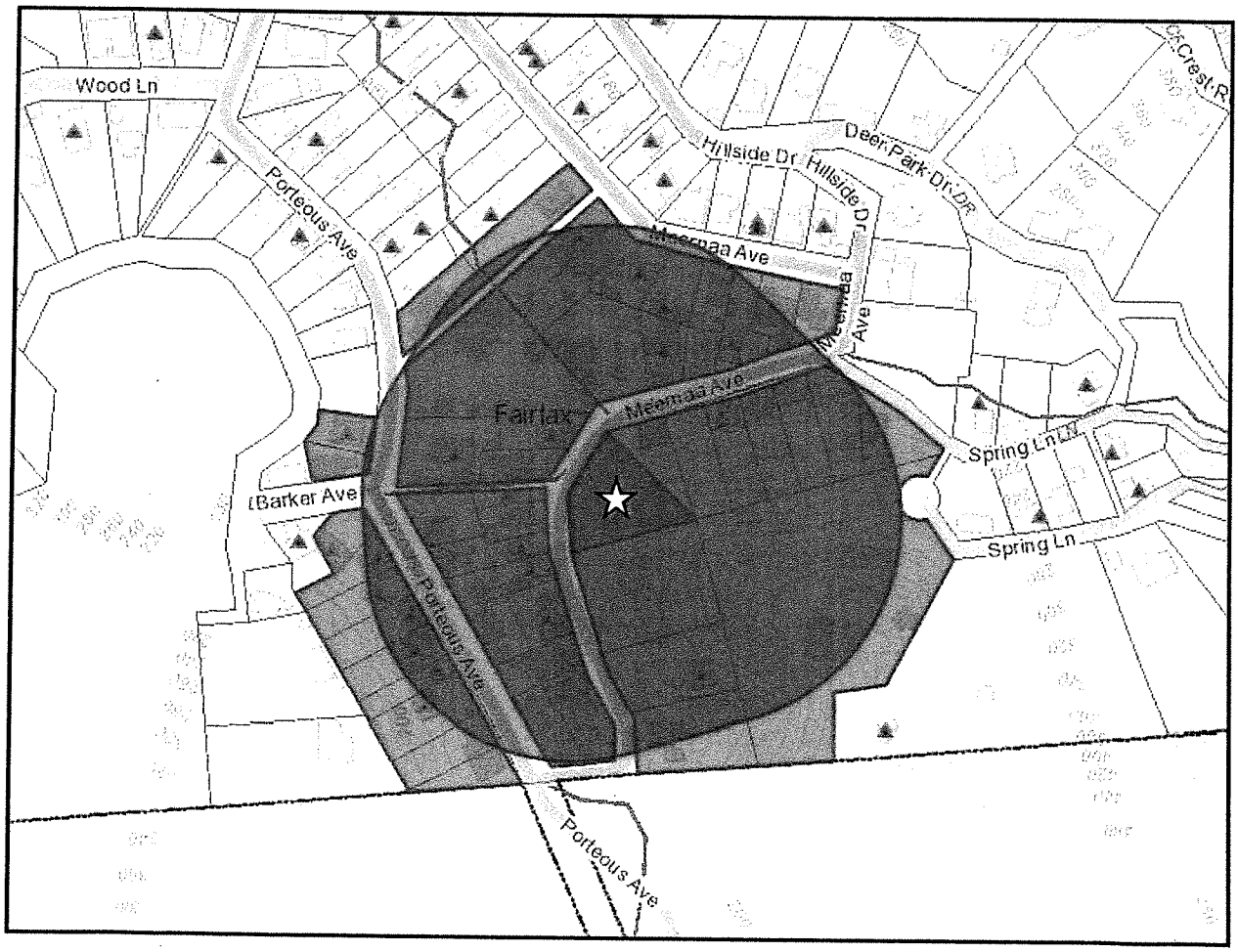
TOWN OF FAIRFAX
STAFF REPORT
Department of Planning and Building Services

TO:	Fairfax Planning Commission
DATE:	May 21, 2020
FROM:	Kara Spencer, Assistant Planner
LOCATION:	181 Meernaa Avenue; Assessor's Parcel No. 002-162-20
PROJECT:	Single-family residence addition and remodel
ACTION:	Conditional Use Permit, Tree Removal Permit and Excavation Permit; Application # 20-1
APPLICANT:	Stephen LaDyne, Architect
OWNERS:	Gerdes Family Trust
CEQA STATUS:	Categorically exempt, §15301(a) and (e)(1)



181 MEERNAA AVENUE

BACKGROUND

The 17,121 square-foot site slopes up from Meerna Avenue at an average slope of approximately 34 percent and is triangular in shape. It is developed with a 1,455 square-foot, two-story, single-family dwelling originally constructed in 1924 that contains two bedrooms and two full bathrooms. A detached, 180 square-foot, one-car, legally non-conforming carport is located at the front of the property partially within the public right-of-way.

DISCUSSION

The project proposes a 123 square-foot expansion and remodel of the 1,199 square-foot first floor of the existing single-family dwelling to create a 1,322 square foot primary residence. 260 square feet on the ground floor of the existing residence would be added to and converted to a 660 square-foot accessory dwelling unit (ADU). The ADU is exempt from Planning Commission review.

The residential addition would expand an existing bedroom. Interior remodeling would reconfigure the expanded bedroom and an adjacent bathroom to create a master bedroom with a full bathroom. In addition, a half bathroom and pantry would be created off the kitchen. The expanded and remodeled primary residence would be located above the proposed ADU.

A two-car carport is proposed under the ADU addition that would provide one required parking space for the ADU, as well as one additional space for primary residence. The second driveway approach is subject to approval of a variance from the Town Council. Parking space dimensions would be 19 feet by nine feet.

New concrete retaining walls, four feet or less in height, would be constructed along the property frontage and another would be constructed on the slope between the bedroom addition and ADU addition. An approximately 30 foot-long, five foot-high debris catchment wall consisting of steel piles and wood laggings is proposed on the slope behind the residence, extending towards the southern side property line from an existing wooden retaining wall. The debris catchment wall would protect the proposed addition from potential sloughing of the slope behind the house. A concrete V-ditch is proposed behind the debris catchment wall, and a new concrete diversion ditch is proposed further upslope. Approximately 154 cubic yards of excavation is required for the proposed improvements. All excavated soil would be hauled offsite.

Other proposed work to the primary residence includes rebuilding the existing concrete stairs in kind; reconfiguring the exterior stairs to the first floor; and the installation of new windows. Other ancillary improvements consist of a new electrical service drop, plus two meters, two new gas meters, and a new sewer lateral. No new exterior lighting is proposed.

Five California bay trees are proposed for removal. All the trees pose some sort of hazard due to either decay or their location within the defensible space of the home. Refer to attachments B1 and B2 for the Fairfax Tree Committee removal recommendation and arborist report.

The following table illustrates the project's compliance with the regulations of the RS-6 Single-family Residential Zone District where the property is located:

	Front Setback	Rear Setback	Combined Front/rear Setback	Side Setbacks	Combined Side Setbacks	FAR	Lot Coverage	Height
Required/ Permitted	6 feet	12 feet	35 feet	5 feet	20 feet	.40	.35	28.5 feet; 3 stories
Existing	0 feet	104 feet	104 feet	13' 15'-8"	28'-8"	.09	.11	18'-3"; 2 stories
Proposed	No change	No change	No change	13 feet 7 feet	20 feet	.12	.14	3 stories

Required Discretionary Approvals

The project requires the approval of a Conditional Use Permit (CUP), an Excavation Permit, and Tree Removal Permit from the Planning Commission. The project also requires approval of a second driveway variance from the Town Council (per Town Code § 12.12.050. The ADU addition is exempt from any discretionary action per Fairfax Ordinance 844. Moreover, the project is exempt from the Hill Area Residential Development Permit because the proposed excavation is necessary to construct the parking required by the ADU addition and not for any aspects of the project that require discretionary approval from the Town.

The project does not constitute a 50% remodel so it does not require the approval of a design review permit or a Hill Area Residential Development Permit, nor is it located within a ridgeline scenic corridor where it would require the approval of a ridgeline scenic corridor permit [Town Code §§ 17.020.030(A) and 17.060.030(A)(2)].

Conditional Use Permit (CUP)

Town Code § 17.080.050(C) requires a property in the RS-6 Single-family Residential Zone District with an average slope of 34 percent to be 26,000 square-feet in size. Any improvement of a property failing to meet the minimum site requirements requires a Conditional Use Permit (CUP). The project site is 17,121 square feet in size. Therefore, the project requires the approval of a CUP by the Planning Commission.

The purpose of the CUP is, "to allow the proper integration into Fairfax of uses which may be suitable only in certain locations in the town or in a zone or only if the uses are designed or laid out on the site in a particular manner" [Town Code §17.032.010(A)]. The code goes on to indicate that, "In consideration of an application for a conditional

use, the Planning Commission shall give due regard to the nature and condition of all adjacent uses and structures, to the physical environs of the proposed use and to all pertinent aspects of the public health, safety and general welfare" [Town Code §17.032.010(B)].

In order to approve a CUP for the project, the Commission must make the following findings (Town Code Section 17.032.060): (1) granting of the approval would not constitute a "special privilege" nor contravene the doctrines of equity and equal treatment; (2) the project would not create a public nuisance, cause excessive or unreasonable detriment to adjoining properties or premises, or cause adverse physical or economic effects or create undue or excessive burdens in the use or enjoyment of the property; (3) approval of the project is in keeping with the objectives, goals or standards set forth in the Town of Fairfax General Plan; and, (4) approval of the project would result in equal or better development of the premises than would otherwise be the case and the approval is in the public interest and for the protection and enhancement of the community.

As stated above, the applicant requests to add 123 square feet to the first floor of an existing 1,455 square foot single-family dwelling to create a 1,322 square foot primary residence. The existing 256 square foot ground floor of the single-family dwelling would be converted to a 660 square foot ADU. Total habitable area on the property would be 1,982 square feet and the floor area ratio (FAR) would increase from .09 to .12

The table below illustrates that single-family dwellings in the immediate neighborhood range in size from 848 square feet to 2,302 square feet (1,465 square feet on average) with an average floor area ratio of .24. As indicated in the table, the total square footage proposed primary residence at 181 Meernaa would be similar in size to most of the neighboring properties and the total living area of the property would have a FAR similar to 165/167 Meernaa and 157 Meernaa. In addition, as shown in the table, three other properties in the immediate neighborhood have two living units. Therefore, project implementation would result in 181 Meernaa maintaining a similar size and floor area ratio as other properties in the immediate neighborhood.

181 Meernaa Drive – Immediate Neighborhood Comparison						
APN #	ADDRESS	LOT SIZE	HOUSE SIZE	BEDROOMS	BATHS	Floor Area Ratio
002-162-21	187 Meernaa Ave	27,752 SF	2,302 SF	3	2	.08
002-162-08*	165/167 Meernaa Ave	6,279 SF	1,080 SF	2	2	.17
002-162-09	161 Meernaa Ave	7,650 SF	1,956 SF	3	2	.26
002-162-18	203 Meernaa Ave	15,522 SF	848 SF	1	2	.05
002-162-01	207 Meernaa Ave	17,304 SF	1,632 SF	2	1	.09
002-161-12	172 Meernaa Ave	6,490 SF	1,020 SF	2	1	.16
002-161-13	176 Meernaa Ave	5,635 SF	1,781 SF	3	2	.32
002-161-14	180 Meernaa Ave	2,376 SF	1,331 SF	2	2	.56
002-161-15	182 Meernaa Ave	4,800 SF	1,543 SF	3	2	.32
002-161-16*	186 Meernaa Ave	3,080 SF	1,560 SF	3	2	.51
002-162-10*	157 Meernaa Ave	7,695 SF	1,056 SF	2	2	.14
002-162-20	181 Meernaa Ave	17,121 SF	1,455 SF	2	2	.09

*Two living units on property

The proposed addition would not substantially expand the existing footprint of the single-family dwelling, nor would it encroach into the required setbacks. The lot coverage and floor area ratio would comply with the regulations set forth in the Residential Single-family RS-6 Zone District. The project would maintain the current height of the home at 18 feet, three inches, which is well below the maximum 28.5-foot height allowed in the RS-6 Zone District.

The project would maintain a similar size and floor area ratio as other properties in the immediate neighborhood; comply with the regulations set forth in the Residential Single-family RS-6 Zone District; remove hazardous bay trees; and construct new retaining walls to mitigate the risk from future sloughing. Therefore, the project would not create a public nuisance, or cause excessive or unreasonable detriment to adjoining properties or premises, and the project would result in better development of the site than would otherwise be the case. Therefore, staff recommends that the Planning Commission approve the CUP for the project.

The siding and windows would match the existing structure in materials and color. No new exterior lighting is proposed at this time and any future changes to the exterior lighting will have to comply with the following, which staff has included as a condition of the project approval:

An exterior lighting plan showing existing and proposed lighting locations and fixtures shall be submitted with the building permit application and any new external lighting shall use dark sky compliant fixtures and shall be approved by the Planning Director prior to issuance of the building permit. The plan shall limit light spillage beyond the areas necessary to light the entryways, travel paths, stairways, and parking lot and shall avoid direct offsite illumination.

Excavation Permit

As stated previously, the project requires approximately 154 cubic yards of excavation. Pursuant to Town Code § 12.20.080(A) excavation of over 100 cubic yards requires the approval of the Planning Commission. Town Code § 12.20.080 (B) requires the Planning Commission to make certain findings before approving an Excavation Permit, including the following: the excavation will not adversely affect the health, welfare and safety of the public; adjacent properties are adequately protected from geologic hazards, drainage and erosion problems as a result of the work; the amount of excavation or fill is not more than is required to allow the property owner substantial use of his or her property; visual and scenic enjoyment of the area will not be adversely affected and natural landscaping will not be removed more than is necessary; and, construction will take place during the time of year that won't result in excessive siltation from storm runoff nor prolonged exposure of unstable excavated slopes.

