City of Santa Rosa

BUILDING PERMIT APPLICATION

PLEASE PRINT CLEARLY

BUILDING PERMIT NO.:
Related Files:
Department Use Only

PROJECT ADDRESS (NOT MAILING ADDRESS)				SUITE/UNIT NO.	DATE
1900 BRUSH CREEK RD, SANTA ROSA 95404				N/A	8/18/2020
OWNER				☒CELL ☐ HOME ☐ BUSINESS	☒CELL ☐ HOME ☐ BUSINESS
DANIEL & AMBER LICHAU				(707) 953-0699	(707) 889-6979
OWNER ADDRESS	CITY	STATE	ZIP		E-MAIL ADDRESS
1900 BRUSH CREEK RD	SANTA ROSA	CA	95404		daniel_lichau@yahoo.com
CONTACT PERSON PLEASE SELECT ONE: ☒OWNER ☐LESSEE/TENANT ☐DESIGNER ☐AGENT FOR OWNER ☐CONTRACTOR				☒CELL ☐ HOME ☐ BUSINESS	☒CELL ☐ HOME ☐ BUSINESS
DANIEL LICHAU				(707) 953-0699	(707) 889-6979
CONTACT ADDRESS	CITY	STATE	ZIP		E-MAIL ADDRESS
1900 BRUSH CREEK RD	SANTA ROSA	CA	95404		daniel_lichau@yahoo.com
APPLICANT				☒CELL ☐ HOME ☐ BUSINESS	☒CELL ☐ HOME ☐ BUSINESS
DANIEL LICHAU				(707) 953-0699	(707) 889-6979
APPLICANT ADDRESS	CITY	STATE	ZIP		E-MAIL ADDRESS
1900 BRUSH CREEK RD	SANTA ROSA	CA	95404		daniel_lichau@yahoo.com
CONTRACTOR'S NAME - IF OWNER/BUILDER - HAS OWNER BEEN GIVEN THE OWNER'S ACKNOWLEDGMENT AND VERIFICATION FORM? ☐YES ☐NO					
OWNER/BUILDER					
CONTRACTORS STATE LICENSE NUMBER & CLASSIFICATION				☐CELL ☐ HOME ☐ BUSINESS	☐CELL ☐ HOME ☐ BUSINESS
CONTRACTOR ADDRESS	CITY	STATE	ZIP		E-MAIL ADDRESS

TYPE OF PERMIT (MARK ALL THAT APPLY)
☒BUILDING ☒ELECTRICAL ☐MECHANICAL ☒PLUMBING ☐GRADING ☐DEMOLITION

TOTAL SQUARE FOOTAGE OF THIS PROJECT: ☐NEW ☒ADDITION ☐REMODEL/TENANT IMPROVEMENT ☐REPAIR

COMMERCIAL/INDUSTRIAL: N/A RESIDENCE: 360 GARAGE: N/A DECK: N/A COVERED PORCHES: N/A

DESCRIPTION OF WORK: 12'x30' MASTER BATH & BEDROOM ADDITION

☒OWNER/BUILDER ☐FOR SALE ☐FOR RENT

VALUATION OF WORK COVERED BY THIS APPLICATION $40,000

I HEREBY CERTIFY THAT THE INFORMATION ON THIS APPLICATION IS TRUE AND CORRECT

SIGNATURE [redacted] DATE: 8/18/2020

OCCUPANCY GROUP	TYPE OF CONSTRUCTION	CBC EDITION USED	NO OF STORIES	CHANGE OF OCCUPANCY FROM: TO:
	Addition		1	

NO. OF DWELLING UNITS	PRESENT USE	PROPOSED USE
1	Resd.	Resd.

HIGH FIRE SEVERITY ZONE	FIRE SPRINKLERS	FIRE ALARM SYSTEMS	FIRE STANDPIPES
○YES ●NO	○YES ●NO	○YES ●NO	○YES ●NO

IS THIS A CODE ENFORCEMENT CASE? ○YES ○NO IF YES, LIST CASE NO.:

FOR DEPARTMENT USE ONLY

PLANNING APPROVED: ☐YES ☐NO PLANNERS INITIALS: DATE:

ZONE:	HILLSIDE YES ☐ NO ☐	HISTORIC YES ☐ NO ☐	FRONT SETBACK:	SIDE SETBACK INTERIOR: EXTERIOR:	REAR SETBACK:

City of Santa Rosa
PLANNING & ECONOMIC DEVELOPMENT

Electronic/Digital Signature Disclosure

Project Address: 1902 Brush Creek Road Santa Rosa, CA 95404

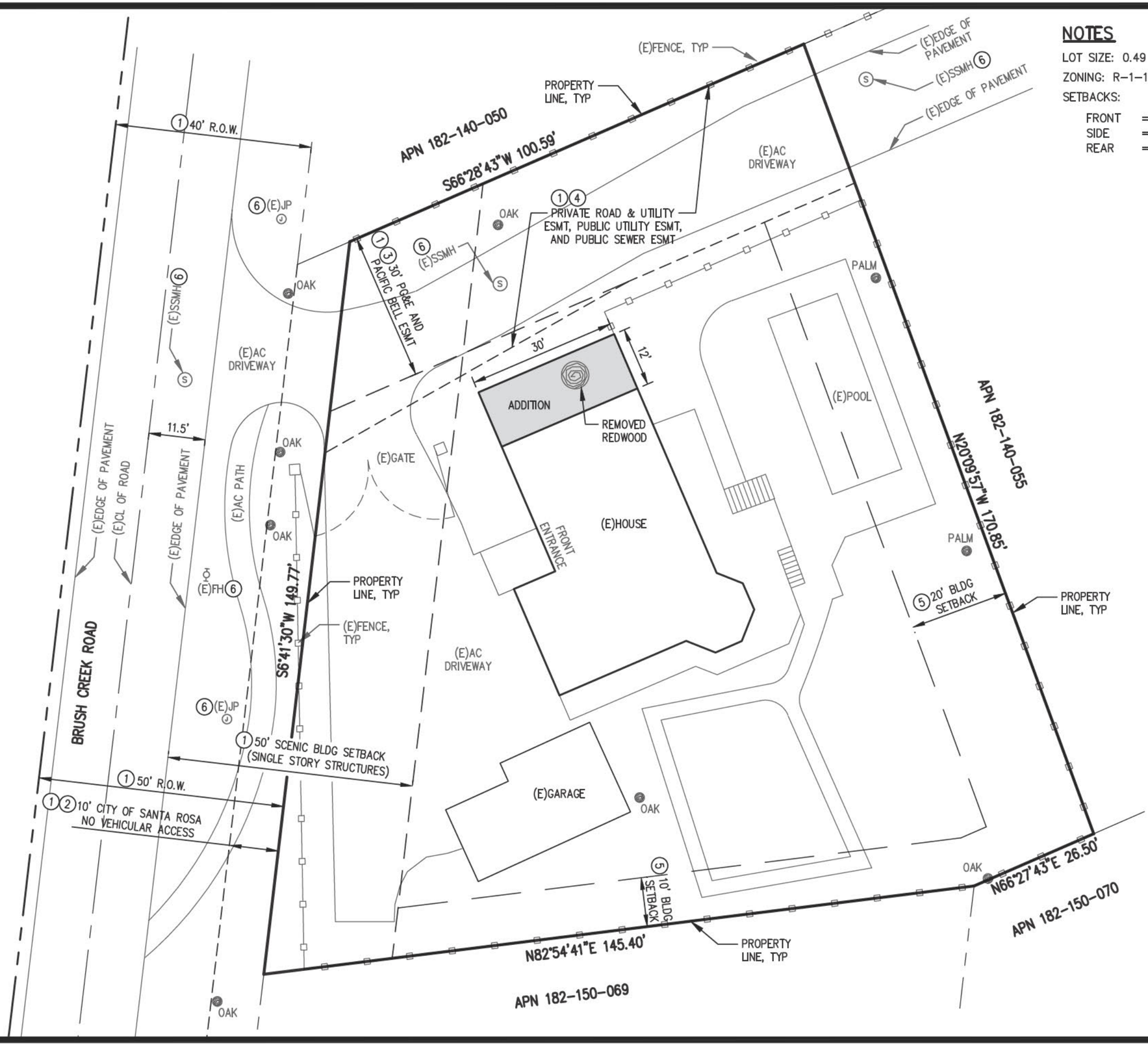
I understand and agree that (i) electronically signing and submitting any document(s) to the City of Santa Rosa legally binds me in the same manner as if I had signed in a non-electronic or non-digital form, and (ii) the electronically stored copy of my signature, any written instruction or authorization and any other document provided to me by the City of Santa Rosa, is considered to be the true, accurate and legally enforceable record in any proceeding to the same extent as if such documents were originally generated and maintained in printed form. I agree not to contest the admissibility or enforceability of the City of Santa Rosa's electronically stored copy of any other documents.

By using the system to electronically sign and submit any document, I agree to the terms and conditions of this Electronic/Digital Signature Disclosure.

Signature: [redacted] Date: 8/24/2020

Title: N/A Relationship to Project: owner/builder

Company/Organization: N/A



NOTES

LOT SIZE: 0.49 AC

ZONING: R-1-15-SR

SETBACKS:

FRONT	= 20'
SIDE	= 10'
REAR	= 20'

GRAPHIC SCALE

20 0 10 20

(IN FEET)

1 inch = 20 ft.

REFERENCES

1. PM NO. 609 BK 635 PGS 4-7
2. 81-035240 SCR
3. 1993-0091035 SCR
4. 2001-149532 SCR
5. CITY SECTION 20-22.050 R-1-15-SR ZONING DISTRICT SETBACKS
6. CITY OF SANTA ROSA PUBLIC IMPROVEMENT PLANS NO. 2002-30

ABBREVIATIONS

∠	ANGLE
@	AT
±	PLUS/MINUS
AC	ASPHALT CONCRETE
APN	ASSESSOR PARCEL NUMBER
BK	BOOK
BLDG	BUILDING
CL, C/L	CENTERLINE
EP	EDGE OF PAVEMENT
ESMT	EASEMENT
EX, (E)	EXISTING
FH	FIRE HYDRANT
JP	JOINT UTILITY POLE
PGS	PAGES
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
R.O.W	RIGHT OF WAY
RWD	REDWOOD
SCR	SONOMA COUNTY RECORDS
SSMH	SANITARY SEWER MANHOLE
TYP	TYPICAL

ROBERTSON ENGINEERING Inc
2300 BETHARDS DR, STE L,
SANTA ROSA, CA 95405
T 707.523.7490
office@robertsonengineering.net

