Exterior 1

N.T.S.

MANDATORY HERS: THE FOLLOWING HERS FEATURES APPLY & REQUIRE 3RD PARTY HERS INSPECTION AND VERIFICATION:
1. VENTILATION MINIMUM OF 51 CFM
2. KITCHEN HOOD MINIMUM REQUIRED 100 CFM AND MAXIMUM ALLOWED SOUND RATING OF 3.0 SONES

OPTIONAL VCHP HERS: REQUIRE 3RD PARTY HERS INSPECTION AND VERIFICATION.
1. AIRFLOW IN HABITABLE ROOMS
2. VERIFIED HEATPUMP RATED HEATING CAPACITY
3. WALL MOUNTED THERMOSTAT IN ZONES GREATER THAN 150 SQ.FT.
4. DUCTLESS INDOOR UNITS ALL IN CONDITIONED SPACE
5. REFRIGERANT CHARGE MEASUREMENT

INDEX

SCOPE OF WORK:

New house and carport; Turfstone driveway and Parking and concrete retaining walls

DEFERRED SUBMITTAL:

MIN. 6.17 KWDC ROOF-MOUNTED PV SYSTEM

FIRE SPRINKLER SYSTEM

CONSULTANTS

Civil - Lee Erickson Engineering Inc.
Valley Ford, CA 94972
lee.erickson@hotmail.com
707-795-2498

Geotech - RGH Consultants
1305 N. Dutton Ave.
Santa Rosa CA
707-544-1072

Timber Frame Consultants -
Timber Creations
405 Horn Ave, Santa Rosa, CA 95407
Phone: (707) 584-1829

Architect
Morse and Cleaver Architects
Claudia Cleaver
Claudia@MorseCleaver.com
707-888-4959 cell

Structural Engineering
Fearless Engineers, PLLC
Jennifer Anthony, PE
201 S. 4th St. West, #2
Missoula, MT, 59801
406. 214.4603
fearlessengineers@msn.com

Title 24 & CalGreen
Save Energy Consulting
10555 Chalk Hill Rd.
Healdsburg CA, 95448
707-838-8505
skeer22@gmail.com

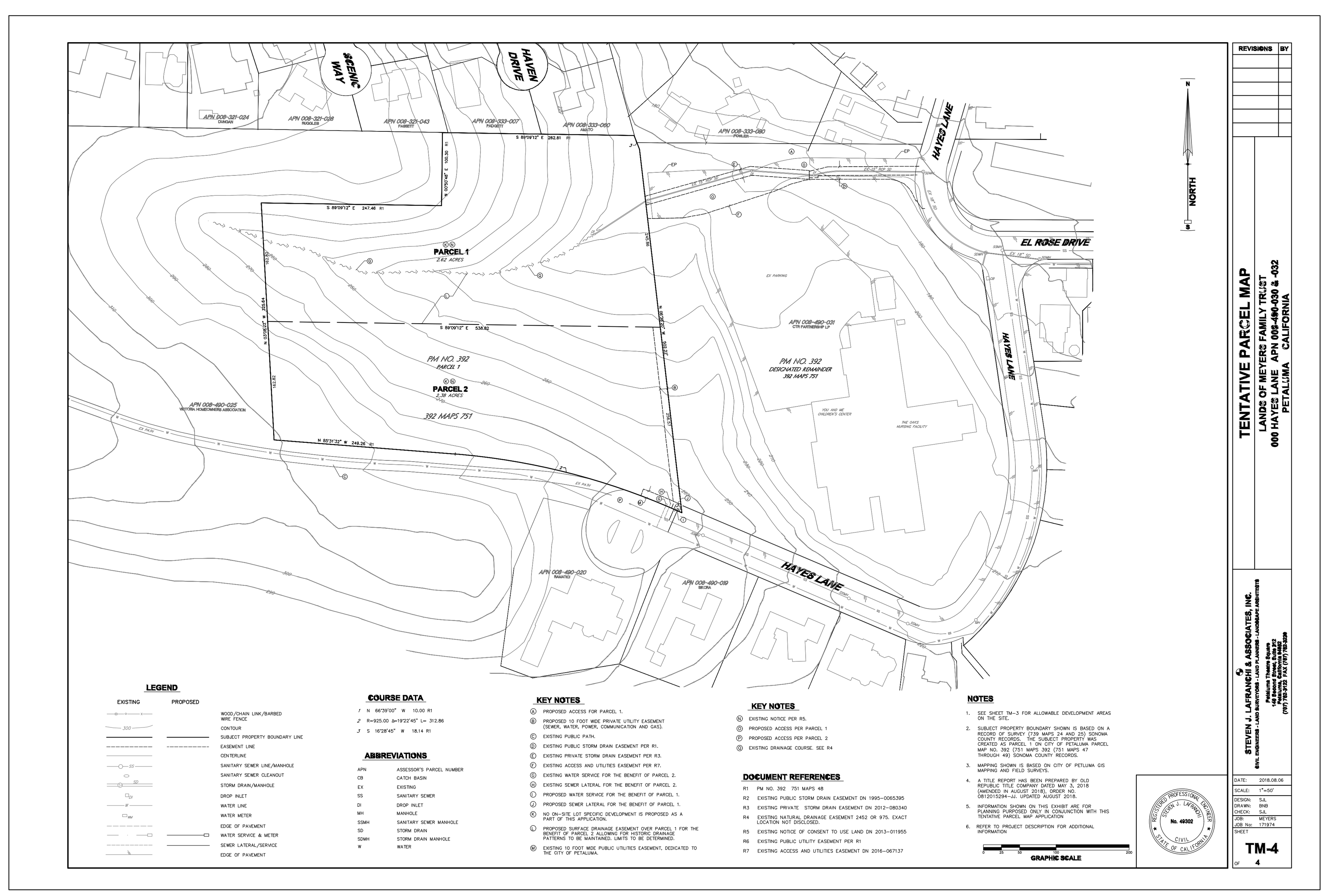
PROJECT INFORMATION

△1
Parcel number 008-490-035
zoning R2
Special District West Hills General Plan
Parcel Property = 2.38 Acres
Lower area to exterior wall=1917 sq.ft
Upper area to exterior wall=1065 sq.ft
Carport area =280 sq. ft.
Stories: 2 Story
Max building ht / proposed ht = 30'
Patio area = 491 Sq. Ft.

△1
Applicable Codes: 2022 CEC, CRC, CBC, CMC, CPC, CFC, CEES, CGBSC, CRC, R 106.1, CBC 107.1
Occupancy: R3
Construction Type: VB

Sewer:	Connect to municiple sewer water
Water:	Connect to Municiple water
Electrical:	Connect to PG&E Electrical Service
Irrigation:	packaged system for gray water irrigation
Gas:	No gas connection; All electrical power
Photovoltaics:	Rooftop PV system, MIN. 9.6 KW, Deferred Submittal
Fire Sprinkler System:	Required Deferred submittal

FIRE: WUI FIRE ZONE: Building to comply with CBC Chapter 7A



NOTES

1. 4'-0" Max. Retaining Wall ; No Fencing
2. All Landscape To Be Irrigated with an Off- The-shelf Graywater System and or roof runoff storage tanks.
3. All work to conform to the latest City standards. New water, sanitary sewer, landscape and irrigation, storm drain and street improvements shall be designed and installed per City Standards. https://cityofpetaluma.org/city-standards/
4. Utilities shall be underground.
5. Comply with E12 post construction storm water treatment requirements.
6. Pad certification will be required.

Building Division | Requirements
*Proposed project will require building permit application and construction plan approval in compliance with current California Building Standards Code in CCR Title 24 as adopted by the City of Petaluma. The Building Division reviews applications and plans in accordance with this code. The applicant will need to demonstrate compliance with the construction documents.

*Effective June 16, 2021, new buildings are required to have all electric construction as defined in Petaluma Municipal Code 17.36 and permanent supply of electricity as the source of energy for all space heating, water heating (including pools and spas), cooking appliances, and clothes drying appliances, and has no natural gas or propane plumbing installed in the building.

*For the 2019 Building Standards Code cycle effective June 16, 2021, the City of Petaluma has adopted CalGreen at the Tier 1 level for wholly new buildings, with the exception Energy Efficiency, which is adopted at the mandatory level only.

*CBC Appendix J requires a grading permit, approved grading plan, geotechnical report, and inspections for this project.

*Aggregate landscape area is less than 500 Sq. Ft. See calculations on sheet A3

Planning Condition - Compliance
Comply with conditions of approval Comment: Include SPAR COA with plan set.

Landscape Inspection - PMC 15.17.050 A (1) Landscape water use efficiency standards apply to all new construction projects with an aggregate landscape area equal to or greater that five hundred square feet requiring a building permit, plan check or design review.

If the landscape area goes over 500 square feet, a full landscape and irrigation documentation package will need to be submitted for review.

Drought - Refer to the City's website for the current drought restrictions and mandates, cityofpetaluma.org/drought. The applicant shall be responsible to follow all drought requirements during construction including, no installing new landscapes or replanting existing landscapes that require potable water.

SUBJECT PROPERTY

VICINITY MAP

MORSE & CLEAVER
ARCHITECTS
P.O. BOX 2012
SEBASTOPOL, CA 95473
707-634-6137

LICENSED ARCHITECT
CLAUDIA CLEAVER
C-10492
RENEWAL DATE
STATE OF CALIFORNIA

A. P. No.: 008-490-035
The Gaker Cosin Residence
560 Hayes Lane
Petaluma CA , 94952

ISSUE	DESCRIPTION	DATE
	Preliminary	3.12.23
	PLANNING SUBMITTAL	7.18.23
△1	PLANNING RESUBMITTAL	

TITLE SHEET

A1

DRAWN BY: TJM
DATE: 9/21/23

BIRD'S EYE VIEW OF SITE 1

N.T.S.

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Aeial View

A2

DRAWN BY: TJM

DATE: 9/15/23

PLAN NOTES

1. TURFSTONE 12' DRIVE AND PARKING W/ CURBS
2. DECOMPOSED GRANITE PATIO, CONCRETE RETAINING WALL
3. CONCRETE AND D.G. EXTERIOR STAIRS
4. LOCATION OF NEAREST FIRE HYDRANT
5. 5 GALLON FRUIT TREES WATERED BY OFF THE SHELF GREY WATER SYSTEM

1

SHEET NOTES

- COMPLETE TURN KEY GREY WATER PUMP AND IRRIGATION SYSTEM TO SUPPLY ALL IRRIGATION NEEDS FOR PLANTERS AND FRUIT TREES.
- SEE CIVIL DRAWINGS FOR GRADING AND DRAINAGE

SITE PLAN 1

1: 620

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SITE PLAN

A2.1

DRAWN BY: TJM

DATE: 9/15/23

PARCEL 2
2.38 ACRES

S 89°09'12" E 538.82'

008-490-030

008-490-030

N 09°38'20" W 502.22'

256.57'

N 85°31'32" W 249.26' R1

008-490-025

MAIN FLOOR FINISH FLOOR= 256'
LOWER F/N. FLR = 246'-10"

CARPORT F/N. SURFACE= 262'

60' HOSE

52' HOSE

100' HOSE

108' HOSE

FIRE TRUCK

GATE

ASPHALT PATH

65' r.w.

50' MIN. SETBACK

31'-9"

57'-1"

ELEV ±266'

Magnetic North
True North

SITE PLAN 1

1/16"= 1'-0"

0 1 2 3 4 IN

UTILITY LINES

IN SHARED TRENCH: SEE CIVIL DRAWINGS, C8, FOR MORE INFO.

- W V WATER LINE
- S S S SEWER LINE
- SP SP FIRE SPRINKLER LINE
- E E E ELECTRICAL LINE TO PG&E UNDERGROUND CONNECTION
- C C C COMMUNICATIONS
- G G G GREY WATER SYSTEM

1

LANDSCAPE/ IRRIGATION NOTES

- L1 ALL DISTURBED FILL AREAS TO HAVE LOW WATER NATIVE GRASSES TO BE HAND WATERED UNTIL ESTABLISHED
- L2 GREY WATER PUMP DELIVERY IRRIGATION SYSTEM TO SUPPLY ALL IRRIGATION NEEDS FOR FRUIT TREES.

SHEET NOTES

1. SEE CIVIL DRAWINGS FOR GRADING AND DRAINAGE
2. DECOMPOSED GRANITE PATIO W/ CONCRETE RETAINING WALLS
3. TURFSTONE DRIVE AND TURFSTONE PARKING W/ CURB/ RETAINING WALLS
4. NOT USED
5. CONCRETE AND DECOMPOSED GRANITE STEPS
6. UTILITY FOR ELECTRICAL
7. UTILITY TRENCH FOR WATER, FIRE SUPPRESSION, AND SEWER, (NO GAS), ON PROJECT. SEE CIVIL DRAWINGS AND SHEET A2 FOR MORE INFORMATION
8. STONE ENTRY STOOP
11. FRENCH DRAIN AND DOWNSPOUT. ROCK-LINED OVERFLOW DRAIN THE DISPERSAL TRENCH
12. SEE CIVIL FOR UTILITY CONNECTIONS
13. STONE STOOP ON CONCRETE SLAB
14. (E) CITY WATER MAINS AND LATERALS
15. (E) PG&E UNDER GROUND VAULT FOR COMMUNICATIONS & TRANSFORMER AND UNDERGROUND LINE TO METER & DISCONNECT
16. RESIDENTIAL FIRE SERVICE PER 863.01
17. 250 GAL SUMP WITH PUMP AND SEWER LINE
18. (E) CITY SEWER MAIN 6" SDR35MA
19. SEWER HOOK-UP
20. FILL SLOPE
21. RETAINING WALL
22. COMMUNICATIONS VAULT AND LINE TO HOUSE
23. NOT USED
24. FUTURE VISITABILITY RAMP SYSTEM AS NEEDED, SHOWN DASHED
25. 160 FOOT FIREHOSE REACH
26. 3- CAR SPACES, 1 AT CARPORT, 10' x 20', AND 2 IN TANDEM, 9' X 19'

1

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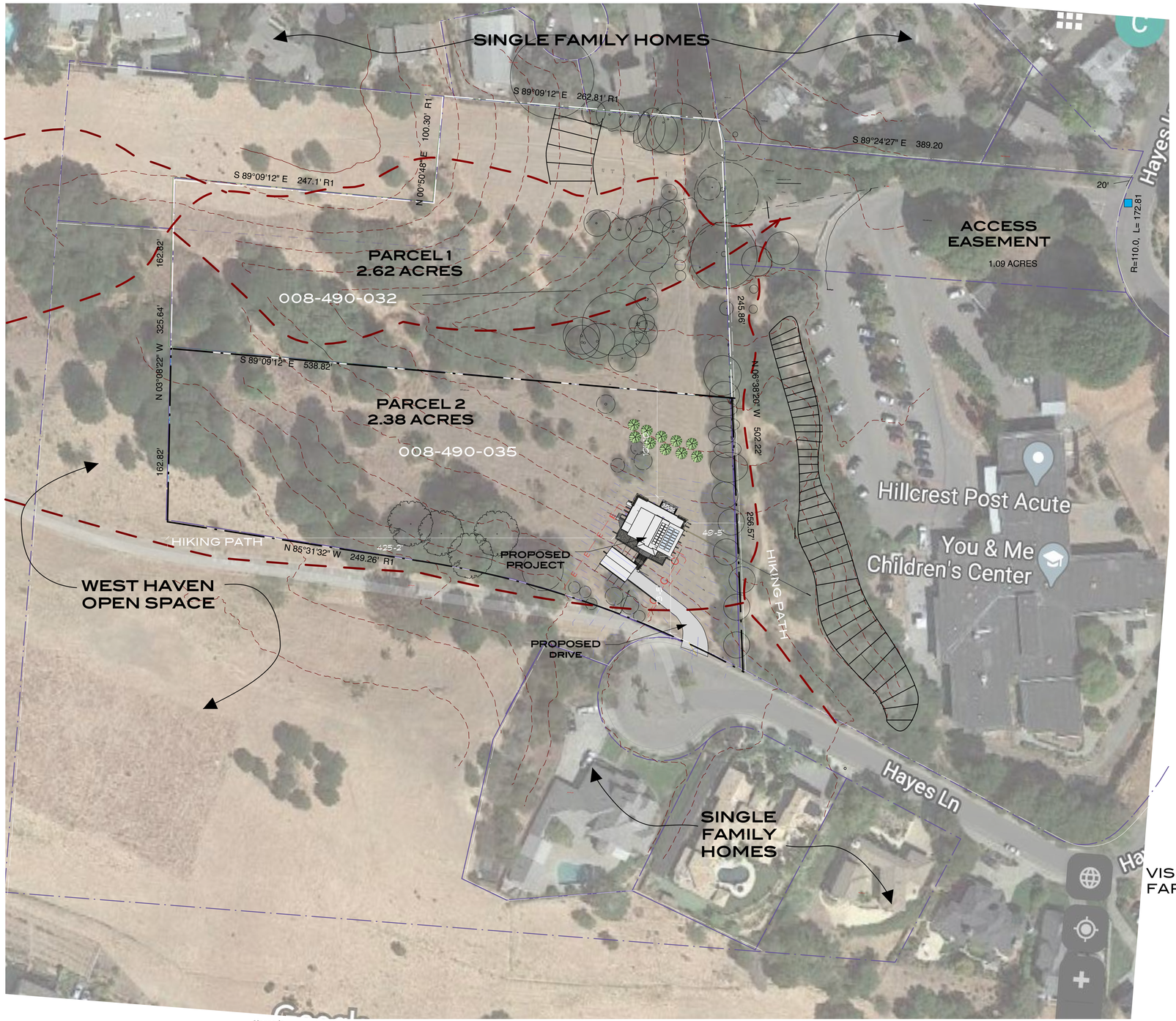
ARCHITECTURAL SITE PLAN

A3

DRAWN BY: TJM

DATE: 9/15/23



LEGEND

- EXISTING HIKING TRAILS
- CAR ACCESS
- PROPERTY LINE
- ACCESS EASEMENT
- STEEP SLOPE

NOTE:
ALL LANDSCAPE TO BE IRRIGATED BY "REWATER", OFF- THE-SHELF GRAYWATER/ RAINWATER PUMP AND STORAGE SYSTEM

VISUAL CONCEPT- MODERN FARMHOUSE

AERIAL CONTEXT MAP 1

1: 620

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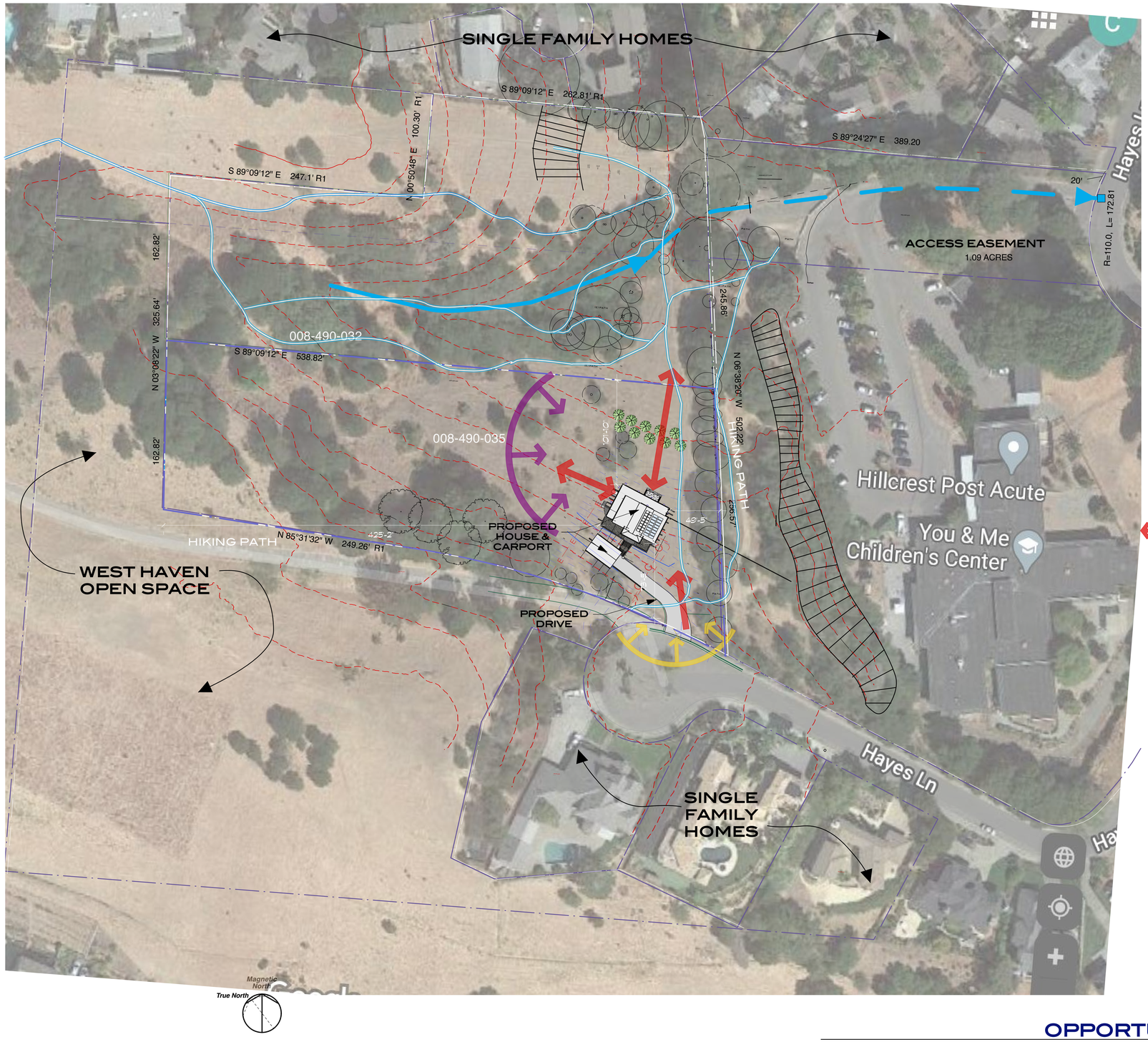
AERIAL CONTEXT
AC

DRAWN BY: TJM
DATE: 9/15/23



LEGEND

- WIND DIRECTION
- SUN DIRECTION
- EXISTING HIKING TRAILS
- SURFACE WATER
- STORM DRAIN
- CAR ACCESS
- PROPERTY LINE
- ACCESS EASEMENT
- ONE WAY VIEW
- TWO WAY VIEW
- STEEP SLOPE

NOTE ON EXISTING & PROPOSED SLOPES

THE PRE-CONSTRUCTION PARKING RAMP AREA SLOPE IS AT 5V/24H AND THE HOUSE AREA IS AT 9V/44H, (BOTH APPROX. 20.5% EXISTING TERRAIN SLOPE.)

THE PROPOSED GROUND SLOPE WILL BE APPROX. 1/60, (OR LITTLE LESS THAN 2% SLOPE ACROSS THE CULVERT FILL AND INTO THE 90 DEG BEND OF THE DRIVEWAY.)

PARKING AREA IS APPROX. 4%

NOTE:
ALL LANDSCAPE TO BE IRRIGATED BY "REWATER", OFF- THE-SHELF GRAYWATER/ RAINWATER PUMP AND STORAGE SYSTEM

OPPORTUNITIES & CONSTRAINTS MAP 1

1: 620

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OPPORTUNITIES & CONSTRAINTS

OC

DRAWN BY: TJM

DATE: 9/15/23

1. Existing Conditions

a. There are currently oak trees, located within zone 1, 2 and the access zone boundary around the property building. The rest of the vegitation is mostly grassland. Owners plan to plant some fruit trees watered by gray water.

2. Proposed Scope

a. The intent of this plan is to properly maintain the fruit trees with selective pruning and removal of all dead material per firewise standards. The stands of mature trees nearby will be thinned and dead wood removed periodically. The existing trees and shrubs will be thinned to provide a fire break from 0'- 30' from the home.

3. Long Term Maintenance Schedule and Safety Practices within 100' of house.

a.All fire prone fuels and dead material will be removed within 100' of the home.

b.Remove branches beneath large trees for a 6-foot minimum clearance.

c.Leaves and other combustible debris and litter shall be removed from roofs and gutter at minimum twice yearly. All gutters will have leaf guards.

d.All weeds and grasses shall be cut regularly to a height of 4" or less.

e.Vegetation shall be trimmed to within 10' horizontally of roadways, and trees shall be trimmed to provide 14' of clearance vertically.

f. All dead and dying vegetation shall be removed seasonally to reduce vegetation volume and ladder fuels.

g.Coordinate with adjacent property owners to maintain tree canopies, vegetation and ladder fuels on an annual basis.

h.No native grasses shall be planted within Home ignition zones 1 and 2.

i. All planted areas inside Home ignition zones 1 and 2 shall be irrigated.

j. All plantings shall be selected in coordination with the FIREsafe Marin planting list located at www.firesafemarin.org/plants. Other fire resistant plants can be utilized with prior approval of the Fire Code Official.

k.Regardless of plant selection, shrubs shall be spaced so that no continuity exists between ground fuels and tree crowns, such that a ground fire will not extend into the tree canopy.

NOTE: AT ACCESS ZONE, ZONE 3 (10' EITHER SIDE OF ACCESS ROAD), WILL BE MAINTAINED ALONG ENTIRETY OF ACCESS ROAD TO HAYES LANE.

FRUIT TREE LIST

Saturn Peach	Prunus persica
Pomegranate	Punica granatum
Gwen Avocado	Persea americana
Sir Prize Avocado	Persea americana
Fuji Apple	Malus domestica
Apricot	Prunus armeniaca
Meyer Lemon	Citrus x meyeri
Pear	Pyrus
Persimmon	Diospyros kaki
American Hazelnut	Corylus americana

Immediate Zone (ZONE 0): 0'-5'
The Immediate Zone extends 0-5' from house. ZONE 0 is the area closest to your house, including the structure itself, decks, outdoor furniture, and the outside walls and coverings. This area is most vulnerable, and should be most aggressively maintained for fire resistance.

- Remove any combustible outdoor furniture.
- Replace jute or fiber door mats with fire resistant materials.
- Remove or relocate all combustible materials, including garbage and recycling containers, lumber, trash, and patio accessories.
- Clean all fallen leaves and needles regularly. Repeat often during fire season.
- No vegetation is recommended within 5' of structures.
- Remove tree limbs that extend into this zone. Fire-prone tree varieties should be removed if they extend within 5' of structures..
- Do not store firewood, lumber, or combustibles here, even (especially) under decks or overhangs. Move stored combustibles inside, or at least 30' away from structures.
- Use only inorganic, non-combustible mulches such as stone or gravel. Composted mulch and large bark and chips (greater than 1/2" diameter) may be OK.

Intermediate Zone (ZONE 1): 5'-30'
The Intermediate Zone from 5' to 30' out from buildings, structures, decks, etc. Keep ZONE 1 "Lean, Clean, and Green" and employ careful landscaping to create breaks that can help influence and decrease fire behavior.

- Remove all dead plants, grass, and weeds (vegetation).
- Remove dead or dry leaves and pine needles from your yard, roof and rain gutters.
- Trim trees regularly to keep branches a minimum of 10 feet from other trees.
- Remove branches that hang over your roof and keep dead branches 10 feet away from your chimney.
- Remove vegetation and items that could catch fire from around and under decks.
- Remove fire-prone plants, and choose only fire-resistant varieties. Irrigateregularly.
- Remove limbs to a height of 10' above the ground (or 1/3 the height of the tree) to provide clearance and to eliminate a "fire ladder".
- Use only inorganic, non-combustible mulches such as stone or gravel. Composted mulch and large bark and chips (greater than 1/2" diameter) may be OK.

Extended Zone (ZONE 2): 30'-100'
The extended zone from 30' to 100' (or more, if required due to steep slopes, nearby vegetation conditions, and/or your local fire department). The goal here is not to eliminate fire but to interrupt fire's path and keep flames smaller and on the ground. This zone should include at a minimum:

- Cut or mow annual grass down to a maximum height of 4 inches.
- Create horizontal spacing between shrubs, trees and vertical spacing between grass, shrubs and trees.
- Remove fallen leaves, needles, twigs, bark, cones, and small branches. However, they may be permitted to a depth of 3 inches if erosion control is an issue.

Access Zone (ZONE 3): 0'-10'
Extends 10 feet horizontally from the edge on either side of the road or driveway.

- Within this zone, plantings shall be fire resistant and shall not extend within the 14 foot vertical
- Clearance above the surface of the roadway or driveway, as required for emergency access.
- All landscape shall meet the requirements for separation as stated in the Zone 2 above

SHEET NOTES

1. TURFSTONE DRIVE AND TURFSTONE PARKING W/ CURB/ RETAINING WALLS
2. DECOMPOSED GRANITE PATIO
3. CONCRETE RETAINING WALL
4. SEE CIVIL DRAWINGS FOR GRADING AND DRAINAGE
5. COMPLETE TURN KEY GREY WATER PUMP DELIVERY IRRIGATION SYSTEM TO SUPPLY ALL IRRIGATION NEEDS FOR FRUIT TREES.
6. 10- 5 GALLON FRUIT TREES WATERED BY OFF THE SHELF GREY WATER SYSTEM

Magnetic North
True North

LANDSCAPE AREA CALCULATION

Orchard: 10 fruit trees at 8'diameter =
10 Trees x 50 s.f.= 500 sq.ft
Orchard Total=500 sq.ft

TOTAL LANDSCAPE AREA = 500 S.F.

VEGETATION MANAGEMENT PLAN 1

1/16" = 1'-0"

0 1 2 3 4 IN

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VEGETATION MANAGEMENT PLAN

VMP

DRAWN BY: TJM

DATE: 9/15/23

LED WALL-MOUNTED OUTDOOR STEPLIGHT IN DARK GREY BY DELTA LIGHT OR EQ.

STYLISTIC INSPIRATION

STYLISTIC INSPIRATION

"HOG WIRE" GUARD RAIL STYLE IN BLACK

BRIDGERSTEEL OR EQ CORRUGATED ROOFING IN LIGHT GREY

MAIN ENTRY DOOR

BLACK GOOSENECK BARN LIGHT WITH 16" SHADE BY DOLAN DESIGNS OR EQ.

EXTERIOR WOOD STAIN FOR HANDRAIL
ARBORCOAT SEMI SOLID STAIN IN BLACK

WHITE BOARD AND BATTEN SIDING AND GREY STUCCO

VIEW FROM SOUTH

VIEW FROM WEST

VIEW FROM SOUTHWEST

VIEW FROM NORTHWEST

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1FT 2FT 4FT 8FT
0
GRAPHIC SCALE
SCALE: 1/4" = 1'-0"

M&C

DATE: 9/21/2023

City of Petaluma Municipal Codes
Chapter 17 Grading and Drainage (partial)
<https://petaluma.municipal.codes/Code/17.31.010>

17.31.230 Inspection.
A. No grading work shall be done before a permit is issued therefor.
B. The permittee shall notify the city forty-eight hours prior to starting work at the beginning of the project and on each occasion where work has stopped for more than three consecutive working days.
C. The city shall have the right to inspect the work regularly for compliance with the requirements of this chapter and the conditions of the permit.
D. The city shall place special emphasis on inspection at critical times in the sequence of construction; such as immediately prior to July 15th; immediately prior to October 1st; immediately after the first significant rainfall of the season; and after every heavy storm.
E. The civil engineer who prepared the grading plans shall submit a progress report at the end of every month during which work was done.
F. The permittee must call for city inspection for a drainage device and the city must make its inspection before the device is covered. (Ord. 1576 NCS §1 (part), 1984.)

17.31.250 General regulations.
A. Work may be prohibited during inclement weather upon the order of the director of public works.
B. If the work is being done within five hundred feet of residential or commercial occupancies, the hours of work shall be limited to six a.m. to eight p.m., Monday through Friday, and eight a.m. to five p.m. on Saturday.
C. Work must be controlled to prevent causing a public nuisance due to dust, noise, vibration, etc.
D. Any blasting to be done shall conform to the provisions of the Uniform Fire Code.
E. Topsoil stockpiled on the site must be protected from erosion.
F. Hauling routes are subject to the approval of the director of public works.
G. Work under this chapter does not exclude or preclude building permit requirements under Section 70 of the Uniform Building Code.
H. Work under this chapter does not exclude or preclude zoning and California Environmental Quality Act requirements as administered by the community development and planning director. (Ord. 1576 NCS §1 (part), 1984.)

17.31.255 Construction requirements.
In addition to any adopted BMPs or other requirements for construction projects adopted by the city, the following requirements shall apply to all projects undergoing construction in the city. The requirements set forth below shall apply at the time of demolition of an existing structure or commencement of construction and until the project receives final occupancy/clearance from the city.
A. Sediment, construction waste and other pollutants from construction sites and parking areas, including runoff from equipment at construction sites, shall be retained on the site to the maximum extent practicable.
B. Any sediment or other materials that are not retained on the site shall be removed the same day as the projects are completed. Where determined necessary by the city engineer, a temporary sediment barrier shall be installed.
C. Excavated soil shall be located on the site in a manner that minimizes the amount of sediments running into the street or adjoining properties. Soil piles shall be covered until the soil is either used or removed.
D. No washing of construction or other industrial commercial vehicles shall be allowed on a construction site or property adjacent to a construction site.
E. Drainage controls shall be utilized as needed, depending on the extent of the proposed grading and topography of the site, including, but not limited to, the following: detention ponds, sediment ponds, infiltration pits, dikes, filter berms, ditches, down drains, chutes, or flumes. (Ord. 2210 NCS §8, 2005.)

17.31.260 Excavations.
A. Cut slopes shall be no steeper than necessary, but shall in no case be steeper than two feet horizontal to one foot vertical.
B. No cut slope shall be higher than thirty feet unless approved by the director of public works.
C. The top of the excavation slope shall not be closer than three feet to the site boundary. (Ord. 1576 NCS §1 (part), 1984.)