New foundations for the addition and carport would be supported on either spread footings if situated in deep level cuts exposing bedrock, or drilled piers and grade beams if situated on or adjacent to sloping grades. Excavation shoring for the proposed carport would be addressed with a multi-step process to support the existing structure above and to meet OSHA requirements for excavation safety. An approximately 30 foot-long, five foot-high debris catchment wall is proposed in the area up slope of the proposed bedroom addition. The catchment wall would be a free-standing wall without backfill, designed to intercept any sloughing soil and rock before it hits the house. The wall would consist of steel I-beam posts set in ten-foot deep drilled piers spaced at six feet on center, lagged with 4x12 pressure treated planks (or with 6x12's spanning eight feet). In addition, a concrete drainage ditch is proposed behind the wall, as well as above the existing cut above, to divert runoff and further reduce hill stability risk.

The Town Engineers have reviewed the entire body of information provided by the applicant on the project, including the project engineering and architectural plans as well as the geotechnical response to comments (Attachments C1, C2, and C3). After completing their review and visiting the site, they have determined that the project can be constructed as proposed without creating any significant geologic or hydrologic hazards for adjacent public or private properties, as long as the following conditions are met:

1. Detailed plans for temporary shoring, permanent retaining walls and associated improvements shall be reviewed and approved for building permits prior to issuance of an excavation permit.
2. A Grading and Drainage Plan shall be submitted at the building review level for the permanent improvements and be approved prior to issuance of an excavation permit.
3. Plans for temporary shoring and permanent improvements shall be reviewed and approved prior to issuance of an Excavation Permit.

The Town Engineer's review memoranda are included with this report as Attachments D1, D2, and D3.

The above conditions have been incorporated into the conditions of approval contained in the attached Resolution No. 2020-01.

Tree Removal Permit

As stated previously, five California bay trees are proposed for removal. All the trees pose some sort of hazard due to either decay or their location within the defensible space of the home. Chapter 8.36 of the Fairfax Municipal Code requires a tree removal permit for the removal of trees in Town. Section 8.36.030 requires that the Fairfax Tree Committee review all applications for tree removal and recommend approval or denial of the applications to the Planning Commission. The project applicant submitted a tree removal application, which was reviewed by the Fairfax Tree Committee, who recommended removal of all five bay trees. Refer to attachments B1 and B2 for the Fairfax Tree Committee removal recommendation and arborist report.

- The alteration of the trees is necessary to protect the public health and safety and prevent damage to property (Town Code §8.36.060(B)(1); and

- Is necessary to allow the owner to reasonably develop and use the property (Town Code §8.36.060(B)(4).

Other Agency/Department Comments/Conditions

Ross Valley Fire Department (RVFD)

The following summarizes RVFD requirements, which have been incorporated into conditions of approval in the attached resolution. Construction shall comply with the requirements of Chapter 7A of the 2019 California Building Code. A Class "A" roof assembly is required. All vegetation and construction materials are to be maintained away from the residence during construction. A fire sprinkler system shall be installed throughout the entire building. Smoke detectors shall be installed throughout the entire building and be provided with AC power and be interconnected for simultaneous alarm. Carbon monoxide alarms shall be provided outside each sleeping area in the immediate vicinity of the bedrooms. Address numbers at least 4 " tall are required and must visible from the street, controlled by a photocell and illuminated all night. A Vegetation Management Plan (VMP) is required for the project. RVFD approved the VMP for the project and the approved plan was submitted to the Town on February 13, 2020.

Marin Municipal Water District (MMWD)

Written requirements submitted by MMWD have been incorporated into conditions of approval in the attached resolution. The following summaries those comments. A water

service application must be submitted to the District and a copy of the building permit must be provided to the District along with the required applications and fees. All indoor and outdoor requirements of District Code Title 13. Water Conservation must be complied with. Any landscaping plans must be reviewed and approved by the District. Backflow prevention requirements must be met. Comply with Ordinance No. 429 requiring the installation of grey water recycling system when practicable for existing structures undergoing a substantial remodel that necessitates enlarged water service. All the District's rules and regulations if effect at the time service is requested must be complied with.

Ross Valley Sanitary District

The project will require a connection permit from the District and a certificate of compliance for the lateral, the size of the sewer lateral will depend on the fixture count calculated during the permitting process. A sewer plan shall be prepared prior to the issuance of a building permit.

Fairfax Police, Public Works and Building Departments

The Fairfax Police, Public Works and Building Departments had no comments on or conditions for the project.

RECOMMENDATION

1. Conduct the public hearing.

2. Move to approve application # 20-1 by adopting Resolution No. 2020-1 setting forth the findings and conditions for the project approval.

ATTACHMENTS

Attachment A – Resolution No. 2020-1
Attachment B1 – Fairfax Tree Committee Minutes
Attachment B2 – Arborist Report
Attachment C1 – Geotechnical Reconnaissance Report
Attachment C2 – Preliminary retaining Wall and Shoring Schematics
Attachment C3 – Conceptual Plan for Rear Debris Wall
Attachment D1 – Town Engineer Comments 11-14-19
Attachment D2 – Town Engineer Comments 1-7-20
Attachment D3 – Town Engineer Comments 2-3-20

RESOLUTION NO. 2020-1

A Resolution of the Fairfax Planning Commission Approving Application No. 20-1 for a Conditional Use Permit, Tree Removal Permit and Excavation Permit for a Minor Addition and Remodel at 181 Meernaa Avenue

WHEREAS, the Town of Fairfax has received an application from the Gerdes Family Trust for a 123 square foot expansion and remodel of a 1,455 square-foot, two-story, single-family dwelling to create a 1,322 square foot primary residence with a separate 660 square foot Accessary Dwelling Unit (ADU) and two-car carport below on October 17, 2019; and

WHEREAS, the Planning Commission held a duly noticed Public Hearing on April 16, 2020 at which time all interested parties were given a full opportunity to be heard and to present evidence, and at which time the Planning Commission approved the Conditional Use Permit and Excavation Permit; and,

WHEREAS, based on the plans and other documentary evidence in the record, the Planning Commission has determined that the applicant has met the burden of proof required to support the findings necessary to approve the Project's requested discretionary Conditional Use Permit and Excavation Permit; and

WHEREAS, the Commission makes the following findings:

The project is consistent with the 2010-2030 Fairfax General Plan as follows:

Policy LU-7.1.5: New and renewed residential development shall preserve and enhance the existing character of the Town's neighborhoods in diversity, architectural character, size and mass.

Policy LU-7.2.2: To the extent feasible natural features including the existing grade, mature trees and vegetation shall be preserved for new and renewed development.

Policy LU-7.2.3: Traffic and parking concerns related to new and renewed development shall be addressed in a manner that does not result in undue hardship or significant negative impacts on properties and infrastructure in the vicinity.

Conditional Use Permit Findings

1. The project complies with the required setback, floor area ratio, lot coverage, and height regulations of the RS-6 Zone and would result in a residence similar in size, scale, and character to the other residences in the Meernaa Avenue neighborhood where the project site is located. Consequently, approval of the Conditional Use Permit shall not constitute a grant of special privilege and shall not contravene the doctrines of equity and equal treatment if the conditions of approval that follow in this resolution are complied with.

Attachment A

2. The project complies with all the development standards of the RS-6 Zone. Therefore, the development and use of property as approved under the Conditional Use Permit shall not cause excessive or unreasonable detriment to adjoining properties or premises, or cause adverse physical or economic effects thereto, or create undue or excessive burdens in the use and enjoyment thereof, or any or all of which effects are substantially beyond that which might occur without approval or issuance of the Conditional Use Permit.

3. Approval of the Conditional Use Permit is not contrary to those objectives, goals or standards pertinent to the particular case and contained or set forth in the 2010-2030 Fairfax General Plan and Title 17 of the Fairfax Town Code (Zoning Ordinance) or other plans or polies officially adopted by the Town.

4. Approval of the Conditional Use Permit will remove five hazardous bay trees, while maintaining the remainder of the site in its natural state requiring no significant excavation and/or removal of trees or vegetation and will provide the owners with additional living space that is not available on the remainder of the site with its 34% slope. Approval of the Conditional Use Permit will result in equal development of the premises than would otherwise be the case, and that said approval is in the public interest and for the protection or enhancement of the general health, safety or welfare of the community.

Excavation Permit

5. The Town Engineers have reviewed the following plans and reports and have determined the project can be constructed, with certain conditions of approval, without creating any hazards:

    a. Architectural plans by LaDyne Design, pages AO, Survey 1, A1, A2.1, A2.2, A3.0 dated received 10/17/19, page A3.1 dated received 12/23/19, A3.2 dated received 1/21/20, A4.0 and A4.1 dated received 12/23/19, A5 and A6 dated received 1/21/20, and A7 dated received 12/23/19
    b. Dave Olnes, P.E. (2019), "Geotechnical Reconnaissance Report, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated October 11, 2019.
    c. Dave Olnes, P.E. (2019), "Geotechnical Memorandum, Preliminary retaining Wall and Shoring Schematics, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated December 17, 2019.
    d. Ladyne Design (2019), "Revisions Response Letter, 181 Meernaa Ave, Fairfax, CA 94930", dated December 20, 2019.
    e. Dave Olnes, P.E. (2019), "Conceptual Plan for Rear Debris Wall, 181 Meernaa Avenue, Fairfax", 2 pages, dated January 16, 2020.

6. Based on the Town Engineer's review and recommendation that the project can be safely constructed, the Planning Commission finds that:

    a) The health safety and welfare of the public will not be adversely affected;

b) Adjacent properties are adequately protected by project investigation and design from geologic hazards as a result of the work;

c) Adjacent properties are adequately protected by project design from drainage and erosion problems as a result of the work;

d) The amount of the excavation or fill proposed is not more than that required to allow the property owner substantial use of his or her property;

e) The visual and scenic enjoyment of the area by others will not be adversely affected by the project more than is necessary;

f) Natural landscaping will not be removed by the project more than is necessary; and

g) Town code § 17.072.090(c)(4) prohibits grading of hillside properties from October 1st through April 1st of each year. Therefore, the time of year during which construction will take place is such that work will not result in excessive siltation from storm runoff nor prolonged exposure of unstable excavated slopes.

Tree Removal Permit

- The alteration of the trees is necessary to protect the public health and safety and prevent damage to property (Town Code §8.36.060(B)(1); and

- Is necessary to allow the owner to reasonably develop and use the property (Town Code §8.36.060(B)(4).

WHEREAS, the Commission has approved the project subject to the applicant's compliance with the following conditions:

1. The project is approved based on the following plans and reports:

    a. Architectural plans by LaDyne Design, pages AO, Survey 1, A1, A2.1, A2.2, A3.0 dated received 10/17/19, page A3.1 dated received 12/23/19, A3.2 dated received 1/21/20, A4.0 and A4.1 dated received 12/23/19, A5 and A6 dated received 1/21/20, and A7 dated received 12/23/19
    b. Dave Olnes, P.E. (2019), "Geotechnical Memorandum, Preliminary retaining Wall and Shoring Schematics, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated December 17, 2019.
    c. Dave Olnes, P.E. (2019), "Conceptual Plan for Rear Debris Wall, 181 Meernaa Avenue, Fairfax", 2 pages, dated January 16, 2020.
    d. Vegetative Management Plan page A9, approved 2/12/20 by RVFD

2. An exterior lighting plan showing existing and proposed lighting locations and fixtures shall be submitted with the building permit application and any new external lighting shall be consistent with the architectural style of the house; use dark sky compliant fixtures that are directed downward; and, shall be approved by the Planning Director prior to issuance of the building permit. The plan shall limit light-spillage beyond the areas necessary to light the entryways, travel paths, stairways, and parking lot and shall avoid direct offsite illumination.

3. Prior to issuance of any of the building permits for the project, the applicant or his assigns shall submit a construction plan to the Public Works Department which may include, but is not limited to the following:

    a. Construction delivery routes approved by the Department of Public Works.
    b. Construction schedule (deliveries, worker hours, etc.)
    c. Notification to area residents
    d. Emergency access routes

4. The applicant shall prepare, and file with the Public Works Director, a video tape of the roadway conditions on the public construction delivery routes (routes must be approved by Public Works Director).

5. The foundation and retaining elements shall be designed by a structural engineer certified as such in the state of California. Plans and calculations of the foundation and retaining elements shall be stamped and signed by the structural engineer and submitted to the satisfaction of the Town Structural Engineer.

6. The grading, foundation, retaining, and drainage elements shall also be stamped and signed by the site geotechnical engineer as conforming to the recommendations made by the project Geotechnical Engineer.

7. Prior to submittal of the building permit plans, the applicant shall secure written approval from the Ross Valley Fire Authority, Marin Municipal Water District and the Ross Valley Sanitary District noting the development conformance with their recommendations.

8. All retaining walls that are visible from the street and are constructed of concrete shall be heavily textured or colorized in a manner approved by planning staff prior to issuance of the building permit. This condition is intended to mitigate the visual impact of the proposed walls.

9. During the construction process the following shall be required:

    a. The geotechnical engineer shall be on-site during the grading process and shall submit written certification to Town Staff that the grading has been completed as recommended prior to installation of foundation and/or retaining forms and drainage improvements, and/or piers.

b. Prior to the concrete form inspection by the building official, the geotechnical and structural engineers shall field check the forms of the foundations and retaining elements and provide written certification to Town staff that the work to this point has been completed in conformance with their recommendations and the approved building plans.

c. The Building Official shall field check the concrete forms prior to the pour.
d. All construction-related vehicles including equipment delivery, cement trucks and construction materials shall be situated off the travel lane of the adjacent public right(s)-of-way at all times. This condition may be waived by the Building Official on a case-by-case basis with prior notification from the project sponsor.

e. Any proposed temporary closures of a public right-of-way shall require prior approval by the Fairfax Police Department and any necessary traffic control, signage or public notification shall be the responsibility of the applicant or his/her assigns. Any violation of this provision will result in a stop work order being placed on the property and issuance of a citation.

10. Prior to issuance of an occupancy permit the following shall be completed:

a. The geotechnical engineer shall field check the completed project and submit written certification to Town Staff that the foundation, retaining, grading and drainage elements have been installed in conformance with the approved building plans and the recommendations of the soils report.

b. The Planning Department and Town Engineer shall field check the completed project to verify that all planning commission conditions and required engineering improvements have been complied with including installation of landscaping and irrigation prior to issuance of the certificate of occupancy.

11. Excavation shall not occur between October 1st and April 1st of any year. The Town Engineer has the authority to waive this condition depending upon the weather.

