



Staff Report

Date: September 7, 2023

To: TRPA Hearings Officer

From: Bridget K. Cornell, Associate Planner

Subject: Tahoe Truckee Unified School District (North Tahoe High School) / AT&T Telecommunications Facility, 2949 Polaris Road, Tahoe City, Placer County, CA; Assessor's Parcel Number (APN): 093-010-015; TRPA File No.: ERSP2021-1948

Proposed Action:

Hearings Officer action on the proposed project and related findings based on this staff summary and the draft permit (Attachment A).

Staff Recommendation:

Staff recommends the Hearings Officer make the required findings and approve the project subject to the special conditions in the draft permit.

Project Description:

The proposed project involves the construction of a new telecommunications facility on the North Tahoe High School campus. The proposed improvements include the construction of one antenna on the roof of an existing structure on the North Tahoe High School/North Tahoe (middle) School campus. The antenna will be mounted on the roof of the main building on the campus. The antennas are designed to provide coverage for the campus only.

The antenna will extend approximately nine feet above the existing roof ridge. No increase in the overall building height is proposed. Associated utilities will be run through the building and tied into the school's existing utility room. No ground disturbance and changes to land coverage are proposed. No trees are proposed for removal.

The North Tahoe High School campus parcel has been certified for Best Management Practices (Certificate #109997, December 15, 2008). BMPs will be adjusted as necessary to accommodate the project, and maintenance of existing BMPs will be required.

Cellular signal maps indicate the proposed antennas will allow cellular providers to fill in cellular phone coverage gaps on the North Tahoe High School/North Tahoe School campus.

Site Description:

The antenna is proposed on the rooftop of the main existing building on the North Tahoe High School campus. No change to the structure's height is proposed with this project. All proposed changes are on the rooftop, and within the existing structure. No changes to land coverage are proposed.

The affected parcel houses both the North Tahoe High School as well as North Tahoe (middle) School. The parcel is comprised of the connected structures housing the schools, sporting courts, sport fields and associated parking facilities, as well as a large area of open space on the north side of the parcel. The parcel is surrounded on north and west by conservation area, and on the south and east by residential

neighborhoods. The closest residence is approximately 630.0 feet away from the antenna. Although service coverage may ‘spill over’ to the nearest residences, the antenna is designed to service the campus only.

Issues:

The proposed project involves a special use determination and therefore requires Hearing Officer review in accordance with Chapter 2, Subsection 2.2.2.a of the TRPA Code. All other issues are discussed in the following staff analysis:

Staff Analysis:

- A. Environmental Documentation: TRPA staff completed the Initial Environmental Checklist (IEC) and “Project Review Conformance Checklist and Article V(g) Findings” in accordance with Chapter 4, Subsection 4.3 of the TRPA Code of Ordinances. All responses contained on said checklists indicate compliance with the environmental threshold carrying capacities and TRPA staff recommends the Hearings Officer make a Finding of No Significant Effect. A copy of the completed checklists will be made available at the Hearings Officer hearing and at TRPA.
- B. Plan Area: The project is located within the Placer County Tahoe Basin Area Plan, North Tahoe High School Subdistrict, where transmission and receiving facilities require a “Conditional Use Permit (CUP), which is processed as a Special Use by the Tahoe Regional Planning Agency.
- C. Land Coverage: The project will not result in any changes to land coverage. The parcel has been verified as a combination of Bailey Land Capability Districts 5 and 6. The parcel’s base allowable land coverage is 621,785 square feet. The parcel has 494,316 square feet of previously approved coverage (approved with TRPA File #ERSP2010-0001).
- D. Height: The proposed antennas will be installed along the side of the roof and will extend approximately nine feet above the existing structure height. The additional height has been evaluated as a “structure other than building,” and can be permitted pursuant to Section 37.6.2 of the TRPA Code of Ordinances, subject to the Chapter 37 height findings below. The antennas will not make the existing structure more nonconforming.
- E. Location: The purpose of the proposed project is to provide better cellular service coverage on the North Tahoe High School/North Tahoe School campus. The proposed location is central to the campus and is intended to cover the school area only.
- F. Scenic Quality: The proposed project is not visible from any identified scenic resources. The proposed antennas will be installed along the side of the existing roofs and will be painted to match the structures’ existing colors. The scale, placement, design and colors will ensure the antennas are not visually obtrusive and blend with the surrounding environment to the greatest extent feasible. As a result, the facility will not result in an adverse impact to the applicable scenic quality threshold.
- G. Radio Frequency Emissions: Congress gave the Federal Communications Commission (“FCC”) “comprehensive powers” over radio communications, and the FCC has exercised “federal primacy” over the technical aspects of such communications. *See Cohen v. Apple, Inc.*, 497 F.Supp.3d 769, 774 and 781 (N.D. Cal. 2020). Congress determined that “it is in the national interest that uniform, consistent requirements, with adequate safeguards of the public health and safety” be established, and it tasked the FCC with adopting regulations for radio frequency (“RF”) emissions. *Id.* at 782; 47

C.F.R. §§ 1.1307(b), 1.1310, 2.1091, 2.1093. While Congress preserved traditional state and local zoning authority, it expressly prohibited states, or instrumentalities thereof, from regulating RF emissions based on health or environmental impacts:

No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

47 U.S.C. § 332(c)(7)(B)(iv). “Environmental effects” as used in this section includes both impacts on human health and the wider environment, including plants and wildlife. *See T-Mobile Northeast, LLC v. Town of Ramapo*, 701 F. Supp. 2d 446, 460 (S.D.N.Y. 2009) (includes human health concerns); *Jaeger v. Cellco Partnership*, 2010 WL 965730, * 10 (D. Conn. 2010) (“The plain meaning of the term ‘environmental effects’ incorporates adverse effects on all biological organisms”).

Thus, the proposed AT&T antennas are required to comply with the FCC limits on RF emissions, and any attempt under state law to impose other limits on RF emissions is preempted. This preemption applies to other federal and state claims as well. For example, the Federal District Court in the Northern District of California recently rejected claims that RF emissions violated the Americans with Disabilities Act, Federal Fair Housing Act, California Fair Employment and Housing Act, and associated tort claims, finding that the Telecommunications Act (TCA) and the FCC’s regulations preempted a city’s ability to regulate radio frequency emissions. *Wolf v. City of Millbrae*, 2021 WL 3727072 (N.D. Cal. Aug. 23, 2021).

As to TRPA, having been created by an interstate compact is a creature of federal law, the application of the TCA to its permitting process is not a matter of preemption. Rather, one must reconcile the intent of Congress in passing both the TCA and the Compact and give meaning to both statutes should there be any conflict in implementation. In furtherance of that standard, the agency position to date is this: TRPA will defer to the FCC regulations over general issues of human health and environmental impacts. However, TRPA could choose to regulate RF in the region should cellular facilities be proven to have a particular adverse effect on the unique environment of the Tahoe Region. TRPA has not received any such proof of adverse impacts of RF particular to Tahoe and therefore will not reexamine the determinations of the FCC.

Required Findings:

The following is a list of the required findings as set forth in Chapters 4, 21, 37 and 50 of the TRPA Code of Ordinances. Following each finding, agency staff has summarized the evidence on which the finding can be made.

1. Chapter 4 – Required Findings:

- (a) The project is consistent with and will not adversely affect implementation of the Regional Plan, including all applicable Goals and Policies, Plan Area Statements and maps, the Code and other TRPA plans and programs.

The project is located within the North Tahoe High School Subdistrict of the Placer County Tahoe Basin Area Plan, where transmission and receiving facilities require a “Conditional Use Permit (CUP),” which is processed as a Special Use by TRPA.

Policy PS-1.1 of the Regional Plan supports the upgrade and expansion of public service facilities consistent with the Land Use Element of the Regional Plan. There is no evidence showing the proposed project will have an adverse effect on the Land Use, Transportation, Conservation, Recreation, Scenic Quality, Public Service and Facilities, or Implementation sub-elements of the Regional Plan. The project, as conditioned, will not adversely affect the implementation of any applicable elements of the Regional Plan. The project is consistent with the Public Service and Facility Policies of the Placer County Tahoe Basin Area plan.

- (b) The project will not cause the environmental threshold carrying capacities to be exceeded.

TRPA staff has completed the "Article V(g) Findings" in accordance with Section 4.4.2 of the TRPA Code of Ordinances and incorporates the checklist into this analysis. All responses contained in the project findings indicate compliance with the environmental threshold carrying capacities. In addition, the applicant has completed an IEC, which is hereby incorporated into this analysis. Staff has concluded that the project will not have a significant effect on the environment. A copy of the completed checklist and IEC will be made available on the TRPA website, and through the Parcel Tracker.

- (c) Wherever federal, state, or local air and water quality standards applicable for the Region, whichever are strictest, must be attained and maintained pursuant to Article V(g) of the TRPA Compact, the project meets or exceeds such standards.

The project, as conditioned, will not have an adverse impact on applicable air and water quality standards for the Region. The project includes maintenance of the existing water quality best management practices and will not result in the generation of additional daily vehicle trip ends.

2. Chapter 21 – Special Use Findings:

- (a) The project, to which the use pertains, is of such a nature, scale, density, intensity and type to be an appropriate use for the parcel on which, and surrounding area in which, it will be located.

The nature of the proposed project is consistent with the public service uses permissible within the Area Plan and will provide an important site for wireless technology providers to improve service in the area. The proposed antennas will be mounted along existing roofs and will be painted to match the colors of the existing structures.

- (b) The project to which the use pertains, will not be injurious or disturbing to the health, safety, enjoyment of property, or general welfare of persons or property in the neighborhood, or general welfare of the region, and the applicant has taken reasonable steps to protect against any such injury and to protect the land, water, and air resources of both the applicant's property and that of surrounding property owners.

The antennas will not contain lights or generate noise that could be visible or heard outside the immediate vicinity of the facility. The equipment will be housed within existing utility rooms.

At ground/street level, the proposed project will generate a power density that is approximately 0.05 percent of the Federal Communication Commissions (FCC's) general public limit.

Visual simulations were prepared for the project which demonstrate the telecommunication facilities will be partially visible within the North Tahoe High School/North Tahoe School campus. The antennas will be painted to match the existing colors of the existing structures. The project will provide important wireless communication service in emergencies to protect public health, safety, and welfare.

The antennas will help improve public safety by increasing cellular reception for first responders in the area.

- (c) The project, to which the use pertains, will not change the character of the neighborhood or detrimentally affect or alter the purpose of the applicable planning area statement, community plan and specific or master plan, as the case may be.

The communication facility will improve wireless service in the area and will not change the character of the neighborhood. The proposed design will blend with the existing structures. The project is located within North Tahoe High School Subdistrict of the Placer County Tahoe Basin Area plan, where transmission and receiving facilities require a "Conditional Use Permit (CUP), which are processed by TRPA as a special use. Policy PS-1.1 of the Regional Plan supports the upgrade and expansion of public service facilities consistent with the Land Use Element of the Regional Plan.

3. Chapter 37 - Additional Height Findings:

- (a) The function of the structure requires greater maximum height than otherwise provided for in this chapter.

The proposed antennas will be located on the rooftop of an existing structure on the North Tahoe High School/North Tahoe School campus. Antennas require unobstructed locations to ensure they will be functional. The height and location of the proposed antennas ensure they will be functional.

- (b) The additional height is the minimum necessary to feasibly implement the project and there are no feasible alternatives requiring less additional height.

The height of the proposed antennas is the minimum necessary to enable proper function of the antennae by allowing the signals to be transmitted and received over the tops of surrounding structures and tree canopy, providing for adequate cellular service.

4. Chapter 50 – Additional Public Service Facility Findings:

(a) There is a need for the project.

Cellular coverage maps show service gaps in the area and existing facilities are not meeting service needs associated with increased wireless data needs. This project will provide additional facilities to meet service needs in the area. The additional facilities will provide improved wireless communication service in emergencies to help protect public health, safety, and welfare.

(b) The project with the Goals and Policies, applicable plan area statements, and Code.

See rationale in Chapter 4 findings, above.

(c) The project is consistent with the TRPA Environmental Improvement Program.

The project will not affect implementation of the EIP and will not cause TRPA's environmental thresholds to be exceeded. The design of the proposed project will blend with the existing building, which will ensure there are no significant impacts to applicable scenic resource thresholds.

(d) The project meets the findings adopted pursuant to Article V (g) of the Compact as set forth in Chapter 4: *Required Findings*, as they are applicable to the project's service capacity.

The project's service capacity is shown on wireless propagation maps submitted with the application and shows the areas to be served by the project.

Required Actions:

Staff recommends that the Hearings Officer take the following actions:

- I. Approve the findings contained in this staff summary, and a finding of no significant environmental effect.
- II. Approve the project, based on the staff summary, and record evidence, subject to the conditions contained in the attached Draft TRPA Permit (Attachment A).

Contact Information:

For questions regarding this project please contact Bridget Cornell, TRPA Permitting & Compliance Department, by telephone at (775) 589-5218 or via email to bcornell@trpa.gov.

Attachments:

- A. Draft Permit
- B. Project Plans and Scenic Simulations

Attachment A
Draft Permit

Draft
CONDITIONAL PERMIT
APN 093-010-015
FILE NO. ERSP2021-1948

Security Posted (1): Amount \$ 5,000.00 Type: _____ Paid _____ Receipt No. _____

Security Administrative Fee (1): Amount \$ _____ Paid _____ Receipt No. _____

Notes:

(1) See Special Condition 3.D., below.

Required plans determined to be in conformance with approval: Date: _____

TRPA ACKNOWLEDGEMENT: The permittee has complied with all pre-construction conditions of approval as of this date and is eligible for a county building permit:

TRPA Executive Director/Designee

Date

SPECIAL CONDITIONS

1. This project authorizes the construction of a small wireless telecommunications facility on the North Tahoe High School campus. The project will consist of one antenna to be installed on the rooftop of a centrally located building for the purpose of providing improvement wireless coverage to the campus of the North Tahoe High School. The antenna will extend approximately nine feet above the existing roof ridge. The associated utilities will be run through the building and tied into the school's existing utility room. No ground disturbance is proposed. The antenna will be mounted to an existing wall and painted to match the wall. No changes to land coverage or ground disturbance are proposed with this project. No trees are proposed for removal.

The North Tahoe High School campus parcel has been certified for Best Management Practices (Certificate #109997, December 15, 2008). BMPs will be adjusted as necessary to accommodate the project, and maintenance of existing BMPs will be required (see Special Condition 4, below).

2. The Standard Conditions of Approval listed in Attachment Q shall apply to this permit.
3. Prior to permit acknowledgement, the following conditions of approval must be satisfied.
 - A. Please provide an overall site plan of the North Tahoe High School campus that is consistent with the requirements of the TRPA Public Service application.
 - B. Page A1 (Overall Site Plan):
 - (1) Please include a land coverage table, including the size of the parcel, the verified land capability for the parcel, the base allowable land coverage, previously verified land coverage and proposed land coverage.

