Station 14	11345 Pleasanton-Sunol Rd	Sunol	Alameda	37	35	48.7	121	52	51.5	MTOWER	85	30.5	30.5	N/A	-131.3	-131.3	40	618
County Fire Station 15	5325 Broder Blvd	Dublin	Alameda	37	43	10.7	121	53	25.0	LTOWER	111	30.5	33.5	N/A	-107.9	-107.9	40	596
County Fire Station 5 (26)	18770 Lake Chabot Rd	Castro Valley	Alameda	37	42	33.9	122	5	28.4	MTOWER	76	24.4	24.4	N/A	-36.8	-36.8	40	596
County Fire Station 7	6901 Villareal Dr	Castro Valley	Alameda	37	42	53.4	122	1	40.4	MTOWER	218	18.3	18.3	N/A	69.5	69.5	40	625
Coyote Hills	Thornton Ave	Fremont	Alameda	37	32	25.5	122	4	56.3	LTOWER	61	12.2	15.2	N/A	36.8	36.8	40	478
Crane Ridge	Mines Rd	Livermore	Alameda	37	36	23.8	121	37	15.8	LTOWER	885	18.3	22.3	N/A	35.3	35.3	40	464
Dalton Tank	2889 Ames St	Livermore	Alameda	37	43	55.4	121	43	48.5	MTOWER	199	18.3	18.3	N/A	-21.6	-21.6	40	628
Doolan Water Tanks and Communications Tower	Doolan Rd	Livermore	Alameda	37	42	36.4	121	49	4.9	MTOWER	223	18.3	18.3	1204495	-6.5	-6.5	40	618

Site Name	Street Address	City	County	Lat Deg	Lat Min	Lat Sec	Long Deg	Long Min	Long Sec	Ant Structure Type	AMSL (m)	Ht w/o Appurt (m)	Ht w/ Appurt (m)	ASR No.*	AAT (m)	Ant Ht (m)	TPO (W)	ERP (W)
Garin WT	Bello View Pl	Hayward	Alameda	37	37	55.8	122	1	56.9	LTOWER	202	18.3	24.4	N/A	109.3	109.3	40	463
Glen Dyer Jail	550 6th St	Oakland	Alameda	37	47	60.0	122	16	37.2	BPIPE	8	51	52.7	N/A	-13.8	-13.8	40	447
Gwinn Reservoir Tank	5115A Grizzly Peak Blvd	Oakland	Alameda	37	51	45.7	122	13	21.4	LTOWER	408	15.3	17.7	N/A	310.3	310.3	40	458
Hayward City Hall	701 B St	Hayward	Alameda	37	40	15.2	122	5	8.6	BPIPE	30	6.6	21.6	N/A	-71.3	-71.3	40	641
Hayward Fire Station 8	25862 Five Canyons Pkwy	Hayward	Alameda	37	40	30.9	122	1	47.5	MTOWER	251	18.3	18.3	N/A	129.0	129.0	40	628
Hesperian Pump Station	28475 Hesperian Blvd	Hayward	Alameda	37	37	2.5	122	5	20.5	LTOWER	2	24.4	27.4	N/A	-46.2	-46.2	40	618
KALX	McMillanRd	Berkeley	Alameda	37	52	39.6	122	14	48.3	MTOWER	279	9.2	9.2	N/A	185.4	185.4	40	662
Livermore Public Library (Livermore PD)	1110 S Livermore Ave	Livermore	Alameda	37	40	31.4	121	45	12.8	MTOWER	164	24.4	24.4	1272605	-112.1	-112.1	40	618
Patterson Pass Altamont	13000 Patterson Pass Rd	Livermore	Alameda	37	41	22.3	121	37	54.9	MTOWER	522	45.8	45.8	N/A	269.0	269.0	40	618
San Leandro Hills	Fairmont Dr	San Leandro	Alameda	37	43	26.0	122	7	10.3	LTOWER	246	9.2	10.7	N/A	128.7	128.7	40	491
Seneca	Seneca Reservoir	Oakland	Alameda	37	45	22.2	122	9	26.4	LTOWER	96	18.3	21.3	N/A	-3.3	-3.3	40	458
Skyline Reservoir	Skyline Blvd	Oakland	Alameda	37	49	13.4	122	11	7.3	LTOWER	469	30.5	30.5	N/A	363.6	363.6	40	647