17.31.270 Fills.
A. The area on which fill is to be placed shall be cleared of all vegetation, such as trees, logs, stumps, and roots of trees, brush, heavy growth of grass and weeds, and any other objectionable material, such as debris, concrete foundations, metal, or nonearthen materials which cannot be properly consolidated or will not support the load of the embankment or structures. The cleared area shall extend to a width of two feet outside the area to be filled. All trees, existing stumps and large roots shall be removed, except that within the area where fills will be three feet or more in height, trees may be cut flush with the existing ground and grubbing of the remaining stumps will not be required except at locations where subdrainage, trenches, drain pipes, foundations or other structures are to be constructed or where unsuitable material is to be removed before construction of the embankment.
B. The existing ground shall be prepared to receive fill construction by:
1. The installation of subdrains to intercept and dispose of waters from springs, aquifers, or other underground sources of water; and storm drains to intercept and dispose of surface waters where required on approved plan.
2. Compacting the ground area upon which any embankment is to be constructed to a minimum relative compaction of ninety percent throughout the top six inches.
C. Embankment fills shall not be constructed upon natural ground slopes which are steeper than five horizontal to one vertical unless such embankments are keyed into the natural ground; and the native material together with the fill material shall be recompacted to a relative compaction of ninety percent. The width of the steps for keying new embankments to existing slopes shall be the width of the compaction equipment plus five feet but not less than ten feet. The construction operation shall be such that a slip plane is not created between the original material and the newly compacted material.
D. Fill slopes shall be no steeper than necessary; but shall in no case be steeper than two feet horizontal to one foot vertical.
E. No fill slope shall be higher than thirty feet unless approved by the director of public works.
F. Except as noted below for rock fill; material for embankments and backfill for excavations; slides; walls and other structures shall be spread in layers not exceeding eight inches in loose thickness before compaction; and each layer shall be compacted to a relative compaction of not less than ninety percent or as recommended by the soils engineer.
G. The side slopes of all embankments shall be compacted by means of tampers or rollers to a minimum of eight-five percent relative compaction or as recommended by the Soils Engineer.
H. When fill material includes rock; individual rocks shall not be greater than three feet in greatest dimension; and no rock larger than six inches in greatest dimension will be permitted closer than eighteen inches below finished grade of the embankment. No large rocks will be permitted to nest; and all voids shall be filed with earth or other fine material and properly compacted.
I. At the time of compaction; the moisture content of the embankment material shall be such that the relative compaction specified may be obtained with the compacting equipment being used. Water shall be added in the required amount to obtain the optimum moisture content for achieving maximum density. Compaction of embankment material which contains excessive moisture shall be delayed until material has been allowed to dry to such an extent that the relative compaction specified may be produced with the compacting equipment being used.
J. Sufficient field tests to determine the relative compaction of the ground and embankment material shall be taken and shall be reported to the city.
K. Fill slopes shall not go beyond the project's boundary unless the U.B.C. Chapter 70 is complied with and written permission or easements have been granted by the adjoining owners. (Ord. 1576 NCS §1 (part), 1984.)

17.31.280 Drainage.
A. Benches at least seven feet wide shall be installed on all cut and fill slopes at not more than twenty-foot vertical intervals.
B. All benches shall have city standard concrete v-ditches for drainage. The ditches shall have a minimum gradient of one-half of one percent and a maximum gradient of three and one-half percent. On slopes greater than three and one-half percent the drainage system shall be designed to accept scouring velocities.
C. All natural embankments adjacent to or within residential lots twenty feet or more in height shall have benches and v-ditches near the bottom of the slope to prevent runoff from the embankment from flowing onto the residential lot.
D. Runoff shall not be allowed to flow over the top of a slope onto the slope face.
E. Drainage facilities must discharge into existing man-made drainage facilities or into natural channels subject to the approval of the director of public works.
F. Drainage facilities must be designed to handle as a minimum the runoff computed in accordance with the requirements and standards of this chapter as specified for runoff circulations which must accompany the grading plan.
G. Finished building pads must slope a minimum of one percent towards drainage facilities unless paved areas are used or larger lots are left undeveloped and an interim one-half percent slope is satisfactory. Constructed pad elevations shall be checked by a civil engineer or licensed land surveyor prior to issuance of a building permit.
H. All drainage devices not accepted for maintenance by the city or Sonoma County water agency must be maintained by the property owner. (Ord. 1576 NCS §1 (part), 1984.)

17.31.300 Completion of work.
A. Upon notification of permittee, city shall make a final inspection to determine if all work has been completed satisfactorily in accordance with the permit and the approved plans.
B. The soils engineer who prepared the soils and geological reconnaissance report, if required, shall state or express the opinion that all work has been done in accordance with this chapter, the approved plans and specifications, and the grading permit and conditions thereof.
C. A reproducible copy of the grading plan and erosion and sediment control plan, reflecting any major changes made and showing improvements as finally constructed, must be submitted by the grading contractor.
D. When all work has been completed satisfactorily in accordance with the permit and the approved plans, and when the director of public works has received the required statements or opinions and "as-built" copies of the plans, the director of public works shall issue a notice of completion to the permittee.
E. A copy of the submitted NOT for the site upon completion of the project, per Section P(1) of 17.31.030 <https://petaluma.municipal.codes/Code/17.31.030>. (Ord. 2210 NCS §9, 2005; Ord. 1576 NCS §1 (part), 1984.)

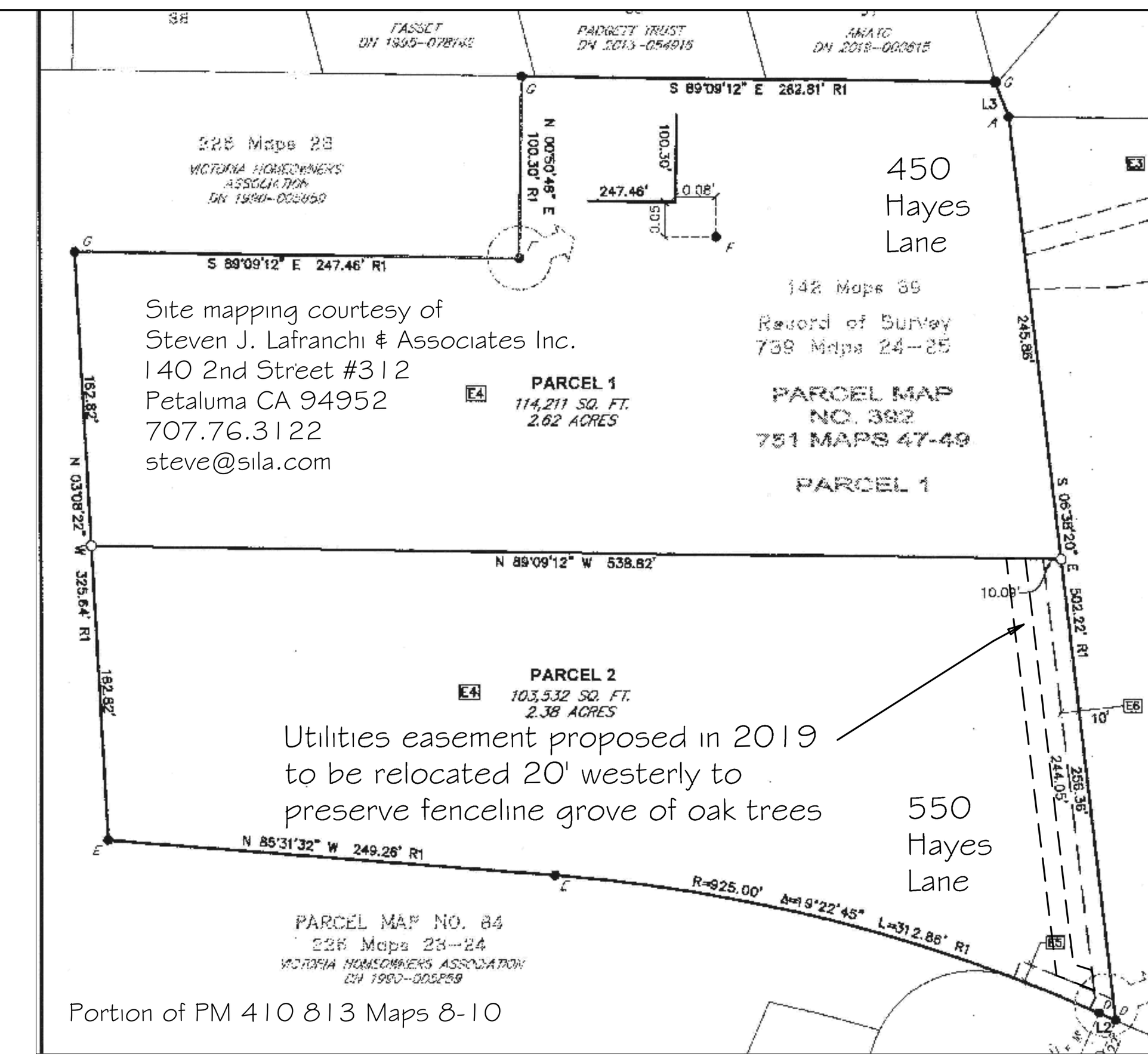
17.31.310 Design standards.
A. Any method or material may be used to accomplish the results specified in this chapter, subject to the approval of the director of public works.
B. The Erosion and Sediment Control Handbook should be used for guidance in designing erosion and sediment control facilities. (Ord. 1576 NCS §1 (part), 1984.)

Soils and Geotechnical Considerations

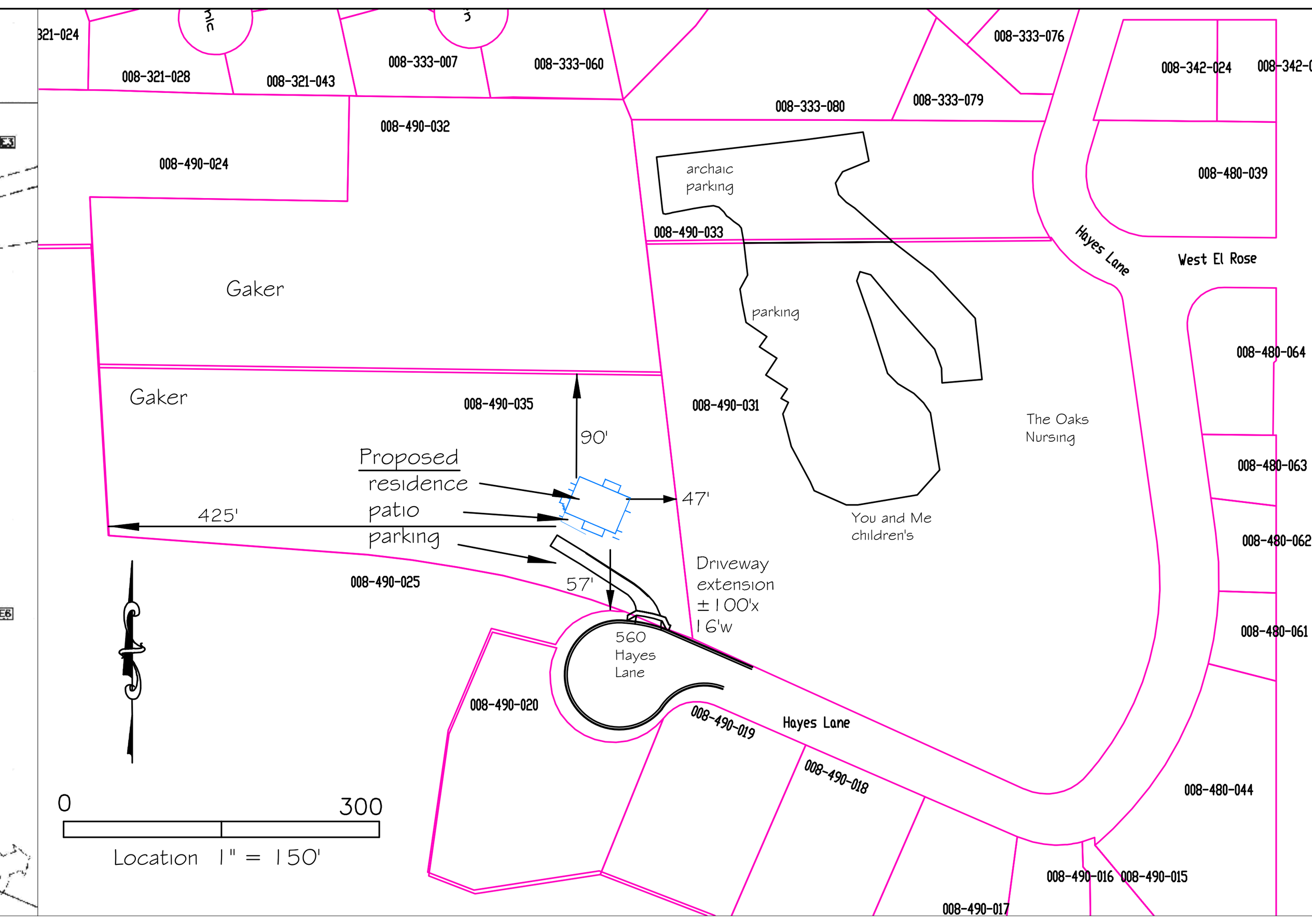
1. Obtain a job copy, become familiar with its contents, and retain on site, as well as conform to requirements of Geotechnical Study Report, Gaker ADU, 450 Hayes Lane, Petaluma California dated January 25, 2021 (Revised June 23, 2021) Project 4621.01.04.1 by RGH Consultants, Santa Rosa Office, 1305 North Dutton Avenue, Santa Rosa CA 95401 707.544.1072 along with subsequent revisions for all aspects of construction.
2. The Geotechnical Engineer shall be notified prior to start of the work. The GE shall review and approve all aspects of excavation and soil placement during construction, review and approve grading methodology and equipment, determine level and extent of topsoil stripping required, provide routine work inspection and compaction testing, and evaluate need for groundwater management, subdrains, borrow material moisture conditioning, liner materials, and any other geology or materials-based aspects of construction, and shall be notified a sufficient time in advance to perform the required inspections and testing. More detailed recommendations follow.
3. Strip 2" - 4" topsoil and all roots tree stumps and organic matter and stockpile for reuse in landscaped areas.
4. Remove surface soils and expose competent non-expansive materials, expected at a depth of about 2-3' below grade. Soil free of rock <6" may be reused as engineered fill subject to geotechnical approval.
5. Any old fills, debris, cess pools, underground utilities or other irregularities exposed during construction will require special measures. Utilities should be rerouted outside of the work area. Soft or irregular areas will require over excavation and reconstruction. Objectionable materials will require removal from the site.
6. Lenses of irregular granular materials or groundwater may be encountered. Extra-ordinary measures as dictated by the GE may be required in order to mitigate and work around presence of such materials.
7. Areas flatter than 5H:1V to be filled should be scarified to 6" deep, moisture conditioned to +2% of optimum, and recompacted to min. 90% ASTM D-1557-91.
8. For slopes steeper than 5H:1V, provide horizontal benches into competent non-expansive subsoils or bedrock under direction of the GE prior to fill placement.
9. Keying at toe of fill slopes and a key core at center of fill is required. Minimum dimensions are 8' wide extending min. 2' into bedrock as determined by the GE. Compaction shall be 90% ASTM D1557-91 at +2% of optimum. Keyway subrains may be required at the discretion of the geotechnical engineer at time of construction, and shall conform to the requirements of the GE.
10. Where used, subdrains should be 4" PVC min. Sch 40 perforated and sloped to drain by gravity. Use CalTrans Class II permeable material. Extend drain rock 2' into competent native materials, extending 3' up cut slopes from a 3' wide base.
11. Imported fill, if used, shall conform to recommendations in the geotechnical report. The on-site soils should be approved by the GE before use.
12. Place fill material in lifts not exceeding 8" loose thickness. Subgrade and fill shall be compacted using only mechanical means with acceptable equipment to 90% ASTM D1557-91 at +2% of optimum.
13. Geotechnical inspection is required for site preparation, keyway excavation, fill placement, subdrain installation, and related items.

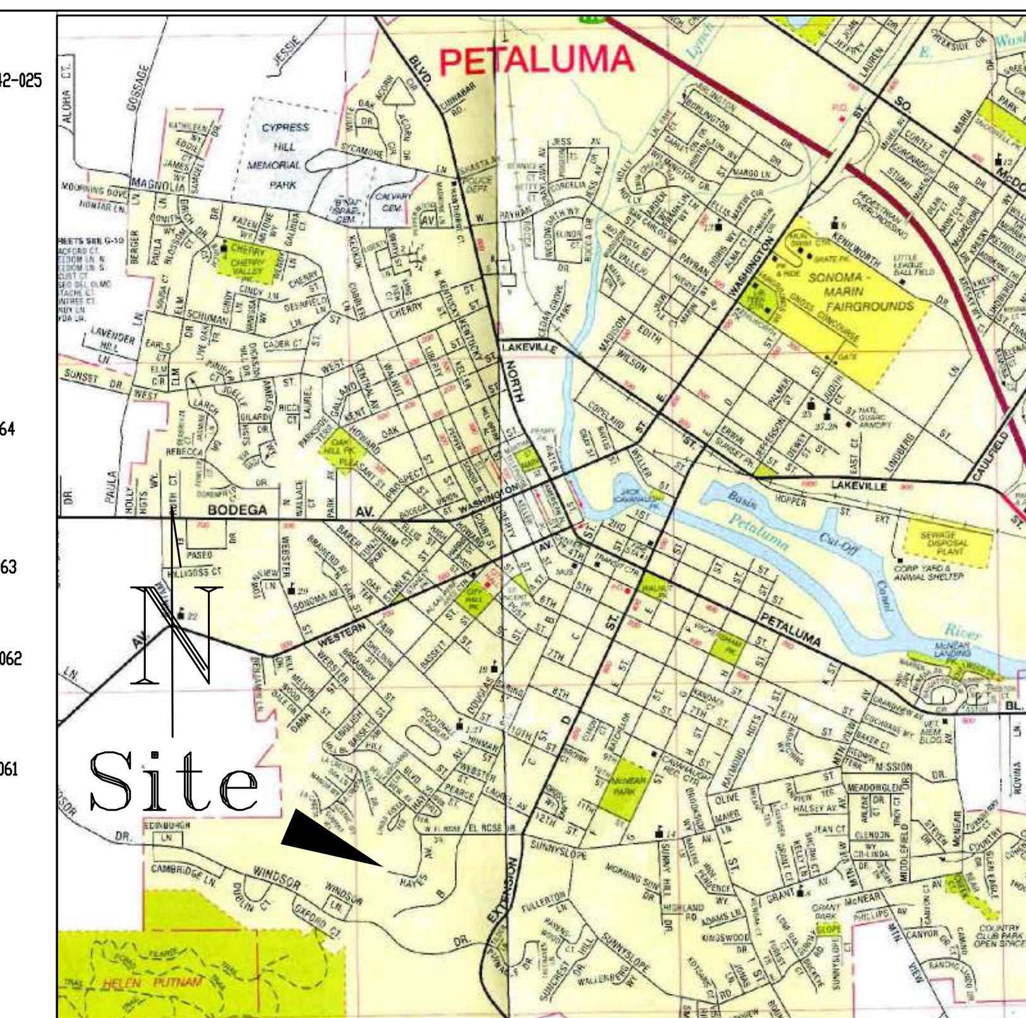
Compaction Requirements per GE Report

Preparation for areas to receive fill
Preparation in accordance with the GE report, compact upper 6 inches to a minimum of 90 % relative compaction.
General fill (native or import)
Min 90 % R.C.
Structural fill beneath buildings,
Min 90 % R.C.
extending outward to 5' beyond building perimeter
Trenches
Min 90 % R.C.
Compact the top 6 inches below vehicle pavement subgrade to a minimum of 95 percent relative compaction.
Retaining wall backfill
Min 90 % R.C. but not more than 95 percent.
Pavements, extending outward to 3' beyond edge of pavement
Compact upper 6 inches of subgrade to min 95% R.C.
Concrete flatwork and exterior slabs,
extending outward to 3' beyond edge of slab
Compact subgrade to Min 90 % R.C. Where subject to vehicle traffic, compact upper 6 inches of subgrade to Min 95 % R.C.
Aggregate Base
Compact aggregate base to Min 95 % R.C.



Location 1" = 100'





Location Sketch
No Scale

Topography Map Note: One-foot LiDAR-derived contours obtained through www.sonomavegmap.org Sonoma Vegetation Mapping courtesy NASA Grant NNX13AP69G and the University of Maryland, Watershed Sciences Inc, and Tukman Geospatial LLC. [Minor grading since LiDAR data collection is represented by smoothed topography where shown.] The Fundamental Vertical Accuracy FVA of the data set is 0.09 feet per assessment of 9,685 RTK ground control points throughout all of Sonoma County. AccuracyZ has been tested to meet 0.05 m (0.17 ft.) FVA at 95 Percent confidence level using RMSE(z) x 1.9600 as defined by the National Standards for Spatial Data Accuracy (NSSDA); assessed and reported using National Digital Elevation Program (NDEP)/ASRPS Guidelines. Relative Accuracy measures the divergence between points from different flightlines. Relative Accuracy median is 0.05 meters (0.17 feet) out of 106,255,665,985 laser points over 4,133 flightlines. Data projected in NAD 1983 (2011) State Plane California FIPS 0402 Ellipsoid GRS 1980. Vertical dataum NAVD 88.

Materials Specifications

1. Drain lines, pipe connectors and fittings, drop inlets, and drop inlet collars shall be HDPE n=.015 with water tight joints or better, except where noted on the plans.
2. Culverts and drain lines subjected to vehicular traffic shall be HDPE n=.012 dual wall with water tight joints or better with minimum 12" compacted cover.
3. Concrete shal be 5.5-sack mix using 3/4" aggregate rated at 2500 psi minimum compressive strength at 28 days.
4. Rock riprap shall be specific gravity 2.56, with size distribution as shown on the drawings.
6. Drain rock shall be 3/4" - 2.5" drain rock, 3/8" double washed pea gravel or CalTrans Class II permeable base.
7. Fiber rolls shall be minimum 6" diameter installed per manufacturer's spec.
11. Straw matting for mulch placement on slopes of 2H:1V or greater shall be North American Green S-75 or equal or better.

Gaker-Cosin Residence

Project Statement: Site development in support of new single-family dwelling on undeveloped parcel.

Owners
DJ Gaker - djgaker@gmail.com
Emily Cosin - emilycosin@gmail.com
560 Hayes Lane
Petaluma CA 94952
707.535.9137

Architect
Claudia Cleaver
Morse Cleaver Architects
Claudia@MorseCleaver.com
707.888.4959 cell

BuildingContractor
Kimo Garrigan
Ohana Construction Inc
838 Petaluma Blvd So.
Petaluma CA 94952
707.782.0850
kimo@ohanaconstruction.net

Site mapping courtesy of
Steven J. Lafranchi & Associates Inc.
140 2nd Street #312
Petaluma CA 94952
707.76.3122
steve@sila.com

Notes:
* Work area limit ±15800 sf
* Work area envelope << 1 ac per Plan.
* Existing vegetation: introduced annual grasses.
* Earthwork quantity: ±620 cy cut ±60 cy fill.
* Driveway extension 12' @ ±130'
* Building and foundation per plans by others.
* Septic disposal via Petaluma Sewer System.
* Water service via Petaluma municipal system.
* All work within the public right-of-way requires an Excavation Encroachment permit.
* All on-site swales shall be designed, constructed, and permanently maintained by homeowners such that they function properly and no lot-to-lot drainage occurs.

Table of Contents

July 17, 2019
Steven J. Lafranchi, P.E., P.L.S.
Steven J. Lafranchi & Associates, Inc.
140 Second Street, Suite 312
Petaluma, CA 94952

Tentative Parcel Map - Conditions of Approval
Lands of Meyers Trust
Parcel 1: 450 Hayes Lane APN 008-490-032
Parcel 2: 550 Hayes Lane APN 008-490-030
File No. PLTP-18-0006

Selected Conditions of Approval associated with Civil Engineering Development.
Condition numbers noted.

Petaluma Municipal Code, Chapter 20

8. All parcels created by this parcel map have direct access to Hayes Lane via an access easement for Parcel 1 across APN 008-490-031, and private driveway for Parcel 2 directly onto Hayes Lane. Water and sewer lines for Parcel 1 will be provided via an easement across Parcel 2, which has existing connections at its Hayes Lane frontage.

Department of Public Works and Utilities

3. Existing sanitary sewer lateral shall require video inspection at time of improvement plans and/or building permit submittal; and repaired or replaced as necessary. Inspection report to be submitted and approved by PW&U prior to construction.
4. City may require installation of frontage improvements at time of building permits to meet city standard.
5. Lot-to-lot drainage is prohibited without appropriate storm drain easements.
6. Improvement plan preparation shall be per the latest City of Petaluma policies, standards, codes, resolutions, and ordinances. Existing and new water and sewer connections shall be to current standards.
7. Prepare the final parcel map (completed 2019) per the latest City policies, standards, codes, resolutions and ordinances. Final parcel map fees and technical review deposits shall be required at the time of the application submittal.

Fire Prevention Department

9. New buildings located in any Fire Hazard Severity Zone or any Wildland-Urban Interface Fire Area designated by the enforcing agency constructed after the application date shall comply with the provisions of this chapter. CBC 701A.3
a. The proposed lots are within the boundaries of the Wildland-Urban Interface (WUI) Fire Area as designated by PMC 17.20.040. Buildings constructed in this zone are subject to the requirements outlined in CBC 107A.3
10. Any new structures shall require fire apparatus access road(s). Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3. CFC Components include:
a. Where fire apparatus access roads or a water supply for fire protection are required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection where construction of new roadways allows passage by vehicles in accordance with Section 505.2. CFC 501.4
b. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches CFC 503.2.1
c. The required turning radius of a fire apparatus access road shall be determined by the fire code official. CFC 503.2.4
d. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all weather driving capabilities. CFC 503.2.3
e. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an approved area for turning around fire apparatus. CFC 503.2.5
f. The grade of the fire apparatus access road shall be within the limits established by the fire code official based on the fire department's apparatus. CFC 503.2.7

October 27, 2011
Tony Meyers
6686 Eagle Ridge Road
Penngrove, CA 94951
Tentative Parcel Map - Conditions of Approval
Lands of Meyers
Parcel 1: 550 Hayes Lane, APN 008-490-026 and 027,
Remainder Parcel: The Oaks; You and Me Children's care
File 11-TPM-0568

The July 17, 2019 Conditons of Approval are consistent with the October 27, 2011 Conditions, and are believed to supercede the earlier requirements. Selected Conditions associated with Civil Engineering requirements from the 2011 document not already shown in the 2019 document are provided below.

Tentative Parcel Map Findings

5. The proposed Tentative Parcel Map complies with the Hillside Protection section of the Zoning Ordinance (16.070C.2) in that the 21.8% average slope over the 10.76-acre parcel requires a minimum lot size of 18,606 square feet (less than a half-acre), where each proposed parcel is 5 acres or more. The project is also consistent with the Tree Preservation section in that the lot split proposes no impact to trees; should development be proposed in the future, the Tree Preservation section will apply.
6. The subdivision will create a two-lot Tentative Parcel Map which is appropriate to the surrounding area and with the surrounding uses. Each parcel will access onto the public Hayes Lane right-of-way; 450 accesses Hayes Lane between Belle View Avenue/Nob Hill Terrace and El Rose Drive and 550 accesses Hayes Lane at its cul-de-sac terminus.
7. The design of the subdivision and the types of improvements will not be detrimental to the public health, safety, or welfare. Adequate public facilities exist or will be installed, including driveways and sidewalks, water, sewer, storm drain, and other infrastructure.

Conditions of Approval - Planning Department

2. Prior to Building Permit issuance for Parcel 1, the Zoning Ordinance requires compliance with its Hillside Protection section (specifically sections 16.050 and 16.060) which requires site plan and design review (SPAR) and which specifies hillside development standards.
3. Many of the trees on the Designated Remainder and Parcel 1 are protected trees, pursuant to Zoning Ordinance section 17.040 (for example: oaks with diameter greater than 4 inch). As such they are regulated by Chapter 17. Prior to issuance of any grading or building permit, a security deposit shall be posted to cover the value of all protected trees for preservation during the construction process, pursuant to section 17.060F.
4. Any new or replaced fence or gate requires a separate fence permit.
5. Public utility access and easement locations and widths shall be subject to the approval of PG&E, Pacific Bell, the Sonoma County Water Agency, all other applicable utility and service companies, as well as the City Engineer, and shall be shown on the Parcel Map.

Conditions of Approval - Department of Public Works

7. Remove and replace any broken or displaced curb, gutter, and sidewalk along the property frontage, with City standard sidewalk.
8. The applicant should consider reserving any drainage and utility easements that may be necessary for future development of the parcel. Any easements proposed on the remainder property will require dedication by a separate instrument.
9. A 10-foot wide public utility easement along Hayes Lane shall be dedicated on the final parcel map. The applicant has the option of providing a letter from PG&E that allows a reduction in width of the easement or waives the requirement of the easement all together.
10. Construct a private sewer lateral and water service stub to proposed parcel 1, as shown on the tentative map.
11. Any new electrical/phone/cable services shall be installed underground, not overhead.
12. Prepare the final parcel map (completed 2011) per the latest City policies, standards, codes, resolutions and ordinances. Final parcel map fees and technical review deposits shall be required at the time of the application submittal.

Public Works Comments, December 16, 2021
* All the public improvements shall be designed in accordance with the latest City of Petaluma Public Works and Utilities Department Standards & Specifications, latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) and Caltrans standards.

* Sewer lateral and pump station shall be privately maintained. Water services, fire line and fire hydrant shall be privately maintained. Fire hydrant on Hayes Lane shall be Public.

* The project shall comply with E.10 Construction Erosion and Sediment Control requirements: with the building permit application, applicant shall provide Notice of Intent documentation as well as the Storm Water Pollution Prevention Plan (SWPPP) and erosion and sediment control plan.

* Refer to the City's website for current drought stage. The applicant shall be responsible to follow all requirement during construction.

* Use of greywater for landscape irrigation is encouraged but does not exempt project from complying with PMC Section 15.17.050.

* Aggregate landscape area. If aggregate landscape area is greater than 500 sf and less than 2,500 sf, please submit the following prescriptive measures of the City's landscape water use efficiency standards as defined in PMC 15.17.050 (A)(4). [Area < 500 sf; prescriptive measures do not apply.]

* PDF copy of recorded 10' wide utility access easement shall be provided to the City prior to issuance of building permit.

* The use of turf stone reduces the impervious area on the site. If the turf stone is replaced in the future with a pervious surface the applicant is responsible to comply with E12 post construction storm water treatment requirements. This would include a construction-level report and plans with the building permit applications for the future homes demonstrating compliance with the E12 requirements. The applicant would be required to enter into the City's standard operation and maintenance agreement for treating storm water prior to acceptance of subdivision improvements.

REGISTERED PROFESSIONAL ENGINEER
Lee R Erickson
AE 468
CE 45660
Expires 12/31/2024
Agricultural
Civil
STATE OF CALIFORNIA
09.18.2023

Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

Location Maps, Consultant Team, 2011 and 2019 Map Conditions of Approval, Grading and Drainage Specifications, Geotechnical Requirements

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

09.18.2023

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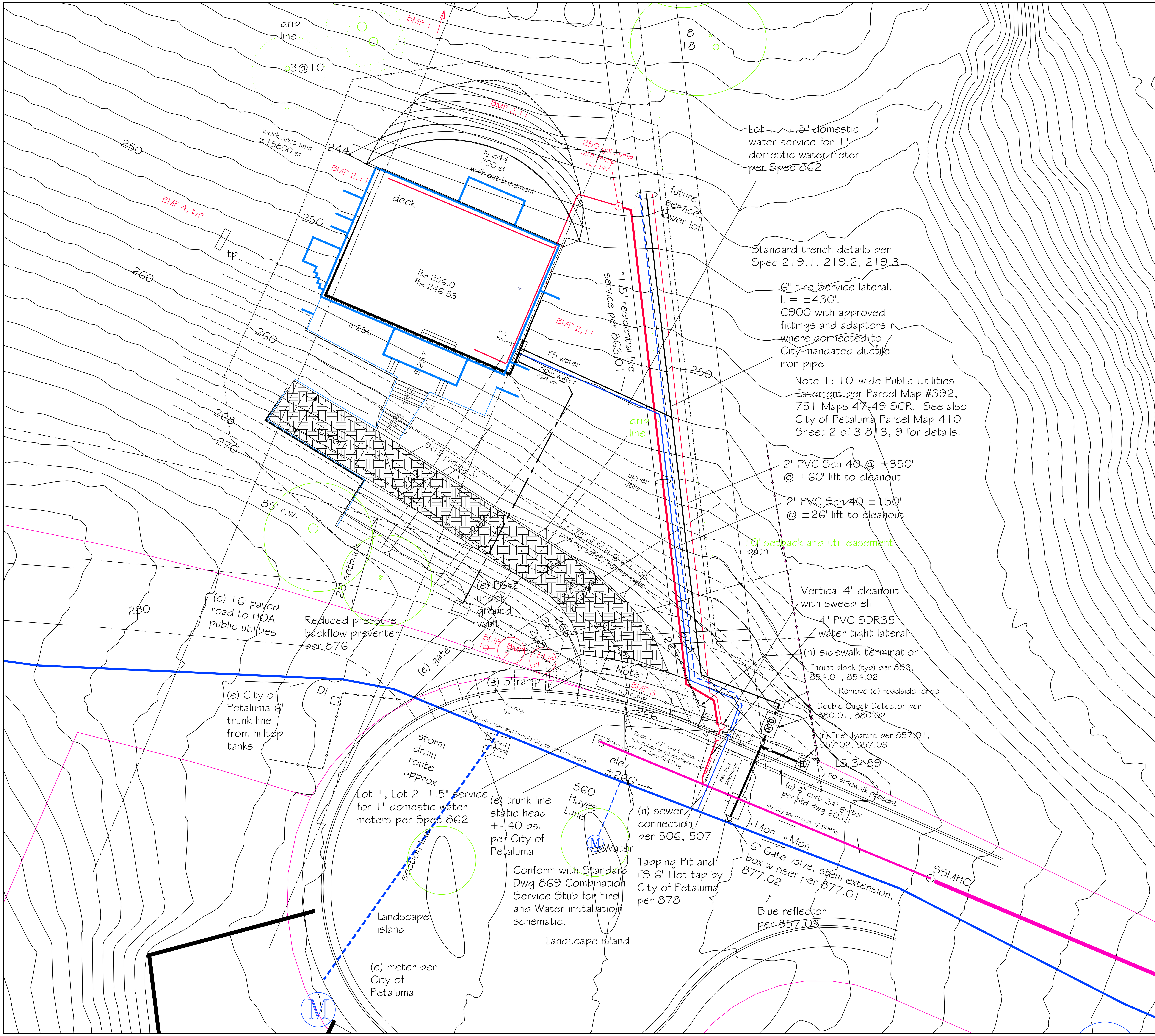

drip line
3@10
BMP 1
8
18
250
work area limit ±15800 sf
244
BMP 2,11
fg 244
700 sf
walk out basement
250 gal sump with pump
elev 240'
BMP 4, typ
deck
250
tp
ffup 256.0
ffdn 246.83
260
ff 256
PV, battery
ff 257
BMP 2,11
*1.5" residential fire service per 863.01
future service, lower lot
FS water
dom water
PG&E util
250
drip line
268
270
carport
9x19 parking 3x
upper utils
85' r.w.
+-78' of 5" H @ CL conc parking safety barrier units
25' setback
(e) PG&E under ground vault
280
(e) 16' paved road to HOA Public utilities
Reduced pressure backflow preventer per 876
BMP 10
BMP 7
BMP 8
(e) gate
(e) 5' ramp
Note 1
BMP 3
(n) ramp
265
264
266
5'
DI
(e) City of Petaluma 6" trunk line from hilltop tanks
scoring, typ
(e) City water main and laterals City to verify locations
patched pavement
storm drain route approx
Redo +- 37' curb & gutter for installation of (n) driveway ramp per Petaluma Std Dwg
Sewer co
ele ±266'
(e) 1.5" Water
patched Pavement
Lot 1, Lot 2 1.5" service for 1" domestic water meters per Spec 862
(e) trunk line static head +- 40 psi per City of Petaluma
560 Hayes Lane
Water
section line
Conform with Standard Dwg 869 Combination Service Stub for Fire and Water installation schematic.
Landscape island
Landscape island
(e) meter per City of Petaluma
(n) sewer connection per 506, 507
Tapping Pit and FS 6" Hot tap by City of Petaluma per 878
Lot 1 1.5" domestic water service for 1" domestic water meter per Spec 862
Standard trench details per Spec 219.1, 219.2, 219.3
6" Fire Service lateral.
L = ±430'.
C900 with approved fittings and adaptors where connected to City-mandated ductile iron pipe
Note 1: 10' wide Public Utilities Easement per Parcel Map #392, 751 Maps 47-49 SCR. See also City of Petaluma Parcel Map 410 Sheet 2 of 3 813, 9 for details.
2" PVC Sch 40 @ ±350' @ ±60' lift to cleanout
2" PVC Sch 40 ±150' @ ±26' lift to cleanout
10' setback and util easement
path
Vertical 4" cleanout with sweep ell
4" PVC SDR35 water tight lateral
(n) sidewalk termination
Thrust block (typ) per 853, 854.01, 854.02
Remove (e) roadside fence
Double Check Detector per 880.01, 880.02
DCD
(n) Fire Hydrant per 857.01, 857.02, 857.03
H
LS 3489
no sidewalk present
(e) 6" curb 24" gutter per std dwg 203.1
(e) City sewer main 6" SDR35
Mon
Mon
6" Gate valve, stem extension, box w riser per 877.01 877.02
SSMHC
Blue reflector per 857.03
M

LEGEND

270 / 260	CONTOURS
	CONTOURS 1'
	CONTOURS Fin
	BUILDING
	TREES
	FIBER ROLL
	WORK AREA LIMIT
	UNPAVED ROAD
	(e) FENCE
	(n) FENCE
	PARCEL LIMIT +-
	DRAINAGE
	sheet flow
	Util Septic
	Util Sewer
	Util Water
	Util Power

(e) – existing
(n) – new
(typ) – typical
ac. – acre
co. – cleanout
i.g. – invert grade
f.g. – finished grade
sf – square feet
ft – feet
△ CONTROL

One-foot LiDAR-derived contours obtained through www.sonomavegmap.org Sonoma Vegetation Mapping courtesy NASA Grant NNX13AP69G and the University of Maryland, Watershed Sciences Inc, and Tukman Geospatial LLC. [Minor grading since LiDAR data collection is represented by smoothed topography where shown.] The Fundamental Vertical Accuracy FVA of the data set is 0.09 feet per assessment of 9,685 RTK ground control points throughout all of Sonoma County. AccuracyZ has been tested to meet 0.05 m (0.17 ft.) FVA at 95 Percent confidence level using RMSE(z) x 1.9600 as defined by the National Standards for Spatial Data Accuracy (NSSDA); assessed and reported using National Digital Elevation Program (NDEP)/ASRPS Guidelines. Relative Accuracy measures the divergence between points from different flightlines. Relative Accuracy median is 0.05 meters (0.17 feet) out of 106,255,665,985 laser points over 4,133 flightlines. Data projected in NAD 1983 (2011) State Plane California FIPS 0402 Ellipsoid GRS 1980. Local TBM to be determined. Vertical dataum NAVD 88.

