APPROVED PLANS
PLANS RECEIVED 4-27-21
20PLN-00118

verizon

PALO ALTO SMALL CELL

CITY CLUSTER4/VERIZON CLUSTER6

PROJECT TEAM

APPLICANT:
VERIZON WIRELESS
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WALNUT CREEK,CA 94598
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EMAIL: jstroup@vinculums.com

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A&E PROJECT MANAGER:
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dba ALL STATES ENGINEERING & SURVEYING
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ARBORIST CONTACT:
PROJECT ARBORIST
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EMAIL:Katherine@andersonstreecare.com

CODE COMPLIANCE

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 CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

2019 TITLE 24, CALIFORNIA CODE OF REGULATIONS:
2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA MECHANICAL CODE
2019 GREEN BUILDING CODE
2019 CALIFORNIA ENERGY CODE

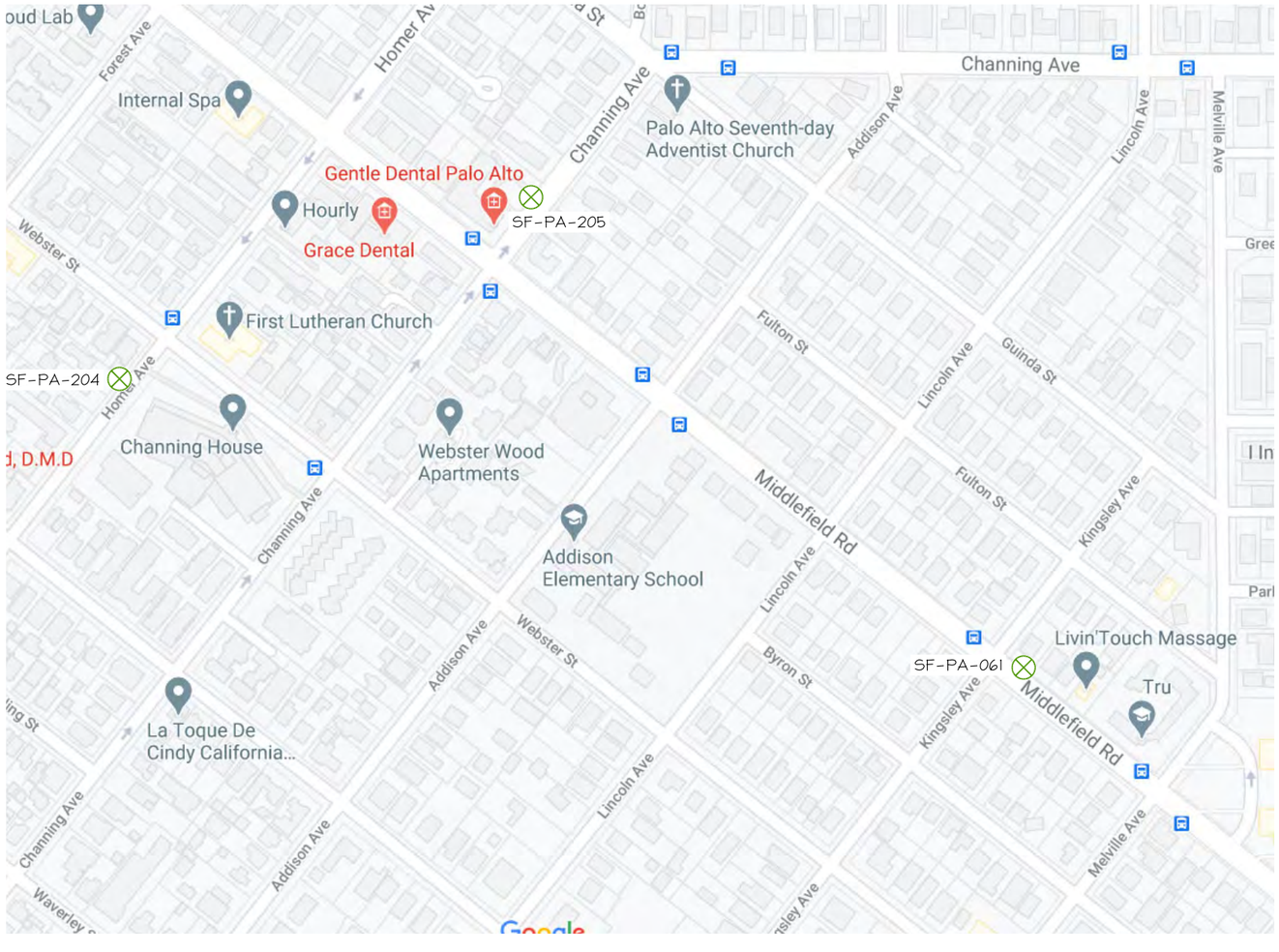
*AS AMENDED BY CITY OF PALO ALTO *(10/24/16)* AND MADE EFFECTIVE JANUARY 1ST, 2017 AS PER CITY OF PALO ALTO MUNICIPAL CODE ORDINANCE NUMBERS 5389, 5390, 5391, 5932, 5393, 5394, 5395, 5396, AND 5397.

GENERAL ORDER 95 (MAY 2018 EDITION)

SIGNATURE BLOCK

TITLE	SIGNATURE	DATE
CONSTRUCTION MANAGER		
RF ENGINEER		
REAL ESTATE		
SITE AQUISITION		
PROPERTY OWNER		
POLE OWNER		

VICINITY MAP



DRAWING INDEX

SHEET NO:	SHEET TITLE
CT-1	CLUSTER TITLE SHEET

NODE:	ADJACENT ADDRESS	TYPE
061	1221 MIDDLEFIELD ROAD	METAL STREET LIGHT
204	850 WEBSTER STREET	METAL STREET LIGHT
205	853 MIDDLEFIELD ROAD	METAL STREET LIGHT

ALL STATES ENGINEERING & SURVEYING
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PHONE: (949) 273-0996

Vinculums
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WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

REGISTERED PROFESSIONAL ENGINEER
WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

CLUSTER TITLE SHEET

CT-1

verizon

SITE ID:	SF PALO ALTO 061
PROJECT NAME:	VZW PALO ALTO SMALL CELL
POLE#:	121
LOCATION CODE:	425208
ADJACENT APN:	003-43-047
SITE ADDRESS:	1221 MIDDLEFIELD RD. PALO ALTO, 94301
COUNTY:	SANTA CLARA
SITE TYPE:	STREET LIGHT POLE
ROADWAY TYPE:	RESIDENTIAL ARTERIAL
HISTORIC STATUS OR DISTRICT:	N/A

PROJECT DESCRIPTION

VERIZON WIRELESS PROPOSES TO INSTALL A NEW WIRELESS COMMUNICATION SITE ON A NEW/REPLACEMENT STREET LIGHT POLE. THE SCOPE WILL CONSIST OF THE FOLLOWING:

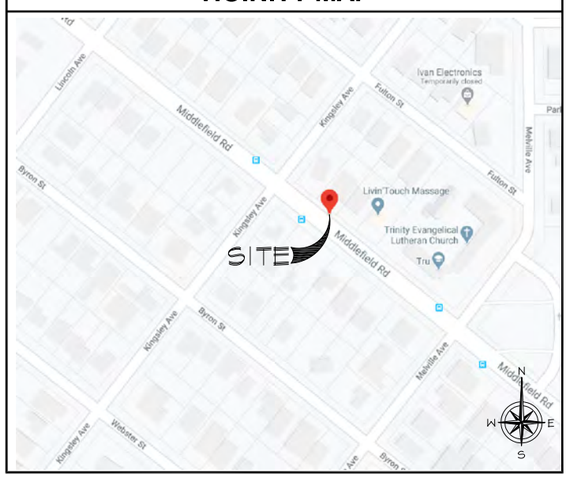
- ☐ REMOVE (1) EXISTING STREET LIGHT/POLE #121 IN MIDDLEFIELD RD. PUBLIC R.O.W.
- ☐ INSTALL (1) NEW 'DOWNTOWN' ROADWAY LIGHTING POLE W/ LED LAMP IN
- ☐ PLACE OF REMOVED LIGHT POLE #121, PER LIGHTING STYLE PLACEMENT GUIDE
- ☐ RE-CONNECT CPA STREET LIGHT POWER TO NEW/REPLACEMENT STREET LIGHT
- ☐ INSTALL NEW POLE FOUNDATION

- ☐ INSTALL (3) NEW ERICSSON SM-6701 RADIO/ANTENNAS ATOP NEW POLE
- ☐ INSTALL (1) NEW NEMA 6P AC DISCONNECT WITHIN NEW U.G. POWER HANDHOLE
- ☐ INSTALL (1) NEW 5/8"ø x10'L. GROUND ROD WITHIN U.G. POWER HANDHOLE
- ☐ INSTALL NEW AC POWER CABLES FROM POC, TO DISCONNECT, TO RADIOS
- ☐ INSTALL NEW GROUND CABLES FROM DISCONNECT/RADIOS/POLE TO GROUND ROD
- ☐ INSTALL NEW FIBER CABLES FROM DEMARC TO RADIOS
- ☐ INSTALL NEW RF NOTICE AND EMERGENCY SHUT-DOWN SIGNAGE AS REQUIRED
- ☐ INSTALL NEW U.G. PATH FROM POWER POC TO NEW U.G. POWER HANDHOLE

ADMINISTRATIVE REQUIREMENTS

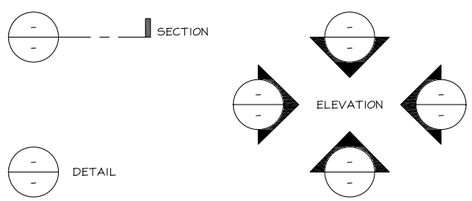
SUBCONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

VICINITY MAP



SYMBOLS/ABBREVIATIONS LEGEND

ADD'L	ADDITIONAL	L.	LONG(ITUDINAL)
A.F.G.	ABOVE FINISHED GRADE	MAX.	MAXIMUM
ANT.	ANTENNA	MFR.	MANUFACTURER
ASS'Y.	ASSEMBLY	MIN.	MINIMUM
ANG.	AMERICAN WIRE GAUGE	(N)	NEW
BLDG.	BUILDING	NTS	NOT TO SCALE
BTCW.	BARE TINNED COPPER WIRE	O.C.	ON CENTER
CLR.	CLEAR	P.T.	PRESSURE TREATED
CONC.	CONCRETE	RAD.(R)	RADIUS
CONN.	CONNECTION(OR)	REQ'D	REQUIRED
CONST.	CONSTRUCTION	RGS.	RIGID GALVANIZED STEEL
CONT.	CONTINUOUS	SCH.	SCHEDULE
DBL.	DOUBLE	SIM.	SIMILAR
D.F.	DOUGLAS FIR	SQ.	SQUARE
DIA.	DIAMETER	S.S.	STAINLESS STEEL
DIM.	DIMENSION	STD.	STANDARD
EA.	EACH	TEMP.	TEMPORARY
ELEV	ELEVATION	THK.	THICK(NESS)
EMT.	ELECTRICAL METALLIC TUBING	TYP.	TYPICAL
(E)	EXISTING	U.G.	UNDER GROUND
F.G.	FINISH GRADE	U.L.	UNDERWRITERS LABORATORY
FT.(')	FOOT (FEET)	U.N.O.	UNLESS NOTED OTHERWISE
GA.	GAUGE	V.I.F.	VERIFY IN FIELD
HT.	HEIGHT	W	WIDE (WIDTH)
IN.(")	INCH(ES)	w/	WITH
LB.(#)	POUND(S)	WD.	WOOD
L.F.	LINEAR FEET (FOOT)	W.P.	WEATHERPROOF



	CONCRETE (SURFACE)	X	CHAIN LINK FENCE
	CONCRETE (CUT)		WOOD FENCE
	EARTH		WROUGHT IRON FENCE
	GRAVEL	OH	OVERHEAD WIRES
	PLYWOOD	E	POWER CONDUIT
	STEEL		GROUND CONDUCTOR
	EXISTING GRASS		PROPERTY LINE
±0"	ELEVATION DATUM		CENTERLINE

PROJECT TEAM

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121 N 27TH STREET,
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CONTACT: KATHERINE NAEGELE
PHONE: (408) 590-5976
EMAIL:Katherine@andersonstreecare.com

SITE INFORMATION

LATITUDE:
N 37° 26' 42.28"(37.44508)

LONGITUDE:
W 122° 8' 51.78"(-122.147719)

ELEVATION:
+24' AMSL

ZONING:
R-1

JURISDICTION:
CITY OF PALO ALTO

ASSESSORS PARCEL NUMBER:
ADJACENT TO 003-43-047

PROPERTY LEGAL DESCRIPTION:
N/A PUBLIC RIGHT OF WAY

ADA COMPLIANCE:
YES

DIG ALERT

811 USA North
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
811 / 800-227-2600

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & (E) DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE.

DRAWING INDEX

SHEET NO:	SHEET TITLE
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T-4	EME REPORT
LS-1	SITE SURVEY
A-1	SITE PLAN
A-1.1	EXISTING UTILITY SITE PLAN
A-1.2	UTILITY PLAN (FOR REFERENCE)
A-1.3	LOCATION MAP
A-1.4	BORING/UNDERGROUND UTILITY PLAN
A-1.5	CITY STANDARDS & DETAILS
A-1.6	CITY STANDARDS & DETAILS
A-1.7	R.O.W SECTION
A-2	ENLARGED SITE PLAN
A-3	ELEVATIONS W/ SHROUD
A-3.1	ELEVATIONS W/ SHROUD
D-1	DETAILS W/ SHROUD
D-1.1	DETAILS WITHOUT SHROUD
D-2	FOUNDATION DETAIL
D-3	LUMINAIRE DETAILS
E-1	ELECTRICAL/GROUNDING DIAGRAMS, NOTES, & PANEL SCHEDULE
E-2	ELECTRICAL PLAN
TCP-1	TRAFFIC CONTROL PLAN (BY OTHERS)
C-1	CALCS
C-2	CALCS
C-3	CALCS
C-4	CALCS
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
TPR-1	TREE PROTECTION REPORT
L-1	PALO ALTO TREE PROTECTION
L-2	PALO ALTO POLLUTION PREVENTION CHECKLIST
L-3	PALO ALTO EROSION CONTROL AND CONDUIT LOCATION DETAILS & NOTES
L-4	PALO ALTO TRENCHING & SIDEWALK STANDARD DRAWINGS

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*AS AMENDED BY CITY OF PALO ALTO AND MADE EFFECTIVE JANUARY 1ST, 2020 AS PER CURRENT CITY OF PALO ALTO MUNICIPAL CODE ORDINANCES GENERAL ORDER 95 (v.2018)

verizon
2785 MITCHELL DRIVE, SUITE 9
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OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

verizon

SF Palo Alto 061

Adjacent to 1221 Middlefield Road
Palo Alto, CA

3/15/21

Looking Northeast from Middlefield Road

View #1

Applied Imagination 510 914-0500

verizon

SF Palo Alto 061

Adjacent to 1221 Middlefield Road
Palo Alto, CA

3/15/21

Looking East from Middlefield Road

View #2

Applied Imagination 510 914-0500

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

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ALL STATES
ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY

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REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE

PHOTOSIMS

SHEET NUMBER

T-2

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate its small cell (No. 425208 "SF Palo Alto 061") proposed to be sited in Palo Alto, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

Verizon proposes to install three small antennas on the municipal light pole sited in the public right-of-way near 1221 Middlefield Road in Palo Alto. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. A summary of the FCC's exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive limit for exposures of unlimited duration at several wireless service bands are as follows:

Wireless Service Band	Transmit Frequency	"Uncontrolled" Public Limit	Occupational Limit (5 times Public)
Microwave (point-to-point)	1–80 GHz	1.0 mW/cm^2	5.0 mW/cm^2
Millimeter-wave	24–47	1.0	5.0
Part 15 (WiFi & other unlicensed)	2–6	1.0	5.0
CBRS (Citizens Broadband Radio)	3,550 MHz	1.0	5.0
BRS (Broadband Radio)	2,490	1.0	5.0
WCS (Wireless Communication)	2,305	1.0	5.0
AWS (Advanced Wireless)	2,110	1.0	5.0
PCS (Personal Communication)	1,930	1.0	5.0
Cellular	869	0.58	2.9
SMR (Specialized Mobile Radio)	854	0.57	2.85
700 MHz	716	0.48	2.4
600 MHz	617	0.41	2.05
[most restrictive frequency range]	30–300	0.20	1.0

General Facility Requirements

Small cells typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The radios are typically mounted on the support pole or placed in a cabinet at ground level, and they are

connected to the antennas by coaxial cables. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna's radiation pattern is not fully formed at locations very close by (the "near-field" effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). This methodology is an industry standard for evaluating RF exposure conditions and has been demonstrated through numerous field tests to be a conservative prediction of exposure levels.

Site and Facility Description

Based upon information provided by Verizon, including drawings by All States Engineering & Surveying, dated August 31, 2020, it is proposed to install three Ericsson Model 6701, 2-foot tall, directional panel antennas with integrated radios on top of a new light pole to replace the existing pole sited in the public right-of-way in front of the residence at 1221 Middlefield Road in Palo Alto. The antennas would employ no downtilt, would be mounted at an effective height of about 26½ feet above ground, and would be oriented toward 0°T, 120°T, and 240°T. The maximum effective radiated power proposed in any direction is 193 watts in the 28 GHz band. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.0059 mW/cm^2, which is 0.59% of the applicable public exposure limit. The maximum calculated level at the second-story elevation of any nearby building[*] is 1.9% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

[*] Including the nearest residence, located at 1221 Middlefield Road, at least 30 feet away based on the drawings.

Recommended Mitigation Measures

Due to their mounting locations and height, the antennas would not be accessible to unauthorized persons, and so no measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all workers who have access within 8 feet outward from the antennas. No access within 2 feet directly in front of the antennas should be allowed while the antennas are in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that explanatory signs[†] be posted at the antennas and/or on the pole below the antennas, readily visible from any angle of approach.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the small cell proposed by Verizon Wireless near 1221 Middlefield Road in Palo Alto, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating small cells. Training authorized personnel and posting explanatory signs are recommended to establish compliance with occupational exposure limits.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-21306, which expires on September 30, 2021. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

REGISTERED PROFESSIONAL ENGINEER
NEIL J. OLIJ
No. E-21306
Exp. 9-30-2021
ELECTRICAL
STATE OF CALIFORNIA

Neil J. Olij, P.E.
707/996-5200

September 29, 2020

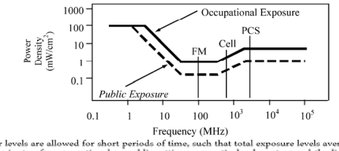
[†] Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidelines from the landlord, local zoning or health authority, or appropriate professionals may be required.

FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (f is frequency of emission in MHz) Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm^2)	
0.3 – 1.34	614	*614*	1.63	*1.63*	100	*100*
1.34 – 3.0	614	*823.8/ f*	1.63	*2.19/ f*	100	*180/ f^2*
3.0 – 30	1842/ f	*823.8/ f*	4.89/ f	*2.19/ f*	900/ f^2	*180/ f^2*
30 – 300	61.4	*27.5*	0.163	*0.0729*	1.0	*0.2*
300 – 1,500	3.54$\sqrt{f}$	*1.59$\sqrt{f}$*	$\sqrt{f}$/106	$\sqrt{f}$/238	f/300	*f/1500*
1,500 – 100,000	137	*61.4*	0.364	*0.163*	5.0	*1.0*



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has incorporated those formulas in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.
Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$, in mW/cm^2,

and for an aperture antenna, maximum power density $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$, in mW/cm^2,

where θ_{BW} = half-power beamwidth of antenna, in degrees,
P_{net} = net power input to antenna, in watts,
D = distance from antenna, in meters,
h = aperture height of antenna, in meters, and
η = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

Far Field.
OET-65 gives this formula for calculating power density in the far field of an individual RF source:

power density $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$, in mW/cm^2,

where ERP = total ERP (all polarizations), in kilowatts,
RFF = three-dimensional relative field factor toward point of calculation, and
D = distance from antenna effective height to point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula is used in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program also allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
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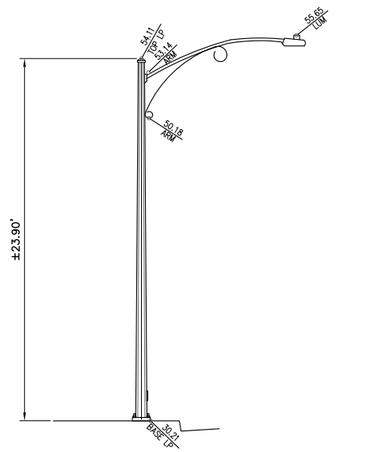
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
EME REPORT

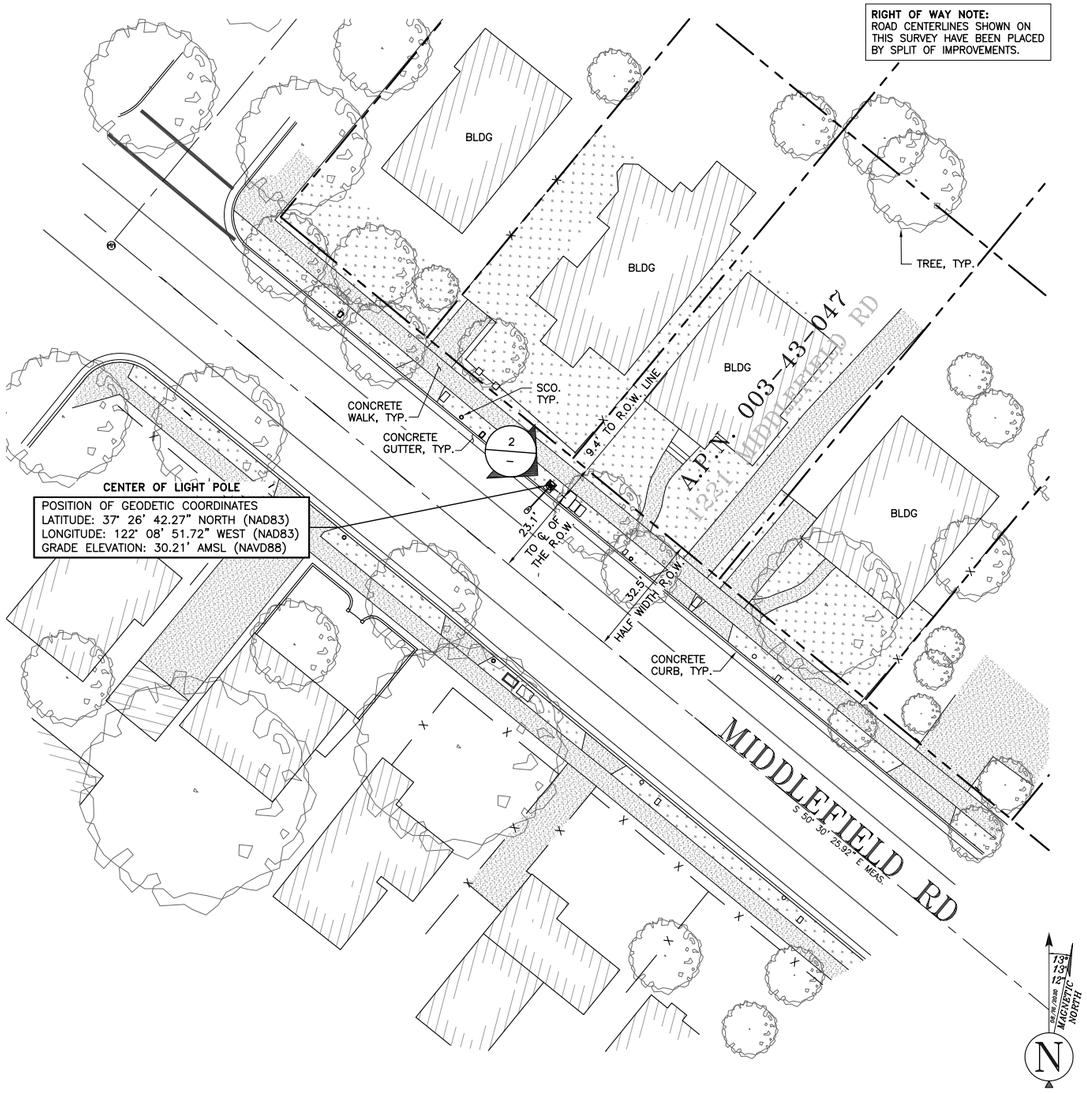
SHEET NUMBER
T-3



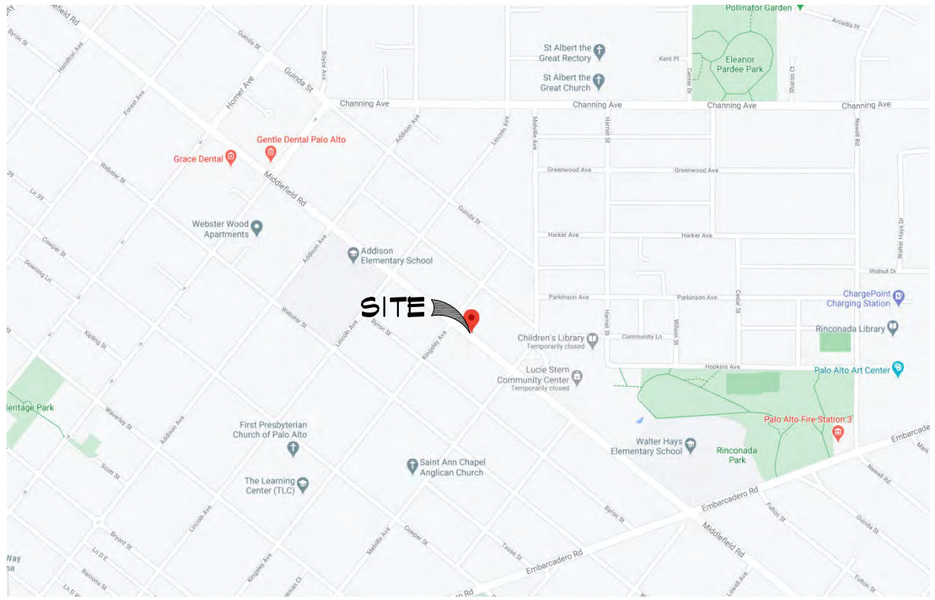
2 POLE ELEVATION
1 inch = 5ft.
0 2.5' 5' 10'

LEGEND

	U.G. UTILITY VAULT	BLDG	TOP OF BUILDING
MH	MANHOLE	MON	MONUMENT
	UTILITY POLE	FL	FLOW LINE
XX.XX	SPOT ELEVATION	EOP	EDGE OF PAVEMENT
W	WATER VALVE	R.O.W.	RIGHT OF WAY
	FOUND MONUMENT	R/W	RIGHT OF WAY
	GEODETIC MARKER	SCO	SEWER CLEAN-OUT
— x —	CHAIN LINK FENCE	PS	PARKING STRIPE
	WOOD FENCE	SW	SIDEWALK
— O/H —	OVERHEAD LINE	VLT	U.G. UTILITY VAULT
	METAL FENCE	OHE	OVERHEAD ELECTRICAL
	GRADE BREAK	SVC	SERVICE
	RIGHT OF WAY LINE	AC	ASPHALTIC CONCRETE
	CENTER LINE	AP	ASPHALT PAVING
	EASEMENT LINE	CONC	CONCRETE
		PED	PEDESTAL
	MASONRY WALL	OH	OVERHEAD
W	WATER VALVE	PUE	PUBLIC UTILITY EASEMENT
UP	UTILITY POLE	FC	FACE OF CURB
LP	LIGHT POLE	BOL	BOLLARD
LUM	LUMINAIRE	TOP _	TOP OF ITEM
NG	NATURAL GRADE	BOT _	BOTTOM OF ITEM



1 POLE LOCATION
1 inch = 20ft.
0 10' 20' 40'



VICINITY MAP

TITLE REPORT
NOT APPLICABLE (RIGHT-OF-WAY)

LEGAL DESCRIPTION
NOT APPLICABLE (RIGHT-OF-WAY)

ASSESSOR'S PARCEL NO.
NOT APPLICABLE (RIGHT-OF-WAY)

UTILITY NOTE:
SURVEYOR DOES NOT GUARANTEE THAT ALL UTILITIES ARE SHOWN OR THEIR LOCATIONS ARE DEFINITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND DEVELOPER TO CONTACT BLUE STAKE AND ANY OTHER INVOLVED AGENCIES TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. REMOVAL, RELOCATION AND/ OR REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:
1. THIS IS NOT A BOUNDARY SURVEY. THIS IS A SPECIALIZED RIGHT OF WAY MAP. THE PROPERTY LINES AND EASEMENTS SHOWN HEREON ARE FROM RECORD INFORMATION AS NOTED HEREON. ALL STATES ENGINEERING & SURVEYING/ZALZALI & ASSOCIATES, INC. TRANSLATED THE TOPOGRAPHIC SURVEY TO RECORD INFORMATION USING MONUMENT(S)/LANDMARK(S) SHOWN HEREON. NO TITLE RESEARCH WAS PERFORMED BY ALL STATES ENGINEERING & SURVEYING/ZALZALI & ASSOCIATES, INC.

2. ANY CHANGES MADE TO THE INFORMATION ON THIS PLAN, WITHOUT THE WRITTEN CONSENT OF ALL STATES ENGINEERING & SURVEYING / ZALZALI & ASSOCIATES, INC. RELIEVES ALL STATES ENGINEERING & SURVEYING/ ZALZALI & ASSOCIATES, INC. OF ANY AND ALL LIABILITY.

3. THESE DRAWINGS & SPECIFICATIONS ARE THE PROPERTY & COPYRIGHT OF ALL STATES ENGINEERING & SURVEYING / ZALZALI & ASSOCIATES, INC. & SHALL NOT BE USED ON ANY OTHER WORK EXCEPT BY AGREEMENT WITH THE SURVEYOR. WRITTEN DIMENSIONS SHALL TAKE PREFERENCE OVER SCALED & SHALL BE VERIFIED ON THE JOB SITE. ANY DISCREPANCY SHALL BE BROUGHT TO THE NOTICE OF THE SURVEYOR PRIOR TO COMMENCEMENT OF ANY WORK.

4. THIS SITE IS PROPOSED TO BE DEVELOPED ON A STREET LIGHT POLE LOCATED WITHIN THE PUBLIC RIGHT OF WAY.

SURVEY DATE
08/16/2020

BASIS OF BEARING
BEARINGS SHOWN HEREON ARE BASED UPON U.S. STATE PLANE NAD83 COORDINATE SYSTEM CALIFORNIA STATE PLANE COORDINATE ZONE THREE, DETERMINED BY GPS OBSERVATIONS.

BENCHMARK
RTCM-REF 3270
NORTHING: 1970498.865
EASTING: 6082238.002
+248.11' (A.M.S.L.)

REFERENCE MAPS
- 868 – RS – 41

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT NO:	SF PALO ALTO 061
DRAWN BY:	MG
CHECKED BY:	BC/WZ/DW

REV	DATE	DESCRIPTION	
0	08/27/2020	FINAL SURVEY	MA
A	08/27/2020	PRELIMINARY SURVEY	MG

PROFESSIONAL LAND SURVEYOR
BRUCE T. CRAMTOM
No. 9039
STATE OF CALIFORNIA

SF PALO ALTO 061
R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD
PALO ALTO, CA 94301
NEW BUILD-SMALL CELL

SHEET TITLE
SITE SURVEY

SHEET NUMBER
C-1

TREE NOTES:

1. THERE WILL BE NO TREE PRUNING WITHOUT THE SPECIFIC APPROVAL OF THE PALO ALTO URBAN FORESTRY DEPARTMENT ON ALL REGULATED TREES. ANY VIOLATION TO THIS POLICY WILL BE SUBJECT TO PENALTY. CONTACT THE PALO ALTO URBAN FORESTRY DEPARTMENT AT (650) 496-5953.
2. THIS CONSTRUCTION PROJECT TRIGGERS MANDATORY TREE PROTECTION MEASURES. SEE TREE PROTECTION PLAN & CONTACT THE PALO ALTO URBAN FORESTRY DEPARTMENT. AT (650) 496-5953 WITH ANY QUESTIONS.
3. EXCAVATION ACTIVITIES ASSOCIATED WITH THE PROPOSED SCOPE OF WORK SHALL OCCUR NO CLOSER THAN 10-FEET FROM THE EXISTING STREET TREE, OR AS APPROVED BY THE URBAN FORESTRY DIVISION CONTACT 650-496-5953. ANY CHANGES SHALL BE APPROVED BY THE SAME.
4. PROJECT ARBORIST:
   KATHERINE NAEGELE
   KATHERINE@ANDERSONTREECARE.COM
   PHONE: (408) 590-5976
5. NO FEASIBLE GREEN SCREEN OPPORTUNITIES EXIST

NOTES:

1. METAL SURFACES REQUIRING PAINT TO BE PAINTED WITH A MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. ANY CONSTRUCTION WITHIN THE CITY'S PUBLIC ROAD RIGHT-OF-WAY SHALL HAVE AN APPROVED PERMIT FOR CONSTRUCTION IN THE PUBLIC STREET PRIOR TO COMMENCEMENT OF THIS WORK

TREE TABLE

PALO ALTO TREE #	CITY TREE ID:	SPECIES:	COMMON NAME:	GROW SPACE:	TRUNK DIA. AT BREAST HT.:	DRIP LINE:	DISTANCE TO CONST.	PROTECTION MEASURES REQUIRED
PALO ALTO TREE #1	-	TILIA CORDATA	LITTLELEAF LINDEN	-	3.9"	3' 3"	-	TO BE REPLACED
PALO ALTO TREE #2	-	TILIA CORDATA	LITTLELEAF LINDEN	-	15.9"	13' 3"	-	TYPE 2

NEW TREE TABLE

TREE	CITY TREE ID:	SPECIES:	COMMON NAME:	COMMENTS:
PROPOSED TREE #1	TBD	SWAMP MYRTLE	TRISTANOPSIS LAURINA	REPLACEMENT FOR STREET TREE #1

NOTE:

ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD, PRIOR TO STARTING CONSTRUCTION.

KINGSLEY AVE.

APN: 003-43-048
1211 MIDDLEFIELD RD

APN: 003-43-049
700 KINGSLEY AVE

APN: 003-43-047
1221 MIDDLEFIELD RD

APN: 120-07-013
1204 MIDDLEFIELD RD

APN: 003-43-046
1231 MIDDLEFIELD RD

APN: 120-07-014
1212 MIDDLEFIELD RD

APN: 120-07-015
COMMUNITY CENTER
PALO ALTO

APN: 120-07-016
1226 MIDDLEFIELD RD

MIDDLEFIELD RD.

EXISTING RESIDENCE

PROPERTY LINE

EXISTING 25' WIDE RZOE AREA AT FRONT-CENTER OF 50' WIDE LOT

PROPOSED 24" BOXED TREE #1, REPLACEMENT FOR STREET TREE #1

PROPOSED VERIZON SM-6701 RADIO/ANTENNAS AND GPS WITHIN SHROUD, MOUNTED ATOP NEW 'DOWNTOWN' STYLE STREET LIGHT POLE

EXISTING CPA ±20'-0" 'DOWNTOWN' LIGHT POLE #12, TO BE REMOVED AND REPLACED CONTRACTOR TO GROUND DOWN EXISTING FOUNDATION 12" BELOW GRADE & FILL W/ DIRT

EXISTING STREET TREE #1, TO BE REMOVED AND REPLACED

LINE OF CONSTRUCTION AREA

1 / A-2 ENLARGED SITE PLAN

±6'-6" TO R.O.W. LINE

±34'-3" CLEARANCE TO NEAREST STRUCTURE

PROPOSED FIBER VAULT, PERMIT BY OTHERS

OLD POLE POWER CIRCUIT

EXISTING ELECTRICAL PULL BOX, PROPOSED VERIZON POWER P.O.C., APPROX. 15' TO BASE OF POLE

EXISTING STREET TREE #2 TO REMAIN, TYPE II TREE PROTECTION REQUIRED, TRENCHING TO BE PERFORMED BY HAND

±10.5' TREE PROTECTION ZONE

6' HIGH GALVANIZED CHAIN-LINK FENCE OR APROVED EQUAL

2" GALVANIZED POSTS @ ±10' TYP.

±23'-6" SETBACK TO C.L. OF R.O.W.

EXISTING PLANTER WITH GRASS

EXISTING CONCRETE PAVED AREA (GUTTER,CURB), TYP.

EXISTING R.O.W. EASEMENT

30'-0" HALF-WIDTH

60'-0" R.O.W.

PER SANTA CLARA COUNTY ASSESSOR MAP - BOOK 120 PG 05

N S E W

SITE PLAN

24"x36" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
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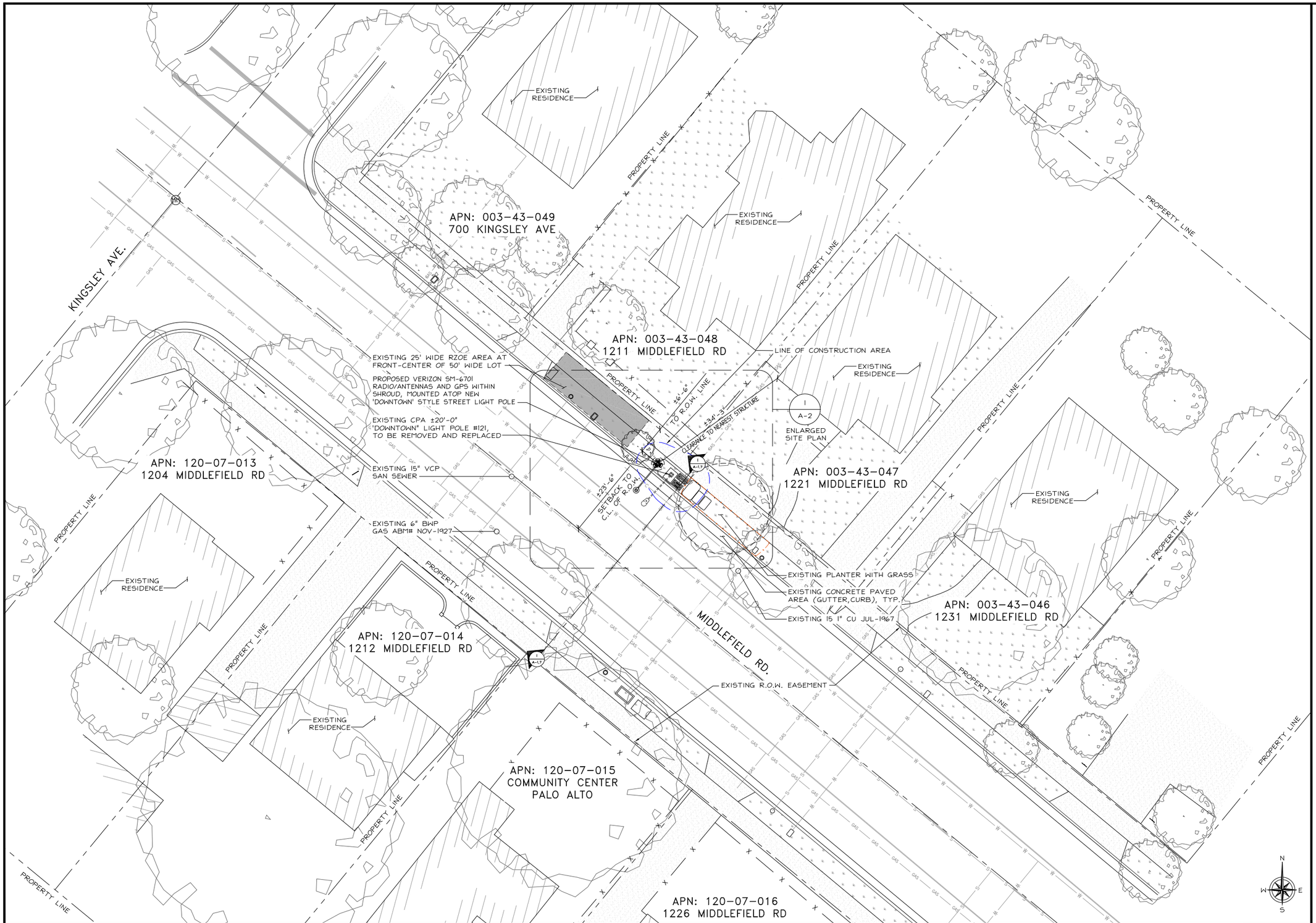
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
SITE PLAN

SHEET NUMBER
A-1



EXISTING UTILITY SITE PLAN

24"x36" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

1

verizon

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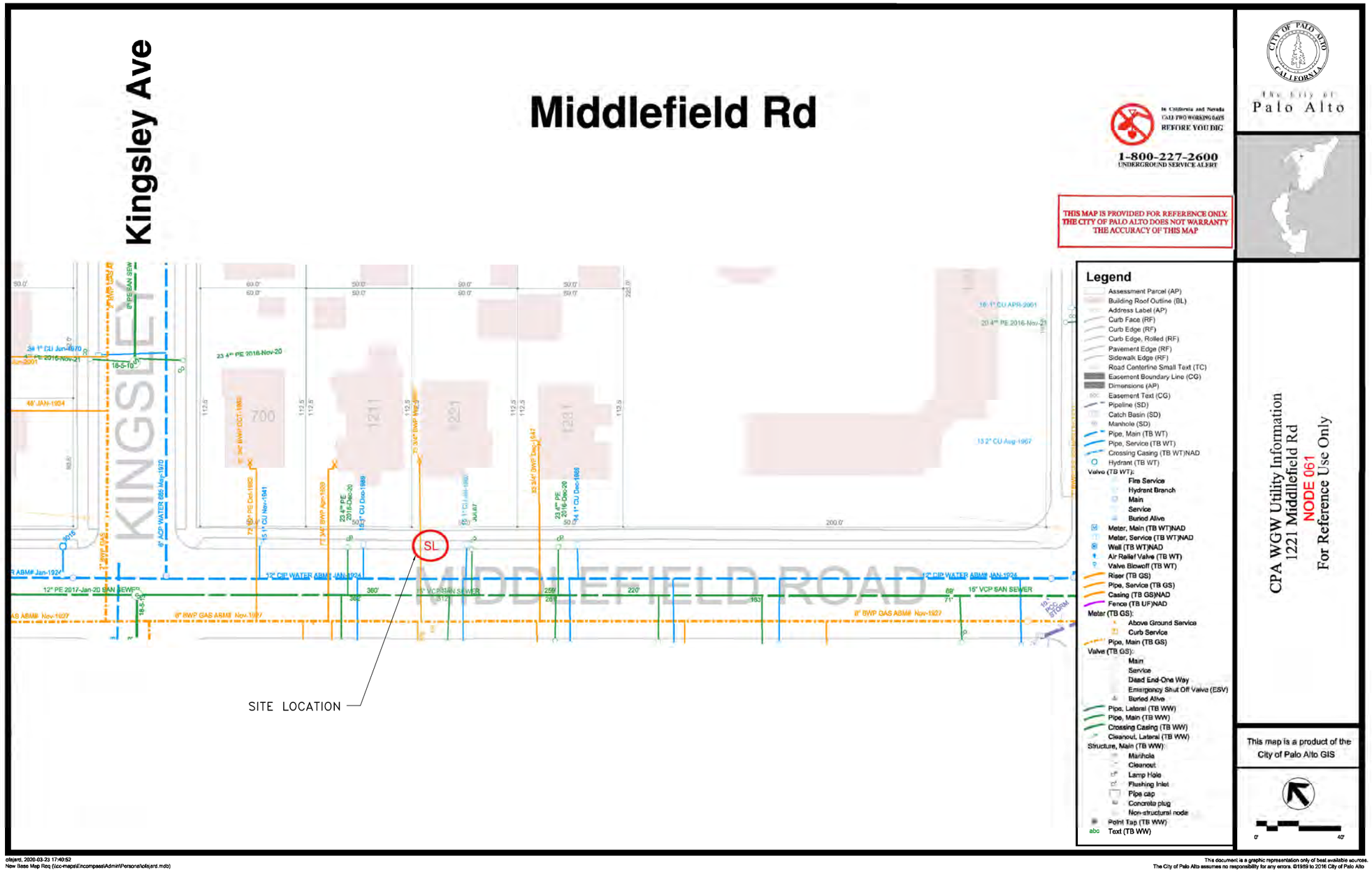
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
EXISTING UTILITY SITE PLAN

SHEET NUMBER
A-1.1



olajard, 2020-03-23 17:40:52
New Base Map Req (\\cc-maps\Encompass\Admin\Personal\olajard.mdb)

verizon
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WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
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REGISTERED PROFESSIONAL ENGINEER
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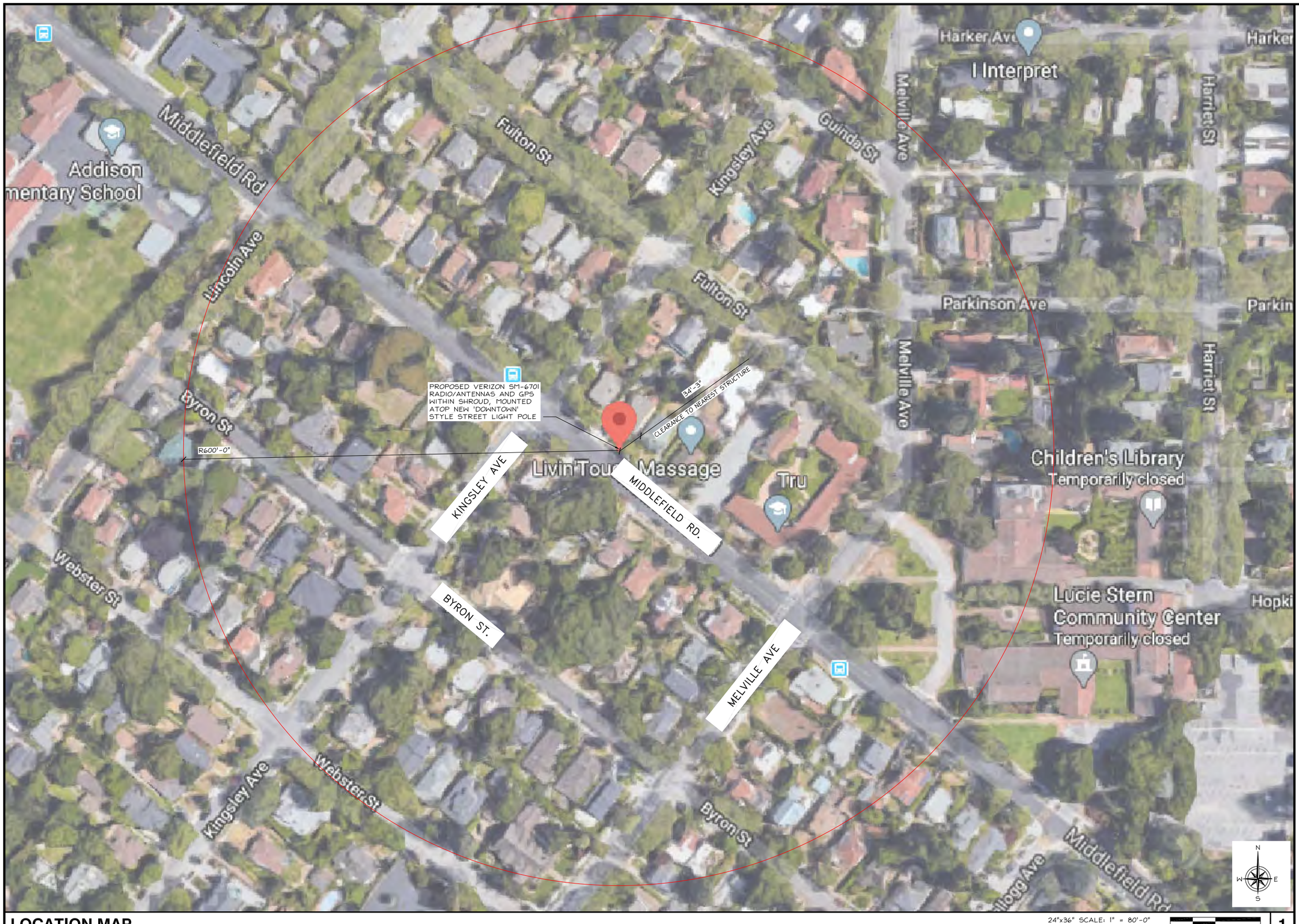
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
UTILITY PLAN
(FOR REFERENCE)

SHEET NUMBER
A-1.2



LOCATION MAP

24"x36" SCALE: 1" = 80'-0"
11"x17" SCALE: 1" = 160'-0"
80' 40' 0" 80'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
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ALL STATES
ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
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REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
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CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
LOCATION MAP

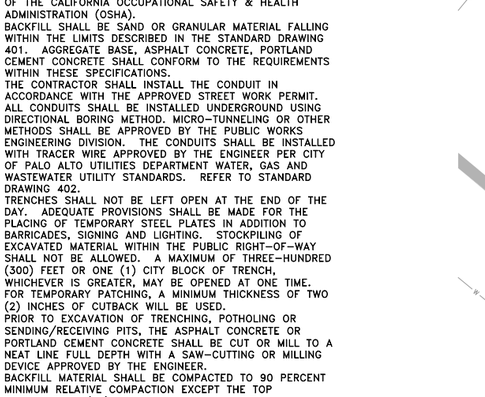
SHEET NUMBER
A-1.3

1. ALL WORK SHALL COMPLY WITH THE CITY OF PALO ALTO 2018 STANDARD DRAWINGS AND SPECIFICATIONS BORING, TRENCHING, POTHOLING AND DEWATERING, SECTION 17
2. THE LOCATION OF EXISTING UTILITY MAINS AND LATERAL LINES INCLUDING STORM DRAIN, SANITARY SEWER, WATER, GAS, UNDERGROUND ELECTRICAL AND COMMUNICATION CONDUITS CROSSING THE TRENCH EXCAVATION SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICES ALERT (USA) AT 811 OR 800-642-2444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING UNDERGROUND WORK SO THAT EXISTING UTILITIES CAN BE MARKED IN THE FIELD, UNLESS OTHERWISE STATED BY CITY CONTRACT.
3. EXCAVATION SHALL BE SUPPORTED AND EXCAVATION OPERATIONS CONDUCTED IN ACCORDANCE WITH THE RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA). IF IN THE OPINION OF THE ENGINEER, THERE EXISTS A SITUATION OF IMMINENT DANGER TO THE WORKERS, THE ENGINEER MAY ORDER THE WORK STOPPED AND THE CONTRACTOR SHALL COMPLY WITH RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA).
4. BACKFILL SHALL BE SAND OR GRANULAR MATERIAL FALLING WITHIN THE LIMITS DESCRIBED IN THE STANDARD DRAWING 401. AGGREGATE BASE, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS WITHIN THESE SPECIFICATIONS.
5. THE CONTRACTOR SHALL INSTALL THE CONDUIT IN ACCORDANCE WITH THE APPROVED STREET WORK PERMIT. ALL CONDUITS SHALL BE INSTALLED UNDERGROUND USING DIRECTIONAL BORING METHOD. MICRO-TUNNELING OR OTHER METHODS SHALL BE APPROVED BY THE PUBLIC WORKS ENGINEERING DIVISION. THE CONDUITS SHALL BE INSTALLED WITH TRACER WIRE APPROVED BY THE ENGINEER PER CITY OF PALO ALTO UTILITIES DEPARTMENT WATER, GAS AND WASTEWATER UTILITY STANDARDS. REFER TO STANDARD DRAWING 402.
6. TRENCHES SHALL NOT BE LEFT OPEN AT THE END OF THE DAY. ADEQUATE PROVISIONS SHALL BE MADE FOR THE PLACING OF TEMPORARY STEEL PLATES IN ADDITION TO BARRICADES, SIGNING AND LIGHTING. STOCKPILING OF EXCAVATED MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED. A MAXIMUM OF THREE-HUNDRED (300) FEET OR ONE (1) CITY BLOCK OF TRENCH, WHICHEVER IS GREATER, MAY BE OPENED AT ONE TIME. FOR TEMPORARY PATCHING, A MINIMUM THICKNESS OF TWO (2) INCHES OF CUTBACK WILL BE USED.
7. PRIOR TO EXCAVATION OF TRENCHING, POTHOLING OR SENDING/RECEIVING PITS, THE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE SHALL BE CUT OR MILL TO A NEAT LINE FULL DEPTH WITH A SAW-CUTTING OR MILLING DEVICE APPROVED BY THE ENGINEER.
8. BACKFILL MATERIAL SHALL BE COMPACTED TO 90 PERCENT MINIMUM RELATIVE COMPACTION EXCEPT THE TOP TWENTY-FOUR (24) INCHES, WHICH SHALL BE MECHANICALLY COMPACTED TO 95 PERCENT MINIMUM RELATIVE COMPACTION. MECHANICALLY COMPACTED LIFTS USING ALTERNATIVE EQUIPMENT, COMPLYING WITH MANUFACTURE'S SPECIFICATION, WILL REQUIRE THE APPROVAL OF THE ENGINEER. USE OF ALTERNATIVE COMPACTION EQUIPMENT SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY DAMAGE TO THE CONDUIT, SURROUNDING GROUND, OR EXISTING AND NEW IMPROVEMENTS.

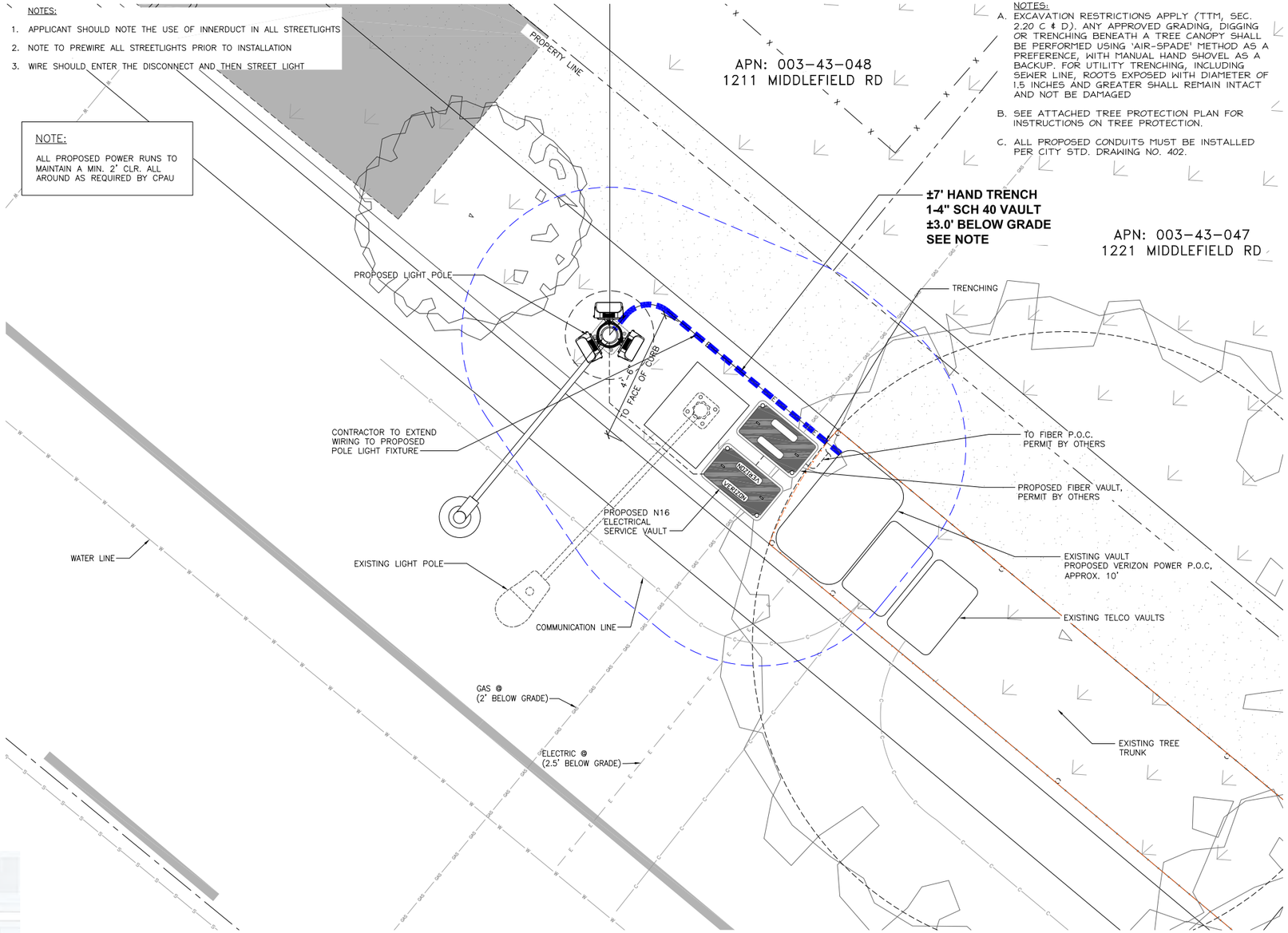
(2) NOTES

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.



VICINITY MAP



(1) LIGHT POLE
1 inch = 2ft.

PROJECT SPECIFIC PERMIT INFORMATION		
DESCRIPTION	QTY	UNIT
PLACE (1) 4" SCH 40 CONDUIT	10	LF
PLACE (1) 2" SCH 40 CONDUIT	4	LF
REMOVE AND RESTORE SOIL	160	FT³

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California and Nevada
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LEGEND

U.G. UTILITY VAULT	BOL	BOLLARD	FL	FLOW LINE	WATER
MANHOLE	TOP _	TOP OF ITEM	EOP	EDGE OF PAVEMENT	SANITARY SEWER
UTILITY POLE	BOT _	BOTTOM OF ITEM	R.O.W.	RIGHT OF WAY	STORM DRAIN
SPOT ELEVATION	BLDG	TOP OF BUILDING	AP	ASPHALT	GAS
WATER VALVE	LP	LIGHT POLE	SW	SIDEWALK	COMMUNICATION
FOUND MONUMENT	LIMITS OF PROPERTY		O/H	OVERHEAD LINE	ELECTRIC
GEODETIC MARKER	CHAIN LINK FENCE			METAL FENCE	UNKNOWN UTILITY
MASONRY WALL	WOOD FENCE			GRADE BREAK	IRRIGATION

verizon
2785 MITCHELL DRIVE, SUITE 9
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Vinculums
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

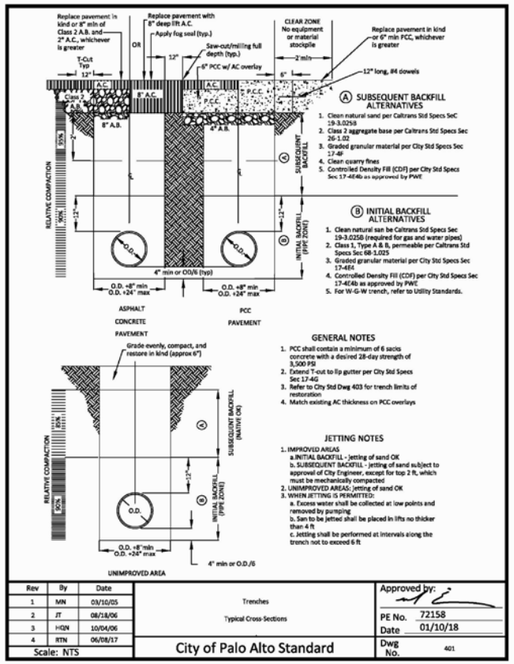
REV	DATE	DESCRIPTION	
1	04/08/2021	UPDATE PER CPAU WALK	DW
0	08/17/2020	FINAL BORING PLAN	SS
A	08/14/2020	PRELIMINARY BORING PLAN	SS

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
BORING SITE PLAN

SHEET NUMBER
A-1.4



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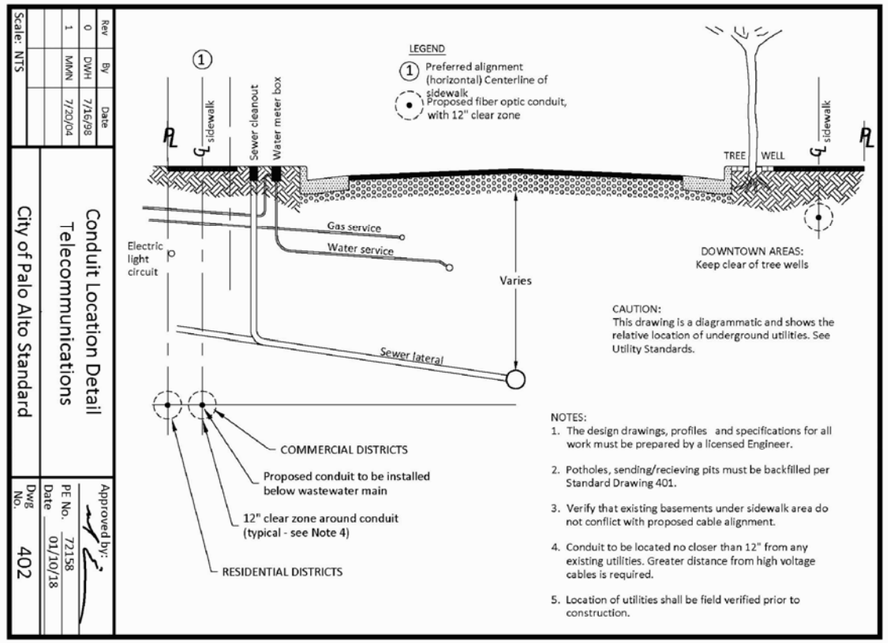

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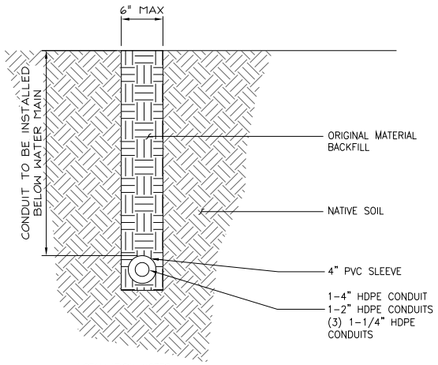

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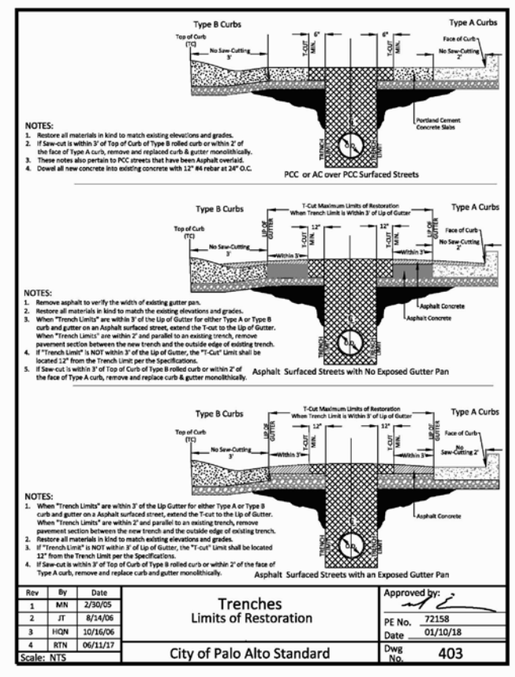

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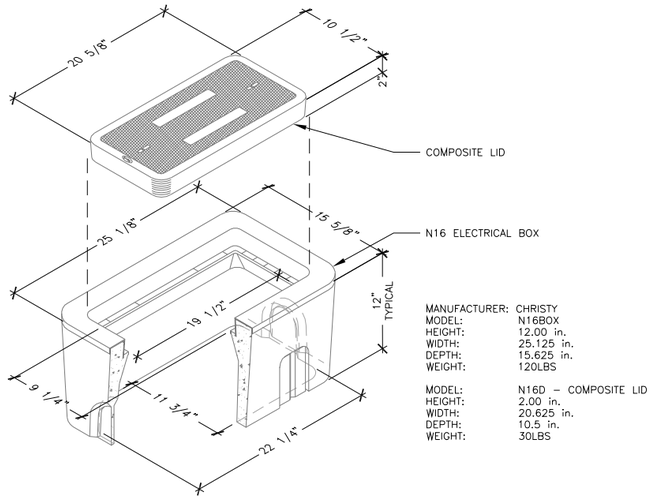

2 CHRISTY N16 ELECTRICAL BOX
N.T.S.

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Vinculums
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ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-334882
DRAWN BY:	RF
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REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
CITY STANDARDS & DETAILS

SHEET NUMBER
A-1.5

- Grade fills over 6-inches or impervious overlay shall incorporate an approved permanent aeration system, permeable material or other approved mitigation.
- Grade cuts exceeding 4-inches shall incorporate retaining walls or an appropriate transition equivalent.

notes:

Required Practices

C. Trenching, Excavation and Equipment Use

Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the *City Arborist*. *(See Restriction Zones for Excavation, Trenching or Boring Near Regulated Trees, Image 2.20-1 through 2.20-3)*. Mitigating measures shall include prior notification to and direct supervision by the *project arborist*.

1. Notification. Contractor shall notify the *project arborist* a minimum of 24 hours in advance of the activity in the TPZ.
2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired (*see Root Injury, Section 2.25 A-1*). Roots 2-inches and greater must remain injury free.
3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.
   - If excavation or *trenching* for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.
   - Prior to excavation for foundation/footings/walls, grading or *trenching* within the TPZ, roots shall first be severed cleanly 1-foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw, sawzall, narrow trencher with sharp blades or other approved root pruning equipment.
4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the *City Arborist*. If allowed, a protective *root buffer* (*see Root Buffer and Damage to Trees, Section 2.25.A-1*) is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.
   - Structural design. If injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to *City Arborist* approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

- Basement excavations shall be designed outside the TPZ of all *protected* and *designated trees* (*see Excavation, Section 2.20-3*) and shall not be harmful to other mature or neighboring property trees.

notes:

Required Practices

D. Tunneling & Directional Drilling

If *trenching* or pipe installation has been approved within the TPZ, then the trench shall be either cut by hand, air-spade, hydraulic vac-on excavation or, by mechanically boring the tunnel under the roots with a horizontal directional drill and hydraulic or pneumatic air excavation technology. In all cases, install the utility pipe immediately, backfill with soil and soak within the same day. Installation of private utility improvements shall be tunnel bored beneath the tree and roots per *Trenching Tunneling & Distance Matrix* In Table 2-1.

TABLE 2-1
Trenching & Tunneling Distance

TRENCHING DISTANCE

When the Tree Diameter At 4.5 Ft Is:	Trenching will be Replaced with Boring at this Minimum Distance (10x tree dia.) from the Face of the Tree in any Direction:
6-9" Measured At 6" à	6-9'
10-14" Measured At 54" à	10-14'
15-19" Measured At 54" à	15-19'
Over 19" Measured At 54" à	20' +

DEPTH OF TUNNELING

Tree Diameter	Depth of Tunneling
9" Or Less Measured At 6" à	2.5'
10-14" Measured At 54" à	3.0'
15-19" Measured At 54" à	3.5'
More Than 19" Measured At 54" Depth of Tunnel à	4.0'

Bore Pits Shall Be Located At A Minimum Distance As Specified By The Trenching Distance Table Above.

1. Public Utilities
   Underground public utility improvements or repairs shall be performed in accordance with the *Utility Standards for Excavation, Trenching or Boring, Section 02200.309*; and per *Restriction Zones Near Regulated Trees (see Images 2.20-1 through 2.20-3)*.
2. Street Trees
   Exclusions for *street trees* in the publicly owned right-of-way (ROW).
   - *Street Trees* that are in conflict with utility infrastructure where the conflict cannot be resolved may be removed if approved by Public Works Operations (e.g., a tree planted directly on top of a damaged sewer lateral.)

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ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

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REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

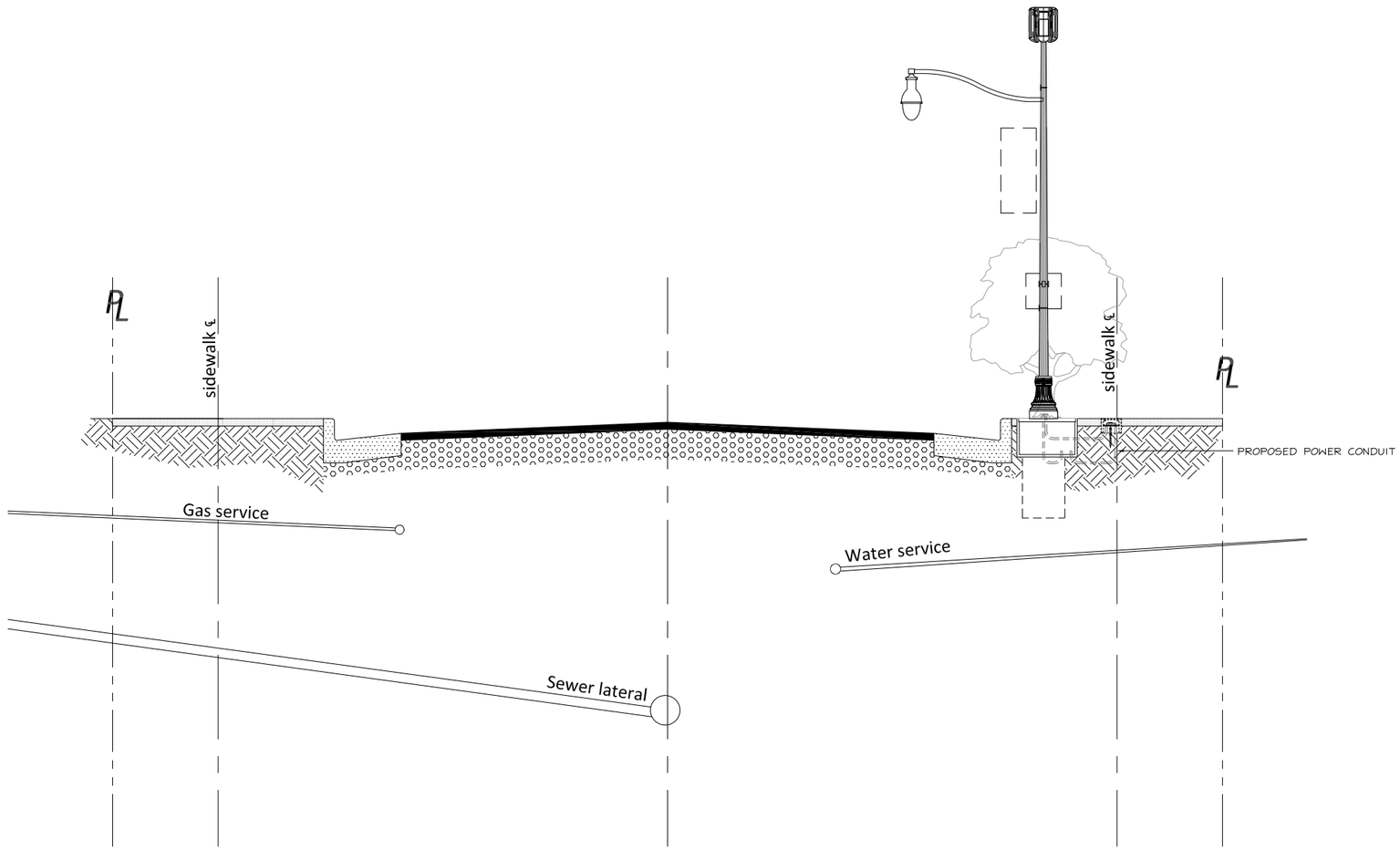
SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
CITY STANDARDS & DETAILS

SHEET NUMBER
A-1.6

1. ALL WORK SHALL COMPLY WITH THE CITY OF PALO ALTO 2018 STANDARD DRAWINGS AND SPECIFICATIONS BORING, TRENCHING, POTHOLING AND DEWATERING, SECTION 17
2. THE LOCATION OF EXISTING UTILITY MAINS AND LATERAL LINES INCLUDING STORM DRAIN, SANITARY SEWER, WATER, GAS, UNDERGROUND ELECTRICAL AND COMMUNICATION CONDUITS CROSSING THE TRENCH EXCAVATION SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICES ALERT (USA) AT 811 OR 800-642-2444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING UNDERGROUND WORK SO THAT EXISTING UTILITIES CAN BE MARKED IN THE FIELD, UNLESS OTHERWISE STATED BY CITY CONTRACT.
3. EXCAVATION SHALL BE SUPPORTED AND EXCAVATION OPERATIONS CONDUCTED IN ACCORDANCE WITH THE RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA). IF IN THE OPINION OF THE ENGINEER, THERE EXISTS A SITUATION OF IMMINENT DANGER TO THE WORKERS, THE ENGINEER MAY ORDER THE WORK STOPPED AND THE CONTRACTOR SHALL COMPLY WITH RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA).
4. BACKFILL SHALL BE SAND OR GRANULAR MATERIAL FALLING WITHIN THE LIMITS DESCRIBED IN THE STANDARD DRAWING 401. AGGREGATE BASE, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS WITHIN THESE SPECIFICATIONS.
5. THE CONTRACTOR SHALL INSTALL THE CONDUIT IN ACCORDANCE WITH THE APPROVED STREET WORK PERMIT. ALL CONDUITS SHALL BE INSTALLED UNDERGROUND USING DIRECTIONAL BORING METHOD. MICRO-TUNNELING OR OTHER METHODS SHALL BE APPROVED BY THE PUBLIC WORKS ENGINEERING DIVISION. THE CONDUITS SHALL BE INSTALLED WITH TRACER WIRE APPROVED BY THE ENGINEER PER CITY OF PALO ALTO UTILITIES DEPARTMENT WATER, GAS AND WASTEWATER UTILITY STANDARDS. REFER TO STANDARD DRAWING 402.
6. TRENCHES SHALL NOT BE LEFT OPEN AT THE END OF THE DAY. ADEQUATE PROVISIONS SHALL BE MADE FOR THE PLACING OF TEMPORARY STEEL PLATES IN ADDITION TO BARRICADES, SIGNING AND LIGHTING. STOCKPILING OF EXCAVATED MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED. A MAXIMUM OF THREE-HUNDRED (300) FEET OR ONE (1) CITY BLOCK OF TRENCH, WHICHEVER IS GREATER, MAY BE OPENED AT ONE TIME. FOR TEMPORARY PATCHING, A MINIMUM THICKNESS OF TWO (2) INCHES OF CUTBACK WILL BE USED.
7. PRIOR TO EXCAVATION OF TRENCHING, POTHOLING OR SENDING/RECEIVING PITS, THE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE SHALL BE CUT OR MILL TO A NEAT LINE FULL DEPTH WITH A SAW-CUTTING OR MILLING DEVICE APPROVED BY THE ENGINEER.
8. BACKFILL MATERIAL SHALL BE COMPACTED TO 90 PERCENT MINIMUM RELATIVE COMPACTION EXCEPT THE TOP TWENTY-FOUR (24) INCHES, WHICH SHALL BE MECHANICALLY COMPACTED TO 95 PERCENT MINIMUM RELATIVE COMPACTION. MECHANICALLY COMPACTED LIFTS USING ALTERNATIVE EQUIPMENT, COMPLYING WITH MANUFACTURE'S SPECIFICATION, WILL REQUIRE THE APPROVAL OF THE ENGINEER. USE OF ALTERNATIVE COMPACTION EQUIPMENT SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY DAMAGE TO THE CONDUIT, SURROUNDING GROUND, OR EXISTING AND NEW IMPROVEMENTS.

(2) NOTES



(1) R.O.W SECTION
NTS

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

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California and Nevada
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ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WASSIM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

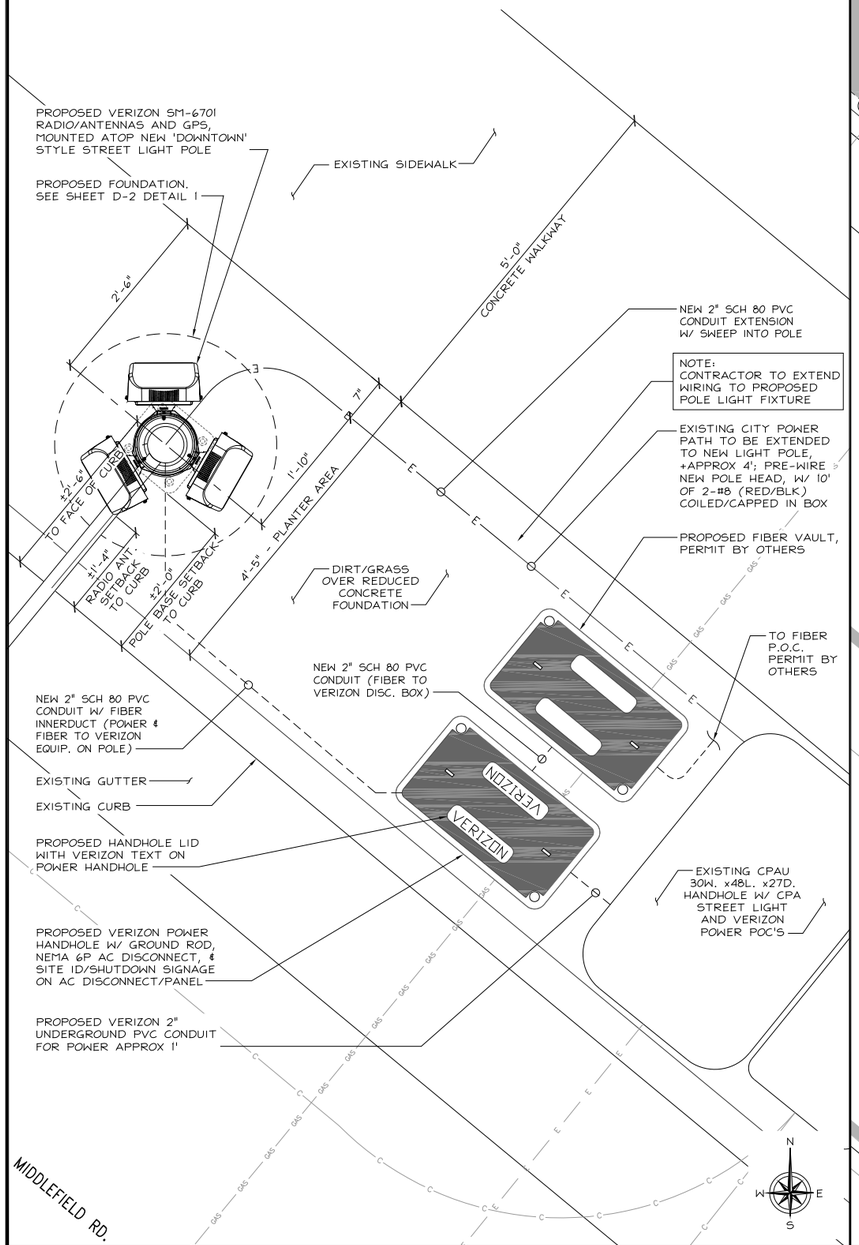
SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
R.O.W. SECTION

SHEET NUMBER
A-1.7

NOTES:

1. METAL SURFACES REQUIRING PAINT TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1
2. THE CONTRACTOR MAY BE REQUIRED TO SUBMIT A LOGISTICS PLAN TO THE PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCING WORK THAT ADDRESSES ALL IMPACTS TO THE CITY'S RIGHT-OF-WAY, INCLUDING, BUT NOT LIMITED TO: PEDESTRIAN CONTROL, TRAFFIC CONTROL, TRUCK ROUTES, MATERIAL DELIVERIES, CONTRACTOR'S PARKING, CONCRETE POURS, CRANE LIFTS, WORK HOURS, NOISE CONTROL, DUST CONTROL, STORM WATER POLLUTION PREVENTION, CONTRACTOR'S CONTACT, NOTICING OF AFFECTED SURROUNDING PROPERTIES , AND SCHEDULE OF WORK. THE REQUIREMENT TO SUBMIT A LOGISTICS PLAN WILL BE DEPENDENT ON THE NUMBER OF APPLICATIONS PUBLIC WORKS ENGINEERING RECEIVES WITHIN CLOSE PROXIMITY TO HELP MITIGATE AND CONTROL THE IMPACT TO THE PUBLIC-RIGHT-OF-WAY. IF NECESSARY, PUBLIC WORKS MAY REQUIRE A LOGISTICS PLAN DURING CONSTRUCTION.
3. TREES MAY NOT BE PLANTED WITHIN 10 FEET OF EXISTING WATER, GAS OR WASTEWATER MAINS/SERVICES OR METERS; LESSER DISTANCES REQUIRE A PERMANENT IMPERMEABLE ROOT-BARRIER A MINIMUM OF 3' HORIZONTAL FROM WATER, GAS AND WASTEWATER SERVICES/MAINS/METERS.



ENLARGED SITE PLAN

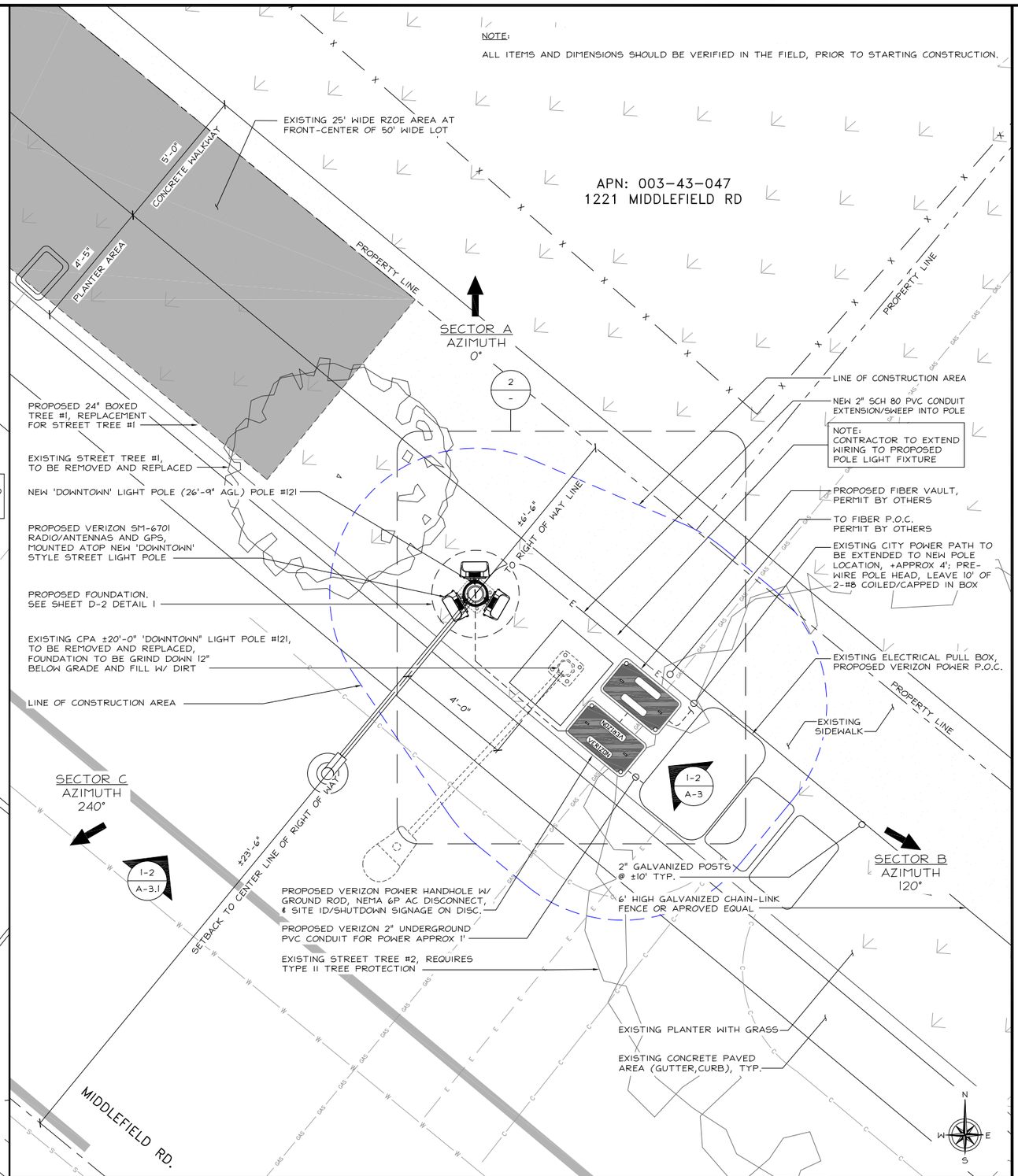
24"x36" SCALE: 1" = 1'-0"
11"x17" SCALE: 1/2" = 1'-0"

1' 6" 0" 1'

2

NOTE:

ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD, PRIOR TO STARTING CONSTRUCTION.