12. The roadways shall be kept free of dust, gravel and other construction materials by sweeping them, daily, if necessary.

13. Any changes, modifications, additions or alterations made to the approved set of plans will require a modification of Application # 20-1. Modifications that do not significantly change the project, the project design or the approved discretionary permits ***may*** be approved by the Planning Director. Any construction based on job plans that have been altered without the benefit of an approved modification

of Application 20-1 will result in the job being immediately stopped and red tagged.

14. Any damages to the public portions of Meernaa Avenue, or other public roadway used to access the site resulting from construction-related activities shall be the responsibility of the property owner.

15. The applicant and its heirs, successors, and assigns shall, at its sole cost and expense, defend with counsel selected by the Town, indemnify, protect, release, and hold harmless the Town of Fairfax and any agency or instrumentality thereof, including its agents, officers, commissions, and employees (the "Indemnitees") from any and all claims, actions, or proceedings arising out of or in any way relating to the processing and/or approval of the project as described herein, the purpose of which is to attack, set aside, void, or annul the approval of the project, and/or any environmental determination that accompanies it, by the Planning Commission, Town Council, Planning Director, Design Review Board or any other department or agency of the Town. This indemnification shall include, but not be limited to, suits, damages, judgments, costs, expenses, liens, levies, attorney fees or expert witness fees that may be asserted or incurred by any person or entity, including the applicant, third parties and the Indemnitees, arising out of or in connection with the approval of this project, whether or not there is concurrent, passive, or active negligence on the part of the Indemnitees. Nothing herein shall prohibit the Town from participating in the defense of any claim, action, or proceeding. The parties shall use best efforts, acting in good faith, to select mutually agreeable defense counsel. If the parties cannot reach agreement, the Town may select its own legal counsel and the applicant agrees to pay directly, or timely reimburse on a monthly basis, the Town for all such court costs, attorney fees, and time referenced herein, provided, however, that the applicant's duty in this regard shall be subject to the Town's promptly notifying the applicant of any said claim, action, or proceeding.

16. The applicant shall comply with all applicable local, county, state and federal laws and regulations. Local ordinances which must be complied with include, but are not limited to: the Noise Ordinance, Chapter 8.20, Polystyrene Foam, Degradable and Recyclable Food Packaging, Chapter 8.16, Garbage and Rubbish Disposal, Chapter 8.08, Urban Runoff Pollution Prevention, Chapter 8.32 and the Americans with Disabilities Act.

17. Conditions placed upon the project by outside agencies or by the Town Engineer may be eliminated or amended with that agency's or the Town Engineer's written notification to the Planning Department prior to issuance of the building permit.

18. Conditions placed upon the project by the project arborist may be amended or eliminated by the approval of the Planning Director after receiving a request for the elimination/amendment in writing from the project arborist.

19. The building permit plans shall be reviewed and approved by the Town Engineer,

at the expense of the applicant, prior to issuance of the building permit. The project shall be inspected by the Town Engineer prior to issuance of the occupancy permit for the residential structures for compliance with the engineering plans.

Ross Valley Fire Department

20. All vegetation and construction materials are to be maintained away from the residence during construction.

21. Project has been deemed a "substantial remodel" and as such requires installation of a fire sprinkler system that complies with the National Fire Protection Association regulation 13-D and local standards. The system will require a permit from the Fire Department and the submittal of plans and specifications for a system submitted by an individual or firm licensed to design and/or design-build sprinkler systems.

22. The property is located within the Wildland Urban Interface Area for Fairfax and the new construction must comply with Chapter 7A of the California Building Code or equivalent.

23. A Class A Roof Assembly is required.

24. All smoke detectors in the residence shall be provided with AC power and be interconnected for simultaneous alarm. Detectors shall be located in each sleeping room, outside of each sleeping room in a central location in the corridor and over the center of all stairways with a minimum of 1 detector on each story of the occupied portion of the residence.

25. Carbon monoxide alarms shall be provided in existing dwellings when a permit is required for alterations, repairs, or addition and the cost of the permit exceeds $1,000.00. Carbon monoxide alarms shall be located outside of each sleeping area in the immediate vicinity of the bedrooms and on every level of the dwelling, including basements.

26. Address numbers at least 4 inches tall must be in place adjacent to the front door. If not clearly visible from the street, additional numbers must be placed in location that is visible from the street. The numbers must be internally illuminated or illuminated by and adjacent light controlled by a photocell that can be switched off only by a breaker so it will remain illuminated all night.

27. Alternative materials or methods may be proposed for any of the above conditions in accordance with Section 104.9 of the Fire Code.

28. All approved alternatives requests, and their supporting documentation, shall be included in the plan sets submitted for final approval by the Fire Department.

29. A Vegetative Management Plan designed in accordance with the Ross Valley Fire Standard # 220 is required to be approved prior to issuance of the building permit for the project. Ross Valley Fire District approved the Vegetative Management Plan on February 12, 2020.

Marin Municipal Water District (MMWD)

30. A copy of the building permit must be provided to the district along with the required applications and fees.

31. The foundation must be completed within 120 days of the date of application.

32. All indoor and outdoor requirements or District Code Title 13, Water Conservation must be complied with.

33. Any landscaping plans must be reviewed and approved by the District.

34. Backflow prevention requirements must be met.

35. Ordinance 429, requiring installation of grey water recycling system when practicable, must be incorporated into the project building permit plans or an exemption letter from the District must be provided to the Town.

36. All of the District's rules and regulations if effect at the time service is requested must be complied with.

Ross Valley Sanitary District (RVSD)

37. The project will require a connection permit from the District.

38. The size of the sewer lateral will depend on the fixture count calculated during the permitting process.

39. If the lateral meets the size requirement of the fixture count, the applicant has the option of installing a new lateral or, the old sewer lateral must be tested in the presence of a District Inspector and found to meet all current District Requirements.

40. A sewer plan shall be prepared prior to the issuance of a building permit.

Town Engineer Conditions

41. Detailed plans for temporary shoring, permanent retaining walls and associated improvements shall be designed by a structural engineer certified as such in the state of California. Plans shall be stamped and signed by the structural engineer

and shall be reviewed and approved for building permits prior to issuance of an excavation permit by the Town Engineer.

42. A Grading and Drainage Plan shall be submitted at the building review level for the permanent improvements and be approved by the Town Engineer prior to issuance of an excavation permit.

43. Plans for temporary shoring and permanent improvements shall be reviewed and approved by the Town Engineer prior to issuance of an Excavation Permit.

NOW, THEREFORE BE IT RESOLVED, the Planning Commission of the Town of Fairfax hereby finds and determines as follows:

The approval of the Hill Area Residential Development Permit, Excavation Permit, and Design Review Permit are in conformance with the 2010 – 2030 Fairfax General Plan, the Fairfax Town Code and the Fairfax Zoning Ordinance, Town Code Title 17; and

Construction of the project can occur without causing significant impacts on neighboring residences and the environment.

The foregoing resolution was adopted at a regular meeting of the Planning Commission held in said Town, on the 16th day of April 2020 by the following vote:

AYES:
NOES:
ABSTAIN:

_____
Chair, Green

Attest:

_____
Ben Berto, Director of Planning and Building Services

TOWN OF FAIRFAX
TREE COMMITTEE

DRAFT

MINUTES OF THE MEETING
February 24, 2020

CALL TO ORDER/ROLL CALL

Jane Richardson-Mack called the meeting to order at 7:00 p.m.
The following Committee members were present: Deborah Benson, Kathy Flores, Ted Pugh, Jane Richardson-Mack, John Romaidis.

AGENDA ITEMS

I. The Committee unanimously voted to approve the Tree Committee Meeting Minutes from January 27, 2020

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson-Mack- Aye
Romaidis- Aye

Vote: Ayes- 5, Noes- 0

II. Ross Valley Fire (RVF) Chief Jason Weber spoke to the Committee about Vegetative Management Program (VMP) requirements. Chief Weber indicated that VMP review is under RVF jurisdiction and that the fire department reviews plans as submitted for conformance with defensible space requirements. He also indicated that there are forthcoming guidelines and standards that should clarify defensible space requirements. Chief Weber spoke about the benefit of having the Town, Tree committee, and Fire Department enter into discussions about each departments separate requirements as it pertains to tree alterations and removal. The idea of a Tree Sub-committee was discussed. Rob and Scott, members of RVF, discussed space requirements for interruption of crown-to-crown fires between trees.

Town Manager Garrett Toy led a brief discussion about the Committees obligations under the Brown Act. Garrett clarified when and how the Committee may discuss agenda and non-agenda items as well as how the Committee may add items to the agenda. A single member may request an item be added to an agenda by directly addressing the Town or, the Committee could discuss future agenda items during Committee time and then submit a request to the Town.

TOWN OF FAIRFAX
TREE COMMITTEE

DRAFT

MINUTES OF THE MEETING
February 24, 2020

III. New Business items:

1. 189 Cascade Dr.
   Applicant not present.

Romaidis made a motion to approve the application with the condition that the applicant consider planting a replacement tree. The motion was seconded by Pugh and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson-Mack- Aye
Romaidis- Aye

Item #1 Vote: Ayes- 5, Noes- 0

2. 7 Olema Rd.
   Applicant not present.

Romaidis made a motion to deny the application based on not having access to the premises for an inspection per § 8.36.050 (B). The motion was seconded by Pugh and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson Mack- Aye
Romaidis- Aye

Item #2 Vote: Ayes- 5 Noes- 0

3. APN 002-174-05
   Applicant present.

Romaidis made a motion to recommend that the species of tree T-6 on the VMP be verified due to the fact that it appeared to be misidentified. The Committee would like the non-diseased trees that are outside of the 100 feet of defensible space that are identified to be removed be replaced at a minimum 1:1 ratio. A landscape plan was provided and it appeared to satisfy the Committees desire for replanting. Additionally, the Committee recommends that the replanting be done prior to issuance of a Certificate of Occupancy (C of O). The motion was seconded by Richardson Mack and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh-Aye
Richardson Mack- Aye
Romaidis- Aye

Item #3 Vote: Ayes- 5 Noes- 0

4. 67 Canyon Rd.
   Applicant present

Richardson Mack made a motion to approve the application. The motion was seconded by Pugh and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson Mack- Aye
Romaidis- Aye

Item #4 Vote: Ayes- 5, Noes- 0

5. 6 Spruce Rd.
   Applicant present.

Benson made a motion to continue this item to the next meeting so that the applicant could provide the Committee with an arborist report that addresses and evaluates the safety and root system of the tree. The motion was seconded by Richardson Mack and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson Mack- Aye
Romaidis- Aye

Item #5 Vote: Ayes- 5, Noes- 0

6. APN 003-032-16
   Applicant present.

The Committee discussed the small lot size and potential future landscape design. The Committee also considered a letter from a neighbor listing their concerns.
Pugh made a motion to recommend that the project proceed per plan. No exceptions taken. The motion was seconded by Romaidis and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson Mack- Aye
Romaidis- Aye

Item #6 Vote: Ayes- 5, Noes- 0

TOWN OF FAIRFAX
TREE COMMITTEE

DRAFT

MINUTES OF THE MEETING
February 24, 2020

7. 181 Meerna Ave
   Applicant present.

Benson made a motion to recommend that the project proceed per plan. No exceptions taken. The motion was seconded by Richardson Mack and voted on.

Vote:
Benson- Aye
Flores- Aye
Pugh- Aye
Richardson Mack- Aye
Romaidis- Aye

Item #7 Vote: Ayes- 5, Noes- 0

IV. No public comment.

V. Open time:

1. Romaidis stated he could not continue recording and sending the meeting minutes as they are interfering with his job, no volunteers offered to record minutes for future meetings. There was a consensus that the other Committee members would turns in a rotation for recording the minutes.

2. Benson and Richardson Mack volunteered to be members of the yet to be formed Sub-Committee for discussions with RVF.

VI. No items discussed for future agenda

Client: Stephen LaDyne
Project Location: 181 Meernaa Ave, Fairfax, CA
Inspection Date: February 11, 2020
Arborist: Ben Anderson

FEB 18 2020

URBAN FORESTRY ASSOCIATES, INC.

Assignment

Stephen LaDyne of LaDyne Design contacted Urban Forestry Associates to request a report on five (5) California bay (*Umbellularia californica*) trees around the home at 181 Meernaa Avenue. This report is to be submitted as part of a tree removal permit application to the Town of Fairfax.

Observations

The subject property is located on a narrow street in the Wildland Urban Interface. The home is upslope from the road on a fairly steep lot. All five of the subject trees are located inside the defensible space zone of the existing home. The location of the subject trees can be seen in Figure 1 at the end of this report. The site is well-forested with mostly native oaks (*Quercus spp.*) and bays.

Tree 1 is a California bay with a trunk diameter of 25.2 inches. This tree was not initially in the scope of the assessment, but it is the first tree I encountered when I entered the site and was in such poor condition, I recommended it be included in my assessment. It appears the tree was topped at six feet above grade many years ago and sprouted several codominant leaders[1] from this old cut. One of these leaders subsequently failed or was removed many years ago and the wound is now severely decayed (Figure 3). The main trunk of the tree below the wound is also extremely decayed and hollow (Figure 2). I was able to insert a full-sized clip board into the large crack in the lower trunk. A necrotic[2] area of the main stem extends up from the large crack to the decay cavity from the old failure described above. Several other necrotic areas are visible all around the base of the tree. Utility lines are growing through the canopy of the tree. Stems from this tree target the service lines to the home, the entrance to the home, the garage, the road, and the utility lines in the street.

Tree 2 has three codominant trunks that arise from just above grade. These trunks measure 10.8, 9.8, & 8.5 in diameter. There is an opening to a decay cavity in the base of the tree (Figure 4). One stem targets the utility lines to the home, a second stem targets the home, and the third stem targets the garage.

Tree 3 measures 15.3, 15.2, 14.8, and 9.9 inches diameter. This is the largest of the trees in terms of canopy size. There is a large decay cavity in the common base of the four trunks from a past trunk removal/failure (Figure 5). Stems of this tree target the home, road, and utility lines.

Tree 4 is 10.3 inches in diameter and leans strongly downhill (Figure 6). The trunk rubs against one of the spars of Tree 3, creating a large wound on both trees.