REGISTERED PROFESSIONAL ENGINEER
MICHAEL B. ROBERTSON
No. 29640
CIVIL
STATE OF CALIFORNIA

10/13/2020

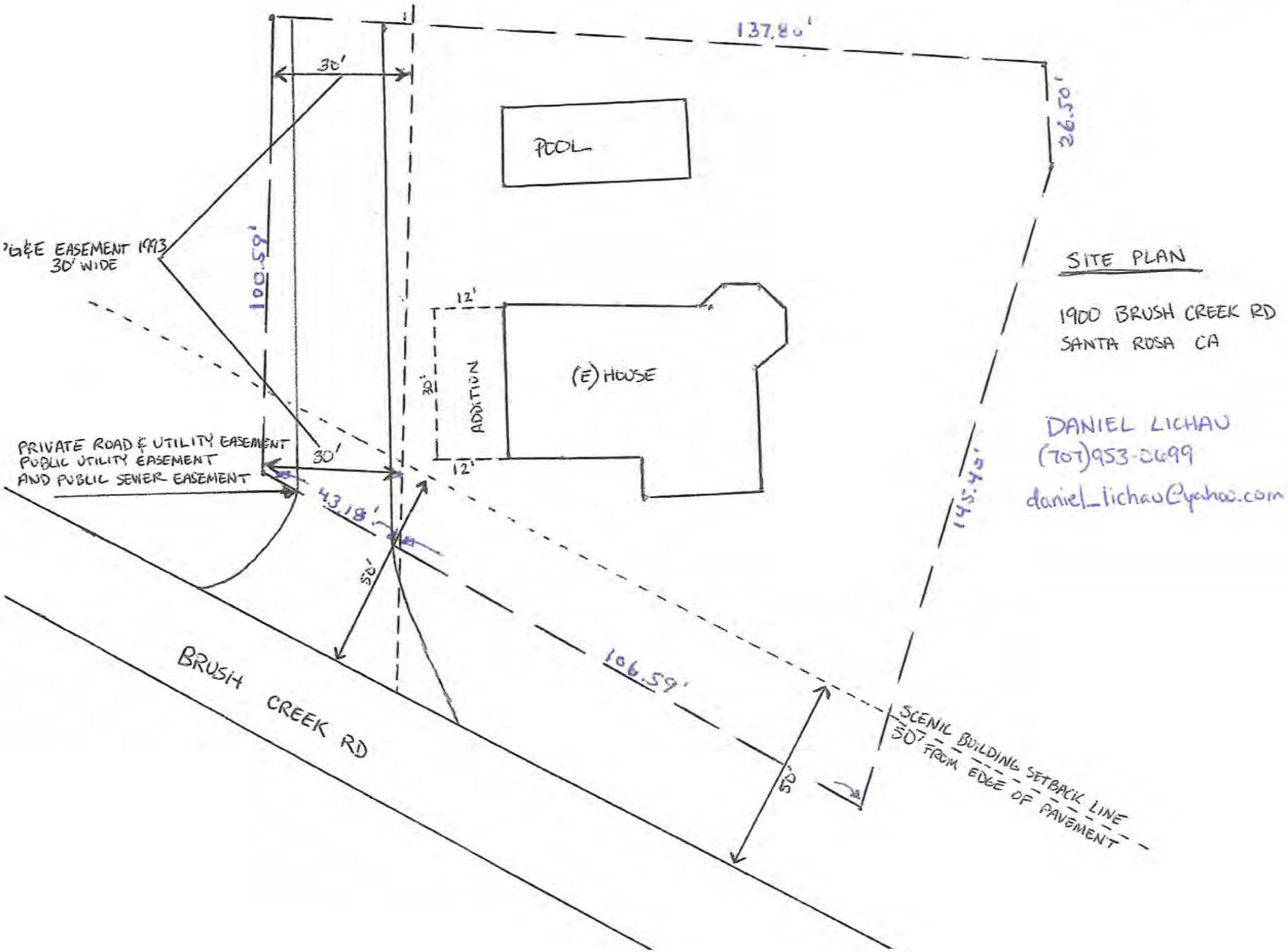
SITE PLAN

LICHAU RESIDENTIAL ADDITION
APN 182-140-056
1900 BRUSH CREEK ROAD
SANTA ROSA SONOMA COUNTY CALIFORNIA

SHEET 1 OF 1 SHEETS

JOB No. 20056

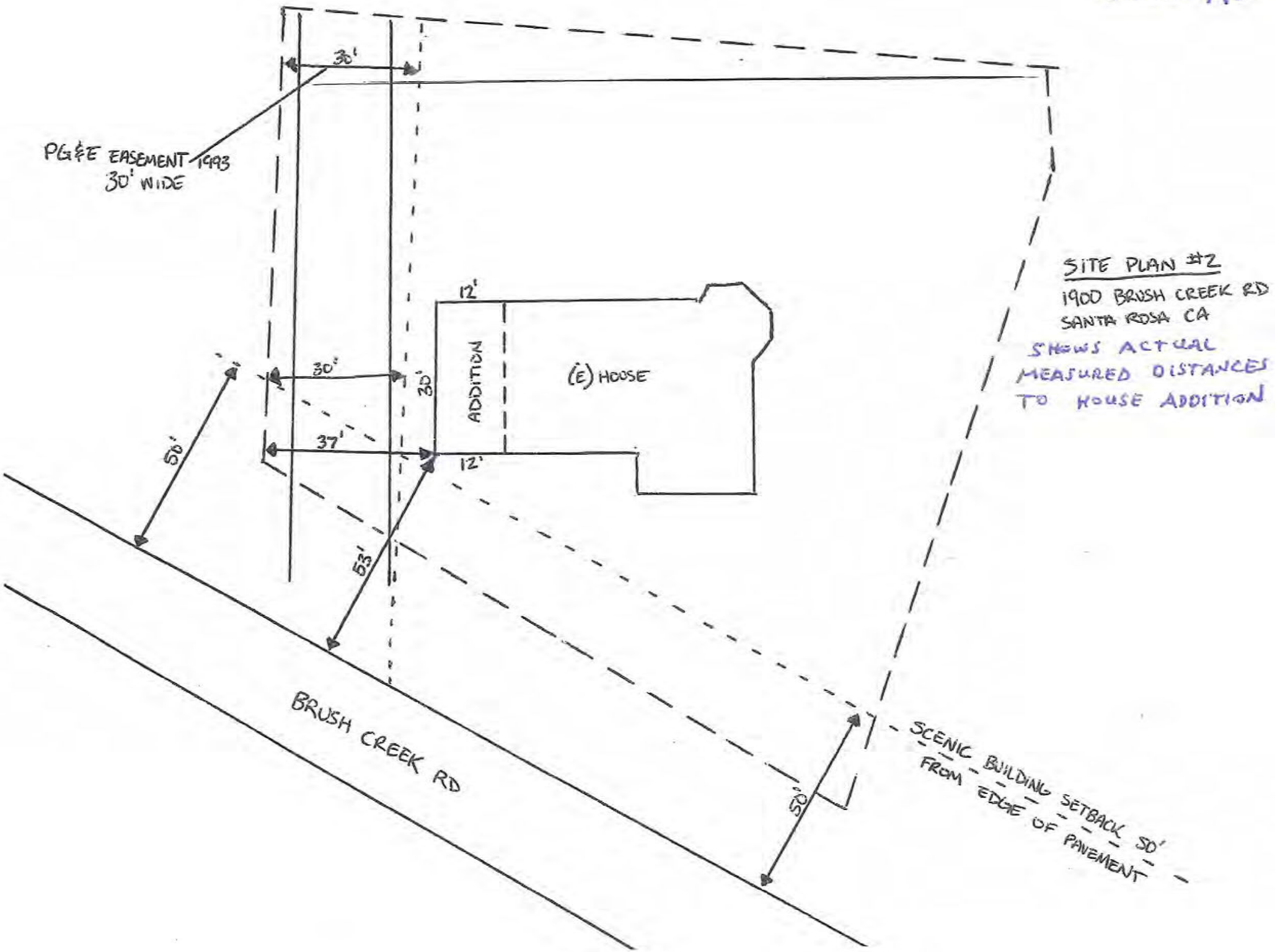
COVER SHEET



SITE PLAN

1900 BRUSH CREEK RD
SANTA ROSA CA

DANIEL LICHAU
(707)953-0699
daniel_lichau@yahoo.com



SITE PLAN #2

1900 BRUSH CREEK RD
SANTA ROSA CA

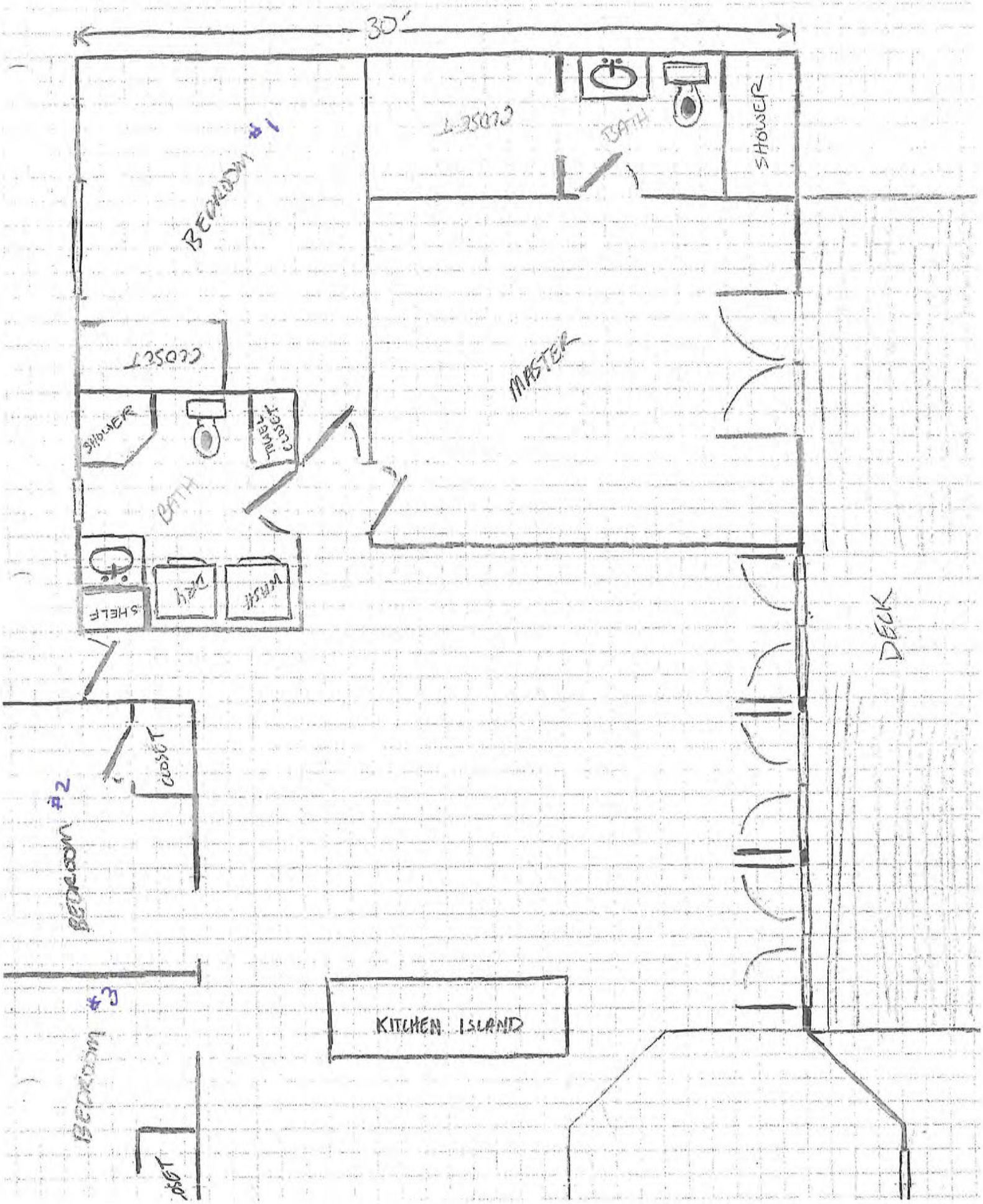
SHOWS ACTUAL MEASURED DISTANCES TO HOUSE ADDITION

)0 BRUSH CREEK RD.
BEFORE ADDITION

EXISTING FLOOR PLAN

SHEET A-1

☐ EACH SQUARE = 1'

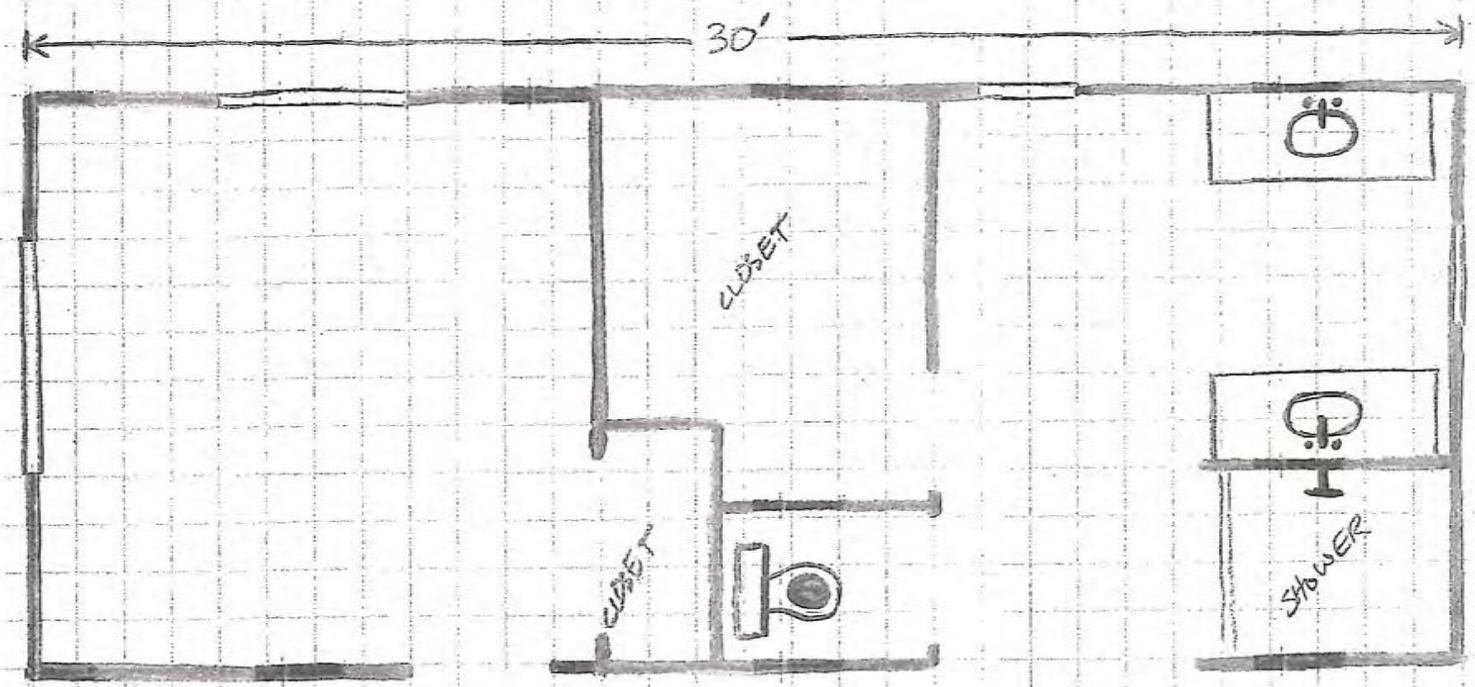


190 BRUSH CREEK RD
WITH ADDITION PROPOSAL
(12' x 30')

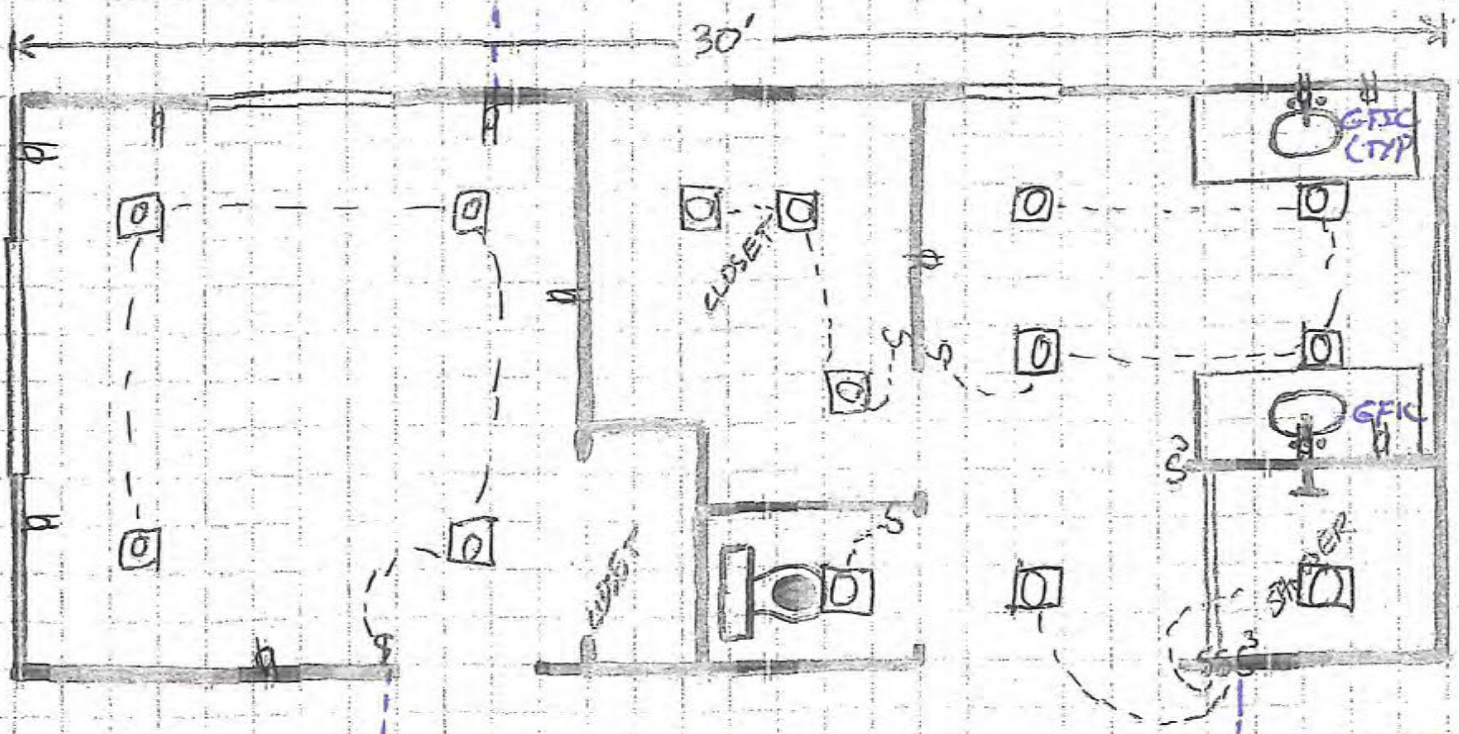
□ = 1'