Union City Fire Station 2(32)	31600 Alvarado Blvd	Union City	Alameda	37	35	33.6	122	4	27.4	MTOWER	2	18.3	21.3	N/A	-53.7	-53.7	40	625
Walpert Ridge	28904 Fairview Ave	Hayward	Alameda	37	39	19.0	122	0	8.7	LTOWER	454	18.3	19.8	N/A	341.3	341.3	40	458
651 Pine	651 Pine	Martinez	Contra Costa	38	1	8.7	122	8	0.8	BMAST	6	51.8	61	N/A	-15.3	-15.3	40	447
Bald Mountain	Seaview Trail	Orinda	Contra Costa	37	53	0.8	122	13	18.2	LTOWER	575	45.7	45.7	1232071	480.2	480.2	40	647
BART Concord Station	1451 Oakland Avenue	Concord	Contra Costa	37	58	19.3	122	1	47.5	MTOWER	24	18.3	18.3	N/A	-97.1	-97.1	40	641
BART El Cerrito del Norte Station	6400 Cutting Blvd	El Cerrito	Contra Costa	37	55	31.8	122	19	0.7	MTOWER	15	36.6	15	Not Registe	-54.2	-54.2	40	641
BART Pleasant Hill	1365 Treat Blvd	Pleasant Hill	Contra Costa	37	55	44.0	122	3	20.8	BANT	25	22.9	25	N/A	-135.2	-135.2	40	537
BART Willow Pass (Evora Rd)	4709 Evora Rd	Bay Point	Contra Costa	38	1	15.5	121	59	15.9	LTOWER	173	48.8	48.8	1057624	126.5	126.5	40	596
BayLoop Highland	Morgan Territory Rd	San Ramon	Contra Costa	37	48	52.2	121	48	30.3	LTOWER	785	45.8	45.8	N/A	594.0	594.0	40	589
BayLoop Kregor Peak	Nortonville Rd and Black Diamond Trail	Clayton	Contra Costa	37	56	36.1	121	53	28.7	LTOWER	561	47.2	49.4	N/A	426.5	426.5	40	618
Concord Pavilion	2000 Kirker Pass Rd	Concord	Contra Costa	37	57	41.9	121	56	11.0	LTOWER	152	24.4	24.4	N/A	37.3	37.3	40	624
Con Fire Training	2945 Treat Blvd	Concord	Contra Costa	37	56	17.8	122	1	38.7	BTWR	25	14	22.9	N/A	-133.2	-133.2	40	537

Site Name	Street Address	City	County	Lat Deg	Lat Min	Lat Sec	Long Deg	Long Min	Long Sec	Ant Structure Type	AMSL (m)	Ht w/o Appurt (m)	Ht w/ Appurt (m)	ASR No.*	AAT (m)	Ant Ht (m)	TPO (W)	ERP (W)
Cummings	Cummings Skyway	Crocket	Contra Costa	38	1	43.9	122	11	51.3	LTOWER	265	36.6	36.6	1232054	221.2	221.2	40	575
Delta Station	210 O'Hara Ave	Oakley	Contra Costa	37	59	48.8	121	42	49.6	LTOWER	6	18.3	19.8	N/A	-16.6	-16.6	40	463
El Cerrito FD HQ	10900 San Pablo Ave	El Cerrito	Contra Costa	37	54	59.0	122	18	40.3	LTOWER	21	17.7	17.7	N/A	-44.1	-44.1	40	480
Nichol Knob	Marine View Ave	Richmond	Contra Costa	37	55	13.0	122	22	55.6	MTOWER	60	15.2	18.3	N/A	25.7	25.7	40	480
Pearl	San Pablo Ridge Trail	El Cerrito	Contra Costa	37	57	27.1	122	18	44.8	MTOWER	201	18.3	18.3	N/A	152.1	152.1	40	452
Sheriff Dispatch (40 Glacier)	40 GlacierDr	Martinez	Contra Costa	37	59	24.9	122	5	18.1	LTOWER	49	42.7	42.7	1013607	-30.6	-30.6	40	442