Tree 5 has two codominant trunks that arise from grade. They measure 14.3 and 11.8 inches in diameter. The base of the tree is within a foot of the foundation of the home and the stems are in very close proximity to the eave (Figure 7).

Discussion

FIRESafe MARIN lists California bay trees on its "Fire Prone Plants" list and recommends avoiding them in the

[1] **Codominant stem** - forked branches nearly the same size in diameter, arising from a common junction and lacking a normal branch union (ISA Dictionary Online).
[2] **Necrosis** - localized death of tissue in a living organism.

Attachment B2

defensible space of a structure. FIRESafe MARIN also recommends having no combustibles within five feet of the perimeter of a home.

Wood decay reduces a tree's ability to carry load and increases the likelihood of failure. Most mature bay trees in Marin have some amount of decay in their base, most commonly Ganoderma (*Ganoderma applanatum* or *G. brownii*). While bay trees are sometimes able to stand with even a large amount of decay, failed bay trees are a common site on any walk through the woods and after storms.

Conclusions

Tree 1 should be removed as the likelihood of failure within the next two years is probable[3] due to the advanced decay in the base. There is very little sound holding wood left in the trunk that has not been affected by the decay. Consequences of a failure could be severe and include fire ignition, severe property damage, and human injury. There is no reasonable way to mitigate the risk and maintain the health and aesthetics of the tree. This recommendation is not related to the proposed development of the site and is only motivated by the obvious danger posed by the tree. This tree qualifies as "heritage" per the Fairfax Municipal Code (Chapter 8 § 36).

Tree 2 is in the footprint of the proposed stairs and will need to be removed, but this tree is at an elevated likelihood of failure due to the decay in the base and is in violation of defensible space recommendation for both the home and the garage. It is located downslope of the home, between the home and the road. This is a crucial area for fire safety as wildfires are most likely to ignite close to roads and structures. This location is also crucial for Fire Department access to defend the home in the event of a fire and should be kept as fire safe as possible. This is not a heritage tree.

Tree 3 is in the footprint of the proposed deck and will need to be removed, but it too is at an elevated risk of failure from the extensively decayed base and would have severe consequences were it allowed to fail. This is not a heritage tree.

Tree 4 is in the footprint of the proposed addition and will need to be removed, but it too is at an elevated risk of failure from the large wound on the trunk from the contact with Tree 3. This is not a heritage tree.

Tree 5 is too close to the home foundation and should be removed regardless of the development project to protect the foundation of the home and mitigate fire risk. This is not a heritage tree.

If replacement trees are required, I recommend small understory plants like vine maple (*Acer cercinatum*). It appears the portion of the lot not affected by the proposed work is already well-forested and additional plants could overcrowd the site.

Benjamin Anderson, Urban Forester
ISA Board Certified Master Arborist & TRAQ
RCA #686, WE #10160B
(415) 454-4212

[3] Probable – failure may be expected under normal weather conditions within the specified time frame.

SCOPE OF WORK AND LIMITATIONS

Urban Forestry Associates has no personal or monetary interest in the outcome of this investigation. All observations regarding trees in this report were made by UFA, independently, based on our education and experience. All determinations of health condition, structural condition, or hazard potential of a tree or trees at issue are based on our best professional judgment. The health and hazard assessments in this report are limited by the visual nature of the assessment. Defects may be obscured by soil, brush, vines, aerial foliage, branches, multiple trunks, other trees, etc. Even structurally sound, healthy trees can fail during severe storms. Consequently, even a low risk rating is not a guarantee of no risk, hazard, or sound health.

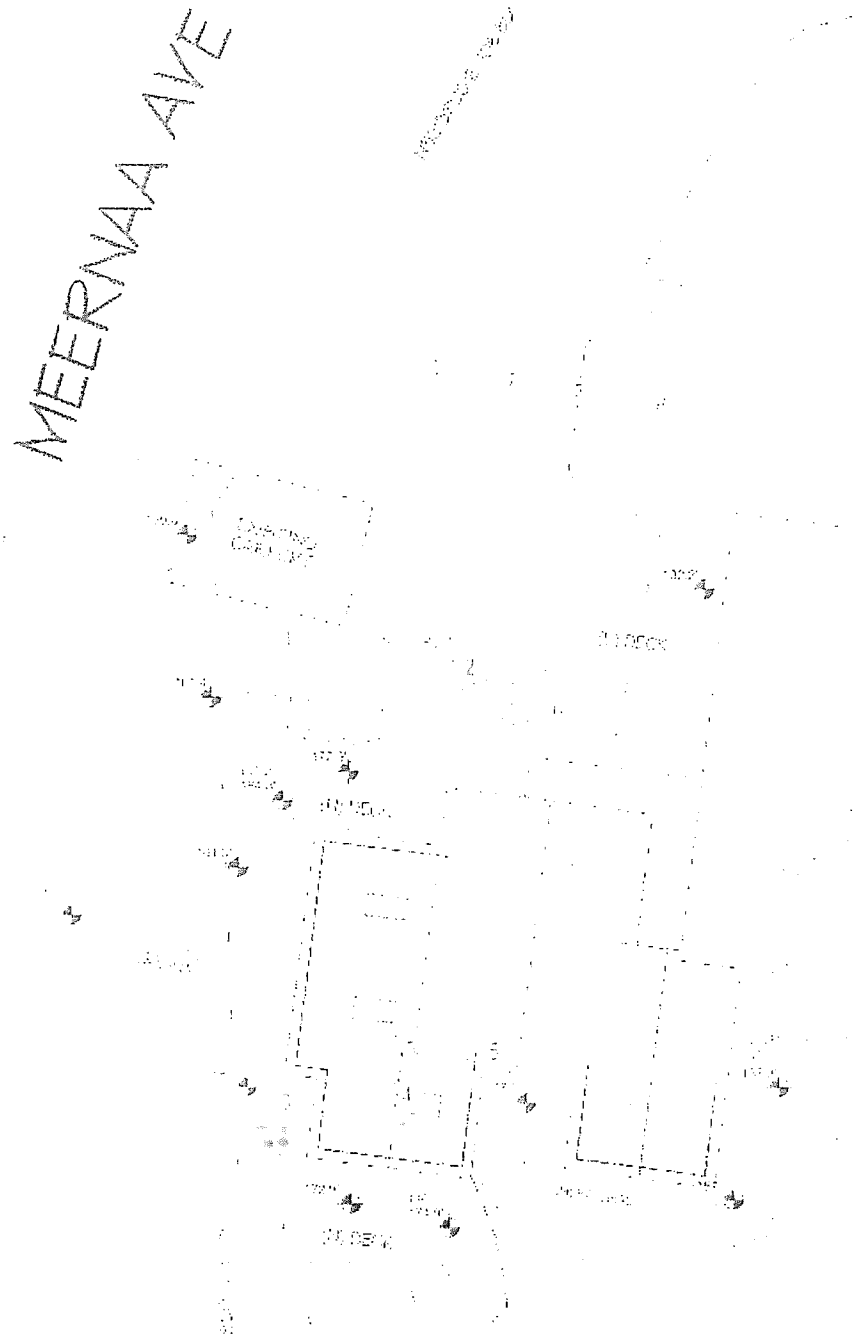


Figure 1. Map of tree locations. Indicated with blue dots and red numbers.

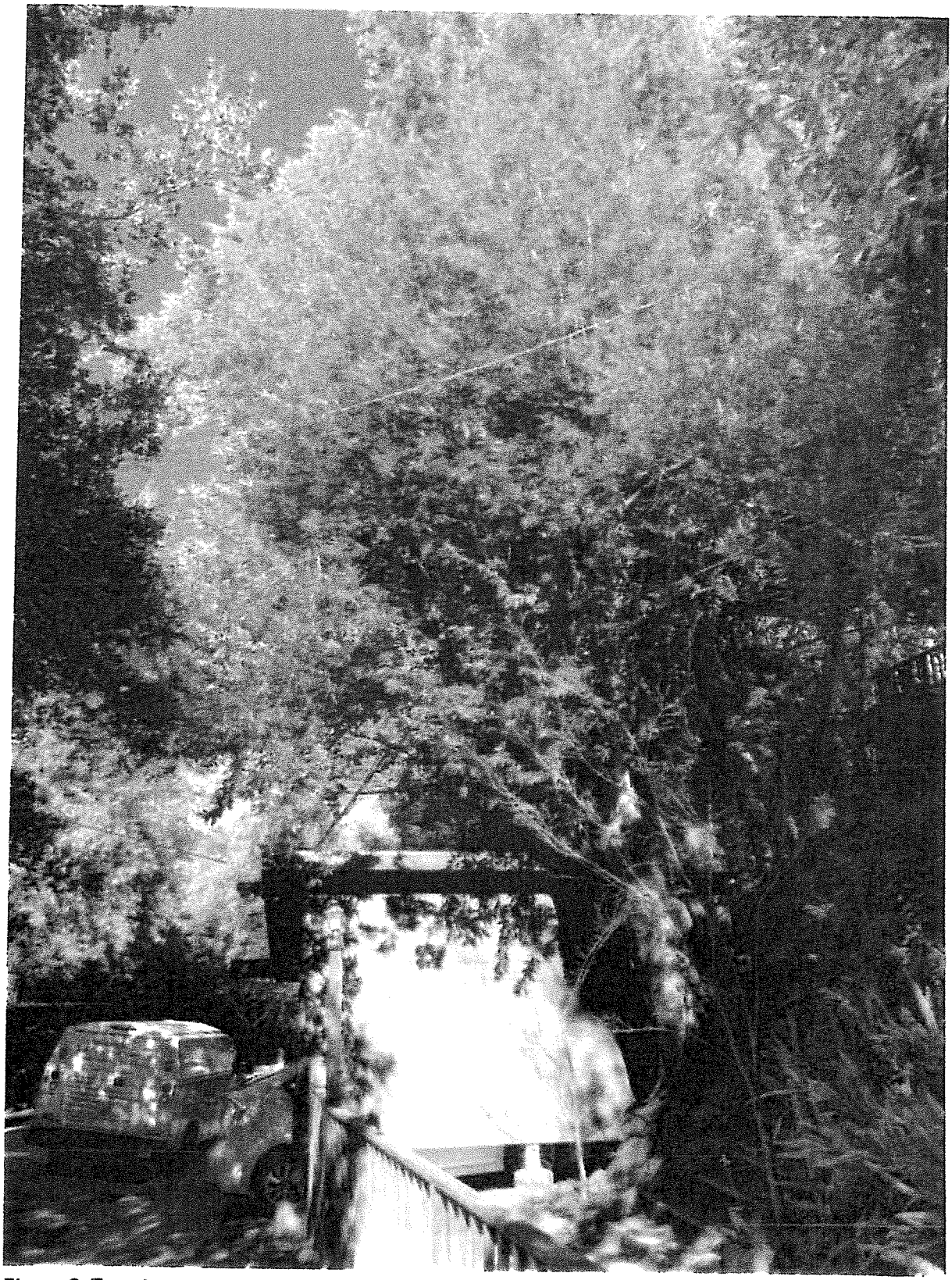


Figure 2. Tree 1 as viewed from the street.

Figure 3. Clipboard inserted deep into the trunk of Tree 1.

Figure 4. Large decay cavity at the common attachment point of all the major spars in Tree 1

Figure 5. Decay cavity in the base of Tree 2 indicated with a red arrow.

Figure 6. Large decay cavity in the base of Tree 3 indicated with red circle.

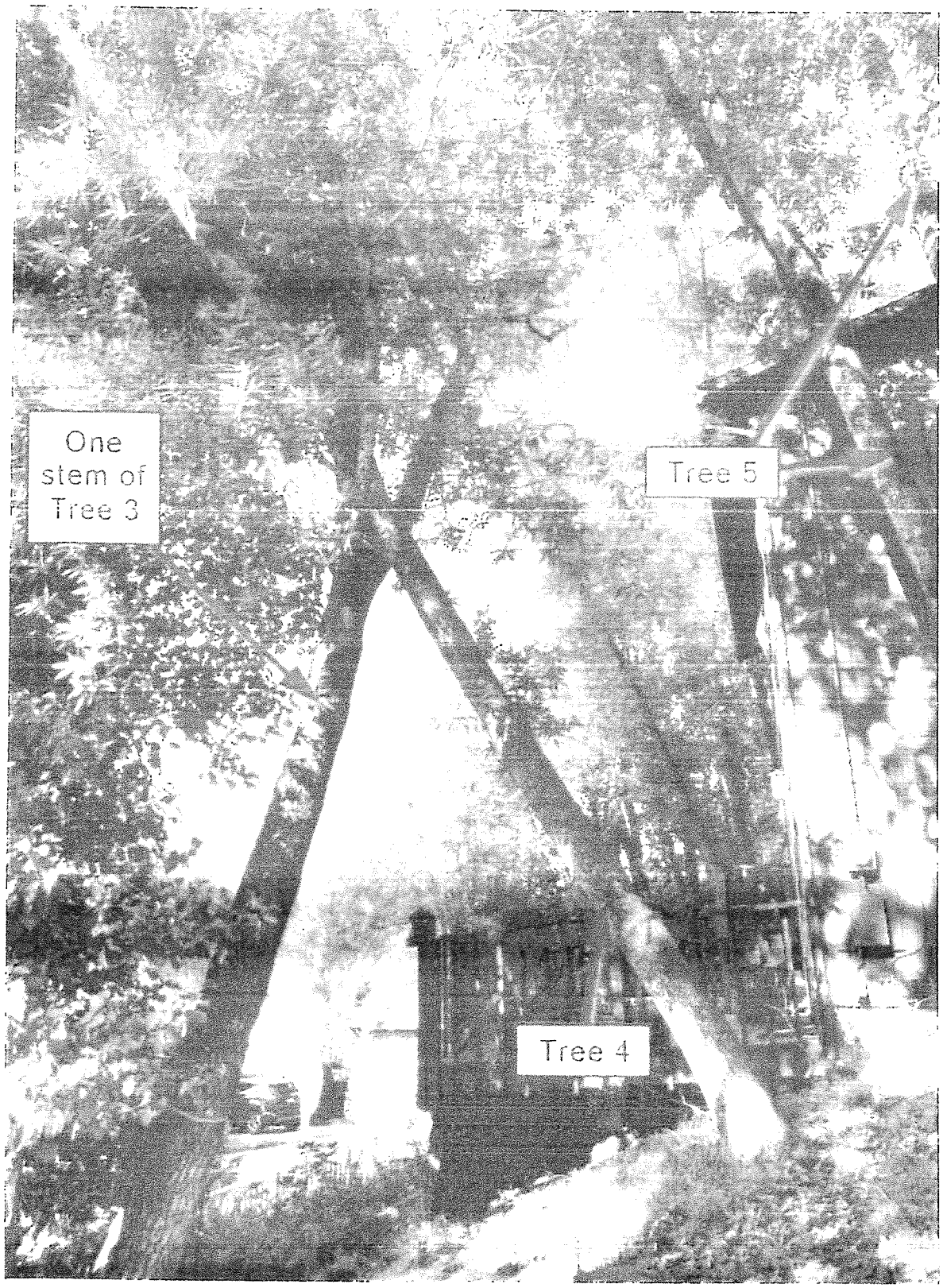


Figure 7. Image of Tree 4.