ENLARGED SITE PLAN

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

2' 1' 0" 2'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

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ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
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A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
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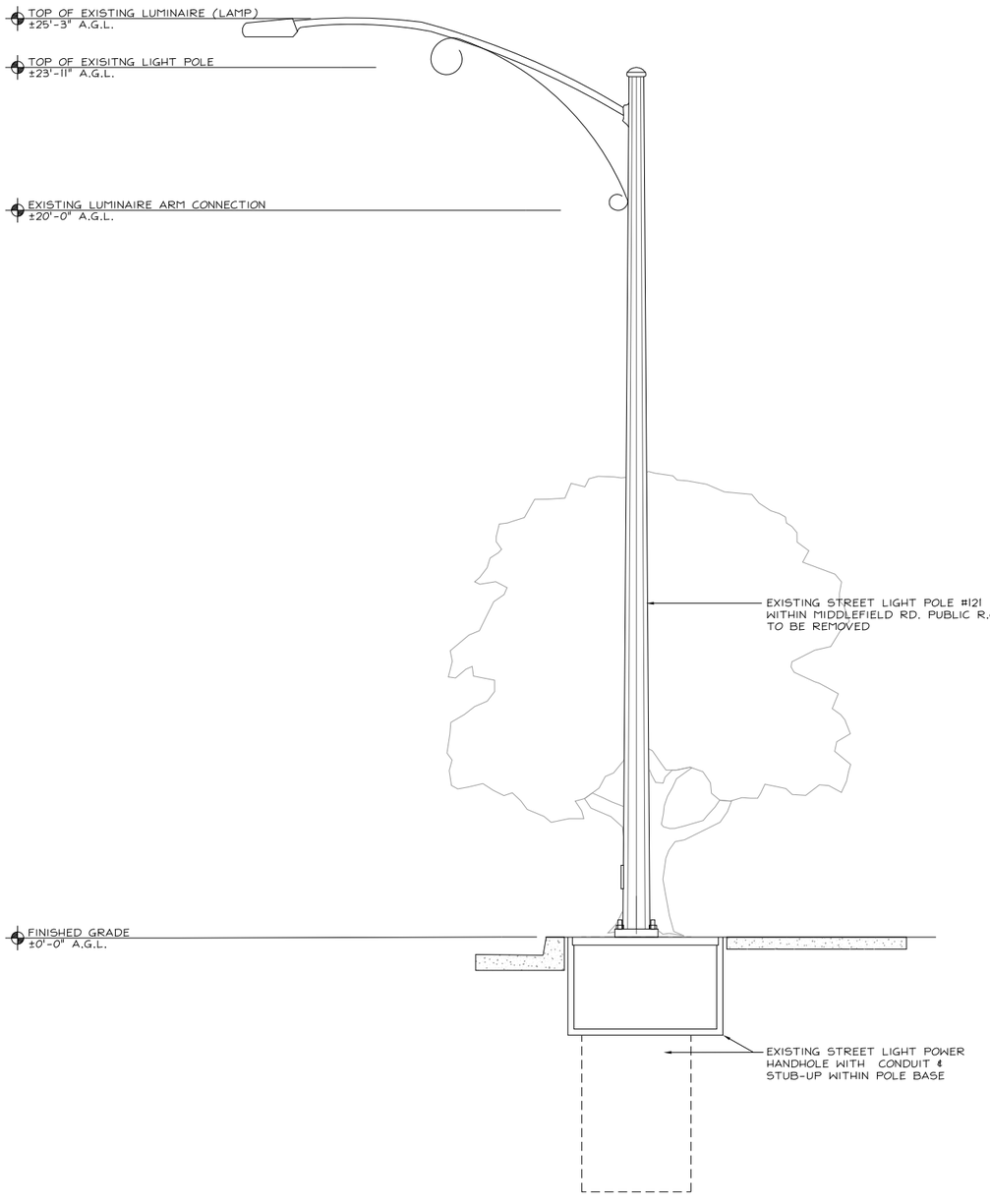
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
ENLARGED SITE PLAN

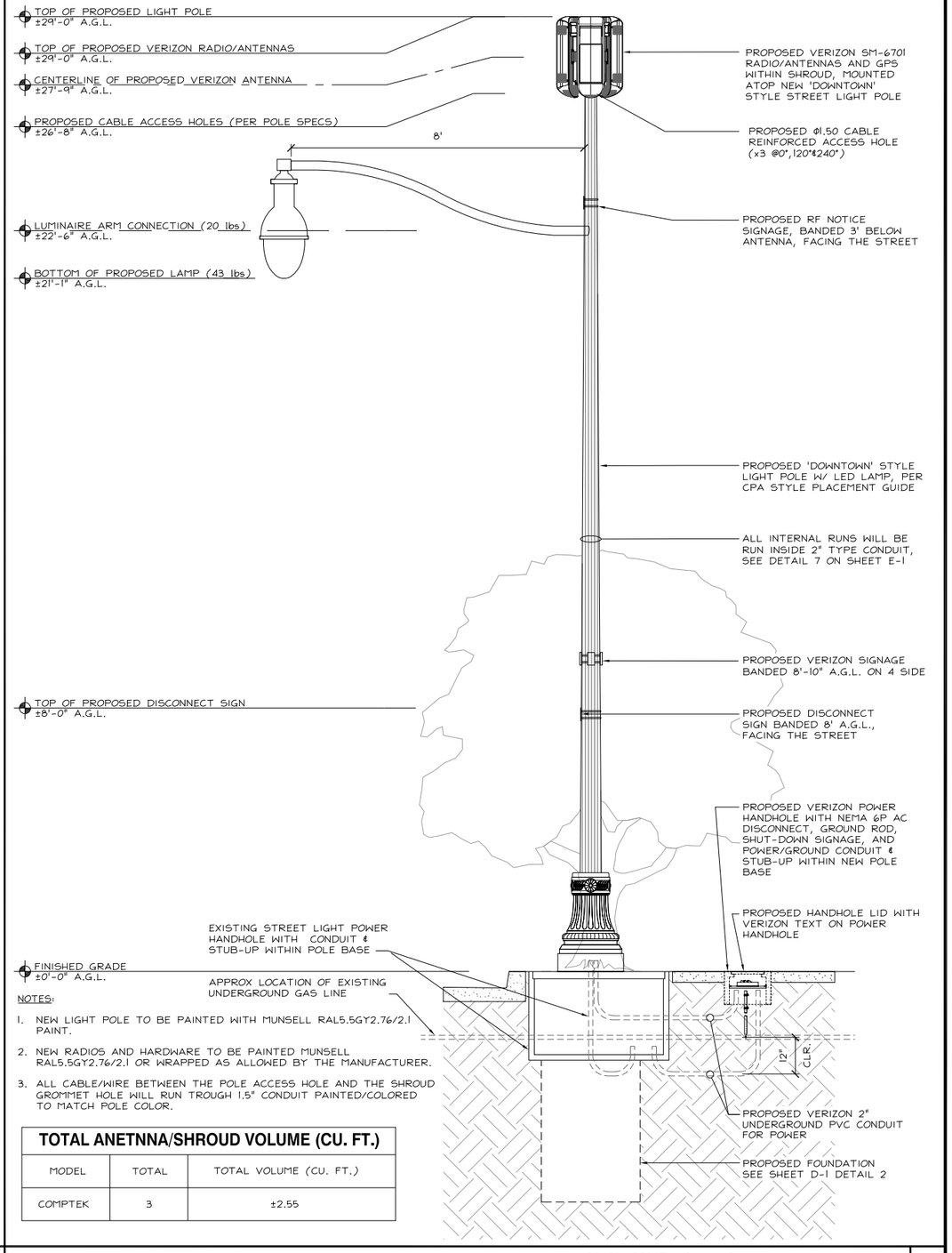
SHEET NUMBER
A-2



EXISTING SOUTHEAST ELEVATION

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

2



NOTES:

1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1 OR WRAPPED AS ALLOWED BY THE MANUFACTURER.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANETNNA/SHROUD VOLUME (CU. FT.)

MODEL	TOTAL	TOTAL VOLUME (CU. FT.)
COMPTEK	3	±2.55

PROPOSED SOUTHEAST ELEVATION

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

1

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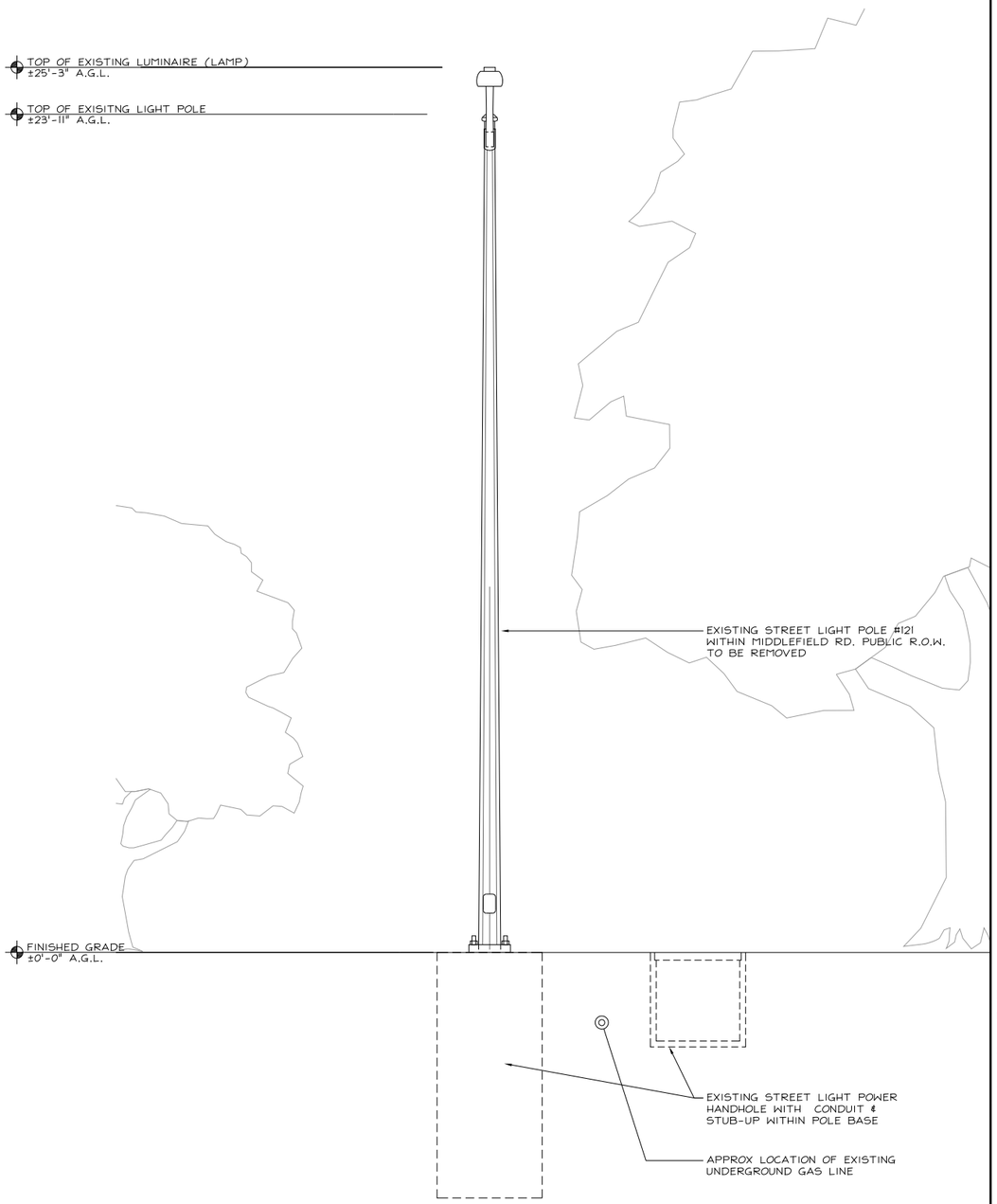
SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
ELEVATIONS

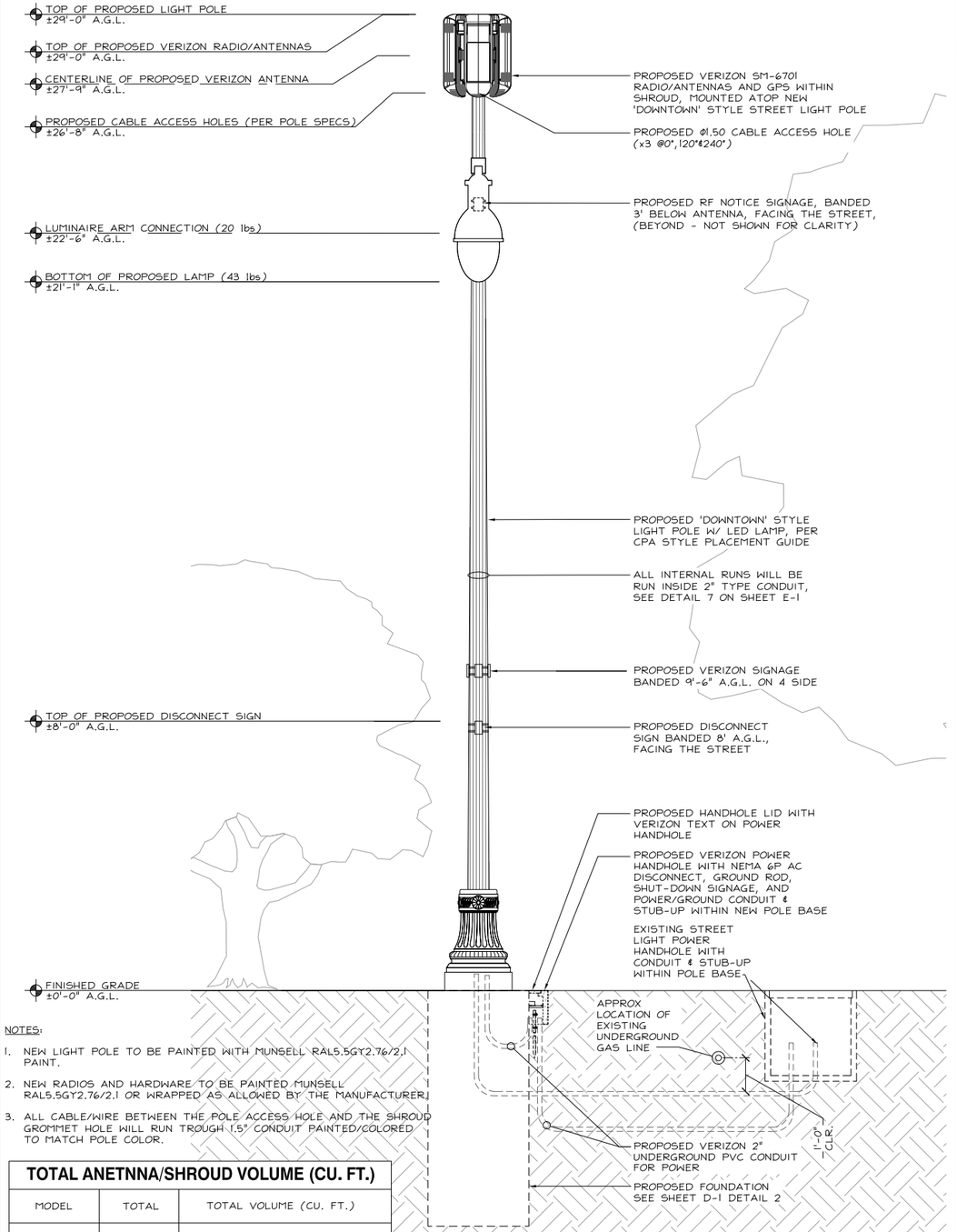
SHEET NUMBER
A-3



EXISTING SOUTHWEST ELEVATION

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

2 2' 1' 0" 2'



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TOTAL ANETNNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL	TOTAL VOLUME (CU. FT.)
COMPTEK	3	±2.55

PROPOSED SOUTHWEST ELEVATION

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"

2' 1' 0" 2'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
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ALL STATES ENGINEERING & SURVEYING
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23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

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REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

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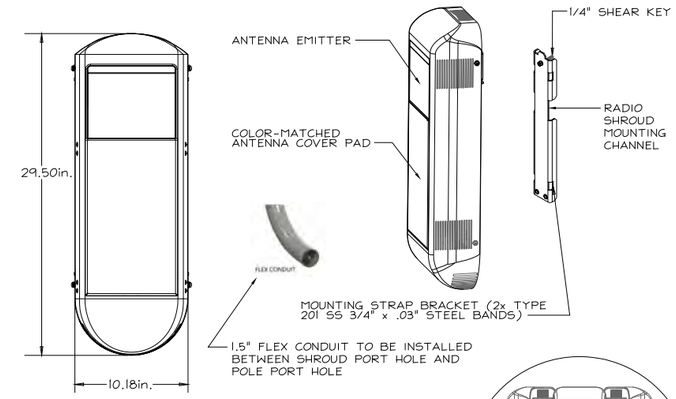
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
ELEVATIONS

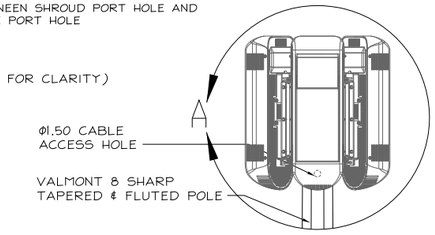
SHEET NUMBER
A-3.1

ERICSSON 6701 POLE ATTACHMENT SHROUD (OR APPROVED EQUAL)

NOTES:
1. FULL SHROUD PAINTABLE TO MATCH COLOR OF EXISTING STRUCTURE.
2. COLOR-MATCHED 3M FILM TO BE APPLIED TO ANTENNA EMITTER FACE.
3. SHROUD DRY WEIGHT = 18 LBS.
4. TOTAL WEIGHT INCLUDING ANTENNA = 49LBS.
5. ANTENNA/SHROUD VOLUME = 0.85 CU.FT. (EACH)



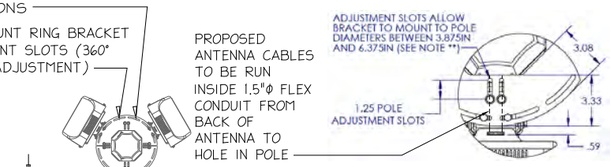
DETAIL A (SECTOR 1 RADIO HIDDEN FOR CLARITY)



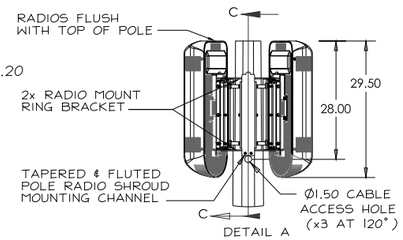
BRACKET ID & OD DEPENDENT ON POLE DIMENSIONS

RADIO MOUNT RING BRACKET ADJUSTMENT SLOTS (360° AZIMUTH ADJUSTMENT)

PROPOSED ANTENNA CABLES TO BE RUN INSIDE 1.5"Ø FLEX CONDUIT FROM BACK OF ANTENNA TO HOLE IN POLE

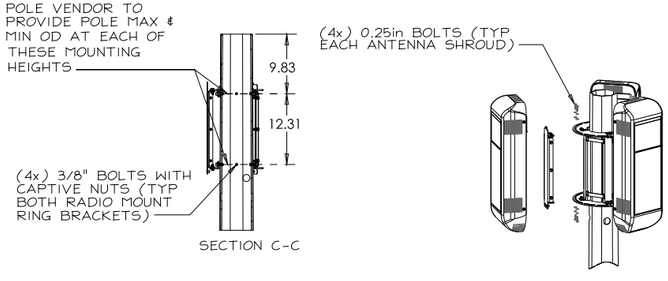


DETAIL B



DETAIL A

POLE VENDOR TO PROVIDE POLE MAX & MIN OD AT EACH OF THESE MOUNTING HEIGHTS



SECTION C-C

SM6701 SHROUD & MOUNTING DETAILS

24"x36" SCALE: NTS
11"x17" SCALE: NTS

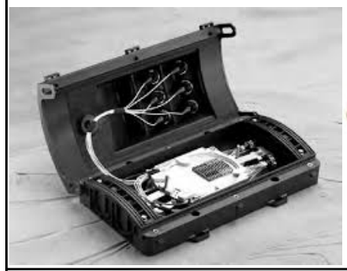
7

PREFORMED LINE PRODUCTS

COYOTE TERMINAL CLOSURE (FIBER DEMARCATION UNIT)

- DIMENSIONS: 18.76"L x 9.70"W x 5.13"D
- WEIGHT: N/A

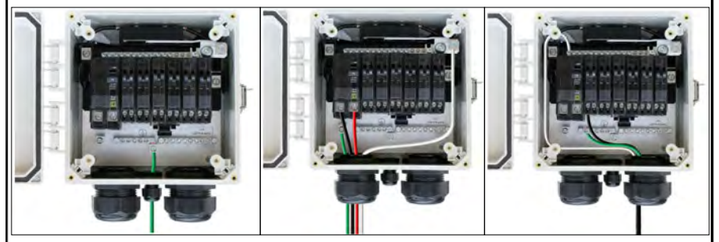
OR VERIZON APPROVED EQUAL



FIBER DEMARCATION UNIT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

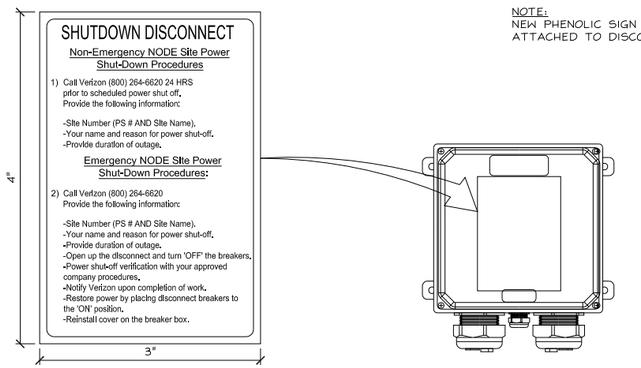
6



GROUND | AC POWER "IN" | AC POWER "OUT"

AC POWER DISCONNECT WIRE DIAGRAM

5



NOTE:
NEW PHENOLIC SIGN TO BE ATTACHED TO DISCONNECT

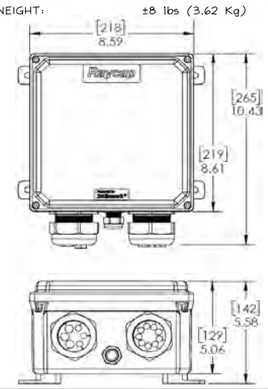
SHUTDOWN SIGN ON DISCONNECT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

4

Raycap RSCAC-1333-PH-240 AC POWER DISCONNECT (OR APPROVED EQUAL)

- DIMENSIONS: 10.43"L x 8.59"W x 5.06"D
- WEIGHT: ±8 lbs (3.62 Kg)



RSCAC-1333-PH-240

NEMA 6P AC POWER DISCONNECT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

CONTRACTOR NOTE:
- SITE ID WILL BE SWITCH #, SITE # AND SITE NAME.
- NODE NUMBER WILL BE MARKET#-NODE.B#-SMALL CELL NAME.

NOTE:
INSTALL EME NOTICE SIGN 3' BELOW STREET MACRO UNITS.

GO95 RF SIGNAGE

24"x36" SCALE: NTS
11"x17" SCALE: NTS

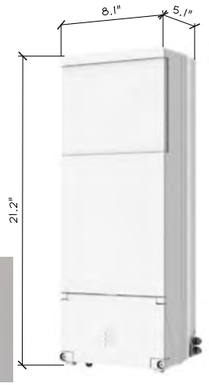
2

ERICSSON STREET MACRO 6701

- DIMENSION W/ PROTRUDING ITEMS INCL GPS ANT: 21.2"H x 8.1"W x 5.1"D
- TOTAL RADIO AREA (CU. IN.): 875.77 CU. IN.
- WEIGHT: ±31 lbs

RADIO AREA (CU. FT.)			
RADIO MODEL	TOTAL RADIO(S)	TOTAL RADIO AREA (CU. IN.)	TOTAL RADIO AREA (CU. FT.)
MACRO 6701	1	875.77 CU. IN.	0.51 CU. FT.

NEW GPS ATTACHED ON TOP OF SM 6701 (PRE INSTALLED BY MANUFACTURER) (1) TOTAL (MAX. MEASUREMENTS WILL NOT EXCEED)



STREET MACRO 6701

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
STATE OF CALIFORNIA

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SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
DETAILS

SHEET NUMBER
D-1

Verizon Wireless • Proposed Small Cells
Four Pole Locations • Palo Alto, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a wireless telecommunications carrier, to evaluate the addition of small cells in its network in Palo Alto, California, for compliance with municipal limits on sound levels from the installations.

Executive Summary

Verizon proposes to install antennas and equipment on four light poles sited in the public right-of-way in Palo Alto. Noise from the proposed operations will comply with the City's pertinent noise limits.

Prevailing Standard

The City of Palo Alto adopted in April 2019 an amendment to Section 18.42.110 (Wireless Communication Facilities) of its Municipal Code, which sets limits at residential areas for Wireless Communication Facilities ("WCF") installed in public rights-of-way on wood utility poles and on streetlight poles. Noise at the nearest residential property line is limited to an increase of 5 dBA over existing ambient levels, if the ambient noise level would remain below 60 dBA L_{dn}, or to an increase of 3 dBA, otherwise. The composite "day-night" average L_{dn} incorporates a 10 dBA penalty during nighttime hours (10 pm to 7 am), to reflect typical residential conditions, where noise is more readily heard at night. By definition, sound from a continuous noise source will be 6.4 dBA higher when expressed in L_{dn}.

It is noted that the amended language also references Chapter 9.10 of the Code, which had set a more relaxed increase of 15 dBA for such WCF sitings, assessed at 25 feet from the pole. It is assumed for this study that the minimum reference ambient level is 40 dBA, as defined in Chapter 9.10.

A summary of noise assessment and calculation methodologies is shown in Figure 1.

General Facility Requirements

Wireless telecommunications facilities ("cell sites") typically consist of two distinct parts: the electronic base transceivers (also called "radios"), that are connected to traditional wired telephone lines, and the antennas, that send wireless signals created by the radios out to be received by individual subscriber units. The radios are typically located on or at the base of the pole and are connected to the antennas by cables. Some radios require fans to cool the electronics inside. Some radios are integrated with the antennas as a single unit.

Verizon Wireless • Proposed Small Cells
Four Pole Locations • Palo Alto, California

Site & Facility Description

According to information provided by Verizon, that carrier proposes to install up to three Ericsson Model 6701 antennas, with integrated radios, on top of the light pole at each of the four locations listed in Table 1.

Study Results

Ericsson reports that the maximum noise level from three Model 6701 units is 39.5 dBA,* at a reference distance of 5 feet. At the minimum ambient level of 40 dBA, in order for the increase above ambient to remain below 5 dBA, the equipment configuration described above would need to be sited at least 3½ feet the nearest residential property line. If the measured ambient is found to be above 40 dBA, this distance, by definition, would decrease. ***All the proposed small cells in Table 1 meet this distance requirement.***

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of these Verizon Wireless small cells in Palo Alto will, under the conditions noted above, comply with the municipal standards limiting acoustic noise emission levels.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2021. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

William F. Hammett, P.E.
707/996-5200

REGISTERED PROFESSIONAL ENGINEER · WILLIAM F. HAMMETT · E-13026 · M-20676 · Exp. 6-30-2021 · ELECTRICAL MECHANICAL · STATE OF CALIFORNIA

September 1, 2020

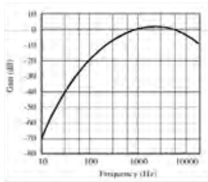
Small Cell #	Approximate Address	Distance to Property Line
SF Palo Alto 061	1221 Middlefield Road	6 feet
SF Palo Alto 203	519 Webster Street	9
SF Palo Alto 204	850 Webster Street	9
SF Palo Alto 205	853 Middlefield Road	9

Table 1. Proposed Verizon small cells

* Adjusted value based on manufacturer data, to reflect record high temperature of 107°F in Palo Alto.

Noise Level Calculation Methodology

Most municipalities and other agencies specify noise limits in units of dBA, which is intended to mimic the reduced receptivity of the human ear to Sound Pressure ("L_P") at particularly low or high frequencies. This frequency-sensitive filter shape, shown in the graph to the right as defined in the International Electrotechnical Commission Standard No. 179, the American National Standards Institute Standard No. 5.1, and various other standards, is also incorporated into most calibrated field test equipment for measuring noise levels.



30 dBA	library
40 dBA	rural background
50 dBA	office space
60 dBA	conversation
70 dBA	car radio
80 dBA	traffic corner
90 dBA	lawnmower

The dBA units of measure are referenced to a pressure of 20 μPa (micropascals), which is the threshold of normal hearing. Although noise levels vary greatly by location and noise source, representative levels are shown in the box to the left.

Manufacturers of many types of equipment, such as air conditioners, generators, and telecommunications devices, often test their products in various configurations to determine the acoustical emissions at certain distances. This data, normally expressed in dBA at a known reference distance, can be used to determine the corresponding sound pressure level at any particular distance, such as at a nearby building or property line. The sound pressure drops as the square of the increase in distance, according to the formula:

$$L_P = L_K + 20 \log(D_K/D_P),$$

where L_P is the sound pressure level at distance D_P and L_K is the known sound pressure level at distance D_K.

Individual sound pressure levels at a particular point from several different noise sources cannot be combined directly in units of dBA. Rather, the units need to be converted to scalar sound intensity units in order to be added together, then converted back to decibel units, according to the formula:

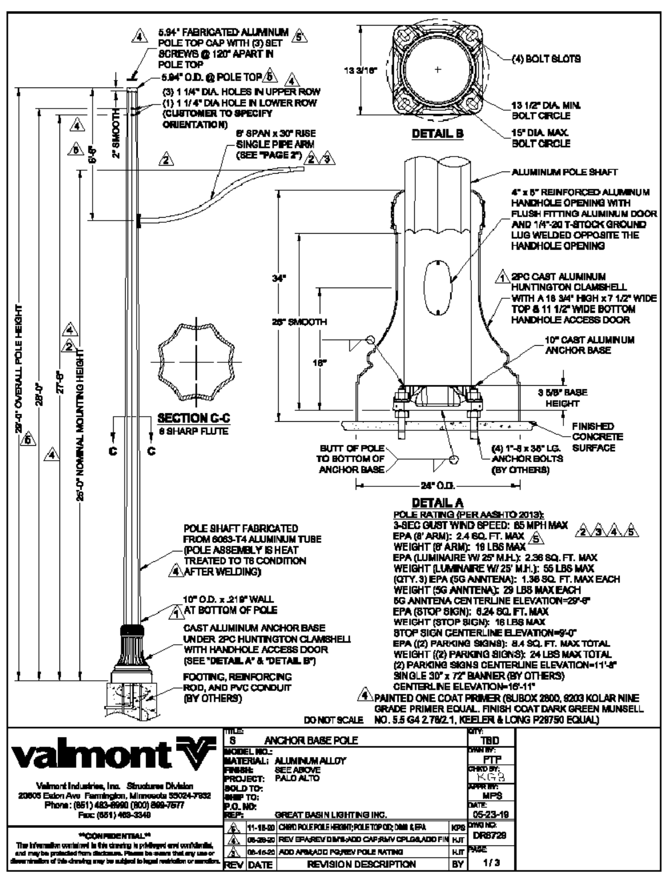
$$L_T = 10 \log (10^{L_1/10} + 10^{L_2/10} + \ldots),$$

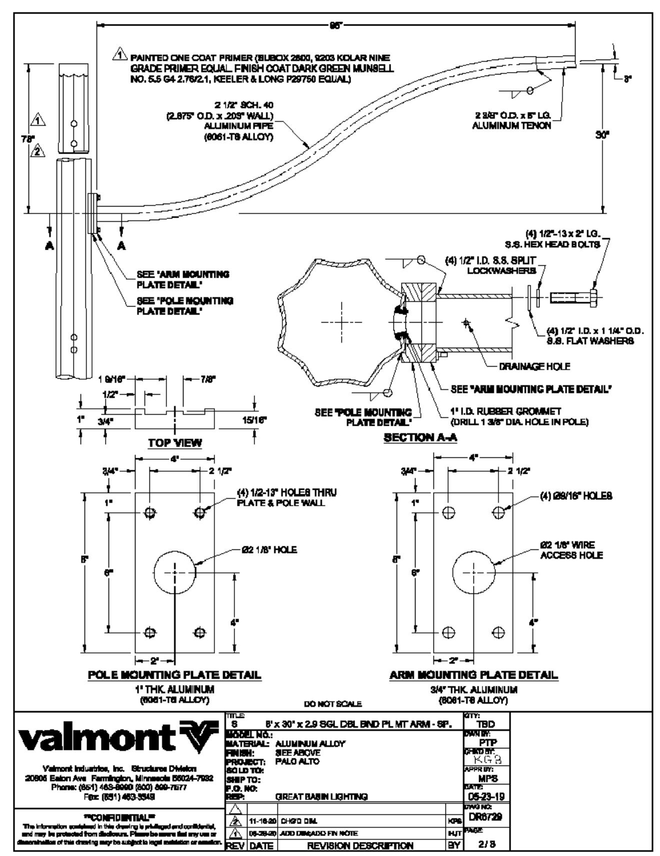
where L_T is the total sound pressure level and L_1, L_2, etc are individual sound pressure levels.

Certain equipment installations may include the placement of barriers and/or absorptive materials to reduce transmission of noise beyond the site. Noise Reduction Coefficients ("NRC") are published for many different materials, expressed as unitless power factors, with 0 being perfect reflection and 1 being perfect absorption. Unpainted concrete block, for instance, can have an NRC as high as 0.35. However, a barrier's effectiveness depends on its specific configuration, as well as the materials used and their surface treatment.

NOISE REPORT

24"x36" SCALE: NTS
11"x17" SCALE: NTS
2

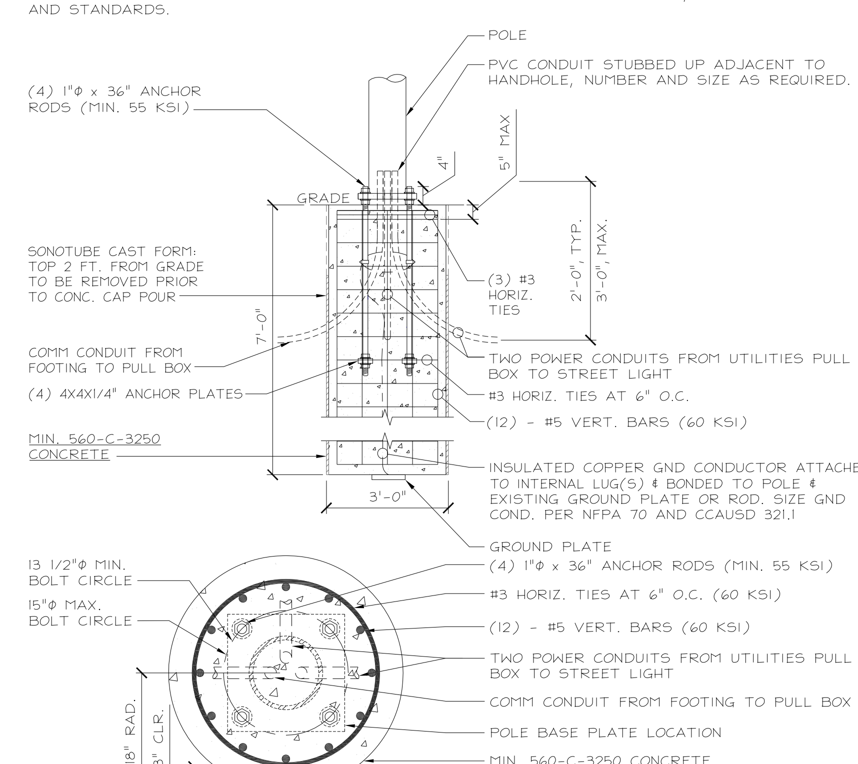




POLE SPECS

24"x36" SCALE: NTS
11"x17" SCALE: NTS
3

NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



FOUNDATION DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS
1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
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SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
NOISE STUDY, FOUNDATION DETAILS, POLE DRAWINGS

SHEET NUMBER
D-2

Submittal Cover Letter

Date: June 12, 2018
Contractor name: Phoenix Electric
Project name: City of Palo- Downtown Improvements
Customer PO# 767-02
JAM SO# 54798

Please see the enclosed set of submittals for the materials to be supplied on the above-mentioned project; these are for APPROVAL. The material will remain ON HOLD pending the receipt of signed approved submittals. Please note standard factory lead times will apply upon release.

Submittal page#	Item Description	Spec Section	Check if Deviation	Request for information
2-5	LED Luminaires	N/A		

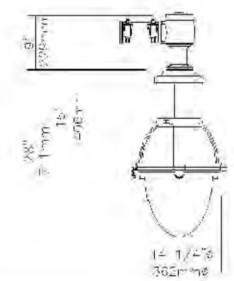
*Per the factory, there is a smaller scale version. However, this version maxes out at 55 watts, and the specified version is 135w. Please advise.

If you have any questions please let me know.

Thank you,
Samantha Douglas
Project Administration
JAM Services, Inc.

958 E. AIRWAY BLVD • LIVERMORE, CALIFORNIA • 94551
PHONE: (925) 455-5267 • FAX: (925) 455-5271

RNS20 (Reference=L23638-3)



EPA: 2.03 sqft / weight: 43 lb (19.5 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

Qty	1	Luminaire	RNS20-55W32LED4K-T-ACDR-LE3-120-DMG-SMB-RC-BKTX

Description of Components:

Hood: Cast 356.1 aluminum dome, mechanically assembled on the housing, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8-16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Housing: In a round shape, this housing is made of 356.1 aluminum, complete with a weatherproof door giving a tool-free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool-free access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LEDgine composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Globe: (ACDR), Made of one-piece seamless injection-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

LED Module: LED type Philips Lumileds LUXEON T. Composed of 32 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000 Kelvin nominal (3985K +/- 275K or 3710K to 4260K), CRI 70 Min. 75 Typical.

RNS20 (Reference=L23638-3)

Optical System: (LE3), IES type III (asymmetrical). Composed of high-performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. **Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. **Driver comes with dimming compatible 0-10 volts.**

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver Options: (DMG), Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see *"Philips Lumec dimmable luminaire specification document for unapproved device installed by other"*. To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Adaptor: (SMB), Made of cast 356 aluminum, complete with a block connector, mechanically assembled to the bracket. Can be mounted on a 1.66"(42mm) to 2.38"(60mm) outside diameter bracket arm tubing that slip fits 6.5" (165mm) long inside the adaptor, permits an adjustment of ± 5°.

Luminaire Options: (RC), Receptacle for a twist-lock photoelectric cell or a shorting cap. Use of photocell or shorting cap is required to ensure proper illumination.

RNS20 (Reference=L23638-3)

Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding from luminaire.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish: Color to be **black textured RAL9005TX (BKTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Certification: The manufacturer will have to supply a copy of approval products certificate, CSA or UL.

Vibration Resistance: The RNS20 meets the **ANSI C136.31-2001**, American National Standard for Roadway Luminaire Vibration specifications for normal applications. (Tested for 1.5G over 100 000 cycles)

Web site information details: Click on any specific information details you need:

Paint finish / Warranties / ISO 9001-2008 Certification / ISO 14001-2004 Certification

RNS20 (Reference=L23638-3)

LED light engine technical information for RNS20-30
LED: Philips Lumileds Luxeon T, CRI: 70, CCT: 4000K (3985K +/- 275K or 3710K to 4260K)
System (LED + driver) rated life = 100,000 hrs [1]

LED Module	Typical delivered lumens	Typical system wattage [2] (W)	Typical current @ 120 V (A)	Typical current @ 208 V (A)	Typical current @ 240 V (A)	Typical current @ 277 V (A)	LED current (mA)	HID Replacement [3]	Luminaire Efficacy Rating (Lm/W)	BUG rating
24W16LED4K-T-LE2	3040	28	0.25	0.15	0.13	0.12	530	70-100	107	B1-U2-G1
24W16LED4K-T-LE3	3017	28	0.25	0.15	0.13	0.12	530	70-100	106	B1-U2-G1
24W16LED4K-T-LE4	3032	28	0.25	0.15	0.13	0.12	530	70-100	107	B1-U2-G1
24W16LED4K-T-LE5	3050	28	0.25	0.15	0.13	0.12	530	70-100	107	B2-U2-G2
30W16LED4K-T-LE2	3825	37	0.32	0.19	0.17	0.15	700	70-100	108	B1-U2-G1
30W16LED4K-T-LE3	3790	37	0.32	0.19	0.17	0.15	700	70-100	108	B1-U2-G1
30W16LED4K-T-LE4	3815	37	0.32	0.19	0.17	0.15	700	70-100	108	B1-U2-G1
30W16LED4K-T-LE5	3837	37	0.32	0.19	0.17	0.15	700	70-100	104	B3-U3-G3
35W32LED4K-T-LE2	4236	36	0.31	0.19	0.17	0.16	350	70-100	118	B1-U3-G1
35W32LED4K-T-LE3	4175	36	0.31	0.19	0.17	0.16	350	70-100	116	B1-U2-G1
35W32LED4K-T-LE4	4225	36	0.31	0.19	0.17	0.16	350	70-100	117	B1-U2-G1
35W32LED4K-T-LE5	4249	36	0.31	0.19	0.17	0.16	350	70-100	118	B3-U3-G3
55W32LED4K-T-LE2	5945	53	0.47	0.27	0.24	0.22	530	100-150	111	B1-U3-G1
55W32LED4K-T-LE3	5900	53	0.47	0.27	0.24	0.22	530	100-150	110	B1-U3-G2
55W32LED4K-T-LE4	5900	53	0.47	0.27	0.24	0.22	530	100-150	111	B1-U3-G2
55W32LED4K-T-LE5	5994	53	0.47	0.27	0.24	0.22	530	100-150	113	B3-U3-G3

1 L70 = 100,000 hrs (at ambient temperature = 25°C)
2 System wattage or total luminaire wattage includes the LED module and the LED driver.
3 Note: These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.
Note: Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

LUMINAIRE DETAILS

24"x36" SCALE: NTS
11"x17" SCALE: NTS
1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI 71655 CIVIL STATE OF CALIFORNIA

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

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
LUMINAIRE DETAILS

SHEET NUMBER
D-3

- CARLON HAL-FREE RISER-GARD, HJ4X4C-2000:

Technical Info:

UL Listed to 2024	Test Method	Maximum Value
Maximum Flame Propagation	UL 2024	3'6"
Maximum Air Temperature	UL 2024	387°F

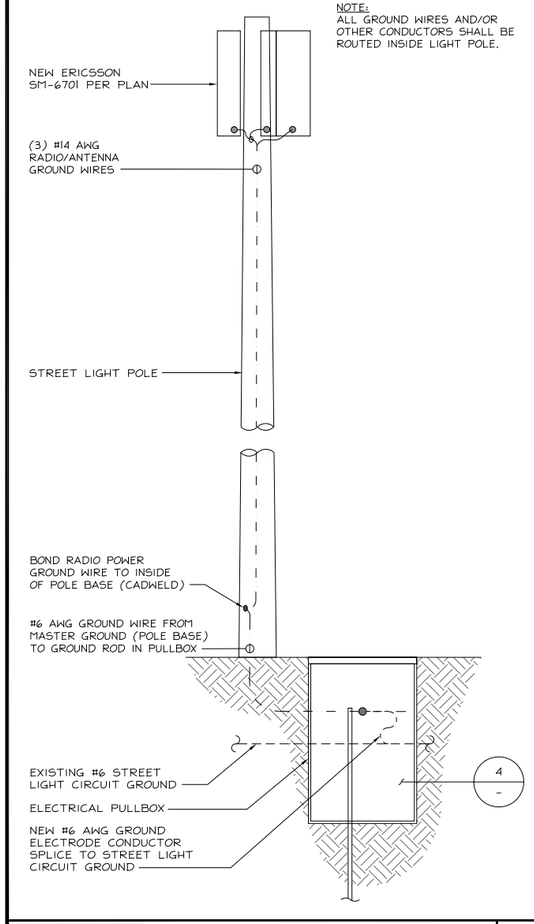
- Storage and Handling -4°F to 150°F
- No UV protection (not suitable for outdoor use)
- Do NOT store outside

	Color	Part No.	Nom. I.D.	Nom. O.D.	Pull Tape	Reel Size	Reel Type	Reel Length (feet)	Reel Weight (lbs.)	Wt. per 100 ft. (lbs.)
2"	White	HJ4X4C-2000	2.000	2.425	900 lb.	82" x 41"	W	2000	375	20.8

W = Wood

OR APPROVED EQUAL

CARLON RISER-GARD | 7

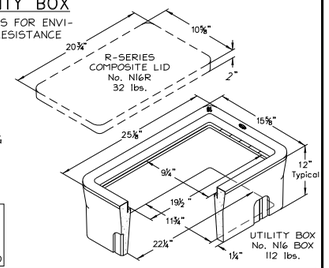


GROUND RISER DIAGRAM | 6

OLDCASTLE N16 UTILITY BOX

- EXCEEDS ASTM-D1693 STANDARDS FOR ENVIRONMENTAL STRESS CRACKING RESISTANCE
- ETCHED POLYPROPYLENE FACE
- FACE ANCHORED IN CONCRETE
- ULTRA-VIOLET INHIBITOR

A HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS AND WEIGHT SHOWN.

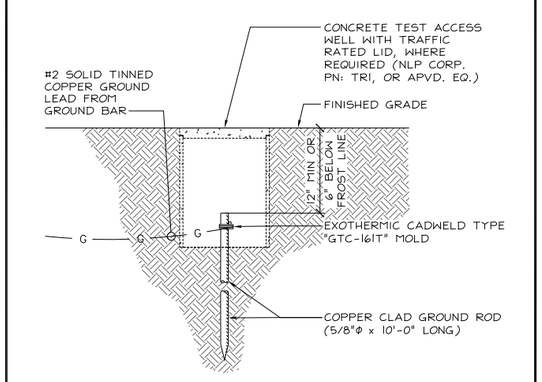


NOTE:
SPECIFICATION OF THIS VAULT MANUFACTURER AND MODEL ARE SUBJECT TO REPLACEMENT WITH APPROVED EQUIVALENT VAULT/LID

OLDCASTLE ORDER CODE	ITEM	APPROXIMATE SHIP'G. WEIGHT	DESCRIPTION
N16BOX	BOX	112 lbs.	N16 ELECTRICAL BOX (11-3/4"x22-1/4") - 20 PER PALLET
N16R	LID	32 lbs.	R-SERIES COMPOSITE LID WITH POLYPROPYLENE RING (ORDER N90 BOLT DOWN KIT SEPARATELY)
FLI6T	LID	13 lbs.	FIBRELYTE LID, NON-CONCRETE BOLT DOWN (ORDER N90 BOLT-DOWN KIT SEPARATELY)
N16J	LID	36 lbs.	CAST IRON LID BOLT DOWN (ORDER N90 BOLT-DOWN KIT SEPARATELY)
B16-6ID	COVER	28 lbs.	STEEL CHECKER PLATE COVER
N16-6IJ	COVER	28 lbs.	STEEL CHECKER PLATE COVER (ORDER N90 BOLT-DOWN KIT SEPARATELY)
B16X12	EXTENSION	113 lbs.	12" REINFORCED CONCRETE BOX EXTENSION - 20 PER PALLET
B30SL	SLAB	52 lbs.	REINFORCED CONCRETE SLAB (16"x28")

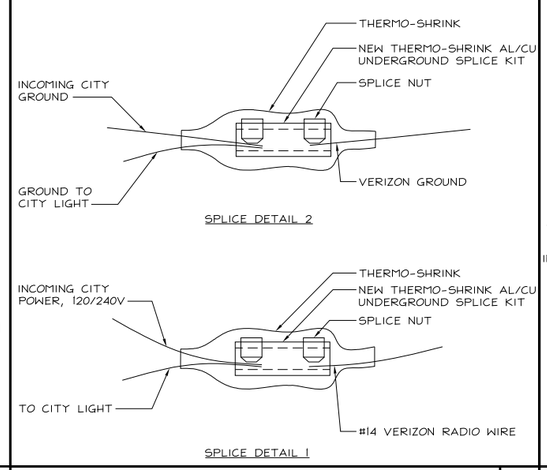
N16 U.G. UTILITY BOX | 5

24"x36" SCALE: NTS
11"x17" SCALE: NTS



GROUND ROD | 4

24"x36" SCALE: NTS
11"x17" SCALE: NTS



SPLICE DTAILS | 3

24"x36" SCALE: NTS
11"x17" SCALE: NTS

PANEL 'A'

SITE NAME:

PANEL DESIGNATION: AC PANEL 'A'

VOLTAGE: 120 V
PHASE: 1
WIRE: 2
MAIN BREAKER: 60 AMP
BUSS RATING: 60 AMP
LOCATION: UG VAULT

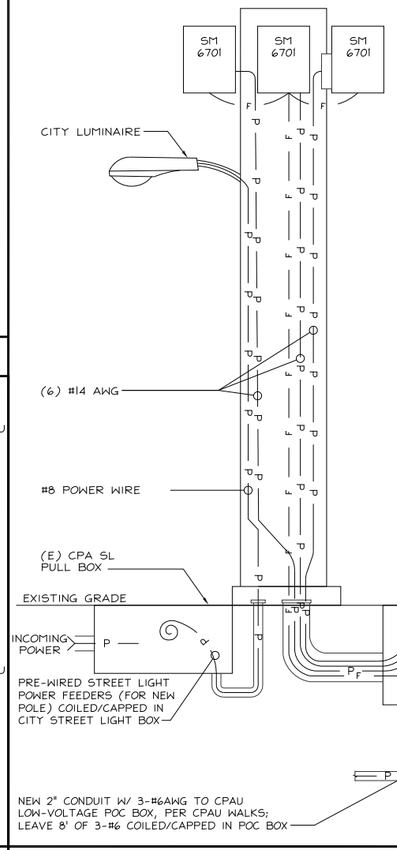
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	MAIN	60	2	ON			0		636		1.25	509	ON	1	20	ERICSSON SM-6701 #2	2
3								0		636	1.25	509	ON	1	20	ERICSSON SM-6701 #3	4
5	ERICSSON SM-6701 #1	20	1	ON	508.5	1.25	636		0							SPACE	6

RAYCAP MODEL NO. RSCAC-1333-PH-240 (60A, 240V, NEMA-6P)
CONTRACTOR SHALL LABEL PANEL WITH CARRIER I.D., SERVICE RATING, AND FEED SOURCE

PHASE A TOTAL VA	1271
PHASE B TOTAL VA	636
TOTAL KVA	1.91
TOTAL AMPS	7.95

NOTES:
1. ALL LOADS CALCED AS LCL/MCL LOADS (OK TO DESIGN TO 100% CAPACITY)
2. UNUSED BREAKER POSITIONS SHALL REMAIN COVERED W/ MFR. COVER
3. ALL EQUIPMENT/BREAKERS SHALL BEAR A LABEL FOR I.D. & RATING

PANEL SCHEDULE | 2



NOTE:
THIS DETAIL IS DIAGRAMMATIC, SEE E-2 FOR ACTUAL ELECTRICAL RUN

ELECTRICAL NOTE:

1. ALL WORK SHALL COMP;Y TO THE CURRENT EDITION OF THE CALIFORNIA ELECTRICAL CODE, CALIFORNIA BUILDING CODE, NATIONAL ELECTRICAL CODE, ALL APPLICABLE REGULATIONS GOVERNING NON-JPA UTILITY POLES (G.O. 95), AND ALL APPLICABLE LOCAL CODES.
2. ALL WORK SHALL COMPLY WITH VERIZON CARRIER CONSTRUCTION STANDARDS FOR SMALL CELL INSTALLATION.
3. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
4. AC PANEL SHALL HAVE A 'MAIN' BREAKER AFFIXED TO BOTH POLES OF THE MAIN LUG BUSS AND FED THROUGH LOAD SIDE TO PROVIDE SINGLE SHUT-OFF SWITCH FOR ALL SMALL CELL POWER ON AC PANEL.
5. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT. SHALL BE SINGLE CONDUCTOR (#14 AWG AND LARGER), 600V, OIL RESISTANT. THWN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED.
6. REFER TO PANEL SCHEDULE (2/-) AND ONE-LINE DIAGRAM (1/-) FOR CIRCUIT ARRANGEMENT & WIRING CONNECTION.
7. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELEPHONE CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
8. SUBCONTRACTOR SHALL PROVIDE 20 AMP, SINGLE PHASE, 120/240 (OR 120/208) VAC, 60HZ SERVICE FOR VERIZON SITE.
9. ALL THE WIRES INSIDE THE POLE SHOULD RUN IN INNERDUCT.

POWER SCHEMATIC | 1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

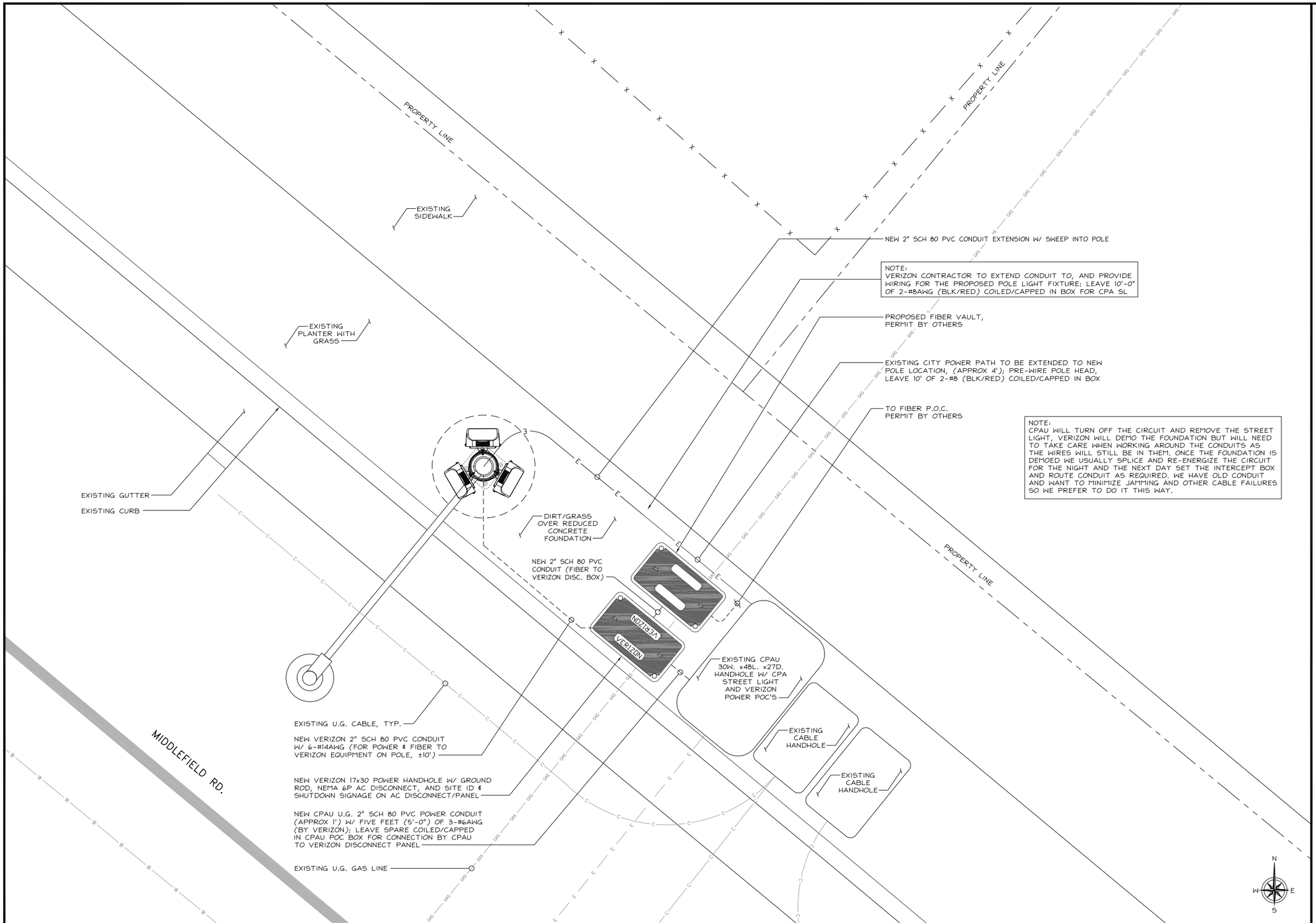
REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
ELECTRICAL/GROUNDING DIAGRAMS, NOTES, & PANEL SCHEDULE

SHEET NUMBER
E-1



ELECTRICAL PLAN

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
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ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

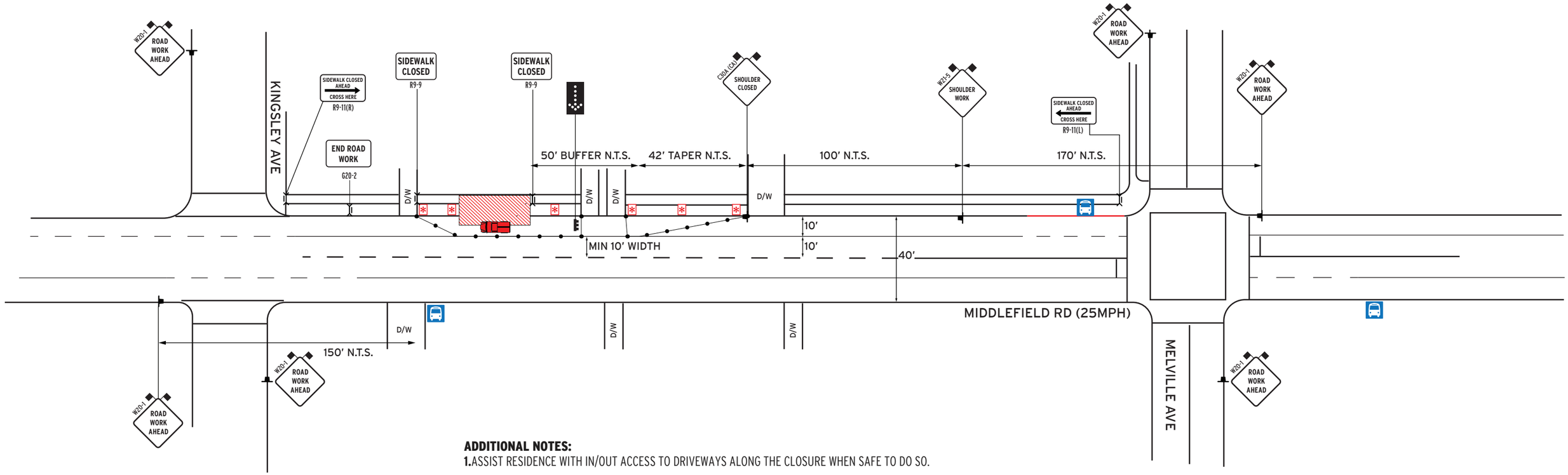
REV	DATE	DESCRIPTION	
1A	04/07/2021	2" VERIZON COMBO CONDUIT	NC
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
HASAN ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
ELECTRICAL PLAN

SHEET NUMBER
E-2



ADDITIONAL NOTES:

1. ASSIST RESIDENCE WITH IN/OUT ACCESS TO DRIVEWAYS ALONG THE CLOSURE WHEN SAFE TO DO SO.

LEGEND:

- CHANNELIZING DEVICE WITH CLIP-ON SIGN
- CHANNELIZING DEVICE
- SIGN
- WORK ZONE
- DIRECTION OF TRAFFIC
- TYPE 1 BARRICADE
- TYPE 1 BARRICADE W/SIGN
- TYPE 3 BARRICADE
- TYPE 3 BARRICADE W/SIGN
- K-RAIL/WATER FILLED BARRIERS
- TEMP RAISED MARKERS
- ARROW BOARD MARKER
- PEDESTRIAN BARRICADES
- CERTIFIED FLAGGER
- CRASH BARRELS
- MESSAGE BOARD (PCMS)
- FLASHING ARROWBOARD
- CRASH ATTENUATORS
- FLASHING BEACON/BARRICADE LIGHT

***POST TEMPORARY NO PARKING SIGN ON TYPE 1 BARRICADE 72 HRS IN ADVANCED.**

NOTE: Please contact B.A.T.S 72 hrs in advance in case if we are to install "TEMPORARY NO PARKING" signs.

PLAN 1

TEMP TRAFFIC CONTROL PLAN

NOTES

- Traffic control shall conform with the most current CAMUTCD part 6 and/or Caltrans Standards
- One lane of traffic in each direction and all high volume turning lanes shall be maintained at all times on all streets at a minimum lane width of 10 feet.
- Contractor shall notify local authorities once signs are posted.
- All advanced warning signs shall be equipped with 2 (18" orange flags)
- Certified Traffic Control Workers shall have Type II vests, work shoes, and hard hats.
- Temporary no parking signs shall be placed a min of 72 hrs prior of work.
- Driveways shall be monitored and maintained at all times during work hours.
- Distance between sign and work area will be determined on speed limit.
- Roadway shall not be opened until safe for public use. All open trenches must be plated or - backfilled prior to public usage.
- All Devices shall be removed when no longer required.

MUTCD TABLE 6C-1 — MEANING OF LETTER CODES ON TYPICAL APPLICATION DIAGRAMS

ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
Urban (Low Speed) - 25 mph or less	100 ft	100 ft	100 ft
Urban (Low Speed) + 25 to 40 mph	250 ft	250 ft	250 ft
Urban (High Speed) + 40 mph	350 ft	350 ft	350 ft
Rural	500 ft	500 ft	500 ft
Expressway / Freeway	1,000 ft	1,500 ft	2,640 ft

COMPASS:

SCALE: NOT TO SCALE

DATE REQSTD: 4/24/20

DATE COMPLTD: 10/3/20

PROJECT LOCATION: 1211 MIDDLEFIELD RD., PALO ALTO, CA

PO# SF PALO ALTO 061

PAGE# 1/1 (REVISION 2)

REQUEST BY:
YVONNE WASHINGTON
VINCULUMS
925-999-5523
YWASHINGTON@VINCULUMS.COM

AFTER HOURS EMERGENCY
510-299-5666

Drawn By:
DREW PATEL
CSLB# 917034
Office: 510-657-2543
Fax: 510-657-2544

44800 Industrial Drive Fremont, CA 94538
WWW.BATSTRAFFICSOLUTIONS.COM

B.A.T.S. TRAFFIC SOLUTIONS

Vinculums

575 Lennon Lane #125
Walnut Creek, CA 94598
(925) 482-8500

ALLSTATES

23675 Birtcher Dr.
Lake Forest, CA
(949) 273-0996

VERIZON
PALO ALTO_061

All States Engineering & Surveying
Project No: 64 – CLUSTER-6\PALO ALTO_061

Structural Analysis Report

ROW Adjacent to 1221 Middlefield Rd. Palo Alto, 94301
Proposed 29'- 0" AGL 'Downtown' Style Aluminum Light Pole & Foundation

REGISTERED PROFESSIONAL ENGINEER · WISSAM ZALZALI · C 71655 · CIVIL · STATE OF CALIFORNIA

Rev. #	Reason for Revision	Total # of Sheets	Prepared By	Checked By	Approved /Accepted	Date
1	Updated Equipment	19	LeT	LeT	WZ	3/16/2021

	Quantity/Type /Shape	Strength (min.)	Dimensions	Thickness /Depth	Capacity Utilization	
Pole Shaft	Aluminum / 8-sided tapered	25 ksi*	5.73"Φ at top 10.0"Φ at bottom	0.219"	43.1%	PASS
Anchor Bolts	4	36 ksi	1" Φ	-	38.0 %	PASS
Base Plate	1	25 ksi	13.6" Cast Base	-	ADEQUATE	
Foundation	*Circular Caisson*	*3.25 ksi*	*36"Dia.*	*7'-0"***	ADEQUATE	

* Pole grade is 6063-T6 per provided specs.

Required depth of caisson (Unrestrained** at G/L) - This analysis was performed without a soil report, and minimum soil properties from IBC-18 were used. Required pole foundation embedment depth may change with a soil report from the proposed pole location.

Professional Engineering Firm
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www.allstatesengineering.com

02

Steel Decorated Pole
Palo Alto
PALO ALTO_061

ALLSTATES

Project Description:

All States Engineering & Surveying (ASES) is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the metal pole.
The purpose of the analysis is to determine acceptability of the pole stress level. Based on our analysis we have determined the metal pole stress level for the structure and anchorage, under the following load case:

LC: Proposed Pole + Proposed Equipment with Shroud
(Please see page 5 for details)

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

Structural Analysis Parameters:

This analysis has been performed in accordance with AASHTO 2013 guidelines.

- Wind Speed: ***85 mph per AASHTO 2013***
- Exposure Category: ***C***
- Risk Category: ***II***
- Topographical: ***1***
- Crest Height = ***0***
- Ice Thickness = ***0 in***
- Min. Soil Lateral Bearing = ***100 psf/ft*2 = 200 psf/ft per CBC & IBC 1806.3.4***
- Min. Soil Bearing = ***1500 psf***

We at *All States Engineering & Surveying* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

03

ATC Hazards by Location

Search Information

Address:	1221 Middlefield Rd., Palo Alto, 94301
Coordinates:	37.445155, -122.1475279
Elevation:	30 ft
Timestamp:	2020-05-28T22:43:12.289Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default

Basic Parameters

Name	Value	Description
S_S	1.582	MCE_R ground motion (period=0.2s)
S_1	0.6	MCE_R ground motion (period=1.0s)
S_{MS}	1.898	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	1.265	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.926	Coefficient of risk (0.2s)
CR_1	0.906	Coefficient of risk (1.0s)
PGA	0.65	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.78	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	1.953	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.109	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.582	Factored deterministic acceleration value (0.2s)
S1RT	0.772	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.851	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.65	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

04

ATC Hazards by Location

Search Information

Address:	6511 Bronson Ln, Bakersfield, CA 93309, USA
Coordinates:	35.3251277, -119.0741519
Elevation:	380 ft
Timestamp:	2020-05-21T19:56:22.696Z
Hazard Type:	Wind

ASCE 7-16		ASCE 7-10		ASCE 7-05	
MRI 10-Year	65 mph	MRI 10-Year	72 mph	ASCE 7-05 Wind Speed	85 mph
MRI 25-Year	71 mph	MRI 25-Year	79 mph		
MRI 50-Year	76 mph	MRI 50-Year	85 mph		
MRI 100-Year	81 mph	MRI 100-Year	91 mph		
Risk Category I	88 mph	Risk Category I	100 mph		
Risk Category II	94 mph	Risk Category II	110 mph		
Risk Category III	101 mph	Risk Category III-IV	115 mph		
Risk Category IV	105 mph				

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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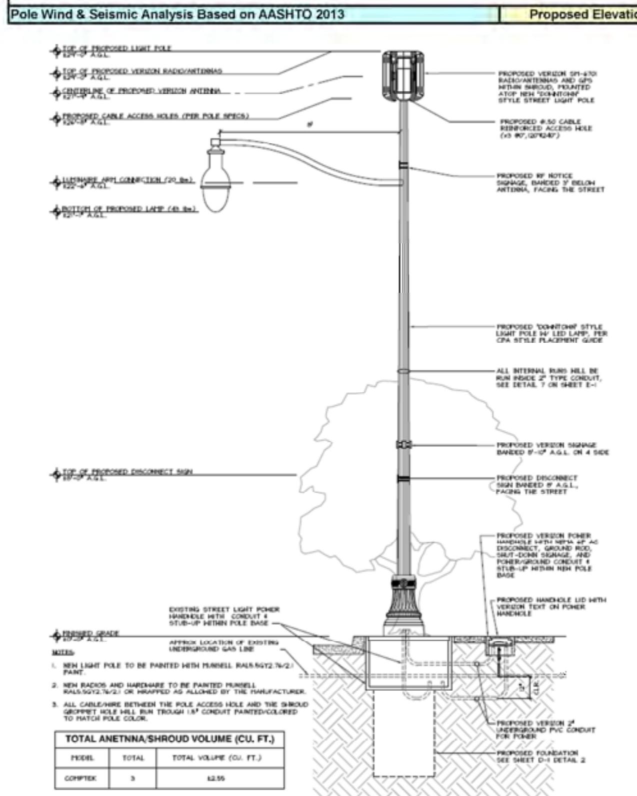
05

ALLSTATES — PROJECT: PALO ALTO_061 — CLIENT: 102 - Sequoia VZW Bakersfield — DESIGN BY: — REVIEW BY: LeT — DATE: 3/17/2021

Pole Wind & Seismic Analysis Based on AASHTO 2013 — Proposed Elevation



NOTES:

1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1 OR WRAPPED AS ALLOWED BY THE MANUFACTURER.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANETNNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL	TOTAL VOLUME (CU. FT.)
COMPTEK	3	12.55

06

ALLSTATES — PROJECT: PALO ALTO_061 — CLIENT: 102 - Sequoia VZW Bakersfield — DESIGN BY: — REVIEW BY: LeT — DATE: 3/17/2021

Pole Wind & Seismic Analysis Based on AASHTO 2013 — Loading

PROPOSED COMPONENTS

Rad Center	Component Type	QUANTITY	MOUNT TYPE
27'-9"	(N) Palo Alto_5G_SFF w/ Antenna	3	Pole Mounted
-	(N) RF Signage	1	Pole Mounted
-	(N) & (E) Conduit, Wire, & In-line Fuse	-	Inside Pole

WIND PRESSURE DERIVATION (AASHTO 2013)

		Value	Unit	Reference
Height of Pole	h =	29.0	ft	
Wind Speed	V =	85	mph	(AASHTO 2013)
Wind Exposure (B, C or D)		C		
Wind Directionality (Pole)	K_d =	0.95		(AASHTO 2013, Table 3.8.5-1)
Gust Effect Factor	G =	1.14		(AASHTO 2013, Sec. 3.8.6)
3-sec Gust Exponent	α =	0.50		(ASCE 7-16, Table 26.11-1)
Atmospheric Height	Z_g =	900	ft	(ASCE 7-16, Table 26.11-1)
Vel. Pressure Coeff. (Min)	$K_{z,min}$ =	0.84		(ASCE 7-16, Table 29.10-1)
Velocity Pressure Coeff.	$K_z = 2.0(z/Z_g)^{2/\alpha}$ =	0.87		(AASHTO 2013, Equation 3.8.4-1)
Wind Force @ Pole top	$F_h = 0.00256K_zK_dGV^2(C_dA)$ =	19.4	psf*C_dA	(Wind Pressure Input For O-Calc Analysis)
Total Applied Shear	V_u =	1014	lbs	(From TNX Report)
Total Applied Moment	M_u =	15414	lb-ft	(From TNX Report)

CALCULATION OF WIND DRAG COEFFICIENTS (Cd) FROM AASTHO 2013, TABLE 3.8.7-1 — C_v = 1.00 For V<105 mph

Appurtenance	Height (in)	Width (in)	Depth (in)	d (ft)	C_vVd	C_d
(N) Palo Alto_5G_SFF w/ Antenna	29.5	10.2	7.3	1.05	-	1.70
(E) Round Luminaire	2.9	88.0	-	0.24	20	0.50
(E) Round Pole	348	7.85	-	0.65	56	0.69

SEISMIC LOAD ANALYSIS (ASCE 7-16)

		Value	Unit	Reference
Total Pole Weight	$W = P_s$ =	618	lbs	(Approximate Wt. Including Pole With (N) Components)
Spectral Response (Short)	S_{DS} =	1.582		(ATC Hazards Design Maps Summary)
Spectral Response (1 sec.)	S_1 =	0.600		(ATC Hazards Design Maps Summary)
Importance Factor	I_e =	1.0		(ASCE 7-16, Section 15.4.1.1)
Response Factor	R =	1.5		(ASCE 7-16, Table 15.4-2)
Seismic Response Coeff	$C_s = 0.044S_{DS}I$ =	0.070		(ASCE 7-16, Section 15.4-1)
Seismic Response Coeff	$C_s = 0.8S_1/(R/I_e)$ =	0.320		(ASCE 7-16, Section 15.4-2)
Seismic Response Coeff	$C_s = S_{DS}/(R/I_e)$ =	1.055		(ASCE 7-16, Section 12.8-2)
Lateral Seismic Force	$V_s = MAX(C_s)W$ =	1.055	*W	
Total Applied Shear	V_s =	652	lbs	
Total Applied Moment	$M_s = V_s(1/2h)$ =	9451	lb-ft	

(Wind Loads Governing For Pole Shaft Capacity Check)

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23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

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SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
CALCS

SHEET NUMBER
C-1

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Paloalto_5G_SFF w/ Antenna	27.75	8' x 2.875" O.D. Light Pole Arm	25.5
Paloalto_5G_SFF w/ Antenna	27.75	Qty Luminaire	25.5
Paloalto_5G_SFF w/ Antenna	27.75	2PC Cast Alum. Clamshell	1.417
FCC RF Notice Signage	23.5		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
Pole	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Santa Clara County, California.
2. Tower designed for Exposure C to the AASHTO 2013 Standard.
3. Tower designed for a 85 mph basic wind in accordance with the AASHTO 2013 Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 43.1%

ALL STATES ENGINEERING & SURVEYING	Palo Alto_Light Pole	
23675 Birtcher Drive Lake Forest, CA 92630 Phone: 949.273.0066 FAX: 949.606.7222	PALO ALTO_061 64 - Verizon_VZW AASHTO 2013	Date: 03/18/21 Scale: NTS Drawn By: BJ

Steel Decorated Pole
Palo Alto
PALO ALTO_061

ALLSTATES ENGINEERING & SURVEYING

Tower Input Data

The tower is a monopole.
This tower is designed using the AASHTO 2013 standard.
The following design criteria apply:
Tower is located in Santa Clara County, California.
Basic wind speed of 85 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Deflections calculated using a wind speed of 60 mph.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	29.00-0.00	29.00		8	5.7300	10.0000	0.2190	0.8760	6063-T6 (25 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in²	I in⁴	r in	C in	I/C in³	J in⁴	It/Q in²	w in	w/t
L1	6.0217 10.6435	4.0069 7.1116	16.0550 89.7569	2.0060 3.5603	3.0999 5.4100	5.1791 16.5909	32.8863 183.8543	1.9529 3.4661	1.4656 3.2333	6.692 14.764

Tower Elevation ft	Gusset Area (per face) in²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_s	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 29.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight plf
Existing Cable Inside Pole	C	No	Yes	CaAa (Out Of Face)	29.00 - 0.00	1	No Ice	0.06	0.15

Steel Decorated Pole
Palo Alto
PALO ALTO_061

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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft²	C_AA_A Side ft²	Weight lb
Light Luminarie	C	From Leg	8.00 0.00 0.00	0.0000	22.50	No Ice	2.36	2.36	55.00
8' x 2.875" O.D. Light Pole Arm	C	From Leg	4.00 0.00 1.75	0.0000	22.50	No Ice	1.92	0.06	65.00
FCC RF Notice Signage	B	From Leg	0.00 0.00 0.00	0.0000	23.50	No Ice	0.33	0.01	0.20
Palo Alto_5G_SFF w/ Antenna	B	From Leg	0.25 0.25 0.00	0.0000	27.75	No Ice	2.54	1.87	49.00
Palo Alto_5G_SFF w/ Antenna	A	From Leg	0.25 0.25 0.00	0.0000	27.75	No Ice	2.54	1.87	49.00
Palo Alto_5G_SFF w/ Antenna	C	From Leg	0.25 0.25 0.00	0.0000	27.75	No Ice	2.54	1.87	49.00
2PC Cast Alum. Clamshell	B	None		0.0000	1.42	No Ice	2.01	2.01	50.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	Dead+Wind 0 deg - Service
9	Dead+Wind 90 deg - Service
10	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	29 - 0	Pole	Max Tension	10	0.00	-0.07	-0.02
			Max. Compression	2	-616.52	207.84	15450.03
			Max. Mx	5	-461.85	-15912.55	237.63

Steel Decorated Pole
Palo Alto
PALO ALTO_061

ALLSTATES ENGINEERING & SURVEYING

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	6	-616.41	1363.86	-16357.63
			Max. Vy	4	1014.80	-15785.24	124.32
			Max. Vz	4	0.67 kc	1363.86	-16357.63
			Max. Torque	3			479.26

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	6	618.28	23.39	-986.69
	Max. H_x	7	463.71	23.39	-986.67
	Max. H_z	3	463.71	-23.39	986.68
	Max. M_x	3	15496.62	-23.39	986.68
	Max. M_z	5	15912.54	-1013.64	23.39
	Max. Torsion	3	478.59	-23.39	986.68
	Min. Vert	5	463.71	-1013.64	23.39
	Min. H_x	4	618.28	-1013.68	23.39
	Min. H_z	6	618.28	23.39	-986.69
	Min. M_x	6	-16357.65	23.39	-986.69
	Min. M_z	6	-1363.56	23.39	-986.69
	Min. Torsion	7	-476.53	23.39	-986.67

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	515.23	0.16	-0.09	374.82	649.10	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	618.28	23.39	-986.66	-15450.03	207.55	-474.70
0.9 Dead+1.6 Wind 0 deg - No Ice	463.71	23.39	-986.68	-15496.62	9.12	-478.59
1.2 Dead+1.6 Wind 90 deg - No Ice	618.28	1013.68	-23.39	-124.49	-15785.24	274.46
0.9 Dead+1.6 Wind 90 deg - No Ice	463.71	1013.64	-23.39	-237.80	-15912.54	276.69
1.2 Dead+1.6 Wind 180 deg - No Ice	618.28	-23.39	986.69	16357.65	1363.56	472.49
0.9 Dead+1.6 Wind 180 deg - No Ice	463.71	-23.39	986.67	16171.27	1159.63	476.53
Dead+Wind 0 deg - Service	515.24	6.55	-274.83	-4040.76	491.24	-133.08
Dead+Wind 90 deg - Service	515.24	282.36	-6.53	215.83	-3950.73	76.87
Dead+Wind 180 deg - Service	515.23	-6.48	274.78	4793.33	812.27	132.91

Steel Decorated Pole
Palo Alto
PALO ALTO_061

ALLSTATES ENGINEERING & SURVEYING

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	KIr	A in²	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	29 - 0 (1)	TP10x5.73x0.219	29.00	29.00	97.7	7.1116	-616.41	128668.00	0.005

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uz} lb-ft	ϕM_{nz} lb-ft	Ratio $\frac{M_{uz}}{\phi M_{nz}}$
L1	29 - 0 (1)	TP10x5.73x0.219	16414.42	38573.92	0.426	0.00	38573.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	29 - 0 (1)	TP10x5.73x0.219	988.14	99206.40	0.010	472.44	80323.58	0.006

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uz}}{\phi M_{nz}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	29 - 0 (1)	0.005	0.426	0.000	0.010	0.006	0.431 ✓	1.000	10.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	29 - 0	Pole	TP10x5.73x0.219	1	-616.41	128668.00	43.1	Pass
							Summary	
						Pole (L1)	43.1	Pass
						RATING =	43.1	Pass

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Company:	All State Eng. & Surveying	Page:	1
Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
Phone I Fax:	9492730066 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/11/2021
Fastening point:			

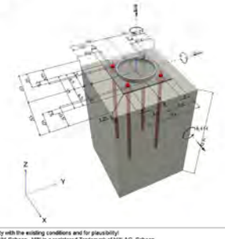
Specifier's comments:

1 Input data

Anchor type and diameter:	Heavy Hex Head ASTM F 1554 GR. 36 |
Item number:	not available
Effective embedment depth:	h_{ef} = 25.000 in.
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-08 / CIP
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 1.00; e_b = 1.250 in.; t = 0.500 in.
Anchor plate[1]:	l_x | l_y x t = 13.000 in. x 13.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	Round HSS (AISC), HSS10X.188; (L x W x T) = 10.000 in. x 10.000 in. x 0.188 in.
Base material:	cracked concrete, , f'_c = 3,250 psi; h = 84.000 in.
Reinforcement:	tension: condition A, shear: condition B; anchor reinforcement: tension edge reinforcement: > No. 4 bar with stirrups
Seismic loads (cat. C, D, E, or F)	no

[1] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, ft.lb]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
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23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

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1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
CALCS

SHEET NUMBER
C-2

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Phone I Fax:	9492730996 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	$N = -618; V_x = 0; V_y = -1,014; M_x = 16,414.000; M_y = 0.000; M_z = 0.000;$	no	43

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Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

2 Proof I Utilization (Governing Cases)

Loading	Proof	Design values [lb] Load	Capacity	Utilization β_N / β_V [%]	Status
Tension	Pullout Strength	10,788	27,318	40 / -	OK
Shear	Steel failure (with lever arm)	253	831	- / 31	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.421	0.305	5/3	38	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

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Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

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All States Engineering & Surveying
Zalzali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Lighht Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Pole Footing Embedded in Soil

File: Caisson Depth.ecl
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zalzali & Associates Inc

DESCRIPTION: Poposed Caisson embedment (soil values From IBC Table 1806.2 with lateral bearing load increase from IBC 1806.3.4)

Code References

Calculations per IBC 2018 1807.3, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Pole Footing Shape	Circular
Pole Footing Diameter	36.0 in
Calculate Min. Depth for Allowable Pressures	
No Lateral Restraint at Ground Surface	
Allow Passive	200.0 pcf
Max Passive	1,500.0 psf

Controlling Values

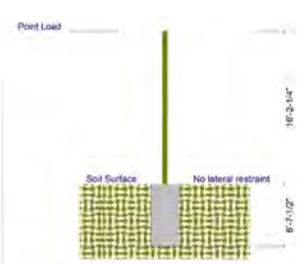
Governing Load Combination : +D+W

Lateral Load	1.014 k
Moment	16.414 k-ft

NO Ground Surface Restraint

Pressures at 1/3 Depth

Actual	**439.454** psf
Allowable	**440.430** psf
Minimum Required Depth	**6.625 ft**
Footing Base Area	7.069 ft^2
Maximum Soil Pressure	0.08743 ksf



Provide 36" Dia. x 7' Embedment Depth Circular Caisson

Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)		Vertical Load (k)
D : Dead Load	k		k/ft	0.6180 k
Lr : Roof Live	k		k/ft	k
L : Live	k		k/ft	k
S : Snow	k		k/ft	k
W : Wind	1.014 k		k/ft	k
E : Earthquake	k		k/ft	k
H : Lateral Earth	k		k/ft	k
Load distance above ground surface	16.187 ft	TOP of Load above ground surface	ft	
		BOTTOM of Load above ground surface	ft	

Load Combination Results

Load Combination	Forces @ Ground Surface Loads - (k)	Moments - (ft-k)	Required Depth - (ft)	Pressure at 1/3 Depth Actual - (psf)	Allow - (psf)	Soil Increase Factor
+D+W	1.014	16.414	6.63	439.5	440.4	1.000

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Zalzali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Lighht Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Concrete Caisson

File: Caisson Depth.ecl
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zalzali & Associates Inc

DESCRIPTION: Design Concrete Caisson

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

f'c : Concrete 28 day strength	=	3.250 ksi
E =	=	3,122.0 ksi
Density	=	150.0 pcf
β	=	0.850
fy - Main Rebar	=	60.0 ksi
E - Main Rebar	=	29,000.0 ksi
Allow. Reinforcing Limits		ASTM A615 Bars Used
Min. Reinf.	=	0.250 %
Max. Reinf.	=	8.0 %

Overall Caisson Height = 7.0 ft
End Fixity: Top Free, Bottom Fixed
Brace condition for deflection (buckling) along columns :
X-X (width) axis :
Fully braced against buckling ABOUT Y-Y Axis
Y-Y (depth) axis :
Fully braced against buckling ABOUT X-X Axis

Caisson Cross Section

Caisson Dimensions: 36.0in Diameter, Caisson Edge to Rebar Edge Cover = 3.0in

Caisson Reinforcing : 12 - #5 bars

Applied Loads

Entered loads are factored per load combinations specified by user.