SRVFDP 31	San Ramon Valley Blvd	Danville	Contra Costa	37	48	34.2	121	59	33.7	LTOWER	119	22.9	22.9	N/A	-95.6	-95.6	40	442
Sydney	225 Sydney Dr	Walnut Creek	Contra Costa	37	52	1.9	122	3	7.8	MTOWER	185	18.3	18.3	N/A	-48.6	-48.6	40	469
Tishman Building	2300 Clayton Rd	Concord	Contra Costa	37	58	30.8	122	1	46.9	BANT	24	57.9	62.5	N/A	-47.5	-47.5	40	331
Turquoise	1068 Turquoise Rd	Hercules	Contra Costa	37	59	35.7	122	16	10.7	MTOWER	162	18.3	18.3	N/A	98.6	98.6	40	655
1530 Bancroft	1530 Bancroft	San Francisco	San Francisco	37	43	30.3	122	23	27.8	BPOLE	3	16.2	16.2	N/A	-6.3	-6.3	40	480
901 Rankin (Additional)	901 Rankin	San Francisco	San Francisco	37	44	26.3	122	23	44.8	MTOWER	5	18.3	27	N/A	-0.1	-0.1	40	618
BART Glen Park Station	2901 Diamond St	San Francisco	San Francisco	37	43	58.6	122	26	2.8	MTOWER	54	4.7	15.3	N/A	38.9	38.9	40	490.9
Bernal Heights	999 Moultrie St	San Francisco	San Francisco	37	44	34.8	122	24	55.5	LTOWER	92	5.2	16.8	N/A	81.3	81.3	40	644.17
City College Chinatown	808 Kearny St	San Francisco	San Francisco	37	47	44.3	122	24	17.8	MTOWER	28	18.6	61	N/A	68.3	68.3	40	450
City College Downtown Campus	88 4th St	San Francisco	San Francisco	37	47	4.5	122	24	17.1	BANT	10	14.9	48.8	N/A	33.1	33.1	40	367.28
Community Health Network	2789 25th St	San Francisco	San Francisco	37	45	5.0	122	24	21.4	BANT	15	7	22.9	N/A	11.3	11.3	40	458.14
CRS TWIN PEAKS - CORE	1 Christmas Tree Ridge Rd	San Francisco	San Francisco	37	45	16.7	122	26	49.5	LTOWER	231	15.9	51.9	N/A	231.4	231.4	40	441.57
Forest Hill	150 Mendosa Ave	San Francisco	San Francisco	37	44	54.3	122	28	2.0	MTOWER	221	8.4	27.4	1064387	220.6	220.6	40	458.14
La Grande Tank	John F Shelley Dr	San Francisco	San Francisco	37	43	23.1	122	25	27.9	TANK	143	7.5	24.4	N/A	147.9	147.9	40	598
Muni Yard 425 Geneva	425 Geneva	San Francisco	San Francisco	37	43	16.7	122	26	49.6	MTOWER	69	6.6	21.4	N/A	58.5	58.5	40	468.8
Presidio Hill	21 B St	San Francisco	San Francisco	37	47	39.4	122	27	53.0	LTOWER	111	15.4	50.3	1269123	124.1	124.1	40	389
Presidio Muni	949 Presidio Ave	San Francisco	San Francisco	37	46	59.7	122	26	46.2	BANT	75	6.5	21	N/A	69.2	69.2	40	460.26
Radio Hill	992 South Key	San Francisco	San Francisco	37	42	59.0	122	23	41.8	LTOWER	100	37.2	122	1053379	97.2	97.2	40	560

Site Name	Street Address	City	County	Lat Deg	Lat Min	Lat Sec	Long Deg	Long Min	Long Sec	Ant Structure Type	AMSL (m)	Ht w/o Appurt (m)	Ht w/ Appurt (m)	ASR No.*	AAT (m)	Ant Ht (m)	TPO (W)	ERP (W)
San Francisco International airport (SFO)	San Francisco International Airport	San Francisco	San Francisco	37	37	0.5	122	23	24.8	MTOWER	8	15.9	52	N/A	-39.0	-39.0	40	400