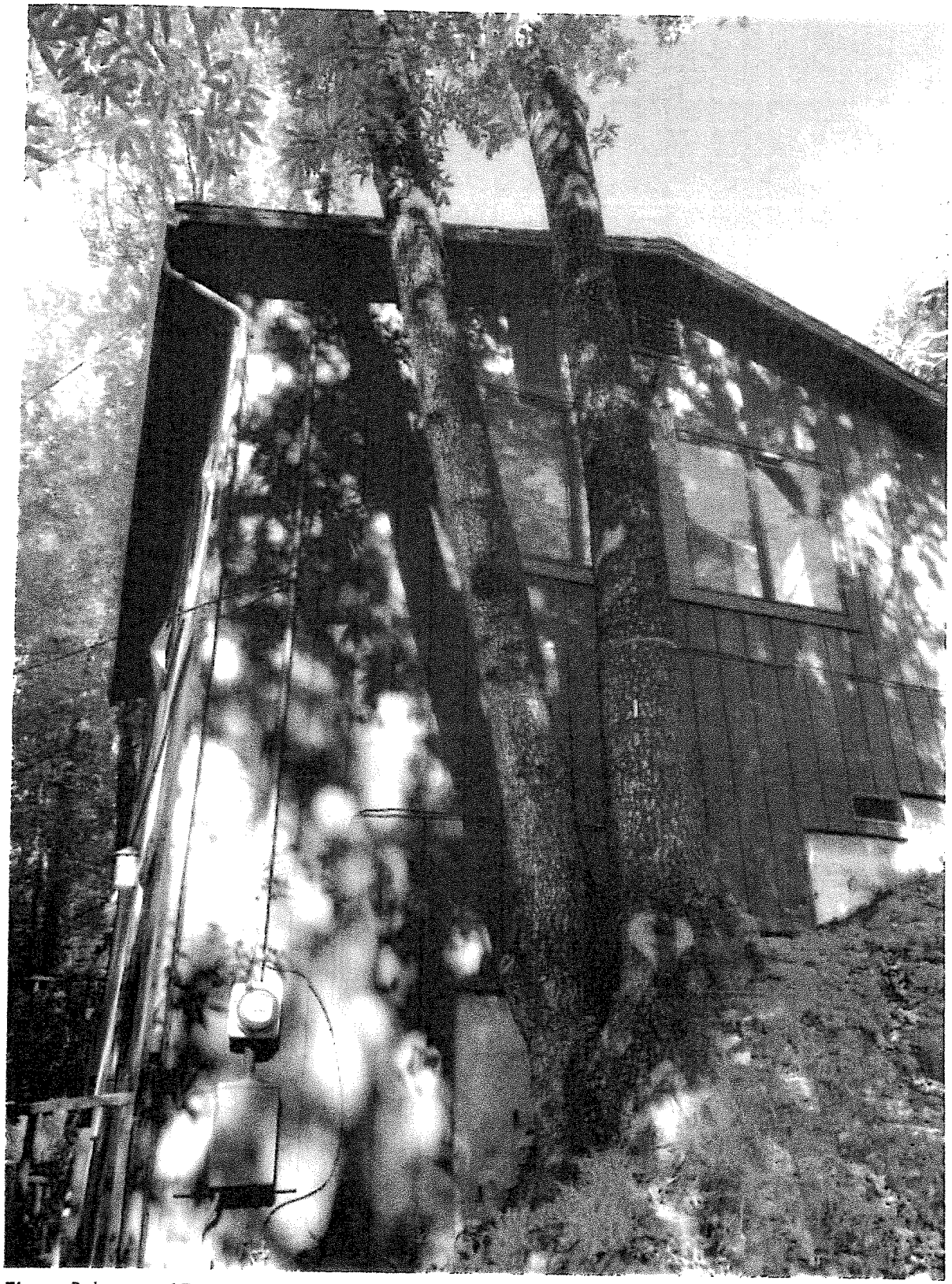


Figure 8. Image of Tree 5.

DINES INC.
CIVIL & SOIL ENGINEERS
7915 CREST AVENUE, OAKLAND, CALIFORNIA 94605
PHONE & FAX: (510) 568-2162 davedines@sbcglobal.net

OCT 17 2019

October 11, 2019

O-4568

Dash Gerdes
181 Meernaa Avenue
Fairfax, CA 94930

RE: Geotechnical Reconnaissance Report
Proposed Residential Improvements
181 Meernaa Avenue, Fairfax

Dear Mr. Gerdes:

As requested, we have performed a Geotechnical Reconnaissance of your residential property, located at 181 Meernaa Avenue in Fairfax. The purpose of this reconnaissance was to provide foundation recommendations for proposed additions and improvements at the property.

The scope of this limited reconnaissance included a foundation evaluation of the existing structure, excavation of four hand-auger borings to verify the depth to bedrock, and review of geologic maps of the area. No deep drilled borings were performed in this limited reconnaissance.

SITE DESCRIPTION AND PROPOSED CONSTRUCTION: The subject property consists of a single story residence located on an up-sloping lot. The original house structure dates back to 1924. The back portion of the house is slab on grade, and occupies a level graded pad, formed by making a steep, unretained cut into the rear slope. There is an apparent addition wing off the left rear corner of the house. Forward of this addition there is a large concrete patio and a level deck.

At some point in the past a basement storage room was added beneath the front of the original house, by cutting into the crawlspace slope and constructing a foundation wall about 5 feet in height. Another large deck spans out over the front slope in front of the entry to the basement. There is a small carport structure at the street level below the house.

It is our understanding that you are planning to construct an accessory dwelling unit at the front of the house, expanding off the existing basement space, and occupying the area of the existing front deck. Additional off-street parking will be created by cutting into the front slope below the proposed ADU addition, and constructing a retaining wall up to 10 feet in height. The entry steps will be replaced, and new decks will be constructed at either side

ATTACHMENT C1

of the front addition. Another minor single-story addition will be constructed off the main floor of the house, at the right side. This addition will be perched on the slope.

EVALUATION OF EXISTING HOUSE STRUCTURE: Examination of the existing house structure revealed that much of the foundation was replaced within the past 40 years or so. The new foundations appear to consist of reinforced concrete spread footings. As stated, a foundation wall up to 5 feet in height was added to create the existing basement room. No significant distress was observed in the existing foundations.

A level survey performed on the main floor of the house found that it is within 2 inches of relative level. There is some indication that minor leveling may have been done in the past.

The front deck which exists in the vicinity of the proposed ADU addition is in poor condition. The outboard posts bear on or above a dilapidated retaining wall, and have visibly settled and shifted laterally. There is another wood retaining wall closer to the street, which is also significantly bowed. These walls will be obliterated by the proposed parking space excavation.

GEOLOGY AND HAND-AUGER BORINGS: The subject property lies off the axis of a spur ridge, which rises steeply to the east toward a large parcel (89 Spring Lane), and into the Sky Ranch Open Space. Review of a geological map of the area prepared by Strand, Rice and Smith (1976), indicates that the area is underlain by Franciscan Melange and Cretaceous Sandstone bedrock. Franciscan Melange typically consists of a random assortment of sheared shale, sandstone and serpentine, deformed by ancient tectonic activity. Highly fractured Sandstone is exposed in the steep cut bank behind the house.

During our site visit four borings were performed with a hand auger. Borings B1 and B2 were performed near the front corners of the original structure in the vicinity of the proposed ADU addition. Boring B3 was performed at the base of the slope north of the carport, to explore the possibility of excavating for parking in that location (not part of the present plan). The fourth boring was performed at the right rear corner of the house, where the minor addition is planned.

The three forward borings encountered approximately 2 feet of rocky fill soils (likely pushed over from the excavation at the rear), underlain by dark brown silty topsoil. The topsoil graded abruptly to fractured Sandstone bedrock at depths of 3 to 4 feet. The boring at the right rear corner, near the base of the old cut bank, encountered Sandstone bedrock at a depth of just 6 inches.

Strand, Rice and Smith have mapped much of the surrounding hillsides to the north and south of the site as a possible landslide areas (which is typical of most of the slopes in

Fairfax). However, no sliding is indicated along the ridge line where the property is located. The authors assign the immediate vicinity a stability number of 3 (moderate potential for instability), whereas the adjacent slopes are mapped as having a high potential for sliding (stability #4). We observed no indication of active landsliding on the site. Given the shallow depth to competent bedrock at this site, it is our opinion that there is little risk of deep-seated landsliding. However, the steep cut slope behind the house is likely to experience shallow sloughing and erosion over time.

SITE DRAINAGE: As stated, the site lies off the end of a spur ridge, the crest of which lies approximately 400 feet to the southeast. However, much of the runoff from the slope above is diverted off to either side of the ridge line. Thus the total potential watershed affecting the site is approximately 0.56 acres.

SEISMICITY: It should be common knowledge that the Bay Area is subject to strong ground shaking due to the regular occurrence of earthquakes. The subject property is located within 7 miles of the active San Andreas Fault. Other nearby faults include the Hayward Fault and the Healdsburg/Rodgers Creek Fault. Given the location of the site and the shallow bedrock nature, there is no risk of ground rupture or liquefaction.

The San Andreas and Hayward Faults are estimated to be capable of generating earthquakes of 8.1, and 7.3 moment magnitude, respectively. They are estimated to have a 22%, and 33% chance of generating earthquakes greater than 6.7 moment magnitude over the next 25 years, respectively. The Bay Area fault system as a whole, is estimated to have a 72% chance.

Design of improvements in accordance with the **2016 CBC** (pursuant to ASTM 7-10) should utilize the following factors.

Site Class:	B
Mapped Short Period Spectral Acceleration, Ss:	1.500
Mapped 1-Second Spectral Acceleration, S1:	0.639
Short Period Site Coefficient, Fa:	1.0
1-Second Site Coefficient, Fv:	1.0
Modified Short Period Spectral Acceleration, Sms:	1.500
Modified 1-Second Spectral Acceleration, Sm1:	0.639
Design Short Period Spectral Acceleration, Sds:	1.000
Design 1-Second Spectral Acceleration, Sd1:	0.426
Design Category:	D

Design of improvements in accordance with the **2019 CBC** (pursuant to ASTM 7-16) should utilize the following factors.

Site Class:	B
Mapped Short Period Spectral Acceleration, Ss:	1.50
Mapped 1-Second Spectral Acceleration, S1:	0.60
Short Period Site Coefficient, Fa:	0.9
1-Second Site Coefficient, Fv:	0.8
Modified Short Period Spectral Acceleration, Sms:	1.35
Modified 1-Second Spectral Acceleration, Sm1:	0.48
Design Short Period Spectral Acceleration, Sds:	0.90
Design 1-Second Spectral Acceleration, Sd1:	0.32
Design Category:	D

COMMENTARY AND PRELIMINARY RECOMMENDATIONS: Based on our findings, competent bedrock exists at a relatively shallow depth, within 3 to 4 feet of the surface at the front of the lot, and at the surface at the base of the rear cut slope. However, the distortions in the improvements on the front slope confirm that the surface soil cannot be relied upon for support. The proposed parking space will likely require a level cut extending deep into the slope. As this cut will likely expose bedrock, the wall may bear on a conventional L-footing. New foundations bearing on or near sloping grades should bear on 18-inch diameter piers drilled at least 6 feet into bedrock (total depths on the order of 10 feet are anticipated).

The steep cut behind the house is somewhat concerning, given the fractured nature of the exposed rock. There is some possibility this slope could slough against the back of the house. As a very conservative treatment, consideration should be given to constructing a stout wall at the base of the cut, and backfilling it with rip-rap to buttress the steep slope above. However, this would be a very major undertaking. Since the slope apparently has not had an incident to date (and has likely existed in this state since the site was originally developed in the 1920's), you may choose to continue monitoring it.

As an interim measure, you might construct a concrete V-ditch across the top of the cut, to divert surface runoff from the slope above off to the side. Drain lines may be dispersed at the base of the slope, at the right front corner of the lot.

In summary, it is our opinion that the site is suitable for the proposed construction, provided that the following recommendations are adhered to.

REVIEW OF PRELIMINARY EXCAVATION CALCULATIONS: As a registered Civil Engineer, I have reviewed the excavation calculations for the proposed addition construction, and I believe them to be reasonably accurate for initial planning purposes. It is likely that the Town will require a formal grading plan as part of the building submittal. We should review the drainage aspects of that plan.

RECOMMENDATIONS:

1. **GRADING:** Grading for this project is expected to be limited largely to retained excavations for the proposed additions. These excavations are expected to extend into sandstone bedrock. No significant fills are anticipated. No soils shall be deposited on site slopes.

   1.1 **Site Preparation:** Areas to receive fill or flatwork shall be cleared of vegetation and stripped to a sufficient depth to remove major root systems. The stripped organic topsoil material may be stock piled for later use in landscaping areas.

   1.2 **Cut Grading:** Permanent cut slopes shall be at a maximum inclination of 2:1 (horizontal to vertical) or shall be retained by structural walls in accordance to the recommendations below. Temporary shoring may be required for vertical cut slopes, particularly if the excavations are required to stand through the rainy season (which is not advised).

   1.3 **Backfill of Utility Trenches:** Utility trench backfill shall be compacted to a relative density of 95% under pavement and foundation areas, and 90% elsewhere. Trenches shall be capped with at least 18 inches of relatively impermeable material (site soils are acceptable).