- (2) Please identify a construction staging area with appropriate temporary Best Management Practices (BMPs).
- C. Pages A4.1 and A4.2 (Elevations):
- (1) Please show roof pitches of each roof plane for each affected structure.
 - (2) Identify the slope across each building site.
 - (3) Please show the allowed and proposed height calculation for the structure. Note: additional height resulting from the antenna will not be considered additional height for the structure.
 - (4) Please correctly label the structure's existing and proposed height. The height of a structure is measured to the highest point of the roof. Appurtenances that meet the criteria of TRPA Code Section 37.4.3.A do not count towards a structure's height. The proposed antenna is considered a "structure other than building," and will not count towards the structure's height.
 - (5) The permittee shall submit final proposed color samples for all visible project components for approval by TRPA staff.
- D. The Security required under Standard Condition I.2 of Attachment Q shall be \$5,000.00. Security shall be released upon completion of the project, installation of permanent BMPs and satisfaction of all permit conditions. Please see Attachment J, Security Procedures, for appropriate methods of posting the security and the applicable security administration fee.
- E. The permittee shall submit final plans to TRPA electronically, incorporating the changes outlined above.
4. Prior to security return, the applicant shall work with the property owner to demonstrate that existing BMPs are being maintained. This shall be documented in a BMP Maintenance Log (https://www.tahoebmp.org/Documents/BMPHandbook/Maintenance_Log_interactive_form.pdf) . TRPA staff is available to assist the property owner with this reporting requirement.
 5. All BMP details and specifications shall be consistent with the TRPA Handbook of Best Management Practices. All BMP handbook details and information sheets can be viewed and downloaded at <http://www.tahoebmp.org/BMPHandbookCh4.aspx>. If sub-surface infiltration facilities are proposed, it will be necessary to submit photo documentation of sub-surface infiltration systems prior to issuance of a BMP Certificate of Completion. The photographs shall clearly show that the infiltration systems have been installed as specified on TRPA approved plans.
 6. Prior to security release photos shall be provided to TRPA taken during the construction of any subsurface BMP's or of any trenching and backfilling with gravel.
 7. Temporary and permanent BMPs may be field fit by the Environmental Compliance Inspector where appropriate.

8. All Best Management Practices shall be maintained in perpetuity to ensure effectiveness which may require BMPs to be periodically reinstalled or replaced.
9. Existing natural features outside of the building site shall be retained and incorporated into the site design to the greatest extent feasible. The site shall be designed to avoid disturbance to rock outcrops and to minimize vegetation removal and maintain the natural slope of the project site.
10. TRPA reserves the right to amend any portion of this permit or construction operation while in progress if it is determined that the project construction is causing significant adverse effects.
11. To the maximum extent allowable by law, the Permittee agrees to indemnify, defend, and hold harmless TRPA, its Governing Board (including individual members), its Planning Commission (including individual members), its agents, and its employees (collectively, TRPA) from and against any and all suits, losses, damages, injuries, liabilities, and claims by any person (a) for any injury (including death) or damage to person or property or (b) to set aside, attack, void, modify, amend, or annul any actions of TRPA. The foregoing indemnity obligation applies, without limitation, to any and all suits, losses, damages, injuries, liabilities, and claims by any person from any cause whatsoever arising out of or in connection with either directly or indirectly, and in whole or in part (1) the processing, conditioning, issuance, administrative appeal, or implementation of this permit; (2) any failure to comply with all applicable laws and regulations; or (3) the design, installation, or operation of any improvements, regardless of whether the actions or omissions are alleged to be caused by TRPA or Permittee.

Included within the Permittee's indemnity obligation set forth herein, the Permittee agrees to pay all fees of TRPA's attorneys and all other costs and expenses of defenses as they are incurred, including reimbursement of TRPA as necessary for any and all costs and/or fees incurred by TRPA for actions arising directly or indirectly from issuance or implementation of this permit. TRPA will have the sole and exclusive control (including the right to be represented by attorneys of TRPA's choosing) over the defense of any claims against TRPA and over their settlement, compromise or other disposition. Permittee shall also pay all costs, including attorneys' fees, incurred by TRPA to enforce this indemnification agreement. If any judgment is rendered against TRPA in any action subject to this indemnification, the Permittee shall, at its expense, satisfy and discharge the same.

END OF PERMIT

Attachment B
Project Plans and Scenic Simulations



at&t

NORTH TAHOE HIGH SCHOOL (NOKIA MBO)

2945 POLARIS RD
TAHOE CITY, CA 96145

PROJECT REFERENCE NUMBERS

SITE I.D.: .
US I.D.: 299410
FA NO.: 15241187
ORACLE NO.: 3701A0TWG3
PACE NO.: MRSFR070946
PROGRAM: .

APPLICABLE BUILDING CODES AND STANDARDS

SUBCONTRACTORS' WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

- 2019 CA ADMINISTRATIVE CODE
- 2019 CA BUILDING CODE
- 2019 CA ELECTRICAL CODE
- 2019 CA MECHANICAL CODE
- 2019 CA PLUMBING CODE
- 2019 CA FIRE CODE
- 2019 ENERGY CODE

SUBCONTRACTORS' WORK SHALL COMPLY WITH ALL LOCAL BUILDING CODES AND CITY/COUNTY ORDINANCES.

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. ACCESSIBILITY IS EXEMPT BASED ON ADA STANDARDS 203.5 AND CBC 11B-203.5 "MACHINERY SPACES."

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

PROJECT TEAM

APPLICANT/LESSEE:

AT&T MOBILITY
2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821
CONTACT: JED PETERS
PHONE: (916) 385-1466

OWNER:

TAHOE TRUCKEE UNIFIED SCHOOL DISTRICT
ADDRESS: 2945 POLARIS RD.
TAHOE CITY, CA 96145

SAQ/ZONING/PERMITTING:

COMPLETE WIRELESS CONSULTING
2009 V STREET
SACRAMENTO, CA 95818
CONTACT: MARIA KIM
PHONE: (916) 247-6087

ARCHITECT:

DELTA GROUPS ENGINEERING
6800 KOLL CENTER PARKWAY,
SUITE 225
PLEASANTON, CA 94566
PHONE: (925) 468-0115

STRUCTURAL:

DELTA GROUPS ENGINEERING
6800 KOLL CENTER PARKWAY,
SUITE 225
PLEASANTON, CA 94566
PHONE: (925) 468-0115

CONSTRUCTION:

TOTAL ENVIRONMENTAL & POWER SYSTEMS, INC.
2500 BISSO LN. SUITE 500
CONCORD, CA 94520
CONTACT: TONY PACHAO
PHONE: (925) 681-2238

RF ENGINEER:

AT&T MOBILITY
2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821
CONTACT: BRETT LAWLESS
PHONE: (916) 716-9276

PROJECT DESCRIPTION

SCOPE OF WORK:

THIS IS AN APPLICATION FOR A NEW, UNMANNED AT&T MOBILITY SERVICES FACILITY CONSISTING OF:

- THE INSTALLATION OF TELECOMMUNICATIONS EQUIPMENT WITHIN EXISTING EQUIPMENT RACK INSIDE EXISTING BUILDING.
- THE INSTALLATION OF ONE (1) OUTDOOR OMNI DIRECTIONAL ANTENNA MOUNTED TO EXISTING BUILDING.
- THE INSTALLATION OF ONE (1) MBO UNIT MOUNTED BELOW OUTDOOR ANTENNA.
- ASSOCIATED COMMUNICATIONS AND UTILITIES WIRING AS REQUIRED.

PROJECT INFORMATION

SITE ADDRESS:

2945 POLARIS RD
TAHOE CITY, CA 96145

PROPERTY OWNER:

TAHOE TRUCKEE UNIFIED SCHOOL DISTRICT
ADDRESS: 2945 POLARIS RD.
TAHOE CITY, CA 96145

LATITUDE (NAD83):

39° 11' 40.18" N

LONGITUDE (NAD83):

120° 7' 13.61" W

ELEVATION:

±6600

A.P.N.:

093-010-015

JURISDICTION:

TBD

ZONE:

RECREATION - NORTH TAHOE HIGH SCHOOL

OCCUPANCY TYPE:

(U) - UNMANNED TELCOMMUNICATION FACILITY

TYPE OF CONSTRUCTION:

TBD

DRAWING INDEX

T1
T2

TITLE SHEET
GENERAL NOTES, LEGEND, & ABBREVIATIONS

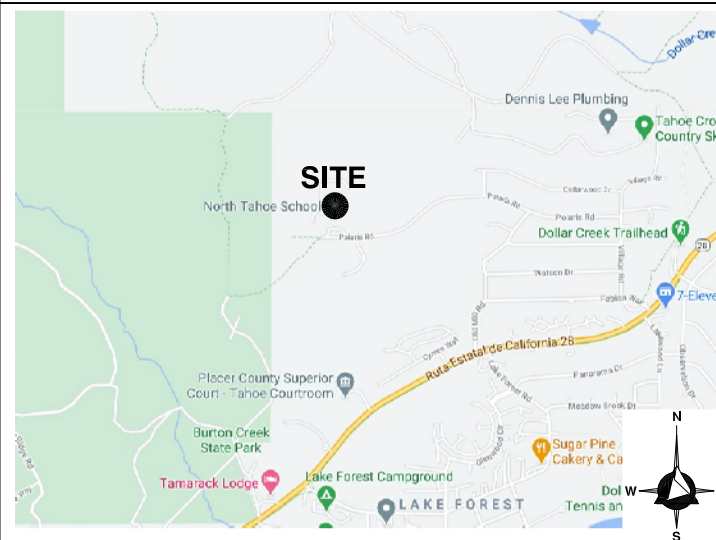
A1
A2
A3
A4.1
A4.2
A5
A6
A7

OVERALL SITE PLAN
PARTIAL 2ND LEVEL
MEZZANINE PLAN, & EQUIPMENT/ANTENNA LAYOUTS
NORTH & EAST ELEVATION
SOUTH ELEVATION
DETAILS & SIGNAGE
DETAILS
ANTENNA EQUIPMENT SPECIFICATIONS

E1
E2
E3
E4

ELECTRICAL & TELEPHONE SPECIFICATIONS & UTILITIES NOTES
ONE-LINE DIAGRAMS, & PANEL SCHEDULES
GENERAL GROUNDING NOTES, AND EQUIPMENT & ANTENNA GROUNDING PLANS
GROUNDING DETAILS

VICINITY MAP



SITE DIRECTIONS

FROM AT&T MOBILITY OFFICES LOCATED AT 2700 WATT AVENUE IN SACRAMENTO, CA:

TURN RIGHT ONTO WATT AVE. USE THE RIGHT LANE TO TAKE THE I-80 RAMP TO RENO. MERGE ONTO I-80BL E. USE THE LEFT 3 LANES TO MERGE ONTO I-80 E TOWARD RENO. TAKE EXIT 185 FOR CA-89 S TOWARD LAKE TAHOE. AT THE TRAFFIC CIRCLE, TAKE THE 1ST EXIT ONTO CA-89 S. CONTINUE STRAIGHT ONTO STATE HWY 28. TURN LEFT ONTO OLD MILL RD. TURN LEFT ONTO POLARIS RD. TURN RIGHT. DESTINATION WILL BE ON THE RIGHT.



2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821

NORTH TAHOE HIGH SCHOOL (NOKIA MBO)
FA NO. 15241187

2945 POLARIS RD
TAHOE CITY, CA 96145



DELTA GROUPS ENGINEERING, INC.
CONSULTING ENGINEERS

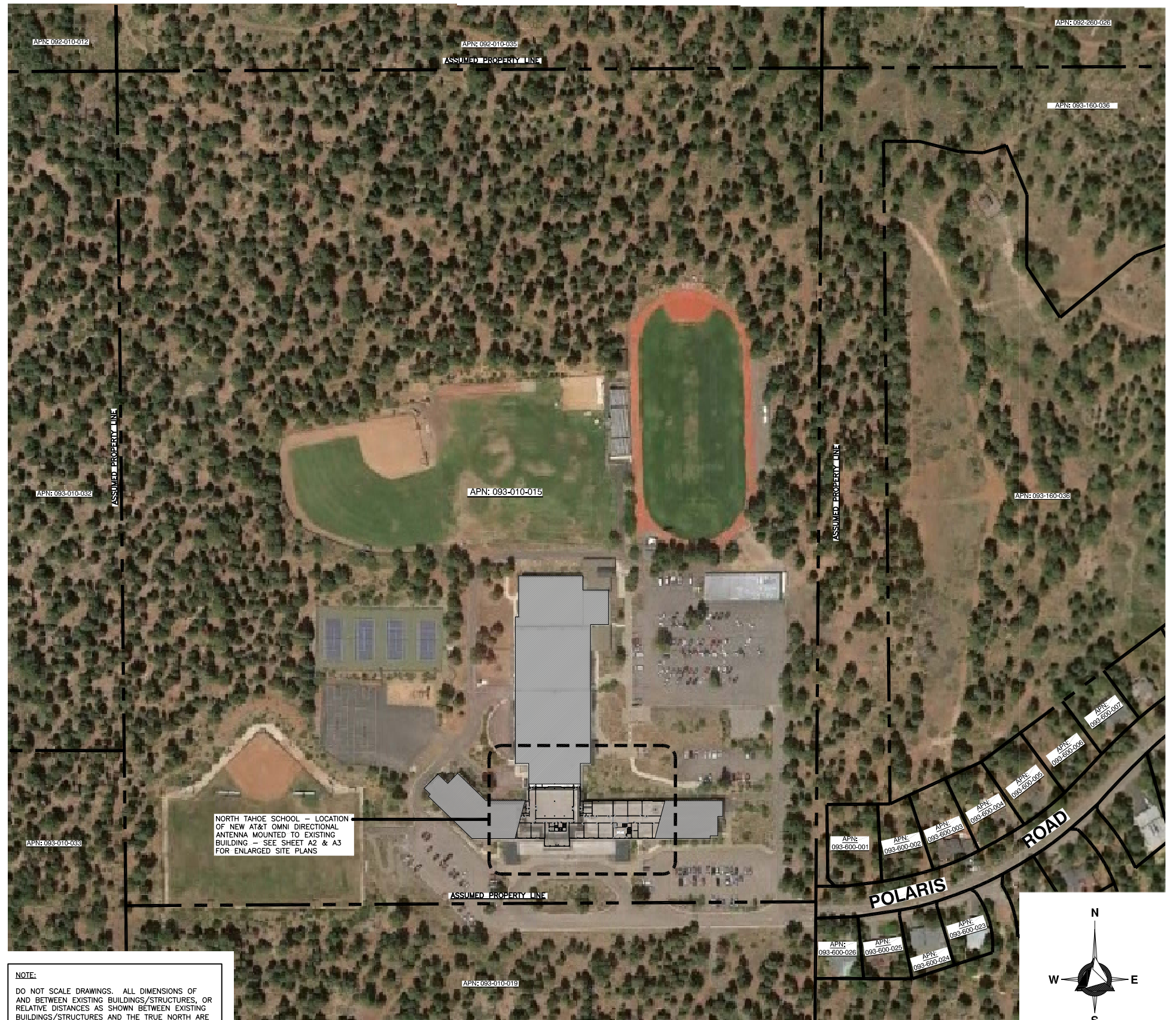
6800 KOLL CENTER PARKWAY, SUITE 225
PLEASANTON, CA 94566
TEL: (925) 468-0115 FAX: (925) 468-0355

REV.	DATE	DESCRIPTION	BY	CHK
1	12/22/20	ISSUED FOR REVIEW	JK	-
2	1/25/21	ISSUED FOR REVIEW SUBMITTAL	JK	-
3	4/14/21	ISSUED FOR LL COMMENTS	JK	-
4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE

TITLE SHEET

SHEET	DGE NO.
T1	P20AT019
AGENDA ITEM	SITE NAME
	NORTH TAHOE HIGH SCHOOL



NORTH TAHOE SCHOOL - LOCATION OF NEW AT&T OMNI DIRECTIONAL ANTENNA MOUNTED TO EXISTING BUILDING - SEE SHEET A2 & A3 FOR ENLARGED SITE PLANS

NOTE:
DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES AND THE TRUE NORTH ARE TO BE CONFIRMED BY THE SURVEYOR.