Caisson self weight included : 7,422.01 lbs * Dead Load Factor
AXIAL LOADS . . .
Reaction from Pole: Axial Load at 7.0 ft above base, D = 0.6180 k
BENDING LOADS . . .
Reaction from Pole: Lat. Point Load at 7.0 ft creating Mx-x, W = 1.690 k
Reaction from Pole: Moment acting about X-X axis at 7.0 ft, W = 27.356 k-ft

DESIGN SUMMARY

Load Combination			+0.90D+W+1.60H
Location of max.above base			6.953 ft
Maximum Stress Ratio			**0.075 : 1**
Ratio = (Pu^2+Mu^2)^.5 / (PhiPn^2+PhiMn^2)^.5			
Pu =	7.236 k	φ * Pn =	98.643 k
Mu-x =	27.277 k-ft	φ * Mn-x =	-369.236 k-ft
Mu-y =	0.0 k-ft	φ * Mn-y =	0.0 k-ft
Mu Angle =	0.0 deg		
Mu at Angle =	27.277 k-ft	φMn at Angle =	363.063 k-ft

Pn & Mn values located at Pu-Mu vector intersection with capacity curve

Caisson Capacities . . .

Pnmax : Nominal Max. Compressive Axial Capacity	3,024.81 k
Pnmin : Nominal Min. Tension Axial Capacity	k
φ Pn, max : Usable Compressive Axial Capacity	1,799.76 k
φ Pn, min : Usable Tension Axial Capacity	k

Maximum SERVICE Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	1.014 k

Maximum SERVICE Load Deflections . . .

Along Y-Y -0.003179 in at 7.0 ft above base
for load combination : W Only
Along X-X 0.0 in at 0.0 ft above base
for load combination :

General Section Information . φ = 0.75 β = 0.850 γ = 0.800

ρ : % Reinforcing	0.3655 % Rebar % Ok
Reinforcing Area	3.720 in^2
Concrete Area	1,017.88 in^2

All States Engineering & Surveying
Zalzali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Lighht Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Concrete Caisson

File: Caisson Depth.ecl
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Governing Load Combination Results

Governing Factored Load Combination	Moment X-X	Y-Y	Dist. from base ft	Axial Load k Pu	φ * Pn	δx	δx * Mux	δy	δy * Muy	Bending Analysis k-ft Alpha (deg)	δ Mu	φ Mn	Utilization Ratio
+1.40D+1.60H			6.95	11.26	1,799.76					0.000			0.006
+1.20D+0.50Lr+L+W+1.60H	Actual		6.95	9.65	145.32	1.000	27.28			0.000	27.28	408.93	0.067
+0.90D+W+1.60H	Actual		6.95	7.24	98.64	1.000	27.28			0.000	27.28	363.06	0.075

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction k @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments k-ft @ Base	@ Top	Mx - End Moments @ Base	@ Top
+D+H					8.040				
+D+0.60W+H			1.014		8.040	9.316			
+0.60D+0.60W+0.60H			1.014		4.824	9.316			

Maximum Moment Reactions

Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis @ Base	@ Top		Moment About Y-Y Axis @ Base	@ Top	
+D+H			k-ft			k-ft
+D+0.60W+H	9.316		k-ft			k-ft
+0.60D+0.60W+0.60H	9.316		k-ft			k-ft

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
+D+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.60W+H	0.0000	in	0.000	ft	-0.002	in	7.000	ft
+0.60D+0.60W+0.60H	0.0000	in	0.000	ft	-0.002	in	7.000	ft
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
W Only	0.0000	in	0.000	ft	-0.003	in	6.953	ft

Sketches

Interaction Diagrams

verizon
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WALNUT CREEK, CA 94598

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ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
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PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

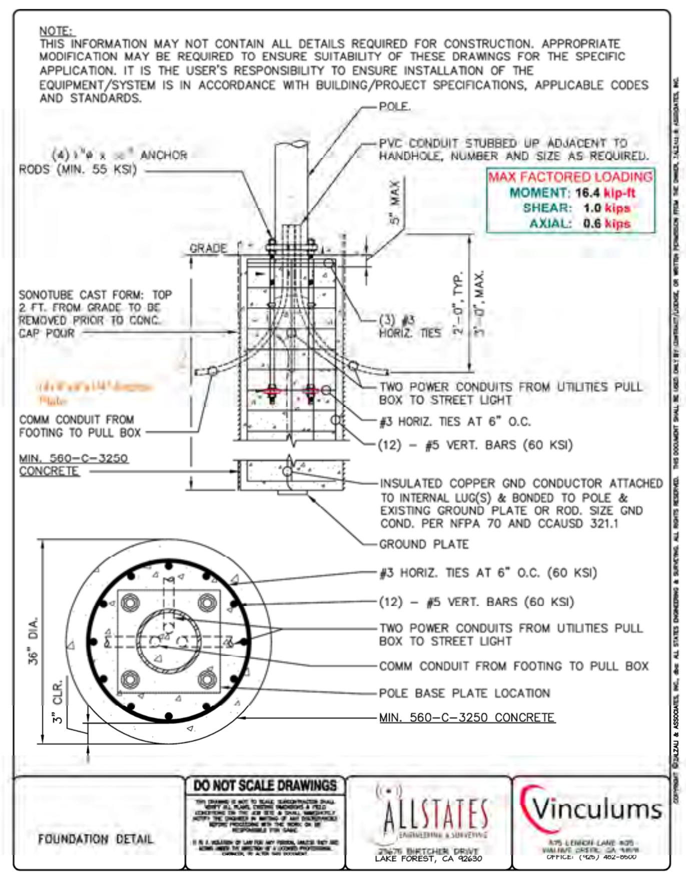
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
CALCS

SHEET NUMBER
C-3

19



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REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

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PALO ALTO, 94301
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SHEET TITLE
CALCS

SHEET NUMBER
C-4

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND CONSTRUCTION SPECIFICATIONS 80-T1196-1 REV H. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION

3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK (ROOF FRAMING, ELECTRICAL SERVICE, LOCAL PLANNING CODES, ETC.) AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS

4. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A) TRANSMITTER
   B) RF FILTER
   C) MFTS RACK
   D) AUXILIARY EQUIPMENT IN MFTS RACK
   E) PUMP ASSEMBLY
   F) HEAT EXCHANGER
   G) HOSE AND HOSE MANIFOLDS (ANY COPPER OR STEEL SECTIONS PROVIDE BY CONTRACTOR)
   H) UHF ANTENNA AND MOUNTING BRACKETS, GPS ANTENNAS AND KU ANTENNAS
   I) UHF COAX AND HANGERS
   K) 480-208 & 208-400 ELECTRICAL TRANSFORMERS (RE: E-2 FOR SPECIALIZED TRANSFORMERS PROVIDED BY CONTRACTOR)
   L) AUTOMATIC TRANSFER SWITCH AND GENERATOR
   M) EQUIPMENT SHELTER (SHELTERS FURNISHED IN FACTORY W/ HVAC EQUIPMENT AND ELECTRICAL DISTRIBUTION PANEL)
   N) INTEGRATED LOAD CENTER

5. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WORK.

6. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

7. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

10. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SUPERINTENDENT OF BUILDINGS & GROUNDS AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

12. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

13. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATELY REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.

14. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT.

15. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

16. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS.

17. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

18. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

19. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO APPLICABLE REGULATORY AUTHORITIES

20. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES.

21. ALL CONSTRUCTION IS TO ADHERE TO VERIZON'S INTEGRATED CONSTRUCTION STANDARDS UNLESS CALIFORNIA CODE IS MORE STRINGENT.

22. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE WITH THE CALIFORNIA BUILDING STANDARDS CODE, TITLES 19 AND 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK.

SITE WORK NOTES

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.

2. DO NOT SCALE BUILDING DIMENSIONS FROM DRAWING.

3. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.

4. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE. BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL EXISTING UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING EXISTING UTILITIES.

5. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS/HER OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL DIGGER HOT LINE FOR UTILITY LOCATIONS 48 HOURS PRIOR TO START OF CONSTRUCTION.

6. ALL NEW AND EXISTING UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK.

7. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO EXISTING GRADES AT THE GRADING LIMITS.

8. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.

9. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY.

10. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

11. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.

12. ANY FILLS PLACED ON EXISTING SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE EXISTING SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.

13. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, WEEDS, BRUSH OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.

14. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.

15. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.

2. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS AND SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.

3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.

4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.

5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.

7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.

8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.

9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.

10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES

GENERAL NOTES

1. THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS, CONTRACT AND CONSTRUCTION DOCUMENTS.

2. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THESE PLANS AND IN THE CONTRACT DOCUMENTS.

3. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR(S) SHALL VISIT THE JOB SITE(S) AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRM THAT THE WORK MAY BE ACCOMPLISHED PER THE CONTRACT DOCUMENTS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO BID SUBMITTAL

4. THE CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED ON ANY WORK NOT CLEARLY DEFINED OR IDENTIFIED IN THE CONTRACT AND CONSTRUCTION DOCUMENTS BEFORE STARTING ANY WORK.

5. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES, INCLUDING APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS.

6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. IF THESE RECOMMENDATIONS ARE IN CONFLICT WITH THE CONTRACT AND CONSTRUCTION DOCUMENTS AND/OR APPLICABLE CODES OR REGULATIONS, REVIEW AND RESOLVE THE CONFLICT WITH DIRECTION FROM THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO PROCEEDING.

7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATION OF ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE IMPLEMENTATION ENGINEER AND WITH THE AUTHORIZED REPRESENTATIVE OF ANY OUTSIDE POLE OR PROPERTY OWNER.

8. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO PAVING, CURBS, VEGETATION, GALVANIZED SURFACE OR OTHER EXISTING ELEMENTS AND UPON COMPLETION OF THE WORK, REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION TO THE SATISFACTION OF VERIZON.

9. CONTRACTOR IS TO KEEP THE GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION DAILY.

10. PLANS ARE INTENDED TO BE DIAGRAMMATIC ONLY AND SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. RELY ONLY ON ANNOTATED DIMENSIONS AND REQUEST INFORMATION IF ADDITIONAL DIMENSIONS ARE REQUIRED.

11. THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. OTHER FACILITIES MAY EXIST. CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO START OF CONSTRUCTION AND USE EXTREME CARE AND PROTECTIVE MEASURES TO PREVENT DAMAGE TO THESE FACILITIES. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF UTILITIES OR OTHER AGENCY'S FACILITIES WITHIN THE LIMITS OF THE WORK, WHETHER THEY ARE INDENTIFIED IN THE CONTRACT DOCUMENTS OR NOT.

12. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600, AT LEAST TWO WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION.

DEFINITIONS

1. "TYPICAL" OR "TYP" MEANS THAT THIS ITEM IS SUBSTANTIALLY THE SAME ACROSS SIMILAR CONDITIONS. "TYP." SHALL BE UNDERSTOOD TO MEAN "TYPICAL WHERE OCCURS" AND SHALL NOT BE CONSIDERED AS WITHOUT EXCEPTION OR CONSIDERATION OF SPECIFIC CONDITIONS.

2. "SIMILAR" MEANS COMPARABLE TO CHARACTERISTICS FOR THE CONDITION NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLAN.

3. "AS REQUIRED" MEANS AS REQUIRED BY REGULATORY REQUIREMENTS, BY REFERENCED STANDARDS, BY EXISTING CONDITIONS, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICE, OR BY THE CONTRACT DOCUMENTS.

4. "ALIGN" MEANS ACCURATELY LOCATE FINISH FACES OF MATERIALS IN THE SAME PLANE.

5. THE TERM "VERIFY" OR "V.I.F." SHALL BE UNDERSTOOD TO MEAN "VERIFY IN FIELD WITH ENGINEER" AND REQUIRES THAT THE CONTRACTOR CONFIRM INTENTION REGARDING NOTED CONDITION AND PROCEED ONLY AFTER RECEIVING DIRECTION.

6. WHERE THE WORDS "OR EQUAL" OR WORDS OF SIMILAR INTENT FOLLOW A MATERIAL SPECIFICATION, THEY SHALL BE UNDERSTOOD TO REQUIRE SIGNED APPROVAL OF ANY DEVIATION TO SAID SPECIFICATION PRIOR TO CONTRACTOR'S ORDERING OR INSTALLATION OF SUCH PROPOSED EQUAL PRODUCT.

7. FURNISH: SUPPLY ONLY, OTHERS TO INSTALL.
   INSTALL: INSTALL ITEMS FURNISHED BY OTHERS.
   PROVIDE: FURNISH AND INSTALL.

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PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
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REGISTERED PROFESSIONAL ENGINEER
HASAN ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY 'CONSTRUCTION MANAGER' AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE 'CONSTRUCTION MANAGER' HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL EXISTING CONDITIONS OF ELECTRICAL EQUIP., LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF HIS BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL CODES AND LOCAL ORDINANCES OF THE LOCAL POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT NOT BE LIMITED TO:
   C - NATIONAL FIRE CODES
   A. UL - UNDERWRITERS LABORATORIES
   B. NEC - NATIONAL ELECTRICAL CODE
   C. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D. OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
   E. SBC - STANDARD BUILDING CODE

4. DO NOT SCALE ELECTRICAL DRAWINGS, REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH 'CONSTRUCTION MANAGER' ANY SIZES AND LOCATIONS WHEN NEEDED.

5. EXISTING SERVICES: CONTRACTOR SHALL NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.

6. CONTRACTOR SHALL PAY FOR ANY/ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO THE WORK BEGINNING OR ORDERING EQUIPMENT.

7. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.

8. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER, PRIOR TO BEGINNING ANY WORK.

9. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION.

10. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

11. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

12. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY VERIZON.

13. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND SUBJECT TO REGULATORY INSPECTION AND APPROVAL BY CONSTRUCTION MANAGER.

14. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

15. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.

16. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.

17. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.

18. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.

19. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.

20. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.

21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURES CATALOG INFORMATION OF ANY/ALL LIGHTING FIXTURES, SWITCHES AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.

22. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE 'CONSTRUCTION MANAGER' UPON FINAL ACCEPTANCE.

23. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

24. DISCONNECT SWITCHES SHALL BE H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.

25. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.

26. RACEWAYS: CONDUIT SHALL BE SCHEDULE 40 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD GALV'.

27. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.

28. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, 800 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.

29. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.

30. SERVICE: 240/120V, SINGLE PHASE, 3 WIRE CONNECTION AVAILABLE FROM UTILITY COMPANY. OWNER OR OWNERS AGENT WILL APPLY FOR POWER.

31. TELEPHONE SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.

32. ELECTRICAL AND TELCO RACEWAYS TO BE BURIED A MINIMUM OF 2' DEPTH.

33. CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOMM".

34. ALL BOLTS SHALL BE STAINLESS STEEL

GROUNDING NOTES

1. COMPRESSION CONNECTIONS (2), 2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.

2. EC SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH I" HIGH LETTERS.

3. ALL HARDWARE 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR LARGER.

4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE.

6. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

7. WHEN THE SCOPE OF WORK REQUIRES THE ADDITION OF A GROUNDING BAR TO AN EXISTING TOWER,THE SUBCONTRACTOR SHALL OBTAIN APPROVAL FROM THE TOWER OWNER PRIOR TO MOUNTING THE GROUNDING BAR TO THE TOWER.

8. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

ADDITIONAL NOTES:

9. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.

10. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.

11. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.

12. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 5 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE VERIZON REPRESENTATIVE.

13. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

14. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.

15. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 12" BELOW GRADE/FROST-LINE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.

16. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.

17. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" (OR DIRECTLY TO GROUND-RING).

18. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
   a. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR INDOOR USE OR AS APPROVED BY VERIZON PROJECT MANAGER.
   b. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
   c. TWO -(2) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS (BUS BAR CONNECTIONS).

19. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES).

20. PRIOR TO ANY LUG-BUSSBAR CONNECTIONS, THE BUSSBAR SHALL BE CLEANED BY USE OF "SCOTCH-BRITE' OR PLAIN STEEL WOOL AS TO REMOVE ALL SURFACE OXIDATION AND CONTAMINANTS. A COATING OF "NO-OX-ID" SHALL BE APPLIED TO THE CONNECTION SURFACES.

21. ALL CONNECTION HARDWARE SHALL BE TYPE 316 SS (NOT ATTRACTED TO MAGNETS).

22. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.

23. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER CONNECTIONS MUST BE MADE ON THE STREET SIDE OF MAIN SHUT-OFF VALVE.

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REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
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CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

"Hands On Tree Care"

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CERTIFIED ARBORIST ISA

ACCREDITED TCIA

CONFIDENCE.

4/22/2021

Jeremy Stroup
Real Estate Specialist III
Vinculums Services, LLC
10 Pasteur, Suite 100
Irvine, CA 92618
jstroup@vinculums.com
925-202-8654

Re: Tree Protection Measures at SF PALO ALTO 061 (1211 Middlefield Rd.)

Dear Jeremy,

Cellular equipment will be mounted on a new metal light pole, #121, adjacent to the above address, with a new handhole in the sidewalk adjacent to the pole, connected to the pole and to an existing handhole by conduit installed via trenching. The new light pole will be installed about four feet northwest of the existing pole. Nearly all excavation will be under the existing sidewalk, with a small amount in the unpaved park strip. I visually estimated distances between trees and project features onsite.

Two trees are present, as shown in the Tree Table, below. Both are street trees, and both lie within the project area. Tree #1 conflicts directly with the proposed light pole location and must be removed for the project to proceed as proposed. A small shrub is also present approximately where the proposed pole will be installed, and must be removed.

The proposed fiber vaults lie within the dripline[1] of tree #2. Tree #2 requires Type II tree protection; fencing on the side nearer the fiber vaults must be placed at edge of the proposed excavation. Trenching must be performed by hand. If any live roots are encountered during excavation, the recommendations in section 2.20 C apply:

[1] The area within 10x the tree's DBH, as specified in the City of Palo Alto Tree Technical Manual. Please note that this may be different from the edge of the canopy. Also commonly called the dripline.

C. Trenching, Excavation and Equipment Use

Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the *City Arborist*. *(See Restriction Zones for Excavation, Trenching or Boring Near Regulated Trees, image 2.20-1 through 2.20-3).* Mitigating measures shall include prior notification to and direct supervision by the *project arborist*.

1. Notification. Contractor shall notify the *project arborist* a minimum of 24 hours in advance of the activity in the TPZ.
2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired (*see Root Injury, Section 2.25 A-1*). Roots 2-inches and greater must remain injury free.
3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.
   - If excavation or *trenching* for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.
   - Prior to excavation for foundation/footings/walls, grading or *trenching* within the TPZ, roots shall first be severed cleanly 1-foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw, sawzall, narrow trencher with sharp blades or other approved root pruning equipment.
4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the *City Arborist*. If allowed, a protective *root buffer* (*see Root Buffer and Damage to Trees, Section 2.25.A-1*) is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.
   - Structural design. If injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to *City Arborist* approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

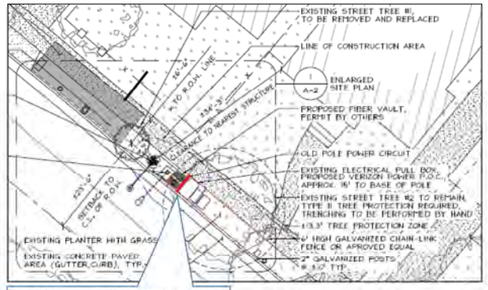
Existing street tree foliage from tree #2 is within 35 feet of the WCF and provides interruption of direct views of the WCF from the southeast.

At the direction of City of Palo Alto staff, one new 24" boxed tree shall be planted to replace tree #1, in the park strip northwest of the pole. I recommend planting the new tree slightly farther away from the pole than the current tree to facilitate possible future maintenance. This area currently contains agapanthus (*Agapanthus* sp.) shrubs. The new tree will be within 10 feet of an existing water meter, so a permanent impermeable root barrier will be needed. I recommend placing this barrier as far as possible from the tree, 3 feet from the water meter.

I have been informed by my client that all trees planted near 5G equipment must reach a mature height of 20 feet or less. City staff has specified a drought-tolerant tree. Given these constraints, I recommend a swamp myrtle (*Tristaniopsis laurina*).

Tree #	Species	Common Name	DBH[2] (in.)	Dripline[3] (ft. and in.)	Regulated Status
1	Tilia cordata	Littleleaf linden	3.9	3'3"	Street Tree
2	Tilia cordata	Littleleaf linden	15.9	13'3"	Street Tree
3	Swamp myrtle (not yet present)	Tristaniopsis laurina	24" box	N/A	Replacement for Street Tree #1

Tree map, revised by client 4/2/2021



Edge of tree protection fencing must be moved to red line to accommodate fiber vault excavation

[2] Diameter at breast height, a standard arboricultural measurement. Breast height is defined as 54 inches above grade.
[3] Defined in the Palo Alto Tree Technical Manual as ten times the tree's DBH. Work within a tree's dripline may negatively impact it.

Images of agapanthus, tree #1, shrub, and tree #2 (left to right)

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
5. Loss, alteration, or reproduction of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
7. Neither all nor any part of this report, nor any copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or initialed designation conferred upon the consultant/appraiser as stated in his qualification.
8. This report and the values expressed herein represent the opinion of the consult/appraiser, and the consult/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in future.

Respectfully submitted,

Katherine Naegele
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A TCIA Accredited Company
Master of Forestry, UC Berkeley
ISA Certified Arborist #WE-9658A
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SHEET TITLE
TREE PROTECTION REPORT

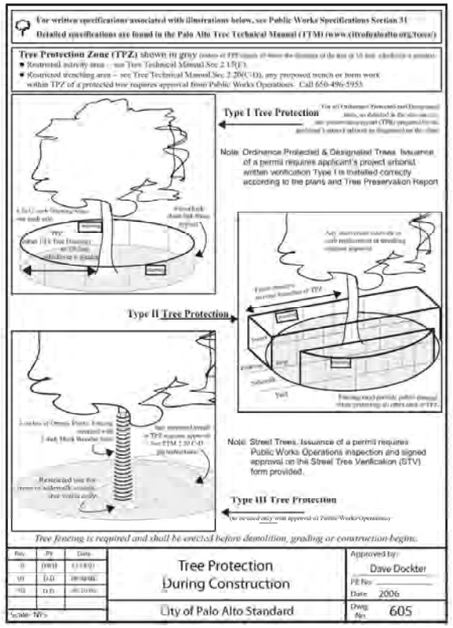
SHEET NUMBER
TPR-1

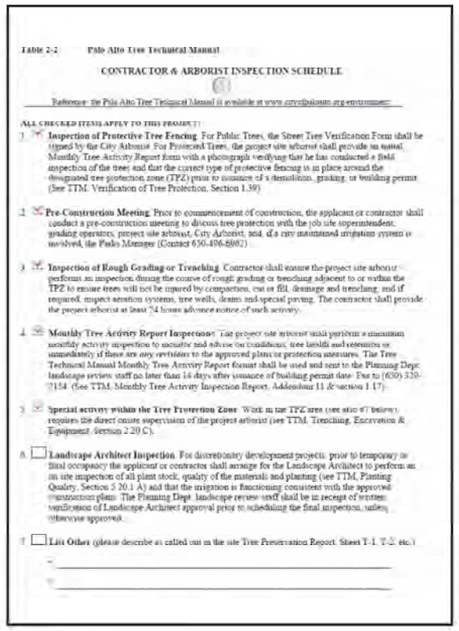
NOTE:
ANY CONSTRUCTION WITHIN THE CITY'S PUBLIC ROAD RIGHT-OF-WAY SHALL HAVE AN APPROVED PERMIT FOR CONSTRUCTION IN THE PUBLIC STREET PRIOR TO CEMMENCEMENT OF THIS WORK

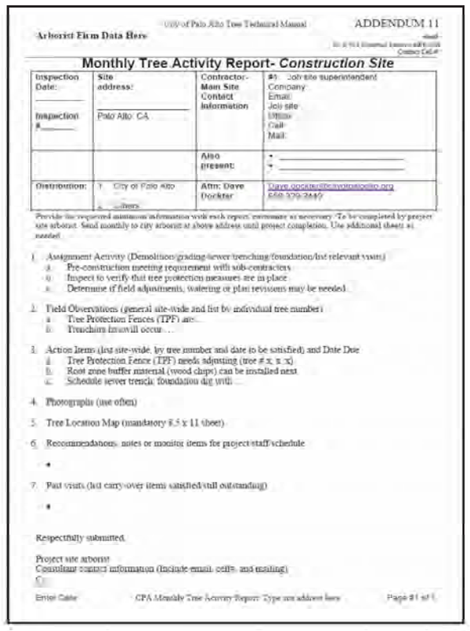
City of Palo Alto
Tree Protection - It's Part of the Plan!

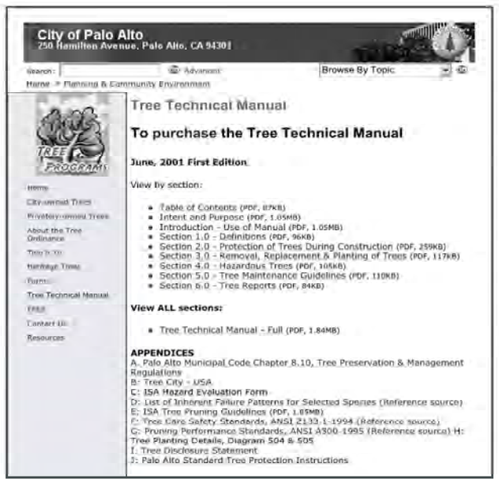
Make sure your crews and subs do the job right!

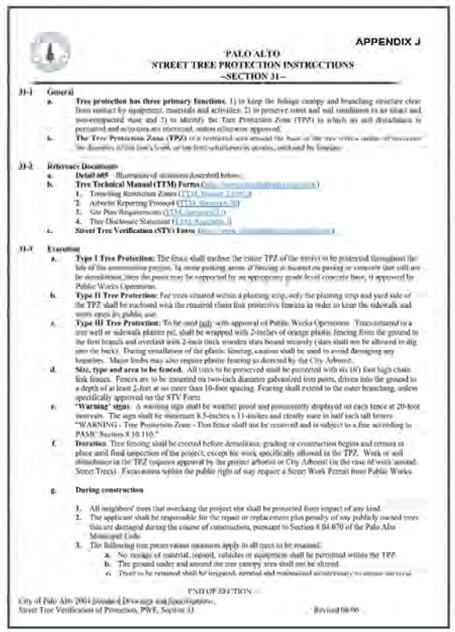
Fenced enclosures around trees are essential to protect them by keeping the foliage canopy and branching structure clear from contact by equipment, materials and activities, preserving roots and soil conditions in an intact and non-compacted state, and identifying the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved. **An approved tree protection report must be added to this sheet when project activity occurs within the TPZ of a regulated tree.**
For detailed information on Palo Alto's regulated trees and protection during development, review the **City Tree Technical Manual** (TTM) found at www.cityofpaloalto.org/trees/.











Apply Tree Protection Report on sheet(s) T-2

Use addtional "T" sheets as needed

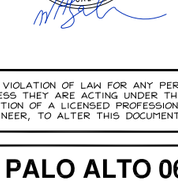
verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF



SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
PALO ALTO TREE PROTECTION

SHEET NUMBER
L-1

POLLUTION PREVENTION — IT'S PART OF THE PLAN

Construction projects are required to implement year-round stormwater BMPs, as they apply to your project.

Runoff from streets and other paved areas is a major source of pollution to San Francisco Bay. Construction activities can directly affect the health of the Bay unless contractors and crews plan ahead to keep construction dirt, debris, and other pollutants out of storm drains and local creeks. Following these guidelines will ensure your compliance with City of Palo Alto Ordinance requirements.






MATERIALS & WASTE MANAGEMENT

Non-Hazardous Materials

- ☐ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or when they are not in use.
- ☐ Use (but don't overuse) reclaimed water for dust control.
- ☐ Ensure dust control water doesn't leave site or discharge to storm drains.

Hazardous Materials

- ☐ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ☐ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ☐ Follow manufacturer's application instructions for hazardous materials and do not use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ☐ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ☐ Cover and maintain dumpsters. Check frequently for leaks. Place dumpsters under roofs or cover with tarps or plastic sheeting secured around the outside of the dumpster. A plastic liner is recommended to prevent leaks. Never clean out a dumpster by hosing it down on the construction site.
- ☐ Place portable toilets away from storm drains. Make sure they are in good working order. Check frequently for leaks.
- ☐ Dispose of all wastes and demolition debris properly. Recycle materials and wastes that can be recycled, including solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation.
- ☐ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.
- ☐ Keep site clear of litter (e.g. lunch items, cigarette butts).
- ☐ Prevent litter from uncovered loads by covering loads that are being transported to and from site.

Construction Entrances and Perimeter

- ☐ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ☐ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

EQUIPMENT MANAGEMENT & SPILL CONTROL

Maintenance and Parking

- ☐ Designate an area of the construction site, well away from streams or storm drain inlets and fitted with appropriate BMPs, for auto and equipment parking, and storage.
- ☐ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ☐ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ☐ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ☐ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment, and do not use diesel oil to lubricate equipment or parts onsite.

Spill Prevention and Control

- ☐ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ☐ Maintain all vehicles and heavy equipment. Inspect frequently for and repair leaks. Use drip pans to catch leaks until repairs are made.
- ☐ Clean up leaks, drips and other spills immediately and dispose of cleanup materials properly.
- ☐ Use dry cleanup methods whenever possible (absorbent materials, cat litter and/or rags).
- ☐ Sweep up spilled dry materials immediately. Never attempt to "wash them away" with water, or bury them.
- ☐ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ☐ Report any hazardous materials spills immediately! Call City of Palo Alto Communications, **(650) 329-2413**. If the spill poses a significant hazard to human health and safety, property or the environment, you must report it to the State Office of Emergency Services, **(800) 852-7550 (24 hours)**.

EARTHMOVING

Grading and Earthwork

- ☐ Schedule grading and excavation work during dry weather.
- ☐ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ☐ Remove existing vegetation only when absolutely necessary, plant temporary vegetation for erosion control on slopes or where construction is not immediately planned.
- ☐ Prevent sediment from migrating offsite and protect storm drain inlets, drainage courses and streams by installing and maintaining appropriate BMPs (e.g., silt fences, gravel bags, fiber rolls, temporary swales, etc.).
- ☐ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ☐ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells.
  - Buried barrels, debris, or trash.
- ☐ If the above conditions are observed, document any signs of potential contamination and clearly mark them so they are not disturbed by construction activities.

Landscaping

- ☐ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ☐ Stack bagged material on pallets and under cover.
- ☐ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

CONCRETE MANAGEMENT & DEWATERING

Concrete Management

- ☐ Store both dry and wet materials under cover, protected from rainfall and runoff and away from storm drains or waterways. Store materials off the ground, on pallets. Protect dry materials from wind.
- ☐ Wash down exposed aggregate concrete only when the wash water can (1) flow onto a dirt area; (2) drain onto a bermed surface from which it can be pumped and disposed of properly; or (3) block any storm drain inlets and vacuum washwater from the gutter. If possible, sweep first.
- ☐ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and make sure wash water does not leach into the underlying soil. (See CASQA Construction BMP Handbook for properly designed concrete washouts.)

Dewatering

- ☐ Reuse water for dust control, irrigation or another on-site purpose to the greatest extent possible.
- ☐ Be sure to obtain a Permit for Construction in the Public Street from Public Works Engineering before discharging water to a street, gutter, or storm drain. Call the Regional Water Quality Control Plant (RWQCP) at **(650) 329-2598** for an inspection prior to commencing discharge. Use filtration or diversion through a basin, tank, or sediment trap as required by the approved dewatering plan. Dewatering is not permitted from October to April.
- ☐ In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the City inspector to determine what testing to do and to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.

PAVING/ASPHALT WORK

Paving

- ☐ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ☐ Cover storm drain inlets and manholes when applying seal coat, slurry seal, fog seal, or similar materials.
- ☐ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

PAINTING & PAINT REMOVAL

Painting Cleanup and Removal

- ☐ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ☐ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ☐ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ☐ Sweep up or collect paint chips and dust from non-hazardous dry stripping and sand blasting into plastic drop cloths and dispose of as trash.
- ☐ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state certified contractor.

STORM DRAIN POLLUTERS MAY BE LIABLE FOR FINES OF UP TO $10,000 PER DAY!

250 Hamilton Avenue
Palo Alto, CA 94301
650.329.2211
cityofpaloalto.org

CITY OF PALO ALTO

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

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PROJECT ID:	P-334882
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0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
PALO ALTO POLLUTION PREVENTION CHECKLIST

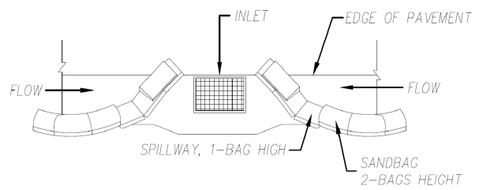
SHEET NUMBER
L-2

EROSION AND SEDIMENT CONTROL NOTES:

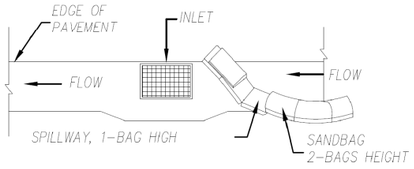
TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED PUBLIC IMPROVEMENTS CONSISTENT WITH THE EROSION CONTROL PLAN AND/OR WATER POLLUTION CONTROL PLAN (WPCP), IF APPLICABLE.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
4. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
5. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
6. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
7. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
8. EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED IMPROVEMENT PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
10. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.

STORM DRAIN INLET PROTECTION



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:

1. INTENDED FOR SHORT-TERM USE.
2. USE TO INHIBIT NON-STORM WATER FLOW.
3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FILTER FABRIC.

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE SANDBAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEPT AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. SIDEWALK TO BE REPLACED CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.
7. SIDEWALK SHALL BE RESTORED/REPLACED PER CITY STANDARD DRAWINGS.
8. PEDESTRIAN RAMP WILL NOT BE DISTURBED.PEDESTRIAN RAMP WILL NOT BE DISTURBED.

GENERAL CONTRACTOR NOTES:

1. STREET USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
2. ALL WORK TO BE CONDUCTED IN THE RIGHT OF WAY.
3. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
4. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNING WILL BE PLACED.
5. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
6. CLEANUP OF SITE WILL BE COMPLETED EACH EVENING AND THE SITE WILL BE RETURNED TO EXISTING CONDITIONS AT THE COMPLETION OF CONSTRUCTION AT EACH SITE.

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

R.O.W. GROUND CONSTRUCTION NOTES:

1. GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, GO95 AND GO128 STANDARDS AND REGULATIONS.
3. CALL USA 48 HOURS PRIOR TO EXCAVATING AT (800) 227-2600 OR 811.
4. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
5. ALL EQUIPMENT TO BE BONDED. ALL EQUIPMENT TO BE BONDED.
6. METERING CABINET REQUIRES 36" CLEARANCE AT DOOR OPENING.
7. CAULK CABINET BASE AT PAD.

CALIFORNIA STATE CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PREFORMED 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 CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

- CALIFORNIA ADMINISTRATIVE CODE (INCLUDING TITLES 24 & 25) 2016
- 2016 CALIFORNIA BUILDING CODES WHICH ADOPTS THE 2015 IBC, 2015 IMC, 2015 IPC AND THE 2014 NEC,AND SHALL INCLUDE 2016 CBC, CFC, CMC, CEC, CPC, CGBSC.
- BUILDING OFFICIALS & CODE ADMINISTRATORS (BOCA) CURRENT NATIONAL CODES
- ANSI/EIA-222-G (2009 - 2ND EDITION)
- NFPA-101 - LIFE SAFETY CODE / CAL-OSHA - TITLE 8 / FCR - TITLE 29
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES
- ACCESSIBILITY REQUIREMENTS:

** FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS DO NOT APPLY IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE.

- FCC RF/EMF EXPOSURE/EMITTANCE COMPLIANCE:

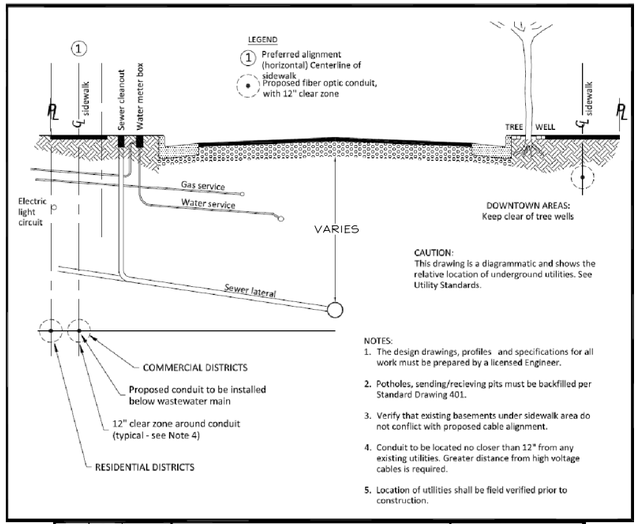
**FCC NOTE: THIS WIRELESS COMMUNICATION FACILITY COMPLIES WITH FEDERAL STANDARDS FOR RADIO FREQUENCY IN ACCORDANCE WITH THE TELECOMMUNICATION ACT OF 1996 AND SUBSEQUENT AMENDMENTS AND ANY OTHER REQUIREMENTS IMPOSED BY STATE OR FEDERAL REGULATORY AGENCIES.

CITY OF PALO ALTO UTILITIES ENGINEERING NOTES:

1. APPLICANT SHALL TAP ELECTRIC SERVICE TO THE SMALL CELL DISTRIBUTED ANTENNA SYSTEM FROM THE LOCATIONS JOINTLY IDENTIFIED DURING THE FIELD INVESTIGATION.
2. SERVICE VOLTAGE TO ALL THE PROPOSED LOCATIONS MAY NOT BE THE SAME. APPLICANT SHALL DESIGN THEIR SYSTEM TO OPERATE AT THE AVAILABLE VOLTAGE IN THE VICINITY.
3. IF BRAND NEW POLES NEED TO BE INSTALLED FOR APPLICANT'S SYSTEM THEN THE POLES MUST MATCH EXISTING POLES IN THE DOWN TOWN AREA.
4. AFTER EXCAVATION IS COMPLETED ON THE PUBLIC RIGHT OF WAY, EXISTING STREETS INCLUDING SIDEWALKS/ CURB/ GUTTER OR ANY DECORATIVE PATHS MUST BE BROUGHT TO ITS ORIGINAL CONDITION AND MUST BE APPROVED BY PUBLIC WORKS ENGINEERING DEPARTMENT'S INSPECTOR. POTHOLING MUST BE DONE AND ALL THE UTILITIES MUST BE IDENTIFIED PRIOR TO COMMENCING EXCAVATION.
5. EXCAVATION AND RESTORATION WORK MUST BE IN COMPLIANCE WITH PUBLIC WORKS ENGINEERING STANDARDS AND SPECIFICATIONS THAT ARE AVAILABLE ON THE FOLLOWING WEBSITE: http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=1834&TargetID=145
6. APPLICANTS SHALL BE RESPONSIBLE FOR MAINTAINING THEIR SYSTEM INCLUDING SUBSTRUCTURE. IN CASE OF KNOCK DOWNS, THE CITY WILL RE-INSTALL ITS STREET LIGHTING POLES BUT NOT APPLICANT'S EQUIPMENT ON OR OFF THE POLE.
7. A FIELD MEETING IS RECOMMENDED WITH UTILITIES ENGINEERING PRIOR TO COMMENCING THE WORK.
8. PLANS SHALL INCLUDE A NOTE: CONTRACTOR TREE INSPECTION REQUIREMENTS: MODIFIED TYPE III TRUNK WRAPPING SHALL BE VERIFIED BY URBAN FORESTRY PRIOR TO ANY WORK IN THE VICINITY. FOR EACH TREE SITE WRAPPED FOR PROTECTION WITHIN 15' OF ANY WORK ZONE OR CONCRETE FORM SECTION, A BILLABLE TREE INSPECTION BY URBAN FORESTRY (650-496-5953, 24-HOUR ADVANCE IS REQUIRED) SHALL BE COMPLETED PRIOR TO DEMOLITION, DRILLING, EXCAVATING,FORMING OR STREET LIGHT ACTIVITY. CONTRACTOR SHALL ARRANGE PAYMENTS AT THE DEVELOPMENT CENTER, 285 HAMILTON AVE, PALO ALTO, CA.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITIES DEPARTMENT 650/329-2413 OR 650/496-6982 IF THE EXISTING WATER, WASTEWATER OR GAS MAINS ARE DISTURBED OR DAMAGED. A QUALIFIED CONTRACTOR MAY PERFORM REPAIRS ON CITY WATER AND WASTEWATER MAINS UNDER THE DIRECT SUPERVISION OF THE WGW UTILITIES INSPECTOR. FOR WATER REPAIRSALL THE DISINFECTION REQUIREMENTS OF THE WGW UTILITY STANDARDS AND THESE CONDITIONS SHALL BE ADHERED TO. ALL REPAIRS TO THE CITY GAS SYSTEM MUST BE PERFORMED BY THE CITY OF PALO ALTO UTILITIES.
10. NO WATER VALVES OR OTHER FACILITIES OWNED BY UTILITIES DEPARTMENT SHALL BE OPERATED FOR ANY PURPOSE BY THE APPLICANT'S CONTRACTOR. ALL REQUIRED OPERATION WILL ONLY BE PERFORMED BY AUTHORIZED UTILITIES DEPARTMENT PERSONNEL. WATER VALVES MAY BE OPERATED BY THE CONTRACTOR UNDER THE DIRECT SUPERVISION OF THE WGW UTILITIES INSPECTOR. THE APPLICANT'S CONTRACTOR SHALL NOTIFY THE UTILITIES DEPARTMENT NOT LESS THAN FORTY-EIGHT (48) HOURS IN ADVANCE OF THE TIME THAT SUCH OPERATION IS REQUIRED.

NORMAL LOCATION OF UNDERGROUND UTILITIES NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE DEPT. OF PUBLIC WORKS FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY THE DEPT. OF PUBLIC WORKS IN CASES OF CONFLICTING FACILITIES.
3. CONFLICTS BETWEEN UTILITY COMPANIES FACILITIES, EXISTING AND PROPOSED, MUST BE MUTUALLY RESOLVED BY THE UTILITY COMPANIES.
4. FOR COMMERCIAL SIDEWALKS, THE FIRE HYDRANT SHALL BE PLACED WITHIN THE SIDEWALK 1'-6" BEHIND FACE OF CURB.
5. MAXIMUM 2" DIAMETER GAS MAINS MAY BE PLACED IN JOINT UTILITIES TRENCH SUBJECT TO APPROVAL OF CITY ENGINEER (IN TRACTS).



Rev	By	Date
0	DWH	7/16/98
1	MMN	7/20/04
Scale: NTS		

Conduit Location Detail
Telecommunications

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 402

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

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23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

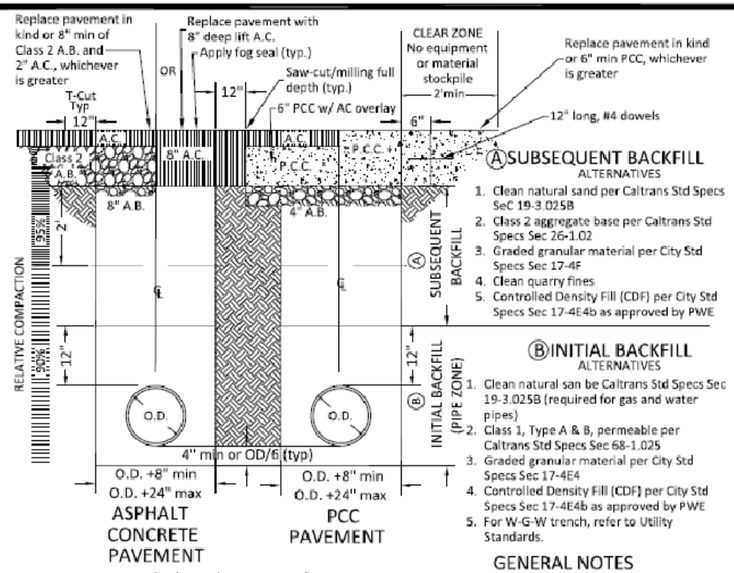
REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	08/31/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/04/2020	95% CD'S FOR REDLINE	RF
A	04/29/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WASSIM ZALZALI
71655
STATE OF CALIFORNIA
CIVIL

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
PALO ALTO EROSION CONTROL AND CONDUIT LOCATION DETAILS & NOTES

SHEET NUMBER
L-3



(A) SUBSEQUENT BACKFILL ALTERNATIVES

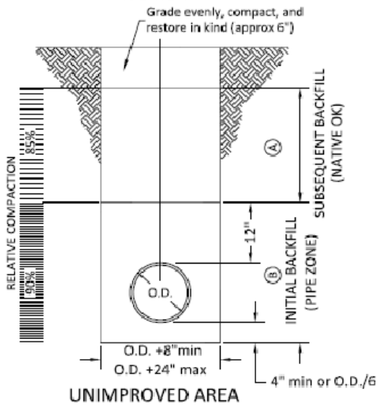
1. Clean natural sand per Caltrans Std Specs SeC 19-3.025B
2. Class 2 aggregate base per Caltrans Std Specs Sec 26-1.02
3. Graded granular material per City Std Specs Sec 17-4F
4. Clean quarry fines
5. Controlled Density Fill (CDF) per City Std Specs Sec 17-4E4b as approved by PWE

(B) INITIAL BACKFILL ALTERNATIVES

1. Clean natural san be Caltrans Std Specs Sec 19-3.025B (required for gas and water pipes)
2. Class 1, Type A & B, permeable per Caltrans Std Specs Sec 68-1.025
3. Graded granular material per City Std Specs Sec 17-4E4
4. Controlled Density Fill (CDF) per City Std Specs Sec 17-4E4b as approved by PWE
5. For W-G-W trench, refer to Utility Standards.

GENERAL NOTES

1. PCC shall contain a minimum of 6 sacks concrete with a desired 28-day strength of 3,500 PSI
2. Extend T-cut to lip gutter per City Std Specs Sec 17-4G
3. Refer to City Std Dwg 403 for trench limits of restoration
4. Match existing AC thickness on PCC overlays



UNIMPROVED AREA

JETTING NOTES

1. IMPROVED AREAS
   a. INITIAL BACKFILL - jetting of sand OK
   b. SUBSEQUENT BACKFILL - jetting of sand subject to approval of City Engineer, except for top 2 ft, which must be mechanically compacted
2. UNIMPROVED AREAS: jetting of sand OK
3. WHEN JETTING IS PERMITTED:
   a. Excess water shall be collected at low points and removed by pumping
   b. San to be jetted shall be placed in lifts no thicker than 4 ft
   c. Jetting shall be performed at intervals along the trench not to exceed 6 ft

Rev	By	Date
1	MN	03/10/05
2	JT	08/18/06
3	HQN	10/04/06
4	RTN	06/08/17

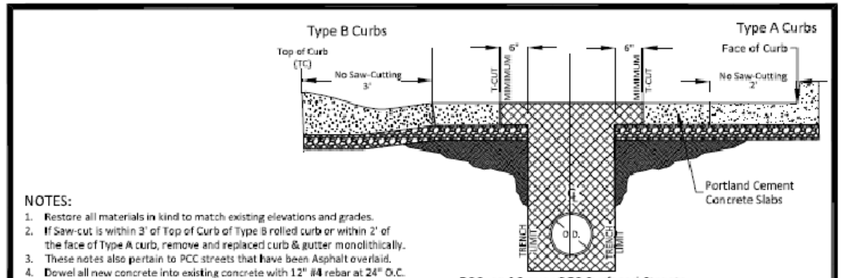
Scale: NTS

Trenches
Typical Cross-Sections

Approved by:
PE No. 72158
Date 01/10/18

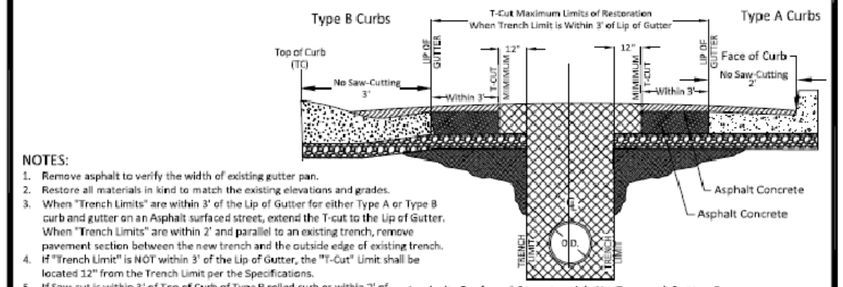
City of Palo Alto Standard

Dwg No. 401



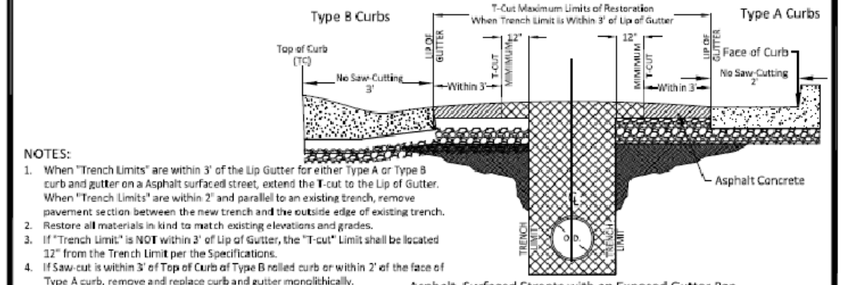
NOTES:
1. Restore all materials in kind to match existing elevations and grades.
2. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replaced curb & gutter monolithically.
3. These notes also pertain to PCC streets that have been Asphalt overlaid.
4. Dowel all new concrete into existing concrete with 12" #4 rebar at 24" O.C.

PCC or AC over PCC Surfaced Streets



NOTES:
1. Remove asphalt to verify the width of existing gutter pan.
2. Restore all materials in kind to match the existing elevations and grades.
3. When "Trench Limits" are within 3' of the Lip of Gutter for either Type A or Type B curb and gutter on an Asphalt surfaced street, extend the T-cut to the Lip of Gutter. When "Trench Limits" are within 2' and parallel to an existing trench, remove pavement section between the new trench and the outside edge of existing trench.
4. If "Trench Limit" is NOT within 3' of the Lip of Gutter, the "T-Cut" Limit shall be located 12" from the Trench Limit per the Specifications.
5. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replace curb & gutter monolithically.

Asphalt Surfaced Streets with No Exposed Gutter Pan



NOTES:
1. When "Trench Limits" are within 3' of the Lip Gutter for either Type A or Type B curb and gutter on a Asphalt surfaced street, extend the T-cut to the Lip of Gutter. When "Trench Limits" are within 2' and parallel to an existing trench, remove pavement section between the new trench and the outside edge of existing trench.
2. Restore all materials in kind to match existing elevations and grades.
3. If "Trench Limit" is NOT within 3' of Lip of Gutter, the "T-cut" Limit shall be located 12" from the Trench Limit per the Specifications.
4. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replace curb and gutter monolithically.

Asphalt Surfaced Streets with an Exposed Gutter Pan

Rev	By	Date
1	MN	2/30/05
2	JT	8/14/06
3	HQN	10/16/06
4	RTN	06/11/17

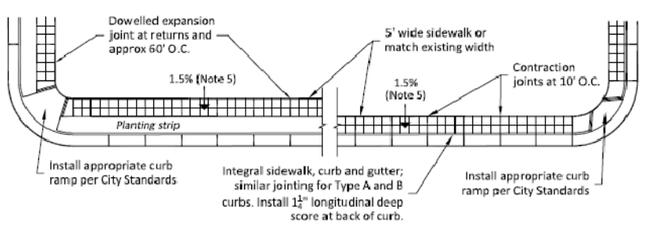
Scale: NTS

Trenches
Limits of Restoration

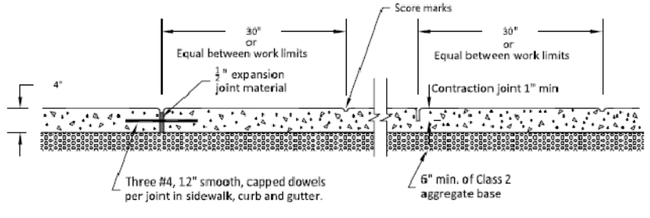
Approved by:
PE No. 72158
Date 01/10/18

City of Palo Alto Standard

Dwg No. 403



TYPICAL CITY BLOCK PLAN



Expansion joint Contraction joint

LONGITUDINAL SECTIONS

SIDEWALK CONSTRUCTION NOTES:

1. SIDEWALKS TO BE MARKED IN 30" SQUARES.
2. EDGES TO HAVE 3/4" RADIUS.
3. SCORE MARKS SHALL NOT BE LESS THAN 3/8" DEEP; CONTRACTION JOINTS SHALL BE 1" IN MINIMUM DEPTH @ 10' O.C.
4. CONTRACTION JOINTS MAY BE SAW-CUT.
5. SIDEWALKS TO HAVE 1.5% SLOPE TO STREET.
6. ALL NEW SIDEWALKS SHALL BE DOWELED AT 2'-0" O.C. INTO EXISTING CONCRETE WITH #4 12" LONG DOWELS @ AND EMBEDDED 6".
7. SAW CUT WALK FULL DEPTH AND FULL WIDTH ON SCORE MARKS PERPENDICULAR TO THE CURB. NO SAWCUTTING ON LONGITUDINAL SCORE MARKS.
8. INSTALL LONGITUDINAL DEEP SCORE ALONG ENTIRE BACK OF CURB THAT IS MONOLITHIC WITH SIDEWALK.

Rev	By	Date
0	DWH	12/14/92
1	MN	01/29/02
2	HQN	01/04/07
3	RTN	08/10/17

Scale: NTS

Sidewalk Construction

Approved by:
PE No. 72158
Date 01/10/18

City of Palo Alto Standard

Dwg No. 141

City of Palo Alto Standard | Dwg No. 141

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALL STATES ENGINEERING & SURVEYING
A ZALZALI & ASSOCIATES COMPANY
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PHONE: (949) 273-0996

PROJECT ID:	P-334882
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
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REGISTERED PROFESSIONAL ENGINEER
WASAM ZALZALI
71655
STATE OF CALIFORNIA
CIVIL

SF PALO ALTO 061
LIC R.O.W. ADJACENT TO:
1221 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 425208

SHEET TITLE
PALO ALTO TRENCHING & SIDEWALK STD. DWGS.

SHEET NUMBER
L-4

verizon

SITE ID:	SF PALO ALTO 204
PROJECT NAME:	VZW PALO ALTO SMALL CELL
POLE#:	53
LOCATION CODE:	566800
ADJACENT APN:	120-05-098
SITE ADDRESS:	ADJACENT TO 850 WEBSTER STREET PALO ALTO, 94301
COUNTY:	SANTA CLARA
SITE TYPE:	STREET LIGHT POLE
ROADWAY TYPE:	COLLECTOR
HISTORIC STATUS OR DISTRICT:	N/A

PROJECT DESCRIPTION

VERIZON WIRELESS PROPOSES TO INSTALL A NEW WIRELESS COMMUNICATION SITE ON A NEW/REPLACEMENT STREET LIGHT POLE. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- ☐ REMOVE (1) EXISTING STREET LIGHT/POLE #53 IN HOMER AVE. PUBLIC R.O.W.
- ☐ INSTALL (1) NEW 'DOWNTOWN' ROADWAY LIGHTING POLE W/ LED LAMP IN
- ☐ PLACE OF REMOVED LIGHT POLE #53, PER LIGHTING STYLE PLACEMENT GUIDE
- ☐ RE-CONNECT CPA STREET LIGHT POWER TO NEW/REPLACEMENT STREET LIGHT
- ☐ INSTALL NEW POLE FOUNDATION AS SHOWN ON D-2 DETAIL 1

- ☐ INSTALL (2) NEW ERICSSON SM-6701 RADIO/ANTENNAS ATOP NEW POLE
- ☐ INSTALL (1) NEW NEMA 6P AC DISCONNECT WITHIN NEW U.G. POWER HANDHOLE
- ☐ INSTALL (1) NEW 5/8"ø x10'L. GROUND ROD WITHIN U.G. POWER HANDHOLE
- ☐ INSTALL NEW AC POWER CABLES FROM POC, TO DISCONNECT, TO RADIOS
- ☐ INSTALL NEW GROUND CABLES FROM DISCONNECT/RADIOS/POLE TO GROUND ROD
- ☐ INSTALL NEW FIBER CABLES FROM DEMARC TO RADIOS
- ☐ INSTALL NEW RF NOTICE AND EMERGENCY SHUT-DOWN SIGNAGE AS REQUIRED
- ☐ INSTALL NEW U.G. PATH FROM POWER POC TO NEW U.G. POWER HANDHOLE

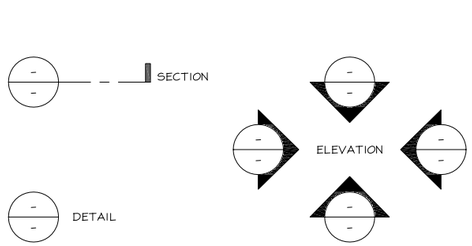
ADMINISTRATIVE REQUIREMENTS

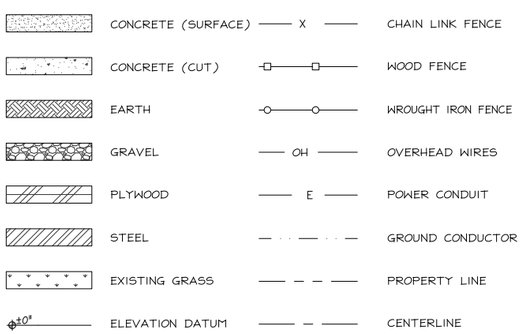
SUBCONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

VICINITY MAP

SYMBOLS/ABBREVIATIONS LEGEND

ADD'L	ADDITIONAL	L.	LONG(ITUDINAL)
A.F.G.	ABOVE FINISHED GRADE	MAX.	MAXIMUM
ANT.	ANTENNA	MFR.	MANUFACTURER
ASS'Y.	ASSEMBLY	MIN.	MINIMUM
ANG.	AMERICAN WIRE GAUGE	(N)	NEW
BLDG.	BUILDING	NTS	NOT TO SCALE
BTCW.	BARE TINNED COPPER WIRE	O.C.	ON CENTER
CLR.	CLEAR	P.T.	PRESSURE TREATED
CONC.	CONCRETE	RAD.(R)	RADIUS
CONN.	CONNECTION(OR)	REQ'D	REQUIRED
CONST.	CONSTRUCTION	RGS.	RIGID GALVANIZED STEEL
CONT.	CONTINUOUS	SCH.	SCHEDULE
DBL.	DOUBLE	SIM.	SIMILAR
D.F.	DOUGLAS FIR	SQ.	SQUARE
DIA.	DIAMETER	S.S.	STAINLESS STEEL
DIM.	DIMENSION	STD.	STANDARD
EA.	EACH	TEMP.	TEMPORARY
ELEV	ELEVATION	THK.	THICK(NESS)
EMT.	ELECTRICAL METALLIC TUBING	TYP.	TYPICAL
(E)	EXISTING	U.G.	UNDER GROUND
F.G.	FINISH GRADE	U.L.	UNDERWRITERS LABORATORY
FT.(')	FOOT (FEET)	U.N.O.	UNLESS NOTED OTHERWISE
GA.	GAUGE	V.I.F.	VERIFY IN FIELD
HT.	HEIGHT	W	WIDE (WIDTH)
IN.(")	INCH(ES)	w/	WITH
LB.(#)	POUND(S)	WD.	WOOD
L.F.	LINEAR FEET (FOOT)	W.P.	WEATHERPROOF





PROJECT TEAM

APPLICANT:
VERIZON WIRELESS
575 LENNON LANE SUITE 125
WALNUT CREEK,CA 94598
CONTACT: JEREMY STROUP
PHONE:(925) 202-8654
EMAIL: jstroup@vinculums.com

LEASING CONTACT:
VINCULUMS SERVICES
575 LENNON LANE SUITE 125
WALNUT CREEK, CA 94598
CONTACT: JEREMY STROUP
PHONE:(925) 202-8654
EMAIL: jstroup@vinculums.com

A&E PROJECT MANAGER:
ZALZALI & ASSOCIATES INC.
dba ALL STATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PM: DEAN WALKER
PHONE: (714) 230-5714
EMAIL: dean@zalzali.com

CONSTRUCTION MANAGER:
VINCULUMS SERVICES
575 LENNON LANE SUITE 125
WALNUT CREEK, CA 94598
CONTACT: CURTIS GARDNER
PHONE: (510) 552-2944
EMAIL: cgardner@vinculums.com

ARBORIST CONTACT:
PROJECT ARBORIST
121 N 27TH STREET,
SAN JOSE, CA 95116
CONTACT: KATHERINE NAEGELE
PHONE: (408) 590-5976
EMAIL:Katherine@andersonstreecare.com

SITE INFORMATION

LATITUDE:
N 37° 26' 48.7"(37.446862)

LONGITUDE:
W 122° 9' 16.2"(-122.154493)

ELEVATION:
+43' AMSL

ZONING:
PC-8659

JURISDICTION:
CITY OF PALO ALTO

ASSESSORS PARCEL NUMBER:
ADJACENT TO 850 WEBSTER

PROPERTY LEGAL DESCRIPTION:
N/A PUBLIC RIGHT OF WAY

ADA COMPLIANCE:
YES

DIG ALERT

811 USA North
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
811 / 800-227-2600

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & (E) DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE.

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
T-2	PHOTOSIMS
T-3	EME REPORT
T-4	EME REPORT
LS-1	SITE SURVEY
A-1	SITE PLAN
A-1.1	EXISTING UTILITY SITE PLAN
A-1.2	UTILITY PLAN (FOR REFERENCE)
A-1.3	LOCATION MAP
A-1.4	BORING/UNDERGROUND UTILITY PLAN
A-1.5	CITY STANDARDS & DETAILS
A-1.6	CITY STANDARDS & DETAILS
A-1.7	R.O.W SECTION
A-2	ENLARGED SITE PLAN
A-3	ELEVATIONS
A-3.1	ELEVATIONS
D-1	DETAILS
D-2	FOUNDATION DETAIL
D-3	LUMINAIRE DETAILS
E-1	ELECTRICAL/GROUNDING DIAGRAMS, NOTES, & PANEL SCHEDULE
E-2	ELECTRICAL PLAN
TCP-1	TRAFFIC CONTROL PLAN (BY OTHERS)
C-1	CALCS
C-2	CALCS
C-3	CALCS
C-4	CALCS
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
TPR-1	TREE PROTECTION REPORT
L-1	PALO ALTO TREE PROTECTION
L-2	PALO ALTO POLLUTION PREVENTION CHECKLIST
L-3	PALO ALTO EROSION CONTROL AND CONDUIT LOCATION DETAILS & NOTES
L-4	PALO ALTO TRENCHING & SIDEWALK STANDARD DRAWINGS

CODE COMPLIANCE

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 CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

2019 TITLE 24, CALIFORNIA CODE OF REGULATIONS

2019 CALIFORNIA BUILDING CODE

2019 CALIFORNIA ELECTRICAL CODE

2019 CALIFORNIA MECHANICAL CODE

2019 GREEN BUILDING CODE

2019 CALIFORNIA ENERGY CODE

*AS AMENDED BY CITY OF PALO ALTO AND MADE EFFECTIVE JANUARY 1ST, 2020 AS PER CURRENT CITY OF PALO ALTO MUNICIPAL CODE ORDINANCES GENERAL ORDER 95 (v.2018)

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

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REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

verizon

3/15/21

CA SJ Palo Alto 204

850 Webster Street
Palo Alto, CA

Looking Northeast from Webster Street

View #1

Appleseed Imagineering 510 914-0500

verizon

3/15/21

CA SJ Palo Alto 204

850 Webster Street
Palo Alto, CA

Looking South from Webster Street

View #2

Appleseed Imagineering 510 914-0500

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
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ALLSTATES ENGINEERING & SURVEYING

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WISSAM ZALZALI
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CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204

PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE

PHOTOSIMS

SHEET NUMBER

T-2

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate its small cell (No. 566800 "SF Palo Alto 204") proposed to be sited in Palo Alto, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

Verizon proposes to install two small antennas on the municipal light pole sited in the public right-of-way near 850 Webster Street in Palo Alto. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. A summary of the FCC's exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive limit for exposures of unlimited duration at several wireless service bands are as follows:

Wireless Service Band	Transmit Frequency	"Uncontrolled" Public Limit	Occupational Limit (5 times Public)
Microwave (point-to-point)	1–80 GHz	1.0 mW/cm²	5.0 mW/cm²
Millimeter-wave	24–47	1.0	5.0
Part 15 (WiFi & other unlicensed)	2–6	1.0	5.0
CBRS (Citizens Broadband Radio)	3,550 MHz	1.0	5.0
BRS (Broadband Radio)	2,490	1.0	5.0
WCS (Wireless Communication)	2,305	1.0	5.0
AWS (Advanced Wireless)	2,110	1.0	5.0
PCS (Personal Communication)	1,930	1.0	5.0
Cellular	869	0.58	2.9
SMR (Specialized Mobile Radio)	854	0.57	2.85
700 MHz	716	0.48	2.4
600 MHz	617	0.41	2.05
[most restrictive frequency range]	30–300	0.20	1.0

Power line frequencies (60 Hz) are well below the applicable range of these standards, and there is considered to be no compounding effect from simultaneous exposure to power line and radio frequency fields.

General Facility Requirements

Small cells typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The radios are typically mounted on the support pole or placed in a cabinet at ground level, and they are connected to the antennas by coaxial cables. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna's radiation pattern is not fully formed at locations very close by (the "near-field" effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). This methodology is an industry standard for evaluating RF exposure conditions and has been demonstrated through numerous field tests to be a conservative prediction of exposure levels.

Site and Facility Description

Based upon information provided by Verizon, including drawings by All States Engineering & Surveying, dated September 10, 2020, it is proposed to install two Ericsson Model 6701, 2-foot tall, directional panel antennas with integrated radios on top of a new light pole to replace the existing pole sited in the public right-of-way on the southeast side of Homer Avenue about 100 feet southwest of Webster Street, adjacent to the tall residential building at 850 Webster Street in Palo Alto. The antennas would employ no downtilt, would be mounted at an effective height of about 23 feet above ground, and would be oriented toward 0°T and 240°T. The maximum effective radiated power proposed in any direction is 193 watts in the 28 GHz band. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.0085 mW/cm², which is 0.85% of the applicable public exposure limit. The maximum calculated level at any nearby building* is 1.1% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

Recommended Mitigation Measures

Due to their mounting locations and height, the antennas would not be accessible to unauthorized persons, and so no measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all workers who have access within 8 feet outward from the antennas. No access within 2 feet directly in front of the antennas should be allowed while the antennas are in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that explanatory signs† be posted at the antennas and/or on the pole below the antennas, readily visible from any angle of approach.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the small cell proposed by Verizon Wireless near 850 Webster Street in Palo Alto, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating small cells. Training authorized personnel and posting explanatory signs are recommended to establish compliance with occupational exposure limits.

* Including the second- and third-floor balconies of the adjacent residential building, located at least 40 feet away based on the drawings.

† Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (*e.g.*, a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidelines from the landlord, local zoning or health authority, or appropriate professionals may be required.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-21306, which expires on September 30, 2021. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

REGISTERED PROFESSIONAL ENGINEER — NEIL J. OLIJ — No. E-21306 — Exp. 9-30-2021 — ELECTRICAL — STATE OF CALIFORNIA

Neil J. Olij, P.E.
707/996-5200

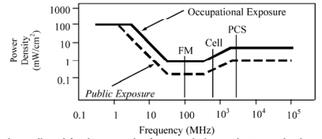
September 29, 2020

FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (f is frequency of emission in MHz) Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm²)	
0.3 – 1.34	614	*614*	1.63	*1.63*	100	*100*
1.34 – 3.0	614	*823.8/f*	1.63	*2.19/f*	100	*180/f²*
3.0 – 30	1842/f	*823.8/f*	4.89/f	*2.19/f*	900/f²	*180/f²*
30 – 300	61.4	*27.5*	0.163	*0.0729*	1.0	*0.2*
300 – 1,500	3.54√f	*1.59√f*	√f/106	*√f/238*	f/300	*f/1500*
1,500 – 100,000	137	*61.4*	0.364	*0.163*	5.0	*1.0*



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has incorporated those formulas in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.
Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$, in mW/cm²,

and for an aperture antenna, maximum power density $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$, in mW/cm²,

where θ_{BW} = half-power beamwidth of antenna, in degrees,
P_{net} = net power input to antenna, in watts,
D = distance from antenna, in meters,
h = aperture height of antenna, in meters, and
η = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

Far Field.
OET-65 gives this formula for calculating power density in the far field of an individual RF source:

power density $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$, in mW/cm²,

where ERP = total ERP (all polarizations), in kilowatts,
RFF = three-dimensional relative field factor toward point of calculation, and
D = distance from antenna effective height to point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula is used in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program also allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER — WASAM ZALZALI — 71655 — C/EL — STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

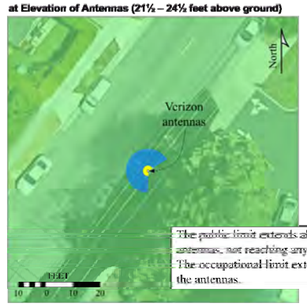
SHEET TITLE
EME REPORT

SHEET NUMBER
T-3

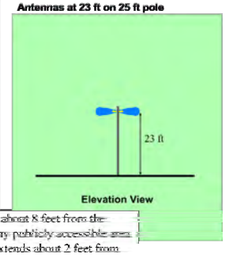
Verizon Wireless • Proposed Small Cell (No. 566800 "SF Palo Alto 204")
850 Webster Street • Palo Alto, California

Calculated RF Exposure Levels

at Elevation of Antennas (21½ – 24½ feet above ground)

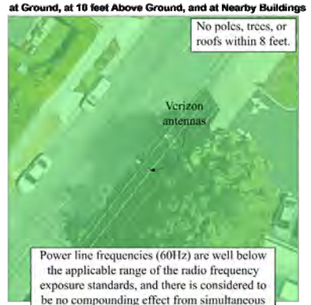


Antennas at 23 ft on 25 ft pole



The public limit extends about 8 feet from the antennas, not reaching any publicly accessible area. The occupational limit extends about 2 feet from the antennas.

at Ground, at 10 feet Above Ground, and at Nearby Buildings



Power line frequencies (60Hz) are well below the applicable range of the radio frequency exposure standards, and there is considered to be no compounding effect from simultaneous exposure to power lines and RF fields.

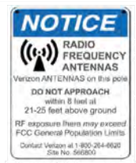
Legend:

- less than FCC Public Limit
- greater than FCC Public Limit less than FCC Occupational Limit
- greater than FCC Occupational Limit

Notes:

Calculations performed according to OET Bulletin No. 65, August 1997.

Base image from Google Maps.



sign on pole below antennas

HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO ©2020

B32-Q2A7.5
Supplemental Figure

verizon
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
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REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
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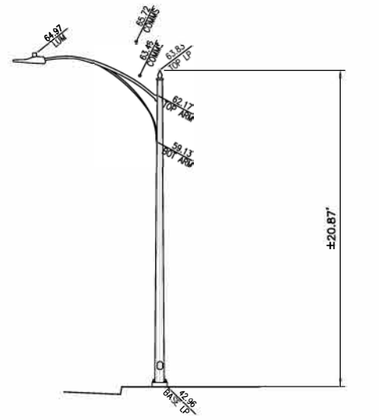
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
HASAN ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
EME REPORT

SHEET NUMBER
T-4



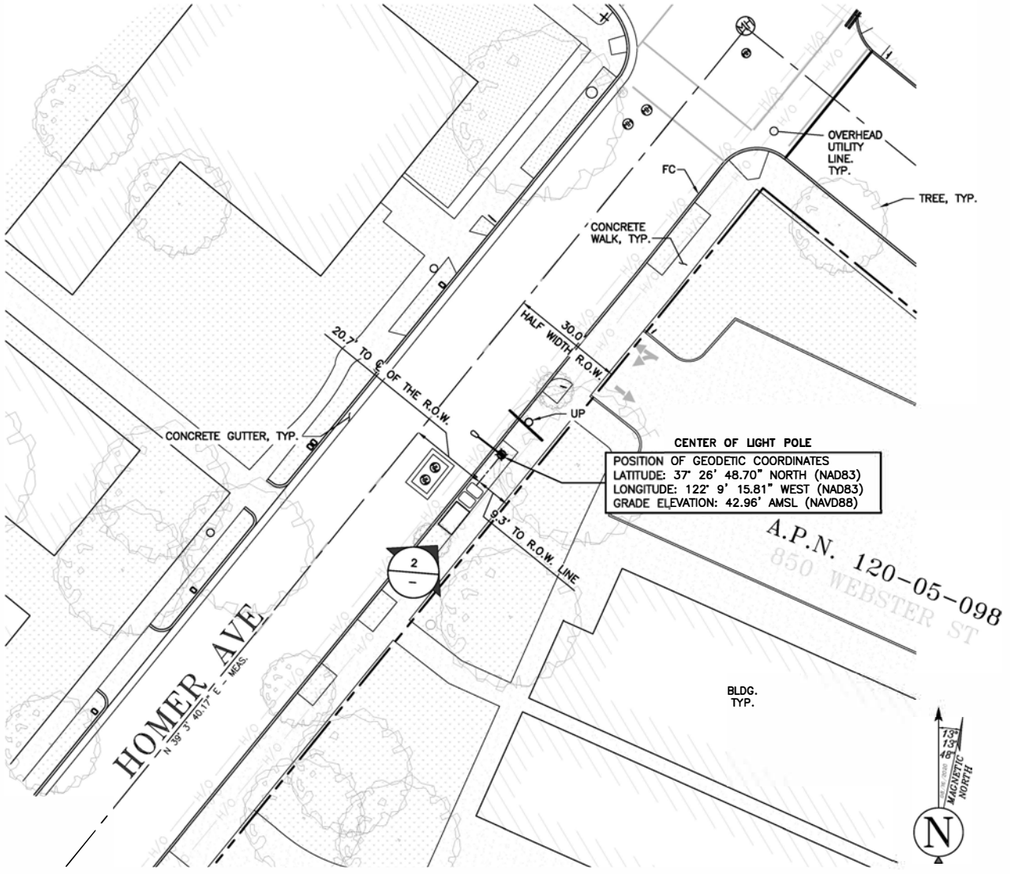
② POLE ELEVATION
1 inch = 5ft.

0 2.5' 5' 10'

LEGEND

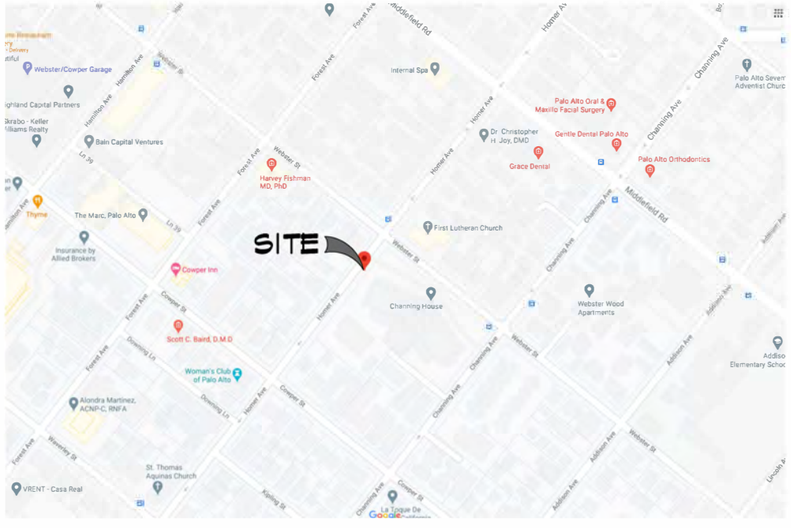
▭	U.G. UTILITY VAULT	BLDG	TOP OF BUILDING
(M)	MANHOLE	MON	MONUMENT
○	UTILITY POLE	FL	FLOW LINE
XX.XX	SPOT ELEVATION	EOP	EDGE OF PAVEMENT
(W)	WATER VALVE	R.O.W.	RIGHT OF WAY
◎	FOUND MONUMENT	R/W	RIGHT OF WAY
✥	GEODETIC MARKER	SCO	SEWER CLEAN–OUT
— x —	CHAIN LINK FENCE	PS	PARKING STRIPE
—○—	WOOD FENCE	SW	SIDEWALK
— O/H —	OVERHEAD LINE	VLT	U.G. UTILITY VAULT
—○—	METAL FENCE	OHE	OVERHEAD ELECTRICAL
	GRADE BREAK	SVC	SERVICE
	RIGHT OF WAY LINE	AC	ASPHALTIC CONCRETE
	CENTER LINE	AP	ASPHALT PAVING
	EASEMENT LINE	CONC	CONCRETE
		PED	PEDESTAL
	MASONRY WALL	OH	OVERHEAD
(W)	WATER VALVE	PUE	PUBLIC UTILITY EASEMENT
UP	UTILITY POLE	FC	FACE OF CURB
LP	LIGHT POLE	BOL	BOLLARD
LUM	LUMINAIRE	TOP _	TOP OF ITEM
NG	NATURAL GRADE	BOT _	BOTTOM OF ITEM

RIGHT OF WAY NOTE:
ROAD CENTERLINES SHOWN ON THIS SURVEY HAVE BEEN PLACED BY SPLIT OF IMPROVEMENTS.



① POLE LOCATION
1 inch = 20ft.

0 10' 20' 40'



VICINITY MAP

TITLE REPORT
NOT APPLICABLE (RIGHT–OF–WAY)

LEGAL DESCRIPTION
NOT APPLICABLE (RIGHT–OF–WAY)

ASSESSOR'S PARCEL NO.
NOT APPLICABLE (RIGHT–OF–WAY)

UTILITY NOTE:
SURVEYOR DOES NOT GUARANTEE THAT ALL UTILITIES ARE SHOWN OR THEIR LOCATIONS ARE DEFINITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND DEVELOPER TO CONTACT BLUE STAKE AND ANY OTHER INVOLVED AGENCIES TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. REMOVAL, RELOCATION AND/ OR REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:
1. THIS IS NOT A BOUNDARY SURVEY. THIS IS A SPECIALIZED RIGHT OF WAY MAP. THE PROPERTY LINES AND EASEMENTS SHOWN HEREON ARE FROM RECORD INFORMATION AS NOTED HEREON. ALL STATES ENGINEERING & SURVEYING/ZALZALI & ASSOCIATES, INC. TRANSLATED THE TOPOGRAPHIC SURVEY TO RECORD INFORMATION USING MONUMENT(S)/LANDMARK(S) SHOWN HEREON. NO TITLE RESEARCH WAS PERFORMED BY ALL STATES ENGINEERING & SURVEYING/ZALZALI & ASSOCIATES, INC.

2. ANY CHANGES MADE TO THE INFORMATION ON THIS PLAN, WITHOUT THE WRITTEN CONSENT OF ALL STATES ENGINEERING & SURVEYING / ZALZALI & ASSOCIATES, INC. RELIEVES ALL STATES ENGINEERING & SURVEYING/ ZALZALI & ASSOCIATES, INC. OF ANY AND ALL LIABILITY.

3. THESE DRAWINGS & SPECIFICATIONS ARE THE PROPERTY & COPYRIGHT OF ALL STATES ENGINEERING & SURVEYING / ZALZALI & ASSOCIATES, INC. & SHALL NOT BE USED ON ANY OTHER WORK EXCEPT BY AGREEMENT WITH THE SURVEYOR. WRITTEN DIMENSIONS SHALL TAKE PREFERENCE OVER SCALED & SHALL BE VERIFIED ON THE JOB SITE. ANY DISCREPANCY SHALL BE BROUGHT TO THE NOTICE OF THE SURVEYOR PRIOR TO COMMENCEMENT OF ANY WORK.

4. THIS SITE IS PROPOSED TO BE DEVELOPED ON A STREET LIGHT POLE LOCATED WITHIN THE PUBLIC RIGHT OF WAY.

SURVEY DATE
08/16/2020

BASIS OF BEARING
BEARINGS SHOWN HEREON ARE BASED UPON U.S. STATE PLANE NAD83 COORDINATE SYSTEM CALIFORNIA STATE PLANE COORDINATE ZONE THREE, DETERMINED BY GPS OBSERVATIONS.

BENCHMARK
RTCM–REF 3270
NORTHING: 1970498.865
EASTING: 6082238.002
+248.11' (A.M.S.L.)

REFERENCE MAPS
- 812–PM–8
- 120–APN MAP–5

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482–8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT NO:	SF PALO ALTO 204
DRAWN BY:	MG
CHECKED BY:	BC/WZ/DW

REV	DATE	DESCRIPTION	
0	09/04/2020	FINAL SURVEY	DW
A	08/27/2020	PRELIMINARY SURVEY	MG

PROFESSIONAL LAND SURVEYOR
BRUCE T. CRAMTOM
No. 9039
STATE OF CALIFORNIA

SF PALO ALTO 204
R.O.W. ADJACENT TO:
850 WEBSTER ST
PALO ALTO, CA 94301
NEW BUILD–SMALL CELL

SHEET TITLE
SITE SURVEY

SHEET NUMBER
LS-1

TREE NOTES:

1. THERE WILL BE NO TREE PRUNING WITHOUT THE SPECIFIC APPROVAL OF THE PALO ALTO URBAN FORESTRY DEPARTMENT ON ALL REGULATED TREES. ANY VIOLATION TO THIS POLICY WILL BE SUBJECT TO PENALTY. CONTACT THE PALO ALTO URBAN FORESTRY DEPARTMENT AT (650) 496-5953.
2. THIS CONSTRUCTION PROJECT TRIGGERS MANDATORY TREE PROTECTION MEASURES. SEE TREE PROTECTION PLAN & CONTACT THE PALO ALTO URBAN FORESTRY DEPARTMENT. AT (650) 496-5953 WITH ANY QUESTIONS.
3. EXCAVATION ACTIVITIES ASSOCIATED WITH THE PROPOSED SCOPE OF WORK SHALL OCCUR NO CLOSER THAN 10-FEET FROM THE EXISTING STREET TREE, OR AS APPROVED BY THE URBAN FORESTRY DIVISION CONTACT 650-496-5953. ANY CHANGES SHALL BE APPROVED BY THE SAME.
4. PROJECT ARBORIST:
   KATHERINE NAEGELE
   KATHERINE@ANDERSONTREECARE.COM
   PHONE: (408) 590-5976
5. NO FEASIBLE GREEN SCREEN OPPORTUNITIES EXIST
6. TREES #3-7 WILL REQUIRE MODIFIED TYPE II TREE PROTECTION AT THE EDGE OF THE SIDEWALK ONLY. TRENCHING MUST BE PERFORMED BY HAND.
7. IF ANY LIVE ROOTS ARE ENCOUNTERED DURING EXCAVATION, THE RECOMMENDATIONS IN SECTION 2.25.2 APPLY

NOTES:

1. METAL SURFACES REQUIRING PAINT SHALL BE PAINTED MUNSELL RAL5.5GY2.76/2.1.
2. ANY CONSTRUCTION WITHIN THE CITY'S PUBLIC ROAD RIGHT-OF-WAY SHALL HAVE AN APPROVED PERMIT FOR CONSTRUCTION IN THE PUBLIC STREET PRIOR TO COMMENCEMENT OF THIS WORK

TREE TABLE

PALO ALTO TREE #	CITY TREE ID:	SPECIES:	COMMON NAME:	GROW SPACE:	TRUNK DIA. AT BREAST HT.:	DRIP LINE:	DISTANCE TO CONST.	PROTECTION MEASURES REQUIRED
1	-	FRAXINUS SP.	ASH	-	5.2"	4'-4"	-	TYPE II FENCING
2	-	FRAXINUS SP.	ASH	-	1.0"	0'-10"	-	TYPE II FENCING
3	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	38.7"	32'-3"	-	MODIFIED TYPE II, SEE NOTE 6
4	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	9.3"	7'-9"	-	MODIFIED TYPE II, SEE NOTE 6
5	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	37.1"	30'-11"	-	MODIFIED TYPE II, SEE NOTE 6
6	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	20.2"	16'-10"	-	MODIFIED TYPE II, SEE NOTE 6
7	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	26.7"	22'-3"	-	MODIFIED TYPE II, SEE NOTE 6
8	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	11.0"	9'-2"	-	NONE
9	-	SEQUOIA SEMPERVIRENS	COAST REDWOOD	-	25.0"	20'-10"	-	NONE
10	-	FRAXINUS SP.	ASH	-	1.0"	0'-10"	-	NONE

EXISTING BUILDING
EXISTING R.O.W. EASEMENT
PROPERTY LINE
±97' TO EDGE OF PROPERTY LINE
21'-0" SETBACK TO C.L. OF ROW
LINE OF CONSTRUCTION AREA
PROPOSED VERIZON SM-6701 RADIO/ANTENNAS AND GPS WITHIN SHROUD, MOUNTED ATOP NEW 'DOWNTOWN' STYLE STREET LIGHT POLE
EXISTING CPA ±20'-0" 'DOWNTOWN' LIGHT POLE #53, TO BE REMOVED AND REPLACED
EXISTING ELECTRICAL VAULT, PROPOSED VERIZON POWER P.O.C., APPROX. 15' TO BASE OF POLE
EXISTING PLANTER WITH GRASS
EXISTING CONCRETE PAVED AREA (GUTTER,CURB), TYP.
TO R.O.W. LINE
ENLARGED SITE PLAN
CLEARANCE TO NEAREST STRUCTURE
43'-7"
30'-0" HALF-WIDTH
60'-0" R.O.W.
PER SANTA CLARA COUNTY ASSESSOR MAP - BOOK 120 PG. 05
HOMER AVE.
TREE #10
TREE #1, REQUIRES TYPE II TREE PROTECTION FENCING
TREE #3, REQUIRES MODIFIED TYPE II TREE PROTECTION AT THE EDGE OF SIDEWALK.
2" GALVANIZED POSTS @ ±10' TYP.
TO FIBER P.O.C. PERMIT BY OTHERS
6' HIGH GALVANIZED CHAIN-LINK FANCE OR APPROVED EQUAL
TREE PROTECTION ZONE BY ARBORIST REPORT, TYP.
TREE #2
TREE #4, REQUIRES MODIFIED TYPE II TREE PROTECTION AT THE EDGE OF SIDEWALK.
TREE #6, REQUIRES MODIFIED TYPE II TREE PROTECTION AT THE EDGE OF SIDEWALK.
TREE #5, REQUIRES MODIFIED TYPE II TREE PROTECTION AT THE EDGE OF SIDEWALK.
EXISTING BUILDING
TREE #7, REQUIRES MODIFIED TYPE II TREE PROTECTION AT THE EDGE OF SIDEWALK.
TREE #8
TREE #9
EXISTING BUILDING

NOTE:

ALL ITEMS AND DIMENSIONS SHOULD BE VERIFIED IN THE FIELD, PRIOR TO STARTING CONSTRUCTION.