   1.4 **Erosion Control:** Due to their silty nature, the site soils are susceptible to erosion, particularly on the steeper graded slopes. Therefore it is recommended that no grading be performed during wet weather, and all denuded slopes shall be covered with appropriate erosion control fabric and seeded or landscaped prior to the onset of the rainy season.

2. **FOUNDATIONS:** All new foundation elements shall bear on weathered bedrock as determined by the undersigned Geotechnical engineer. New foundations situated in deep level cuts exposing bedrock may bear on spread footings, per Section 2.1. New foundations situated on or adjacent to sloping grades shall bear on 18-inch diameter drilled piers per Section 2.2.

   2.1 **Spread Footings:** Conventional spread footings shall bear on Sandstone or Shale bedrock. Footings shall be a minimum of 18 inches in width, and shall extend at least 12 inches into firm bedrock material as verified by the undersigned Geotechnical Engineer.

      2.1a **Design Values for Footings:** Footings constructed in accordance with Section 2.1 may be designed for a bearing pressure of 2500 psf. Lateral resistance may be obtained by assuming a friction value of 0.40 and a passive resistance of 450 pcf, beginning at the bedrock contact.

2.1b **Minimal Footing Reinforcing:** All spread footings shall contain a minimum of one #5 bar top and bottom, with #3 shear ties at 18 inches on center.

2.2 **Pier and Grade Beam Foundations:** Drilled piers used for the improvements bearing on or adjacent to sloping grades, should be a minimum of 18 inches in diameter. All piers should extend a minimum of 6 feet into bedrock as verified by the undersigned Geotechnical Engineers. Pier depths of 8 to 10 feet should be anticipated.

2.2a **Design Values for Drilled Piers:** Piers constructed in accordance with Section 2.2 may be designed for a friction value of 750psf for the portion of pier extending into bedrock. Resistance to lateral loadings may assume a passive pressure of 450pcf, acting against 2 pier diameters, beginning at a depth of 3 feet, or at grade for retaining walls bearing in bedrock cuts. The passive resistance may be increased by one third for short-term seismic loads.

2.2b **Minimal Pier Reinforcing:** Piers shall contain a minimum of six #5 bars enclosed by #3 ties at 12 inches on center.

2.2c **Grade Beams:** The perimeter grade beams shall have minimum dimensions of 10"x18" and shall contain a minimum of two #5 bars top and bottom, with #3 closed ties at 18 inches on center. The grade beams shall be connected to the foundation piers with a minimum of four #5 angle dowels.

3. **Floor Slabs on Grade:** Floor slabs shall be a minimum of 4 inches thick and shall be reinforced with #4 bars at 18 inches on center in each direction, and shall be epoxy doweled to the perimeter foundations. Floor slabs used as living space shall be poured over a capillary break consisting of 4 inches of pea gravel covered by a 10 mil vapor barrier.

4. **RETAINING WALLS:** Retaining walls or foundation walls shall be designed for an active pressure of 45pcf assuming fully drained, level backfill. The active pressure should be increased to 55pcf for backfill sloping at a 2:1 gradient or steeper. Walls located on level cuts into bedrock may be founded on spread footings. Walls perched on sloping grades shall bear on spread footings.

4.1 **Retaining Wall Drainage and Waterproofing:** Retaining walls and foundation walls shall be fully back drained with 3/4-inch drain rock wrapped in filter cloth. A 4-inch PVC pipe shall be installed along the base of the wall, at least 6 inches below the adjacent floor slab or crawlspace grade, and shall be continuously sloped at 1%

to outlet to a dissipater as discussed below. In addition, foundation walls shall incorporate waterproofing membranes (such as Paraseal), installed per manufacturer's recommendations.

5. **DRAINAGE:** Adequate drainage is important in order to minimize erosion and embankment stability problems, and to protect the crawlspace and basement areas from moisture intrusion.

5.1 **Surface Drainage:** All roof downspouts shall be fitted with 4-inch solid PVC discharge pipes. Surrounding yard and patio areas shall utilize cast iron or brass catch basins tied to the roof downspout lines, or shall be graded to shed runoff away from the house in an unconcentrated manner.

5.2 **Piping:** All piping shall be 4-inch SDR-35 PVC. All drain lines shall be continuously sloped at 1% minimum to dissipaters as discussed below.

5.3 **Discharge of Storm Drainage:** It is recommended that the collected storm water be discharged to a rubble dispersal field near the right front corner of the lot. The final method and location and design of the dissipater should be reviewed and approved by the undersigned Geotechnical Engineer.

5.4 **Maintenance:** Drainage systems require regular maintenance to ensure proper functioning. Catch basins and downspout pipes should be flushed regularly (dependant on the rate of falling leaf litter). It is critical that outlet dissipaters be inspected and flushed on a regular basis. It is recommended that an accurate as-built plan of the drainage systems be prepared, and that maintenance requirements be disclosed to all future buyers of the property.

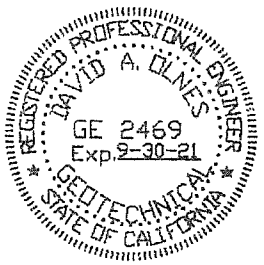
6. **EXTERIOR FLATWORK:** Exterior flatwork, including driveways, walkways and patios may be constructed as 4-inch thick concrete slabs and should be reinforced with a minimum of #4 bars at 18-inch centers. However some distress can be expected due to minor subgrade fluctuations and/or concrete shrinkage.

7. **PLAN REVIEW AND CONSTRUCTION OBSERVATION:** The undersigned Geotechnical Engineer should review the final building plans for conformance with the above recommendations and should inspect all pier drilling, footing excavations and subdrain trenches in progress prior to placement of reinforcing steel, concrete or backfill. Allowances should be made for potential changes to the final design requirements in the event that actual construction conditions differ from the conditions assumed in this report.

LIMIT OF LIABILITY: This report was prepared under written contractual agreement with the addressee (client) indicated above. The client has agreed to limit the liability of Dave Olnes P.E., Inc. to an amount not to exceed the fee for services indicated above, for any and all matters arising from this visual examination and report. The information provided herein is for the exclusive use of the specified client. Dave Olnes P.E., Inc. shall assume no liability for other parties who use the report without its express written consent. The recommendations contained in this report are valid for a period of two years, pending further review by the undersigned Geotechnical Engineer.

If you have any questions regarding this matter, please contact my office at (510)568-2162.

Sincerely,



David A. Olnes, GE
Principal Engineer

REFERENCES

Knudsen, Keith L., Sowers, Janet M. Witter, Robert S., Wentworth, Carl M, Helley, Edward J., "Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California", USGS Open File Report 00-444, 2000.

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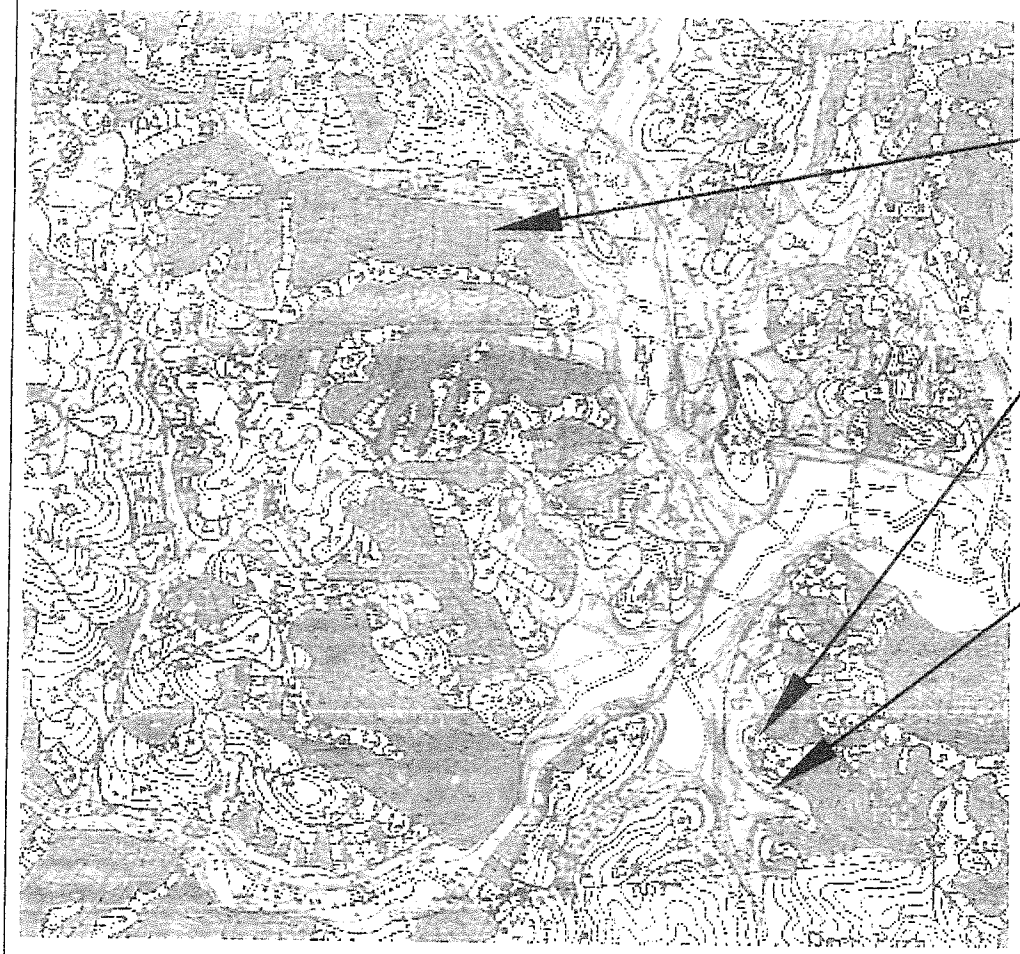


TYPICAL MAPPED LANDSLIDE ZONE (RED).

SITE, MAPPED AS FRANCISCAN MELANGE.

ALLUVIAL (GREEN) AND COLLUVIAL (YELLOW) SOILS MAPPED IN FLATTER AREAS BELOW.

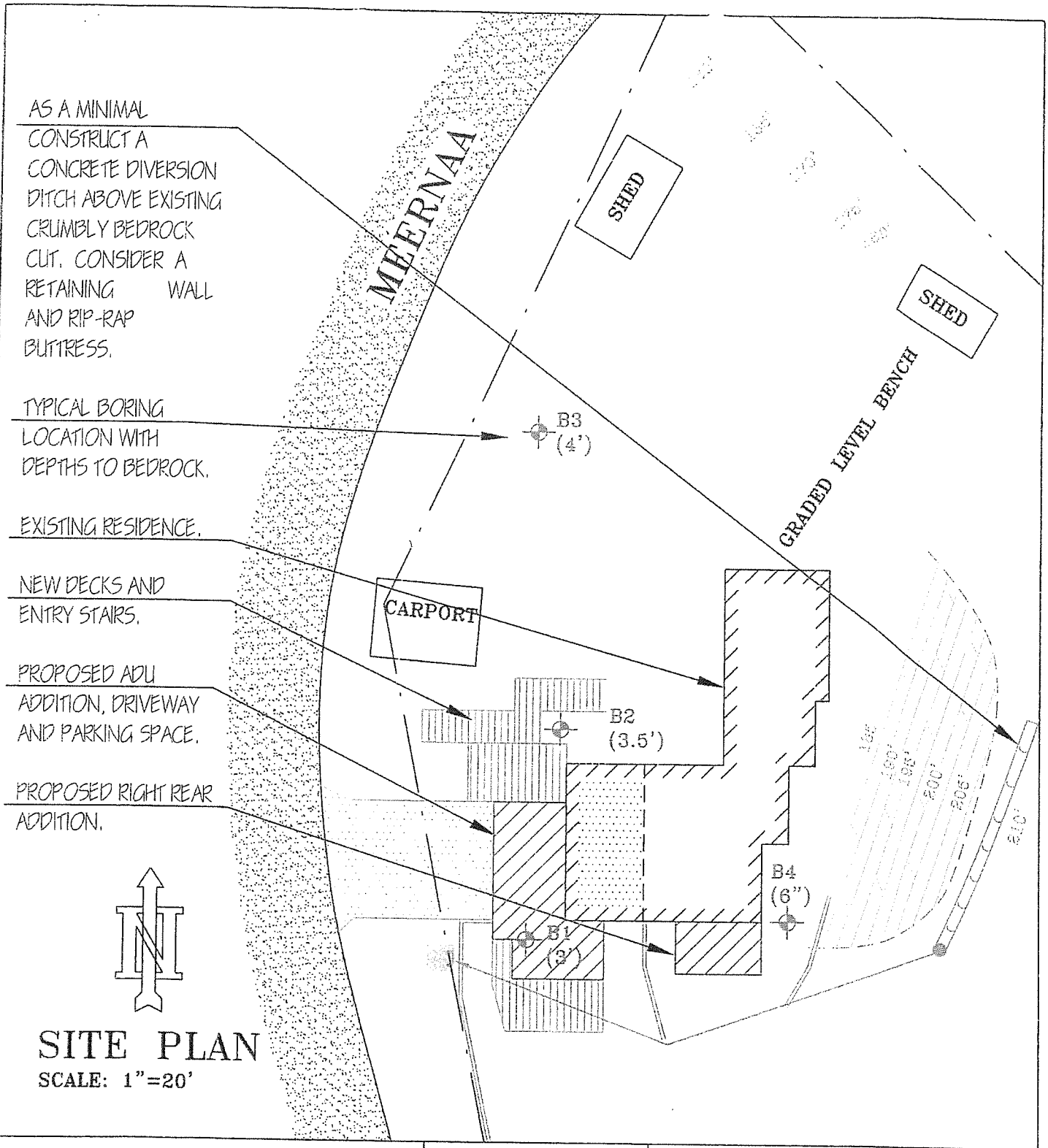
SOURCE:
STATE OF CALIFORNIA DEPT. OF MINING & GEOLOGY, OPEN FILE REPORT 76-2
GEOLOGY FOR PLANNING: CENTRAL & SOUTHEAST MARIN COUNTY, CALIFORNIA,
SALEM J. RICE, THEODORE C. SMITH & RUDOLPH G. STRAND, 1976.

CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: ~1"=2000'
JOB #: 0-4568
DRAWN: DAO/MAF
DATE: 10/11/19

GEOTECHNICAL RECONNAISSANCE
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA

FIGURE: 1



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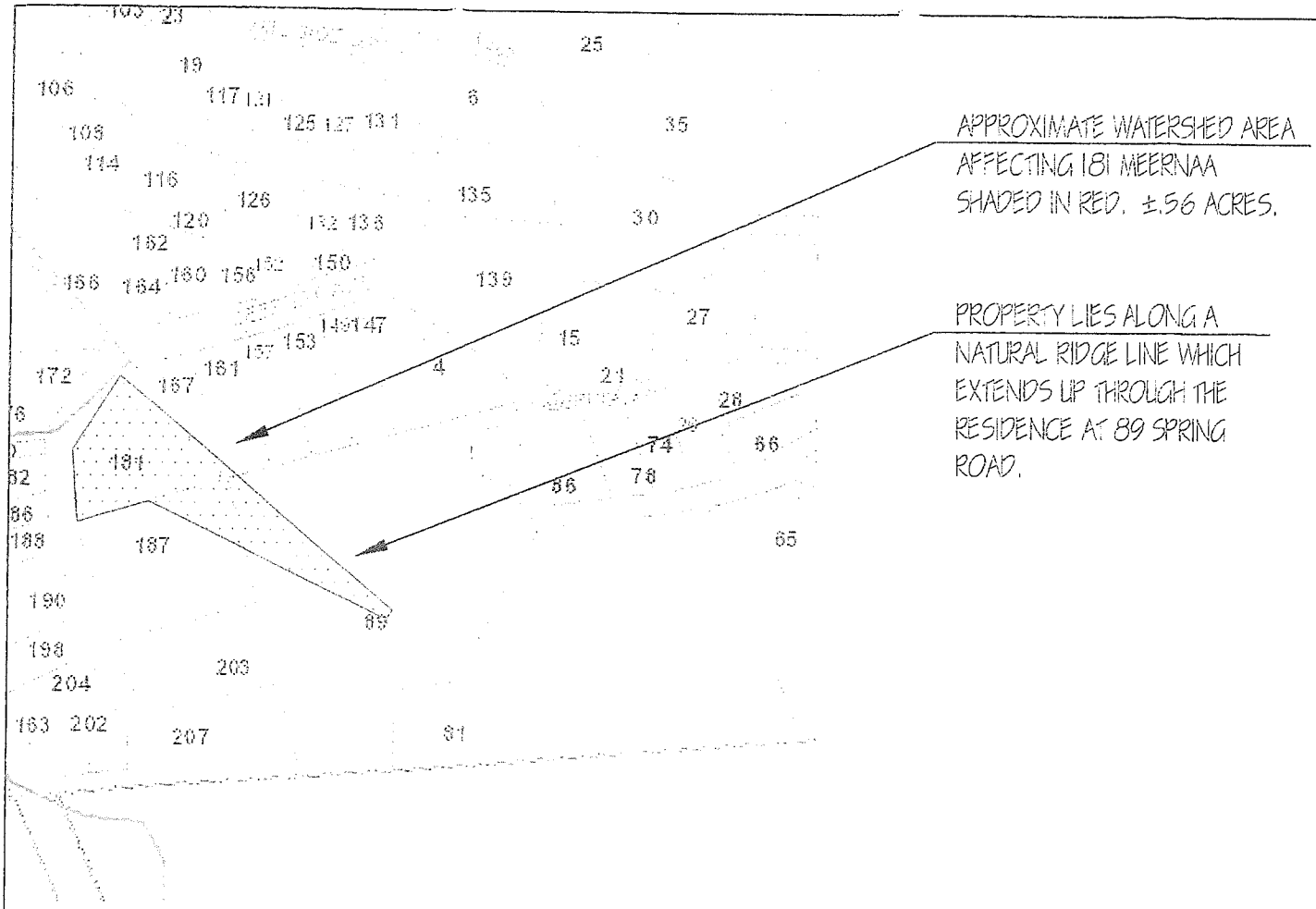
GEOTECHNICAL RECONNAISSANCE
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA

FIGURE: 2



SOURCE: MARIN COUNTY GIS MAPS

WATERSHED MAP

SCALE: 1"=200'

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PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=200'

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DRAWN: DAO/MAF

DATE: 10/11/19

GEOTECHNICAL RECONNAISSANCE
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA

FIGURE: 3

HAND AUGER

Probe # : P1		Depth	Probe # : P2	
Location: FRONT LEFT CORNER OF ADUADDITION			Location: FRONT RIGHT CORNER OF ADU ADDITION	
DESCRIPTION			**DESCRIPTION**	
dark brown Sandy Rocky SILT with Sandstone fragments (SM)	**Fill**		dark brown Sandy SILT (SM)	**Topsoil/Fill**
dark brown Sandy SILT (SM)	**Original Topsoil**		tan weathered SANDSTONE	**Bedrock**
tan decomposed SANDSTONE	**Bedrock**		Probe Terminated @ 4'	**Refusal**
Probe Terminated @ 4'	**Refusal**	5		

Probe # : P3		Depth	Probe # : P4	
Location: PROPOSED PARKING AREA			Location: RIGHT REAR CORNER OF EXISTING HOUS	
DESCRIPTION			**DESCRIPTION**	
dark brown Sandy Rocky SILT (SM)	**Topsoil/Fill**		brown Sandy SILT (SM)	**Topsoil**
tan-yellow SANDSTONE	**Bedrock**		tan weathered SANDSTONE	**Bedrock**
Probe Terminated @ 5.5'	**Refusal**	5	Probe Terminated @ 1'	**Refusal**

CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND, CA 94605
TELEPHONE & FAX (510) 568-2162

Project: Geotechnical Reconnaissance
181 Meernaa Avenue
Fairfax, California

Date: October 11, 2019 Figure: 4

DAVE OLNES P.E. INC.
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GEOTECHNICAL MEMORANDUM:

To: Dash Gerdes

RE: Preliminary Retaining Wall and Shoring Schematics
Proposed Residential Improvements
181 Meernaa Avenue, Fairfax

Date: December 17, 2019

As Geotechnical Engineers of Record, we have completed the schematic details for the embankment shoring at the proposed garage excavation, and for the suggested retaining wall and rip-rap treatment for the steep rear slope at your residential property, located at 181 Meernaa Avenue in Fairfax. These documents were requested by the City as part of their Planning review process.

SHORING SCHEMATIC: Excavation for the proposed garage will require a multi-step process, to support the existing structure above, and to meet OSHA requirements for excavation safety. As planned, the cut for the new garage will be up to 13 feet tall at the back, measuring from the existing slab level to the base of the proposed foundation wall footing. This is too tall for Soldier piers so we recommend the use of soil nails and shortcrete.

The first step would be to drill two vertical piers near the front corners of the existing structure, extending below the level of the proposed cut. These piers would support posts and a girder to hold the existing framing above so the front foundation can be removed. One of these piers may be incorporated into the forward side addition. The foundations for both of the side additions could also be constructed at this time.

The second step would be to remove the front foundation and make the first 5-foot cut below the existing slab level. Where necessary, the side slopes of this first cut could be laid back at 45 degrees. Then the first four soil nails would be drilled back under the slab. These nails would be 15 feet long, to get well beyond a 45 degree angle of repose from the ultimate cut. A 6-inch thick shotcrete facing would be cast against the back cut, locked off to the soil nails.

The third step would be to make the second 5-foot cut, which would require four more soil nails at the rear. These nails could be 10 feet long. This cut will also significantly involve the sides of the excavation, so we show two more soil nails on either side. Or you could lay the side slopes back at 45 degrees.

The final cut will be less than 5 feet tall, and should expose reasonably sound bedrock, so it should not require shoring (the undersigned Geotechnical Engineers will confirm the conditions at the time of excavation.

REAR RETAINING WALL: As discussed in our soils report for the project, there is a very steep cut slope behind the existing house structure. Although this cut largely revealed fractured Sandstone bedrock, it has been subject to sloughing. There is some possibility this slope could slough against the back of the house. We had suggested that as a *very conservative treatment,* consideration should be given to constructing a stout wall at the base of the cut, and backfilling it with rip-rap to buttress the steep slope above. The Town is apparently requiring some form of mitigation of this slope as a condition of approval for the

ATTACHMENT C2

proposed improvements.

We have produced a schematic detail for the very conservative treatment. Scaling off the contours of the survey, it appears that the wall will have to be 9 feet tall in order to lay the rip-rap down at 1.5:1. This will be a massive wall, so we show drilled piers supplemented by horizontal tie backs. We positioned the wall about 6 feet off the house. It may be that with field measurements the location and height of the wall might vary. A concrete ditch would be constructed above the top of the cut, to divert surface runoff around the vulnerable area.

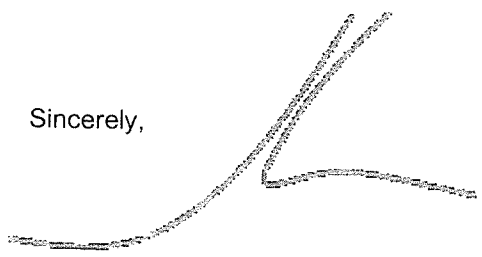
You have stated that if the Town is adamant about requiring the construction of this costly wall, you may not be able to go forward with the project. Your Architect has suggested that as a fall-back position, you might consider construction a "catchment wall" as opposed to a formal retaining wall. The catchment wall would be a free-standing wall, without backfill, designed to catch sloughing soil and rock before it hits the house. However, the relative stability of the steep slope above would not be altered.

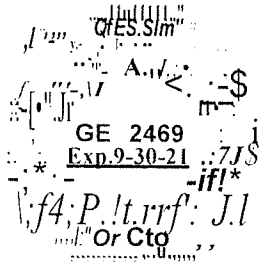
One possibility would be to consider a phased approach, wherein you drill the piers and set the I-beams at an 8-foot spacing, as would be required for the formal wall. However, rather than installing the tie backs and reinforced concrete facing, the I-beams could be lagged with 6x12 pressure treated planks. The lower 4 feet of lagging could be backfilled to provide minimal retention. The upper 5 feet would be free-standing as a catchment wall, with the lagging gapped at 6 inches. This would allow you to see the accumulating sloughage, so it can be removed as it accumulates. In the event that a very major slope failure occurs, it is likely that the wall will protect the house (or at least significantly reduce the impact). However, without the tie backs, the fully-loaded wall will likely deflect. At any point in the future the catchment wall can be converted to a formal structural wall by adding the tie backs, the reinforced concrete facing and the rip-rap backfill.

As we stated in our report, the cut behind the house has presumably been in place for 75 years or more, and it does not appear to have experienced any significant failures to date. Our purpose in pointing out the potential instability was to make you aware of the condition, so that you can make informed decisions relative your personal tolerance for risk. If the proposed improvements to the house will not alter the historic conditions at the base of the slope, you may choose to argue any mitigation you choose to implement should be "voluntary".

If there are further questions regarding this matter, please contact my office.

Sincerely,





Dave Olnes, CEGE

7915 CREST AVENUE, OAKLAND, CALIFORNIA 94605
PHONE & FAX: (510) 568-2162 davedries@sbcglobal.net

OCT 17 2019

October 11, 2019

O-4568

Dash Gerdes
181 Meernaa Avenue
Fairfax, CA 94930

RE: Geotechnical Reconnaissance Report
Proposed Residential Improvements
181 Meernaa Avenue, Fairfax

Dear Mr. Gerdes:

As requested, we have performed a Geotechnical Reconnaissance of your residential property, located at 181 Meernaa Avenue in Fairfax. The purpose of this reconnaissance was to provide foundation recommendations for proposed additions and improvements at the property.

The scope of this limited reconnaissance included a foundation evaluation of the existing structure, excavation of four hand-auger borings to verify the depth to bedrock, and review of geologic maps of the area. No deep drilled borings were performed in this limited reconnaissance.

SITE DESCRIPTION AND PROPOSED CONSTRUCTION: The subject property consists of a single story residence located on an up-sloping lot. The original house structure dates back to 1924. The back portion of the house is slab on grade, and occupies a level graded pad, formed by making a steep, unretained cut into the rear slope. There is an apparent addition wing off the left rear corner of the house. Forward of this addition there is a large concrete patio and a level deck.

At some point in the past a basement storage room was added beneath the front of the original house, by cutting into the crawlspace slope and constructing a foundation wall about 5 feet in height. Another large deck spans out over the front slope in front of the entry to the basement. There is a small carport structure at the street level below the house.

It is our understanding that you are planning to construct an accessory dwelling unit at the front of the house, expanding off the existing basement space, and occupying the area of the existing front deck. Additional off-street parking will be created by cutting into the front slope below the proposed ADU addition, and constructing a retaining wall up to 10 feet in height. The entry steps will be replaced, and new decks will be constructed at either side

ATTACHMENT C1

Fairfax). However, no sliding is indicated along the ridge line where the property is located. The authors assign the immediate vicinity a stability number of 3 (moderate potential for instability), whereas the adjacent slopes are mapped as having a high potential for sliding (stability #4). We observed no indication of active landsliding on the site. Given the shallow depth to competent bedrock at this site, it is our opinion that there is little risk of deep-seated landsliding. However, the steep cut slope behind the house is likely to experience shallow sloughing and erosion over time.

SITE DRAINAGE: As stated, the site lies off the end of a spur ridge, the crest of which lies approximately 400 feet to the southeast. However, much of the runoff from the slope above is diverted off to either side of the ridge line. Thus the total potential watershed affecting the site is approximately 0.56 acres.

SEISMICITY: It should be common knowledge that the Bay Area is subject to strong ground shaking due to the regular occurrence of earthquakes. The subject property is located within 7 miles of the active San Andreas Fault. Other nearby faults include the Hayward Fault and the Healdsburg/Rodgers Creek Fault. Given the location of the site and the shallow bedrock nature, there is no risk of ground rupture or liquefaction.

The San Andreas and Hayward Faults are estimated to be capable of generating earthquakes of 8.1, and 7.3 moment magnitude, respectively. They are estimated to have a 22%, and 33% chance of generating earthquakes greater than 6.7 moment magnitude over the next 25 years, respectively. The Bay Area fault system as a whole, is estimated to have a 72% chance.