SHEET A-

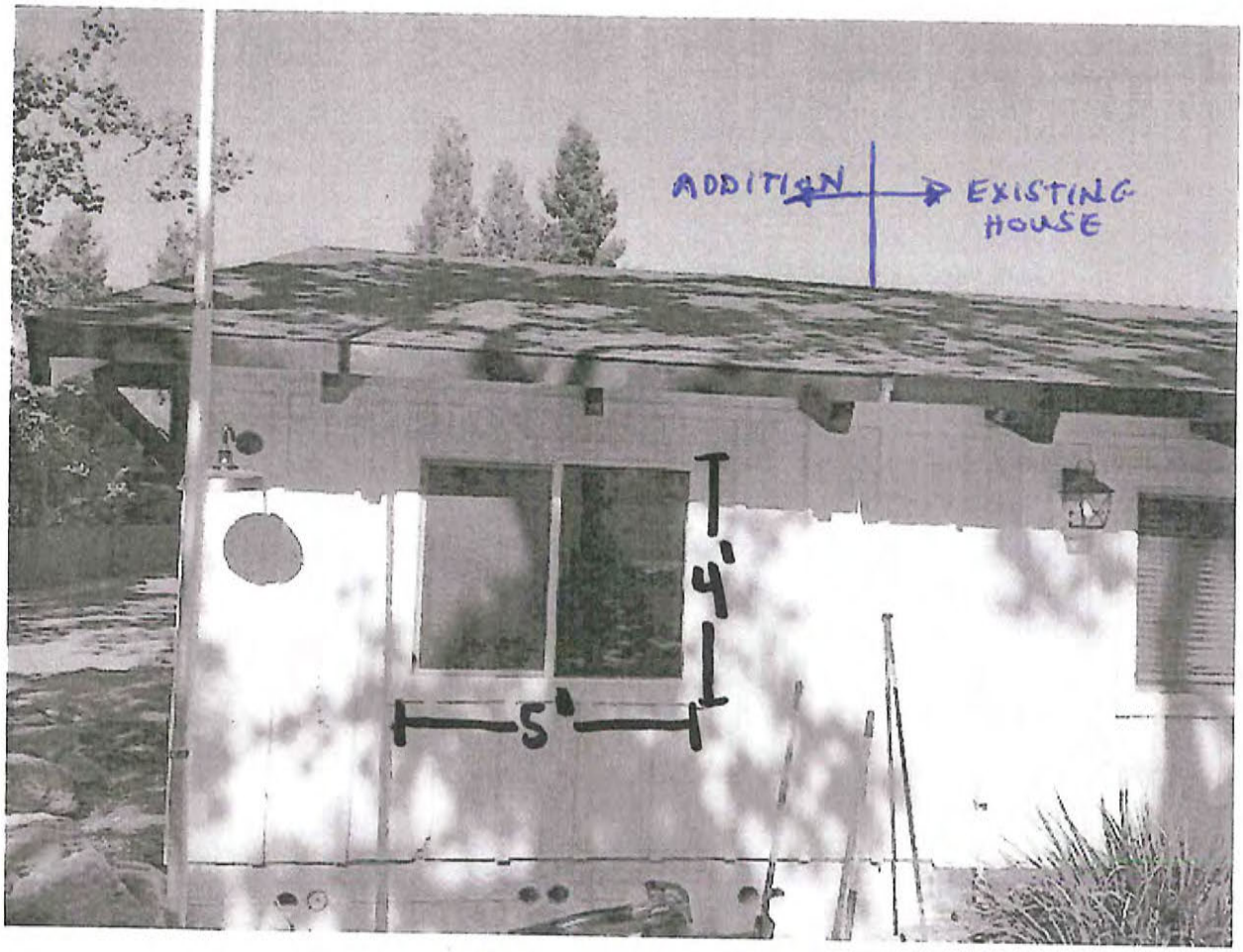
1900 BRUSH CREEK RD
ADDITION ONLY



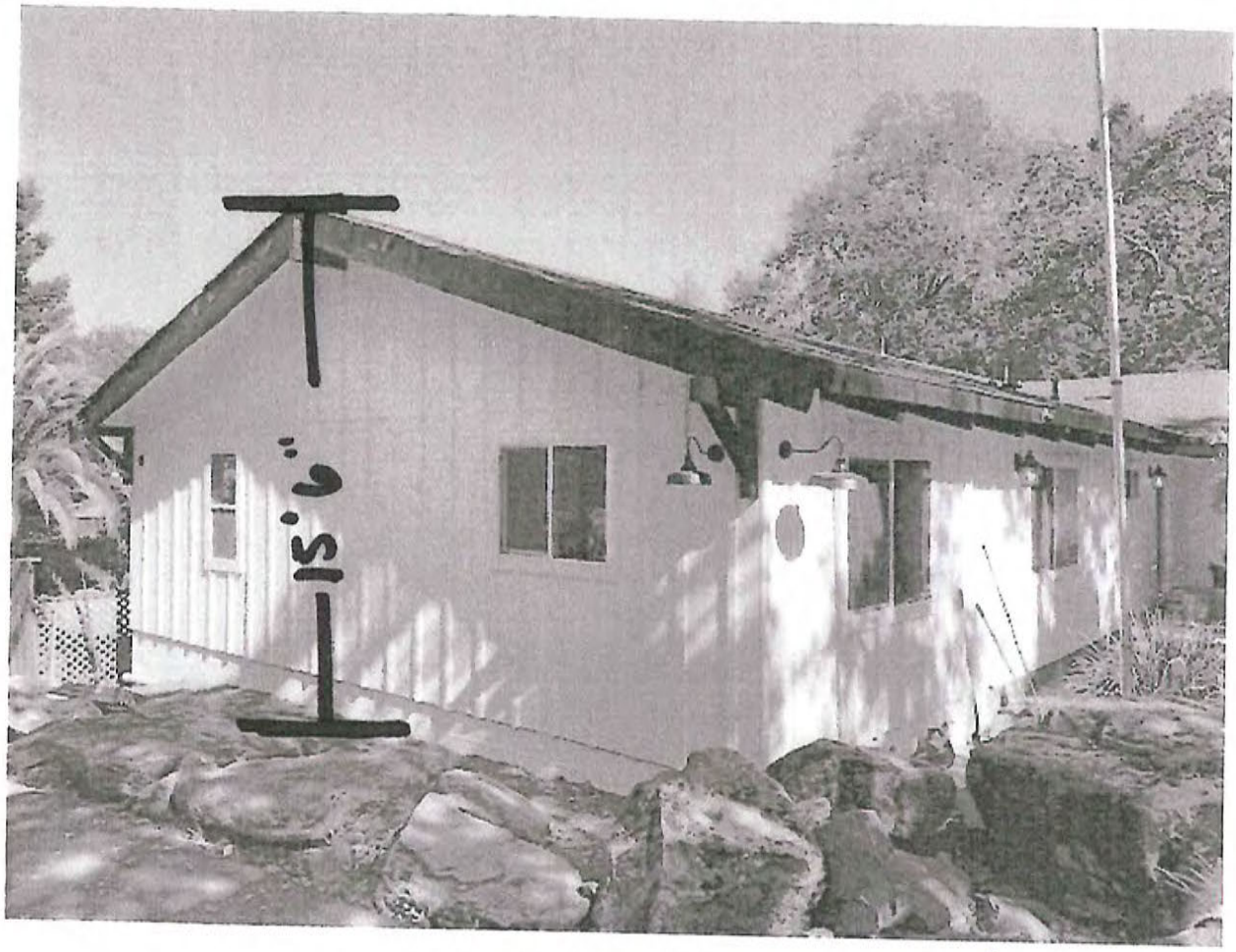
1900 BRUSH CREEK RD
ADDITION ONLY
ELECTRICAL



NORTH ELEVATION



WEST ELEVATION



NORTHWEST ELEVATION

CITY ENGINEER'S CERTIFICATE

I, Anthony A. Cabrera, City Engineer, in and for the City of Santa Rosa, State of California, have examined the map of this subdivision and found it to substantially conform to the tentative map approved June 21, 2000, and any approved alterations thereof. The applicable conditions of approval of the Tentative Map, the State Subdivision Map Act and and the applicable provisions of Title 19 of the Santa Rosa City Code and am satisfied that the map is technically correct. I hereby approve the subdivision shown upon this map and accept, subject to improvement, for public use the public utility easement, public sewer easement, and relinquishment of vehicular access rights, as shown on said map, within said subdivision, including all public facilities as shown on City Engineer drawing number 2002-30.

Dated 5/30, 2002

Anthony A. Cabrera
Anthony A. Cabrera, P.L.S. 7332
City Engineer, City of Santa Rosa
State of California
Expires 12-31-2005

SURVEYOR'S STATEMENT

This map was prepared by me or under my direction and is based upon a field survey in conformance with the requirements of the Subdivision Map Act and local ordinance at the request of Michael G. Dehnert in July, 2000.
I hereby state that this parcel map substantially conforms to the approved or conditionally approved tentative map, if any, and monuments shown hereon will be set within one year from the date of filing of this map and said monuments are or will be sufficient to enable the survey to be retraced.

MIKE BUTI — Licensed Land Surveyor — LS 5092
Expires 6-30-03

COUNTY CLERK'S CERTIFICATE

I certify that all bonds, money or negotiable bonds required under the provisions of the Subdivision Map Act to secure payment of taxes and assessments have been filed with, and approved by, the Board of Supervisors of the County of Sonoma, namely, bond(s) under Government Code Sections 66493(a) and 66493(c) in the sums of $5,600.00 and $ -0-, respectively.

IN WITNESS THEREOF, I have hereunto set my hand and affixed my official seal this 7th day of June, 2002.

Clerk of the Board of Supervisors
County of Sonoma
State of California

CITY AUDITOR'S CERTIFICATE

I, Ronald L. Bosworth, Director of Administrative Services in and for the City of Santa Rosa, State of California, do hereby certify that there are no special assessments against said tract of land that are unpaid except for special assessments estimates to total $ [redacted] which constitute a lien against the property but which are not yet due and payable and can or maybe paid in full.

Dated 5/29, 2002

Ronald L. Bosworth
Director of Administrative Services
City of Santa Rosa
State of California

RECORDER'S CERTIFICATE

Filed this 11th day of June, 2002, at 13:37 pm. in Book 635 of Maps, Page 47, at the request of Anthony A. Cabrera, City Engineer, City of Santa Rosa.

[redacted]
County Recorder
County of Sonoma, State of California
By: Deb Gilliam

Fee: $ 14.00

Document No. 02-90208

FIRST AMERICAN TITLE COMPANY

COUNTY TAX COLLECTOR'S CERTIFICATE

According to the records in the office of the undersigned, there are no liens against this subdivision, or any part thereof, for unpaid state, county, municipal or local taxes or special assessments collected as taxes, except taxes or special assessments collected as taxes not yet payable. My estimate of taxes and special assessments collected as taxes not yet payable is $5,600.00

The land in said subdivision is not subject to special assessment or bond which may be paid in full.

Dated 6/7/02

Mary Jo Patterson, Deputy
Tax Collector
County of Sonoma, State of California

OWNER'S STATEMENT

We hereby state that we are the sole owners of and have the right, title and interest in and to the real property included within the subdivision shown upon this map and are the only persons whose consent is necessary to pass clear title to said property and we consent to the making and filing of said map of the subdivision shown within the border lines and hereby dedicate for public use the public utility easement, public sewer easement, and relinquishment of vehicular access rights, as shown on said map within said subdivision.

Michael G. Dehnert

Sharon T. Dehnert

NOTARY PUBLIC CERTIFICATE

State of California
County of Sonoma ss

On March 26, 2002 before me, E. Martinez,
a Notary Public in and for said County and State, personally appeared
Michael G. Dehnert and Sharon T. Dehnert
~~personally known to me~~ (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instruments and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand

Signature E. Martinez

Commission No. 1183881 Commission Expires 5/26/02

RECORD TITLE INTEREST NOTE

Signatures of owners of the following easements have been omitted under the provisions of section 66445 of the Subdivision Map Act, their interest is such that it cannot ripen into a fee title and such signatures are not required by the governing body:

NAMES	RECORDED	NATURE OF EASEMENT
PG & E AND PACIFIC BELL	1993-0091035	UNDERGROUND UTILITIES
MARY DEADMAN	2001-149532	DRAINAGE, ROAD & UTILITIES
TIMOTHY FAWCETT	2002-016716	DRAINAGE

TRUSTEE'S CERTIFICATE

GOLDEN WEST SAVINGS ASSOCIATION SERVICE CO., a California corporation as trustee under Deed of Trust recorded December 31, 2001 as instrument No. 2001-191130, Official Records of Sonoma County, hereby consent to the making and filing of this map.

GOLDEN WEST SAVINGS ASSOCIATION SERVICE CO., a California corporation

By Nett Sanders and Doris Cormier

NOTARY PUBLIC CERTIFICATE

State of California TRMS
County of Sonoma ERNE ss

On APRIL 30, 2002 before me,
JEAN CRIST YATES
a Notary Public in and for said County and State, personally appeared
NETT SANDERS
DORIS CORMIER
personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instruments and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand

Signature Jean Crist Yates

Commission No. 1240414 Commission Expires 12-20-2005

PARCEL MAP NO. 609

LANDS OF MICHAEL G. DEHNERT AND SHARON T. DEHNERT, PER DOC. NO. 1998-0156979 SONOMA COUNTY RECORDS, BEING A PORTION OF RANCHO CABEZA DE SANTA ROSA

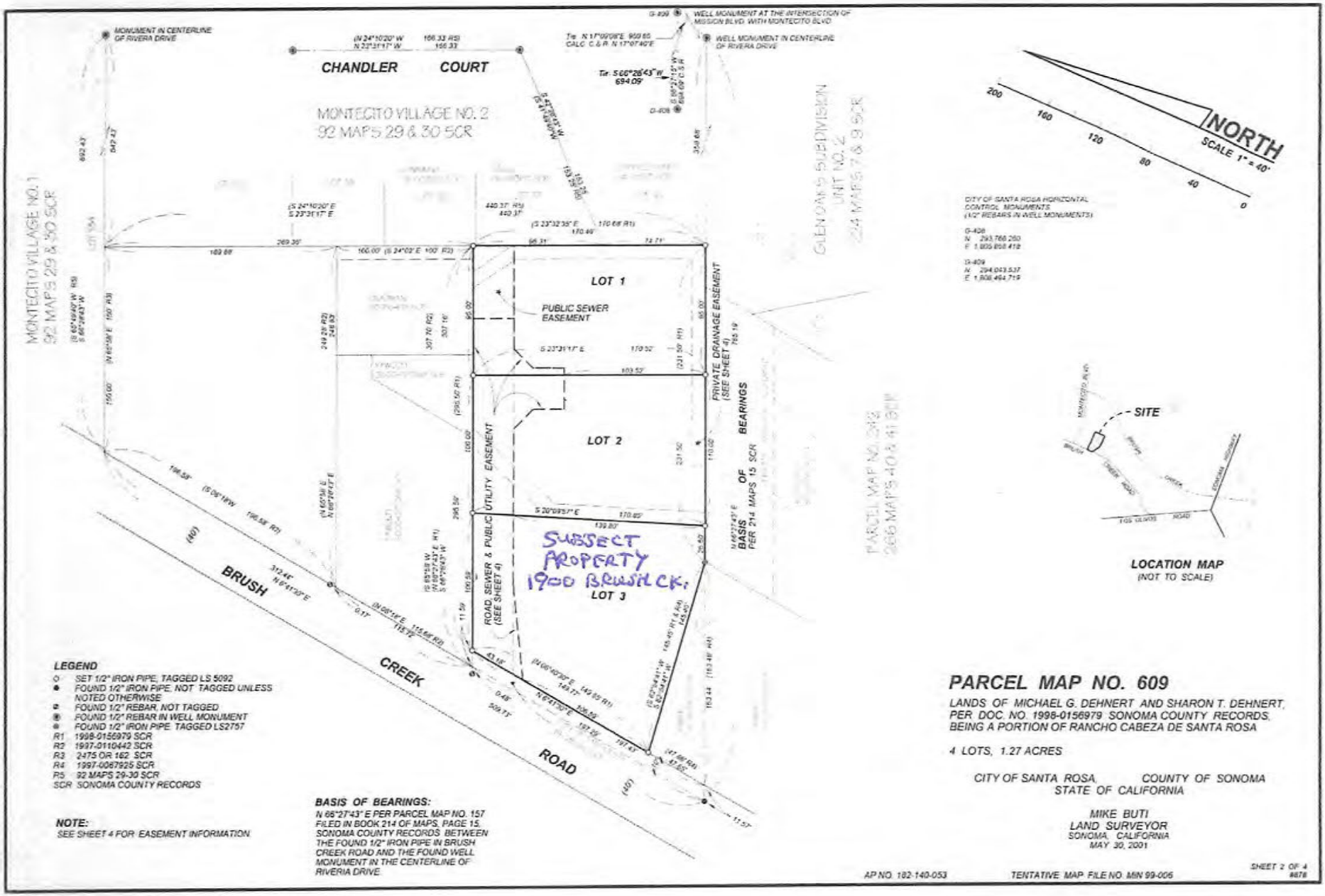
4 LOTS, 1.27 ACRES

CITY OF SANTA ROSA, COUNTY OF SONOMA
STATE OF CALIFORNIA

MIKE BUTI
LAND SURVEYOR
SONOMA, CALIFORNIA
MAY 30, 2001

AP NO. 182-140-053 TENTATIVE MAP FILE NO. MIN 99-006 SHEET 1 OF 4 #979

CITY OF SANTA ROSA FILE No. 2002 - 71



LEGEND

- ○ SET 1/2" IRON PIPE, TAGGED LS 5092
- ● FOUND 1/2" IRON PIPE, NOT TAGGED UNLESS NOTED OTHERWISE
- ⌀ FOUND 1/2" REBAR, NOT TAGGED
- ⊛ FOUND 1/2" REBAR IN WELL MONUMENT
- ◉ FOUND 1/2" IRON PIPE, TAGGED LS2757
- R1 1998-0156979 SCR
- R2 1997-0110442 SCR
- R3 2475 OR 162 SCR
- R4 1997-0067925 SCR
- R5 92 MAPS 29-30 SCR
- SCR SONOMA COUNTY RECORDS

NOTE:
SEE SHEET 4 FOR EASEMENT INFORMATION

BASIS OF BEARINGS:
N 66°27'43" E PER PARCEL MAP NO. 157 FILED IN BOOK 214 OF MAPS, PAGE 15, SONOMA COUNTY RECORDS BETWEEN THE FOUND 1/2" IRON PIPE IN BRUSH CREEK ROAD AND THE FOUND WELL MONUMENT IN THE CENTERLINE OF RIVERIA DRIVE.