Plan View
0 24
SCALE: 1" = 12'
1', 2' contours

REGISTERED PROFESSIONAL ENGINEER
Lee R Erickson
AE 468
CE 45660
Expires 12/31/2024
Agricultural
Civil
STATE OF CALIFORNIA
09.18.2023

Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

Water, Sewer, Electrical Utilities
Home Site Development
10 Scale Plan View

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

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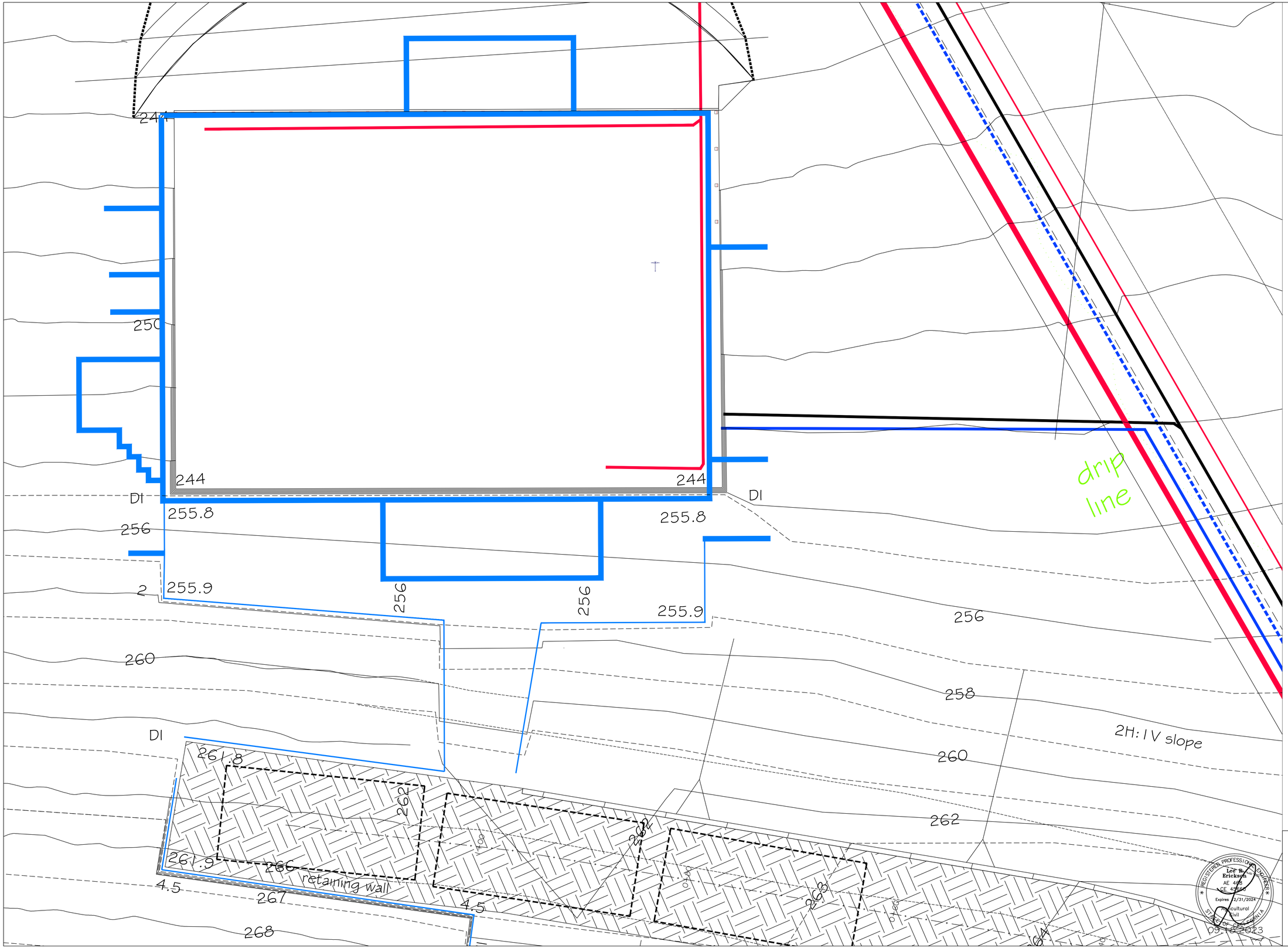


One-foot LiDAR-derived contours obtained through www.sonomavegmap.org. Sonoma Vegetation Mapping courtesy NASA Grant NNX13AP69G and the University of Maryland, Watershed Sciences Inc, and Tukman Geospatial LLC. [Minor grading since LiDAR data collection is represented by smoothed topography where shown.]. The Fundamental Vertical Accuracy FVA of the data set is 0.09 feet per assessment of 9,685 RTK ground control points throughout all of Sonoma County. AccuracyZ has been tested to meet 0.05 m (0.17 ft.) FVA at 95 Percent confidence level using RMSE(z) x 1.9600 as defined by the National Standards for Spatial Data Accuracy (NSSDA); assessed and reported using National Digital Elevation Program (NDEP)/ASRPS Guidelines. Relative Accuracy measures the divergence between points from different flightlines. Relative Accuracy median is 0.05 meters (0.17 feet) out of 106,255,665,985 laser points over 4,133 flightlines. Data projected in NAD 1983 (2011) State Plane California FIPS 0402 Ellipsoid GRS 1980. Local TBM to be determined. Vertical datum NAVD 88.

Plan View

0 8

SCALE: 1" = 4'
1' contours

Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

Plan View
1" = 4'

DJ Gaker
djgaker@gmail.com
Emily Cosin
emily.cosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

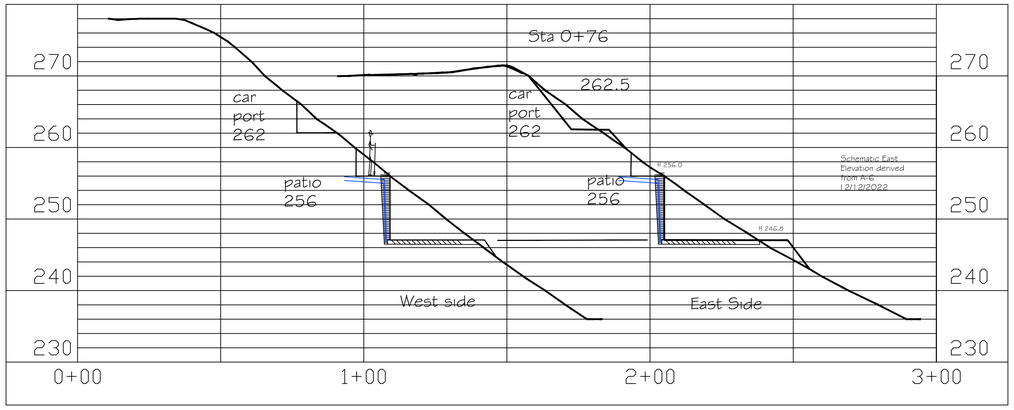
09.18.2023

2023 0917
Gaker.dwg

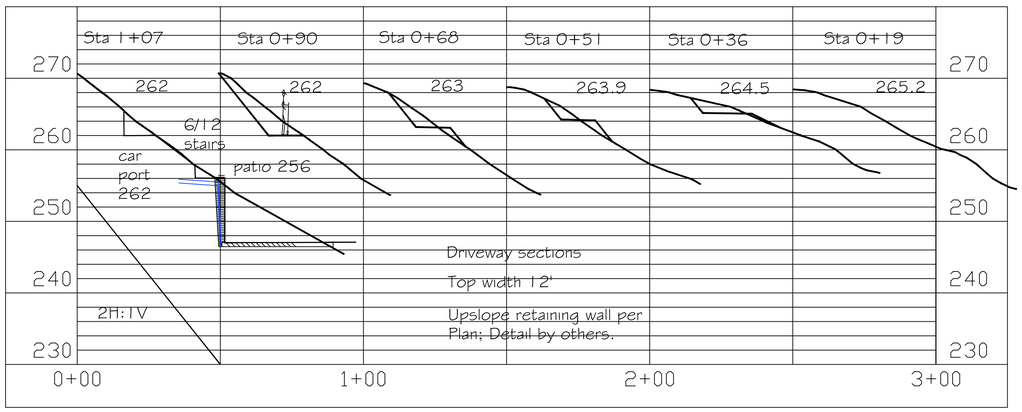
Scale:
1" = 4'

Sheet
C3
of 10

REGISTERED PROFESSIONAL ENGINEER
Lee R. Erickson
AE 498
CE 45660
Expires 12/31/2024
Agricultural
Civil
STATE OF CALIFORNIA
09-18-2023



Profiles 1" = 25'H 1" = 10'V



Profiles 1" = 25'H 1" = 10'V

Erosion Control
Best Management Practices per Erosion and Sediment Prevention Notes

- dry season construction
- dust control
- temporary straw mulch, seed
- fiber roll
- permanent vegetative cover
- surface drainage controls
- Petaluma standards enumerating BMPs
- Good housekeeping

Petaluma Municipal Code - 17.31.240 Erosion control.

A. The Erosion and Sediment Control Handbook shall be used as a guide for the design and suitability of erosion and sediment control measures.
B. The faces of cut and fill slopes must be protected against damage by erosion and the methods utilized for such protection must offer effective erosion control prior to the beginning of, as well as during, the rainy season.
C. Where graded slopes are steeper than three feet horizontal to one foot vertical or are higher than ten feet, they shall be protected with a temporary soil stabilization measure such as jute matting or an equivalent mulch until planting is established.
D. The surface of all cut slopes higher than five feet and all fill slopes higher than three feet must be permanently protected against damage by erosion by the planting and establishment of protective vegetation.
E. Slopes higher than fifteen feet shall be planted with shrubs spaced ten feet maximum on centers or trees spaced twenty feet maximum on centers or a combination of shrubs and trees at equivalent spacings in addition to other vegetative cover,
F. The planting or seeding of vegetative protection must be effective. If the vegetation does not grow and offer proper protection, it must be replanted or reseeded.
G. The maintenance of vegetative protection on graded slopes shall be the responsibility of the permittee and shall be guaranteed until the vegetation is well established as determined by the director of public works or until the maintenance is officially assumed by another party approved by the director of public works.
H. Sediment control facilities must be constructed and in working order prior to the beginning of the rainy season and must prevent sediment from being transported from the site.
I. The outlet from any sedimentation basin must be designed to handle 1.5 times the maximum design inflow.
J. A standby emergency crew must be provided by the permittee and must be available at all times during the rainy season to repair and maintain the erosion and sediment control devices.
K. Erosion control materials must be stockpiled on the site for emergency repairs during the rainy season.
L. Minor protective devices that have been removed during the working day shall be replaced at the end of the working day if the chance of rain is greater than forty percent.
M. After each rainfall the permittee shall inspect all erosion and sediment control devices and shall clean them and repair any damage.
N. Erosion control devices must be installed where drainage facilities discharge into natural channels. The devices may be rip-rap or concrete channel protection, stilling basins, check dams, drop structures, or other devices which will effectively minimize erosion in the opinion of the director of public works. (Ord. 1576 NCS § 1 (part), 1984.)

Slice Volume Results
Original Surface Model: site dtm
Final Surface Model: grade12
Cut Compaction Factor: 0.00
Fill Compaction Factor: 15.00

Driveway width 12', 2H:1V downhill fill slope, no turnaround

Elevation Interval	Cut Area	Cut Vol	Fill Area	Fill Vol	Cum Cut	Cum Fill
	s.f.	cy	sf	cy	cy	cy
236.00 - 237.00	10.67	0.40	4.23	0.18	0.40	0.18
237.00 - 238.00	15.81	0.59	2.53	0.11	0.98	0.29
238.00 - 239.00	29.14	1.08	1.87	0.08	2.06	0.37
239.00 - 240.00	24.43	0.90	3.23	0.14	2.96	0.51
240.00 - 241.00	42.84	1.59	4.11	0.18	4.55	0.68
241.00 - 242.00	61.30	2.27	9.58	0.41	6.82	1.09
242.00 - 243.00	300.32	11.12	6.71	0.29	17.94	1.37
243.00 - 244.00	1226.67	45.43	6.18	0.26	63.38	1.64
244.00 - 245.00	1876.25	69.49	5.67	0.24	132.87	1.88
245.00 - 246.00	1665.76	61.69	4.35	0.19	194.56	2.06
246.00 - 247.00	1584.45	58.68	4.38	0.19	253.25	2.25
247.00 - 248.00	1330.80	49.29	5.25	0.22	302.53	2.47
248.00 - 249.00	1259.87	46.66	1.69	0.07	349.20	2.55
249.00 - 250.00	993.90	36.81	5.86	0.25	386.01	2.80
250.00 - 251.00	911.89	33.77	6.81	0.29	419.78	3.09
251.00 - 252.00	644.90	23.89	11.03	0.47	443.67	3.56
252.00 - 253.00	524.87	19.44	11.47	0.49	463.11	4.04
253.00 - 254.00	235.39	8.72	16.90	0.72	471.82	4.76
254.00 - 255.00	341.10	12.63	27.61	1.18	484.46	5.94
255.00 - 256.00	469.80	17.40	43.85	1.87	501.86	7.81
256.00 - 257.00	484.13	17.93	12.83	0.55	519.79	8.35
257.00 - 258.00	229.24	8.49	15.58	0.66	528.28	9.02
258.00 - 259.00	140.46	5.20	19.31	0.82	533.48	9.84
259.00 - 260.00	52.81	1.96	49.84	2.12	535.44	11.96
260.00 - 261.00	38.96	1.44	87.18	3.71	536.88 -7 = 530	15.68 -1 = 15
261.00 - 262.00	26.53	0.98	163.05	6.94	537.86	22.62
262.00 - 263.00	392.65	14.54	266.20	11.34	552.41	33.96
263.00 - 264.00	426.77	15.81	351.94	14.99	568.21	48.95
264.00 - 265.00	473.24	17.53	218.83	9.32	585.74	58.27
265.00 - 266.00	347.25	12.86	70.39	3.00	598.60	61.27
266.00 - 267.00	304.88	11.29	3.72	0.16	609.89	61.43
267.00 - 268.00	152.62	5.65	8.72	0.37	615.55	61.80
268.00 - 269.00	33.26	1.23	14.47	0.62	616.78 -530 =87	62.41 -15 =47

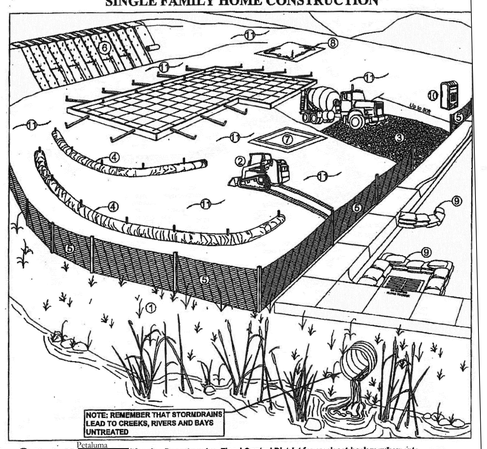
Area downhill of lower foundation - artifact of DTM preparation

Area within residential foundation and patio grading - independent of driveway configuration.

Area within 12' wide driveway. Retaining wall above; 2H:1V fill slopes below.

cut increases relative to tabular values due to replacement of vertical retaining wall with 2H:1V cut slopes.

MINIMUM EROSION CONTROL MEASURES FOR SINGLE FAMILY HOME CONSTRUCTION



BMP Petaluma

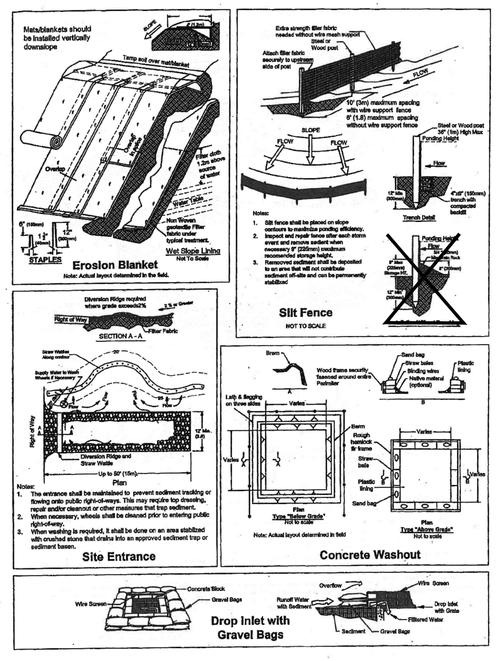
1. Check with [redacted] Planning Department or Flood Control District for creek set-back requirements.
2. During grading phase, track-walk up and down slopes, not parallel.
3. *Stabilize site entrance and temp drivewaywith 3" crushed rock up to 50' to prevent traking soil off site. 12" min depth
4. *Install straw wattles along contour at or > 2:1 slope, keyed into ground at least 3" in desp (25' to 50' apart).
5. *Install silt fence as secondary measure along contours to keep sediment onsite and to minimize vehicle and foot traffic beyond limits of site disturbance.
6. *Install erosion blankets on any disturbed area at or > than a 2:1 slope.
7. *Construct a concrete washout site adjacent to stabilized entrance. Clean as needed and remove at end of project.
8. Cover all stock piles-stockpile and landscape materials, keep behind silt fence, and away from water bodies.

n.a. 9. *Use pea-gravel bags around drain inlets located both onsite and within gutter as a last line of defense.

10. Place port-a-potty near stabilized site entrance and away from storm drain inlets and water bodies.
11. Cover all exposed soil with straw or straw/tackifier.

Note: Sediment and erosion control shall be continually maintained throughout the local rainy season and to remain effective during construction phase. Continue inspection and maintenance of BMPs before and after rain events.

[redacted]



Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

Driveway Sections, Earthwork Volumes
Erosion Control Details

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

09.18.2023

2023 0917
Gaker.dwg

Scale:
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Lee R Erickson
AE 4196
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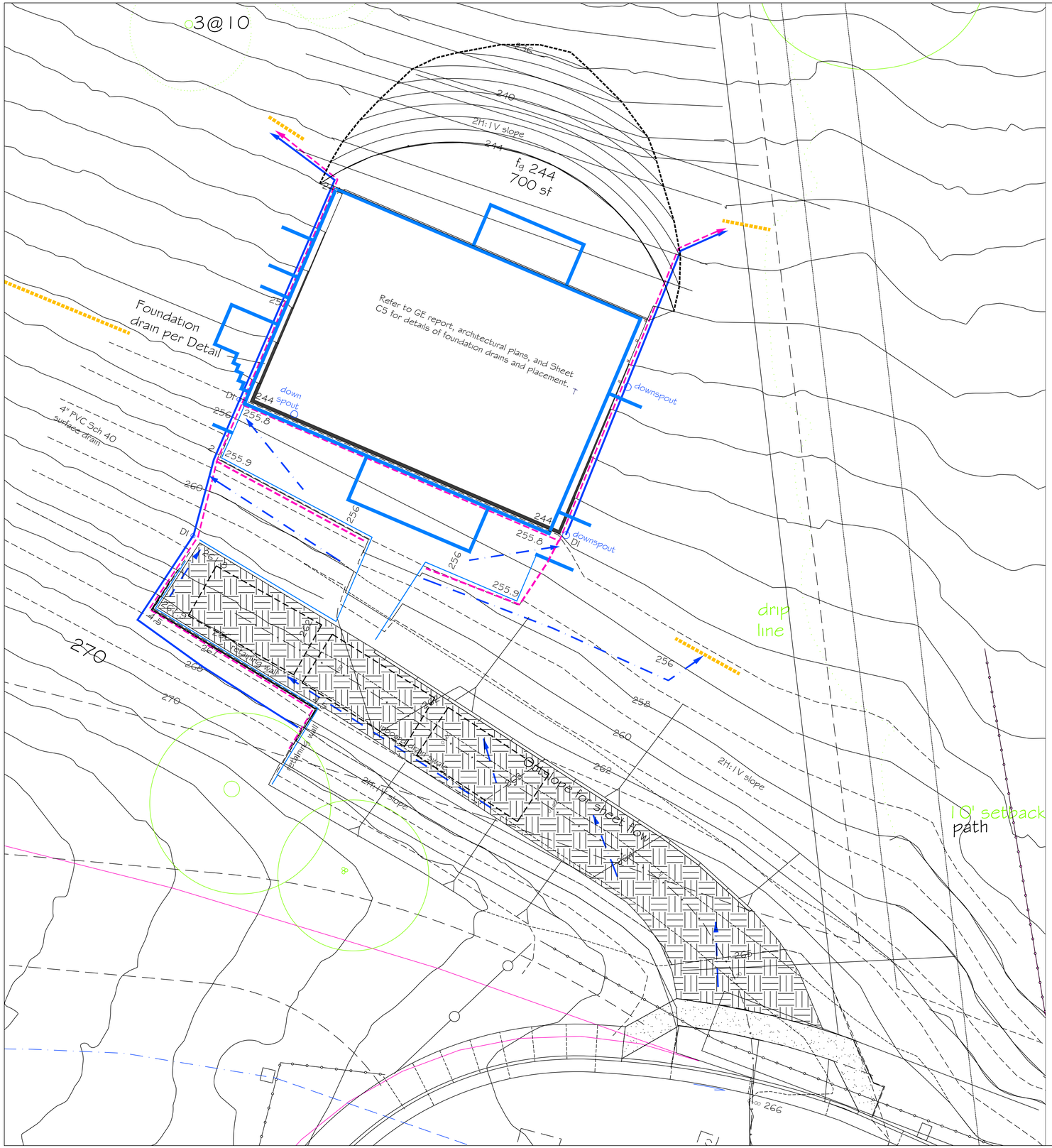
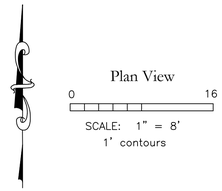
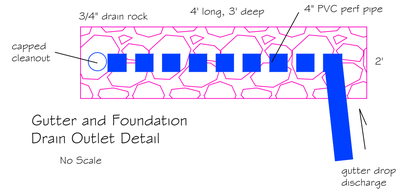






Gutter and Foundation Drain Outlet Detail

No Scale

LEGEND

BUILDING

TREES

FIBER ROLL

UTILITY POWER

WORK AREA LIMIT

UNPAVED ROAD

(e) FENCE

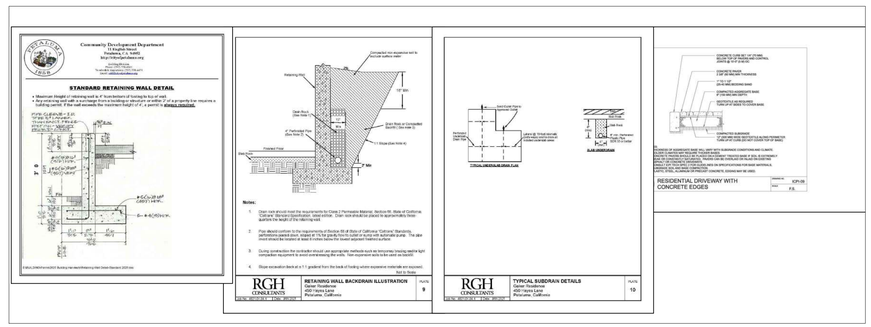
(n) FENCE

PARCEL LIMIT +-

DRAINAGE

sheet flow

(e) – existing
(n) – new
(typ) – typical
ac. – acre
co. – cleanout
i.g. – invert grade
f.g. – finished grade
sf – square feet
ft – feet
△ CONTROL



Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

1" = 8' Plan View
Drainage Details

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of:
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952
APN 006-490-035

09.18.2023

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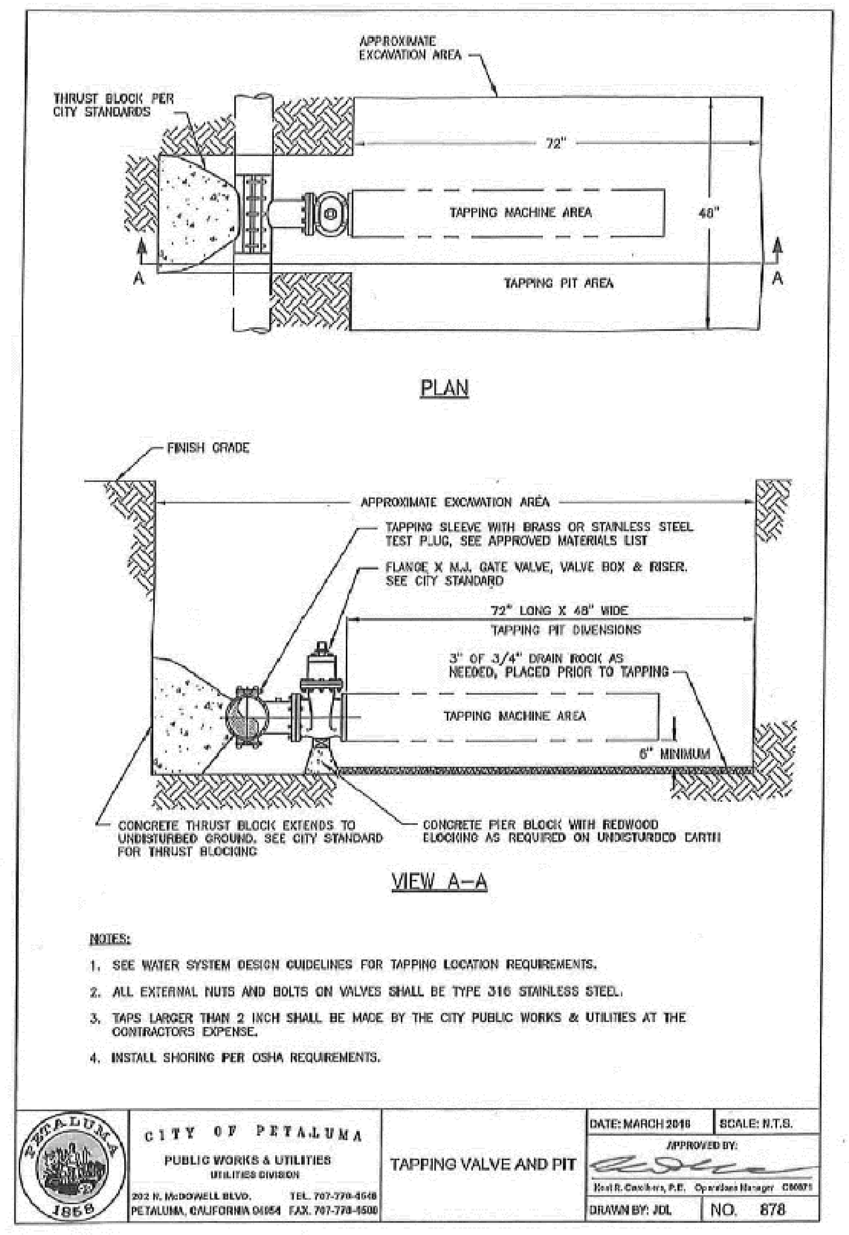

Sawcut existing pavement, curb, gutter, and sidewalk for installation of domestic and fire service water lines and meter service. Repair cutouts in accordance with applicable City Standard Plans and Specifications.

