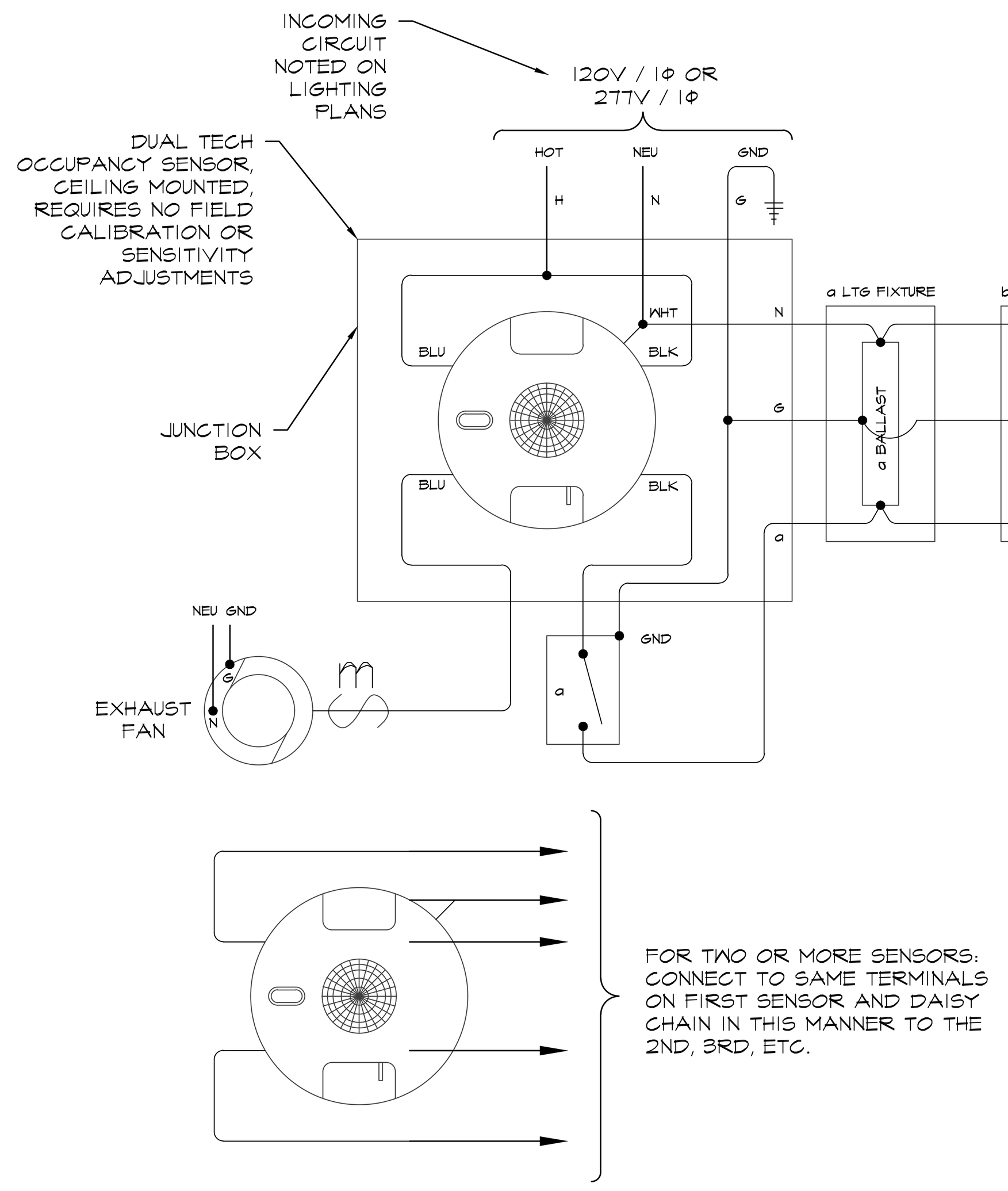


COVERAGE
- STND RANGE: 12' RADIUS ON 9' CEILING
- EXTEND RANGE: 28' RADIUS ON 9' CEING

ELECTRICAL SPECS:
LOAD RATING PER POLE (1 PHASE ONLY)
- 800 W @ 120 VAC /
- 1200 W @ 277 VAC /
- MOTOR LOAD: 1/4 HP

MOUNTING:
CEILING MOUNTED (8' TO 15') USING ROUND FIXTURE BOX OR SINGLE GANG HANDY BOX

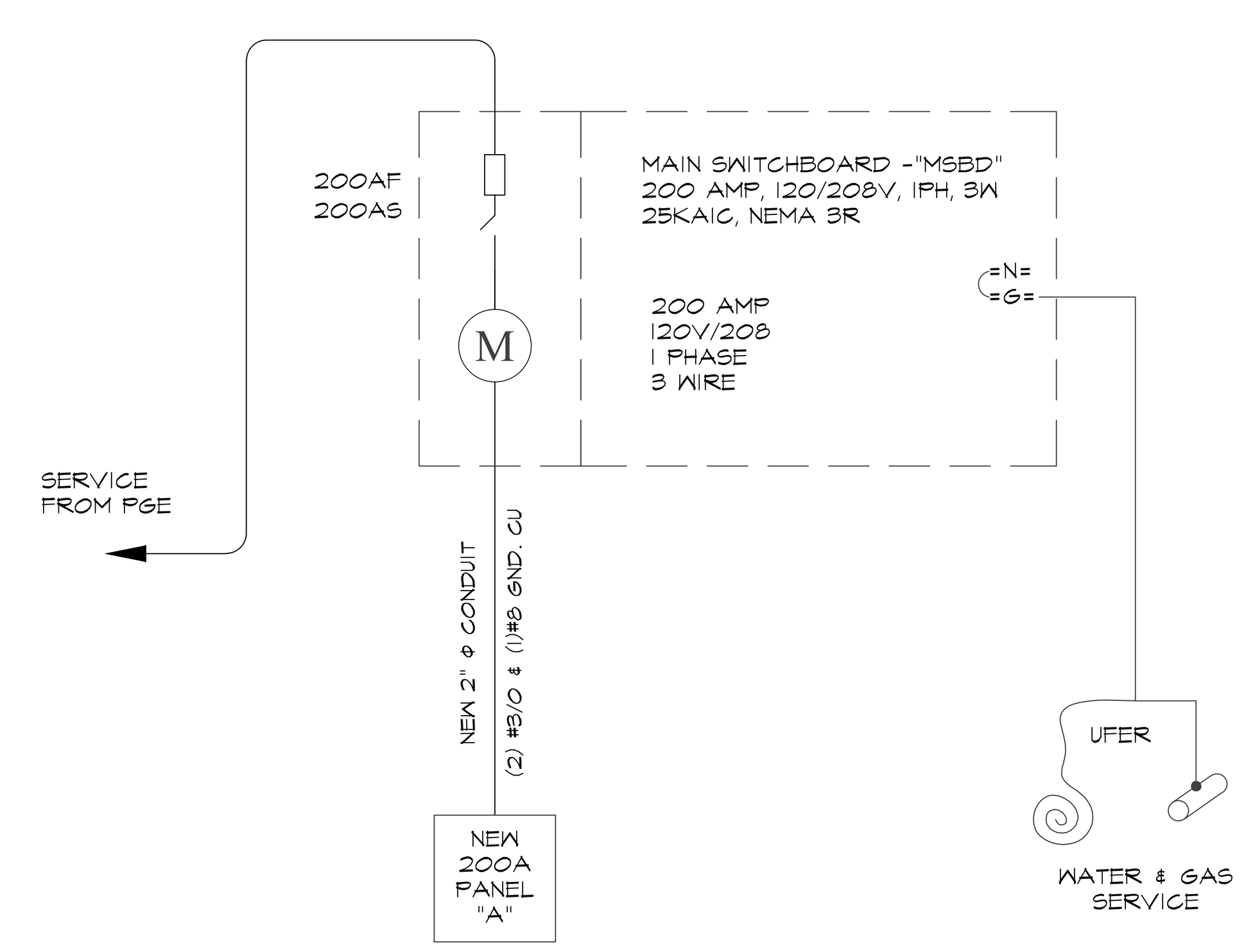
INSTALLATION NOTES:
AVOID LOCATING SENSOR NEAR HVAC AIR DIFFUSERS BECAUSE THE "NOISE" GENERATED FROM AIR FLOW WILL DECREASE THE SENSITIVITY OF THE SENSOR.

FEATURES:
- DUAL TECH OCCUPANCY SENSOR PIR AND MICROPHONICS
- REQUIRES NO FIELD CALIBRATION OR SENSITIVITY ADJUSTMENTS.
- NO POWER PACKS NEEDED
- SEPARATE TIME DELAY FOR EACH POLE

APPLICATIONS:
- A/B SWITCHING
- SEPARATE CONTROLS OF LIGHT AND FAN
- RESTROOM(S)

A OCCUPANCY SENSOR / FAN / LIGHT WIRING DIAGRAM - LINE VOLTAGE
SCALE: N.T.S.

ONE LINE DIAGRAM



NEW ELECTRICAL

ELECTRICAL LOAD CALCULATIONS

		New Panel "D"	
COMPUTED LOAD :			
Building Area:			
New First Floor Area:		1,003.0	SF
New 2 Car Garage:		576.0	SF
Covered Porch Area:		50.0	SF
Covered Patio Area:		206.8	SF
MIN. NUMBER OF BRANCH CIRCUITS REQUIRED			
General Lighting Load: @ 3 Volt-amperes per sq.ft.		5,507	W
MIN. SIZE FEEDER REQUIRED			
SMALL APPLIANCE LOAD		3,000	W
DISHWASHER		1,200	W
RANGE		7,100	W
OVEN		4,800	W
DRYER		5,000	W
WASHER		1,500	W
DISPOSAL		600	W
TOTAL		28,707	W
1ST 10,000W @ 100%	-	10,000	W -
		18,707	W
REMAINING WATTAGE @ 40%		7,483	W
	+	10,000	W
TOTAL RATING		17,483	W

NEW PANEL "A" 17,483 W / 208 V = 49 + 40 + 40 = 129

NEW AMPERAGE FOR HVAC #1 (MAX.)
40 AMPS

NEW AMPERAGE FOR EV CHARGER (MAX.)
40 AMPS

PROVIDE 150 AMP PANEL "C"

GROUNDED TO UFER GROUND #4 REBAR X 20 FT.

NEW ELECTRICAL

ELECTRICAL LOAD CALCULATIONS

		New Panel "A"		New Panel "B"	
COMPUTED LOAD :					
Building Area:					
New First Floor Area:		5,443.3	SF		
New 6 Car Garage:		2,098.3	SF		
New Second Floor Area:				2348.5	SF
Covered Porch Area:		269.5	SF		
Covered Patio Area:		939.5	SF		
Covered Deck Area:				902.0	SF
Open Deck Area:				144.0	SF
MIN. NUMBER OF BRANCH CIRCUITS REQUIRED					
General Lighting Load: @ 3 Volt-amperes per sq.ft.		26,252	W	10,184	W
MIN. SIZE FEEDER REQUIRED					
SMALL APPLIANCE LOAD		3,000	W	3,000	W
DISHWASHER		1,200	W		W
RANGE		7,100	W		W
OVEN		4,800	W		W
DRYER		5,000	W		W
WASHER		1,500	W		W
DISPOSAL		600	W		W
WATER WELL PUMP		5,700	W		
TOTAL		55,152	W	13,184	W
1ST 10,000W @ 100%	-	10,000	W	- 10,000	W
		45,152	W	3,184	W
REMAINING WATTAGE @ 40%		18,061	W	1,273	W
	+	10,000	W	+ 10,000	W
NEW PANEL 'A'		28,061	W		
NEW PANEL 'B'				11,273	W
FUTURE SUBPANEL "C"			W	20,800	W
TOTAL RATING		28,061	W	32,073	W

NEW PANEL "A" 28,061 W / 208 V = 78 + 40 + 40 + 40 = 198 AMPS

NEW AMPERAGE FOR HVAC #1 (MAX.)
40 AMPS

NEW AMPERAGE FOR HVAC #2 (MAX.)
40 AMPS

ELECTRIC VEHICLE CHARGING STATION (EV)
40 AMPS

PROVIDE 200 AMP PANEL "A"
FROM MAIN METER
GROUNDED TO UFER GROUND #4 REBAR X 20 FT.

NEW PANEL "B" 32,073 W / 208 V = 89 + 40 + 40 = 169 AMPS

NEW AMPERAGE FOR HVAC #3 (MAX.)
40 AMPS

NEW AMPERAGE FOR HVAC #4 (MAX.)
40 AMPS

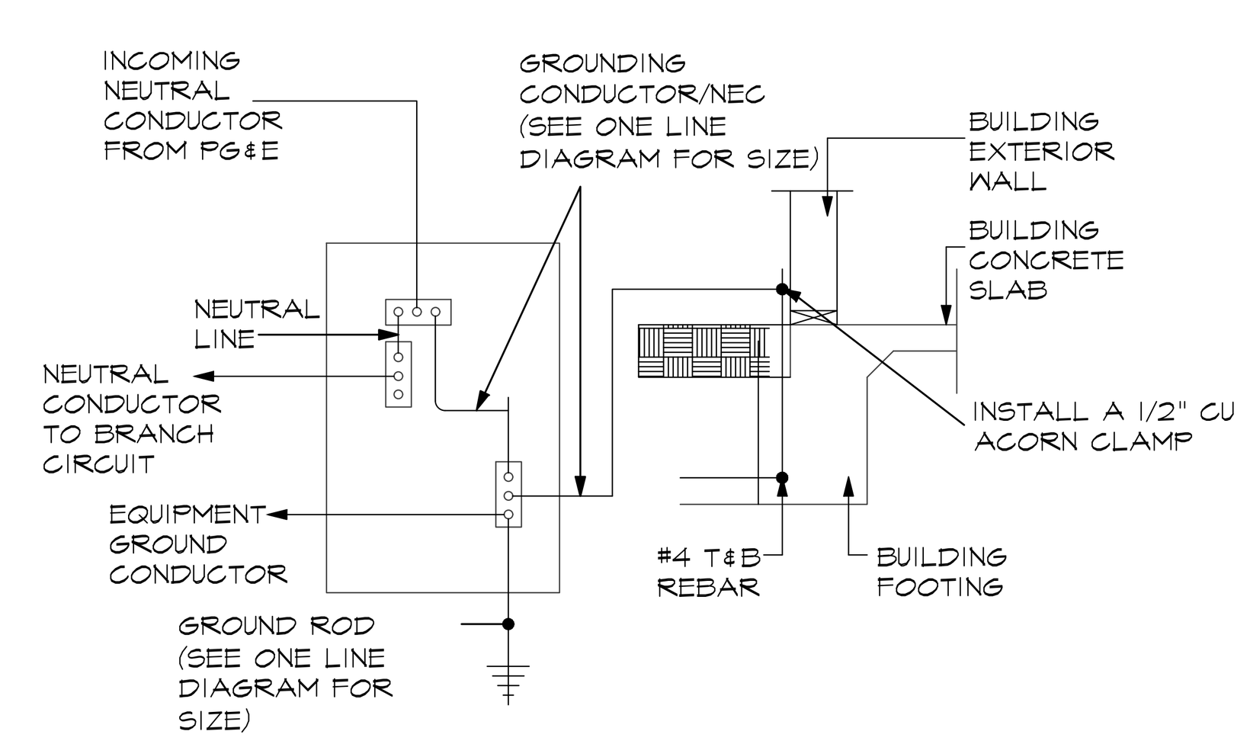
PROVIDE 200 AMP PANEL "B"
FROM MAIN METER
GROUNDED TO UFER GROUND #4 REBAR X 20 FT.

PROVIDE 100 AMP SUBPANEL 'C' FOR FUTURE LANDSCAPE LIGHTING, IRRIGATION, ETC.
FROM PANEL "B"
GROUNDED TO UFER GROUND #4 REBAR X 20 FT.

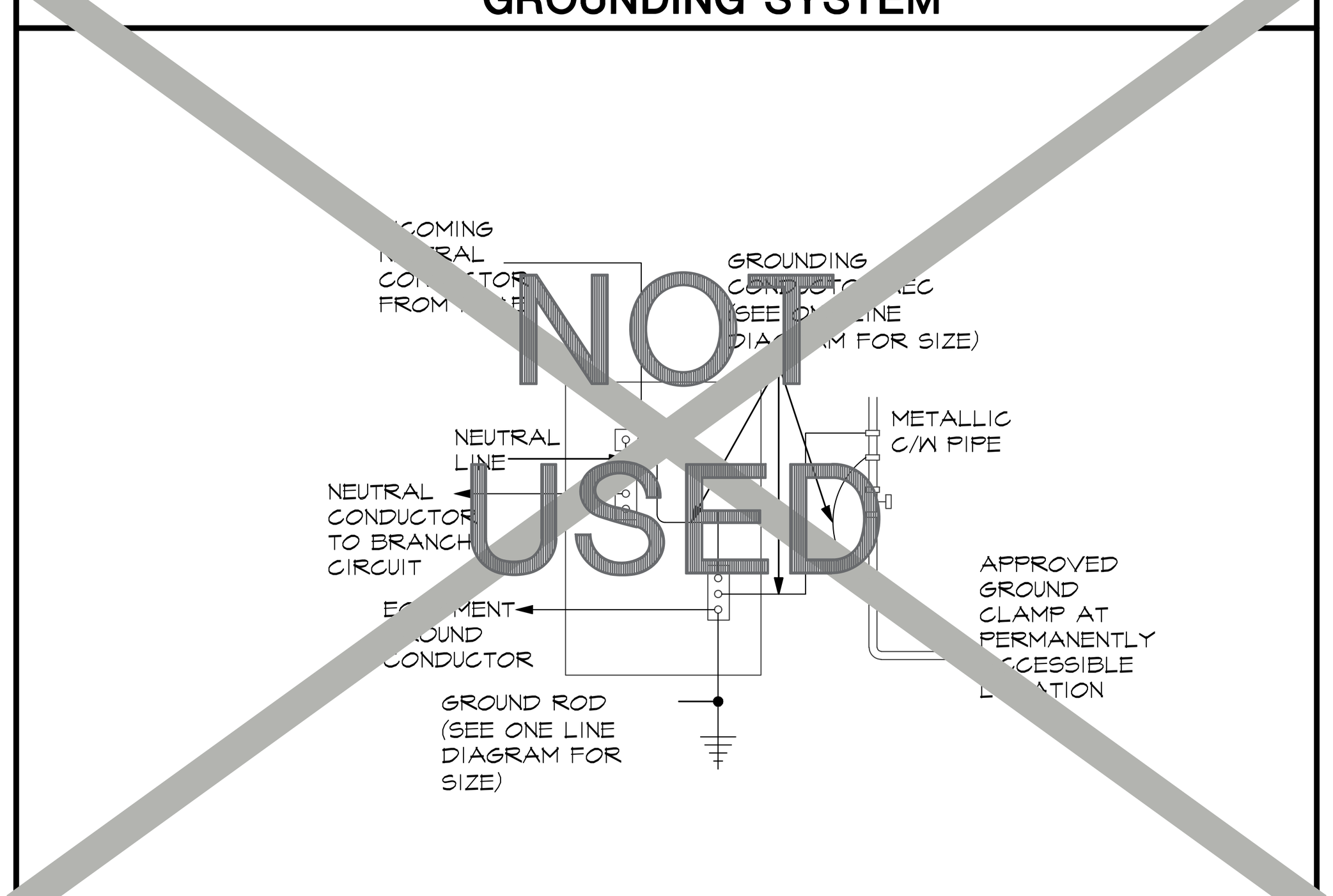
ELECTRICAL NOTES

1. ALL RECEPTACLES MUST BE LOCATED BETWEEN 15" - 48" ABOVE FINISHED FLOOR AND LIGHTING SWITCHES 48" ABOVE THE FINISHED FLOOR OR PLATFORM.
2. ALL NEW OUTLETS (RECEPTACLES, LIGHTING, ETC.) IN THE FAMILY, DINING, LIVING, BEDROOMS, HALLWAYS, ETC. SHALL BE ON CIRCUITS PROTECTED WITH A COMBINATION ARC-FAULT CIRCUIT INTERRUPTER (AFCI) (2016 CBC 210.12)
3. BATHROOM LIGHT(S) AND GFCI RECEPTACLE(S) SHALL BE ON A SINGLE SEPARATE CIRCUIT.
4. BATHROOM LIGHTS SHALL BE FLUORESCENT OR HIGH EFFICIENCY LIGHT FIXTURE.
5. RECESSED LIGHTS IN INSULATED CEILINGS MUST HAVE THE FOLLOWING REQUIREMENTS:
   - 5.1. RATED I.C.
   - 5.2. CERTIFIED AIR TIGHT.
   - 5.3. HAVE SEALED GASKET OR CAULK BETWEEN HOUSING AND CEILING.
6. ALL FIXTURES, OUTLETS, AND EQUIPMENT MOUNTED IN / ON THE BUILDING EXTERIOR SHALL BE UL APPROVED FOR WET LOCATION INSTALLATION. PARTIALLY PROTECTED FIXTURES, DEVICES, AND EQUIPMENT MOUNTED SHALL BE UL APPROVED FOR DAMP LOCATION INSTALLATION. RECEPTACLES IN DAMP OR WET LOCATIONS SHALL MEET THE REQUIREMENTS OF NEC ARTICLE 406.8.
7. PROVIDE GFCI RECEPTACLES IN RESTROOMS ADJACENT TO EACH BASIN LOCATION, AND OUTDOORS AT THE FRONT AND REAR OF THE BUILDING.
8. OUTDOOR RECEPTACLES MUST BE WEATHERPROOFED AND GFCI.
9. PROVIDE SWITCHED LIGHTING FIXTURES AT ALL EXIT DOORS.
10. WORKMANSHIP SHALL BE OF THE HIGHEST ORDER, PER NEC ARTICLE 110-12. ANY DEFECTIVE OR DAMAGED EQUIPMENT SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING WITH THE APPROVAL OF THE ARCHITECT/ENGINEER AT NO ADDITIONAL COST TO THE OWNER. ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH NEC STANDARDS.
11. ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. ALL CONDUIT SHALL BE ROUTED AND CONCEALED UNLESS NOTED ON PLAN OR APPROVED BY THE ARCHITECT/ENGINEER. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE ELECTRICAL CONTRACTOR, UON, AND SHALL BE COORDINATED WITH OTHER TRADES. DO NOT SCALE THE ELECTRICAL PLANS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL, CIVIL, OR MECHANICAL EQUIPMENT, ITEMS, OR FEATURES.
12. COORDINATE ELECTRICAL PANEL AND TERMINAL CABINET LOCATIONS AND ROUTING OF CONDUITS WITH FRAMING CONTRACTOR PRIOR TO BEGINNING ANY ROUGH-IN WORK FOR SPECIFIC EQUIPMENT.
13. WHERE EXISTING CONDUIT IS BEING REUSED ON THE SITE, NEW CONDUCTORS SHALL BE PULLED CONTINUOUS AND UN-SPLICED THROUGH THE EXISTING RACEWAY, RE-PULLING EXISTING CONDUCTORS AS REQUIRED AND PROVIDE A PULL ROPE IN THE EXISTING CONDUIT.
14. INSTALL ELECTRICAL EQUIPMENT, LIGHTING, AND RECEPTACLES PER LATEST NEC, CBC.
15. INSTALL NEUTRAL PER EACH CIRCUIT SEPARATELY.
16. 120 VOLT CIRCUIT SHALL BE #12 THHN MIN.
17. LIGHTING AND CONTROL SHALL CONFORM TO 2016 BUILDING ENERGY EFFICIENCY STANDARDS.
18. ALL CONDUITS SHALL BE EQUIPPED WITH EQUIPMENT GROUND CONDUCTOR PER NEC ARTICLE 250.
19. A FOUR WIRE BRANCH CIRCUIT IS REQUIRED FOR ALL 240 VOLT CIRCUITS SERVING COOKING EQUIPMENT AND CLOTHES DRYER LOCATIONS.
20. ALL WIRING SHALL BE IN METALLIC RACEWAY.
21. MAIN SERVICE AND ALL ELECTRICAL EQUIPMENT (SWITCHGEAR, DISTRIBUTION PANELS) SHALL BE LOCALLY GROUNDED PER NEC ARTICLE 250.
22. PROVIDE SOLAR PANEL READY SYSTEM INCORPORATED INTO ELECTRICAL - TO BE DETERMINED BY OTHERS AND SEPARATE FUTURE SUBMITTAL.
23. ALL LIGHTING ACCEPTANCE TESTING REQUIREMENTS SHALL BE CHECKED BY CONTRACTOR AND AS FOLLOWS:
    - 23.1. SHALL BE CHECKED FOR PROPER ASSEMBLY, PROPER LOUVERS OR LENSE, PROPER LAMPS, PROPER BALLASTS, STRAIGHT ROW ALIGNMENT, PROPER AIMING, AND THE ABSENCE OF LIGHT LEAKS.
24. PROVIDE DESIGNATED 20 AMP CIRCUITS FOR THE FOLLOWING CIRCUITRY:
    - 24.1. THE TWO SMALL APPLIANCE BRANCH CIRCUITS SERVING THE KITCHEN.
    - 24.2. BATHROOMS.
    - 24.3. LAUNDRY ROOMS.
    - 24.4. BUILT-IN MICROWAVE OVENS.
25. A WORKING CLEARANCE OF 3'-0" IN FRONT OF ALL DISTRIBUTION PANELS AND ELECTRICAL EQUIPMENT MUST BE MAINTAINED.
26. PROVIDE GFCI RECEPTACLES IN RESTROOMS ADJACENT TO EACH BASIN LOCATION, AND OUTDOORS AT THE FRONT AND REAR OF THE BUILDING.
27. PROVIDE A STANDARD 125-VOLT GROUND FAULT CIRCUIT INTERRUPTER (GFCI) SINGLE PHASE 20A RATED RECEPTACLE OUTLET AT AN ACCESSIBLE LOCATION, ON THE SAME LEVEL, WITHIN 25 FEET OF ALL EXTERIOR MOUNTED HVAC EQUIPMENT. THE RECEPTACLE OUTLET SHALL NOT BE DISCONNECTED TO THE LOAD SIDE OF THE EQUIPMENT DISCONNECT MEANS PER NEC 210.63.
28. BEFORE AN OCCUPANCY PERMIT IS GRANTED FOR ANY NEWLY CONSTRUCTED BUILDING OR AREA, OR A NEW LIGHTING SYSTEM SERVING A BUILDING, AREA, OR SITE IS OPERATED FOR NORMAL USE, ALL INDOOR AND OUTDOOR LIGHTING CONTROLS SERVING THE BUILDING, AREA, OR SITE SHALL BE CERTIFIED AS MEETING THE ACCEPTANCE REQUIREMENTS FOR CODE COMPLIANCE IN ACCORDANCE WITH SECTION 130.4. A CERTIFICATE OF ACCEPTANCE SHALL BE SUBMITTED TO THE ENFORCING AGENCY UNDER SECTION 10 - 103(a) OF PART 1. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTING AND COMPLETION OF REQUIRED ACCEPTANCE FORMS. IF GENERAL CONTRACTOR IS NOT LICENSED FOR THIS WORK, H.C. SHALL HIRE A LICENSED THIRD PARTY.
29. LIGHTING FIXTURES IN CLOTHES CLOSET SHALL COMPLY WITH CURRENT CEC SECTION 410.2 AND 410.16.

UFER GROUNDING SYSTEM



GROUNDING SYSTEM



CENTRAL VALLEY ENGINEERING & SURVEYING, INC.
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PROJECT
NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER
RICARDO LEAL
No. C 77625
Exp. 06-30-23
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 3/1/2023

Revisions:	Date:
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NOTES, SCHEDULES, AND DETAILS

CVEAS JOB # :
DATE: 3/1/2023
PLANNING SUBMITTAL #: XX-XXXX
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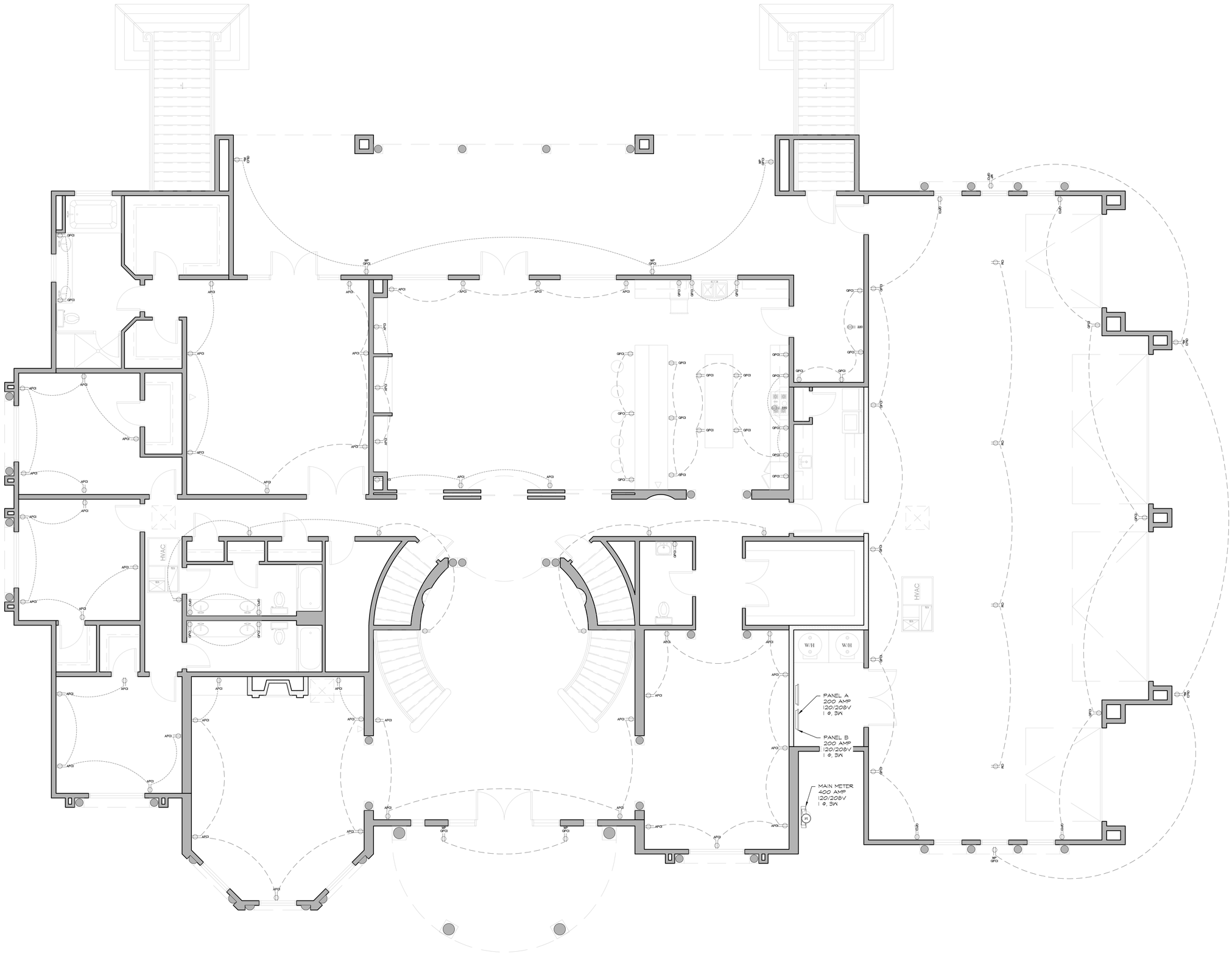

POWER PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"

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Revisions:	Date:
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POWER PLAN
FIRST FLOOR

CVEAS JOB #:

DATE: 2/2/2023

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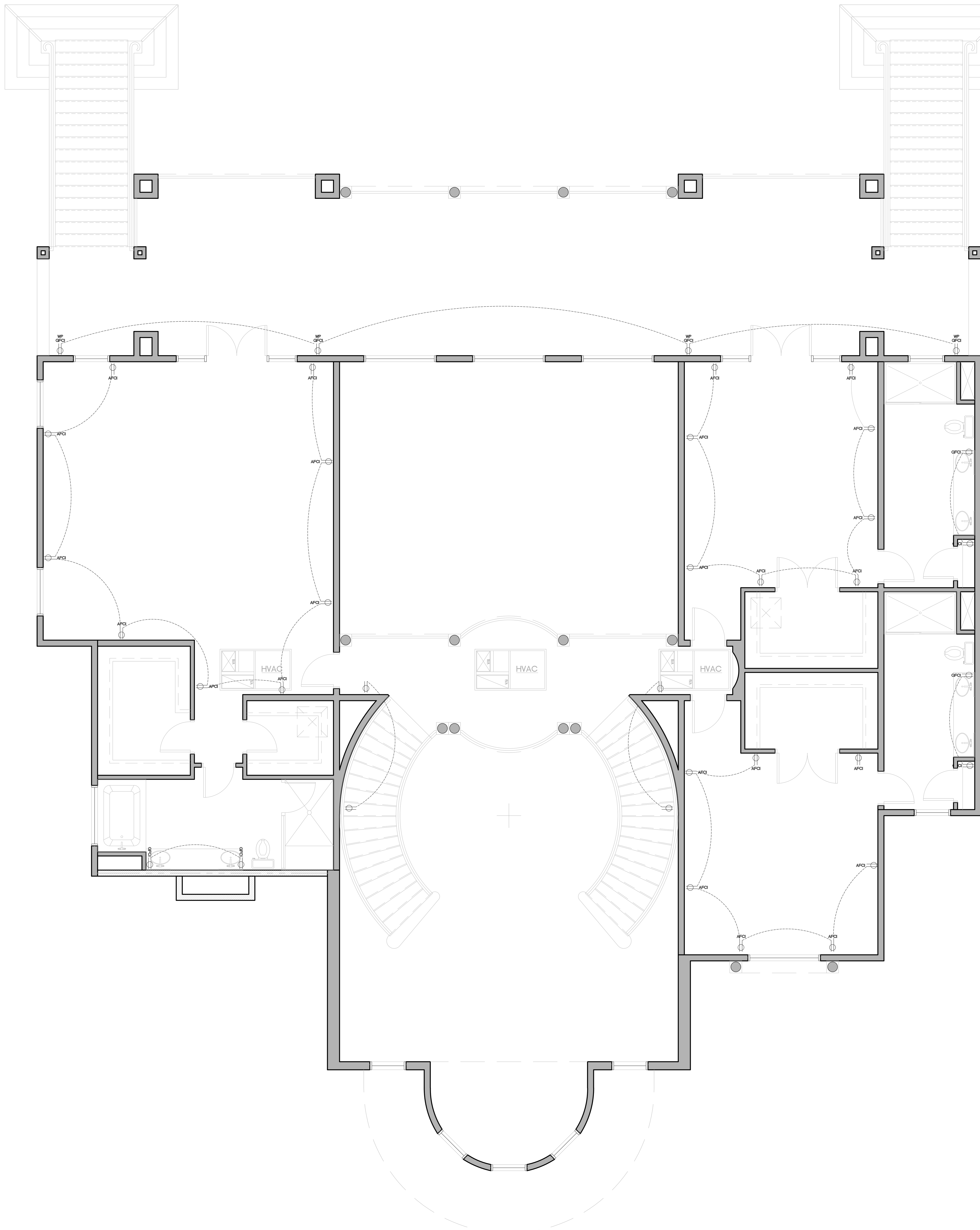

POWER PLAN - SECOND FLOOR
SCALE: 1/4" = 1'-0"

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POWER PLAN
SECOND FLOOR

CVEAS JOB # :

DATE: 2/2/2023

PLANNING SUBMITTAL #: XX-XXXX

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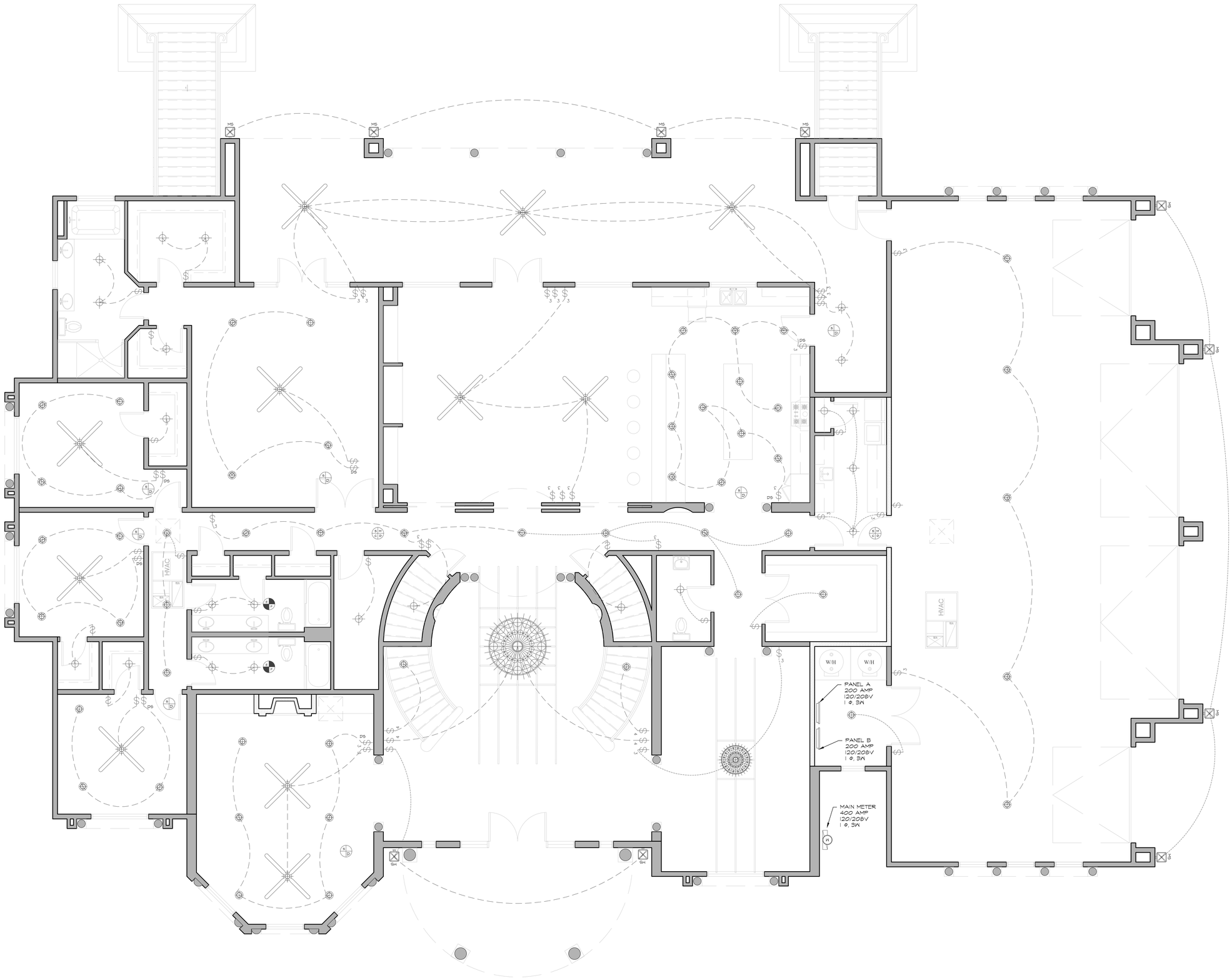

LIGHTING PLAN - FIRST FLOOR
SCALE: 1/4" = 1'-0"

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LIGHTING PLAN
FIRST FLOOR

CVEAS JOB # :