PARCEL MAP NO. 609

LANDS OF MICHAEL G. DEHNERT AND SHARON T. DEHNERT, PER DOC. NO. 1998-0156979 SONOMA COUNTY RECORDS, BEING A PORTION OF RANCHO CABEZA DE SANTA ROSA

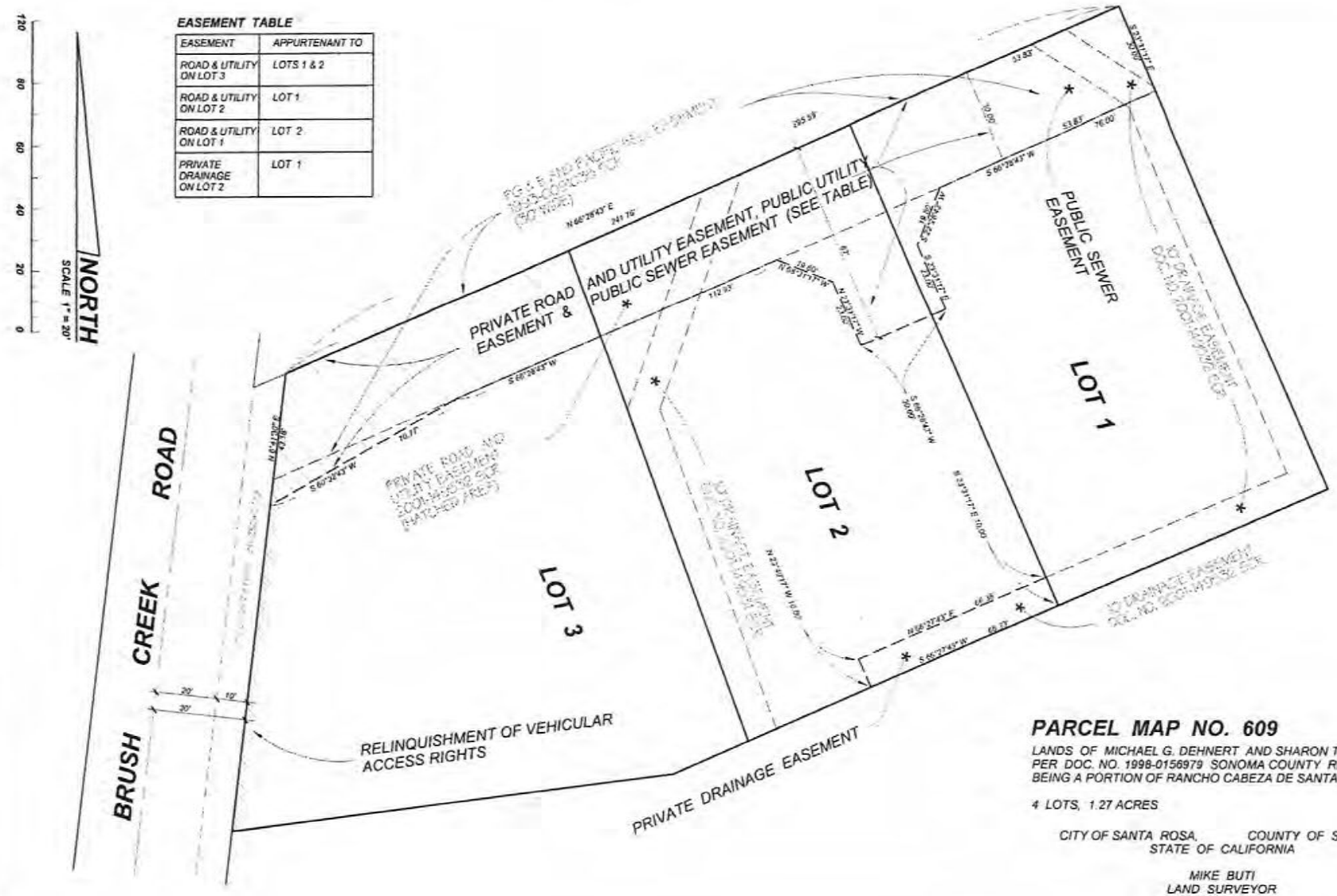
4 LOTS, 1.27 ACRES

CITY OF SANTA ROSA, COUNTY OF SONOMA
STATE OF CALIFORNIA

MIKE BUTI
LAND SURVEYOR
SONOMA, CALIFORNIA
MAY 30, 2001

AP NO. 182-140-053 TENTATIVE MAP FILE NO. MIN 99-006 SHEET 2 OF 4 #678

CITY OF SANTA ROSA FILE No. 2002 – 71



PARCEL MAP NO. 609

LANDS OF MICHAEL G. DEHNERT AND SHARON T. DEHNERT, PER DOC. NO. 1998-0156979 SONOMA COUNTY RECORDS, BEING A PORTION OF RANCHO CABEZA DE SANTA ROSA

4 LOTS, 1.27 ACRES

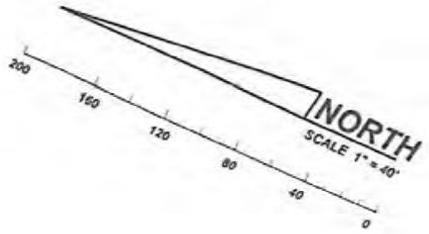
CITY OF SANTA ROSA, COUNTY OF SONOMA
STATE OF CALIFORNIA

MIKE BUTI
LAND SURVEYOR
SONOMA, CALIFORNIA
MAY 30, 2001

AP NO. 182-140-053 TENTATIVE MAP FILE NO. MIN 99-006

SHEET 3 OF 4
4878

CITY OF SANTA ROSA FILE No. 2002 - 71



SCENIC BUILDING SETBACK NOTE:
FRONT SETBACKS FOR ONE STORY STRUCTURE SHALL BE 50 FEET FROM EDGE OF BRUSH CREEK ROAD PAVEMENT AND 100 FEET FOR TWO STORY PORTION OF THE STRUCTURE

NOTES:

1) THIS SHEET IS FOR INFORMATION PURPOSES ONLY, DESCRIBING CONDITIONS AS OF FILING AND IS NOT INTENDED TO AFFECT RECORDING INTEREST.

2) DEMAND FEES, METER INSTALLATION FEES AND PROCESSING FEES REQUIRED BY THE CITY MUST BE PAID BY THE APPLICANT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

3) THIS INFORMATION IS DERIVED RECORDS AND REPORTS AND DOES NOT IMPLY THE CORRECTNESS OF SUFFICIENCY OF THESE RECORDS BY THE PREPARER OF THIS DOCUMENT.

4) THIS PROJECT IS SUBJECT TO THE LATEST ADOPTED ORDINANCES, RESOLUTIONS, POLICES AND FEES, INCLUDING BUT NOT LIMITED TO SCHOOL IMPACT FEES, AND TRAFFIC SIGNAL PARTICIPATION FEES ADOPTED BY THE CITY COUNCIL AT THE TIME OF THE BUILDING PERMIT REVIEW AND APPROVAL.

5) A PUBLIC EASEMENT SHALL BE PROVIDED FOR PUBLIC UTILITY MAINS OUTSIDE OF THE PUBLIC RIGHT OF WAY. THE WIDTH OF THE EASEMENT SHALL BE EQUAL TO TWICE THE DEPTH OF THE MAIN OR 15 FEET WIDE FOR A SINGLE UTILITY AND 20 FEET FOR MULTIPLE UTILITIES, WHICHEVER IS GREATER, AND SHALL BE CENTERED OVER THE FACILITY. THE EASEMENT SHALL BE CONFIGURED TO INCLUDE ALL PUBLICLY MAINTAINED APPURTENANCES AND STRUCTURES. NO SURFACE STRUCTURE INCLUDING BUT NOT LIMITED TO ROOF EAVES, DECKS OR POOLS MAY ENCROACH INTO THE EASEMENT. FOOTING AND FOUNDATIONS MAY ENCROACH INTO THE ONE TO ONE LINE FROM THE PIPE DEPTH TO THE TOP OF GRADE IF APPROVED IN WRITING BY THE CHIEF BUILDING OFFICIAL AND THE DIRECTOR OF UTILITIES.

6) REDUCTION IN THE EASEMENT WIDTH MAY BE ALLOWED WITH WRITTEN APPROVAL BY THE DIRECTOR OF THE UTILITIES DEPARTMENT. TREES MAY NOT BE PLANTED WITHIN 10' OF A PUBLIC SEWER MAIN. THE CITY UTILITIES DEPARTMENT WILL NOT BE RESPONSIBLE FOR REPAIRS OR REPLACEMENT OF LANDSCAPING IN PUBLIC SEWER MAIN EASEMENTS.

7) THE STATIC WATER PRESSURE FOR THIS PROJECT IS APPROXIMATELY 80-90 PSI. INDIVIDUAL PRESSURE REGULATORS ARE REQUIRED ON ALL LOTS.

8) LOTS 1, 2 AND 3 ARE SUBJECT TO A JOINT MAINTENANCE AND ACCESS DECLARATION TO BE RECORDED CONCURRENTLY WITH THE MAP.

"SUPPLEMENTAL INFORMATION AFFECTING"

PARCEL MAP NO. 609

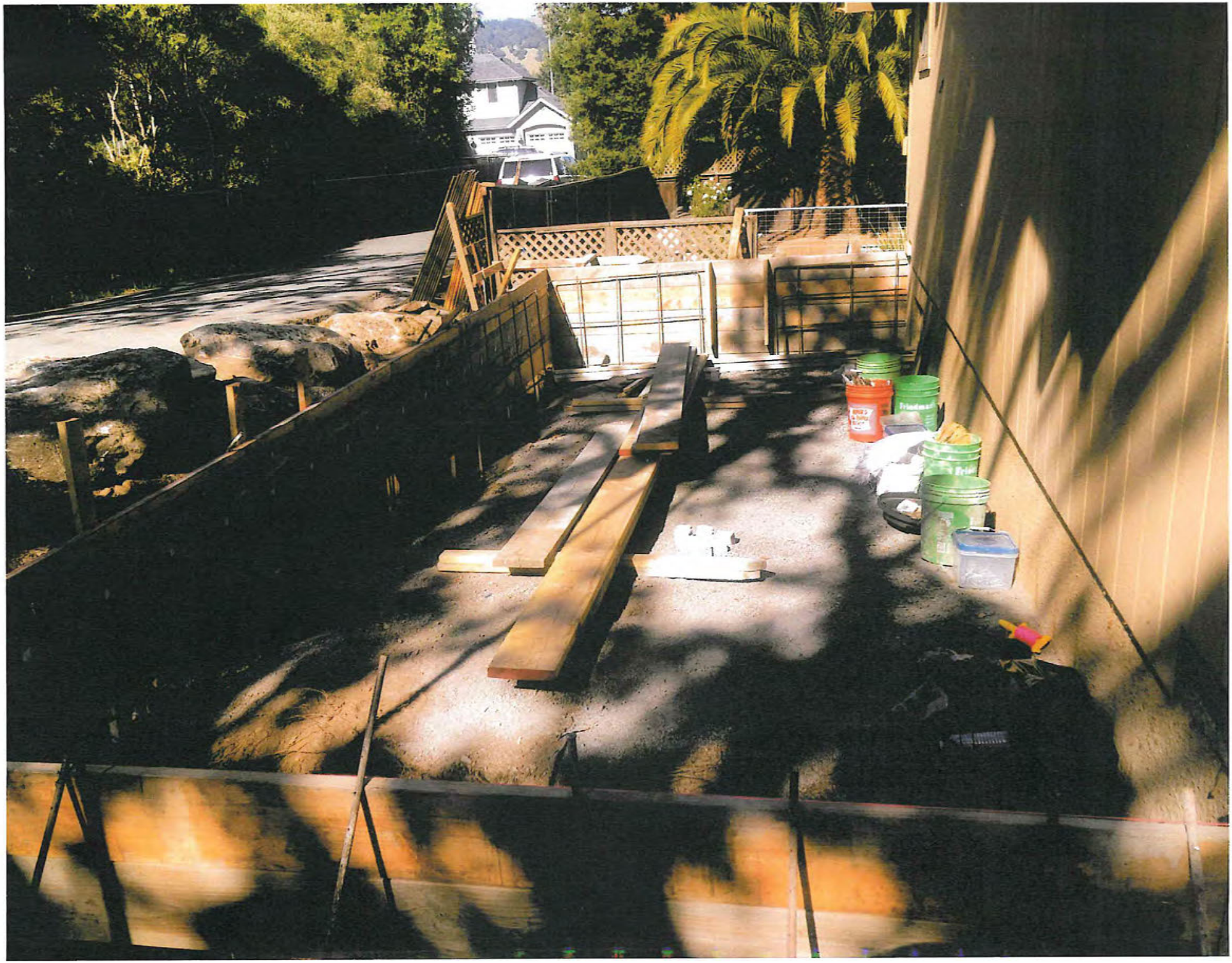
LANDS OF MICHAEL G. DEHNERT AND SHARON T. DEHNERT PER DOC. NO. 1998-0156979 SONOMA COUNTY RECORDS. BEING A PORTION OF RANCHO CABEZA DE SANTA ROSA