UNUSED 2 OVERALL SITE PLAN SCALE: 1 inch = 100 ft 1

2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821

**NORTH TAHOE HIGH SCHOOL
(NOKIA MBO)**
FA NO. 15241187
2945 POLARIS RD
TAHOE CITY, CA 96145

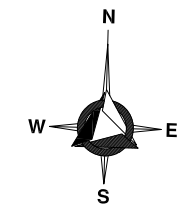
**DELTA GROUPS
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CONSULTING ENGINEERS
6800 KOLL CENTER PARKWAY, SUITE 225
PLEASANTON, CA 94566
TEL: (925) 468-0115 FAX: (925) 468-0355

REV.	DATE	DESCRIPTION	BY	CHK
1	12/22/20	ISSUED FOR REVIEW	JK	-
2	1/25/21	ISSUED FOR REVIEW SUBMITTAL	JK	-
3	4/14/21	ISSUED FOR LL COMMENTS	JK	-
4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
OVERALL SITE PLAN	
SHEET	DGE NO.
A1	P20AT019
SITE NAME	
NORTH TAHOE HIGH SCHOOL	

AGENDA ITEM NO. 7

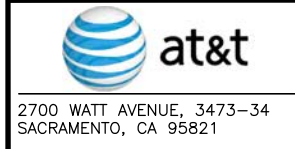
- NOTES:**
- DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES AND THE TRUE NORTH ARE TO BE CONFIRMED BY THE SURVEYOR.
 - PLAN IS A DIAGRAM - CONTRACTOR TO VERIFY EXACT CABLE/CONDUIT ROUTING W/ LANDLORD AND AND AT&T CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
 - CONTRACTOR TO ENSURE NEW CONDUIT(S) TO BE INSTALLED AS HIGH AS POSSIBLE NOT TO OBSTRUCT ANY ACCESS PANELS (TYP.)
 - CONTRACTOR TO REPAIR CEILING TILES DAMAGED DURING INSTALLATION (WITH IN KIND)



PARTIAL 2ND FLOOR PLAN

SCALE: 1/16 inch = 1 ft

1



**NORTH TAHOE HIGH SCHOOL
(NOKIA MBO)
FA NO. 15241187**

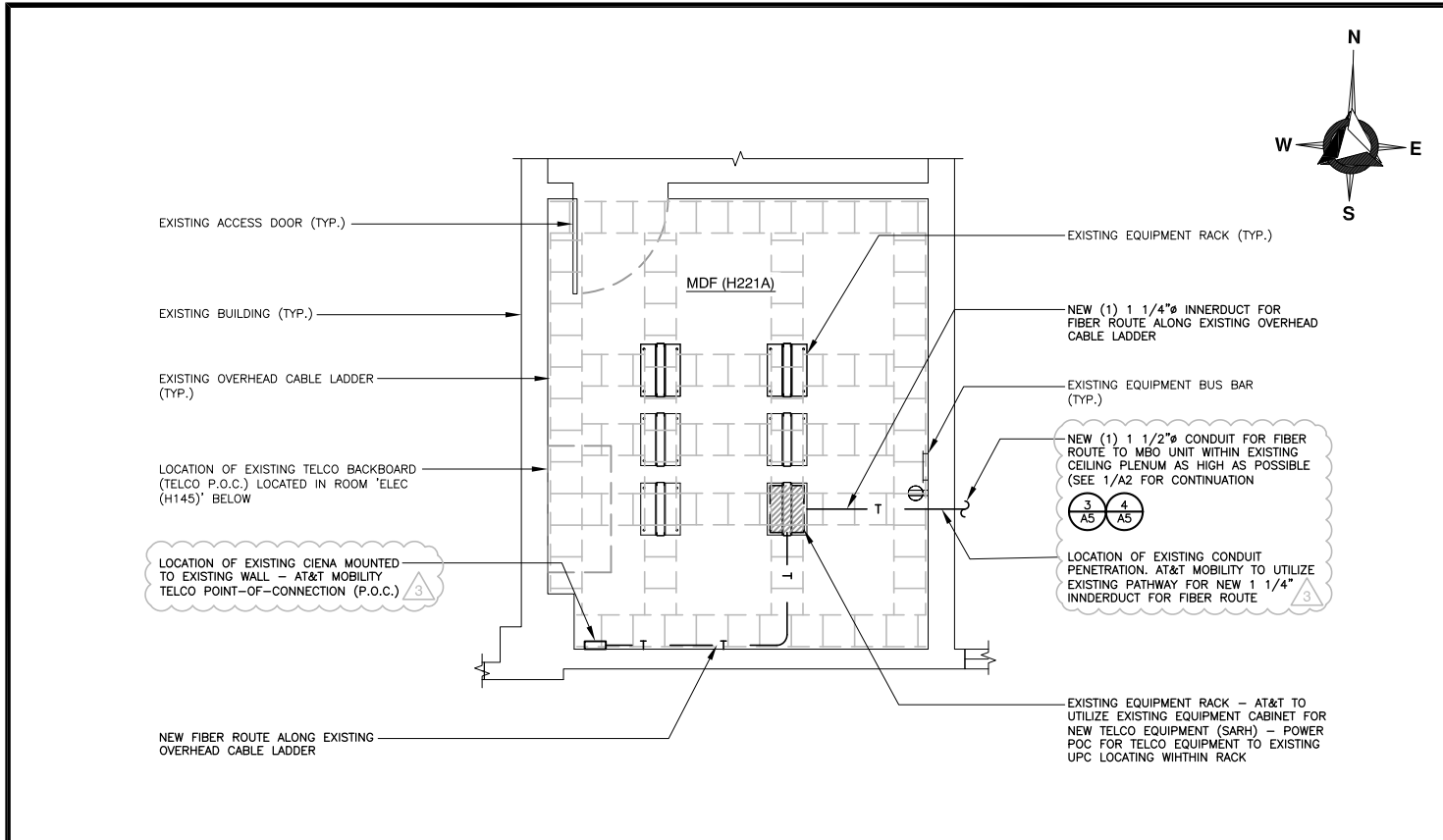
2945 POLARIS RD
TAHOE CITY, CA 96145



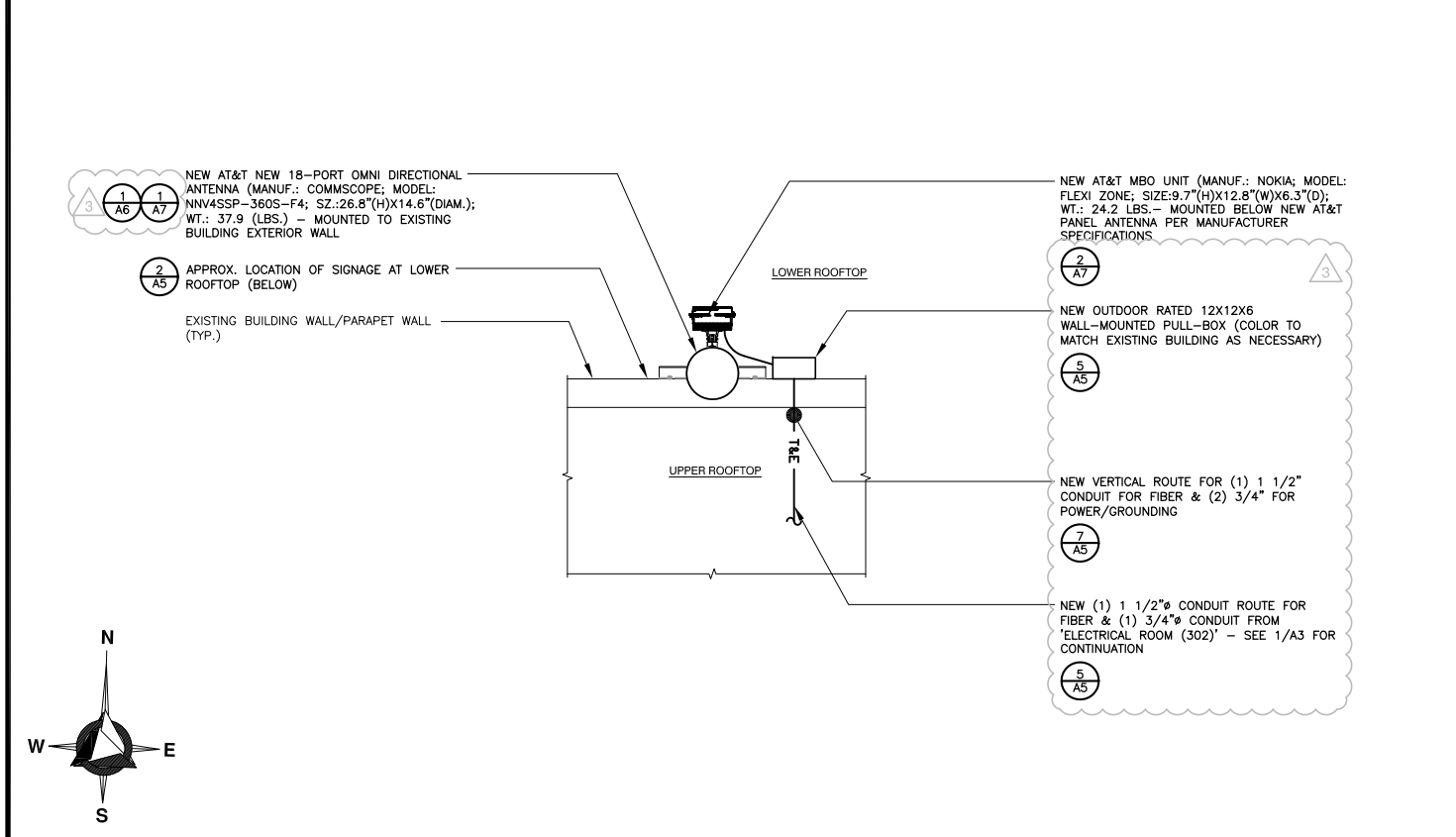
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2	1/25/21	ISSUED FOR REVIEW SUBMITTAL	JK	-
3	4/14/21	ISSUED FOR LL COMMENTS	JK	-
4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
PARTIAL 2ND FLOOR PLAN	
SHEET	DGE NO.
A2	P20AT019
SITE NAME	
NORTH TAHOE HIGH SCHOOL	

AGENDA ITEM NO. 7



EQUIPMENT LAYOUT (MDF ROOM H221A) SCALE: 3/8 inch = 1 ft 2



ANTENNA LYOUT SCALE: 3/8 inch = 1 ft 3

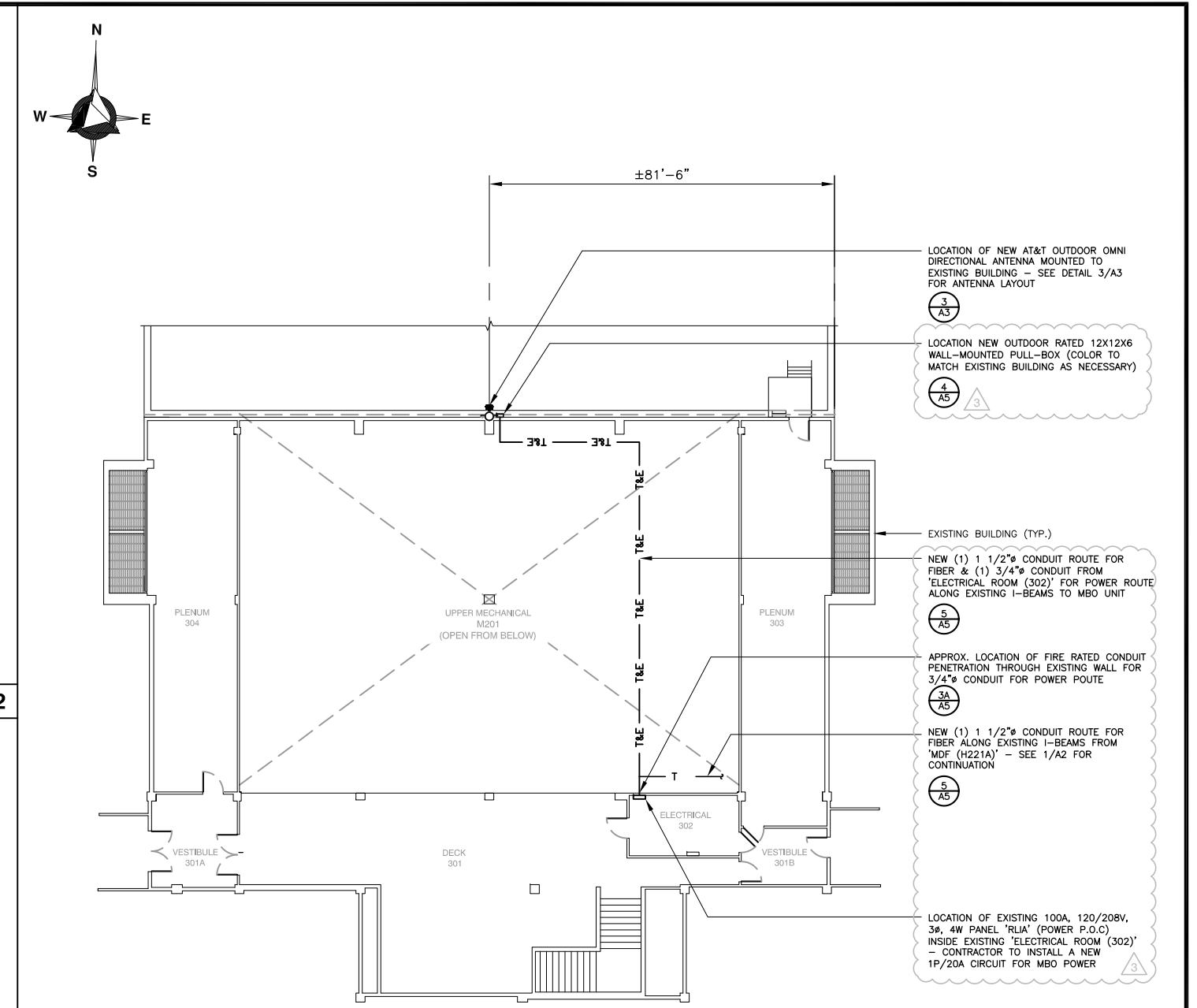


NORTH TAHOE HIGH SCHOOL (NOKIA MBO)
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 2945 POLARIS RD
 TAHOE CITY, CA 96145