DATE: 2/2/2023

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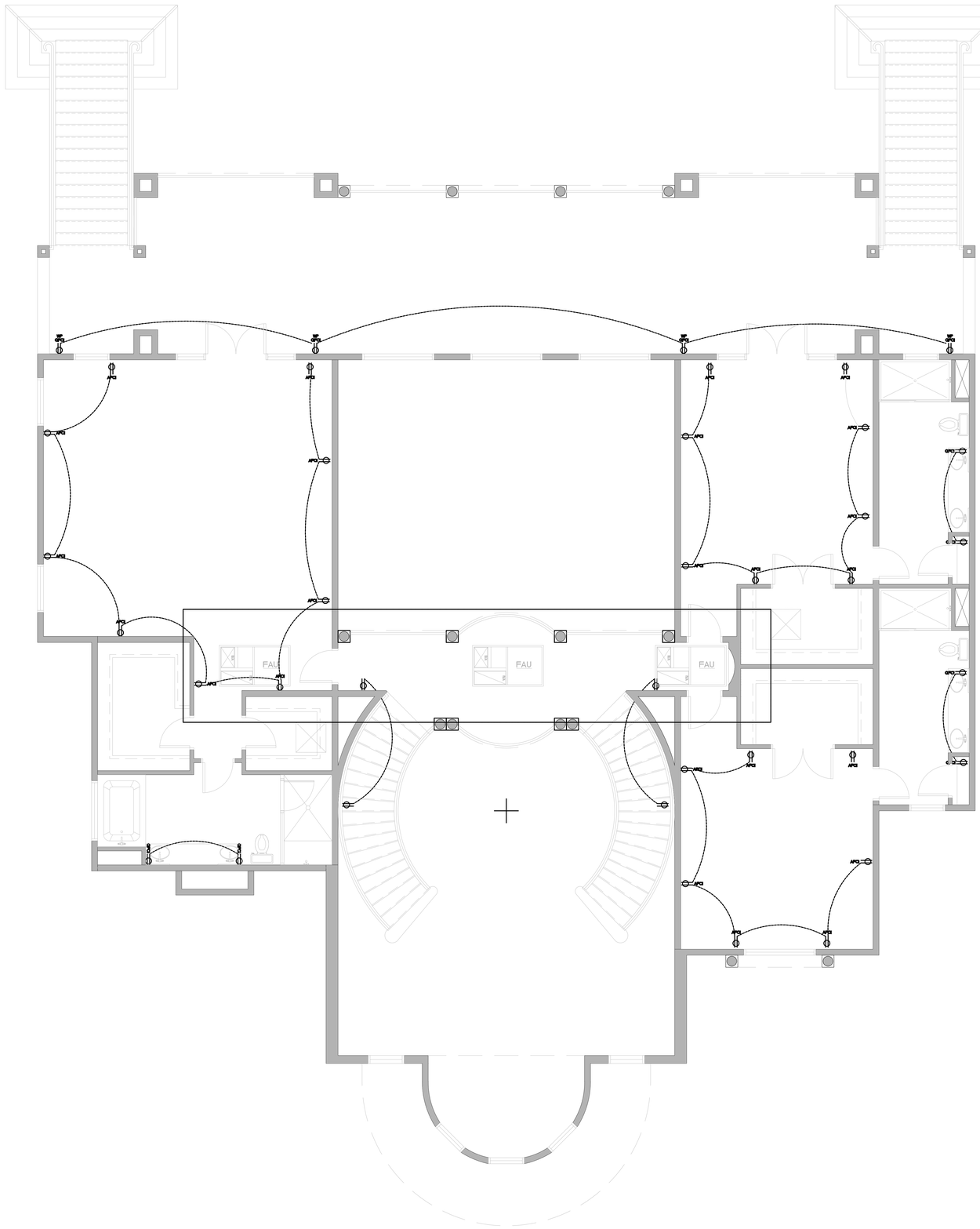

POWER PLAN - SECOND FLOOR

SCALE: 1/4" = 1'-0"

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POWER PLAN
SECOND FLOOR

CVEAS JOB #:
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PLUMBING SPECIFICATION

1. SCOPE OF WORK
   - 1.1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE THE INSTALLATION OF THE WORK OF THIS SECTION AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN, INCLUDING ALL INCIDENTAL WORK NECESSARY TO MAKE IT COMPLETE, SATISFACTORY AND READY FOR OPERATION AND USE.
   - 1.2. INSTALLATION OF ALL EQUIPMENT SHALL COMPLY WITH THE APPLICABLE DIVISIONS OF THE LOCAL BUILDING AND SAFETY DEPARTMENT CODES.
2. WATER PIPE
   - 2.1. DOMESTIC COLD AND HOT WATER PIPING SHALL BE AS FOLLOWS:
     - 2.1.1. BELOW GROUND - TYPE "K" SOFT DRAWN COPPER TUBING CONFORMING TO ASTM B88 WITH WROUGHT COPPER SOLDER JOINT FITTINGS AND SILVER SOLDERED JOINTS.
     - 2.1.2. ABOVE GROUND - TYPE "L" SOFT DRAWN COPPER TUBING CONFORMING TO ASTM B88 WITH WROUGHT COPPER SOLDER JOINT FITTING AND 95-5 SOLDER.
   - 2.2. GATE VALVE SHALL BE BRONZE WITH ENDS TO SUITE PIPE, NON-RISING STEM FOR 150 PSI WORKING PRESSURE.
3. ROOF DRAINAGE
   - 3.1. ROOF DRAINAGE SYSTEM SHALL BE SERVICE-WEIGHT CAST IRON WITH NO-HUB FITTINGS, OR APPROVED EQUAL. ALL HORIZONTAL ROOF DRAINAGE SHALL BE FLASHED AND COUNTER-FLASHED.
4. CONDENSATE DRAINS
   - 4.1. CONDENSATE DRAINS FROM HVAC UNITS SHALL BE TYPE M SOFT DRAWN COPPER TUBING OR SCHED. 80 PVC. SUPPORT PIPING AND PROTECT FROM DAMAGE. ALL HORIZONTAL CONDENSATE DRAINS SHALL BE SLOPED ⅛" PER FOOT MINIMUM.
5. WASTE ON VENT
   - 5.1. ALL HORIZONTAL SOIL AND WASTE PIPE SHALL BE SET TO A GRADE OF 2% PER FOOR (¼"/FT.)
   - 5.2. INSIDE BUILDING WASTE PIPE ABOVE GROUND AND ALL PIPING BELOW GROUND UP TO 5'-0" FROM BUILDING SHALL BE STANDARD WEIGHT CAST IRON AND/OR APPROVED BY LOCAL AUTHORITIES AND NO-HUB FITTINGS. FROM 5'-0" OUTSIDE BUILDING TO CONNECTION WITH CITY STREET SEWER MAIN PIPE SHALL BE AS PER GOVERNING CODE.
   - 5.3. ALL VENT PIPING SHALL BE CAST IRON WITH NO-HUB FITTINGS, OR APPROVED EQUAL.
   - 5.4. CLEAN-OUT SHALL BE INSTALLED AS PER GOVERNING CODE.
6. NATURAL GAS PIPING
   - 6.1. PIPE SHALL BE NEW SCHEDULE 40 BLACK STEEL CONFORMING TO ASTM A53, GRADE A & B, WITH 150 LB. BLACK MALLEABLE IRON SCREWED FITTINGS AND COUPLINGS.
   - 6.2. GAS VALVES: ONE INCH AND SMALLER SHALL BE LEVER HANDLE TYPEWITH CHECK, ALL BRONZE, SCREWED, CRANE NO. 2RB OR EQUAL. 1 ¼" AND LARGER VALVES SHALL BE IRON BODY WITH BRONZE SQUARE HEAD PLUG, CRANE NO. 324 OR EQUAL PROVIDE OPERATING WRENCH WHERE REQUIRED FOR EACH VALVE. PROVIDE APPROVED GAS PRESSURE REGULATORS.
   - 6.3. NATURAL GAS RIGHT AND LEFT HAND NIPPLES AND COUPLINGS SHALL BE NEW BLACK IRON. UNIONS SHALL NOT BE USED EXCEPT AT FITTINGS, UNITS AND VALVES.
7. CLEANOUTS
   - 7.1. PROVIDE CLEANOUTS WITH BRASS SCREW PLUG AT ALL CHANGES OF DIRECTION TO PERMIT ROUTING OF ALL SEWERS.
8. VALVES
   - 8.1. EVERY PLUMBING FIXTURE SHALL BE INDEPENDENTLY VALVED.
9. TESTING
   - 9.1. ALL SEWERS AND WATER PIPING SHALL BE PROPERLY TESTED TO THE SATISFACTION OF THE ARCHITECT AND THE LOCAL BUILDING INSPECTOR.
10. EXCAVATION AND BACK FILLING
    - 10.1. TRENCHES SHALL BE BACK FILLED AND SETTLED BY PUDDLING. NO PIPE SHALL BE LESS THAT 12" BELOW FINISH GRADE.
11. INDIRECT WASTE
    - 11.1. ALL INDIRECT WASTE, WASTE PIPING OR FIXTURE WHICH RECEIVES THE DISCHARGE FROM A DISHWASHER, STEAMER OR SIMILAR PIECE OF EQUIPMENT WHICH PRODUCES WATER AT A TEMPERATURE HIGHER THAN 125°F SHALL BE DWV COPPER OR CAST IRON 10'-0" (MIN) DOWNSTREAM FROM THE OUTLET PRODUCING SUCH DISCHARGE. COORDINATE WITH EQUIPMENT SUPPLIER.
    - 11.2. ALL INDIRECT WASTE PIPING FROM EQUIPMENT TO ABOVE FLOOR RECEPTOR SHALL BE 1" MIN. COPPER OR PVC UNLESS LARGER SIZE IS INDICATED BY EQUIPMENT OPENING
12. CONNECTION BETWEEN INCOMPATIBLE MATERIALS ABOVE GRADE AND INSIDE BUILDING SHALL BE MADE WITH TWO (2) DIELECTRIC UNIONS SEPARATED BY A TWELVE INCH (12") SECTION OF RED BRASS PIPE.
13. PIPING SUPPORTS. ALL PIPING TO BE SUPPORTED WITH HANGERS AND BRACKETS WHICH PROVIDE ISOLATION FROM FRAMING, CONTACT BETWEEN PIPE AND SUPPORT TO BE LINED WITH PLASTIC OR LEFT.
14. ALL FLOOR AND WALL PENETRATIONS MUST BE SEALED WATERTIGHT AND VERMIN PROOF.
15. ALL EXTERIOR GAS COCKS, WATER SHUTOFF VALVES AND/OR SEWER CLEAN OUTS BELOW GROUND SHALL BE INSTALLED IN YARD BOXES WITH THE COVERS CONSPICUOUSLY MARKED "GAS", "WATER", AND "SEWER" RESPECTIVELY.
16. EXACT LOCATIONS AND MOUNTING HEIGHTS OF PLUMBING FIXTURES SHALL BE OBTAINED FROM THE ARCHITECTURAL DRAWINGS.
17. SEE ARCHITECTURAL DRAWINGS FOR HANDICAP FIXTURE LOCATIONS AND MOUNTING HEIGHTS. INSULATE ALL EXPOSED HOT WATER AND DRAIN PIPING BELOW HANDICAP LAVATORIES AND SINKS WITH INSULATING TAPE AND OFFSET P-TRAP AGAINST WALL. ALL FLUSH VALVES FOR HANDICAP SHALL BE LOCATED ON HANDICAP WHEELCHAIR ACCESS SIDE OF STALL.
18. ALL WASTE, SOIL AND VENT PIPING SHALL SLOPE AT 2% UNLESS OTHERWISE INDICATED.
19. ALL CLEAN OUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE. THE CONTRACTOR SHALL COORDINATE ALL CLEAN OUT LOCATIONS OF EQUIPMENT, CABINETS, ETC., WITH THE ARCHITECT PRIOR TO ANY INSTALLATION.
20. ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED BEHIND AN ACCESS PANEL.
21. PLUMBING CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BASE BID. HE SHALL FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS AND FUTURE WORK TO BE DONE. HE SHALL INCLUDE ALL HIS SITE INFORMATION AND CONDITIONS WITHIN HIS BASE BID. HE SHALL BE RESPONSIBLE FOR COMPLETE AND FULLY FUNCTIONING PLUMBING SYSTEMS.
22. PLUMBING CONTRACTOR SHALL COORDINATE COMPLETE PLUMBING INSTALLATION AND REQUIREMENTS PRIOR TO BASE BID WITH ALL LOCAL DISTRICTS AND GOVERNING AUTHORITIES. INCLUDE ALL FINDINGS WITHIN THE BASE BID.
23. CONDUITS OF ALL TYPES (I.E. PLUMBING, ELECTRICAL AND BEVERAGE DISPENSING LINES) SHALL BE INSTALLED WITHIN WALLS AS PRACTICABLE. WHEN OTHERWISE INSTALLED, THEY SHALL BE MOUNTED OR ENCLOSED SO AS TO FACILITATE CLEANING (I.E. MOUNTED 1" AWAY FROM THE WALL). BEVERAGE DISPENSING LINES MAY BE ENCLOSED WITHIN WALLS OR FLOORS, OR BE FURRED IN OR ENCASED IN AN APPROVED RUNWAY OR OTHER APPROVED SEALED ENCLOSURE. WHERE LINES ENTER A WALL OR OTHER ENCLOSURE, THE OPENING AROUND THE LINES MUST BE TIGHTLY SEALED. A CHASE OR RUNWAY WHICH ENCLOSES LINES IN THE FLOOR SHALL PROTRUDE AT LEAST SIX INCHES FROM THE FLOOR AND BE COVED AT THE BASE OF THE CHASE.
24. SUBMITTALS AND SHOP DRAWINGS:
    - 24.1. AS SOON AS POSSIBLE AND WITHIN 21 DAYS AFTER AWARD OF THE CONTRACT AND BEFORE THEIR PURCHASE, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT 6 BOUND BOOKLETS FOR APPROVAL AND CONTAINING A COMPLETE LIST OF MATERIALS, SPECIALTIES AND EQUIPMENT HE IS TO FURNISH FOR THE INSTALLATION. ALL SUBMITTALS SHALL BE MADE AT ONE TIME. NO DEVIATION OF PLUMBING FIXTURES WILL BE ACCEPTED.

PLUMBING NOTES

1. ALL FIXTURES, MATERIALS, AND WORKMANSHIP SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA PLUMBING CODE, STATE OF CALIFORNIA TITLE 24, ADA REQUIREMENTS, AND LOCAL ORDINANCES.
2. PLUMBING CONTRACTORS TO FURNISH ALL APPLICABLE PERMITS AND INSPECTION FEES AS REQUIRED BY LOCAL CODES.
3. OWNER SHALL PAY FOR ALL SEWER CONNECTION CHARGES, WATER METER AND TAP FEES, AND MAJOR FACILITIES CHARGES AS MAY BE REQUIRED BY LOCAL GOVERNING AUTHORITIES.
4. ROUGH IN AND CONNECT TO ALL FIXTURES AND EQUIPMENT REQUIRING GAS, WATER, AND WASTE LINES AS INDICATED ON PLANS.
5. PROVIDE CLEANOUTS ON ALL WASTE LINES AT TERMINATIONS, CHANGES IN DIRECTION, AND AT 100' INTERVALS.
6. PLUMBING CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, ETC. WHETHER SHOWN ON THESE PLANS OR NOT. NECESSARY TO PROVIDE A COMPLETE CODE APPROVED, WORKABLE PLUMBING SYSTEM.
7. ALL PLANS ARE DIAGRAMMATIC ONLY. DOES NOT SHOW ACTUAL LOCATIONS. PLUMBING CONTRACTORS SHALL SURVEY SITE AND COMPLETELY REVIEW ENTIRE PLANS PRIOR TO SUBMITTING A BID FOR THE PROJECT.
8. ALL SINKS MUST BE EQUIPPED WITH HOT AND COLD DISPENSED FROM MIXING FAUCETS.
9. NO VENT SHALL TERMINATE CLOSER THAN 10 FEET FROM ANY AIR INTAKE DEVICE.
10. PROVIDE SHUT-OFF VALVES AT POINT OF CONNECTION OF COLD WASTE SUPPLY TO EXISTING COLD WATER LINE.
11. PIPES IN TRENCHES MUST HAVE 18 INCHES MINIMUM COVERAGE.
12. THE IGNITER OF ALL GAS FIRED EQUIPMENT IN THE GARAGE MUST BE ELEVATED 18 INCHES ABOVE THE FLOOR.
13. WHEN LPG FURNACE OR WATER HEATER IS INSTALLED IN THE GARAGE, PROVIDE A PAN WITH A MINIMUM TWO-INCH LIP AND A MINIMUM OF 1 1/2 INCH DRAIN TO THE EXTERIOR OF THE BUILDING.
14. PROVIDE IMPACT PROTECTION FOR ANY GAS FIRED EQUIPMENT LOCATED IN THE GARAGE.
15. ALL SEWER PIPING SHALL HAVE A MINIMUM OF 1/4" PER FOOT SLOPE.
16. COPPER, COPPER ALLOY(S), LEAD AND LEAD ALLOY(S), INCLUDING BRASS, SHALL NOT BE USED FOR BUILDING SANITARY SEWER SYSTEMS EXCEPT FOR DOMESTIC WASTE SINK TRAPS AND SHORT LENGTHS OF ASSOCIATED CONNECTING PIPES WHERE ALTERNATE MATERIAL ARE NOT PRACTICAL. WHERE PERMITTED BY THE BUILDING OFFICIAL, COPPER TUBE FOR DRAINAGE AND VENT PIPING SHALL HAVE A WEIGHT OF NOT LESS THAN THAT OF COPPER DRAINAGE TUBE TYPE DWV.
17. A CLEAN-OUT SHALL BE PROVIDED AT THE POINT OF CONNECTION BETWEEN THE BUILDING SEWER AND THE CITY LATERAL AND AN APPROVED FITTING SHALL BE USED TO BRING THE CLEAN-OUT RISER TO GRADE. WHERE SEWER CLEAN-OUTS ARE TO BE CONNECTED TO EXISTING CITY LATERAL, SUCH CONNECTIONS SHALL BE ACCOMPLISHED BY USE OF AN APPROVED FITTING.

REFER TO EQUIPMENT SPECIFICATION SHEETS FOR ACTUAL SIZES.

ALL PLUMBING PLANS ARE SCHEMATIC ONLY AND DOES NOT SHOW ACTUAL LOCATION(S). PIPE ROUTING SHALL BE A THE OPTION OF THE PLUMBING CONTRACTOR (U.O.N.) AND SHALL BE COORDINATED WITH OTHER TRADES.

PIPING MATERIAL SCHEDULE

SERVICE	PIPE	FITTINGS	REMARKS
WASTE AND VENT	ABS SCHEDULE 40 ASTM F628 ASTM D2661	AMERICAN STANDARD	ALL PRODUCTS SHALL BEAR THE SEAL OF A NATIONALLY RECOGNIZED LISTING OR CERTIFYING AGENCY.
HOT AND COLD WATER	COPPER OR PEX	COPPER FITTING PEX COUPLING	COPPER TYPE "M" IS PROHIBITED. ONLY COPPER TYPE "L" IS ALLOWED. GALVANIZED MALLEABLE IRON, GALVANIZED WROUGHT IRON, OR GALVANIZED STEEL ARE PROHIBITED MATERIALS FOR WATER SUPPLY AND BUILDING WATER PIPING BOTH UNDERGROUND AND IN BUILDINGS.
GAS	BLACK STEEL SCHED 40	BLACK STEEL SCHEDULE 40	1. USE GALVANIZED BLACK STEEL WHERE EXPOSED TO WEATHER. 2. GALVANIZED BLACK STEEL PIPING IS PROHIBITED TO BE USED AS WATER PIPING IN CITY/COUNTY JURISDICTION.

PLUMBING FIXTURE SCHEDULE

LABEL	(N) OR (E)	DESCRIPTION	QNTY.	WASTE	VENT	HOT WATER	COLD WATER	TRAP	MANUFACTURER	MODEL	REMARKS
WC	(N)	WATER CLOSET	7	2"ø	2"ø	N/A	3/4"ø	INT.	SLOAN	WETS-8029-8010	0.20 GPF MAX. - SHALL BE SELF-CLOSING OR SELF-CLOSING METERING. EQUIVALENT FIXTURE ACCEPTANCE. MUST BE ACCESSIBLE COMPLIANT.
LAV	(N)	LAVATORY	13	1-1/2"ø	1-1/2"ø	3/4"ø	3/4"ø	INT.	KOHLER	PENNINGTON K-2196-8	INSTALL INTEGRAL COUNTERTOP LAVATORY SUPPLIED BY OTHERS. INSTALL CHICAGO #3300-CP SELF-CLOSING METERING FAUCET. SET TEMP STOP FOR 100°. 8" CENTER, POLISHED
WHP	(N)	WATER HEATER (HEAT PUMP) (50 GALLON)	2		2"ø	REFER TO PLANS	REFER TO PLANS		AO SMITH	FPTU50	CONTRACTOR SHALL VERIFY AND INSTALL CONCENTRIC FLUE AND/OR CORRECT VENTING PRODUCT(S) FOR THIS MODEL. REFER TO DETAIL #/P1.
KS	(N)	KITCHEN SINK (3-BOWL)	1	2"ø		3/4"ø	3/4"ø	INT.	AMERICAN STANDARD OR EQUAL	PORTSMOUTH 23X21 SINGLE BOWL S/S OR EQUAL	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.
SH1	(N)	SHOWER W/ SEAT	2	2"ø		3/4"ø	3/4"ø	INT.	TBD BY OWNER	TBD BY OWNER	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.
SH2	(N)	SHOWER	4	2"ø		3/4"ø	3/4"ø	INT.	TBD BY OWNER	TBD BY OWNER	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.
TS	(N)	TUB/SHOWER COMBO	2	2"ø		3/4"ø	3/4"ø	INT.	TBD BY OWNER	TBD BY OWNER	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.
CW	(N)	CLOTHES WASHER	1	2"ø		3/4"ø	3/4"ø	INT.	LG OR EQUAL	WM9500HKA OR EQUAL	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.
CD	(N)	CLOTHES DRYER	1		4"ø				LG OR EQUAL	DLEX9500K OR EQUAL	PROVIDE 4"ø VENT FLUE THROUGH TO EXTERIOR.
DW	(N)	DISHWASHER	1	2"ø		3/4"ø	3/4"ø	INT.	WHIRLPOOL OR EQUAL	WDF330PAH OR EQUAL	
LS	(N)	LAUNDRY SINK	1	2"ø		3/4"ø	3/4"ø	INT.	KRAUS OR EQUAL	KHT301 - 22L OR EQUAL	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.
JAZ	(N)	JACUZZI	2	2"ø		3/4"ø	3/4"ø	INT.	AMERICAN STANDARD OR EQUAL	2711 ELI66E OR EQUAL	MUST HAVE A MAXIMUM FLOW RATE FO 1.2 GPM AT 60 PSI.

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PROJECT

NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILL, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER RICARDO LEAL No. C 79823 Exp. 06-30-23 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 3/1/2023

Revisions:	Date:
1	
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PLUMBING NOTES, SCHEDULES, AND DETAILS

CVEAS JOB #:
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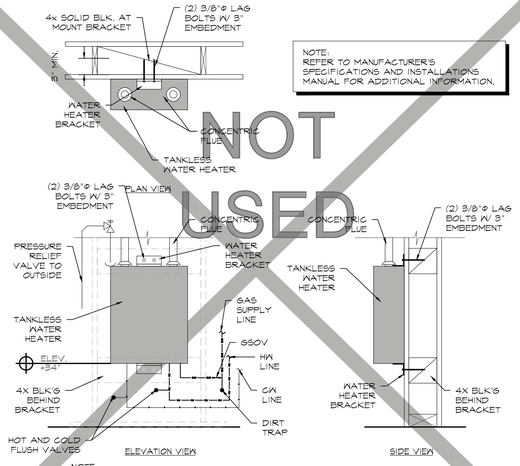
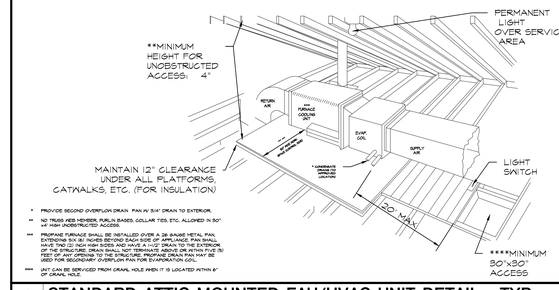
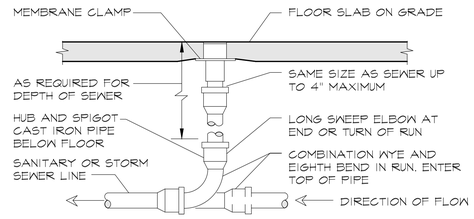


WATER HEATER DETAIL - TANKLESS - TYP.
NO SCALE



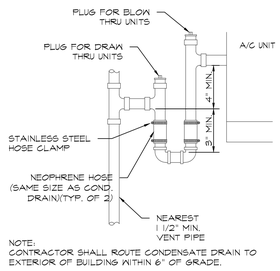
9 STANDARD ATTIC MOUNTED FAU/HVAC UNIT DETAIL - TYP.
NO SCALE

PROVIDE ROUND SECURED NICKEL BRONZE ADJUSTABLE TOP WITH "CO" CAST IN COVER. PROVIDE CLEANOUT TOP WITH VARIATIONS SUITABLE FOR FLOOR COVERING (CARPET MARKER, RECESSED FOR TILE, SCORIATED FOR UNFINISHED FLOORS). PROVIDE BRONZE PLUG IN CAST IRON BODY.

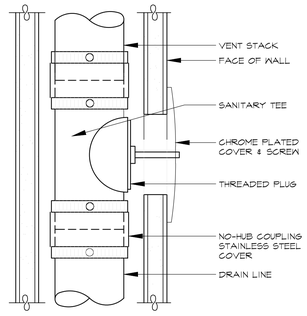


LOCATE AT BUILDING EXIT, AT ENDS OF RUNS, AT TURNS OF PIPE GREATER THAN 45 DEGREES, AT 50' INTERVALS ON STRAIGHT RUNS, AND WHERE SHOWN ON PLANS. PROVIDE BACKFILL PER ARCHITECTURAL SPECIFICATIONS. LOCATE CLEANOUTS WHERE THERE IS 18" CLEAR AROUND. CONSULT LOCAL CODES FOR OTHER FCO REQUIREMENTS.

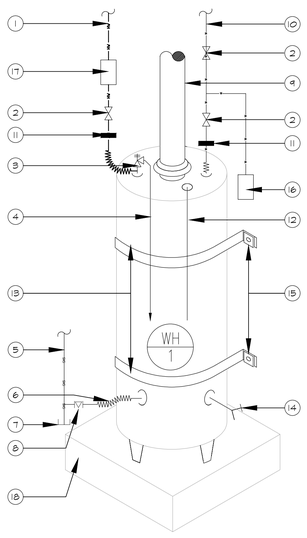
10 FLOOR CLEAN-OUT DETAIL (FCO) - TYP.
NO SCALE



5 CONDENSATE DRAIN DETAIL - TYP.
NO SCALE

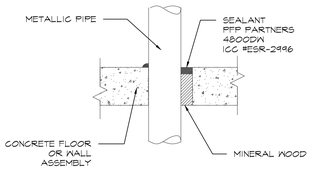


6 WALL CLEAN-OUT DETAIL (WCO) - TYP.
NO SCALE

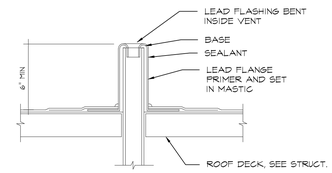


#	KEYED NOTES
1	HOT WATER OUTLET.
2	GATE VALVE (TYPICAL).
3	ASME TEMP. & PRESSURE RELIEF VALVE.
4	FULL SIZE RELIEF TO OUTSIDE, ELBOW DOWN 6" ABOVE GRADE.
5	GAS SUPPLY.
6	STAINLESS STEEL FLEX CONNECTION.
7	4" DRIP LINE
8	GAS SHUT-OFF VALVE.
9	FLUE THRU ROOF.
10	COLD WATER INLET.
11	UNION (TYPICAL).
12	MAGNESIUM ANODE.
13	SECURE WATER HEATER W/ 2 16 GA. x 2" SHEET METAL STRAPS TO MINIMUM 4x BLOCKING IN WALL. ATTACH 4x BLOCKING TO STUDS W/ SIMPSON A34 TOP & BOTTOM EACH END, 3 - 8d NAILS PER A34 LEG. LOCATE STRAPS ON TOP AND BOTTOM THIRD OF WATER HEATER. BOTTOM STRAP TO BE LOCATED OF 4" ABOVE CONTROLS. 1 3/8" x 3" LAG BOLT FOR WOOD FRAMING. 3/8" x 3" EXPANSION BOLT FOR CONC.
14	DRAIN VALVE.
15	2" x 2" x 3/16" WASHER EACH END.
16	AMTROL ST-12 THERM-X-TROL EXPANSION TANK MOUNTED ON WALL PER MANUF.
17	AQUASTAT, START @ 115° STOP @ 125° MOUNT IO UP-STREAM FROM WH.
18	PROVIDE 18" HIGH PLATFORM. FIELD VERIFY.
	NOTE: A. PIPE SIZES TO BE SHOWN ON PLANS & EXTENDED FULL SIZE TO WH CONNECTION.

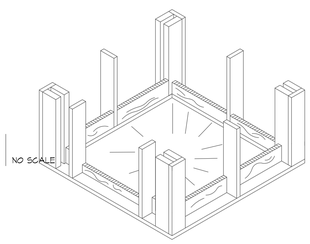
8 WATER HEATER DETAIL - TYP. @ ALL CONDITIONS
SCALE: N.T.S.



1 WALL PENETRATION DETAIL - TYP.
NO SCALE



2 VENT-THRU ROOF
NO SCALE

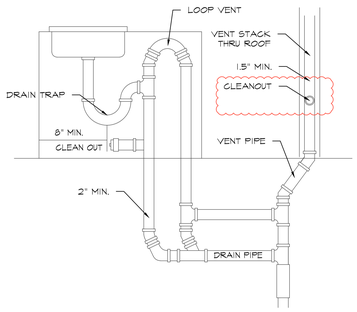


4
NO SCALE

IF GYPSUM BASE MATERIALS ARE USED THEY MUST BE COVERED WITH WATERPROOF BUILDING PAPER & REINFORCED LATH OR 18 GA. STUCCO MESH & HELD 1" ABOVE FINISHED GRADE

SOLID BACKING SHALL EXTEND FROM FLOOR OR PLATE TO A HEIGHT EQUAL TO THE TOP OF THE PAN

3 SHOWER PAN DETAIL - TYP.
NO SCALE



ISLAND SINK VENTING DIAGRAM

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NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILL, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER RICARDO LEAL No. C 78825 Exp. 06-30-23 CIVIL STATE OF CALIFORNIA

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PLUMBING NOTES, SCHEDULES, AND DETAILS

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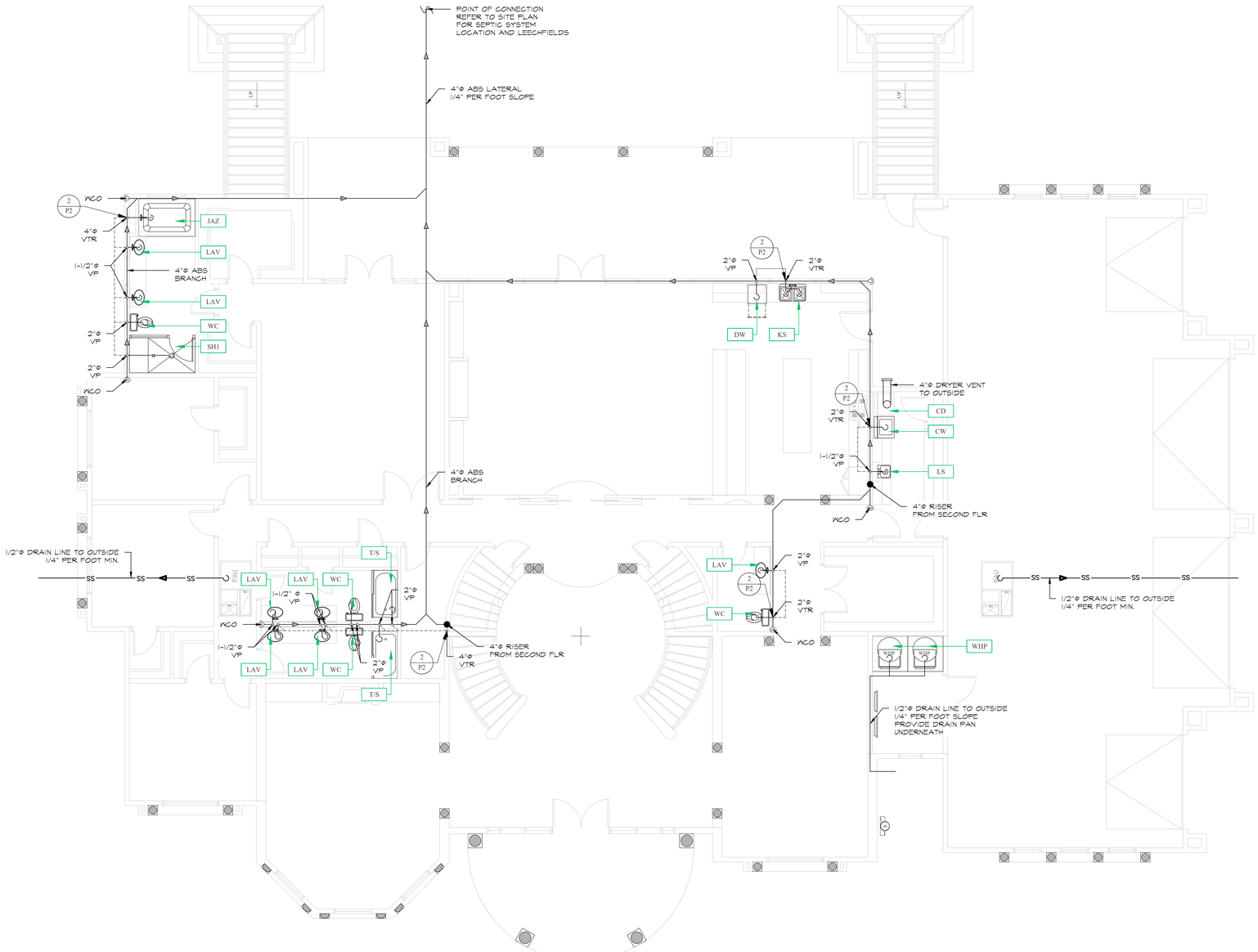

PLUMBING LEGEND

SYMBOL	ITEM	ABBR.
	CO2 LINE	
	VENT PIPE (ABS)	S
	WASTE LINE (ABS)	S
	HOT WATER LINE	HW
	COLD WATER LINE	CW
	GAS LINE	GAS
	P-TRAP	PT
	AUTOMATIC SOLENOID GAS VALVE.	AGSV
	GAS SHUT-OFF VALVE	GSOV
	WALL CLEANOUT	CO
	FLOOR CLEANOUT	FCO
	VENT PIPE & VENT THRU ROOF	VP., VTR
	WATER CONNECTION	--
	HOSE BIBB	HB
	BACKFLOW PREVENTER FOR CARBONATOR (TESTABLE)	
	BACKFLOW PREVENTER (MAIN WATER SUPPLY)	BFP
	STUB OUT	

DRAINAGE FIXTURE UNITS PER CPC 2022 TABLE 702.1

(N) OR (E)	DESCRIPTION	QNTY	DFUs	TOTAL
N	WATER CLOSET	7	3.0	21.0
N	LAVATORY	13	1.0	13.0
N	KITCHEN SINK	2	2.0	4.0
N	LAUNDRY SINK	1	2.0	2.0
N	DISHWASHER	2	2.0	4.0
N	CLOTHES WASHER	1	3.0	3.0
N	TUB/SHOWER COMBO	2	2.0	4.0
N	SHOWER	4	2.0	8.0
N	JACUZZI	2	2.0	4.0
N	WASH/DRYER COMBO	0	3.0	0.0
			TOTAL:	63.0
	PER CPC TABLE 709.2, MAX. UNIT SECTION, HORIZONTAL RUN			
	SIZE OF MAIN SEWER LINE:		4 ø	ABS

WASTE PLAN - 1ST FLOOR

SCALE: 3/16" = 1'-0"

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RICARDO LEAL
No. C 78925
Exp: 06-30-23
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STATE OF CALIFORNIA

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WASTE PLAN
1ST FLOOR

CVEAS JOB # :

DATE: 3/1/2023

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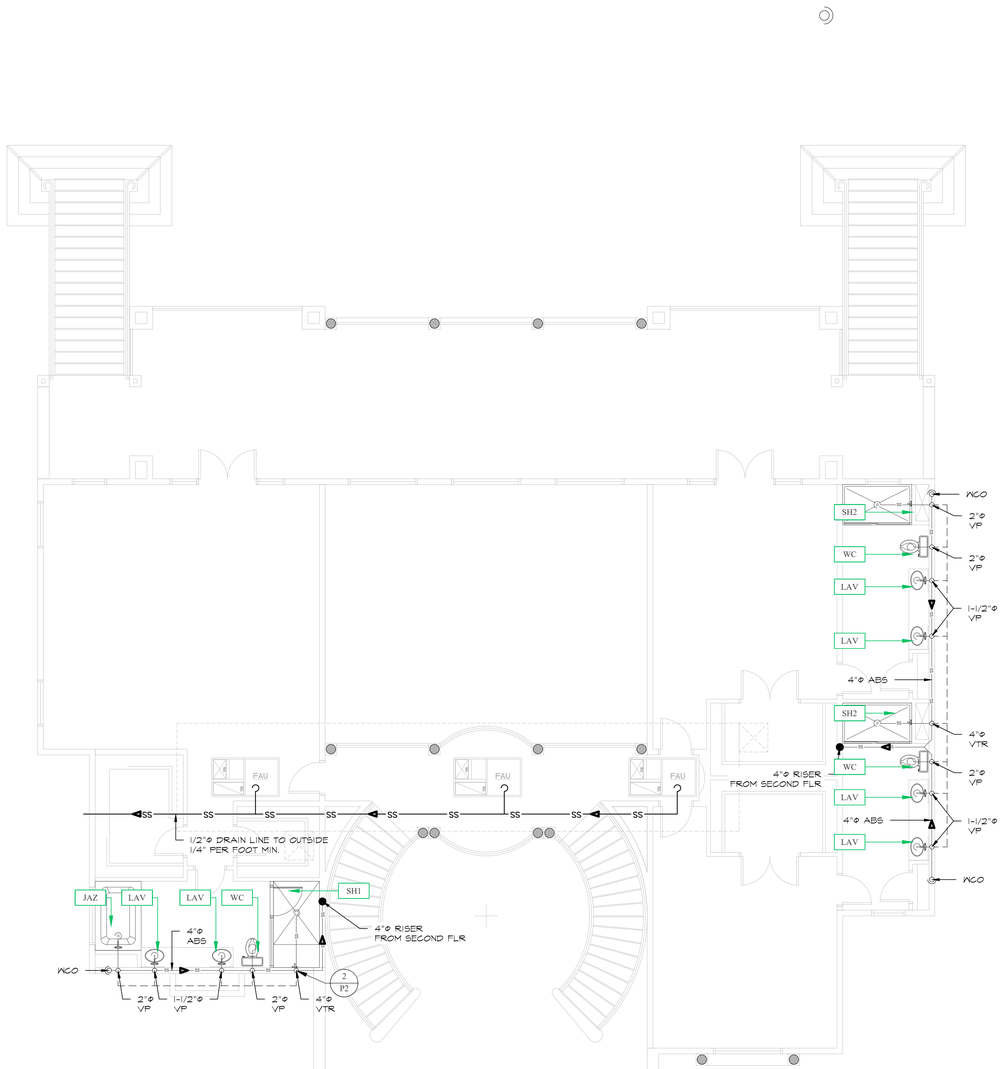

PLUMBING LEGEND

SYMBOL	ITEM	ABBR.
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	VENT PIPE (ABS)	S
	WASTE LINE (ABS)	S
	HOT WATER LINE	HW
	COLD WATER LINE	CW
	GAS LINE	GAS
	P-TRAP	PT
	AUTOMATIC SOLENOID GAS VALVE.	ASSV
	GAS SHUT-OFF VALVE	GSOV
©	WALL CLEANOUT	CO
(O)	FLOOR CLEANOUT	FCO
○	VENT PIPE & VENT THRU ROOF	VP , VTR
●	WATER CONNECTION	--
	HOSE BIBB	HB
	BACKFLOW PREVENTER FOR CARBONATOR (TESTABLE)	
	BACKFLOW PREVENTER (MAIN WATER SUPPLY)	BFP
●	STUB OUT	