4 LOTS, 1.27 ACRES

CITY OF SANTA ROSA, COUNTY OF SONOMA
STATE OF CALIFORNIA

MIKE BUTI
LAND SURVEYOR
SONOMA, CALIFORNIA
MAY 30, 2001

AP NO. 182-140-053 TENTATIVE MAP FILE NO. MIN 99-006



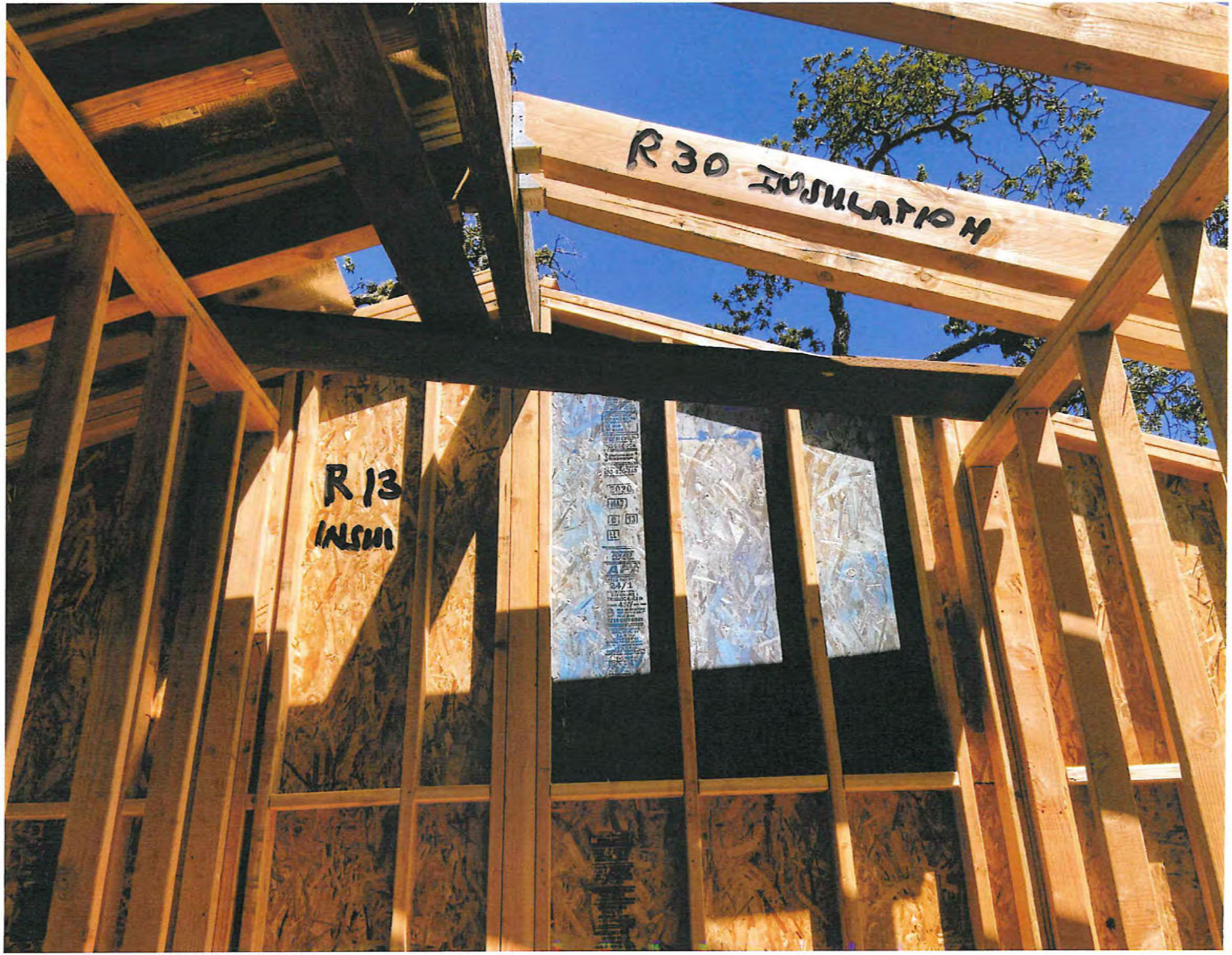

2x8 BASE
W/ A.B.

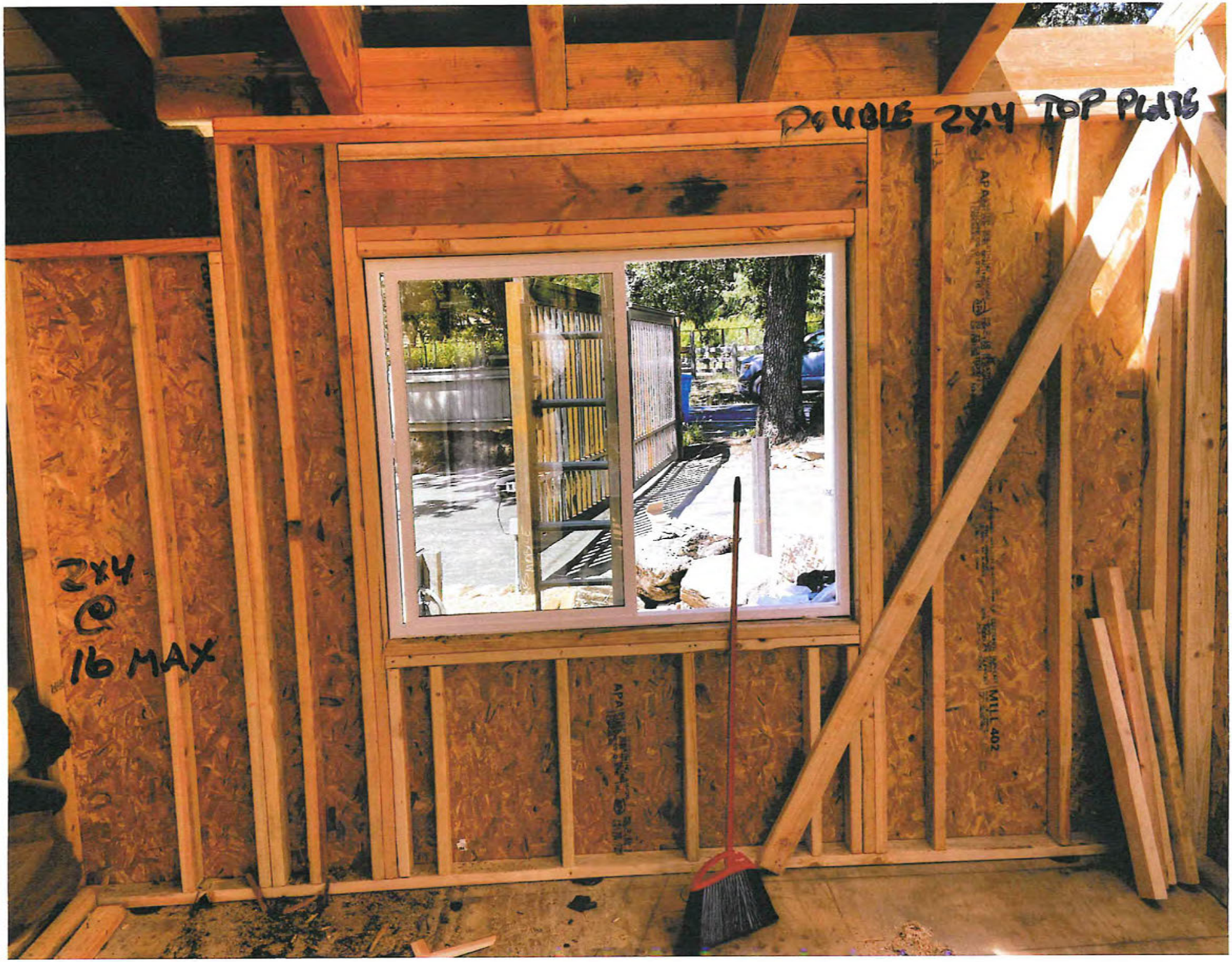

DRILL
CLEAN +
EPOXY SET XP
8" EMBED
(TYP)


LP SHIELD

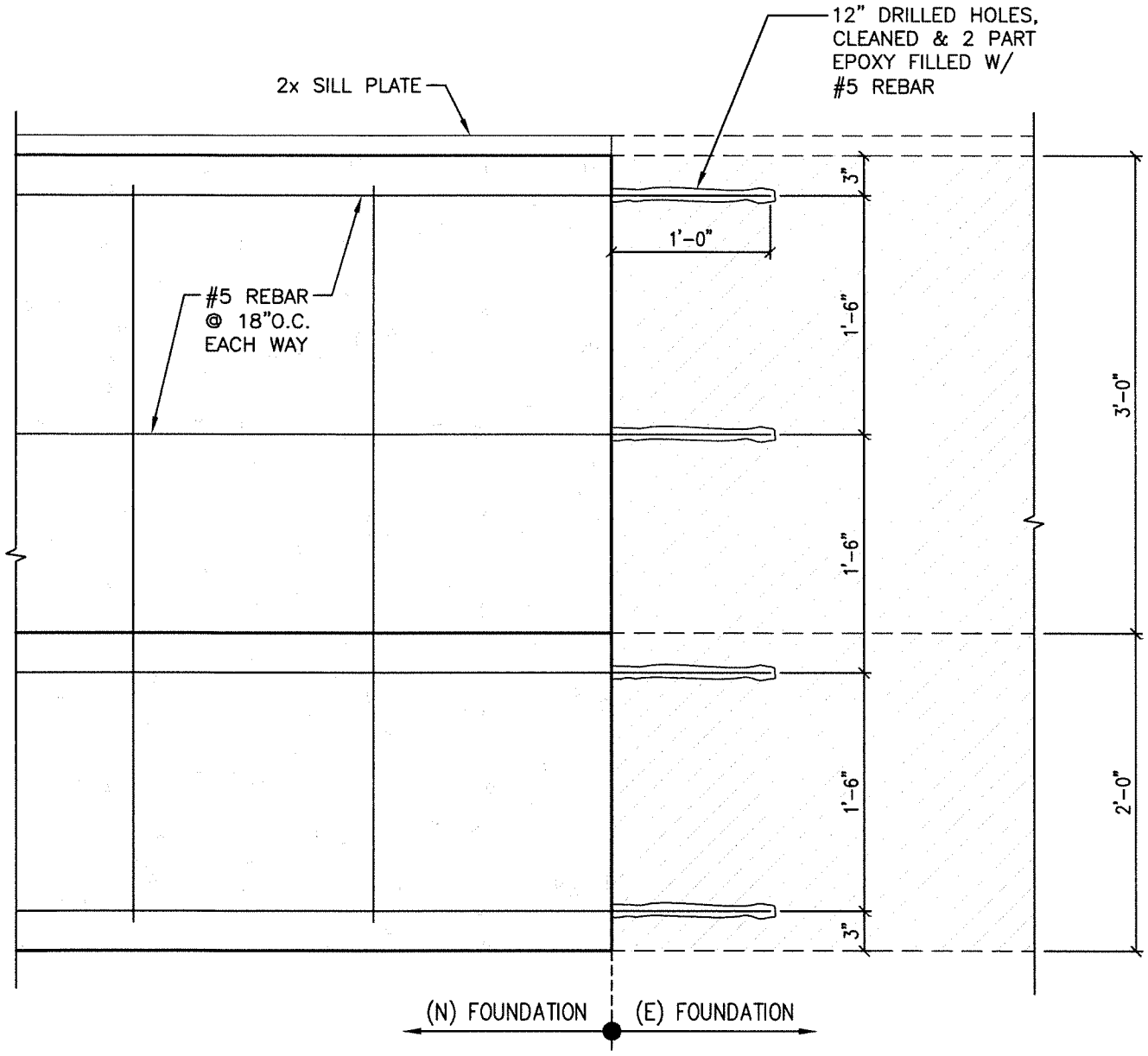

ek
Nrap
.com/homewrap
HE USA
Tyvek
HomeWrap
DUPONT
Tyve
HomeW
Call 1-800-448-9835 tyvek.com/h
MADE IN THE USA


DUPONT
Tyvek
HomeWrap
MADE IN THE USA


R30 INSULATION
R13
INSUL


DOUBLE 2X4 TOP PLATE
2X4
@
16 MAX


R 30



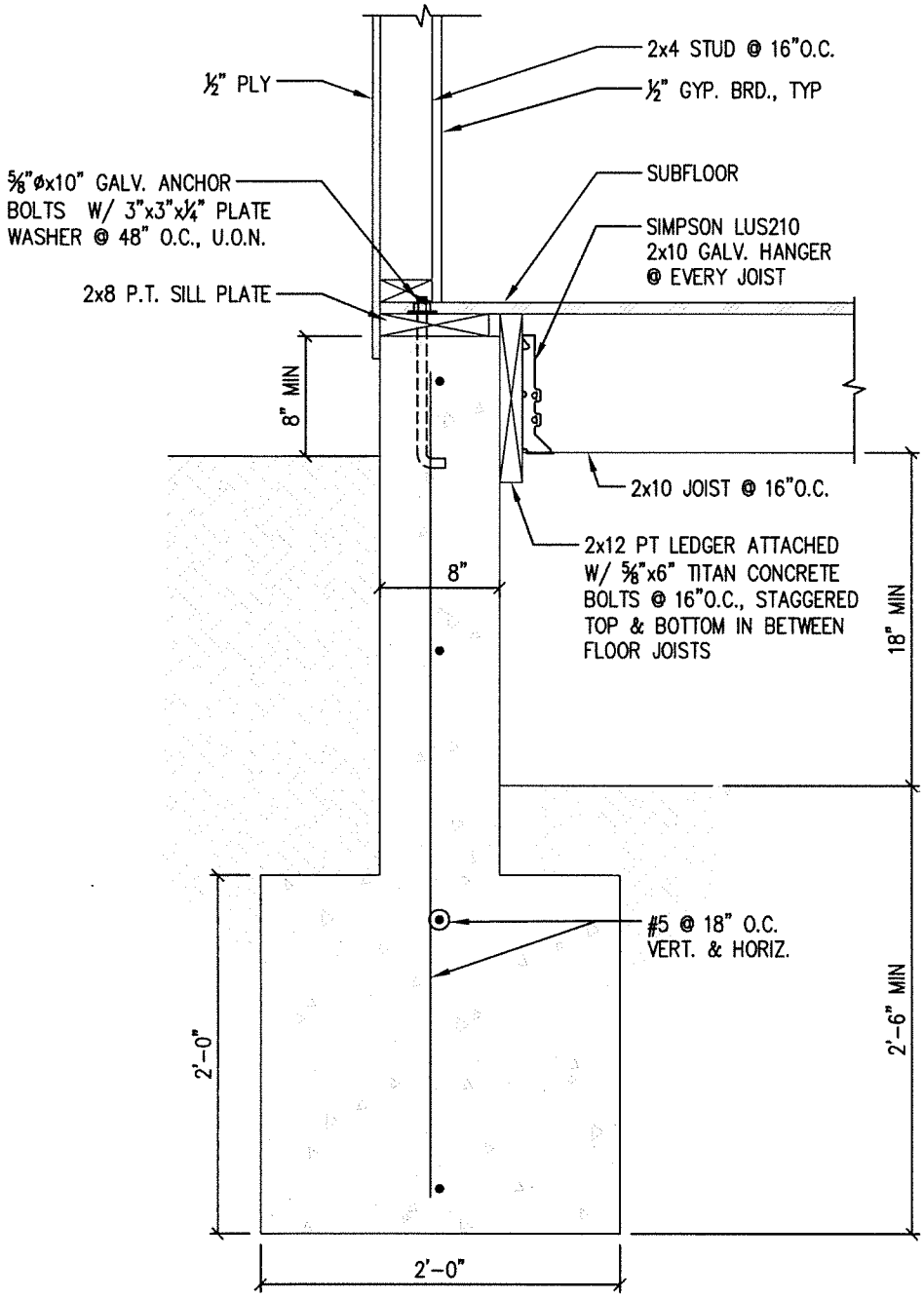
2 FOUNDATION DETAIL

SCALE: 1" = 1'-0"

Y:\20056\Dwg\STRC_DTLS.dwg, 9/16/2020 11:46:05 AM

OWNERS	LICHAU RESIDENTIAL ADDITION
DANIEL & AMBER LICHAU 1900 BRUSH CREEK ROAD SANTA ROSA, CA 95404 (707) 953-0699	STRUCTURAL DETAILS