N W E S

24"x36" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

SITE PLAN

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
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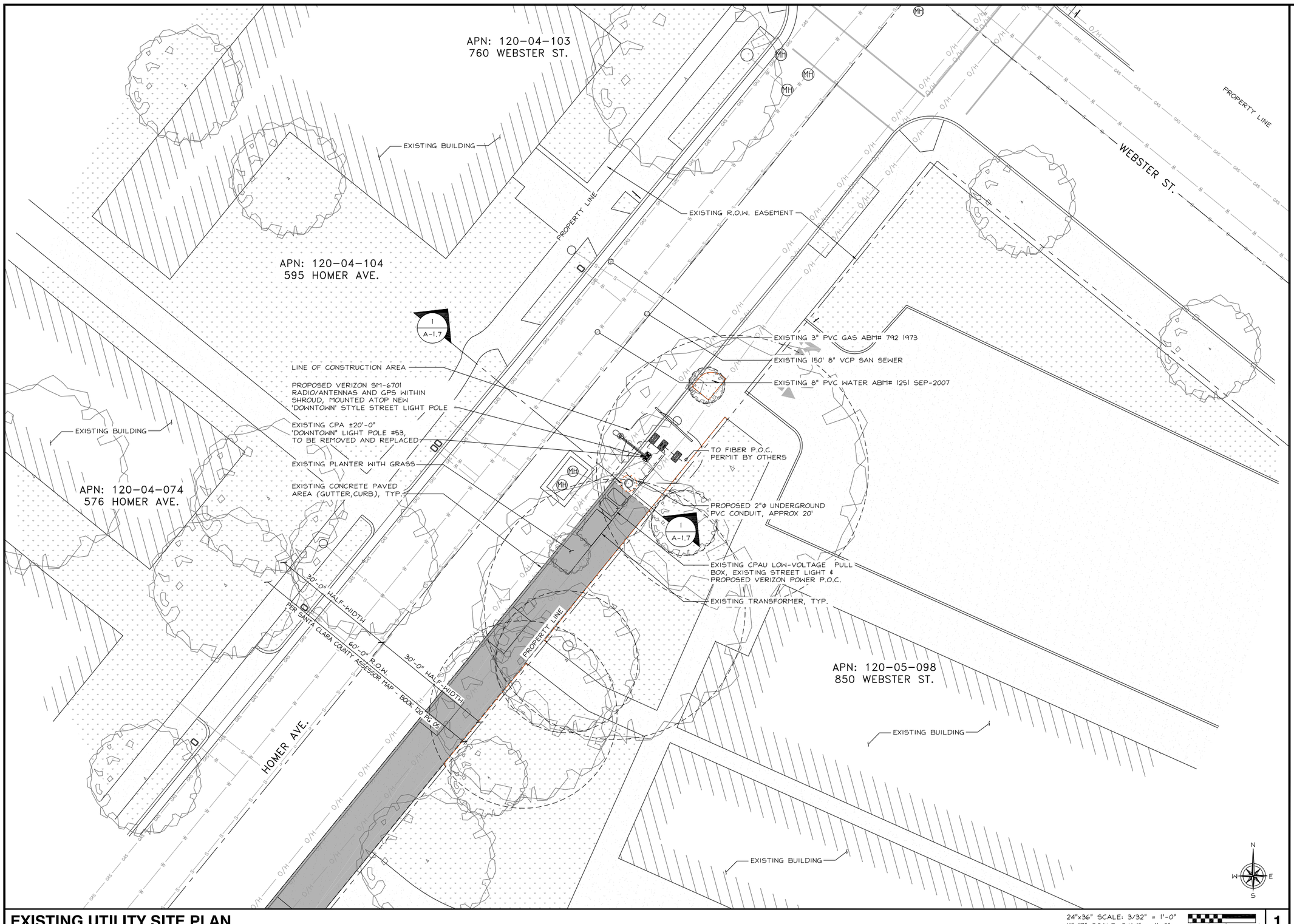
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
SITE PLAN

SHEET NUMBER
A-1



EXISTING UTILITY SITE PLAN

24"x36" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
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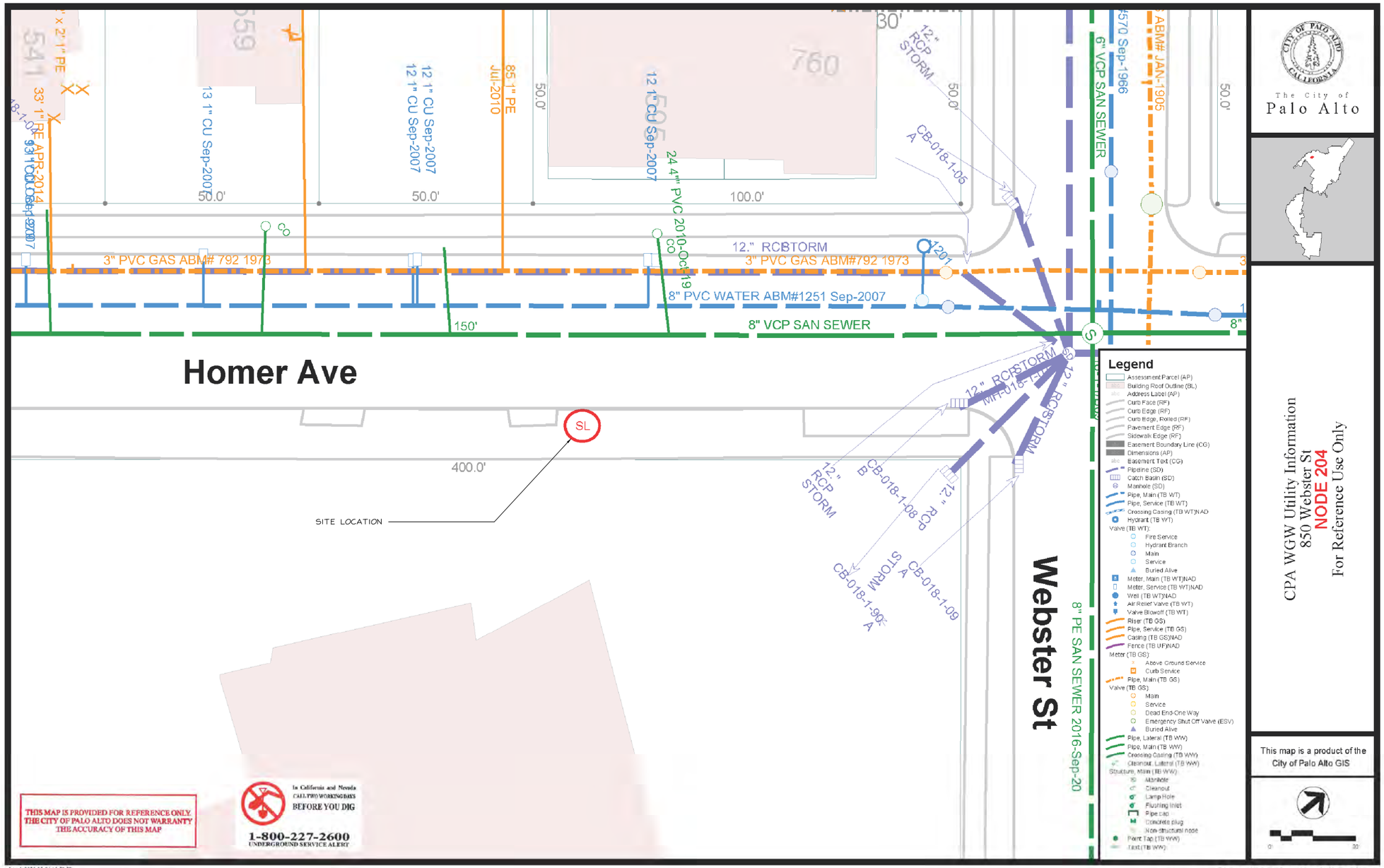
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
EXISTING UTILITY SITE PLAN

SHEET NUMBER
A-1.1



verizon
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WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
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3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

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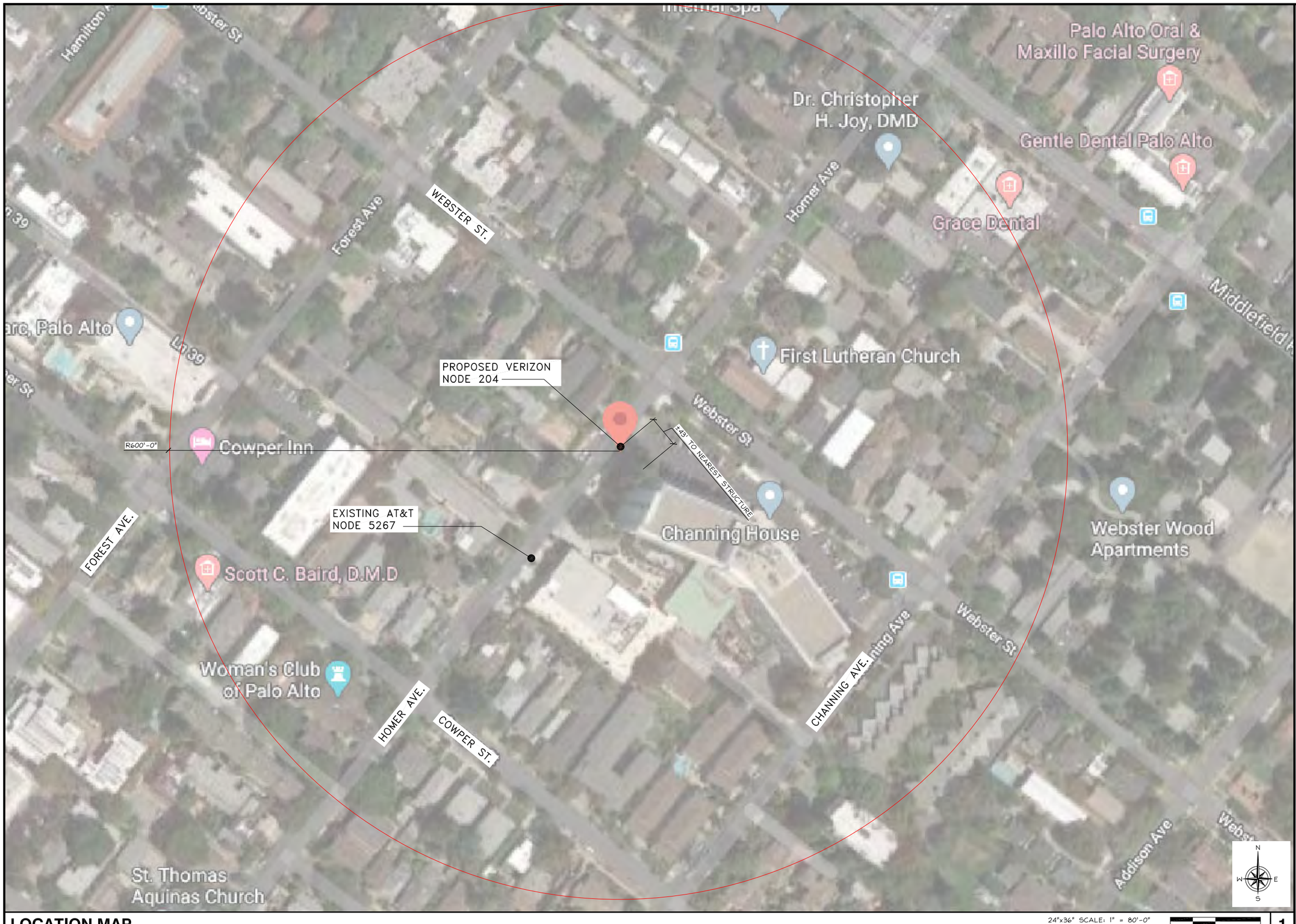
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
UTILITY PLAN
(FOR REFERENCE)

SHEET NUMBER
A-1.2



LOCATION MAP

24"x36" SCALE: 1" = 80'-0"
11"x17" SCALE: 1" = 160'-0"
80' 40' 0" 80'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

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WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
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3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
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B	05/06/2020	95% CD'S FOR REDLINE	RF
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REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

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PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE

LOCATION MAP

SHEET NUMBER

A-1.3

1. ALL WORK SHALL COMPLY WITH THE CITY OF PALO ALTO 2018 STANDARD DRAWINGS AND SPECIFICATIONS BORING, TRENCHING, POTHOLING AND DEWATERING, SECTION 17
2. THE LOCATION OF EXISTING UTILITY MAINS AND LATERAL LINES INCLUDING STORM DRAIN, SANITARY SEWER, WATER, GAS, UNDERGROUND ELECTRICAL AND COMMUNICATION CONDUITS CROSSING THE TRENCH EXCAVATION SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICES ALERT (USA) AT 811 OR 800-642-2444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING UNDERGROUND WORK SO THAT EXISTING UTILITIES CAN BE MARKED IN THE FIELD, UNLESS OTHERWISE STATED BY CITY CONTRACT.
3. EXCAVATION SHALL BE SUPPORTED AND EXCAVATION OPERATIONS CONDUCTED IN ACCORDANCE WITH THE RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA). IF IN THE OPINION OF THE ENGINEER, THERE EXISTS A SITUATION OF IMMINENT DANGER TO THE WORKERS, THE ENGINEER MAY ORDER THE WORK STOPPED AND THE CONTRACTOR SHALL COMPLY WITH RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA).
4. BACKFILL SHALL BE SAND OR GRANULAR MATERIAL FALLING WITHIN THE LIMITS DESCRIBED IN THE STANDARD DRAWING 401. AGGREGATE BASE, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS WITHIN THESE SPECIFICATIONS.
5. THE CONTRACTOR SHALL INSTALL THE CONDUIT IN ACCORDANCE WITH THE APPROVED STREET WORK PERMIT. ALL CONDUITS SHALL BE INSTALLED UNDERGROUND USING DIRECTIONAL BORING METHOD. MICRO-TUNNELING OR OTHER METHODS SHALL BE APPROVED BY THE PUBLIC WORKS ENGINEERING DIVISION. THE CONDUITS SHALL BE INSTALLED WITH TRACER WIRE APPROVED BY THE ENGINEER PER CITY OF PALO ALTO UTILITIES DEPARTMENT WATER, GAS AND WASTEWATER UTILITY STANDARDS. REFER TO STANDARD DRAWING 402.
6. TRENCHES SHALL NOT BE LEFT OPEN AT THE END OF THE DAY. ADEQUATE PROVISIONS SHALL BE MADE FOR THE PLACING OF TEMPORARY STEEL PLATES IN ADDITION TO BARRICADES, SIGNING AND LIGHTING. STOCKPILING OF EXCAVATED MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED. A MAXIMUM OF THREE-HUNDRED (300) FEET OR ONE (1) CITY BLOCK OF TRENCH, WHICHEVER IS GREATER, MAY BE OPENED AT ONE TIME. FOR TEMPORARY PATCHING, A MINIMUM THICKNESS OF TWO (2) INCHES OF CUTBACK WILL BE USED.
7. PRIOR TO EXCAVATION OF TRENCHING, POTHOLING OR SENDING/RECEIVING PITS, THE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE SHALL BE CUT OR MILL TO A NEAT LINE FULL DEPTH WITH A SAW-CUTTING OR MILLING DEVICE APPROVED BY THE ENGINEER.
8. BACKFILL MATERIAL SHALL BE COMPACTED TO 90 PERCENT MINIMUM RELATIVE COMPACTION EXCEPT THE TOP TWENTY-FOUR (24) INCHES, WHICH SHALL BE MECHANICALLY COMPACTED TO 95 PERCENT MINIMUM RELATIVE COMPACTION. MECHANICALLY COMPACTED LIFTS USING ALTERNATIVE EQUIPMENT, COMPLYING WITH MANUFACTURE'S SPECIFICATION, WILL REQUIRE THE APPROVAL OF THE ENGINEER. USE OF ALTERNATIVE COMPACTION EQUIPMENT SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY DAMAGE TO THE CONDUIT, SURROUNDING GROUND, OR EXISTING AND NEW IMPROVEMENTS.

2 NOTES

Sawcutting & Asphalt/Concrete Removal

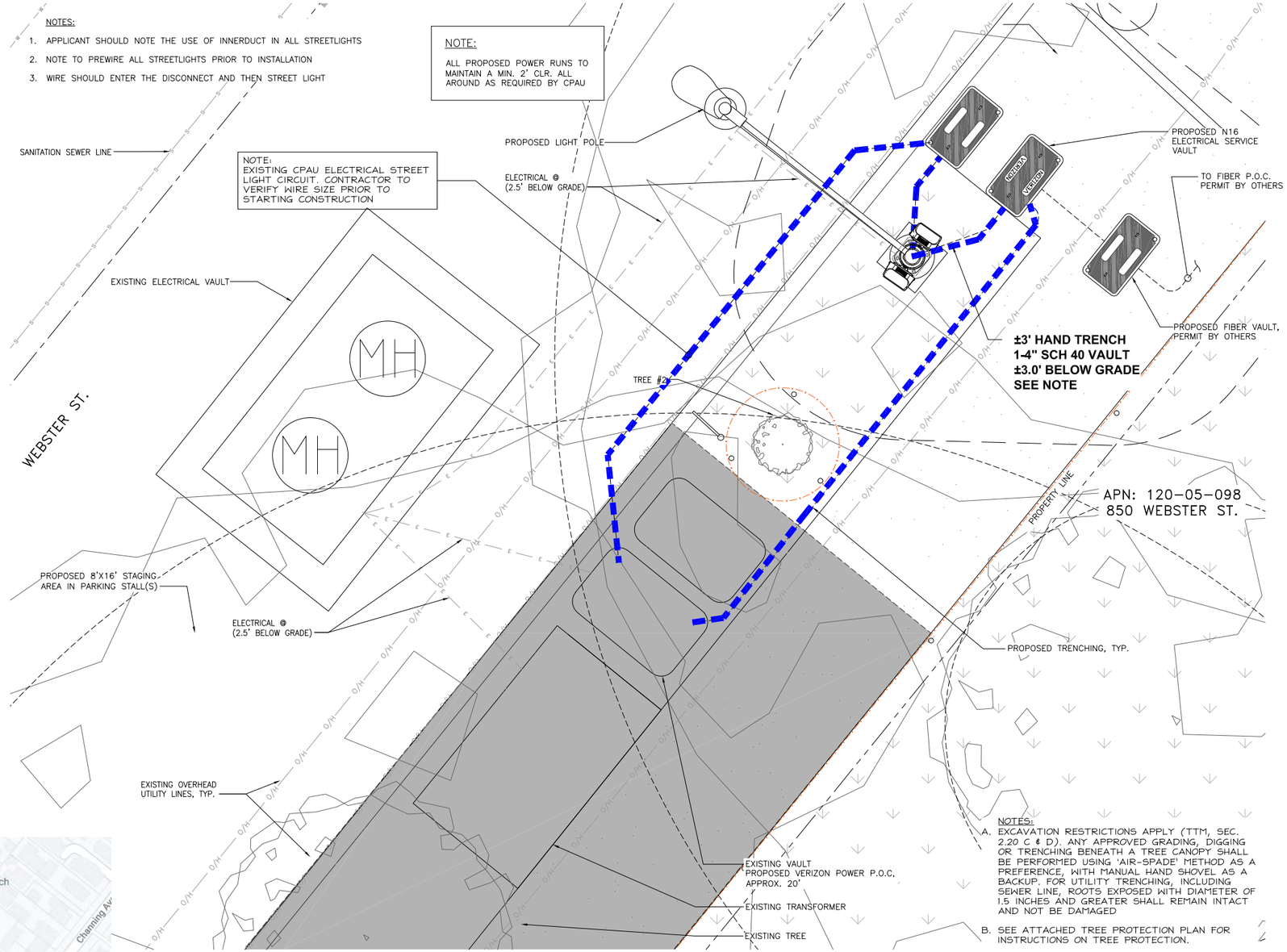
- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

VICINITY MAP

NOTES:
1. APPLICANT SHOULD NOTE THE USE OF INNERDUCT IN ALL STREETLIGHTS
2. NOTE TO PREWIRE ALL STREETLIGHTS PRIOR TO INSTALLATION
3. WIRE SHOULD ENTER THE DISCONNECT AND THEN STREET LIGHT

NOTE:
ALL PROPOSED POWER RUNS TO MAINTAIN A MIN. 2' CLR. ALL AROUND AS REQUIRED BY CPAU

NOTE:
EXISTING CPAU ELECTRICAL STREET LIGHT CIRCUIT. CONTRACTOR TO VERIFY WIRE SIZE PRIOR TO STARTING CONSTRUCTION



NOTES:
A. EXCAVATION RESTRICTIONS APPLY (TTM, SEC. 2.20 C & D). ANY APPROVED GRADING, DIGGING OR TRENCHING BENEATH A TREE CANOPY SHALL BE PERFORMED USING 'AIR-SPADE' METHOD AS A PREFERENCE, WITH MANUAL HAND SHOVEL AS A BACKUP. FOR UTILITY TRENCHING, INCLUDING SEWER LINE, ROOTS EXPOSED WITH DIAMETER OF 1.5 INCHES AND GREATER SHALL REMAIN INTACT AND NOT BE DAMAGED
B. SEE ATTACHED TREE PROTECTION PLAN FOR INSTRUCTIONS ON TREE PROTECTION.
C. ALL PROPOSED CONDUITS MUST BE INSTALLED PER CITY STD. DRAWING NO. 402.

1 LIGHT POLE
1 inch = 2ft.

2' 1' 0" 2'

PROJECT SPECIFIC PERMIT INFORMATION		
DESCRIPTION	QTY	UNIT
PLACE (1) 4" SCH 40 CONDUIT	18	LF
PLACE (1) 2" SCH 40 CONDUIT	5	LF
REMOVE AND RESTORE SOIL	128	FT²

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N W E S

LEGEND

U.G. UTILITY VAULT	BOL	BOLLARD	FL	FLOW LINE	WATER
MANHOLE	TOP _	TOP OF ITEM	EOP	EDGE OF PAVEMENT	SANITARY SEWER
UTILITY POLE	BOT _	BOTTOM OF ITEM	R.O.W.	RIGHT OF WAY	STORM DRAIN
SPOT ELEVATION	BLDG	TOP OF BUILDING	AP	ASPHALT	GAS
WATER VALVE	LP	LIGHT POLE	SW	SIDEWALK	COMMUNICATION
FOUND MONUMENT		LIMITS OF PROPERTY	O/H	OVERHEAD LINE	ELECTRIC
GEODETIC MARKER	x	CHAIN LINK FENCE		METAL FENCE	UNKNOWN UTILITY
MASONRY WALL		WOOD FENCE		GRADE BREAK	IRRIGATION

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ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
1	04/09/2021	UPDATE PER CPAU WALK	DW
0	08/18/2020	FINAL BORING PLAN	MG
A	08/14/2020	PRELIMINARY BORING PLAN	SS

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA

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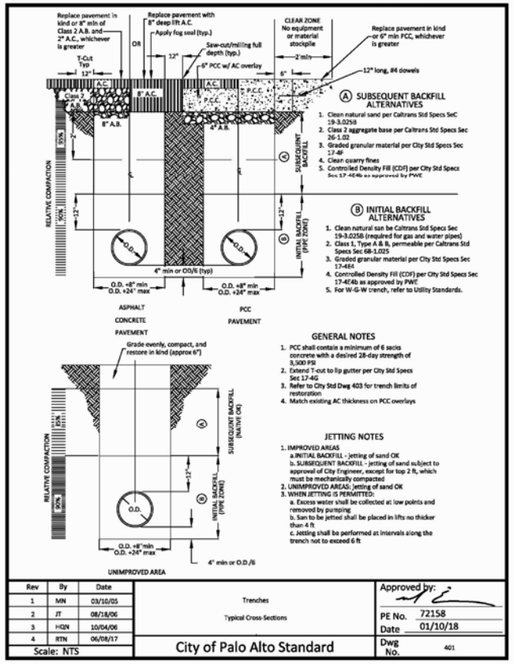
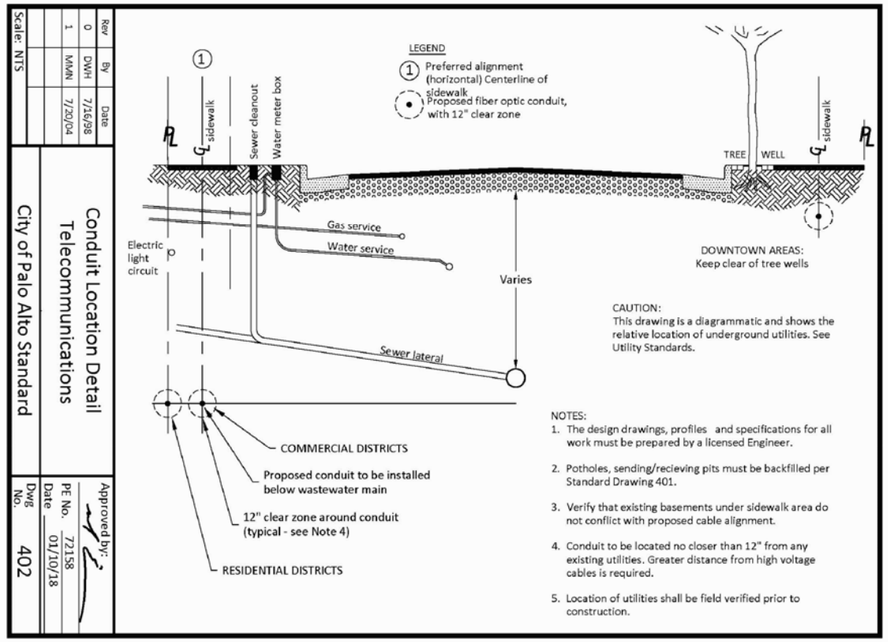
PUBLIC R.O.W. ADJACENT TO:
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
BORING SITE PLAN

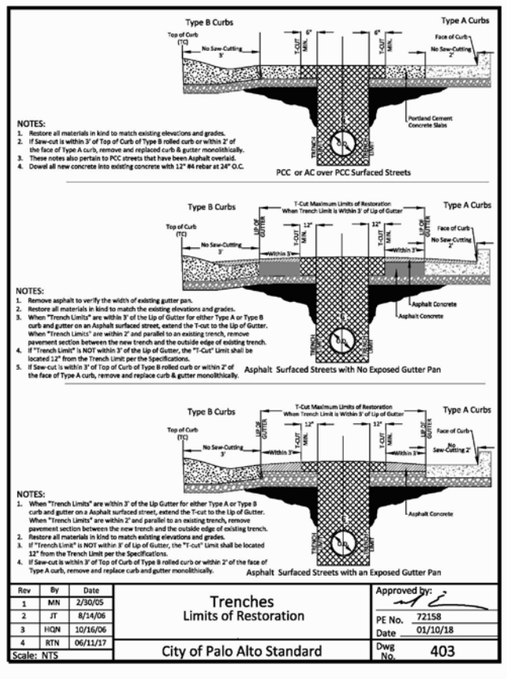
SHEET NUMBER
A-1.4



5 CITY STANDARD DWG 401
N.T.S.



3 CITY STANDARD DWG 402
N.T.S.



4 CITY STANDARD DWG 403
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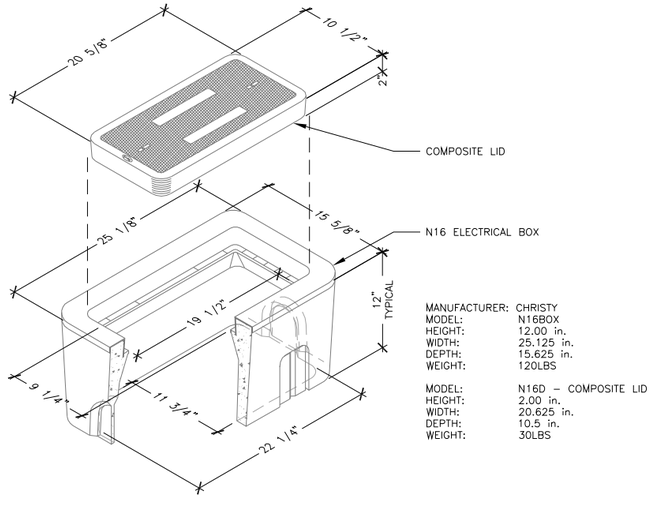
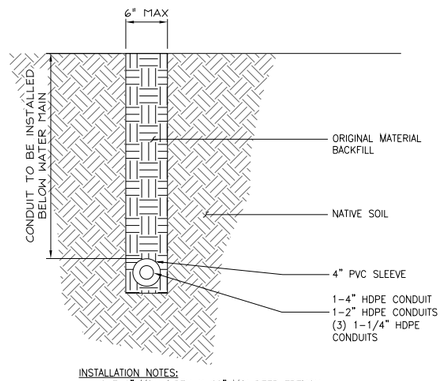


2 CHRISTY N16 ELECTRICAL BOX
N.T.S.



1 IN DIRT – PRIVATE
N.T.S.

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WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
1	04/09/2021	UPDATE PER CPAU WALK	DW
0	08/18/2020	FINAL BORING PLAN	MG
A	08/14/2020	PRELIMINARY BORING PLAN	SS

REGISTERED PROFESSIONAL ENGINEER
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71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
CITY STANDARDS & DETAILS

SHEET NUMBER
A-1.5

- Grade fills over 6-inches or impervious overlay shall incorporate an approved permanent aeration system, permeable material or other approved mitigation.
- Grade cuts exceeding 4-inches shall incorporate retaining walls or an appropriate transition equivalent.

notes:

Required Practices

C. Trenching, Excavation and Equipment Use

Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the *City Arborist*. *(See Restriction Zones for Excavation, Trenching or Boring Near Regulated Trees, Image 2.20-1 through 2.20-3)*. Mitigating measures shall include prior notification to and direct supervision by the *project arborist*.

1. Notification. Contractor shall notify the *project arborist* a minimum of 24 hours in advance of the activity in the TPZ.
2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired (*see Root Injury, Section 2.25 A-1*). Roots 2-inches and greater must remain injury free.
3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.
   - If excavation or *trenching* for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.
   - Prior to excavation for foundation/footings/walls, grading or *trenching* within the TPZ, roots shall first be severed cleanly 1-foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw, sawzall, narrow trencher with sharp blades or other approved root pruning equipment.
4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the *City Arborist*. If allowed, a protective *root buffer* (*see Root Buffer and Damage to Trees, Section 2.25.A-1*) is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.
   - Structural design. If injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to *City Arborist* approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

- Basement excavations shall be designed outside the TPZ of all *protected* and *designated trees* (*see Excavation, Section 2.20-3*) and shall not be harmful to other mature or neighboring property trees.

notes:

Required Practices

D. Tunneling & Directional Drilling

If *trenching* or pipe installation has been approved within the TPZ, then the trench shall be either cut by hand, air-spade, hydraulic vac-on excavation or, by mechanically boring the tunnel under the roots with a horizontal directional drill and hydraulic or pneumatic air excavation technology. In all cases, install the utility pipe immediately, backfill with soil and soak within the same day. Installation of private utility improvements shall be tunnel bored beneath the tree and roots per *Trenching Tunneling & Distance Matrix* In Table 2-1.

TABLE 2-1
Trenching & Tunneling Distance

TRENCHING DISTANCE

When the Tree Diameter At 4.5 Ft Is:	Trenching will be Replaced with Boring at this Minimum Distance (10x tree dia.) from the Face of the Tree in any Direction:
6-9" Measured At 6" à	6-9'
10-14" Measured At 54" à	10-14'
15-19" Measured At 54" à	15-19'
Over 19" Measured At 54" à	20' +

DEPTH OF TUNNELING

Tree Diameter	Depth of Tunneling
9" Or Less Measured At 6" à	2.5'
10-14" Measured At 54" à	3.0'
15-19" Measured At 54" à	3.5'
More Than 19" Measured At 54" Depth of Tunnel à	4.0'

Bore Pits Shall Be Located At A Minimum Distance As Specified By The Trenching Distance Table Above.

1. Public Utilities
   Underground public utility improvements or repairs shall be performed in accordance with the *Utility Standards for Excavation, Trenching or Boring, Section 02200.309*; and per *Restriction Zones Near Regulated Trees* (*see Images 2.20-1 through 2.20-3*).
2. Street Trees
   Exclusions for *street trees* in the publicly owned right-of-way (ROW).
   - *Street Trees* that are in conflict with utility infrastructure where the conflict cannot be resolved may be removed if approved by Public Works Operations (e.g., a tree planted directly on top of a damaged sewer lateral.)

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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
1	04/09/2021	UPDATE PER CPAU WALK	DW
0	08/18/2020	FINAL BORING PLAN	MG
A	08/14/2020	PRELIMINARY BORING PLAN	SS

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

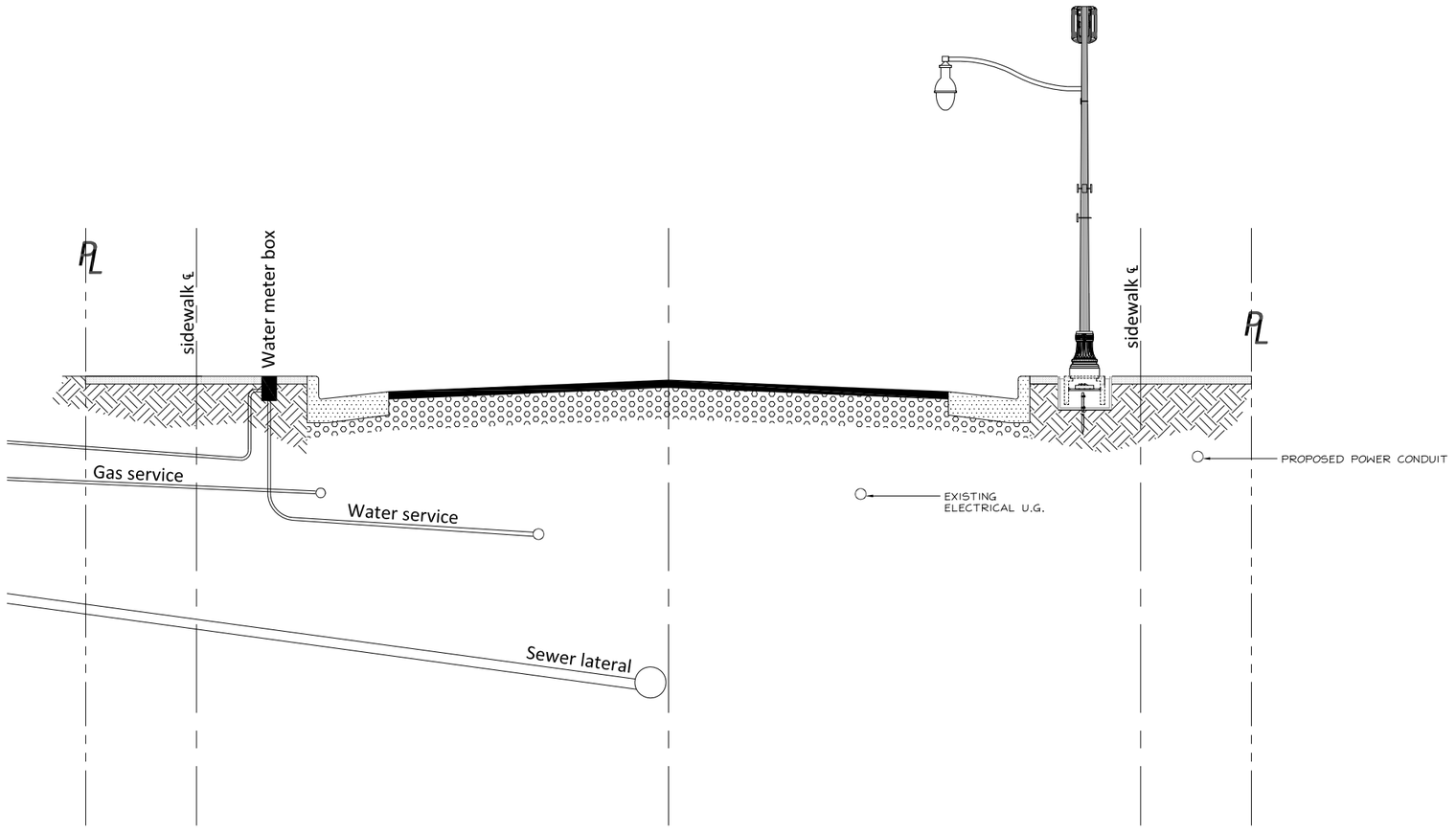
SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
CITY STANDARDS & DETAILS

SHEET NUMBER
A-1.6

1. ALL WORK SHALL COMPLY WITH THE CITY OF PALO ALTO 2018 STANDARD DRAWINGS AND SPECIFICATIONS BORING, TRENCHING, POTHOLING AND DEWATERING, SECTION 17
2. THE LOCATION OF EXISTING UTILITY MAINS AND LATERAL LINES INCLUDING STORM DRAIN, SANITARY SEWER, WATER, GAS, UNDERGROUND ELECTRICAL AND COMMUNICATION CONDUITS CROSSING THE TRENCH EXCAVATION SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICES ALERT (USA) AT 811 OR 800-642-2444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING UNDERGROUND WORK SO THAT EXISTING UTILITIES CAN BE MARKED IN THE FIELD, UNLESS OTHERWISE STATED BY CITY CONTRACT.
3. EXCAVATION SHALL BE SUPPORTED AND EXCAVATION OPERATIONS CONDUCTED IN ACCORDANCE WITH THE RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA). IF IN THE OPINION OF THE ENGINEER, THERE EXISTS A SITUATION OF IMMINENT DANGER TO THE WORKERS, THE ENGINEER MAY ORDER THE WORK STOPPED AND THE CONTRACTOR SHALL COMPLY WITH RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA).
4. BACKFILL SHALL BE SAND OR GRANULAR MATERIAL FALLING WITHIN THE LIMITS DESCRIBED IN THE STANDARD DRAWING 401. AGGREGATE BASE, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS WITHIN THESE SPECIFICATIONS.
5. THE CONTRACTOR SHALL INSTALL THE CONDUIT IN ACCORDANCE WITH THE APPROVED STREET WORK PERMIT. ALL CONDUITS SHALL BE INSTALLED UNDERGROUND USING DIRECTIONAL BORING METHOD. MICRO-TUNNELING OR OTHER METHODS SHALL BE APPROVED BY THE PUBLIC WORKS ENGINEERING DIVISION. THE CONDUITS SHALL BE INSTALLED WITH TRACER WIRE APPROVED BY THE ENGINEER PER CITY OF PALO ALTO UTILITIES DEPARTMENT WATER, GAS AND WASTEWATER UTILITY STANDARDS. REFER TO STANDARD DRAWING 402.
6. TRENCHES SHALL NOT BE LEFT OPEN AT THE END OF THE DAY. ADEQUATE PROVISIONS SHALL BE MADE FOR THE PLACING OF TEMPORARY STEEL PLATES IN ADDITION TO BARRICADES, SIGNING AND LIGHTING. STOCKPILING OF EXCAVATED MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED. A MAXIMUM OF THREE-HUNDRED (300) FEET OR ONE (1) CITY BLOCK OF TRENCH, WHICHEVER IS GREATER, MAY BE OPENED AT ONE TIME. FOR TEMPORARY PATCHING, A MINIMUM THICKNESS OF TWO (2) INCHES OF CUTBACK WILL BE USED.
7. PRIOR TO EXCAVATION OF TRENCHING, POTHOLING OR SENDING/RECEIVING PITS, THE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE SHALL BE CUT OR MILL TO A NEAT LINE FULL DEPTH WITH A SAW-CUTTING OR MILLING DEVICE APPROVED BY THE ENGINEER.
8. BACKFILL MATERIAL SHALL BE COMPACTED TO 90 PERCENT MINIMUM RELATIVE COMPACTION EXCEPT THE TOP TWENTY-FOUR (24) INCHES, WHICH SHALL BE MECHANICALLY COMPACTED TO 95 PERCENT MINIMUM RELATIVE COMPACTION. MECHANICALLY COMPACTED LIFTS USING ALTERNATIVE EQUIPMENT, COMPLYING WITH MANUFACTURE'S SPECIFICATION, WILL REQUIRE THE APPROVAL OF THE ENGINEER. USE OF ALTERNATIVE COMPACTION EQUIPMENT SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY DAMAGE TO THE CONDUIT, SURROUNDING GROUND, OR EXISTING AND NEW IMPROVEMENTS.

② NOTES



① R.O.W SECTION
NTS

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

811 USA North
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
WASSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

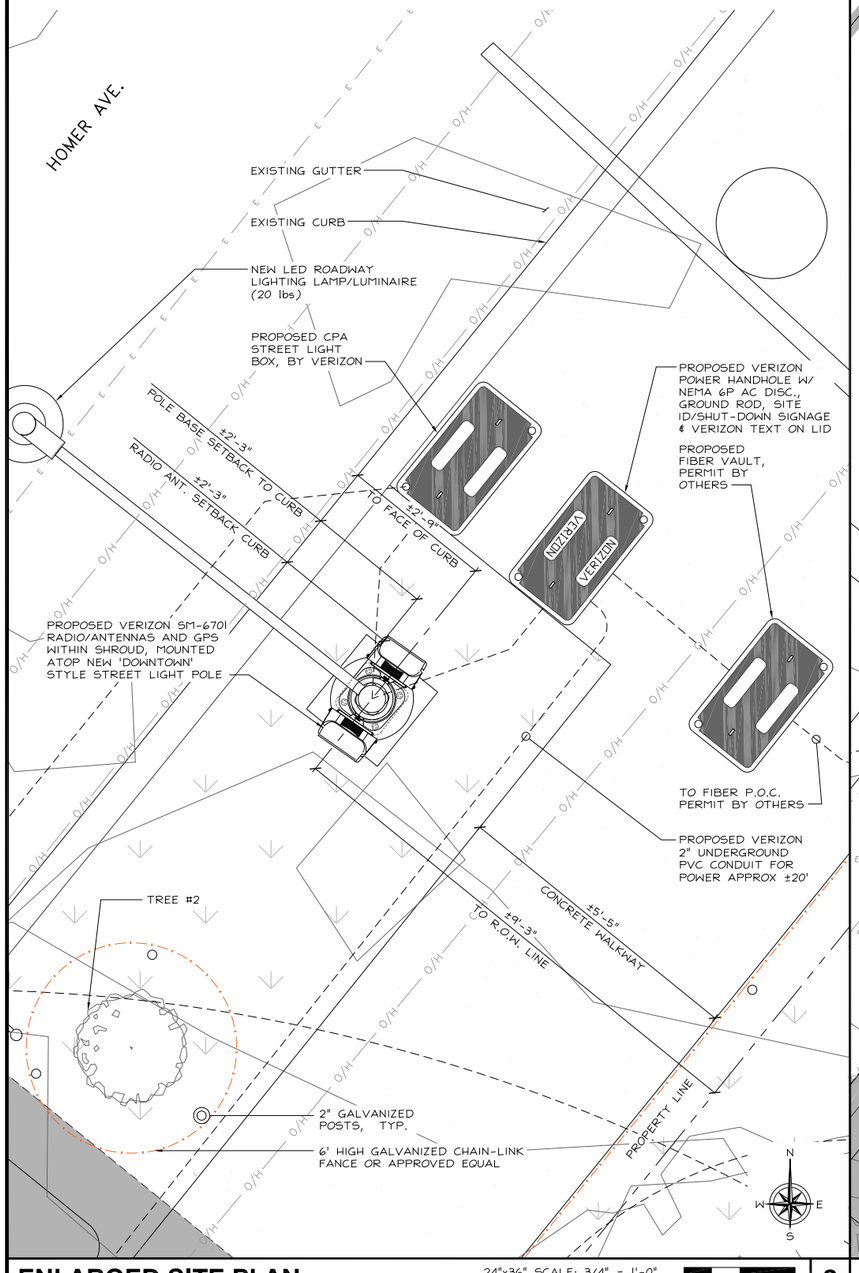
SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
R.O.W. SECTION

SHEET NUMBER
A-1.7

NOTES:

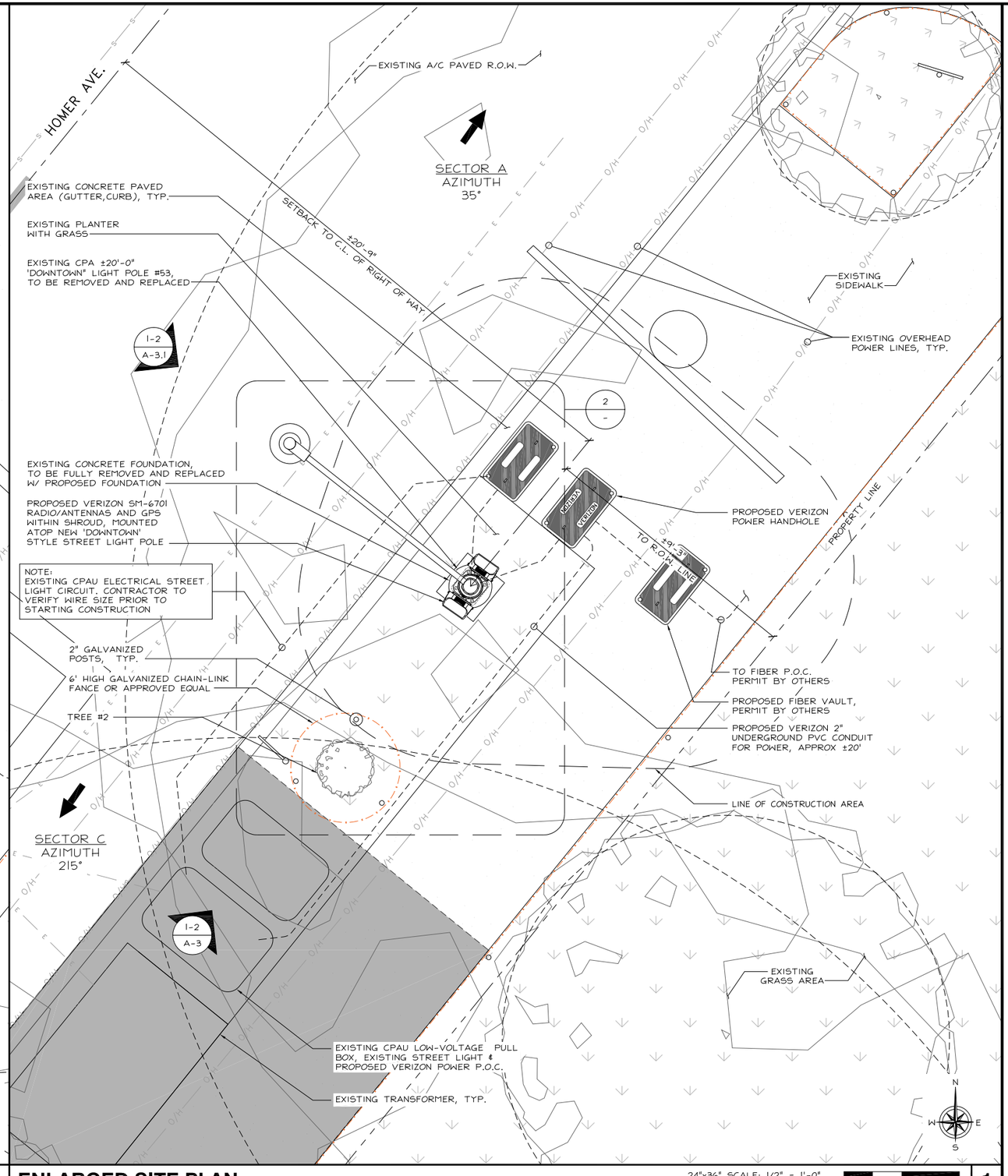
1. METAL SURFACES REQUIRING PAINT TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1.
2. THE CONTRACTOR MAY BE REQUIRED TO SUBMIT A LOGISTICS PLAN TO THE PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCING WORK THAT ADDRESSES ALL IMPACTS TO THE CITY'S RIGHT-OF-WAY, INCLUDING, BUT NOT LIMITED TO: PEDESTRIAN CONTROL, TRAFFIC CONTROL, TRUCK ROUTES, MATERIAL DELIVERIES, CONTRACTOR'S PARKING, CONCRETE POURS, CRANE LIFTS, WORK HOURS, NOISE CONTROL, DUST CONTROL, STORM WATER POLLUTION PREVENTION, CONTRACTOR'S CONTACT, NOTICING OF AFFECTED SURROUNDING PROPERTIES , AND SCHEDULE OF WORK. THE REQUIREMENT TO SUBMIT A LOGISTICS PLAN WILL BE DEPENDENT ON THE NUMBER OF APPLICATIONS PUBLIC WORKS ENGINEERING RECEIVES WITHIN CLOSE PROXIMITY TO HELP MITIGATE AND CONTROL THE IMPACT TO THE PUBLIC-RIGHT-OF-WAY. IF NECESSARY, PUBLIC WORKS MAY REQUIRE A LOGISTICS PLAN DURING CONSTRUCTION.
3. TREES MAY NOT BE PLANTED WITHIN 10 FEET OF EXISTING WATER, GAS OR WASTEWATER MAINS/SERVICES OR METERS; LESSER DISTANCES REQUIRE A PERMANENT IMPERMEABLE ROOT-BARRIER A MINIMUM OF 3' HORIZONTAL FROM WATER, GAS AND WASTEWATER SERVICES/MAINS/METERS.



ENLARGED SITE PLAN

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

2



ENLARGED SITE PLAN

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

1

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ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
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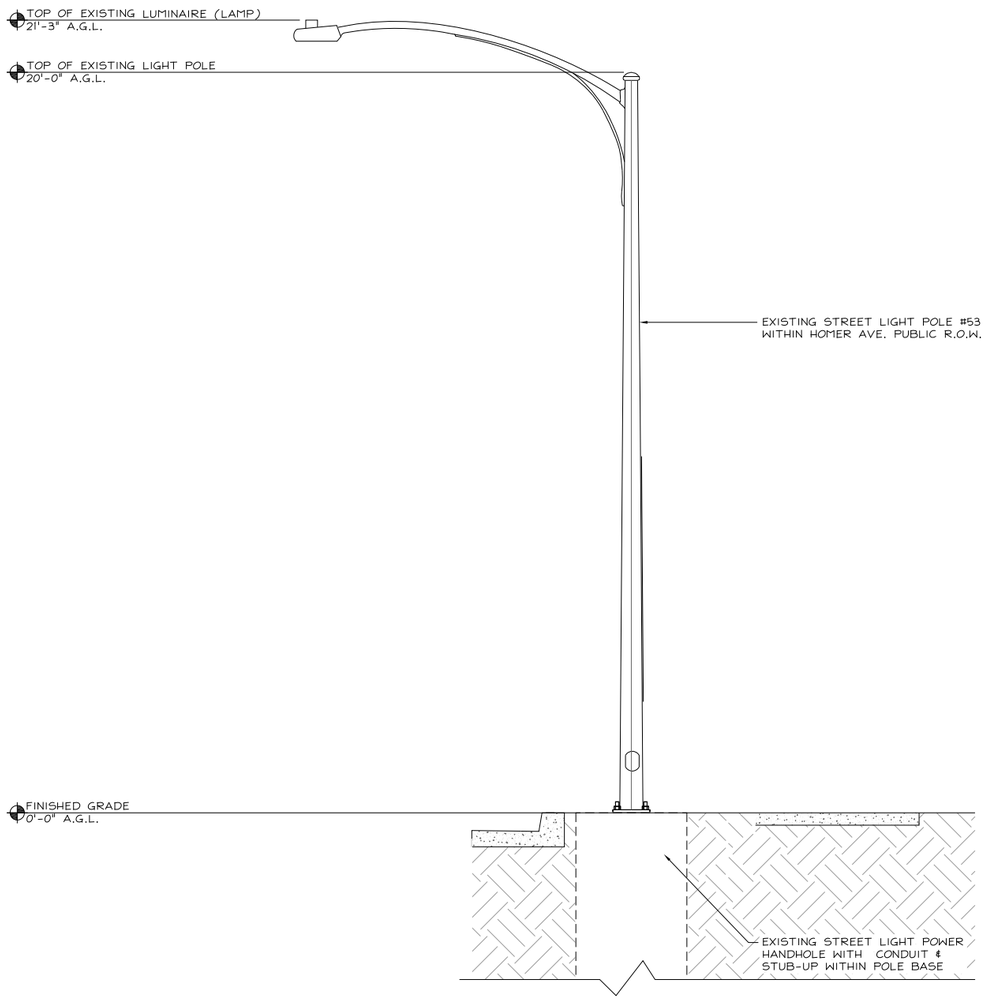
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-2



EXISTING SOUTHWEST ELEVATION

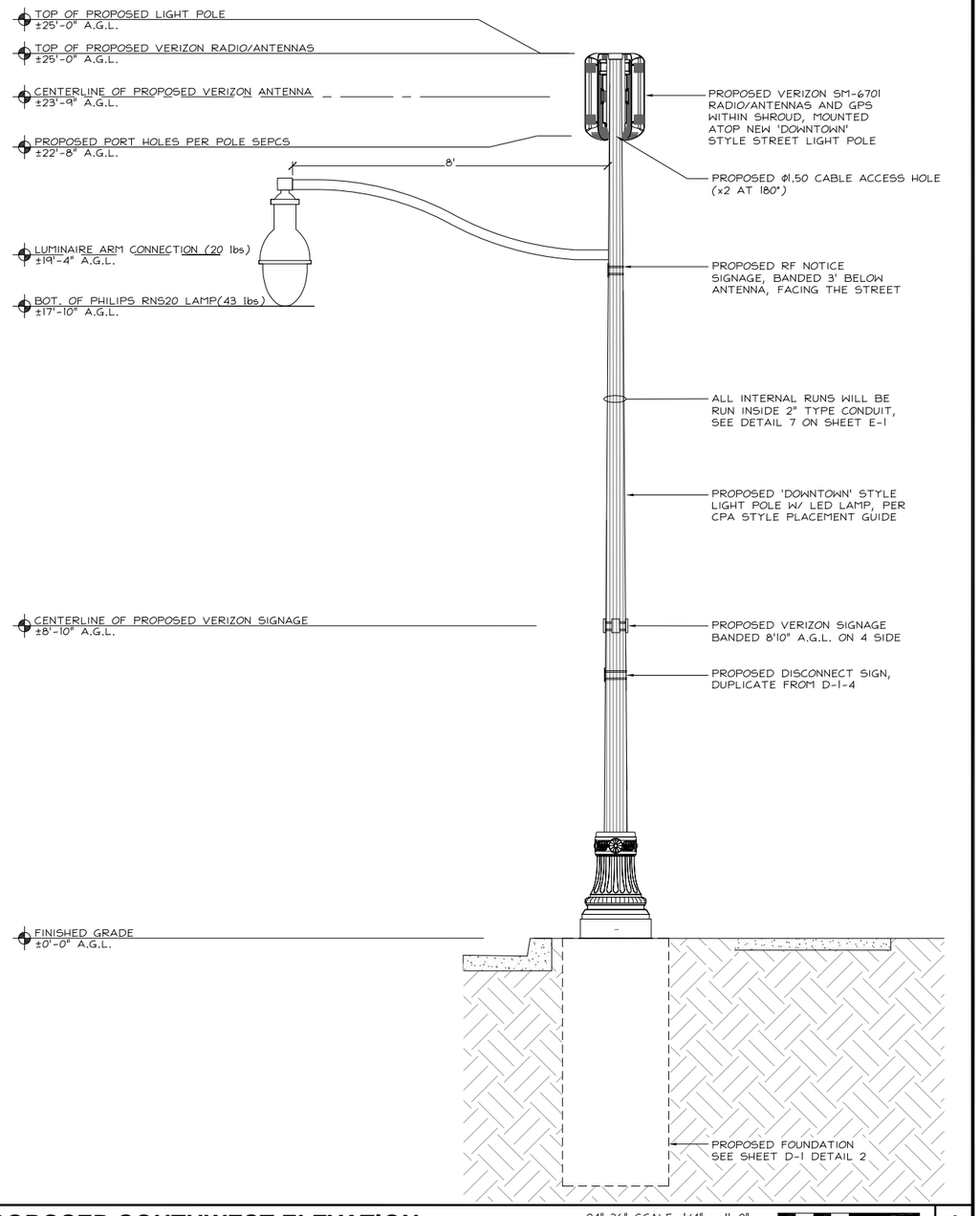
24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
4' 3' 2' 1' 0" 4'

2

NOTES:

1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANTENNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL RADIOS	TOTAL RADIO AREA (CU. FT.)
COMPTEK	2	±1.7



PROPOSED SOUTHWEST ELEVATION

24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
4' 3' 2' 1' 0" 4'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

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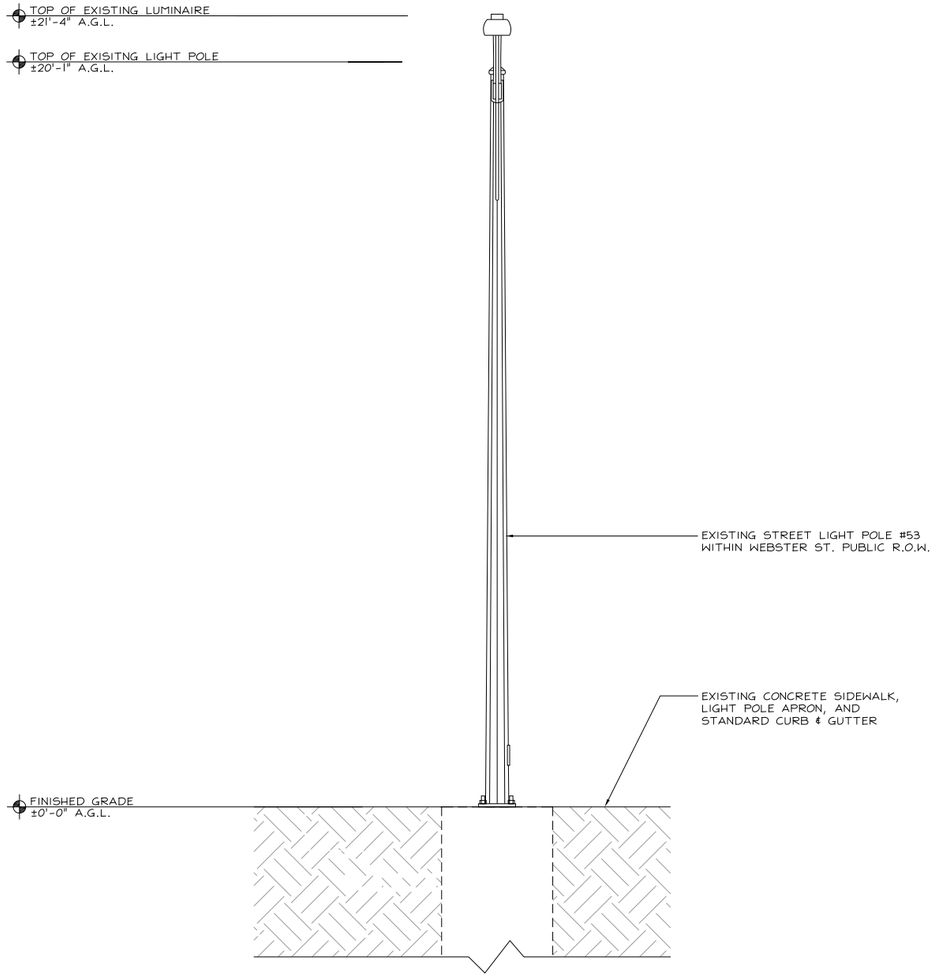
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
WASSIM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A-3



EXISTING NORTHWEST ELEVATION

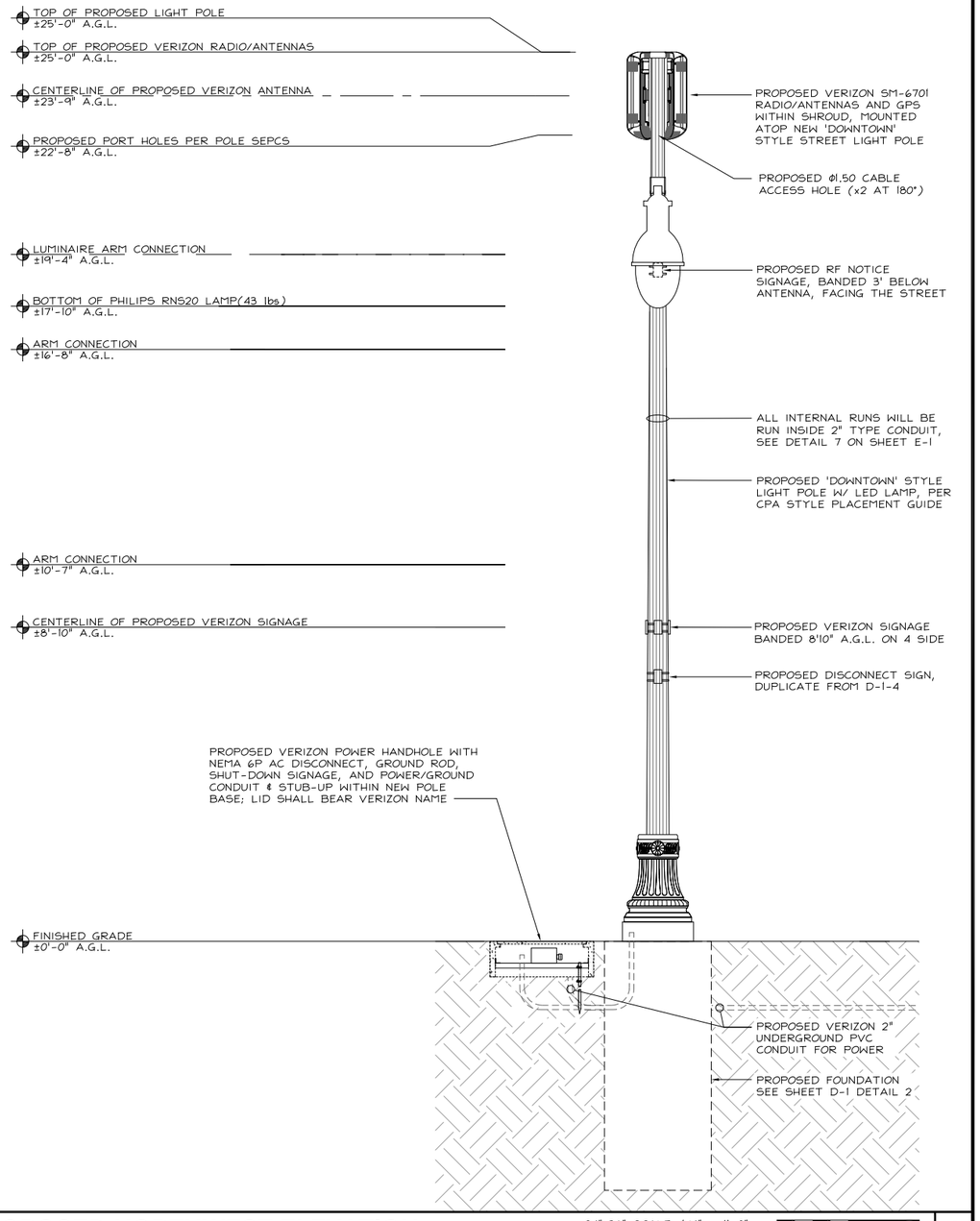
24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
4' 3' 2' 1' 0" 4'

2

NOTES:

1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANTENNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL RADIOS	TOTAL RADIO AREA (CU. FT.)
COMPTEK	2	±1.7



PROPOSED NORTHWEST ELEVATION

24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
4' 3' 2' 1' 0" 4'

1

verizon
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Vinculums
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WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
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B	05/06/2020	95% CD'S FOR REDLINE	RF
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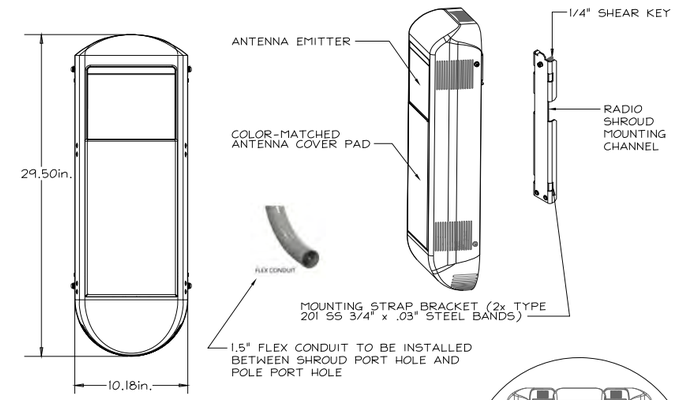
SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
ELEVATIONS

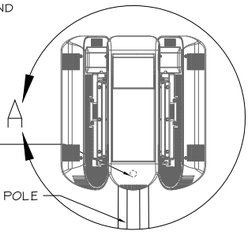
SHEET NUMBER
A-3.1

ERICSSON 6701 POLE ATTACHMENT SHROUD (OR APPROVED EQUAL)

NOTES:
1. FULL SHROUD PAINTABLE TO MATCH COLOR OF EXISTING STRUCTURE.
2. COLOR-MATCHED 3M FILM TO BE APPLIED TO ANTENNA EMITTER FACE.
3. SHROUD DRY WEIGHT = 18 LBS.
4. TOTAL WEIGHT INCLUDING ANTENNA = 49LBS.
5. ANTENNA/SHROUD VOLUME = 0.85 CU.FT. (EACH)



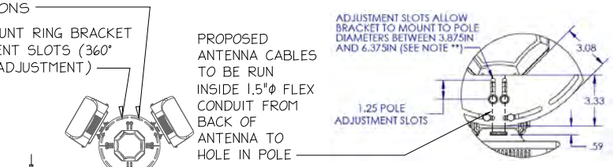
DETAIL A (SECTOR 1 RADIO HIDDEN FOR CLARITY)



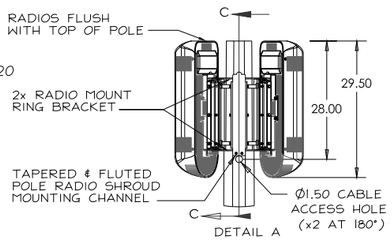
BRACKET ID & OD DEPENDENT ON POLE DIMENSIONS

RADIO MOUNT RING BRACKET ADJUSTMENT SLOTS (360° AZIMUTH ADJUSTMENT)

PROPOSED ANTENNA CABLES TO BE RUN INSIDE 1.5"Φ FLEX CONDUIT FROM BACK OF ANTENNA TO HOLE IN POLE

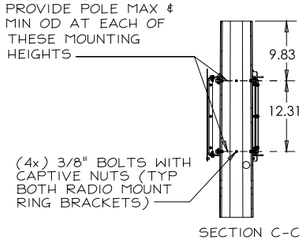


DETAIL B

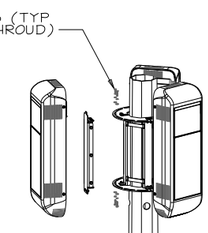


DETAIL A

POLE VENDOR TO PROVIDE POLE MAX & MIN OD AT EACH OF THESE MOUNTING HEIGHTS



SECTION C-C



SM6701 SHROUD & MOUNTING DETAILS

24"x36" SCALE: NTS
11"x17" SCALE: NTS

7

PREFORMED LINE PRODUCTS

COYOTE TERMINAL CLOSURE (FIBER DEMARCATION UNIT)

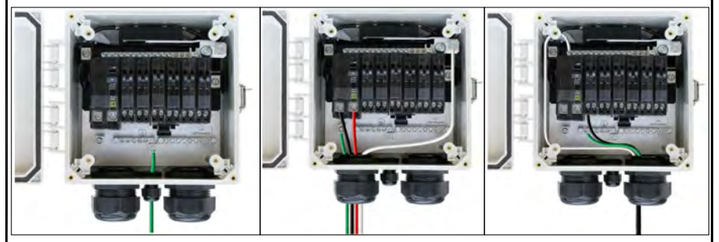
- DIMENSIONS: 18.76"L x 9.70"W x 5.13"D
- WEIGHT: N/A

OR VERIZON APPROVED EQUAL

FIBER DEMARCATION UNIT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

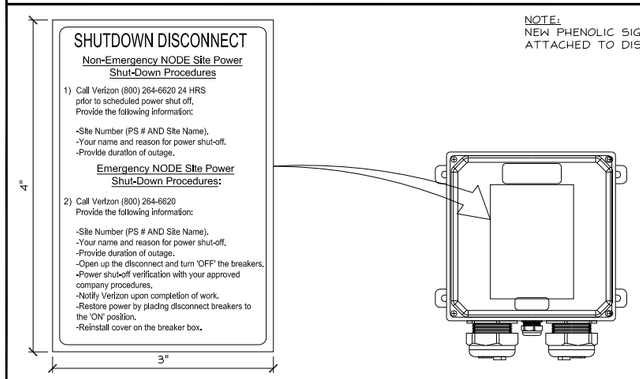
6



GROUND | AC POWER "IN" | AC POWER "OUT"

AC POWER DISCONNECT WIRE DIAGRAM

5



NOTE:
NEW PHENOLIC SIGN TO BE ATTACHED TO DISCONNECT

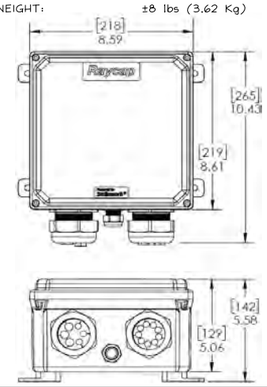
SHUTDOWN SIGN ON DISCONNECT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

4

Raycap RSCAC-1333-PH-240 AC POWER DISCONNECT (OR APPROVED EQUAL)

- DIMENSIONS: 10.43"L x 8.59"W x 5.06"D
- WEIGHT: ±8 lbs (3.62 Kg)



RSCAC-1333-PH-240

NEMA 6P AC POWER DISCONNECT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

CONTRACTOR NOTE:
- SITE ID WILL BE SWITCH #, SITE # AND SITE NAME.
- NODE NUMBER WILL BE MARKET#-NODE.B#-SMALL CELL NAME.

NOTE:
INSTALL EME NOTICE SIGN 3' BELOW STREET MACRO UNITS.

GO95 RF SIGNAGE

24"x36" SCALE: NTS
11"x17" SCALE: NTS

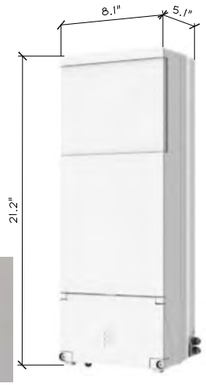
2

ERICSSON STREET MACRO 6701

- DIMENSION W/ PROTRUDING ITEMS INCL GPS ANT: 21.2"H x 8.1"W x 5.1"D
- TOTAL RADIO AREA (CU. IN.): 875.77 CU. IN.
- WEIGHT: ±31 lbs

RADIO AREA (CU. FT.)			
RADIO MODEL	TOTAL RADIO(S)	TOTAL RADIO AREA (CU. IN.)	TOTAL RADIO AREA (CU. FT.)
MACRO 6701	1	875.77 CU. IN.	0.51 CU. FT.

NEW GPS ATTACHED ON TOP OF SM 6701 (PRE INSTALLED BY MANUFACTURER) (1) TOTAL (MAX. MEASUREMENTS WILL NOT EXCEED)



STREET MACRO 6701

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

verizon

2785 MITCHELL DRIVE, SUITE 9
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

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A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

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

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
DETAILS

SHEET NUMBER
D-1

Verizon Wireless • Proposed Small Cells
Four Pole Locations • Palo Alto, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a wireless telecommunications carrier, to evaluate the addition of small cells in its network in Palo Alto, California, for compliance with municipal limits on sound levels from the installations.

Executive Summary

Verizon proposes to install antennas and equipment on four light poles sited in the public right-of-way in Palo Alto. Noise from the proposed operations will comply with the City's pertinent noise limits.

Prevailing Standard

The City of Palo Alto adopted in April 2019 an amendment to Section 18.42.110 (Wireless Communication Facilities) of its Municipal Code, which sets limits at residential areas for Wireless Communication Facilities ("WCF") installed in public rights-of-way on wood utility poles and on *streetlight poles. Noise at the nearest residential property line is limited to an increase of 5 dBA over* existing ambient levels, if the ambient noise level would remain below 60 dBA L_{dn} or to an increase of 3 dBA, otherwise. The composite "day-night" average L_{dn} incorporates a 10 dBA penalty during nighttime hours (10 pm to 7 am), to reflect typical residential conditions, where noise is more readily heard at night. By definition, sound from a continuous noise source will be 6.4 dBA higher when expressed in L_{dn}.

It is noted that the amended language also references Chapter 9.10 of the Code, which had set a more relaxed increase of 15 dBA for such WCF sitings, assessed at 25 feet from the pole. It is assumed for this study that the minimum reference ambient level is 40 dBA, as defined in Chapter 9.10.

A summary of noise assessment and calculation methodologies is shown in Figure 1.

General Facility Requirements

Wireless telecommunications facilities ("cell sites") typically consist of two distinct parts: the electronic base transceivers (also called "radios"), that are connected to traditional wired telephone lines, and the antennas, that send wireless signals created by the radios out to be received by individual subscriber units. The radios are typically located on or at the base of the pole and are connected to the antennas by cables. Some radios require fans to cool the electronics inside. Some radios are integrated with the antennas as a single unit.

Verizon Wireless • Proposed Small Cells
Four Pole Locations • Palo Alto, California

Site & Facility Description

According to information provided by Verizon, that carrier proposes to install up to three Ericsson Model 6701 antennas, with integrated radios, on top of the light pole at each of the four locations listed in Table 1.

Study Results

Ericsson reports that the maximum noise level from three Model 6701 units is 39.5 dBA,* at a reference distance of 5 feet. At the minimum ambient level of 40 dBA, in order for the increase above ambient to remain below 5 dBA, the equipment configuration described above would need to be sited at least 3½ feet the nearest residential property line. If the measured ambient is found to be above 40 dBA, this distance, by definition, would decrease. **All the proposed small cells in Table 1 meet this distance requirement.**

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of these Verizon Wireless small cells in Palo Alto will, under the conditions noted above, comply with the municipal standards limiting acoustic noise emission levels.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2021. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

William F. Hammett, P.E.
707/996-5200

REGISTERED PROFESSIONAL ENGINEER — WILLIAM F. HAMMETT — E-13026 M-20676 — Exp: 6-30-2021 — ELECTRICAL MECHANICAL — STATE OF CALIFORNIA

September 1, 2020

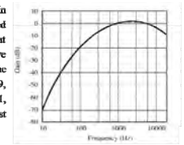
Small Cell #	Approximate Address	Distance to Property Line
SF Palo Alto 061	1221 Middlefield Road	6 feet
SF Palo Alto 203	519 Webster Street	9
SF Palo Alto 204	850 Webster Street	9
SF Palo Alto 205	853 Middlefield Road	9

Table 1. Proposed Verizon small cells

* Adjusted value based on manufacturer data, to reflect record high temperature of 107°F in Palo Alto.

Noise Level Calculation Methodology

Most municipalities and other agencies specify noise limits in units of dBA, which is intended to mimic the reduced receptivity of the human ear to Sound Pressure ("L_P") at particularly low or high frequencies. This frequency-sensitive filter shape, shown in the graph to the right as defined in the International Electrotechnical Commission Standard No. 179, the American National Standards Institute Standard No. 5.1, and various other standards, is also incorporated into most calibrated field test equipment for measuring noise levels.



30 dBA	library
40 dBA	rural background
50 dBA	office space
60 dBA	conversation
70 dBA	car radio
80 dBA	traffic corner
90 dBA	lawnmower

The dBA units of measure are referenced to a pressure of 20 µPa (micropascals), which is the threshold of normal hearing. Although noise levels vary greatly by location and noise source, representative levels are shown in the box to the left.

Manufacturers of many types of equipment, such as air conditioners, generators, and telecommunications devices, often test their products in various configurations to determine the acoustical emissions at certain distances. This data, normally expressed in dBA at a known reference distance, can be used to determine the corresponding sound pressure level at any particular distance, such as at a nearby building or property line. The sound pressure drops as the square of the increase in distance, according to the formula:

$$L_P = L_R + 20 \log(D_R/D_P),$$

where L_P is the sound pressure level at distance D_P, and L_R is the known sound pressure level at distance D_R.

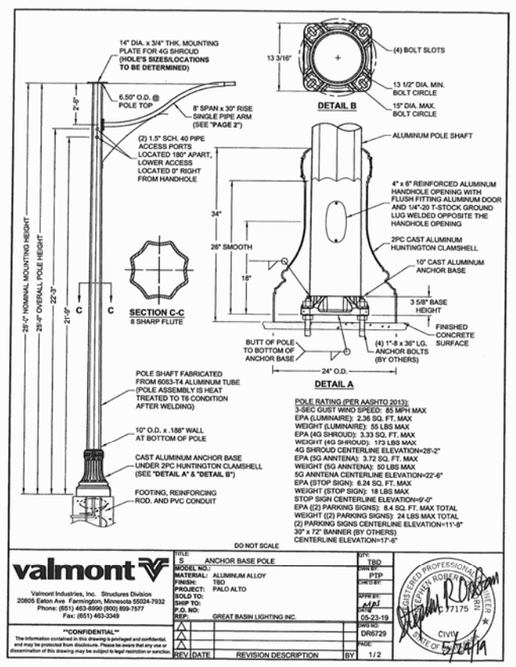
Individual sound pressure levels at a particular point from several different noise sources cannot be combined directly in units of dBA. Rather, the units need to be converted to scalar sound intensity units in order to be added together, then converted back to decibel units, according to the formula:

where L_T is the total sound pressure level and L_1, L_2, etc are individual sound pressure levels.

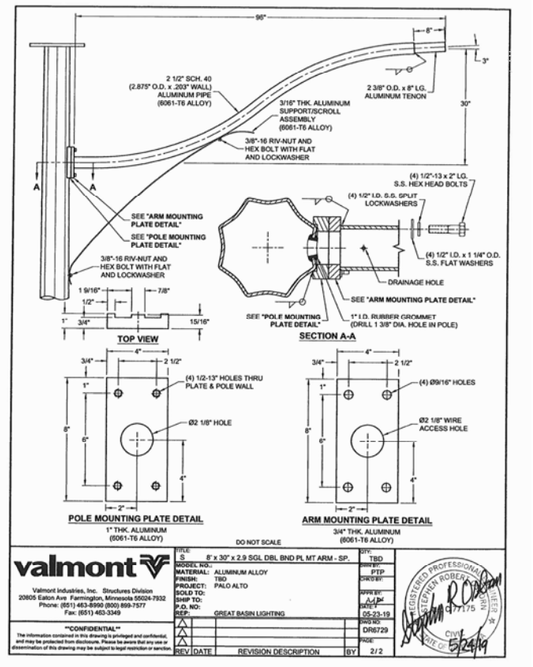
$$L_T = 10 \log\left(10^{L_1/10} + 10^{L_2/10} + \ldots\right),$$

Certain equipment installations may include the placement of barriers and/or absorptive materials to reduce transmission of noise beyond the site. Noise Reduction Coefficients ("NRC") are published for many different materials, expressed as unitless power factors, with 0 being perfect reflection and 1 being perfect absorption. Unpainted concrete block, for instance, can have an NRC as high as 0.35. However, a barrier's effectiveness depends on its specific configuration, as well as the materials used and their surface treatment.

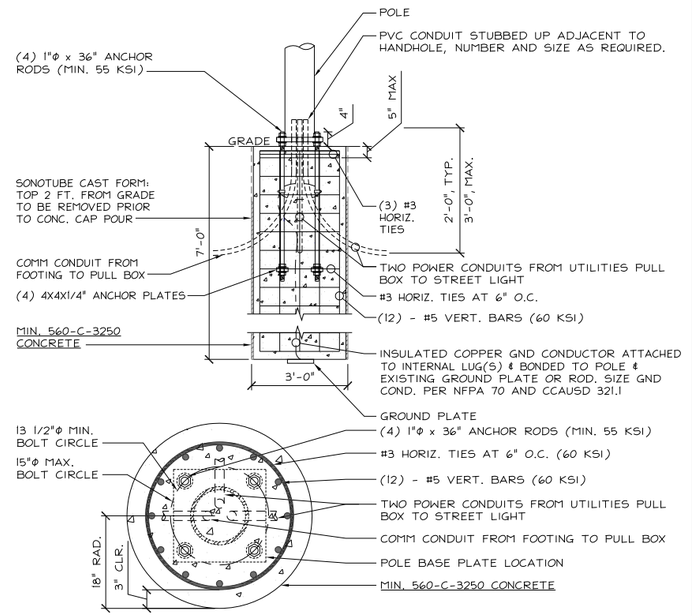
NOISE STUDY — 24"x36" SCALE: NTS, 11"x17" SCALE: NTS — 2



POLE SPECS — 24"x36" SCALE: NTS, 11"x17" SCALE: NTS — 3



NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



FOUNDATION DETAIL — 24"x36" SCALE: NTS, 11"x17" SCALE: NTS — 1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER — WASAW ZALZALI — 71655 — CIVIL — STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
NOISE STUDY,
FOUNDATION DETAILS,
POLE DRAWINGS

SHEET NUMBER
D-2

Submittal Cover Letter

Date: June 12, 2018
Contractor name: Phoenix Electric
Project name: City of Palo- Downtown Improvements
Customer PO# 767-02
JAM SO# 54798

Please see the enclosed set of submittals for the materials to be supplied on the above-mentioned project; these are for APPROVAL. The material will remain ON HOLD pending the receipt of signed approved submittals. Please note standard factory lead times will apply upon release.

Submittal page#	Item Description	Spec Section	Check if Deviation	Request for information
2-5	LED Luminaires	N/A		

*Per the factory, there is a smaller scale version. However, this version maxes out at 55 watts, and the specified version is 135w. Please advise.

If you have any questions please let me know.

Thank you,
Samantha Douglas
Project Administration
JAM Services, Inc.

958 E. AIRWAY BLVD • LIVERMORE, CALIFORNIA • 94551
PHONE: (925) 455-5267 • FAX: (925) 455-5271

CITY OF PALO ALTO- DOWNTOWN IMPROVEMENTS

RNS20 (Reference=L23638-3)

EPA: 2.03 sqft / weight: 43 lb (19.5 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

Qty 1 Luminaire **RNS20-55W32LED4K-T-ACDR-LE3-120-DMG-SMB-RC-BKTX**

Description of Components:

Hood: Cast 356.1 aluminum dome, mechanically assembled on the housing, c/w a watertight grommet, mechanically assembled to the bracket with four bolts 3/8-16 UNC. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Housing: In a round shape, this housing is made of 356.1 aluminum, complete with a weatherproof door giving a tool-free access to the ballast, mechanically assembled. This suspension system permits for a full rotation of the luminaire in 90 degree increments.