NOTES:
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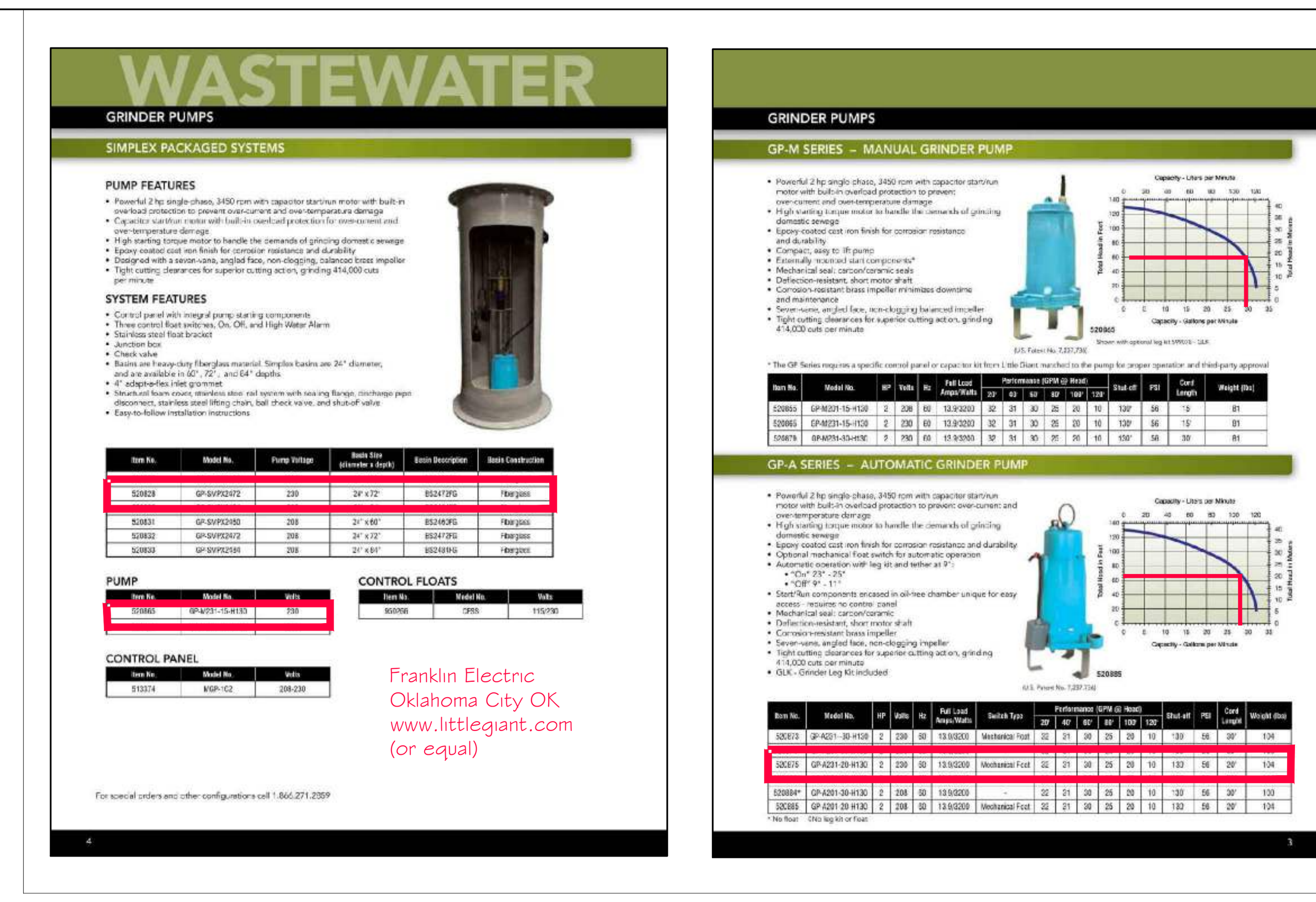
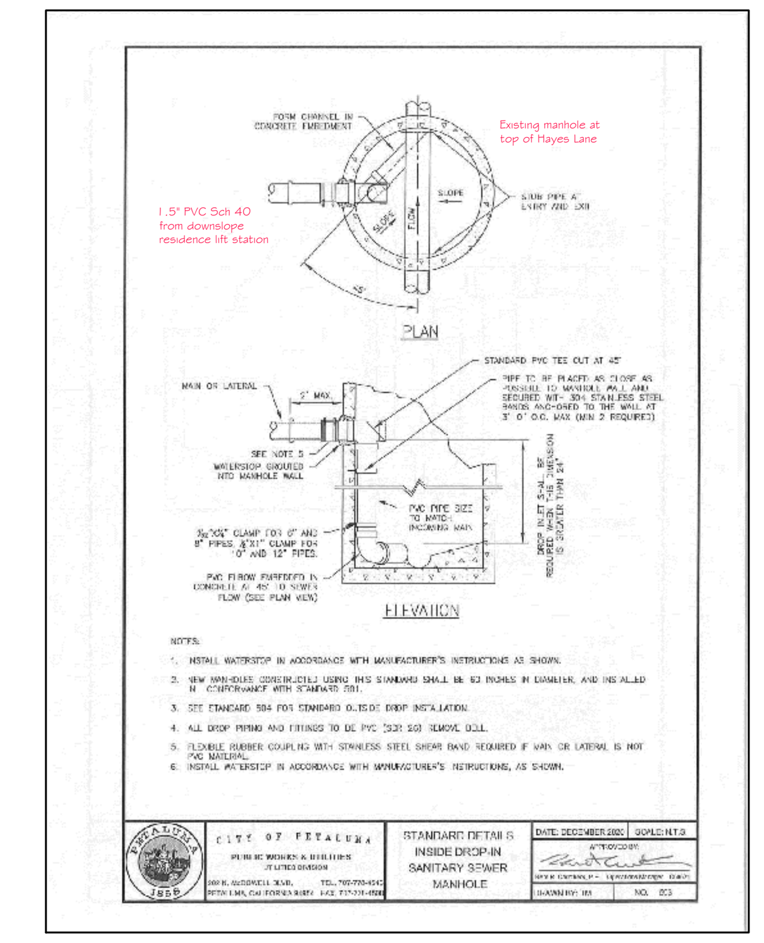
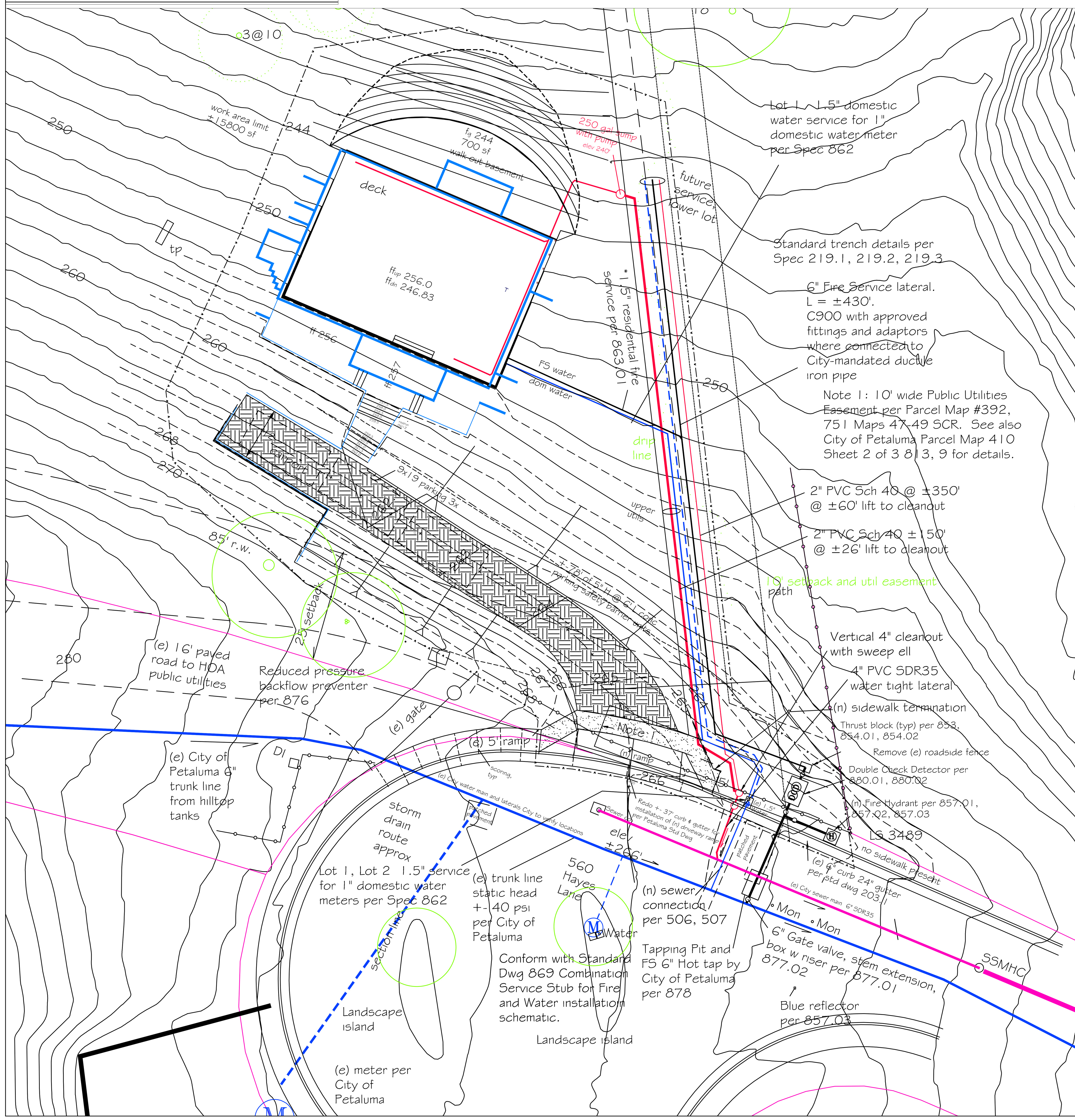
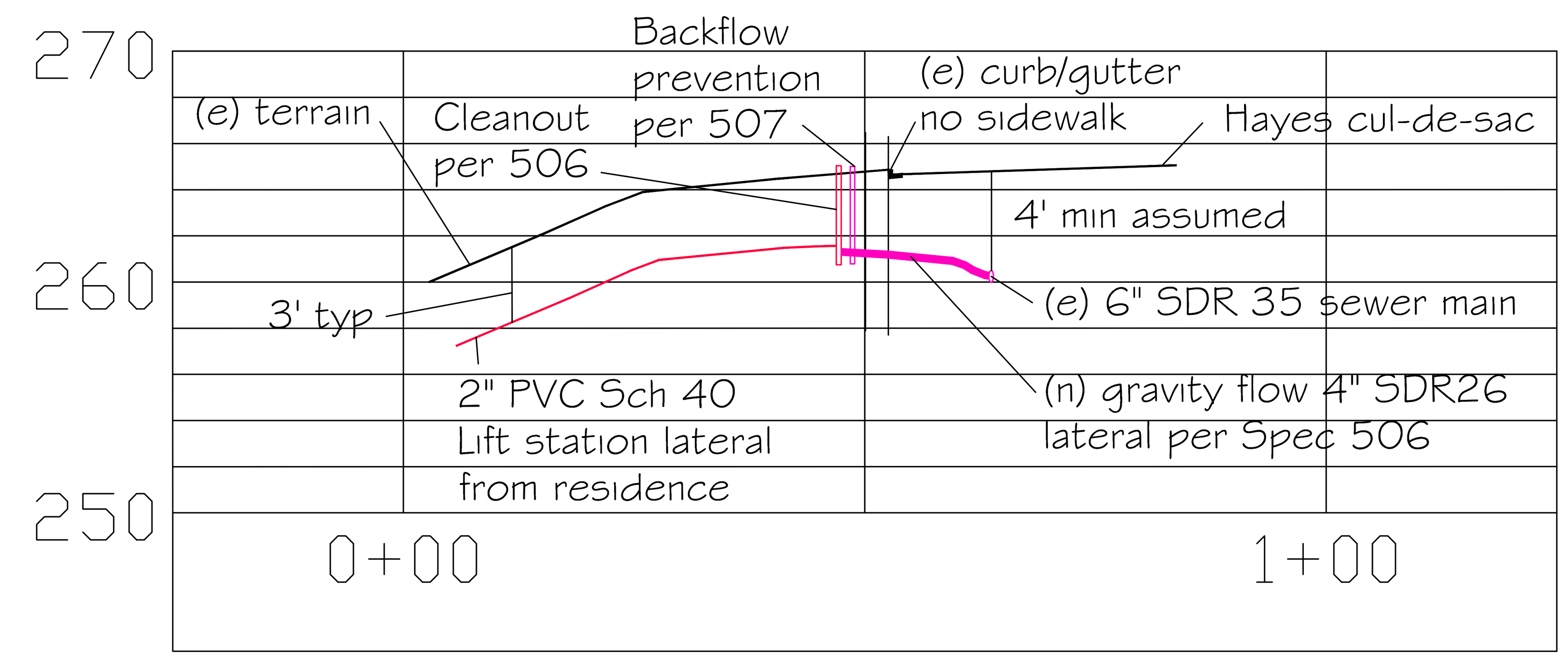
2. All work to be done in accordance with the City of Petaluma Standards and Specifications.
3. Underground service alert (U S.A) shall be notitıcd prior to bcgining work.
4. All excavations shall confom to the requirements of the State of California Division of Occupational Safety and Health (OSHA).
5. Bedding for the conduit shall meet the requirements of the utility having jurisdiction or ownership of the conduit.





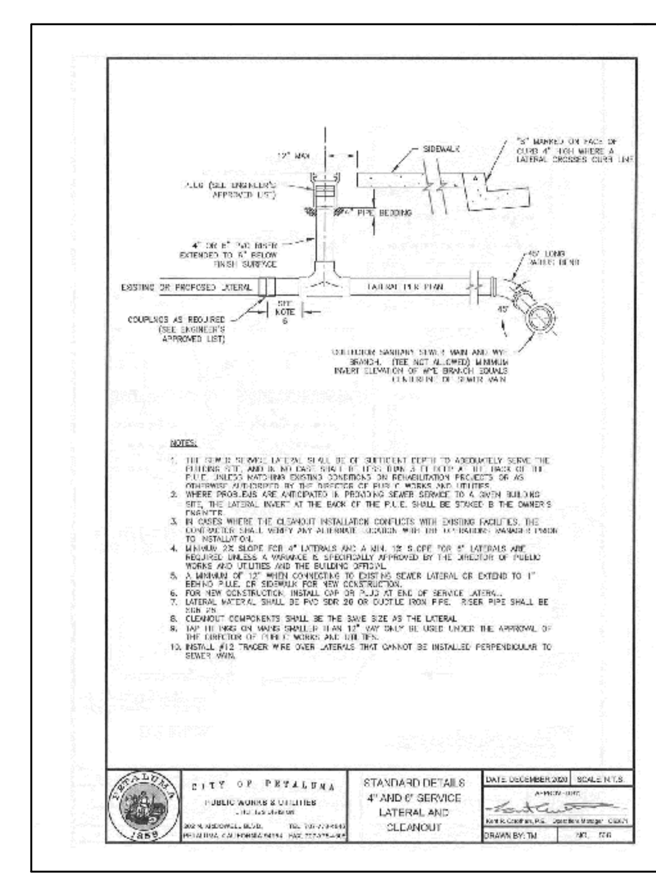


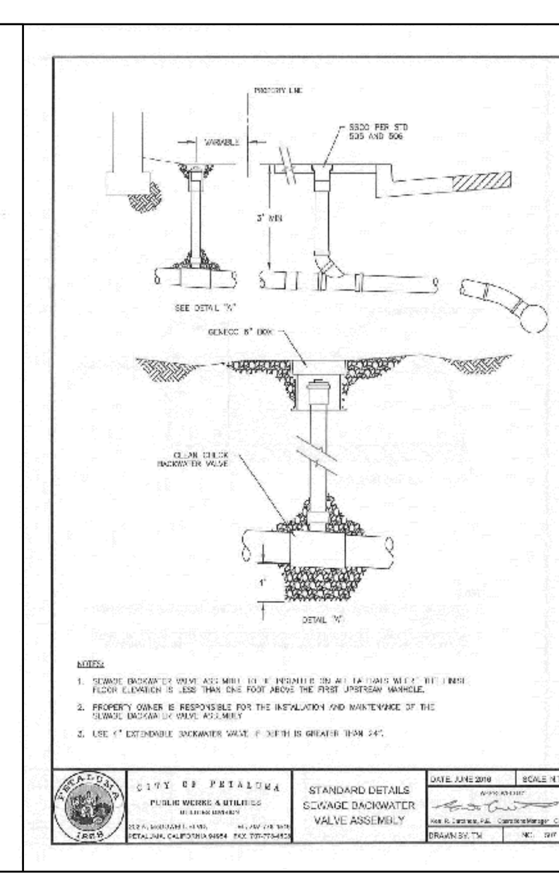


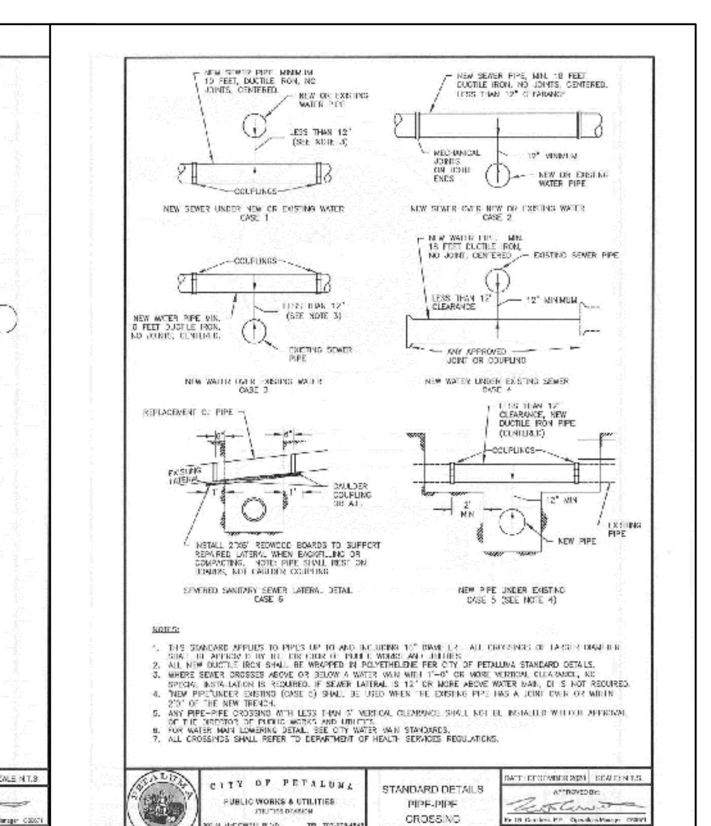
Lateral Sewer Discharge Schematic

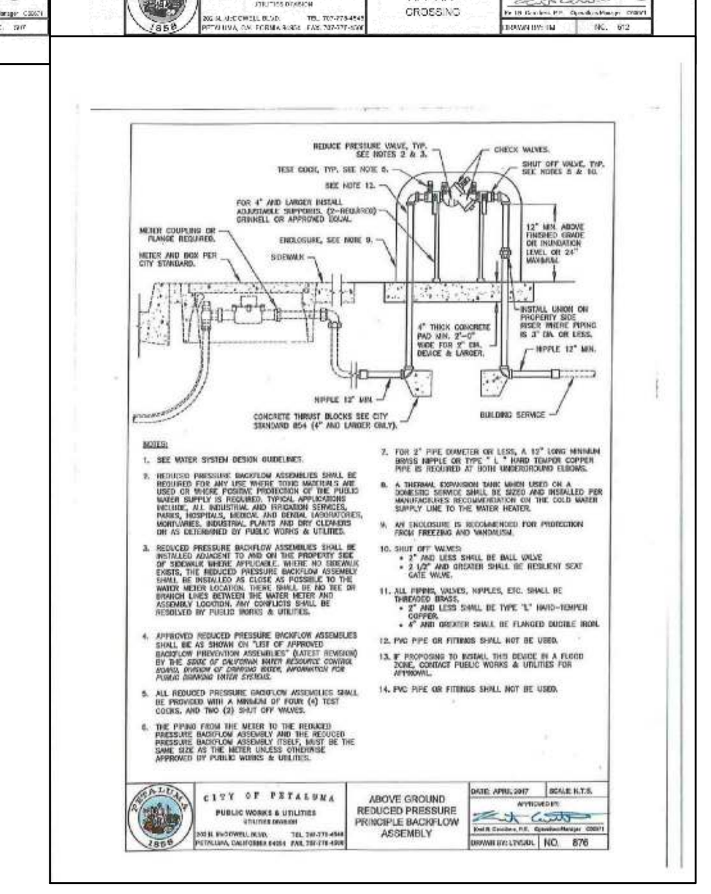
1" = 30'H 1" = 12'V

Route elevations per interpretation of LiDAR topo data and are not survey grade.









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Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
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Septic System Details
Water and Fire Service Details

DJ Gaker
djgaker@gmail.com
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emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

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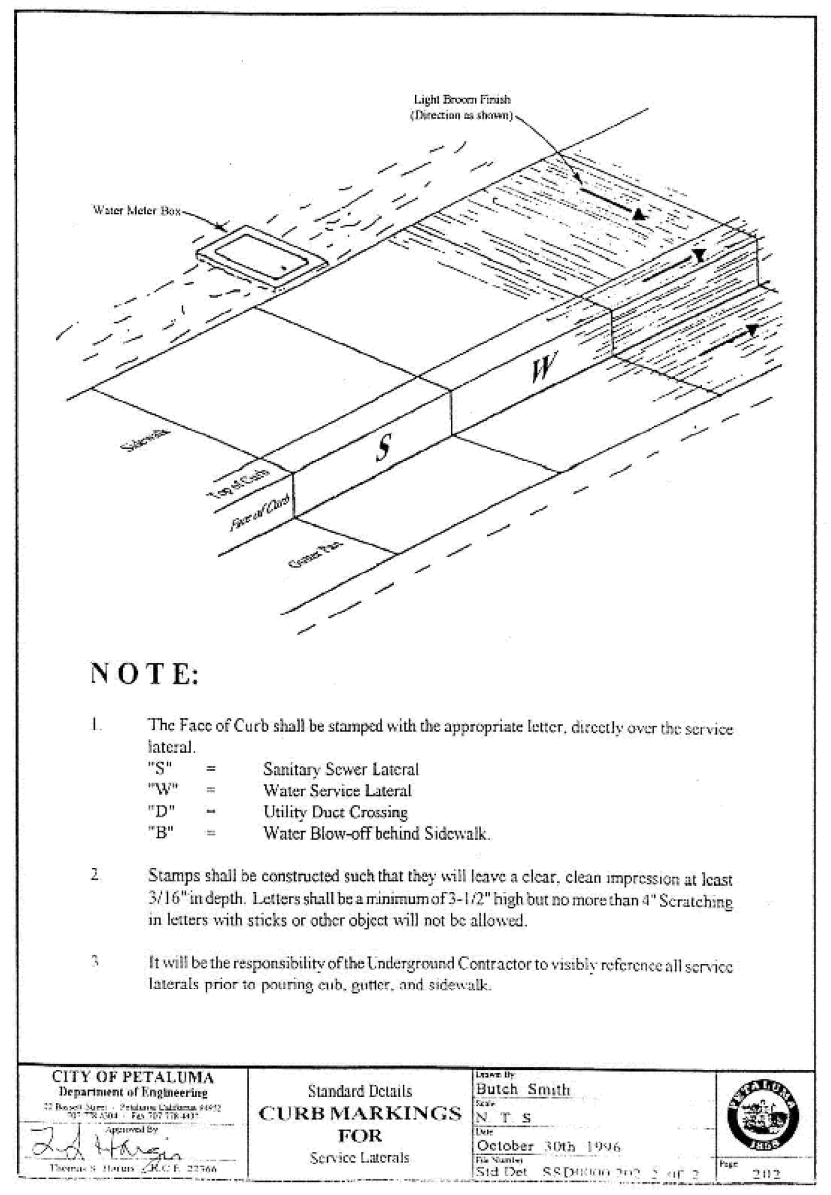

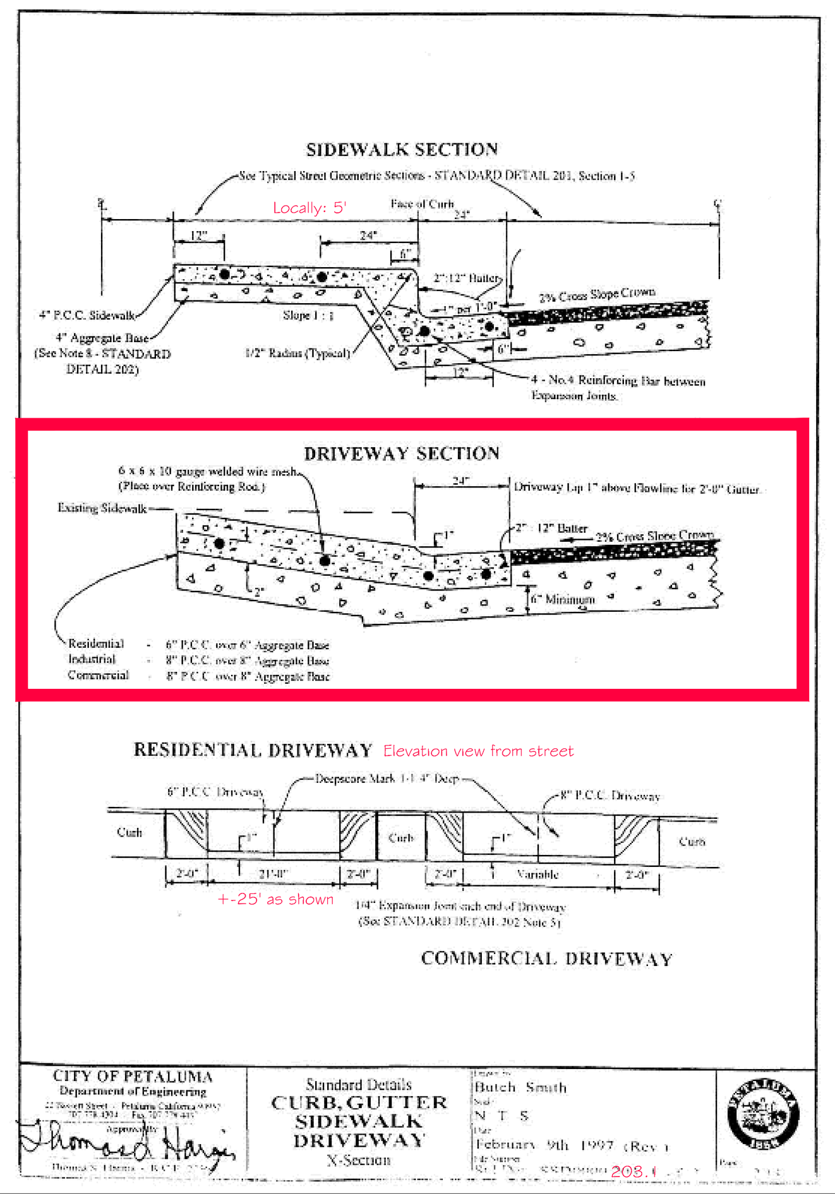

Sawcut existing pavement, curb, gutter, and sidewalk for installation of new entry where required. Repair cutouts in accordance with applicable City Standard Plans and Specifications.

NOTES:
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5. Bedding for any conduit shall meet the requirements of the utility having jurisdiction or ownership of the conduit.

NOTE: AB 52 Tribal Consultation. AB 52 requires public agencies to consult with tribes during the CEQA process. The Federated Indians of Graton Rancheria (FIGR) formally requested tribal consultation under AB 52 on September 5, 2023. The City will initiate consultation with the Tribe and keep the applicant updated in regards to any additional information requests such as cultural studies or records searches.

The following preliminary conditions of approval are anticipated related to potential tribal cultural resources related to earthwork:

a. If during the course of ground disturbing activities, including but not limited to excavation, grading, and construction, a potentially significant prehistoric or historic archeological resource is encountered, all work within a 100-foot radius of the find shall be suspended for a time deemed sufficient for a qualified and city-approved cultural resource specialist to adequately evaluate and determine significance of the discovered resource and provide treatment recommendations. Should a significant archeological resource be identified, a qualified archaeologist shall prepare a resource mitigation plan and monitoring program to be carried out during all construction activities.

b. In the event that human remains are uncovered during earthmoving activities, all construction excavation activities shall be suspended, and the following measures shall be undertaken:

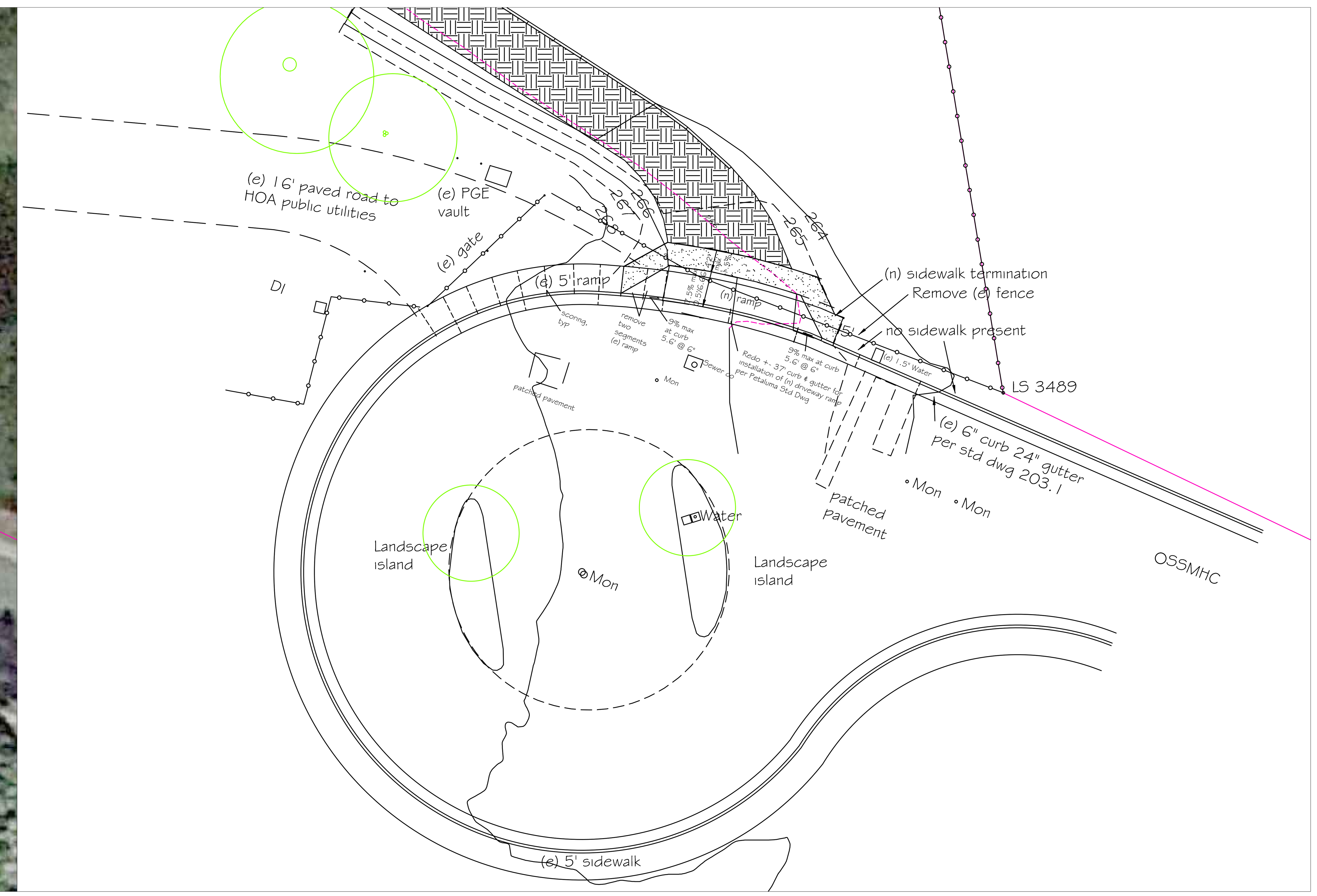
a. The Sonoma County Coroner shall be contacted to determine that no investigation of the cause of death is required.

b. If the coroner determines the remains to be Native American, the coroner shall contact the Native American Heritage Commission within 24 hours.

c. The project sponsor shall retain a City-approved qualified archaeologist to provide adequate inspection, recommendations and retrieval, if appropriate.

d. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American and shall contact such descendant in accordance with state law.

e. The project sponsor shall be responsible for ensuring that human remains and associated grave goods are reburied with appropriate dignity at a place and process suitable to the most likely descendent.

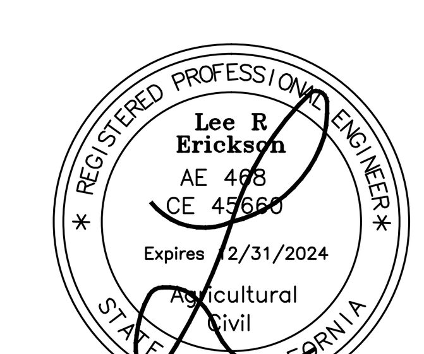


Aerial photo underlay per Google Earth 2021 0225 @ 1" = 60'.
Visual best fit to ground-truthed GPS points @ +-4" accuracy

Plan View

0 32

SCALE: 1" = 16'
1', 2' contours



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Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

Driveway and Sidewalk Encroachment
AB52 Notes

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

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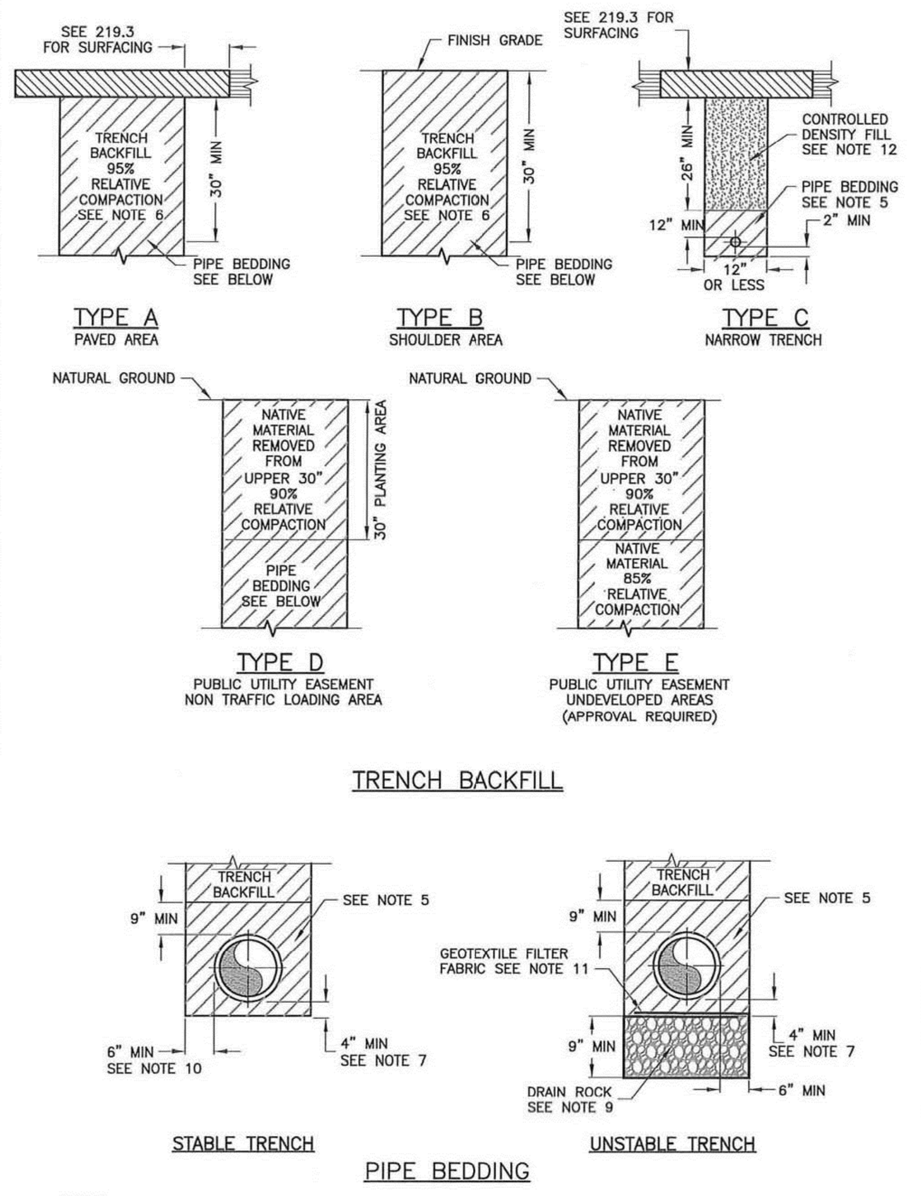


NOTES:
1. SEE 219.2 FOR NOTES

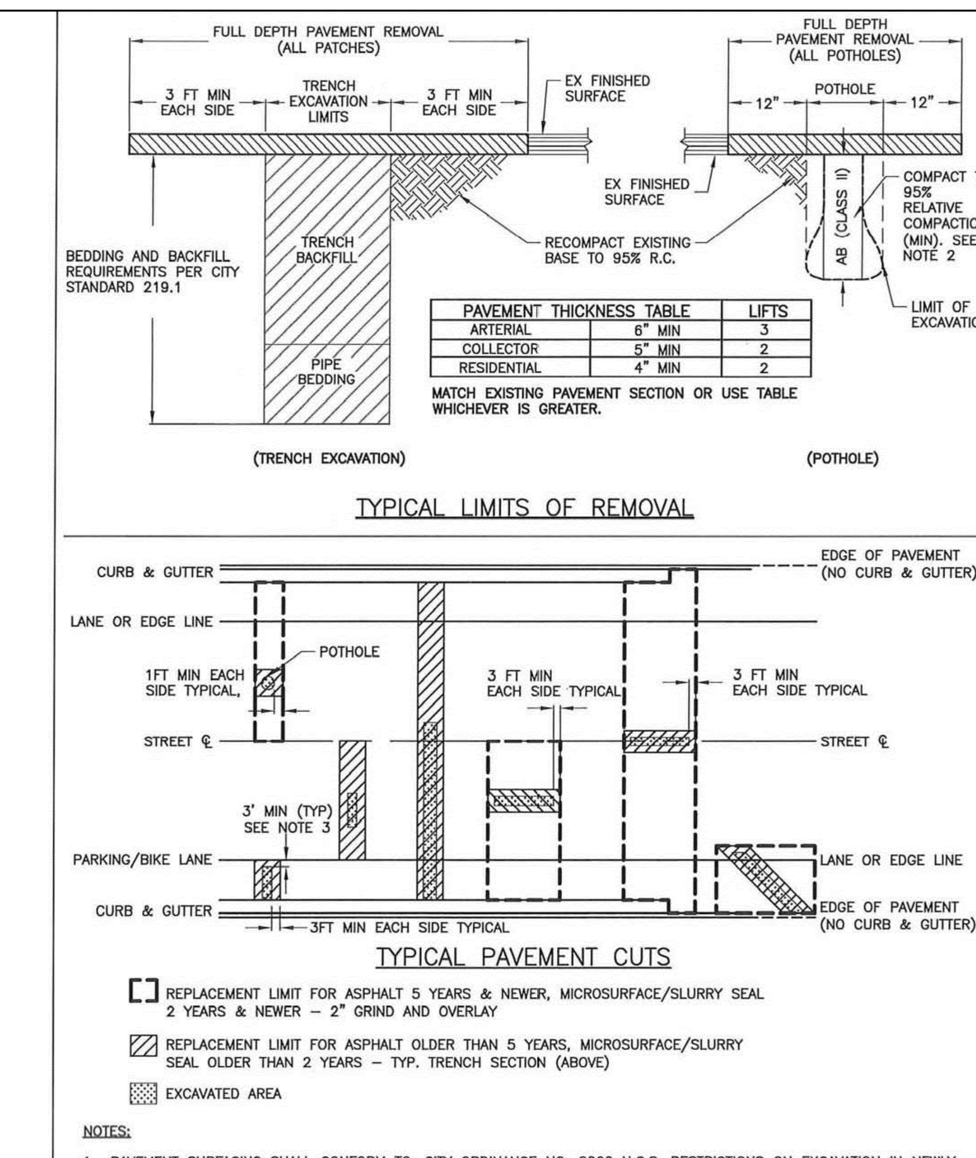
CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
STANDARD TRENCH DETAILS
DATE: JAN 7, 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60671 | DRAWN BY: TKM | NO. 219.1