#20056	DATE: 9/16/2020	SCALE: AS SHOWN	APN 182-140-056

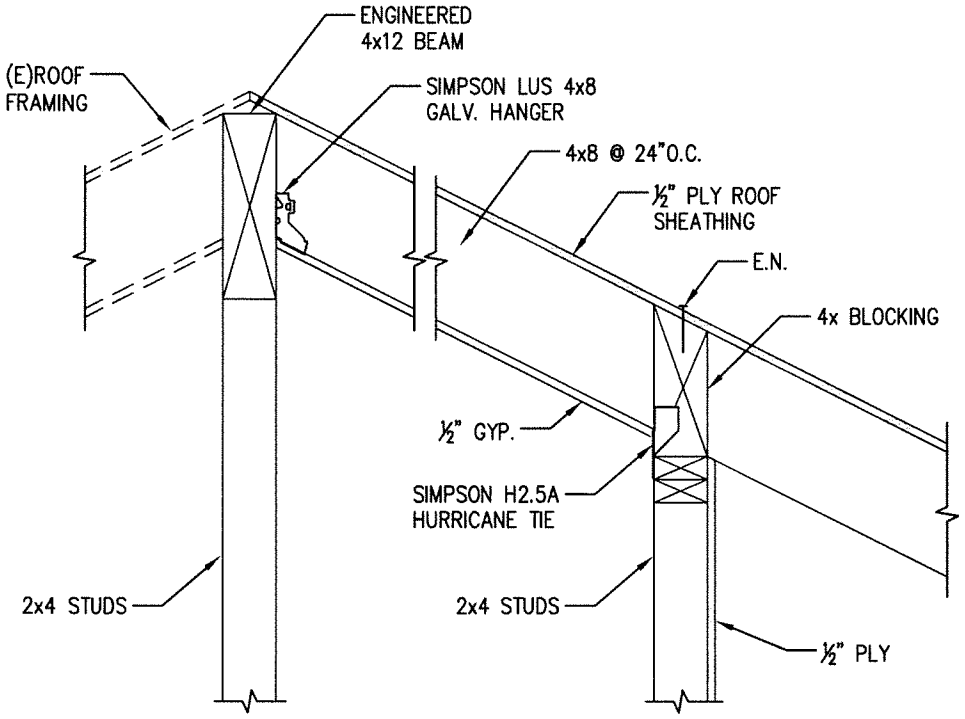


1 FOUNDATION & FLOOR FRAMING DETAIL
SCALE: 1" = 1'-0"

Y:\20056\Dwg\STRC_DTLS.dwg, 9/16/2020 11:45:47 AM

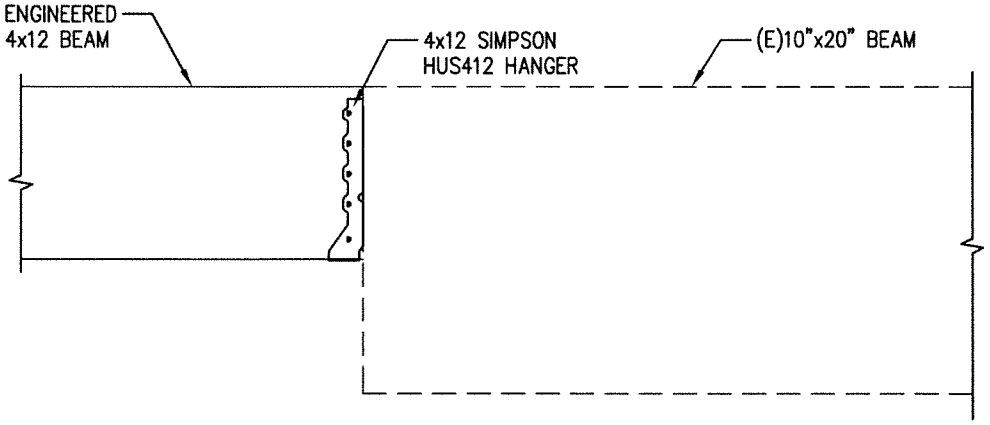
OWNERS	LICHAU RESIDENTIAL ADDITION
DANIEL & AMBER LICHAU 1900 BRUSH CREEK ROAD SANTA ROSA, CA 95404 (707) 953-0699	STRUCTURAL DETAILS

#20056	DATE: 9/16/2020	SCALE: AS SHOWN	APN 182-140-056



3 ROOF FRAMING DETAIL

SCALE: 1" = 1'-0"



4 BEAM CONNECTION DETAIL

SCALE: 1" = 1'-0"

Y:\20056\Dwg\STRC_DTLS.dwg, 9/16/2020 11:46:25 AM

OWNERS	LICHAU RESIDENTIAL ADDITION
DANIEL & AMBER LICHAU 1900 BRUSH CREEK ROAD SANTA ROSA, CA 95404 (707) 953-0699	STRUCTURAL DETAILS

#20056	DATE: 9/16/2020	SCALE: AS SHOWN	APN 182-140-056

December 8, 2020

To Whom It May Concern:

This letter is intended to provide information regarding the lights on the external sidings of our home at 1900 Brush Creek Road Santa Rosa. These motion-detection light fixtures were present at time of purchase of the home. We did, however, replace both the rear-facing and south-facing light fixtures with Ring wired motion-detection light fixtures. The specifications from the manufacture are as follows: incandescent wattage equivalent is 125 watts (total of two bulbs for each light at approximately 60 watts each). Both are set to turn on for a 15 second duration with motion detection from dusk until dawn, pointed in a downward direction with no reflection. The rear-facing fixture sits at 10'2" from ground level. The south-facing fixture sits at 11' from ground level and facing our side yard where no adjacent neighboring property resides. Both fixtures are mounted under the eve of the home. Please reach out with any additional questions.

Sincerely,
Amber and Daniel Lichau

PJC & Associates, Inc.

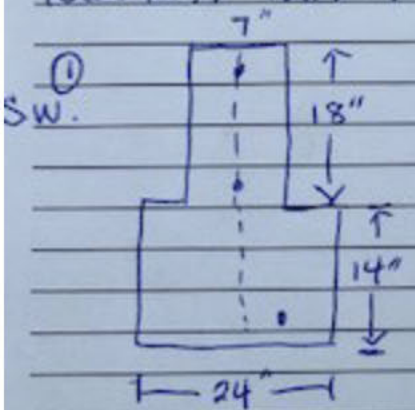
Page 1/1

Date 8-11-20
M T W T F S S

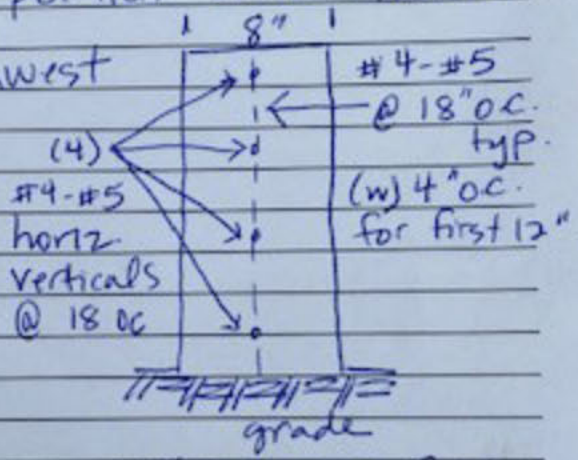
Project Name: Proposed Addition Legalization
Project Address: 1900 Brush Creek Rd
Santa Rosa, CA

Job #

on site to do pachometer testing for the addition. ① location located on the southwest (235°) perimeter was excavated to expose the footing & the ② location on the opposite downhill side at the original foundation to addition location. This is the tallest portion of the foundation



① SW.



② Northwest

① (3) #4-#5 horizontals
Verticals @ 18" OC.

44" from top of stem to the adjacent grade

[redacted]

Field Services Manager Signature

Printed Name

Field Technician/Special Inspector Signature

T. Thompson
Printed Name

Main Office: 600 Martin Avenue, Suite 210, Rohnert Park, CA 94928 707-584-4804 phone 707-584-4811 fax
Sonoma Branch: PO Box 469, Sonoma, CA 95476 707-584-4804 phone 707-935-3587 fax

City of Santa Rosa

2019 CALGreen CHECKLIST
for
RESIDENTIAL ADDITIONS and ALTERATIONS

Applies to building permit applications received on or after January 1, 2020, for additions or alterations that increase the conditioned space of existing low rise residential buildings including hotels, motels, lodging houses, dwellings, dormitories, condominiums, shelters, congregate residences, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with or without common toilet or cooking facilities including accessory buildings, facilities and uses thereto. **Detached "U" occupancy buildings are not subject to the requirements of CALGreen. Existing site and landscaping improvements that are not otherwise disturbed are also not subject to the requirements of CALGreen.**
Repairs to existing structures are not subject to CALGreen at this time.

Project Address: 1900 Brush Creek

Project Name: Lichau addition

Project Description: Residential addition

Instructions:

1. The Owner or the Owner's agent shall employ a qualified CALGreen Inspector, listed by the City of Santa Rosa Building Division, to perform CALGreen Inspector services that apply and to verify and assure the Owner and the Building Division that all required work described herein is properly planned and implemented in the project.
2. The CALGreen Inspector, in collaboration with the owner and the design professional, shall initially complete **Column 2** of this checklist, sign and date the CALGreen Building Acknowledgements section at the end of this checklist and have the checklist printed on or attached to the approved plans for the project. The City's plans examiner will complete **Column 3** of the checklist.
3. When determined necessary by City staff and indicated in **Column 2** of the checklist, the Owner or Contractor shall employ a CALGreen Inspector, certified by ICC, to perform CALGreen Inspector services.
4. In **Column 3**, Building Department staff will verify those measures checked in Column 3 of the checklist under the "City Staff" heading.
5. In **Column 4**, the CALGreen Inspector hired by the Owner will verify those measures checked in Column 2 of the checklist under the "CALGreen Inspector" heading.
6. Prior to final inspection by the Building Department, the CALGreen Inspector (if required) shall complete **Column 4** and sign and date **the Implementation Verification** section at the end of this checklist.

NOTE: *The CALGreen Inspector shall not be the design professional or contractor for the project and shall not have a financial interest in the project for which services are being provided except for the cost of providing said services.*

Column 1 Feature or Measure	Column 2 Project Requirements *Must be incorporated into the project unless the measure is not applicable (N/A).*	Column 3 Verification To Be Provided By: *Completed by City plan review staff during plan review.*	Column 4 Compliance Verified *Completed by CALGreen Inspector after measure has been completed.*
4.1 PLANNING AND DESIGN			
Site Development			
4.106.2 A plan is developed and implemented to manage storm water drainage during construction.	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.106.3 Construction plans shall indicate how site grading or a drainage system will manage all surface water flows to keep water from entering buildings.	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.2 ENERGY EFFICIENCY			
Performance Approach			
4.201.1 Building meets or exceeds the requirements of the 2019 California Building Energy Efficiency Standards. (Tier 1 not applicable)	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.3 WATER EFFICIENCY AND CONSERVATION			
Indoor Water Use			
4.303.1 Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) installed in residential buildings shall comply with the prescriptive requirements of Sections 4.303.1.1 through 4.303.1.4.4.	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			

Column 1 Feature or Measure	Column 2 Project Requirements *Must be incorporated into the project unless the measure is not applicable (N/A).*	Column 3 Verification To Be Provided By: *Completed by City plan review staff during plan review.*	Column 4 Compliance Verified *Completed by CALGreen Inspector after measure has been completed.*
4.303.2 Plumbing fixtures and fittings required in Section 4.303.1 shall be installed in accordance with the California Plumbing Code, and shall meet the applicable referenced standards.	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Outdoor Water Use			
4.304.1 Automatic irrigation systems installed at the time of final inspection shall be weather- or soil moisture-based.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			

4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY

Enhanced Durability and Reduced Maintenance			
4.406.1 Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the enforcing agency.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Construction Waste Reduction, Disposal and Recycling			
4.408.1 Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste. (Per 4.408.2, 4.408.3 or 4.408.4)	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Building Maintenance and Operation			
4.410.1 An operation and maintenance manual shall be provided to the building occupant or owner.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			

Column 1 Feature or Measure	Column 2 Project Requirements *Must be incorporated into the project unless the measure is not applicable (N/A).*	Column 3 Verification To Be Provided By: *Completed by City plan review staff during plan review.*	Column 4 Compliance Verified *Completed by CALGreen Inspector after measure has been completed.*
4.5 ENVIRONMENTAL QUALITY			
Fireplaces			
4.503.1 Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits.	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Pollutant Control			
4.504.1 Duct openings and other related air distribution component openings shall be covered during construction.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.504.2.1 Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.504.2.2 Paints, stains and other coatings shall be compliant with VOC limits.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.504.2.3 Aerosol paints and other coatings shall be compliant with product weighted MIR Limits for ROC and other toxic compounds.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.504.2.4 Documentation shall be provided to verify that compliant VOC limit finish materials have been used.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			

Column 1 Feature or Measure	Column 2 Project Requirements *Must be incorporated into the project unless the measure is not applicable (N/A).*	Column 3 Verification To Be Provided By: *Completed by City plan review staff during plan review.*	Column 4 Compliance Verified *Completed by CALGreen Inspector after measure has been completed.*
4.504.3 Carpet and carpet systems shall be compliant with VOC limits.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.504.4 80 percent of floor area receiving resilient flooring shall comply with specified VOC criteria.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.504.5 Particleboard, medium density fiberboard (MDF), and hardwood plywood used in interior finish systems shall comply with low formaldehyde emission standards.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Interior Moisture Control			
4.505.2 Vapor retarder and capillary break is installed at slab on grade foundations.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
4.505.3 Moisture content of building materials used in wall and floor framing is checked before enclosure.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Indoor Air Quality and Exhaust			
4.506.1 Humidity controlled exhaust fans which terminate outside the building are provided in every bathroom unless otherwise a component of a whole house ventilation system.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			

Column 1 Feature or Measure	Column 2 Project Requirements *Must be incorporated into the project unless the measure is not applicable (N/A).*	Column 3 Verification To Be Provided By: *Completed by City plan review staff during plan review.*	Column 4 Compliance Verified *Completed by CALGreen Inspector after measure has been completed.*
Environmental Comfort			
4.507.2. Duct systems are sized and designed and equipment is selected using the following methods: 1. Establish heat loss and heat gain values according to ANSI/ACCA Manual J-2016 or equivalent. 2. Size duct systems according to ANSI/ACCA 1 Manual D-2016 or equivalent. 3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S-2014 or equivalent.	☒ or ☐ N/A	☐	☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Innovative Concepts and Local Environmental Conditions			
Items necessary to address innovative concepts or local environmental conditions.			
Item 1:		☐	☐
INSTALLER AND CALGreen INSPECTOR QUALIFICATIONS			
Qualifications			
702.1 HVAC system installers are trained and certified in the proper installation of HVAC systems.	☒ or ☐ N/A		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
702.2 The CALGreen Inspector for this project is qualified and able to demonstrate competence in the discipline they inspect and verify.	☒ or ☐ N/A	☐	
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			
Verifications			
703.1 Verification of compliance with this code many include construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which show substantial conformance.	☒		☒
Description of proposed measure(s) or explanation of why it is not applicable (N/A)			

Green Building Acknowledgments

Project Address: 1900 Brush Creek

Project Description: Residential addition

Section 1 - Design Verification

Complete all lines of Section 1- "Design Verification" and submit the completed checklist (Columns 1 and 2) with the plans and building permit application to the Building Department.

The owner, design professional and the CALGreen inspector have reviewed the plans and certify that the items checked above are hereby incorporated into the project plans and will be implemented into the project in accordance with the requirements set forth in the 2019 California Green Building Standards Code.

[redacted]

Owner's Signature | Date

Owner Name *(Please Print)*

[redacted]

Design Professional's Signature | Date

Design Professional's Name *(Please Print)*

[redacted]

Signature of CALGreen Building Inspector | Date

John Craig | 707 297-6334

CALGreen Inspector's Name *(Please Print)* | Phone

jccinc@mac.com

CALGreen Inspector's E-mail Address

Section 2 - Implementation Verification

Complete, sign and submit the completed checklist, including Column 4, together with all original signatures in this Section 2 – "Implementation Verification" to the Building Department prior to Building Department final inspection.

I have inspected the work have received sufficient documentation to verify and certify that the project identified above was constructed in accordance with this Green Building Checklist and in accordance with the requirements set forth in the 2019 California Green Building Standards Code.