Access-Mechanism: A gravity die cast 356 aluminum frame with latch and hinge. The mechanism shall offer tool-free access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.

Light Engine: LEDgine composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant.

Heat Sink: Made of cast aluminum optimising the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Globe: (ACDR), Made of one-piece seamless injection-molded impact-resistant (DR) acrylic having an inner prismatic surface. Complete with a semi-prismatic house side shield and external glare softening prisms. The globe is mechanically assembled and sealed onto the lower part of the heat sink.

LED Module: LED type Philips Lumileds LUXEON T. Composed of 32 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000 Kelvin nominal (3985K +/- 275K or 3710K to 4260K), CRI 70 Min. 75 Typical.

CITY OF PALO ALTO- DOWNTOWN IMPROVEMENTS

RNS20 (Reference=L23638-3)

Optical System: (LE3), IES type III (asymmetrical). Composed of high-performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Street side indicated.

Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. **Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I**, THD of 20% max. Maximum ambient operating temperature from -40F(-40C) to 130F(55C) degrees. **Driver comes with dimming compatible 0-10 volts.**

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver Options: (DMG), Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see *"Philips Lumec dimmable luminaire specification document for unapproved device installed by other"*. To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Adaptor: (SMB), Made of cast 356 aluminum, complete with a block connector, mechanically assembled to the bracket. Can be mounted on a 1.66"(42mm) to 2.38"(60mm) outside diameter bracket arm tubing that slip fits 6.5" (165mm) long inside the adaptor, permits an adjustment of ± 5°.

Luminaire Options: (RC), Receptacle for a twist-lock photoelectric cell or a shorting cap. Use of photocell or shorting cap is required to ensure proper illumination.

CITY OF PALO ALTO- DOWNTOWN IMPROVEMENTS

RNS20 (Reference=L23638-3)

Miscellaneous

Description of Components:

Wiring: Gauge (#14) TEW/AWM 1015 or 1230 wires, 6" (152mm) minimum exceeding from luminaire.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish: Color to be **black textured RAL9005TX (BKTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001-2008 and ISO 14001-2004 International Quality Standards Certification.

Certification: The manufacturer will have to supply a copy of approval products certificate, CSA or UL.

Vibration Resistance: The RNS20 meets the **ANSI C136.31-2001**, American National Standard for Roadway Luminaire Vibration specifications for normal applications. (Tested for 1.5G over 100 000 cycles)

Web site information details: Click on any specific information details you need:

Paint finish / Warranties / ISO 9001-2008 Certification / ISO 14001-2004 Certification

CITY OF PALO ALTO- DOWNTOWN IMPROVEMENTS

RNS20 (Reference=L23638-3)

LED light engine technical information for RNS20-30
LED = Philips Lumileds Luxeon T, CRI = 70, CCT = 4000K (3985K +/- 275K or 3710K to 4260K)
System (LED + driver) rated life = 100,000 hrs [1]

LED Module	Typical delivered lumens	Typical system wattage [2] (W)	Typical current @ 120 V (A)	Typical current @ 208 V (A)	Typical current @ 240 V (A)	Typical current @ 277 V (A)	LED current (mA)	HID Replacement [3]	Luminaire Efficacy Rating (Lm/W)	BUG rating
24W16LED4K-T-LE2	3040	28	0.25	0.15	0.13	0.12	530	70-100	107	B1-U2-G1
24W16LED4K-T-LE3	3017	28	0.25	0.15	0.13	0.12	530	70-100	106	B1-U2-G1
24W16LED4K-T-LE4	3032	28	0.25	0.15	0.13	0.12	530	70-100	107	B1-U2-G1
24W16LED4K-T-LE5	3050	28	0.25	0.15	0.13	0.12	530	70-100	107	B2-U2-G2
30W16LED4K-T-LE2	3825	37	0.32	0.19	0.17	0.15	700	70-100	103	B1-U2-G1
30W16LED4K-T-LE3	3790	37	0.32	0.19	0.17	0.15	700	70-100	103	B1-U2-G1
30W16LED4K-T-LE4	3815	37	0.32	0.19	0.17	0.15	700	70-100	103	B1-U2-G1
30W16LED4K-T-LE5	3837	37	0.32	0.19	0.17	0.15	700	70-100	104	B3-U3-G3
35W32LED4K-T-LE2	4236	36	0.31	0.19	0.17	0.15	350	70-100	118	B1-U3-G1
35W32LED4K-T-LE3	4175	36	0.31	0.19	0.17	0.15	350	70-100	116	B1-U2-G1
35W32LED4K-T-LE4	4225	36	0.31	0.19	0.17	0.15	350	70-100	117	B1-U2-G1
35W32LED4K-T-LE5	4249	36	0.31	0.19	0.17	0.15	350	70-100	118	B3-U3-G3
55W32LED4K-T-LE2	5945	53	0.47	0.27	0.24	0.22	530	100-150	111	B1-U3-G1
55W32LED4K-T-LE3	5900	53	0.47	0.27	0.24	0.22	530	100-150	110	B1-U3-G2
55W32LED4K-T-LE4	5930	53	0.47	0.27	0.24	0.22	530	100-150	111	B1-U3-G2
55W32LED4K-T-LE5	5994	53	0.47	0.27	0.24	0.22	530	100-150	113	B3-U3-G3

1 L70 = 100,000 hrs (at ambient temperature = 25°C)
2 System wattage or total luminaire wattage includes the LED module and the LED driver.
3 Note: These guidelines show typical replacements for the HID wattage ranges shown. Replacements should always be confirmed with a photometric layout.
Note: Due to rapid and continuous advances in LED technology, LED luminaire data is subject to change without notice and at the discretion of Philips.

LUMINAIRE DETAILS

24"x36" SCALE: NTS
11"x17" SCALE: NTS
1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

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

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
LUMINAIRE DETAILS

SHEET NUMBER
D-3

- CARLON HAL-FREE RISER-GARD, HJ4X4C-2000:

Technical Info:

UL Listed to 2024	Test Method	Maximum Value
Maximum Flame Propagation	UL 2024	3'6"
Maximum Air Temperature	UL 2024	387°F

- Storage and Handling -4°F to 150°F
- No UV protection (not suitable for outdoor use)
- Do NOT store outside

	Color	Part No.	Nom. I.D.	Nom. O.D.	Pull Tape	Reel Size	Reel Type	Reel Length (feet)	Reel Weight (lbs.)	Wt. per 100 ft. (lbs.)
2"	White	HJ4X4C-2000	2.000	2.425	900 lb.	82" x 41"	W	2000	375	20.8

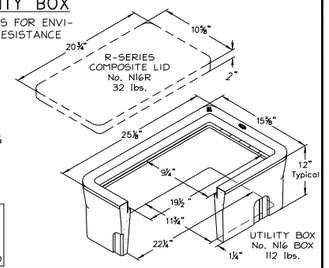
W = Wood

CARLON RISER-GARD | 7

OLDCASTLE N16 UTILITY BOX

- EXCEEDS ASTM-D1693 STANDARDS FOR ENVIRONMENTAL STRESS CRACKING RESISTANCE
- ETCHED POLYPROPYLENE FACE
- FACE ANCHORED IN CONCRETE
- ULTRA-VIOLET INHIBITOR

A HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS AND WEIGHT SHOWN.



NOTE:
SPECIFICATION OF THIS VAULT MANUFACTURER AND MODEL ARE SUBJECT TO REPLACEMENT WITH APPROVED EQUIVALENT VAULT/LID

OLDCASTLE ORDER CODE	ITEM	APPROXIMATE SHIP'G. WEIGHT	DESCRIPTION
N16BOX	BOX	112 lbs.	N16 ELECTRICAL BOX (11-3/4"x22-1/4") - 20 PER PALLET
N16R	LID	32 lbs.	R-SERIES COMPOSITE LID WITH POLYPROPYLENE RING (ORDER N90 BOLT DOWN KIT SEPARATELY)
FLI6T	LID	13 lbs.	FIBRELYTE LID, NON-CONCRETE BOLT DOWN (ORDER N90 BOLT-DOWN KIT SEPARATELY)
N16J	LID	36 lbs.	CAST IRON LID BOLT DOWN (ORDER N90 BOLT-DOWN KIT SEPARATELY)
B16-6ID	COVER	28 lbs.	STEEL CHECKER PLATE COVER
N16-6IJ	COVER	28 lbs.	STEEL CHECKER PLATE COVER (ORDER N90 BOLT-DOWN KIT SEPARATELY)
B16X12	EXTENSION	113 lbs.	12" REINFORCED CONCRETE BOX EXTENSION - 20 PER PALLET
B30SL	SLAB	52 lbs.	REINFORCED CONCRETE SLAB (16"x28")

N16 U.G. UTILITY BOX | 4

24"x36" SCALE: NTS
11"x17" SCALE: NTS

PANEL 'A'

SITE NAME: SF PALO ALTO 204

PANEL DESIGNATION: AC PANEL 'A'

VOLTAGE: 120 V
PHASE: 1
WIRE: 2
MAIN BREAKER: 60 AMP
BUSS RATING: 60 AMP
LOCATION: UG VAULT

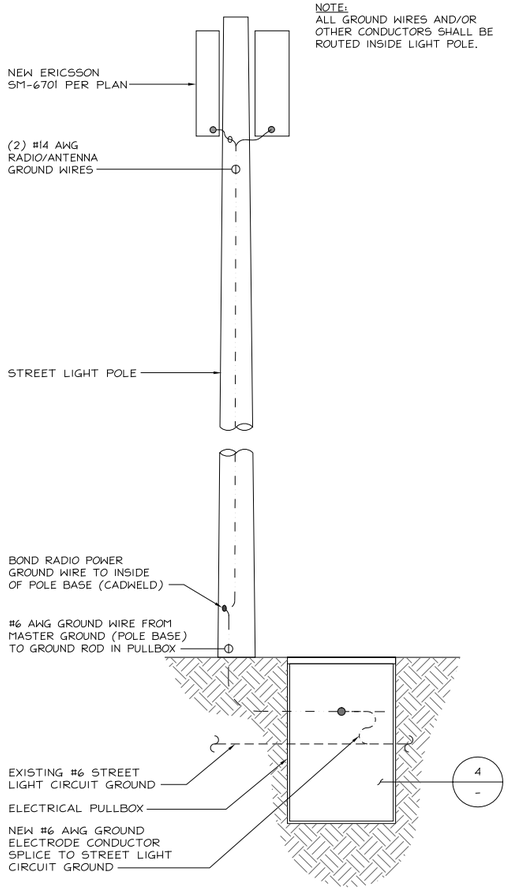
CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	MAIN	60	2	ON			0		636		1.25	509	ON	1	20	ERICSSON SM-6701 #2	2
3								0		636	1.25	509	ON	1	20	ERICSSON SM-6701 #3	4
5	ERICSSON SM-6701 #1	20	1	ON	508.5	1.25	636		0							SPACE	6

RAYCAP MODEL NO. RSCAC-1333-PH-240 (60A, 240V, NEMA-6P)
CONTRACTOR SHALL LABEL PANEL WITH CARRIER I.D., SERVICE RATING, AND FEED SOURCE

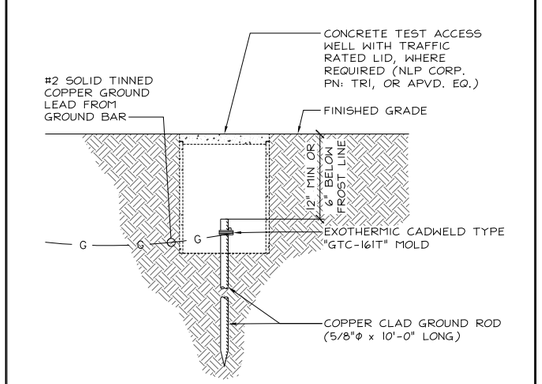
PHASE A TOTAL VA	1271
PHASE B TOTAL VA	636
TOTAL KVA	1.91
TOTAL AMPS	7.95

NOTES:
1. ALL LOADS CALCED AS LCL/MCL LOADS (OK TO DESIGN TO 100% CAPACITY)
2. UNUSED BREAKER POSITIONS SHALL REMAIN COVERED W/ MFR. COVER
3. ALL EQUIPMENT/BREAKERS SHALL BEAR A LABEL FOR I.D. & RATING

PANEL SCHEDULE | 2

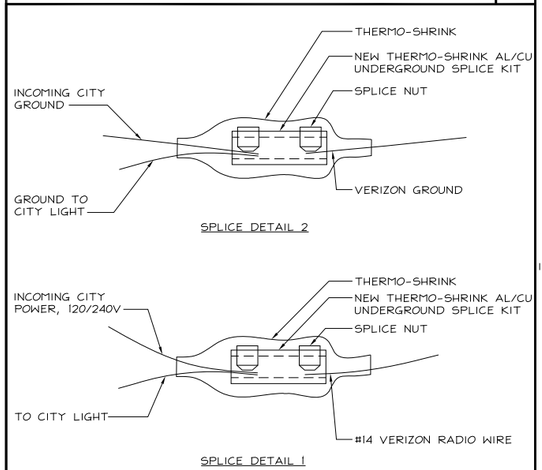


GROUND RISER DIAGRAM | 6



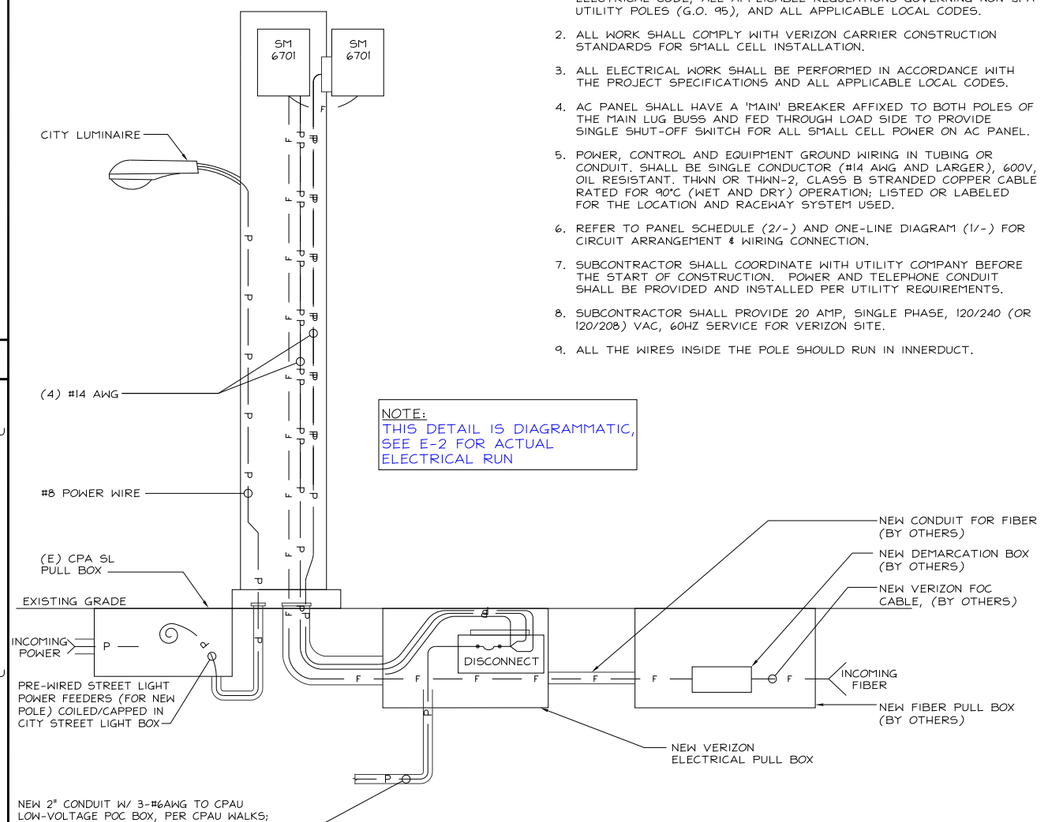
GROUND ROD | 4

24"x36" SCALE: NTS
11"x17" SCALE: NTS



SPLICE DTAILS | 3

24"x36" SCALE: NTS
11"x17" SCALE: NTS



NOTE:
THIS DETAIL IS DIAGRAMMATIC, SEE E-2 FOR ACTUAL ELECTRICAL RUN

ELECTRICAL NOTE:

1. ALL WORK SHALL COMP;Y TO THE CURRENT EDITION OF THE CALIFORNIA ELECTRICAL CODE, CALIFORNIA BUILDING CODE, NATIONAL ELECTRICAL CODE, ALL APPLICABLE REGULATIONS GOVERNING NON-JPA UTILITY POLES (G.O. 95), AND ALL APPLICABLE LOCAL CODES.
2. ALL WORK SHALL COMPLY WITH VERIZON CARRIER CONSTRUCTION STANDARDS FOR SMALL CELL INSTALLATION.
3. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
4. AC PANEL SHALL HAVE A 'MAIN' BREAKER AFFIXED TO BOTH POLES OF THE MAIN LUG BUSS AND FED THROUGH LOAD SIDE TO PROVIDE SINGLE SHUT-OFF SWITCH FOR ALL SMALL CELL POWER ON AC PANEL.
5. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT, SHALL BE SINGLE CONDUCTOR (#14 AWG AND LARGER), 600V, OIL RESISTANT, THWN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED.
6. REFER TO PANEL SCHEDULE (2/-) AND ONE-LINE DIAGRAM (1/-) FOR CIRCUIT ARRANGEMENT & WIRING CONNECTION.
7. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELEPHONE CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
8. SUBCONTRACTOR SHALL PROVIDE 20 AMP, SINGLE PHASE, 120/240 (OR 120/208) VAC, 60HZ SERVICE FOR VERIZON SITE.
9. ALL THE WIRES INSIDE THE POLE SHOULD RUN IN INNERDUCT.

POWER SCHEMATIC | 1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

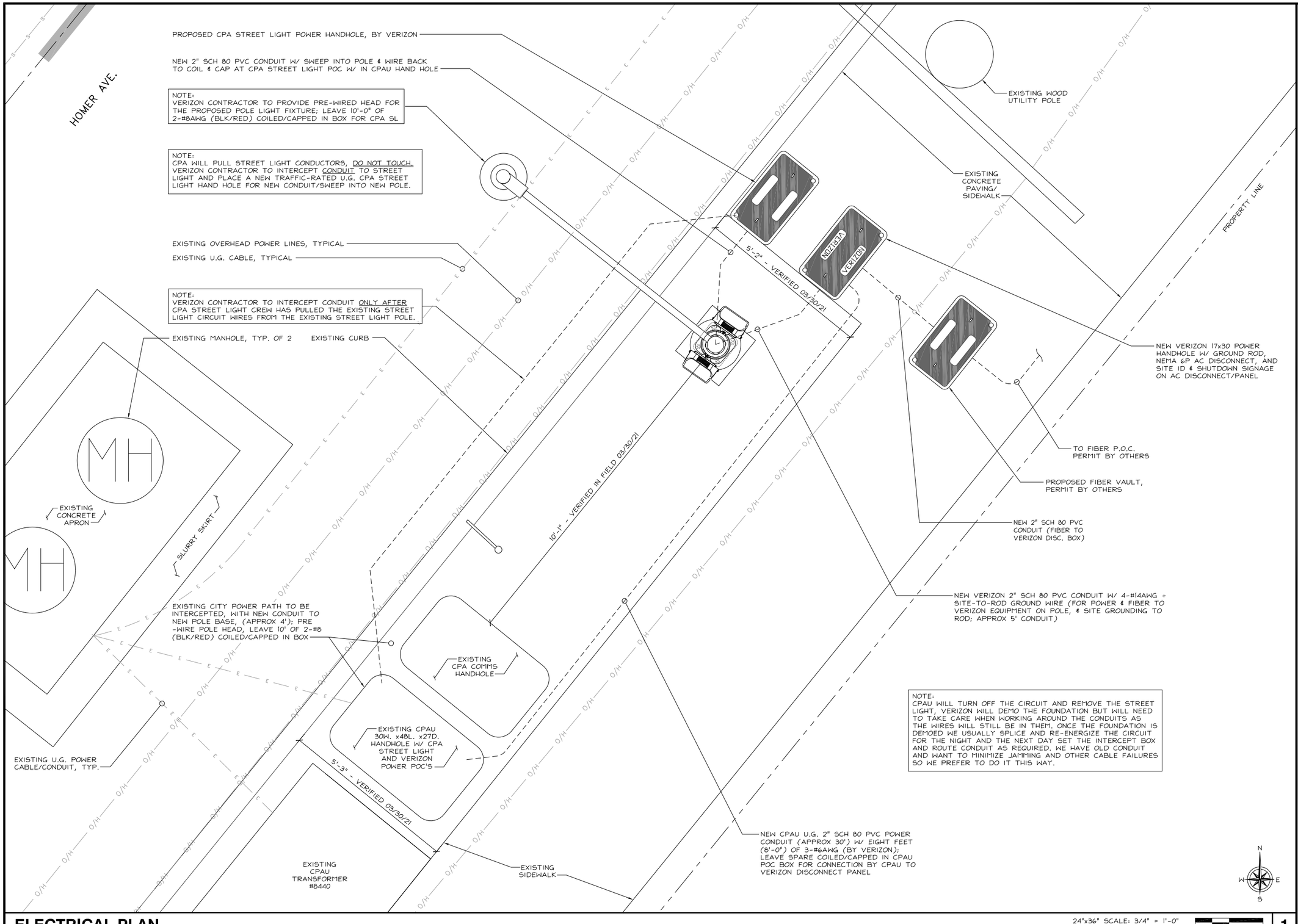
REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
HASAN ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
ELECTRICAL/GROUNDING DIAGRAMS, NOTES, & PANEL SCHEDULE

SHEET NUMBER
E-1



ELECTRICAL PLAN

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
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ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5A	04/07/2021	2" VERIZON COMBO CONDUIT	NC
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
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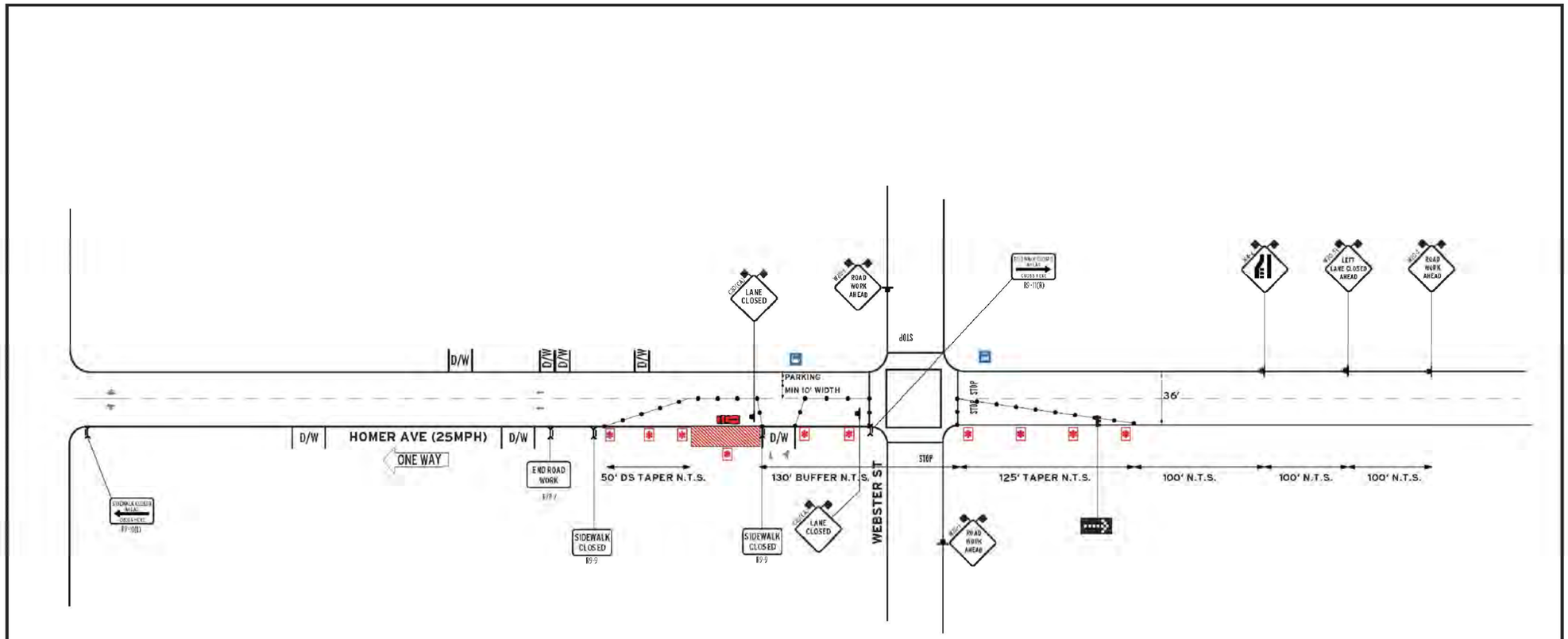
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
ELECTRICAL PLAN

SHEET NUMBER
E-2



LEGEND:

- CHANNELIZING DEVICE WITH CLIP-ON SIGN
- CHANNELIZING DEVICE
- SIGN
- WORK ZONE
- DIRECTION OF TRAFFIC
- TYPE 1 BARRICADE
- TYPE 1 BARRICADE W/SIGN
- TYPE 3 BARRICADE
- TYPE 3 BARRICADE W/SIGN
- K RAIL/WATER FILLED BARRIERS
- TEMP RAISED MARKERS
- ARROW BOARD MARKER
- PEDESTRIAN BARRICADES
- CERTIFIED FLAGGER
- CRASH BARRELS
- MESSAGE BOARD (PCMS)
- FLASHING ARROWBOARD
- CRASH ATTENUATORS
- FLASHING BEACON/BARRICADE LIGHT

ADDITIONAL NOTES:

1. ASSIST BUSINESSES WITH IN/OUT ACCESS TO DRIVEWAYS ALONG THE CLOSURE WHEN SAFE TO DO SO.

*POST TEMPORARY NO PARKING SIGN ON TYPE I BARRICADE 72 HRS IN ADVANCED.

NOTE: Please contact B.A.T.S 72 hrs in advance in case if we are to install "TEMPORARY NO PARKING" signs

PLAN 1
TEMP TRAFFIC CONTROL PLAN

NOTES

- Traffic control shall conform with the most current CAMUTCD part 6 and/or Caltrans Standards
- One lane of traffic in each direction and all High volume turning lanes shall be maintained at all times on all streets at a minimum lane width of 10 feet.
- Contractor shall notify local authorities once signs are posted.
- All advanced warning signs shall be equipped with 2 (18" orange flags)
- Certified Traffic Control Workers shall have Type II vests, work shoes, and hard hats
- Temporary no parking signs shall be placed a min of 72 hrs prior of work.
- Driveways shall be monitored and maintained at all times during work hours.
- Distance between sign and work area will be determined on speed limit.
- Roadway shall not be opened until safe for public use. All open trenches must be plated or backfilled prior to public usage.
- All devices shall be removed when no longer required.

MEANING OF LETTER CODES ON TYPICAL APPLICATION DIAGRAMS

MUTCD TABLE 6C-1

ROAD TYPE	DISTANCE BETWEEN SIGNS A	B	C
Urban (Low Speed) - 25 mph or less	100 ft	100 ft	100 ft
Urban (Low Speed) - 30 to 40 mph	350 ft	350 ft	350 ft
Urban (High Speed) - 45 mph	350 ft	350 ft	350 ft
Rural	500 ft	500 ft	500 ft
Expressway/Freeway	1,000 ft	1,000 ft	2,640 ft

COMPASS:

SCALE:	NOT TO SCALE
DATE REVISED:	4/23/20
DATE COMPLETED:	7/27/20
PROJECT LOCATION:	850 WEBSTER, PALO ALTO, CA
FOR	SF PALO ALTO 204
PAGE #	1/1 (REVISION 1)

REQUEST BY:
YVONNE WASHINGTON
VINCULUMS
925-999-5523
YWASHINGTON@VINCULUMS.COM

B.A.T.S. TRAFFIC SOLUTIONS
AFTER HOURS EMERGENCY 510-299-5666
Drawn By: DREW PATEL
CSLB# 917834
Office: 510-657-2543
Fax: 510-657-2544
44800 Industrial Drive Fremont, CA 94538
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verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
TRAFFIC CONTROL PLAN

SHEET NUMBER
TCP-1

Vinculums

575 Lennon Lane #125
Walnut Creek, CA 94598
(925) 482-8500

ALLSTATES

23675 Birtcher Dr.
Lake Forest, CA
(949) 273-0996

VERIZON
PALO ALTO_204

All States Engineering & Surveying
Project No: 64 – CLUSTER-6\PALO ALTO_204

Structural Analysis Report

ROW Adjacent to 850 Webster St. Palo Alto, 94301
Proposed 25'- 0" AGL 'Downtown' Style Aluminum Light Pole & Foundation

REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI C 71655 CIVIL STATE OF CALIFORNIA

Rev. #	Reason for Revision	Total # of Sheets	Prepared By	Checked By	Approved /Accepted	Date
1	Updated Equipment	19	LeT	LeT	WZ	3/17/2021

	Quantity/Type /Shape	Strength (min.)	Dimensions	Thickness /Depth	Capacity Utilization	
Pole Shaft	Aluminum / 8-sided tapered	25 ksi*	5.73"Φ at top 10.0"Φ at bottom	0.219"	33.5%	PASS
Anchor Bolts	4	36 ksi	1" Φ	-	31.0%	PASS
Base Plate	1	36 ksi	13.6" Cast Base	-	ADEQUATE	
Foundation	*Circular Caisson*	*3.25 ksi*	*36"Dia.*	*7'-0"***	ADEQUATE	

* Pole grade is 6063-T6 per provided specs.

Required depth of caisson (Unrestrained** at G/L) - This analysis was performed without a soil report, and minimum soil properties from IBC-18 were used. Required pole foundation embedment depth may change with a soil report from the proposed pole location.

Professional Engineering Firm
ARCHITECTURAL . CIVIL . STRUCTURAL . ELECTRICAL . GEOTECHNICAL . SURVEYING
www.allstatesengineering.com

Steel Decorated Pole
Palo Alto
PALO ALTO_204

ALLSTATES

Project Description:
All States Engineering & Surveying (ASES) is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the metal pole.
The purpose of the analysis is to determine acceptability of the pole stress level. Based on our analysis we have determined the metal pole stress level for the structure and anchorage, under the following load case:

LC: Proposed Pole + Proposed Equipment with Shroud
(Please see page 5 for details)

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

Structural Analysis Parameters:
This analysis has been performed in accordance with AASHTO 2013 guidelines.

- Wind Speed: ***85 mph per AASHTO 2013***
- Exposure Category: ***C***
- Risk Category: ***II***
- Topographical: ***1***
- Crest Height = ***0***
- Ice Thickness = ***0 in***
- Min. Soil Lateral Bearing = ***100 psf/ft*2 = 200 psf/ft per CBC & IBC 1806.3.4***
- Min. Soil Bearing = ***1500 psf***

We at *All States Engineering & Surveying* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

ATC Hazards by Location

Search Information

Address:	850 Webster St., Palo Alto, 94301
Coordinates:	37.446346, -122.1641692
Elevation:	46 ft
Timestamp:	2020-06-02T22:07:12.504Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default

Basic Parameters

Name	Value	Description
S_S	1.609	MCE_R ground motion (period=0.2s)
S_1	0.606	MCE_R ground motion (period=1.0s)
S_{MS}	1.931	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	1.287	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.923	Coefficient of risk (0.2s)
CR_1	0.906	Coefficient of risk (1.0s)
PGA	0.662	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.794	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	1.973	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.138	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.609	Factored deterministic acceleration value (0.2s)
S1RT	0.783	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.864	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.606	Factored deterministic acceleration value (1.0s)
PGAd	0.662	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

ATC Hazards by Location

Search Information

Address:	850 Webster St., Palo Alto, 94301
Coordinates:	37.446346, -122.1641692
Elevation:	46 ft
Timestamp:	2020-06-02T22:08:44.986Z
Hazard Type:	Wind

ASCE 7-16

MRI 10-Year	63 mph
MRI 25-Year	70 mph
MRI 50-Year	74 mph
MRI 100-Year	78 mph
Risk Category I	86 mph
Risk Category II	91 mph
Risk Category III	96 mph
Risk Category IV	102 mph

ASCE 7-10

MRI 10-Year	72 mph
MRI 25-Year	79 mph
MRI 50-Year	85 mph
MRI 100-Year	91 mph
Risk Category I	100 mph
Risk Category II	110 mph
Risk Category III-IV	115 mph

ASCE 7-05

ASCE 7-05 Wind Speed	85 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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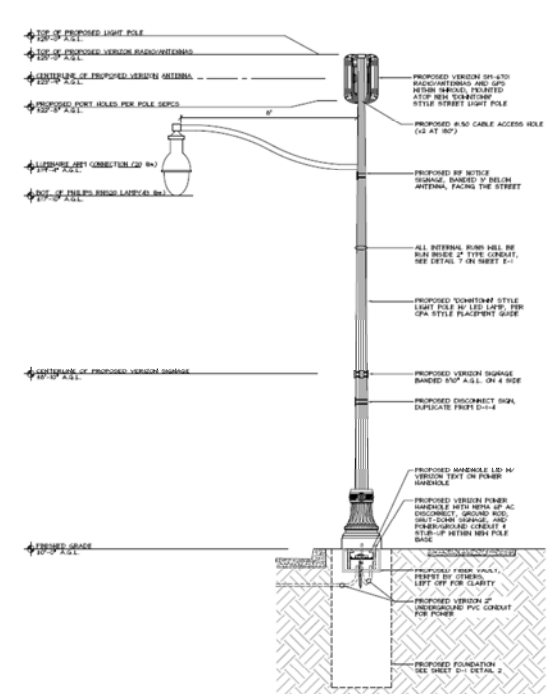
ALLSTATES

PROJECT: PALO ALTO_204
CLIENT: 102 - Sequoia VZW Bakersfield
DESIGN BY:
REVIEW BY: LeT
DATE: 3/17/2021

Pole Wind & Seismic Analysis Based on AASHTO 2013 | **Proposed Elevation**

NOTES:
1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN THROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANTENNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL RADIOS	TOTAL RADIO AREA (CU. FT.)
COMPTEK	2	±1.7



ALLSTATES

PROJECT: PALO ALTO_204
CLIENT: 102 - Sequoia VZW Bakersfield
DESIGN BY:
REVIEW BY: LeT
DATE: 3/17/2021

Pole Wind & Seismic Analysis Based on AASHTO 2013 | **Loading**

PROPOSED COMPONENTS

Rad Center	Component Type	QUANTITY	MOUNT TYPE
23'-9"	(N) Palo Alto_5G_SFF w/ Antenna	2	Pole Mounted
9'-0"	(E) Street Sign	1	Pole Mounted
-	(N) RF Signage	1	Pole Mounted
-	(N) & (E) Conduit, Wire, & In-line Fuse	-	Inside Pole

WIND PRESSURE DERIVATION (AASHTO 2013)

		Value	Unit	Reference
Height of Pole	$h =$	25.0	ft	
Wind Speed	$V =$	85	mph	(AASHTO 2013)
Wind Exposure (B, C or D)		C		
Wind Directionality (Pole)	$K_d =$	0.95		(AASHTO 2013, Table 3.8.5-1)
Gust Effect Factor	$G =$	1.14		(AASHTO 2013, Sec. 3.8.6)
3-sec Gust Exponent	$\alpha =$	9.50		(ASCE 7-16, Table 26.11-1)
Atmospheric Height	$Z_g =$	900	ft	(ASCE 7-16, Table 26.11-1)
Vel. Pressure Coeff. (Min)	$K_{z,min} =$	0.84		(ASCE 7-16, Table 29.10-1)
Velocity Pressure Coeff	$K_z = 2.0(z/Z_g)^{2/\alpha} =$	0.94		(AASHTO 2013, Equation 3.8.4-1)
Wind Force @ Pole top	$F_{w} = 0.00256K_zK_dGV^2(C_dA) =$	18.9	psf *C_dA	(Wind Pressure Input For Q-Calc Analysis)
Total Applied Shear	$V_u =$	926	lbs	(From TNX Report)
Total Applied Moment	$M_u =$	12760	lb-ft	(From TNX Report)

CALCULATION OF WIND DRAG COEFFICIENTS (Cd) FROM AASTHO 2013, TABLE 3.8.7-1 — $C_v =$ 1.00 For V<100 mph

Appurtenance	Height (in)	Width (in)	Depth (in)	d (ft)	C_vVd	C_d
(N) Palo Alto_5G_SFF w/ Antenna	29.5	10.2	7.3	1.05	-	1.70
(E) Round Luminaire	2.9	88.0	-	0.24	20	0.50
(E) Round Pole	300	7.85	-	0.65	56	0.69

SEISMIC LOAD ANALYSIS (ASCE 7-16)

		Value	Unit	Reference
Total Pole Weight	$W = P_u =$	533	lbs	(Approximate Wt. Including Pole With (N) Components)
Spectral Response (Short)	$S_{DS} =$	1.609		(ATC Hazards Design Maps Summary)
Spectral Response (1 sec.)	$S_1 =$	0.605		(ATC Hazards Design Maps Summary)
Importance Factor	$I_e =$	1.0		(ASCE 7-16, Section 15.4.1.1)
Response Factor	$R =$	1.5		(ASCE 7-16, Table 15.4-2)
Seismic Response Coeff	$C_s = 0.044S_{DS}I =$	0.071		(ASCE 7-16, Section 15.4-1)
Seismic Response Coeff	$C_s = 0.8S_1/(R/I_e) =$	0.323		(ASCE 7-16, Section 15.4-2)
Seismic Response Coeff	$C_s = S_{DS}/(R/I_e) =$	1.073		(ASCE 7-16, Section 12.8-2)
Lateral Seismic Force	$V_s = MAX(C_s)W =$	1.073	*W	
Total Applied Shear	$V_u =$	572	lbs	
Total Applied Moment	$M_u = V_u(2/3h) =$	7147	lb-ft	

(Wind Loads Governing For Pole Shaft Capacity Check)

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI 71655 CIVIL STATE OF CALIFORNIA

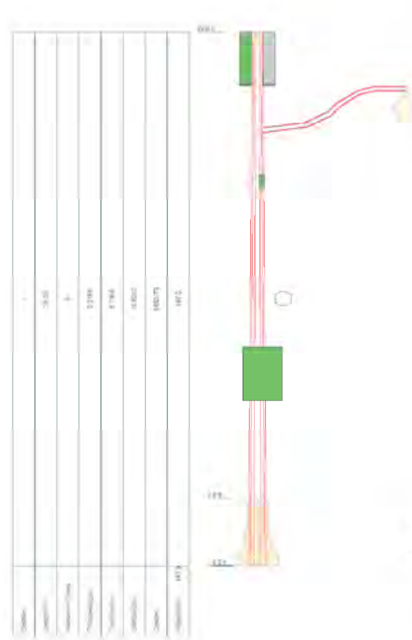
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
CALCS W/ SHROUD

SHEET NUMBER
C-1

07



DESIGNED APPURTENANCE LOADING

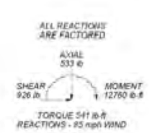
TYPE	ELEVATION	TYPE	ELEVATION
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
[illegible]	[illegible]	[illegible]			

TOWER DESIGN NOTES

1. Tower is located in Santa Clara County, California.
2. Tower designed for Exposure C to the AASHTO 2013 Standard.
3. Tower designed for a 85 mph basic wind in accordance with the AASHTO 2013 Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 33.5%



ALL STATES ENGINEERING & SURVEYING
23675 Birtcher Drive
Lake Forest, CA 92630
Phone: 949 273 0998
FAX: 949 808 7222

Palo Alto_Light Pole
PALO ALTO_204
64 - Vinculums_VZW
AASHTO 2013
03/17/21
NTS
E-1

08

Steel Decorated Pole
Palo Alto
PALO ALTO_204

Tower Input Data

The tower is a monopole.
This tower is designed using the AASHTO 2013 standard.
The following design criteria apply:

- Tower is located in Santa Clara County, California.
- Basic wind speed of 85 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Deflections calculated using a wind speed of 60 mph.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	25.00-0.00	25.00		8	5.7300	10.0000	0.2190	0.8760	6063-T6 (25 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	6.0217	4.0069	16.0550	2.0060	3.0999	5.1791	32.8863	1.9529	1.4656	6.692
	10.6435	7.1116	89.7569	3.5603	5.4100	16.5909	183.8543	3.4661	3.2333	14.764

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 25.00-0.00				1	1	1			

09

Steel Decorated Pole
Palo Alto
PALO ALTO_204

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Light Luminarie	A	From Leg	8.00 0.00 0.00	0.0000	19.50	No Ice	2.36	2.36	55.00
8' x 2.875" O.D. Light Pole Arm	A	From Leg	4.00 0.00 1.75	0.0000	19.50	No Ice	1.92	0.06	65.00
FCC RF Notice Signage	C	From Leg	0.00 0.00 0.00	0.0000	18.00	No Ice	0.33	0.01	0.20
*									
Palo Alto_5G_SFF w/ Antenna	B	From Leg	0.25 0.25 0.00	0.0000	23.75	No Ice	2.54	1.87	49.00
Palo Alto_5G_SFF w/ Antenna	D	From Leg	0.25 0.25 0.00	0.0000	23.75	No Ice	2.54	1.87	49.00
*									
30"x30" Street Sign	C	From Leg	0.00 0.00 0.00	0.0000	9.00	No Ice	7.50	0.05	5.00
*									
2PC Cast Alum. Clamshell	C	None		0.0000	1.42	No Ice	2.01	2.01	50.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 45 deg - No Ice
5	0.9 Dead+1.6 Wind 45 deg - No Ice
6	1.2 Dead+1.6 Wind 90 deg - No Ice
7	0.9 Dead+1.6 Wind 90 deg - No Ice
8	Dead+Wind 0 deg - Service
9	Dead+Wind 45 deg - Service
10	Dead+Wind 90 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	25 - 0	Pole	Max Tension	1	0.00	-0.00	-0.00
			Max. Compression	4	-531.69	-7263.25	8528.21
			Max. Mx	7	-398.40	-11536.25	-399.04
			Max. My	2	-531.44	1504.99	12670.84
			Max. Vy	6	922.74	-11406.49	-240.09
			Max. Vx	2	-922.79	1504.99	12670.84
			Max. Torque	5			542.04

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Steel Decorated Pole
Palo Alto
PALO ALTO_204

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	6	532.61	-922.13	-87.91
	Max. H_x	3	399.46	87.92	922.14
	Max. H_z	3	399.46	87.92	922.14
	Max. M_x	2	12670.86	87.91	922.13
	Max. M_z	7	11536.25	-922.11	-87.91
	Max. Torsion	5	541.36	-589.88	589.89
	Min. Vert	7	399.46	-922.11	-87.91
	Min. H_x	6	532.61	-922.13	-87.91
	Min. H_z	6	532.61	-922.13	-87.91
	Min. M_x	7	-399.19	-922.11	-87.91
	Min. M_z	2	-1504.83	87.91	922.13
	Min. Torsion	1	0.00	-0.28	-0.28

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	443.84	0.28	0.28	-520.23	520.23	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	532.61	-87.91	-922.13	-12670.86	1504.83	-380.56
0.9 Dead+1.6 Wind 0 deg - No Ice	399.46	-87.92	-922.14	-12480.58	1343.14	-382.28
1.2 Dead+1.6 Wind 45 deg - No Ice	532.61	589.88	-589.88	-8528.07	-7263.41	-538.97
0.9 Dead+1.6 Wind 45 deg - No Ice	399.46	589.88	-589.89	-8347.49	-7403.54	-541.36
1.2 Dead+1.6 Wind 90 deg - No Ice	532.61	922.13	87.91	240.24	-11406.49	-381.62
0.9 Dead+1.6 Wind 90 deg - No Ice	399.46	922.11	87.91	399.19	-11536.25	-383.28
Dead+Wind 0 deg - Service	443.85	-24.48	-256.89	-3873.83	768.25	-106.55
Dead+Wind 45 deg - Service	443.85	164.32	-164.26	-2720.11	-1670.11	-150.74
Dead+Wind 90 deg - Service	443.85	256.78	24.56	-281.47	-2820.44	-106.63

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	25 - 0 (1)	TP10x5.73x0.219	25.00	25.00	84.3	7.1116	-531.44	143808.00	0.004

11

Steel Decorated Pole
Palo Alto
PALO ALTO_204

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	25 - 0 (1)	TP10x5.73x0.219	12759.92	38573.92	0.331	0.00	38573.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	25 - 0 (1)	TP10x5.73x0.219	926.98	99206.40	0.009	380.55	80323.58	0.005

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	25 - 0 (1)	0.004	0.331	0.000	0.009	0.005	0.335 ✓	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	25 - 0	Pole	TP10x5.73x0.219	1	-531.44	143808.00	33.5	Pass
							Summary	
						Pole (L1)	33.5	Pass
						RATING =	33.5	Pass

12

HILTI

Hilti PROFIS Engineering 3.0.67

www.hilti.com

Company:	All State Eng. & Surveying	Page:	1
Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
Phone I Fax:	9492730996 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

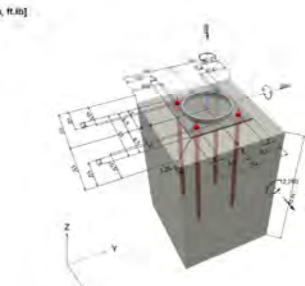
Specifier's comments:

1 Input data

Anchor type and diameter:	Heavy Hex Head ASTM F 1554 GR. 36 1
Item number:	not available
Effective embedment depth:	h_{ef} = 25.000 in.
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-08 / CIP
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 1.00; e_b = 1.250 in.; t = 0.500 in.
Anchor plate[R]:	l_x x l_y x t = 13.000 in. x 13.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	Round HSS (AISC), HSS10X.188; (L x W x T) = 10.000 in. x 10.000 in. x 0.188 in.
Base material:	cracked concrete, , f_c' = 3,250 psi; h = 84.000 in.
Reinforcement:	tension: condition A, shear: condition B; anchor reinforcement: tension edge reinforcement: > No. 4 bar with stirrups
Seismic loads (cat. C, D, E, or F)	no

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, ft.lb]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
PROFIS Engineering (c) 2003-2021 Hilti AG, FL-9494 Schaan. Hilti is a registered Trademark of Hilti AG, Schaan

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2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

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WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

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

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
CALCS W/ SHROUD

SHEET NUMBER
C-2

Hilti PROFIS Engineering 3.0.67

www.hilti.com

Company:	All State Eng. & Surveying	Page:	2
Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
Phone I Fax:	9492730996 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	$N = -533$; $V_x = 0$; $V_y = -926$; $M_x = 12{,}760.000$; $M_y = 0.000$; $M_z = 0.000$;	no	33

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Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
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Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	Proof	Load	Capacity	β_N / β_V [%]	Status
Tension	Pullout Strength	8,373	27,318	31 / -	OK
Shear	Steel failure (with lever arm)	231	965	- / 24	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.328	0.240	5/3	25	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

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Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

4 Remarks; Your Cooperation Duties

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All States Engineering & Surveying
Zaizali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Lighht Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Pole Footing Embedded in Soil

File: Caisson Depth.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zaizali & Associates Inc.

DESCRIPTION: Poposed Caisson embedment (soil values From IBC Table 1806.2 with lateral bearing load increase from IBC 1806.3.4)

Code References

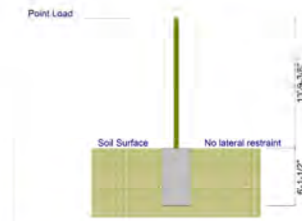
Calculations per IBC 2018 1807.3, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Pole Footing Shape	Circular
Pole Footing Diameter	36.0 in
Calculate Min. Depth for Allowable Pressures	
No Lateral Restraint at Ground Surface	
Allow Passive	200.0 pcf
Max Passive	1,500.0 psf

Controlling Values

Governing Load Combination :	+D+W
Lateral Load	0.9260 k
Moment	12.760 k-ft
NO Ground Surface Restraint	
Pressures at 1/3 Depth	
Actual	407.390 psf
Allowable	408.165 psf
Minimum Required Depth	**6.125 ft**
Footing Base Area	7.069 ft^2
Maximum Soil Pressure	0.07540 ksf



Provide 36" Dia. x 7' Embed. Depth Circular Caisson

Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)	Vertical Load (k)
D : Dead Load	k	k/ft	0.5330 k
Lr : Roof Live	k	k/ft	k
L : Live	k	k/ft	k
S : Snow	k	k/ft	k
W : Wind	0.0260 k	k/ft	k
E : Earthquake	k	k/ft	k
H : Lateral Earth	k	k/ft	k
Load distance above ground surface	13.780 ft	TOP of Load above ground surface ft; BOTTOM of Load above ground surface ft	

Load Combination Results

Load Combination	Forces @ Ground Surface Loads - (k)	Moments - (ft-k)	Required Depth - (ft)	Pressure at 1/3 Depth Actual - (psf)	Allow - (psf)	Soil Increase Factor
+D+W	0.926	12.760	6.13	407.4	408.2	1.000

All States Engineering & Surveying
Zaizali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Lighht Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Concrete Caisson

File: Caisson Depth.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zaizali & Associates Inc.

DESCRIPTION: Design Concrete Caisson

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

f'c : Concrete 28 day strength	=	3.250 ksi
E =	=	3,122.0 ksi
Density	=	150.0 pcf
β	=	0.850
fy - Main Rebar	=	60.0 ksi
E - Main Rebar	=	29,000.0 ksi
Allow. Reinforcing Limits		ASTM A615 Bars Used
Min. Reinf.	=	0.250 %
Max. Reinf.	=	8.0 %

Overall Caisson Height: 7.0 ft
End Fixity: Top Free, Bottom Fixed
Brace condition for deflection (buckling) along Caisson :
X-X (width) axis :
Fully braced against buckling ABOUT Y-Y Axis
Y-Y (depth) axis :
Fully braced against buckling ABOUT X-X Axis

Caisson Cross Section

Column Dimensions : 36.0in Diameter, Caisson Edge to Rebar Edge Cover = 3.0in

Column Reinforcing : 12 - #5 bars

Applied Loads

Entered loads are factored per load combinations specified by user.

Caisson self weight included : 7,422.01 lbs * Dead Load Factor
AXIAL LOADS . . .
Reaction from Pole: Axial Load at 7.0 ft above base, D = 0.5330 k
BENDING LOADS . . .
Reaction from Pole: Lat. Point Load at 7.0 ft creating Mx-x, W = 1.543 k
Reaction from Pole: Moment acting about X-X axis at 7.0 ft, W = 21.266 k-ft

DESIGN SUMMARY

Load Combination	+0.90D+W+1.60H
Location of max.above base	6.953 ft
Maximum Stress Ratio	**0.053 : 1**

Ratio = (Pu^2+Mu^2)^.5 / (PhiPn^2+PhiMn^2)^.5

Pu =	7.160 k	φ * Pn =	133.611 k
Mu-x =	21.194 k-ft	φ * Mn-x =	-403.431 k-ft
Mu-y =	0.0 k-ft	φ * Mn-y =	0.0 k-ft
Mu Angle =	0.0 deg		
Mu at Angle =	21.194 k-ft	φMn at Angle =	397.625 k-ft

Pn & Mn values located at Pu-Mu vector intersection with capacity curve

Caisson Capacities . . .

Pnmax : Nominal Max. Compressive Axial Capacity	3,024.81 k
Pnmin : Nominal Min. Tension Axial Capacity	k
φ Pn, max : Usable Compressive Axial Capacity	1,799.76 k
φ Pn, min : Usable Tension Axial Capacity	k

Maximum SERVICE Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	0.9260 k

Maximum SERVICE Load Deflections . . .

Along Y-Y: -0.002296 in at 7.0 ft above base for load combination : W Only
Along X-X: 0.0 in at 0.0 ft above base for load combination :

General Section Information . φ = 0.70, β = 0.850, θ = 0.850

ρ : % Reinforcing	0.3655 %	Rebar % Ok
Reinforcing Area	3.720 in^2	
Concrete Area	1,017.88 in^2	

All States Engineering & Surveying
Zaizali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Lighht Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Concrete

File: Caisson Depth.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zaizali & Associates Inc.

DESCRIPTION: Design Concrete Caisson

Governing Load Combination Results

Governing Factored Load Combination	Moment X-X	Y-Y	Dist. from base ft	Axial Load k Pu	φ * Pn	δx	δx * Mux	δy	δy * Muy	Alpha (deg)	δ Mu	φ Mn	Utilization Ratio
+1.40D+1.60H			5.95	11.14	1,799.76					0.000			0.006
+1.20D+0.50Lr+L+W+1.60H	Actual		6.36	9.55	218.09	1.000	21.19			0.000	21.19	475.48	0.045
+0.90D+W+1.60H	Actual		5.36	7.16	133.61	1.000	21.10			0.000	21.10	397.63	0.053

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction k @ Base	@ Top	Y-Y Axis Reaction @ Base	@ Top	Axial Reaction @ Base	My - End Moments k-ft @ Base	@ Top	Mx - End Moments @ Base	@ Top
+D+H					7.955				
+D+0.60W+H			0.926		7.955	6.278			
+0.60D+0.60W+0.60H			0.926		4.773	6.278			

Maximum Moment Reactions

Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis @ Base	@ Top		Moment About Y-Y Axis @ Base	@ Top	
+D+H			k-ft			k-ft
+D+0.60W+H	6.278		k-ft			k-ft
+0.60D+0.60W+0.60H	6.278		k-ft			k-ft

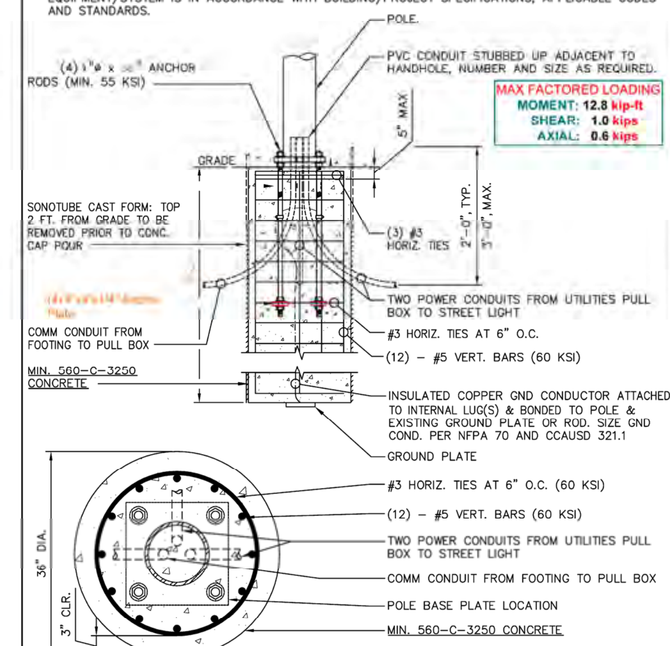
Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
+D+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.60W+H	0.0000	in	0.000	ft	-0.001	in	7.000	ft
+0.60D+0.60W+0.60H	0.0000	in	0.000	ft	-0.001	in	7.000	ft
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
W Only	0.0000	in	0.000	ft	0.002	in	6.953	ft

Sketches

Interaction Diagrams

NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



FOUNDATION DETAIL

DO NOT SCALE DRAWINGS

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

verizon
2785 MITCHELL DRIVE, SUITE 9
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PROJECT ID:	TBD
DRAWN BY:	AM
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B	05/06/2020	95% CD'S FOR REDLINE	RF
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REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI 71655 CIVIL STATE OF CALIFORNIA

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

SF PALO ALTO 204

PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
CALCS W/ SHROUD

SHEET NUMBER
C-3

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND CONSTRUCTION SPECIFICATIONS 80-T1196-1 REV H. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION

3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK (ROOF FRAMING, ELECTRICAL SERVICE, LOCAL PLANNING CODES, ETC.) AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS

4. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A) TRANSMITTER
   B) RF FILTER
   C) MFTS RACK
   D) AUXILIARY EQUIPMENT IN MFTS RACK
   E) PUMP ASSEMBLY
   F) HEAT EXCHANGER
   G) HOSE AND HOSE MANIFOLDS (ANY COPPER OR STEEL SECTIONS PROVIDE BY CONTRACTOR)
   H) UHF ANTENNA AND MOUNTING BRACKETS, GPS ANTENNAS AND KU ANTENNAS
   I) UHF COAX AND HANGERS
   K) 480-208 & 208-400 ELECTRICAL TRANSFORMERS (RE: E-2 FOR SPECIALIZED TRANSFORMERS PROVIDED BY CONTRACTOR)
   L) AUTOMATIC TRANSFER SWITCH AND GENERATOR
   M) EQUIPMENT SHELTER (SHELTERS FURNISHED IN FACTORY W/ HVAC EQUIPMENT AND ELECTRICAL DISTRIBUTION PANEL)
   N) INTEGRATED LOAD CENTER

5. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WORK.

6. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

7. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

10. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SUPERINTENDENT OF BUILDINGS & GROUNDS AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

12. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

13. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATELY REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.

14. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT.

15. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

16. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS.

17. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

18. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

19. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO APPLICABLE REGULATORY AUTHORITIES

20. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES.

21. ALL CONSTRUCTION IS TO ADHERE TO VERIZON'S INTEGRATED CONSTRUCTION STANDARDS UNLESS CALIFORNIA CODE IS MORE STRINGENT.

22. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE WITH THE CALIFORNIA BUILDING STANDARDS CODE, TITLES 19 AND 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK.

SITE WORK NOTES

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.

2. DO NOT SCALE BUILDING DIMENSIONS FROM DRAWING.

3. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.

4. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE. BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL EXISTING UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING EXISTING UTILITIES.

5. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS/HER OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL DIGGER HOT LINE FOR UTILITY LOCATIONS 48 HOURS PRIOR TO START OF CONSTRUCTION.

6. ALL NEW AND EXISTING UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK.

7. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO EXISTING GRADES AT THE GRADING LIMITS.

8. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.

9. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY.

10. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

11. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.

12. ANY FILLS PLACED ON EXISTING SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE EXISTING SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.

13. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, WEEDS, BRUSH OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.

14. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.

15. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.

2. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS AND SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.

3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.

4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.

5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.

7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.

8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.

9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.

10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES

GENERAL NOTES

1. THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS, CONTRACT AND CONSTRUCTION DOCUMENTS.

2. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THESE PLANS AND IN THE CONTRACT DOCUMENTS.

3. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR(S) SHALL VISIT THE JOB SITE(S) AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRM THAT THE WORK MAY BE ACCOMPLISHED PER THE CONTRACT DOCUMENTS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO BID SUBMITTAL

4. THE CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED ON ANY WORK NOT CLEARLY DEFINED OR IDENTIFIED IN THE CONTRACT AND CONSTRUCTION DOCUMENTS BEFORE STARTING ANY WORK.

5. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES, INCLUDING APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS.

6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. IF THESE RECOMMENDATIONS ARE IN CONFLICT WITH THE CONTRACT AND CONSTRUCTION DOCUMENTS AND/OR APPLICABLE CODES OR REGULATIONS, REVIEW AND RESOLVE THE CONFLICT WITH DIRECTION FROM THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO PROCEEDING.

7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATION OF ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE IMPLEMENTATION ENGINEER AND WITH THE AUTHORIZED REPRESENTATIVE OF ANY OUTSIDE POLE OR PROPERTY OWNER.

8. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO PAVING, CURBS, VEGETATION, GALVANIZED SURFACE OR OTHER EXISTING ELEMENTS AND UPON COMPLETION OF THE WORK, REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION TO THE SATISFACTION OF VERIZON.

9. CONTRACTOR IS TO KEEP THE GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION DAILY.

10. PLANS ARE INTENDED TO BE DIAGRAMMATIC ONLY AND SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. RELY ONLY ON ANNOTATED DIMENSIONS AND REQUEST INFORMATION IF ADDITIONAL DIMENSIONS ARE REQUIRED.

11. THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. OTHER FACILITIES MAY EXIST. CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO START OF CONSTRUCTION AND USE EXTREME CARE AND PROTECTIVE MEASURES TO PREVENT DAMAGE TO THESE FACILITIES. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF UTILITIES OR OTHER AGENCY'S FACILITIES WITHIN THE LIMITS OF THE WORK, WHETHER THEY ARE INDENTIFIED IN THE CONTRACT DOCUMENTS OR NOT.

12. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600, AT LEAST TWO WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION.

DEFINITIONS

1. "TYPICAL" OR "TYP" MEANS THAT THIS ITEM IS SUBSTANTIALLY THE SAME ACROSS SIMILAR CONDITIONS. "TYP." SHALL BE UNDERSTOOD TO MEAN "TYPICAL WHERE OCCURS" AND SHALL NOT BE CONSIDERED AS WITHOUT EXCEPTION OR CONSIDERATION OF SPECIFIC CONDITIONS.

2. "SIMILAR" MEANS COMPARABLE TO CHARACTERISTICS FOR THE CONDITION NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLAN.

3. "AS REQUIRED" MEANS AS REQUIRED BY REGULATORY REQUIREMENTS, BY REFERENCED STANDARDS, BY EXISTING CONDITIONS, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICE, OR BY THE CONTRACT DOCUMENTS.

4. "ALIGN" MEANS ACCURATELY LOCATE FINISH FACES OF MATERIALS IN THE SAME PLANE.

5. THE TERM "VERIFY" OR "V.I.F." SHALL BE UNDERSTOOD TO MEAN "VERIFY IN FIELD WITH ENGINEER" AND REQUIRES THAT THE CONTRACTOR CONFIRM INTENTION REGARDING NOTED CONDITION AND PROCEED ONLY AFTER RECEIVING DIRECTION.

6. WHERE THE WORDS "OR EQUAL" OR WORDS OF SIMILAR INTENT FOLLOW A MATERIAL SPECIFICATION, THEY SHALL BE UNDERSTOOD TO REQUIRE SIGNED APPROVAL OF ANY DEVIATION TO SAID SPECIFICATION PRIOR TO CONTRACTOR'S ORDERING OR INSTALLATION OF SUCH PROPOSED EQUAL PRODUCT.

7. FURNISH: SUPPLY ONLY, OTHERS TO INSTALL.
   INSTALL: INSTALL ITEMS FURNISHED BY OTHERS.
   PROVIDE: FURNISH AND INSTALL.

811 USA North
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
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verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

REGISTERED PROFESSIONAL ENGINEER
HASAN ZALZALI
71655
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY 'CONSTRUCTION MANAGER' AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE 'CONSTRUCTION MANAGER' HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL EXISTING CONDITIONS OF ELECTRICAL EQUIP., LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF HIS BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL CODES AND LOCAL ORDINANCES OF THE LOCAL POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT NOT BE LIMITED TO:
   C - NATIONAL FIRE CODES
   A. UL - UNDERWRITERS LABORATORIES
   B. NEC - NATIONAL ELECTRICAL CODE
   C. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D. OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
   E. SBC - STANDARD BUILDING CODE

4. DO NOT SCALE ELECTRICAL DRAWINGS, REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH 'CONSTRUCTION MANAGER' ANY SIZES AND LOCATIONS WHEN NEEDED.

5. EXISTING SERVICES: CONTRACTOR SHALL NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.

6. CONTRACTOR SHALL PAY FOR ANY/ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO THE WORK BEGINNING OR ORDERING EQUIPMENT.

7. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.

8. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER, PRIOR TO BEGINNING ANY WORK.

9. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION.

10. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

11. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

12. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY VERIZON.

13. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND SUBJECT TO REGULATORY INSPECTION AND APPROVAL BY CONSTRUCTION MANAGER.

14. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

15. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.

16. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.

17. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.

18. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.

19. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.

20. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.

21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURES CATALOG INFORMATION OF ANY/ALL LIGHTING FIXTURES, SWITCHES AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.

22. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE 'CONSTRUCTION MANAGER' UPON FINAL ACCEPTANCE.

23. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

24. DISCONNECT SWITCHES SHALL BE H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.

25. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.

26. RACEWAYS: CONDUIT SHALL BE SCHEDULE 40 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD GALV'.

27. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.

28. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, 800 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.

29. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.

30. SERVICE: 240/120V, SINGLE PHASE, 3 WIRE CONNECTION AVAILABLE FROM UTILITY COMPANY. OWNER OR OWNERS AGENT WILL APPLY FOR POWER.

31. TELEPHONE SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.

32. ELECTRICAL AND TELCO RACEWAYS TO BE BURIED A MINIMUM OF 2' DEPTH.

33. CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOMM".

34. ALL BOLTS SHALL BE STAINLESS STEEL

GROUNDING NOTES

1. COMPRESSION CONNECTIONS (2), 2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.

2. EC SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH I" HIGH LETTERS.

3. ALL HARDWARE I8-8 STAINLESS STEEL, INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR LARGER.

4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE.

6. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

7. WHEN THE SCOPE OF WORK REQUIRES THE ADDITION OF A GROUNDING BAR TO AN EXISTING TOWER,THE SUBCONTRACTOR SHALL OBTAIN APPROVAL FROM THE TOWER OWNER PRIOR TO MOUNTING THE GROUNDING BAR TO THE TOWER.

8. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

ADDITIONAL NOTES:

9. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.

10. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.

11. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.

12. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 5 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE VERIZON REPRESENTATIVE.

13. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

14. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.

15. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 12" BELOW GRADE/FROST-LINE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.

16. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.

17. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" (OR DIRECTLY TO GROUND-RING).

18. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
   a. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR INDOOR USE OR AS APPROVED BY VERIZON PROJECT MANAGER.
   b. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
   c. TWO -(2) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS (BUS BAR CONNECTIONS).

19. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES).

20. PRIOR TO ANY LUG-BUSSBAR CONNECTIONS, THE BUSSBAR SHALL BE CLEANED BY USE OF "SCOTCH-BRITE' OR PLAIN STEEL WOOL AS TO REMOVE ALL SURFACE OXIDATION AND CONTAMINANTS. A COATING OF "NO-OX-ID" SHALL BE APPLIED TO THE CONNECTION SURFACES.

21. ALL CONNECTION HARDWARE SHALL BE TYPE 316 SS (NOT ATTRACTED TO MAGNETS).

22. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.

23. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER CONNECTIONS MUST BE MADE ON THE STREET SIDE OF MAIN SHUT-OFF VALVE.

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WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

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REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

"Hands On Tree Care"

ANDERSON'S Tree Care Specialists, Inc.

P.O. Box 29 ■ San Jose, CA 95103-0002

Tel: (408) 226-TREE (8733) ■ Fax: (408) 281-8733 ■ Lic. #706171

www.andersonstreecare.com

CERTIFIED ARBORIST ISA

ACCREDITED TCIA TREE CARE COMPANY

CONFIDENCE.

4/22/2021

Jeremy Stroup
Real Estate Specialist III
Vinculums Services, LLC
10 Pasteur, Suite 100
Irvine, CA 92618
jstroup@vinculums.com
925-202-8654

Re: Tree Protection Measures at SF PALO ALTO 204 (850 Webster St.)

Dear Jeremy,

Cellular equipment will be mounted on a new metal light pole, #53, adjacent to the above address, with two new handholes in the sidewalk and paved park strip adjacent to the pole, connected to the pole by conduits installed via trenching. The new light pole will be installed in the same location as the existing pole. I visually estimated distances between trees and project features onsite.

Ten trees are present, as shown in the Tree Table, below. Eight are regulated. Trenching is within the driplines[1] of trees #3, 5, and 6, though much of this area is under the sidewalk. Trenching location is also just beyond the driplines of trees #4 and 7. Trees #1 and 2 will require Type II tree protection fencing. Trees #3-7 will require modified Type II tree protection at the edge of the sidewalk only. Trenching must be performed by hand. If any live roots are encountered during excavation, the recommendations in section 2.20 C apply:

[1] The area within 10x the tree's DBH, as specified in the City of Palo Alto Tree Technical Manual. Please note that this may be different from the edge of the canopy, also commonly called the dripline.

C. Trenching, Excavation and Equipment Use

Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the *City Arborist*. (*See Restriction Zones for Excavation, Trenching or Boring Near Regulated Trees, Image 2.20-1 through 2.20-3*). Mitigating measures shall include prior notification to and direct supervision by the *project arborist*.

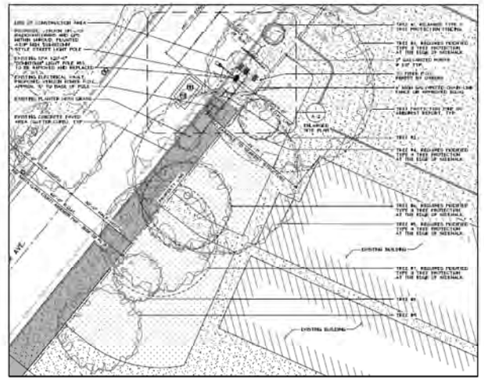
1. Notification. Contractor shall notify the *project arborist* a minimum of 24 hours in advance of the activity in the TPZ.
2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired (*see Root Injury, Section 2.25 A-1*). Roots 2-inches and greater must remain injury free.
3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.
   - If excavation or *trenching* for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.
   - Prior to excavation for foundation/footings/walls, grading or *trenching* within the TPZ, roots shall first be severed cleanly 1-foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw, sawzall, narrow trencher with sharp blades or other approved root pruning equipment.
4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the *City Arborist*. If allowed, a protective *root buffer* (*see Root Buffer and Damage to Trees, Section 2.25.A-1*) is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.
   - Structural design. If injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to *City Arborist* approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

Existing street tree foliage from tree #1 is within 35 feet of the WCF and provides interruption of direct views of the WCF from the northeast.

Please note that tree #2 was previously recommended for removal, as project features conflicted with it. The project plans have been revised such that tree #2 may now be retained.

Tree #	Species	Common Name	DBH[2] (in.)	Dripline[3] (ft. and in.)	Regulated Status
1	Fraxinus sp.	Ash	5.2	4'4"	Street Tree
2	Fraxinus sp.	Ash	1.0	0'10"	Street Tree
3	Sequoia sempervirens	Coast redwood	38.7	32'3"	Private Protected Tree
4	Sequoia sempervirens	Coast redwood	9.3	7'9"	Private Non-Protected Tree
5	Sequoia sempervirens	Coast redwood	37.1	30'11"	Private Protected Tree
6	Sequoia sempervirens	Coast redwood	20.2	16'10"	Private Protected Tree
7	Sequoia sempervirens	Coast redwood	26.7	22'3"	Private Protected Tree
8	Sequoia sempervirens	Coast redwood	11.0	9'2"	Private Non-Protected Tree
9	Sequoia sempervirens	Coast redwood	25.0	20'10"	Private Protected Tree
10	Fraxinus sp.	Ash	1.0	0'10"	Street Tree

Tree Map, revised by client 4/2/2021



[2] Diameter at breast height, a standard arboricultural measurement. Breast height is defined as 54 inches above grade.
[3] Defined in the Palo Alto Tree Technical Manual as ten times the tree's DBH. Work within a tree's dripline may negatively impact it.

Images of trees #1 and 2 (left foreground) and 3-9 (right background)

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
5. Loss, alteration, or reproduction of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
7. Neither all nor any part of this report, nor any copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or initialed designation conferred upon the consultant/appraiser as stated in his qualification.
8. This report and the values expressed herein represent the opinion of the consult/appraiser, and the consult/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in future.

Respectfully submitted,

Katherine Naegele
Consulting Arborist
Anderson's Tree Care Specialists, Inc.
A TCIA Accredited Company
Master of Forestry, UC Berkeley
ISA Certified Arborist #WE-9658A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists, Member
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SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
TREE PROTECTION REPORT

SHEET NUMBER
TPR-1

NOTE:
ANY CONSTRUCTION WITHIN THE CITY'S PUBLIC ROAD RIGHT-OF-WAY SHALL HAVE AN APPROVED PERMIT FOR CONSTRUCTION IN THE PUBLIC STREET PRIOR TO COMMENCEMENT OF THIS WORK

City of Palo Alto

Tree Protection - It's Part of the Plan!

Make sure your crews and subs do the job right!

Fenced enclosures around trees are essential to protect them by keeping the foliage canopy and branching structure clear from contact by equipment, materials and activities, preserving roots and soil conditions in an intact and non-compacted state, and identifying the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved. **An approved tree protection report must be added to this sheet when project activity occurs within the TPZ of a regulated tree.** For detailed information on Palo Alto's regulated trees and protection during development, review the **City Tree Technical Manual** (TTM) found at www.cityofpaloalto.org/trees/.

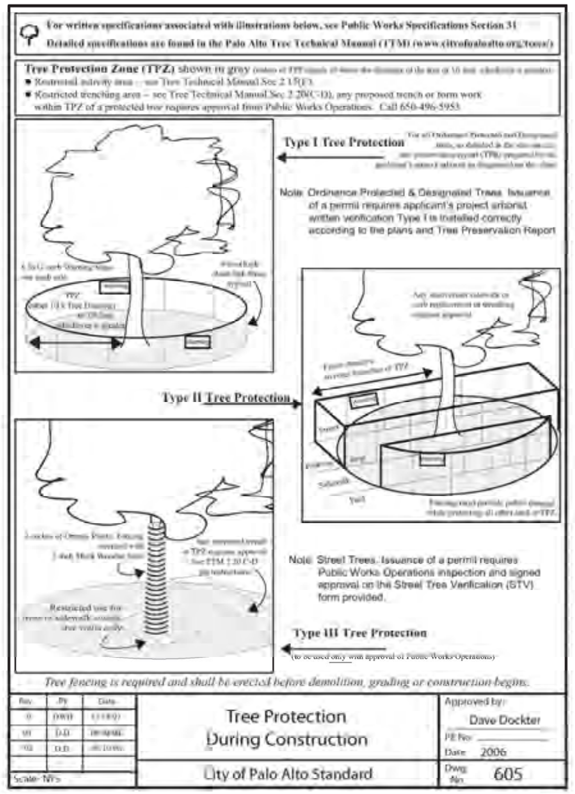

Table 2-2 Palo Alto Tree Technical Manual

CONTRACTOR & ARBORIST INSPECTION SCHEDULE

ADDENDUM 11

Monthly Tree Activity Report- *Construction Site*

APPENDIX J

PALO ALTO STREET TREE PROTECTION INSTRUCTIONS —SECTION 31—

City of Palo Alto Tree Department

Verification of Street Tree Protection

---WARNING---

Tree Protection Zone

This fencing shall not be removed without City Arborist approval (650-496-5953)

Removal without permission is subject to a $500 fine per day*

****Palo Alto Municipal Code Section 8.10.110***

City of Palo Alto Tree Protection Instructions are located at

City of Palo Alto
250 Hamilton Avenue, Palo Alto, CA 94301

Search: Advanced Browse By Topic
Home > Planning & Community Environment

Home
City-owned Trees
Privately-owned Trees
About the Tree Ordinance
Tips & Fix
Heritage Trees
Forms
Tree Technical Manual
FAQ
Contact Us
Resources

Tree Technical Manual

To purchase the Tree Technical Manual

June, 2001 First Edition

View by section:

- Table of Contents (PDF, 87KB)
- Intent and Purpose (PDF, 1.05MB)
- Introduction - Use of Manual (PDF, 1.05MB)
- Section 1.0 - Definitions (PDF, 96KB)
- Section 2.0 - Protection of Trees During Construction (PDF, 259KB)
- Section 3.0 - Removal, Replacement & Planting of Trees (PDF, 117KB)
- Section 4.0 - Hazardous Trees (PDF, 105KB)
- Section 5.0 - Tree Maintenance Guidelines (PDF, 110KB)
- Section 6.0 - Tree Reports (PDF, 84KB)

View ALL sections:

- Tree Technical Manual - Full (PDF, 1.84MB)

APPENDICES
A. Palo Alto Municipal Code Chapter 8.10, Tree Preservation & Management Regulations
B: Tree City - USA
C: ISA Hazard Evaluation Form
D: List of Inherent Failure Patterns for Selected Species (Reference source)
E: ISA Tree Pruning Guidelines (PDF, 1.05MB)
F: Tree Care Safety Standards, ANSI Z133.1-1994 (Reference source)
G: Pruning Performance Standards, ANSI A300-1995 (Reference source) H: Tree Planting Details, Diagram 504 & 505
I: Tree Disclosure Statement
J: Palo Alto Standard Tree Protection Instructions

SPECIAL INSPECTIONS **PLANNING DEPARTMENT**

TREE PROTECTION INSPECTIONS MANDATORY

PAMC 8.10 PROTECTED TREES. CONTRACTOR SHALL ENSURE PROJECT SITE ARBORIST IS PERFORMING REQUIRED TREE INSPECTION AND SITE MONITORING. PROVIDE WRITTEN MONTHLY TREE ACTIVITY REPORTS TO THE PLANNING DEPARTMENT LANDSCAPE REVIEW STAFF BEGINNING 14 DAYS AFTER BUILDING PERMIT ISSUANCE.

BUILDING PERMIT DATE: ____________

DATE OF 1ST TREE ACTIVITY REPORT: ____________

CITY STAFF: ____________

REPORTING DETAILS OF THE MONTHLY TREE ACTIVITY REPORT SHALL CONFORM TO SHEET T-1 FORMAT. VERIFY THAT ALL TREE PROTECTION MEASURES ARE IMPLIMENTED AND WILL INCLUDE ALL CONTRACTOR ACTIVITY, SCHEDULED OR UNSCHEDULED, WITHIN A TREE PROTECTION ROOT ZONE. NON-COMPLIANCE IS SUBJECT TO VIOLATION OF PAMC 8.10.080. REFERENCE: PALO ALTO TREE TECHNICAL MANUAL SECTION 2.00 AND ADDENDUM 11

Apply Tree Protection Report on sheet(s) T-2

Use addtional "T" sheets as needed

verizon✓
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PALO ALTO TREE PROTECTION

SHEET NUMBER
L-1

POLLUTION PREVENTION — IT'S PART OF THE PLAN

Construction projects are required to implement year-round stormwater BMPs, as they apply to your project.

Runoff from streets and other paved areas is a major source of pollution to San Francisco Bay. Construction activities can directly affect the health of the Bay unless contractors and crews plan ahead to keep construction dirt, debris, and other pollutants out of storm drains and local creeks. Following these guidelines will ensure your compliance with City of Palo Alto Ordinance requirements.






MATERIALS & WASTE MANAGEMENT

Non-Hazardous Materials

- ☐ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or when they are not in use.
- ☐ Use (but don't overuse) reclaimed water for dust control.
- ☐ Ensure dust control water doesn't leave site or discharge to storm drains.

Hazardous Materials

- ☐ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ☐ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ☐ Follow manufacturer's application instructions for hazardous materials and do not use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ☐ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ☐ Cover and maintain dumpsters. Check frequently for leaks. Place dumpsters under roofs or cover with tarps or plastic sheeting secured around the outside of the dumpster. A plastic liner is recommended to prevent leaks. Never clean out a dumpster by hosing it down on the construction site.
- ☐ Place portable toilets away from storm drains. Make sure they are in good working order. Check frequently for leaks.
- ☐ Dispose of all wastes and demolition debris properly. Recycle materials and wastes that can be recycled, including solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation.
- ☐ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.
- ☐ Keep site clear of litter (e.g. lunch items, cigarette butts).
- ☐ Prevent litter from uncovered loads by covering loads that are being transported to and from site.

Construction Entrances and Perimeter

- ☐ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ☐ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

EQUIPMENT MANAGEMENT & SPILL CONTROL

Maintenance and Parking

- ☐ Designate an area of the construction site, well away from streams or storm drain inlets and fitted with appropriate BMPs, for auto and equipment parking, and storage.
- ☐ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ☐ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ☐ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ☐ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment, and do not use diesel oil to lubricate equipment or parts onsite.

Spill Prevention and Control

- ☐ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ☐ Maintain all vehicles and heavy equipment. Inspect frequently for and repair leaks. Use drip pans to catch leaks until repairs are made.
- ☐ Clean up leaks, drips and other spills immediately and dispose of cleanup materials properly.
- ☐ Use dry cleanup methods whenever possible (absorbent materials, cat litter and/or rags).
- ☐ Sweep up spilled dry materials immediately. Never attempt to "wash them away" with water, or bury them.
- ☐ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ☐ Report any hazardous materials spills immediately! Call City of Palo Alto Communications, **(650) 329-2413**. If the spill poses a significant hazard to human health and safety, property or the environment, you must report it to the State Office of Emergency Services, **(800) 852-7550 (24 hours)**.

EARTHMOVING

Grading and Earthwork

- ☐ Schedule grading and excavation work during dry weather.
- ☐ Stabilize all denuded areas; install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ☐ Remove existing vegetation only when absolutely necessary, plant temporary vegetation for erosion control on slopes or where construction is not immediately planned.
- ☐ Prevent sediment from migrating offsite and protect storm drain inlets, drainage courses and streams by installing and maintaining appropriate BMPs (e.g., silt fences, gravel bags, fiber rolls, temporary swales, etc.).
- ☐ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ☐ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells.
  - Buried barrels, debris, or trash.
- ☐ If the above conditions are observed, document any signs of potential contamination and clearly mark them so they are not disturbed by construction activities.

Landscaping

- ☐ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ☐ Stack bagged material on pallets and under cover.
- ☐ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

CONCRETE MANAGEMENT & DEWATERING

Concrete Management

- ☐ Store both dry and wet materials under cover, protected from rainfall and runoff and away from storm drains or waterways. Store materials off the ground, on pallets. Protect dry materials from wind.
- ☐ Wash down exposed aggregate concrete only when the wash water can (1) flow onto a dirt area; (2) drain onto a bermed surface from which it can be pumped and disposed of properly; or (3) block any storm drain inlets and vacuum washwater from the gutter. If possible, sweep first.
- ☐ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and make sure wash water does not leach into the underlying soil. (See CASQA Construction BMP Handbook for properly designed concrete washouts.)

Dewatering

- ☐ Reuse water for dust control, irrigation or another on-site purpose to the greatest extent possible.
- ☐ Be sure to obtain a Permit for Construction in the Public Street from Public Works Engineering before discharging water to a street, gutter, or storm drain. Call the Regional Water Quality Control Plant (RWQCP) at **(650) 329-2598** for an inspection prior to commencing discharge. Use filtration or diversion through a basin, tank, or sediment trap as required by the approved dewatering plan. Dewatering is not permitted from October to April.
- ☐ In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the City inspector to determine what testing to do and to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.

PAVING/ASPHALT WORK

Paving

- ☐ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ☐ Cover storm drain inlets and manholes when applying seal coat, slurry seal, fog seal, or similar materials.
- ☐ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

PAINTING & PAINT REMOVAL

Painting Cleanup and Removal

- ☐ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ☐ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ☐ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ☐ Sweep up or collect paint chips and dust from non-hazardous dry stripping and sand blasting into plastic drop cloths and dispose of as trash.
- ☐ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state certified contractor.

STORM DRAIN POLLUTERS MAY BE LIABLE FOR FINES OF UP TO $10,000 PER DAY!

250 Hamilton Avenue
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cityofpaloalto.org

CITY OF PALO ALTO

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WISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
PALO ALTO POLLUTION PREVENTION CHECKLIST

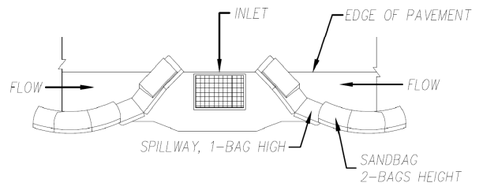
SHEET NUMBER
L-2

EROSION AND SEDIMENT CONTROL NOTES:

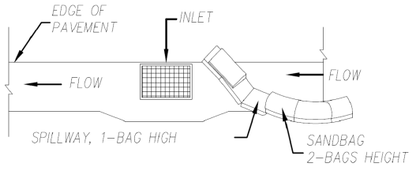
TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED PUBLIC IMPROVEMENTS CONSISTENT WITH THE EROSION CONTROL PLAN AND/OR WATER POLLUTION CONTROL PLAN (WPCP), IF APPLICABLE.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
4. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
5. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
6. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
7. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
8. EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED IMPROVEMENT PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
10. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.

STORM DRAIN INLET PROTECTION



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:

1. INTENDED FOR SHORT-TERM USE.
2. USE TO INHIBIT NON-STORM WATER FLOW.
3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FILTER FABRIC.

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE SANDBAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEPT AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. SIDEWALK TO BE REPLACED CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.
7. SIDEWALK SHALL BE RESTORED/REPLACED PER CITY STANDARD DRAWINGS.
8. PEDESTRIAN RAMP WILL NOT BE DISTURBED.PEDESTRIAN RAMP WILL NOT BE DISTURBED.