San Francisco State University	1600 Hollway Ave	San Francisco	San Francisco	37	43	25.4	122	28	36.8	BANT	46	14.2	46.3	N/A	64.6	64.6	40	407.38
South Hill	57 Alta Vista Way	San Francisco	San Francisco	37	42	14.8	122	25	48.4	MTOWER	186	3.8	12.2	1064386	171.7	171.7	40	647.14
Station 17	1295 Shafter	San Francisco	San Francisco	37	43	40.0	122	23	6.0	MTOWER	8	5.7	18.6	N/A	1.7	1.7	40	565
Station 18	1935 32nd St	San Francisco	San Francisco	37	45	3.3	122	29	40.6	MTOWER	52	5.8	18.9	N/A	45.3	45.3	40	567.6
Station 31	441 12th Ave	San Francisco	San Francisco	37	46	47.6	122	28	14.9	MTOWER	52	6.5	21.3	N/A	44.4	44.4	40	570
Veterans Affairs Hospital	4150 Clement St	San Francisco	San Francisco	37	46	58.9	122	30	23.3	TANK	90	9.5	31.1	N/A	90.2	90.2	40	588.84
West Pump Station	Sloat and Great Hwy	San Francisco	San Francisco	37	44	8.1	122	30	18.9	BANT	8	4.3	13.8	N/A	-3.9	-3.9	40	567.6
BART Colma	365 D St	Colma	San Mateo	37	41	4.5	122	28	2.5	MTOWER	45	10.3	33.5	N/A	51.1	51.1	40	632.41
BART Daly City Station	500 John Daly Blvd	Daly City	San Mateo	37	42	25.6	122	28	6.2	MTOWER	79	18.2	59.5	N/A	90.6	90.6	40	512.86
BART Millbrae Station	200 N Rollins Rd	Millbrae	San Mateo	37	36	0.0	122	23	11.5	MTOWER	2	8	26	1065537	-38.1	-38.1	40	638.26
BART San Bruno Station	1151 Huntington Ave	San Bruno	San Mateo	37	38	17.4	122	25	1.3	BANT	11	9.8	32.1	N/A	-18.4	-18.4	40	662.21
BART South San Francisco Station	1333 Mission Rd	South San Francisco	San Mateo	37	39	47.6	122	26	36.7	MTOWER	19	1.9	6.1	N/A	-24.7	-24.7	40	647.14
BayLoop North Peak	HWY 1	Pacifica	San Mateo	37	33	41.0	122	28	40.0	LTOWER	552	7.5	24.4	1063610	505.4	505.4	40	677.64
BayLoop San Bruno Nike	Battery 59 Road	Daly City	San Mateo	37	41	32.0	122	26	54.1	MTOWER	287	2.2	7	N/A	256.9	256.9	40	669.88
Bayloop SMC HOJ	400 County Center	Redwood City	San Mateo	37	29	18.2	122	13	51.3	BANT	3	11.2	36.6	N/A	-71.7	-71.7	40	575.43
Brisbane/Ice	3445 Bayshore Blvd	Brisbane	San Mateo	37	41	31.5	122	24	13.0	MTOWER	53	5.6	18.3	N/A	33.7	33.7	40	630
East Palo Alto	2415 University Ave	East Palo Alto	San Mateo	37	28	20.5	122	8	24.4	BANT	6	6.8	22.3	N/A	-34.0	-34.0	40	468.81
Foster City	34070 East 3rd Ave	Foster City	San Mateo	37	34	11.3	122	16	26.5	LTOWER	2	8.7	28.4	N/A	28.9	28.9	40	590
Half Moon Bay	537 Kelley Street	Half Moon Bay	San Mateo	37	27	56.5	122	25	54.8	LTOWER	16	8.7	28.4	N/A	-85.7	-85.7	40	665
Huddart Park	110 Kings Mtn Rd	Redwood City	San Mateo	37	26	18.4	122	17	37.9	MTOWER	285	5.6	18.3	N/A	154.1	154.1	40	662.21