NOTES:
1. REFER TO ORDINANCE 2266 N.C.S. FOR PAVEMENT CUT IN STREETS WITH 5 YEARS FOR NEWLY CONSTRUCTED, RECONSTRUCTED, OR RESURFACED AND 2 YEARS FOR RESURFACING FOR SLURRY SEAL OR MICROSURFACE.
2. ASPHALTIC CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SECTION 39.
3. SAW CUT PAVEMENT NEAT LINE STRAIGHT, AS SHOWN ON STD DETAIL 219.1, FROM TRENCH WALL TO SUBGRADE. PAINT BINDER (TACK COAT) SHALL BE APPLIED TO ALL VERTICAL SURFACES. MATCH EXISTING A.C. THICKNESS OR USE A.C. THICKNESS TABLE WHICHEVER IS GREATER.
ADDITIONAL PAVEMENT REMOVAL:
REMOVE ADDITIONAL PAVEMENT TO A PAINTED VEHICLE LANE STRIPE, LIP OF GUTTER, CURB, A CENTERLINE OR EDGE OF PAVEMENT IF SUCH STREET FEATURE IS WITHIN 3' (FEET) OF THE FINAL SAW CUT, SUBJECT TO CITY APPROVAL. REMOVAL OF ADDITIONAL PAVEMENT TO ADJACENT EXISTING OR NEW PAVEMENT PATCH, IF PATCH IS WITHIN 5' OF FINAL SAWCUT.
4. DIFFERENT TRENCH SECTIONS MAY BE REQUIRED AND SPECIFIED BY PUBLIC WORKS & UTILITIES.
5. PIPE BEDDING MATERIAL SHALL BE CLASS 2 AGGREGATE BASE COMPACTED TO 90% RELATIVE COMPACTION AT OPTIMUM MOISTURE OR AS APPROVED BY PUBLIC WORKS & UTILITIES.
6. TRENCH BACKFILL SHALL BE CLASS 2 AGGREGATE BASE. THE UPPER 30" SHALL BE COMPACTED AT OPTIMUM MOISTURE AND SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SECTION 26 OR AS APPROVED BY PUBLIC WORKS & UTILITIES. (USE OF RECYCLED CL2 AB ONLY UPON APPROVAL BY THE CITY AND PROJECT GEOTECHNICAL ENGINEER.)
7. 1/4 PIPE OUTSIDE DIAMETER MINIMUM WHEN EXCAVATION IS IN ROCKY GROUND.
8. OPTIONAL BACKFILL– CONTROLLED DENSITY FILL (C.D.F.) MIX NO. 1500 (95% RELATIVE COMPACTION) SHALL CONFORM TO NOTE 12.
9. DRAIN ROCK MAY BE USED AS BEDDING UNDER PIPE FOR SLOPES LESS THAN 8%. DRAIN ROCK SHALL BE 100% CRUSHED AND SHALL CONFORM TO THE FOLLOWING GRADING:

1-1/2"	1"	1/2"	#4
100	95–100	0–30	0–4

DRAIN ROCK SHALL BE COMPACTED WITH A SURFACE VIBRATOR. PIPE BEDDING MATERIAL WHEN PLACED OVER DRAIN ROCK SHALL BE SEPARATED BY GEOTEXTILE FILTER FABRIC (MIRAFI 140NC) TO PREVENT MIGRATION AND COMPACTED WITH A SURFACE VIBRATOR CONFORMING TO NOTE 5.
10. IF PIPE DIAMETER IS LESS THAN 18" = 9" MAX.
IF PIPE DIAMETER IS GREATER THAN 18" = 12" MAX.
11. GEOTEXTILE FILTER FABRIC (MIRAFI 140NC OR EQUAL) SHALL BE APPLIED AS SHOWN IN THE UNSTABLE TRENCH DETAIL WRAPPED AROUND THE DRAIN ROCK WITH A 1' (ONE FOOT) MINIMUM OVERLAP.
12. CONTROL DENSITY FILL (CDF):
SHALL BE MIX DESIGN NO. 1500 MANUFACTURED BY SHAMROCK MATERIALS, INC. OR MIXTURE OF PORTLAND CEMENT, SAND AND 1" MAXIMUM COARSE AGGREGATE, AIR ENTRAINING AGENT AND WATER, BATCHED BY A READY-MIXED CONCRETE PLANT AND DELIVERED TO THE JOB SITE BY MEANS OF TRANSIT MIXING TRUCKS. CONTROL DENSITY FILL MAY ALSO CONTAIN CLASS F POZZOLAN (FLY ASH). CONTROL DENSITY FILL SHALL BE FREE OF ASPHALTIC MATERIAL.
MATERIALS:
CEMENT SHALL MEET THE STANDARDS AS SET FORTH IN ASTM C-150, TYPE II CEMENT.
FLY ASH SHALL MEET THE STANDARDS AS SET FORTH IN ASTM C-618, FOR CLASS F POZZOLANS. THE FLY ASH SHALL NOT INHIBIT THE ENTRAINMENT OF AIR.
AGGREGATE SIZE 1" MAX.
SAND – ASTM C33
MIX PROPORTIONS:
THE MIX PROPORTIONS SHALL BE DETERMINED BY THE PRODUCER OF THE CONTROL DENSITY FILL TO PRODUCE A FLOWABLE FILL MIXTURE WHICH WILL NOT SEGREGATE. EACH YARD SHALL CONTAIN NOT LESS THAN 50 POUNDS OF PORTLAND CEMENT AND NOT LESS THAN A TOTAL OF 100 POUNDS OF CEMENTIOUS MATERIAL. THE CONTRACTOR SHALL SUPPLY A MIX DESIGN TWO WEEKS PRIOR TO ANY USE OF CONTROL DENSITY FILL.
MIXTURE PROPERTIES:
COMPRESSIVE STRENGTH 75–200 PSI AT 28 DAYS
SLUMP = FLOWABLE (6"–9")
THE CONSISTENCY OF CDF SHALL BE SUCH THAT ALL TRENCH VOIDS ARE FILLED WITH MINIMUM RODDING OR VIBRATING BUT NOT SO WET AS TO CAUSE EXCESSIVE SHRINKAGE.
PAVING:
13. PERMANENT PAVEMENT MAY BE PLACED DIRECTLY UPON THE CONTROL DENSITY FILL AS SOON AS IT HAS CONSOLIDATED FOR THE SURFACE TO WITHSTAND THE PROCESS OF PAVING WITHOUT DISPLACEMENT. THE SURFACE OF THE CONTROL DENSITY FILL SHALL BE FIRM AND UNYIELDING. ANY VISIBLE MOVEMENT VERTICALLY OR HORIZONTALLY OF THE CONTROL DENSITY FILL UNDER THE ACTION OF CONSTRUCTION EQUIPMENT OR OTHER MAXIMUM LEGAL AXLE LOADS SHALL BE CONSIDERED AS EVIDENCE THAT THE CONTROL DENSITY FILL DOES NOT MEET THIS REQUIREMENT. THE CONTRACTOR SHALL PROVIDE TRENCH PLATES TO ALLOW TRAFFIC FLOW FOR ALL LOCATIONS UNTIL CONTROL DENSITY FILL IS READY TO BE PAVED.
14. FULL TACK COAT COVERAGE ON ALL VERTICAL SURFACES.
15. TRENCH SHALL BE PAVED WITH ASPHALT CONCRETE WHERE THICKNESS IS EQUAL TO THE THICKNESS OF THE EXISTING PAVEMENT BUT IN NO CASE SHALL THICKNESS BE LESS THAN SHOWN IN THE ASPHALT CONCRETE THICKNESS TABLE. ASPHALT SHALL BE ½" TYPE A CONFORMING TO SECTION 39 OF THE STANDARD SPECIFICATIONS.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
STANDARD TRENCH DETAILS (NOTES)
DATE: JAN 3, 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60671 | DRAWN BY: TKM | NO. 219.2



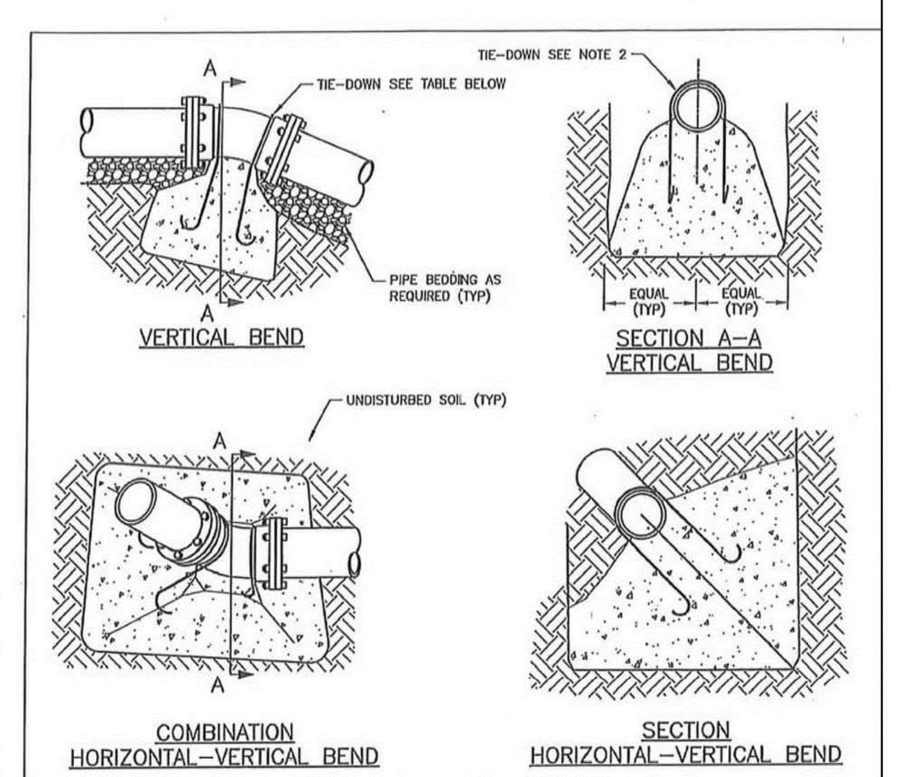
PAVEMENT THICKNESS TABLE		LIFTS
ARTERIAL	6" MIN	3
COLLECTOR	5" MIN	2
RESIDENTIAL	4" MIN	2

MATCH EXISTING PAVEMENT SECTION OR USE TABLE WHICHEVER IS GREATER.

REPLACEMENT LIMIT FOR ASPHALT 5 YEARS & NEWER, MICROSURFACE/SLURRY SEAL 2 YEARS & NEWER – 2" GRIND AND OVERLAY
REPLACEMENT LIMIT FOR ASPHALT OLDER THAN 5 YEARS, MICROSURFACE/SLURRY SEAL OLDER THAN 2 YEARS – TYP. TRENCH SECTION (ABOVE)
EXCAVATED AREA

NOTES:
1. PAVEMENT SURFACING SHALL CONFORM TO: CITY ORDINANCE NO. 2266 N.C.S. RESTRICTIONS ON EXCAVATION IN NEWLY CONSTRUCTED OR RESURFACED PUBLIC RIGHT–OF–WAY.
2. COMPACTION TESTS SHALL BE REQUIRED AS DEEMED NECESSARY BY THE CITY ENGINEER OR INSPECTOR.
3. SEE STANDARD 219.2 FOR ADDITIONAL NOTES.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
PAVEMENT RESURFACING LIMITS FOR PUBLIC RIGHT-OF-WAY
DATE: JAN 9, 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60671 | DRAWN BY: TKM | NO. 219.3

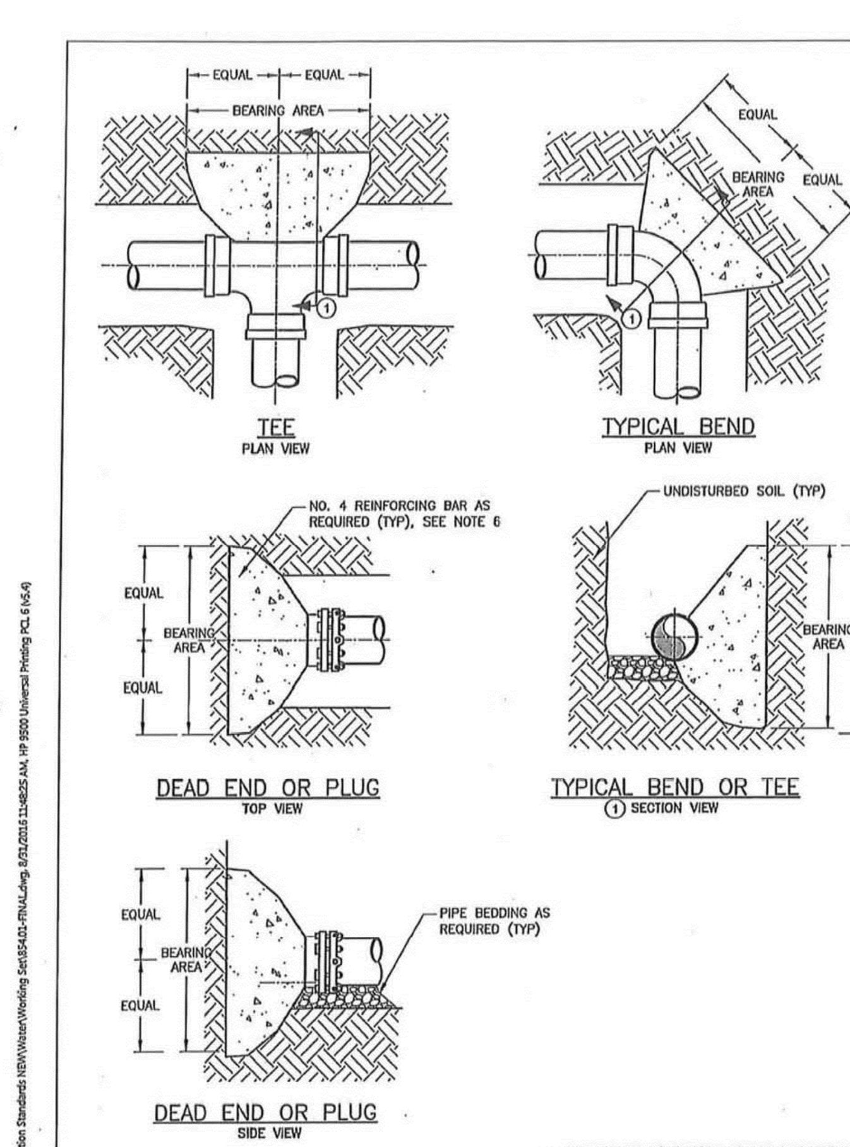


TIE-DOWN SIZING TABLE	
PIPE SIZE	BAR DIAMETER
4–6 INCHES	5/6" #5
8–10 INCHES	3/4" #6
12 INCHES	1 1/8" #9

NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. ALL EXPOSED TIE DOWN REINFORCING BAR SHALL BE COATED WITH MORTAR OR PETROLEUM ASPHALT PER AWWA C110.
3. DUCTILE IRON FITTINGS SHALL BE ENCASED WITH 8–MIL. POLYETHYLENE TUBING AND SECURED WITH 10–MIL TAPE PER AWWA C105 PRIOR TO POURING THRUST BLOCK.
4. POUR/PLACE CONCRETE FOR ANCHOR BLOCK AGAINST UNDISTURBED SOIL.
5. ANCHOR/THRUST BLOCKS SHALL BE CLASS B CONCRETE, POURED IN PLACE AND EXTEND FROM BELLS OF FITTINGS TO UNDISTURBED SOIL.FOR PIPE GREATER THAN 12" IN SIZE, DESIGN ENGINEER MUST SUBMIT CALCULATIONS TO SIZE CONCRETE THRUST BLOCKS.

• FOR SOIL BEARING AREA SEE 854.02

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
CONCRETE THRUST BLOCKS VERTICAL AND COMBINATION BEND APPLICATIONS
DATE: AUGUST 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60671 | DRAWN BY: JDL | NO. 853



• FOR SOIL BEARING AREA SEE 854.02

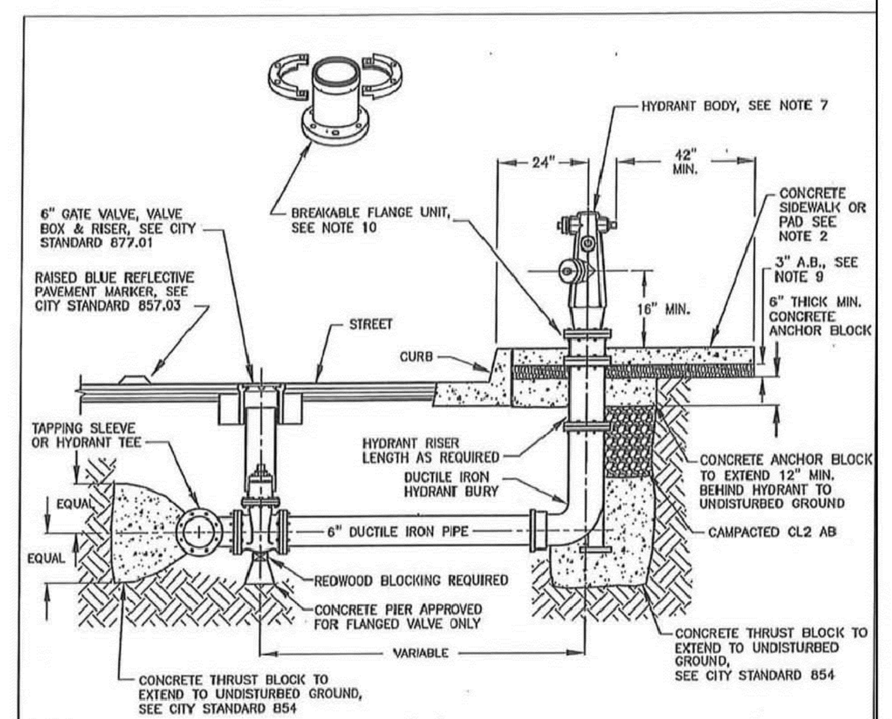
CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
CONCRETE THRUST BLOCKS HORIZONTAL APPLICATIONS
DATE: AUGUST 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 854.01

THRUST BLOCK TABLE: MINIMUM REQUIRED BEARING AREA IN SQUARE FEET PER REQUIRED PSI TEST PRESSURE (FOR TEST PRESSURE SEE HYDROSTATIC TEST IN WATER SYSTEM DESIGNGUIDLINES)

PIPE SIZE	SOIL BEARING CAPACITY PSF	TEE & DEAD END	90 DEG BEND	45 DEG BEND	22 1/2 DEG BEND
6 INCH	1000	4	6	3	2
	2000	2	3	2	1
8 INCH	1000	7	10	5	3
	2000	4	5	3	2
12 INCH	1000	16	22	12	6
	2000	8	11	6	3

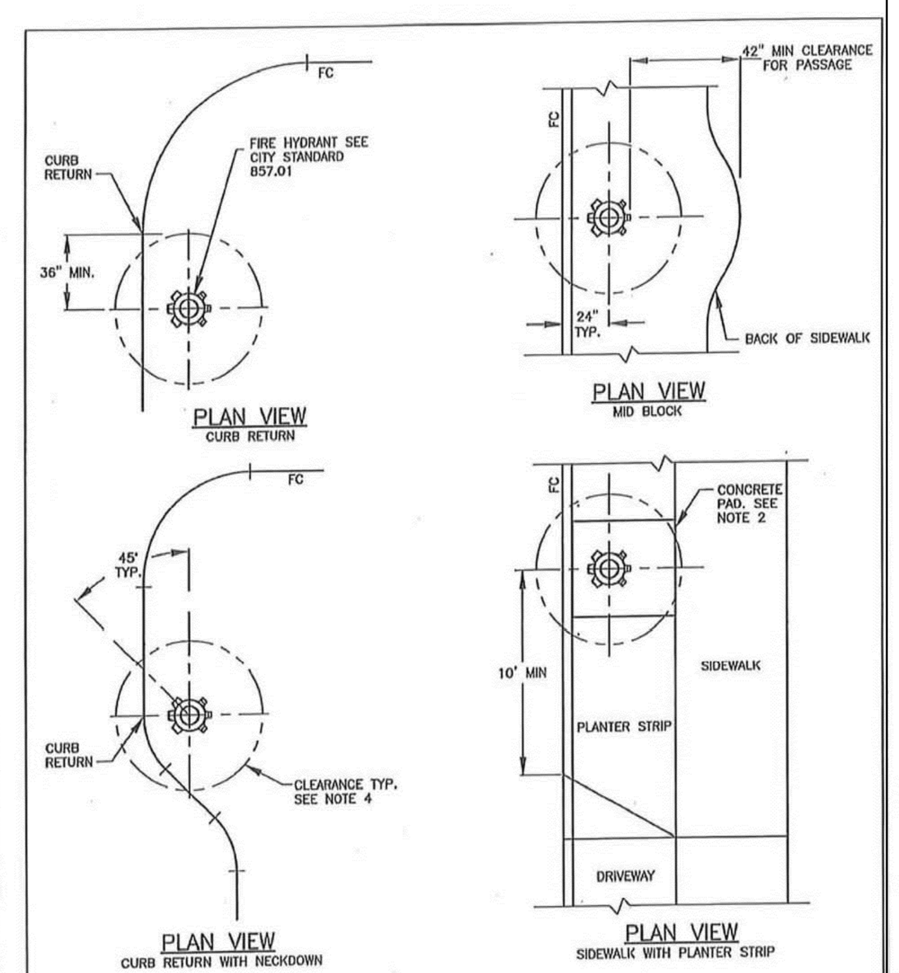
NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. IN USING THE THRUST BLOCK TABLE ABOVE, ASSUME 1000 PSF BEARING CAPACITY UNLESS OTHERWISE SHOWN ON THE PLANS. THE DESIGN ENGINEER SHALL SPECIFY THRUST BLOCKING REQUIREMENTS FOR ALL OTHER SOIL BEARING CONDITIONS.
3. SAFE BEARING LOAD OF SOIL FOR HORIZONTAL THRUST SHALL NOT BE EXCEEDED.
4. DUCTILE IRON FITTINGS SHALL BE ENCASED WITH 8–MIL. POLYETHYLENE TUBING AND SECURED WITH 10–MIL TAPE AS DEFINE IN AWWA C105 PRIOR TO POURING THRUST BLOCK.
5. CAST CONCRETE ANCHOR BLOCK AGAINST UNDISTURBED SOIL.
6. THRUST BLOCKS ARE TO BE CLASS B CONCRETE, CAST IN PLACE AND EXTEND FROM BELLS OF FITTINGS TO UNDISTURBED SOIL. ENTIRE BEARING AREA SHALL BE AGAINST UNDISTURBED SOIL.
7. FOR PIPE GREATER THAN 12" IN SIZE, DESIGN ENGINEER MUST SUBMIT CALCULATIONS TO SIZE CONCRETE THRUST BLOCKS.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
CONCRETE THRUST BLOCKS HORIZONTAL APPLICATIONS NOTES
DATE: AUGUST 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 854.02



NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. WHERE NO SIDEWALK EXISTS, OR WHERE HYDRANT IS INSTALLED IN PLANTER STRIP, A 6" THICK 4' X 4' CONCRETE PAD SHALL BE INSTALLED. SEE CITY STANDARD DETAIL 857.02.
3. RESIDENTIAL FIRE HYDRANTS SHALL HAVE TWO 2–1/2" & ONE 4–1/2" OUTLETS. COMMERCIAL FIRE HYDRANTS SHALL HAVE ONE 2–1/2" & TWO 4–1/2" OUTLETS. COMMERCIAL HYDRANTS: FACE 4–1/2" OUTLETS TO STREET.
4. VERIFY FIRE PROTECTION REQUIREMENTS WITH THE CITY FIRE MARSHAL'S OFFICE.
5. INSTALL FIRE HYDRANT A MINIMUM OF 10 FEET FROM DRIVEWAY.
6. FIRE HYDRANT SHALL BE PAINTED BY MANUFACTURER IN ACCORDANCE WITH AWWA STANDARD SPECIFICATION C503. THE FINISHED PAINT COLOR SHALL BE DTM ALKYD BASED ENAMEL PAINT, GLOSS SAFETY YELLOW. ALL DAMAGED PAINT SURFACES SHALL BE CORRECTED BY TOUCH UP PRIOR TO ACCEPTANCE.
7. FOR APPROVED HYDRANTS–SEE APPROVED MATERIALS LIST.
8. MAINTAIN A MINIMUM OF 36" OPERATIONAL CLEARANCE ALL AROUND.
9. MAINTAIN A 3" MINIMUM SPACE BETWEEN BOTTOM OF FLANGE OF HYDRANT RISER AND TOP OF CONCRETE ANCHOR BLOCK.
10. INSTALL 6" AMERICAN AVK BREAKABLE FLANGE UNIT OR APPROVED EQUAL. SET RISER BARREL CENTERED VERTICALLY AT FINISH GRADE.
11. SEE 857.02 (FIRE HYDRANT LOCATION) AND 857.03 (FIRE HYDRANT MARKER DETAIL)
12. NO BENDS WILL BE ALLOWED IN FIRE HYDRANT LATERALS WITHOUT APPROVAL OF PUBLIC WORKS AND UTILITIES.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
FIRE HYDRANT INSTALLATION
DATE: MARCH 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 857.01



NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. WHERE NO SIDEWALK EXISTS, OR WHERE HYDRANT IS INSTALLED IN PLANTER STRIP, A 6" THICK 4' X 4' CONCRETE PAD SHALL BE INSTALLED.
3. RESIDENTIAL FIRE HYDRANTS HAVE TWO 2–1/2" & ONE 4–1/2" OUTLETS. COMMERCIAL FIRE HYDRANTS HAVE ONE 2–1/2" & TWO 4–1/2" OUTLETS. ON COMMERCIAL HYDRANTS: FACE 4 1/2" OUTLETS TO STREET.
4. MAINTAIN A MINIMUM OF 36" OPERATIONAL CLEARANCE ALL AROUND.
5. FOR DESIGNATED "NO PARKING" AREAS SEE STREET DESIGN AND CONSTRUCTION STANDARDS.

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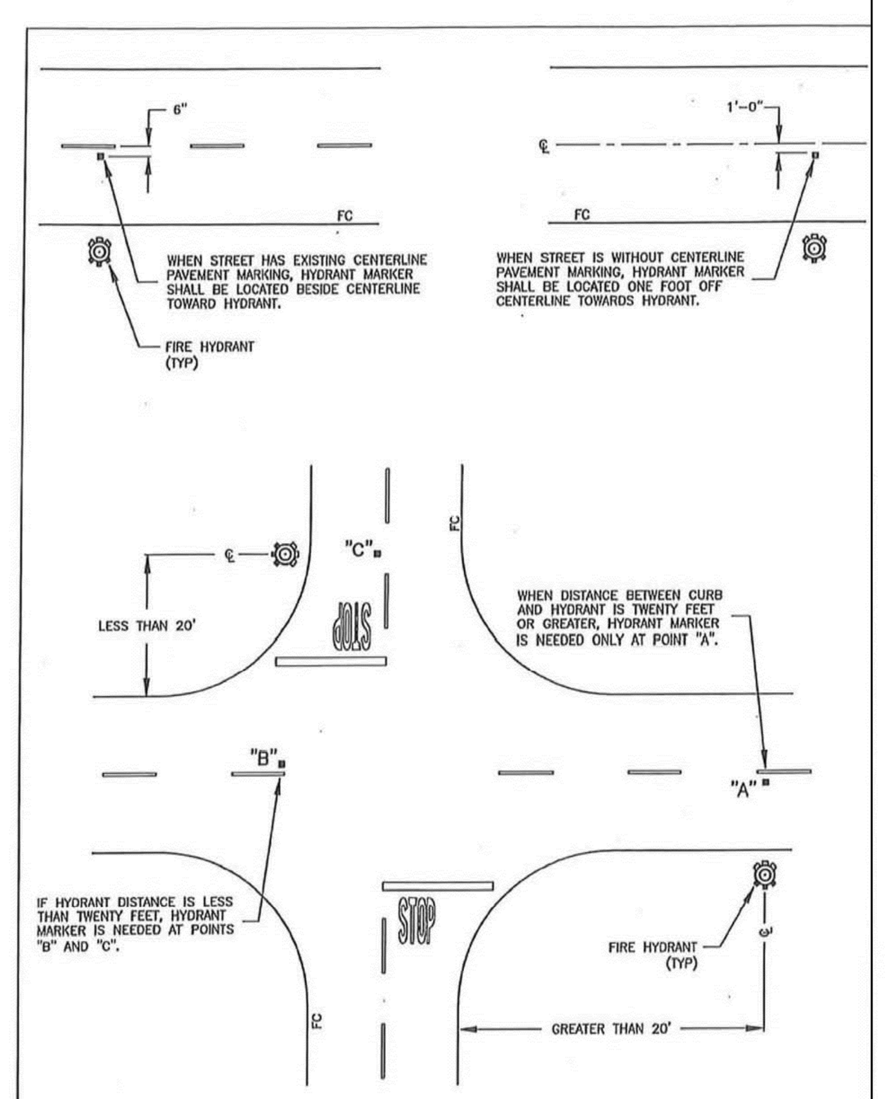
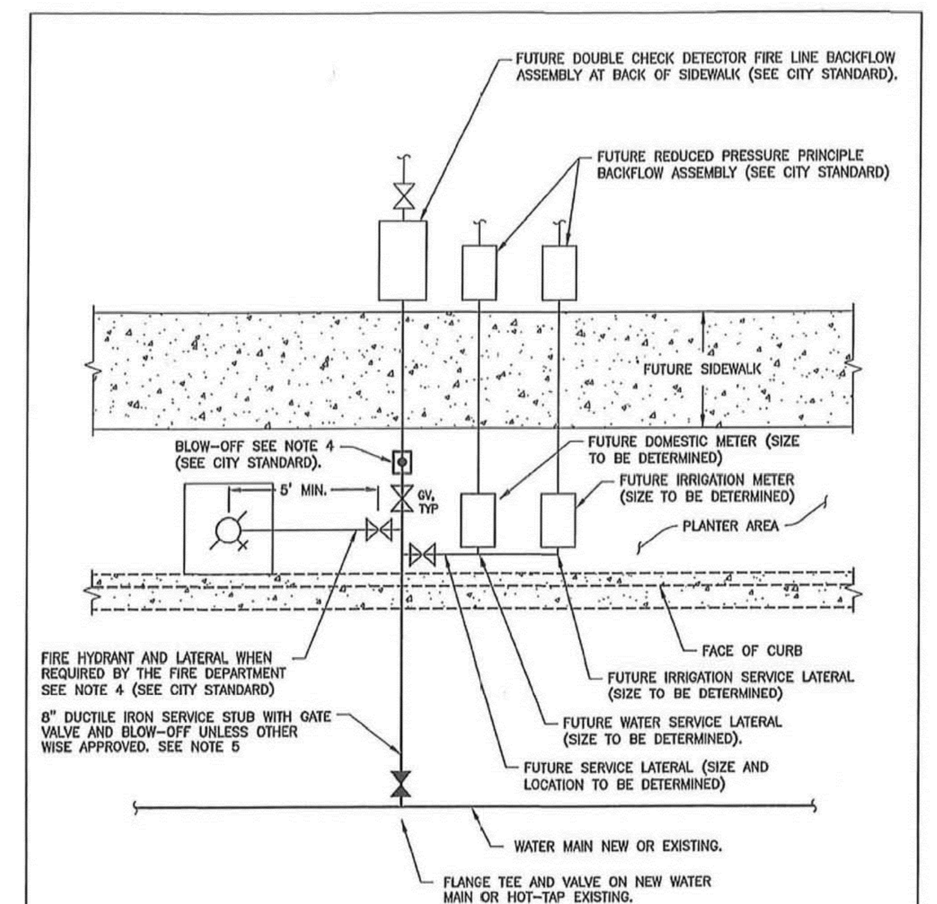
FIRE HYDRANT LOCATION
DATE: MARCH 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 857.02



NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
FIRE HYDRANT MARKER LOCATION
DATE: MARCH 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 857.03



NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. THIS STANDARD APPLIES TO COMMERCIAL AND MULTI–RESIDENTIAL DEVELOPMENTS WHEN DOMESTIC, IRRIGATION AND FIRE PROTECTION REQUIREMENTS ARE NOT ESTABLISHED AT TIME OF APPLICATION.
3. DESIGN APPROVAL MUST BE OBTAINED FROM PUBLIC WORKS & UTILITIES.
4. WHEN A FIRE HYDRANT IS REQUIRED THE BLOW–OFF SHALL BE DELETED, AND A TEE, FIRE HYDRANT AND BLIND FLANGE WITH A 3FT MINIMUM FLANGE SPOOL SHALL BE INSTALLED.
5. ADEQUATE SPACING SHALL BE PROVIDED FOR FUTURE SERVICE LATERAL, BETWEEN THE BACK OF CURB AND TEE.
6. APPROPRIATE THRUST BLOCKING IS REQUIRED PER CITY STANDARD.
7. LABELED BRASS DISKS WITH ADDRESSES SHALL BE INSTALLED IN EACH METER BOX.