GENERAL CONTRACTOR NOTES:

1. STREET USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
2. ALL WORK TO BE CONDUCTED IN THE RIGHT OF WAY.
3. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
4. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNING WILL BE PLACED.
5. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
6. CLEANUP OF SITE WILL BE COMPLETED EACH EVENING AND THE SITE WILL BE RETURNED TO EXISTING CONDITIONS AT THE COMPLETION OF CONSTRUCTION AT EACH SITE.

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

R.O.W. GROUND CONSTRUCTION NOTES:

1. GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, G095 AND G0128 STANDARDS AND REGULATIONS.
3. CALL USA 48 HOURS PRIOR TO EXCAVATING AT (800) 227-2600 OR 811.
4. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
5. ALL EQUIPMENT TO BE BONDED. ALL EQUIPMENT TO BE BONDED.
6. METERING CABINET REQUIRES 36" CLEARANCE AT DOOR OPENING.
7. CAULK CABINET BASE AT PAD.

CALIFORNIA STATE CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PREFORMED 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 CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

- CALIFORNIA ADMINISTRATIVE CODE (INCLUDING TITLES 24 & 25) 2016
- 2016 CALIFORNIA BUILDING CODES WHICH ADOPTS THE 2015 IBC, 2015 IMC, 2015 IPC AND THE 2014 NEC,AND SHALL INCLUDE 2016 CBC, CFC, CMC, CEC, CPC, CGBSC.
- BUILDING OFFICIALS & CODE ADMINISTRATORS (BOCA) CURRENT NATIONAL CODES
- ANSI/EIA-222-G (2009 - 2ND EDITION)
- NFPA-101 - LIFE SAFETY CODE / CAL-OSHA - TITLE 8 / FCR - TITLE 29
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES
- ACCESSIBILITY REQUIREMENTS:

** FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS DO NOT APPLY IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE.

- FCC RF/EMF EXPOSURE/EMITTANCE COMPLIANCE:

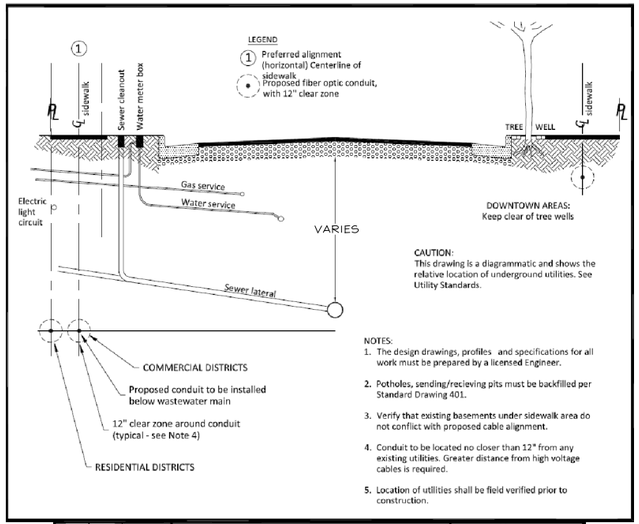
**FCC NOTE: THIS WIRELESS COMMUNICATION FACILITY COMPLIES WITH FEDERAL STANDARDS FOR RADIO FREQUENCY IN ACCORDANCE WITH THE TELECOMMUNICATION ACT OF 1996 AND SUBSEQUENT AMENDMENTS AND ANY OTHER REQUIREMENTS IMPOSED BY STATE OR FEDERAL REGULATORY AGENCIES.

CITY OF PALO ALTO UTILITIES ENGINEERING NOTES:

1. APPLICANT SHALL TAP ELECTRIC SERVICE TO THE SMALL CELL DISTRIBUTED ANTENNA SYSTEM FROM THE LOCATIONS JOINTLY IDENTIFIED DURING THE FIELD INVESTIGATION.
2. SERVICE VOLTAGE TO ALL THE PROPOSED LOCATIONS MAY NOT BE THE SAME. APPLICANT SHALL DESIGN THEIR SYSTEM TO OPERATE AT THE AVAILABLE VOLTAGE IN THE VICINITY.
3. IF BRAND NEW POLES NEED TO BE INSTALLED FOR APPLICANT'S SYSTEM THEN THE POLES MUST MATCH EXISTING POLES IN THE DOWN TOWN AREA.
4. AFTER EXCAVATION IS COMPLETED ON THE PUBLIC RIGHT OF WAY, EXISTING STREETS INCLUDING SIDEWALKS/ CURB/ GUTTER OR ANY DECORATIVE PATHS MUST BE BROUGHT TO ITS ORIGINAL CONDITION AND MUST BE APPROVED BY PUBLIC WORKS ENGINEERING DEPARTMENT'S INSPECTOR. POTHOLING MUST BE DONE AND ALL THE UTILITIES MUST BE IDENTIFIED PRIOR TO COMMENCING EXCAVATION.
5. EXCAVATION AND RESTORATION WORK MUST BE IN COMPLIANCE WITH PUBLIC WORKS ENGINEERING STANDARDS AND SPECIFICATIONS THAT ARE AVAILABLE ON THE FOLLOWING WEBSITE: http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=1834&TargetID=145
6. APPLICANTS SHALL BE RESPONSIBLE FOR MAINTAINING THEIR SYSTEM INCLUDING SUBSTRUCTURE. IN CASE OF KNOCK DOWNS, THE CITY WILL RE-INSTALL ITS STREET LIGHTING POLES BUT NOT APPLICANT'S EQUIPMENT ON OR OFF THE POLE.
7. A FIELD MEETING IS RECOMMENDED WITH UTILITIES ENGINEERING PRIOR TO COMMENCING THE WORK.
8. PLANS SHALL INCLUDE A NOTE: CONTRACTOR TREE INSPECTION REQUIREMENTS: MODIFIED TYPE III TRUNK WRAPPING SHALL BE VERIFIED BY URBAN FORESTRY PRIOR TO ANY WORK IN THE VICINITY. FOR EACH TREE SITE WRAPPED FOR PROTECTION WITHIN 15' OF ANY WORK ZONE OR CONCRETE FORM SECTION, A BILLABLE TREE INSPECTION BY URBAN FORESTRY (650-496-5953, 24-HOUR ADVANCE IS REQUIRED) SHALL BE COMPLETED PRIOR TO DEMOLITION, DRILLING, EXCAVATING,FORMING OR STREET LIGHT ACTIVITY. CONTRACTOR SHALL ARRANGE PAYMENTS AT THE DEVELOPMENT CENTER, 285 HAMILTON AVE, PALO ALTO, CA.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITIES DEPARTMENT 650/329-2413 OR 650/496-6982 IF THE EXISTING WATER, WASTEWATER OR GAS MAINS ARE DISTURBED OR DAMAGED. A QUALIFIED CONTRACTOR MAY PERFORM REPAIRS ON CITY WATER AND WASTEWATER MAINS UNDER THE DIRECT SUPERVISION OF THE WGW UTILITIES INSPECTOR. FOR WATER REPAIRSALL THE DISINFECTION REQUIREMENTS OF THE WGW UTILITY STANDARDS AND THESE CONDITIONS SHALL BE ADHERED TO. ALL REPAIRS TO THE CITY GAS SYSTEM MUST BE PERFORMED BY THE CITY OF PALO ALTO UTILITIES.
10. NO WATER VALVES OR OTHER FACILITIES OWNED BY UTILITIES DEPARTMENT SHALL BE OPERATED FOR ANY PURPOSE BY THE APPLICANT'S CONTRACTOR. ALL REQUIRED OPERATION WILL ONLY BE PERFORMED BY AUTHORIZED UTILITIES DEPARTMENT PERSONNEL. WATER VALVES MAY BE OPERATED BY THE CONTRACTOR UNDER THE DIRECT SUPERVISION OF THE WGW UTILITIES INSPECTOR. THE APPLICANT'S CONTRACTOR SHALL NOTIFY THE UTILITIES DEPARTMENT NOT LESS THAN FORTY-EIGHT (48) HOURS IN ADVANCE OF THE TIME THAT SUCH OPERATION IS REQUIRED.

NORMAL LOCATION OF UNDERGROUND UTILITIES NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE DEPT. OF PUBLIC WORKS FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY THE DEPT. OF PUBLIC WORKS IN CASES OF CONFLICTING FACILITIES.
3. CONFLICTS BETWEEN UTILITY COMPANIES FACILITIES, EXISTING AND PROPOSED, MUST BE MUTUALLY RESOLVED BY THE UTILITY COMPANIES.
4. FOR COMMERCIAL SIDEWALKS, THE FIRE HYDRANT SHALL BE PLACED WITHIN THE SIDEWALK 1'-6" BEHIND FACE OF CURB.
5. MAXIMUM 2" DIAMETER GAS MAINS MAY BE PLACED IN JOINT UTILITIES TRENCH SUBJECT TO APPROVAL OF CITY ENGINEER (IN TRACTS).



Rev	By	Date
0	DWH	7/16/98
1	MMN	7/20/04

Scale: NTS

Conduit Location Detail
Telecommunications

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 402

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/22/2020	90% CD'S FOR REDLINE	AM

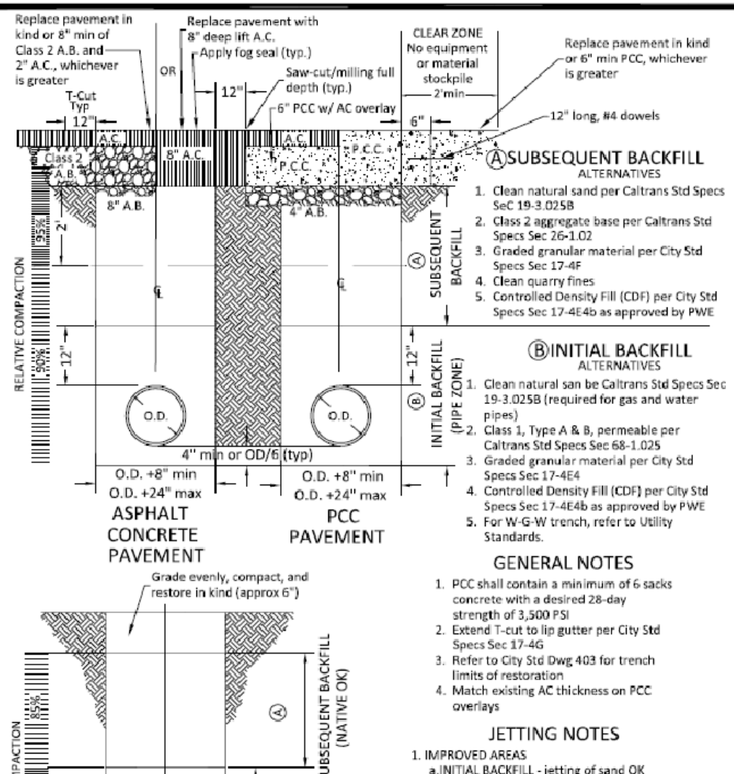
REGISTERED PROFESSIONAL ENGINEER
WASSIM ZALZALI
71655
STATE OF CALIFORNIA

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

SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
PALO ALTO EROSION CONTROL AND CONDUIT LOCATION DETAILS & NOTES

SHEET NUMBER
L-3



Ⓐ SUBSEQUENT BACKFILL ALTERNATIVES

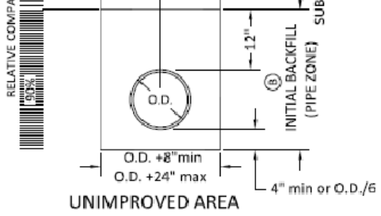
1. Clean natural sand per Caltrans Std Specs SeC 19-3.025B
2. Class 2 aggregate base per Caltrans Std Specs Sec 26-1.02
3. Graded granular material per City Std Specs Sec 17-4F
4. Clean quarry fines
5. Controlled Density Fill (CDF) per City Std Specs Sec 17-4E4b as approved by PWE

Ⓑ INITIAL BACKFILL ALTERNATIVES

1. Clean natural san be Caltrans Std Specs Sec 19-3.025B (required for gas and water pipes)
2. Class 1, Type A & B, permeable per Caltrans Std Specs Sec 68-1.025
3. Graded granular material per City Std Specs Sec 17-4E4
4. Controlled Density Fill (CDF) per City Std Specs Sec 17-4E4b as approved by PWE
5. For W-G-W trench, refer to Utility Standards.

GENERAL NOTES

1. PCC shall contain a minimum of 6 sacks concrete with a desired 28-day strength of 3,500 PSI
2. Extend T-cut to lip gutter per City Std Specs Sec 17-4G
3. Refer to City Std Dwg 403 for trench limits of restoration
4. Match existing AC thickness on PCC overlays



UNIMPROVED AREA

JETTING NOTES

1. IMPROVED AREAS
   a. INITIAL BACKFILL - jetting of sand OK
   b. SUBSEQUENT BACKFILL - jetting of sand subject to approval of City Engineer, except for top 2 ft, which must be mechanically compacted
2. UNIMPROVED AREAS: jetting of sand OK
3. WHEN JETTING IS PERMITTED:
   a. Excess water shall be collected at low points and removed by pumping
   b. San to be jetted shall be placed in lifts no thicker than 4 ft
   c. Jetting shall be performed at intervals along the trench not to exceed 6 ft

Rev	By	Date
1	MN	03/10/05
2	JT	08/18/06
3	HQN	10/04/06
4	RTN	06/08/17

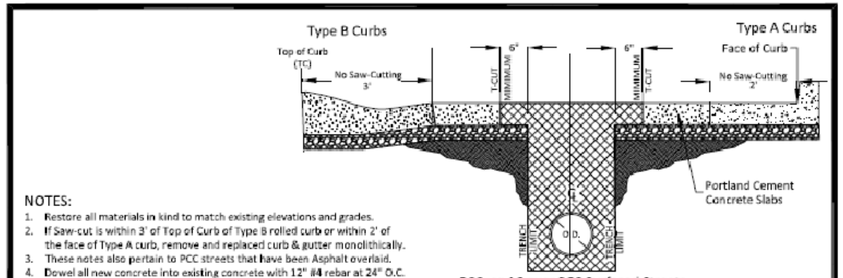
Scale: NTS

Trenches
Typical Cross-Sections

Approved by:
PE No. 72158
Date 01/10/18

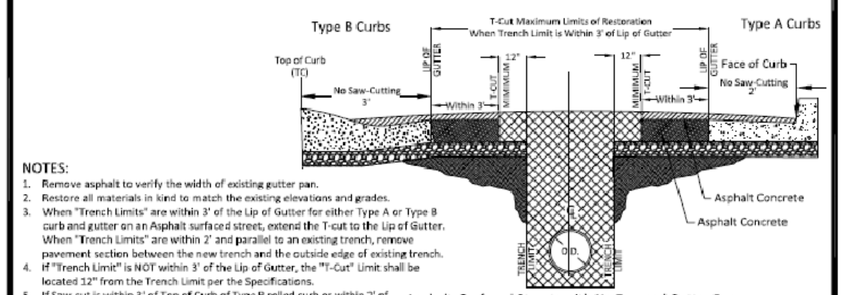
City of Palo Alto Standard

Dwg No. 401



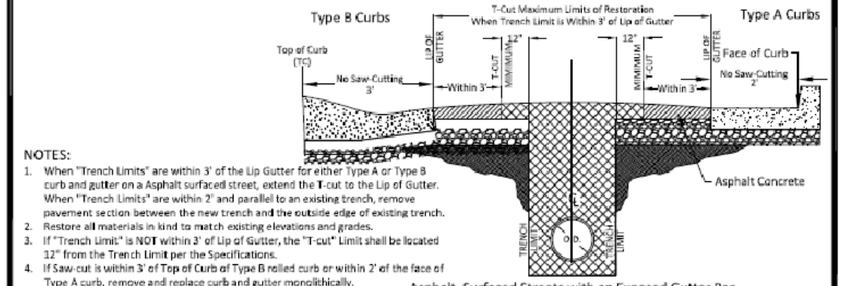
NOTES:
1. Restore all materials in kind to match existing elevations and grades.
2. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replaced curb & gutter monolithically.
3. These notes also pertain to PCC streets that have been Asphalt overlaid.
4. Dowel all new concrete into existing concrete with 12" #4 rebar at 24" O.C.

PCC or AC over PCC Surfaced Streets



NOTES:
1. Remove asphalt to verify the width of existing gutter pan.
2. Restore all materials in kind to match the existing elevations and grades.
3. When "Trench Limits" are within 3' of the Lip of Gutter for either Type A or Type B curb and gutter on an Asphalt surfaced street, extend the T-cut to the Lip of Gutter. When "Trench Limits" are within 2' and parallel to an existing trench, remove pavement section between the new trench and the outside edge of existing trench.
4. If "Trench Limit" is NOT within 3' of the Lip of Gutter, the "T-Cut" Limit shall be located 12" from the Trench Limit per the Specifications.
5. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replace curb & gutter monolithically.

Asphalt Surfaced Streets with No Exposed Gutter Pan



NOTES:
1. When "Trench Limits" are within 3' of the Lip Gutter for either Type A or Type B curb and gutter on a Asphalt surfaced street, extend the T-cut to the Lip of Gutter. When "Trench Limits" are within 2' and parallel to an existing trench, remove pavement section between the new trench and the outside edge of existing trench.
2. Restore all materials in kind to match existing elevations and grades.
3. If "Trench Limit" is NOT within 3' of Lip of Gutter, the "T-cut" Limit shall be located 12" from the Trench Limit per the Specifications.
4. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replace curb and gutter monolithically.

Asphalt Surfaced Streets with an Exposed Gutter Pan

Rev	By	Date
1	MN	2/30/05
2	JT	8/14/06
3	HQN	10/16/06
4	RTN	06/11/17

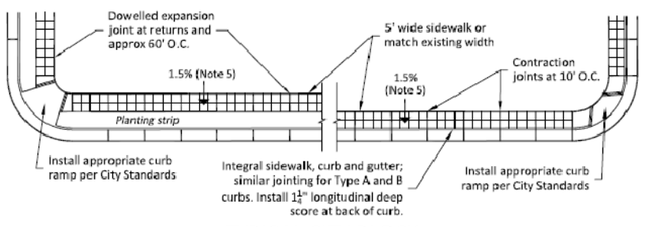
Scale: NTS

Trenches
Limits of Restoration

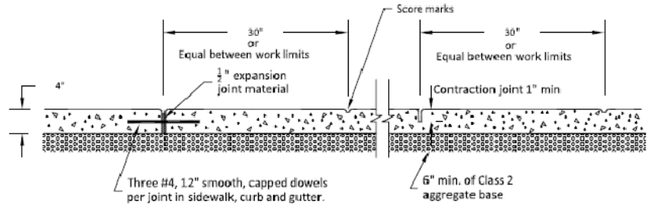
Approved by:
PE No. 72158
Date 01/10/18

City of Palo Alto Standard

Dwg No. 403



TYPICAL CITY BLOCK PLAN



Expansion joint Contraction joint

LONGITUDINAL SECTIONS

SIDEWALK CONSTRUCTION NOTES:

1. SIDEWALKS TO BE MARKED IN 30" SQUARES.
2. EDGES TO HAVE 3/4" RADIUS.
3. SCORE MARKS SHALL NOT BE LESS THAN 3/8" DEEP; CONTRACTION JOINTS SHALL BE 1" IN MINIMUM DEPTH @ 10' O.C.
4. CONTRACTION JOINTS MAY BE SAW-CUT.
5. SIDEWALKS TO HAVE 1.5% SLOPE TO STREET.
6. ALL NEW SIDEWALKS SHALL BE DOWELED AT 2'-0" O.C. INTO EXISTING CONCRETE WITH #4 12" LONG DOWELS AND EMBEDDED 6".
7. SAW CUT WALK FULL DEPTH AND FULL WIDTH ON SCORE MARKS PERPENDICULAR TO THE CURB. NO SAWCUTTING ON LONGITUDINAL SCORE MARKS.
8. INSTALL LONGITUDINAL DEEP SCORE ALONG ENTIRE BACK OF CURB THAT IS MONOLITHIC WITH SIDEWALK.

Rev	By	Date
0	DWH	12/14/92
1	MN	01/29/02
2	HQN	01/04/07
3	RTN	08/10/17

Scale: NTS

Sidewalk Construction

Approved by:
PE No. 72158
Date 01/10/18

City of Palo Alto Standard

Dwg No. 141

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	TBD
DRAWN BY:	AM
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/10/2020	100% CD'S FOR SUBMITTAL	MG
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SF PALO ALTO 204
PUBLIC R.O.W. ADJACENT TO:
ADJACENT TO
850 WEBSTER STREET
PALO ALTO, 94301
LOCATION CODE: 566800

SHEET TITLE
PALO ALTO TRENCHING & SIDEWALK STD. DWGS.

SHEET NUMBER
L-4

verizon

SITE ID:	SF PALO ALTO 205
PROJECT NAME:	VZW PALO ALTO SMALL CELL
POLE#:	71
LOCATION CODE:	566801
ADJACENT APN:	003-32-094
SITE ADDRESS:	EAST SIDE OF 853 MIDDLEFIELD RD. PALO ALTO, 94301
COUNTY:	SANTA CLARA
SITE TYPE:	STREET LIGHT POLE
ROADWAY TYPE:	COLLECTOR
HISTORIC STATUS OR DISTRICT:	N/A

PROJECT DESCRIPTION

VERIZON WIRELESS PROPOSES TO INSTALL A NEW WIRELESS COMMUNICATION SITE ON A NEW/REPLACEMENT STREET LIGHT POLE. THE SCOPE WILL CONSIST OF THE FOLLOWING:

- ☐ REMOVE (1) EXISTING STREET LIGHT/POLE #71 IN CHANNING AVE. PUBLIC R.O.W.
- ☐ INSTALL (1) NEW 'REPLACEMENT' ROADWAY LIGHTING POLE W/ LED LAMP IN
- ☐ PLACE OF REMOVED LIGHT POLE #71, PER LIGHTING STYLE PLACEMENT GUIDE
- ☐ RE-CONNECT CPA STREET LIGHT POWER TO NEW/REPLACEMENT STREET LIGHT
- ☐ INSTALL NEW POLE FOUNDATION

- ☐ INSTALL (3) NEW ERICSSON SM-6701 RADIO/ANTENNAS ATOP NEW POLE
- ☐ INSTALL (1) NEW NEMA 6P AC DISCONNECT WITHIN NEW U.G. POWER HANDHOLE
- ☐ INSTALL (1) NEW 5/8"Φ x10'L. GROUND ROD WITHIN U.G. POWER HANDHOLE
- ☐ INSTALL NEW AC POWER CABLES FROM POC, TO DISCONNECT, TO RADIOS
- ☐ INSTALL NEW GROUND CABLES FROM DISCONNECT/RADIOS/POLE TO GROUND ROD
- ☐ INSTALL NEW FIBER CABLES FROM DEMARC TO RADIOS
- ☐ INSTALL NEW RF NOTICE AND EMERGENCY SHUT-DOWN SIGNAGE AS REQUIRED
- ☐ INSTALL NEW U.G. PATH FROM POWER POC TO NEW U.G. POWER HANDHOLE

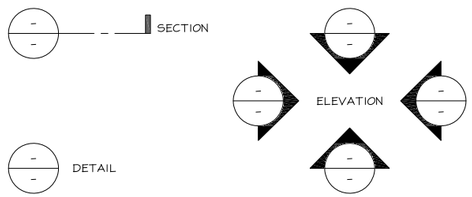
ADMINISTRATIVE REQUIREMENTS

SUBCONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS & FIELD CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

VICINITY MAP

SYMBOLS/ABBREVIATIONS LEGEND

ADD'L	ADDITIONAL	L.	LONG(ITUDINAL)
A.F.G.	ABOVE FINISHED GRADE	MAX.	MAXIMUM
ANT.	ANTENNA	MFR.	MANUFACTURER
ASS'Y.	ASSEMBLY	MIN.	MINIMUM
AWG.	AMERICAN WIRE GAUGE	(N)	NEW
BLDG.	BUILDING	NTS	NOT TO SCALE
BTCW.	BARE TINNED COPPER WIRE	O.C.	ON CENTER
CLR.	CLEAR	P.T.	PRESSURE TREATED
CONC.	CONCRETE	RAD.(R)	RADIUS
CONN.	CONNECTION(OR)	REQ'D	REQUIRED
CONST.	CONSTRUCTION	RGS.	RIGID GALVANIZED STEEL
CONT.	CONTINUOUS	SCH.	SCHEDULE
DBL.	DOUBLE	SIM.	SIMILAR
D.F.	DOUGLAS FIR	SQ.	SQUARE
DIA.	DIAMETER	S.S.	STAINLESS STEEL
DIM.	DIMENSION	STD.	STANDARD
EA.	EACH	TEMP.	TEMPORARY
ELEV	ELEVATION	THK.	THICK(NESS)
EMT.	ELECTRICAL METALLIC TUBING	TYP.	TYPICAL
(E)	EXISTING	U.G.	UNDER GROUND
F.G.	FINISH GRADE	U.L.	UNDERWRITERS LABORATORY
FT.(')	FOOT (FEET)	U.N.O.	UNLESS NOTED OTHERWISE
GA.	GAUGE	V.I.F.	VERIFY IN FIELD
HT.	HEIGHT	W	WIDE (WIDTH)
IN.(")	INCH(ES)	w/	WITH
LB.(#)	POUND(S)	WD.	WOOD
L.F.	LINEAR FEET (FOOT)	W.P.	WEATHERPROOF



CONCRETE (SURFACE)		x	CHAIN LINK FENCE
CONCRETE (CUT)			WOOD FENCE
EARTH			WROUGHT IRON FENCE
GRAVEL		OH	OVERHEAD WIRES
PLYWOOD		E	POWER CONDUIT
STEEL			GROUND CONDUCTOR
EXISTING GRASS			PROPERTY LINE
±0"	ELEVATION DATUM		CENTERLINE

PROJECT TEAM

APPLICANT:
VERIZON WIRELESS
575 LENNON LANE SUITE 125
WALNUT CREEK,CA 94598
CONTACT: JEREMY STROUP
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EMAIL: jstroup@vinculums.com

LEASING CONTACT:
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CONTACT: JEREMY STROUP
PHONE:(925) 202-8654
EMAIL: jstroup@vinculums.com

A&E PROJECT MANAGER:
ZALZALI & ASSOCIATES INC.
dba ALL STATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630
PM: DEAN WALKER
PHONE: (714) 230-5714
EMAIL: dean@zalzali.com

CONSTRUCTION MANAGER:
VINCULUMS SERVICES
575 LENNON LANE SUITE 125
WALNUT CREEK,CA 94598
CONTACT: CURTIS GARDNER
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EMAIL: cgardner@vinculums.com

ARBORIST CONTACT:
PROJECT ARBORIST
121 N 27TH STREET,
SAN JOSE, CA 95116
CONTACT: KATHERINE NAEGELE
PHONE: (408) 590-5976
EMAIL:Katherine@andersonstreecare.com

SITE INFORMATION

LATITUDE:
N 37° 26' 52.77"(37.447992)

LONGITUDE:
W 122° 9' 5.56"(-122.151546)

ELEVATION:
+31' AMSL

ZONING:
RM-20

JURISDICTION:
CITY OF PALO ALTO

ASSESSORS PARCEL NUMBER:
ADJACENT TO 003-32-094

PROPERTY LEGAL DESCRIPTION:
N/A PUBLIC RIGHT OF WAY

ADA COMPLIANCE:
YES

DIG ALERT

811 USA North
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
811 / 800-227-2600

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & (E) DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE.

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
T-2	PHOTOSIMS
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T-4	EME REPORT
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A-1	SITE PLAN
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A-1.2	UTILITY PLAN (FOR REFERENCE)
A-1.3	LOCATION MAP
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D-2	FOUNDATION DETAIL
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C-1	CALCS
C-2	CALCS
C-3	CALCS
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GN-2	GENERAL NOTES
TPR-1	TREE PROTECTION REPORT
L-1	PALO ALTO TREE PROTECTION
L-2	PALO ALTO POLLUTION PREVENTION CHECKLIST
L-3	PALO ALTO EROSION CONTROL AND CONDUIT LOCATION DETAILS & NOTES
L-4	PALO ALTO TRENCHING & SIDEWALK STANDARD DRAWINGS

CODE COMPLIANCE

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 CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

2019 TITLE 24, CALIFORNIA CODE OF REGULATIONS
2019 CALIFORNIA BUILDING CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA MECHANICAL CODE
2019 GREEN BUILDING CODE
2019 CALIFORNIA ENERGY CODE

*AS AMENDED BY CITY OF PALO ALTO AND MADE EFFECTIVE JANUARY 1ST, 2020 AS PER CURRENT CITY OF PALO ALTO MUNICIPAL CODE ORDINANCES GENERAL ORDER 95 (v.2018)

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

verizon

3/15/21

CA SJ Palo Alto 205

853 Middlefield Road
Palo Alto, CA

Looking North from Middlefield Road

View #1

verizon

3/15/21

CA SJ Palo Alto 205

853 Middlefield Road
Palo Alto, CA

Looking Southwest from Middlefield Road

View #2

verizon
2785 MITCHELL DRIVE, SUITE 9
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SF PALO ALTO 205

PUBLIC R.O.W. ADJACENT TO:
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PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE

PHOTOSIMS

SHEET NUMBER

T-2

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate its small cell (No. 566801 "SF Palo Alto 205") proposed to be sited in Palo Alto, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

Verizon proposes to install three small antennas on the municipal light pole sited in the public right-of-way near 853 Middlefield Road in Palo Alto. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. A summary of the FCC's exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive limit for exposures of unlimited duration at several wireless service bands are as follows:

Wireless Service Band	Transmit Frequency	"Uncontrolled" Public Limit	Occupational Limit (5 times Public)
Microwave (point-to-point)	1–80 GHz	1.0 mW/cm^2	5.0 mW/cm^2
Millimeter-wave	24–47	1.0	5.0
Part 15 (WiFi & other unlicensed)	2–6	1.0	5.0
CBRS (Citizens Broadband Radio)	3,550 MHz	1.0	5.0
BRS (Broadband Radio)	2,490	1.0	5.0
WCS (Wireless Communication)	2,305	1.0	5.0
AWS (Advanced Wireless)	2,110	1.0	5.0
PCS (Personal Communication)	1,930	1.0	5.0
Cellular	869	0.58	2.9
SMR (Specialized Mobile Radio)	854	0.57	2.85
700 MHz	716	0.48	2.4
600 MHz	617	0.41	2.05
[most restrictive frequency range]	30–300	0.20	1.0

Power line frequencies (60 Hz) are well below the applicable range of these standards, and there is considered to be no compounding effect from simultaneous exposure to power line and radio frequency fields.

General Facility Requirements

Small cells typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The radios are typically mounted on the support pole or placed in a cabinet at ground level, and they are connected to the antennas by coaxial cables. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna's radiation pattern is not fully formed at locations very close by (the "near-field" effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). This methodology is an industry standard for evaluating RF exposure conditions and has been demonstrated through numerous field tests to be a conservative prediction of exposure levels.

Site and Facility Description

Based upon information provided by Verizon, including drawings by All States Engineering & Surveying, dated September 1, 2020, it is proposed to install three Ericsson Model 6701, 2-foot tall, directional panel antennas with integrated radios on top of a new light pole to replace the existing pole sited in the public right-of-way in front of the single-story office building at 853 Middlefield Road in Palo Alto. The antennas would employ no downtilt, would be mounted at an effective height of about 23 feet above ground, and would be oriented toward 60°T, 180°T, and 300°T. The maximum effective radiated power proposed in any direction is 193 watts in the 28 GHz band. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.0086 mW/cm^2, which is 0.86% of the applicable public exposure limit. The maximum calculated level at the second-story elevation of any nearby building* is 1.2% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

Recommended Mitigation Measures

Due to their mounting locations and height, the antennas would not be accessible to unauthorized persons, and so no measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all workers who have access within 8 feet outward from the antennas. No access within 2 feet directly in front of the antennas should be allowed while the antennas are in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that explanatory signs† be posted at the antennas and/or on the pole below the antennas, readily visible from any angle of approach.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the small cell proposed by Verizon Wireless near 853 Middlefield Road in Palo Alto, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating small cells. Training authorized personnel and posting explanatory signs are recommended to establish compliance with occupational exposure limits.

* Including the nearest residence, located at 737 Channing Avenue, at least 55 feet away based on the drawings.

† Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (*e.g.*, a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidelines from the landlord, local zoning or health authority, or appropriate professionals may be required.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-21306, which expires on September 30, 2021. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

REGISTERED PROFESSIONAL ENGINEER — NEIL J. OLIJ — No. E-21306 — Exp. 9-30-2021 — ELECTRICAL — STATE OF CALIFORNIA

Neil J. Olij, P.E.
707/996-5200

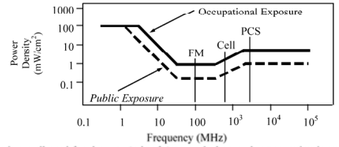
September 29, 2020

FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (f is frequency of emission in MHz) Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm^2)	
0.3 – 1.34	614	*614*	1.63	*1.63*	100	*100*
1.34 – 3.0	614	*823.8/f*	1.63	*2.19/f*	100	*180/f^2*
3.0 – 30	1842/ f	*823.8/f*	4.89/ f	*2.19/f*	900/ f^2	*180/f^2*
30 – 300	61.4	*27.5*	0.163	*0.0729*	1.0	*0.2*
300 – 1,500	3.54$\sqrt{f}$	*1.59$\sqrt{f}$*	$\sqrt{f}$/106	$\sqrt{f}$/*238*	f/300	*f/1500*
1,500 – 100,000	137	*61.4*	0.364	*0.163*	5.0	*1.0*



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has incorporated those formulas in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.
Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$, in mW/cm^2,

and for an aperture antenna, maximum power density $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$, in mW/cm^2,

where θ_{BW} = half-power beamwidth of antenna, in degrees,
P_{net} = net power input to antenna, in watts,
D = distance from antenna, in meters,
h = aperture height of antenna, in meters, and
η = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

Far Field.
OET-65 gives this formula for calculating power density in the far field of an individual RF source:

power density $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$, in mW/cm^2,

where ERP = total ERP (all polarizations), in kilowatts,
RFF = three-dimensional relative field factor toward point of calculation, and
D = distance from antenna effective height to point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula is used in a computer program capable of calculating, at thousands of locations on an arbitrary grid, the total expected power density from any number of individual radio frequency sources. The program also allows for the inclusion of uneven terrain in the vicinity, as well as any number of nearby buildings of varying heights, to obtain more accurate projections.

verizon
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ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
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A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER — WASSIM ZALZALI — 71655 — CIVIL — STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
EME REPORT

SHEET NUMBER
T-3

Verizon Wireless • Proposed Small Cell (No. 566801 "SF Palo Alto 205")
853 Middlefield Road • Palo Alto, California

Calculated RF Exposure Levels

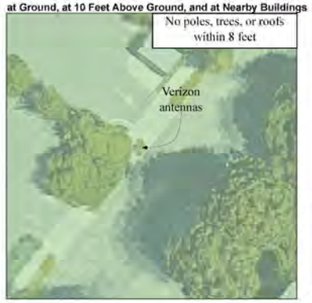
at Elevation of Antennas (21½ – 24½ feet above ground)

The public limit extends about 8 feet from the antennas, not reaching any publicly accessible area. The occupational limit extends about 2 feet from the antennas

Legend:
- less than FCC Public Limit
- greater than FCC Public Limit less than FCC Occupational Limit
- greater than FCC Occupational Limit

Notes:
Calculations performed according to OET Bulletin No. 65, August 1997.
Base image from Google Maps.

at Ground, at 10 Feet Above Ground, and at Nearby Buildings



sign on pole below antennas

Power line frequencies (60 Hz) are well below the applicable range of the radio frequency exposure standards, and there is considered to be no compounding effect from simultaneous exposure to power line and RF fields.

HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
BROADCAST & WIRELESS

C11-A3VZ.4
Supplemental Figure

verizon
2785 MITCHELL DRIVE, SUITE 9
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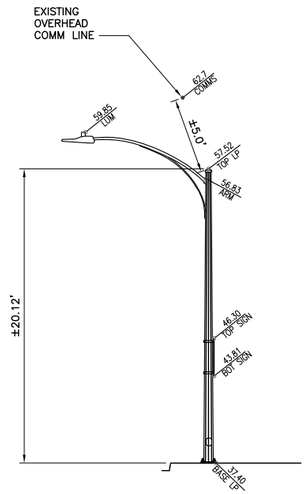
SHEET TITLE
EME REPORT

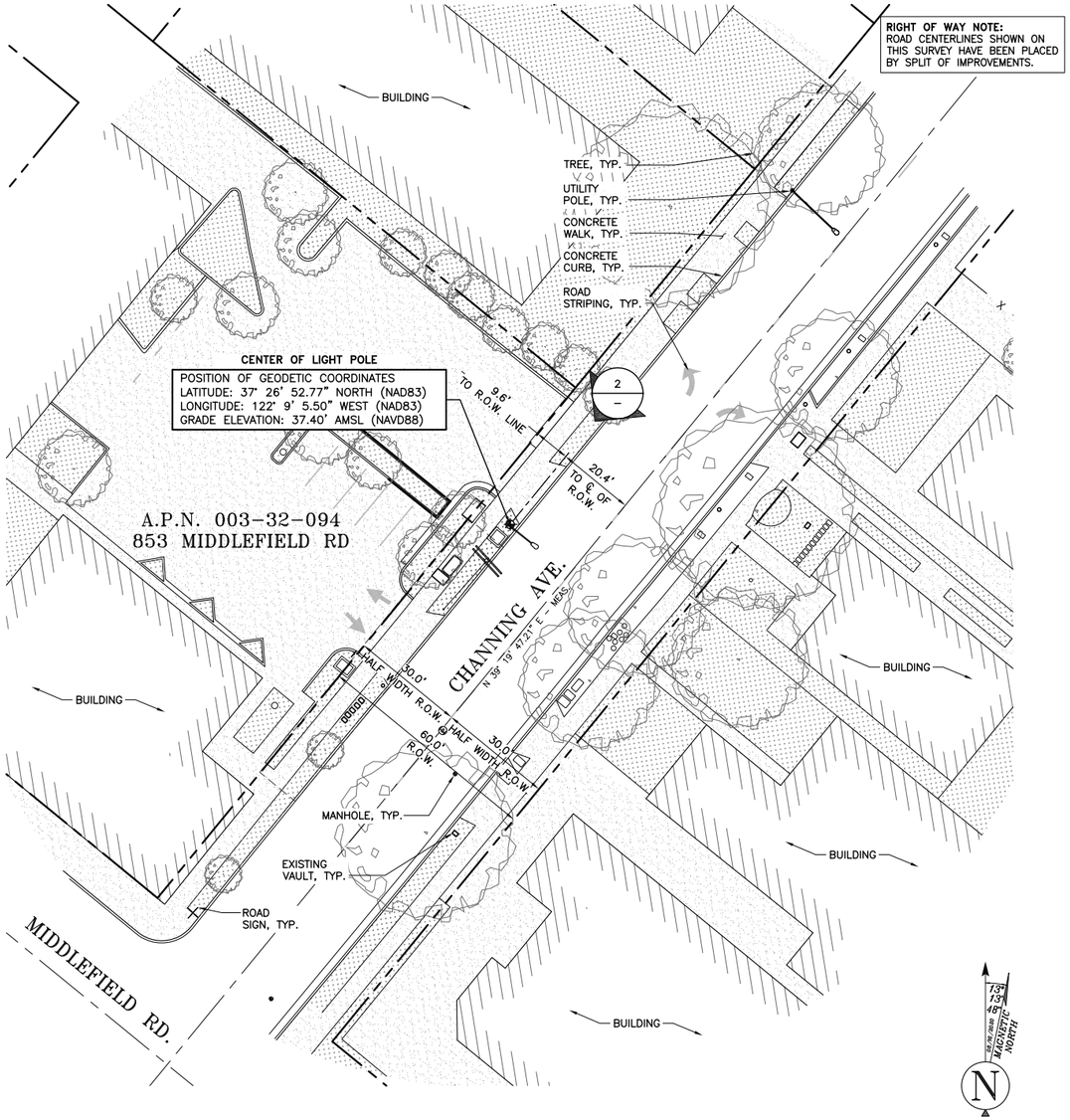
SHEET NUMBER
T-4



2 POLE ELEVATION
1 inch = 5ft.
0 2.5' 5' 10'

LEGEND

	U.G. UTILITY VAULT	BLDG	TOP OF BUILDING
MH	MANHOLE	MON	MONUMENT
	UTILITY POLE	FL	FLOW LINE
XX.XX	SPOT ELEVATION	EOP	EDGE OF PAVEMENT
W	WATER VALVE	R.O.W.	RIGHT OF WAY
	FOUND MONUMENT	R/W	RIGHT OF WAY
	GEODETIC MARKER	SCO	SEWER CLEAN–OUT
— x —	CHAIN LINK FENCE	PS	PARKING STRIPE
	WOOD FENCE	SW	SIDEWALK
— O/H —	OVERHEAD LINE	VLT	U.G. UTILITY VAULT
	METAL FENCE	OHE	OVERHEAD ELECTRICAL
	GRADE BREAK	SVC	SERVICE
	RIGHT OF WAY LINE	AC	ASPHALTIC CONCRETE
	CENTER LINE	AP	ASPHALT PAVING
	EASEMENT LINE	CONC	CONCRETE
	MASONRY WALL	PED	PEDESTAL
W	WATER VALVE	OH	OVERHEAD
UP	UTILITY POLE	PUE	PUBLIC UTILITY EASEMENT
LP	LIGHT POLE	FC	FACE OF CURB
LUM	LUMINAIRE	BOL	BOLLARD
NG	NATURAL GRADE	TOP _	TOP OF ITEM
		BOT _	BOTTOM OF ITEM



1 POLE LOCATION
1 inch = 20ft.
0 10' 20' 40'

VICINITY MAP

TITLE REPORT
NOT APPLICABLE (RIGHT–OF–WAY)

LEGAL DESCRIPTION
NOT APPLICABLE (RIGHT–OF–WAY)

ASSESSOR'S PARCEL NO.
NOT APPLICABLE (RIGHT–OF–WAY)

UTILITY NOTE:
SURVEYOR DOES NOT GUARANTEE THAT ALL UTILITIES ARE SHOWN OR THEIR LOCATIONS ARE DEFINITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND DEVELOPER TO CONTACT BLUE STAKE AND ANY OTHER INVOLVED AGENCIES TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. REMOVAL, RELOCATION AND/ OR REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

NOTES:
1. THIS IS NOT A BOUNDARY SURVEY. THIS IS A SPECIALIZED RIGHT OF WAY MAP. THE PROPERTY LINES AND EASEMENTS SHOWN HEREON ARE FROM RECORD INFORMATION AS NOTED HEREON. ALL STATES ENGINEERING & SURVEYING/ZALZALI & ASSOCIATES, INC. TRANSLATED THE TOPOGRAPHIC SURVEY TO RECORD INFORMATION USING MONUMENT(S)/LANDMARK(S) SHOWN HEREON. NO TITLE RESEARCH WAS PERFORMED BY ALL STATES ENGINEERING & SURVEYING/ZALZALI & ASSOCIATES, INC.

2. ANY CHANGES MADE TO THE INFORMATION ON THIS PLAN, WITHOUT THE WRITTEN CONSENT OF ALL STATES ENGINEERING & SURVEYING / ZALZALI & ASSOCIATES, INC. RELIEVES ALL STATES ENGINEERING & SURVEYING/ ZALZALI & ASSOCIATES, INC. OF ANY AND ALL LIABILITY.

3. THESE DRAWINGS & SPECIFICATIONS ARE THE PROPERTY & COPYRIGHT OF ALL STATES ENGINEERING & SURVEYING / ZALZALI & ASSOCIATES, INC. & SHALL NOT BE USED ON ANY OTHER WORK EXCEPT BY AGREEMENT WITH THE SURVEYOR. WRITTEN DIMENSIONS SHALL TAKE PREFERENCE OVER SCALED & SHALL BE VERIFIED ON THE JOB SITE. ANY DISCREPANCY SHALL BE BROUGHT TO THE NOTICE OF THE SURVEYOR PRIOR TO COMMENCEMENT OF ANY WORK.

4. THIS SITE IS PROPOSED TO BE DEVELOPED ON A STREET LIGHT POLE LOCATED WITHIN THE PUBLIC RIGHT OF WAY.

SURVEY DATE
08/16/2020

BASIS OF BEARING
BEARINGS SHOWN HEREON ARE BASED UPON U.S. STATE PLANE NAD83 COORDINATE SYSTEM CALIFORNIA STATE PLANE COORDINATE ZONE THREE, DETERMINED BY GPS OBSERVATIONS.

BENCHMARK
RTCM–REF 3270
NORTHING: 1970498.865
EASTING: 6082238.002
+248.11' (A.M.S.L.)

REFERENCE MAPS
- 443 – PM – 48
- 880 – RS – 55
- 3 – APN MAP – 32

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482–8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT NO:	SF_PALO_ALTO_205
DRAWN BY:	MG
CHECKED BY:	BC/WZ/DW

REV	DATE	DESCRIPTION	
0	08/26/2020	FINAL SURVEY	MA
A	08/26/2020	PRELIMINARY SURVEY	MG

PROFESSIONAL LAND SURVEYOR
BRUCE T. CRAMTOM
No. 9039
STATE OF CALIFORNIA

SF_PALO_ALTO_205
R.O.W. ADJACENT TO:
853 MIDDLEFIELD RD
PALO ALTO, CA 94301
NEW BUILD–SMALL CELL

SHEET TITLE
SITE SURVEY

SHEET NUMBER
C-1

TREE NOTES:

1. THERE WILL BE NO TREE PRUNING WITHOUT THE SPECIFIC APPROVAL OF THE PALO ALTO URBAN FORESTRY DEPARTMENT ON ALL REGULATED TREES. ANY VIOLATION TO THIS POLICY WILL BE SUBJECT TO PENALTY. CONTACT THE PALO ALTO URBAN FORESTRY DEPARTMENT AT (650) 496-5953.
2. THIS CONSTRUCTION PROJECT TRIGGERS MANDATORY TREE PROTECTION MEASURES. SEE TREE PROTECTION PLAN & CONTACT THE PALO ALTO URBAN FORESTRY DEPARTMENT. AT (650) 496-5953 WITH ANY QUESTIONS.
3. EXCAVATION ACTIVITIES ASSOCIATED WITH THE PROPOSED SCOPE OF WORK SHALL OCCUR NO CLOSER THAN 10-FEET FROM THE EXISTING STREET TREE, OR AS APPROVED BY THE URBAN FORESTRY DIVISION CONTACT 650-496-5953. ANY CHANGES SHALL BE APPROVED BY THE SAME.
4. PROJECT ARBORIST:
   KATHERINE NAEGELE
   KATHERINE@ANDERSONTREECARE.COM
   PHONE: (408) 590-5976
5. NO FEASIBLE GREEN SCREEN OPPORTUNITIES EXIST

NOTES:

1. METAL SURFACES REQUIRING PAINT TO BE PAINTED WITH A MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. ANY CONSTRUCTION WITHIN THE CITY'S PUBLIC ROAD RIGHT-OF-WAY SHALL HAVE AN APPROVED PERMIT FOR CONSTRUCTION IN THE PUBLIC STREET PRIOR TO COMMENCEMENT OF THIS WORK

TYPE 2

EXISTING BUILDING

APN: 003-32-061
737 CHANNING AVE

EXISTING BUILDING

EXISTING PARKING AREA

APN: 003-32-094
853 MIDDLEFIELD RD

EXISTING BUILDING

PROPERTY LINE

±58'-7" CLEARANCE TO NEAREST STRUCTURE

PROPERTY LINE

2" GALVANIZED POSTS @ ±10' TYP.

6' HIGH GALVANIZEDCHAIN-LINK FANCE OR APPROVED EQUAL

TREE #1

LINE OF CONSTRUCTION AREA

EXISTING CONCRETE PAVED AREA (GUTTER,CURB), TYP.

TREE PROTECTION ZONE BY ARBORIST REPORT

EXISTING COMM. VAULT

EXISTING ELECTRICAL VAULT, PROPOSED VERIZON POWER P.O.C., APPROX 20' FROM BASE OF POLE

TREE #2 REQUIRED PRUNING FOR WORKER ACCESS

EXISTING PLANTER WITH GRASS

EXISTING 58'-4" WIDE RZOE AREA AT FRONT-CENTER OF 175' WIDE LOT

PROPOSED VERIZON SM-6701 RADIO/ANTENNAS AND GPS WITHIN SHROUD, MOUNTED ATOP NEW STREET LIGHT POLE

EXISTING CPA ±20'-0" CITY LIGHT POLE #71, TO BE REMOVED AND REPLACED

PROPOSED TREE #3

±9'-9" TO ROW LINE

±20'-3" SETBACK TO C.L. OF R.O.W.

1 / A-2 ENLARGED SITE PLAN

TO FIBER P.O.C. PERMIT BY OTHERS

PROPERTY LINE

EXISTING BUILDING

EXISTING BUILDING

CHANNING AVE.

30'-0" HALF-WIDTH

60'-0" R.O.W. PER SANTA CLARA COUNTY ASSESSOR MAP - BOOK 120 PG. 03

30'-0" HALF-WIDTH

EXISTING R.O.W. EASEMENT

EXISTING BUILDING

EXISTING BUILDING

PROPERTY LINE

MIDDLEFIELD RD.

N
W E
S

SITE PLAN

24"x36" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205

PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE

SITE PLAN

SHEET NUMBER

A-1

EXISTING BUILDING

APN: 003-32-061
737 CHANNING AVE

EXISTING 43' 1" PE 12-18-2006

PROPERTY LINE

EXISTING BUILDING

APN: 003-32-094
853 MIDDLEFIELD RD

EXISTING 8 1" CU DEC-1987
1" CU AUG-2011

EXISTING 8" PE SEWER
1292 2017-APRIL-20

PROPERTY LINE

PROPOSED FIBER BOX, PERMIT BY OTHERS

1
A-1.7

PROPOSED VERIZON NEMA 6P AC DISCONNECT BOX

EXISTING PLANTER WITH GRASS

LINE OF CONSTRUCTION AREA

EXISTING PARKING AREA

PROPOSED STREET LIGHT BOX, BY VERIZON

PROPOSED ±30' VERIZON 2" UNDERGROUND PVC CONDUIT FOR POWER

EXISTING COMM. VAULT

EXISTING ELECTRICAL VAULT, PROPOSED VERIZON POWER P.O.C., APPROX 20' FROM BASE OF POLE

EXISTING 58'-4" WIDE RZOE AREA AT FRONT-CENTER OF 175' WIDE LOT

PROPOSED VERIZON SM-6701 RADIO/ANTENNAS AND GPS WITHIN SHROUD, MOUNTED ATOP NEW STREET LIGHT POLE

EXISTING CPA ±20'-0" CITY LIGHT POLE #71, TO BE REMOVED AND REPLACED

CHANNING AVE.

EXISTING BUILDING

EXISTING 40' 6" PE NOV-2014

EXISTING R.O.W. EASEMENT

PROPERTY LINE

MIDDLEFIELD RD.

EXISTING CONCRETE PAVED AREA (GUTTER,CURB), TYP.

EXISTING BUILDING

PROPERTY LINE

1
A-1.7

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

N
W E
S

EXISTING UTILITY SITE PLAN

24"x36" SCALE: 3/32" = 1'-0"
11"x17" SCALE: 3/64" = 1'-0"
8' 4' 0" 8'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
NISAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205

PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE

EXISTING UTILITY SITE PLAN

SHEET NUMBER

A-1.1

otajard, 2020-03-18 18:06:04
New Base Map Req (\\cc-maps\Encompass\Admin\Personal\otajard.mdb)

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Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
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REV	DATE	DESCRIPTION	
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B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
UTILITY PLAN
(FOR REFERENCE)

SHEET NUMBER
A-1.2

LOCATION MAP

24"x36" SCALE: 1" = 80'-0"
11"x17" SCALE: 1" = 160'-0"
80' 40' 0" 80'

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
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B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
LOCATION MAP

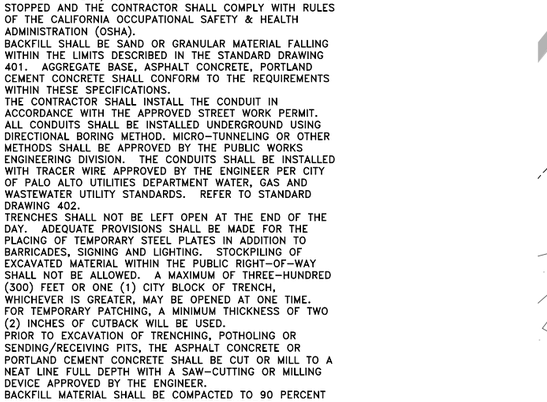
SHEET NUMBER
A-1.3

a. ALL WORK SHALL COMPLY WITH THE CITY OF PALO ALTO 2018 STANDARD DRAWINGS AND SPECIFICATIONS BORING, TRENCHING, POTHOLING AND DEWATERING, SECTION 17
b. THE LOCATION OF EXISTING UTILITY MAINS AND LATERAL LINES INCLUDING STORM DRAIN, SANITARY SEWER, WATER, GAS, UNDERGROUND ELECTRICAL AND COMMUNICATION CONDUITS CROSSING THE TRENCH EXCAVATION SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICES ALERT (USA) AT 811 OR 800-642-2444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING UNDERGROUND WORK SO THAT EXISTING UTILITIES CAN BE MARKED IN THE FIELD, UNLESS OTHERWISE STATED BY CITY CONTRACT.
c. EXCAVATION SHALL BE SUPPORTED AND EXCAVATION OPERATIONS CONDUCTED IN ACCORDANCE WITH THE RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA). IF IN THE OPINION OF THE ENGINEER, THERE EXISTS A SITUATION OF IMMINENT DANGER TO THE WORKERS, THE ENGINEER MAY ORDER THE WORK STOPPED AND THE CONTRACTOR SHALL COMPLY WITH RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA).
d. BACKFILL SHALL BE SAND OR GRANULAR MATERIAL FALLING WITHIN THE LIMITS DESCRIBED IN THE STANDARD DRAWING 401. AGGREGATE BASE, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS WITHIN THESE SPECIFICATIONS.
e. THE CONTRACTOR SHALL INSTALL THE CONDUIT IN ACCORDANCE WITH THE APPROVED STREET WORK PERMIT. ALL CONDUITS SHALL BE INSTALLED UNDERGROUND USING DIRECTIONAL BORING METHOD. MICRO-TUNNELING OR OTHER METHODS SHALL BE APPROVED BY THE PUBLIC WORKS ENGINEERING DIVISION. THE CONDUITS SHALL BE INSTALLED WITH TRACER WIRE APPROVED BY THE ENGINEER PER CITY OF PALO ALTO UTILITIES DEPARTMENT WATER, GAS AND WASTEWATER UTILITY STANDARDS. REFER TO STANDARD DRAWING 402.
f. TRENCHES SHALL NOT BE LEFT OPEN AT THE END OF THE DAY. ADEQUATE PROVISIONS SHALL BE MADE FOR THE PLACING OF TEMPORARY STEEL PLATES IN ADDITION TO BARRICADES, SIGNING AND LIGHTING. STOCKPILING OF EXCAVATED MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED. A MAXIMUM OF THREE-HUNDRED (300) FEET OR ONE (1) CITY BLOCK OF TRENCH, WHICHEVER IS GREATER, MAY BE OPENED AT ONE TIME. FOR TEMPORARY PATCHING, A MINIMUM THICKNESS OF TWO (2) INCHES OF CUTBACK WILL BE USED.
g. PRIOR TO EXCAVATION OF TRENCHING, POTHOLING OR SENDING/RECEIVING PITS, THE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE SHALL BE CUT OR MILL TO A NEAT LINE FULL DEPTH WITH A SAW-CUTTING OR MILLING DEVICE APPROVED BY THE ENGINEER.
h. BACKFILL MATERIAL SHALL BE COMPACTED TO 90 PERCENT MINIMUM RELATIVE COMPACTION EXCEPT THE TOP TWENTY-FOUR (24) INCHES, WHICH SHALL BE MECHANICALLY COMPACTED TO 95 PERCENT MINIMUM RELATIVE COMPACTION. MECHANICALLY COMPACTED LIFTS USING ALTERNATIVE EQUIPMENT, COMPLYING WITH MANUFACTURE'S SPECIFICATION, WILL REQUIRE THE APPROVAL OF THE ENGINEER. USE OF ALTERNATIVE COMPACTION EQUIPMENT SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY DAMAGE TO THE CONDUIT, SURROUNDING GROUND, OR EXISTING AND NEW IMPROVEMENTS.

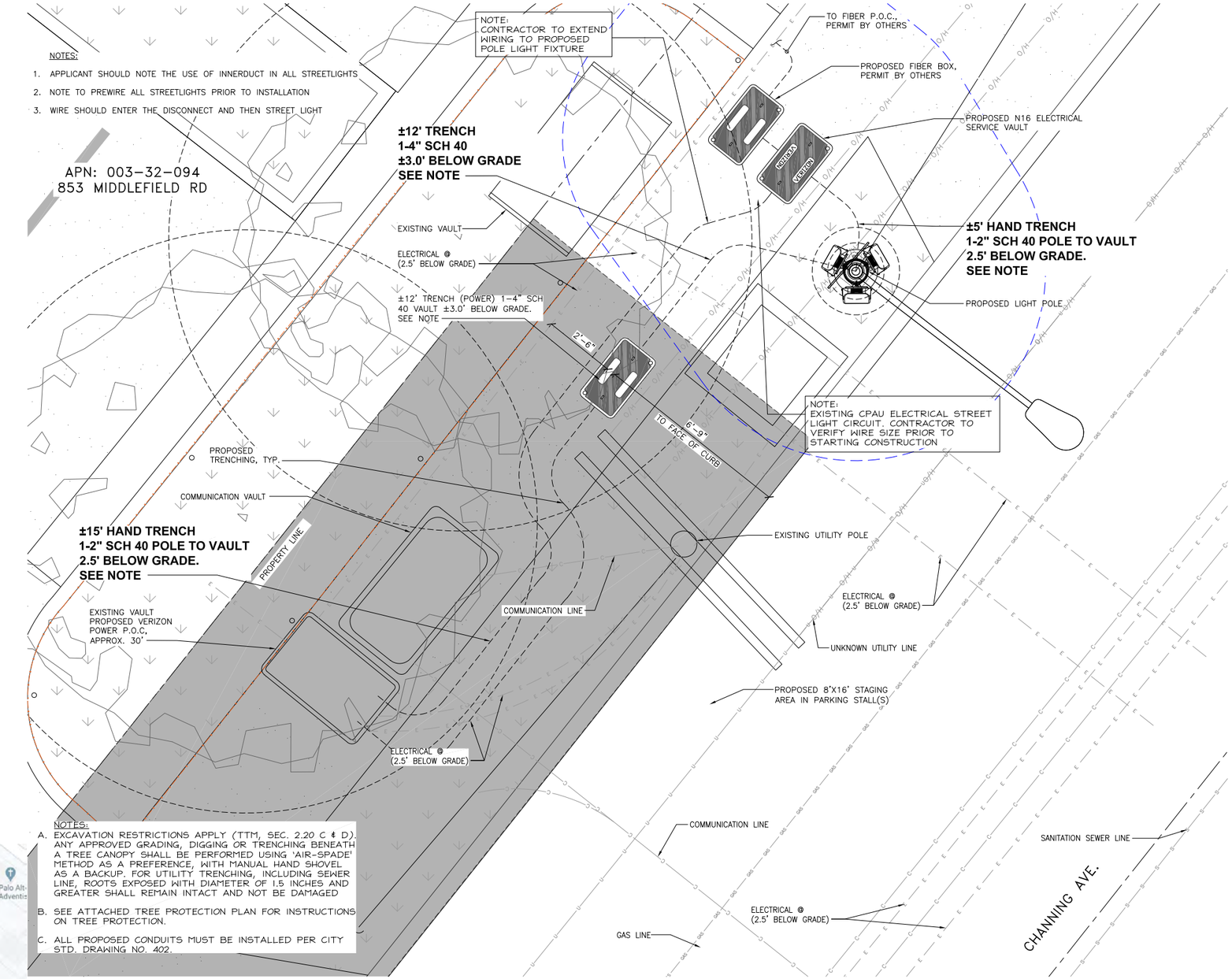
2 NOTES

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.



VICINITY MAP



1 LIGHT POLE

1 inch = 2ft.

2' 1' 0" 2'

NOTE:

ALL PROPOSED POWER RUNS TO MAINTAIN A MIN. 2' CLR. ALL AROUND AS REQUIRED BY CPAU

PROJECT SPECIFIC PERMIT INFORMATION		
DESCRIPTION	QTY	UNIT
PLACE (1) 4" SCH 40 CONDUIT	13	LF
PLACE (1) 2" SCH 40 CONDUIT	10	LF
REMOVE AND RESTORE SOIL	128	FT³

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Know what's below. Call before you dig.
California and Nevada
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N W E S

LEGEND

U.G. UTILITY VAULT	BOL	BOLLARD	FL	FLOW LINE	WATER
MANHOLE	TOP _	TOP OF ITEM	EOP	EDGE OF PAVEMENT	SANITARY SEWER
UTILITY POLE	BOT _	BOTTOM OF ITEM	R.O.W.	RIGHT OF WAY	STORM DRAIN
SPOT ELEVATION	BLDG	TOP OF BUILDING	AP	ASPHALT	GAS
WATER VALVE	LP	LIGHT POLE	SW	SIDEWALK	COMMUNICATION
FOUND MONUMENT		LIMITS OF PROPERTY		OVERHEAD LINE	ELECTRIC
GEODETIC MARKER		CHAIN LINK FENCE		METAL FENCE	UNKNOWN UTILITY
MASONRY WALL		WOOD FENCE		GRADE BREAK	IRRIGATION

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2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
1	04/09/2021	UPDATE PER CPAU WALK	DW
0	08/17/2020	FINAL BORING PLAN	SS
A	08/14/2020	PRELIMINARY BORING PLAN	SS

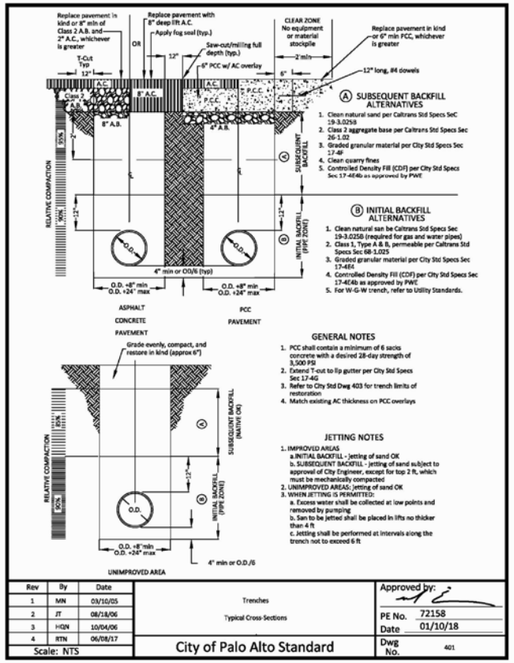
REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

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

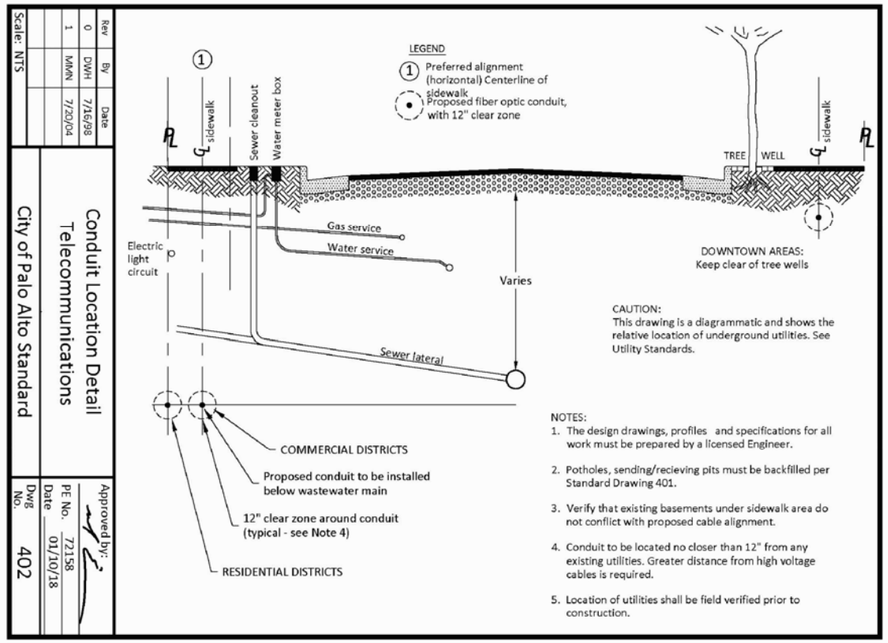
SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
BORING/UNDERGROUND UTILITY PLAN

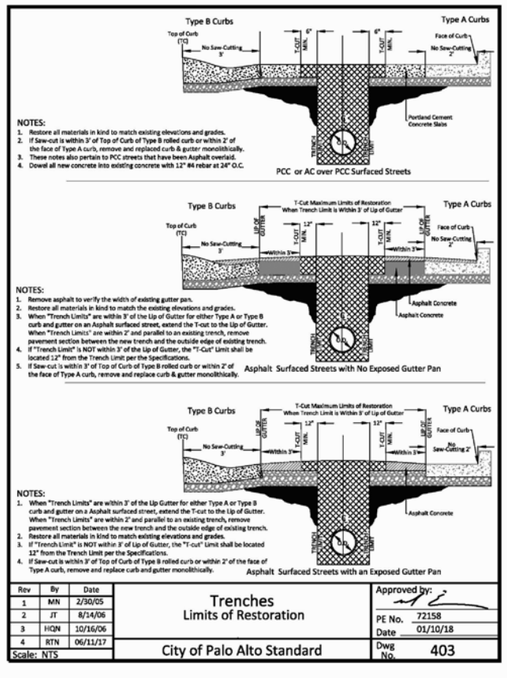
SHEET NUMBER
A-1.4



5 CITY STANDARD DWG 401
N.T.S.



3 CITY STANDARD DWG 402
N.T.S.



4 CITY STANDARD DWG 403
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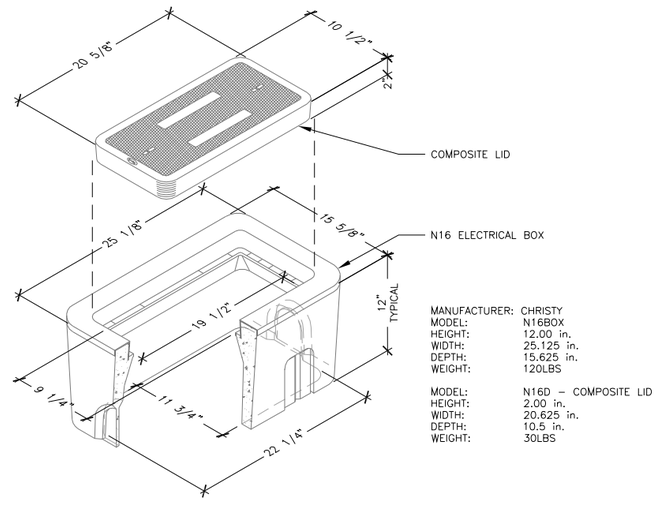
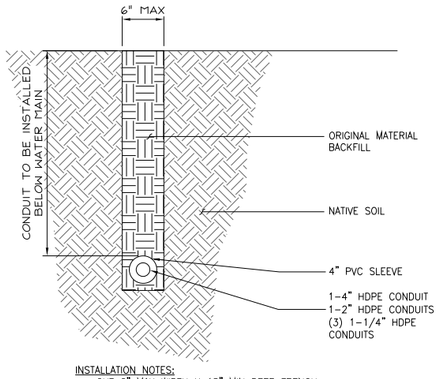


2 CHRISTY N16 ELECTRICAL BOX
N.T.S.



1 IN DIRT – PRIVATE
N.T.S.

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
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OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
1	04/09/2021	UPDATE PER CPAU WALK	DW
0	08/17/2020	FINAL BORING PLAN	SS
A	08/14/2020	PRELIMINARY BORING PLAN	SS

REGISTERED PROFESSIONAL ENGINEER
WASAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
CITY STANDARDS & DETAILS

SHEET NUMBER
A-1.5

- Grade fills over 6-inches or impervious overlay shall incorporate an approved permanent aeration system, permeable material or other approved mitigation.
- Grade cuts exceeding 4-inches shall incorporate retaining walls or an appropriate transition equivalent.

notes:

Required Practices

C. Trenching, Excavation and Equipment Use

Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the *City Arborist*. *(See Restriction Zones for Excavation, Trenching or Boring Near Regulated Trees, Image 2.20-1 through 2.20-3)*. Mitigating measures shall include prior notification to and direct supervision by the *project arborist*.

1. Notification. Contractor shall notify the *project arborist* a minimum of 24 hours in advance of the activity in the TPZ.
2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired (*see Root Injury, Section 2.25 A-1*). Roots 2-inches and greater must remain injury free.
3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.
   - If excavation or *trenching* for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.
   - Prior to excavation for foundation/footings/walls, grading or *trenching* within the TPZ, roots shall first be severed cleanly 1-foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw, sawzall, narrow trencher with sharp blades or other approved root pruning equipment.
4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the *City Arborist*. If allowed, a protective *root buffer* (*see Root Buffer and Damage to Trees, Section 2.25.A-1*) is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.
   - Structural design. If injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to *City Arborist* approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

- Basement excavations shall be designed outside the TPZ of all *protected* and *designated trees* (*see Excavation, Section 2.20-3*) and shall not be harmful to other mature or neighboring property trees.

notes:

Required Practices

D. Tunneling & Directional Drilling

If *trenching* or pipe installation has been approved within the TPZ, then the trench shall be either cut by hand, air-spade, hydraulic vac-on excavation or, by mechanically boring the tunnel under the roots with a horizontal directional drill and hydraulic or pneumatic air excavation technology. In all cases, install the utility pipe immediately, backfill with soil and soak within the same day. Installation of private utility improvements shall be tunnel bored beneath the tree and roots per *Trenching Tunneling & Distance Matrix* In Table 2-1.

TABLE 2-1
Trenching & Tunneling Distance

TRENCHING DISTANCE

When the Tree Diameter At 4.5 Ft Is:	Trenching will be Replaced with Boring at this Minimum Distance (10x tree dia.) from the Face of the Tree in any Direction:
6-9" Measured At 6" à	6-9'
10-14" Measured At 54" à	10-14'
15-19" Measured At 54" à	15-19'
Over 19" Measured At 54" à	20' +

DEPTH OF TUNNELING

Tree Diameter	Depth of Tunneling
9" Or Less Measured At 6" à	2.5'
10-14" Measured At 54" à	3.0'
15-19" Measured At 54" à	3.5'
More Than 19" Measured At 54" Depth of Tunnel à	4.0'

Bore Pits Shall Be Located At A Minimum Distance As Specified By The Trenching Distance Table Above.

1. Public Utilities
   Underground public utility improvements or repairs shall be performed in accordance with the *Utility Standards for Excavation, Trenching or Boring, Section 02200.309*; and per *Restriction Zones Near Regulated Trees (see Images 2.20-1 through 2.20-3)*.
2. Street Trees
   Exclusions for *street trees* in the publicly owned right-of-way (ROW).
   - *Street Trees* that are in conflict with utility infrastructure where the conflict cannot be resolved may be removed if approved by Public Works Operations (e.g., a tree planted directly on top of a damaged sewer lateral.)

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
1	04/09/2021	UPDATE PER CPAU WALK	DW
0	08/17/2020	FINAL BORING PLAN	SS
A	08/14/2020	PRELIMINARY BORING PLAN	SS

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

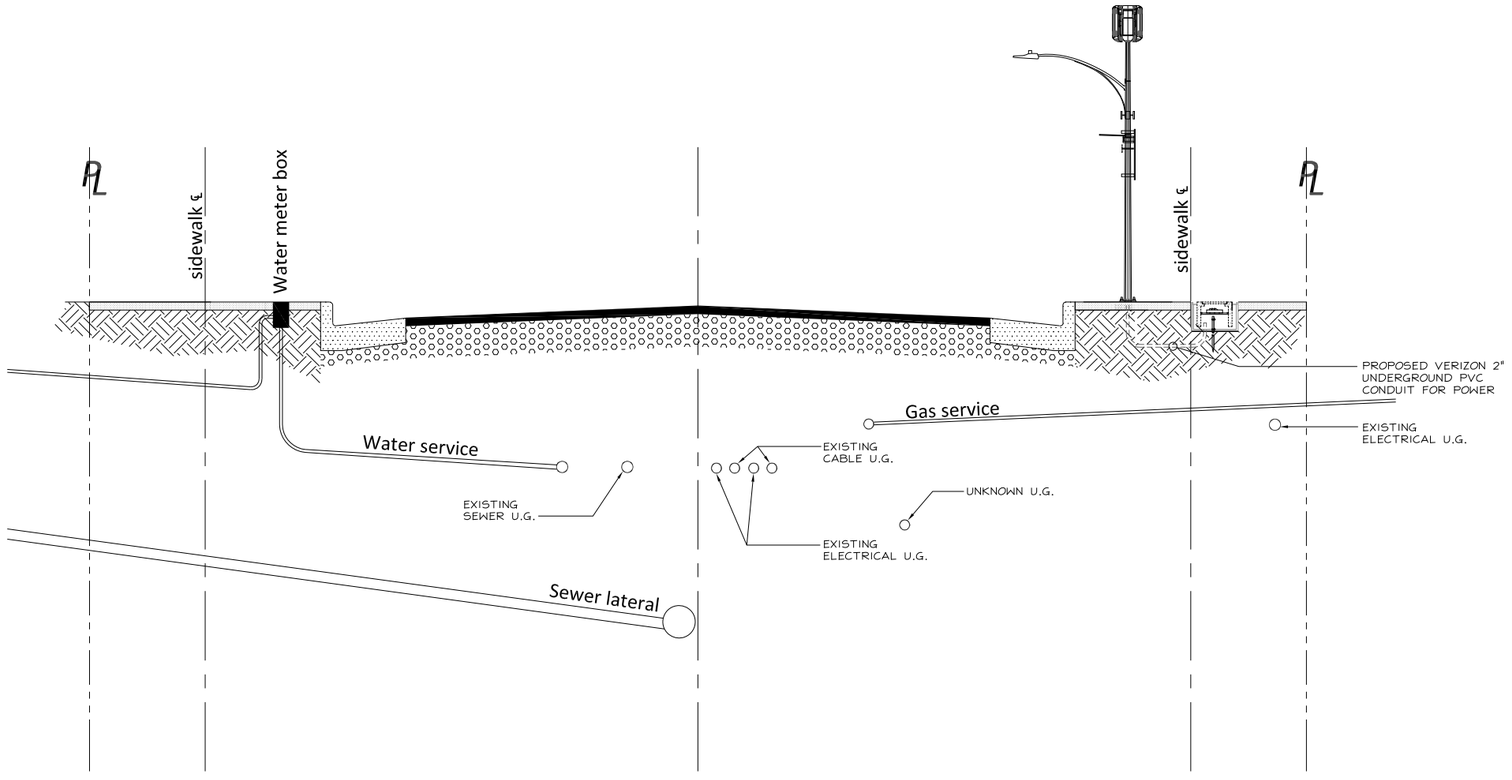
SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
CITY STANDARDS
& DETAILS

SHEET NUMBER
A-1.6

1. ALL WORK SHALL COMPLY WITH THE CITY OF PALO ALTO 2018 STANDARD DRAWINGS AND SPECIFICATIONS BORING, TRENCHING, POTHOLING AND DEWATERING, SECTION 17
2. THE LOCATION OF EXISTING UTILITY MAINS AND LATERAL LINES INCLUDING STORM DRAIN, SANITARY SEWER, WATER, GAS, UNDERGROUND ELECTRICAL AND COMMUNICATION CONDUITS CROSSING THE TRENCH EXCAVATION SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICES ALERT (USA) AT 811 OR 800-642-2444 AT LEAST FIVE (5) WORKING DAYS PRIOR TO BEGINNING UNDERGROUND WORK SO THAT EXISTING UTILITIES CAN BE MARKED IN THE FIELD, UNLESS OTHERWISE STATED BY CITY CONTRACT.
3. EXCAVATION SHALL BE SUPPORTED AND EXCAVATION OPERATIONS CONDUCTED IN ACCORDANCE WITH THE RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA). IF IN THE OPINION OF THE ENGINEER, THERE EXISTS A SITUATION OF IMMINENT DANGER TO THE WORKERS, THE ENGINEER MAY ORDER THE WORK STOPPED AND THE CONTRACTOR SHALL COMPLY WITH RULES OF THE CALIFORNIA OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA).
4. BACKFILL SHALL BE SAND OR GRANULAR MATERIAL FALLING WITHIN THE LIMITS DESCRIBED IN THE STANDARD DRAWING 401. AGGREGATE BASE, ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE SHALL CONFORM TO THE REQUIREMENTS WITHIN THESE SPECIFICATIONS.
5. THE CONTRACTOR SHALL INSTALL THE CONDUIT IN ACCORDANCE WITH THE APPROVED STREET WORK PERMIT. ALL CONDUITS SHALL BE INSTALLED UNDERGROUND USING DIRECTIONAL BORING METHOD. MICRO-TUNNELING OR OTHER METHODS SHALL BE APPROVED BY THE PUBLIC WORKS ENGINEERING DIVISION. THE CONDUITS SHALL BE INSTALLED WITH TRACER WIRE APPROVED BY THE ENGINEER PER CITY OF PALO ALTO UTILITIES DEPARTMENT WATER, GAS AND WASTEWATER UTILITY STANDARDS. REFER TO STANDARD DRAWING 402.
6. TRENCHES SHALL NOT BE LEFT OPEN AT THE END OF THE DAY. ADEQUATE PROVISIONS SHALL BE MADE FOR THE PLACING OF TEMPORARY STEEL PLATES IN ADDITION TO BARRICADES, SIGNING AND LIGHTING. STOCKPILING OF EXCAVATED MATERIAL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED. A MAXIMUM OF THREE-HUNDRED (300) FEET OR ONE (1) CITY BLOCK OF TRENCH, WHICHEVER IS GREATER, MAY BE OPENED AT ONE TIME. FOR TEMPORARY PATCHING, A MINIMUM THICKNESS OF TWO (2) INCHES OF CUTBACK WILL BE USED.
7. PRIOR TO EXCAVATION OF TRENCHING, POTHOLING OR SENDING/RECEIVING PITS, THE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE SHALL BE CUT OR MILL TO A NEAT LINE FULL DEPTH WITH A SAW-CUTTING OR MILLING DEVICE APPROVED BY THE ENGINEER.
8. BACKFILL MATERIAL SHALL BE COMPACTED TO 90 PERCENT MINIMUM RELATIVE COMPACTION EXCEPT THE TOP TWENTY-FOUR (24) INCHES, WHICH SHALL BE MECHANICALLY COMPACTED TO 95 PERCENT MINIMUM RELATIVE COMPACTION. MECHANICALLY COMPACTED LIFTS USING ALTERNATIVE EQUIPMENT, COMPLYING WITH MANUFACTURE'S SPECIFICATION, WILL REQUIRE THE APPROVAL OF THE ENGINEER. USE OF ALTERNATIVE COMPACTION EQUIPMENT SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ANY DAMAGE TO THE CONDUIT, SURROUNDING GROUND, OR EXISTING AND NEW IMPROVEMENTS.

2 NOTES



1 R.O.W SECTION
NTS

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

USA North 811
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
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Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WASAW ZALZALI
71655
STATE OF CALIFORNIA
CIVIL

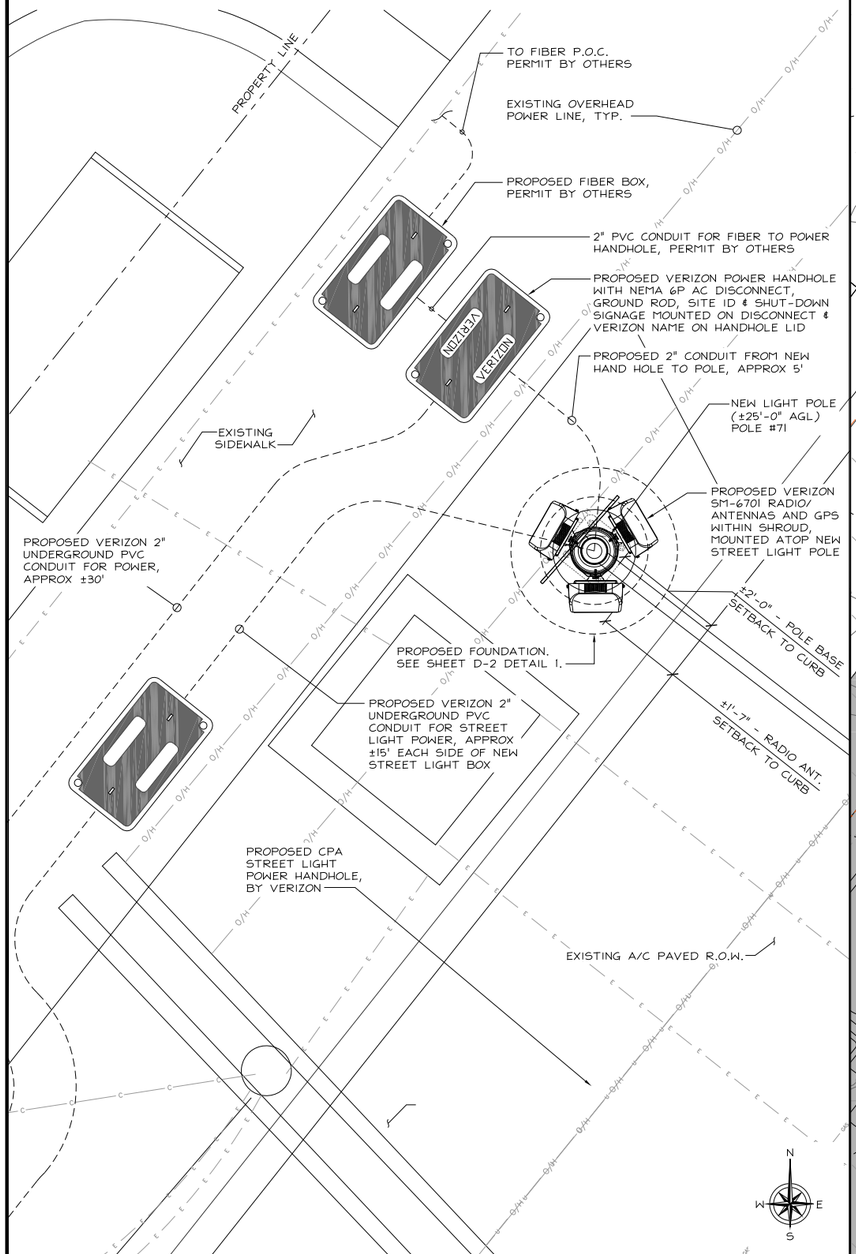
SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
R.O.W. SECTION

SHEET NUMBER
A-1.7

NOTES:

1. METAL SURFACES REQUIRING PAINT TO BE PAINTED MUNSELL GREEN.
2. THE CONTRACTOR MAY BE REQUIRED TO SUBMIT A LOGISTICS PLAN TO THE PUBLIC WORKS DEPARTMENT PRIOR TO COMMENCING WORK THAT ADDRESSES ALL IMPACTS TO THE CITY'S RIGHT-OF-WAY, INCLUDING, BUT NOT LIMITED TO: PEDESTRIAN CONTROL, TRAFFIC CONTROL, TRUCK ROUTES, MATERIAL DELIVERIES, CONTRACTOR'S PARKING, CONCRETE POURS, CRANE LIFTS, WORK HOURS, NOISE CONTROL, DUST CONTROL, STORM WATER POLLUTION PREVENTION, CONTRACTOR'S CONTACT, NOTICING OF AFFECTED SURROUNDING PROPERTIES , AND SCHEDULE OF WORK. THE REQUIREMENT TO SUBMIT A LOGISTICS PLAN WILL BE DEPENDENT ON THE NUMBER OF APPLICATIONS PUBLIC WORKS ENGINEERING RECEIVES WITHIN CLOSE PROXIMITY TO HELP MITIGATE AND CONTROL THE IMPACT TO THE PUBLIC-RIGHT-OF-WAY. IF NECESSARY, PUBLIC WORKS MAY REQUIRE A LOGISTICS PLAN DURING CONSTRUCTION.
3. TREES MAY NOT BE PLANTED WITHIN 10 FEET OF EXISTING WATER, GAS OR WASTEWATER MAINS/SERVICES OR METERS; LESSER DISTANCES REQUIRE A PERMANENT IMPERMEABLE ROOT-BARRIER A MINIMUM OF 3' HORIZONTAL FROM WATER, GAS AND WASTEWATER SERVICES/MAINS/METERS.