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 CONSULTING ENGINEERS
 6800 KOLL CENTER PARKWAY, SUITE 225
 PLEASANTON, CA 94566
 TEL: (925) 468-0115 FAX: (925) 468-0355

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4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
MEZZANINE FLOOR PLAN, & EQUIPMENT/ANTENNA LAYOUTS	
SHEET	DGE NO.
A3	P20AT019
SITE NAME	
NORTH TAHOE HIGH SCHOOL	



MEZZANINE FLOOR PLAN SCALE: 1/16 inch = 1 ft 1

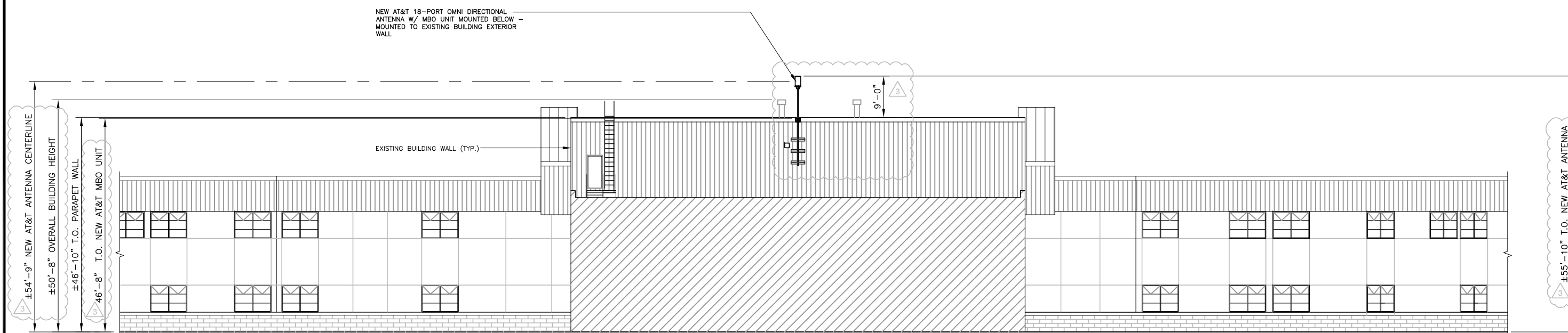


MEZZANINE FLOOR PLAN SCALE: 1/16 inch = 1 ft 1

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4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
MEZZANINE FLOOR PLAN, & EQUIPMENT/ANTENNA LAYOUTS	
SHEET	DGE NO.
A3	P20AT019
SITE NAME	
NORTH TAHOE HIGH SCHOOL	



NORTH ELEVATION

SCALE: 1 inch = 10 ft 1



EAST ELEVATION

SCALE: 1 inch = 10 ft 2

2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821

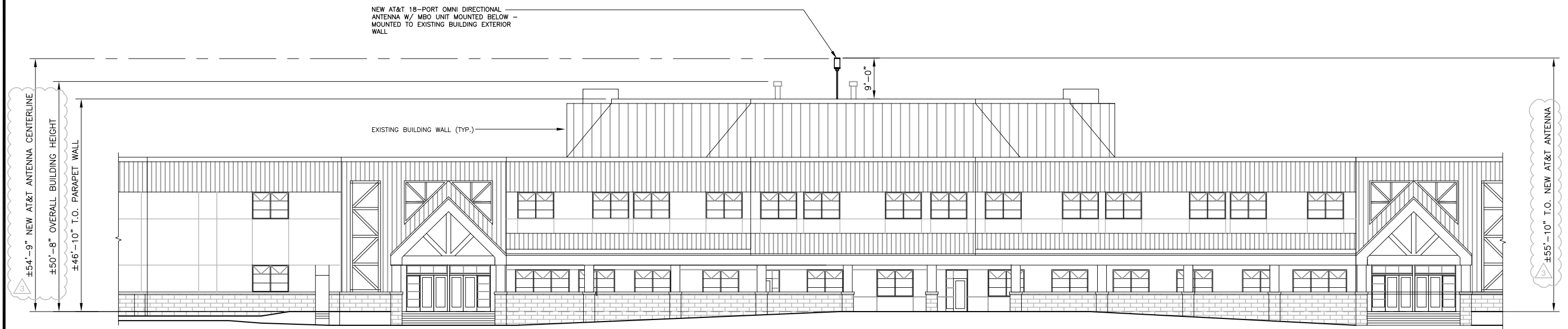
**NORTH TAHOE HIGH SCHOOL
(NOKIA MBO)**
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2945 POLARIS RD
TAHOE CITY, CA 96145

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2	1/25/21	ISSUED FOR REVIEW SUBMITTAL	JK	-
3	4/14/21	ISSUED FOR LL COMMENTS	JK	-
4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
NORTH & EAST ELEVATION	
SHEET	DGE NO.
A4 1	P20AT019
SITE NAME	
NORTH TAHOE HIGH SCHOOL	

AGENDA ITEM NO. 11



SOUTH ELEVATION

SCALE:
1 inch = 10 ft

1

UNUSED

2

2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821

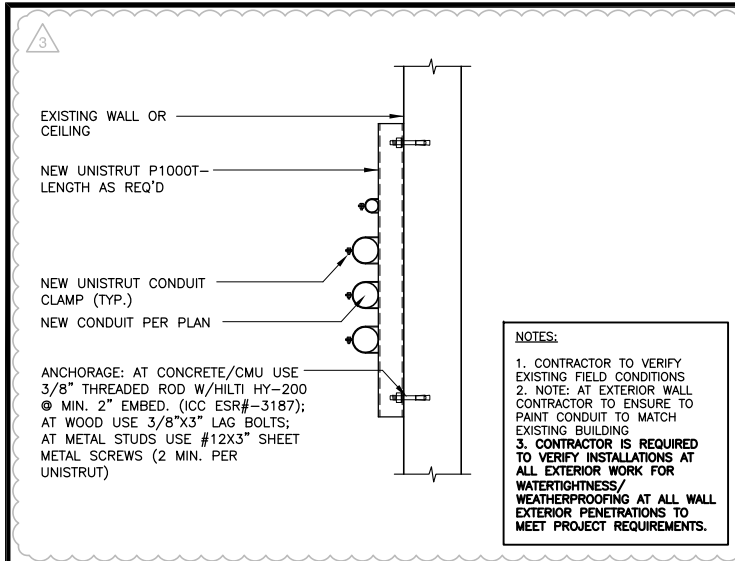
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(NOKIA MBO)**
FA NO. 15241187
2945 POLARIS RD
TAHOE CITY, CA 96145

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4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

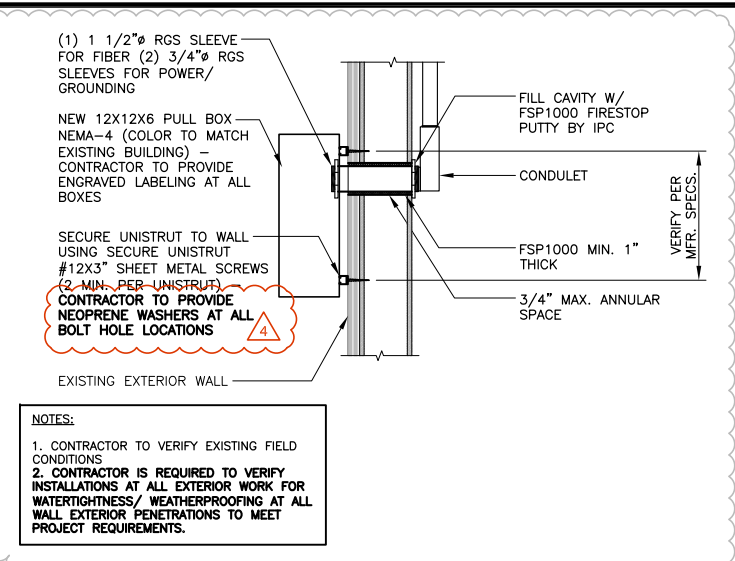
SHEET TITLE	
SOUTH ELEVATION	
SHEET	DGE NO.
A4 2	P20AT019
SITE NAME	
NORTH TAHOE HIGH SCHOOL	

AGENDA ITEM NO. 11B



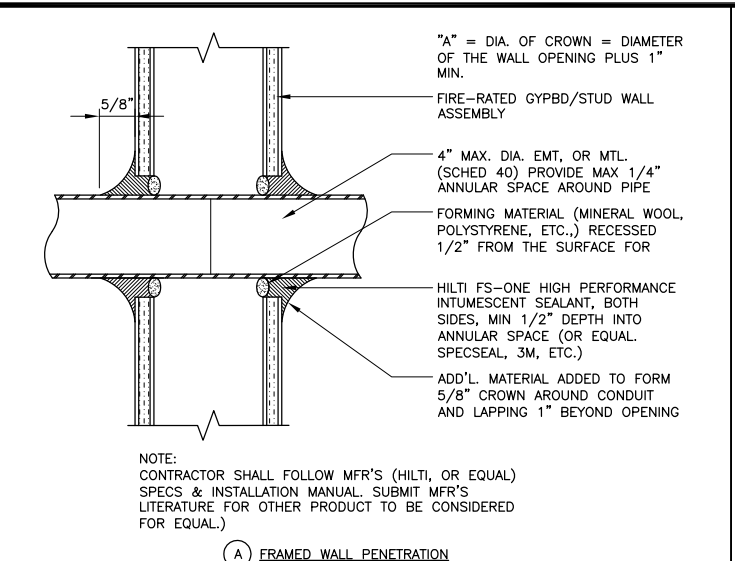
NOTES:
 1. CONTRACTOR TO VERIFY EXISTING FIELD CONDITIONS
 2. NOTE: AT EXTERIOR WALL CONTRACTOR TO ENSURE TO PAINT CONDUIT TO MATCH EXISTING BUILDING
 3. CONTRACTOR IS REQUIRED TO VERIFY INSTALLATIONS AT ALL EXTERIOR WORK FOR WATERTIGHTNESS/ WEATHERPROOFING AT ALL WALL EXTERIOR PENETRATIONS TO MEET PROJECT REQUIREMENTS.

TYPICAL CONDUIT ROUTING AT WALL 7



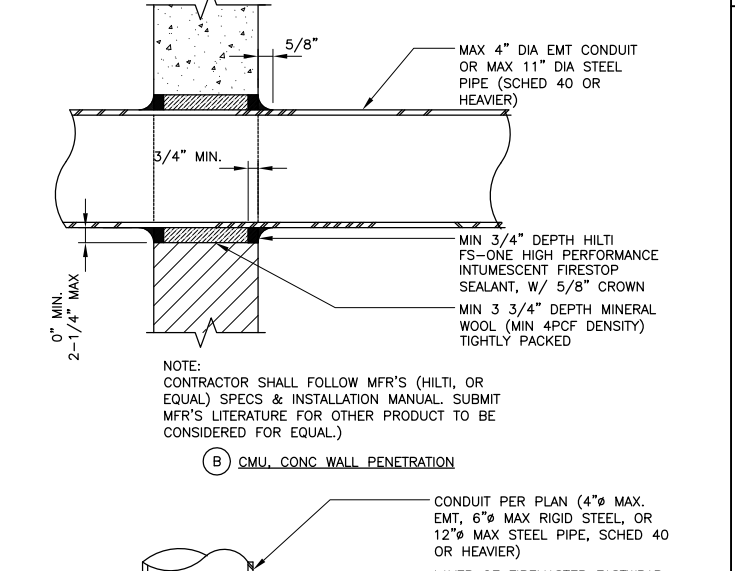
NOTES:
 1. CONTRACTOR TO VERIFY EXISTING FIELD CONDITIONS
 2. CONTRACTOR IS REQUIRED TO VERIFY INSTALLATIONS AT ALL EXTERIOR WORK FOR WATERTIGHTNESS/ WEATHERPROOFING AT ALL WALL EXTERIOR PENETRATIONS TO MEET PROJECT REQUIREMENTS.

CONDUIT PENETRATION AT EXTERIOR WALL 4



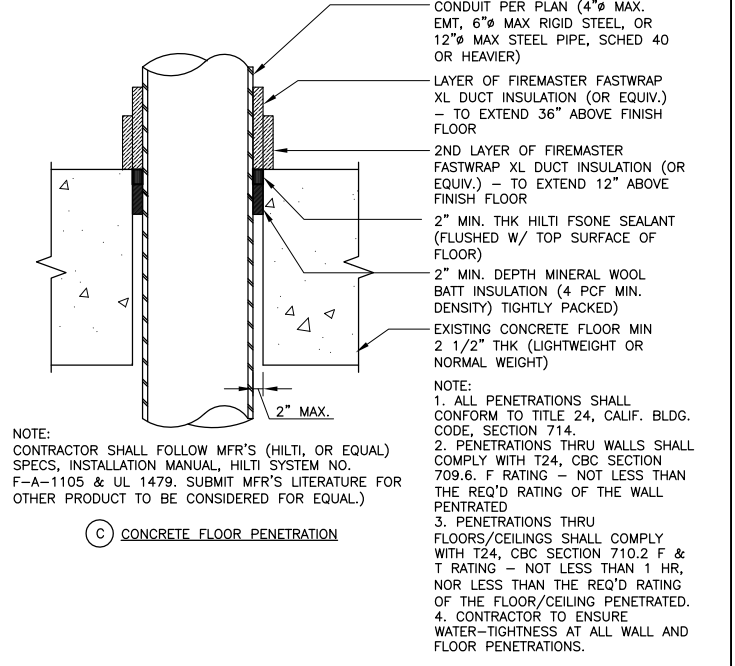
NOTE:
 CONTRACTOR SHALL FOLLOW MFR'S (HILTI, OR EQUAL) SPECS & INSTALLATION MANUAL. SUBMIT MFR'S LITERATURE FOR OTHER PRODUCT TO BE CONSIDERED FOR EQUAL.)

(A) FRAMED WALL PENETRATION



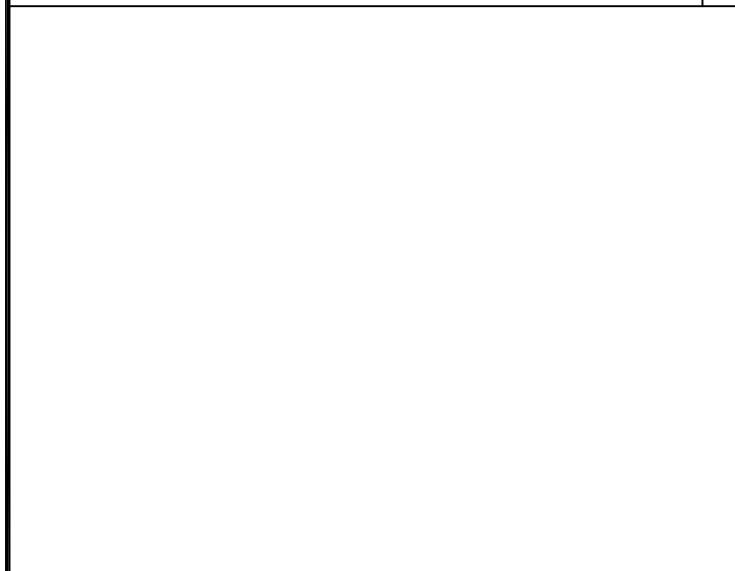
NOTE:
 CONTRACTOR SHALL FOLLOW MFR'S (HILTI, OR EQUAL) SPECS & INSTALLATION MANUAL. SUBMIT MFR'S LITERATURE FOR OTHER PRODUCT TO BE CONSIDERED FOR EQUAL.)