CALGreen Inspector Signature | 9/2/2020

Date

John Craig | 707 287-6334

CALGreen Inspector's Name *(Please Print)* | Phone *(if different than above)*

jccinc@mac.com

CALGreen Inspector's E-mail Address *(if different than above)*

John Craig Construction, Inc
441 York Court
Sonoma, CA 95476
(707) 287-6334
jccinc@mac.com
Lic # 651162

Date: 9/2/20

Re: CALGreen Site Inspection Verification

Address: 1900 Brush Creek Road

Project Description: addition-320 sq ft

To whom it may concern:

I have inspected the work and have received documentation sufficient to verify and certify that the project identified above was constructed in accordance with the project CALGreen Checklist and in accordance with the requirements set forth in the California Green Building Standards code as adopted and amended by the City of Santa Rosa Code.

Please contact me if there are any questions

Thank you,

John Craig
ICC # 8716810

ROBERTSON ENGINEERING inc
2300 Bethards Dr., Suite L, Santa Rosa, CA 95405
Tel (707) 523-7490
E-mail mike@robertsonengineering.net

August 12, 2020

DANIEL LICHAU
1900 BRUSH CREEK RD
SANTA ROSA, CA. 95404

RE: OBSERVATION OF FOUNDATION FROM PHOTOS AND PERSONALLY AT 1900 BRUSH CREEK ROAD, SANTA ROSA

Dear Daniel,

This letter confirms my personal site observation of the foundation and footing for your house addition. The footing was infilled a minimum of 24" into the ground, which from the photos you provided appear to be in solid ground. The footing width is a minimum of 36" and appears that below the forms that were set ended with more than 48" in width. It is my professional opinion that the footing size is sufficient to adequately support the structure.

[redacted]

REGISTERED PROFESSIONAL ENGINEER
MICHAEL B. ROBERTSON
No. 29640
Exp. 3/31/21
CIVIL
STATE OF CALIFORNIA

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

LICHAU ADITION ONLY
1900 BRUSH CREEK ROAD
SANTA ROSA, CA 95404

Project Designer:

DANIEL LICHAU
1900 BRUSH CREEK ROAD
SANTA ROSA, CA 95404
(707) 953-0699

Report Prepared by:

MINERVA TOPETE
Title 24 Data Corporation
633 MONTEREY TRAIL (P.O. BOX 2199)
FRAZIER PARK, CA 93225
(800) 237-8824

Job Number:

134590

Date:

8/14/2020

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2019 Building Energy Efficiency Standards.

TABLE OF CONTENTS

GENERAL INFORMATION					
01	Project Name	LICHAU ADITION ONLY			
02	Run Title	Title 24 Analysis			
03	Project Location	1900 BRUSH CREEK ROAD			
04	City	SANTA ROSA	05	Standards Version	2019
06	Zip code	95404	07	Software Version	EnergyPro 8.1
08	Climate Zone	2	09	Front Orientation (deg/ Cardinal)	270
10	Building Type	Single family	11	Number of Dwelling Units	1
12	Project Scope	AdditionOnly	13	Number of Bedrooms	5
14	Addition Cond. Floor Area (ft^2)	360	15	Number of Stories	1
16	Existing Cond. Floor Area (ft^2)	1836	17	Fenestration Average U-factor	0.3
18	Total Cond. Floor Area (ft^2)	2196	19	Glazing Percentage (%)	13.33%
20	ADU Bedroom Count	0	21	ADU Conditioned Floor Area	0
22	Is Natural Gas Available?	Yes			

Addition Alone Project Analysis Parameters

01	02	03	04	05	06
Existing Area (excl. new addition) (ft2)	Addition Area (excl. existing) (ft2)	Total Area (ft2)	Existing Bedrooms	Addition Bedrooms	Total Bedrooms
1836	360	2196	4	1	5

COMPLIANCE RESULTS	
01	Building Complies with Computer Performance
02	Building does not require field testing or HERS verification
03	This building incorporates one or more Special Features shown below

ENERGY USE SUMMARY

Energy Use (kTDV/ft^2-yr)	Standard Design	Proposed Design	Compliance Margin	Percent Improvement
Space Heating	3.17	10.33	-7.16	-225.9
Space Cooling	34.36	26.3	8.06	23.5
IAQ Ventilation	0	0	0	
Water Heating	56.2	56.2	0	0
Self Utilization Credit	n/a	0	0	n/a
Compliance Energy Total	**93.73**	**92.83**	**0.9**	**1**

REQUIRED SPECIAL FEATURES

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

- Insulation below roof deck
- New ductwork added is less than 40 ft. in length

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 buildng tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry

Building-level Verifications:
- -- None --

Cooling System Verifications:
- -- None --

Heating System Verifications:
- -- None --

HVAC Distribution System Verifications:
- -- None --

Domestic Hot Water System Verifications:
- -- None --

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**	**Water Heating System 2**
ADU	Conditioned	Res HVAC1	360	8	DHW Sys 1	N/A

OPAQUE SURFACES

01	02	03	04	05	06	07	08	09	10
Name	**Zone**	**Construction**	**Azimuth**	**Orientation**	**Gross Area (ft^2)**	**Window and Door Area (ft2)**	**Tilt (deg)**	**Wall Exceptions**	**Status**
Add North Wall	ADU	R-15 Wall	0	Left	390	20	90	Extension	New
Add East Wall	ADU	R-15 Wall	90	Back	96	8	90	Extension	New
Add West Wall	ADU	R-15 Wall	270	Front	96	20	90	Extension	New
Add Roof	ADU	R-30 High Performance At	n/a	n/a	360	n/a	n/a		New
Add Raised Floor	ADU	R-19 Floor Crawlspace	n/a	n/a	360	n/a	n/a		New

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 ADU	Attic RoofADU	Ventilated	4	0.1	0.85	No	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**
Add N Windows	Window	Add North Wall	Left	0			1	20	0.3	NFRC	0.21	NFRC	Bug Screen
Add E Windows	Window	Add East Wall	Back	90			1	8	0.3	NFRC	0.21	NFRC	Bug Screen
Add W Windows	Window	Add West Wall	Front	270			1	20	0.3	NFRC	0.21	NFRC	Bug Screen

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-15 Wall	Exterior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-15	None / None	0.089	Inside Finish: Gypsum Board Cavity / Frame: R-15 / 2x4 Exterior Finish: Wood Siding/sheathing/decking
R-13 Wall	Interior Walls	Wood Framed Wall	2x4 @ 16 in. O. C.	R-13	None / None	0.092	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Other Side Finish: Gypsum Board
Attic RoofADU	Attic Roofs	Wood Framed Ceiling	2x4 @ 24 in. O. C.	R-13	None / None	0.078	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-13.0 / 2x4 Around Roof Joists: R-0.0 insul.
R-19 Floor Crawlspace	Floors Over Crawlspace	Wood Framed Floor	2x6 @ 16 in. O. C.	R-19	None / None	0.049	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 / 2x6
R-30 High Performance At	Ceilings (below attic)	Wood Framed Ceiling	2x10 @ 16 in. O. C.	R-30	None / None	0.034	Over Ceiling Joists: R-6.0 insul. Cavity / Frame: R-24.1 / 2x10 Inside Finish: Gypsum Board

BUILDING ENVELOPE - HERS VERIFICATION

01	02	03	04
Quality Insulation Installation (QII)	**Quality Installation of Spray Foam Insulation**	**Building Envelope Air Leakage**	**CFM50**
Not Required	Not Required	Not Required	n/a

WATER HEATING SYSTEMS

01	02	03	04	05	06	07
Name	**System Type**	**Distribution Type**	**Water Heater Name (#)**	**Solar Heating System**	**Compact Distribution**	**HERS Verification**
DHW Sys 1	Domestic Hot Water (DHW)	Standard Distribution System	DHW Heater 1 (1)	n/a	None	n/a

WATER HEATERS

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	**Heating Element Type**	**Tank Type**	**# Units**	**Tank Vol. (gal)**	**Energy Factor or Efficiency**	**Input Rating or Pilot**	**Tank Insulation R-value (Int/Ext)**	**Standby Loss or Recovery Eff.**	**1st Hr. Rating or Flow Rate**	**NEEA Heat Pump Brand or Model**	**Tank Location or Ambient Condition**	**Status**	**Verified Existing Condition**
DHW Heater 1	Gas	Small Instantaneous	1	0.1	0.64-EF	<= 200 kBtu/hr	0	76	n/a	n/a	n/a	Existing	n/a

WATER HEATING - HERS VERIFICATION

01	02	03	04	05	06	07	08
Name	**Pipe Insulation**	**Parallel Piping**	**Compact Distribution**	**Compact Distribution Type**	**Recirculation Control**	**Central DHW Distribution**	**Shower Drain Water Heat Recovery**
DHW Sys 1 - 1/1	Not Required	Not Required	Not Required	None	Not Required	Not Required	Not Required

SPACE CONDITIONING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11
Name	**System Type**	**Heating Unit Name**	**Cooling Unit Name**	**Fan Name**	**Distribution Name**	**Required Thermostat Type**	**Status**	**Verified Existing Condition**	**Heating Equipment Count**	**Cooling Equipment Count**
Res HVAC1	Heating and cooling system other	Heating Component 1	Cooling Component 1	HVAC Fan 1	Air Distribution System 1	n/a	Existing	NA	1	1

HVAC - HEATING UNIT TYPES

01	02	03	04
Name	**System Type**	**Number of Units**	**Heating Efficiency**
Heating Component 1	Central gas furnace	1	AFUE-75

HVAC - COOLING UNIT TYPES

01	02	03	04	05	06	07	08
Name	**System Type**	**Number of Units**	**Efficiency EER**	**Efficiency SEER**	**Zonally Controlled**	**Mulit-speed Compressor**	**HERS Verification**
Cooling Component 1	Ductless mini-split AC	1	8	8	Not Zonal	Single Speed	Cooling Component 1-hers-cool

HVAC - DISTRIBUTION SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
			Duct Ins. R-value		**Duct Location**		**Surface Area**								
Name	**Type**	**Design Type**	**Supply**	**Return**	**Supply**	**Return**	**Supply**	**Return**	**Bypass Duct**	**Duct Leakage**	**HERS Verification**	**Status**	**Verified Existing Condition**	**Existing Distribution system**	**New Ducts 40 ft**
Air Distribution System 1	Unconditioned attic	Non-Verified	R-6	R-6	Attic	Attic	n/a	n/a	No Bypass Duct	Existing (not specified)	Air Distribution System 1-hers-dist	Existing + New	n/a	n/a	n/a

HVAC FAN SYSTEMS - HERS VERIFICATION

01	02	03
Name	**Verified Fan Watt Draw**	**Required Fan Efficacy (Watts/CFM)**
HVAC Fan 1-hers-fan	Not Required	0

PROJECT NOTES

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
1. I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: MINERVA TOPETE	Documentation Author Signature: [redacted]
Company: Title 24 Data Corporation	Signature Date: 8/14/2020
Address: 633 MONTEREY TRAIL (P.O. BOX 2199)	CEA/ HERS Certification Identification (If applicable):
City/State/Zip: FRAZIER PARK, CA 93225	Phone: (800) 237-8824

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:	Responsible Designer Signature:
Company: DANIEL LICHAU	Date Signed:
Address: 1900 BRUSH CREEK ROAD	License:
City/State/Zip: SANTA ROSA, CA 95404	Phone: (707) 953-0699

2019 Low-Rise Residential Mandatory Measures Summary

*NOTE: Low-rise residential buildings subject to the Energy Standards must comply with all applicable mandatory measures, regardless of the compliance approach used. Review the respective section for more information. *Exceptions may apply.*
(01/2020)

Building Envelope Measures:	
§ 110.6(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.*
§ 110.6(a)5:	**Labeling.** Fenestration products and exterior doors must have a label meeting the requirements of § 10-111(a).
§ 110.6(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):	**Ceiling and Rafter Roof Insulation.** Minimum R-22 insulation in wood-frame ceiling; or the weighted average U-factor must not exceed 0.043. Minimum R-19 or weighted average U-factor of 0.054 or less in a rafter roof alteration. 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 continuous 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 0.58; or the weighted average U-factor of all fenestration must not exceed 0.58.*
Fireplaces, Decorative Gas Appliances, and Gas Log Measures:	
§ 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 Measures:	
§ 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-K.*
§ 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)4:	**Water Heating Recirculation Loops Serving Multiple Dwelling Units.** Water heating recirculation loops serving multiple dwelling units must meet the air release valve, backflow prevention, pump priming, pump isolation valve, and recirculation loop connection requirements of § 110.3(c)4.
§ 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.
§ 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.

2019 Low-Rise Residential Mandatory Measures Summary

§ 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:	**Storage Tank Insulation.** Unfired hot water tanks, such as storage tanks and backup storage tanks for solar water-heating systems, must have a minimum of R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
§ 150.0(j)2A:	**Water Piping, Solar Water-heating System Piping, and Space Conditioning System Line Insulation.** All domestic hot water piping must be insulated as specified in Section 609.11 of the California Plumbing Code. In addition, the following piping conditions must have a minimum insulation wall thickness of one inch or a minimum insulation R-value of 7.7: the first five feet of cold water pipes from the storage tank; all hot water piping with a nominal diameter equal to or greater than 3/4 inch and less than one inch; all hot water piping with a nominal diameter less than 3/4 inch that is: associated with a domestic hot water recirculation system, from the heating source to storage tank or between tanks, buried below grade, and from the heating source to kitchen fixtures.*
§ 150.0(j)3:	**Insulation Protection.** Piping insulation must be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind as required by Section 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 include all of the following: A dedicated 125 volt, 20 amp electrical receptacle connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within three feet of the water heater without obstruction. Both ends of the unused conductor must be labeled with the word "spare" and be electrically isolated. Have a reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled with the words "Future 240V Use"; a Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; a condensate drain that is no more than two inches higher than the base of the water heater, and allows natural draining without pump assistance; and a gas supply line with a capacity of at least 200,000 Btu per hour.
§ 150.0(n)2:	**Recirculating Loops.** Recirculating loops serving multiple dwelling units must meet the requirements of § 110.3(c)5.
§ 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 Measures:	
§ 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 the requirements of the CMC §§ 601.0, 602.0, 603.0, 604.0, 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 a minimum installed level of R-6.0 or a minimum installed level of R-4.2 when ducts are entirely in conditioned space as confirmed through field verification and diagnostic testing (RA3.1.4.3.8). Portions of the duct system completely exposed and surrounded by directly conditioned space are not required to be insulated. 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 requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than ¼ inch, the combination of mastic and either mesh or tape must be used. Building cavities, support platforms for air handlers, 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 cavities and support platforms must not be compressed to cause reductions in the cross-sectional area.*
§ 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, sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather must be suitable for outdoor service. For example, protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation must be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation.
§ 150.0(m)10:	**Porous Inner Core Flex Duct.** Porous inner core flex ducts must have a non-porous layer 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 § 150.0(m)11 and Reference Residential Appendix RA3.
§ 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. Pressure drops and labeling must meet the requirements in §150.0(m)12. Filters must be accessible for regular service.*
§ 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.*