La Honda Verizon	Sears Ranch Rd	La Honda	San Mateo	37	19	21.6	122	16	45.9	LTOWER	221	9.3	30.5	N/A	-17.3	-17.3	40	638.26
Mills Hospital	100 S San Mateo Dr	San Mateo	San Mateo	37	33	53.3	122	19	34.0	BANT	8	8.4	27.5	N/A	-52.7	-52.7	40	642

Site Name	Street Address	City	County	Lat Deg	Lat Min	Lat Sec	Long Deg	Long Min	Long Sec	Ant Structure Type	AMSL (m)	Ht w/o Appurt (m)	Ht w/ Appurt (m)	ASR No.*	AAT (m)	Ant Ht (m)	TPO (W)	ERP (W)
Pescadero	100 Pescadero Creek Rd	Pescadero	San Mateo	37	14	36.5	122	23	59.4	MTOWER	78	4.7	15.2	N/A	-5.3	-5.3	40	473.15
Pigeon Point	440 Pigeon Point Rd	Pescadero	San Mateo	37	11	34.6	122	22	6.5	LTOWER	149	4.8	15.6	N/A	47.9	47.9	40	476.43
Pise Lookout	12860 Skyline Blvd	Redwood City	San Mateo	37	27	21.2	122	20	27.5	LTOWER	6023	8.3	27.1	N/A	492.0	492.0	40	454.98
Rolph Hill	20000 Skyline Blvd	Redwood City	San Mateo	37	19	50.7	122	12	50.0	LTOWER	710	6.8	22	N/A	459.9	459.9	40	662.21
Samtrans North	301 North Access Rd	South San Francisco	San Mateo	37	38	27.5	122	23	26.8	MTOWER	1	5.6	18.3	N/A	-45.2	-45.2	40	640
Samtrans South	501 Pico Blvd	San Carlos	San Mateo	37	31	1.4	122	15	6.9	MTOWER	2	7.5	24.4	1218124	-45.9	-45.9	40	640
San Carlos Site 60	700 Crestview Dr	San Carlos	San Mateo	37	29	22.3	122	17	24.9	MTOWER	269	6.5	21.3	N/A	157.5	157.5	40	476
Skylawn	10600 Skyline Blvd	Half Moon Bay	San Mateo	37	30	14.0	122	22	15.0	LTOWER	343	9.3	30.5	N/A	252.1	252.1	40	616.59
SMCGH	222 West 39th Ave	San Mateo	San Mateo	37	31	51.0	122	17	59.4	BANT	19	4.7	15.3	N/A	-69.0	-69.0	40	662.2
Sweeney Ridge	Sweeny Ridge Trail	Pacifica	San Mateo	37	36	32.0	122	27	27.0	LTOWER	377	5	16.2	1231809	333.2	333.2	40	468.81
Town Ridge	12430 Pescadero Creek Rd	La Honda	San Mateo	37	17	16.4	122	14	49.1	MTOWER	376	7.5	24.4	N/A	94.4	94.4	40	632.41
YSC (Water Tank)	21 Tower Rd	San Mateo	San Mateo	37	30	46.3	122	20	25.8	TANK	146	9.7	31.7	N/A	47.8	47.8	40	632.7
CSU	1 Washington Square	San Jose	Santa Clara	37	20	13.5	121	52	44.0	BANT	27	14.1	46	N/A	-85.3	-85.3	40	595.66
Sunnyvale Corp Yard	221 Commercial St	Sunnyvale	Santa Clara	37	22	41.7	122	0	33.2	LTOWER	17	9.3	30.5	1201581	-42.3	-42.3	40	612.35
Sunnyvale DPS	700 American Way	Sunnyvale	Santa Clara	37	22	13.3	122	2	23.9	MTOWER	38	14.9	48.8	N/A	-55.6	-55.6	40	609.53
Technical Services Center	1705 Martin Ave	Santa Clara	Santa Clara	37	22	6.6	121	57	29.1	MTOWER	14	11.2	36.6	1255516	-54.5	-54.5	40	562.34
Army Corps Tank	13300 Rock Pile Rd	Geyserville	Sonoma	38	43	7.7	123	3	14.8	LTOWER	394	9.2	30	N/A	115.4	115.4	40	638.26