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N	LAUNDRY SINK	1	2.0	2.0
N	DISHWASHER	2	2.0	4.0
N	CLOTHES WASHER	1	3.0	3.0
N	TUB/SHOWER COMBO	2	2.0	4.0
N	SHOWER	4	2.0	8.0
N	JACUZZI	2	2.0	4.0
N	WASH/DRYER COMBO	0	3.0	0.0
			TOTAL:	63.0
PER CPC TABLE 709.2, MAX. UNIT SECTION, HORIZONTAL ROW				
	SIZE OF MAIN SEWER LINE:		4 ø	ABS

WASTE PLAN - 1ST FLOOR

SCALE: 3/16" = 1'-0"

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WASTE PLAN
1ST FLOOR

CVEAS JOB #:
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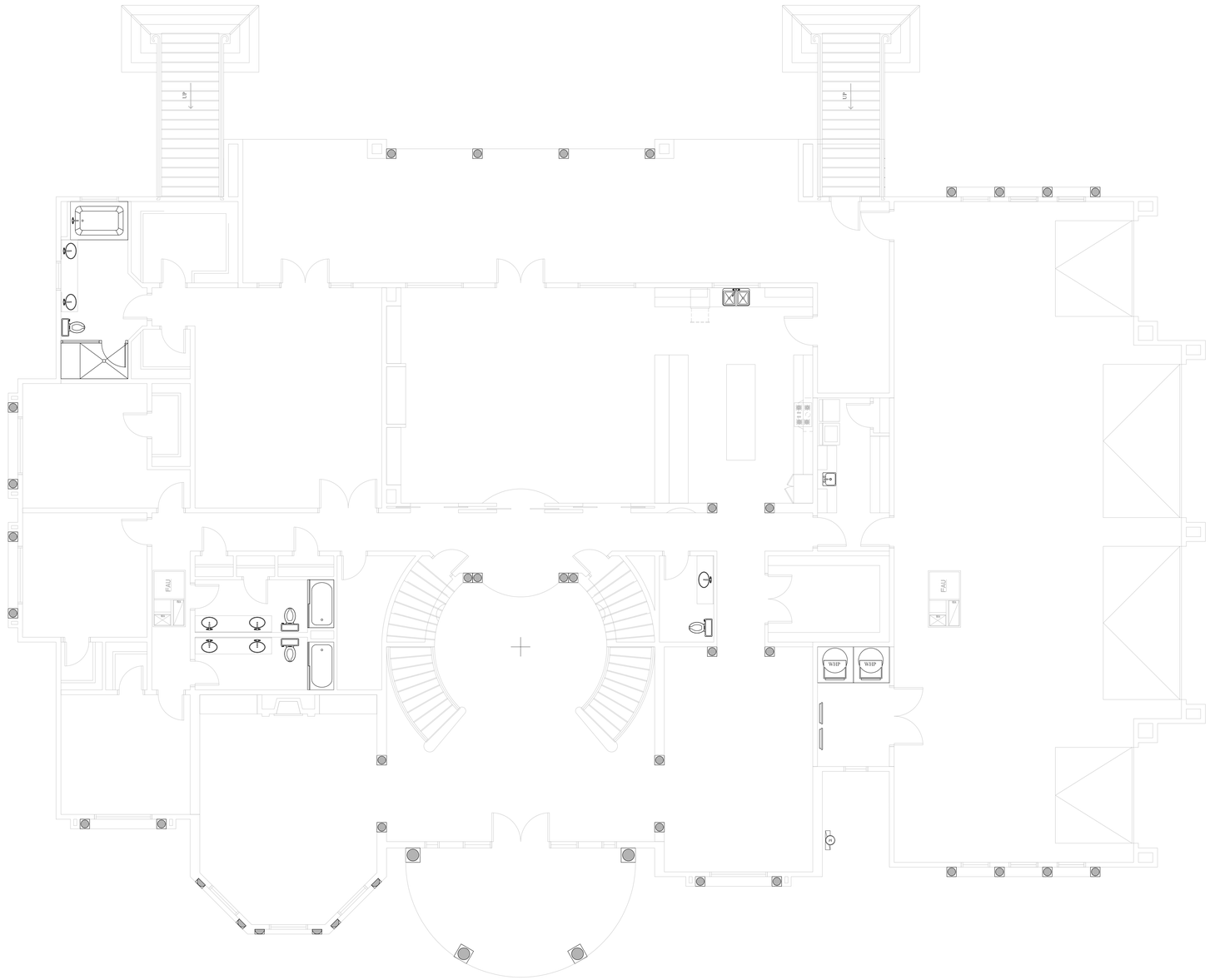
PLAN CHECK SUBMITTAL #: XX-XXXX
DRAWN BY:
CHECKED BY:
SCALE:

P3.0



PLUMBING LEGEND

SYMBOL	ITEM	ABBR.
	CO2 LINE	
	VENT PIPE (ABS)	S
	WASTE LINE (ABS)	S
	HOT WATER LINE	HW
	COLD WATER LINE	CW
	GAS LINE	GAS
	P-TRAP	PT
	AUTOMATIC SOLENOID GAS VALVE.	ASGV
	GAS SHUT-OFF VALVE	GSOV
©	WALL CLEANOUT	CO
(©)	FLOOR CLEANOUT	FCO
○	VENT PIPE & VENT THRU ROOF	VP , VTR
●	WATER CONNECTION	--
	HOSE BIBB	HB
	BACKFLOW PREVENTER FOR CARBONATOR (TESTABLE)	
	BACKFLOW PREVENTER (MAIN WATER SUPPLY)	BFP
⬤	STUB OUT	

WATER FIXTURE UNITS PER CPC 2022 TABLE 610.3

(N) OR (E)	DESCRIPTION	QNTY	WFUs	TOTAL	SIZE
N	WATER CLOSET	7	2.5	17.5	3/4
N	LAVATORY	13	1.0	13.0	3/4
N	KITCHEN SINK	2	3.0	6.0	3/4
N	LAUNDRY SINK	1	2.0	2.0	3/4
N	DISHWASHER	2	4.0	8.0	3/4
N	CLOTHES WASHER	1	1.5	1.5	3/4
N	TUB/SHOWER COMBO	2	4.0	8.0	3/4
N	SHOWER	4	2.5	10.0	3/4
N	JACUZZI	2	6.0	12.0	3/4
N	WASHER/DRYER COMBO	0	1.5	0.0	3/4
N	HOSE BIBB	4	2.5	10.0	3/4
N	STEAM ROOM	0	5	0.0	3/4
			TOTAL:	88.0	

DISTANCE OF MOST REMOTE FIXTURE:		199.0'	FROM POINT OF CONNECTION
PER CPC TABLE	610.4	COLUMN:	200
SIZE OF MAIN WATER LINE:			2"ø

WATER PLAN - 1ST FLOOR

SCALE: 3/16" = 1'-0"

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PROJECT

NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER
RICARDO LEAL
No. C 77825
Exp. 06-30-23
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 3/1/2023

Revisions:	Date:
1	
2	
3	
4	
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WATER PLAN 1ST FLOOR

CVEAS JOB # :

DATE: 3/1/2023

PLANNING SUBMITTAL #: XX-XXXX

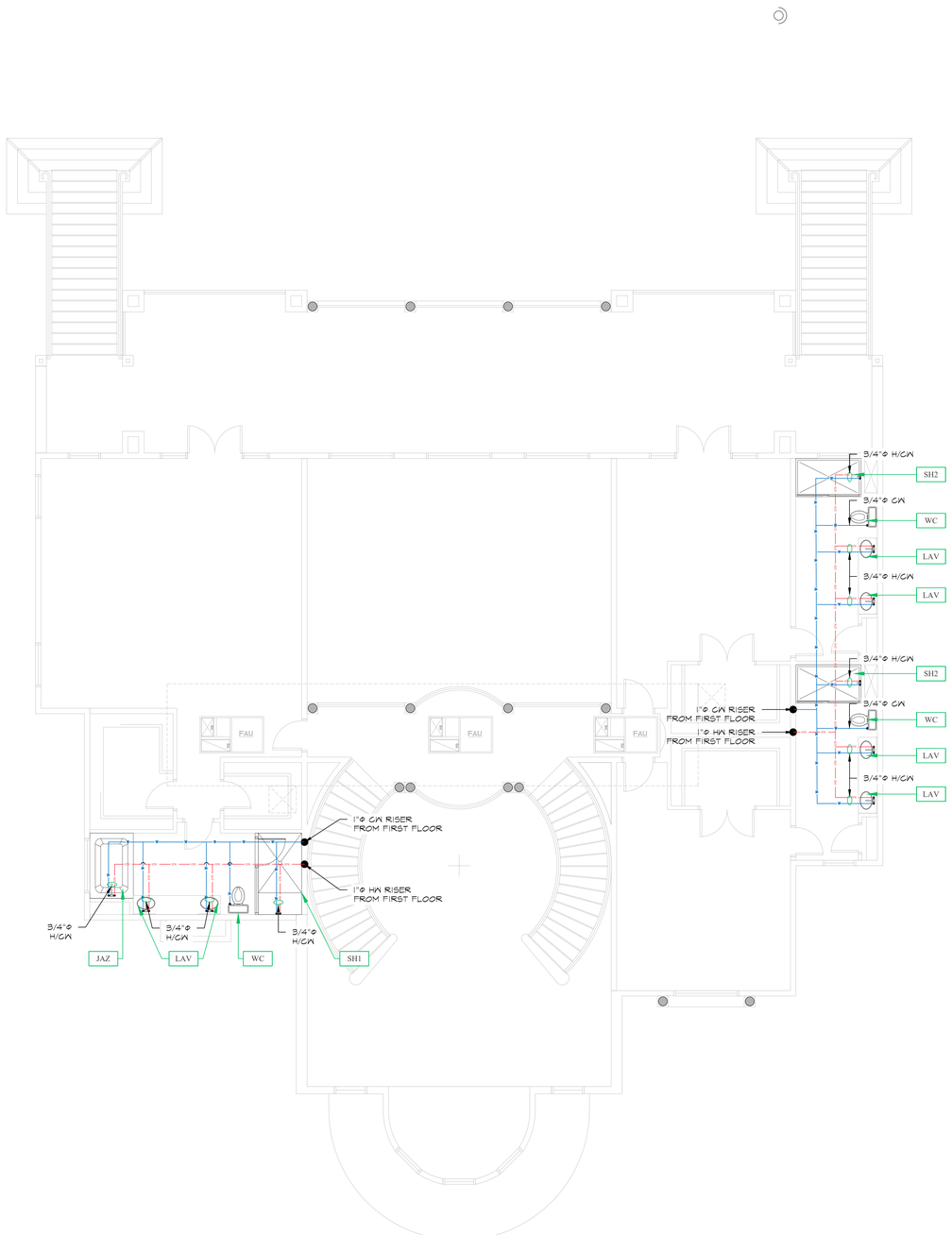
PLAN CHECK SUBMITTAL #: XX-XXXX

DRAWN BY:

CHECKED BY:

SCALE:

P4.0



PLUMBING LEGEND

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○	VENT PIPE & VENT THRU ROOF	VP , VTR
●	WATER CONNECTION	--
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N	SHOWER	4	2.5	10.0	3/4
N	JACUZZI	2	6.0	12.0	3/4
N	WASHER/DRYER COMBO	0	1.5	0.0	3/4
N	HOSE BIBB	4	2.5	10.0	3/4
N	STEAM ROOM	0	.5	0.0	3/4
			TOTAL:	88.0	

DISTANCE OF MOST REMOTE FIXTURE:		199.0'	FROM POINT OF CONNECTION
PER CPC TABLE	610.4	COLUMN:	200
SIZE OF MAIN WATER LINE:			2"Ø

WATER PLAN - 2ND FLOOR -
SCALE: 3/16" = 1'-0"

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APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER
RICARDO LEAL
No. C 78925
Exp: 06-30-23
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 3/1/2023

Revisions:	Date:
1	
2	
3	
4	
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WATER PLAN 2ND FLOOR

CVEAS JOB # :
DATE: 3/1/2023
PLANNING SUBMITTAL #: XX-XXXX
PLAN CHECK SUBMITTAL #: XX-XXXX
DRAWN BY:
CHECKED BY:
SCALE:

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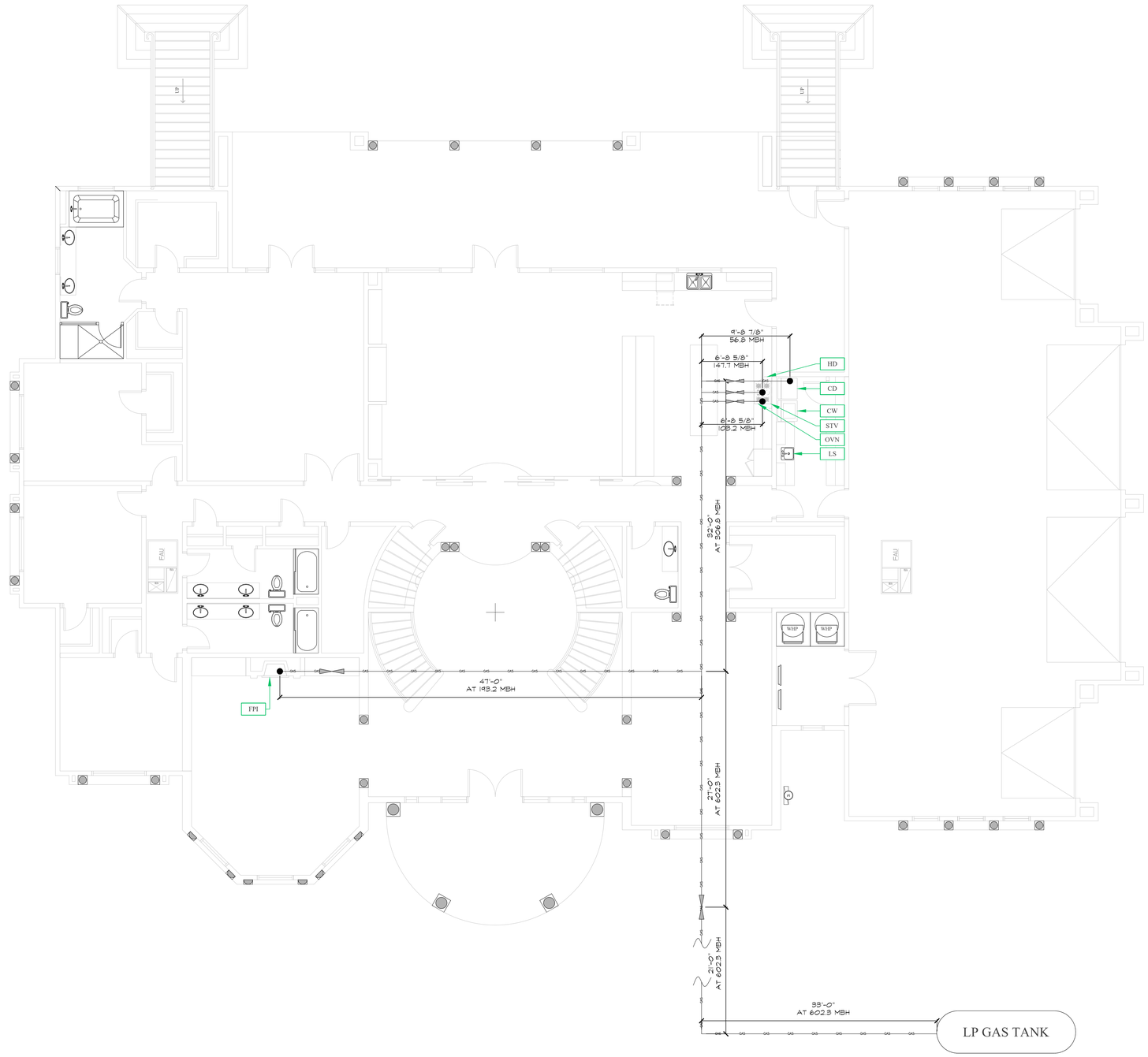

GAS PLAN - 1ST FLOOR

SCALE: 3/16" = 1'-0"

PLUMBING LEGEND

SYMBOL	ITEM	ABBR.
	CO2 LINE	
	VENT PIPE (ABS)	S
	WASTE LINE (ABS)	S
	HOT WATER LINE	HW
	COLD WATER LINE	CW
	GAS LINE	GAS
	P-TRAP	PT
	AUTOMATIC SOLENOID GAS VALVE.	ASGV
	GAS SHUT-OFF VALVE	GSOV
	WALL CLEANOUT	CO
	FLOOR CLEANOUT	FCO
	VENT PIPE & VENT THRU ROOF	VP , VTR
	WATER CONNECTION	--
	HOSE BIBB	HB
	BACKFLOW PREVENTER FOR CARBONATOR (TESTABLE)	
	BACKFLOW PREVENTER (MAIN WATER SUPPLY)	BFP
	STUB OUT	

GAS PIPE SIZING CALCULATIONS

(N) OR (E)	DESCRIPTION	QNTY	BTU/H	TOTAL	MBTH	SIZE
N	OVEN	2	45,000	90,000	102.3	3/4"Ø
N	FIREPLACE INSERT - GAS	1	85,000	85,000	193.2	1"Ø
N	RANGE/STOVE	2	65,000	130,000	147.7	3/4"Ø
N	CLOTHES DRYER	2	25,000	50,000	56.8	3/4"Ø
			TOTAL:	265,000	BTU/H	

265,000 / 1100	BTU/H =	240.9	CFH	602.3 MBH	
FROM LP GAS TANK TO GAS SHUT-OFF VALVE					
TOTAL LENGTH:		54'			
PER CPC TABLE:	1216.2(27)	ROW:	150		
SIZE OF MAIN GAS LINE:			1 1/4"Ø		
FROM GAS SHUT-OFF VALVE TO MOST REMOTE FIXTURE					
TOTAL LENGTH:		74'			
PER CPC TABLE:	1216.2(27)	ROW:	150		
SIZE OF MAIN GAS LINE:			1 1/4"Ø		

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MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER RICARDO LEAL No. C 79825 Exp. 06-30-23 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 2/28/2023

Revisions:	Date:
1	
2	
3	
4	
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GAS PLAN
1ST FLOOR

CVEAS JOB #:

DATE: 2/28/2023

PLANNING SUBMITTAL #: XX-XXXX

PLAN CHECK SUBMITTAL #: XX-XXXX

DRAWN BY:

CHECKED BY:

SCALE:

P4.0

SPECIFICATIONS

1. A. PROVIDE ALL HEATING, VENTILATING AND AIR CONDITIONING ITEMS INDICATED ON THE DRAWINGS, DESCRIBED IN THIS SPECIFICATION, OR REQUIRED FOR A COMPLETE AND PROPER INSTALLATION. HVAC WORK INCLUDES THE FOLLOWING:
   1. HVAC UNITS AND ACCESSORIES;
   2. EXHAUST FANS;
   3. DUCTS, FILTERS, DAMPERS, GRILLES, REGISTERS, DIFFUSERS;
   4. CONTROLS, INCLUDING 24 VOLT CONTROL WIRING AND 120/24 VOLT TRANSFORMERS;
   5. CONDUIT FOR LOW VOLTAGE WIRING;
   6. INSULATION FOR DUCTS AS REQUIRED IN THIS SECTION;
   7. CONDENSATE PIPING AND APPURTENANCES;
   8. FLASHING FOR HVAC SYSTEMS THAT PENETRATE WALLS AND ROOFS;

   B. RELATED WORK DESCRIBED ELSEWHERE:
   1. LINE VOLTAGE WIRING, CONDUIT AND DISCONNECT SWITCHES BY ELECTRICAL.
2. COMPLY WITH ALL PERTINENT CODES, ORDINANCES AND REGULATIONS, AND ALL PERTINENT RECOMMENDATIONS CONTAINED IN "HVAC DUCT CONSTRUCTION STANDARDS" AS PUBLISHED BY SMACNA, THE UNIFORM MECHANICAL CODE (UMC), LATEST EDITION, AND TITLE 24 BUILDING STANDARDS OF THE STATE OF CALIFORNIA.
3. FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIAL AND LABOR REQUIRED TO COMPLY WITH THE ABOVE CODES AND STANDARDS, EVEN THOUGH THE WORK MAY NOT BE DESCRIBED IN THE CONTRACT DOCUMENTS. WHERE THE REQUIREMENTS REQUIREMENTS OF THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THE ABOVE CODES AND STANDARDS, THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.
4. AFTER AWARD OF CONTRACT AND BEFORE COMMENCING WORK, IF REQUESTED BY PROJECT ENGINEER, SUBMIT SIX COPIES OF THE FOLLOWING TO THE ARCHITECT FOR APPROVAL. SUBMITTALS SHALL BE IN BROCHURE FORM WITH INDEX AND SELECTED ITEMS CLEARLY DESIGNATED AND REFERENCED TO THE APPROPRIATE EQUIPMENT TAG NUMBER:
   A. COMPLETE MATERIALS LIST OF ALL ITEMS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION;
   B. CATALOG CUTS AND OTHER DATA REQUIRED TO DEMONSTRATE COMPLIANCE WITH THE CONTRACT DOCUMENTS.
5. COOPERATE WITH OTHER TRADES IN ORDER THAT ALL SYSTEMS IN THE WORK MAY BE INSTALLED IN THE BEST ARRANGEMENT.
6. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION WILL BE INSTALLED. CORRECT CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
7. AVOID INTERFERENCE WITH STRUCTURE, AND WITH WORK OF OTHER TRADES. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS. INSTALL ACCESSIBLE PARTS, INCLUDING EQUIPMENT, COILS, VALVES, DAMPERS, CONTROLS, AND FILTERS WITH ADEQUATE CLEARANCE FOR INSPECTION, ADJUSTMENTS, REPAIR, AND REPLACEMENT.
8. ALL OTHER MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, SHALL PROVIDED BY THE CONTRACTOR SUBJECT TO ACCEPTANCE BY THE ENGINEER.
9. FURNISH ACCESS DOORS AND PANELS AT WALLS, CEILINGS AND DUCTWORK FOR ACCESS TO HARDWARE, CONTROLS, OPERATOR, DRIVE MECHANISMS AND VOLUME DAMPERS WHERE IT IS NECESSARY.
10. SOFT FLEXIBLE DUCT: CODY–WEST TYPE NIL, CLASS 1 RATING WITH R–VALUE OF R8, MINIMUM.
11. INSULATION: FOIL–FACED FIBERGLASS, OWENS CORNING TYPE 75 OR EQUAL, 1–1/2" THICK. FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50.
12. DUCT LINER: FOR EXTERIOR DUCTS: FIBERGLASS 1–1/2" THICK WITH FIRE RATED BLACK COATING, 1–1/2 LB. PER FT3 MINIMUM DENSITY, OWENS CORNING AEROFLEX TYPE 150. FOR OTHER LOCATIONS SHOWN ON DRAWINGS: AEROFLEX TYPE 150, AS ABOVE, EXCEPT 1" THICK. FLAME SPREAD RATING OF NOT MORE THAN 25 AND SMOKE DEVELOPED RATING OF NOT MORE THAN 50. AN EPA–APPROVED BIOCIDE IN THE AIRSTREAM COATING ENABLES OWENS CORNING DUCT LINERS TO RESIST FUNGAL OR BACTERIAL GROWTH WHEN SUBJECTED TO MICROBIAL ATTACK DESCRIBED IN ASTM C 665 AND STANDARD PRACTICES ASTM G 21 (FUNGUS TEST) AND G 22 (BACTERIA TEST).
13. CONDENSATE DRAIN PIPING: USE TYPE "L" COPPER, SWEAT FITTINGS TO REMOVE CONDENSATE FROM ROOFTOP AND TERMINATE IN SEWER SYSTEM AT APPROVED RECEPTOR
14. PROVIDE APPROVED FIRE AND SMOKE RATED FLEXIBLE CONNECTIONS BETWEEN FANS AND DUCTS.
15. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS.
17. MAKE ALL DUCT ELBOWS RIGHT ANGLE TYPE WITH DOUBLE–THICKNESS TURNING VANES OR CONSTRUCT WITH A CENTERLINE RADIUS 1–1/2 TIMES THE DUCT WIDTH.
18. DO NOT CUT INTO OR REDUCE THE SIZE OF ANY STRUCTURAL MEMBER WITHOUT THE PERMISSION OF THE ARCHITECT.
19. PROVIDE WEATHER–PROOF FLASHINGS AT ALL DUCT AND PIPE PENETRATIONS THROUGH THE BUILDING WALLS AND ROOF. AS A MINIMUM, FLASHINGS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. FLASHINGS SHALL BE GUARANTEED WEATHERPROOF FOR THE DURATION OF THE GUARANTEE.
20. SUPPORT ALL HVAC UNITS, DUCTWORK, PIPING AND OTHER APPURTENANCES. DO NOT SCREW OR DRIVE FASTENERS INTO NON–STRUCTURAL COMPONENTS SUCH AS ROOF DECKS OR WALLS.
21. THOROUGHLY CLEAN ALL COMPONENTS AND REMOVE ALL DIRT, SCALE, OIL, AND OTHER FOREIGN SUBSTANCES. PROVIDE CLEAN AIR FILTERS FOR ALL EQUIPMENT.
22. NOTIFY PROECT ENGINEER AT LEAST 24 HOURS PRIOR TO COVERING OR ENCLOSING WORK. DO NOT ALLOW OR CAUSE ANY OF THE WORK OF THIS SECTION TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN OBSERVED AND ACCEPTED BY THE PROJECT ENGINEER AND BY ALL OTHER AUTHORITIES HAVING JURISDICTION.
23. PERFORM ALL TESTS NECESSARY TO DEMONSTRATE THE INTEGRITY OF THE COMPLETED INSTALLATION TO THE APPROVAL OF THE ENGINEER AND ALL OTHER AUTHORITIES HAVING JURISDICTION. MAKE ALL ADJUSTMENTS NECESSARY AND BALANCE THE COMPLETED SYSTEM IN ACCORDANCE WITH THE DATA SHOWN. BALANCE THE SYSTEMS IN ACCORDANCE WITH NEBB OR AABC STANDARDS. BALANCING SHALL BE DONE BY AN INDEPENDENT LICENSED (BY NEBB OR AABC) CONTRACTOR.

    MAKE THE FOLLOWING TESTS AND SUBMIT REPORTS TO THE ARCHITECT:
    A. AIR VOLUME AT EACH SUPPLY, RETURN AND EXHAUST OUTLET OR INLET.
    B. VARIABLE VOLUME VALVE MAXIMUM AND MINIMUM FLOW RATES.
    C. TOTAL CFM AND TOTAL STATIC PRESSURE OF EACH SUPPLY AND EXHAUST FAN. TEST EXHAUST FANS WITH ROOM DOORS CLOSED.
    D. MOTOR SPEED, FOR MULTIPLE SPEED FANS (E.G. HIGH, MEDIUM, LOW).
    E. OUTSIDE AIR TO EACH HVAC UNIT AND SUPPLY FAN.
24. ANY NEW INSTALLATION SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR BEGINNING WITH OWNER'S ACCEPTANCE OF THE WORK. ALL LABOR AND MATERIALS NECESSARY TO REPAIR OR REPLACE THE SYSTEM, OR PORTIONS THEREOF, DURING THAT TIME SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM THE REPAIR OR REPLACEMENT.
25. INSTRUCT OWNER'S REPRESENTATIVE IN THE OPERATION OF THE SYSTEMS.
26. PROVIDE ONE REPRODUCIBLE AS–BUILT DRAWING AND AN OPERATION AND MAINTENANCE MANUAL. AS A MINIMUM, THE MANUAL SHALL CONTAIN:
    A. A COMPLETE LIST OF ALL EQUIPMENT AND APPURTENANCES WITH EQUIPMENT DESIGNATIONS (PER DRAWINGS), MANUFACTURERS, AND CATALOG NUMBERS.
    B. COPIES OF MANUFACTURERS' BROCHURES AND INSTRUCTIONS FOR OPERATION AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT, INCLUDING REPLACEMENT PARTS LISTS.
    C. TYPED SYSTEM OPERATION AND MAINTENANCE INSTRUCTIONS, INCLUDING INSPECTION, LUBRICATION, AND SERVICE INSTRUCTIONS AND SCHEDULES.
    D. LIST OF NAMES, ADDRESSES AND PHONE NUMBERS OF DISTRIBUTORS OF ALL EQUIPMENT AND APPURTENANCES.
    E. MANUFACTURERS' WARRANTIES.

GENERAL NOTES

1. WHERE REQUIRED, SLOPE CONDENSATE DRAIN 1/8" PER FOOT (MINIMUM). PROVIDE A 5" DEEP TRAP AT THE AIR HANDLER
2. PROVIDE FLEXIBLE PIPE CONNECTIONS TO EQUIPMENT THAT IS SUSPENDED FROM OR MOUNTED ON VIBRATION ISOLATORS.
3. PROVIDE MINIMUM OUTSIDE AIR TO HVAC UNITS PER TITLE 24 DOCUMENTS.
4. MAINTAIN A MINIMUM OF 10'–0" CLEAR BETWEEN HVAC EQUIPMENT AIR INTAKES AND PLUMBING VENTS OR EXHAUST OUTLETS.
5. SHUT DOWN THE AC–UNITS SUPPLY FAN WHEN THE DUCT SMOKE DETECTOR DETECTS SMOKE, WHERE SMOKE DETECTORS ARE REQUIRED BY CODE.
6. INSTALL NEW TITLE 24 PROGRAMMABLE THERMOSTATS IF REQUIRED BY SCOPE OF WORK.
7. INSTALL NEW DUCTS AS SHOWN INDICATED SIZES ON THE DRAWINGS SHALL BE NET INSIDE DIMENTIONS.
8. COORDINATE LOCATIONS OF ALL EQUIPMENT WITH OTHER TRADES. REFER TO LIGHTING AND FIRE CONTROL PLANS TO AVOID DISCREPANCIES WITH DIFFUSER LOCATIONS.

Duct system design statement:
Duct system was designed using ASHRAE equal friction method.
ALL HVAC DUCTS LOCATED IN UNCONDITIONED SPACES SHALL HAVE R6 INSULATION.

HVAC CEILING PLAN SYMBOLS

- ☒ 12"X12" EXHAUST GRILL–MATCH CEILING TYPE
- (T) (N) TITLE 24 APPROVED THERMOSTAT
- ☒ 12X12" SUPPLY DIFFUSER.
- ▨ 24"X24" RETURN GRILL. KRUEGER 6390 OR SIMILAR

HVAC EQUIPMENT SCHEDULE

DESCRIPTION	SYMBOL	UNIT#	AREA SERVED	MANUFAC	MODEL	TON	CFM	SEER/EER	COOLING TOT/SENS MBTUH	HEATING MBTUH/EFF	POWER V/PH	MCA/MOCP	DIMENSIONS H W L	WEIGHT LBS	NOTES	OSA CFM
FC x	INDOOR UNIT	FC	2,3	1ST FLOOR	TEMPSTAR	N9MSE1002120A	5	2000	14/11.7	60/48	60	120/1	7/15	35X21X30	169	OR EQUAL PRODUCT	0
CU x	OUTDOOR UNIT	CU	2,3	1ST FLOOR	TEMPSTAR	NH4A4–60	5	–	14/11.7	60/48	HSPF=8.5	208/1	34/50	36X35X35	220	OR EQUAL PRODUCT	
FC x	INDOOR UNIT	FC	1	1ST FLOOR	TEMPSTAR	N9MSE1002120A	5	2000	14/11.7	60/48	60	120/1	7/15	35X21X30	169	OR EQUAL PRODUCT	
CU x	OUTDOOR UNIT	CU	1	1ST, FLOOR	TEMPSTAR	NH4A4–60	5	–	14/11.7	60/48	HSPF=8.5	208/1	34/50	36X35X35	220	OR EQUAL PRODUCT	
FC x	INDOOR UNIT	FC	4,5	2nd FLOOR	TEMPSTAR	N9MSE0601410A	2.5	1000	14/11.7	30/20	30	120/1	6/15	35X25X25	127	OR EQUAL PRODUCT	
CU x	OUTDOOR UNIT	CU	4,5	2nd FLOOR	TEMPSTAR	NH4A4–30	2.5	–	14/11.7	30/20	HSPF=8.5	208/1	18/30	27X25X25	183	OR EQUAL PRODUCT	

HVAC EQUIPMENT SCHEDULE

DESCRIPTION	SYMBOL	TYPE	AREA SERVED	MANUFAC.	MODEL	CFM	POWER	HP	WGHT	NOTES
						Ø0.25"WC				
EF x	CEILING MNT EX FAN	EF	1	RESTROOM	AIRKING	EVDH	120	120V	1 AMP	8	1 2 3
	CEILING MNT EX FAN	EF	2	RESTROOM	AIRKING	ESB80S	80	120V	1 AMP	8	1 3

1 INCLUDE BACKDRAFT DAMPER AND ROOf CAP
2 MODEL INCLUDES HUMIDITY CONTROL .
3 ENERGY STAR MODEL

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MORGAN HILLS, CA 95037
APN: 712–27–012

REGISTERED PROFESSIONAL ENGINEER
ALI M. NEYME
M29005
EXP. 6–30–2024
MECHANICAL
STATE OF CALIFORNIA

Revisions:	Date:
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HVAC SCHEDULES

CVEAS JOB # : 16067
DATE: 1/18/2023
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SCALE: AS NOTED

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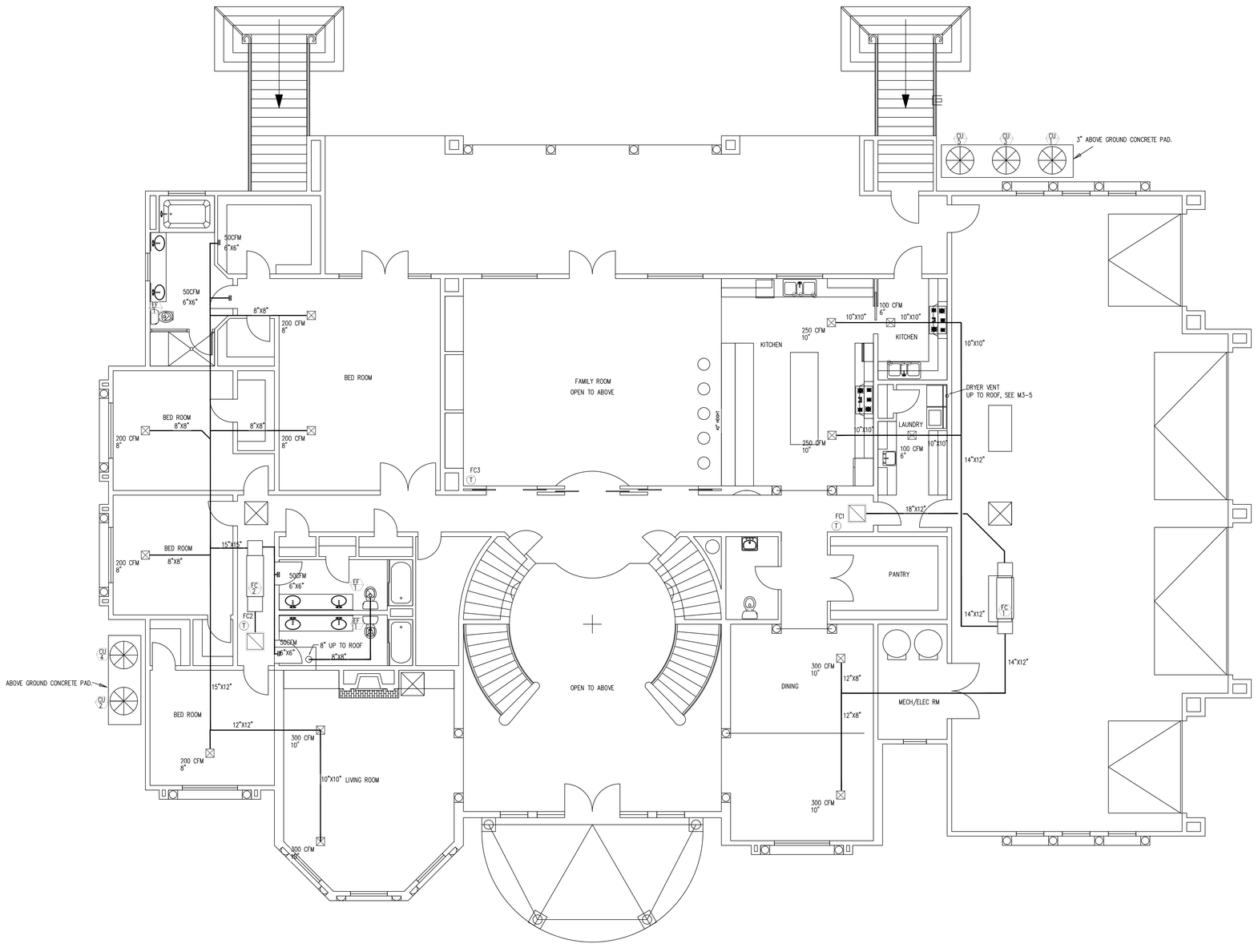

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APN: 712-27-012

REGISTERED PROFESSIONAL ENGINEER
ALI M. NEHME
29005
EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Revisions:	Date:
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HVAC 1ST FLOOR

CVEAS JOB #:	16067
DATE:	1/18/2023
DRAWN BY:	XX
CHECKED BY:	RL
SCALE:	AS NOTED

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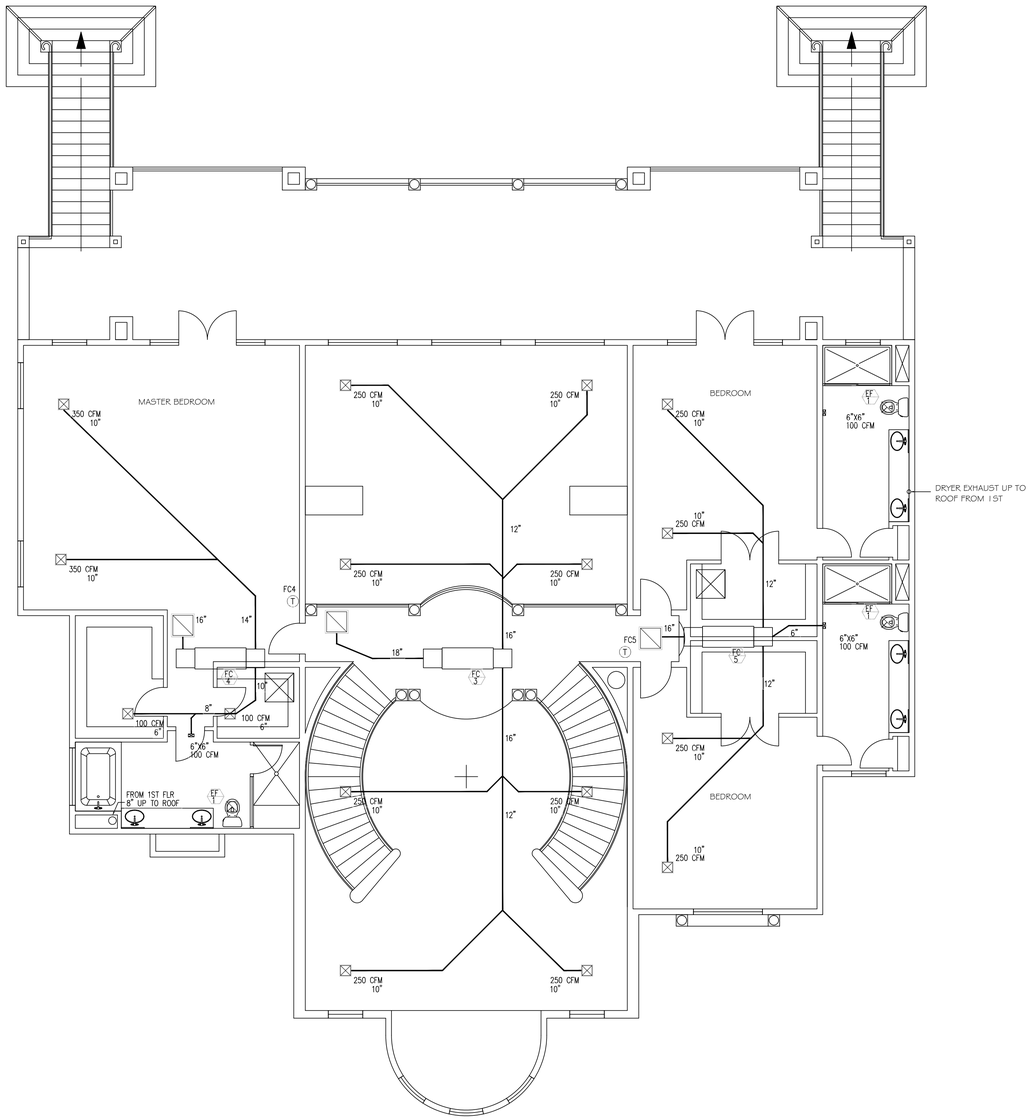