(B) CMU, CONC WALL PENETRATION

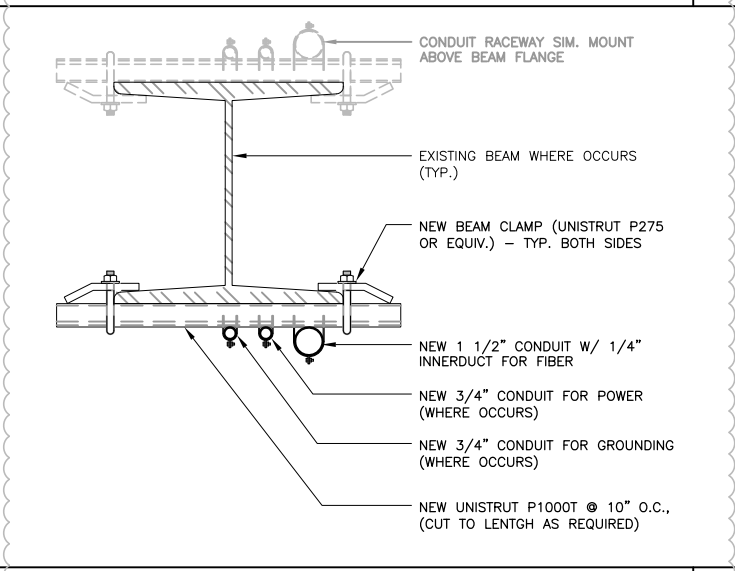


NOTE:
 CONTRACTOR SHALL FOLLOW MFR'S (HILTI, OR EQUAL) SPECS, INSTALLATION MANUAL, HILTI SYSTEM NO. F-A-1105 & UL 1479. SUBMIT MFR'S LITERATURE FOR OTHER PRODUCT TO BE CONSIDERED FOR EQUAL.)

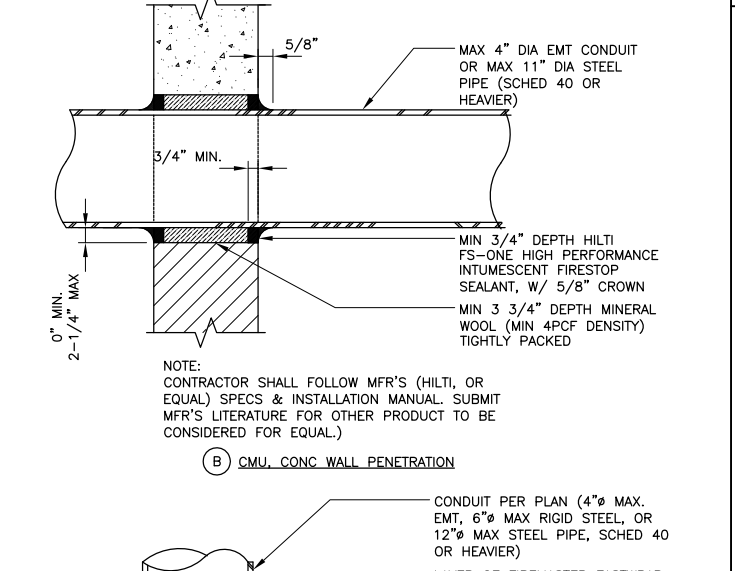
(C) CONCRETE FLOOR PENETRATION



TYPICAL CONDUIT ROUTING AT BEAM 5



TYPICAL CONDUIT ROUTING AT CEILING 6



CONDUIT PENETRATION (WHERE OCCURS) 3

GENERAL NOTES:

1. THE CONTRACTOR SHALL EXAMINE THE STRUCTURAL DRAWINGS AND SHALL NOTIFY THE ARCHITECT/ENGINEER, AND PROJECT MANAGER, IN WRITING, SHOULD ANY DISCREPANCIES BE FOUND PRIOR TO PROCEEDING WITH WORK.
2. THE DRAWINGS AND SPECIFICATIONS REPRESENT THE COMPLETE STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES AND MEANS NECESSARY TO PROTECT PERSONS AND THE EXISTING STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO BRACING, SHORING, ETC. VISITS BY THE ARCHITECT SHALL NOT INCLUDE INSPECTION OF THESE ITEMS.
3. ALL WORK NOT DETAILED OR NOTED SHALL BE CONSTRUCTED IN ACCORDANCE WITH OTHER SIMILAR WORK AND TYPICAL DETAILS SHOWN ON THE DRAWINGS. DIMENSIONS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. NO PIPES OR DUCTS SHALL BE PLACED IN SLABS OR WALLS UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE ARCHITECT.
4. ALL WORK PERFORMED ON PROJECT AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES INCLUDING OSHA AND STATE SAFETY ORDERS. THE GENERAL 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, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK.

GENERAL STRUCTURAL NOTES 1



On this tower:
 Radio frequency (RF) fields near some antennas *may exceed* the FCC Occupational Exposure Limits.
 Contact AT&T at 800-638-2822, option 9 and 3, and follow their instructions prior to performing maintenance or repairs beyond this point.
 Personnel climbing this tower should be trained for working in RF environments and use a personal RF monitor if working near active antennas.


Caution Sign #CA0TT-AL-057 This is AT&T site

THE CUSTODIAN OF THIS STATION'S LICENSE IS:

AT&T
ATTENTION TO: FCC GROUP
 208 S. AKARD STREET, RM 1016
 DALLAS, TX 75202
 855-699-7073
 FCCMW@att.com



UNUSED



2700 WATT AVENUE, 3473-34
 SACRAMENTO, CA 95821

TYPICAL CONDUIT ROUTING AT CEILING 6

NORTH TAHOE HIGH SCHOOL (NOKIA MBO)
 FA NO. 15241187
 2945 POLARIS RD
 TAHOE CITY, CA 96145

CONDUIT PENETRATION (WHERE OCCURS) 3



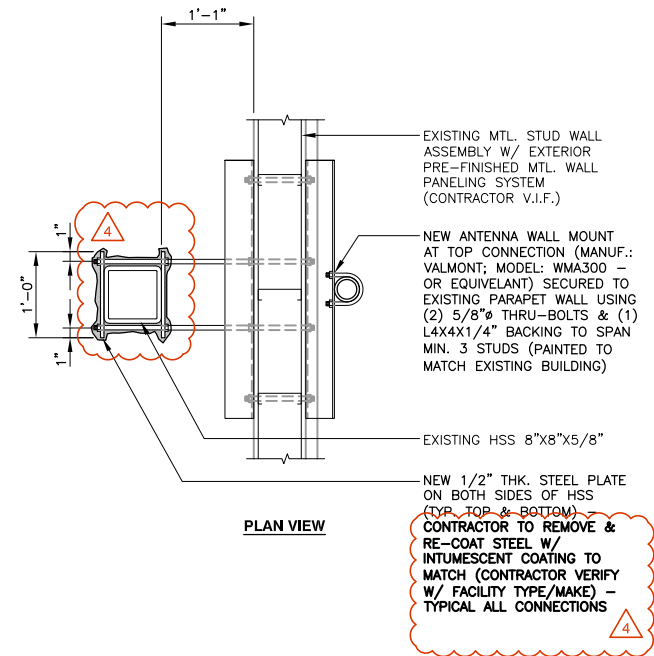
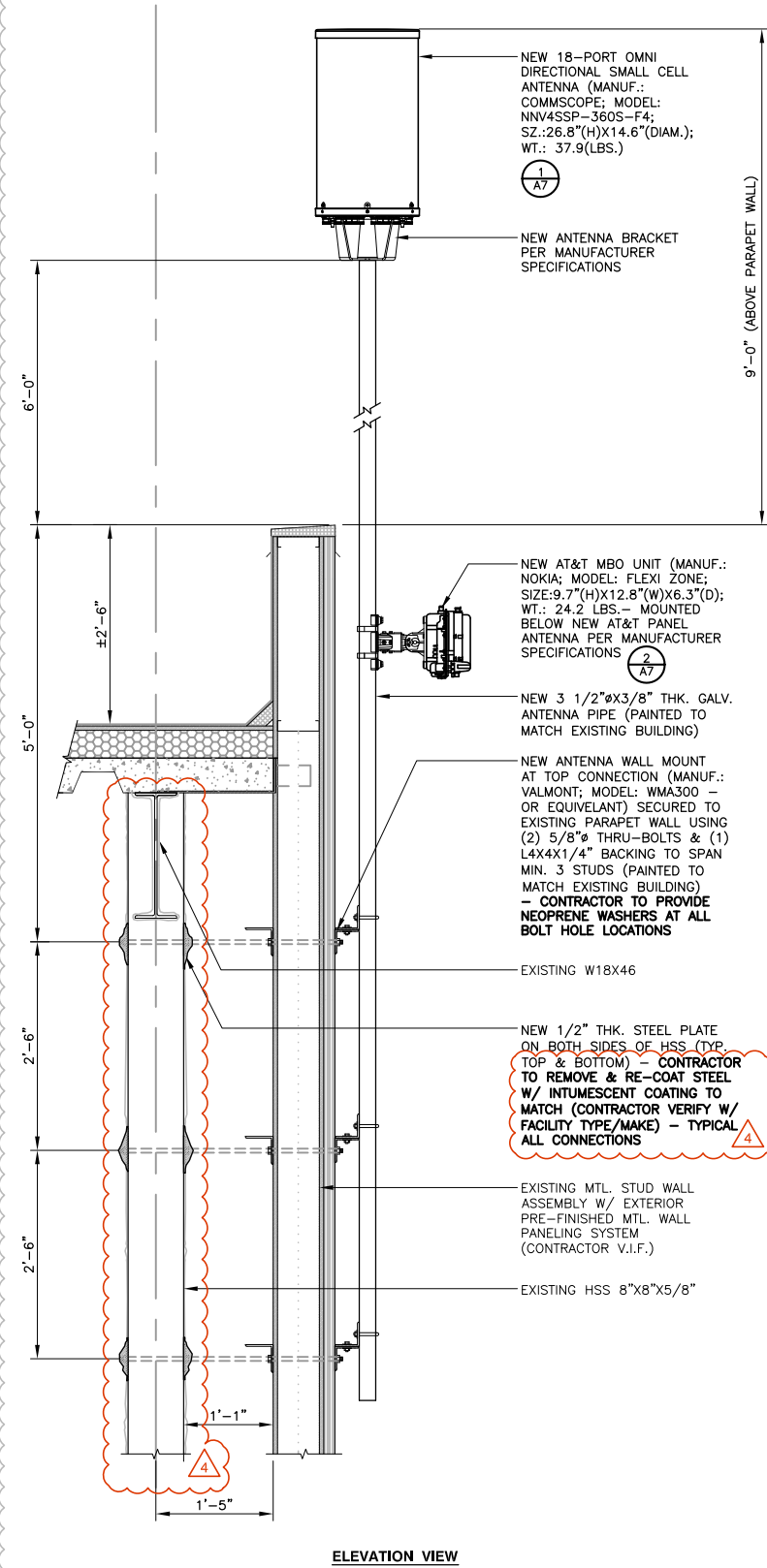
DELTA GROUPS ENGINEERING, INC.
 CONSULTING ENGINEERS
 6800 KOLL CENTER PARKWAY, SUITE 225
 PLEASANTON, CA 94566
 TEL: (925) 468-0115 FAX: (925) 468-0355

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4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SIGNAGE 2

SHEET TITLE	
GENERAL STRUCTURAL NOTES, DETAILS, & SIGNAGE	
SHEET	DGE NO.
A5	P20AT019
AGENDA ITEM	SITE NAME
NORTH TAHOE HIGH SCHOOL	

NOTES:
 1. CONTRACTOR TO VERIFY EXISTING FIELD CONDITIONS
 2. CONTRACTOR IS REQUIRED TO VERIFY INSTALLATIONS AT ALL EXTERIOR WORK FOR WATERTIGHTNESS/ WEATHERPROOFING AT ALL WALL EXTERIOR PENETRATIONS TO MEET PROJECT REQUIREMENTS.



ANTENNA MOUNTING 1

UNUSED

at&t
 2700 WATT AVENUE, 3473-34
 SACRAMENTO, CA 95821

NORTH TAHOE HIGH SCHOOL (NOKIA MBO)
 FA NO. 15241187
 2945 POLARIS RD
 TAHOE CITY, CA 96145

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4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
DETAILS	
SHEET	DGE NO.
A6	P20AT019
SITE NAME	
AGENDA ITEM NO. 11 NORTH TAHOE HIGH SCHOOL	

NOTICE: The BTS interface panel should always face the ground. Any other installation position might cause overheating and possible damage to the BTS.

Figure 13 Flexi Zone BTS interface panel (FWQCA)

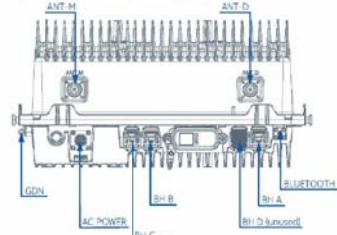
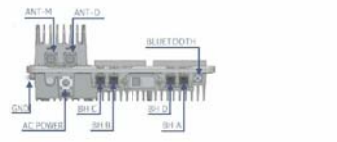


Figure 14 Flexi Zone BTS interface panel (FWQOC)



Note: Port BH-D is reserved for future support of FWQOC.

Note: The band straps are not part of the delivery and must be ordered separately.

- When selecting a location to mount the BTS, keep in mind the following:
- Avoid mounting the BTS such that the antennas are blocked by other structures such as walls. A direct line of sight to the area to be covered will provide the best performance.
 - Keep other metallic mounting features as far away from all antennas as possible.
 - Keep cables routed and secured away from the LTE and Bluetooth antennas.
 - Remotely locating the Bluetooth antenna is not allowed.

- If you plan to use an omnidirectional antenna, do not install the BTS on a metal wall or nearby metal obstructions.
- Remotely connecting the FAWB omnidirectional antenna (472833A) is not allowed as this is a monopole antenna.
- If any omnidirectional or directional antennas are remotely connected, external lightning surge protection must be added.

If side clearance is less than screw driver length, the grounding cable needs to be pre-installed. The minimum and recommended maintenance clearances are shown in Table 3. Flexi Zone Micro BTS maintenance clearances.

BTS side	Minimum clearances	Recommended clearances
Front	50 mm / 300 mm ⁽¹⁾ (1.97 in. / 14.17 in. ⁽¹⁾)	500 mm (19.68 in.)
Rear	35 mm ⁽²⁾ (1.38 in. ⁽²⁾)	30 mm ⁽²⁾ (1.18 in. ⁽²⁾)
Top	100 mm / 400 mm ⁽³⁾ (3.94 in. / 15.75 in. ⁽³⁾)	Height of the unit + 10 mm / 300 mm ⁽³⁾ (Height of the unit + 0.39 in. / 11.81 in. ⁽³⁾)
Bottom	100 mm (3.94 in.)	300 mm (11.81 in.)
Left	10 mm / 110 mm ⁽⁴⁾ (0.39 in. / 4.33 in. ⁽⁴⁾)	10 mm / 110 mm ⁽⁴⁾ (0.39 in. / 4.33 in. ⁽⁴⁾)
Right	10 mm / 110 mm ⁽⁴⁾ (0.39 in. / 4.33 in. ⁽⁴⁾)	10 mm ⁽⁴⁾ / 110 mm ⁽⁴⁾ (0.39 in. ⁽⁴⁾ / 4.33 in. ⁽⁴⁾)

⁽¹⁾ For applications with tilting bracket.
⁽²⁾ For wall and pole installations.
⁽³⁾ For applications with directional antenna.
⁽⁴⁾ Depends on the screwdriver length.