2019 Low-Rise Residential Mandatory Measures Summary

Requirements for 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 Acceptable Indoor Air Quality in Residential Buildings subject to the amendments specified in § 150.0(o)1.
§ 150.0(o)1C:	**Single Family Detached Dwelling Units.** 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 provided at rates determined by ASHRAE 62.2 Sections 4.1.1 and 4.1.2 and as specified in § 150.0(o)1C.
§ 150.0(o)1E:	**Multifamily Attached Dwelling Units.** Multifamily attached dwelling units must have mechanical ventilation airflow provided at rates in accordance with Equation 150.0-B and must be either a balanced system or continuous supply or continuous exhaust system. If a balanced system is not used, all units in the building must use the same system type and the dwelling-unit envelope leakage must be ≤ 0.3 CFM at 50 Pa (0.2 inch water) per square foot of dwelling unit envelope surface area and verified in accordance with Reference Residential Appendix RA3.8.
§ 150.0(o)1F:	**Multifamily Building Central Ventilation Systems.** Central ventilation systems that serve multiple dwelling units must be balanced to provide ventilation airflow for each dwelling unit served at a rate equal to or greater than the rate specified by Equation 150.0-B. All unit airflows must be within 20 percent of the unit with the lowest airflow rate as it relates to the individual unit's minimum required airflow rate needed for compliance.
§ 150.0(o)1G:	**Kitchen Range Hoods.** Kitchen range hoods must be rated for sound in accordance with Section 7.2 of ASHRAE 62.2.
§ 150.0(o)2:	**Field Verification and Diagnostic Testing.** Dwelling unit ventilation airflow must be verified in accordance with Reference Residential Appendix RA3.7. A kitchen range hood must be verified in accordance with Reference Residential Appendix RA3.7.4.3 to confirm it is rated by HVI to comply with the airflow rates and sound requirements as specified in Section 5 and 7.2 of ASHRAE 62.2.
Pool and Spa Systems and Equipment Measures:	
§ 110.4(a):	**Certification by Manufacturers.** Any pool or spa heating system or equipment must be certified to have all of the following: a thermal efficiency that complies with the Appliance Efficiency Regulations; 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:	**Pilot 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 Measures:	
§ 110.9:	**Lighting Controls and Components.** 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.
§ 150.0(k)1B:	**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 must be no greater than the number of bedrooms. These electrical boxes must be served by a dimmer, vacancy sensor control, or fan speed control.
§ 150.0(k)1C:	**Recessed Downlight Luminaires in Ceilings.** Luminaires recessed into ceilings must meet all of the requirements for: insulation contact (IC) labeling; air leakage; sealing; maintenance; and socket and light source as described in § 150.0(k)1C.
§ 150.0(k)1D:	**Electronic Ballasts for Fluorescent Lamps.** Ballasts for fluorescent lamps rated 13 watts or greater must be electronic and must have an output frequency no less than 20 kHz.
§ 150.0(k)1E:	**Night Lights, Step Lights, and Path Lights.** Night lights, step lights and path lights are not required to comply with Table 150.0-A or be controlled by vacancy sensors provided they are rated to consume no more than 5 watts of power and emit no more than 150 lumens.
§ 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).*
§ 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, 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)2C:	**Interior Switches and Controls.** Lighting must have readily accessible wall-mounted controls that allow the lighting to be manually turned ON and OFF.*
§ 150.0(k)2D:	**Interior Switches and Controls.** Controls and equipment must be installed in accordance with manufacturer's instructions.
§ 150.0(k)2E:	**Interior Switches and Controls.** Controls must not bypass a dimmer, occupant sensor, or vacancy sensor function if the control is installed to comply with § 150.0(k).
§ 150.0(k)2F:	**Interior Switches and Controls.** Lighting controls must comply with the applicable requirements of § 110.9.

2019 Low-Rise Residential Mandatory Measures Summary

§ 150.0(k)2G:	**Interior Switches and Controls.** An energy management control system (EMCS) may be used to comply with control requirements if it: provides functionality of the specified control according to § 110.9; meets the Installation Certificate requirements of § 130.4; meets the EMCS requirements of § 130.0(e); and meets all other requirements in § 150.0(k)2.
§ 150.0(k)2H:	**Interior Switches and Controls.** A multiscene programmable controller may be used to comply with dimmer requirements in § 150.0(k) if it provides the functionality of a dimmer according to § 110.9, and complies with all other applicable requirements in § 150.0(k)2.
§ 150.0(k)2I:	**Interior Switches and Controls.** In bathrooms, garages, laundry rooms, and utility rooms, at least one luminaire in each of these spaces must be controlled by an occupant sensor or a vacancy sensor providing automatic-off functionality. If an occupant sensor is installed, it must be initially configured to manual-on operation using the manual control required under Section 150.0(k)2C.
§ 150.0(k)2J:	**Interior Switches and Controls.** Luminaires that are or contain light sources that meet Reference Joint Appendix JA8 requirements for dimming, and that are not controlled by occupancy or vacancy sensors, must have dimming controls.*
§ 150.0(k)2K:	**Interior Switches and Controls.** Under cabinet lighting must be controlled separately from ceiling-installed lighting systems.
§ 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 meet the requirement in item § 150.0(k)3Ai (ON and OFF switch) and the requirements in either § 150.0(k)3Aii (photocell and either a motion sensor or automatic time switch control) or § 150.0(k)3Aiii (astronomical time clock), or an EMCS.
§ 150.0(k)3B:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, outdoor lighting for private patios, entrances, balconies, and porches; and residential parking lots and carports with less than eight vehicles per site must comply with either § 150.0(k)3A or with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)3C:	**Residential Outdoor Lighting.** For low-rise residential buildings with four or more dwelling units, any outdoor lighting for residential parking lots or carports with a total of eight or more vehicles per site and any outdoor lighting not regulated by § 150.0(k)3B or § 150.0(k)3D must comply with the applicable requirements in Sections 110.9, 130.0, 130.2, 130.4, 140.7 and 141.0.
§ 150.0(k)4:	**Internally illuminated address signs.** Internally illuminated address signs must comply with § 140.8; or must consume no more than 5 watts of power as determined according to § 130.0(c).
§ 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 Sections 110.9, 130.0, 130.1, 130.4, 140.6, and 141.0.
§ 150.0(k)6A:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals 20 percent or less of the floor area, permanently installed lighting for the interior common areas in that building must be comply with Table 150.0-A and be controlled by an occupant sensor.
§ 150.0(k)6B:	**Interior Common Areas of Low-rise Multifamily Residential Buildings.** In a low-rise multifamily residential building where the total interior common area in a single building equals more than 20 percent of the floor area, permanently installed lighting for the interior common areas in that building must: i. Comply with the applicable requirements in Sections 110.9, 130.0, 130.1, 140.6 and 141.0; and ii. Lighting installed in corridors and stairwells must be controlled by occupant sensors that reduce the lighting power in each space by at least 50 percent. The occupant sensors must be capable of turning the light fully on and off from all designed paths of ingress and egress.
Solar Ready Buildings:	
§ 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) through § 110.10(e).
§ 110.10(a)2:	**Low-rise Multifamily Buildings.** Low-rise multi-family buildings that do not have a photovoltaic system installed must comply with the requirements of § 110.10(b) through § 110.10(d).
§ 110.10(b)1:	**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. For low-rise multi-family buildings the solar zone must be located on the roof or overhang of the building, or on the roof or overhang of another structure located within 250 feet of the building, or on covered parking installed with the building project, and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area. The solar zone requirement is applicable to the entire building, including mixed occupancy.*
§ 110.10(b)2:	**Azimuth.** All sections of the solar zone located on steep-sloped roofs must be oriented between 90 degrees and 300 degrees 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 distance, measured in the horizontal plane, 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) through § 110.10(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”.

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name	Date
LICHAU ADITION ONLY	8/14/2020
System Name	**Floor Area**
Res HVAC	360

ENGINEERING CHECKS

Number of Systems	1
Heating System	
Output per System	60,000
Total Output (Btuh)	60,000
Output (Btuh/sqft)	166.7
Cooling System	
Output per System	60,000
Total Output (Btuh)	60,000
Total Output (Tons)	5.0
Total Output (Btuh/sqft)	166.7
Total Output (sqft/Ton)	72.0
Air System	
CFM per System	1,500
Airflow (cfm)	1,500
Airflow (cfm/sqft)	4.17
Airflow (cfm/Ton)	300.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00
Note: values above given at ARI conditions	

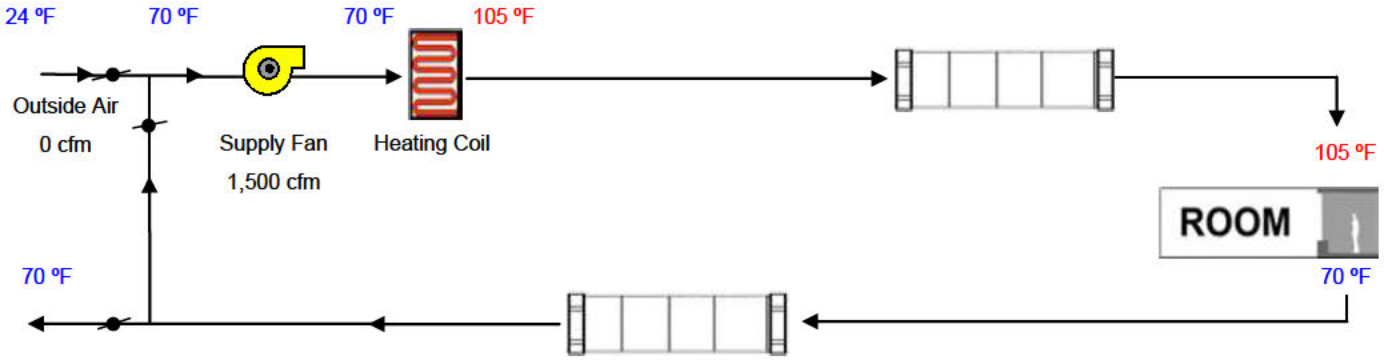
SYSTEM LOAD

	COIL COOLING PEAK			COIL HTG. PEAK	
	CFM	Sensible	Latent	CFM	Sensible
Total Room Loads	161	3,976	113	136	5,105
Return Vented Lighting		0			
Return Air Ducts		0			0
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		0			0
Supply Air Ducts		0			0
TOTAL SYSTEM LOAD		3,976	113		5,105

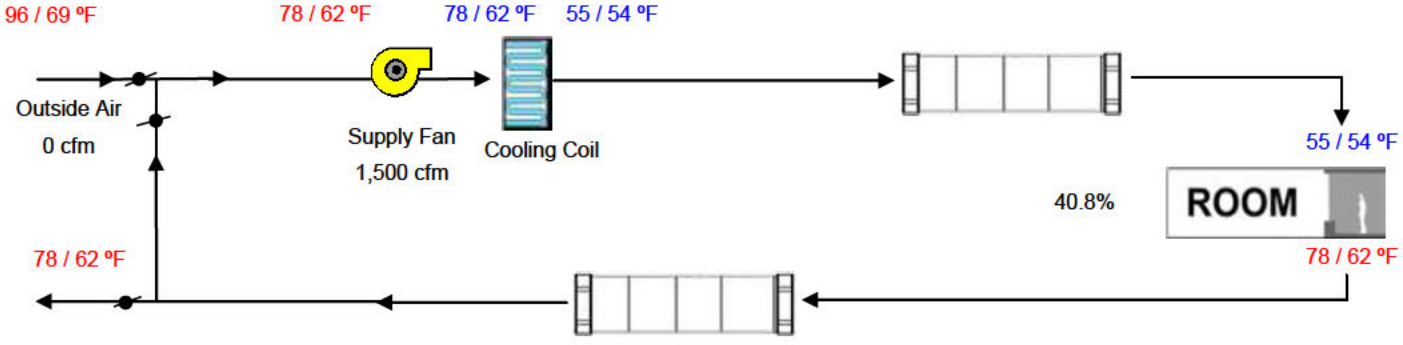
HVAC EQUIPMENT SELECTION

Existing FAU/AC Before 1978	48,679	6,468		60,000
Total Adjusted System Output (Adjusted for Peak Design conditions)	48,679	6,468		60,000
TIME OF SYSTEM PEAK	Aug 3 PM			Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)



ROOM HEATING PEAK LOADS

Project Name	Date
LICHAU ADITION ONLY	*8/14/2020*

ROOM INFORMATION		**DESIGN CONDITIONS**	
Room Name	*ADU*	**Time of Peak**	*Jan 1 AM*
Floor Area	*360.00 ft²*	**Outdoor Dry Bulb Temperature**	*24 ºF*
Indoor Dry Bulb Temperature	*70 ºF*		

Conduction	**Area**		**U-Value**		**ΔT °F**		**Btu/hr**
R-19 Floor Crawlspace	360.0	X	0.0469	X	46	=	776
R-15 Wall	534.0	X	0.0953	X	46	=	2,342
New Windows/Doors	48.0	X	0.3000	X	46	=	662
R-30 High Performance Attic	360.0	X	0.0419	X	46	=	694
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
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		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	
		X		X		=	

Items shown with an asterisk (*) denote conduction through an interior surface to another room

Page Total 4,474

Infiltration:[	Schedule Fraction		Air Sensible		Area		Ceiling Height		ACH			ΔT		
	1.00	X	1.073	X	360	X	8.00	X	0.266	/ 60 **]**	X	46	=	631

TOTAL HOURLY HEAT LOSS FOR ROOM *5,105*

RESIDENTIAL ROOM COOLING LOAD SUMMARY

Project Name	Date
LICHAU ADITION ONLY	*8/14/2020*

ROOM INFORMATION		DESIGN CONDITIONS	
Room Name	*ADU*	**Outdoor Dry Bulb Temperature**	*96 ºF*
Floor Area	*360.00 ft²*	**Outdoor Wet Bulb Temperature**	*69 ºF*
Indoor Dry Bulb Temperature	*78 ºF*	**Outdoor Daily Range:**	*35 ºF*

Opaque Surfaces	Orientation	Area		U-Factor		CLTD[1]		Btu/hr
R-19 Floor Crawlspace		*360.0*	X	*0.0469*	X	*9.6*	=	*162*
R-15 Wall	*(N)*	*370.0*	X	*0.0953*	X	*9.0*	=	*317*
R-15 Wall	*(E)*	*88.0*	X	*0.0953*	X	*19.0*	=	*159*
R-15 Wall	*(W)*	*76.0*	X	*0.0953*	X	*19.0*	=	*138*
R-30 High Performance Attic	*(N)*	*360.0*	X	*0.0419*	X	*43.0*	=	*648*
			X		X		=	
			X		X		=	
			X		X		=	
			X		X		=	
						Page Total		*1,425*

Items shown with an asterisk (*) denote conduction through an interior surface to another room.
1. Cooling Load Temperature Difference (CLTD)

Fenestration	Orientation	Shaded Area		Shaded GLF		Unshaded Area		Unshaded GLF		Btu/hr
Add N Windows	*(N)*	*0.0*	X	*10.5*	+	*20.0*	X	*10.5*	=	*211*
Add E Windows	*(E)*	*0.0*	X	*10.5*	+	*8.0*	X	*23.8*	=	*191*
Add W Windows	*(W)*	*0.0*	X	*10.5*	+	*20.0*	X	*23.8*	=	*477*
			X		+		X		=	
			X		+		X		=	
			X		+		X		=	
			X		+		X		=	
			X		+		X		=	
			X		+		X		=	
							Page Total			*878*

Internal Gain							Btu/hr
Occupants	*1.1*	Occupants	X	*245*	Btuh/occ.	=	*265*
Equipment	*360*	Floor Area	X	*1.00*	w/sqft	=	*1,229*

Infiltration:	Air Sensible		CFM		ELA		ΔT	=	
	1.073	X	*0.71*	X	*13.20*	X	*18*	=	*180*

TOTAL HOURLY SENSIBLE HEAT GAIN FOR ROOM *3,976*

Latent Gain							Btu/hr
Occupants	*1.1*	Occupants	X	*155*	Btuh/occ.	=	*167*

Infiltration:	Air Latent		CFM		ELA		ΔW	=	
	4,812	X	*0.71*	X	*13.20*	X	*-0.00121*	=	*-54*

TOTAL HOURLY LATENT HEAT GAIN FOR ROOM *113*