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PALM AVE. AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-012

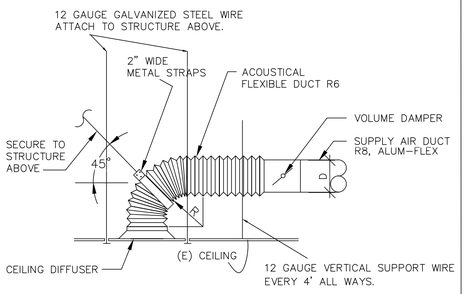
REGISTERED PROFESSIONAL ENGINEER
ALI M NEYME
M29905
EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Revisions:	Date:
1 --	--

HVAC
2ND FLOOR

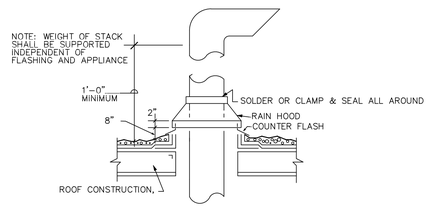
CVEAS JOB # : 16067
DATE: 1/18/2023
DRAWN BY: XX
CHECKED BY: RL
SCALE: AS NOTED

M 2

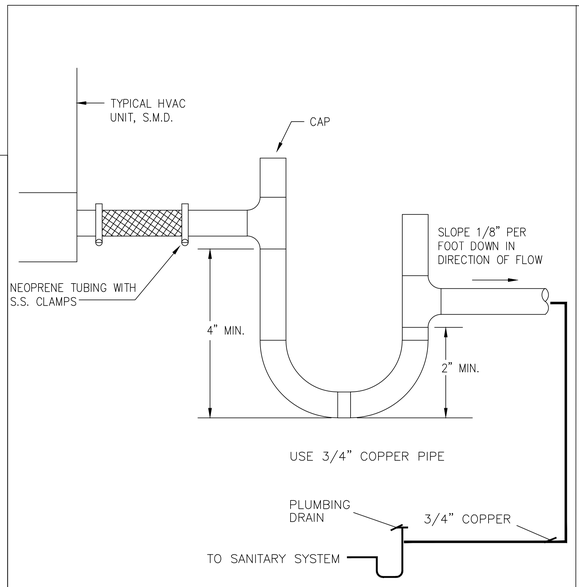


NOTES:
IN LIEU OF ABOVE DETAIL METAL PLENUM MAY BE USED TO CONNECT THE BRANCH DUCT TO THE DIFFUSERS. ELBOW R/D=1.5

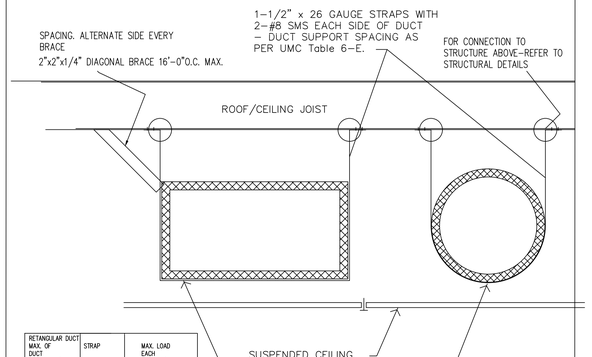
1 DIFFUSER CONNECTION



2 J-VENT THRU ROOF



3 CONDENSATE TRAP DETAIL

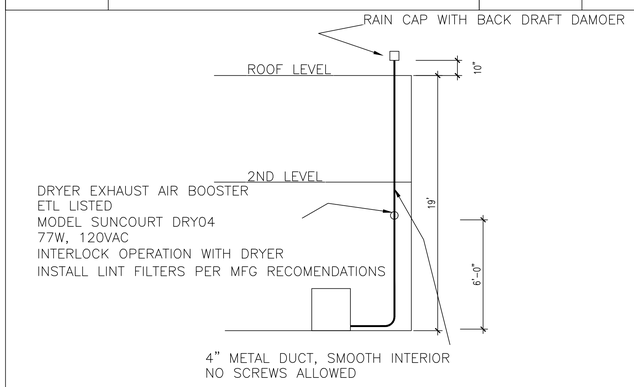


RECTANGULAR DUCT MAX. OF DUCT PERIMETER/IN	STRAP	MAX. LOAD EACH HANGER/LBS.
P/2 =72	1"X 20 GA.	20
P/2 =96	1"X 18 GA	30

ROUND DUCT DIAMETER, in	STRAP	MAX. LOAD EACH HANGER/LBS.
UP TO 20"	1"X 20 GA.	20
21" TO 36"	1"X 18 GA	30

NO SCALE

4 ROUND & RECTANG. DUCT SUPPORT



5 DRYER EXHAUST RISER – NOT TO SCALE

CVEAS
CENTRAL VALLEY
ENGINEERING & SURVEYING, INC.
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CIVIL ENGINEERING * LAND SURVEYING * CONSULTING * STRUCTURAL DESIGN * ARCHITECTURAL DRAFTING * COMMERCIAL & RESIDENTIAL BUILDING DESIGN * PLANNING & PROJECT MANAGEMENT

PROJECT
NEW RESIDENCE FOR:
GURDEEP DHADWAL
PALM AVE. AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-012

REGISTERED PROFESSIONAL ENGINEER
ALI M. NEHMAT
M29005
EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Revisions:	Date:
1 --	--

HVAC DETAILS

CVEAS JOB #: 16067
DATE: 1/18/2023
DRAWN BY: XX
CHECKED BY: RL
SCALE: AS NOTED

M 3

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 1 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

GENERAL INFORMATION					
01	Project Name	NEW HOUSE			
02	Run Title				
03	Project Location	PALM AVE AND DOUGHETRY			
04	City	MORGAN HILLS, CA	05	Standards Version	2022
06	Zip code	95037	07	Software Version	CBECC-Res 2022.2.0
08	Climate Zone	4	09	Front Orientation (deg/ Cardinal)	180
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	6
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	2
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	7840	19	Glazing Percentage (%)	9.40%
20	ADU Bedroom Count	n/a			

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 2 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
Standard Design	44	48.7	29.6			
Proposed Design	25.2	43.2	17.8	18.8	5.5	11.8
RESULT[3]: PASS						

[1]Efficiency EDR includes improvements like a better building envelope and more efficient equipment
[2]Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries
[3]Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

- Standard Design PV Capacity: 4.18 kWdc
- PV System resized to 7.76 kWdc (a factor of 1.939) to achieve 'Maximum PV for Compliance Credit' PV scaling

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 3 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

ENERGY USE SUMMARY						
Energy Use	Standard Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	5.23	22.96	2.32	17.84	2.91	5.12
Space Cooling	0.1	6.15	0.13	8.39	-0.03	-2.24
IAQ Ventilation	0.28	2.95	0.28	2.95	0	0
Water Heating	0.5	5.35	0.36	3.98	0.14	1.37
Self Utilization/Flexibility Credit				0		0
Efficiency Compliance Total	**6.11**	**37.41**	**3.09**	**33.16**	**3.02**	**4.25**
Photovoltaics	-0.47	-15.74	-0.87	-28.36		
Battery			0	0		
Flexibility						
Indoor Lighting	0.33	3.24	0.33	3.24		
Appl. & Cooking	0.87	5.53	0.87	5.55		
Plug Loads	1.05	10.92	1.05	10.92		
Outdoor Lighting	0.1	0.86	0.1	0.86		
TOTAL COMPLIANCE	**7.99**	**42.22**	**4.57**	**25.37**		

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 4 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

ENERGY USE INTENSITY				
	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Compliance Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	10.04	6.03	4.01	39.94
Net EUI[2]	7.15	0.68	6.47	90.49

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED PV SYSTEMS											
01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
7.76	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- PV System: 7.76 kWdc
- Insulation below roof deck
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

- Indoor air quality ventilation
- Kitchen range hood
- Minimum Airflow
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM
- Verified heat pump rated heating capacity
- Duct leakage testing

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 5 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

BUILDING - FEATURES INFORMATION						
01	02	03	04	05	06	07
Project Name	Conditioned Floor Area (ft^2)	Number of Dwelling Units	Number of Bedrooms	Number of Zones	Number of Ventilation Cooling Systems	Number of Water Heating Systems
NEW HOUSE	7840	1	6	2	0	1

ZONE INFORMATION						
01	02	03	04	05	06	07
Zone Name	Zone Type	HVAC System Name	Zone Floor Area (ft^2)	Avg. Ceiling Height	Water Heating System 1	Status
1ST FLOOR	Conditioned	HVAC 1st floor	5430	8	DHW System HP	New
2nd FLOOR	Conditioned	HVAC 2nd floor	2410	8	DHW System HP	New

OPAQUE SURFACES							
01	02	03	04	05	06	07	08
Name	Zone	Construction	Azimuth	Orientation	Gross Area (ft^2)	Window and Door Area (ft2)	Tilt (deg)
Exterior Wall BACK	1ST FLOOR	R-19 Wall--R0	0	Back	920	140	90
Exterior Wall LEFT	1ST FLOOR	R-19 Wall--R0	270	Left	780	82	90
Exterior Wall RIGHT	1ST FLOOR	R-19 Wall--R0	90	Right	170	16	90
Exterior Wall FRONT	1ST FLOOR	R-19 Wall--R0	180	Front	840	206	90
Exterior Wall BACK-2	2nd FLOOR	R-19 Wall--R0	0	Back	780	172	90
Exterior Wall LEFT-2	2nd FLOOR	R-19 Wall--R0	270	Left	675	40	90
Exterior Wall RIGHT-2	2nd FLOOR	R-19 Wall--R0	90	Right	675	6	90
Exterior Wall FRONT-2	2nd FLOOR	R-19 Wall--R0	180	Front	780	72	90
Ceiling (below attic)	1ST FLOOR	R-30 ROOF ATTIC	n/a	n/a	3020	n/a	n/a
Ceiling (below attic) 2	2nd FLOOR	R-30 ROOF ATTIC	n/a	n/a	2410	n/a	n/a
Interior Floor 1	2nd FLOOR	Construction Assembly 17	n/a	n/a	2000	n/a	n/a

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 6 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

ATTIC							
01	02	03	04	05	06	07	08
Name	Construction	Type	Roof Rise (x in 12)	Roof Reflectance	Roof Emittance	Radiant Barrier	Cool Roof
Attic	Asphalt Shingle Roof	Ventilated	4	0.1	0.85	Yes	No

FENESTRATION / GLAZING														
01	02	03	04	05	06	07	08	09	10	11	12	13	14	
Name	Type	Surface	Orientation	Azimuth	Width (ft)	Height (ft)	Mult.	Area (ft^2)	U-factor	U-factor Source	SHGC	SHGC Source	Exterior Shading	
Window HJJDDH	Window	Exterior Wall BACK	Back	0			1	140	0.3	NFRC	0.23	NFRC	Bug Screen	
Window GDDA	Window	Exterior Wall LEFT	Left	270			1	82	0.3	NFRC	0.23	NFRC	Bug Screen	
Window A	Window	Exterior Wall RIGHT	Right	90			1	16	0.3	NFRC	0.23	NFRC	Bug Screen	
Window DCB8CAAAD	Window	Exterior Wall FRONT	Front	180			1	206	0.3	NFRC	0.23	NFRC	Bug Screen	
Window GQQRRRQQG	Window	Exterior Wall BACK-2	Back	0			1	172	0.3	NFRC	0.23	NFRC	Bug Screen	
Window LNPP	Window	Exterior Wall LEFT-2	Left	270			1	40	0.3	NFRC	0.23	NFRC	Bug Screen	
Window L	Window	Exterior Wall RIGHT-2	Right	90			1	6	0.3	NFRC	0.23	NFRC	Bug Screen	
Window KLLLKMF	Window	Exterior Wall FRONT-2	Front	180			1	72	0.3	NFRC	0.23	NFRC	Bug Screen	

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 7 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

SLAB FLOORS							
01	02	03	04	05	06	07	08
Name	Zone	Area (ft^2)	Perimeter (ft)	Edge Insul. R-value and Depth	Edge Insul. R-value and Depth	Carpeted Fraction	Heated
Slab On Grade 1	1ST FLOOR	5430	420	none	0	80%	No

OPAQUE SURFACE CONSTRUCTIONS							
01	02	03	04	05	06	07	08
Construction Name	Surface Type	Construction Type	Framing	Total Cavity R-value	Interior / Exterior Continuous R-value	U-factor	Assembly Layers
R-19 Wall--R0	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-19	None / None	0.069	Inside Finish: Gypsum Board Cavity / Frame: R-19 / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Asphalt Shingle Roof	Attic Roofs	Wood Framed Ceiling	2x4 @ 16 in. O. C.	R-15	None / None	0.074	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Around Roof Joists: R-2.0 insul.
R-30 ROOF ATTIC	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board
Construction Assembly 17	Interior Floors	Wood Framed Floor	2x12 @ 16 in. O. C.	R-0	None / None	0.196	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: no insul. / 2x12 Ceiling Below Finish: Gypsum Board

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 8 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

BUILDING ENVELOPE - HERS VERIFICATION				
01	02	03	04	05
Quality Insulation Installation (QII)	High R-value Spray Foam Insulation	Building Envelope Air Leakage	CFM50	CFM50
Not Required	Not Required	N/A	n/a	n/a

WATER HEATING SYSTEMS								
01	02	03	04	05	06	07	08	09
Name	System Type	Distribution Type	Water Heater Name	Number of Units	Solar Heating System	Compact Distribution	HERS Verification	Water Heater Name (#)
DHW System HP	Domestic Hot Water (DHW)	Standard	Water Heater HP	2	n/a	None	n/a	Water Heater HP (2)

WATER HEATERS - NEEA HEAT PUMP							
01	02	03	04	05	06	07	08
Name	# of Units	Tank Vol. (gal)	NEEA Heat Pump Brand	NEEA Heat Pump Model	Tank Location	Duct Inlet Air Source	Duct Outlet Air Source
Water Heater HP	2	50	AOSmith	AOSmithFPTU50	1ST FLOOR	Outside	Outside

WATER HEATING - HERS VERIFICATION						
01	02	03	04	05	06	07
Name	Pipe Insulation	Parallel Piping	Compact Distribution	Compact Distribution Type	Recirculation Control	Shower Drain Water Heat Recovery
DHW System HP - 1/2	Not Required	Not Required	Not Required	None	Not Required	Not Required

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW HOUSE **Calculation Date/Time:** 2023-01-18T19:24:05-08:00 **(Page 9 of 12)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS 2022.ribd22

SPACE CONDITIONING SYSTEMS								
01	02	03	04	05	06	07	08	09
Name	System Type	Heating Unit Name	Heating Equipment Count	Cooling Unit Name	Cooling Equipment Count	Fan Name	Distribution Name	Required Thermostat Type
HVAC 1st floor	Heat pump heating cooling	Heat Pump System 1	3	Heat Pump System 1	3	HVAC Fan ADU	DUCTS	Setback
HVAC 2nd floor	Heat pump heating cooling	Heat Pump System 2	2	Heat Pump System 2	2	HVAC Fan ADU	DUCTS	Setback

HVAC - HEAT PUMPS												
01	02	03	04	05	06	07	08	09	10	11	12	13
Name	System Type	Number of Units	Heating				Cooling			Zonally Controlled	Compressor Type	HERS Verification
			Efficiency Type	HSPF / HSPF2 / COP	Cap 47	Cap 17	Efficiency Type	SEER / SEER2	EER / EER / CEER			
Heat Pump System 1	Central split HP	3	HSPF	8.5	60000	50000	EERSEER	14	11.7	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump
Heat Pump System 2	Central split HP	2	HSPF	8.5	30000	20000	EERSEER	14	11.87	Not Zonal	Single Speed	Heat Pump System 2-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION								
01	02	03	04	05	06	07	08	09
Name	Verified Airflow	Airflow Target	Verified EER/EER2	Verified SEER/SEER2	Verified Refrigerant Charge	Verified HSPF/HSPF2	Verified Heating Cap 47	Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	350	Not Required	Not Required	Yes	No	Yes	Yes
Heat Pump System 2-hers-htpump	Required	350	Not Required	Not Required	Yes	No	Yes	Yes

REV	DESCRIPTION	BY	DATE
1	!		

ANPE
ALI NEHME, P.E.
22914 DRY CREEK RD
DIAMOND BAR, CA 91765
ali886349@gmail.com

REGISTERED PROFESSIONAL ENGINEER
ALI M. NEHME
M29005
EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Title 24 forms

DRAWN BY -
CHECKED BY AN
DATE SEE FORMS

JOB NUMBER -

SHEET NO. T24-1

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
Name	Type	Design Type	Duct Ins. R-value		Duct Location		Surface Area		Bypass Duct	Duct Leakage	HERS Verification
			Supply	Return	Supply	Return	Supply	Return			
DUCTS	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	DUCTS-hers-dist

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
DUCTS-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan ADU	HVAC Fan	0.4	HVAC Fan ADU-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan ADU-hers-fan	Required	0.4

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display?	HERS Verification	Status
5Fam IAQVentRpt	280	0.35	Exhaust	No	n/a	No	Yes	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I, I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Ali Nehme	Documentation Author Signature: Ali Nehme
Company: Ali Nehme P.E.	Signature Date: 01/18/2023
Address: 22914 Dry Creek Road	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Diamond Bar, CA 91765	Phone: 909-293-9018

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name: Ali Nehme	Responsible Designer Signature: Ali Nehme
Company: Ali Nehme P.E.	Date Signed: 01/18/2023
Address: 22914 Dry Creek Road	License:
City/State/Zip: Diamond Bar, CA 91765	Phone: 909-293-9018

Digitally signed by Cordial Home Energy Efficiency Rating System Services, Inc. (CHEERS). This digital signature is provided in order to secure the content of this registered document, and in no way implies Registration Provider responsibility for the accuracy of the information.

2022 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information.
(04/2022)

Building Envelope:

§ 110.8(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior pet doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101/I.S.2/A440-2011. *
§ 110.8(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.8(b):	**Field fabricated exterior doors and fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped. *
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(a):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.194. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B. *
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. *
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45.

Fireplaces, Decorative Gas Appliances, and Gas Log:

§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device. *
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *

Space Conditioning, Water Heating, and Plumbing System:

§ 110.0-§ 110.3:	**Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N. *
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating. *
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	**Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

2022 Single-Family Residential Mandatory Requirements Summary

§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas; fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.
§ 150.0(n)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and vermin as required by § 120.3(b). Insulation exposed to weather must be water-retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.

Ducts and Fans:

§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than ¼", if mastic or tape is used. Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed. *
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage due tosunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.
§ 150.0(m)12:	**Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter. *

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ± 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3. *

Ventilation and Indoor Air Quality:

§ 150.0(o)1:	**Requirements for Ventilation and Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1. *
§ 150.0(o)1B:	**Central Fan Integrated (CFI) Ventilation Systems.** Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per §150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed andcontrolled per §150.0(p)1BiiiAv. CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with §150.0(o)1C.
§ 150.0(o)1C:	**Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses** . Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1Cii-iii.
§ 150.0(o)1G:	**Local Mechanical Exhaust.** Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of §150.0(o)1Giiiand enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii-iv. Airflow must be measured by the installer per §150.0(o)1Gv, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H&I:	**Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.** The airflow required per § 150.0(o)1C must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminalsregardless per Reference Residential Appendix RA3.7. Whole-dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 §7.2 at no less than the minimum airflow rate required by §150.0(o)1C.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods must be verified per Reference Residential Appendix RA3.7.4.3 to confirm if it is rated by HVI or AHAM to comply with the airflow rates and sound requirements per §150.0(o)1G

Pool and Spa Systems and Equipment:

§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDbS; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating. *
§ 110.4(b)1:	**Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional Inlets and Time Switches for Pools.** Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	**Pool Lights.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves. *

Lighting:

§ 110.9:	**Certification by Manufacturers.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9. *
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(k)1B:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.116 must also be met.
§ 150.0(k)1D:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1E:	**Blank Electrical Boxes.** The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
§ 150.0(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k). *

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(q)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, emit no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems. *
§ 150.0(k)2A:	**Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *
§ 150.0(k)2B:	**Multiple Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2C:	**Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2D:	**Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
§ 150.0(k)2E:	**Automatic Shutoff Controls.** In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
§ 150.0(k)2F:	**Dimmers.** Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2K:	**Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control,or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:

§ 110.10(a)1:	**Single-family Residences.** Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which do not have a photovoltaic system installed, must comply with the requirements of § 110.10(b)-(e).
§ 110.10(b)1A:	**Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. *
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment. *
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."

Electric and Energy Storage Ready:

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(s)	**Energy Storage System (ESS) Ready.** All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s), at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/transfer switch within 3' of the main panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source.
§ 150.0(t)	**Heat Pump Space Heater Ready.** Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(u)	**Electric Cooktop Ready.** Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(v)	**Electric Clothes Dryer Ready.** Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

*Exceptions may apply.

REV	DESCRIPTION	BY	DATE
1	!		

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REGISTERED PROFESSIONAL ENGINEER
ALI M. NEHME
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EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Title 24 forms

DRAWN BY -
CHECKED BY AN
DATE SEE FORMS

JOB NUMBER -

SHEET NO. T24-2

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 1 of 11)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS Guest house 2022.ribd22

GENERAL INFORMATION					
01	Project Name	NEW GUEST HOUSE			
02	Run Title				
03	Project Location	PALM AVE AND DOUGHETRY			
04	City	MORGAN HILLS, CA	05	Standards Version	2022
06	Zip code	95037	07	Software Version	CBECC-Res 2022.2.0
08	Climate Zone	4	09	Front Orientation (deg/ Cardinal)	0
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	Newly Constructed	13	Number of Bedrooms	1
14	Addition Cond. Floor Area (ft^2)	0	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	n/a	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	1193	19	Glazing Percentage (%)	10.00%
20	ADU Bedroom Count	n/a			

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	This building incorporates features that require field testing and/or verification by a certified HERS rater under the supervision of a CEC-approved HERS provider.
03	This building incorporates one or more Special Features shown below

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 2 of 11)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS Guest house 2022.ribd22

ENERGY DESIGN RATINGS	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
Standard Design	38.9	44.1	32.9			
Proposed Design	30.7	41.3	23.5	8.2	2.8	9.4
RESULT[3]: PASS						

[1]Efficiency EDR includes improvements like a better building envelope and more efficient equipment
[2]Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries
[3]Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

- Standard Design PV Capacity: 1.73 kWdc
- PV System resized to 2.55 kWdc (a factor of 2.553) to achieve 'Maximum PV for Compliance Credit' PV scaling

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 3 of 11)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS Guest house 2022.ribd22

ENERGY USE SUMMARY	Standard Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Standard Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Proposed Design Source Energy (EDR1) (kBtu/ft^2 -yr)	Proposed Design TDV Energy (EDR2) (kTDV/ft^2 -yr)	Compliance Margin (EDR1)	Compliance Margin (EDR2)
Space Heating	3.96	17.38	2.29	17.46	1.67	-0.08
Space Cooling	0.25	14.25	0.25	15.26	0	-1.01
IAQ Ventilation	0.32	3.45	0.32	3.45	0	0
Water Heating	1.79	19.4	1.33	14.87	0.46	4.53
Self Utilization/Flexibility Credit				0		0
Efficiency Compliance Total	**6.32**	**54.48**	**4.19**	**51.04**	**2.13**	**3.44**
Photovoltaics	-1.27	-42.99	-1.88	-62.05		
Battery			0	0		
Flexibility						
Indoor Lighting	0.81	7.93	0.81	7.93		
Appl. & Cooking	3.96	26.04	3.96	26.03		
Plug Loads	3.01	31.35	3.01	31.35		
Outdoor Lighting	0.2	1.77	0.2	1.77		
TOTAL COMPLIANCE	**13.03**	**78.58**	**10.29**	**56.07**		

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 4 of 11)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS Guest house 2022.ribd22

ENERGY USE INTENSITY	Standard Design (kBtu/ft^2 - yr)	Proposed Design (kBtu/ft^2 - yr)	Compliance Margin (kBtu/ft^2 - yr)	Margin Percentage
Gross EUI[1]	17.57	14.56	3.01	17.13
Net EUI[2]	9.74	2.99	6.75	69.3

Notes
1. Gross EUI is Energy Use Total (not including PV) / Total Building Area.
2. Net EUI is Energy Use Total (including PV) / Total Building Area.

REQUIRED PV SYSTEMS

01 DC System Size (kWdc)	02 Exception	03 Module Type	04 Array Type	05 Power Electronics	06 CFI	07 Azimuth (deg)	08 Tilt Input	09 Array Angle (deg)	10 Tilt: (x in 12)	11 Inverter Eff. (%)	12 Annual Solar Access (%)
2.55	NA	Standard (14-17%)	Fixed	none	true	150-270	n/a	n/a	<=7:12	96	98

REQUIRED SPECIAL FEATURES

The following are features that must be installed as condition for meeting the modeled energy performance for this computer analysis.

- PV System: 2.55 kWdc
- Insulation below roof deck
- Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater; specific brand/model, or equivalent, must be installed

HERS FEATURE SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

- Indoor air quality ventilation
- Kitchen range hood
- Minimum Airflow
- Verified Refrigerant Charge
- Fan Efficacy Watts/CFM
- Verified heat pump rated heating capacity
- Duct leakage testing

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 5 of 11)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS Guest house 2022.ribd22

BUILDING - FEATURES INFORMATION

01 Project Name	02 Conditioned Floor Area (ft^2)	03 Number of Dwelling Units	04 Number of Bedrooms	05 Number of Zones	06 Number of Ventilation Cooling Systems	07 Number of Water Heating Systems
NEW GUEST HOUSE	1193	1	1	1	0	1

ZONE INFORMATION

01 Zone Name	02 Zone Type	03 HVAC System Name	04 Zone Floor Area (ft^2)	05 Avg. Ceiling Height	06 Water Heating System 1	07 Status
1ST FLOOR	Conditioned	HVAC 1st floor	1193	8	DHW System HP	New

OPAQUE SURFACES

01 Name	02 Zone	03 Construction	04 Azimuth	05 Orientation	06 Gross Area (ft^2)	07 Window and Door Area (ft2)	08 Tilt (deg)
Exterior Wall BACK	1ST FLOOR	R-19 Wall--R0	180	Back	430	82.8	90
Exterior Wall LEFT	1ST FLOOR	R-19 Wall--R0	90	Left	100	0	90
Exterior Wall RIGHT	1ST FLOOR	R-19 Wall--R0	270	Right	170	0	90
Exterior Wall FRONT	1ST FLOOR	R-19 Wall--R0	0	Front	430	90.025	90
Ceiling (below attic)	1ST FLOOR	R-30 ROOF ATTIC	n/a	n/a	1193	n/a	n/a

ATTIC

01 Name	02 Construction	03 Type	04 Roof Rise (x in 12)	05 Roof Reflectance	06 Roof Emittance	07 Radiant Barrier	08 Cool Roof
Attic	Asphalt Shingle Roof	Ventilated	4	0.1	0.85	Yes	No

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 6 of 11)**

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FENESTRATION / GLAZING

01 Name	02 Type	03 Surface	04 Orientation	05 Azimuth	06 Width (ft)	07 Height (ft)	08 Mult.	09 Area (ft^2)	10 U-factor	11 U-factor Source	12 SHGC	13 SHGC Source	14 Exterior Shading
W6	Window	Exterior Wall BACK	Back	180	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
W7	Window	Exterior Wall BACK	Back	180	3	2	1	6	0.3	NFRC	0.23	NFRC	Bug Screen
W8	Window	Exterior Wall BACK	Back	180	3	2	1	6	0.3	NFRC	0.23	NFRC	Bug Screen
W9	Window	Exterior Wall BACK	Back	180	4	3	1	12	0.3	NFRC	0.23	NFRC	Bug Screen
W1	Window	Exterior Wall FRONT	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen
W2	Window	Exterior Wall FRONT	Front	0	1.5	6.68	1	10.02	0.3	NFRC	0.23	NFRC	Bug Screen
W3	Window	Exterior Wall FRONT	Front	0	1.5	6.67	1	10	0.3	NFRC	0.23	NFRC	Bug Screen
W4	Window	Exterior Wall FRONT	Front	0	5	5	1	25	0.3	NFRC	0.23	NFRC	Bug Screen

OPAQUE DOORS

01 Name	02 Side of Building	03 Area (ft^2)	04 U-factor
InputDoor 2	Exterior Wall BACK	33.8	0.2
InputDoor 1	Exterior Wall FRONT	20	0.2

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 7 of 11)**

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SLAB FLOORS

01 Name	02 Zone	03 Area (ft^2)	04 Perimeter (ft)	05 Edge Insul. R-value and Depth	06 Edge Insul. R-value and Depth	07 Carpeted Fraction	08 Heated
Slab On Grade 1	1ST FLOOR	1193	165	none	0	80%	No

OPAQUE SURFACE CONSTRUCTIONS

01 Construction Name	02 Surface Type	03 Construction Type	04 Framing	05 Total Cavity R-value	06 Interior / Exterior Continuous R-value	07 U-factor	08 Assembly Layers
R-19 Wall--R0	Exterior Walls	Wood Framed Wall	2x6 @ 16 in. O. C.	R-19	None / None	0.069	Inside Finish: Gypsum Board Cavity / Frame: R-19 / 2x6 Exterior Finish: Wood Siding/sheathing/decking
Asphalt Shingle Roof	Attic Roofs	Wood Framed Ceiling	2x4 @ 16 in. O. C.	R-15	None / None	0.074	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Around Roof Joists: R-2.0 insul.
R-30 ROOF ATTIC	Ceilings (below attic)	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-30	None / None	0.032	Over Ceiling Joists: R-20.9 insul. Cavity / Frame: R-9.1 / 2x4 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

01 Quality Insulation Installation (QII)	02 High R-value Spray Foam Insulation	03 Building Envelope Air Leakage	04 CFM50	05 CFM50
Not Required	Not Required	N/A	n/a	n/a

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 8 of 11)**

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WATER HEATING SYSTEMS

01 Name	02 System Type	03 Distribution Type	04 Water Heater Name	05 Number of Units	06 Solar Heating System	07 Compact Distribution	08 HERS Verification	09 Water Heater Name (#)
DHW System HP	Domestic Hot Water (DHW)	Standard	Water Heater HP	1	n/a	None	n/a	Water Heater HP (1)

WATER HEATERS - NEEA HEAT PUMP

01 Name	02 # of Units	03 Tank Vol. (gal)	04 NEEA Heat Pump Brand	05 NEEA Heat Pump Model	06 Tank Location	07 Duct Inlet Air Source	08 Duct Outlet Air Source
Water Heater HP	1	50	AOSmith	AOSmithFPTU50	1ST FLOOR	Outside	Outside

WATER HEATING - HERS VERIFICATION

01 Name	02 Pipe Insulation	03 Parallel Piping	04 Compact Distribution	05 Compact Distribution Type	06 Recirculation Control	07 Shower Drain Water Heat Recovery
DHW System HP - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01 Name	02 System Type	03 Heating Unit Name	04 Heating Equipment Count	05 Cooling Unit Name	06 Cooling Equipment Count	07 Fan Name	08 Distribution Name	09 Required Thermostat Type
HVAC 1st floor	Heat pump heating cooling	Heat Pump System 1	1	Heat Pump System 1	1	HVAC Fan ADU	DUCTS	Setback

CERTIFICATE OF COMPLIANCE - RESIDENTIAL PERFORMANCE COMPLIANCE METHOD **CF1R-PRF-01-E**

Project Name: NEW GUEST HOUSE **Calculation Date/Time:** 2023-01-19T14:44:09-08:00 **(Page 9 of 11)**

Calculation Description: **Input File Name:** CVEAS-MORGAN HILLS Guest house 2022.ribd22

HVAC - HEAT PUMPS

01 Name	02 System Type	03 Number of Units	04 Heating Efficiency Type	05 Heating HSPF / HSPF2 / COP	06 Heating Cap 47	07 Heating Cap 17	08 Cooling Efficiency Type	09 Cooling SEER / SEER2	10 Cooling EER / EER / CEER	11 Zonally Controlled	12 Compressor Type	13 HERS Verification
Heat Pump System 1	Central split HP	1	HSPF	8.5	36000	28000	EERSEER	14	11.7	Not Zonal	Single Speed	Heat Pump System 1-hers-htpump

HVAC HEAT PUMPS - HERS VERIFICATION

01 Name	02 Verified Airflow	03 Airflow Target	04 Verified EER/EER2	05 Verified SEER/SEER2	06 Verified Refrigerant Charge	07 Verified HSPF/HSPF2	08 Verified Heating Cap 47	09 Verified Heating Cap 17
Heat Pump System 1-hers-htpump	Required	350	Not Required	Not Required	Yes	No	Yes	Yes

HVAC - DISTRIBUTION SYSTEMS

01 Name	02 Type	03 Design Type	04 Duct Ins. R-value Supply	05 Duct Ins. R-value Return	06 Duct Location Supply	07 Duct Location Return	08 Surface Area Supply	09 Surface Area Return	10 Bypass Duct	11 Duct Leakage	12 HERS Verification
DUCTS	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Sealed and Tested	DUCTS-hers-dist

REV	DESCRIPTION	BY	DATE
1	!		

ANPE
ALI NEHME, P.E.
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DIAMOND BAR, CA 91765
ali886349@gmail.com

REGISTERED PROFESSIONAL ENGINEER
ALI M. NEHME
M29005
EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Title 24 forms

DRAWN BY -
CHECKED BY AN
DATE SEE FORMS

JOB NUMBER -

SHEET NO. T24-1

HVAC DISTRIBUTION - HERS VERIFICATION

01	02	03	04	05	06	07	08	09
Name	Duct Leakage Verification	Duct Leakage Target (%)	Verified Duct Location	Verified Duct Design	Buried Ducts	Deeply Buried Ducts	Low-leakage Air Handler	Low Leakage Ducts Entirely in Conditioned Space
DUCTS-hers-dist	Yes	5.0	Not Required	Not Required	Not Required	Credit not taken	Not Required	No

HVAC - FAN SYSTEMS

01	02	03	04
Name	Type	Fan Power (Watts/CFM)	Name
HVAC Fan ADU	HVAC Fan	0.4	HVAC Fan ADU-hers-fan

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	Verified Fan Watt Draw	Required Fan Efficacy (Watts/CFM)
HVAC Fan ADU-hers-fan	Required	0.4

INDOOR AIR QUALITY (IAQ) FANS

01	02	03	04	05	06	07	08	09
Dwelling Unit	Airflow (CFM)	Fan Efficacy (W/CFM)	IAQ Fan Type	Includes Heat/Energy Recovery?	IAQ Recovery Effectiveness - SRE	Includes Fault Indicator Display?	HERS Verification	Status
SFam IAQVentRpt	50	0.35	Exhaust	No	n/a	No	Yes	

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I, I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Ali Nehme	Documentation Author Signature: Ali Nehme
Company: Ali Nehme P.E.	Signature Date: 01/19/2023
Address: 22914 Dry Creek Road	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Diamond Bar, CA 91765	Phone: 909-293-9018

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design identified on this Certificate of Compliance.
2. I certify that the energy features and performance specifications identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
3. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Responsible Designer Name: Ali Nehme	Responsible Designer Signature: Ali Nehme
Company: Ali Nehme P.E.	Date Signed: 01/19/2023
Address: 22914 Dry Creek Road	License:
City/State/Zip: Diamond Bar, CA 91765	Phone: 909-293-9018

2022 Single-Family Residential Mandatory Requirements Summary

NOTE: Single-family residential buildings subject to the Energy Codes must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information.
(04/2022)

Building Envelope:

§ 110.8(a)1:	**Air Leakage.** Manufactured fenestration, exterior doors, and exterior set doors must limit air leakage to 0.3 CFM per square foot or less when tested per NFRC-400, ASTM E283, or AAMA/WDMA/CSA 101/I.S.2/A440-2011. *
§ 110.8(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.8(b):	**Field fabricated exterior doors are fenestration** products must use U-factors and solar heat gain coefficient (SHGC) values from Tables 110.6-A, 110.6-B, or JA4.5 for exterior doors. They must be caulked and/or weather-stripped. *
§ 110.7:	**Air Leakage.** All joints, penetrations, and other openings in the building envelope that are potential sources of air leakage must be caulked, gasketed, or weather stripped.
§ 110.8(i):	**Insulation Certification by Manufacturers.** Insulation must be certified by the Department of Consumer Affairs, Bureau of Household Goods and Services (BHGS).
§ 110.8(g):	**Insulation Requirements for Heated Slab Floors.** Heated slab floors must be insulated per the requirements of § 110.8(g).
§ 110.8(i):	**Roofing Products Solar Reflectance and Thermal Emittance.** The thermal emittance and aged solar reflectance values of the roofing material must meet the requirements of § 110.8(i) and be labeled per §10-113 when the installation of a cool roof is specified on the CF1R.
§ 110.8(j):	**Radiant Barrier.** When required, radiant barriers must have an emittance of 0.05 or less and be certified to the Department of Consumer Affairs.
§ 150.0(a):	**Roof Deck, Ceiling and Rafter Roof Insulation.** Roof decks in newly constructed attics in climate zones 4 and 8-16 area-weighted average U-factor not exceeding U-0.194. Ceiling and rafter roofs minimum R-22 insulation in wood-frame ceiling; or area-weighted average U-factor must not exceed 0.043. Rafter roof alterations minimum R-19 or area-weighted average U-factor of 0.054 or less. Attic access doors must have permanently attached insulation using adhesive or mechanical fasteners. The attic access must be gasketed to prevent air leakage. Insulation must be installed in direct contact with a roof or ceiling which is sealed to limit infiltration and exfiltration, as specified in § 110.7, including but not limited to placing insulation either above or below the roof deck or on top of a drywall ceiling.
§ 150.0(b):	**Loose-fill Insulation.** Loose fill insulation must meet the manufacturer's required density for the labeled R-value.
§ 150.0(c):	**Wall Insulation.** Minimum R-13 insulation in 2x4 inch wood framing wall or have a U-factor of 0.102 or less, or R-20 in 2x6 inch wood framing or have a U-factor of 0.071 or less. Opaque non-framed assemblies must have an overall assembly U-factor not exceeding 0.102. Masonry walls must meet Tables 150.1-A or B. *
§ 150.0(d):	**Raised-floor Insulation.** Minimum R-19 insulation in raised wood framed floor or 0.037 maximum U-factor. *
§ 150.0(f):	**Slab Edge Insulation.** Slab edge insulation must meet all of the following: have a water absorption rate, for the insulation material alone without facings, no greater than 0.3 percent; have a water vapor permeance no greater than 2.0 perm per inch; be protected from physical damage and UV light deterioration; and, when installed as part of a heated slab floor, meet the requirements of § 110.8(g).
§ 150.0(g)1:	**Vapor Retarder.** In climate zones 1 through 16, the earth floor of unvented crawl space must be covered with a Class I or Class II vapor retarder. This requirement also applies to controlled ventilation crawl space for buildings complying with the exception to §150.0(d).
§ 150.0(g)2:	**Vapor Retarder.** In climate zones 14 and 16, a Class I or Class II vapor retarder must be installed on the conditioned space side of all insulation in all exterior walls, vented attics, and unvented attics with air-permeable insulation.
§ 150.0(q):	**Fenestration Products.** Fenestration, including skylights, separating conditioned space from unconditioned space or outdoors must have a maximum U-factor of 0.45; or area-weighted average U-factor of all fenestration must not exceed 0.45.