3 Thread the band straps to the static mounting bracket.

Figure 16 Threading the strapping straps



4 Install the static mounting bracket to the pole with the band straps.

Note: The straps should be tightened and secured according to the strap manufacturer's instructions and the bracket should be secure and immovable.

Figure 19 Installing the installation plate to the pole



NNV4SSP-360S-F4



18 port small cell antenna, 4x 698-896, 8x 1695-2690, 4x 3400-3800 and 2x 5150-5925 MHz, 360° Horizontal Beamwidth, fixed tilt.

Electrical Specifications

Frequency Band, MHz	698-806	806-896	1695-1920	1920-2180	2330-2690	3400-3800	5150-5925
Gain, dB	5.4	5.5	7.8	8.2	9.0	6.4	4.6
Beamwidth, Horizontal, degrees	360	360	360	360	360	360	160
Beamwidth, Vertical, degrees	34.2	35.2	19.8	16.5	14.2	32.5	24.2
Beam Tilt, degrees	4	4	4	4	4	0	0
USAS (First Lobe), dB	12	8	15	15	11	21	6
Isolation, Cross Polarization, dB	25	25	25	25	25	25	25
Isolation, Inter-band, dB	25	25	25	25	25	25	25
VSWR (Return Loss), dB	1.5:14.0	1.5:14.0	1.5:14.0	1.5:14.0	1.5:14.0	1.5:14.0	1.5:14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	75	75	75	75	75	35	5
Polarization	+45°	+45°	+45°	+45°	+45°	+45°	+45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698-806	806-896	1695-1920	1920-2180	2330-2690	3400-3800	5150-5925
Gain by all Beam Tilt, average, dB	5.0	5.2	7.0	7.3	8.4	6.0	3.9
Gain by all Beam Tilt Tolerance, dB	+0.9	+2.5	+1.2	+0.5	+1.1	+0.6	+0.3
Beamwidth, Vertical Tolerance, degrees	+5.2	+1.2	+4.7	+1.5	+1.7	+7.3	+3.3
CPR at Boresight, dB	13	16	12	17	18	10	14

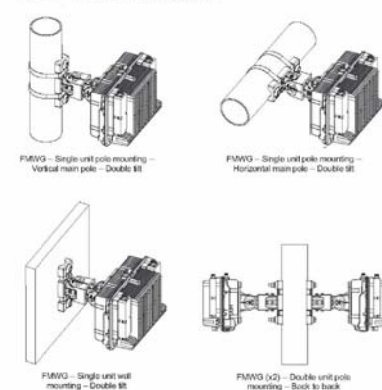
* Commscope supports 1GAIN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the [BASTA Paper](#) or [BASTA for LTE](#).

5 GHz Port Power Table

U-NII Band	5 GHz FCC Power Requirements				
	U-NII 1	U-NII 2A	U-NII 2C	U-NII 3	
Frequency (MHz)	5150 - 5250	5250 - 5350	5470 - 5725	5725 - 5850	
Max Input power per port to align with FCC Title 47 Part 15 (Watts)	0.5	0.125	0.125	0.5	



Figure 36 FMWG pole mount configurations



Note: The steps in this procedure primarily cover installation on a vertical main pole. The same steps can be followed for installation on a horizontal main pole with corresponding variations to account for the horizontal orientation of the main pole.

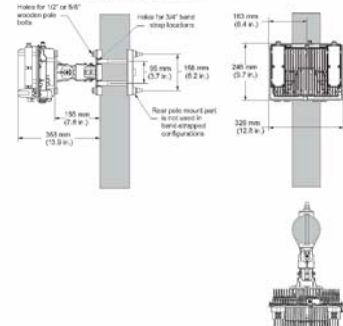
Before you start

CAUTION! Risk of personal injury. Ensure that the selected pole bracket fasteners (band straps, bolts, or screws) and the mounting structure (wall, metal pole, or wooden pole) can sustain the device under required circumstances. The selected fasteners should be rated for outdoor use and be capable of securing the weight of the BTS and pole mount kit hardware. Evaluation of the mounting structure and fastening hardware should be done by a structural engineer prior to installation.

NOTICE: Flexi Zone Micro BTS equipment must be installed by trained and qualified service personnel in accordance with all local codes and requirements.

NOTICE: Flexi Zone Micro BTS equipment is intended for installation in a restricted access location or equivalent.

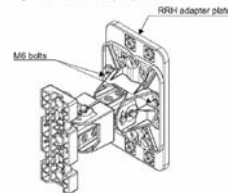
Figure 38 FMWG pole mount dimensions



Procedure

1 Remove the RRH adapter plate from the unit mount assembly.

Figure 39 RRH adapter plate bolts



NOKIA MBO SPEC SHEETS

2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821

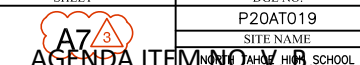
NORTH TAHOE HIGH SCHOOL (NOKIA MBO)
FA NO. 15241187
2945 POLARIS RD
TAHOE CITY, CA 96145

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CONSULTING ENGINEERS
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PLEASANTON, CA 94566
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4	5/11/21	ISSUED FOR ADD'L L. COMMENTS	JK	-

2 OMNI DIRECTIONAL ANTENNA SPEC SHEETS 1

SHEET TITLE	
ANTENNA EQUIPMENT SPECIFICATIONS	
SHEET	DGE NO.
	P20AT019
	SITE NAME
	AGENDA ITEM NO. 47



1. ALL WORK AND MATERIAL SHALL BE IN COMPLETE COMPLIANCE WITH THE LATEST EDITION OF THE N.E.C. AND ALL REGULATIONS, LAWS, SAFETY ORDERS, ORDINANCES OR CODES. IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL.

2. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS AND WIREWAYS SHALL BE IN ACCORDANCE WITH THE UNIFORM BUILDING CODE, CHAPTER 23 AND "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS," PUBLISHED BY SMACNA AND FPIC, OR THE SUPERSTRUT-SEISMIC RESTRAINTS SYSTEM, OR THE KIN-LINE SEISMIC RESTRAINT SYSTEM.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL, OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY WHERE (UL) DOES NOT HAVE LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING CODES AND REGULATIONS:

- AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
- AMERICAN STANDARD ASSOCIATION (ASA)
- NATIONAL FIRE PROTECTION AGENCY (NFPA)
- AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
- NATIONAL ELECTRICAL CODE (NEC)
- INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
- ALL LOCAL CODES HAVING JURISDICTION

4. THE CONTRACTOR SHALL VISIT THE SITE, INCLUDING ALL AREAS INDICATED ON THE DRAWINGS, AND SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AS WELL AS THE ELECTRICAL AND GROUNDING REQUIREMENTS OF THIS PROJECT. BY SUBMITTING A BID, HE ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.

5. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, ADDENDA, DRAWINGS AND SPECIFICATIONS AS WELL AS THE LATEST EDITION OF ANY DESIGN SPECIFICATIONS. HE SHALL CHECK THE DRAWINGS OF THE OTHER TRADES AND SHALL CAREFULLY READ THE ENTIRE SPECIFICATIONS AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM THE RESPONSIBILITY OF DOING THE WORK IN COMPLETE ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

6. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES AT THE SITE. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE DRAWINGS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER AND THE ARCHITECT/ENGINEER IN WRITING PRIOR TO SUBMITTING A BID. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL SUBJECT TO THE INTERPRETATION OF THE PROJECT MANAGER AT NO ADDITIONAL COST.

7. THE CONTRACTOR SHALL OBTAIN AND KEEP UP-TO-DATE A COMPLETE RECORD SET OF DRAWINGS. UPON COMPLETION OF THE WORK, A SET OF REPRODUCIBLE CONTRACT DRAWINGS SHALL BE OBTAINED FROM THE PROJECT MANAGER, AND ALL CHANGES AS NOTED ON THE RECORD SET OF DRAWINGS SHALL BE INCORPORATED THEREON BY THE CONTRACTOR WITH RED INK IN A NEAT, LEGIBLE, UNDERSTANDABLE AND PROFESSIONAL MANNER.

8. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER, WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE PROJECT MANAGER AND THE PROPERTY OWNER 14 DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE PROJECT MANAGER AND THE BUILDING OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.

9. SHOP DRAWINGS SHALL BE SUBMITTED FOR ITEMS INDICATED ON PLANS. SHOP DRAWINGS SHALL INCLUDE ALL DATA WITH CAPACITIES, SIZES, DIMENSIONS, CATALOG NUMBERS AND MANUFACTURER'S BROCHURES.

10. AFTER ALL REQUIREMENTS OF THE SPECIFICATIONS AND THE DRAWINGS HAVE BEEN FULLY COMPLETED, THE PROJECT MANAGER WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF THOSE REPRESENTATIVES. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE PROJECT MANAGER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

11. THE CONTRACTOR SHALL FURNISH ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF SUBSTANTIAL COMPLETION.

12. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECTION TO EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS. REVIEW THE DRAWINGS OF OTHER TRADES AND LOCATION OF EQUIPMENT.

13. EXACT METHOD AND LOCATION OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS OR STRUCTURAL STEEL MEMBERS, SHALL BE DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF EXISTING WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR, OR CEILING.

14. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES, SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED MATERIAL SECURELY INSTALLED.

15. CONNECTIONS TO VIBRATING EQUIPMENT AND SEISMIC SEPARATIONS:
LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN DRY INTERIOR LOCATIONS AND IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS.

PROVIDE A SEPARATE INSULATED GROUNDING CONDUCTOR IN FLEXIBLE CONDUIT RUNS. MAXIMUM LENGTH SHALL BE SIX FEET UNLESS OTHERWISE NOTED.

16. ROUTE EXPOSED AND CONCEALED CONDUIT PARALLEL AND PERPENDICULAR TO WALL AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAWCUTTING, TRENCHING, BACKFILLING, COMPACTING AND PATCHING OF CONCRETE AND ASPHALT AS REQUIRED TO PERFORM HIS WORK. ATTENTION IS CALLED TO THE FACT THAT THERE ARE EXISTING UNDERGROUND UTILITY LINES. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION AND COORDINATION WITH ALL PROPERTY OWNERS, UTILITIES, AND APPROPRIATE "DIG ALERT" UNDERGROUND MARKING AGENCIES AND COMPANIES. THE CONTRACTOR SHALL ALWAYS USE EXTREME CAUTION WHEN TRENCHING FOR HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGES CAUSED DURING THE COURSE OF HIS WORK.

18. WHENEVER A DISCREPANCY IN QUANTITY OR SIZE OF CONDUIT, WIRE, EQUIPMENT DEVICES, CIRCUIT BREAKERS, GROUND FAULT PROTECTION SYSTEMS, ETC. (ALL MATERIALS), ARISES ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE PROJECT MANAGER AND THE ARCHITECT/ENGINEER.

19. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT WEATHER PROOF PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR PER THE LATEST EDITION OF THE DESIGN SPECIFICATIONS, WHICHEVER IS MOST RESTRICTIVE. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

20. MAXIMUM NUMBER OF CONDUCTORS IN OUTLET SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

21. IDENTIFICATION NAME PLATES SHALL BE MICARTA 1/8 INCH THICK AND OF APPROVED SIZE WITH BEVELED EDGES AND ENGRAVED WHITE LETTERS A MINIMUM OF 1/4 INCH HIGH ON BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED ALL CIRCUITS IN THE SERVICE DISTRIBUTION AND POWER DISTRIBUTION SWITCH BOARDS OR PANEL BOARDS, DISCONNECTING SWITCHES, TRANSFORMERS, TERMINAL CABINETS, TELEPHONE CABINETS, ETC. ALL NAMEPLATES SHALL BE ATTACHED WITH SCREWS. PULL BOXES, JUNCTION BOXES, AND DEVICE BOXES SHALL BE MARKED WITH A PERMANENT MARKER.

22. THE EXACT LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE PLANS AND DETAILS, PRIOR TO INSTALLATION.

23. DRAWINGS ARE DIAGRAMMATIC ONLY. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, OR MECHANICAL ITEMS OR FEATURES.

24. RIGID GALVANIZED STEEL CONDUIT SHALL BE FULL WEIGHT THREADED TYPE. ELECTRICAL METALLIC TUBING (EMT) MAY BE USED IN WALLS OR CEILING SPACES WHERE NOT SUBJECT TO MECHANICAL DAMAGE. DIRECT BURIED PVC SCHEDULE 40 MAY BE INSTALLED BENEATH SLAB OR BELOW GRADE AND SHALL BE CONCRETE ENCASED UNLESS NOTED OTHERWISE. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED IN ALL CONDUIT RUNS. PROVIDE CONDUIT SUPPORTS NOT TO EXCEED 8'-0". PROVIDE 3-PC CONNECTORS FOR SECONDARY GROWTH PATH OF SURFACE MOUNTED EMT.

25. RIGID STEEL CONDUIT FITTINGS INCLUDING COUPLINGS, LOCKOUTS, NIPPLES, ETC. SHALL BE THREADED AND THOROUGHLY GALVANIZED EXCEPT WHERE AN ADAPTER IS NEEDED TO CONNECT TO PVC. ELECTRICAL METALLIC TUBING (EMT) CONDUIT FITTINGS SHALL BE STEEL, RAIN-TIGHT THREADLESS COMPRESSION TYPE. DIE CAST, SET SCREW, OR INDENTED TYPES ARE NOT ACCEPTABLE. SET SCREW TYPE IS NOT ACCEPTABLE.

26. ALL TELCO CONDUIT INSTALLATIONS AND OTHER EMPTY CONDUIT RUNS AND STUBS SHALL INCLUDE A YELLOW 3/8" POLYPROPYLENE PULL STRING.

27. ALL CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY AND UL LISTED UNLESS NOTED OTHERWISE. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED. UNLESS SPECIFICALLY NOTED TO THE CONTRARY. ALL WIRE CONNECTORS SHALL BE CRIMP COMPRESSION TYPE BY "THOMAS AND BETT" OR APPROVED EQUIVALENT, INSTALLED AND INSULATED PER THE MANUFACTURER'S RECOMMENDATIONS. ALL WIRE ENDS SHALL BE MARKED FOR EASY IDENTIFICATION AND TRACING.