Barham II	2179 Calistoga Rd	Santa Rosa	Sonoma	38	30	32.8	122	39	49.0	LTOWER	473	18.5	60.4	1000695	302.1	302.1	40	564.93
BayHill II	2885 Bay Hill Rd	Bodega Bay	Sonoma	38	20	29.6	123	1	13.3	LTOWER	227	5.6	18.3	N/A	174.3	174.3	40	647.14
BayLoop Sonoma Mtn	2482 Sonoma Mtn Rd	Petaluma	Sonoma	38	20	54.0	122	34	42.0	LTOWER	744	9.2	30	N/A	585.1	585.1	40	582.1
Fish Rock	44701 Fish Rock Rd	Gualala	Sonoma	38	49	32.4	123	34	18.3	LTOWER	366	13.2	43.3	N/A	251.7	251.7	40	647.14
Geyser Peak	8770 Geysers Rd	Geyserville	Sonoma	38	45	53.1	122	50	43.1	LTOWER	986	9.2	30	N/A	538.2	538.2	40	564.93
Infineon	De Mattos Rd	Sonoma	Sonoma	38	9	37.3	122	27	48.7	LTOWER	93	9.2	29.9	N/A	71.4	71.4	40	562.34
Juvenile Justice Center	7425 Rancho Los Guilicos Rd	Santa Rosa	Sonoma	38	26	27.6	122	34	54.5	MTOWER	144	5.6	18.3	N/A	-88.2	-88.2	40	672.97

Site Name	Street Address	City	County	Lat Deg	Lat Min	Lat Sec	Long Deg	Long Min	Long Sec	Ant Structure Type	AMSL (m)	Ht w/o Appurt (m)	Ht w/ Appurt (m)	ASR No.*	AAT (m)	Ant Ht (m)	TPO (W)	ERP (W)
Meyer's Grade	16001 Meyers Grade Rd	Jenner	Sonoma	38	30	52.3	123	11	48.4	LTOWER	491	18.5	60.4	N/A	371.3	371.3	40	602.5
Moonraker	33012nTimber Ridge Rd	Annapolis	Sonoma	38	40	57.7	123	24	55.0	LTOWER	240	17.5	57.3	N/A	141.1	141.1	40	688.65
Mt Jackson	15008 Sweetwater Springs Rd	Guerneville	Sonoma	38	32	22.8	122	57	40.9	LTOWER	432	18.5	60.4	N/A	282.2	282.2	40	662.21
Mt St Helena	4955 Lake County Hwy	Calistoga	Sonoma	38	39	20.4	122	36	54.5	LTOWER	1208	6.5	21.3	N/A	836.2	836.2	40	693.42
Oakridge	25555 Kelly Road	Annapolis	Sonoma	38	43	60.0	123	17	23.0	LTOWER	682	22.2	72.6	1019377	414.5	414.5	40	680.76
Olompali	Mount Burdell	Novato	Sonoma	38	8	59.7	122	35	36.1	BANT	476	3.2	10.4	N/A	396.0	396.0	40	616.59
Pine Mountain	Pine Mountain Rd	Cloverdale	Sonoma	38	50	37.2	122	56	48.8	LTOWER	710	7.3	23.8	N/A	253.8	253.8	40	595.66
Sheriff Office Main Building	2796 Ventura Ave	Santa Rosa	Sonoma	38	28	4.4	122	43	21.7	LTOWER	48	12.9	42.1	N/A	-74.0	-74.0	40	591.56
Siri Road	21789 Siri Rd	Guerneville	Sonoma	38	29	19.1	123	2	5.5	LTOWER	397	18.5	60.4	N/A	262.3	262.3	40	595.66
Sleepy (Spatial diversity)	Spolini Rd	Sonoma	Sonoma	38	13	54.9	122	29	51.4	LTOWER	244	16.6	54.3	N/A	169.1	169.1	40	602.5
Tracen	Nevada Ave	Petaluma	Sonoma	38	15	1.5	122	47	59.3	LTOWER	59	7.5	24.4	N/A	-7.4	-7.4	40	562.34

* BayRICS will obtain any necessary FAA determinations and FCC registrations before commencing construction or operation at any site requiring such actions. The majority of the antenna structures listed above are 200 feet or lower in overall height above ground level.