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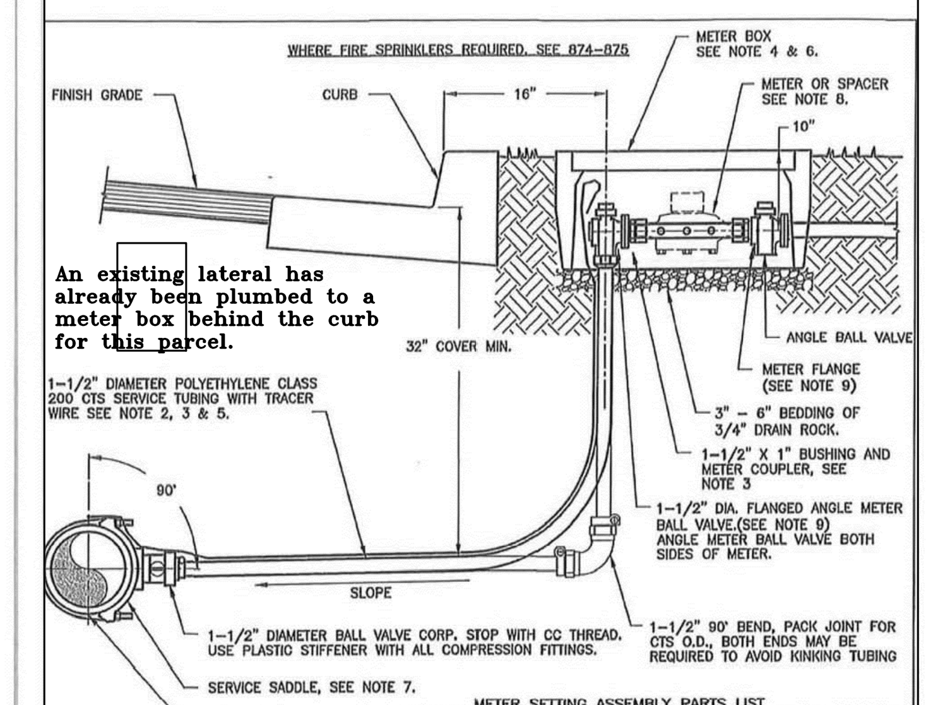
COMBINATION SERVICE STUB — COMMERCIAL & MULTI-RESIDENTIAL
DATE: AUGUST 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 869



METER SETTING ASSEMBLY PARTS LIST

METER SIZE	VALVES	SPACER BAR SIZE (SEE NOTE 9.)
1"	SEE APPROVED MATERIALS LIST	1 1/4" DIA X 11" LONG SCH. 80 PVC PIPE W/WASHERS. 11 1/4" TOTAL

NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. THE SERVICE SHALL NOT BE SIZED SMALLER THAN THE METER. IF FIRE SPRINKLERS ARE REQUIRED SEE CITY STANDARD DETAIL 863.
3. USE INSULATED NO. 12 THHN WIRE.
• ALL WIRE CONNECTIONS SHALL BE MADE WITH MECHANICAL WIRE CONNECTORS WRAPPED WITH ELECTRICAL TAPE.
• END OF TRACER WIRE TO BE EXPOSED 6" MINIMUM INSIDE OF METER BOX.
4. METER BOXES SHALL BE LOCATED OUT OF TRAFFIC LOADING AREAS WHERE POSSIBLE. TRAFFIC LOADING BOX & LID TO BE INSTALLED IN ALL LOCATIONS WHERE VEHICULAR TRAFFIC MAY OCCUR, THE STEEL LID SHALL BE SET FLUSH WITH FINISHED SURFACE. BOX PIPE KNOCKOUTS TO BE GROUTED TO PREVENT DIRT INTRUSION WHERE REQUIRED.
5. TRENCH BACKFILL REQUIREMENTS – SEE CITY STANDARD DETAIL 852.01.
6. METER BOX AND COVER SHALL BE B–30 – SEE APPROVED MATERIALS LIST.
7. TAPPING SERVICE SADDLES – SEE APPROVED MATERIALS LIST.
8. FOR NEW SERVICES CONTRACTOR SHALL INSTALL SCHEDULE 80 PVC SPACER PIPE WITH 1/2" DIAMETER HOLES DRILLED THRU PIPE AT 2" ON CENTER, THREAD BOTH ENDS. CITY PUBLIC WORKS AND UTILITIES PERSONNEL TO REMOVE SPACER PIPE AND INSTALL METER. SEE METER SETTING ASSEMBLY PARTS LIST.
9. INSTALL BRASS METER FLANGE, 1–1/2"X1" BUSHING AND 1"X2" METER COUPLING. SET 2" MIN. FROM SIDE OF BOX. USE 316 SS HARDWARE.
10. ALL FLANGE BOLTS FOR METERS TO HAVE THREADS FACING AWAY FROM METER. INCLUDES 1–1/2" AND 2" METERS.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
1-1/2" WATER SERVICE FOR 1" METERS (NEW RESIDENTIAL SERVICE)
DATE: AUGUST 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 862

CITY STANDARD DETAIL NO. 862
Angle Meter Valves, Pack Joint, Brass
1-1/2" FL. x Compression
Ford BFA43-777W and BFA43-666W
Mueller P-24276-3
(Note: "Swivel Nut to Flange Style" flange type will not be accepted)

Corporation Stop Ball Valve - CC Threads
1-1/2" Size
Ford FB1000
Mueller P-25008

Service Saddle - Brass, CC Threads - C-900 PVC, AC and Ductile Iron Pipe
Ford S-90 and 202B
Mueller BR2B

Meter Boxes and Covers
1-1/2" (Non-Traffic Loading)

Box		Cover	
Christy	B30	Christy	B30

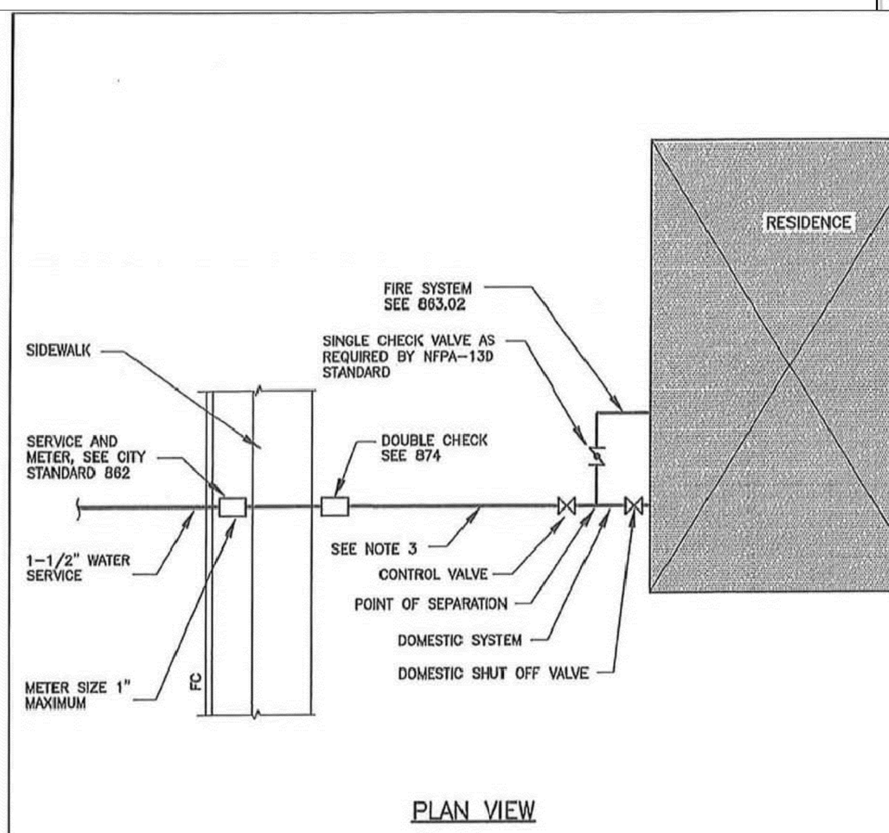
1-1/2" (Traffic Loading Area)

Box		Cover	
Christy	B30	Christy	B30

CITY STANDARD DETAIL NO. 864 and 865
Straight Meter Valves - Pack Joint, Brass, CC Threads
2" and 1-1/2" FL. x Compression
Ford BF43-777W and BF43-666W
Mueller P24335

The line from meter to backflow is to be flushed prior to setting backflow. If the initial test of the backflow by the city fails at the time of CO the contractor/developer will be charged that time and the contractor/developer is responsible for the cleaning of the device. No CO will be signed off until the backflow passes the test

2 of 6
March 2016



NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. LOCATE CHECK VALVE AND SEPARATION POINT AT HOUSE OR IN GARAGE.
3. SERVICE SIZE FROM METER TO DWELLING MUST BE 1–1/2" MINIMUM. FOR SERVICES WITH LONG RUNS OR SIGNIFICANT CHANGES IN GRADE FROM THE METER TO THE DWELLING, LARGER PIPE MAY BE REQUIRED. CONTACT THE FIRE MARSHAL FOR REQUIREMENTS.
4. INSTALL DOUBLE CHECK PER STD. # 874 & 875.

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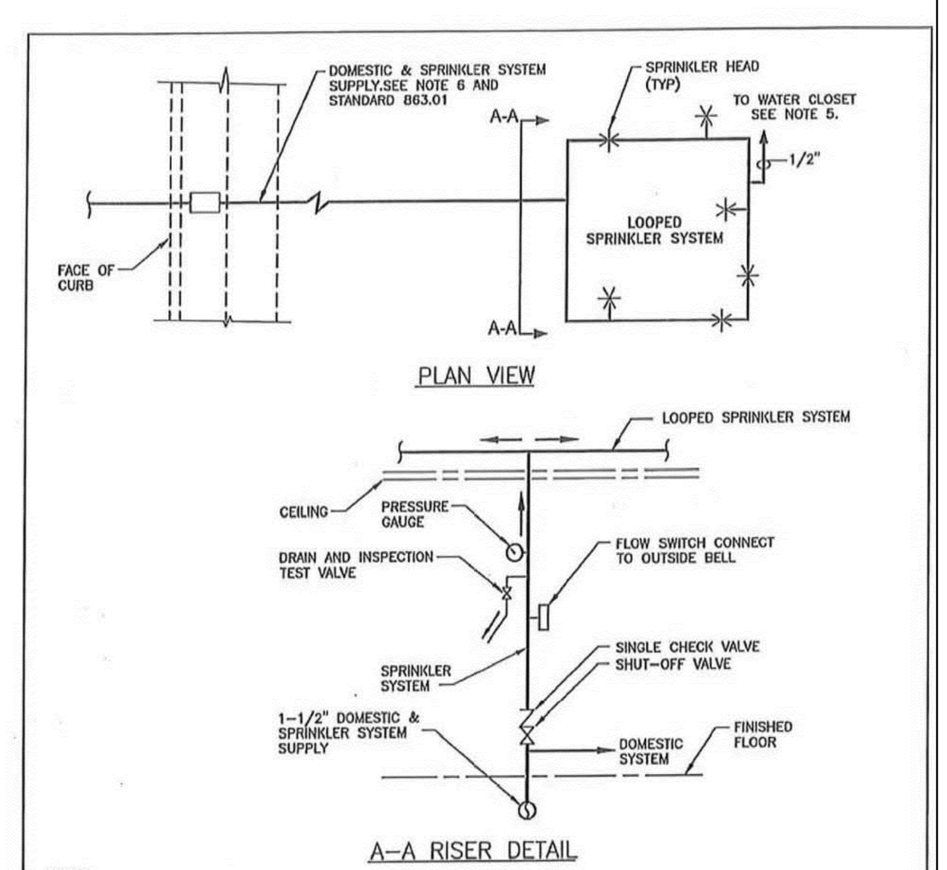
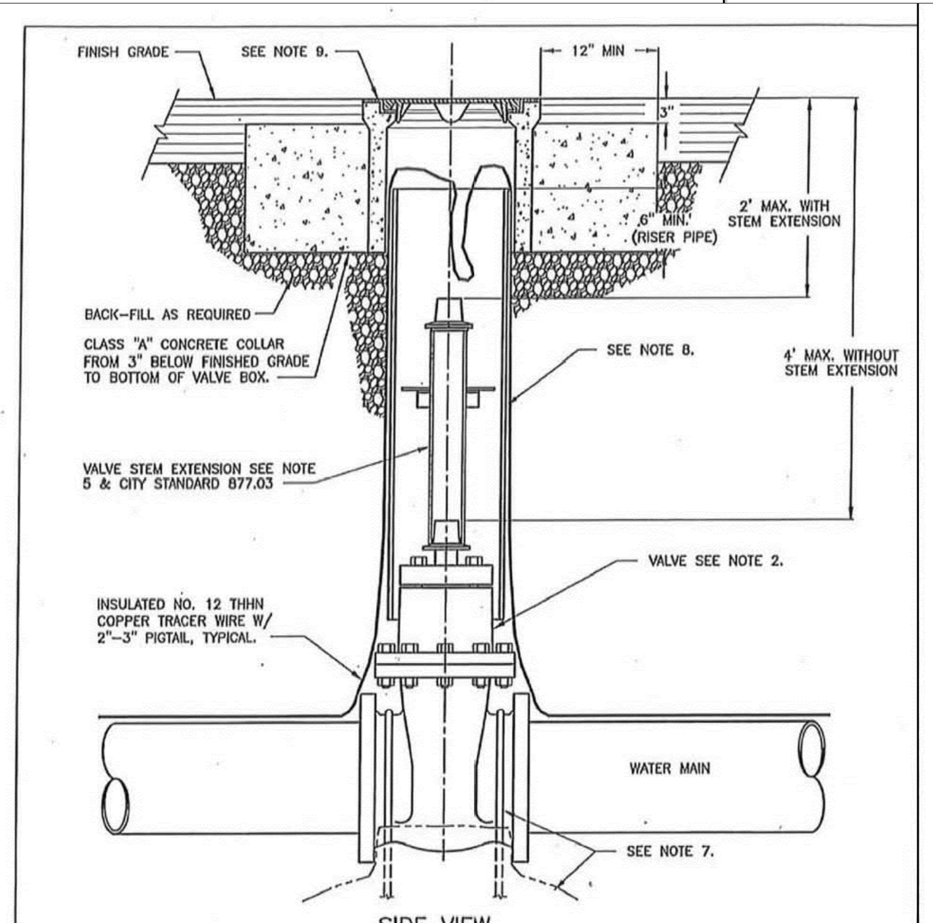
RESIDENTIAL FIRE SYSTEM SERVICE
DATE: AUGUST 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 863.01



NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13D AS APPROVED BY THE FIRE MARSHAL.
3. THE SPRINKLER SYSTEM MUST BE A LOOPED SYSTEM.
4. BACK FLOW DEVICES WILL NOT BE REQUIRED FOR A LOOPED SYSTEM CONNECTED TO A WATER CLOSET (TOILET).
5. THE CONNECTION FOR THE WATER CLOSET MUST BE LOCATED AT THE MOST REMOTE FIXTURE (FARTHEST FROM THE SPRINKLER SYSTEM RISER). FOR SYSTEMS WHERE THE AVAILABLE PRESSURE IS GREATER THAN 70 PSI, A PRESSURE REDUCING VALVE (PRV) WILL BE REQUIRED TO BE INSTALLED BETWEEN THE TEE CONNECTION FROM THE SPRINKLER SYSTEM AND THE WATER CLOSET CONNECTION.
6. MINIMUM 1–1/2" DIA. SINGLE SERVICE–MAY REQUIRE LARGER SERVICE BASED ON FIRE SPRINKLER DESIGN CONSULT FIRE SPRINKLER CONTRACTOR FOR APPROPRIATE SIZING OF SERVICE.
7. FOR SPRINKLER SYSTEMS THAT CANNOT BE LOOPED, A SINGLE CHECK VALVE APPROVED IN ACCORDANCE WITH NFPA 13D AND OR OTHER NATIONALLY RECOGNIZED STANDARDS SHALL BE INSTALLED ON THE SPRINKLER RISER. SYSTEMS REQUIRING A CHECK VALVE SHALL NOT BE REQUIRED TO BE CONNECTED TO THE WATER CLOSET.
8. THE FIRE SPRINKLER FLOW SWITCH SHALL BE SET TO ITS HIGHEST SETTING TO AVOID ACTUATION OF THE AUDIBLE FIRE ALARM.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
RESIDENTIAL FIRE SPRINKLER LOOP SYSTEM
DATE: MARCH 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 863.02

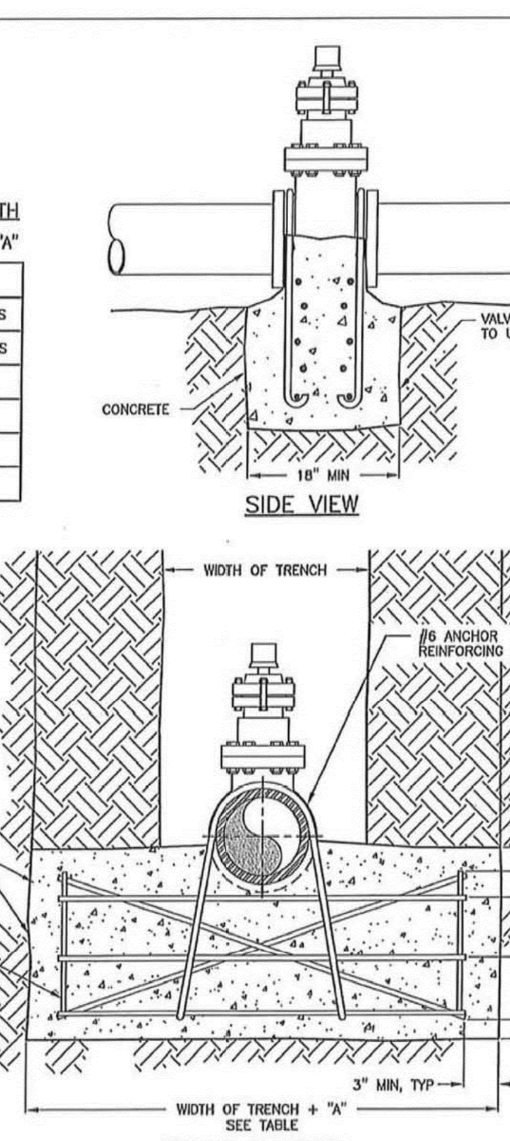


NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. VALVES 2" THROUGH 12" SHALL BE RESILIENT SEATED GATE VALVES AND VALVES 16" AND LARGER SHALL BE BUTTERFLY VALVES (SEE WATER SYSTEM DESIGN GUIDELINES) UNLESS OTHERWISE APPROVED BY PUBLIC WORKS AND UTILITIES.
3. GATE VALVES SHALL CONFORM TO THE CITY WATER SYSTEM DESIGN GUIDELINES.
4. ALL EXTERNAL BOLTS AND NUTS ON VALVES SHALL BE TYPE 316 STAINLESS STEEL.
5. IF VALVE IS INSTALLED SO THAT THE TOP OF THE OPERATING NUT IS MORE THAN 4' BELOW FINISHED GRADE, THE VALVE STEM RISER SHALL BE REQUIRED.
6. FOR INSTALLATION OF BUTTERFLY VALVE AND TAPPING VALVE, SEE STANDARD.
7. SEE CITY STANDARD DETAIL NO. 877.02 FOR VALVE TIE DOWN REQUIREMENTS.
8. 8" DIA. SDR 35 PVC SEWER PIPE CONFORMING TO ASTM3034. RISER PIPE TO BE PLUMB AND CENTERED OVER VALVE STEM AND SHALL BE CONSTRUCTED FROM A SINGLE LENGTH OF PIPE WITH NO JOINT. (IF VALVE RISER PIPE IS EXISTING AND VALVE BOX IS RAISED, A BELL JOINT EXTENSION IS ALLOWED). VALVE RISER PIPE MUST EXTEND INTO VALVE BOX.
9. SET VALVE BOX FLUSH WITH STREET SURFACE OR FINISHED GRADE WITH CAST IRON RING AND COVER MARKED "WATER". VALVE BOX TO BE CHRISTY G5 OR G8 OR APPROVED EQUAL WITH TRAFFIC LID.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
GATE VALVE, STEM EXTENSION AND BOX WITH RISER
DATE: AUGUST 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 877.01

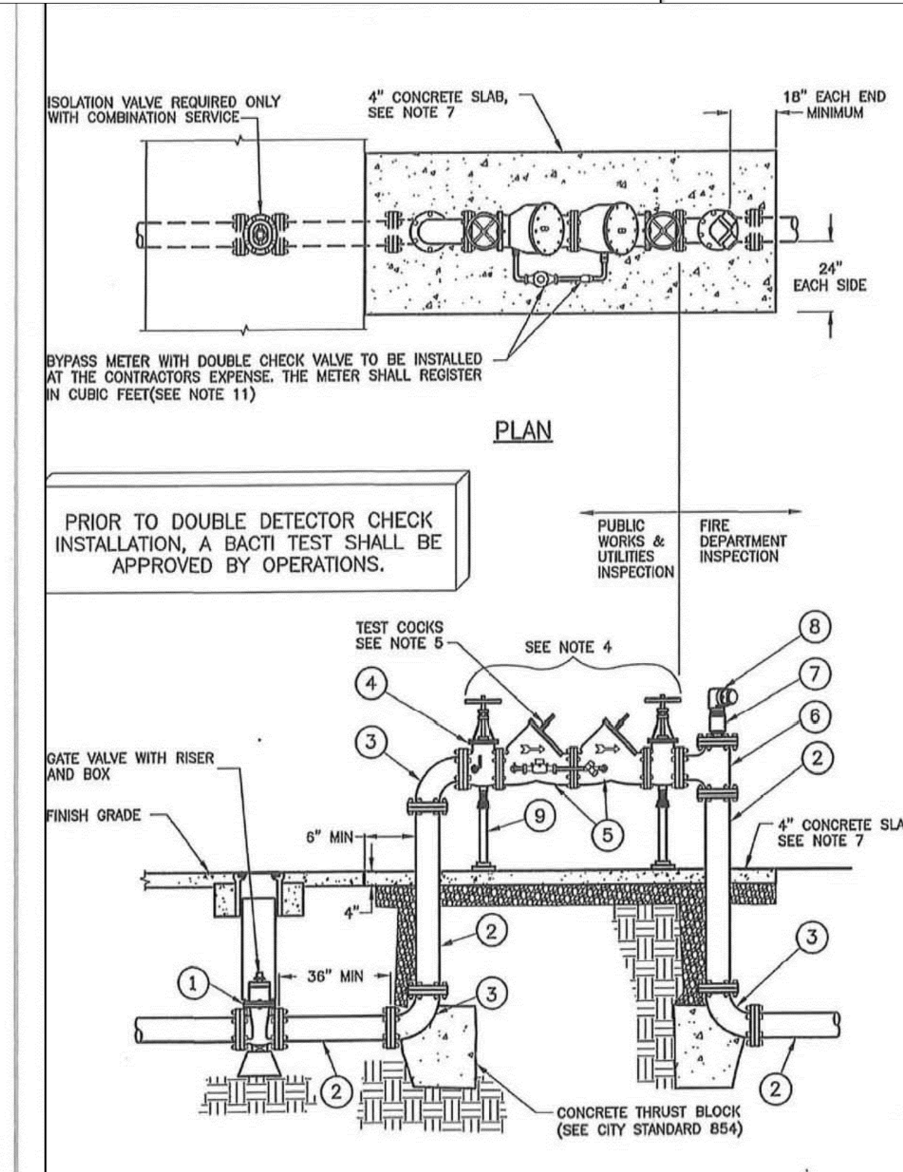
VALVE ANCHOR WIDTH
WIDTH OF TRENCH + "A"

VALVE SIZE	"A"
6 INCH	18 INCHES
8 INCH	30 INCHES
10 INCH	4 FEET
12 INCH	6 FEET
14 INCH	8 FEET
16 INCH	10 FEET



NOTE
1. SEE WATER SYSTEM DESIGN GUIDELINES.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
VALVE ANCHOR
DATE: MARCH 2016 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: LTV/JDL | NO. 877.02



*SEE 880.02 FOR NOTES AND PARTS LIST
*FOR TAPPING SLEEVE REQUIREMENTS SEE APPROVED MATERIALS LIST

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
4" THRU 10" DOUBLE CHECK DETECTOR FIRE LINE BACKFLOW ASSEMBLY
DATE: AUGUST 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 880.01

4" THRU 10" DOUBLE CHECK DETECTOR FIRE LINE BACKFLOW ASSEMBLY PARTS LIST

NO.	DESCRIPTION
1	FLG X FLG RESILIENT WEDGE GATE VALVE, CONCRETE PIER BLOCK REQUIRED
2	FLG X FLG D.I.P. SPOOL – LENGTH AS REQUIRED (36" MINIMUM)
3	90° FLANGED D.I.P. ELBOW
4	SELF–RISING STEM SHUTOFF VALVES, 2 REQUIRED (SEE NOTE 4)
5	DOUBLE CHECK DETECTOR ASSEMBLY (SEE NOTE NO. 6 & 9)
6	TEE AND BLIND FLANGE WITH 4" TAP
7	CHECK VALVE AND NIPPLE
8	90–DEG. 4" X 2–1/2" X 2–1/2" FIRE DEPARTMENT CONNECTION AND NIPPLE
9	FOR 4 INCH AND LARGER INSTALL ADJUSTABLE SUPPORTS–GRINNEL OR APPROVED EQUAL

NOTES:
1. SEE WATER SYSTEM DESIGN GUIDELINES.
2. DOUBLE CHECK DETECTOR VALVE BACKFLOW ASSEMBLIES SHALL BE REQUIRED ON ALL PROPERTIES WITH CLASS 3 OR 4 FIRE SPRINKLER SYSTEMS, AUXILIARY WATER SUPPLY ON SITE, WHERE THE CITY FIRE MARSHALL AND PUBLIC WORKS & UTILITIES DEPARTMENT DETERMINES EXTREME FIRE HAZARD EXISTS OR WHERE THERE IS MORE THAN ONE CONNECTION TO THE CITY WATER SUPPLY.
3. ALL APPROVED DOUBLE CHECK DETECTOR BACKFLOW ASSEMBLIES SHALL BE SHOWN ON THE LIST OF APPROVED BACKFLOW DEVICES OF THE LATEST REVISION BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES.
4. SHUT OFF VALVES SHALL BE RESILIENT WEDGE TYPE O.S. AND Y., AND MUST BE CHAINED AND PADLOCKED IN THE OPEN POSITION. FIRE DEPARTMENT REQUIRES ELECTRONIC MONITORING OF TAMPER SWITCHES.
5. 4 TEST VALVES ARE REQUIRED AND SHALL BE FITTED WITH APPROPRIATE SIZE FEMALE TEST COCKS.
DOUBLE CHECK DETECTOR BACKFLOW ASSEMBLY SHALL BE LOCATED 24 INCHES ABOVE FINISHED GRADE (38 INCHES MAX) OR 12 INCHES ABOVE THE INUNDATION LEVEL, WHICHEVER IS GREATER AND AS CLOSE AS POSSIBLE TO THE SIDEWALK OR PUBLIC RIGHT OF WAY. WHERE NO SIDEWALK EXISTS INSTALL BEHIND RIGHT OF WAY OR AS APPROVED BY OPERATIONS.
6. THE CONCRETE SLAB TO INCLUDE 6 X 6 WIRE MESH AND PLACED ON 6" OF CLASS 2 AGGREGATE BASE COMPACTED 95% RELATIVE COMPACTION.
7. ANY COVER OR SCREENING OF THIS ASSEMBLY MUST HAVE THE APPROVAL OF THE CITY FIRE MARSHALL AND THE PUBLIC WORKS & UTILITIES DEPARTMENT PRIOR TO INSTALLATION.
8. DOUBLE CHECK DETECTOR BACKFLOW ASSEMBLY SHALL BE THE SAME SIZE AS THE FIRE LINE EXCEPT WHERE A 12 INCH FIRE LINE IS REQUIRED. WHEN A 12 INCH FIRE LINE IS REQUIRED A 10 INCH DOUBLE CHECK DETECTOR BACKFLOW ASSEMBLY SHALL BE INSTALLED.
9. WHEN THE ASSEMBLY IS CONSTRUCTED WITHIN 3.0' OF A SLOPE GREATER THAN 3:1, A RETAINING WALL SHALL BE CONSTRUCTED WITH A 36" HORIZONTAL CLEARANCE AT FINISHED GRADE.
10. THE FIRE LINE WILL NOT BE ACTIVATED UNTIL THE CITY PUBLIC WORKS & UTILITIES DEPARTMENT HAS APPROVED THE INSTALLATION OF THE BYPASS METER AND THE ACCOUNT FOR THE SERVICE IS OPENED.
11. FOR TAPPING SLEEVE REQUIREMENTS SEE APPROVED MATERIALS LIST.
13. A DOUBLE DETECTOR CHECK IS REQUIRED ON ALL UPGRADES TO FIRE SYSTEM IF CURRENTLY HAVE SINGLE CHECK VALVE.
14. FDC LOCATION TO BE DETERMINED BY FIRE MARSHAL.

CITY OF PETALUMA — PUBLIC WORKS & UTILITIES — UTILITIES DIVISION — 202 N. McDOWELL BLVD. PETALUMA, CALIFORNIA 94954 TEL. 707-778-4546 FAX. 707-778-4508
4" THRU 10" DOUBLE CHECK DETECTOR FIRE LINE BACKFLOW ASSEMBLY (PARTS AND NOTES)
DATE: AUGUST 2019 | SCALE: N.T.S. | APPROVED BY: Kent R. Carothers, P.E. Operations Manager C60071 | DRAWN BY: JDL | NO. 880.02

REGISTERED PROFESSIONAL ENGINEER — Lee R Erickson — AE 468 — CE 45660 — Expires 12/31/2024 — Agricultural Civil — STATE OF CALIFORNIA
09.18.2023

Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

City of Petaluma
Standard Details and Drawings
Fire Service, Water Service

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

09.18.2023

2023 0917
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Scale:
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Sheet
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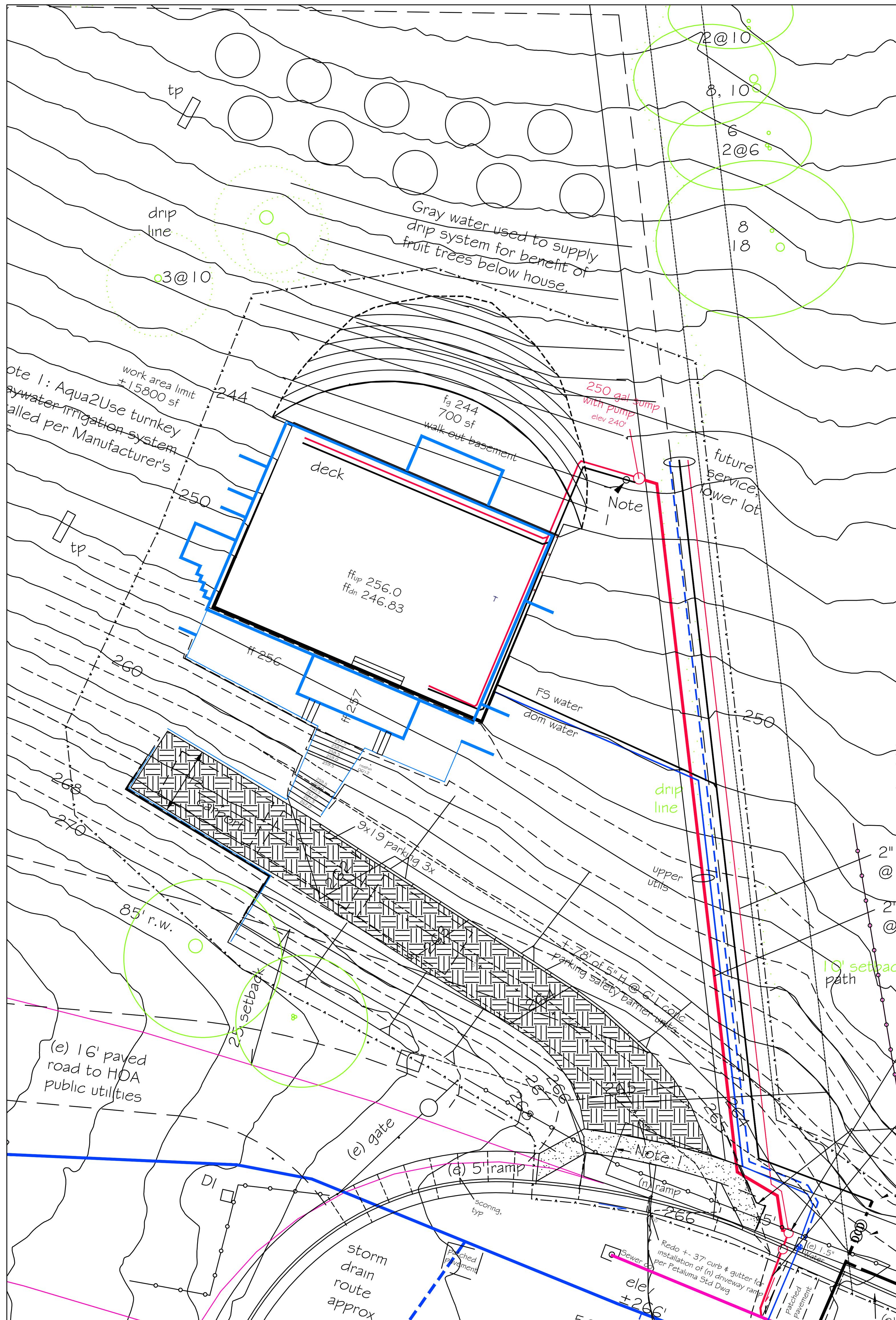
of 10



Notes:
* Segregate blackwater drain systems from other wastewater streams. Toilet and kitchen sink wastewater is not allowed in the graywater system.
* Plumbing details required for system implementation are the responsibility of Landowner and Plumbing Contractor.
* This dwelling has a first floor living space with drainage plumbing potentially accessible in the joists below the main floor. Provide removable panels in any downstairs ceiling for system access, inspection, valving control, and maintenance as required.
* Route graywater through the proprietary Aqua2Use system. The system contains automatic controls for pumped discharge to the irrigation system. The irrigation system must always be in an 'on' state to accommodate intermittent greywater flows created by use of facilities connected to the greywater system. No backflush occurs into the blackwater system.
* Excess graywater is not expected due to system pump capacity and immediate disposal of input water. Excess flows shall discharge by gravity to the blackwater sump for disposal via conventional means if irrigation demand does not meet production volume.
* The graywater system shall have an irrigation pump capable of delivering water to highest, most remote irrigation zone.
* High water monitor and system malfunction is provided by high water alarm in blackwater tank.
* Use of a graywater subsurface drip disposal system is believed feasible using standard drip irrigation components based on vendor experience on other projects.

Aqua2Use System Features

Fully automated system
Dimensions: Length 24", Width 15", Height 20"
Installation: above ground, partial or complete burial
2" inlet and 2" overflow
Built in overflow safety system
Progressive 4 Stage Filtration
Dry run pump protection, preventing clogging and damage to the pump
Submersible pump with integrated Electronic Pump Controller
Pump operates under full tank or timer control conditions.
Pump and filters provide hot and cold water capacity.
System contains diverter valve.
Manual filter cleanup on 180-day cycle using garden hose.
CSA Certified Pump
UV resistant
Water Mark approved
Suitable for pressure or gravity flow drip irrigation systems.

System has no intertie or backflush relative to the potable domestic water supply.
System is air-gapped at overflow discharge into sanitary sewer sump and pump facility.
No feasible or physical connection exists between pressurized domestic water supply and gray water irrigation system.

TREE INVENTORY NOTES

* This project has been structured to retain all trees and shrubs.
* The Work Area Limits avoid all tree trunks.
* Minor trimming of branches may be required to obtain required driveway and homesite clearances.
* Tree retention and tree ordinance requirements may be in conflict with Fire Services WUI criteria.
* Trees and drip lines were located using 4" to submeter accuracy GPS equipment in the field by the Engineer.
* All trees are California Live Oak (quercus agrifolia) unless indicated.