ENLARGED SITE PLAN

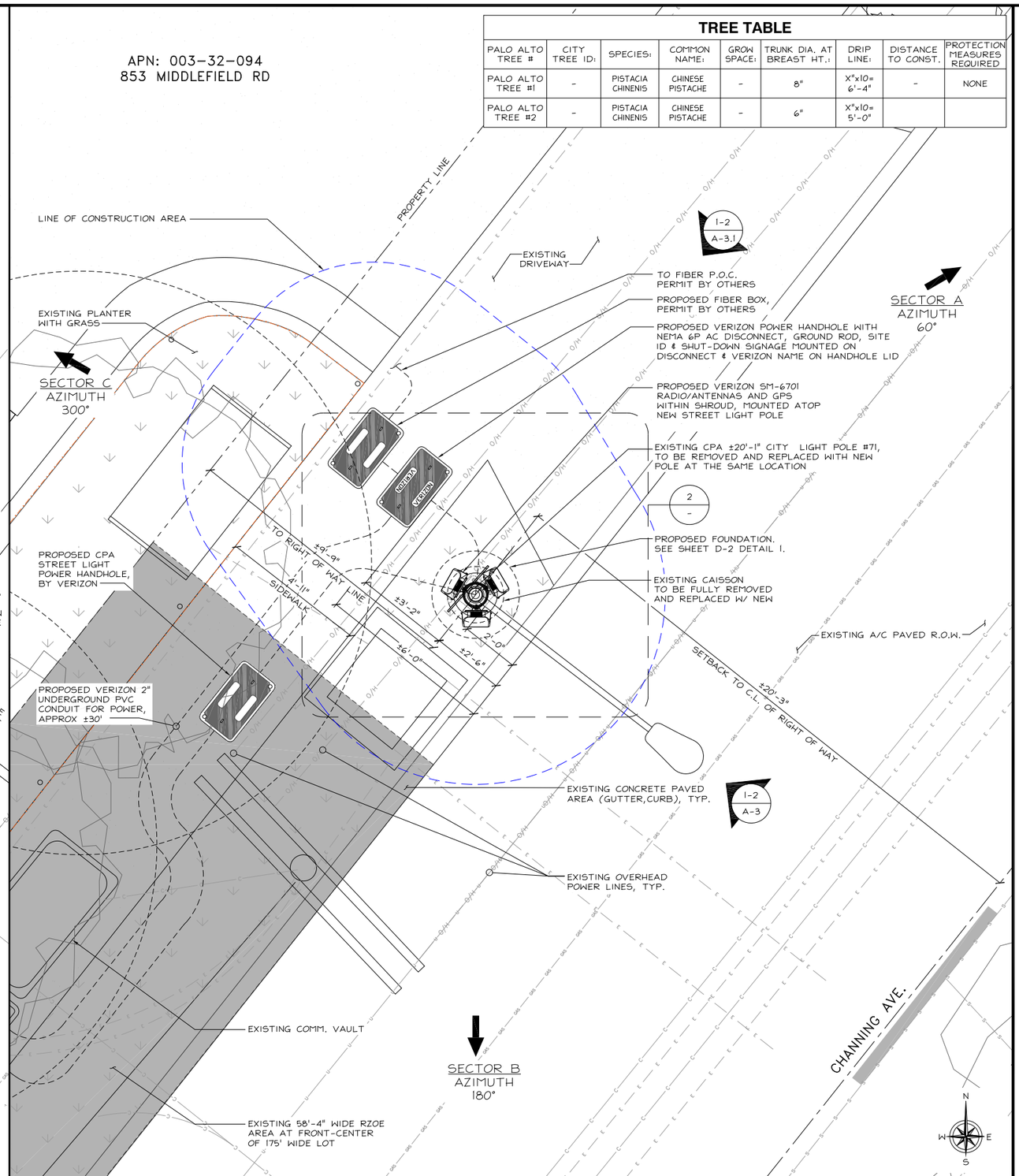
24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

2

APN: 003-32-094
853 MIDDLEFIELD RD

TREE TABLE

PALO ALTO TREE #	CITY TREE ID:	SPECIES:	COMMON NAME:	GROW SPACE:	TRUNK DIA. AT BREAST HT.:	DRIP LINE:	DISTANCE TO CONST.	PROTECTION MEASURES REQUIRED
PALO ALTO TREE #1	-	PISTACIA CHINENIS	CHINESE PISTACHE	-	8"	X"x10= 6'-4"	-	NONE
PALO ALTO TREE #2	-	PISTACIA CHINENIS	CHINESE PISTACHE	-	6"	X"x10= 5'-0"		



ENLARGED SITE PLAN

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
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4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
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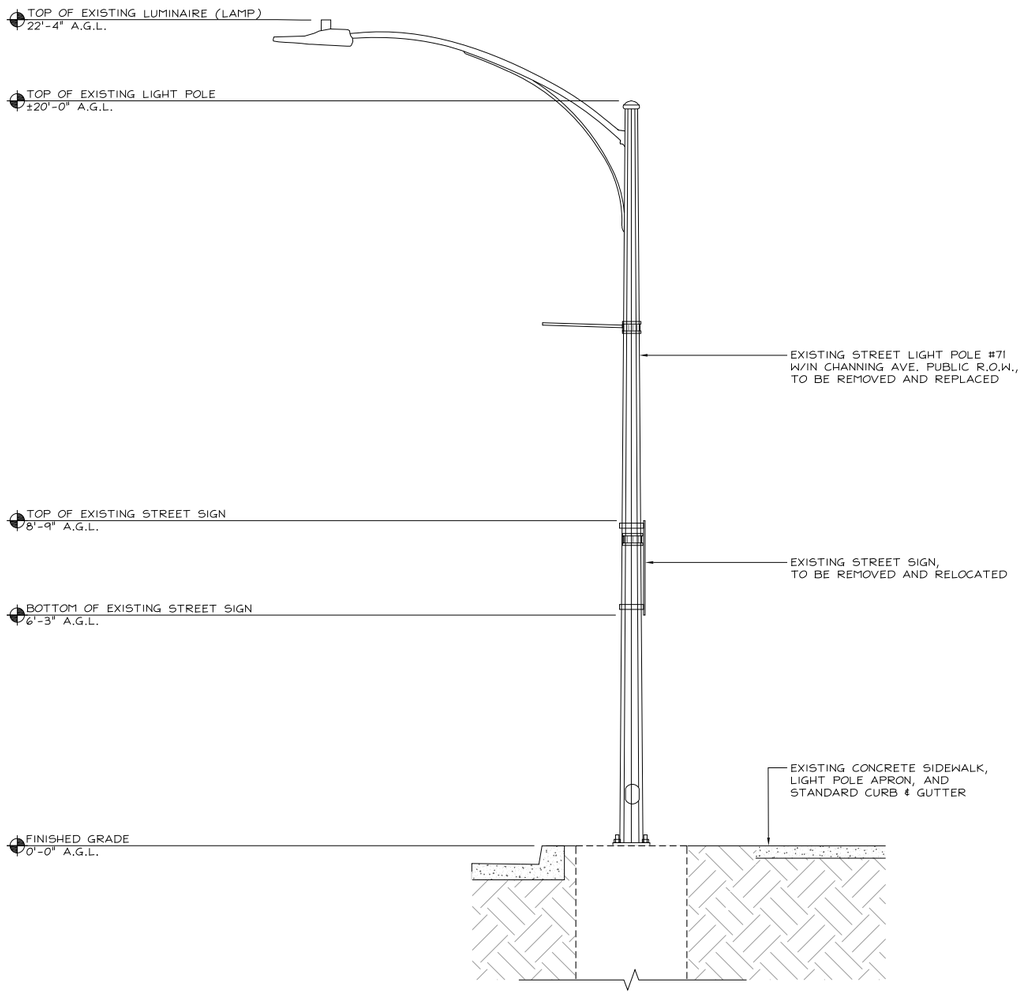
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
NISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER
A-2



EXISTING NORTHEAST ELEVATION

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

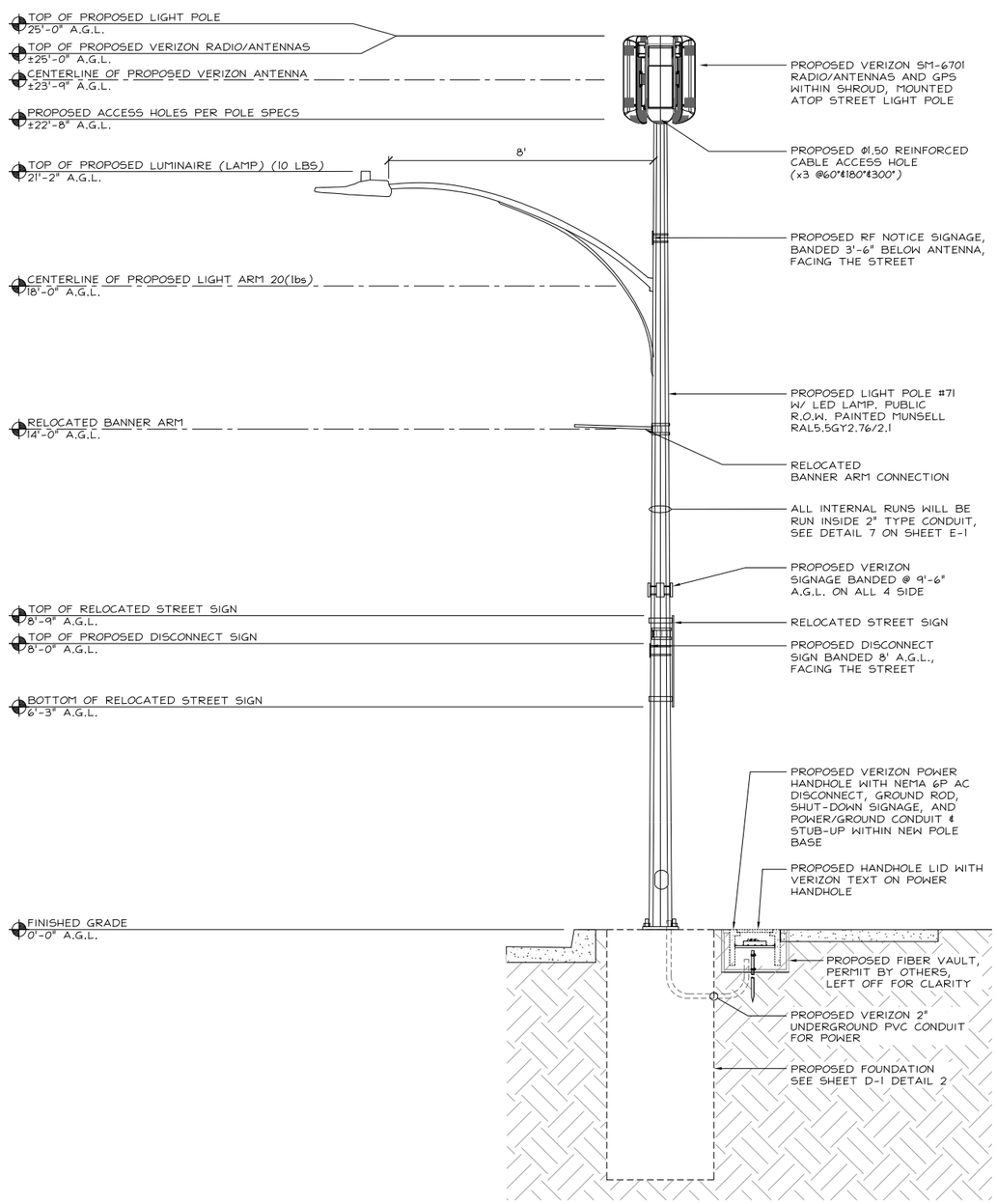
2

NOTES:

1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1 OR WRAPPED AS ALLOWED BY THE MANUFACTURER.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANETNNA/SHROUD VOLUME (CU. FT.)

MODEL	TOTAL	TOTAL VOLUME (CU. FT.)
COMPTEK	3	±2.55



PROPOSED NORTHEAST ELEVATION

24"x36" SCALE: 1/2" = 1'-0"
11"x17" SCALE: 1/4" = 1'-0"
2' 1' 0" 2'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

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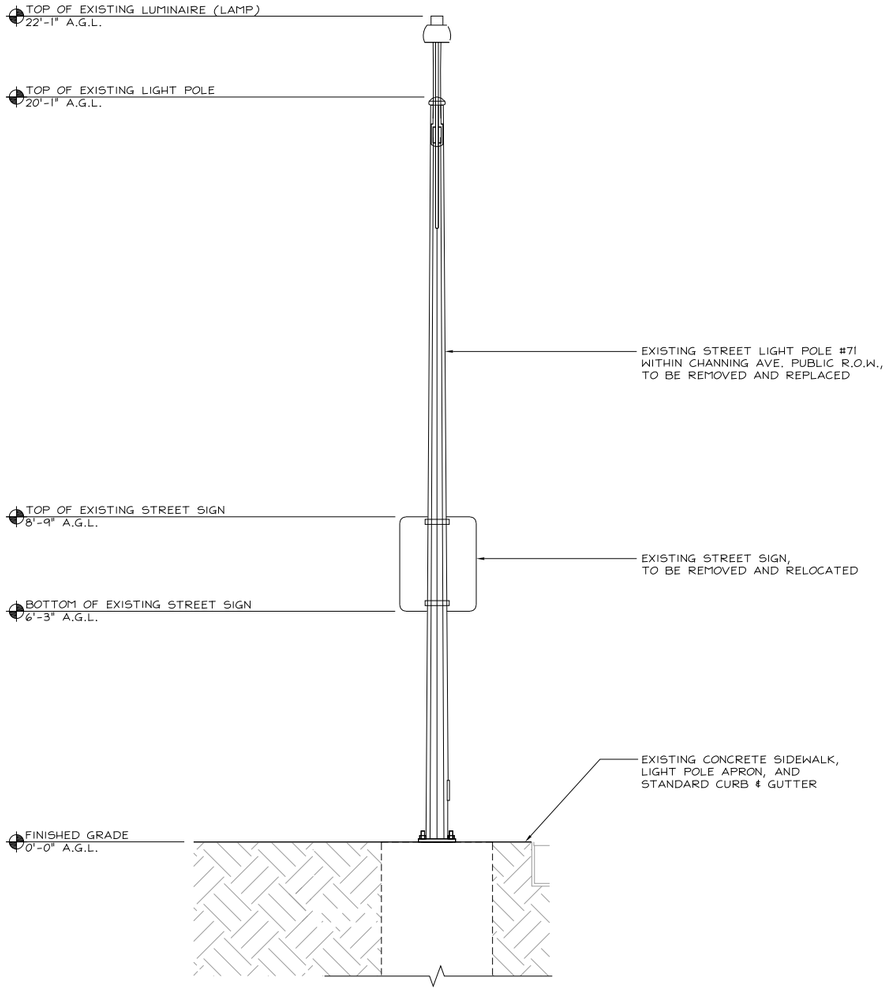
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
ELEVATIONS

SHEET NUMBER
A-3



EXISTING SOUTHEAST ELEVATION

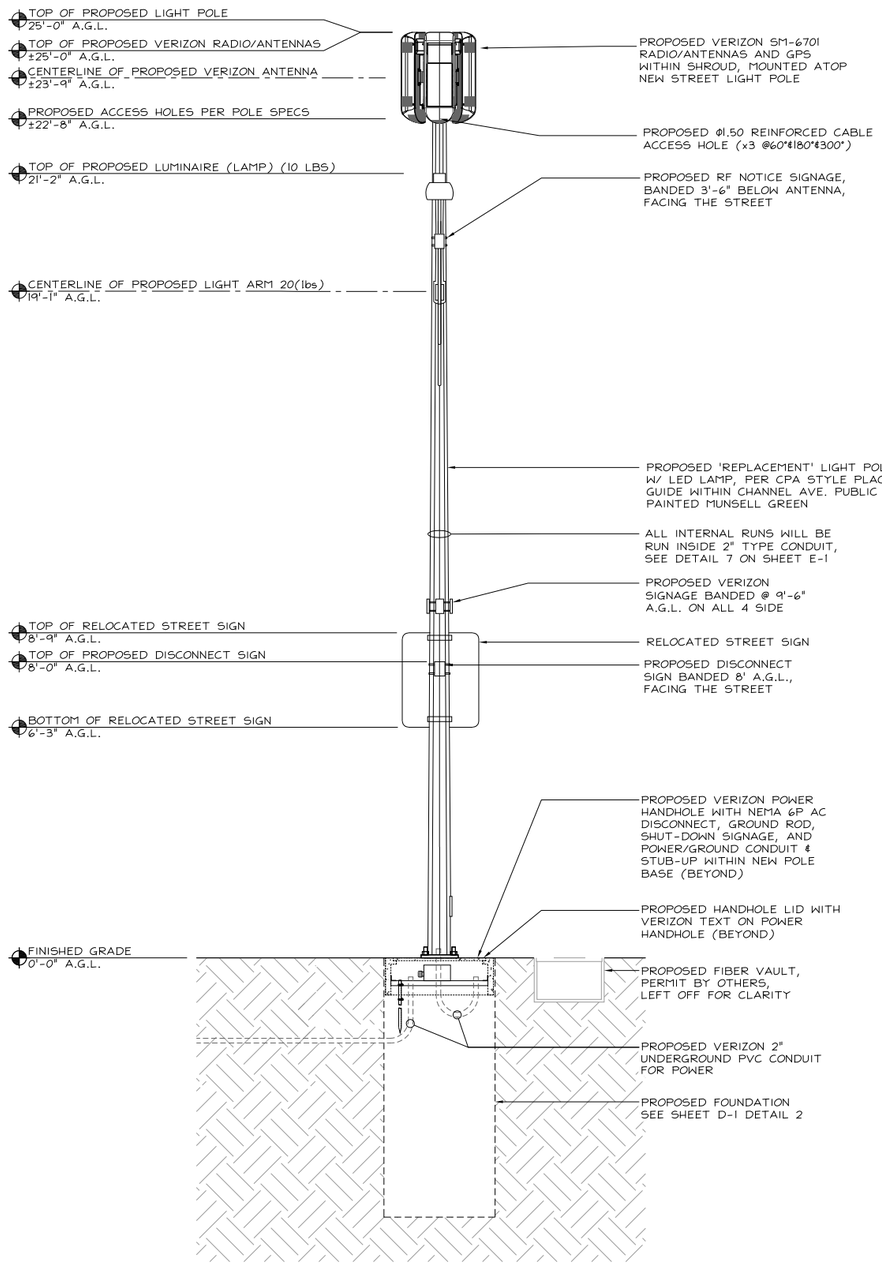
24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
4' 3' 2' 1' 0" 4'

2

NOTES:

1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1 OR WRAPPED AS ALLOWED BY THE MANUFACTURER.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANETNNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL	TOTAL VOLUME (CU. FT.)
COMPTEK	3	±2.55



PROPOSED SOUTHEAST ELEVATION

24"x36" SCALE: 1/4" = 1'-0"
11"x17" SCALE: 1/8" = 1'-0"
4' 3' 2' 1' 0" 4'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
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Vinculums
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A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

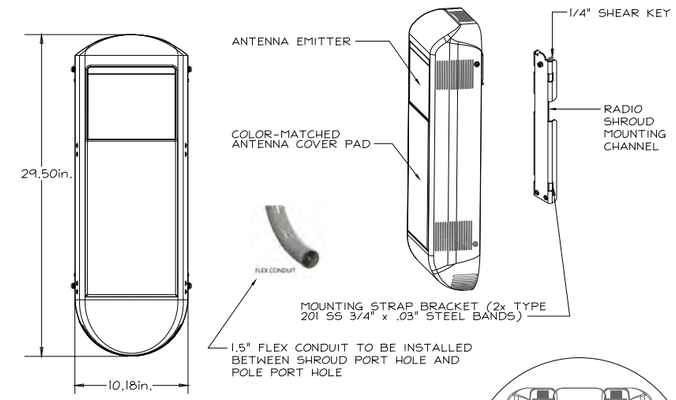
SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
ELEVATIONS

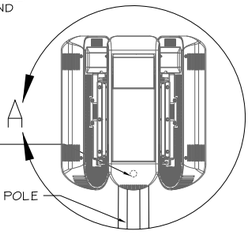
SHEET NUMBER
A-3.1

ERICSSON 6701 POLE ATTACHMENT SHROUD (OR APPROVED EQUAL)

NOTES:
1. FULL SHROUD PAINTABLE TO MATCH COLOR OF EXISTING STRUCTURE.
2. COLOR-MATCHED 3M FILM TO BE APPLIED TO ANTENNA EMITTER FACE.
3. SHROUD DRY WEIGHT = 18 LBS.
4. TOTAL WEIGHT INCLUDING ANTENNA = 49LBS.
5. ANTENNA/SHROUD VOLUME = 0.85 CU.FT. (EACH)



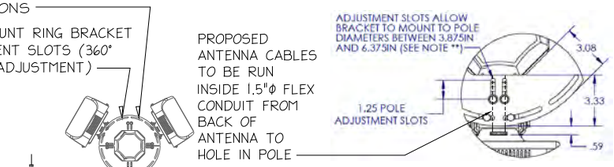
DETAIL A (SECTOR 1 RADIO HIDDEN FOR CLARITY)



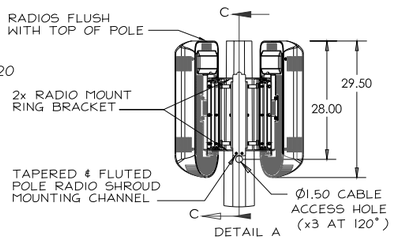
BRACKET ID & OD DEPENDENT ON POLE DIMENSIONS

RADIO MOUNT RING BRACKET ADJUSTMENT SLOTS (360° AZIMUTH ADJUSTMENT)

PROPOSED ANTENNA CABLES TO BE RUN INSIDE 1.5"Φ FLEX CONDUIT FROM BACK OF ANTENNA TO HOLE IN POLE

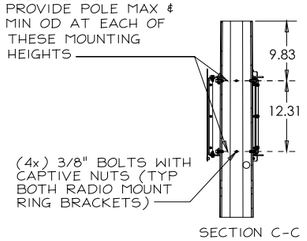


DETAIL B



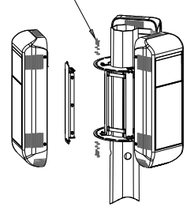
DETAIL A

POLE VENDOR TO PROVIDE POLE MAX & MIN OD AT EACH OF THESE MOUNTING HEIGHTS



SECTION C-C

(4x) 0.25in BOLTS (TYP EACH ANTENNA SHROUD)



SM6701 SHROUD & MOUNTING DETAILS

24"x36" SCALE: NTS
11"x17" SCALE: NTS

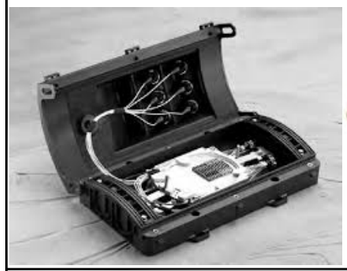
7

PREFORMED LINE PRODUCTS

COYOTE TERMINAL CLOSURE (FIBER DEMARCATION UNIT)

- DIMENSIONS: 18.76"L x 9.70"W x 5.13"D
- WEIGHT: N/A

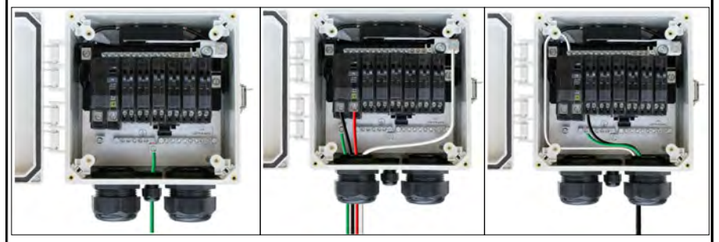
OR VERIZON APPROVED EQUAL



FIBER DEMARCATION UNIT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

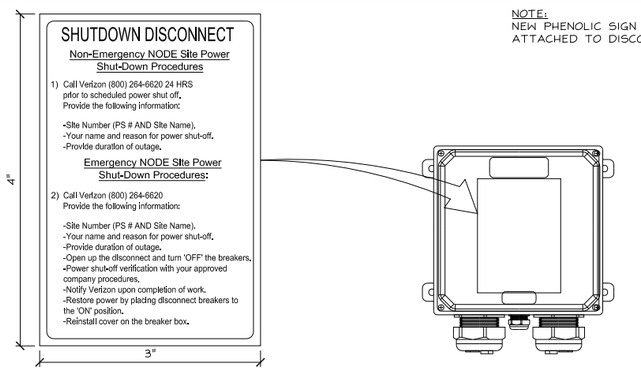
6



GROUND | AC POWER "IN" | AC POWER "OUT"

AC POWER DISCONNECT WIRE DIAGRAM

5



NOTE:
NEW PHENOLIC SIGN TO BE ATTACHED TO DISCONNECT

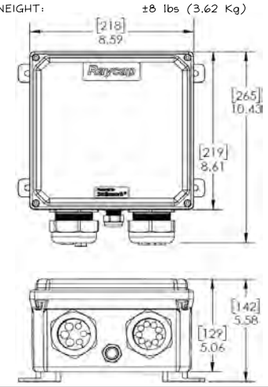
SHUTDOWN SIGN ON DISCONNECT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

4

Raycap RSCAC-1333-PH-240 AC POWER DISCONNECT (OR APPROVED EQUAL)

- DIMENSIONS: 10.43"L x 8.59"W x 5.06"D
- WEIGHT: ±8 lbs (3.62 Kg)



RSCAC-1333-PH-240

NEMA 6P AC POWER DISCONNECT

24"x36" SCALE: NTS
11"x17" SCALE: NTS

3

CONTRACTOR NOTE:
- SITE ID WILL BE SWITCH #, SITE # AND SITE NAME.
- NODE NUMBER WILL BE MARKET#-NODE.B#-SMALL CELL NAME.

NOTE:
INSTALL EME NOTICE SIGN 3' BELOW STREET MACRO UNITS.

GO95 RF SIGNAGE

24"x36" SCALE: NTS
11"x17" SCALE: NTS

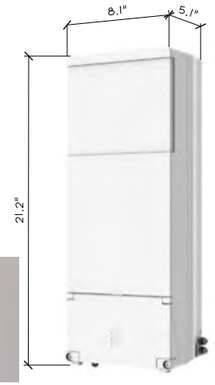
2

ERICSSON STREET MACRO 6701

- DIMENSION W/ PROTRUDING ITEMS INCL GPS ANT: 21.2"H x 8.1"W x 5.1"D
- TOTAL RADIO AREA (CU. IN.): 875.77 CU. IN.
- WEIGHT: ±31 lbs

RADIO AREA (CU. FT.)			
RADIO MODEL	TOTAL RADIO(S)	TOTAL RADIO AREA (CU. IN.)	TOTAL RADIO AREA (CU. FT.)
MACRO 6701	1	875.77 CU. IN.	0.51 CU. FT.

NEW GPS ATTACHED ON TOP OF SM 6701 (PRE INSTALLED BY MANUFACTURER) (1) TOTAL (MAX. MEASUREMENTS WILL NOT EXCEED)



STREET MACRO 6701

24"x36" SCALE: NTS
11"x17" SCALE: NTS

1

verizon

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums

575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING

23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

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

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
DETAILS

SHEET NUMBER
D-1

Verizon Wireless • Proposed Small Cells
Four Pole Locations • Palo Alto, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a wireless telecommunications carrier, to evaluate the addition of small cells in its network in Palo Alto, California, for compliance with municipal limits on sound levels from the installations.

Executive Summary

Verizon proposes to install antennas and equipment on four light poles sited in the public right-of-way in Palo Alto. Noise from the proposed operations will comply with the City's pertinent noise limits.

Prevailing Standard

The City of Palo Alto adopted in April 2019 an amendment to Section 18.42.110 (Wireless Communication Facilities) of its Municipal Code, which sets limits at residential areas for Wireless Communication Facilities ("WCF") installed in public rights-of-way on wood utility poles and on streetlight poles. Noise at the nearest residential property line is limited to an increase of 5 dBA over existing ambient levels, if the ambient noise level would remain below 60 dBA L_{dn}, or to an increase of 3 dBA, otherwise. The composite "day-night" average L_{dn} incorporates a 10 dBA penalty during nighttime hours (10 pm to 7 am), to reflect typical residential conditions, where noise is more readily heard at night. By definition, sound from a continuous noise source will be 6.4 dBA higher when expressed in L_{dn}.

It is noted that the amended language also references Chapter 9.10 of the Code, which had set a more relaxed increase of 15 dBA for such WCF sitings, assessed at 25 feet from the pole. It is assumed for this study that the minimum reference ambient level is 40 dBA, as defined in Chapter 9.10.

A summary of noise assessment and calculation methodologies is shown in Figure 1.

General Facility Requirements

Wireless telecommunications facilities ("cell sites") typically consist of two distinct parts: the electronic base transceivers (also called "radios"), that are connected to traditional wired telephone lines, and the antennas, that send wireless signals created by the radios out to be received by individual subscriber units. The radios are typically located on or at the base of the pole and are connected to the antennas by cables. Some radios require fans to cool the electronics inside. Some radios are integrated with the antennas as a single unit.

Verizon Wireless • Proposed Small Cells
Four Pole Locations • Palo Alto, California

Site & Facility Description

According to information provided by Verizon, that carrier proposes to install up to three Ericsson Model 6701 antennas, with integrated radios, on top of the light pole at each of the four locations listed in Table 1.

Study Results

Ericsson reports that the maximum noise level from three Model 6701 units is 39.5 dBA,* at a reference distance of 5 feet. At the minimum ambient level of 40 dBA, in order for the increase above ambient to remain below 5 dBA, the equipment configuration described above would need to be sited at least 3½ feet the nearest residential property line. If the measured ambient is found to be above 40 dBA, this distance, by definition, would decrease. **All the proposed small cells in Table 1 meet this distance requirement.**

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of these Verizon Wireless small cells in Palo Alto will, under the conditions noted above, comply with the municipal standards limiting acoustic noise emission levels.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2021. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

William F. Hammett, P.E.
707/996-5200

REGISTERED PROFESSIONAL ENGINEER WILLIAM F. HAMMETT E-13026 M-20676 Exp. 6-30-2021 ELECTRICAL MECHANICAL STATE OF CALIFORNIA

September 1, 2020

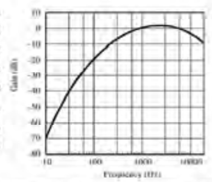
Small Cell #	Approximate Address	Distance to Property Line
SF Palo Alto 061	1221 Middlefield Road	6 feet
SF Palo Alto 203	519 Webster Street	9
SF Palo Alto 204	850 Webster Street	9
SF Palo Alto 205	853 Middlefield Road	9

Table 1. Proposed Verizon small cells

* Adjusted value based on manufacturer data, to reflect record high temperature of 107°F in Palo Alto.

Noise Level Calculation Methodology

Most municipalities and other agencies specify noise limits in units of dBA, which is intended to mimic the reduced receptivity of the human ear to Sound Pressure ("L_P") at particularly low or high frequencies. This frequency-sensitive filter shape, shown in the graph to the right as defined in the International Electrotechnical Commission Standard No. 179, the American National Standards Institute Standard No. 5.1, and various other standards, is also incorporated into most calibrated field test equipment for measuring noise levels.



30 dBA	library
40 dBA	rural background
50 dBA	office space
60 dBA	conversation
70 dBA	car radio
80 dBA	traffic corner
90 dBA	lawnmower

The dBA units of measure are referenced to a pressure of 20 µPa (micropascals), which is the threshold of normal hearing. Although noise levels vary greatly by location and noise source, representative levels are shown in the box to the left.

Manufacturers of many types of equipment, such as air conditioners, generators, and telecommunications devices, often test their products in various configurations to determine the acoustical emissions at certain distances. This data, normally expressed in dBA at a known reference distance, can be used to determine the corresponding sound pressure level at any particular distance, such as at a nearby building or property line. The sound pressure drops as the square of the increase in distance, according to the formula:

$$L_P = L_K + 20 \log(D_K/D_P),$$

where L_P is the sound pressure level at distance D_P and L_K is the known sound pressure level at distance D_K.

Individual sound pressure levels at a particular point from several different noise sources cannot be combined directly in units of dBA. Rather, the units need to be converted to scalar sound intensity units in order to be added together, then converted back to decibel units, according to the formula:

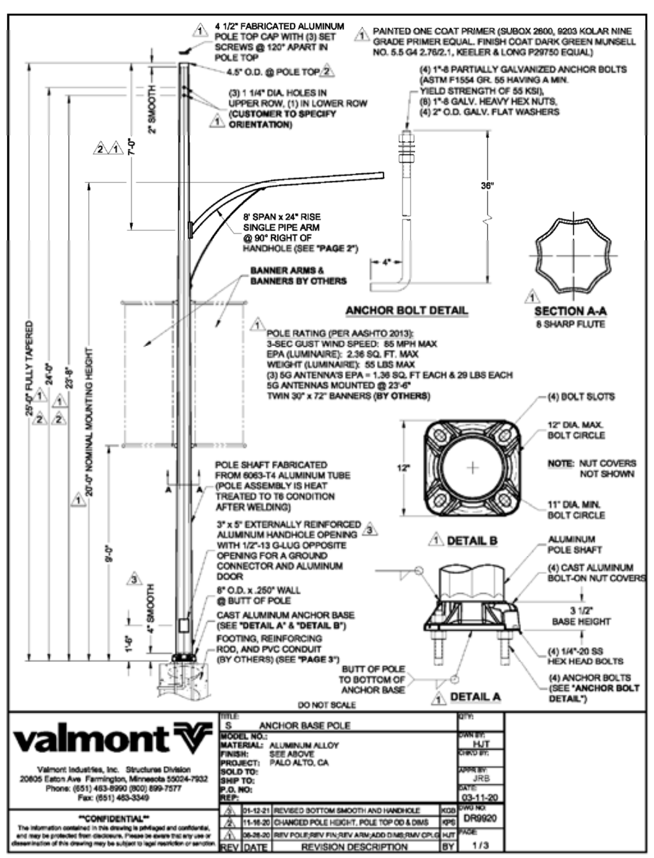
$$L_T = 10 \log \left(10^{L_1/10} + 10^{L_2/10} + \ldots\right),$$

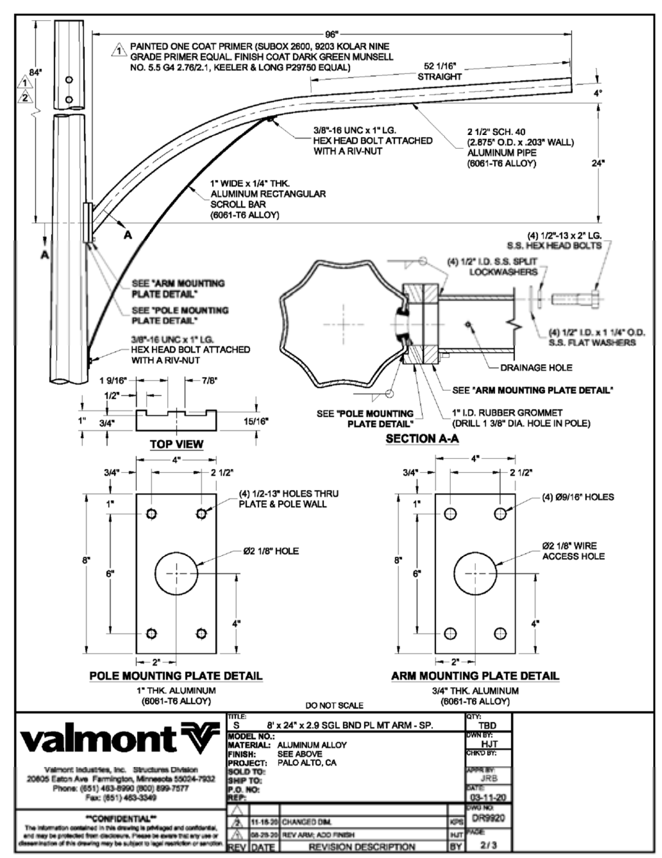
where L_T is the total sound pressure level and L_1, L_2, etc are individual sound pressure levels.

Certain equipment installations may include the placement of barriers and/or absorptive materials to reduce transmission of noise beyond the site. Noise Reduction Coefficients ("NRC") are published for many different materials, expressed as unitless power factors, with 0 being perfect reflection and 1 being perfect absorption. Unpainted concrete block, for instance, can have an NRC as high as 0.35. However, a barrier's effectiveness depends on its specific configuration, as well as the materials used and their surface treatment.

NOISE STUDY

24"x36" SCALE: NTS
11"x17" SCALE: NTS
2

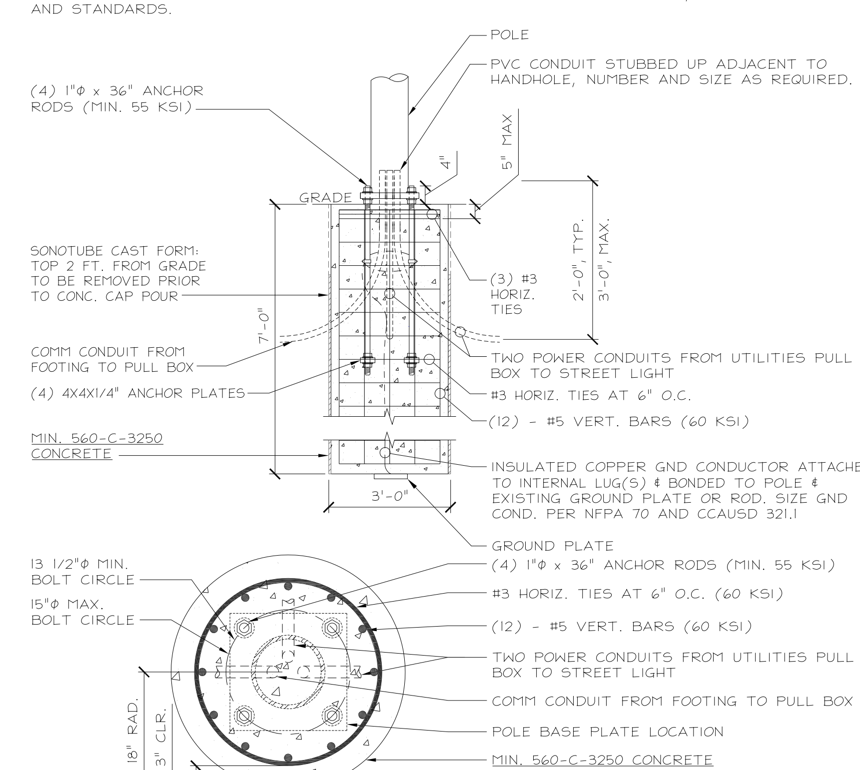




POLE DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS
3

NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



FOUNDATION DETAIL

24"x36" SCALE: NTS
11"x17" SCALE: NTS
1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

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REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI 71655 CIVIL STATE OF CALIFORNIA

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SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
FOUNDATION DETAIL

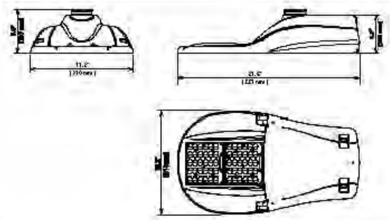
SHEET NUMBER
D-2

Project
Type
Catalog No.

GreenCobra™ Midsize LED Street Light
GCM J-Series Specification Data Sheet

Luminaire Data

Weight 10 lbs [4.6 kg]
EPA 0.44 ft²



Ordering Information
Sample Catalog No.: GCM2-30J-MV-30K-2R-GY-130-PCR7-WL

Model[a]	LED Code	Voltage	Color Temperature	Distribution	Finish[1]	Output Code[2]	Options
GCM1[a] GCM2[a] GCM3[a]	60J	MV 120-277V HV 347-480V	30K 3000K 40K 4000K 50K 5000K	2R Type 2 3R Type 3R 3F Type 3F 4 Type 4 5 Type 5	GY Gray DB Dark Bronze BK Black	Refer to Page 3 to select the performance code.	FOC[3] Fixed Output Code LPCR Less Photocontrol Receptacle PCR7[4] ANSI 7-wire Photo-control Receptacle PCR7-CR[5] Control Ready 7-wire PC Receptacle WL Utility Wattage Label 4B 4-Bolt Mounting Bracket RWG Rubber Wildlife Guard SWTB Straight Wire Terminal Block BBL Bubble Level DSC Door Safety Cable CP Coastal Paint Finish SP2[7] Extreme Surge Protection, 20KV/10KA, Fail-to-on LSSP2[7] Extreme Surge Protection, Fail-to-off

Accessories	
HSSJGCM[9]	House Side Shield, Snap-On[1]
CSSJGCM[9]	Cul-De-Sac Side Shield, Snap-On[1]
FSSJGCM[9]	Front Side Shield, Snap-On[1]
SPB[11]	Square Pole Horizontal Arm Bracket
RPB[11]	Round Pole Horizontal Arm Bracket
PTB[11]	Pole Top Tenon Horizontal Arm Bracket
PTB2[11]	Pole Top Tenon Horizontal Arm Bracket (2@180°)
WB[11]	Wall Horizontal Arm Bracket
BSK	Bird Deterrent Spider Kit
LLPC[12]	Long-Life Twist Lock Photocontrol
SC	Twist Lock Shorting Cap

Luminaire Specifications

Housing
Die cast aluminum housing with universal two-bolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter mast arm. One-piece aluminum housing provides passive heat-sinking of the LEDs and has upper surfaces that shed precipitation. Four-bolt mounting bracket (4B option) is available. Mounting provisions meet 3G vibration per ANSI C136.31-2010 Normal Application, Bridge & Overpass by independent test lab. Mounting has leveling adjustment from ± 5° in 2.5° steps. Electrical components are accessed without tools via a high-strength, non-conductive polycarbonate door with quick-release latches. Polycarbonate material meets UL 746C for outdoor usage. Available rubber wildlife guard (RWG option) conforms to mast arm with no gaps.

Light Emitting Diodes
LEDs produce nominal 90% of initial intensity at 60,000 hours hours of life per IES recommended lumen maintenance life projection based on 6 times the duration of the collected LM-80 data. For details on IESNA Position on LED Product Lifetime Prediction, PS-10-18. LEDs have correlated color temperature of 3000K (30K), 4000K (40K), or 5000K (50K) and 70 CRI minimum. LEDs are ROHS compliant, 100% mercury and lead free.

Field Adjustability
LED lumen output can be changed in the field to adjust light output for local conditions (not available with PCR7-CR option). The specified output code will be the factory set output. Field adjustments can be made with the output selector included in the fixture. Field adjustable range shown in performance data table.

Quality Control
Every luminaire is performance tested before and after a 2-hour burn-in period. Assembled in the USA.

Optical Systems
Micro-lens optical systems produce IESNA Type 2, Type 3, Type 4, or Type 5 distributions and are fully sealed to maintain an IP66 rating. Luminaire produces 0% total lumens above 90° (BUG Rating, U=0). Optional house side shield cuts light off at 1/2 mounting height behind luminaire. Front side shield cuts light off at approximately one mounting height in front of the luminaire (street side). Cul-de-sac shield provides back and side light control for end of cul-de-sac applications. All shields are field installable without tools.

Electrical
Rated life of electrical components is 100,000 hours. Uses isolated power supply that is 1-10V dimmable. Power supply is wired with quick-disconnect terminals. EMC meets or exceeds FCC CFR Part 15. Terminal block accommodates 6 to 14 gauge wire. Surge protection complies with IEEE/ANSI C62.41 Category C High, 10kV/5kA and ANSI C136.2-2015, 3-part test.

Power Supply
IP66 rated power power supply with high power factor of > 90%. Auto sensing universal AC input from 120 to 277VAC (MV model) and 347 to 480VAC (HV mode) rated for both line to line and line to neutral applications. Maximum THD rating of 20%. Class 1 or Class 2. Built-in overheating protection mechanism will reduce drive current to LEDs and electrical components if the driver experiences unusual internal overheating situation. Built-in short circuit, voltage overload, and current overload protection with automatic recovery after correction.

Controls
3-Wire photocontrol receptacle is standard. ANSI C136.41 7-wire (PCR7) photocontrol receptacle is available. All photocontrol receptacles have tool-less rotatable bases. Wireless control module is provided by others.

Finish
Housing receives a durable, fade-resistant polyester powder coat finish with 3.0 mil nominal thickness. Standard finish tested to withstand 5000 hours in salt spray exposure per ASTM B117 and Coastal Finish per ASTM G85. Finish meets scribe creepage rating 8 per ASTM D1654. Finish tested 500 hours in UV exposure per ASTM G154 and meets ASTM D523 gloss retention.

Listings/Ratings/Labels
Luminaires are UL listed for use in wet locations in the United States and Canada. DesignLights Consortium™ qualified product. Consult DLC QPL for Standard and Premium Classification Listings. All electronic components inside of the luminaire are NRTL damp location rated per ANSI 136.37-2011 Ingress Protection standard. International Dark Sky Association listed. Luminaire is qualified to operate at ambient temperatures of -40°C to 40°C. Assembled in the U.S.A

Photometry
Luminaires photometrics are tested by certified independent testing laboratories in accordance with IES LM-79 testing procedures.

Warranty
10-year limited warranty is standard on luminaire and components. See Leotek.com for warranty details.

Vandal Resistance
Housing and optics rated to IK10

Certification and Compliance
Luminaire complies with:
ANSI: C136.2, C136.3, C136.10, C136.13, C136.15, C136.22, C136.31, C136.35, C136.37, C136.41, C62.41, C78.377, C82.77
Other: FCC 47 CFR, IEC 60598, ROHS II, UL 1449, UL 1598

Color Specifications

Order Code	Color	RAL #	Pantone Equivalent
GY	Gray	7040	429C
BK	Black	9004	426C
DB	Dark Bronze	6022	BLACK 2C

Performance Data: 3000K (30K)
All data nominal. IES files for all CCTs available at leotek.com.

Product	LED Code	Output Code	System Wattage (W)	Delivered Lumens (Lm)[1]	Efficacy (Lm/W)	System Drive Current (mA)	Field Adjustable Output Range
GCM1	60J	090	59	9039	154	480	↑
		100	65	9940	153	530	
		110	72	10999	153	590	
		120	80	12029	151	650	
		125	85	12604	148	700	↓
GCM2	60J	130	89	13169	148	710	↑
		145	100	14457	145	800	↓
GCM3	60J	160	111	15790	142	900	↑
		170	123	17220	140	970	
		180	133	17846	134	1050	↓

Notes:
1 Nominal lumens. Normal tolerance ± 10% due to factors including distribution type, LED bin variance, and ambient temperatures.

Performance Data: 4000K (40K) and 5000K (50K)
All data nominal. IES files for all CCTs available at leotek.com.

Product	LED Code	Output Code	System Wattage (W)	Delivered Lumens (Lm)[1]	Efficacy (Lm/W)	System Drive Current (mA)	Field Adjustable Output Range
GCM1	60J	095	59	9562	163	480	↑
		105	65	10525	162	530	
		115	72	11574	161	590	
		125	80	12746	160	650	
		135	85	13402	158	700	↓
GCM2	60J	140	89	13884	156	710	↑
		155	100	15400	154	800	↓
GCM3	60J	170	111	16872	152	900	↑
		185	123	18387	149	970	
		190	133	19072	143	1050	↓

Notes:
1 Nominal lumens. Normal tolerance ± 10% due to factors including distribution type, LED bin variance, and ambient temperatures.

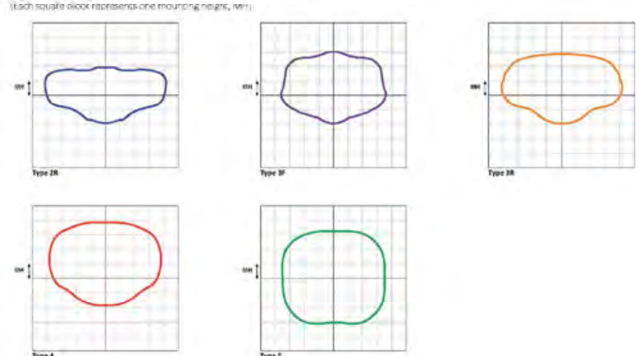
BUG Ratings: 3000K (30K)
All data nominal. IES files for all CCTs are available at leotek.com.

		Type 2	Type 3R	Type 3F	Type 4	Type 5
Product & LED Code	Output Code	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating
GCM1 60J	090	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
	100	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
	110	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
	120	B3-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
	125	B3-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
GCM2 60J	130	B3-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
	145	B3-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
GCM3 60J	160	B3-U0-G3	B3-U0-G3	B3-U0-G2	B3-U0-G2	B4-U0-G2
	170	B3-U0-G3	B3-U0-G3	B3-U0-G2	B3-U0-G3	B4-U0-G2
	180	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2

BUG Ratings: 4000K (40K) and 5000K (50K)
All data nominal. IES files for all CCTs are available at leotek.com.

		Type 2	Type 3R	Type 3F	Type 4	Type 5
Product & LED Code	Output Code	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating
GCM1 60J	095	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
	105	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
	115	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
	125	B3-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
	135	B3-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
GCM2 60J	140	B3-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
	155	B3-U0-G3	B2-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2
GCM3 60J	170	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G2	B4-U0-G2
	185	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2
	190	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2

Optical Distribution



LUMINAIRE 1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

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23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
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2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

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

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
LUMINAIRE DETAIL

SHEET NUMBER
D-3

- CARLON HAL-FREE RISER-GARD, HJ4X4C-2000:

Technical Info:

UL Listed to 2024	Test Method	Maximum Value
Maximum Flame Propagation	UL 2024	3'6"
Maximum Air Temperature	UL 2024	387°F

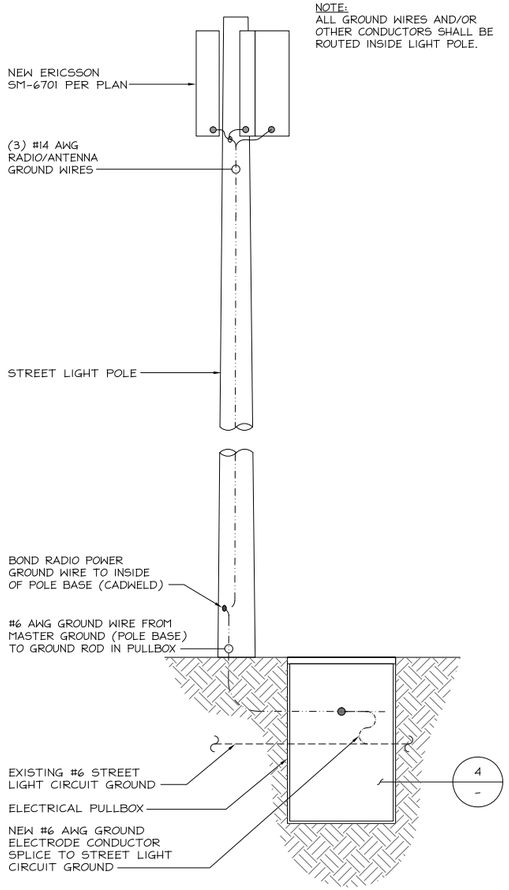
- Storage and Handling -4°F to 150°F
- No UV protection (not suitable for outdoor use)
- Do NOT store outside

	Color	Part No.	Nom. I.D.	Nom. O.D.	Pull Tape	Reel Size	Reel Type	Reel Length (feet)	Reel Weight (lbs.)	Wt. per 100 ft. (lbs.)
2"	White	HJ4X4C-2000	2.000	2.425	900 lb.	82" x 41"	W	2000	375	20.8

W = Wood

CARLON RISER-GARD | 7

NOTE:
ALL GROUND WIRES AND/OR OTHER CONDUCTORS SHALL BE ROUTED INSIDE LIGHT POLE.

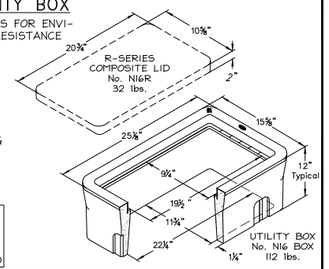


GROUND RISER DIAGRAM | 6

OLDCASTLE N16 UTILITY BOX

- EXCEEDS ASTM-D1693 STANDARDS FOR ENVIRONMENTAL STRESS CRACKING RESISTANCE
- ETCHED POLYPROPYLENE FACE
- FACE ANCHORED IN CONCRETE
- ULTRA-VIOLET INHIBITOR

A HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS AND WEIGHT SHOWN.

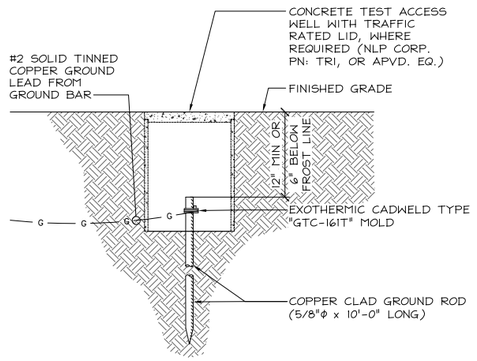


NOTE:
SPECIFICATION OF THIS VAULT MANUFACTURER AND MODEL ARE SUBJECT TO REPLACEMENT WITH APPROVED EQUIVALENT VAULT/LID

OLDCASTLE ORDER CODE	ITEM	APPROXIMATE SHIP'G. WEIGHT	DESCRIPTION
N16BOX	BOX	112 lbs.	N16 ELECTRICAL BOX (11-3/4"x22-1/4") - 20 PER PALLET
N16R	LID	32 lbs.	R-SERIES COMPOSITE LID WITH POLYPROPYLENE RING (ORDER N90 BOLT DOWN KIT SEPARATELY)
FL16T	LID	13 lbs.	FIBRELYTE LID, NON-CONCRETE BOLT DOWN (ORDER N90 BOLT-DOWN KIT SEPARATELY)
N16J	LID	36 lbs.	CAST IRON LID BOLT DOWN (ORDER N90 BOLT-DOWN KIT SEPARATELY)
B16-61D	COVER	28 lbs.	STEEL CHECKER PLATE COVER
N16-61J	COVER	28 lbs.	STEEL CHECKER PLATE COVER (ORDER N90 BOLT-DOWN KIT SEPARATELY)
B16X12	EXTENSION	113 lbs.	12" REINFORCED CONCRETE BOX EXTENSION - 20 PER PALLET
B30SL	SLAB	52 lbs.	REINFORCED CONCRETE SLAB (16"x28")

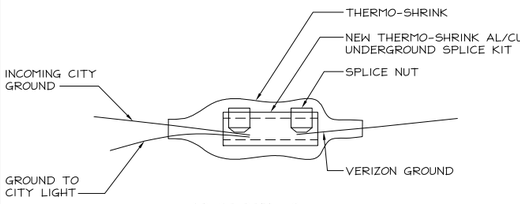
N16 U.G. UTILITY BOX | 5

24"x36" SCALE: NTS
11"x17" SCALE: NTS

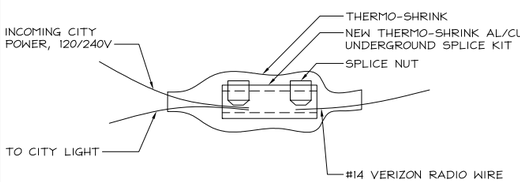


GROUND ROD | 4

24"x36" SCALE: NTS
11"x17" SCALE: NTS



SPLICE DETAIL 2



SPLICE DETAIL 1

SPLICE DTAILS | 3

24"x36" SCALE: NTS
11"x17" SCALE: NTS

PANEL 'A'

SITE NAME: SF PALO ALTO 205

PANEL DESIGNATION: AC PANEL 'A'

VOLTAGE: 120 V
PHASE: 1
WIRE: 2
MAIN BREAKER: 60 AMP
BUSS RATING: 60 AMP
LOCATION: UG VAULT

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	USAGE FACTOR	PHASE A VA	PHASE B VA	PHASE A VA	PHASE B VA	USAGE FACTOR	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	MAIN	60	2	ON			0		636		1.25	509	ON	1	20	ERICSSON SM-6701 #2	2
3								0		636	1.25	509	ON	1	20	ERICSSON SM-6701 #3	4
5	ERICSSON SM-6701 #1	20	1	ON	508.5	1.25	636		0							SPACE	6

RAYCAP MODEL NO. RSCAC-1333-PH-240 (60A, 240V, NEMA-6P)
CONTRACTOR SHALL LABEL PANEL WITH CARRIER I.D., SERVICE RATING, AND FEED SOURCE

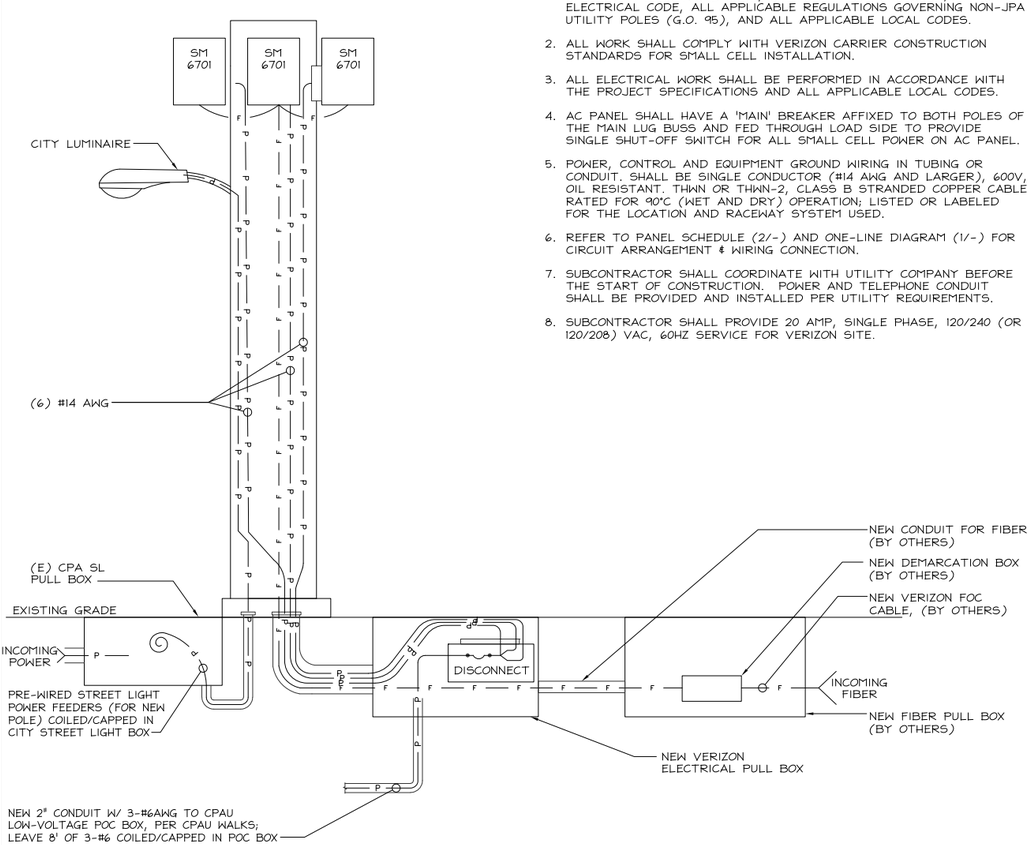
PHASE A TOTAL VA	1271
PHASE B TOTAL VA	636
TOTAL KVA	1.91
TOTAL AMPS	7.95

NOTES:
1. ALL LOADS CALCED AS LCL/MCL LOADS (OK TO DESIGN TO 100% CAPACITY)
2. UNUSED BREAKER POSITIONS SHALL REMAIN COVERED W/ MFR. COVER
3. ALL EQUIPMENT/BREAKERS SHALL BEAR A LABEL FOR I.D. & RATING

PANEL SCHEDULE | 2

ELECTRICAL NOTE:

1. ALL WORK SHALL COMP;Y TO THE CURRENT EDITION OF THE CALIFORNIA ELECTRICAL CODE, CALIFORNIA BUILDING CODE, NATIONAL ELECTRICAL CODE, ALL APPLICABLE REGULATIONS GOVERNING NON-JPA UTILITY POLES (G.O. 95), AND ALL APPLICABLE LOCAL CODES.
2. ALL WORK SHALL COMPLY WITH VERIZON CARRIER CONSTRUCTION STANDARDS FOR SMALL CELL INSTALLATION.
3. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL CODES.
4. AC PANEL SHALL HAVE A 'MAIN' BREAKER AFFIXED TO BOTH POLES OF THE MAIN LUG BUSS AND FED THROUGH LOAD SIDE TO PROVIDE SINGLE SHUT-OFF SWITCH FOR ALL SMALL CELL POWER ON AC PANEL.
5. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT. SHALL BE SINGLE CONDUCTOR (#14 AWG AND LARGER), 600V, OIL RESISTANT. THWN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED.
6. REFER TO PANEL SCHEDULE (2/-) AND ONE-LINE DIAGRAM (1/-) FOR CIRCUIT ARRANGEMENT & WIRING CONNECTION.
7. SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELEPHONE CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
8. SUBCONTRACTOR SHALL PROVIDE 20 AMP, SINGLE PHASE, 120/240 (OR 120/208) VAC, 60HZ SERVICE FOR VERIZON SITE.



POWER SCHEMATIC | 1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID: P-599771
DRAWN BY: RF
CHECKED BY: DW

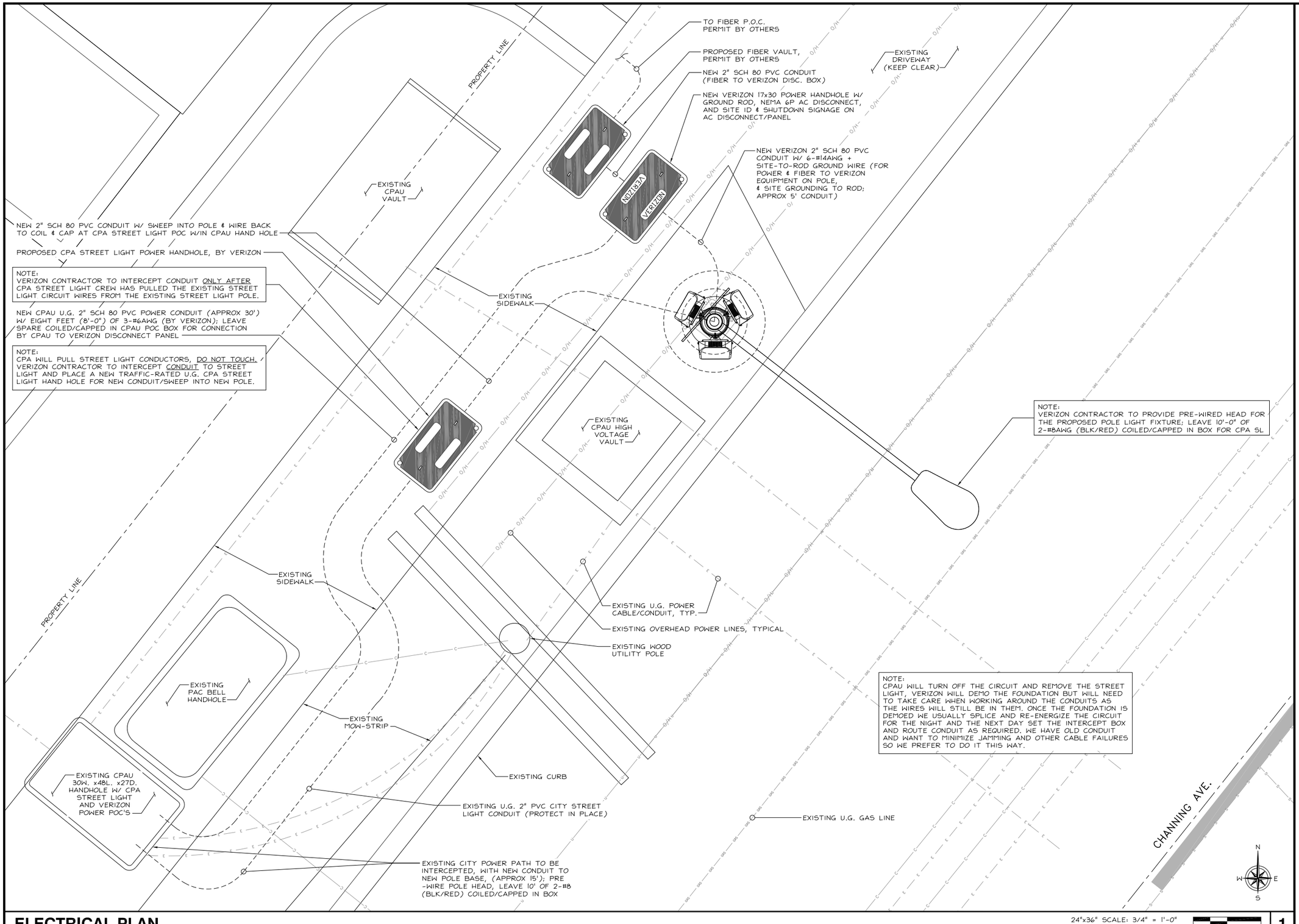
REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
HASSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
ELECTRICAL/GROUNDING DIAGRAMS, NOTES, & PANEL SCHEDULE

SHEET NUMBER
E-1



ELECTRICAL PLAN

24"x36" SCALE: 3/4" = 1'-0"
11"x17" SCALE: 3/8" = 1'-0"
1' 6" 0" 1'

1

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

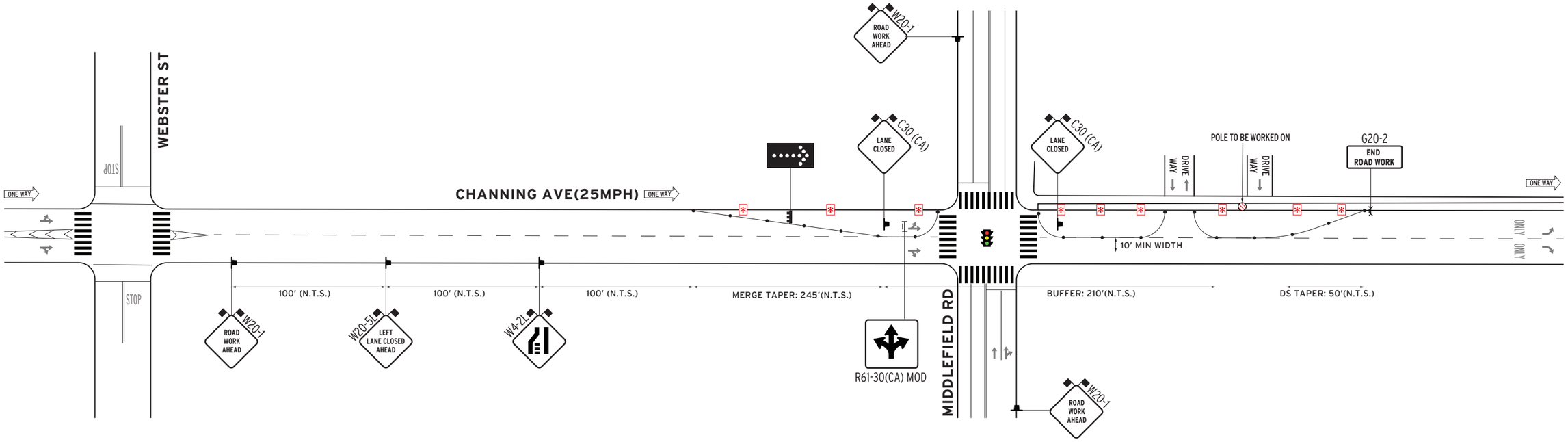
REV	DATE	DESCRIPTION	
5A	04/07/2021	2" VERIZON COMBO CONDUIT	NC
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
ELECTRICAL PLAN

SHEET NUMBER
E-2



*POST TEMPORARY NO PARKING SIGN ON TYPE 1 BARRICADE 72 HRS IN ADVANCED.

NOTE: Please contact B.A.T.S 72 hrs in advance in case if we are to install "TEMPORARY NO PARKING" signs.

LEGEND:

- CHANNELIZING DEVICE
- TRAFFIC CONE W/CLIP ON SIGN
- SIGN
- WORK ZONE
- DIRECTION OF TRAFFIC
- TYPE 1 BARRICADE
- TYPE 1 BARRICADE W/SIGN
- TYPE 3 BARRICADE
- TYPE 3 BARRICADE W/SIGN
- AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)
- CERTIFIED FLAGGER
- TEMPORARY ADA RAMP
- TEMPORARY RAISED PAVEMENT MARKERS
- MESSAGE BOARD (PCMS)
- FLASHING ARROWBOARD
- TEMP NO PARKING SIGNS
- FLASHING BEACON/BARRICADE LIGHT
- K-RAIL/WATER FILLED BARRIER
- PEDESTRIAN BARRICADE

ADDITIONAL NOTES:

1. ASSIST RESIDENTS WITH IN/OUT ACCESS TO DRIVEWAYS ALONG THE CLOSURE WHEN SAFE TO DO SO.

PLAN 1

TEMP TRAFFIC CONTROL PLAN

NOTES

- Traffic control shall conform with the most current CAMUTCD part 6 and/or Caltrans Standards
- One lane of traffic in each direction and all high volume turning lanes shall be maintained at all times on all streets at a minimum lane width of 10 feet.
- Contractor shall notify local authorities once signs are posted.
- All advanced warning signs shall be equipped with 2 (18" orange flags)
- Certified Traffic Control Workers shall have Type II vests, work shoes, and hard hats.
- Temporary no parking signs shall be placed a min of 72 hrs prior of work.
- Driveways shall be monitored and maintained at all times during work hours.
- Distance between sign and work area will be determined on speed limit.
- Roadway shall not be opened until safe for public use. All open trenches must be plated or - backfilled prior to public usage.
- All Devices shall be removed when no longer required.

MUTCD TABLE 6C-1 — MEANING OF LETTER CODES ON TYPICAL APPLICATION DIAGRAMS

ROAD TYPE	DISTANCE BETWEEN SIGNS A	B	C
Urban (Low Speed) - 25 mph or less	100 ft	100 ft	100 ft
Urban (Low Speed) + 25 to 40 mph	250 ft	250 ft	250 ft
Urban (High Speed) + 40 mph	350 ft	350 ft	350 ft
Rural	500 ft	500 ft	500 ft
Expressway / Freeway	1,000 ft	1,500 ft	2,640 ft

COMPASS:

SCALE: NOT TO SCALE

DATE REQSTD: 4-23-20

DATE COMPLTD: 7-27-20 REV 1

PROJECT LOCATION: 853 MIDDLEFIELD RD PALO ALTO

JOB# SF PALO ALTO 205

PAGE# 1/1

REQUEST BY:
YVONNE WASHINGTON
VINCULUMS SERVICES
925-999-5523
YWASHINGTON@VINCULUMS.COM

B.A.T.S. TRAFFIC SOLUTIONS
AFTER HOURS EMERGENCY
510-299-5666
Drawn By: Andie Tonnu
CSLB# 917034
Office: 510-657-2543
Fax: 510-657-2544
44800 Industrial Drive Fremont, CA 94538
WWW.BATSTRAFFICSOLUTIONS.COM

Vinculums
575 Lennon Lane #125
Walnut Creek, CA 94598
(925) 482-8500

ALLSTATES
23675 Birtcher Dr.
Lake Forest, CA
(949) 273-0996

VERIZON
PALO ALTO_205

All States Engineering & Surveying
Project No: 64 – CLUSTER-6\PALO ALTO_205

Structural Analysis Report

ROW Adjacent to 853 Middlefield Rd. Palo Alto, 94301
Proposed 25'- 0" AGL 'Downtown' Style Aluminum Light Pole & Foundation

REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI C 71655 CIVIL STATE OF CALIFORNIA

Rev. #	Reason for Revision	Total # of Sheets	Prepared By	Checked By	Approved /Accepted	Date
1	Updated Equipment	19	LeT	LeT	WZ	3/17/2021

	Quantity/Type /Shape	Strength (min.)	Dimensions	Thickness /Depth	Capacity Utilization	
Pole Shaft	Aluminum / 8-sided tapered	25 ksi*	5.73"Φ at top 8.0"Φ at bottom	0.219"	39.7%	PASS
Anchor Bolts	4	36 ksi	1" Φ	-	37.0%	PASS
Base Plate	1	36 ksi*	13.6" Cast Base	-	ADEQUATE	
Foundation	*Circular Caisson*	*3.25 ksi*	*36" Dia.*	*7'-0"***	ADEQUATE	

* Pole grade is 6063-T6 per provided specs.
Required depth of caisson (Unrestrained** at G/L) - This analysis was performed without a soil report, and minimum soil properties from IBC-18 were used. Required pole foundation embedment depth may change with a soil report from the proposed pole location.

Professional Engineering Firm
ARCHITECTURAL . CIVIL . STRUCTURAL . ELECTRICAL . GEOTECHNICAL . SURVEYING
www.allstatesengineering.com

Steel Decorated Pole
Palo Alto
PALO ALTO_205

Project Description:
All States Engineering & Surveying (ASES) is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the metal pole.
The purpose of the analysis is to determine acceptability of the pole stress level. Based on our analysis we have determined the metal pole stress level for the structure and anchorage, under the following load case:

LC: Proposed Pole + Proposed Equipment with Shroud
(Please see page 5 for details)

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

Structural Analysis Parameters:
This analysis has been performed in accordance with AASHTO 2013 guidelines.

- Wind Speed: ***85 mph per AASHTO 2013***
- Exposure Category: ***C***
- Risk Category: ***II***
- Topographical: ***1***
- Crest Height = ***0***
- Ice Thickness = ***0 in***
- Min. Soil Lateral Bearing = ***100 psf/ft*2 = 200 psf/ft per CBC & IBC 1806.3.4***
- Min. Soil Bearing = ***1500 psf***

We at *All States Engineering & Surveying* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

ATC Hazards by Location

Search Information

Address:	853 Middlefield Rd, Palo Alto, CA 94301, USA
Coordinates:	37.44504099999999, -122.1520301
Elevation:	41 ft
Timestamp:	2020-06-06T01:48:14.378Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D-default

Basic Parameters

Name	Value	Description
S_S	1.579	MCE_R ground motion (period=0.2s)
S_1	0.6	MCE_R ground motion (period=1.0s)
S_{MS}	1.894	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	1.263	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1.2	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.925	Coefficient of risk (0.2s)
CR_1	0.907	Coefficient of risk (1.0s)
PGA	0.649	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.779	Site modified peak ground acceleration
T_L	12	Long-period transition period (s)
SsRT	1.952	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.11	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.579	Factored deterministic acceleration value (0.2s)
S1RT	0.773	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.852	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.649	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

ATC Hazards by Location

Search Information

Address:	853 Middlefield Rd, Palo Alto, CA 94301, USA
Coordinates:	37.44504099999999, -122.1520301
Elevation:	41 ft
Timestamp:	2020-06-06T01:48:43.415Z
Hazard Type:	Wind

ASCE 7-16		ASCE 7-10		ASCE 7-05	
MRI 10-Year	63 mph	MRI 10-Year	72 mph	ASCE 7-05 Wind Speed	85 mph
MRI 25-Year	70 mph	MRI 25-Year	79 mph		
MRI 50-Year	74 mph	MRI 50-Year	85 mph		
MRI 100-Year	78 mph	MRI 100-Year	91 mph		
Risk Category I	86 mph	Risk Category I	100 mph		
Risk Category II	91 mph	Risk Category II	110 mph		
Risk Category III	98 mph	Risk Category III-IV	115 mph		
Risk Category IV	102 mph				

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

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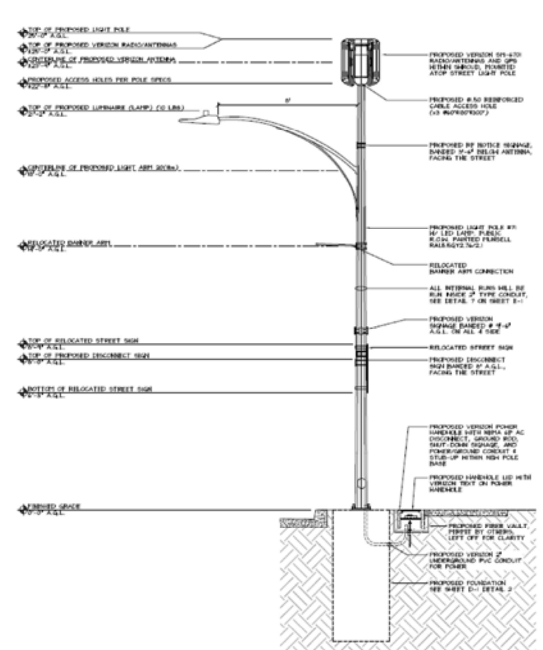
ALLSTATES — PROJECT: PALO ALTO_205 — CLIENT: 102 - Sequoia VZW Bakersfield — DESIGN BY: — REVIEW BY: LeT — DATE: 3/17/2021

Pole Wind & Seismic Analysis Based on AASHTO 2013 — **Proposed Elevation**

NOTES:
1. NEW LIGHT POLE TO BE PAINTED WITH MUNSELL RAL5.5GY2.76/2.1 PAINT.
2. NEW RADIOS AND HARDWARE TO BE PAINTED MUNSELL RAL5.5GY2.76/2.1 OR WRAPPED AS ALLOWED BY THE MANUFACTURER.
3. ALL CABLE/WIRE BETWEEN THE POLE ACCESS HOLE AND THE SHROUD GROMMET HOLE WILL RUN TROUGH 1.5" CONDUIT PAINTED/COLORED TO MATCH POLE COLOR.