Fireplaces, Decorative Gas Appliances, and Gas Log:

§ 110.5(e)	**Pilot Light.** Continuously burning pilot lights are not allowed for indoor and outdoor fireplaces.
§ 150.0(e)1:	**Closable Doors.** Masonry or factory-built fireplaces must have a closable metal or glass door covering the entire opening of the firebox.
§ 150.0(e)2:	**Combustion Intake.** Masonry or factory-built fireplaces must have a combustion outside air intake, which is at least six square inches in area and is equipped with a readily accessible, operable, and tight-fitting damper or combustion-air control device. *
§ 150.0(e)3:	**Flue Damper.** Masonry or factory-built fireplaces must have a flue damper with a readily accessible control. *

Space Conditioning, Water Heating, and Plumbing System:

§ 110.0-§ 110.3:	**Certification.** Heating, ventilation, and air conditioning (HVAC) equipment, water heaters, showerheads, faucets, and all other regulated appliances must be certified by the manufacturer to the California Energy Commission.
§ 110.2(a):	**HVAC Efficiency.** Equipment must meet the applicable efficiency requirements in Table 110.2-A through Table 110.2-N. *
§ 110.2(b):	**Controls for Heat Pumps with Supplementary Electric Resistance Heaters.** Heat pumps with supplementary electric resistance heaters must have controls that prevent supplementary heater operation when the heating load can be met by the heat pump alone; and in which the cut-on temperature for compression heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for compression heating is higher than the cut-off temperature for supplementary heating. *
§ 110.2(c):	**Thermostats.** All heating or cooling systems not controlled by a central energy management control system (EMCS) must have a setback thermostat. *
§ 110.3(c)3:	**Insulation.** Unfired service water heater storage tanks and solar water-heating backup tanks must have adequate insulation, or tank surface heat loss rating.
§ 110.3(c)6:	**Isolation Valves.** Instantaneous water heaters with an input rating greater than 6.8 kBtu per hour (2 kW) must have isolation valves with hose bibbs or other fittings on both cold and hot water lines to allow for flushing the water heater when the valves are closed.

2022 Single-Family Residential Mandatory Requirements Summary

§ 110.5:	**Pilot Lights.** Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces; household cooking appliances (except appliances without an electrical supply voltage connection with pilot lights that consume less than 150 Btu per hour); and pool and spa heaters.
§ 150.0(h)1:	**Building Cooling and Heating Loads.** Heating and/or cooling loads are calculated in accordance with the ASHRAE Handbook, Equipment Volume, Applications Volume, and Fundamentals Volume; the SMACNA Residential Comfort System Installation Standards Manual; or the ACCA Manual J using design conditions specified in § 150.0(h)2.
§ 150.0(h)3A:	**Clearances.** Air conditioner and heat pump outdoor condensing units must have a clearance of at least five feet from the outlet of any dryer.
§ 150.0(h)3B:	**Liquid Line Drier.** Air conditioners and heat pump systems must be equipped with liquid line filter driers if required, as specified by the manufacturer's instructions.
§ 150.0(j)1:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in § 609.11 of the California Plumbing Code. *
§ 150.0(j)2:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by § 120.3(b). Insulation exposed to weather must be water-retardant and protected from UV light (no adhesive tapes). Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space must include, or be protected by, a Class I or Class II vapor retarder. Pipe insulation buried below grade must be installed in a waterproof and non-crushable casing or sleeve.
§ 150.0(n)1:	**Gas or Propane Water Heating Systems.** Systems using gas or propane water heaters to serve individual dwelling units must designate a space at least 2.5' x 2.5' x 7' suitable for the future installation of a heat pump water heater, and meet electrical and plumbing requirements, based on the distance between this designated space and the water heater location; and a condensate drain no more than 2' higher than the base of the water heater
§ 150.0(n)3:	**Solar Water-heating Systems.** Solar water-heating systems and collectors must be certified and rated by the Solar Rating and Certification Corporation (SRCC), the International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T), or by a listing agency that is approved by the executive director.

Ducts and Fans:

§ 110.8(d)3:	**Ducts.** Insulation installed on an existing space-conditioning duct must comply with § 604.0 of the California Mechanical Code (CMC). If a contractor installs the insulation, the contractor must certify to the customer, in writing, that the insulation meets this requirement.
§ 150.0(m)1:	**CMC Compliance.** All air-distribution system ducts and plenums must meet CMC §§ 601.0-605.0 and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible 3rd Edition. Portions of supply-air and return-air ducts and plenums must be insulated to R-6.0 or higher; ducts located entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8) do not require insulation. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than ¼", if mastic or tape is used. Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed. *
§ 150.0(m)2:	**Factory-Fabricated Duct Systems.** Factory-fabricated duct systems must comply with applicable requirements for duct construction, connections, and closures; joints and seams of duct systems and their components must not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
§ 150.0(m)3:	**Field-Fabricated Duct Systems.** Field-fabricated duct systems must comply with applicable requirements for: pressure-sensitive tapes, mastics, sealants, and other requirements specified for duct construction.
§ 150.0(m)7:	**Backdraft Damper.** Fan systems that exchange air between the conditioned space and outdoors must have backdraft or automatic dampers.
§ 150.0(m)8:	**Gravity Ventilation Dampers.** Gravity ventilating systems serving conditioned space must have either automatic or readily accessible, manually operated dampers in all openings to the outside, except combustion inlet and outlet air openings and elevator shaft vents.
§ 150.0(m)9:	**Protection of Insulation.** Insulation must be protected from damage due tosunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service (e.g., protected by aluminum, sheet metal, painted canvas, or plastic cover). Cellular foam insulation must be protected as above or painted with a water retardant and solar radiation-resistant coating.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner cores of flex ducts must have a non-porous layer or air barrier between the inner core and outer vapor barrier.
§ 150.0(m)11:	**Duct System Sealing and Leakage Test.** When space conditioning systems use forced air duct systems to supply conditioned air to an occupiable space, the ducts must be sealed and duct leakage tested, as confirmed through field verification and diagnostic testing, in accordance with Reference Residential Appendix RA3.1.
§ 150.0(m)12:	**Air Filtration.** Space conditioning systems with ducts exceeding 10 feet and the supply side of ventilation systems must have MERV 13 or equivalent filters. Filters for space conditioning systems must have a two inch depth or can be one inch if sized per Equation 150.0-A. Clean-filter pressure drop and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service. Filter racks or grilles must use gaskets, sealing, or other means to close gaps around the inserted filters to and prevents air from bypassing the filter. *

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(m)13:	**Space Conditioning System Airflow Rate and Fan Efficacy.** Space conditioning systems that use ducts to supply cooling must have a hole for the placement of a static pressure probe, or a permanently installed static pressure probe in the supply plenum. Airflow must be ≥ 350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.45 watts per CFM for gas furnace air handlers and ≤ 0.58 watts per CFM for all others. Small duct high velocity systems must provide an airflow ≥ 250 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≤ 0.62 watts per CFM. Field verification testing is required in accordance with Reference Residential Appendix RA3.3. *

Ventilation and Indoor Air Quality:

§ 150.0(o)1:	**Requirements for Ventilation and Indoor Air Quality.** All dwelling units must meet the requirements of ASHRAE Standard 62.2, Ventilation and Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1. *
§ 150.0(o)1B:	**Central Fan Integrated (CFI) Ventilation Systems.** Continuous operation of CFI air handlers is not allowed to provide the whole-dwelling unit ventilation airflow required per §150.0(o)1C. A motorized damper(s) must be installed on the ventilation duct(s) that prevents all airflow through the space conditioning duct system when the damper(s) is closed andcontrolled per §150.0(p)1Biii&v. CFI ventilation systems must have controls that track outdoor air ventilation run time, and either open or close the motorized damper(s) for compliance with §150.0(o)1C.
§ 150.0(o)1C:	**Whole-Dwelling Unit Mechanical Ventilation for Single-Family Detached and townhouses** . Single-family detached dwelling units, and attached dwelling units not sharing ceilings or floors with other dwelling units, occupiable spaces, public garages, or commercial spaces must have mechanical ventilation airflow specified in § 150.0(o)1Cii-iii.
§ 150.0(o)1G:	**Local Mechanical Exhaust.** Kitchens and bathrooms must have local mechanical exhaust; nonenclosed kitchens must have demand-controlled exhaust system meeting requirements of §150.0(o)1Giii;enclosed kitchens and bathrooms can use demand-controlled or continuous exhaust meeting §150.0(o)1Giii+iv. Airflow must be measured by the installer per §150.0(o)1Gv, and rated for sound per §150.0(o)1Gvi. *
§ 150.0(o)1H&I:	**Airflow Measurement and Sound Ratings of Whole-Dwelling Unit Ventilation Systems.** The airflow required per § 150.0(o)1C must be measured by using a flow hood, flow grid, or other airflow measuring device at the fan's inlet or outlet terminalsgrilles per Reference Residential Appendix RA3.7. Whole-Dwelling unit ventilation systems must be rated for sound per ASHRAE 62.2 §7.2 at no less than the minimum airflow rate required by §150.0(o)1C.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Whole-Dwelling Unit ventilation airflow, vented range hood airflow and sound rating, and HRV and ERV fan efficacy must be verified in accordance with Reference Residential Appendix RA3.7. Vented range hoods do not require verification. Connections of metal ducts and inner core of flexible ducts must be mechanically fastened. Openings must be sealed with mastic, tape, or other duct-closure system that meets the applicable UL requirements, or aerosol sealant that meets UL 723. The combination of mastic and either mesh or tape must be used to seal openings greater than ¼", if mastic or tape is used. Building cavities, air handler support platforms, and plenums designed or constructed with materials other than sealed sheet metal, duct board or flexible duct must not be used to convey conditioned air. Building cavities and support platforms may contain ducts; ducts installed in these spaces must not be compressed. *

Pool and Spa Systems and Equipment:

§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: compliance with the Appliance Efficiency Regulations and listing in MAEDbS; an on-off switch mounted outside of the heater that allows shutting off the heater without adjusting the thermostat setting; a permanent weatherproof plate or card with operating instructions; and must not use electric resistance heating. *
§ 110.4(b)1:	**Piping.** Any pool or spa heating system or equipment must be installed with at least 36 inches of pipe between the filter and the heater, or dedicated suction and return lines, or built-in or built-up connections to allow for future solar heating.
§ 110.4(b)2:	**Covers.** Outdoor pools or spas that have a heat pump or gas heater must have a cover.
§ 110.4(b)3:	**Directional Inlets and Time Switches for Pools.** Pools must have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
§ 110.5:	**Pool Light.** Natural gas pool and spa heaters must not have a continuously burning pilot light.
§ 150.0(p):	**Pool Systems and Equipment Installation.** Residential pool systems or equipment must meet the specified requirements for pump sizing, flow rate, piping, filters, and valves. *

Lighting:

§ 110.9:	**Certification by Manufacturers.** All lighting control devices and systems, ballasts, and luminaires must meet the applicable requirements of § 110.9. *
§ 150.0(k)1A:	**Luminaire Efficacy.** All installed luminaires must meet the requirements in Table 150.0-A, except lighting integral to exhaust fans, kitchen range hoods, bath vanity mirrors, and garage door openers; navigation lighting less than 5 watts; and lighting internal to drawers, cabinets, and linen closets with an efficacy of at least 45 lumens per watt.
§ 150.0(k)1B:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must not contain screw based sockets, must be airtight, and must be sealed with a gasket or caulk. California Electrical Code § 410.116 must also be met.
§ 150.0(k)1D:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1E:	**Blank Electrical Boxes.** The number of electrical boxes that are more than five feet above the finished floor and do not contain a luminaire or other device shall be no more than the number of bedrooms. These boxes must be served by a dimmer, vacancy sensor control, low voltage wiring, or fan speed control.
§ 150.0(k)1F:	**Lighting Integral to Exhaust Fans.** Lighting integral to exhaust fans (except when installed by the manufacturer in kitchen exhaust hoods) must meet the applicable requirements of § 150.0(k). *

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(k)1G:	**Screw based luminaires.** Screw based luminaires must contain lamps that comply with Reference Joint Appendix JA8. *
§ 150.0(k)1H:	**Light Sources in Enclosed or Recessed Luminaires.** Lamps and other separable light sources that are not compliant with the JA8 elevated temperature requirements, including marking requirements, must not be installed in enclosed or recessed luminaires.
§ 150.0(k)1I:	**Light Sources in Drawers, Cabinets, and Linen Closets.** Light sources internal to drawers, cabinetry or linen closets are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided that they are rated to consume no more than 5 watts of power, and no more than 150 lumens, and are equipped with controls that automatically turn the lighting off when the drawer, cabinet or linen closet is closed.
§ 150.0(k)2A:	**Interior Switches and Controls.** All forward phase cut dimmers used with LED light sources must comply with NEMA SSL 7A.
§ 150.0(k)2B:	**Interior Switches and Controls.** Exhaust fans must be controlled separately from lighting systems. *
§ 150.0(k)2A:	**Accessible Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned on and off. *
§ 150.0(k)2B:	**Multiple Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the dimmer or sensor is installed to comply with § 150.0(k).
§ 150.0(k)2C:	**Mandatory Requirements.** Lighting controls must comply with the applicable requirements of § 110.9.
§ 150.0(k)2D:	**Energy Management Control Systems.** An energy management control system (EMCS) may be used to comply with dimming, occupancy, and control requirements if it provides the functionality of the specified control per § 110.9 and the physical controls specified in § 150.0(k)2A.
§ 150.0(k)2E:	**Automatic Shutoff Controls.** In bathrooms, garages, laundry rooms, utility rooms and walk-in closets, at least one installed luminaire must be controlled by an occupancy or vacancy sensor providing automatic-off functionality. Lighting inside drawers and cabinets with opaque fronts or doors must have controls that turn the light off when the drawer or door is closed.
§ 150.0(k)2F:	**Dimmers.** Lighting in habitable spaces (e.g., living rooms, dining rooms, kitchens, and bedrooms) must have readily accessible wall-mounted dimming controls that allow the lighting to be manually adjusted up and down. Forward phase cut dimmers controlling LED light sources in these spaces must comply with NEMA SSL 7A.
§ 150.0(k)2K:	**Independent controls.** Integrated lighting of exhaust fans shall be controlled independently from the fans. Lighting under cabinets or shelves, lighting in display cabinets, and switched outlets must be controlled separately from ceiling-installed lighting.
§ 150.0(k)3A:	**Residential Outdoor Lighting.** For single-family residential buildings, outdoor lighting permanently mounted to a residential building, or to other buildings on the same lot, must have a manual on/off switch and either a photocell and motion sensor or automatic time switch control,or an astronomical time clock. An energy management control system that provides the specified control functionality and meets all applicable requirements may be used to meet these requirements.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must either comply with § 140.8 or consume no more than 5 watts of power.
§ 150.0(k)5:	**Residential Garages for Eight or More Vehicles.** Lighting for residential parking garages for eight or more vehicles must comply with the applicable requirements for nonresidential garages in §§ 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.

Solar Readiness:

§ 110.10(a)1:	**Single-family Residences.** Single-family residences located in subdivisions with 10 or more single-family residences and where the application for a tentative subdivision map for the residences has been deemed complete and approved by the enforcement agency, which will not have a photovoltaic system installed, must comply with the requirements of § 110.10(b)-(e).
§ 110.10(b)1A:	**Minimum Solar Zone Area.** The solar zone must have a minimum total area as described below. The solar zone must comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 or other parts of Title 24 or in any requirements adopted by a local jurisdiction. The solar zone total area must be comprised of areas that have no dimension less than 5 feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet. For single-family residences, the solar zone must be located on the roof or overhang of the building and have a total area no less than 250 square feet. *
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must have an azimuth between 90-300° of true north.
§ 110.10(b)3A:	**Shading.** The solar zone must not contain any obstructions, including but not limited to: vents, chimneys, architectural features, and roof mounted equipment. *
§ 110.10(b)3B:	**Shading.** Any obstruction located on the roof or any other part of the building that projects above a solar zone must be located at least twice the horizontal distance of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane.
§ 110.10(b)4:	**Structural Design Loads on Construction Documents.** For areas of the roof designated as a solar zone, the structural design loads for roof dead load and roof live load must be clearly indicated on the construction documents.
§ 110.10(c):	**Interconnection Pathways.** The construction documents must indicate: a location reserved for inverters and metering equipment and a pathway reserved for routing of conduit from the solar zone to the point of interconnection with the electrical service; and for single-family residences and central water-heating systems, a pathway reserved for routing plumbing from the solar zone to the water-heating system.
§ 110.10(d):	**Documentation.** A copy of the construction documents or a comparable document indicating the information from § 110.10(b)-(c) must be provided to the occupant.
§ 110.10(e)1:	**Main Electrical Service Panel.** The main electrical service panel must have a minimum busbar rating of 200 amps.
§ 110.10(e)2:	**Main Electrical Service Panel.** The main electrical service panel must have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation. The reserved space must be permanently marked as "For Future Solar Electric."

Electric and Energy Storage Ready:

2022 Single-Family Residential Mandatory Requirements Summary

§ 150.0(s)	**Energy Storage System (ESS) Ready.** All single-family residences must meet all of the following: Either ESS-ready interconnection equipment with backed up capacity of 60 amps or more and four or more ESS supplied branch circuits, or a dedicated raceway from the main service to a subpanel that supplies the branch circuits in § 150.0(s), at least four branch circuits must be identified and have their source collocated at a single panelboard suitable to be supplied by the ESS, with one circuit supplying the refrigerator, one lighting circuit near the primary exit, and one circuit supplying a sleeping room receptacle outlet; main panelboard must have a minimum busbar rating of 225 amps; sufficient space must be reserved to allow future installation of a system isolation equipment/transfer switch within 3' of the main panelboard, with raceways installed between the panelboard and the switch location to allow the connection of backup power source.
§ 150.0(t)	**Heat Pump Space Heater Ready.** Systems using gas or propane furnaces to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the furnace with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(u)	**Electric Cooktop Ready.** Systems using gas or propane cooktop to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the cooktop with circuit conductors rated at least 50 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."
§ 150.0(v)	**Electric Clothes Dryer Ready.** Clothes dryer locations with gas or propane plumbing to serve individual dwelling units must include: A dedicated unobstructed 240V branch circuit wiring installed within 3' of the dryer location with circuit conductors rated at least 30 amps with the blank cover identified as "240V ready;" and a reserved main electrical service panel space to allow for the installation of a double pole circuit breaker permanently marked as "For Future 240V use."

*Exceptions may apply.

REV	DESCRIPTION	BY	DATE
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REGISTERED PROFESSIONAL ENGINEER
ALI M. NEHME
M29005
EXP. 6-30-2024
MECHANICAL
STATE OF CALIFORNIA

Title 24 forms

DRAWN BY -
CHECKED BY AN
DATE SEE FORMS

JOB NUMBER -

SHEET NO. T24-2

COUNTY OF SANTA CLARA
General Construction Specifications

GENERAL CONDITIONS

1. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS AND/OR GEOTECHNICAL REPORT PREPARED BY EARTH SYSTEMS PACIFIC AND DATED APRIL 7, 2015. THIS REPORT IS SUPPLEMENTED BY: 1) THESE PLANS AND SPECIFICATIONS, 2) THE COUNTY OF SANTA CLARA STANDARD DETAILS. 3) THE COUNTY OF SANTA CLARA STANDARD SPECS, 4) STATE OF CALIFORNIA STANDARD DETAILS, 5) STATE OF CALIFORNIA STANDARD SPECIFICATIONS. IN THE EVENT OF CONFLICT THE FORMER SHALL TAKE PRECEDENCE OVER THE LATTER. THE PERFORMANCE AND COMPLETION OF ALL WORK MUST BE TO THE SATISFACTION OF THE COUNTY.
2. DEVELOPER IS RESPONSIBLE FOR INSTALLATION OF THE IMPROVEMENTS SHOWN ON THESE PLANS AND HE OR HIS SUCCESSOR PROPERTY OWNERS ARE RESPONSIBLE FOR THEIR CONTINUED MAINTENANCE.
3. DEVELOPER SHALL BE RESPONSIBLE FOR CORRECTION OF ANY ERRORS OR OMISSIONS IN THESE PLANS. THE COUNTY SHALL BE AUTHORIZED TO REQUIRE DISCONTINUANCE OF ANY WORK AND SUCH CORRECTION AND MODIFICATION OF PLANS AS MAY BE NECESSARY TO COMPLY WITH COUNTY STANDARDS OR CONDITIONS OF DEVELOPMENT APPROVAL.
4. DEVELOPER SHALL OBTAIN ENCROACHMENT PERMITS FROM THE SANTA CLARA VALLEY WATER DISTRICT AND CALIFORNIA DEPARTMENT OF TRANSPORTATION WHERE NEEDED. COPIES OF THESE PERMITS SHALL BE KEPT AT THE JOB SITE FOR REVIEW BY THE COUNTY'S INSPECTOR.
5. DEVELOPER SHALL REMOVE OR TRIM ALL TREES TO PROVIDE AN UNOBSTRUCTED FIFTEEN (15) FOOT VERTICAL CLEARANCE FOR ROADWAY AREA.
6. THIS PLAN AUTHORIZES THE REMOVAL OF ONLY THOSE TREES WITH TRUNK DIAMETERS GREATER THAN 12 INCHES MEASURED 4.5 FEET ABOVE THE GROUND THAT ARE SHOWN TO BE REMOVED UNLESS AN AMENDED PLAN IS APPROVED OR A SEPARATE TREE REMOVAL PERMIT IS OBTAINED FROM THE PLANNING OFFICE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT REMOVAL OF ADDITIONAL TREES HAS BEEN PERMITTED.
7. DEVELOPER SHALL PROVIDE ADEQUATE DUST CONTROL AS REQUIRED BY THE COUNTY INSPECTOR.
8. ALL PERSONS MUST COMPLY WITH SECTION 4442 OF THE PUBLIC RESOURCES CODE AND SECTION 13005 OF THE HEALTH AND SAFETY CODE RELATING TO THE USE OF SPARK ARRESTERS.
9. UPON DISCOVERING OR UNEARTHING ANY BURIAL SITE AS EVIDENCED BY HUMAN SKELETAL REMAINS OR ARTIFACTS, THE PERSON MAKING SUCH DISCOVERY SHALL IMMEDIATELY NOTIFY THE COUNTY CORONER AT (4008) 454-2520 AND LAND DEVELOPMENT ENGINEERING OFFICE AT (408) 299-5730. NO FURTHER DISTURBANCE OF THE SITE MAY BE MADE EXCEPT AS AUTHORIZED BY THE LAND DEVELOPMENT OFFICE IN ACCORD WITH PROVISIONS OF THIS ORDINANCE (COUNTY ORDINANCE CODE SECTION B6-18).
10. THESE PLANS ARE FOR THE WORK DESCRIBED IN THE SCOPE OF WORK ONLY. A SEPARATE PERMIT WILL BE REQUIRED FOR THE SEPTIC LINE CONSTRUCTION.
11. ANY DEVIATION FROM THESE APPROVED PLANS SHALL BE RE-APPROVED IN WRITING BY THE COUNTY ENGINEER PRIOR TO CONSTRUCTION.

CONSTRUCTION STAKING

1. THE DEVELOPER'S ENGINEER IS RESPONSIBLE FOR THE INITIAL PLACEMENT AND REPLACEMENT OF CONSTRUCTION GRADE STAKES. THE STAKES ARE TO BE ADEQUATELY IDENTIFIED, LOCATED, STABILIZED, ETC. FOR THE CONVENIENCE OF CONTRACTORS. LATERAL OFFSET OF STAKES SET FOR CURBS AND GUTTERS SHALL NOT EXCEED 2 1/2 FEET FROM BACK OF CURB.
2. ANY PROPERTY LINE STAKES OR ROAD MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY DEVELOPER'S ENGINEER AND LICENSED LAND SURVEYOR.
3. PROPERTY LINE STAKING MUST BE PERFORMED BY THE PROJECT ENGINEER OR LAND SURVEYOR TO ESTABLISH OR RE-ESTABLISH THE PROJECT BOUNDARY AND SHALL BE INSPECTED BY THE COUNTY INSPECTOR PRIOR TO THE BEGINNING OF THE WORK.
4. PROPER CONSTRUCTION STAKES SHALL BE SET IN THE FIELD BY THE PROJECT ENGINEER OR LAND SURVEYOR AND VERIFIED BY THE COUNTY INSPECTOR PRIOR TO THE COMMENCEMENT OF GRADING.

CONSTRUCTION INSPECTION

1. CONTRACTOR SHALL NOTIFY PERMIT INSPECTION UNIT, SANTA CLARA COUNTY PRIOR TO COMMENCING WORK AND FOR FINAL INSPECTION OF WORK AND SITE.
2. THE COUNTY REQUIRES A MINIMUM OF 24 HOURS ADVANCE NOTICE FOR GENERAL INSPECTION, 48 HOURS FOR ASPHALT CONCRETE INSPECTION.
3. INSPECTION BY SANTA CLARA COUNTY SHALL BE LIMITED TO INSPECTION OF MATERIALS AND PROCESSES OF CONSTRUCTION TO OBSERVE THEIR COMPLIANCE WITH PLANS & SPECIFICATIONS BUT DOES NOT INCLUDE RESPONSIBILITY FOR THE SUPERINTENDENT OF CONSTRUCTION, SITE CONDITIONS, EQUIPMENT OR PERSONNEL. CONTRACTOR SHALL NOTIFY THE COUNTY LAND DEVELOPMENT INSPECTOR AT PHONE (408) 299-6868 AT LEAST 24 HOURS PRIOR TO COMMENCING WORK AND FOR FINAL INSPECTION OF WORK AND SITE.
4. DEVELOPER AND/OR HIS AUTHORIZED REPRESENTATIVE MUST SUBMIT WRITTEN REQUEST FOR FINAL INSPECTION AND ACCEPTANCE. SAID REQUEST SHALL BE DIRECTED TO THE INSPECTION OFFICE NOTED ON THE PERMIT FORM.
5. THE CONTRACTOR SHALL PROVIDE TO THE COUNTY CONSTRUCTION INSPECTOR WITH PAD ELEVATION AND LOCATION CERTIFICATES, PREPARED BY THE PROJECT ENGINEER OR LAND SURVEYOR, PRIOR TO COMMENCEMENT OF THE BUILDING FOUNDATION.

SITE PREPARATION (CLEARING AND GRUBBING)

1. EXISTING TREES AUTHORIZED FOR REMOVAL, ROOTS, AND FOREIGN MATERIAL IN AREAS TO BE IMPROVED WILL BE REMOVED TO AN AUTHORIZED DISPOSAL SITE AS FOLLOWS:
   A) TO A MINIMUM DEPTH OF TWO FEET BELOW THE FINISHED GRADE OF PROPOSED ROADWAYS (EITHER PRIVATE OR TO BE DEDICATED TO PUBLIC USE)
   B) FROM AREAS AFFECTED BY THE PROPOSED GRADING EXCEPT WHERE NOTED ON THE PLANS.
2. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO MOVE OR RELOCATE UTILITY POLES AND OTHER OBSTRUCTIONS IN THE WAY OF CONSTRUCTION.

UTILITY LOCATION, TRENCHING & BACKFILL

1. CONTRACTOR SHALL NOTIFY USA (UNDERGROUND SERVICE ALERT) AT 1-800-277-2600 A MINIMUM OF 24 HOURS BEFORE BEGINNING UNDERGROUND WORK FOR VERIFICATION OF THE LOCATION OF UNDERGROUND UTILITIES.
2. ACCURATE VERIFICATION AS TO SIZE, LOCATION, AND DEPTH OF EXISTING UNDERGROUND CONDUITS OR FACILITIES SHALL BE THE INDIVIDUAL CONTRACTORS RESPONSIBILITY. PLAN LOCATIONS ARE APPROXIMATE AND FOR GENERAL INFORMATION ONLY.
3. ALL UNDERGROUND INSTALLATIONS SHALL BE IN PLACE AND THE TRENCH BACKFILLED AND COMPACTED BEFORE PLACING AGGREGATE BASE MATERIAL OR SURFACE STRUCTURES. SURFACING MAY BE DONE IF THE UTILITY COMPANY CONCERNED INDICATES BY LETTER THAT IT WILL BORE. UNLESS SPECIFICALLY AUTHORIZED BY THE COUNTY, GAS AND WATER MAINS SHALL BE INSTALLED OUTSIDE THE PAVED AREAS.
4. TRENCH BACKFILL IN EXISTING PAVEMENT AREAS SHALL BE SAND MATERIAL IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE STATE SPECIFICATIONS. THE STRUCTURAL SECTION FOR TRENCH REPLACEMENT SHALL CONSIST OF NOT LESS THAN 12 INCHES OF APPROVED AGGREGATE BASE MATERIAL COMPACTED TO A RELATIVE COMPACTION OF AT LEAST 95% AND 4 INCHES OF HOT ASPHALT CONCRETE PLACED IN TWO LIFTS. TRENCH RESTORATION FOR HIGHER TYPE PAVEMENTS SHALL BE MADE IN KIND OR AS DIRECTED BY THE COUNTY.
5. TRENCH BACKFILL IN NEW CONSTRUCTION AREAS SHALL BE SAND MATERIAL COMPACTED TO A RELATIVE COMPACTION OF AT LEAST 90%. THE REQUIREMENT FOR SELECT MATERIAL MAY BE WAIVED BY COUNTY IF THE NATIVE SOIL IS SUITABLE FOR USE AS TRENCH BACKFILL BUT THE COMPACTION REQUIREMENTS WILL NOT BE THEREBY WAIVED.
6. BACKFILL AND TRENCH RESTORATION REQUIREMENTS SHALL APPLY AS MINIMUM STANDARDS TO ALL UNDERGROUND FACILITIES INSTALLED BY OTHER FIRMS OR PUBLIC AGENCIES.

RETAINING WALLS

1. REINFORCED CONCRETE AND CONCRETE MASONRY UNIT RETAINING WALLS SHALL HAVE FOUNDATION AND REINFORCEMENT INSPECTED BY THE COUNTY ENGINEERING INSPECTOR AND ENGINEER OF RECORD PRIOR TO POURING THE FOUNDATION AND FORMING THE WALL.
2. SEGMENTAL BLOCK RETAINING WALLS SHALL HAVE FOUNDATION AND REINFORCEMENT INSPECTED BY THE COUNTY ENGINEERING INSPECTOR.

REVISED 10/27/2015

GRADING

1. EXCAVATED MATERIAL SHALL BE PLACED IN THE FILL AREAS DESIGNATED OR SHALL BE HAULED AWAY FROM THE SITE TO A COUNTY APPROVED DISPOSAL SITE. WHERE FILL MATERIAL IS TO BE PLACED ON NATURAL GROUND, IS SHALL BE STRIPPED OF ALL VEGETATION. TO ACHIEVE A PROPER BOND WITH THE FILL MATERIAL, THE SURFACE OF THE GROUND SHALL BE SCARIFIED TO DEPTH OF 6" BEFORE FILL IS PLACED. WHERE NATURAL GROUND IS STEEPER THAN 5:1, IT SHALL BE BENCHED AND THE FILL KEYED IN TO ACHIEVE STABILITY. WHERE NEW FILL IS TO BE PLACED ON EXISTING FILL THE EXISTING FILL SHALL BE REMOVED UNTIL MATERIAL COMPACTED TO 90% RELATIVE COMPACTION IS EXPOSED. THEN THE NEW FILL MATERIAL SHALL BE PLACED AS PER THESE CONSTRUCTION NOTES. FILL MATERIAL SHALL BE PLACED IN UNIFORM LIFTS NOT EXCEEDING 6" IN UNCOMPACTED THICKNESS. BEFORE COMPACTION BEGINS, THE FILL SHALL BE BROUGHT TO A WATER CONTENT THAT WILL PERMIT PROPER COMPACTION BY EITHER 1) AERATING THE FILL IF IT IS TOO WET OR 2) MOISTENING THE FILL WITH WATER IF IT IS TOO DRY. EACH LIFT SHALL BE THOROUGHLY MIXED BEFORE COMPACTION TO ENSURE A UNIFORM DISTRIBUTION OF MOISTURE.
2. EXCESS CUT MATERIAL SHALL NOT BE SPREAD OR STOCKPILED ON THE SITE.
3. SURPLUS EARTH FILL MATERIAL SHALL BE PLACED IN A SINGLE (8" MAX) THICK LAYER COMPACTED TO WITHSTAND WEATHERING IN THE AREA(S) DELINEATED ON THE PLAN.
4. NO ORGANIC MATERIAL SHALL BE PLACED IN ANY FILL. NO TREES SHALL BE REMOVED OUTSIDE OF CUT, FILL OR ROADWAY AREAS.
5. THE UPPER 6" OF SUBGRADE BELOW DRIVEWAY ACCESS ROAD OR PARKING AREA SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY.
6. MAXIMUM CUT SLOPE SHALL BE 2 HORIZONTAL TO 1 VERTICAL. MAXIMUM FILL SLOPE SHALL BE 2 HORIZONTAL TO 1 VERTICAL.

LOCATION	CUT (C.Y.)	FILL (C.Y.)	VERT. DEPTH
RESIDENCE	0	743	2.0'
PONDING BASIN	90	0	3.0'
POOL/HARDSCAPE	0	132	0.5'
LANDSCAPE	0	0	0.5'
DRIVEWAY	3	7	0.75'
OFF SITE IMPROVEMENTS	30	5	0.75'
TOTAL	123	887	0.5'-3.0'

NOTE: FILL VOLUMES INCLUDE 10% SHRINKAGE.
EXCESS MATERIAL SHALL BE OFF HAULED TO A COUNTY APPROVED DUMP SITE.

7. NOTIFY SOILS ENGINEER TWO (2) DAYS PRIOR TO COMMENCEMENT OF ANY GRADING WORK TO COORDINATE THE WORK IN THE FIELD.
8. ALL MATERIALS FOR FILL SHOULD BE APPROVED BY THE SOILS ENGINEER BEFORE IT IS BROUGHT TO THE SITE.
9. THE UPPER 6" OF THE SUBGRADE SOIL SHALL BE SCARIFIED, MOISTURE CONDITIONED AND COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 95%
10. ALL AGGREGATE BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% RELATIVE COMPACTION.
11. THE GEOTECHNICAL PLAN REVIEW LETTER MUST BE REVIEWED AND APPROVED BY THE COUNTY GEOLOGIST PRIOR TO FINAL APPROVAL BY THE COUNTY ENGINEER FOR BUILDING OCCUPANCY.
12. THE PROJECT GEOTECHNICAL ENGINEER SHALL PERFORM COMPACTION TESTING AND PRESENT THE RESULTS TO THE COUNTY ENGINEERING INSPECTOR PRIOR TO THE CONSTRUCTION OF ANY PAVED AREA.
13. GRADING WORK BETWEEN OCTOBER 15TH AND APRIL 15TH IS AT THE DISCRETION OF THE SANTA CLARA COUNTY GRADING OFFICIAL.
14. TOTAL DISTURBED AREA FOR THE PROJECT 32,254 SF.
15. WDID NO.(N/A).
16. THE INSPECTOR MAY VERIFY THAT A VALID NOTICE OF INTENT (NOI) HAS BEEN ISSUED BY THE STATE AND THAT A CURRENT AND UP TO DATE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS AVAILABLE ON SITE.

TREE PROTECTION

1. FOR ALL TREES TO BE RETAINED WITH A CANOPY IN THE DEVELOPMENT AREA OR INTERFACES WITH THE LIMITS OF GRADING FOR ALL PROPOSED DEVELOPMENT ON SITE, THE TREES SHALL BE PROTECTED BY THE PLACEMENT OF RIGID TREE PROTECTIVE FENCING, CONSISTENT WITH THE COUNTY INTEGRATED LANDSCAPE GUIDELINES, AND INCLUDE THE FOLLOWING:
   A. FENCING SHOULD BE PLACED ALONG THE OUTSIDE EDGE OF THE DRIPLINE OF THE TREE OR GROVE OF TREES.
   B. THE FENCING SHALL BE MAINTAINED THROUGHOUT THE SITE CONSTRUCTION PERIOD AND SHALL BE INSPECTED PERIODICALLY FOR DAMAGE AND PROPER FUNCTION.
   C. FENCING SHALL BE REPAIRED, AS NECESSARY, TO PROVIDE A PHYSICAL BARRIER FROM CONSTRUCTION ACTIVITIES.
   D. SIGNAGE STATING, "WARNING- THIS FENCING SHALL NOT BE REMOVED WITHOUT PERMISSION FROM THE SANTA CLARA COUNTY PLANNING OFFICE (408) 299-5770. COUNTY OF SANTA CLARA TREE PROTECTION MEASURES MAY BE FOUND AT http://www.sccplanning.gov." SHALL BE PLACED ON THE TREE PROTECTIVE FENCING UNTIL FINAL OCCUPANCY.
2. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY, TREE PROTECTIVE FENCING SHALL BE SECURELY IN PLACED AND INSPECTED BY THE LAND DEVELOPMENT ENGINEERING INSPECTOR.
3. SEE EXISTING TREE PROTECTION DETAILS FOR MORE INFORMATION.

ACCESS ROADS AND DRIVEWAYS

1. DRIVEWAY LOCATIONS SHALL BE AS SHOWN ON THE IMPROVEMENT PLANS WITH CENTERLINE STATIONING. THE MINIMUM CONCRETE THICKNESS SHALL BE 6 INCHES THROUGHOUT (WITH A MAXIMUM APPROACH SLOPE OF 1 1/4 INCHES PER FOOT).
2. ALL DRIVEWAY OR COMMON ACCESS ROAD SECTIONS IN EXCESS OF 15 LONGITUDINAL SLOPE MUST BE PAVED WITH A MINIMUM 2-INCH ASPHALT LIFT OR FULL DEPTH CONCRETE LIFT PRIOR TO ANY COMBUSTIBLE FRAMING.
3. THE OWNER AND PRIME CONTRACTOR ARE RESPONSIBLE FOR MAINTAINING PROJECT SITE ACCESS AND NEIGHBORHOOD ACCESS FOR EMERGENCY VEHICLES AND LOCAL RESIDENTS.
4. ROADWAYS DESIGNATED AS NOT COUNTY MAINTAINED ROADS AS SHOWN ON THE PLAN WILL NOT BE ELIGIBLE FOR COUNTY MAINTENANCE UNTIL THE ROADWAYS ARE IMPROVED (AT NO COST TO THE COUNTY) TO THE PUBLIC MAINTENANCE ROAD STANDARDS APPROVED BY THE BOARD OF SUPERVISORS AND IN EFFECT AT SUCH TIME THAT THE ROADWAYS ARE CONSIDERED FOR ACCEPTANCE INTO THE COUNTY'S ROAD SYSTEM.
5. ALL WORK IN THE COUNTY ROAD RIGHT-OF-WAY REQUIRES AN ENCROACHMENT PERMIT FROM THE ROADS AND AIRPORTS DEPARTMENT. EACH INDIVIDUAL ACTIVITY REQUIRES A SEPARATE PERMIT - I.E. CABLE, ELECTRICAL, GAS, SEWER, WATER, RETAINING WALLS, DRIVEWAY APPROACHES, FENCES, LANDSCAPING, TREE REMOVAL, STORM DRAINAGE IMPROVEMENTS, ETC..

STREET LIGHTING

1. PACIFIC GAS & ELECTRIC ELECTROLIER SERVICE FEE SHALL BE PAID BY THE DEVELOPER AND/OR HIS AUTHORIZED REPRESENTATIVE.

SANITARY SEWER

1. THE SANITARY SEWER AND WATER UTILITIES SHOWN ON THESE PLANS ARE NOT PART OF THIS GRADING PERMIT AND ARE SHOWN FOR REFERENCE ONLY.
2. ALL MATERIALS AND METHODS OF CONSTRUCTION OF SANITARY SEWERS SHALL CONFORM TO THE SPECIFICATIONS OF THE JURISDICTION INVOLVED. INSPECTION OF SANITARY SEWER WORK SHALL BE DONE BY SAID JURISDICTION.

PORTLAND CEMENT CONCRETE

1. CONCRETE USED FOR STRUCTURAL PURPOSES SHALL BE CLASS "A" (6 SACK PER CUBIC YARD) AS SPECIFIED IN THE STATE STANDARD SPECIFICATIONS. CONCRETE PLACED MUST DEVELOP A MINIMUM STRENGTH FACTOR OF 2800 PSI IN A SEVEN-DAY PERIOD. THE CONCRETE MIX DESIGN SHALL BE UNDER THE CONTINUAL CONTROL OF THE COUNTY INSPECTOR.