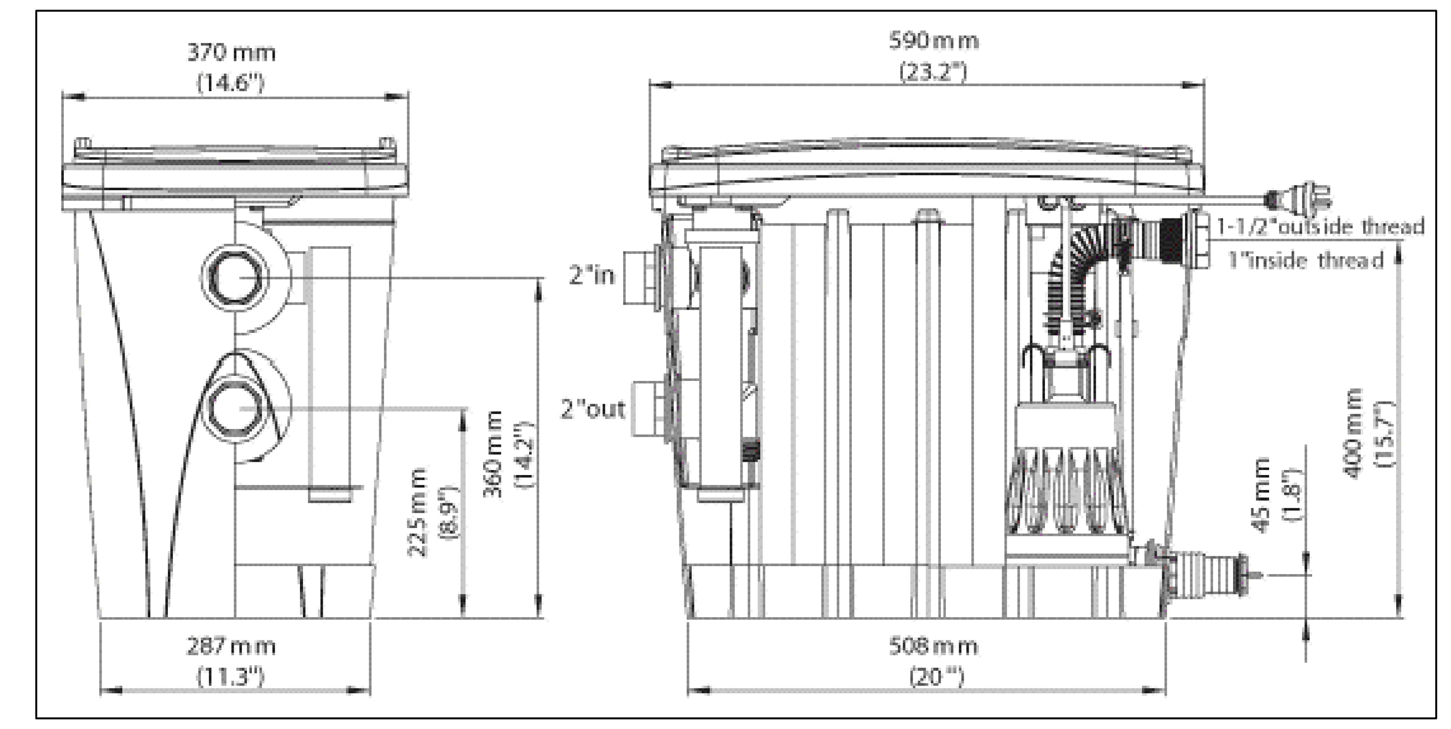
An undergrounded utility access easement proposed in 2019 Map Conditions in Parcel 2 for benefit of Parcel 1 will be relocated 20' westerly to preserve existing trees along the easterly Parcel 2 boundary.

Tree cluster stem count and breast height diameter (dbh, inches) are noted for individual clusters.

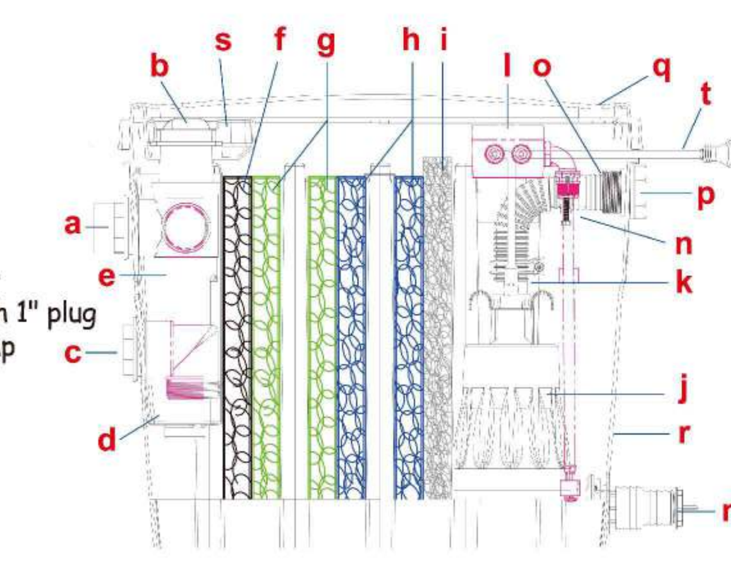
Plan View

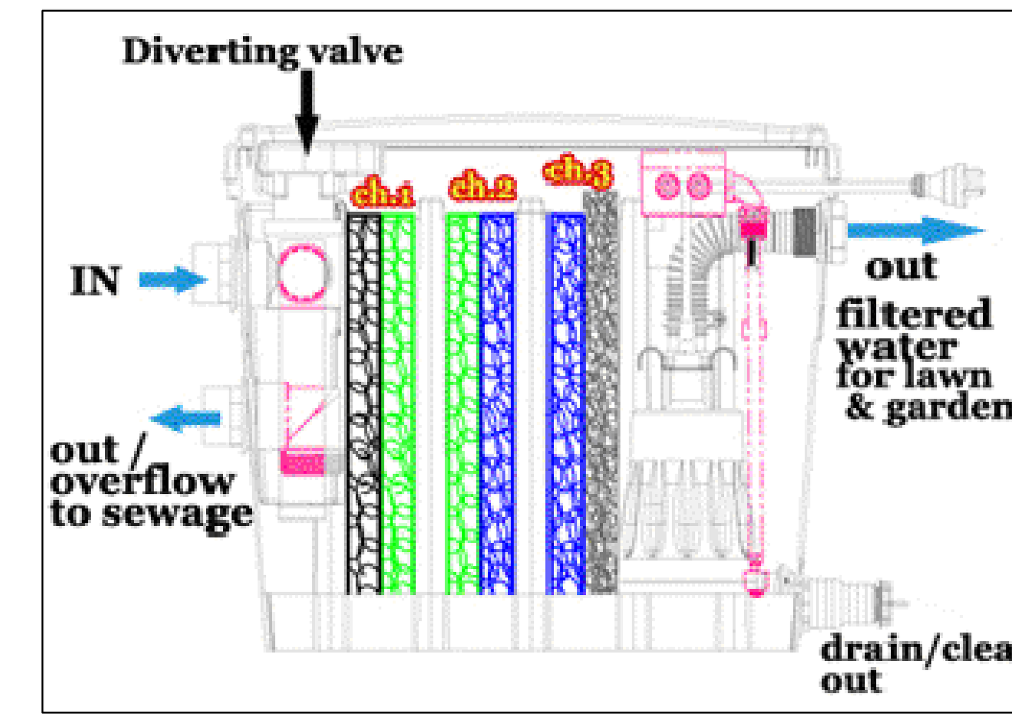
0 16

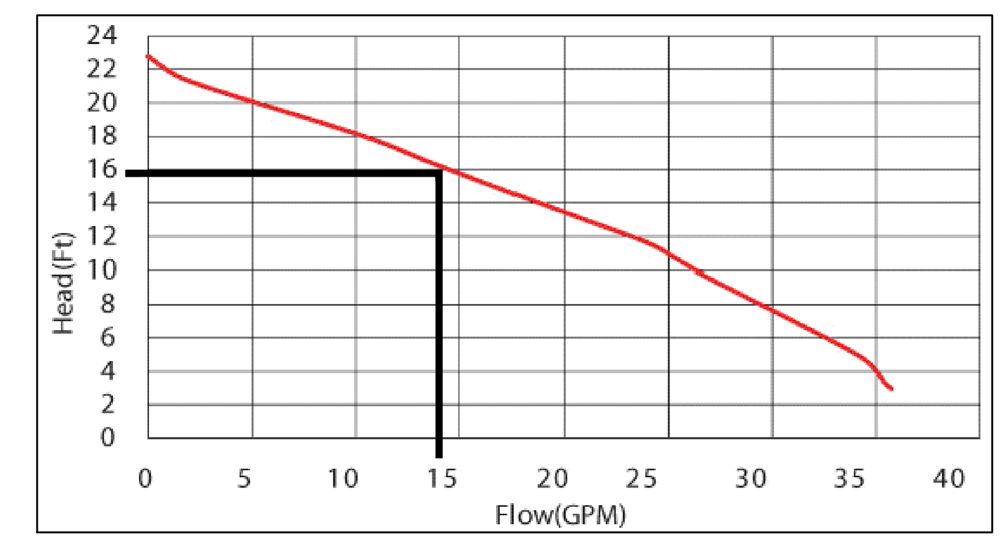
SCALE: 1" = 8'
1' contours



a. inlet(2")
b. Diverting valve
c. Outlet to sewer (2")
d. basket
e. Overflow stand pipe
f. Matala FSM190, Black
g. Matala FSM290, Green
h. Matala FSM365, Blue
i. Matala FSM460, Grey
j. water pump
k. pump outlet
l. electronic pump controller
m. drain/clean out point with 1" plug
n. kinkfree hose + hose clamp
o. outlet connector
p. outlet
q. tank cover
r. tank
s. inlet cover
t. electrical pump lead







Output			Rated		Maximum		Dimension	Weight
HP	W	inch	Head (Ft)	Flow (GPM)	Head (Ft)	Flow (GPM)	L x W x H (in)	Pounds
1/4	200	1-1/4"	16	14	23	36	6.1 x 6.1 x 9.45	9.26

Aqua2Use system operation

1: Greywater enters the system via gravity flow from residential plumbing. It is pumped through the filtration and irrigation disposal system using the Aqua2Use internal pump.
2. Greywater flows to the sewer when the diverter valve arrow points away from the filter.
3: Greywater flows to the filter inlet when the diverter valve arrow points toward the filter.
4: Greywater flows through progressive filtration chamber #1. It retains major and medium particles such as hair, lint, paper, detergent clogs and other impurities using filter pads Black (low density) and Green (medium density).
5: Greywater flows through progressive filtration chamber #2. It retains medium and small particles using filter pads Green (medium density) and Blue (high density).
6: Greywater flows through progressive filtration chamber #3. It retains small and minor particles using filter pads Blue (high density) and Grey (super high density).
7: Filtered greywater is pumped to the irrigation system via the Aqua2Use pump.

There is no single float switch to turn the pump on and off.
The system uses two magnetic micro floats to activate the control box to sense water level. This allows use of the full capacity of the tank. It also allows for a full flow of water to be distributed to better fill the drip irrigation system. Dual control limits unnecessary pump cycling and provides full flow with respect to filter exposure to incoming water.
The control box also switches the pump on independently of the magnetic floats to ensure tank residual is kept to a minimum.
There are no external timers in the system. The Aqua2Use control box automatically turns on the pump to see if there is any residual water for removal.

REGISTERED PROFESSIONAL ENGINEER
Lee R Erickson
AE 468
CE 45660
Expires 12/31/2024
Agricultural
Civil
STATE OF CALIFORNIA
09.18.2023

Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

Gray Water Irrigation System
Roof Runoff Rainwater Capture
Tree Inventory Notation

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of: APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

09.18.2023

2023 0917
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Scale:
noted

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3@10

250

Slope data is Lidar-derived, sourced from Sonoma County Active Map

260

270

30-40% slope, typ

40-50% slope, typ

>30% slope, typ

280

path

Plan View

0 16

SCALE: 1" = 8'

1' contours

LEGEND

BUILDING

TREES

FIBER ROLL

UTILITY POWER

WORK AREA LIMIT

UNPAVED ROAD

(e) FENCE

(n) FENCE

PARCEL LIMIT +–

DRAINAGE

sheet flow

(e) – existing
(n) – new
(typ) – typical
ac. – acre
co. – cleanout
i.g. – invert grade
f.g. – finished grade
sf – square feet
ft – feet
△ CONTROL

REGISTERED PROFESSIONAL ENGINEER
Lee R Erickson
AE 4166
CE 45660
Expires 12/31/2024
Agricultural
Civil
STATE OF CALIFORNIA

09.18.2023

Erickson Engineering Inc.
Valley Ford CA 94972-0446
707.795.2498 800.5002 cell
lee.erickson@hotmail.com

1" = 8' Plan View
Existing Slope Categories

DJ Gaker
djgaker@gmail.com
Emily Cosin
emilycosin@gmail.com

Lands of:
APN 008-490-035
Gaker and Cosin
560 Hayes Lane, Petaluma CA 94952

09.18.2023

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noted

Sheet
C10
of 10

WALL LEGEND

- EXTERIOR RETAINING WALL
- EXTERIOR 2X6 WALL
- INTERIOR 2X4 WALL
- INTERIOR 2X6 WALL
- 3 DOOR NUMBER, ID
- 3 WINDOW NUMBER, ID

SHEET NOTES

1. CONCRETE STOOP W/ STONE FACING AND WOOD BENCHES
4. GREY WATER SYSTEM, FRENCH DRAIN AND ROOF CATCHMENT TO SUPPLY ALL IRRIGATION NEEDS FOR FRUIT TREES.
5. UNDER SLAB DRAIN SYSTEM PER SOILS REPORT TO SURFACE DRAIN DISPERSAL
6. 1/2" GYP. BOARD AT STUD WALLS AND 5/8" TYPE 'X' GYP. BD. AT CEILNG.
8. CONCRETE RETAINING WALL MUST BE FULL HEIGHT WHEN RETAINING OVER 4'-6"
9. HEAT RECOVERY VENTILATOR
10. GREY WATER SYSTEM
11. ELECTRICAL SUBPANEL
12. HEAT PUMP, WATER HEATER
13. HOT WATER STORAGE TANK
14. RADIANT FLOOR PIPING & MANIFOLD
15. NOT USED
16. NOT USED
17. 36" WIDE, 36" DEEP CONCRETE PADS
18. PARTIAL HT. CONCRETE WALL AT 4'-6" RETAINING HT.
19. 320 AMP ELEC. PANEL
20. COMPRESSOR/ CONDENSER FOR HEAT PUMP
21. PHONE AND INTERNET
22. PV INVERTER

DEPOSIT FILL FROM HOUSE EXCAVATION

LOW WATER NATIVE GRASSES

SEWER LINE

MASTER BEDROOM
BATH
CLOSET
FAMILY
BEDROOM
BATH
OFFICE
STORAGE
LAUNDRY
UTILITIES
STORAGE
SLOPE , 1/4" PER FT.
2X6 WALL
TEMP.
HB
LIN.
UP
D.S.

NOTE
SEE STRUCTURAL DRAWING FOR SHEAR WALS, HOLD DOWNS, ANCHOR BOLTS, STRAPS AND CONCRETE WALL HEIGHTS. SEE CIVIL DRAWINGS FOR UTILITIES.

Magnetic North
True North

0 1 2 3 4 IN

LOWER FLOOR PLAN 1

1/4" = 1'-0"

MORSE & CLEAVER ARCHITECTS
P.O. BOX 2012
SEBASTOPOL, CA 95473
707-634-6137

LICENSED ARCHITECT
CLAUDIA CLEAVER
C-10492
RENEWAL DATE
STATE OF CALIFORNIA

A.P. No.: 008-490-035

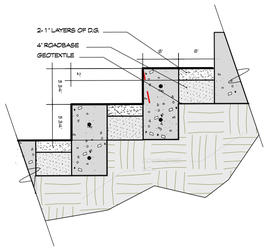
The Gaker Cosin Residence

560 Hayes Lane
Petaluma CA, 94952

ISSUE	DESCRIPTION	DATE
	PRELIMINARY	3.12.23
	PLANNING SUBMITTAL	7.18.23
1	PLANNING RESUBMITTAL	

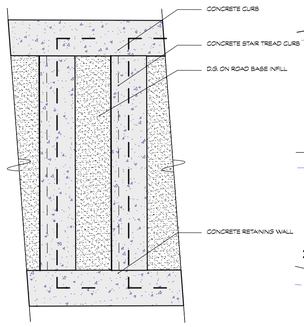
LOWER FLOOR PLAN
A4

DRAWN BY: TJM
DATE: 9/21/23



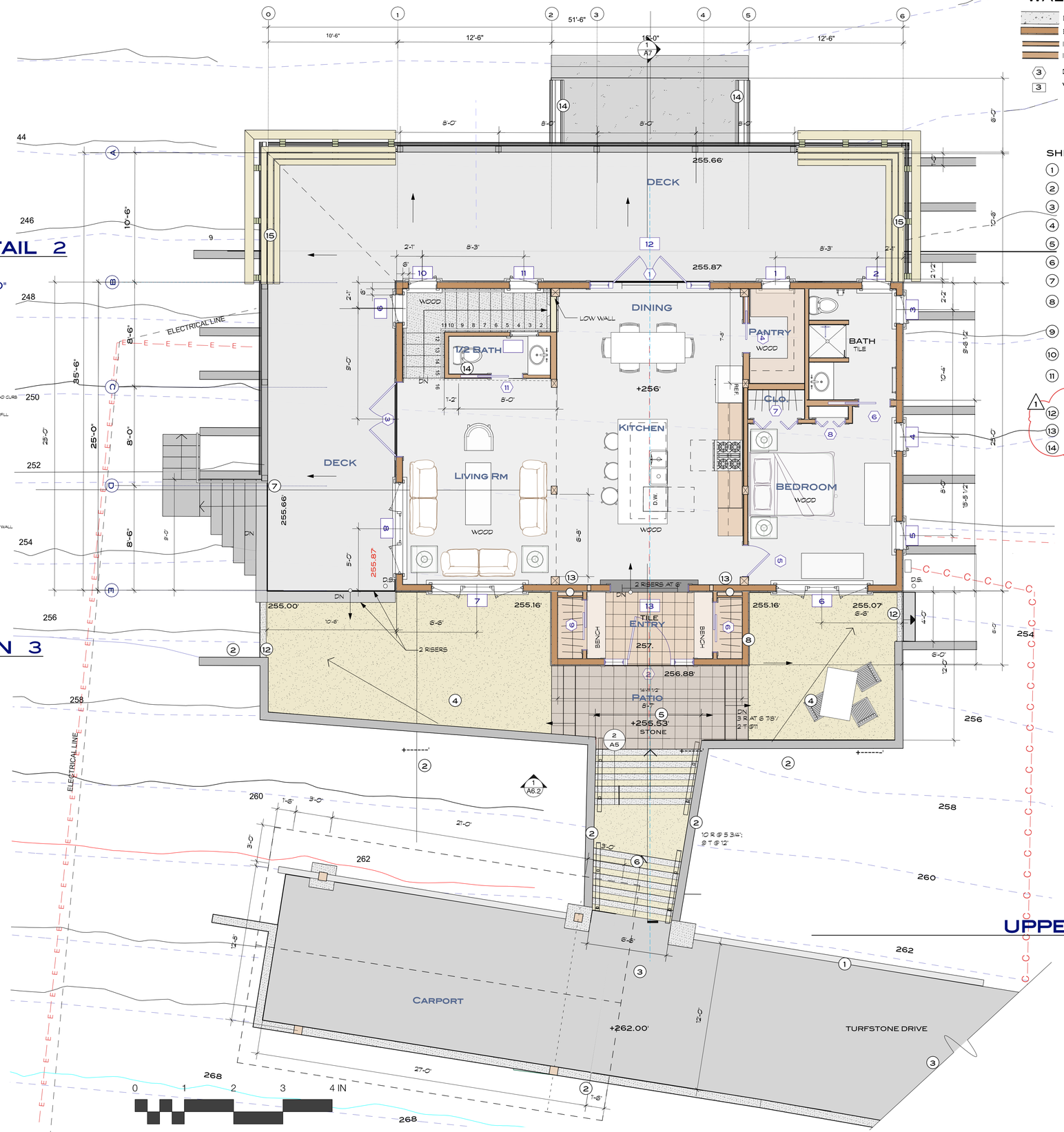
STAIR DETAIL 2

1 " = 1'-0"



STAIR PLAN 3

1 " = 1'-0"



UPPER FLOOR PLAN 1

1/4" = 1'-0"

WALL LEGEND

- EXTERIOR RETAINING WALL
- EXTERIOR 2X6 WALL
- INTERIOR 2X4 WALL
- INTERIOR 2X6 WALL
- (3) DOOR NUMBER, ID
- [3] WINDOW NUMBER, ID

SHEET NOTES

1. 6" CURB
2. CONCRETE RETAINING WALL W 4" PERF. DRAIN AND SWALE
3. TURFSTONE
4. DECOMPOSED GRANITE; SLOPE AT 1/4" PER FOOT
5. STONE PATIO; SLOPE AT 1/4" PER FOOT
6. CONCRETE RISER WITH DG TREAD
7. GUARD RAIL AND HANDRAILS AT EXTERIOR STAIR; SEE DETAIL AT 5/A10 AND A/11
8. ENTRY DECK TO HAVE STONE SURFACE
9. SWALE AND 4" FRENCH DRAIN TO SURFACE DRAIN DISCHARGE.
10. CONCRETE CURB, RETAINING WALL, VARIES, 5'-0" MAX.
11. SHOWER STALL TO HAVE PRE-FORMED CULTURED STONE SHOWER PAN WITH MIN. 2"" CURB. SHOWER WALLS TO HAVE DENSHIELD SURROUND AND TILE OVER; SEE DETAIL 6/ A11.
12. CONCRETE CURB FLUSH TO D.G.
13. CHASE FOR HRV / UTILITIES
14. WOODEN BENCHES

MORSE & CLEAVER
ARCHITECTS
P.O. BOX 2012
SEBASTOPOL, CA 95473
707-634-6137

LICENSED ARCHITECT
CLAUDIA CLEAVER
C-10492
RENEWAL DATE
STATE OF CALIFORNIA

A. P. No.: 008-490-035

The Gaker Cosin Residence

560 Hayes Lane
Petaluma CA, 94952

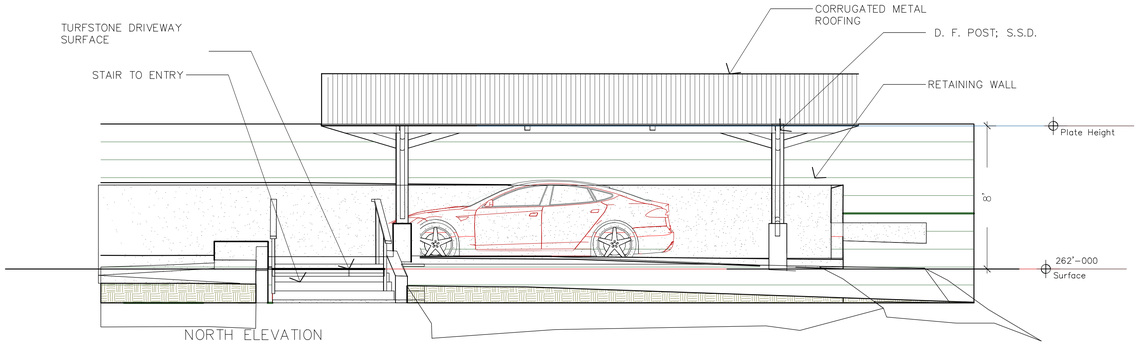
ISSUE	DESCRIPTION	DATE
	PRELIMINARY	3.12.23
	PLANNING SUBMITTAL	7.18.23
1	PLANNING RESUBMITTAL	

UPPER FLOOR PLAN

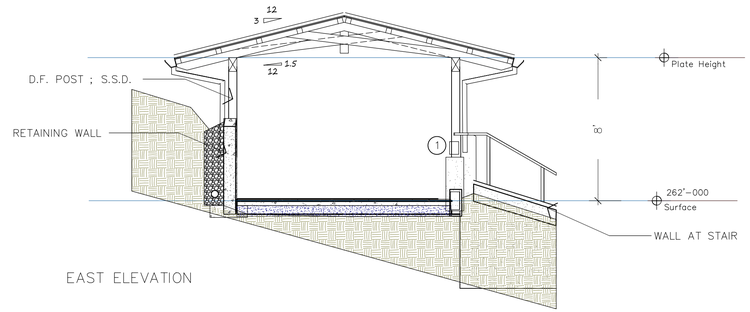
A5

DRAWN BY: TJM

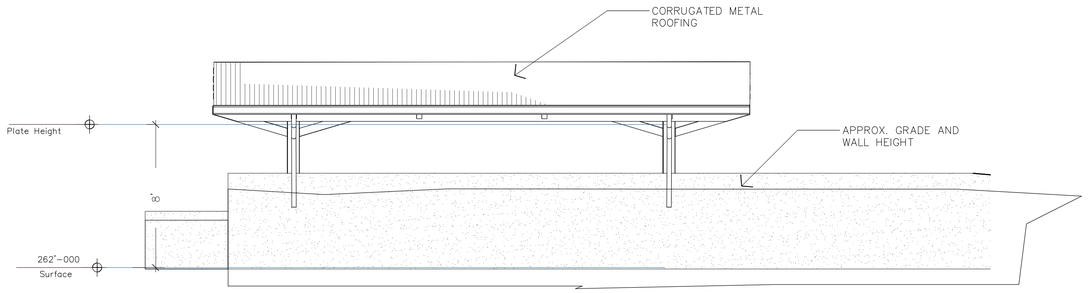
DATE: 9/15/23



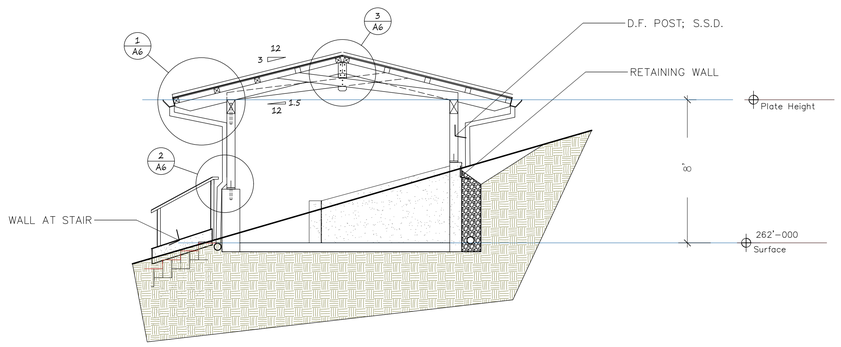
NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION



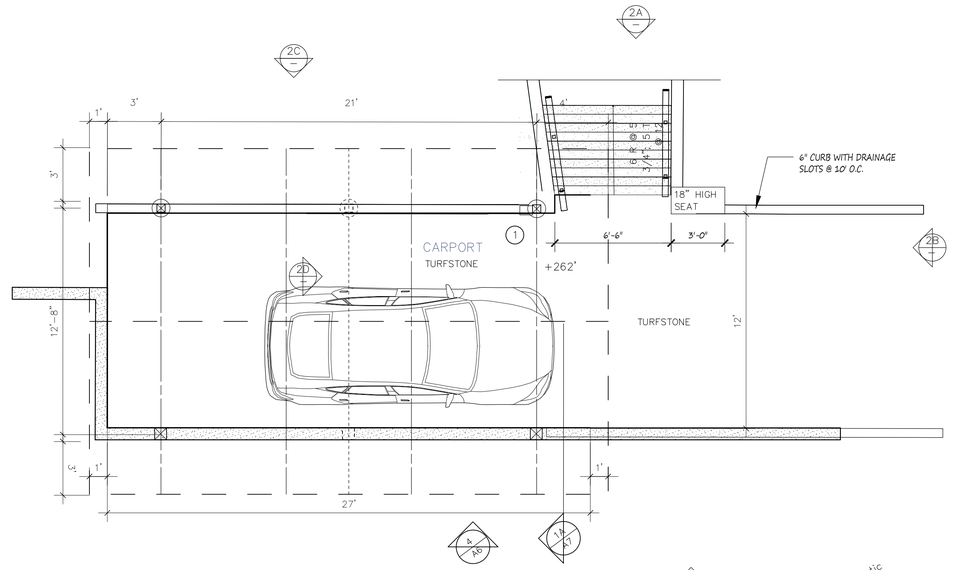
WEST ELEVATION

0 1 2 3 4 IN

CARPORT ELEVATIONS 2

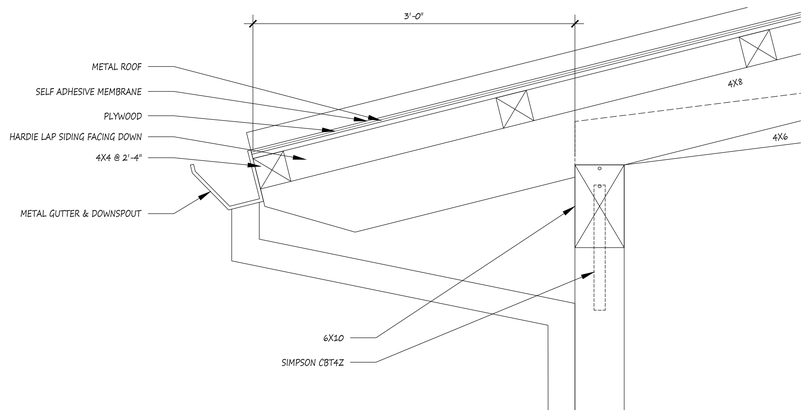
1/4" = 1'-0"

1 240 AMP WATERPROOF OUTLET FOR CAR CHARGING

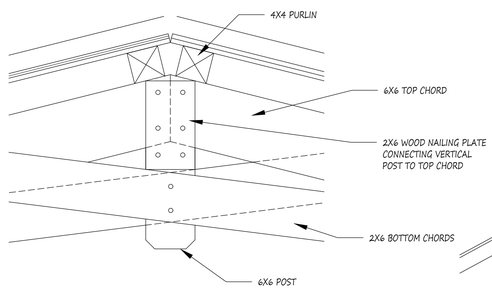


CARPORT PLAN 1

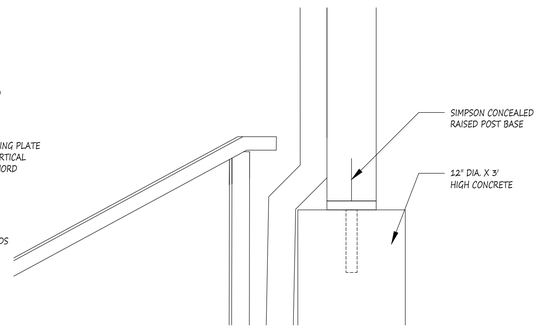
1/4" = 1'-0"



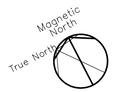
1 EVE DETAIL



3 RIDGE DETAIL



2 POST BASE DETAIL



A. P. No.: 008-490-035

The Baker Cosin Residence

560 Hayes Lane
Petaluma CA , 94952

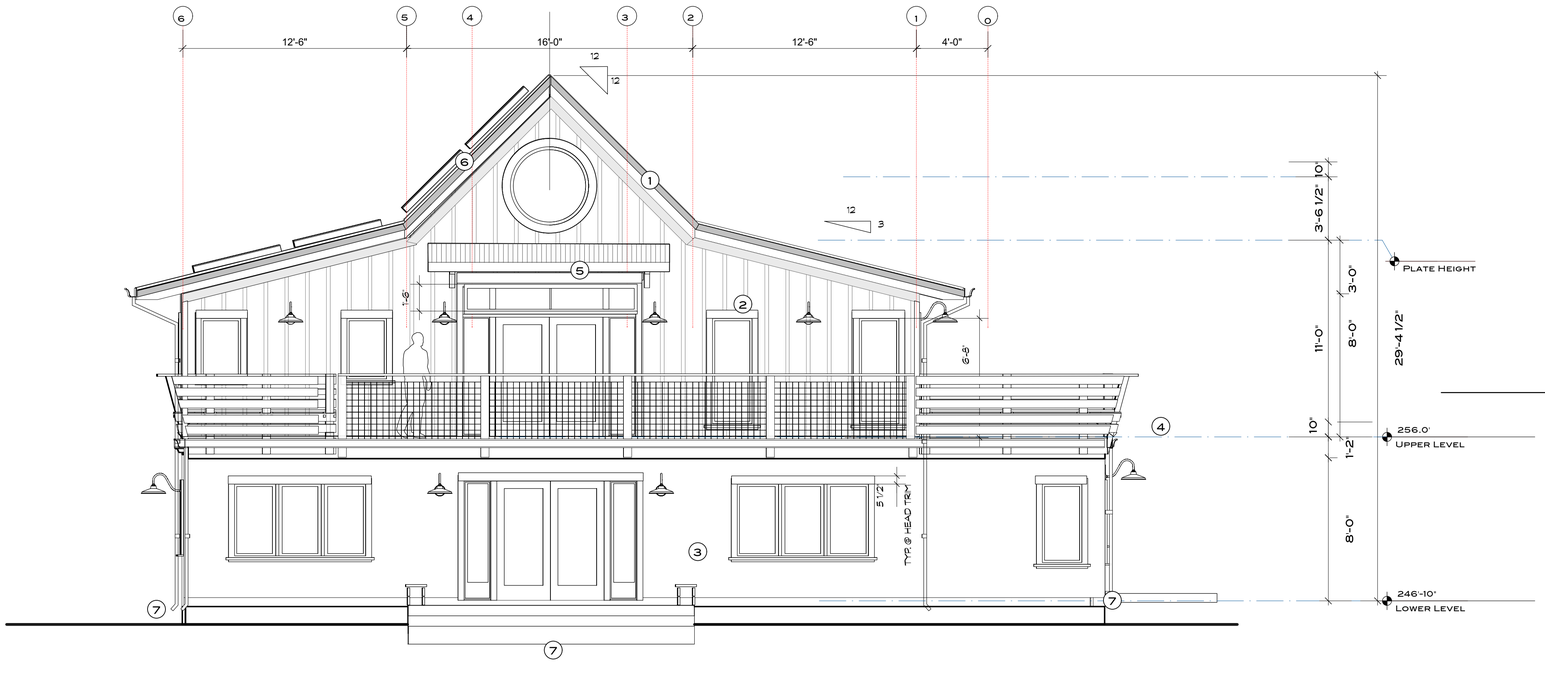
ISSUE	DESCRIPTION	DATE
	Preliminary	3.12.23
	PLANNING SUBMITTAL	7.18.23

CARPORT PLAN

A6

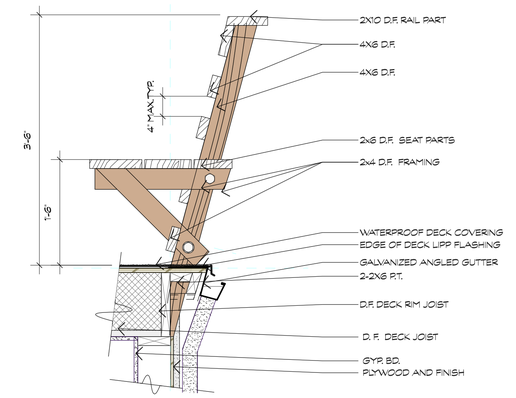
DRAWN BY: TJM

DATE: 8/8/23



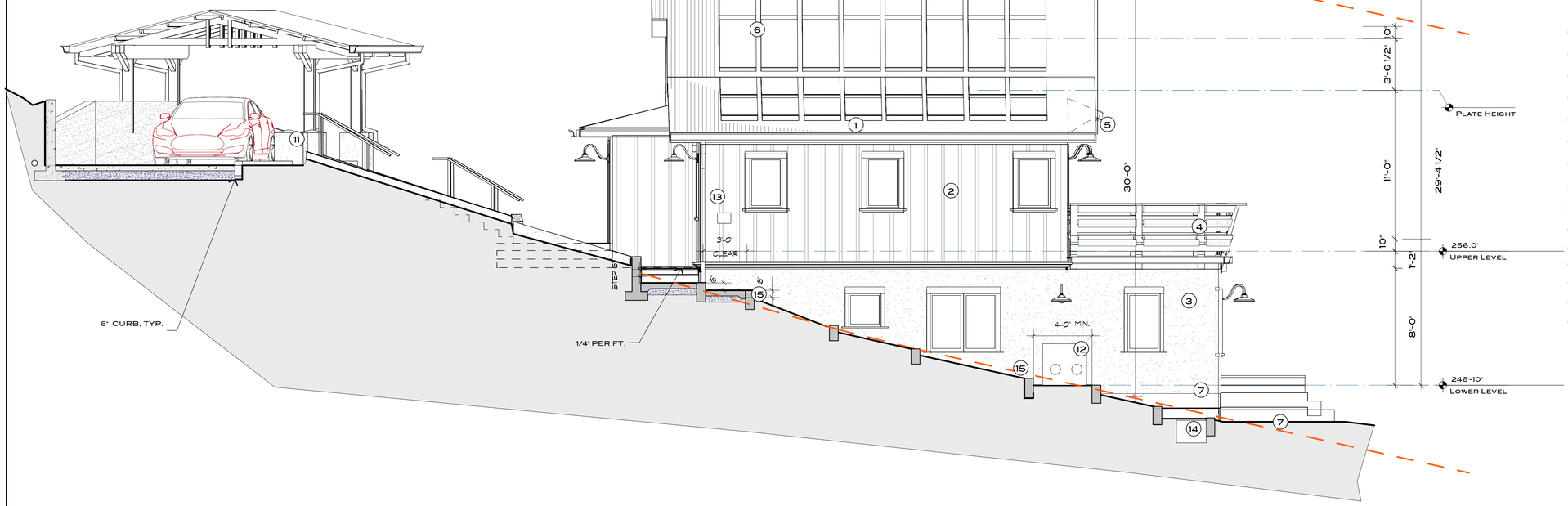
NORTH ELEVATION 1

1/4" = 1'-0"



BENCH DETAIL 1

1"= 1'-0"



EAST ELEVATION 2

1/4" = 1'-0"

SHEET NOTES

1. NON-REFLECTIVE DARK GREY CORRUGATED METAL ROOFING
2. WHITE BOARD AND BATTEN SIDING
3. GREY STUCCO FINISH
4. SOLID BLACK STAIN
5. CORRUGATED METAL AWNING TO MATCH ROOF
6. PHOTOVOLTAIC ARRAY
7. DOWNSPOUT TO BELOW-GRADE DRAIN SYSTEM
8. NOT USED
9. CONCRETE BOARD FORMED RETAINING WALL
10. GRADE
11. 240 V OUTLET FOR CAR CHARGING
12. EVAPORATOR/ CONDENSER ON CONCRETE PAD
13. COMMUNICATIONS ENCLOSURE
14. GREY WATER SYSTEM
15. CURBS EXTEND 6', TYP.; FLUSH TO HIGHER GRADE; 7 1/2" MAX. STEP.