TOTAL ANETNNA/SHROUD VOLUME (CU. FT.)		
MODEL	TOTAL	TOTAL VOLUME (CU. FT.)
COMPTEK	3	±2.55



ALLSTATES — PROJECT: PALO ALTO_205 — CLIENT: 102 - Sequoia VZW Bakersfield — DESIGN BY: — REVIEW BY: LeT — DATE: 3/17/2021

Pole Wind & Seismic Analysis Based on AASHTO 2013 — **Loading**

PROPOSED COMPONENTS

Rad Center	Component Type	QUANTITY	MOUNT TYPE
23'-9"	(N) Palo Alto_5G_SFF w/ Antenna	3	Pole Mounted
7'-10"	(N) / (E) Street Sign	1	
-	(N) RF Signage	1	
-	(N) & (E) Conduit, Wire, & In-line Fuse	-	Inside Pole

WIND PRESSURE DERIVATION (AASHTO 2013)

		Value	Unit	Reference
Height of Pole	h =	25.0	ft	
Wind Speed	V =	85	mph	(AASHTO 2013)
Wind Exposure (B, C or D)		C		
Wind Directionality (Pole)	K_d =	0.95		(AASHTO 2013, Table 3.8.5-1)
Gust Effect Factor	G =	1.14		(AASHTO 2013, Sec. 3.8.6)
3-sec Gust Exponent	α =	9.50		(ASCE 7-16, Table 26.11-1)
Atmospheric Height	Z_g =	900	ft	(ASCE 7-16, Table 26.11-1)
Vel. Pressure Coeff. (Min)	$K_{z,min}$ =	0.84		(ASCE 7-16, Table 29.10-1)
Velocity Pressure Coeff	$K_z = 2.0(z/Z_g)^{2/\alpha}$ =	0.94		(AASHTO 2013, Equation 3.8.4-1)
Wind Force @ Pole top	$F_w = 0.00256K_zK_dGV^2(C_dA)$ =	18.9	psf *C_dA	(Wind Pressure Input For O-Calc Analysis)
Total Applied Shear	V_u =	1027	lbs	(From TNX Report)
Total Applied Moment	M_u =	15097	lb-ft	(From TNX Report)

CALCULATION OF WIND DRAG COEFFICIENTS (Cd) FROM AASTHO 2013, TABLE 3.8.7-1 C_v = 1.00 For V<105 mph

Appurtenance	Height (in)	Width (in)	Depth (in)	d (ft)	$C_v Vd$	C_d
(N) Palo Alto_5G_SFF w/ Antenna	29.5	10.2	7.3	1.04	-	1.70
(E) Round Luminaire	2.9	21.6	5.4	1.86	-	0.50
(E) Round Pole	300	6.25	-	0.52	44	0.93

SEISMIC LOAD ANALYSIS (ASCE 7-16)

		Value	Unit	Reference
Total Pole Weight	$W = P_u$ =	603	lbs	(Approximate Wt. Including Pole With (N) Components)
Spectral Response (Short)	S_{DS} =	1.579		(ATC Hazards Design Maps Summary)
Spectral Response (1 sec.)	S_1 =	0.600		(ATC Hazards Design Maps Summary)
Importance Factor	I_e =	1.0		(ASCE 7-16, Section 15.4.1.1)
Response Factor	R =	1.5		(ASCE 7-16, Table 15.4-2)
Seismic Response Coeff	$C_s = 0.044S_{DS}I$ =	0.069		(ASCE 7-16, Section 15.4-1)
Seismic Response Coeff	$C_s = 0.8S_1/(R/I_e)$ =	0.320		(ASCE 7-16, Section 15.4-2)
Seismic Response Coeff	$C_s = S_{DS}/(R/I_e)$ =	1.053		(ASCE 7-16, Section 12.8-2)
Lateral Seismic Force	$V_s = MAX(C_s)W$ =	1.053	*W	
Total Applied Shear	V_s =	635	lbs	
Total Applied Moment	$M_s = V_s(1/2h)$ =	7934	lb-ft	

(Wind Loads Governing For Pole Shaft Capacity Check)

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER WISSAM ZALZALI 71655 CIVIL STATE OF CALIFORNIA

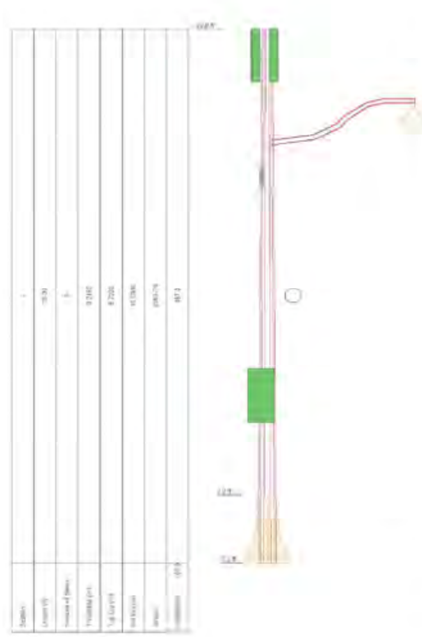
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
CALCS W/ SHROUD

SHEET NUMBER
C-1

07



DESIGNED APPURTENANCE LOADING

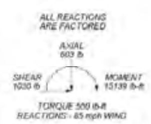
TYPE	ELEVATION	TYPE	ELEVATION
[illegible]	25	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
[illegible]	[illegible]	[illegible]			

TOWER DESIGN NOTES

1. Tower is located in Santa Clara County, California.
2. Tower designed for Exposure C to the AASHTO 2013 Standard.
3. Tower designed for a 85 mph basic wind in accordance with the AASHTO 2013 Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 39.7%



ALL STATES ENGINEERING & SURVEYING	Palo Alto_Light Pole
23675 Birtcher Drive	PALO ALTO_205
Lake Forest, CA 92630	94 - Vinculums_VZW
Phone: 949.273.6996	AASHTO 2013 03/17/21 NTS
FAX: 949.606.7222	E-1

08

Steel Decorated Pole
Palo Alto
PALO ALTO_205

ALLSTATES ENGINEERING & SURVEYING

Tower Input Data

The tower is a monopole.
This tower is designed using the AASHTO 2013 standard.
The following design criteria apply:
- Tower is located in Santa Clara County, California.
- Basic wind speed of 85 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Deflections calculated using a wind speed of 60 mph.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	25.00-0.00	25.00		8	5.7300	10.0000	0.2190	0.8760	6063-T6 (25 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	6.0217	4.0069	16.0550	2.0060	3.0999	5.1791	32.8863	1.9529	1.4656	6.692
	10.6435	7.1116	89.7569	3.5603	5.4100	16.5909	183.8543	3.4661	3.2333	14.764

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 25.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
Existing Cable Inside Pole	C	No	Yes	CaAa (Out Of Face)	24.50 - 0.00	1	No Ice	0.06	0.15

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Steel Decorated Pole
Palo Alto
PALO ALTO_205

ALLSTATES ENGINEERING & SURVEYING

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Decorating Top Cap	A	From Leg	8.00 0.00 0.00	0.0000	25.00	No Ice	1.37	0.53	10.00
Light Luminarie	A	From Leg	6.50 0.00 0.00	0.0000	19.50	No Ice	2.36	2.36	55.00
8' x 2.875" O.D. Light Pole Arm	A	From Leg	4.00 0.00 1.75	0.0000	19.50	No Ice	1.92	0.06	65.00
FCC RF Notice Signage	C	From Leg	0.00 0.00 0.00	0.0000	18.00	No Ice	0.33	0.01	0.20
*									
Palo Alto_5G_SFF w/ Antenna	C	From Leg	0.25 0.25 0.00	0.0000	23.75	No Ice	2.54	1.87	49.00
Palo Alto_5G_SFF w/ Antenna	B	From Leg	0.25 0.25 0.00	0.0000	23.75	No Ice	2.54	1.87	49.00
Palo Alto_5G_SFF w/ Antenna	C	From Leg	0.25 0.25 0.00	0.0000	23.75	No Ice	2.54	1.87	49.00
*									
30"x30" Street Sign	C	From Leg	0.00 0.00 0.00	0.0000	7.83	No Ice	7.50	0.05	5.00
*									
2PC Cast Alum. Clamshell	C	None		0.0000	1.42	No Ice	2.01	2.01	50.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	Dead+Wind 0 deg - Service
9	Dead+Wind 90 deg - Service
10	Dead+Wind 180 deg - Service

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Steel Decorated Pole
Palo Alto
PALO ALTO_205

ALLSTATES ENGINEERING & SURVEYING

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-602.09	759.05	-13389.01
			Max. Mx	4	-602.02	-13665.36	1576.44
			Max. My	2	-601.91	-657.94	15124.88
			Max. Vy	4	1017.91	-13665.36	1576.44
			Max. Vx	2	-992.02	-657.94	15124.88
			Max. Torque	5			550.88

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	4	603.41	-1017.10	75.04
	Max. H_x	7	452.56	75.04	-991.07
	Max. H_z	2	603.41	-75.04	991.11
	Max. M_x	2	15124.88	-75.04	991.11
	Max. M_z	4	13665.39	-1017.10	75.04
	Max. Torsion	5	550.33	-1017.10	75.04
	Min. Vert	3	452.56	-75.03	991.06
	Min. H_x	5	452.56	-1017.10	75.04
	Min. H_z	7	452.56	75.04	-991.07
	Min. M_x	7	-13563.26	75.04	-991.07
	Min. M_z	6	-759.03	75.03	-991.05
	Min. Torsion	6	-44.73	75.03	-991.05

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	502.84	0.01	0.15	-718.07	41.80	-0.22
1.2 Dead+1.6 Wind 0 deg - No Ice	603.41	75.04	-991.11	-15124.88	-657.97	-45.00
0.9 Dead+1.6 Wind 0 deg - No Ice	452.56	75.03	-991.06	-14856.00	-669.30	-44.52
1.2 Dead+1.6 Wind 90 deg - No Ice	603.41	1017.10	-75.04	-1576.18	-13665.39	-548.41
0.9 Dead+1.6 Wind 90 deg - No Ice	452.56	1017.10	-75.04	-1353.76	-13634.53	-550.33
1.2 Dead+1.6 Wind 180 deg - No Ice	603.41	-75.03	991.05	13389.01	759.03	44.73
0.9 Dead+1.6 Wind 180 deg - No Ice	452.56	-75.04	991.07	13563.26	744.67	44.52
Dead+Wind 0 deg - Service	502.84	20.91	-276.07	-4683.92	-155.17	-12.66
Dead+Wind 90 deg - Service	502.85	283.34	-20.88	-917.56	-3771.04	-153.48
Dead+Wind 180 deg - Service	502.85	-20.90	276.06	3241.87	238.97	12.25

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Steel Decorated Pole
Palo Alto
PALO ALTO_205

ALLSTATES ENGINEERING & SURVEYING

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u/\phi P_n$
L1	25 - 0 (1)	TP10x5.73x0.219	25.00	25.00	84.3	7.1116	-601.91	143808.00	0.004

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $M_{ux}/\phi M_{nx}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $M_{uy}/\phi M_{ny}$
L1	25 - 0 (1)	TP10x5.73x0.219	15139.17	38573.92	0.392	0.00	38573.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $V_u/\phi V_n$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $T_u/\phi T_n$
L1	25 - 0 (1)	TP10x5.73x0.219	994.85	99206.40	0.010	44.98	80323.58	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	25 - 0 (1)	0.004	0.392	0.009	0.010	0.001	0.397 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	25 - 0	Pole	TP10x5.73x0.219	1	-601.91	143808.00	39.7	Pass
							Summary	
						Pole (L1)	39.7	Pass
						RATING =	39.7	Pass

12

HILTI

Hilti PROFIS Engineering 3.0.67

www.hilti.com

Company:	All State Eng. & Surveying	Page:	1
Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
Phone I Fax:	9492730996 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

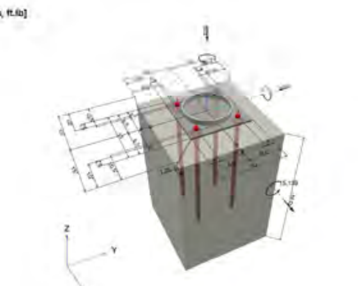
Specifier's comments:

1 Input data

Anchor type and diameter:	**Heavy Hex Head ASTM F 1554 GR. 36 1**
Item number:	not available
Effective embedment depth:	h_{ef} = 25.000 in.
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-08 / CIP
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 1.00; e_b = 1.250 in.; t = 0.500 in.
Anchor plate[R]:	l_x x l_y x t = 13.000 in. x 13.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	Round HSS (AISC), HSS10X.188; (L x W x T) = 10.000 in. x 10.000 in. x 0.188 in.
Base material:	cracked concrete, , f_c' = 3,250 psi; h = 84.000 in.
Reinforcement:	tension: condition A, shear: condition B; anchor reinforcement: tension
	edge reinforcement: > No. 4 bar with stirrups
Seismic loads (cat. C, D, E, or F)	no

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, ft.lb]



Input data and results must be checked for conformity with the existing conditions and for plausibility!
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1

verizon
2785 MITCHELL DRIVE, SUITE 9
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Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

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

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
CALCS W/ SHROUD

SHEET NUMBER
C-2

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Company:	All State Eng. & Surveying	Page:	2
Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
Phone I Fax:	9492730996 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	$N = -603$; $V_x = 0$; $V_y = -1{,}020$; $M_x = 15{,}139.000$; $M_y = 0.000$; $M_z = 0.000$;	no	39

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Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
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Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

2 Proof I Utilization (Governing Cases)

		Design values [lb]		Utilization	
Loading	Proof	Load	Capacity	β_N / β_V [%]	Status
Tension	Pullout Strength	9,942	27,318	37 / -	OK
Shear	Steel failure (with lever arm)	255	878	- / 30	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.389	0.290	5/3	34	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!

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Company:	All State Eng. & Surveying	Page:	4
Address:	23675 Birtcher Dr. Lake Forest, CA 92630	Specifier:	
Phone I Fax:	9492730996 |	E-Mail:	
Design:	Concrete - Sep 9, 2020	Date:	3/17/2021
Fastening point:			

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All States Engineering & Surveying
Zaizali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Light Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Pole Footing Embedded in Soil

File: Caisson Depth.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zaizali & Associates Inc.

DESCRIPTION: Poposed Caisson embedment (soil values From IBC Table 1806.2 with lateral bearing load increase from IBC 1806.3.4)

Code References

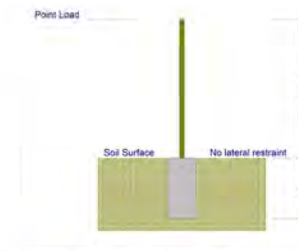
Calculations per IBC 2018 1807.3, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

Pole Footing Shape	Circular
Pole Footing Diameter	36.0 in
Calculate Min. Depth for Allowable Pressures	
No Lateral Restraint at Ground Surface	
Allow Passive	200.0 pcf
Max Passive	1,500.0 psf

Controlling Values

Governing Load Combination :	+D+W
Lateral Load	1.020 k
Moment	15.139 k-ft
NO Ground Surface Restraint	
Pressures at 1/3 Depth	
Actual	429.896 psf
Allowable	431.651 psf
Minimum Required Depth	**6.50 ft**
Footing Base Area	7.069 ft^2
Maximum Soil Pressure	0.08531 ksf



Provide 36" Dia. x 7' Embed. Circular Concrete Caisson

Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (klf)	Vertical Load (k)
D : Dead Load	k	k/ft	0.6030 k
Lr : Roof Live	k	k/ft	k
L : Live	k	k/ft	k
S : Snow	k	k/ft	k
W : Wind	1.020 k	k/ft	k
E : Earthquake	k	k/ft	k
H : Lateral Earth	k	k/ft	k
Load distance above ground surface	14.843 ft	TOP of Load above ground surface ft; BOTTOM of Load above ground surface ft	

Load Combination Results

Load Combination	Forces @ Ground Surface Loads - (k)	Forces @ Ground Surface Moments - (ft-k)	Required Depth - (ft)	Pressure at 1/3 Depth Actual - (psf)	Pressure at 1/3 Depth Allow - (psf)	Soil Increase Factor
+D+W	1.020	15.139	6.50	429.9	431.7	1.000

All States Engineering & Surveying
Zaizali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Light Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Concrete Caisson

File: Caisson Depth.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zaizali & Associates Inc.

DESCRIPTION: Design Concrete Caisson

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16
Load Combinations Used : ASCE 7-16

General Information

f'c : Concrete 28 day strength	=	3.250 ksi
E =	=	3,122.0 ksi
Density	=	150.0 pcf
β	=	0.850
fy - Main Rebar	=	60.0 ksi
E - Main Rebar	=	29,000.0 ksi
Allow. Reinforcing Limits		ASTM A615 Bars Used
Min. Reinf.	=	0.250 %
Max. Reinf.	=	8.0 %

Overall Caisson Height = 7.0 ft
End Fixity: Top Free, Bottom Fixed
Brace condition for deflection (buckling) along Caisson :
X-X (width) axis : Fully braced against buckling ABOUT Y-Y Axis
Y-Y (depth) axis : Fully braced against buckling ABOUT X-X Axis

Caisson Cross Section

Column Dimensions : 36.0in Diameter, Caisson Edge to Rebar Edge Cover = 3.0in

Column Reinforcing : 12 - #5 bars

Applied Loads

Entered loads are factored per load combinations specified by user.

Caisson self weight included : 7,422.01 lbs * Dead Load Factor
AXIAL LOADS . . .
Reaction from Pole: Axial Load at 7.0 ft above base, D = 0.6030 k
BENDING LOADS . . .
Reaction from Pole: Lat. Point Load at 7.0 ft creating Mx-x, W = 1.70 k
Reaction from Pole: Moment acting about X-X axis at 7.50 ft, W = 25.226 k-ft

DESIGN SUMMARY

Load Combination	+0.90D+W+1.60H
Location of max.above base	6.953 ft
Maximum Stress Ratio	**0.067 : 1**

Ratio = (Pu^2+Mu^2)^.5 / (PhiPn^2+PhiMn^2)^.5

Pu =	7.223 k	φ * Pn =	110.281 k
Mu-x =	25.146 k-ft	φ * Mn-x =	-380.590 k-ft
Mu-y =	0.0 k-ft	φ * Mn-y =	0.0 k-ft
Mu Angle =	0.0 deg		
Mu at Angle =	25.146 k-ft	φMn at Angle =	374.913 k-ft

Pn & Mn values located at Pu-Mu vector intersection with capacity curve

Caisson Capacities . . .

Pnmax : Nominal Max. Compressive Axial Capacity	3,024.81 k
Pnmin : Nominal Min. Tension Axial Capacity	k
φ Pn, max : Usable Compressive Axial Capacity	1,799.76 k
φ Pn, min : Usable Tension Axial Capacity	k

Maximum SERVICE Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	1.020 k

Maximum SERVICE Load Deflections . . .

Along Y-Y -0.002823 in at 7.0 ft above base for load combination : W Only
Along X-X 0.0 in at 0.0 ft above base for load combination

General Section Information . φ = 0.75 β = 0.850 γ = 0.800

ρ : % Reinforcing	0.3655 % Rebar % Ok
Reinforcing Area	3.720 in^2
Concrete Area	1,017.88 in^2

All States Engineering & Surveying
Zaizali & Associates, Inc.
23675 Birtcher Drive
Lake Forest
CA 92630

Project Title: Light Pole Caisson Embedment Depth
Engineer:
Project ID: Palo Alto Light Pole
Project Descr:

Concrete Caisson

File: Caisson Depth.ec6
Software copyright ENERCALC, INC. 1983-2020, Build:12.20.8.24
Zaizali & Associates Inc.

DESCRIPTION: Design Concrete Caisson

Governing Load Combination Results

Governing Factored Load Combination	Moment X-X	Moment Y-Y	Dist. from base ft	Axial Load Pu	Axial Load φ * Pn	δx	δx * Mux	δy	δy * Muy	Alpha (deg)	δ Mu	φ Mn	Utilization Ratio
+1.40D+1.60H			6.95	11.24	1,799.76					0.000			0.006
+1.20D+0.50Lr+L+W+1.60H	Actual		6.95	9.63	168.87	1.000	25.15			0.000	25.15	431.41	0.058
+0.90D+W+1.60H	Actual		6.95	7.22	110.28	1.000	25.15			0.000	25.15	374.91	0.067

Maximum Reactions

Note: Only non-zero reactions are listed.

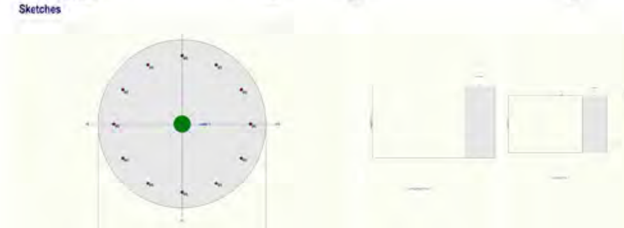
Load Combination	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Axial Reaction @ Base	My - End Moments @ Base	My - End Moments @ Top	Mx - End Moments @ Base	Mx - End Moments @ Top
+D+H					8.025				
+D+0.60W+H			1.020		8.025	7.996			
+0.60D+0.60W+0.60H			1.020		4.815	7.996			

Maximum Moment Reactions

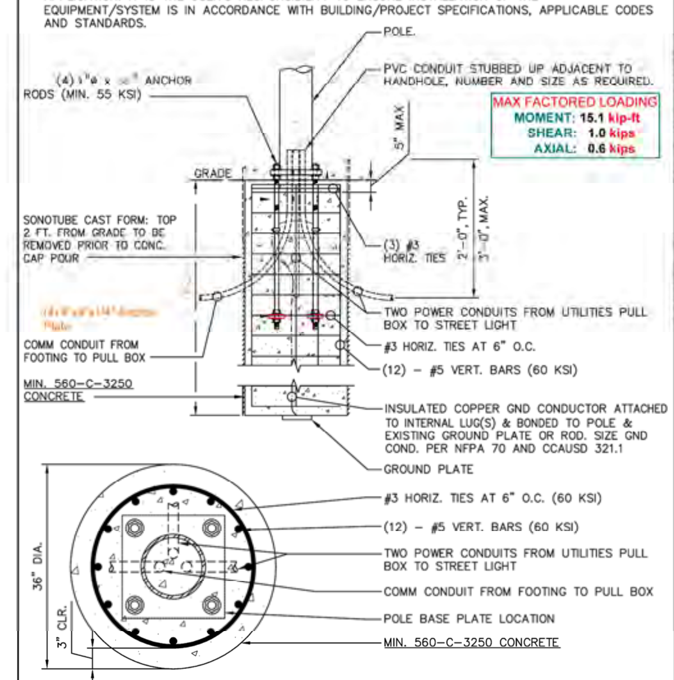
Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis @ Base	Moment About X-X Axis @ Top	Moment About Y-Y Axis @ Base	Moment About Y-Y Axis @ Top
+D+H		k-ft		k-ft
+D+0.60W+H	7.996	k-ft		k-ft
+0.60D+0.60W+0.60H	7.996	k-ft		k-ft

Sketches



NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



FOUNDATION DETAIL	DO NOT SCALE DRAWINGS	ALLSTATES ENGINEERING & SURVEYING 23675 BIRTCHER DRIVE LAKE FOREST, CA 92630	Vinculums OFFICE: (925) 482-8500

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER WISAM ZALZALI 71655 CIVIL STATE OF CALIFORNIA

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

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
CALCS W/ SHROUD

SHEET NUMBER
C-3

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL BUILDING CODE, THE LATEST EDITION AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL CONSTRUCT SITE IN ACCORDANCE WITH THESE DRAWINGS AND CONSTRUCTION SPECIFICATIONS 80-T1196-1 REV H. THE SPECIFICATION IS THE RULING DOCUMENT AND ANY DISCREPANCIES BETWEEN THE SPECIFICATION AND THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION

3. CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK (ROOF FRAMING, ELECTRICAL SERVICE, LOCAL PLANNING CODES, ETC.) AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OF FIELD CONDITIONS

4. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT AND APPURTENANCES, AND LABOR NECESSARY TO EFFECT ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. OWNER PROVIDED MATERIALS WILL INCLUDE THE FOLLOWING, UNLESS NOTED OTHERWISE:
   A) TRANSMITTER
   B) RF FILTER
   C) MFTS RACK
   D) AUXILIARY EQUIPMENT IN MFTS RACK
   E) PUMP ASSEMBLY
   F) HEAT EXCHANGER
   G) HOSE AND HOSE MANIFOLDS (ANY COPPER OR STEEL SECTIONS PROVIDE BY CONTRACTOR)
   H) UHF ANTENNA AND MOUNTING BRACKETS, GPS ANTENNAS AND KU ANTENNAS
   I) UHF COAX AND HANGERS
   K) 480-208 & 208-400 ELECTRICAL TRANSFORMERS (RE: E-2 FOR SPECIALIZED TRANSFORMERS PROVIDED BY CONTRACTOR)
   L) AUTOMATIC TRANSFER SWITCH AND GENERATOR
   M) EQUIPMENT SHELTER (SHELTERS FURNISHED IN FACTORY W/ HVAC EQUIPMENT AND ELECTRICAL DISTRIBUTION PANEL)
   N) INTEGRATED LOAD CENTER

5. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE WORK.

6. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

7. CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING, AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.

8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST CONSTRUCTION SKILLS AND ATTENTION. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT, UNLESS OTHERWISE NOTED.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS.

10. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SUPERINTENDENT OF BUILDINGS & GROUNDS AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.

12. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

13. MAKE NECESSARY PROVISIONS TO PROTECT EXISTING SURFACES, EQUIPMENT, IMPROVEMENTS, PIPING ETC. AND IMMEDIATELY REPAIR ANY DAMAGE THAT OCCURS DURING CONSTRUCTION.

14. IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., MUST BE CLEARLY UNDERSTOOD THAT REINFORCING STEEL SHALL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES (UNLESS NOTED OTHERWISE). LOCATIONS OF REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT.

15. REPAIR ALL EXISTING WALL SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND IN WITH ADJACENT SURFACES.

16. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH U.L. LISTED AND FIRE CODE APPROVED MATERIALS.

17. KEEP CONTRACT AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OF THE OWNER SHALL BE REMOVED. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.

18. MINIMUM BEND RADIUS OF ANTENNA CABLES SHALL BE IN ACCORDANCE WITH CABLE MANUFACTURERS RECOMMENDATIONS.

19. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO APPLICABLE REGULATORY AUTHORITIES

20. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION SHALL BE IN CONFORMANCE WITH JURISDICTIONAL OR STATE AND LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL AND COORDINATED WITH LOCAL REGULATORY AUTHORITIES.

21. ALL CONSTRUCTION IS TO ADHERE TO VERIZON'S INTEGRATED CONSTRUCTION STANDARDS UNLESS CALIFORNIA CODE IS MORE STRINGENT.

22. THE INTENT OF THE PLANS AND SPECIFICATIONS IS TO PERFORM THE CONSTRUCTION IN ACCORDANCE WITH THE CALIFORNIA BUILDING STANDARDS CODE, TITLES 19 AND 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE JURISDICTION BEFORE PROCEEDING WITH THE WORK.

SITE WORK NOTES

1. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.

2. DO NOT SCALE BUILDING DIMENSIONS FROM DRAWING.

3. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-BUILT DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.

4. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS AND THEIR DIMENSIONS SHOWN ON PLANS HAVE. BEEN PLOTTED FROM AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL EXISTING UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING EXISTING UTILITIES.

5. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS/HER OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL DIGGER HOT LINE FOR UTILITY LOCATIONS 48 HOURS PRIOR TO START OF CONSTRUCTION.

6. ALL NEW AND EXISTING UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK.

7. GRADING OF THE SITE WORK AREA IS TO BE SMOOTH AND CONTINUOUS IN SLOPE AND IS TO FEATHER INTO EXISTING GRADES AT THE GRADING LIMITS.

8. ALL TEMPORARY EXCAVATIONS FOR THE INSTALLATION OF FOUNDATIONS, UTILITIES, ETC., SHALL BE PROPERLY LAID BACK OR BRACED IN ACCORDANCE WITH CORRECT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS.

9. STRUCTURAL FILLS SUPPORTING PAVEMENTS SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY.

10. NEW GRADES NOT IN BUILDING AND DRIVEWAY IMPROVEMENT AREA TO BE ACHIEVED BY FILLING WITH APPROVED CLEAN FILL AND COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.

11. ALL FILL SHALL BE PLACED IN UNIFORM LIFTS. THE LIFTS THICKNESS SHOULD NOT EXCEED THAT WHICH CAN BE PROPERLY COMPACTED THROUGHOUT ITS ENTIRE DEPTH WITH THE EQUIPMENT AVAILABLE.

12. ANY FILLS PLACED ON EXISTING SLOPES THAT ARE STEEPER THAN 10 HORIZONTAL TO 1 VERTICAL SHALL BE PROPERLY BENCHED INTO THE EXISTING SLOPE AS DIRECTED BY A GEOTECHNICAL ENGINEER.

13. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, WEEDS, BRUSH OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.

14. ALL TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH THE IMPROVEMENTS SHALL BE PROTECTED BY THE GENERAL CONTRACTOR.

15. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ENVIRONMENTAL NOTES

1. ALL WORK PERFORMED SHALL BE DONE IN ACCORDANCE WITH ISSUED PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF FINES AND PROPER CLEAN UP FOR AREAS IN VIOLATION.

2. CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS AND WATERWAYS AND SHALL BE MAINTAINED IN PLACE THROUGH FINAL JURISDICTIONAL INSPECTION & RELEASE OF SITE.

3. CONTRACTOR SHALL INSTALL/CONSTRUCT ALL NECESSARY SEDIMENT/SILT CONTROL FENCING AND PROTECTIVE MEASURES WITHIN THE LIMITS OF SITE DISTURBANCE PRIOR TO CONSTRUCTION.

4. NO SEDIMENT SHALL BE ALLOWED TO EXIT THE PROPERTY. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ADEQUATE MEASURES FOR CONTROLLING EROSION. ADDITIONAL SEDIMENT CONTROL FENCING MAY BE REQUIRED IN ANY AREAS SUBJECT TO EROSION.

5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE ON THE SITE AT ALL TIMES WITH SILT AND EROSION CONTROL MEASURES MAINTAINED ON THE DOWNSTREAM SIDE OF SITE DRAINAGE. ANY DAMAGE TO ADJACENT PROPERTY AS A RESULT OF EROSION WILL BE CORRECTED AT THE CONTRACTORS EXPENSE.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY INSPECTIONS AND ANY REPAIRS OF ALL SEDIMENT CONTROL MEASURES INCLUDING SEDIMENT REMOVAL AS NECESSARY.

7. CLEARING OF VEGETATION AND TREE REMOVAL SHALL BE ONLY AS PERMITTED AND BE HELD TO A MINIMUM. ONLY TREES NECESSARY FOR CONSTRUCTION OF THE FACILITIES SHALL BE REMOVED.

8. SEEDING AND MULCHING AND/OR SODDING OF THE SITE WILL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER COMPLETION OF THE PROJECT FACILITIES AFFECTING LAND DISTURBANCE.

9. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS, AND CHECK DAMS.

10. RIP RAP OF SIZES INDICATED SHALL CONSIST OF CLEAN, HARD, SOUND, DURABLE, UNIFORM IN QUALITY STONE FREE OF ANY DETRIMENTAL QUANTITY OF SOFT, FRIABLE, THIN, ELONGATED OR LAMINATED PIECES, DISINTEGRATED MATERIAL, ORGANIC MATTER, OIL, ALKALI, OR OTHER DELETERIOUS SUBSTANCES

GENERAL NOTES

1. THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS, CONTRACT AND CONSTRUCTION DOCUMENTS.

2. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THESE PLANS AND IN THE CONTRACT DOCUMENTS.

3. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR(S) SHALL VISIT THE JOB SITE(S) AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRM THAT THE WORK MAY BE ACCOMPLISHED PER THE CONTRACT DOCUMENTS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO BID SUBMITTAL

4. THE CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED ON ANY WORK NOT CLEARLY DEFINED OR IDENTIFIED IN THE CONTRACT AND CONSTRUCTION DOCUMENTS BEFORE STARTING ANY WORK.

5. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES, INCLUDING APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS.

6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. IF THESE RECOMMENDATIONS ARE IN CONFLICT WITH THE CONTRACT AND CONSTRUCTION DOCUMENTS AND/OR APPLICABLE CODES OR REGULATIONS, REVIEW AND RESOLVE THE CONFLICT WITH DIRECTION FROM THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO PROCEEDING.

7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATION OF ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE IMPLEMENTATION ENGINEER AND WITH THE AUTHORIZED REPRESENTATIVE OF ANY OUTSIDE POLE OR PROPERTY OWNER.

8. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO PAVING, CURBS, VEGETATION, GALVANIZED SURFACE OR OTHER EXISTING ELEMENTS AND UPON COMPLETION OF THE WORK, REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION TO THE SATISFACTION OF VERIZON.

9. CONTRACTOR IS TO KEEP THE GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION DAILY.

10. PLANS ARE INTENDED TO BE DIAGRAMMATIC ONLY AND SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. RELY ONLY ON ANNOTATED DIMENSIONS AND REQUEST INFORMATION IF ADDITIONAL DIMENSIONS ARE REQUIRED.

11. THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. OTHER FACILITIES MAY EXIST. CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO START OF CONSTRUCTION AND USE EXTREME CARE AND PROTECTIVE MEASURES TO PREVENT DAMAGE TO THESE FACILITIES. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF UTILITIES OR OTHER AGENCY'S FACILITIES WITHIN THE LIMITS OF THE WORK, WHETHER THEY ARE INDENTIFIED IN THE CONTRACT DOCUMENTS OR NOT.

12. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600, AT LEAST TWO WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION.

DEFINITIONS

1. "TYPICAL" OR "TYP" MEANS THAT THIS ITEM IS SUBSTANTIALLY THE SAME ACROSS SIMILAR CONDITIONS. "TYP." SHALL BE UNDERSTOOD TO MEAN "TYPICAL WHERE OCCURS" AND SHALL NOT BE CONSIDERED AS WITHOUT EXCEPTION OR CONSIDERATION OF SPECIFIC CONDITIONS.

2. "SIMILAR" MEANS COMPARABLE TO CHARACTERISTICS FOR THE CONDITION NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLAN.

3. "AS REQUIRED" MEANS AS REQUIRED BY REGULATORY REQUIREMENTS, BY REFERENCED STANDARDS, BY EXISTING CONDITIONS, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICE, OR BY THE CONTRACT DOCUMENTS.

4. "ALIGN" MEANS ACCURATELY LOCATE FINISH FACES OF MATERIALS IN THE SAME PLANE.

5. THE TERM "VERIFY" OR "V.I.F." SHALL BE UNDERSTOOD TO MEAN "VERIFY IN FIELD WITH ENGINEER" AND REQUIRES THAT THE CONTRACTOR CONFIRM INTENTION REGARDING NOTED CONDITION AND PROCEED ONLY AFTER RECEIVING DIRECTION.

6. WHERE THE WORDS "OR EQUAL" OR WORDS OF SIMILAR INTENT FOLLOW A MATERIAL SPECIFICATION, THEY SHALL BE UNDERSTOOD TO REQUIRE SIGNED APPROVAL OF ANY DEVIATION TO SAID SPECIFICATION PRIOR TO CONTRACTOR'S ORDERING OR INSTALLATION OF SUCH PROPOSED EQUAL PRODUCT.

7. FURNISH: SUPPLY ONLY, OTHERS TO INSTALL.
   INSTALL: INSTALL ITEMS FURNISHED BY OTHERS.
   PROVIDE: FURNISH AND INSTALL.

811 USA North
Know what's below. Call before you dig.
California and Nevada
Call Two Working Days Before You Dig!
811 / 800-227-2600

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-59977I
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
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B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
HASAN ZALZALI
71655
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ANY/ALL ELECTRICAL WORK INDICATED. ANY/ALL CONSTRUCTION SHALL BE IN ACCORDANCE W/DRAWINGS AND ANY/ALL APPLICABLE SPECIFICATIONS. IF ANY PROBLEMS ARE ENCOUNTERED BY COMPLYING WITH THESE REQUIREMENTS, CONTRACTOR SHALL NOTIFY 'CONSTRUCTION MANAGER' AS SOON AS POSSIBLE, AFTER THE DISCOVERY OF THE PROBLEMS, AND SHALL NOT PROCEED WITH THAT PORTION OF WORK, UNTIL THE 'CONSTRUCTION MANAGER' HAS DIRECTED THE CORRECTIVE ACTIONS TO BE TAKEN.

2. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ANY/ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATION INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF. ALL EXISTING CONDITIONS OF ELECTRICAL EQUIP., LIGHT FIXTURES, ETC., THAT ARE PART OF THE FINAL SYSTEM, SHALL BE VERIFIED BY THE CONTRACTOR, PRIOR TO THE SUBMITTING OF HIS BID. FAILURE TO COMPLY WITH THIS PARAGRAPH WILL IN NO WAY RELIEVE CONTRACTOR OF PERFORMING ALL WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND ALL CODES AND LOCAL ORDINANCES OF THE LOCAL POWER & TELEPHONE COMPANIES HAVING JURISDICTION AND SHALL INCLUDE BUT NOT BE LIMITED TO:
   C - NATIONAL FIRE CODES
   A. UL - UNDERWRITERS LABORATORIES
   B. NEC - NATIONAL ELECTRICAL CODE
   C. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
   D. OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT
   E. SBC - STANDARD BUILDING CODE

4. DO NOT SCALE ELECTRICAL DRAWINGS, REFER TO SITE PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, AND CONFIRM WITH 'CONSTRUCTION MANAGER' ANY SIZES AND LOCATIONS WHEN NEEDED.

5. EXISTING SERVICES: CONTRACTOR SHALL NOT INTERRUPT EXISTING SERVICES WITHOUT WRITTEN PERMISSION OF THE OWNER.

6. CONTRACTOR SHALL PAY FOR ANY/ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR IS TO OBTAIN PERMITS AND APPROVED SUBMITTALS PRIOR TO THE WORK BEGINNING OR ORDERING EQUIPMENT.

7. THE TERM "PROVIDE" USED IN CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, INDICATES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL.

8. CONTRACTOR SHALL CONFIRM WITH LOCAL UTILITY COMPANY ANY/ALL REQUIREMENTS SUCH AS THE: LUG SIZE RESTRICTIONS, CONDUIT ENTRY, SIZE OF TRANSFORMERS, SCHEDULED DOWNTIME FOR THE OWNERS' CONFIRMATION, ETC... ANY/ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER, PRIOR TO BEGINNING ANY WORK.

9. MINIMUM WIRE SIZE SHALL BE #12 AWG, NOT INCLUDING CONTROL WIRING, UNLESS NOTED OTHERWISE. ALL CONDUCTORS SHALL BE COPPER WITH THWN INSULATION.

10. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET/DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

11. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF THE CONSTRUCTION. CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS FOR THE EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER.

12. ELECTRICAL SYSTEM SHALL BE AS COMPLETELY AND EFFECTIVELY GROUNDED, AS REQUIRED BY SPECIFICATIONS, SET FORTH BY VERIZON.

13. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS, WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND SUBJECT TO REGULATORY INSPECTION AND APPROVAL BY CONSTRUCTION MANAGER.

14. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

15. CONTRACTOR SHALL GUARANTEE ANY/ALL MATERIALS AND WORK FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.

16. THE CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ANY ADDITIONAL CHARGE AND SHALL INCLUDE THE REPLACEMENT OR THE REPAIR OF ANY OTHER PHASE OF THE INSTALLATION, WHICH MAY HAVE BEEN DAMAGED THEREIN.

17. ADEQUATE AND REQUIRED LIABILITY INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LOSS AND ANY/ALL PROPERTY DAMAGE FOR THE DURATION OF WORK.

18. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES AND DEVICES FOR ALL OUTLETS AS INDICATED.

19. DITCHING AND BACK FILL: CONTRACTOR SHALL PROVIDE FOR ALL UNDERGROUND INSTALLED CONDUIT AND/OR CABLES INCLUDING EXCAVATION AND BACKFILLING AND COMPACTION. REFER TO NOTES AND REQUIREMENTS 'EXCAVATION, AND BACKFILLING.

20. MATERIALS, PRODUCTS AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SHALL APPEAR ON THE LIST OF U.L. APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NEC, NEMA AND IECE.

21. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OR MANUFACTURES CATALOG INFORMATION OF ANY/ALL LIGHTING FIXTURES, SWITCHES AND ALL OTHER ELECTRICAL ITEMS FOR APPROVAL BY THE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.

22. ANY CUTTING OR PATCHING DEEMED NECESSARY FOR ELECTRICAL WORK IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY AND SHALL BE INCLUDED IN THE COST FOR WORK AND PERFORMED TO THE SATISFACTION OF THE 'CONSTRUCTION MANAGER' UPON FINAL ACCEPTANCE.

23. THE ELECTRICAL CONTRACTOR SHALL LABEL ALL PANELS WITH ONLY TYPEWRITTEN DIRECTORIES. ALL ELECTRICAL WIRING SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

24. DISCONNECT SWITCHES SHALL BE H.P. RATED HEAVY-DUTY, QUICK-MAKE AND QUICK-BREAK ENCLOSURES, AS REQUIRED BY EXPOSURE TYPE.

25. ALL CONNECTIONS SHALL BE MADE WITH A PROTECTIVE COATING OF AN ANTI-OXIDE COMPOUND SUCH AS "NO-OXIDE A" BY DEARBORNE CHEMICAL CO. COAT ALL WIRE SURFACES BEFORE CONNECTING. EXPOSED COPPER SURFACES, INCLUDING GROUND BARS, SHALL BE TREATED - NO SUBSTITUTIONS.

26. RACEWAYS: CONDUIT SHALL BE SCHEDULE 40 PVC MEETING OR EXCEEDING NEMA TC2 - 1990. CONTRACTOR SHALL PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LBS TEST POLYETHYLENE CORD. ALL CONDUIT BENDS SHALL BE A MINIMUM OF 2 FT. RADIUS. RGS CONDUITS WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. COAT ALL THREADS WITH 'BRITE ZINC' OR 'GOLD GALV'.

27. SUPPORT OF ALL ELECTRICAL WORK SHALL BE AS REQUIRED BY NEC.

28. CONDUCTORS: CONTRACTOR SHALL USE 98% CONDUCTIVITY COPPER WITH TYPE THWN INSULATION, 800 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG. USE STRANDED CONDUCTORS FOR WIRE ABOVE NO. 8 AWG.

29. CONNECTORS FOR POWER CONDUCTORS: CONTRACTOR SHALL USE PRESSURE TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER. USE SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER.

30. SERVICE: 240/120V, SINGLE PHASE, 3 WIRE CONNECTION AVAILABLE FROM UTILITY COMPANY. OWNER OR OWNERS AGENT WILL APPLY FOR POWER.

31. TELEPHONE SERVICE: CONTRACTOR SHALL PROVIDE EMPTY CONDUITS WITH PULL STRINGS AS INDICATED ON DRAWINGS.

32. ELECTRICAL AND TELCO RACEWAYS TO BE BURIED A MINIMUM OF 2' DEPTH.

33. CONTRACTOR SHALL PLACE TWO LENGTHS OF WARNING TAPE AT A DEPTH OF 12" BELOW GROUND AND DIRECTLY ABOVE ELECTRICAL AND TELCO SERVICE CONDUITS. CAUTIONS TAPE TO READ "CAUTION BURIED ELECTRIC" OR "BURIED TELECOMM".

34. ALL BOLTS SHALL BE STAINLESS STEEL

GROUNDING NOTES

1. COMPRESSION CONNECTIONS (2), 2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUNDING BAR. ROUTE CONDUCTORS TO BURIED GROUNDING RING AND PROVIDE PARALLEL EXOTHERMIC WELD.

2. EC SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" HIGH LETTERS.

3. ALL HARDWARE 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8 INCH DIAMETER OR LARGER.

4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.

5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUNDING BAR AND BOLTED ON THE BACK SIDE.

6. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION, AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.

7. WHEN THE SCOPE OF WORK REQUIRES THE ADDITION OF A GROUNDING BAR TO AN EXISTING TOWER,THE SUBCONTRACTOR SHALL OBTAIN APPROVAL FROM THE TOWER OWNER PRIOR TO MOUNTING THE GROUNDING BAR TO THE TOWER.

8. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780 (LATEST EDITION), AND MANUFACTURER.

ADDITIONAL NOTES:

9. ALL DETAILS ARE SHOWN IN GENERAL TERMS. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.

10. GROUND ALL ANTENNA BASES, FRAMES, CABLE RUNS, AND OTHER METALLIC COMPONENTS USING #2 GROUND WIRES AND CONNECT TO SURFACE MOUNTED GROUND BUS BARS AS SHOWN. FOLLOW ANTENNA AND BTS MANUFACTURER'S PRACTICES FOR GROUNDING REQUIREMENTS. GROUND COAX SHIELD AT BOTH ENDS USING MANUFACTURERS PRACTICES. ALL UNDERGROUND WATER PIPES, METAL CONDUITS AND GROUNDS THAT ARE A PART OF THIS SYSTEM SHALL BE BONDED TOGETHER.

11. ALL GROUND CONNECTIONS SHALL BE #2 AWG U.N.O. ALL WIRES SHALL BE COPPER THHN/THWN. ALL GROUND WIRE SHALL BE SOLID TIN COATED OR STRANDED GREEN INSULATED WIRE.

12. CONTRACTOR TO VERIFY AND TEST GROUND TO SOURCE, 5 OHMS MAXIMUM. PROVIDE SUPPLEMENT GROUNDING RODS AS REQUIRED TO ACHIEVE SPECIFIED OHMS READING. GROUNDING AND OTHER OPTIONAL TESTING WILL BE WITNESSED BY THE VERIZON REPRESENTATIVE.

13. NOTIFY ARCHITECT/ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.

14. BARE GROUNDING CONDUCTOR SHALL BE HARD DRAWN TINNED COPPER SIZES AS NOTED ON PLAN.

15. ALL HORIZONTALLY RUN GROUNDING CONDUCTORS SHALL BE INSTALLED MINIMUM 12" BELOW GRADE/FROST-LINE IN TRENCH, U.N.O., AND BACK FILL SHALL BE COMPACTED AS REQUIRED BY ARCHITECT.

16. ALL GROUND CONDUCTORS SHALL BE RUN AS STRAIGHT AND SHORT AS POSSIBLE, WITH A MINIMUM 12" BENDING RADIUS NOT LESS THAN 90 DEGREES.

17. ALL SUPPORT STRUCTURES, CABLE CHANNEL WAYS OR WIRE GUIDES SHALL BE BONDED TO GROUND SYSTEM AT A POINT NEAREST THE MAIN GROUNDING BUS "MGB" (OR DIRECTLY TO GROUND-RING).

18. ACCEPTABLE CONNECTIONS FOR GROUNDING SYSTEM SHALL BE:
   a. BURNDY, HY-GRADE U.L. LISTED CONNECTORS FOR INDOOR USE OR AS APPROVED BY VERIZON PROJECT MANAGER.
   b. CADWELD, EXOTHERMIC WELDS (WELDED CONNECTIONS).
   c. TWO -(2) HOLE TINNED COPPER COMPRESSION (LONG BARREL) FITTINGS (BUS BAR CONNECTIONS).

19. ALL CRIMPED CONNECTIONS SHALL HAVE EMBOSSED MANUFACTURER'S DIEMARK VISIBLE AT THE CRIMP (RESULTING FROM USE OF PROPER CRIMPING DEVICES).

20. PRIOR TO ANY LUG-BUSSBAR CONNECTIONS, THE BUSSBAR SHALL BE CLEANED BY USE OF "SCOTCH-BRITE' OR PLAIN STEEL WOOL AS TO REMOVE ALL SURFACE OXIDATION AND CONTAMINANTS. A COATING OF "NO-OX-ID" SHALL BE APPLIED TO THE CONNECTION SURFACES.

21. ALL CONNECTION HARDWARE SHALL BE TYPE 316 SS (NOT ATTRACTED TO MAGNETS).

22. THE GROUND RING SHALL BE INSTALLED 24" MINIMUM BEYOND ANY BUILDING DRIP LINE.

23. ELECTRICAL SERVICE EQUIPMENT GROUNDING SHALL COMPLY WITH NEC, ARTICLE 250-82 AND SHALL BOND ALL EXISTING AND NEW GROUNDING ELECTRODES. NEW GROUNDING ELECTRODE SHALL INCLUDE BUT NOT LIMITED TO GROUND RODS, GROUND RING IF SERVICE IS WITHIN THE RADIO EQUIPMENT LOCATION, BUILDING STEEL IF APPLICABLE, COLD WATER CONNECTIONS MUST BE MADE ON THE STREET SIDE OF MAIN SHUT-OFF VALVE.

verizon
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WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER
WISSAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

"Hands On Tree Care"
ANDERSON'S Tree Care Specialists, Inc.

11/24/2020

Jeremy Stroup
Real Estate Specialist III
Vinculums Services, LLC
10 Pasteur, Suite 100
Irvine, CA 92618
jstroup@vinculums.com
925-202-8654

Re: Tree Protection Measures at SF PALO ALTO 205 (853 Middlefield Rd.)

Dear Jeremy,

Cellular equipment will be mounted on a new metal light pole, #71, adjacent to the above address, with three new handholes in the sidewalk adjacent to the pole, connected to the pole and to an existing handhole by conduit installed via trenching. The new light pole will be installed in approximately the same location as the existing pole. Nearly all excavation will be under the existing sidewalk, with a small amount in the unpaved park strip. I visually estimated distances between trees and project features onsite.

Two trees are present, as shown in the Tree Table, below, both non-regulated private trees. Trenching is within the dripline[1] of tree #1 but outside the dripline of tree #2. Both trees require modified Type II tree protection at the edge of the sidewalk only. Both trees may require pruning for worker access, on the part of the canopy overhanging the sidewalk only. All pruning must be performed by a licensed tree care company and under the direction of an ISA Certified Arborist. Trenching must be performed by hand. If any live roots are encountered during excavation, the recommendations in section 2.20 C apply:

[1] The area within 10x the tree's DBH, as specified in the City of Palo Alto Tree Technical Manual. Please note that this may be different from the edge of the canopy, also commonly called the dripline.

C. Trenching, Excavation and Equipment Use

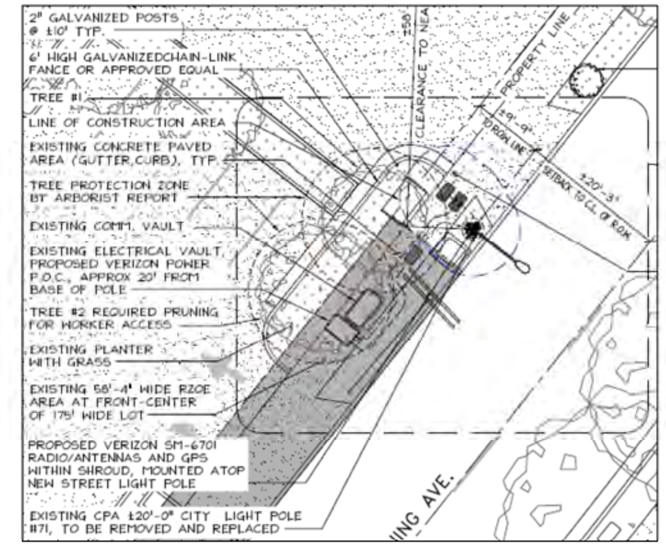
Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions and requirements if approved by the *City Arborist*. *(See Restriction Zones for Excavation, Trenching or Boring Near Regulated Trees, Image 2.20-1 through 2.20-3)*. Mitigating measures shall include prior notification to and direct supervision by the *project arborist*.

1. Notification. Contractor shall notify the *project arborist* a minimum of 24 hours in advance of the activity in the TPZ.
2. Root Severance. Roots that are encountered shall be cut to sound wood and repaired (*see Root Injury, Section 2.25 A-1*). Roots 2-inches and greater must remain injury free.
3. Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging, hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather.
   - If excavation or *trenching* for drainage, utilities, irrigation lines, etc., it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.
   - Prior to excavation for foundation/footings/walls, grading or *trenching* within the TPZ, roots shall first be severed cleanly 1-foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a saw, sawzall, narrow trencher with sharp blades or other approved root pruning equipment.
4. Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the *City Arborist*. If allowed, a protective *root buffer* (*see Root Buffer and Damage to Trees, Section 2.25.A-1*) is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.
   - Structural design. If injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to *City Arborist* approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

An amenity tree is proposed in the park strip northeast of the project area, on the other side of the private driveway. I have been informed by my client that all trees planted near 5G equipment must reach a mature height of 20 feet or less. City staff has specified a drought-tolerant tree. Given these constraints, I recommend a swamp myrtle (*Tristaniopsis laurina*).

Tree #	Species	Common Name	DBH[2] (in.)	Dripline[3] (ft. and in.)	Regulated Status
1	Pistacia chinensis	Chinese pistache	8"	6'4"	Private Non-Protected Tree
2	Pistacia chinensis	Chinese pistache	6"	5'0"	Private Non-Protected Tree
3	Swamp myrtle (not yet present)	Tristaniopsis laurina	24" box	N/A	New amenity tree

Tree map, revised by client 4/2/2021



[2] Diameter at breast height, a standard arboricultural measurement. Breast height is defined as 54 inches above grade.
[3] Defined in the Palo Alto Tree Technical Manual as ten times the tree's DBH. Work within a tree's dripline may negatively impact it.

Image of trees #1 and 2 (right to left)

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
5. Loss, alteration, or reproduction of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
7. Neither all nor any part of this report, nor any copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or initialed designation conferred upon the consultant/appraiser as stated in his qualification.
8. This report and the values expressed herein represent the opinion of the consult/appraiser, and the consult/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in future.

Respectfully submitted,

Katherine Naegele
Consulting Arborist
Anderson's Tree Care Specialists, Inc.
A TCIA Accredited Company
Master of Forestry, UC Berkeley
ISA Certified Arborist #WE-9658A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists, Member
Office: 408 226-8733
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B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

71655

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

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
TREE PROTECTION REPORT

SHEET NUMBER
TPR-1

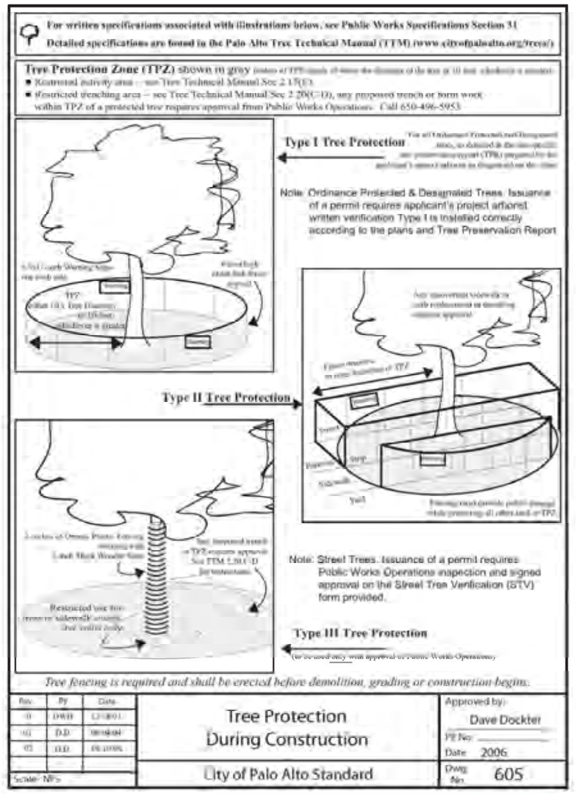
NOTE:
ANY CONSTRUCTION WITHIN THE CITY'S PUBLIC ROAD RIGHT-OF-WAY SHALL HAVE AN APPROVED PERMIT FOR CONSTRUCTION IN THE PUBLIC STREET PRIOR TO COMMENCEMENT OF THIS WORK

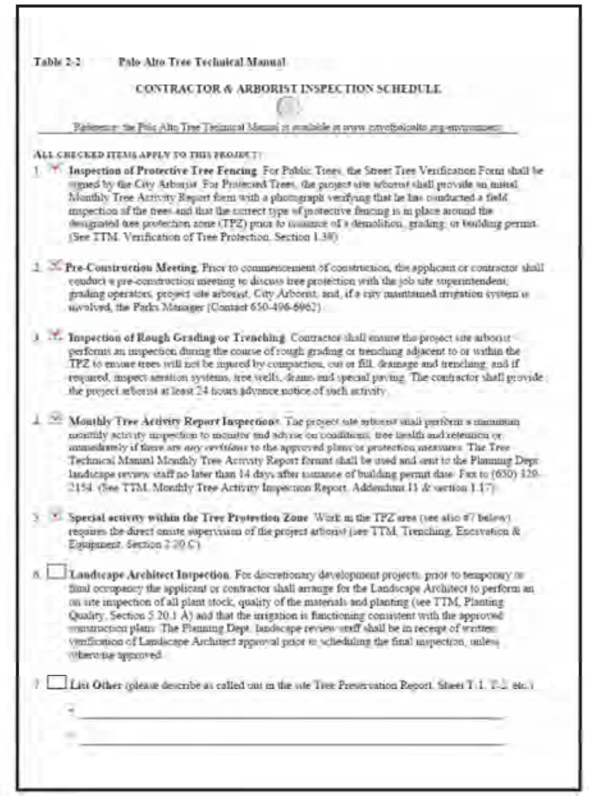
City of Palo Alto

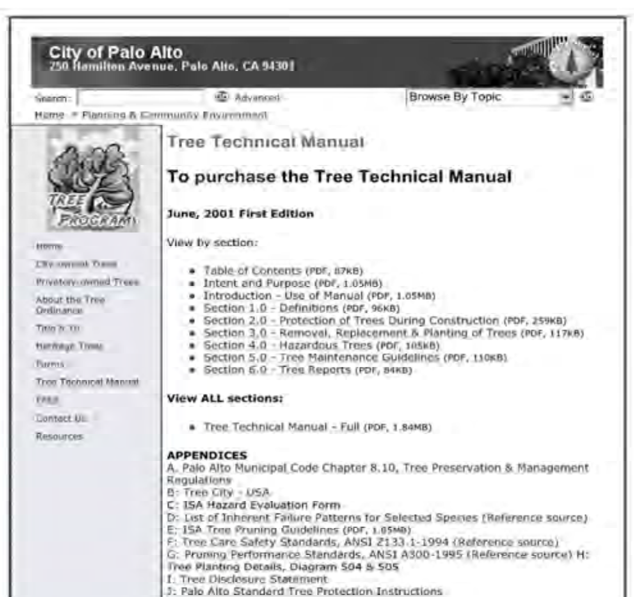
Tree Protection - It's Part of the Plan!

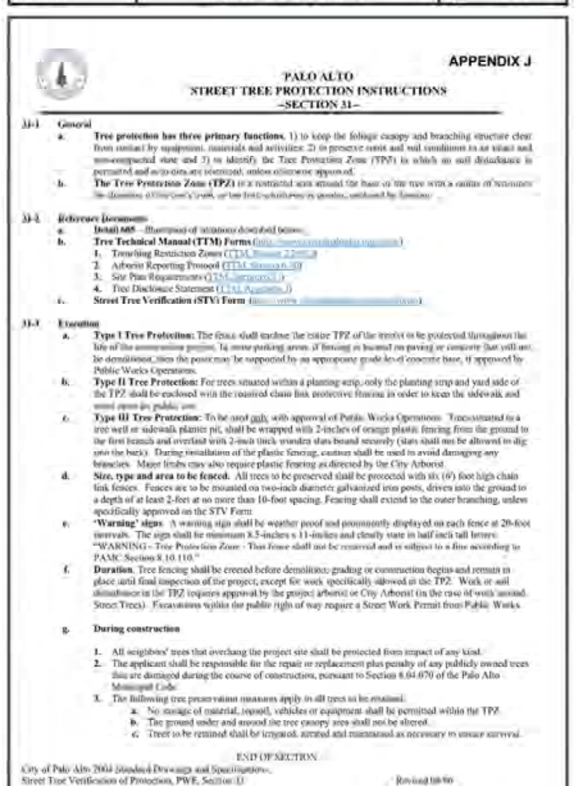
Make sure your crews and subs do the job right!

Fenced enclosures around trees are essential to protect them by keeping the foliage canopy and branching structure clear from contact by equipment, materials and activities, preserving roots and soil conditions in an intact and non-compacted state, and identifying the Tree Protection Zone (TPZ) in which no soil disturbance is permitted and activities are restricted, unless otherwise approved. **An approved tree protection report must be added to this sheet when project activity occurs within the TPZ of a regulated tree.** For detailed information on Palo Alto's regulated trees and protection during development, review the **City Tree Technical Manual** (TTM) found at www.cityofpaloalto.org/trees/.









---WARNING---
Tree Protection Zone

This fencing shall not be removed without City Arborist approval (650-496-5953)

Removal without permission is subject to a $500 fine per day*

****Palo Alto Municipal Code Section 8.10.110***

City of Palo Alto Tree Protection Instructions are located at [illegible]

SPECIAL INSPECTIONS — PLANNING DEPARTMENT

TREE PROTECTION INSPECTIONS MANDATORY

PAMC 8.10 PROTECTED TREES. CONTRACTOR SHALL ENSURE PROJECT SITE ARBORIST IS PERFORMING REQUIRED TREE INSPECTION AND SITE MONITORING. PROVIDE WRITTEN MONTHLY TREE ACTIVITY REPORTS TO THE PLANNING DEPARTMENT LANDSCAPE REVIEW STAFF BEGINNING 14 DAYS AFTER BUILDING PERMIT ISSUANCE.

BUILDING PERMIT DATE: ______

DATE OF 1ST TREE ACTIVITY REPORT: ______

CITY STAFF: ______

REPORTING DETAILS OF THE MONTHLY TREE ACTIVITY REPORT SHALL CONFORM TO SHEET T-1 FORMAT. VERIFY THAT ALL TREE PROTECTION MEASURES ARE IMPLIMENTED AND WILL INCLUDE ALL CONTRACTOR ACTIVITY, SCHEDULED OR UNSCHEDULED, WITHIN A TREE PROTECTION ROOT ZONE. NON-COMPLIANCE IS SUBJECT TO VIOLATION OF PAMC 8.10.080. REFERENCE: PALO ALTO TREE TECHNICAL MANUAL SECTION 2.00 AND ADDENDUM 11

Apply Tree Protection Report on sheet(s) T-2

Use addtional "T" sheets as needed

verizon

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1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

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

SF PALO ALTO 205

PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
PALO ALTO TREE PROTECTION

SHEET NUMBER
L-1

POLLUTION PREVENTION — IT'S PART OF THE PLAN

Construction projects are required to implement year-round stormwater BMPs, as they apply to your project.

Runoff from streets and other paved areas is a major source of pollution to San Francisco Bay. Construction activities can directly affect the health of the Bay unless contractors and crews plan ahead to keep construction dirt, debris, and other pollutants out of storm drains and local creeks. Following these guidelines will ensure your compliance with City of Palo Alto Ordinance requirements.






MATERIALS & WASTE MANAGEMENT

Non-Hazardous Materials

- ☐ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or when they are not in use.
- ☐ Use (but don't overuse) reclaimed water for dust control.
- ☐ Ensure dust control water doesn't leave site or discharge to storm drains.

Hazardous Materials

- ☐ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ☐ Store hazardous materials and wastes in water-tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ☐ Follow manufacturer's application instructions for hazardous materials and do not use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ☐ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ☐ Cover and maintain dumpsters. Check frequently for leaks. Place dumpsters under roofs or cover with tarps or plastic sheeting secured around the outside of the dumpster. A plastic liner is recommended to prevent leaks. Never clean out a dumpster by hosing it down on the construction site.
- ☐ Place portable toilets away from storm drains. Make sure they are in good working order. Check frequently for leaks.
- ☐ Dispose of all wastes and demolition debris properly. Recycle materials and wastes that can be recycled, including solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation.
- ☐ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.
- ☐ Keep site clear of litter (e.g. lunch items, cigarette butts).
- ☐ Prevent litter from uncovered loads by covering loads that are being transported to and from site.

Construction Entrances and Perimeter

- ☐ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ☐ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

EQUIPMENT MANAGEMENT & SPILL CONTROL

Maintenance and Parking

- ☐ Designate an area of the construction site, well away from streams or storm drain inlets and fitted with appropriate BMPs, for auto and equipment parking, and storage.
- ☐ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ☐ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ☐ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ☐ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment, and do not use diesel oil to lubricate equipment or parts onsite.

Spill Prevention and Control

- ☐ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ☐ Maintain all vehicles and heavy equipment. Inspect frequently for and repair leaks. Use drip pans to catch leaks until repairs are made.
- ☐ Clean up leaks, drips and other spills immediately and dispose of cleanup materials properly.
- ☐ Use dry cleanup methods whenever possible (absorbent materials, cat litter and/or rags).
- ☐ Sweep up spilled dry materials immediately. Never attempt to "wash them away" with water, or bury them.
- ☐ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ☐ Report any hazardous materials spills immediately! Call City of Palo Alto Communications, **(650) 329-2413**. If the spill poses a significant hazard to human health and safety, property or the environment, you must report it to the State Office of Emergency Services, **(800) 852-7550 (24 hours)**.

EARTHMOVING

Grading and Earthwork

- ☐ Schedule grading and excavation work during dry weather.
- ☐ Stabilize all denuded areas; install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ☐ Remove existing vegetation only when absolutely necessary, plant temporary vegetation for erosion control on slopes or where construction is not immediately planned.
- ☐ Prevent sediment from migrating offsite and protect storm drain inlets, drainage courses and streams by installing and maintaining appropriate BMPs (e.g., silt fences, gravel bags, fiber rolls, temporary swales, etc.).
- ☐ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ☐ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells.
  - Buried barrels, debris, or trash.
- ☐ If the above conditions are observed, document any signs of potential contamination and clearly mark them so they are not disturbed by construction activities.

Landscaping

- ☐ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ☐ Stack bagged material on pallets and under cover.
- ☐ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

CONCRETE MANAGEMENT & DEWATERING

Concrete Management

- ☐ Store both dry and wet materials under cover, protected from rainfall and runoff and away from storm drains or waterways. Store materials off the ground, on pallets. Protect dry materials from wind.
- ☐ Wash down exposed aggregate concrete only when the wash water can (1) flow onto a dirt area; (2) drain onto a bermed surface from which it can be pumped and disposed of properly; or (3) block any storm drain inlets and vacuum washwater from the gutter. If possible, sweep first.
- ☐ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and make sure wash water does not leach into the underlying soil. (See CASQA Construction BMP Handbook for properly designed concrete washouts.)

Dewatering

- ☐ Reuse water for dust control, irrigation or another on-site purpose to the greatest extent possible.
- ☐ Be sure to obtain a Permit for Construction in the Public Street from Public Works Engineering before discharging water to a street, gutter, or storm drain. Call the Regional Water Quality Control Plant (RWQCP) at **(650) 329-2598** for an inspection prior to commencing discharge. Use filtration or diversion through a basin, tank, or sediment trap as required by the approved dewatering plan. Dewatering is not permitted from October to April.
- ☐ In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the City inspector to determine what testing to do and to interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.

PAVING/ASPHALT WORK

Paving

- ☐ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ☐ Cover storm drain inlets and manholes when applying seal coat, slurry seal, fog seal, or similar materials.
- ☐ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.

Sawcutting & Asphalt/Concrete Removal

- ☐ Protect storm drain inlets during saw cutting.
- ☐ If saw cut slurry enters a catch basin, clean it up immediately.
- ☐ Shovel or vacuum saw cut slurry deposits and remove from the site. When making saw cuts, use as little water as possible. Sweep up, and properly dispose of all residues.

PAINTING & PAINT REMOVAL

Painting Cleanup and Removal

- ☐ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ☐ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ☐ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ☐ Sweep up or collect paint chips and dust from non-hazardous dry stripping and sand blasting into plastic drop cloths and dispose of as trash.
- ☐ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state certified contractor.

STORM DRAIN POLLUTERS MAY BE LIABLE FOR FINES OF UP TO $10,000 PER DAY!

250 Hamilton Avenue
Palo Alto, CA 94301
650.329.2211
cityofpaloalto.org

CITY OF PALO ALTO

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
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REGISTERED PROFESSIONAL ENGINEER
WASAM ZALZALI
71655
CIVIL
STATE OF CALIFORNIA

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
PALO ALTO POLLUTION PREVENTION CHECKLIST

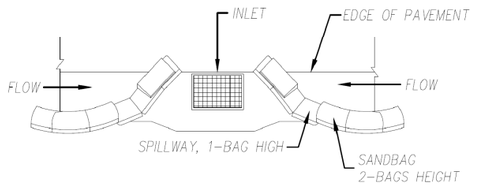
SHEET NUMBER
L-2

EROSION AND SEDIMENT CONTROL NOTES:

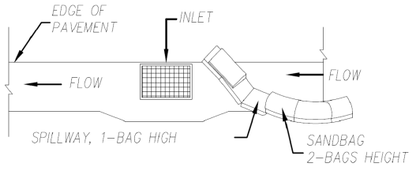
TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED PUBLIC IMPROVEMENTS CONSISTENT WITH THE EROSION CONTROL PLAN AND/OR WATER POLLUTION CONTROL PLAN (WPCP), IF APPLICABLE.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
4. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
5. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
6. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
7. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
8. EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED IMPROVEMENT PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
10. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.

STORM DRAIN INLET PROTECTION



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:

1. INTENDED FOR SHORT-TERM USE.
2. USE TO INHIBIT NON-STORM WATER FLOW.
3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FILTER FABRIC.

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE SANDBAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEPT AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. SIDEWALK TO BE REPLACED CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.
7. SIDEWALK SHALL BE RESTORED/REPLACED PER CITY STANDARD DRAWINGS.
8. PEDESTRIAN RAMP WILL NOT BE DISTURBED.PEDESTRIAN RAMP WILL NOT BE DISTURBED.

GENERAL CONTRACTOR NOTES:

1. STREET USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
2. ALL WORK TO BE CONDUCTED IN THE RIGHT OF WAY.
3. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
4. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNING WILL BE PLACED.
5. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
6. CLEANUP OF SITE WILL BE COMPLETED EACH EVENING AND THE SITE WILL BE RETURNED TO EXISTING CONDITIONS AT THE COMPLETION OF CONSTRUCTION AT EACH SITE.

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

R.O.W. GROUND CONSTRUCTION NOTES:

1. GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, G095 AND G0128 STANDARDS AND REGULATIONS.
3. CALL USA 48 HOURS PRIOR TO EXCAVATING AT (800) 227-2600 OR 811.
4. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
5. ALL EQUIPMENT TO BE BONDED. ALL EQUIPMENT TO BE BONDED.
6. METERING CABINET REQUIRES 36" CLEARANCE AT DOOR OPENING.
7. CAULK CABINET BASE AT PAD.

CALIFORNIA STATE CODE COMPLIANCE:

ALL WORK AND MATERIALS SHALL BE PREFORMED 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 CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

- CALIFORNIA ADMINISTRATIVE CODE (INCLUDING TITLES 24 & 25) 2016
- 2016 CALIFORNIA BUILDING CODES WHICH ADOPTS THE 2015 IBC, 2015 IMC, 2015 IPC AND THE 2014 NEC,AND SHALL INCLUDE 2016 CBC, CFC, CMC, CEC, CPC, CGBSC.
- BUILDING OFFICIALS & CODE ADMINISTRATORS (BOCA) CURRENT NATIONAL CODES
- ANSI/EIA-222-G (2009 - 2ND EDITION)
- NFPA-101 - LIFE SAFETY CODE / CAL-OSHA - TITLE 8 / FCR - TITLE 29
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES
- ACCESSIBILITY REQUIREMENTS:

** FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS DO NOT APPLY IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE.

- FCC RF/EMF EXPOSURE/EMITTANCE COMPLIANCE:

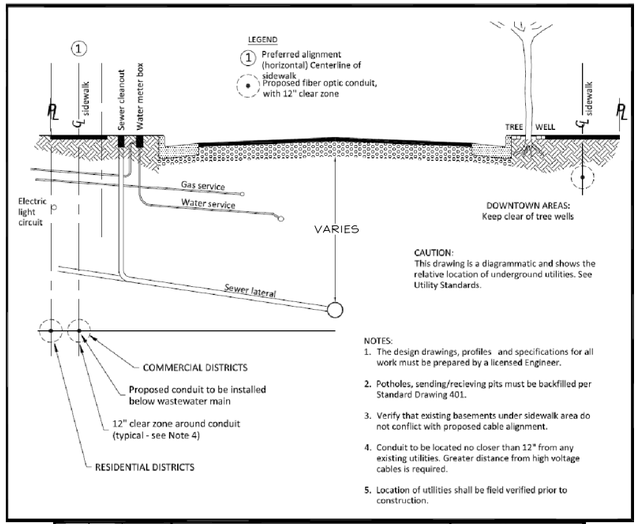
**FCC NOTE: THIS WIRELESS COMMUNICATION FACILITY COMPLIES WITH FEDERAL STANDARDS FOR RADIO FREQUENCY IN ACCORDANCE WITH THE TELECOMMUNICATION ACT OF 1996 AND SUBSEQUENT AMENDMENTS AND ANY OTHER REQUIREMENTS IMPOSED BY STATE OR FEDERAL REGULATORY AGENCIES.

CITY OF PALO ALTO UTILITIES ENGINEERING NOTES:

1. APPLICANT SHALL TAP ELECTRIC SERVICE TO THE SMALL CELL DISTRIBUTED ANTENNA SYSTEM FROM THE LOCATIONS JOINTLY IDENTIFIED DURING THE FIELD INVESTIGATION.
2. SERVICE VOLTAGE TO ALL THE PROPOSED LOCATIONS MAY NOT BE THE SAME. APPLICANT SHALL DESIGN THEIR SYSTEM TO OPERATE AT THE AVAILABLE VOLTAGE IN THE VICINITY.
3. IF BRAND NEW POLES NEED TO BE INSTALLED FOR APPLICANT'S SYSTEM THEN THE POLES MUST MATCH EXISTING POLES IN THE DOWN TOWN AREA.
4. AFTER EXCAVATION IS COMPLETED ON THE PUBLIC RIGHT OF WAY, EXISTING STREETS INCLUDING SIDEWALKS/ CURB/ GUTTER OR ANY DECORATIVE PATHS MUST BE BROUGHT TO ITS ORIGINAL CONDITION AND MUST BE APPROVED BY PUBLIC WORKS ENGINEERING DEPARTMENT'S INSPECTOR. POTHOLING MUST BE DONE AND ALL THE UTILITIES MUST BE IDENTIFIED PRIOR TO COMMENCING EXCAVATION.
5. EXCAVATION AND RESTORATION WORK MUST BE IN COMPLIANCE WITH PUBLIC WORKS ENGINEERING STANDARDS AND SPECIFICATIONS THAT ARE AVAILABLE ON THE FOLLOWING WEBSITE: http://www.cityofpaloalto.org/news/displaynews.asp?NewsID=1834&TargetID=145
6. APPLICANTS SHALL BE RESPONSIBLE FOR MAINTAINING THEIR SYSTEM INCLUDING SUBSTRUCTURE. IN CASE OF KNOCK DOWNS, THE CITY WILL RE-INSTALL ITS STREET LIGHTING POLES BUT NOT APPLICANT'S EQUIPMENT ON OR OFF THE POLE.
7. A FIELD MEETING IS RECOMMENDED WITH UTILITIES ENGINEERING PRIOR TO COMMENCING THE WORK.
8. PLANS SHALL INCLUDE A NOTE: CONTRACTOR TREE INSPECTION REQUIREMENTS: MODIFIED TYPE III TRUNK WRAPPING SHALL BE VERIFIED BY URBAN FORESTRY PRIOR TO ANY WORK IN THE VICINITY. FOR EACH TREE SITE WRAPPED FOR PROTECTION WITHIN 15' OF ANY WORK ZONE OR CONCRETE FORM SECTION, A BILLABLE TREE INSPECTION BY URBAN FORESTRY (650-496-5953, 24-HOUR ADVANCE IS REQUIRED) SHALL BE COMPLETED PRIOR TO DEMOLITION, DRILLING, EXCAVATING,FORMING OR STREET LIGHT ACTIVITY. CONTRACTOR SHALL ARRANGE PAYMENTS AT THE DEVELOPMENT CENTER, 285 HAMILTON AVE, PALO ALTO, CA.
9. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITIES DEPARTMENT 650/329-2413 OR 650/496-6982 IF THE EXISTING WATER, WASTEWATER OR GAS MAINS ARE DISTURBED OR DAMAGED. A QUALIFIED CONTRACTOR MAY PERFORM REPAIRS ON CITY WATER AND WASTEWATER MAINS UNDER THE DIRECT SUPERVISION OF THE WGW UTILITIES INSPECTOR. FOR WATER REPAIRSALL THE DISINFECTION REQUIREMENTS OF THE WGW UTILITY STANDARDS AND THESE CONDITIONS SHALL BE ADHERED TO. ALL REPAIRS TO THE CITY GAS SYSTEM MUST BE PERFORMED BY THE CITY OF PALO ALTO UTILITIES.
10. NO WATER VALVES OR OTHER FACILITIES OWNED BY UTILITIES DEPARTMENT SHALL BE OPERATED FOR ANY PURPOSE BY THE APPLICANT'S CONTRACTOR. ALL REQUIRED OPERATION WILL ONLY BE PERFORMED BY AUTHORIZED UTILITIES DEPARTMENT PERSONNEL. WATER VALVES MAY BE OPERATED BY THE CONTRACTOR UNDER THE DIRECT SUPERVISION OF THE WGW UTILITIES INSPECTOR. THE APPLICANT'S CONTRACTOR SHALL NOTIFY THE UTILITIES DEPARTMENT NOT LESS THAN FORTY-EIGHT (48) HOURS IN ADVANCE OF THE TIME THAT SUCH OPERATION IS REQUIRED.

NORMAL LOCATION OF UNDERGROUND UTILITIES NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE DEPT. OF PUBLIC WORKS FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY THE DEPT. OF PUBLIC WORKS IN CASES OF CONFLICTING FACILITIES.
3. CONFLICTS BETWEEN UTILITY COMPANIES FACILITIES, EXISTING AND PROPOSED, MUST BE MUTUALLY RESOLVED BY THE UTILITY COMPANIES.
4. FOR COMMERCIAL SIDEWALKS, THE FIRE HYDRANT SHALL BE PLACED WITHIN THE SIDEWALK 1'-6" BEHIND FACE OF CURB.
5. MAXIMUM 2" DIAMETER GAS MAINS MAY BE PLACED IN JOINT UTILITIES TRENCH SUBJECT TO APPROVAL OF CITY ENGINEER (IN TRACTS).



Rev	By	Date
0	DWH	7/16/98
1	MMN	7/20/04

Scale: NTS

Conduit Location Detail
Telecommunications

City of Palo Alto Standard

Approved by:

PE No. 72158
Date 01/10/18
Dwg No. 402

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
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2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
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B	05/06/2020	95% CD'S FOR REDLINE	RF
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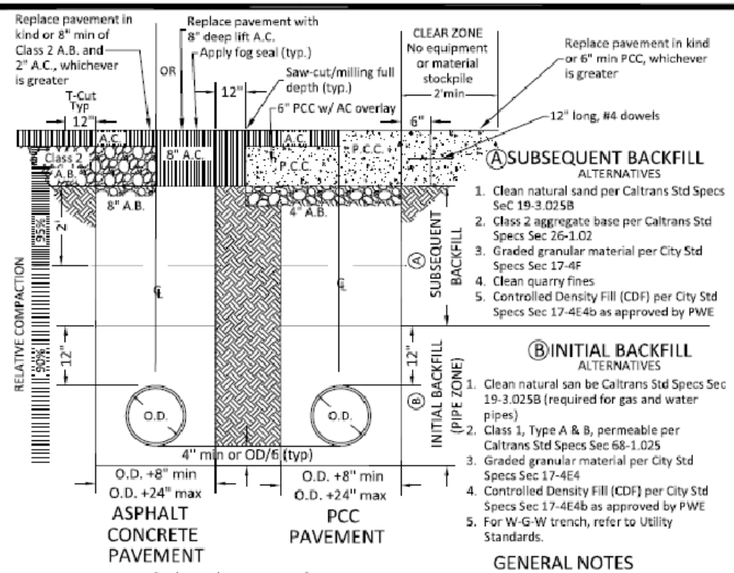
REGISTERED PROFESSIONAL ENGINEER
WASSIM ZALZALI
71655
STATE OF CALIFORNIA
CIVIL

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
PALO ALTO EROSION CONTROL AND CONDUIT LOCATION DETAILS & NOTES

SHEET NUMBER
L-3



(A) SUBSEQUENT BACKFILL ALTERNATIVES

1. Clean natural sand per Caltrans Std Specs SeC 19-3.025B
2. Class 2 aggregate base per Caltrans Std Specs Sec 26-1.02
3. Graded granular material per City Std Specs Sec 17-4F
4. Clean quarry fines
5. Controlled Density Fill (CDF) per City Std Specs Sec 17-4E4b as approved by PWE

(B) INITIAL BACKFILL ALTERNATIVES

1. Clean natural san be Caltrans Std Specs Sec 19-3.025B (required for gas and water pipes)
2. Class 1, Type A & B, permeable per Caltrans Std Specs Sec 68-1.025
3. Graded granular material per City Std Specs Sec 17-4E4
4. Controlled Density Fill (CDF) per City Std Specs Sec 17-4E4b as approved by PWE
5. For W-G-W trench, refer to Utility Standards.

GENERAL NOTES

1. PCC shall contain a minimum of 6 sacks concrete with a desired 28-day strength of 3,500 PSI
2. Extend T-cut to lip gutter per City Std Specs Sec 17-4G
3. Refer to City Std Dwg 403 for trench limits of restoration
4. Match existing AC thickness on PCC overlays

JETTING NOTES

1. IMPROVED AREAS
   a. INITIAL BACKFILL - jetting of sand OK
   b. SUBSEQUENT BACKFILL - jetting of sand subject to approval of City Engineer, except for top 2 ft, which must be mechanically compacted
2. UNIMPROVED AREAS: jetting of sand OK
3. WHEN JETTING IS PERMITTED:
   a. Excess water shall be collected at low points and removed by pumping
   b. San to be jetted shall be placed in lifts no thicker than 4 ft
   c. Jetting shall be performed at intervals along the trench not to exceed 6 ft

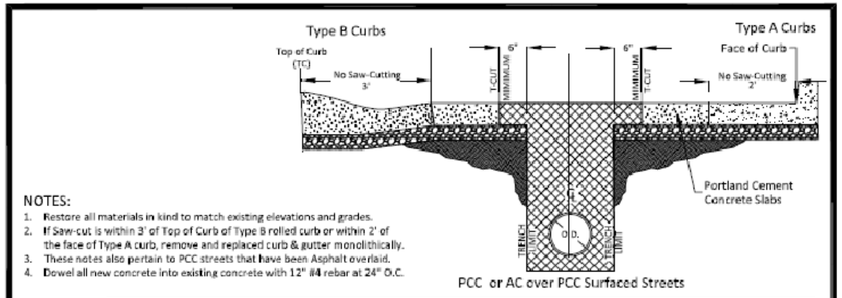
Rev	By	Date
1	MN	03/10/05
2	JT	08/18/06
3	HQN	10/04/06
4	RTN	06/08/17

Scale: NTS

Trenches
Typical Cross-Sections

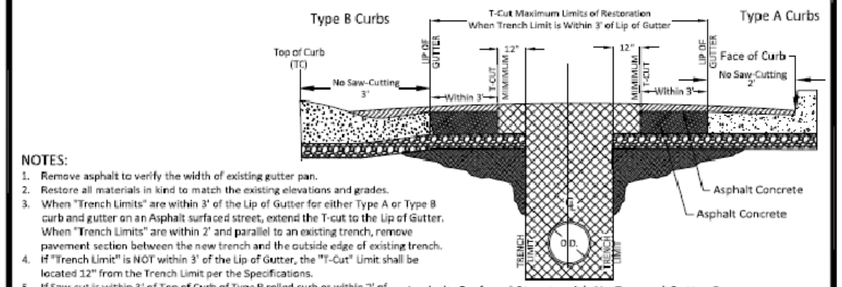
City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 401



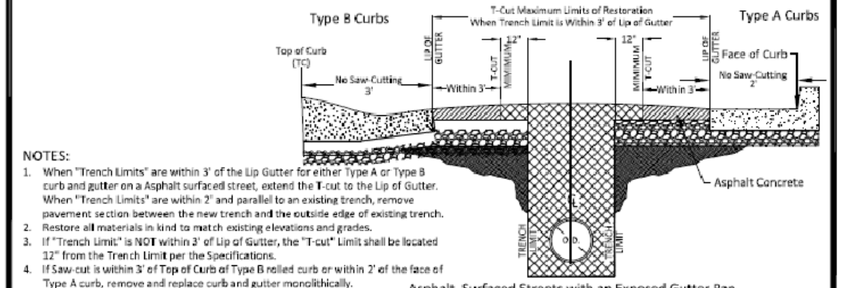
NOTES:
1. Restore all materials in kind to match existing elevations and grades.
2. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replaced curb & gutter monolithically.
3. These notes also pertain to PCC streets that have been Asphalt overlaid.
4. Dowel all new concrete into existing concrete with 12" #4 rebar at 24" O.C.

PCC or AC over PCC Surfaced Streets



NOTES:
1. Remove asphalt to verify the width of existing gutter pan.
2. Restore all materials in kind to match the existing elevations and grades.
3. When "Trench Limits" are within 3' of the Lip of Gutter for either Type A or Type B curb and gutter on an Asphalt surfaced street, extend the T-cut to the Lip of Gutter. When "Trench Limits" are within 2' and parallel to an existing trench, remove pavement section between the new trench and the outside edge of existing trench.
4. If "Trench Limit" is NOT within 3' of the Lip of Gutter, the "T-Cut" Limit shall be located 12" from the Trench Limit per the Specifications.
5. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replace curb & gutter monolithically.

Asphalt Surfaced Streets with No Exposed Gutter Pan



NOTES:
1. When "Trench Limits" are within 3' of the Lip Gutter for either Type A or Type B curb and gutter on a Asphalt surfaced street, extend the T-cut to the Lip of Gutter. When "Trench Limits" are within 2' and parallel to an existing trench, remove pavement section between the new trench and the outside edge of existing trench.
2. Restore all materials in kind to match existing elevations and grades.
3. If "Trench Limit" is NOT within 3' of Lip of Gutter, the "T-cut" Limit shall be located 12" from the Trench Limit per the Specifications.
4. If Saw-cut is within 3' of Top of Curb of Type B rolled curb or within 2' of the face of Type A curb, remove and replace curb and gutter monolithically.

Asphalt Surfaced Streets with an Exposed Gutter Pan

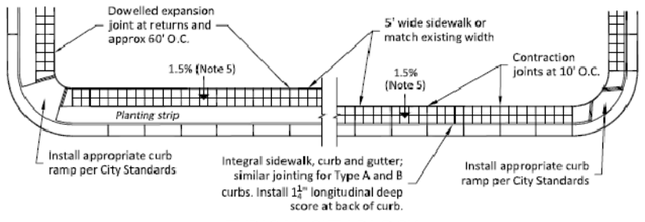
Rev	By	Date
1	MN	2/30/05
2	JT	8/14/06
3	HQN	10/16/06
4	RTN	06/11/17

Scale: NTS

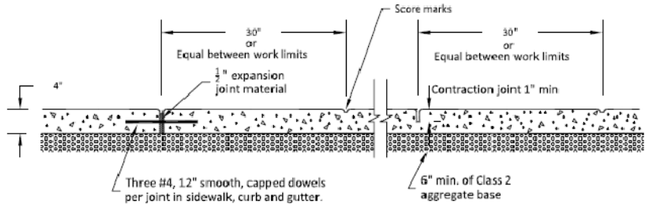
Trenches
Limits of Restoration

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 403



TYPICAL CITY BLOCK PLAN



Expansion joint Contraction joint

LONGITUDINAL SECTIONS

SIDEWALK CONSTRUCTION NOTES:

1. SIDEWALKS TO BE MARKED IN 30" SQUARES.
2. EDGES TO HAVE 3/4" RADIUS.
3. SCORE MARKS SHALL NOT BE LESS THAN 3/8" DEEP; CONTRACTION JOINTS SHALL BE 1" IN MINIMUM DEPTH @ 10' O.C.
4. CONTRACTION JOINTS MAY BE SAW-CUT.
5. SIDEWALKS TO HAVE 1.5% SLOPE TO STREET.
6. ALL NEW SIDEWALKS SHALL BE DOWELED AT 2'-0" O.C. INTO EXISTING CONCRETE WITH #4 12" LONG DOWELS AND EMBEDDED 6".
7. SAW CUT WALK FULL DEPTH AND FULL WIDTH ON SCORE MARKS PERPENDICULAR TO THE CURB. NO SAWCUTTING ON LONGITUDINAL SCORE MARKS.
8. INSTALL LONGITUDINAL DEEP SCORE ALONG ENTIRE BACK OF CURB THAT IS MONOLITHIC WITH SIDEWALK.

Rev	By	Date
0	DWH	12/14/92
1	MN	01/29/02
2	HQN	01/04/07
3	RTN	08/10/17

Scale: NTS

Sidewalk Construction

City of Palo Alto Standard

Approved by:
PE No. 72158
Date 01/10/18
Dwg No. 141

City of Palo Alto Standard | Dwg No. 141

verizon
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

Vinculums
575 LENNON LANE #125
WALNUT CREEK, CA 94598
OFFICE: (925) 482-8500

ALLSTATES ENGINEERING & SURVEYING
23675 BIRTCHER DRIVE
LAKE FOREST, CA 92630

PROJECT ID:	P-599771
DRAWN BY:	RF
CHECKED BY:	DW

REV	DATE	DESCRIPTION	
5	04/02/2021	PER CPAU / CPA SL WALK	NC
4	03/17/2021	CITY COMMENTS	MG
3	01/19/2021	CITY COMMENTS	MG
2	09/01/2020	100% CD'S FOR SUBMITTAL	MG
1	06/11/2020	100% CD'S FOR SUBMITTAL	RF
0	05/22/2020	100% CD'S FOR APPROVAL	RF
B	05/06/2020	95% CD'S FOR REDLINE	RF
A	04/16/2020	90% CD'S FOR REDLINE	RF

REGISTERED PROFESSIONAL ENGINEER WASAM ZALZALI 71655 STATE OF CALIFORNIA CIVIL

SF PALO ALTO 205
PUBLIC R.O.W. ADJACENT TO:
EAST SIDE OF
853 MIDDLEFIELD RD.
PALO ALTO, 94301
LOCATION CODE: 566801

SHEET TITLE
PALO ALTO TRENCHING & SIDEWALK STD. DWGS.

SHEET NUMBER
L-4