AIR QUALITY, LANDSCAPING AND EROSION CONTROL

1. WATER ALL ACTIVE CONSTRUCTION AREAS AT LEAST TWICE DAILY.
2. COVER ALL TRUCKS HAULING SOIL, SAND, AND OTHER LOOSE MATERIALS OR REQUIRE ALL TRUCKS TO MAINTAIN AT LEAST TWO FEET OF FREEBOARD.
3. PAVE, APPLY WATER THREE TIMES DAILY, OR APPLY (NON-TOXIC) SOIL STABILIZERS ON ALL UNPAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES.
4. SWEEP DAILY (WITH WATER SWEEPERS) ALL PAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES. THE USE OF DRY POWDER SWEEPING IS PROHIBITED.
5. SWEEP STREETS DAILY (WITH WATER SWEEPERS) IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PUBLIC STREETS. THE USE OF DRY POWDER SWEEPING IS PROHIBITED.
6. ALL CONSTRUCTION VEHICLES, EQUIPMENT AND DELIVERY TRUCKS SHALL HAVE A MAXIMUM IDLING TIME OF 5 MINUTES (AS REQUIRED BY THE CALIFORNIA AIRBORNE TOXIC CONTROL MEASURE TITLE 13, SECTION 2485 OF CALIFORNIA CODE OF REGULATIONS (CCR)). ENGINES SHALL BE SHUT OFF IF CONSTRUCTION REQUIRES LONGER IDLING TIME UNLESS NECESSARY FOR PROPER OPERATION OF THE VEHICLE.
7. ALL VEHICLE SPEEDS ON UNPAVED ROADS SHALL BE LIMITED TO 15 MILES PER HOUR.
8. ALL CONSTRUCTION EQUIPMENT SHALL BE MAINTAINED AND PROPERLY TUNED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. ALL EQUIPMENT SHALL BE CHECKED BY A CERTIFIED MECHANIC AND DETERMINED TO BE RUNNING IN PROPER CONDITION PRIOR TO OPERATION.
9. POST A SIGN THAT IS AT LEAST 32 SQUARE FEET MINIMUM 2 INCHES LETTER HEIGHT VISIBLE NEAR THE ENTRANCE OF CONSTRUCTION SITE THAT IDENTIFIES THE FOLLOWING REQUIREMENTS. OBTAIN ENCROACHMENT PERMIT FOR SIGN FROM ROADS DEPARTMENT OR OTHER APPLICABLE AGENCY IF REQUIRED.
   A. 15 MILES PER HOUR (MPH) SPEED LIMIT
   B. 5 MINUTES MAXIMUM IDLING TIME OF VEHICLES
   C. TELEPHONE NUMBER TO CONTACT THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT REGARDING DUST COMPLAINTS. NOTE PHONE NUMBER OF THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT AIR POLLUTION COMPLAIN HOTLINE OF 1-800-334-6367.
10. ALL FILL SLOPES SHALL BE COMPACTED AND LEFT IN A SMOOTH AND FIRM CONDITION CAPABLE OF WITHSTANDING WEATHERING.
11. ALL EXPOSED DISTURBED AREAS SHALL BE SEEDED WITH BROME SEED SPREAD AT THE RATE OF 5 LB. PER 1000 SQUARE FEET (OR APPROVED EQUAL). SEEDING AND WATERING SHALL BE MAINTAINED AS REQUIRED TO ENSURE GROWTH.
12. ALL DITCHES SHALL BE LINED PER COUNTY STANDARD SD8.
13. ALL STORM DRAINAGE STRUCTURES SHALL BE INSTALLED WITH EFFECTIVE ENTRANCE & OUTFALL EROSION CONTROLS E.G. SACKED CONCRETE RIP-RAP. ENERGY DISSIPATERS SHALL BE INSTALLED AT ALL DITCH OUTFALLS. WHERE OUTFALLS ARE NOT INTO AN EXISTING CREEK OR WATER COURSE, RUNOFF SHALL BE RELEASED TO SHEET FLOW.
14. PRIOR TO GRADING COMPLETION AND RELEASE OF THE BOND, ALL GRADED AREAS SHALL BE RESEEDED IN CONFORMANCE WITH THE COUNTY GRADING ORDINANCE TO MINIMIZE THE VISUAL IMPACTS OF THE GRADE SLOPES AND REDUCE THE POTENTIAL FOR EROSION OF THE SUBJECT SITE.
15. PERMANENT LANDSCAPING SHOWN ON THE ATTACHED LANDSCAPE PLAN MUST BE INSTALLED AND FIELD APPROVED BY THE COUNTY PLANNING OFFICE PRIOR TO FINAL APPROVAL BY THE COUNTY ENGINEER, AND FINAL OCCUPANCY RELEASE BY THE BUILDING INSPECTION OFFICE.
16. THE OWNER SHALL PREPARE AND PRESENT A WINTERIZATION REPORT TO THE COUNTY INSPECTOR FOR REVIEW PRIOR TO OCTOBER 15TH OF EVERY YEAR.
17. THE OWNER, CONTRACTOR, AND ANY PERSON PERFORMING CONSTRUCTION ACTIVITIES SHALL INSTALL AND MAINTAIN CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPS) ON THE PROJECT SITE AND WITHIN THE SANTA CLARA COUNTY ROAD RIGHT-OF-WAY THROUGHOUT THE DURATION OF THE CONSTRUCTION AND UNTIL THE ESTABLISHMENT OF PERMANENT STABILIZATION AND SEDIMENT CONTROL TO PREVENT THE DISCHARGE OF POLLUTANTS INCLUDING SEDIMENT, CONSTRUCTION MATERIALS, EXCAVATED MATERIALS, AND WASTE INTO THE SANTA CLARA COUNTY RIGHT-OF-WAY, STORM SEWER WATERWAYS, ROADWAY INFRASTRUCTURE. BMPS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING;
   A. PREVENTION OF POLLUTANTS IN STORM WATER DISCHARGES FROM THE CONSTRUCTION SITE AND THE CONTRACTOR'S MATERIAL AND EQUIPMENT LAYDOWN / STAGING AREAS.
   B. PREVENTION OF TRACKING OF MUD, DIRT, AND CONSTRUCTION MATERIALS ONTO THE PUBLIC ROAD RIGHT-OF-WAY.
   C. PREVENTION OF DISCHARGE OF WATER RUN-OFF DURING DRY AND WET WEATHER CONDITIONS ONTO THE PUBLIC ROAD RIGHT-OF-WAY.
18. THE OWNER, CONTRACTOR, AND ANY PERSON PERFORMING CONSTRUCTION ACTIVITIES SHALL ENSURE THAT ALL TEMPORARY CONSTRUCTION FACILITIES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION MATERIALS, DELIVERIES, HAZARDOUS AND NON-HAZARDOUS MATERIAL STORAGE, EQUIPMENT, TOOLS, PORTABLE TOILETS, CONCRETE WASHOUT, GARBAGE CONTAINERS, LAYDOWN YARDS, SECONDARY CONTAINMENT AREAS, ETC. ARE LOCATED OUTSIDE THE SANTA CLARA COUNTY ROAD RIGHT-OF-WAY.
19. EROSION CONTROL PLAN IS A GUIDE AND SHALL BE AMENDED AS NECESSARY TO PREVENT EROSION AND ILLICIT DISCHARGES ON A YEAR AROUND BASIS, DEPENDING ON THE SEASON, WEATHER, AND FIELD CONDITIONS. EROSION CONTROL MEASURES IN ADDITION TO THOSE NOTED IN THE PERMITTED PLANS MAY BE NECESSARY. FAILURE TO INSTALL SITE SITE AND SITUATIONALY APPROPRIATE EROSION CONTROL MEASURES MAY RESULT IN VIOLATIONS, FINES, AND A STOPPAGE OF WORK.

STORM DRAINAGE AND STORMWATER MANAGEMENT

1. DEVELOPER IS RESPONSIBLE FOR ALL NECESSARY DRAINAGE FACILITIES WHETHER SHOWN ON THE PLANS OR NOT AND HE OR HIS SUCCESSOR PROPERTY OWNERS ARE RESPONSIBLE FOR THE ADEQUACY AND CONTINUED MAINTENANCE OF THESE FACILITIES IN A MANNER WHICH WILL PRECLUDE ANY HAZARD TO LIFE, HEALTH, OR DAMAGE TO ADJOINING PROPERTY, CONSISTENT WITH NPDES PERMIT CAS612008 / ORDER NO. R2-2009-0047 AND NPDES PERMIT CAS000004/ ORDER NO. 2013-0001-DWQ.
2. DROP INLETS SHALL BE COUNTY STANDARD TYPE 5 UNLESS OTHERWISE NOTED ON THE PLANS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR THE PROPER LOCATION OF DROP INLETS. WHERE STREET PROFILE GRADE EXCEEDS 6% DROP INLETS SHALL BE SET AT 500 ANGLE CURB LINE TO ACCEPT WATER OR AS SHOWN ON THE PLANS.
3. WHERE CULVERTS ARE INSTALLED THE DEVELOPER SHALL BE RESPONSIBLE FOR GRADING THE OUTLET DITCH TO DRAIN TO AN EXISTING SWALE OR TO AN OPEN AREA FOR SHEET FLOW.
4. UPON INSTALLATION OF DRIVEWAY CONNECTIONS, PROPERTY OWNERS SHALL PROVIDE FOR THE UNINTERRUPTED FLOW OF WATER IN ROADSIDE DITCHES.
5. THE COUNTY SHALL INSPECT UNDERGROUND DRAINAGE IMPROVEMENTS AND STORMWATER MANAGEMENT FEATURES PRIOR TO BACKFILL.

AS-BUILT PLANS STATEMENT

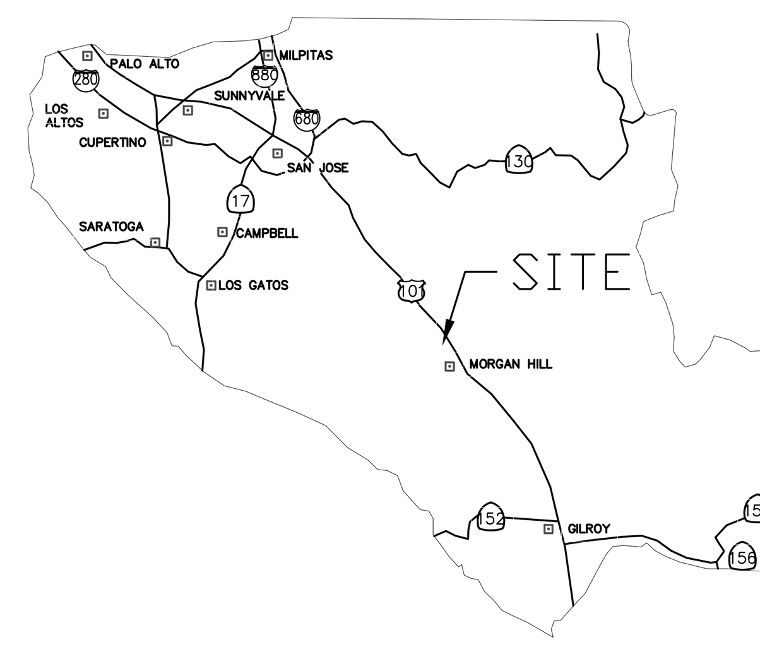
THIS IS A TRUE COPY OF THE AS-BUILT PLANS. THERE (___ WERE) (___ WERE NOT) MINOR FIELD CHANGES - MARKED WITH THE SYMBOL (^). THERE (___WERE) (___ WERE NOT) PLAN REVISIONS INDICATING SIGNIFICANT CHANGES REVIEWED BY THE COUNTY ENGINEER AND MARKED WITH THE SYMBOL△.

DATE ____________ SIGNATURE ____________

NOTE: THIS STATEMENT IS TO BE SIGNED BY THE PERSON AUTHORIZED BY THE COUNTY ENGINEER TO PERFORM THE INSPECTION WORK. A REPRODUCIBLE COPYOF THE AS-BUILT PLANS MUST BE FURNISHED TO THE COUNTY ENGINEER AFTERCONSTRUCTION.

GEOTECHNICAL ENGINEER OBSERVATION

1. A CONSTRUCTION OBSERVATION LETTER FROM THE RESPONSIBLE GEOTECHNICAL ENGINEER AND ENGINEERING GEOLOGIST DETAILING CONSTRUCTION OBSERVATIONS AND CERTIFYING THAT THE WORK WAS DONE IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL AND GEOLOGIC REPORTS SHALL BE SUBMITTED PRIOR TO THE GRADING COMPLETION AND RELEASE OF THE BOND.



COUNTY LOCATION MAP

SURVEY MONUMENT PRESERVATION

1. THE LANDOWNER / CONTRACTOR MUST PROTECT AND ENSURE THE PERPETUATION OF SURVEY MONUMENTS AFFECTED BY CONSTRUCTION ACTIVITIES.
2. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE, STAKE, AND FLAG OR OTHERWISE IDENTIFY WITH PAINT OR OTHER MARKINGS ALL PERMANENT SURVEY MONUMENTS OF RECORD AND ANY UNRECORDED MONUMENTS THAT ARE DISCOVERED THAT ARE WITHIN 50 FEET OF THE CONSTRUCTION ACTIVITY.
3. THE LANDOWNER, CONTRACTOR AND/OR ANY PERSON PERFORMING CONSTRUCTION ACTIVITIES THAT WILL OR MAY DISTURB AN EXISTING MONUMENT, CORNER STAKE, OR ANY OTHER PERMANENT SURVEYED MONUMENT SHALL CAUSE TO HAVE A LICENSED LAND SURVEYOR OR CIVIL ENGINEER, AUTHORIZED TO PRACTICE SURVEYING, ENSURE THAT A CORNER RECORD AND/OR RECORD OF SURVEY ARE FILED WITH THE COUNTY SURVEYOR'S OFFICE PRIOR TO DISTURBING SAID MONUMENTS AND RESET PERMANENT MONUMENT(S) IN THE SURFACE OF THE NEW CONSTRUCTION OR SET A WITNESS MONUMENT(S) TO PERPETUATE THE LOCATION IF ANY PERMANENT MONUMENT COULD BE DESTROYED, DAMAGED, COVERED, DISTURBED, OR OTHERWISE OBLITERATED. THE LICENSED LAND SURVEYOR OR CIVIL ENGINEER SHALL FILE A CORNER RECORD OR RECORD OF SURVEY WITH COUNTY SURVEYOR PRIOR TO FINAL ACCEPTANCE OF THE PROJECT BY THE LAND DEVELOPMENT ENGINEERING INSPECTOR.

COUNTY OF SANTA CLARA DEPT. OF ROADS AND AIRPORTS
ISSUED BY: ____________ DATE: ____________
ENCROACHMENT PERMIT NO. ____________

NO WORK SHALL BE DONE IN THE COUNTY'S RIGHT-OF-WAY WITHUOT AN ENCROACHEMENT PERMIT, INCLUDING THE STAGING OF CONSTRUCTION MATERIAL AND THE PLACEMENT OF PORTABLE TOILETS.

ENGINEER'S STATEMENT

I HEREBY STATE THAT THESE PLANS ARE IN COMPLIANCE WITH ADOPTED COUNTY STANDARDS, THE APPROVED TENTATIVE MAP (OR PLAN) AND CONDITIONS OF APPROVAL PERTAINING THERETO DATED JULY 18, 2015 FILE(S) NO. 9470-60-45-14B.

DATE: **2/2/23** [signature] SIGNATURE

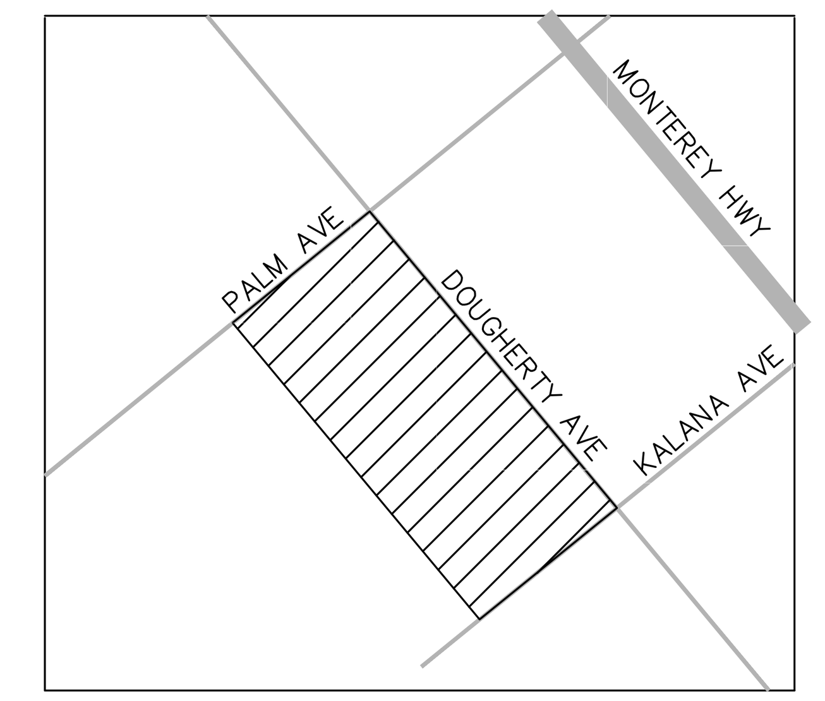
REGISTERED PROFESSIONAL ENGINEER — PETER PAO MOUA — No. C61918 — CIVIL — STATE OF CALIFORNIA

COUNTY ENGINEER'S NOTE

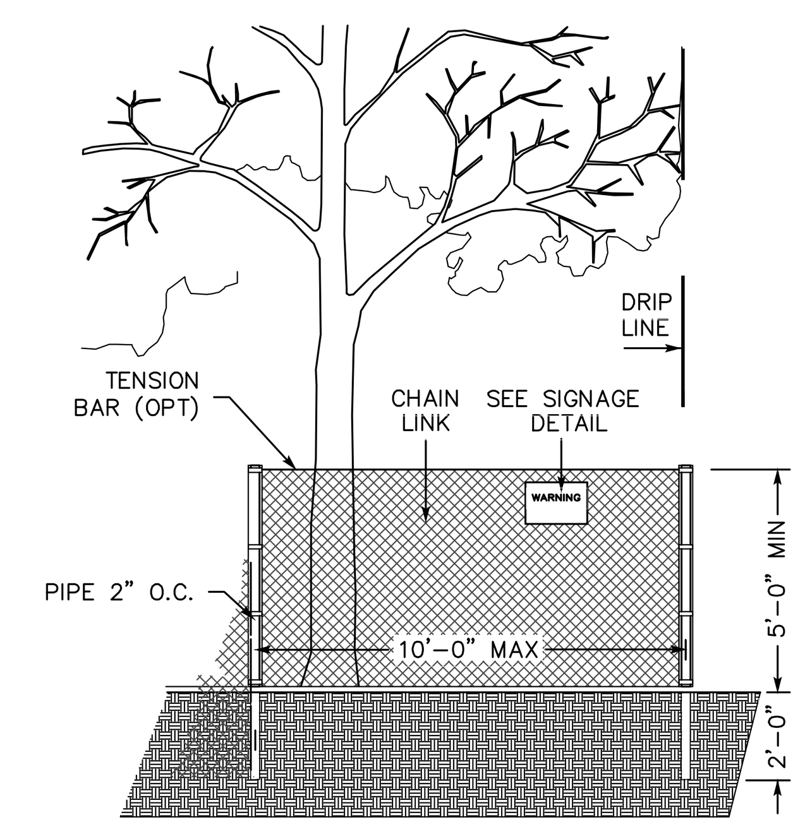
ISSUANCE OF A PERMIT AUTHORIZING CONSTRUCTION DOES NOT RELEASE THE DEVELOPER, PERMITTEE OF ENGINEER FROM RESPONSIBILITY FOR THE CORRECTION OF ERRORS OR OMISSIONS CONTAINED IN THE PLANS. IF, DURING THE COURSE OF CONSTRUCTION, THE PUBLIC INTEREST REQUIRES A MODIFICATION OF (OR DEPARTURE FROM) THE SPECIFICATIONS OF THE PLANS, THE COUNTY SHALL HAVE THE AUTHORITY TO REQUIRE THE SUSPENSION OF WORK, AND THE NECESSARY MODIFICATION OR DEPARTURE AND TO SPECIFY THE MANNER IN WHICH THE SAME IS TO BE MADE.

DATE ____________ ____________
CHRISTOPHER L. FREITAS, RCE

42107 — R.C.E. NO. — 3/31/24 — EXPIRATION DATE



VICINITY MAP



EXISTING TREE PROTECTION DETAILS

1. PRIOR TO THE COMMENCEMENT OF ANY GRADING, TREE PROTECTIVE FENCING SHALL BE IN PLACE IN ACCORDANCE WITH THE TREE PRESERVATION PLAN AND INSPECTED BY A CERTIFIED ARBORIST. THE ARBORIST SHALL MONITOR CONSTRUCTION ACTIVITY TO ENSURE THAT THE TREE PROTECTION MEASURES ARE IMPLEMENTED AND ADHERED TO DURING CONSTRUCTION. THIS CONDITION SHALL BE INCORPORATED INTO THE GRADING PLANS.
2. FENCE SHALL BE MINIMUM 5 FEET TALL CONSTRUCTED OF STURDY MATERIAL (CHAIN-LINK OR EQUIVALENT STRENGTH/ DURABILITY).
3. FENCE SHALL BE SUPPORTED BY VERTICAL POSTS DRIVEN 2 FEET (MIN) INTO THE GROUND AND SPACED NOT MORE THAN 10 FEET APART.
4. TREE FENCING SHALL BE MAINTAINED THROUGHOUT THE SITE DURING THE CONSTRUCTION PERIOD, INSPECTED PERIODICALLY FOR DAMAGE AND PROPER FUNCTION, REPAIRED AS NECESSARY TO PROVIDE A PHYSICAL BARRIER FROM CONSTRUCTION ACTIVITIES, AND REMAIN IN PLACE UNTIL THE FINAL INSPECTION.
5. A SIGN THAT INCLUDES THE WORDS, "WARNING: THIS FENCE SHALL NOT BE REMOVED WITHOUT THE EXPRESSED PERMISSION OF THE SANTA CLARA COUNTY PLANNING OFFICE," SHALL BE SECURELY ATTACHED TO THE FENCE IN A VISUALLY PROMINENT LOCATION.

COUNTY OF SANTA CLARA
LAND DEVELOPMENT ENGINEERING & SURVEYING
GRADING / DRAINAGE PERMIT NO. ____________
ISSUED BY: ____________ DATE: ____________

NEW RESIDENCE FOR: GURDEEP DHADWAL

SCOPE OF WORK

1. THE DEVELOPER IS RESPONSIBLE FOR THE INSTALLATION OF THE WORK PROPOSED ON THE EROSION CONTROL PLAN. THE ENGINEER OF RECORD IS RESPONSIBLE FOR THE DESIGN OF THE EROSION CONTROL PLANS AND ANY MODIFICATIONS OF THE EROSION COTROL PLANS TO PREVENT ILLICIT DISCHARGES FROM THE SITE DURING CONSTRUCTION.
2. CONSTRUCTION OF 15' DRIVEWAY.
3. CONSTRUCTION OF PRIMARY AND 2ND RESIDENCE.
4. CONSTRUCTION OF ONSITE PONDING BASIN.
5. CONSTRUCTION OF OFFSITE IMPROVEMENT ALONG PALM AVENUE.

LEGEND

DESCRIPTION	PROPSED	EXISTING
POWER POLE		-○-
WELL		Ⓦ
MONUMENT		●

APPROVED FOR ISSUANCE REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FRO SPECIAL CONDITIONS AND PERMIT NUMBERING

ENGINEER'S CERTIFICATION:

THIS PLAN WILL NOT IMPOSE A DRAINAGE, GRADING OR FLOODING HAZARD TO SURROUNDING PROPERTIES.

[signature] **2/2/23**
PETER PAO MOUA, P.E. — DATE
LIC. NO. C61918

SHEET INDEX

ENGINEER'S NAME: PETER P. MOUA, PE/LS
CENTRAL VALLEY ENGINEERING AND SURVEYING
2132 HIGH STREET
SELMA, CA 93662
PHONE NO.(559) 891-8811

Revision 1	*3/21/18*	*APN* 712-27-012	*Sheet* 1 *of* 10
Revision 2	*5/24/18*	*Co. File*	
Revision 3	*7/26/18*		

APPLICANT: GURDEEP DHADWAL   ROAD: PALM AVENUE   COUNTY FILE NO.: 9470-14B

Notes for Figure ~~6H-10~~ 6H-10(CA) and 6H-10A(CA) —Typical Application 10
Lane Closure on a Two-Lane Road Using Flaggers

Option:

1. For low-volume (Refer to Part 5, Section 5A.01) situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.

Standard:

5. At night, flagger stations shall be illuminated, except in emergencies.

Guidance:

6. When used, the BE PREPARED TO STOP sign should be located ~~between~~ after the Flagger sign and the ONE LANE ROAD sign.

7. When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC zone should be extended so that the transition area precedes the grade crossing.

8. When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.

9. When a grade crossing exists within the activity area, drivers operating on the left-hand side of the normal center line should be provided with comparable warning devices as for drivers operating on the right-hand side of the normal center line.

10. Early coordination with the railroad company or light rail transit agency should occur before work starts.

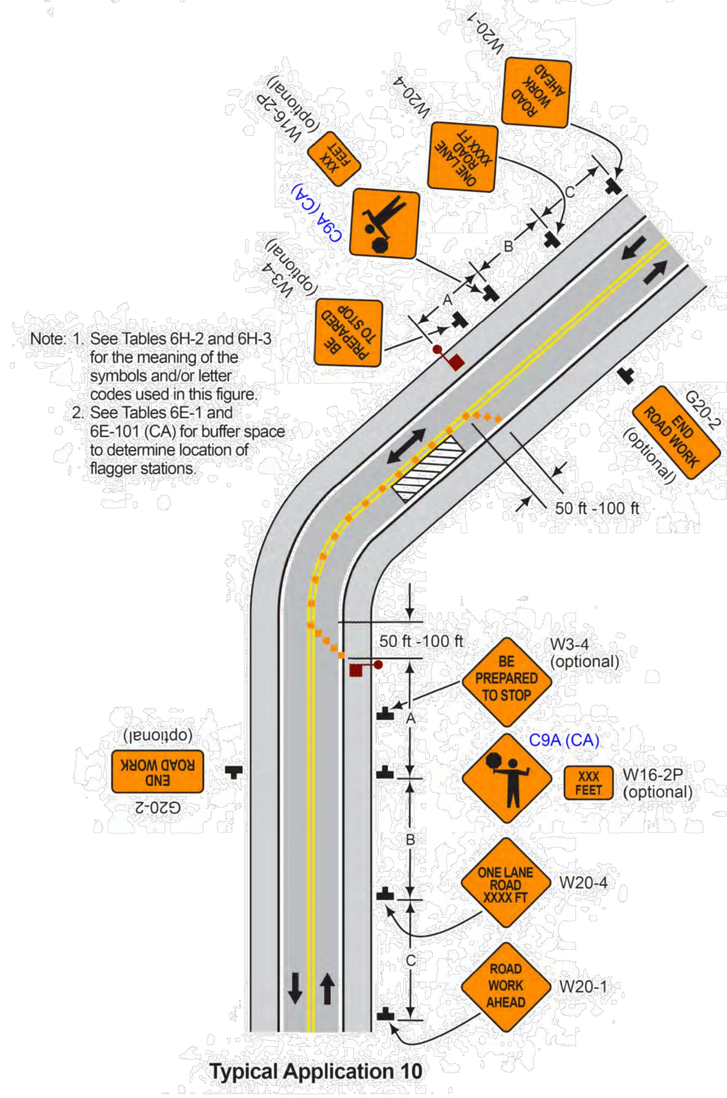
Option:

11. A flagger or a uniformed law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the outside rails.

Support:

12. For State highways, see Caltrans' Standard Plan T13. See Section 1A.11 for information regarding this publication.
13. If portable transverse rumble strips are used for flagging operations, refer to Section 6F.87.

Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

NO.	REVISIONS	BY	DATE	APP'D

THE COUNTY OF SANTA CLARA 1850

COUNTY OF SANTA CLARA ROADS AND AIRPORTS DEPARTMENT

DESIGNED	5-2015 DATE	SUBMITTED:	APPROVED:
DRAWN	5-2015 DATE		
CHECKED	5-2015 DATE		

STANDARD TRAFFIC CONTROL PLANS - LOCAL
LANE CLOSURE WITH FLAGGERS

DRAWING No. **TCP**

SHT No. OF

WORK ORDER No.	ADVERTISEMENT DATE:	CONTRACT No.	FILE No.	Scale
XX				

APPROVED FOR ISSUANCE REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FOR SPECIAL CONDITIONS AND PERMIT NUMBERING.

CENTRAL VALLEY
ENGINEERING & SURVEYING, INC.
2511 LOGAN STREET Tel. (559) 891-8811
SELMA, CA 93662 Fax (559) 891-8815
WWW.CVEAS.COM Email: info@cveas.com

PROJECT
NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER RICARDO LEAL No. C 70625 Exp. 06-30-23 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 2/3/2023

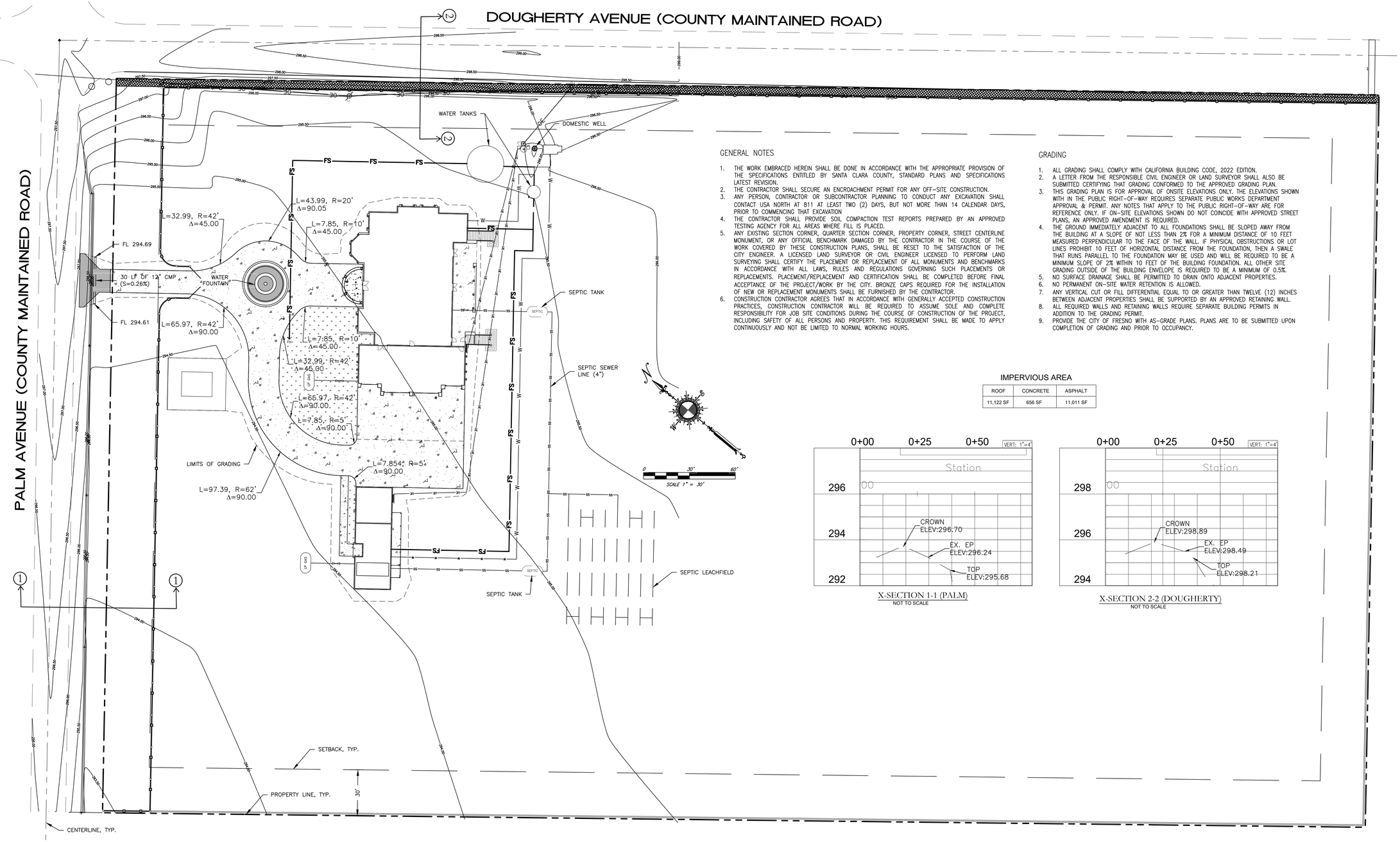
Revisions:	Date:
1 -	-
2 -	-
3 -	-
4 -	-
5 -	-

SANTA CLARA COUNTY ROAD AND AIRPORT STANDARDS

CVEAS JOB # : 22146
DATE: 2/3/2023
PLANNING SUBMITTAL #: XX-XXXX
PLAN CHECK SUBMITTAL #: XX-XXXX
DRAWN BY: KX
CHECKED BY: RL
SCALE: NOTE ON PLANS

C10

CIVIL ENGINEERING • LAND SURVEYING • CONSULTING • STRUCTURAL DESIGN • ARCHITECTURAL DRAFTING • COMMERCIAL & RESIDENTIAL BUILDING DESIGN • PLANNING & PROJECT MANAGEMENT



GENERAL NOTES

1. THE WORK EMBRACED HEREIN SHALL BE DONE IN ACCORDANCE WITH THE APPROPRIATE PROVISION OF THE SPECIFICATIONS ENTITLED BY SANTA CLARA COUNTY, STANDARD PLANS AND SPECIFICATIONS LATEST REVISION.
2. THE CONTRACTOR SHALL SECURE AN ENCROACHMENT PERMIT FOR ANY OFF-SITE CONSTRUCTION.
3. ANY PERSON, CONTRACTOR OR SUBCONTRACTOR PLANNING TO CONDUCT ANY EXCAVATION SHALL CONTACT USA NORTH AT 811 AT LEAST TWO (2) DAYS, BUT NOT MORE THAN 14 CALENDAR DAYS, PRIOR TO COMMENCING THAT EXCAVATION
4. THE CONTRACTOR SHALL PROVIDE SOIL COMPACTION TEST REPORTS PREPARED BY AN APPROVED TESTING AGENCY FOR ALL AREAS WHERE FILL IS PLACED.
5. ANY EXISTING SECTION CORNER, QUARTER SECTION CORNER, PROPERTY CORNER, STREET CENTERLINE MONUMENT, OR ANY OFFICIAL BENCHMARK DAMAGED BY THE CONTRACTOR IN THE COURSE OF THE WORK COVERED BY THESE CONSTRUCTION PLANS, SHALL BE RESET TO THE SATISFACTION OF THE CITY ENGINEER. A LICENSED LAND SURVEYOR OR CIVIL ENGINEER LICENSED TO PERFORM LAND SURVEYING SHALL CERTIFY THE PLACEMENT OR REPLACEMENT OF ALL MONUMENTS AND BENCHMARKS IN ACCORDANCE WITH ALL LAWS, RULES AND REGULATIONS GOVERNING SUCH PLACEMENTS OR REPLACEMENTS. PLACEMENT/REPLACEMENT AND CERTIFICATION SHALL BE COMPLETED BEFORE FINAL ACCEPTANCE OF THE PROJECT/WORK BY THE CITY. BRONZE CAPS REQUIRED FOR THE INSTALLATION OF NEW OR REPLACEMENT MONUMENTS SHALL BE FURNISHED BY THE CONTRACTOR.
6. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

GRADING

1. ALL GRADING SHALL COMPLY WITH CALIFORNIA BUILDING CODE, 2022 EDITION.
2. A LETTER FROM THE RESPONSIBLE CIVIL ENGINEER OR LAND SURVEYOR SHALL ALSO BE SUBMITTED CERTIFYING THAT GRADING CONFORMED TO THE APPROVED GRADING PLAN.
3. THIS GRADING PLAN IS FOR APPROVAL OF ONSITE ELEVATIONS ONLY. THE ELEVATIONS SHOWN WITH IN THE PUBLIC RIGHT-OF-WAY REQUIRES SEPARATE PUBLIC WORKS DEPARTMENT APPROVAL & PERMIT. ANY NOTES THAT APPLY TO THE PUBLIC RIGHT-OF-WAY ARE FOR REFERENCE ONLY. IF ON-SITE ELEVATIONS SHOWN DO NOT COINCIDE WITH APPROVED STREET PLANS, AN APPROVED AMENDMENT IS REQUIRED.
4. THE GROUND IMMEDIATELY ADJACENT TO ALL FOUNDATIONS SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 2% FOR A MINIMUM DISTANCE OF 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE WALL. IF PHYSICAL OBSTRUCTIONS OR LOT LINES PROHIBIT 10 FEET OF HORIZONTAL DISTANCE FROM THE FOUNDATION, THEN A SWALE THAT RUNS PARALLEL TO THE FOUNDATION MAY BE USED AND WILL BE REQUIRED TO BE A MINIMUM SLOPE OF 2% WITHIN 10 FEET OF THE BUILDING FOUNDATION. ALL OTHER SITE GRADING OUTSIDE OF THE BUILDING ENVELOPE IS REQUIRED TO BE A MINIMUM OF 0.5%.
5. NO SURFACE DRAINAGE SHALL BE PERMITTED TO DRAIN ONTO ADJACENT PROPERTIES.
6. NO PERMANENT ON-SITE WATER RETENTION IS ALLOWED.
7. ANY VERTICAL CUT OR FILL DIFFERENTIAL EQUAL TO OR GREATER THAN TWELVE (12) INCHES BETWEEN ADJACENT PROPERTIES SHALL BE SUPPORTED BY AN APPROVED RETAINING WALL.
8. ALL REQUIRED WALLS AND RETAINING WALLS REQUIRE SEPARATE BUILDING PERMITS IN ADDITION TO THE GRADING PERMIT.
9. PROVIDE THE CITY OF FRESNO WITH AS-GRADE PLANS. PLANS ARE TO BE SUBMITTED UPON COMPLETION OF GRADING AND PRIOR TO OCCUPANCY.

IMPERVIOUS AREA

ROOF	CONCRETE	ASPHALT
11,122 SF	656 SF	11,011 SF

X-SECTION 1-1 (PALM)
NOT TO SCALE

X-SECTION 2-2 (DOUGHERTY)
NOT TO SCALE

811 CALL UNDERGROUND SERVICE ALERT(U.S.A.)
TOLL FREE(800) 227-2600
48 HOURS
BEFORE EXCAVATING

APPROVED FOR ISSUANCE
REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FOR SPECIAL CONDITIONS AND PERMIT NUMBERING

VERTICAL CONTROL

CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 4 AS REFERENCED TO CSRC, EPOCH 2011.

BASIS OF BEARINGS:

CALIFORNIA COORDINATE SYSTEM OF 1983, ZONE 4 AS REFERENCED TO CSRC, EPOCH 2011.

ENGINEER'S CERTIFICATION:

THIS PLAN WILL NOT IMPOSE A DRAINAGE, GRADING OR FLOODING HAZARD TO SURROUNDING PROPERTIES.