28. JUNCTION AND PULL BOXES: FOR INTERIOR DRY LOCATIONS, BOXES SHALL BE GALVANIZED ONE-PIECE, DRAWN STEEL, KNOCKOUT TYPE WITH REMOVABLE MACHINE SCREW SECURED COVERS. FOR OUTSIDE, DAMP, OR SURFACE LOCATIONS, BOXES SHALL BE HEAVY CAST ALUMINUM OR CAST IRON WITH REMOVABLE, GASKETS, NON-FERROUS MACHINE SCREW SECURED COVERS. BOXES SHALL BE SIZED FOR THE NUMBER AND SIZES OF CONDUCTORS AND CONDUIT ENTERING THE BOX AND EQUIPPED WITH PLASTER EXTENSION RINGS WHERE REQUIRED. BOXES SHALL BE LABELED TO INDICATE PANEL AND CIRCUIT NUMBER, OR TYPE OF SIGNAL OR COMMUNICATIONS SYSTEM.

29. ALL OUTDOOR ELECTRICAL DEVICES OR EQUIPMENT SHALL BE OF WEATHERPROOF TYPE.

30. ALL EQUIPMENT, MONOPOLE, FRAME, CABLE TRAY AND ANTENNA GROUND WIRE CONNECTIONS TO GROUND BUSSES SHALL BE MADE WITH CRIMP TYPE COMPRESSION CONNECTIONS TO CONNECTORS (MINIMUM 2 HOLE LUGS WITH FULL BOLTING). BUSS SHALL BE PRE-DRILLED TO ACCOMMODATE ALL CONNECTORS.

31. ALL GROUNDING SHALL BE PER N.E.C. SECTION 250 AND 810 AND THE GROUNDING REQUIREMENTS OF THESE DRAWINGS.

32. ALL GROUND WIRE CONNECTIONS BETWEEN GROUND BUSSES AND OTHER GROUND BUSSES AND GROUND RODS SHALL BE CADWELDED.

33. ALL METALLIC GROUND WIRE CONDUIT SHALL BE GROUNDED TO THE GROUND WIRE USING SET SCREW CONNECTIONS AT CONDUIT END CAPS AND CRIMP CONNECTIONS AT WIRE.

34. COAT ALL BOLTED LUG & BUSS GROUND CONTACT SURFACES WITH KIPR-SHIELD, NO-OX, OR EQUAL PRIOR TO ATTACHMENT.

35. MAIN CIRCUIT BREAKER SHALL BE RATED FOR STANDARD A.I.C. RATING HIGHER THAN INCOMING A.I.C.

36. ALL EQUIPMENT SHALL BE U.L. LISTED.

37. ALL EQUIPMENT SHALL BE BRACED FOR STANDARD A.I.C. RATING HIGHER THAN INCOMING FROM UTILITY COMPANY.

38. ALL CORING CLEARANCES SHALL BE FIELD VERIFIED AND ALL CONDUIT ROUTING SHALL BE COORDINATED WITH PROPERTY OWNERS REPRESENTATIVE.

39. ALL CONNECTIONS TO EXISTING MAIN SWITCHGEAR INCLUDING "BUS-TAPS" AND/OR "HOT-TAPS" REQUIRE CERTIFICATION AND APPROVAL. FABRICATION AND CERTIFICATION SHALL BE FURNISHED BY A CONTRACTOR APPROVED BY THE APPLICABLE UTILITY.

40. CONTRACTOR SHALL COORDINATE WORK WITH UTILITY COMPANIES FOR FINAL AND EXACT WORK AND MATERIAL REQUIREMENTS, CONSTRUCT TO UTILITY COMPANIES ENGINEERING PLANS AND SPECIFICATIONS ONLY.

41. ALL BROCHURES, OPERATION MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE PROJECT MANAGER AT THE COMPLETION OF WORK.

42. SWITCHES AND RECEPTACLES AS SPECIFIED ON FLOOR PLANS.

1. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE POINT OF CONNECTION, CONDUIT ROUTE, INSTALLATION DETAILS AND SPECIFIC PROJECT PARAMETERS WITH THE LOCAL TELEPHONE COMPANY SINGLE POINT OF CONTACT (SPOC) PRIOR TO BEGINNING ANY WORK IN THE FIELD.

2. THE PROJECT ADDRESS AND ANY SPECIFIC UNIT NUMBER MUST BE PROVIDED TO THE LOCAL TELEPHONE COMPANY SPOC MINIMUM 1 WEEK PRIOR TO FINAL INSPECTION TO AVOID DELAY IN INSTALLATION OF SERVICE.

3. THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT AND FACILITIES AS SHOWN AND DETAILED ON THE PLANS AS REQUIRED FOR T1 SERVICE AND A SINGLE POTS LINE TO THE BTS FACILITY.

4. THE TELEPHONE TERMINAL BACKBOARD SHALL BE 30"x8"-0"x5/8" THICK FIRE RATED PLYWOOD SANDED AND PAINTED WITH FIRE RATED PAINT. MOUNT BACKBOARD BOTTOM AT 6" A.F.F. PROVIDE MINIMUM 12" CLEARANCE FROM POWER ON THE SAME WALL AND 42" MINIMUM CLEARANCE FROM ADJOINING OR OPPOSITE WALLS. VERIFY WIDTH.

5. CONDUIT SPECIFICATIONS SHALL BE AS FOLLOWS:
a. GENERAL: ALL TELEPHONE SERVICE CONDUIT SHALL RUN FROM POLE, VAULT, PULL-BOX, MANHOLE OR OTHER POINT OF CONNECTION ESTABLISHED BY THE LOCAL TELEPHONE COMPANY SPOC AND SHALL RUN CONTINUOUS TO AN EDGE OF THE TELEPHONE TERMINAL BACKBOARD.

b. UNDERGROUND CONDUIT AND BENS SHALL BE MINIMUM 4" DIAMETER SCHEDULE 40 PVC. TRENCH DEPTH SHALL PROVIDE FOR MINIMUM 24" COVER OVER CONDUIT. CONDUIT RUN SHALL BE NO MORE THAN 200 FEET IN LENGTH OR HAVE NO MORE THAN (2) 90° BENDS (OR EQUIVALENT) BETWEEN PULL BOXES.

c. ABOVE GROUND CONDUIT AND CONDUIT INSIDE BUILDINGS SHALL BE EMT WITH FITTINGS AS NOTED IN ELECTRICAL NOTES. PROVIDE A UL APPROVED 18" HIGH x 10" DEEP WEATHER RESISTANT NEMA 3R RATED PULL BOX ON ALL ABOVE GRADE CONDUIT RUNS AT INTERVALS NOT TO EXCEED 100 FEET OR (2) 90° BENDS (OR EQUIVALENT).

d. OVERHEAD EXTERIOR FEEDS SHALL BE 4" DIAMETER RIGID GALVANIZED CONDUIT WITH A WEATHERHEAD OF A TYPE AND AT A HEIGHT APPROVED BY LOCAL TELEPHONE COMPANY SPOC (MINIMUM 20 FEET ABOVE FINISHED GRADE).

6. A 1-1/4" DIAMETER ORANGE INTER-DUCT SHALL BE PROVIDED IN ALL TELEPHONE SERVICE CONDUIT.

7. A MINIMUM 3/8" YELLOW POLYPROPYLENE PULL ROPE SHALL BE INCLUDED IN EVERY INTER-DUCT WITH A SEPARATE 3/8" YELLOW POLYPROPYLENE PULL ROPE INSIDE THE CONDUIT, NOT INSIDE THE INTER-DUCT.

8. THE ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABILITY OR SHALL PROVIDE A NEW 120V POWER SOURCE MINIMUM 12" FROM TELEPHONE TERMINAL BACKBOARD.

9. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A #6 SOLID INSULATED COPPER GROUND WIRE FROM A GROUND SOURCE APPROVED BY THE LOCAL TELEPHONE COMPANY SPOC MINIMUM STANDARD SOURCE SHALL BE A 5/8" DIAMETER x 8'-0" LONG COPPER CLAD STEEL GROUND ROD.

10. ALL WIRING SHALL BE DONE BY THE LOCAL TELEPHONE COMPANY UNLESS OTHERWISE NOTED.

11. ALL TELEPHONE CONDUIT SHALL BE LABELED AT DESIGNATED TELEPHONE COMPANY.

TELEPHONE SPECIFICATIONS 1


1. UTILITY POINTS OF SERVICE AND WORK / MATERIALS SHOWN ARE BASED UPON PRELIMINARY INFORMATION PROVIDED BY THE UTILITY COMPANIES AND ARE FOR BID PURPOSES ONLY.

2. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK / MATERIALS REQUIREMENTS AND CONSTRUCT TO UTILITY COMPANY ENGINEERING PLANS AND SPECIFICATIONS ONLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, PULL ROPES, CABLES, PULL BOXES, CONCRETE ENCASUREMENT OF CONDUIT (IF REQUIRED), TRANSFORMER PAD, BARRIERS, POLE RISERS, TRENCHING, BACKFILL, PAY ALL UTILITY COMPANY FEES AND INCLUDE ALL REQUIREMENTS IN SCOPE OF WORK.

3. UTILITY CONTACTS FOR THIS PROJECT SHALL BE AS FOLLOWS:

POWER:	TELEPHONE:
TBD	TBD
.	.
.	.
CONTACT NAME	CONTACT NAME
CONTACT NUMBER	CONTACT NUMBER

ELECTRICAL SPECIFICATIONS 3 UTILITIES NOTES 2



2700 WATT AVENUE, 3473-34
SACRAMENTO, CA 95821

**NORTH TAHOE HIGH SCHOOL
(NOKIA MBO)
FA NO. 15241187**

2945 POLARIS RD
TAHOE CITY, CA 96145

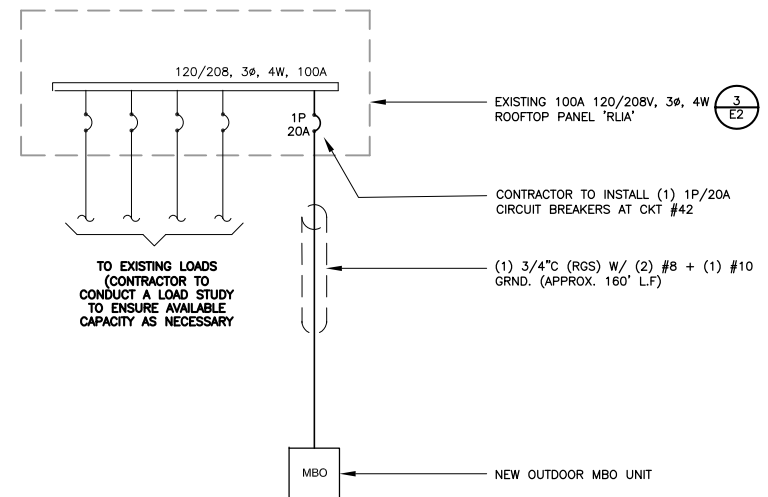


**DELTA GROUPS
ENGINEERING, INC.
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REV.	DATE	DESCRIPTION	BY	CHK
1	12/22/20	ISSUED FOR REVIEW	JK	-
2	1/25/21	ISSUED FOR REVIEW SUBMITTAL	JK	-
3	4/14/21	ISSUED FOR LL COMMENTS	JK	-
4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
ELECTRICAL & TELEPHONE SPECIFICATIONS & UTILITIES NOTES	
SHEET	DGE NO.
	P20AT019
	SITE NAME
E1	TAHOE CITY HIGH SCHOOL



NOTES:

- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY PANEL MANUFACTURER.
- ALL SERVICE EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE N.E.C. AND UTILITY COMPANY AND LOCAL CODE REQUIREMENTS.
- SUBCONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY.
- POWER CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG AND LARGER), 600V, OIL RESISTANT THN OR THN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 DEGREE CELSIUS (WET & DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED.

ONE-LINE DIAGRAM (FED FROM ROOFTOP PANEL)

1

A.I.C.	(E) PANEL RLIA													MAIN		
	120/208V, 3-PHASE, 4-WIRE													BUS	100A	
SURFACE MOUNT	WATTAGE			LTS	REC	MSC	CB			CRC	CRC	WATTAGE			DESCRIPTION	
	A	B	C				P/A	P/A	P/A			A	B	C		
RECEPTACLE					1		1P / 20A	1	2	1P / 20A		1			RECEPTACLES	
RECEPTACLE					1		1P / 20A	3	4	1P / 20A		1			RECEPTACLES	
WATER HEATER						1	1P / 20A	5	6	1P / 20A	1				SPARE	
RECEPTACLE					1		1P / 20A	7	8	1P / 20A	1				EMS-R2	
CH/1 CONTROLS						1	1P / 25A	9	10	1P / 20A	1				ANTI-ICE CONTROL	
CH/2 CONTROLS						1	1P / 25A	11	12	1P / 20A	1				MECH CNTRL PANE	
CP/6 2/5HP						1	1P / 20A	13	14	1P / 20A	1				FIRE/SMOKE DAMPER	
B-1 FAN CONTROL						1	1P / 20A	15	16	1P / 20A	1				CP-9	
B-2 FAN CONTROL						1	1P / 20A	17	18	1P / 20A	1				CP-10	
B-3 FAN CONTROL						1	1P / 20A	19	20	1P / 20A		1			AHU LTS	
B-4 FAN CONTROL						1	1P / 20A	21	22	1P / 20A		1			AHU RECEPTS	
B-5 FAN CONTROL						1	1P / 20A	23	24	1P / 20A		1			AHU RECEPTS	
B-6 FAN CONTROL						1	1P / 20A	25	26	1P / 20A		1			AHU LTS	
B-7 FAN CONTROL						1	1P / 20A	27	28	1P / 20A		1			AHU RECEPTS	
FC-5						1	1P / 30A	29	30	1P / 20A		1			AHU RECEPTS	
EF-16 DAMPER VAV						1	1P / 15A	31	32	1P / 20A	1				UNKNOWN	
UNKNOWN						1	2P / 50A	33	34	1P / 20A	1				UNKNOWN	
UNKNOWN						1	2P / 50A	35	36	2P / 30A	1				IT ROOM AK	
UNKNOWN						1	2P / 50A	37	38	1P / 20A	1				RM 140 EXHAUST	
SPACE								39	40	1P / 20A	1				(N) AT&T MBO	
SPACE								41	42	2P / 20A	1					
PHASE SUB-TOTALS	0	0	0										0	0	360	PHASE SUB-TOTALS
PHASE TOTALS (WATTS)	A	0												0.00	A	PHASE TOTALS (AMPS)
	B	0												0.00	B	
	C	360												1.00	C	
PANEL TOTAL (WATTS)	360													1.00	ADDITIONAL PANEL TOTAL (AMPS)	

1. ALL CIRCUIT BREAKERS AND/OR FUSES SHALL BE FULLY RATED TO WITHSTAND THE MAXIMUM AVAILABLE FAULT CURRENT INDICATED.

UNUSED

PANEL SCHEDULE (EXISTING KITCHEN AUX PANEL)