MORSE & CLEAVER
ARCHITECTS
P.O. BOX 2012
SEBASTOPOL, CA 95473
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North & East
ELEVATIONS

A6.1

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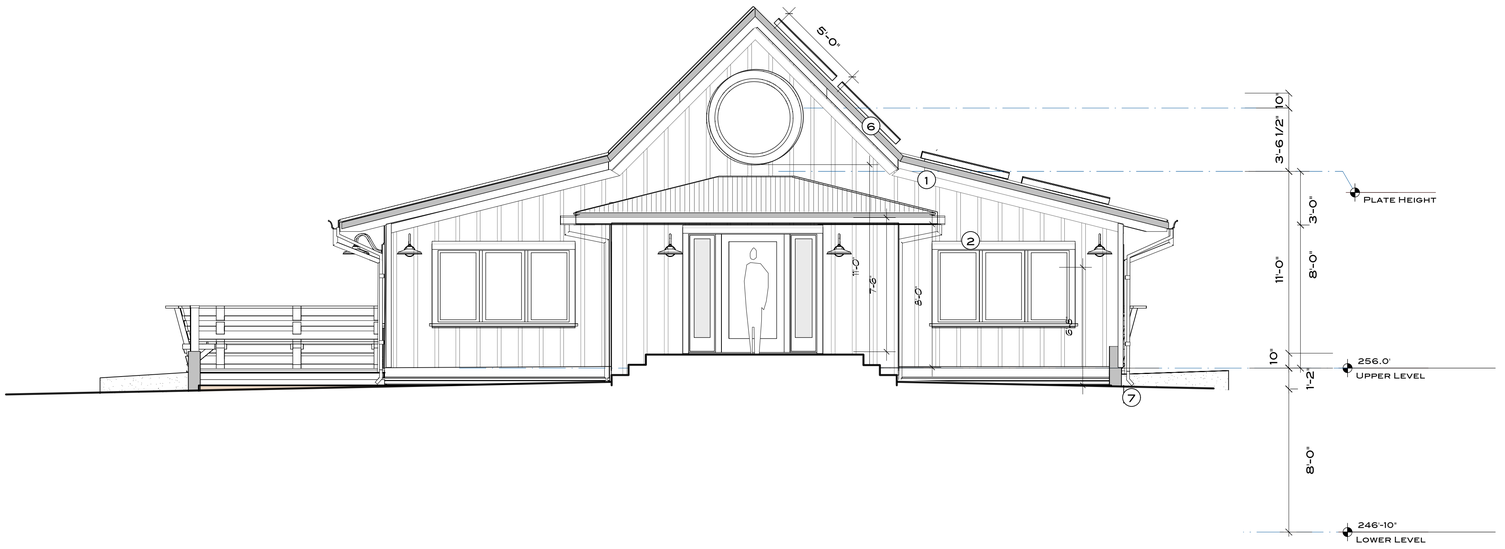
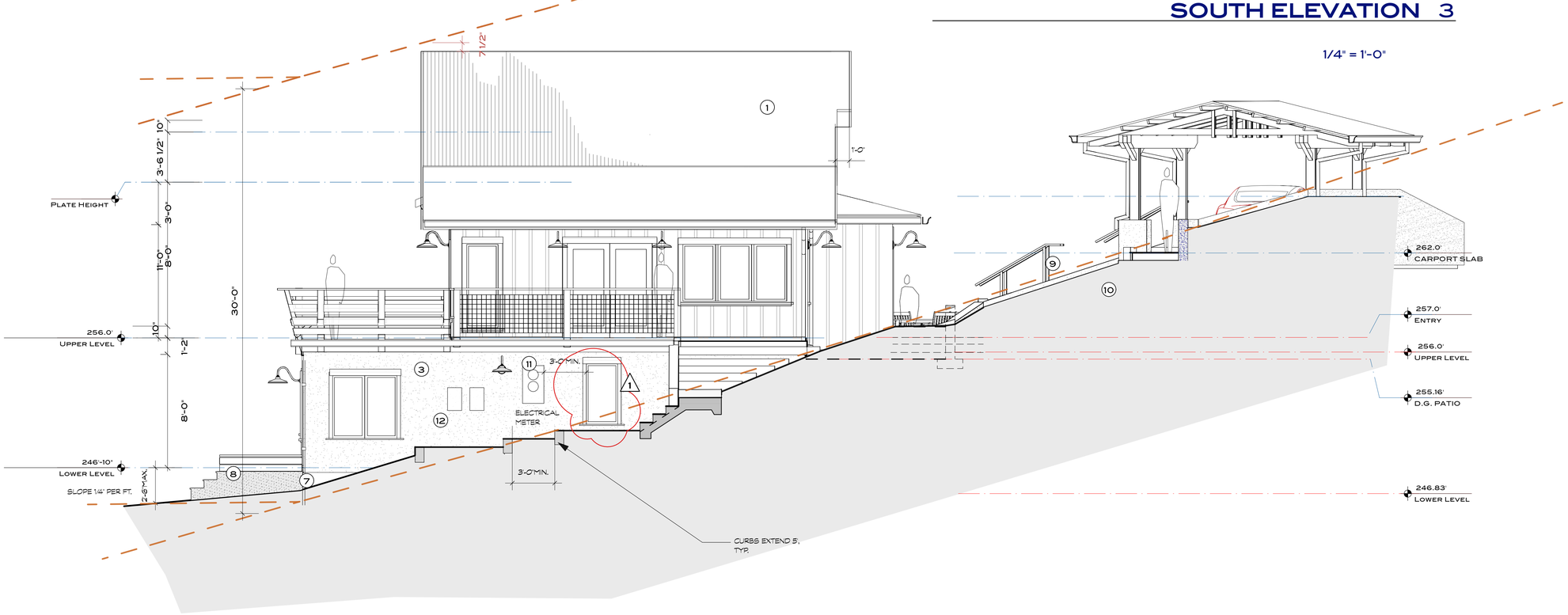
DATE: 9/15/23



SOUTH ELEVATION 3

1/4" = 1'-0"



WEST ELEVATION 4

1/4" = 1'-0"

SHEET NOTES

1. NON-REFLECTIVE DARK GREY CORRUGATED METAL ROOFING
2. WHITE BOARD AND BATTEN SIDING
3. GREY STUCCO FINISH
4. SOLID BLACK STAIN
5. CORRUGATED METAL AWNING TO MATCH ROOF
6. PHOTOVOLTAIC ARRAY
7. DOWNSPOUT TO BELOW-GRADE DRAIN SYSTEM
8. CONCRETE STOOP; SLOPE 1/4" PER FOOT
9. CONCRETE BOARD FORMED RETAINING WALL
10. GRADE
11. ELECTRICAL METER
12. PV INVERTER

MORSE & CLEAVER
ARCHITECTS
P.O. BOX 2012
SEBASTOPOL, CA 95473
707-634-6137

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South & West ELEVATIONS

A6.2

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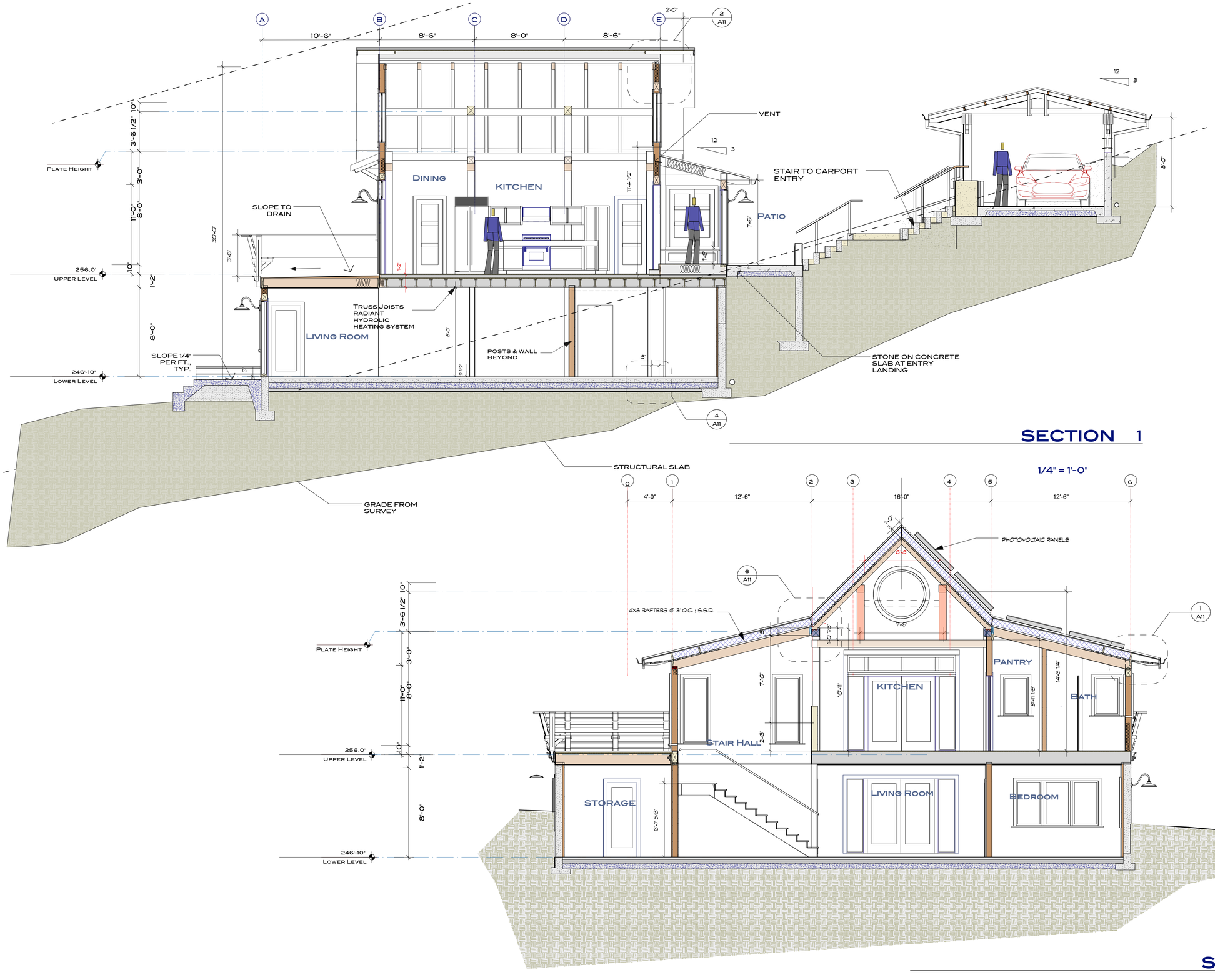

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ARCHITECTS
P.O. BOX 2012
SEBASTOPOL, CA 95473
707-634-6137

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SECTIONS

A1

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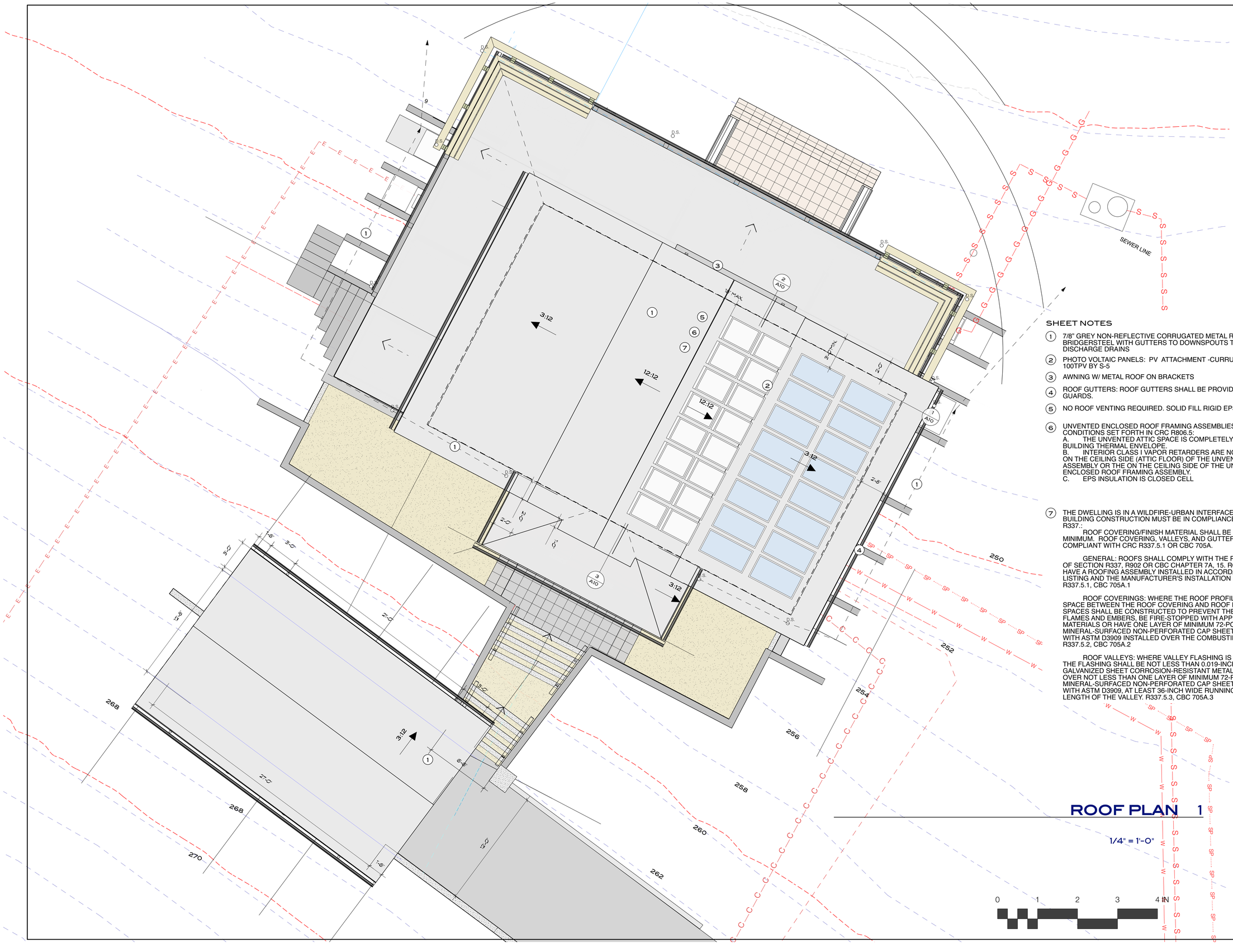

SHEET NOTES

1. 7/8" GREY NON-REFLECTIVE CORRUGATED METAL ROOFING BY BRIDGERSTEEL WITH GUTTERS TO DOWNSPOUTS TO SURFACE DISCHARGE DRAINS
2. PHOTO VOLTAIC PANELS: PV ATTACHMENT -CURRUBRACKET 100TPV BY S-5
3. AWNING W/ METAL ROOF ON BRACKETS
4. ROOF GUTTERS: ROOF GUTTERS SHALL BE PROVIDED WITH LEAF GUARDS.
5. NO ROOF VENTING REQUIRED. SOLID FILL RIGID EPS INSULATION
6. UNVENTED ENCLOSED ROOF FRAMING ASSEMBLIES SHALL MEET CONDITIONS SET FORTH IN CRC R806.5:
   A. THE UNVENTED ATTIC SPACE IS COMPLETELY WITHIN THE BUILDING THERMAL ENVELOPE.
   B. INTERIOR CLASS I VAPOR RETARDERS ARE NOT INSTALLED ON THE CEILING SIDE (ATTIC FLOOR) OF THE UNVENTED ATTIC ASSEMBLY OR THE ON THE CEILING SIDE OF THE UNVENTED ENCLOSED ROOF FRAMING ASSEMBLY.
   C. EPS INSULATION IS CLOSED CELL
7. THE DWELLING IS IN A WILDFIRE-URBAN INTERFACE FIRE AREA. BUILDING CONSTRUCTION MUST BE IN COMPLIANCE WITH CRC R337.:

   ROOF COVERING/FINISH MATERIAL SHALL BE CLASS A MINIMUM. ROOF COVERING, VALLEYS, AND GUTTERS MUST BE COMPLIANT WITH CRC R337.5.1 OR CBC 705A.

   GENERAL: ROOFS SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R337, R902 OR CBC CHAPTER 7A, 15. ROOFS SHALL HAVE A ROOFING ASSEMBLY INSTALLED IN ACCORDANCE WITH ITS LISTING AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. R337.5.1, CBC 705A.1

   ROOF COVERINGS: WHERE THE ROOF PROFILE ALLOWS A SPACE BETWEEN THE ROOF COVERING AND ROOF DECKING, THE SPACES SHALL BE CONSTRUCTED TO PREVENT THE INTRUSION OF FLAMES AND EMBERS, BE FIRE-STOPPED WITH APPROVED MATERIALS OR HAVE ONE LAYER OF MINIMUM 72-POUND MINERAL-SURFACED NON-PERFORATED CAP SHEET COMPLYING WITH ASTM D3909 INSTALLED OVER THE COMBUSTIBLE DECKING. R337.5.2, CBC 705A.2

   ROOF VALLEYS: WHERE VALLEY FLASHING IS INSTALLED, THE FLASHING SHALL BE NOT LESS THAN 0.019-INCH NO. 26 GAGE GALVANIZED SHEET CORROSION-RESISTANT METAL INSTALLED OVER NOT LESS THAN ONE LAYER OF MINIMUM 72-POUND MINERAL-SURFACED NON-PERFORATED CAP SHEET COMPLYING WITH ASTM D3909, AT LEAST 36-INCH WIDE RUNNING WITH FULL LENGTH OF THE VALLEY. R337.5.3, CBC 705A.3

Magnetic North
True North

ROOF PLAN 1

1/4" = 1'-0"

0 1 2 3 4 IN

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ROOF PLAN

A8

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ALARM NOTES:

1. SMOKE ALARMS SHALL BE LISTED AS COMPLYING WITH UL 217 AND BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH NFPA 720 AND THE MANUFACTURER'S INSTRUCTIONS.

2. CARBON MONOXIDE ALARMS SHALL BE LISTED AS COMPLYING WITH UL 2034 AND BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH NFPA 720 AND THE MANUFACTURER'S INSTRUCTIONS.

3. WHERE NEW CONSTRUCTION OR ELECTRICAL WORK OCCURS, ALL SMOKE ALARMS AND CARBON MONOXIDE ALARMS WILL BE LISTED BY THE STATE FIRE MARSHAL AND HAVE A 10-YEAR SEALED BATTERY AND BE INTERCONNECTED AND HARD-WIRED. CRC R314 AND R315

4. CARBON MONOXIDE ALARMS SHOULD BE OUTSIDE EACH BEDROOM.

PHOTOVOLTAIC NOTES:

1. A 2.17 KWDC MINIMUM PHOTOVOLTAIC SYSTEM IS REQUIRED FOR THIS PROJECT.
2. PHOTOVOLTAIC SYSTEM SHALL BE A DEFERRED SUBMITTAL
3. SEE SHEET A7 AND DETAIL 2/A10 FOR ROOF ATTACHMENT.

ELECTRICAL NOTES:

A- ELECTRICAL:

1. ELECTRICAL INSTALLATION SHALL MEET ALL REQUIREMENTS OF NFPA 70, NATIONAL ELECTRICAL CODE
2. PROVIDE NEW 240/120V 200 AMP ELECTRICAL PANEL WITH DISCONNECT FOR HOUSE
3. MAKE ELECTRICAL SYSTEM CONNECT TO MIN. 2.17 KW ROOF- MOUNTED PHOTOVOLTAIC PANELS
4. ELECTRIC RANGE ON DEDICATED 22O VOLT OUTLET
5. DRYER TO BE ON A 30 AMP CIRCUIT.
6. PROVIDE 8FT. MIN. LENGTH GROUND ROD, 3/4 TRADE SIZE, WITH SUPPLEMENTAL GROUND ROD 6 FEET APART PER CEC 250.52 (S)
7. PROVIDE 320 AMP METER AND DISCONNECT

B- RECEPTACLE:

1. ALL OUTLETS NOT PROTECTED AS GFCI MUST BE ARC FAULT CIRCUIT INTERRUPTER (AFCI) COMBINATION TYPE TO PROTECT BRANCH CIRCUIT.
2. ALL 15 AND 20 AMP RECEPTACLES SHALL BE LISTED TAMPER RESISTANT.
3. PROVIDE GFCI WATERPROOF & TAMPER RESISTANT RECEPTACLES AT FRONT AND REAR OF BUILDING WITHIN 6.5 FT. OF GRADE.
4. FAN & LIGHT COMBO FIXTURES IN BATHROOM SEPARATELY SWITCHED.
5. PROVIDE AT LEAST 2 SEPARATE 20 AMP CIRCUITS FOR SMALL APPLIANCES IN KITCHEN, PANTRY, DINING ROOM, AND SIMILAR AREAS WITH NO OTHER OUTLETS ON THE CIRCUITS
6. PROVIDE AT LEAST 1 SEPARATE 20 AMP CIRCUIT IN LAUNDRY AND BATHROOM WITH NO OTHER OUTLETS ON THE CIRCUITS.

C- LIGHTING:

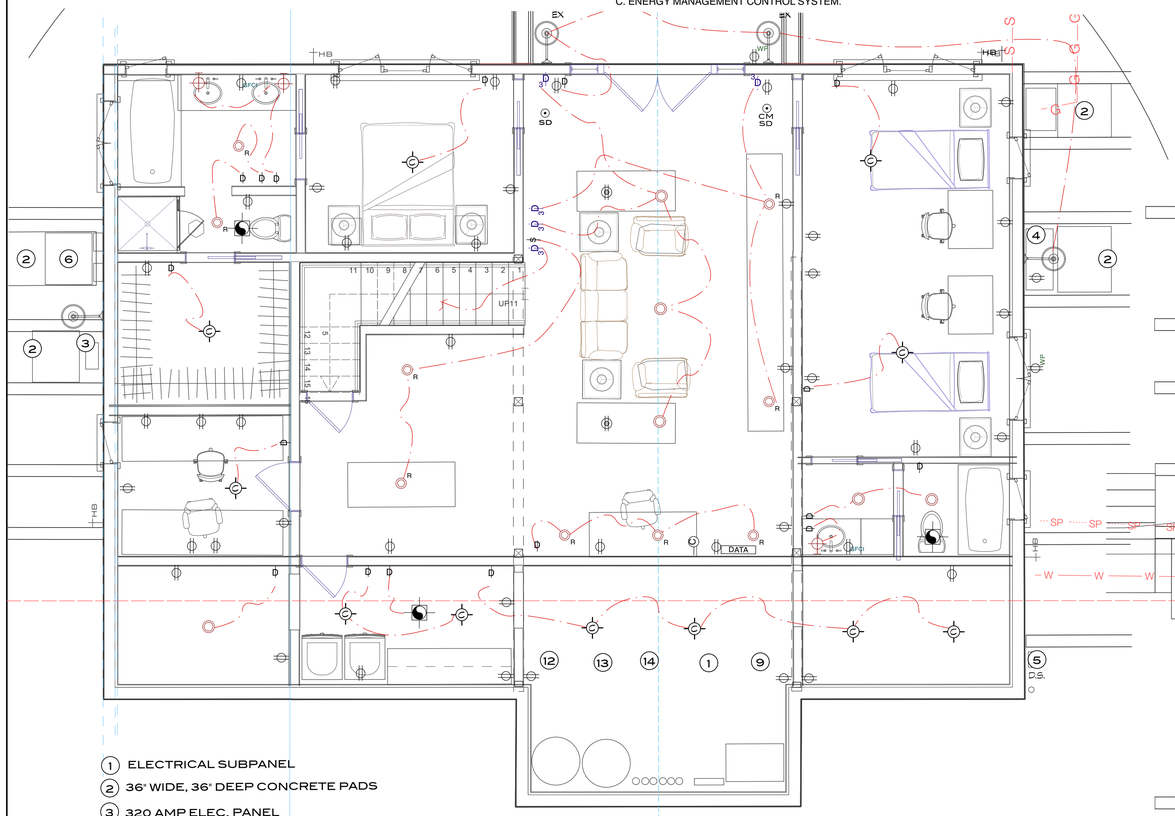
1. EXTERIOR LUMINAIRES TO BE HIGH EFFICACY AND SHALL :
   A. BE CONTROLLED BY A MANUAL ON AND OFF SWITCH THAT DOES NOT OVERRIDE TO ON THE AUTOMATIC ACTIONS OF ITEMS B) OR C) BELOW; AND
   B. BE CONTROLLED BY PHOTOCELL OR MOTION SENSOR OR ASTRONOMICAL TIME CLOCK.
2. . CONTROLS THAT OVERRIDE TO ON SHALL NOT BE ALLOWED UNLESS THE OVERRIDE AUTOMATICALLY REACTIVATES THE MOTION SENSOR WITHIN 6 HOURS; OR MAY BE CONTROLLED BY ONE OF THE FOLLOWING METHODS:
   A. PHOTOCONTROL AND AUTOMATIC TIME SWITCH CONTROL.
   B. ASTRONOMICAL TIME CLOCK.
   C. ENERGY MANAGEMENT CONTROL SYSTEM.
3. ALL LIGHT FIXTURES SHALL CONTAIN BULBS THAT ARE LABELED AS JA8-2016 (JA8-2016-E FOR SEALED LENS OR RECESSED FIXTURE). SCREW BASE BULBS ARE PERMITTED, EXCEPT IN RECESSED LIGHTING FIXTURES.
4. LIGHT FIXTURES IN OR NEAR TUB OR SHOWER ARE LABELLED: SUITABLE FOR WET LOCATIONS OR DAMP LOCATIONS.
5. ALL INSTALLED LUMINAIRES TO BE HIGH-EFFICACY IN ACCORDANCE WITH CENERGYC TABLE 150.0-A. CENERGYC 150(K)(1)(A)
6. ALL LIGHTS TO BE ON DIMMERS WITH THE FOLLOWING EXCEPTIONS:....ONE LIGHT IN BATHROOM, GARAGE LANDING TO BE ON VACANCY SENSOR AND TURNS OFF 30 MINUTES AFTER VACANCY.
7. ALL LIGHTING FIXTURES SHALL BE CONTROLLED BY EITHER A DIMMER SWITCH OR BY A VACANCY SENSOR SWITCH THAT REQUIRES A MANUAL ON ACTIVATION (DOES NOT AUTOMATICALLY TURN ON) AND AUTOMATICALLY TURNS OFF WITHIN 30 MINUTES AFTER THE ROOM IS VACATED. EXCEPT THAT BATHROOMS, LAUNDRY ROOM, GARAGES, AND UTILITY ROOMS SHALL HAVE ONE LIGHT FIXTURE CONTROLLED BE A VACANCY SENSOR. ALL OTHER LIGHTING IN THESE ROOMS SHALL BE CONTROLLED BY A VACANCY SENSOR OR A DIMMER SWITCH. CALIFORNIA ENERGY EFFICIENCY STANDARDS 150.0(K)
8. HIGH EFFICACY LUMINAIRES TO BE SEPARATED SWITCHED FROM THE LOW-EFFICACY LUMINAIRES PER CEC 150(K)(2)(A).
9. RECESSED LIGHTING SHALL BE LISTED FOR ZERO CLEARANCE INSULATION CONTACT (IC) BY UL, OR OTHER NATIONALLY RECOGNIZED TESTING/RATING LABORATORY; AIRTIGHT (AT); SEALED/CAULKED BETWEEN THE FIXTURE HOUSING AND CEILING; SHALL NOT CONTAIN A SCREW BASE SOCKET; AND CONTAIN BULBS MARKED WITH JA8-2016-E EFFICIENCY LABEL. CEC 150(K)(1)(C)

EV CAR CHARGER NOTES

1. TO BE INSTALLED PER CAC ARTICLE 625 AND CGBSCSECTION 4-106.4
2. SPECIFY A LISTED RACEWAY TO ACCOMMODATE A DEDICATED 208/240-VOLT BRANCH CIRCUIT. THE RACEWAY SHALL NOT BE LESS THAN TRADE SIZE 1 (NOMINAL 1-INCH INSIDE DIAMETER). THE RACEWAY SHALL ORIGINATE AT THE MAIN SERVICE OR SUBPANEL AND SHALL TERMINATE INTO A LISTED CABINET, BOX OR OTHER ENCLOSURE IN CLOSE PROXIMITY TO THE PROPOSED LOCATION OF AN EV CHARGER. RACEWAYS ARE REQUIRED TO BE CONTINUOUS AT ENCLOSED, INACCESSIBLE OR CONCEALED AREAS AND SPACES. THE SERVICE PANEL AND/OR SUBPANEL SHALL PROVIDE CAPACITY TO INSTALL A 40-AMPERE MINIMUM DEDICATED BRANCH CIRCUIT AND SPACE(S) RESERVED TO PERMIT INSTALLATION OF A BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE. CGBSC SECTION 4.106.4.1
3. THE SERVICE PANEL OR SUBPANEL CIRCUIT DIRECTORY SHALL IDENTIFY THE OVERCURRENT PROTECTIVE DEVICE SPACE(S) RESERVED FOR FUTURE EV CHARGING AS "EV CAPABLE". THE RACEWAY TERMINATION LOCATION SHALL BE PERMANENTLY AND VISIBLY MARKED AS "EV CAPABLE". CGBSC SECTION 4.106.4.1.1

ELECTRICAL & LIGHTING LEGEND

- LIGHT SWITCH
- DIMMER SWITCH
- DIMMER SWITCH, 3 -WAY
- LIGHT SWITCH, 3 -WAY
- 120 VOLT OUTLET
- 240 VOLT OUTLET
- 120 VOLT FLOOR OUTLET
- DUPLEX OUTLET W/ GROUND FAULT INTERUPT.
- DUPLEX OUTLET W/ GFI FOR WET LOCATION
- EV CAR CHARGER, IN ACCORDANCE W/ CAC ARTICLE 625 CGBSC SECTION 4.106.4.
- COMUNICATION OUTLET- ALL OUTLETS CONNECTED TO INTERNET HUB IN DINING
- FLOOR MONUMENT, OUTLET
- TELEPHONE JACK
- DATA HUB AND ROUTER
- CARBON MONOXIDE DETECTOR HARDWIRED WITH BATTERY BACKUP AND INTERCONNECTED.
- RECESSED DOWNLIGHT, LED
- RECESSED LIGHT- HIGH EFFICACY (FLUOR. OR LED) MUST BE ZERO CLEARANCE INSULATION CONTACT LISTED IN CEILING
- RECESSED DOWNLIGHT, WET LOCATION
- INTERIOR SCONCE- HIGH EFFICACY (FLUOR. OR LED)
- EXTERIOR SCONCE WITH TEMPORARY OVERRIDE AND EITHER-OCCUPANCY SENSOR, TIMER, OR PHOTOCELL CONTROLLED OR HIGH EFFICACY (FLUOR. OR LED). SHEILD FIXTURES TO REDUCE LIGHT POLUTION
- CEILING MOUNTED LIGHT- ON OCCUPANCY SENSOR W/ OVERRIDE
- HANGING PENDANT, - ON DIMMER SWITCH
- RECESSED STAIR LIGHT SET INTO WALL; ON OCCUPANCY SENSOR
- UNDER- CAB. LINEAR LED
- CONTINUOUS EXHAUST TO HRV SYSTEM
- DIRECTIONAL SPOT
- OVERHEAD, HI EFFICACY, LINEAR LED
- UPLIGHT (AT CROSSTIE)
- SMOKE DETECTOR HARDWIRED WITH BATTERY BACKUP AND INTERCONNECTED- IN EACH BEDROOM & OUTSIDE EACH BEDROOM



1. ELECTRICAL SUBPANEL
2. 36" WIDE, 36" DEEP CONCRETE PADS
3. 320 AMP ELEC. PANEL
4. COMPRESSOR/ CONDENSER FOR HEAT PUMP
5. PHONE AND INTERNET
6. PV INVERTER
9. HEAT RECOVERY VENTILATOR
12. HEAT PUMP, WATER HEATER
13. HOT WATER STORAGE TANK
14. RADIANT FLOOR PIPING & MANIFOLD

LOWER ELECTRICAL 2 PLAN

1/4" = 1'-0"

0 1 2 3 4 IN

UPPER ELECTRICAL 1 PLAN

1/4" = 1'-0"

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ELEC. UPPER & LOWER Floor

E 1

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