PETER PAO MOUA, P.E.
LIC. NO. C61918

2/2/2023
DATE

C:\USERS\PETER\DROPBOX\CVEAS 2018\16067 MORGAN HILL\MORGAN HILL GRADING C2-3.DWG

APPLICANT: GURDEEP DHADWAL

ROAD: PALM AVENUE

COUNTY FILE NO.: 9470-14B

FILE LAST MODIFIED 2/2/2023

CVEAS
CENTRAL VALLEY
ENGINEERING & SURVEYING, INC.
2132 HIGH STREET
SELMA, CA 93662
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CIVIL ENGINEERING * LAND SURVEYING * CONSULTING * STRUCTURAL DESIGN * ARCHITECTURAL DRAFTING * COMMERCIAL & RESIDENTIAL BUILDING DESIGN * PLANNING & PROJECT MANAGEMENT

PROJECT
NEW RESIDENCE FOR:
GURDEEP DHADWAL
PALM AVE AND DOUGHERTY AVE
MORGAN HILL, CA 95037
APN: 712-27-012

LICENSED PROFESSIONAL ENGINEER
PETER PAO MOUA
No. C61918
CIVIL
STATE OF CALIFORNIA

Revisions:	Date:
△	
△	
△	
△	

GRADING PLAN

CVEAS Job #:	16067
Current Release Date:	xxxx
Drawn By:	PM
Planning Submittal Date:	xxxx
P.C. Submittal Date:	
Checked By:	RL
Scale:	AS NOTED

SHEET
2
OF
10

KEYNOTES

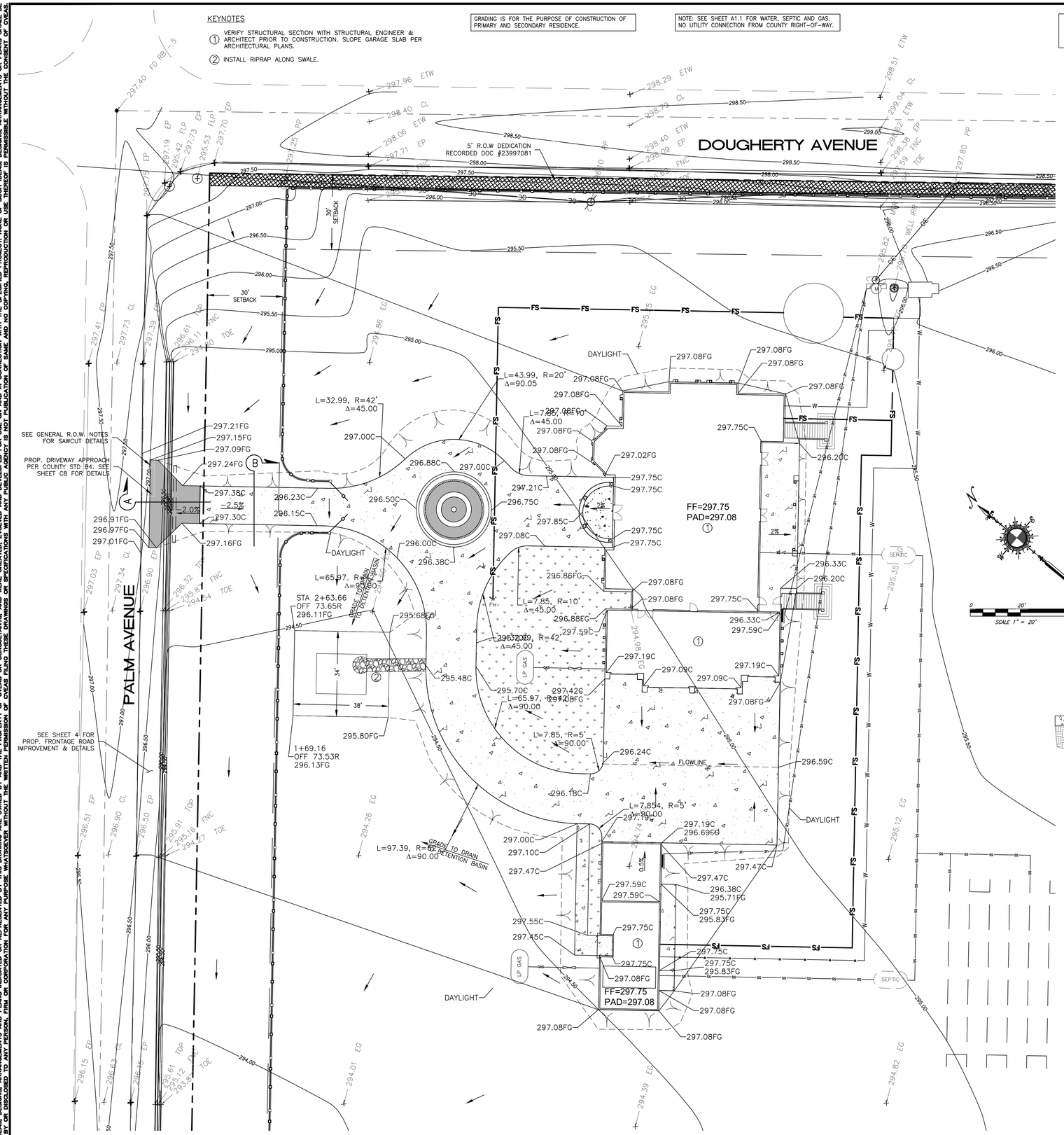
1. VERIFY STRUCTURAL SECTION WITH STRUCTURAL ENGINEER & ARCHITECT PRIOR TO CONSTRUCTION. SLOPE GARAGE SLAB PER ARCHITECTURAL PLANS.
2. INSTALL RIPRAP ALONG SWALE.

GRADING IS FOR THE PURPOSE OF CONSTRUCTION OF PRIMARY AND SECONDARY RESIDENCE.

NOTE: SEE SHEET A1.1 FOR WATER, SEPTIC AND GAS. NO UTILITY CONNECTION FROM COUNTY RIGHT-OF-WAY.

APPROVED FOR ISSUANCE REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FRO SPECIAL CONDITIONS AND PERMIT NUMBERING

811 CALL UNDERGROUND SERVICE ALERT(U.S.A.) TOLL FREE(800) 227-2600 48 HOURS BEFORE EXCAVATING



ABBREVIATIONS / LEGEND

AC	ASPHALTIC	FL	FLOW LINE	SDCO	STORM DRAIN CLEANOUT
C	CONCRETE	FNC	FENCE	SDI	STORM DRAIN INLET
CATV	CABLE TELEVISION LINE	FS	FIRE SPRINKLER	SDMH	STORM DRAIN MANHOLE
CG	CONCRETE CURB	GR	GUTTER/GUTTER LIP	SSCO	SEWER SANITARY CLEANOUT
CL	CENTER LINE	GRD	GROUND	TC	TOP OF CURB
CLF	CHAIN LINK FENCE	GUY	GUY WIRE	TF	TOP OF FOOTING
D	DIRT/GROUND SURFACE	IE	INVERT ELEVATION	TFC	TOP FACE OF CURB
DI	DRAIN INLET	IRR	IRRIGATION	TP	TELEPHONE POLE
EC	END OF CURVE	MB	MAIL BOX	TW	TOP OF WALL
EG	EXISTING GROUND	MTR	METER	UE	UNDERGROUND ELECTRICAL
EP	EDGE OF PAVEMENT	O/H	OVERHEAD ELECTRICAL LINE	W	WATER
ETW	EDGE OF TRAVEL WAY	P	PAVEMENT		
EX	EXISTING	PP	POWER POLE		
FD	FOUND	P/L	PROPERTY LINE		
FF	FINISH FLOOR	RB	REBAR		
FG	FINISH GRADE	R/W	RIGHT OF WAY		

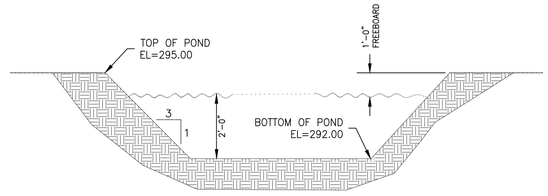
GRAVEL

ASPHALT CONCRETE (AC)

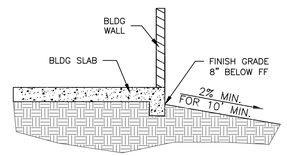
CONCRETE (CONC)

336.10 DESC SPOT ELEVATION & DESCRIPTION

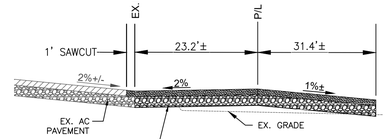
GENERAL RIGHT-OF-WAY NOTES:
1. SAWCUT AND REPAVE A MINIMUM OF 1-FT OF PLAM AVENUE ALONG DRIVEWAY AND PROPERTY FRONTAGE.
2. RESTRIPE FOG LINE IN SAWCUT AREA IN KIND WITH 4-INCH WHITE REFLECTIVE PAVEMENT MARKINGS AND AS REQUESTED BY COUNTY INSPECTOR AND/OR ENGINEER.
3. ALL SAWCUT SPOILS SHALL BE VACUUMED.
4. OFF HAUL ALL CONSTRUCTION SPOILS AND DEBRIS TO AN APPROPRIATE DUMP FACILITY.
5. INSTALL AND MAINTAIN PROPER BMPs THROUGHOUT THE DURATION OF CONSTRUCTION.
6. INSTALL AND MAINTAIN TRAFFIC CONTROL IN ACCORDANCE WITH THE MUTCD.



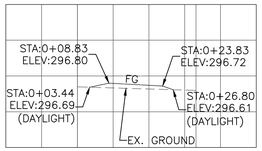
DETENTION BASIN
NOT TO SCALE



DRAIN AWAY FROM BLDG
NTS



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

CUT/FILL
CUT = 123 CUBIC YARDS
FILL = 144 CUBIC YARDS
NET FILL = 21 CUBIC YARDS
DISTURBED AREA = 32,254 SF

ENGINEER'S CERTIFICATION:
THIS PLAN WILL NOT IMPOSE A DRAINAGE, GRADING OR FLOODING HAZARD TO SURROUNDING PROPERTIES.

PETER PAO MOUA, P.E.
LIC. NO. C61918

2/2/2023
DATE

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PROJECT
NEW RESIDENCE FOR:
GURDEEP DHADWAL
PALM AVE AND DOUGHERTY AVE
MORGAN HILL, CA 95037
APN: 712-27-012

REGISTERED PROFESSIONAL ENGINEER PETER PAO MOUA No. C61918 CIVIL STATE OF CALIFORNIA

Revisions:	Date:

GRADING PLAN

CVEAS Job # :	16067
Current Release Date:	xxxx
Drawn By:	PM
Planning Submittal Date:	xxxx
P.C. Submittal Date:	
Checked By:	RL
Scale:	AS NOTED

SHEET 3 OF 10

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CALL UNDERGROUND SERVICE ALERT(U.S.A.)
TOLL FREE(800) 227-2600
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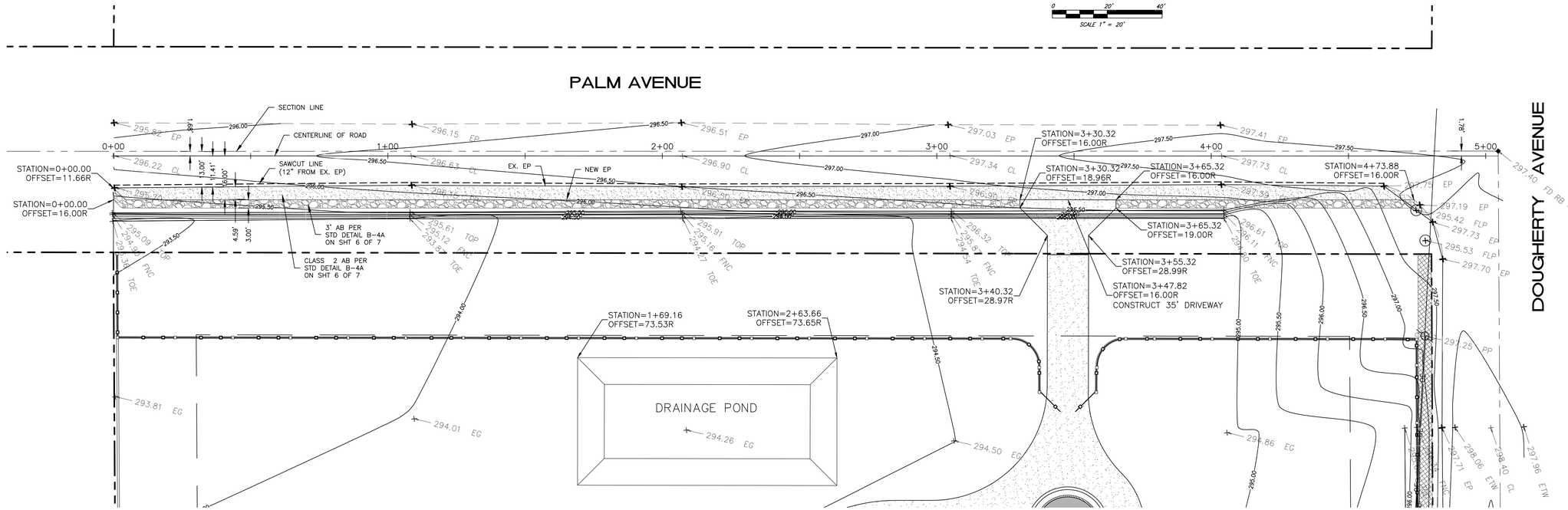
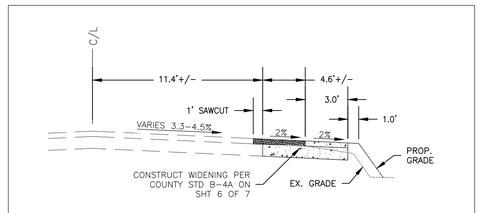
BEFORE EXCAVATING





TYPICAL ROAD X-SECTION (STA 0+00 TO 4+73.88)
NOT TO SCALE

ENGINEER'S CERTIFICATION:
THIS PLAN WILL NOT IMPOSE A DRAINAGE, GRADING OR FLOODING HAZARD TO SURROUNDING PROPERTIES.

PETER PAO MOUA, P.E.
LIC. NO. C61918

2/2/2023
DATE

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PROJECT
NEW RESIDENCE FOR:
GURDEEP DHADWAL
PALM AVE AND DOUGHERTY AVE
MORGAN HILL, CA 95037
APN: 712-27-012

REGISTERED PROFESSIONAL ENGINEER
PETER PAO MOUA
No. C61918
CIVIL
STATE OF CALIFORNIA

Revisions:	Date:

HALF STREET IMPROVEMENT

CVEAS Job # :	16067
Current Release Date:	xxxx
Drawn By:	PM
Planning Submittal Date:	xxxx
P.C. Submittal Date:	
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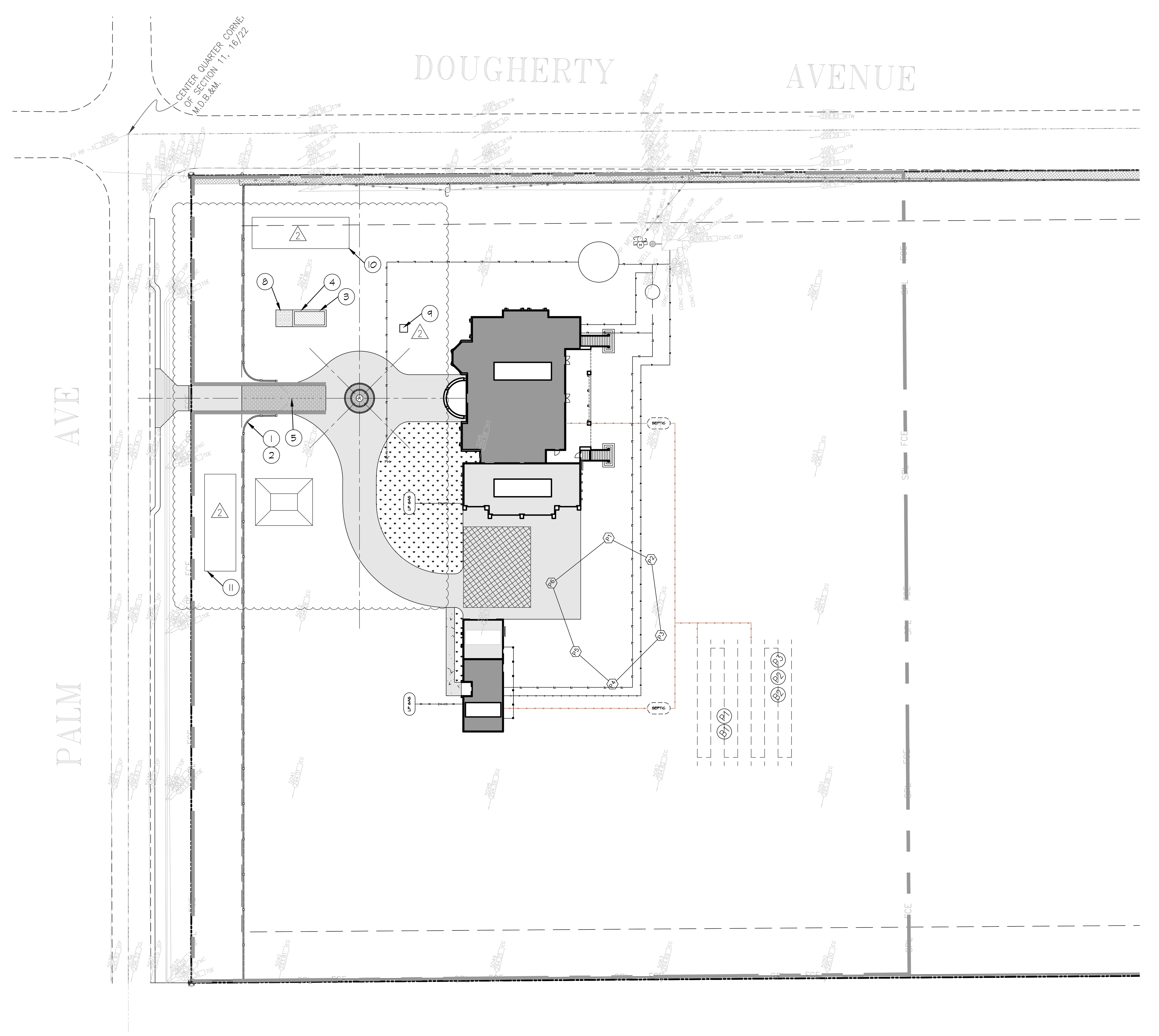
SHEET 4 OF 10

CIVIL ENGINEERING * LAND SURVEYING * CONSULTING * STRUCTURAL DESIGN * ARCHITECTURAL DRAFTING * COMMERCIAL & RESIDENTIAL BUILDING DESIGN * PLANNING & PROJECT MANAGEMENT

C:\USERS\PETER\DROPBOX\CVEAS 2018\16067 MORGAN HILL\MORGAN HILL GRADING C4.DWG

APPLICANT: GURDEEP DHADWAL ROAD: PALM AVENUE COUNTY FILE NO.: 9470-14B

FILE LAST MODIFIED 2/2/2023



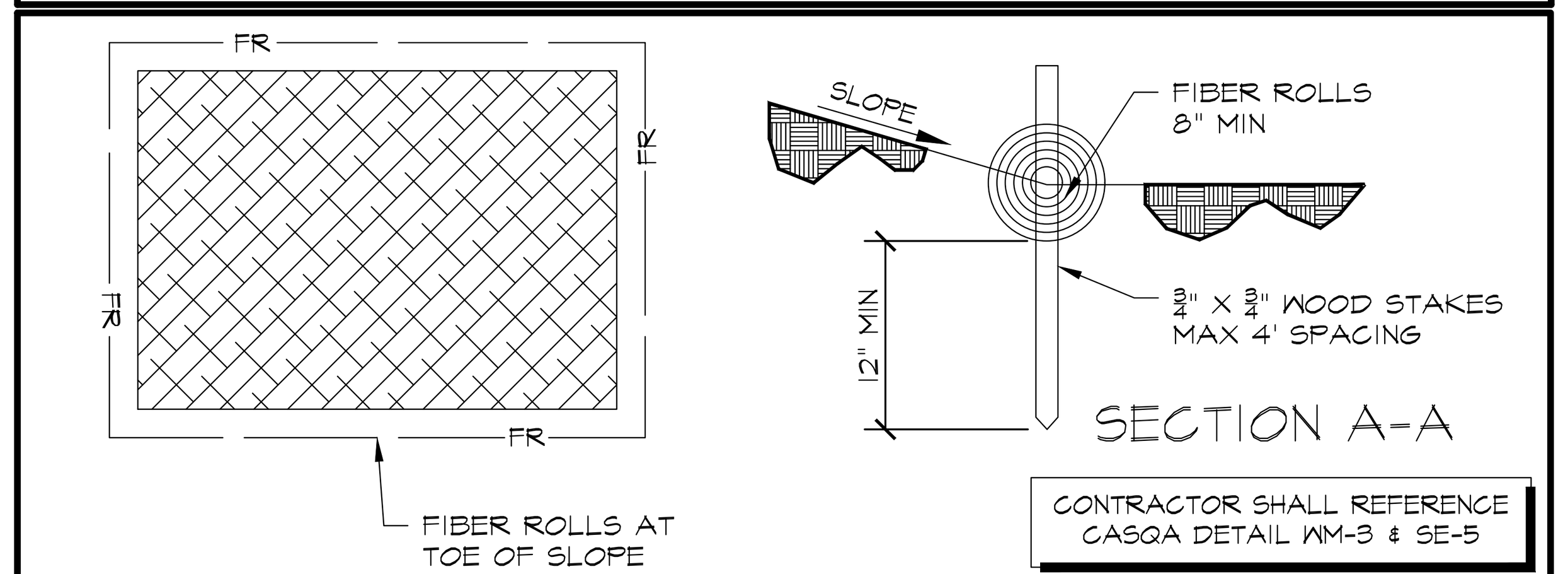
1 EROSION CONTROL PLAN

SCALE:1"=40'

APPROVED FOR ISSUANCE REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FOR SPECIAL CONDITIONS AND PERMIT NUMBERING.

LEGEND

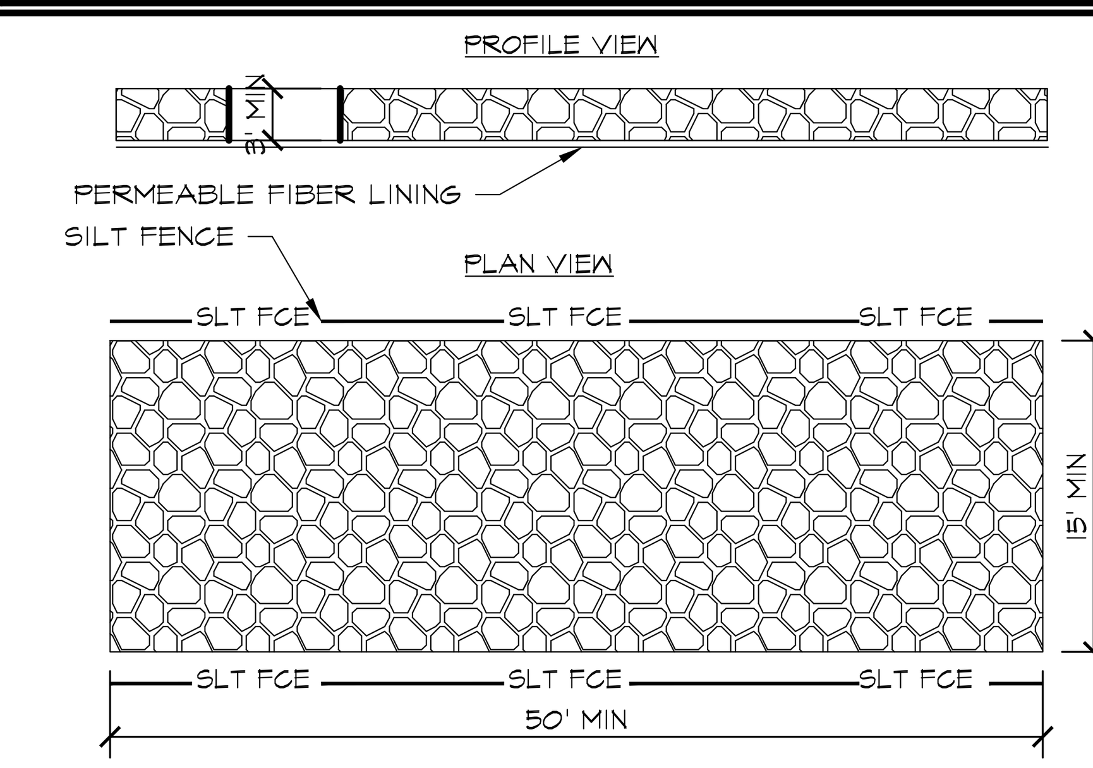
- MATERIALS LAY-DOWN AND STOCKPILE AREA & EQUIPMENT PARKING WITH PROTECTIVE OIL PANS UNDER EQUIPMENT. (SEE DETAIL A)
- GRATE INLET (SEE DETAIL D)
- 50' LONG GRAVEL PAD AT CONSTRUCTION ENTRANCE (SEE DETAIL B)
- CONSTRUCT CONCRETE WASHOUT (PER DETAIL E)
- GRIZZLY/RUMBLE PLATE
- SLT FCE — SILT FENCE (DETAIL C)
- SITE BOUNDARY
- PHASE BOUNDARY
- FR — FIBER ROLLS (DETAIL A)
- D — PROPOSED STORM DRAIN LINE
- 350 — FINISHED GROUND CONTOUR
- 354 — EXISTING GROUND CONTOUR



CONTRACTOR SHALL REFERENCE CASQA DETAIL WM-3 & SE-5

A STOCKPILE WITH FIBER ROLLS

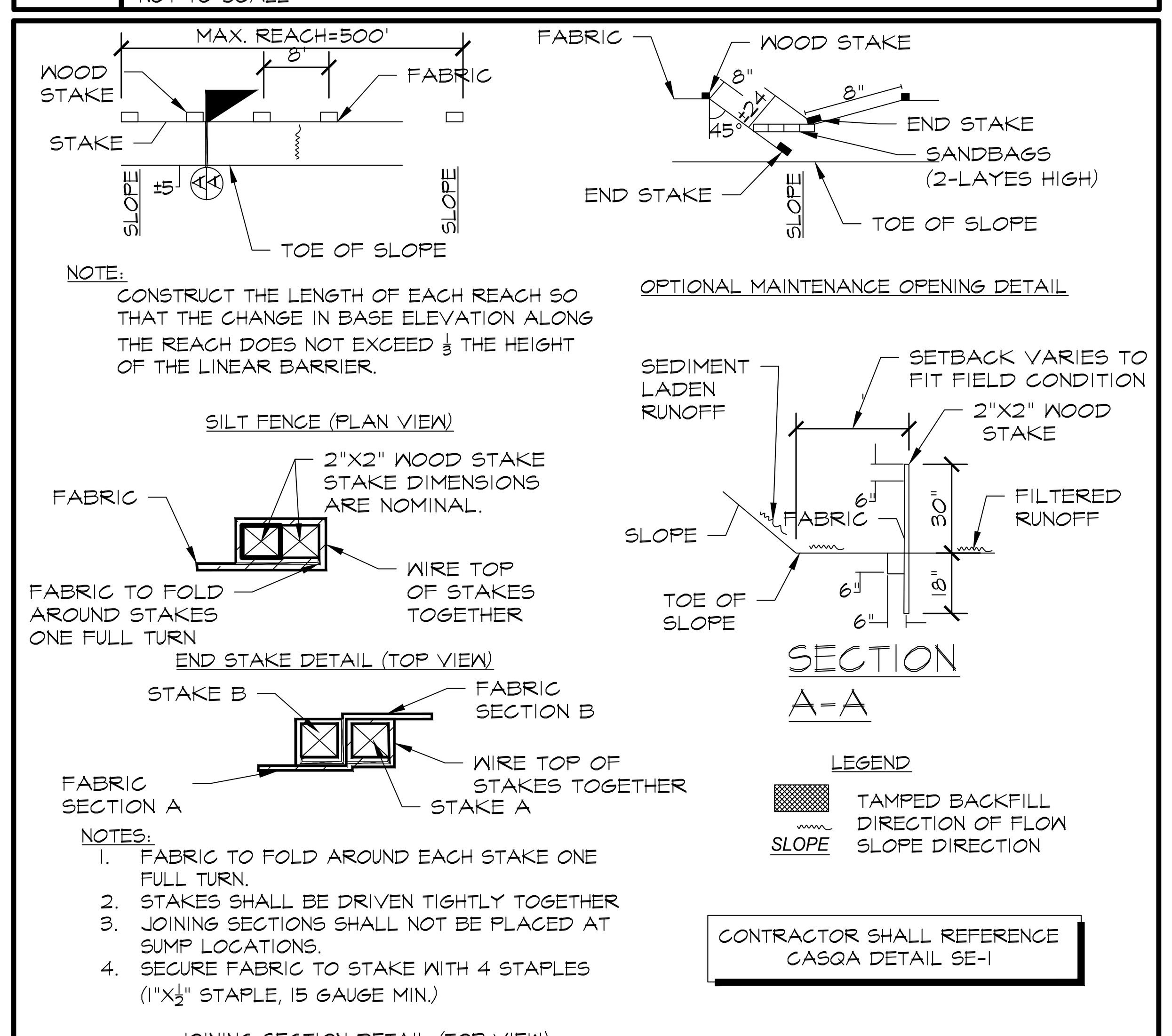
NOT TO SCALE



CONTRACTOR SHALL REFERENCE CASQA DETAIL TC-1 IN SITE SWPPP & DUST CONTROL PLAN FRO SPECIFIC REQUIREMENTS

B GRAVEL APRON AT CONST. ENTRANCE

NOT TO SCALE



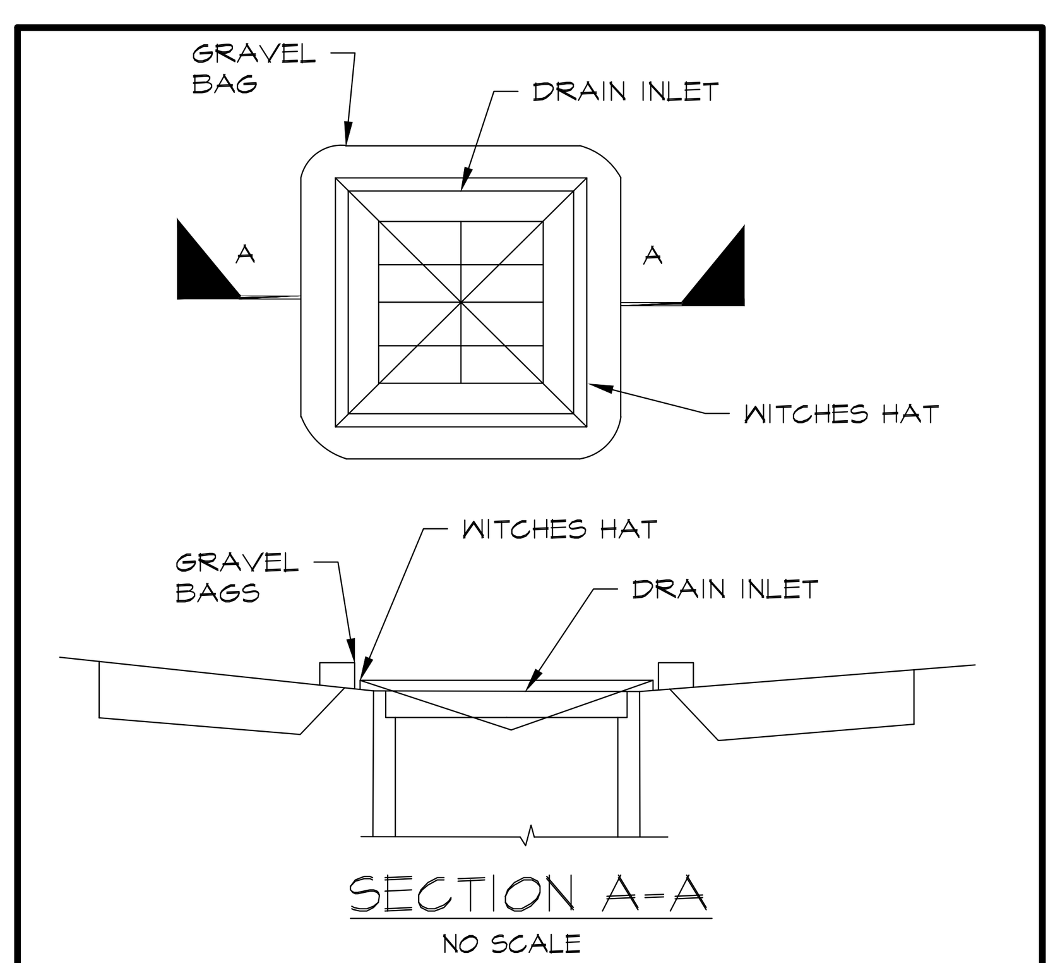
NOTES:
1. FABRIC TO FOLD AROUND EACH STAKE ONE FULL TURN.
2. STAKES SHALL BE DRIVEN TIGHTLY TOGETHER
3. JOINING SECTIONS SHALL NOT BE PLACED AT SUMP LOCATIONS.
4. SECURE FABRIC TO STAKE WITH 4 STAPLES (1"X1/2" STAPLE, 15 GAUGE MIN.)

JOINING SECTION DETAIL (TOP VIEW)

CONTRACTOR SHALL REFERENCE CASQA DETAIL SE-1

C SILT FENCE

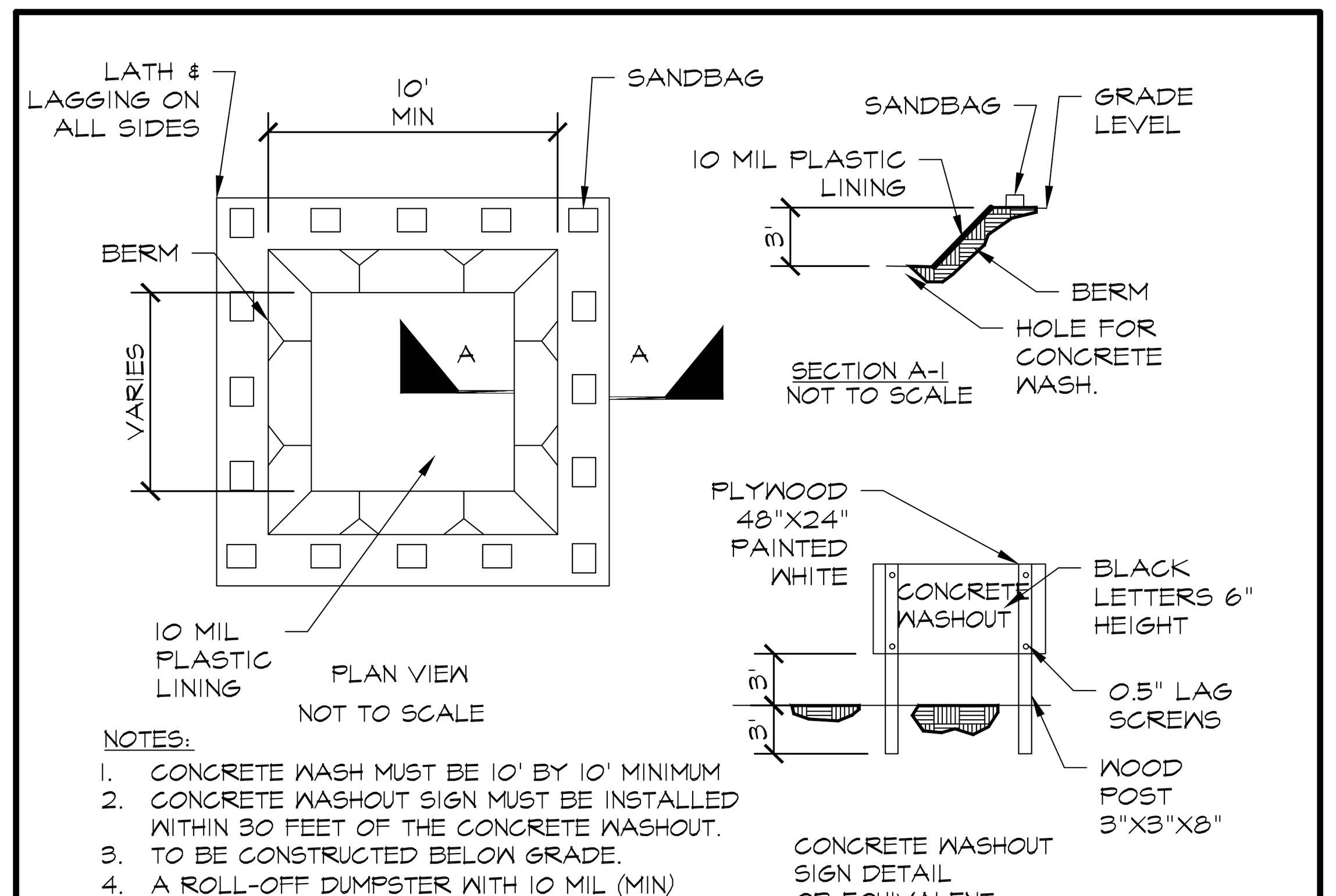
NOT TO SCALE



CONTRACTOR SHALL REFERENCE CASQA DETAIL SE-10

D GRATE INLET PROTECTION

NOT TO SCALE



NOTES:
1. CONCRETE WASH MUST BE 10' BY 10' MINIMUM
2. CONCRETE WASHOUT SIGN MUST BE INSTALLED WITHIN 30 FEET OF THE CONCRETE WASHOUT.
3. TO BE CONSTRUCTED BELOW GRADE.
4. A ROLL-OFF DUMPSTER WITH 10 MIL (MIN) PLASTIC LINING MAY BE USED UPON QSP APROVAL.

CONTRACTOR SHALL REFERENCE CASQA DETAIL WM-8

E GRAVEL INLET PROTECTION

NOT TO SCALE

STORMWATER POLLUTION PREVENTION NOTES:

1. EROSION CONTROL DEVICES SHOWN ON THIS PLAN MAY BE REMOVED WHEN APPROVED BY THE QUALIFIED SWPPP DEVELOPER (QSD) OR THE QUALIFIED SWPPP PRACTITIONER (QSP).
2. GRADED AREAS ADJACENT TO FILL SLOPES LOCATED AT THE SITE PERIMETER MUST DRAIN AWAY FROM THE TOP OF THE SLOPE AT THE COMPLETION OF EACH WORKING DAY OR EROSION CONTROL BMP'S MUST BE IN PLACE. (EC1-EC13)
3. THE USE OF A GRAVEL BLANKET AT CONSTRUCTION ENTRANCES WITH PUBLIC ROADS IS REQUIRED AT ALL TIMES DURING CONSTRUCTION. (TC-1)
4. THE CONTRACTOR SHALL RESTRICT TRAFFIC AND POST 15 MPH SPEED LIMITS ON THE SITE TO REDUCE DUST. (WE-1)
5. CONTRACTOR SHALL WATER THE SITE AS NEEDED TO ELIMINATE DUST. (MINIMUM OF 650 GALLONS/AC. AND ONCE DAILY, WE-1)
6. CONSTRUCTION EQUIPMENT SHALL BE PARKED, WHEN NOT IN USE AND FOR MAINTENANCE, IN DESIGNATED AREA (NS-8,10).
7. SILT FENCING, STRAW BALES AND SANDBAGS WILL BE INSTALLED AS DIRECTED BY THE QSD/QSP, AS NEEDED. (SE-1,SE-5,SE-6,SE-8,SE-9)
8. EXCEPT AS OTHERWISE APPROVED BY THE QSD/QSP, ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY OR ON WEEKENDS WHEN THE 48-HOUR RAIN PROPABILITY PORECAST EXCEEDS 50%.
9. ALL LOOSE SOIL AND DEBRIS, WHICH MAY CREATE A POTENTIAL HAZARD TO OFFSITE PROPERTY, SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE QSP.
10. THE PLACEMENT OF ADDITIONAL DEVICES TO REDUCE EROSION DAMAGE WITHIN THE SITE IS AT THE DISCRETION OF THE QSP.
11. EROSION CONTROL DEVICES WILL BE MODIFIED AS NEEDED AS THE PROJECT PROGRESSES AND PLANS OF THESE CHANGES SUBMITTED FOR APPROVAL AS REQUIRED.
12. ALL SILT AND DEBRIS SHALL BE REMOVED FROM ALL DEVICES WITHIN 24 HOURS AFTER EACH RAINSTORM.
13. THIS PLAN HAS BEEN CREATED AS A BEGINNING CONCEPT ONLY. IF BMP'S SHOWN ARE DEEMED INEFECTIVE OR UNNECESSARY, QSP IS TO REMOVE OR SELECT ALTERNATIVE BMP'S FROM CASQA'S HANDBOOK AND REDLINE THIS PLAN AS NEEDED.
14. WHILE NOT ALL THE LISTED BMP'S ARE NOT INCLUDED IN THE SPECIFIC TEXT OF THE EROSION CONTROL PLAN, MANY OF THESE ITEMS ARE STILL NECESSARY TO ADDRESS SPECIFIC CONSTRUCTION PROCEDURES THE CONTRACTOR PLANS IMPLEMENT. THESE ITEMS SUCH AS REFUELING STATIONS, BATCH PLANTS, WASTE FACILITIES AND THE LIKE ARE NOT SPECIFICALLY SITED ON THE PLAN BUT STILL ARE REQUIRED TO BE ADDRESS BY THE CONTRACTORS BASED ON THE CONTRACTORS PLANNED LOCATIONS.
15. ALL BMP'S MAY NOT BE LISTED ON THIS EROSION CONTROL PLAN. THE CONTRACTOR IS REFERRED TO BE FAMILIAR WITH THE SWPPP DOCUMENT FOR THIS SITE, AS IT MAY INCLUDE ADDITIONAL NECESSARY BMP'S.