2

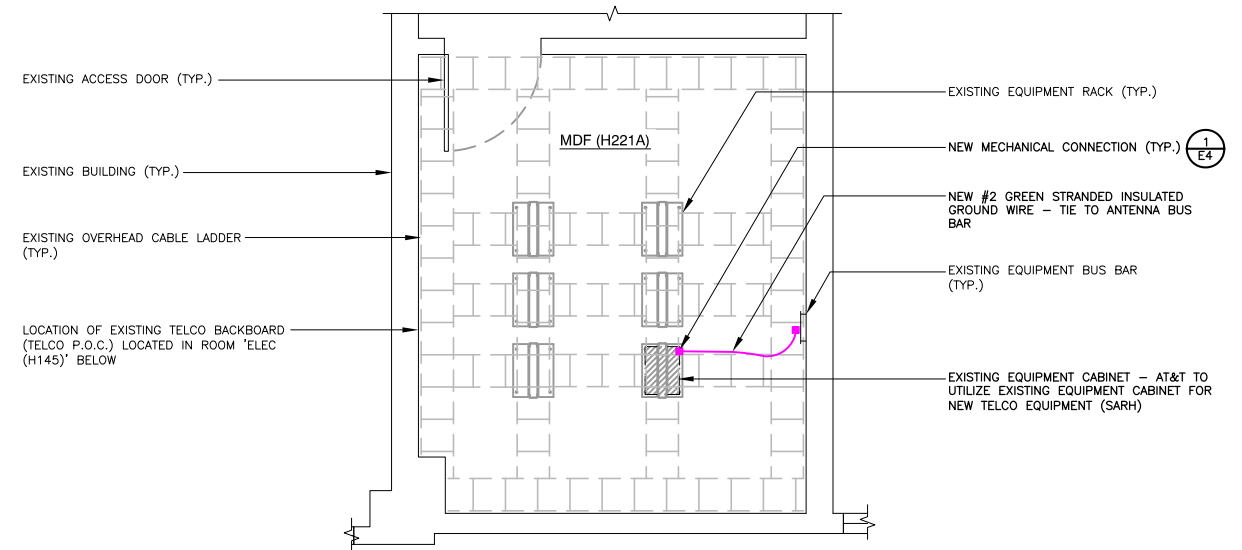


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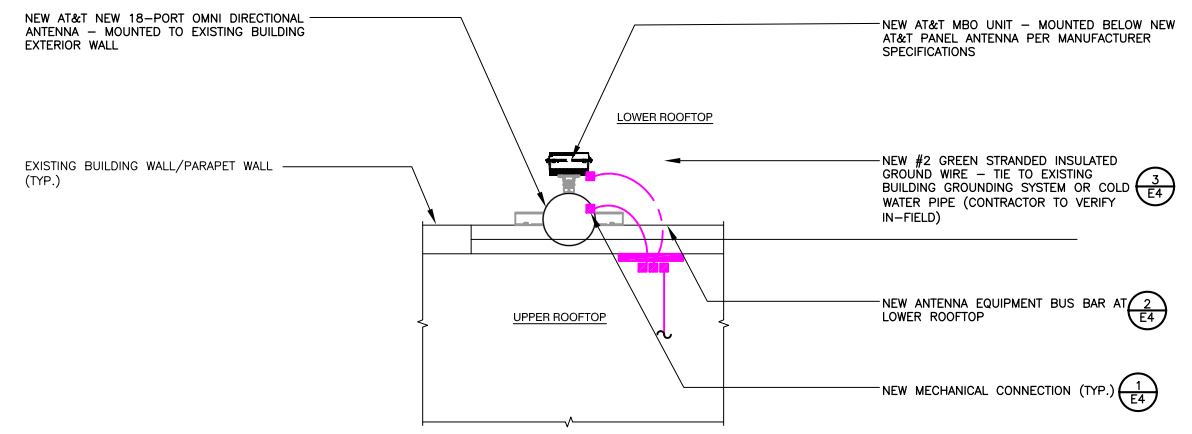
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4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

SHEET TITLE	
ONE-LINE DIAGRAM, & PANEL SCHEDULE	
SHEET	DGE NO.
E2	P20AT019
AGENDA ITEM	SITE NAME
NORTH TAHOE HIGH SCHOOL	



1. PROVIDE A COMPLETE GROUNDING SYSTEM PER NATIONAL ELECTRICAL CODE ARTICLE 250 AND EQUIPMENT MANUFACTURER'S REQUIREMENTS. USE THESE DRAWINGS AS MINIMUM GUIDELINE TO IMPLEMENT CARRIER AND EQUIPMENT CABINET MANUFACTURER SPECIFICATIONS.
2. ALL DETAILS ARE SHOWN IN GENERAL TERMS, ACTUAL GROUNDING INSTALLATION AND MOUNTING MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
3. ALL GROUNDING CONDUCTORS SHALL BE COPPER.
4. ALL GROUNDING WIRE BELOW GRADE SHALL BE BARE #2 TINNED SOLID COPPER WIRE BURIED @ 18" MINIMUM. ALL CONDUIT BELOW GRADE SHALL BE PVC SCHEDULE 80.
5. ALL GROUND WIRE ABOVE GRADE IS STRANDED COPPER (UNO). SIZE AS SHOWN ON PLANS.
6. USE MINIMUM #2/0 AWG COPPER CONDUCTORS FOR COMMUNICATION SERVICE GROUNDING CONDUCTORS.
7. ALL GROUND CONNECTIONS SHALL BE LISTED FOR THE PURPOSED INTENDED.
8. ALL LUGS SHALL BE 2-HOLE LONG-BARREL SOLID COPPER BURNDY THOMAS & BETTS OR EQUAL.
9. MINIMUM BEND RADIUS FOR GROUNDING CONDUCTORS #2 AND LARGER SHALL BE 12", 8" MINIMUM RADIUS FOR SMALL CONDUCTORS.
10. ALL CONNECTIONS AT BELOW GRADE APPLICATIONS SHALL BE CADWELD.
11. ALL IRREVERSIBLE COMPRESSION TYPE CONNECTORS SHALL BE INSTALLED USING A 12 TON HYDRAULIC PRESS MINIMUM.
12. INSTALL GROUNDING AND BONDING CONDUCTORS WITH SUFFICIENT SLACK TO AVOID BREAKING DUE TO SETTLEMENT AND MOVEMENTS OF CONDUCTORS AT ATTACHED POINTS.
13. COAT ALL BOLTED LUG & BUS GROUND CONTACT SURFACES WITH KOPR-SHEILD, NO-OX, OR PRIOR TO ATTACHMENT.
14. GROUNDING RODS SHALL BE 5/8" DIAMETER x10'-0" LONG COPPER CLAD STEEL.
15. WHERE MULTIPLE GROUND RODS ARE INSTALLED, THEY SHALL NOT BE LESS THAN 10 FEET NOR MORE THAN 16 FEET APART UNLESS APPROVED BY THE CARRIER REPRESENTATIVE, OR CONSTRUCTION MANAGER.
16. DRIVEN GROUND RODS SHALL BE USED EXCEPT WHERE SPECIFIC SITE CONDITIONS PRESENT DIFFICULTY, IN WHICH CASE A ELECTROLYTIC (CHEMICAL) ROD SYSTEMS MAY BE USED, SUCH AS MANUFACTURED BY LYNCOLE KIT GROUNDING SYSTEM OR EQUAL.
17. CONTRACTOR SHALL TEST GROUND RESISTANCE AT "MGB" TO VERIFY THAT RESISTANCE SHALL NOT EXCEED 5 OHMS AND SHALL SUBMIT AN INDEPENDENT TESTING REPORT TO AT&T REPRESENTATIVE, OR CONSTRUCTION MANAGER INDICATING RESISTANCE VALUE OBTAINED. CONTRACTOR SHALL PROVIDE GROUNDING SYSTEM AS PART OF ITS BID, AS REQUIRED TO ATTAIN A 5 OHM VALUE OR LESS.
18. TESTING: PERFORM FULL FALL OF POTENTIAL TEST PER IEEE STANDARD NO. 81: SECTION 9.04 ON THE MAIN GROUNDING REQUIREMENTS.
19. FINAL GROUND TEST SHALL BE MADE IN PRESENCE OF THE CARRIER REPRESENTATIVE, OR CONSTRUCTION MANAGER.

EQUIPMENT GROUNDING PLAN SCALE: 3/8 inch = 1 ft 3' 0' 3' 6' **2**



ANTENNA LYOUT SCALE: 3/8 inch = 1 ft 3' 0' 3' 6' **3**

GENERAL GROUNDING NOTES **1**

UNUSED

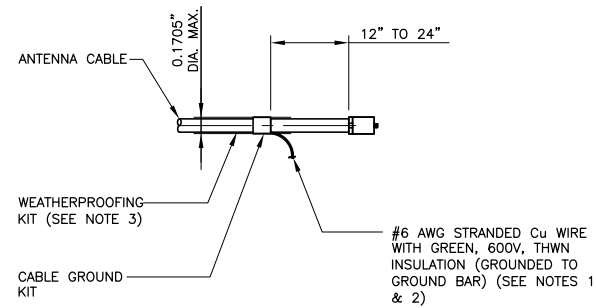


**NORTH TAHOE HIGH SCHOOL
(NOKIA MBO)**
FA NO. 15241187
2945 POLARIS RD
TAHOE CITY, CA 96145



REV.	DATE	DESCRIPTION	BY	CHK
1	12/22/20	ISSUED FOR REVIEW	JK	-
2	1/25/21	ISSUED FOR REVIEW SUBMITTAL	JK	-
3	4/14/21	ISSUED FOR LL COMMENTS	JK	-
4	5/11/21	ISSUED FOR ADD'L LL COMMENTS	JK	-

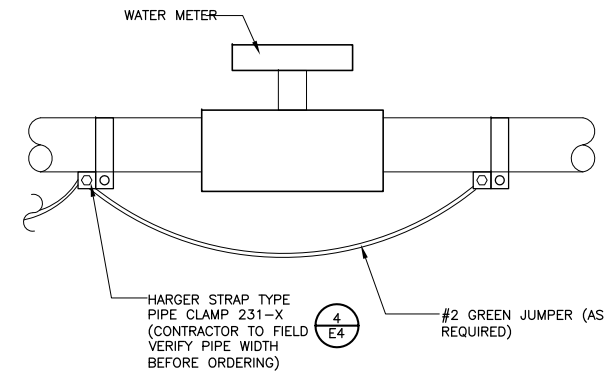
SHEET TITLE	
GENERAL GROUNDING NOTES, AND EQUIPMENT & ANTENNA GROUNDING PLANS	
SHEET	DGE NO.
E3	P20AT019
AGENDA ITEM NO. 4	SITE NAME
	NORTH TAHOE HIGH SCHOOL



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

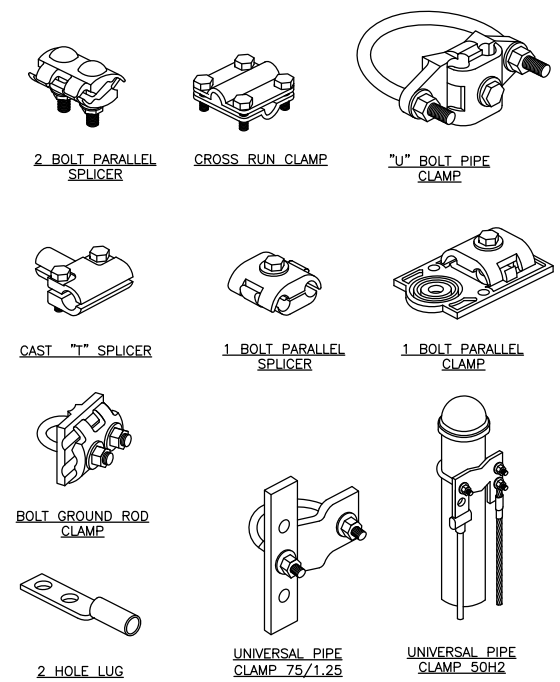
GROUNDING KIT

6



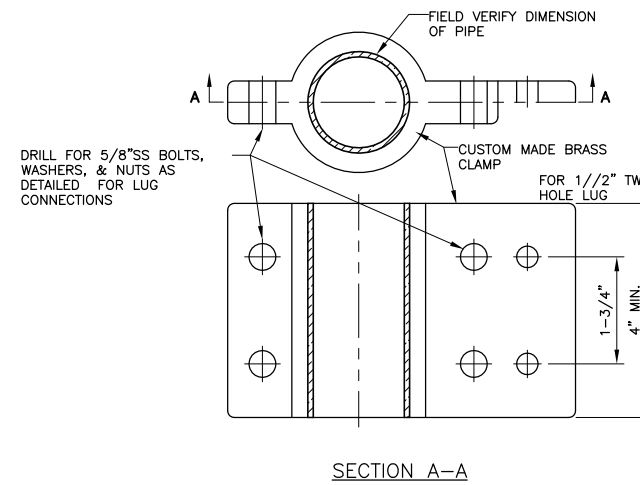
GROUND LEAD TO WATER PIPE

3



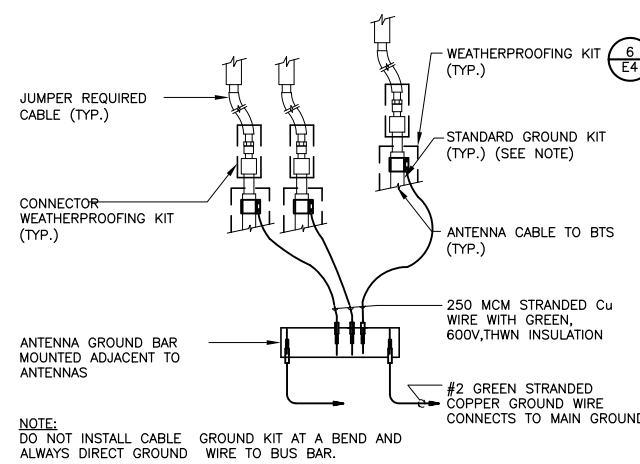
MECHANICAL CONNECTIONS

1



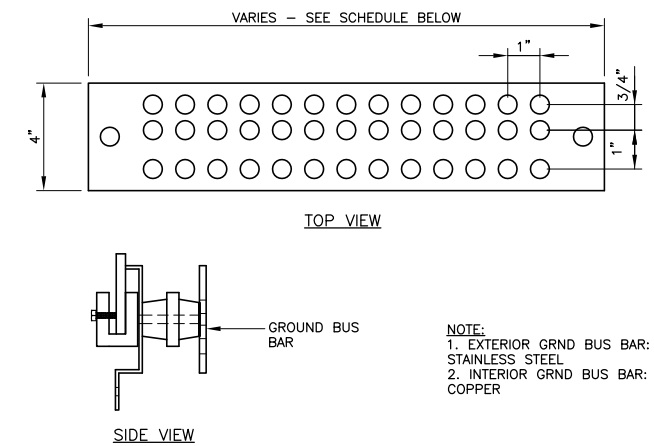
COLD WATER CLAMP

4



ANTENNA GROUNDING

5



ANTENNA/EQUIPMENT BUS BAR

2

UNUSED

UNUSED



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SHEET TITLE	
GROUNDING DETAILS	
SHEET	DGE NO.
E4	P20AT019
AGENDA ITEM NO. 11	SITE NAME
	NORTH TAHOE HIGH SCHOOL



Existing



Proposed



view from lot adjacent to Polaris Road looking southwest at site

Existing



Proposed



Proposed AT&T Installation Not Visible

view from Polaris Road looking northeast at site

Existing



Proposed



view from road adjacent to Polaris Road looking southeast at site


Existing



Proposed



view from Polaris Road looking northwest at site



AT&T Wireless

North Tahoe High School
 2945 Polaris Road, Tahoe City, CA
 Photosims **AGENDA ITEM NO. V. B.**