DUST CONTROL NOTES:

CONSTRUCTION OF THE PROJECT REQUIRES THE IMPLEMENTATION OF CONTROL MEASURES RECOMMENDED BY THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT THAT CAN REDUCE FUGITIVE DUST EMISSIONS ASSOCIATED WITH THIS PROJECT:

A. ALL DISTURBED AREAS, INCLUDING STORAGE PILES, WHICH ARE NOT BEING ACTIVELY UTILIZED FOR CONSTRUCTION PURPOSES, SHALL BE EFFECTIVELY STABILIZED OF DUST EMISSIONS USING WATER, COVERED WITH A TARP OR OTHER SUITABLE COVER, OR VEGETATIVE GROUND COVER.

B. ALL ONSITE UNPAVED ROADS AND OFFSITE UNPAVED ACCESS ROADS SHALL BE EFFECTIVELY STABILIZED OF DUST EMISSIONS USING WATER.

C. ALL LAND CLEARING, GRUBBING, SCRAPING, EXCAVATION, LAND LEVELING, GRADING, CUT & FILL, AND DEMOLITION ACTIVITIES SHALL BE EFFECTIVELY CONTROLLED OF FUGITIVE DUST EMISSIONS UTILIZING APPLICATION OF WATER OR BY PRESOAKING.

D. WHEN MATERIALS ARE TRANSPORTED OFFSITE, ALL MATERIALS SHALL BE COVERED, OR EFFECTIVELY WETTED TO LIMIT VISIBLE DUST EMISSIONS, AND AT LEAST SIX INCHES OF FREEBOARD SPACE FROM TOP OF THE CONTAINER SHALL BE MAINTAINED.

E. ALL OPERATIONS SHALL LIMIT OR EXPEDITIOUSLY REMOVE THE ACCUMULATION OF MUD OR TRACKOUT FROM ADJACENT PUBLIC STREETS AT THE END OF EACH WORKDAY. (USING A PMIO-EFFICIENT METHOD, SE-7).

F. FOLLOWING THE ADDITION OF MATERIALS TO, OR THE REMOVAL OF MATERIALS FROM, THE SURFACE OF OUTDOOR STORAGE PILES, SAID PILES SHALL BE EFFECTIVELY STABILIZED OF FUGITIVE DUST EMISSIONS UTILIZING SUFFICIENT WATER AND COVERING.

G. ASPHALT-CONCRETE PAVING SHALL COMPLY WITH BMP THAT PREVENT INFILTRATION OF PAVING MATERIALS AND RUNOFF INTO STORM DRAIN SYSTEMS (NS-3).

H. CEASE GRADING ACTIVITIES DURING PERIODS OF HIGH WINDS (GREATER THAN 20 MPH OVER A ONE-HOUR PERIOD).

I. LIMIT CONSTRUCTION RELATED VEHICLE SPEEDS TO 15 MPH ON ALL UNPAVED AREAS AT THE CONSTRUCTION SITE.

J. ALL DUST CONTROL MEASURES ARE NOT NECESSARY LISTED HERE ON THIS PLAN, THE CONTRACTOR IS REFERED TO THE DUST CONTROL PLAN FOR THIS PROJECT AND/OR SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT RULES TO CHECK COMPLIANCE.

CONSTRUCTION NOTES:

1. POST "NO TRESPASSING" SIGN AT PROJECT ENTRANCE(S)
2. POST "CONSTRUCTION TRAFFIC 15 MPH" SIGN AT PROJECT ENTRANCE(S)
3. MATERIAL LAY-DOWN AND STOCKPILE AREA. (DETAIL A)
4. EQUIPMENT PARKING WITH PROTECTIVE OIL PANS UNDER EQUIPMENT.
5. GRAVEL PAD AT CONSTRUCTION ENTRANCE MIN. 50' LONG (SEE DETAIL B)
6. INLET PROTECTION WITH GRAVEL BAGS. (SEE DETAIL D)
7. STOCKPILE FOR ALL PHASES [PLACE FIBER ROLLS AT TOE OF SLOPE ALL THE WAY AROUND THE STOCKPILE] (SEE DETAIL A)
8. CONTRUCT CONCRETE WASHOUT (PER DETAIL E)
9. LOCATION OF PORT-O-LET (PORTABLE TOILET)
10. HAZARDOUS MATERIAL STORAGE AREA
11. CONSTRUCTION PARKING AREA

CIVIL ENGINEERING • LAND SURVEYING • CONSULTING • STRUCTURAL DESIGN • ARCHITECTURAL DRAFTING • COMMERCIAL & RESIDENTIAL BUILDING DESIGN • PLANNING & PROJECT MANAGEMENT

CVEAS
CENTRAL VALLEY ENGINEERING & SURVEYING, INC.
2511 LOGAN STREET SELMA, CA 93662 WWW.CVEAS.COM
Tel. (559) 891-8811 Fax (559) 891-8815 Email: info@cveas.com

PROJECT
NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER RICARDO LEAL No. C 77625 Exp. 06-30-23 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 2/3/2023

Revisions:	Date:
1 -	-
2 -	-
-	-
-	-
-	-

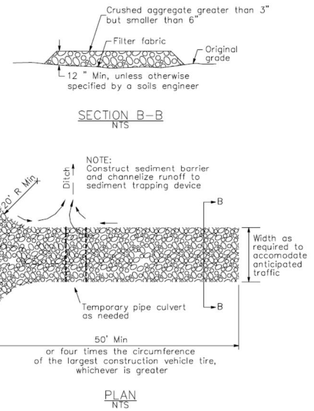
EROSION CONTROL PLAN

CVEAS JOB # :	22146
DATE:	2/3/2023
PLANNING SUBMITTAL #:	XX-XXXX
PLAN CHECK SUBMITTAL #:	XX-XXXX
DRAWN BY:	KX
CHECKED BY:	RL
SCALE:	NOTE ON PLANS

C5

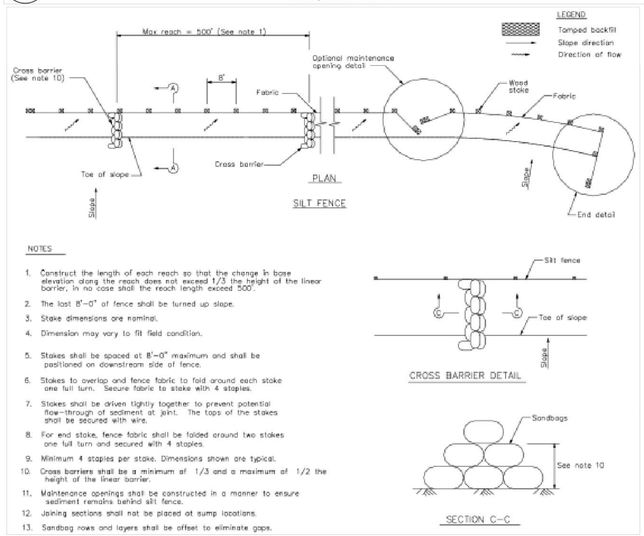
3 Stabilized Construction Entrance/Exit

CASQA Detail TC-1



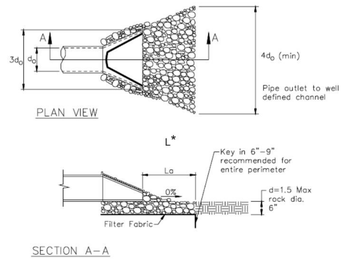
1 Silt Fence

CASQA Detail SE-1



4 Velocity Dissipation Devices

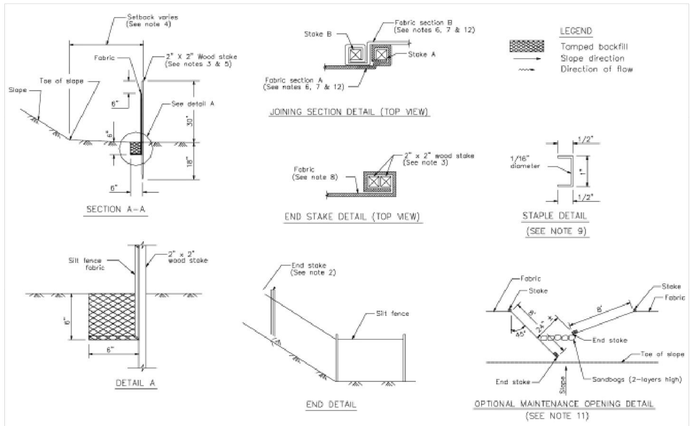
CASQA Detail EC-10



* Length per ABAG Design Standards

2 Silt Fence

CASQA Detail SE-1



Source for Graphics: California Stormwater BMP Handbook, California Stormwater Quality Association, January 2003.
Available from www.cabmphandbooks.com.

STANDARD BEST MANAGEMENT PRACTICE NOTES

1. Solid and Demolition Waste Management: Provide designated waste collection areas and containers on site away from streets, gutters, storm drains, and waterways, and arrange for regular disposal. Waste containers must be watertight and covered at all times except when waste is deposited. Refer to Erosion & Sediment Control Field Manual, 4th Edition (page C3) or latest.
2. Hazardous Waste Management: Provide proper handling and disposal of hazardous wastes by a licensed hazardous waste material hauler. Hazardous wastes shall be stored and properly labeled in sealed containers constructed of suitable materials. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages C-5 to C-6) or latest.
3. Spill Prevention and Control: Provide proper storage areas for liquid and solid materials, including chemicals and hazardous substances, away from streets, gutters, storm drains, and waterways. Spill control materials must be kept on site where readily accessible. Spills must be cleaned up immediately and contaminated soil disposed properly. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages C-7 to C-8, C-13 to C-14) or latest.
4. Vehicle and Construction Equipment Service and Storage: An area shall be designated for the maintenance, where on-site maintenance is required, and storage of equipment that is protected from stormwater run-on and runoff. Measures shall be provided to capture any waste oils, lubricants, or other potential pollutants and these wastes shall be properly disposed of off site. Fueling and major maintenance/repair, and washing shall be conducted off-site whenever feasible. Refer to Erosion & Sediment Control Field Manual, 4th Edition (page C9) or latest.
5. Material Delivery, Handling and Storage: In general, materials should not be stockpiled on site. Where temporary stockpiles are necessary and approved by the County, they shall be covered with secured plastic sheeting or tarp and located in designated areas near construction entrances and away from drainage paths and waterways. Barriers shall be provided around storage areas where materials are potentially in contact with runoff. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages C-11 to C-12) or latest.
6. Handling and Disposal of Concrete and Cement: When concrete trucks and equipment are washed on-site, concrete wastewater shall be contained in designated containers or in a temporary lined and watertight pit where wasted concrete can harden for later removal. If possible have concrete contractor remove concrete wash water from site. In no case shall fresh concrete be washed into the road right-of-way. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages C-15 to C-16) or latest.
7. Pavement Construction Management: Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent run-on and runoff pollution and properly disposing of wastes. Avoid paving in the wet season and reschedule paving when rain is in the forecast. Residue from saw-cutting shall be vacuumed for proper disposal. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages C-17 to C-18) or latest.
8. Contaminated Soil and Management: Inspections to identify contaminated soils should occur prior to construction and at regular intervals during construction. Remediating contaminated soil should occur promptly after identification and be specific to the contaminant identified, which may include hazardous waste removal. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages C-19 to C-20) or latest.
9. Sanitary/Septic Water Management: Temporary sanitary facilities should be located away from drainage paths, waterways, and traffic areas. Only licensed sanitary and septic waste haulers should be used. Secondary containment should be provided for all sanitary facilities. Refer to Erosion & Sediment Control Field Manual, 4th Edition (page C-21) or latest.
10. Inspection & Maintenance: Areas of material and equipment storage sites and temporary sanitary facilities must be inspected weekly. Problem areas shall be identified and appropriate additional and/or alternative control measures implemented immediately, within 24 hours of the problem being identified.

STANDARD EROSION CONTROL NOTES

1. Sediment Control Management:

   Tracking Prevention & Clean Up: Activities shall be organized and measures taken as needed to prevent or minimize tracking of soil onto the public street system. A gravel or proprietary device construction entrance/exit is required for all sites. Clean up of tracked material shall be provided by means of a street sweeper prior to an approaching rain event, or at least once at the end of each workday that material is tracked, or, more frequently as determined by the County Inspector. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages B-31 to B-33) or latest.

   Storm Drain Inlet and Catch Basin Inlet Protection: All inlets within the vicinity of the project and within the project limits shall be protected with gravel bags placed around inlets or other inlet protection. At locations where exposed soils are present, staked fiber roles or staked silt fences can be used. Inlet filters are not allowed due to clogging and subsequent flooding. Refer to Erosion & Sediment Control Field Manual, 4th Edition (pages B-49 to B-51) or latest.

   Storm Water Runoff: No storm water runoff shall be allowed to drain in to the existing and/or proposed underground storm drain system or other above ground watercourses until appropriate erosion control measures are fully installed.

   Dust Control: The contractor shall provide dust control in graded areas as required by providing wet suppression or chemical stabilization of exposed soils, providing for rapid clean up of sediments deposited on paved roads, furnishing construction road entrances and vehicle wash down areas, and limiting the amount of areas disturbed by clearing and earth moving operations by scheduling these activities in phases.

   Stockpiling: Excavated soils shall not be placed in streets or on paved areas. Borrow and temporary stockpiles shall be protected with appropriate erosion control measures(tarps, straw bales, silt fences, ect.) to ensure silt does not leave the site or enter the storm drain system or neighboring watercourse.
2. Erosion Control: During the rainy season, all disturbed areas must include an effective combination of erosion and sediment control. It is required that temporary erosion control measures are applied to all disturbed soil areas prior to a rain event. During the non-rainy season, erosion control measures must be applied sufficient to control wind erosion at the site.
3. Inspection & Maintenance: Disturbed areas of the Project's site, locations where vehicles enter or exit the site, and all erosion and sediment controls that are identified as part of the Erosion Control Plans must be inspected by the Contractor before, during, and after storm events, and at least weekly during seasonal wet periods. Problem areas shall be identified and appropriate additional and/ or alternative control measures implemented immediately, within 24 hours of the problem being identified.
4. Project Completion: Prior to project completion and signoff by the County Inspector, all disturbed areas shall be reseeded, planted, or landscaped to minimize the potential for erosion on the subject site.
5. It shall be the Owner's/Contractor's responsibility to maintain control of the entire construction operation and to keep the entire site in compliance with the erosion control plan.
6. Erosion and sediment control best management practices shall be operable year round or until vegetation is fully established on landscaped surfaces.

Project Information

Best Management Practices and Erosion Control Details Sheet 1
County of Santa Clara

BMP-1

APPROVED FOR ISSUANCE
REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FOR SPECIAL CONDITIONS AND PERMIT NUMBERING.

CENTRAL VALLEY
ENGINEERING & SURVEYING, INC.
2511 LOGAN STREET
SELMA, CA 93662
WWW.CVEAS.COM
Tel. (559) 891-8811
Fax (559) 891-8815
Email: info@cveas.com

PROJECT
NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
PALM AND DOUGHERTY AVE.
MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER
RICARDO LEAL
No. C 70825
Exp. 06-30-23
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 2/3/2023

Revisions:	Date:
1 -	-
2 -	-
3 -	-
4 -	-
5 -	-

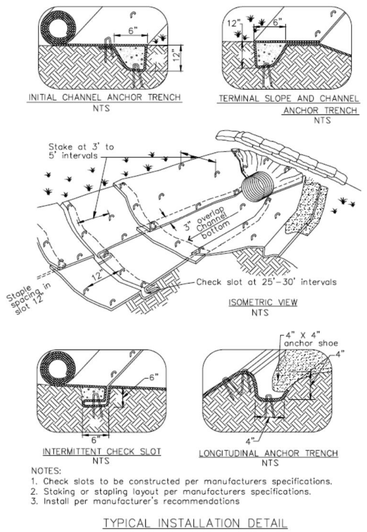
SANTA CLARA COUNTY ROAD AND AIRPORT STANDARDS

CVEAS JOB # : 22146
DATE: 2/3/2023
PLANNING SUBMITTAL #: XX-XXXX
PLAN CHECK SUBMITTAL #: XX-XXXX
DRAWN BY: KX
CHECKED BY: RL
SCALE: NOTE ON PLANS

C6

7 Geotextiles and Mats

CASQA Detail EC-7

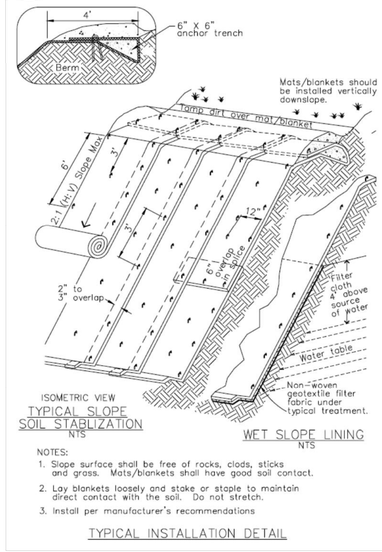


NOTES:
1. Check slots to be constructed per manufacturers specifications.
2. Staking or stapling layout per manufacturers specifications.
3. Install per manufacturer's recommendations

TYPICAL INSTALLATION DETAIL

5 Geotextiles and Mats

CASQA Detail EC-7

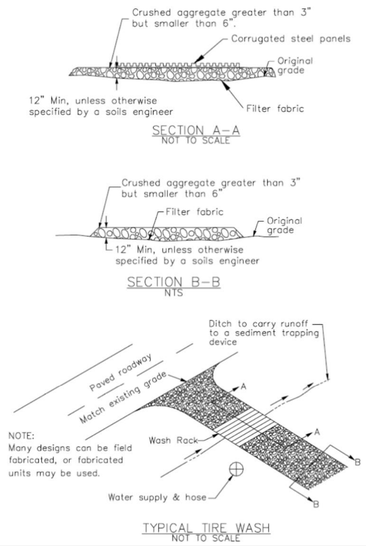


NOTES:
1. Slope surface shall be free of rocks, clods, sticks and grass. Mats/blankets shall have good soil contact.
2. Lay blankets loosely and stake or staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations

TYPICAL INSTALLATION DETAIL

3 Entrance/Outlet Tire Wash

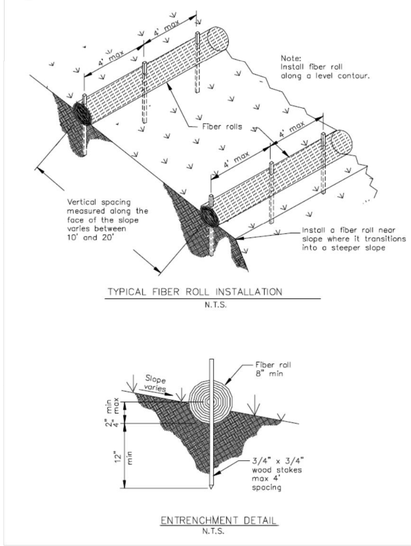
CASQA Detail TC-3



TYPICAL TIRE WASH
NOT TO SCALE

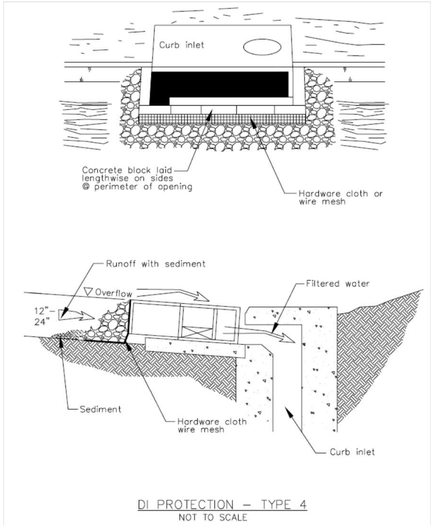
1 Fiber Rolls

CASQA Detail SE-5



8 Storm Drain Inlet Protection

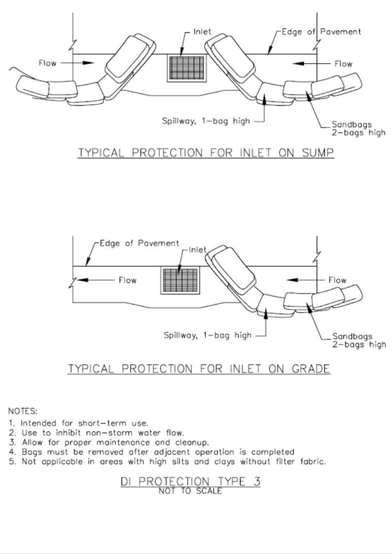
CASQA Detail SE-10



Source for Graphics: California Stormwater BMP Handbook, California Stormwater Quality Association, January 2003.
Available from www.cabmphandbooks.com.

6 Storm Drain Inlet Protection

CASQA Detail SE-10

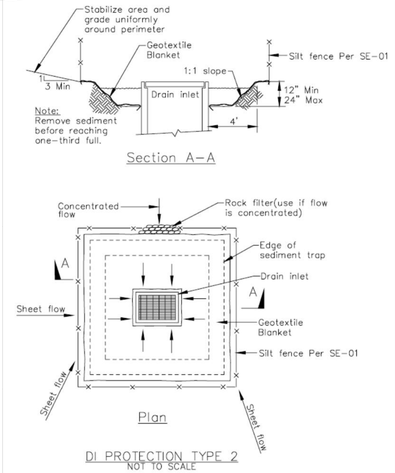


NOTES:
1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed
5. Not applicable in areas with high silts and clays without filter fabric.

DI PROTECTION TYPE 3
NOT TO SCALE

4 Storm Drain Inlet Protection

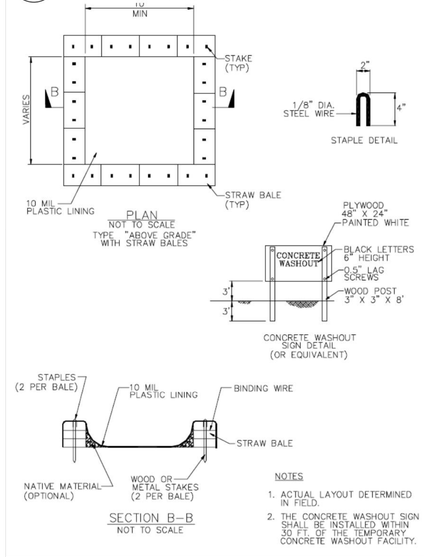
CASQA Detail SE-10



Notes
1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.

2 Concrete Waste Management

CASQA Detail WM-8



NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Best Management Practices and Erosion Control Details Sheet 2
County of Santa Clara

BMP-2

APPROVED FOR ISSUANCE REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FOR SPECIAL CONDITIONS AND PERMIT NUMBERING.

CENTRAL VALLEY ENGINEERING & SURVEYING, INC.
2511 LOGAN STREET Tel. (559) 891-8811
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PROJECT
NEW SINGLE FAMILY RESIDENCE FOR:
GURDEEP DHADWAL
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MORGAN HILLS, CA 95037
APN: 712-27-043

REGISTERED PROFESSIONAL ENGINEER RICARDO LEAL No. C 70825 Exp. 06-30-23 CIVIL STATE OF CALIFORNIA

DATE SIGNED: 2/3/2023

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SANTA CLARA COUNTY ROAD AND AIRPORT STANDARDS

CVEAS JOB # : 22146
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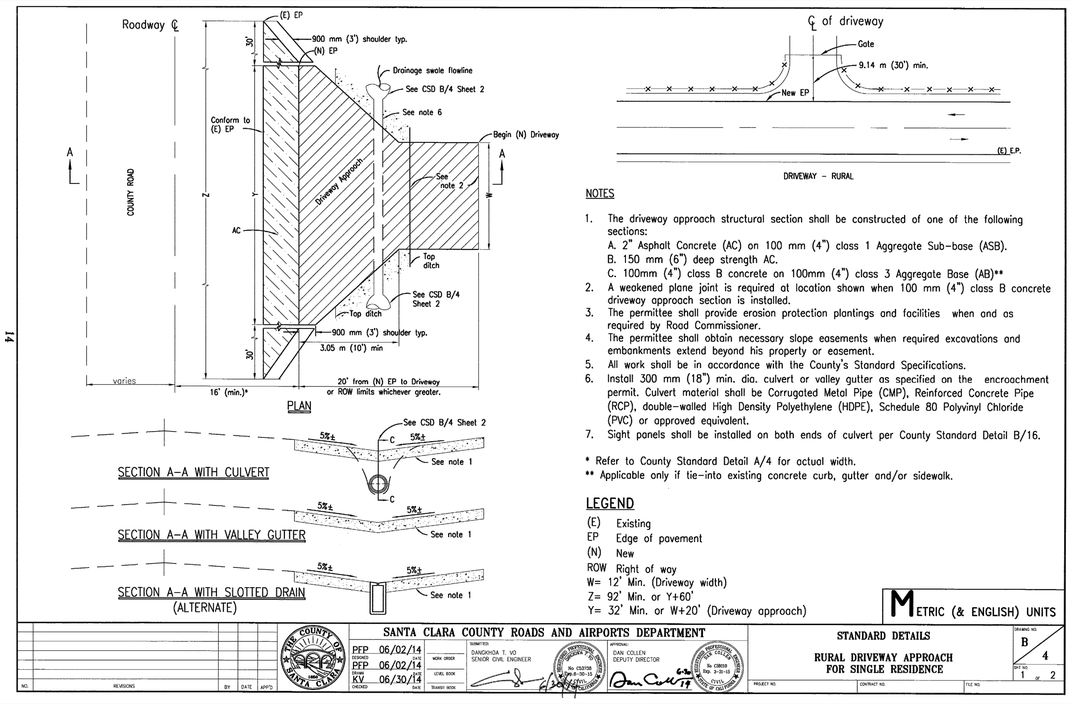
DRAWN BY: KX
CHECKED BY: RL
SCALE: NOTE ON PLANS

C7

Project Information

CIVIL ENGINEERING • LAND SURVEYING • CONSULTING • STRUCTURAL DESIGN • ARCHITECTURAL DRAFTING • COMMERCIAL & RESIDENTIAL BUILDING DESIGN • PLANNING & PROJECT MANAGEMENT



NOTES

1. The driveway approach structural section shall be constructed of one of the following sections:
   A. 2" Asphalt Concrete (AC) on 100 mm (4") class 1 Aggregate Sub-base (ASB).
   B. 150 mm (6") deep strength AC.
   C. 100mm (4") class B concrete on 100mm (4") class 3 Aggregate Base (AB)**
2. A weakened plane joint is required at location shown when 100 mm (4") class B concrete driveway approach section is installed.
3. The permittee shall provide erosion protection plantings and facilities when and as required by Road Commissioner.
4. The permittee shall obtain necessary slope easements when required excavations and embankments extend beyond his property or easement.
5. All work shall be in accordance with the County's Standard Specifications.
6. Install 300 mm (18") min. dia. culvert or valley gutter as specified on the encroachment permit. Culvert material shall be Corrugated Metal Pipe (CMP), Reinforced Concrete Pipe (RCP), double-walled High Density Polyethylene (HDPE), Schedule 80 Polyvinyl Chloride (PVC) or approved equivalent.
7. Sight panels shall be installed on both ends of culvert per County Standard Detail B/16.

* Refer to County Standard Detail A/4 for actual width.
** Applicable only if tie-into existing concrete curb, gutter and/or sidewalk.

LEGEND

(E) Existing
EP Edge of pavement
(N) New
ROW Right of way
W= 12' Min. (Driveway width)
Z= 92' Min. or Y+60'
Y= 32' Min. or W+20' (Driveway approach)

METRIC (& ENGLISH) UNITS

SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT

PFP	06/02/14	DRAWN	
PFP	06/02/14	WORK ORDER	
KV	06/30/14	CHECKED	
		LEVEL BOOK	
		TRANSIT BOOK	

SUBMITTED: DANGKHOA T. VO, SENIOR CIVIL ENGINEER
APPROVAL: DAN COLLEN, DEPUTY DIRECTOR

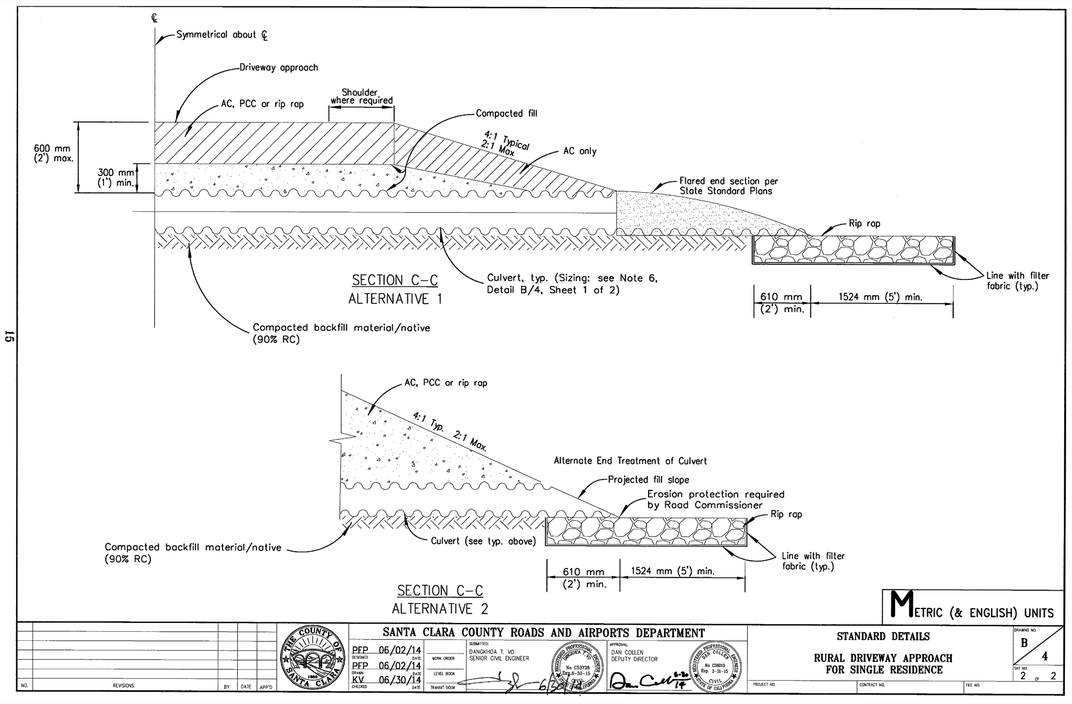
STANDARD DETAILS
RURAL DRIVEWAY APPROACH FOR SINGLE RESIDENCE

DRAWING NO. B 4 SHT NO. 1 or 2

NO.	REVISIONS	BY	DATE	APP'D

PROJECT NO. | CONTRACT NO. | FILE NO.

B4-1 SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT STANDARD DWG.
SCALE: N.T.S.



METRIC (& ENGLISH) UNITS

SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT

PFP	06/02/14	DRAWN	
PFP	06/02/14	WORK ORDER	
KV	06/30/14	CHECKED	
		LEVEL BOOK	
		TRANSIT BOOK	

SUBMITTED: DANGKHOA T. VO, SENIOR CIVIL ENGINEER
APPROVAL: DAN COLLEN, DEPUTY DIRECTOR

STANDARD DETAILS
RURAL DRIVEWAY APPROACH FOR SINGLE RESIDENCE

DRAWING NO. B 4 SHT NO. 2 or 2

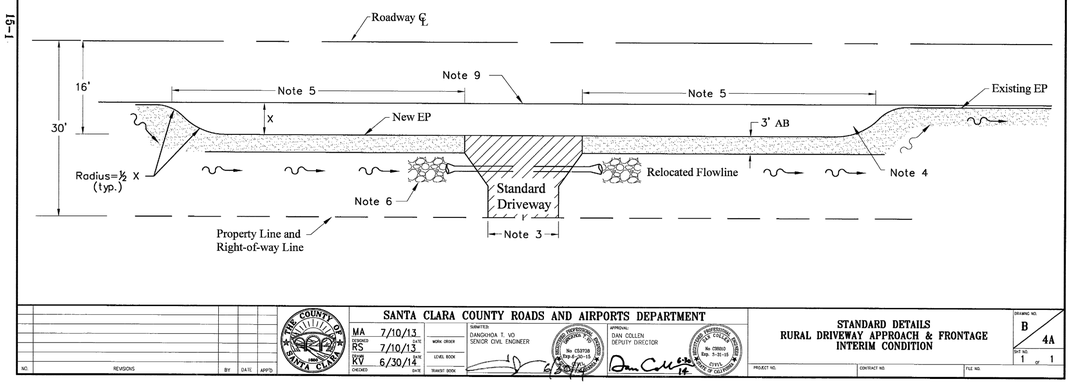
NO.	REVISIONS	BY	DATE	APP'D

PROJECT NO. | CONTRACT NO. | FILE NO.

B4-2 SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT STANDARD DWG.
SCALE: N.T.S.

NOTES:

1. Single residence (County Standard Detail B/4) and/or Multiple Residence (County Standard Detail B/5).
2. New or existing retrofit driveway/driveway approach.
3. Driveway approach pavement section and dimensions per County Standard Detail B/4 or B/5.
4. Minimum roadway structural section per County Standard Details A/1 through A/9 or match in kind, the more restrictive shall apply.
5. Minimum 50 linear feet or to property corner limits, whichever is greater shall apply.
6. Rip rap rock energy dissipaters, owner's engineer to determine/calculate size, type and dimensions in conformance with most current County Drainage Manual, as appropriate.
7. Provide positive drainage flow across frontage.
8. 3-ft aggregate base (AB) shoulder shall be compacted to 90%. Refer to County Standard Detail A/4 for minimum structural section.
9. Replace existing shoulder stripe/fog line in kind [e.g., thermoplastic or white reflective paint (2 coats min) etc].



SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT

MA	7/10/13	DRAWN	
RS	7/10/13	WORK ORDER	
KV	6/30/14	CHECKED	
		LEVEL BOOK	
		TRANSIT BOOK	

SUBMITTED: DANGKHOA T. VO, SENIOR CIVIL ENGINEER
APPROVAL: DAN COLLEN, DEPUTY DIRECTOR

STANDARD DETAILS
RURAL DRIVEWAY APPROACH & FRONTAGE
INTERIM CONDITION

DRAWING NO. B 4A SHT NO. 1 or 1

NO.	REVISIONS	BY	DATE	APP'D

PROJECT NO. | CONTRACT NO. | FILE NO.

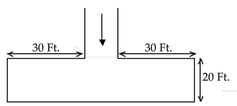
B-4A SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT STANDARD DWG.
SCALE: N.T.S.

STANDARD DETAILS & SPECIFICATIONS	Spec. No.	CFMO SD16
	Rev. Date:	N/A
SUBJECT: Acceptable Turnarounds for Driveways For One- and Two-Family Dwellings	Eff. Date:	04/08/1981
	Approved By:	J. Saunders
	Page:	1 of 1

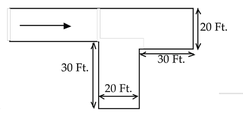
SCOPE

This standard is applicable to required turnarounds for driveways for new or expanded one- and two-family dwellings and/or associated structures where any portion of the protected structure(s) is in excess of 150 feet from the centerline of a public or private roadway (measured by an approved route around the exterior of the building). Specifications contained in this Standard apply to all properties located within unincorporated Santa Clara County.

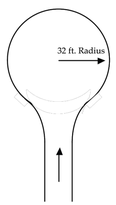
Turnaround "A"



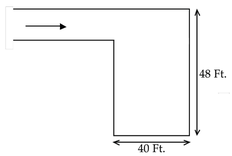
Turnaround "B"



Turnaround "C"



Turnaround "D"



SANTA CLARA COUNTY FIRE MARSHAU'S OFFICE
70 W. Hedding St., East Wing, 7th Floor • San Jose • CA 95110 • (408) 299-5763

SD-16 SCMO - FIRE TRUCK TURN-AROUND
SCALE: N.T.S.

APPROVED FOR ISSUANCE REFER TO ENCROACHMENT AND/OR CONSTRUCTION PERMIT AND PLAN COVER SHEET FOR SPECIAL CONDITIONS AND PERMIT NUMBERING.

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CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 2/3/2023

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SANTA CLARA COUNTY ROAD AND AIRPORT STANDARDS

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CHECKED BY: RL
SCALE: NOTE ON PLANS

C8

Table 6H-2. Meaning of Symbols on Typical Application Diagrams

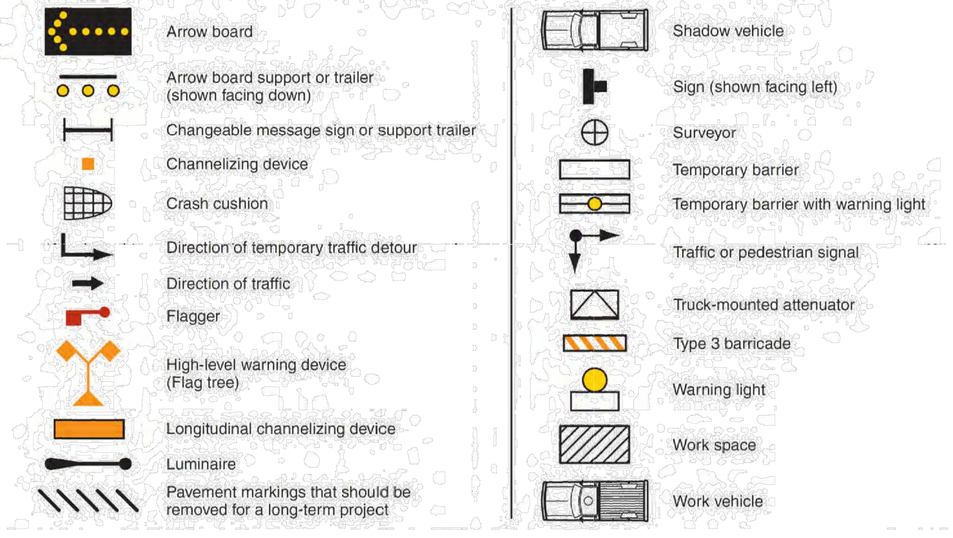

Table 6E-101(CA). Stopping Sight Distance as a Function of Speed on Downgrades. (Used as suggested longitudinal buffer space length or location for flagger station)

Speed (mph)	% Downgrade (Buffer Space)		
	-3% (feet)	-6% (feet)	-9% (feet)
20	116	120	126
25	158	165	173
30	205	215	227
35	257	271	287
40	315	333	354
45	378	400	427
50	446	474	507
55	520	553	593
60	598	638	686
65	682	728	785
70	771	825	891
75	866	927	1003

* Exhibit 3-2. A Policy on Geometric Design of Highways and Streets, AASHTO, 2001, p.115.

- Use appropriate TCP as needed during construction depending on type of work (for example, to block a lane, block the shoulder, or work off of the shoulder without blocking it).
- See the County Road Book at www.countyroads.org to confirm "Local Road" classification ("Local Urban", "Local Rural" as shown in note 5a on intro page of County Road Book)
- These TCP sheets for use on Local Roads only. All other classifications require an engineered site-specific plan.

NO.	REVISIONS	BY	DATE	APP'D

COUNTY OF SANTA CLARA ROADS AND AIRPORTS DEPARTMENT

DESIGNED 5-2015 DATE
DRAWN 5-2015 DATE
CHECKED 5-2015 DATE

SUBMITTED:

APPROVED:

STANDARD TRAFFIC CONTROL PLANS - LOCAL
NOTES & LEGEND

DRAWING No. TCP
SHT No. OF

WORK ORDER No.	ADVERTISEMENT DATE:	CONTRACT No.	FILE No.	Scale
XX				

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