Design of improvements in accordance with the **2016 CBC** (pursuant to ASTM 7-10) should utilize the following factors.

Site Class:	B
Mapped Short Period Spectral Acceleration, Ss:	1.500
Mapped 1-Second Spectral Acceleration, S1:	0.639
Short Period Site Coefficient, Fa:	1.0
1-Second Site Coefficient, Fv:	1.0
Modified Short Period Spectral Acceleration, Sms:	1.500
Modified 1-Second Spectral Acceleration, Sm1:	0.639
Design Short Period Spectral Acceleration, Sds:	1.000
Design 1-Second Spectral Acceleration, Sd1:	0.426
Design Category:	D

Design of improvements in accordance with the **2019 CBC** (pursuant to ASTM 7-16) should utilize the following factors.

RECOMMENDATIONS:

1. **GRADING:** Grading for this project is expected to be limited largely to retained excavations for the proposed additions. These excavations are expected to extend into sandstone bedrock. No significant fills are anticipated. No soils shall be deposited on site slopes.

   1.1 **Site Preparation:** Areas to receive fill or flatwork shall be cleared of vegetation and stripped to a sufficient depth to remove major root systems. The stripped organic topsoil material may be stock piled for later use in landscaping areas.

   1.2 **Cut Grading:** Permanent cut slopes shall be at a maximum inclination of 2:1 (horizontal to vertical) or shall be retained by structural walls in accordance to the recommendations below. Temporary shoring may be required for vertical cut slopes, particularly if the excavations are required to stand through the rainy season (which is not advised).

   1.3 **Backfill of Utility Trenches:** Utility trench backfill shall be compacted to a relative density of 95% under pavement and foundation areas, and 90% elsewhere. Trenches shall be capped with at least 18 inches of relatively impermeable material (site soils are acceptable).

   1.4 **Erosion Control:** Due to their silty nature, the site soils are susceptible to erosion, particularly on the steeper graded slopes. Therefore it is recommended that no grading be performed during wet weather, and all denuded slopes shall be covered with appropriate erosion control fabric and seeded or landscaped prior to the onset of the rainy season.

2. **FOUNDATIONS:** All new foundation elements shall bear on weathered bedrock as determined by the undersigned Geotechnical engineer. New foundations situated in deep level cuts exposing bedrock may bear on spread footings, per Section 2.1. New foundations situated on or adjacent to sloping grades shall bear on 18-inch diameter drilled piers per Section 2.2.

   2.1 **Spread Footings:** Conventional spread footings shall bear on Sandstone or Shale bedrock. Footings shall be a minimum of 18 inches in width, and shall extend at least 12 inches into firm bedrock material as verified by the undersigned Geotechnical Engineer.

      2.1a **Design Values for Footings:** Footings constructed in accordance with Section 2.1 may be designed for a bearing pressure of 2500 psf. Lateral resistance may be obtained by assuming a friction value of 0.40 and a passive resistance of 450 pcf, beginning at the bedrock contact.

to outlet to a dissipater as discussed below. In addition, foundation walls shall incorporate waterproofing membranes (such as Paraseal), installed per manufacturer's recommendations.

5. **DRAINAGE:** Adequate drainage is important in order to minimize erosion and embankment stability problems, and to protect the crawlspace and basement areas from moisture intrusion.

5.1 **Surface Drainage:** All roof downspouts shall be fitted with 4-inch solid PVC discharge pipes. Surrounding yard and patio areas shall utilize cast iron or brass catch basins tied to the roof downspout lines, or shall be graded to shed runoff away from the house in an unconcentrated manner.

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7. **PLAN REVIEW AND CONSTRUCTION OBSERVATION:** The undersigned Geotechnical Engineer should review the final building plans for conformance with the above recommendations and should inspect all pier drilling, footing excavations and subdrain trenches in progress prior to placement of reinforcing steel, concrete or backfill. Allowances should be made for potential changes to the final design requirements in the event that actual construction conditions differ from the conditions assumed in this report.

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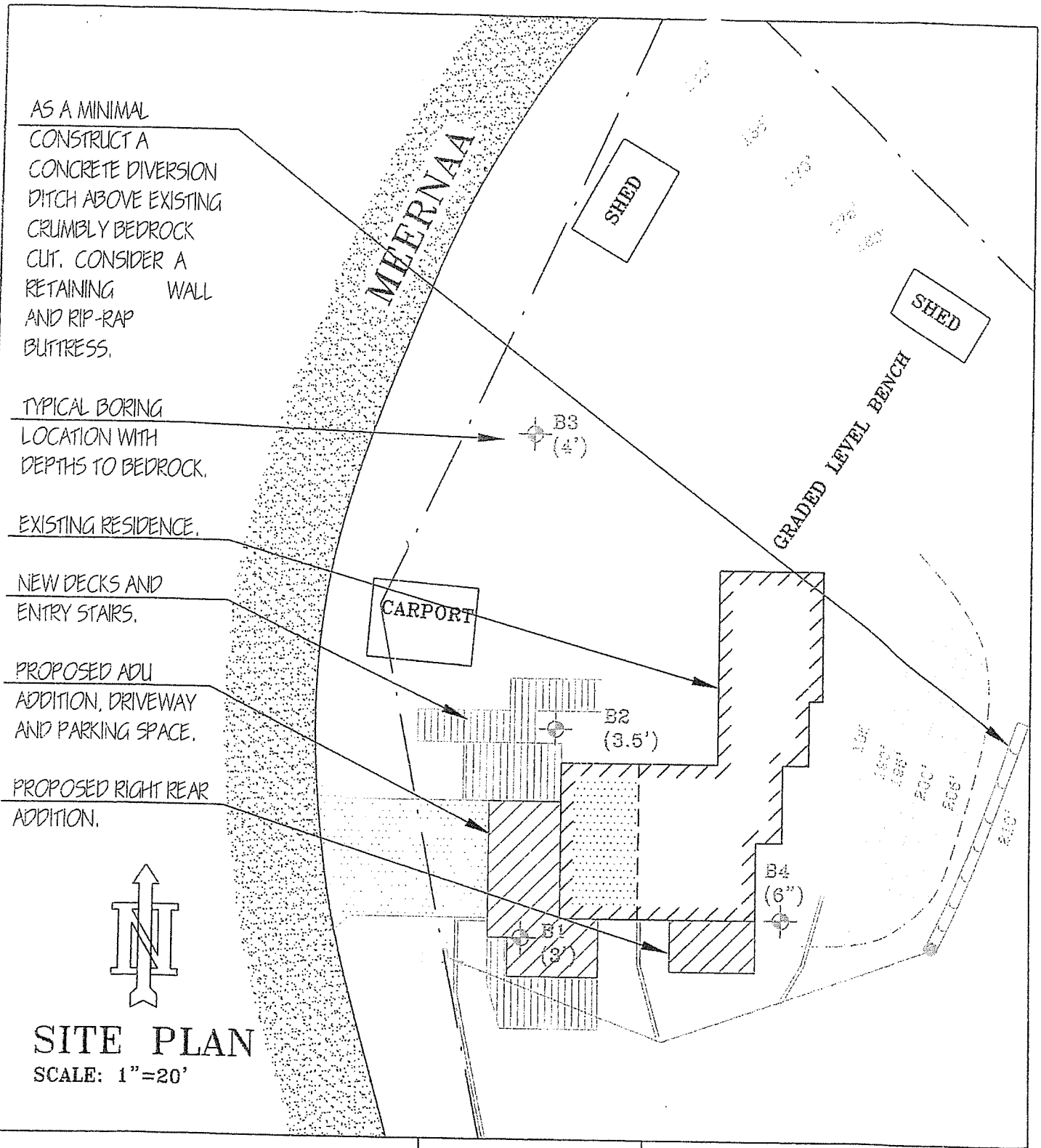

SITE PLAN

SCALE: 1"=20'

CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=20'

JOB #: 0-4568

DRAWN: DAO/MAF

DATE: 10/11/19

GEOTECHNICAL RECONNAISSANCE
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA

FIGURE: 2

HAND AUGER

Probe # : P1		Depth	Probe # : P2	
Location: FRONT LEFT CORNER OF ADUADDITION			Location: FRONT RIGHT CORNER OF ADU ADDITION	
DESCRIPTION			**DESCRIPTION**	
dark brown Sandy Rocky SILT with Sandstone fragments (SM)	**Fill**		dark brown Sandy SILT (SM)	**Topsoil/Fill**
dark brown Sandy SILT (SM)	**Original Topsoil**			
tan decomposed SANDSTONE	**Bedrock**		tan weathered SANDSTONE	**Bedrock**
Probe Terminated @ 4'	**Refusal**	5	Probe Terminated @ 4'	**Refusal**

Probe # : P3		Depth	Probe # : P4	
Location: PROPOSED PARKING AREA			Location: RIGHT REAR CORNER OF EXISTING HOUS	
DESCRIPTION			**DESCRIPTION**	
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tan-yellow SANDSTONE	**Bedrock**		Probe Terminated @ 1'	**Refusal**
Probe Terminated @ 5.5'	**Refusal**	5		

CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND, CA 94605
TELEPHONE & FAX (510) 568-2162

Project: Geotechnical Reconnaissance
181 Meernaa Avenue
Fairfax, California

Date: October 11, 2019 Figure: 4

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GEOTECHNICAL MEMORANDUM:

To: Dash Gerdes

TOWN OF FAIRFAX
DEC 13 201
RECEIVED

RE: Preliminary Retaining Wall and Shoring Schematics
Proposed Residential Improvements
181 Meernaa Avenue, Fairfax

Date: December 17, 2019

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SHORING SCHEMATIC: Excavation for the proposed garage will require a multi-step process, to support the existing structure above, and to meet OSHA requirements for excavation safety. As planned, the cut for the new garage will be up to 13 feet tall at the back, measuring from the existing slab level to the base of the proposed foundation wall footing. This is too tall for Soldier piers so we recommend the use of soil nails and shortcrete.

The first step would be to drill two vertical piers near the front corners of the existing structure, extending below the level of the proposed cut. These piers would support posts and a girder to hold the existing framing above so the front foundation can be removed. One of these piers may be incorporated into the forward side addition. The foundations for both of the side additions could also be constructed at this time.

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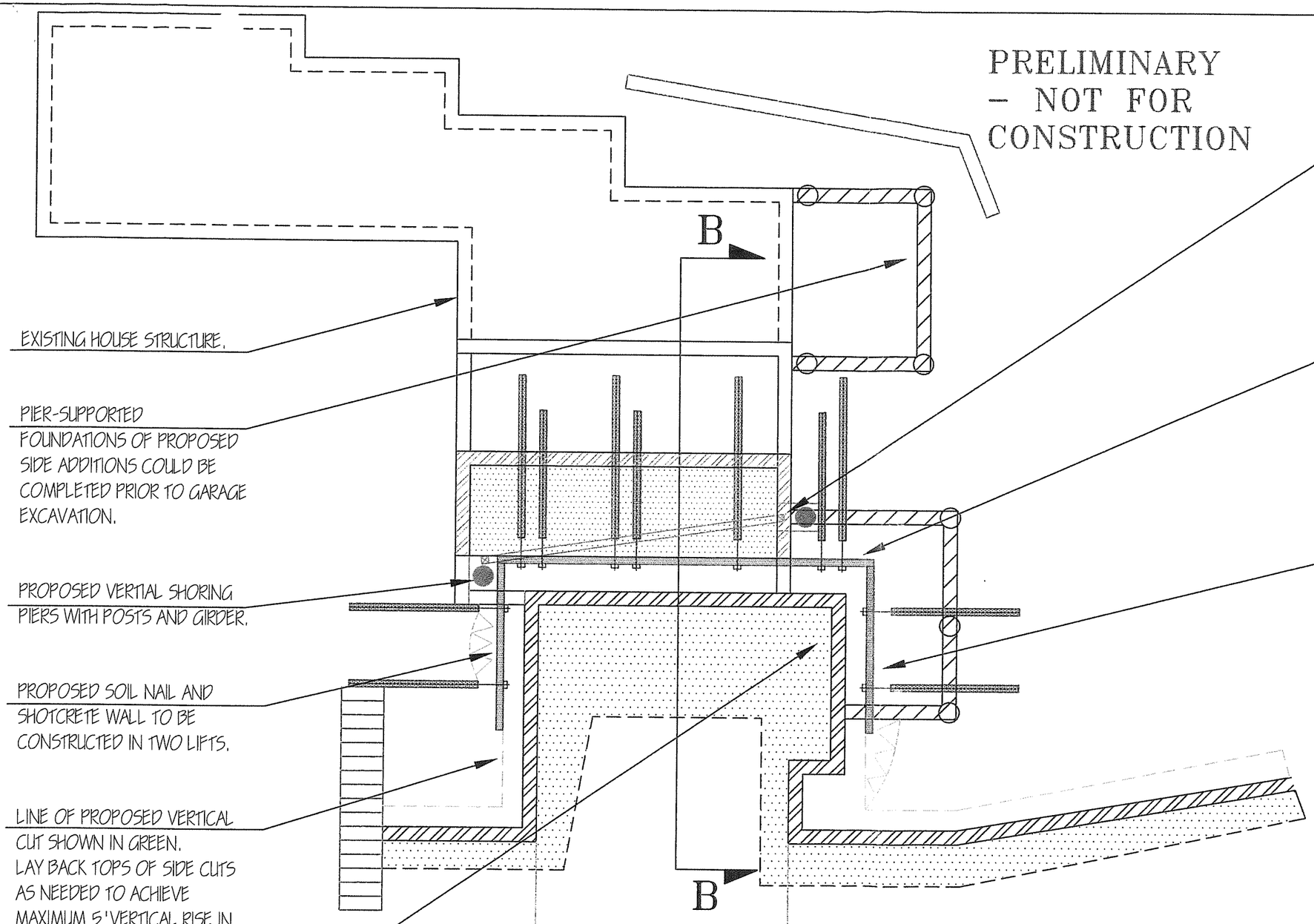
ATTACHMENT C2

PRELIMINARY
– NOT FOR
CONSTRUCTION



EXISTING HOUSE STRUCTURE.

PIER-SUPPORTED FOUNDATIONS OF PROPOSED SIDE ADDITIONS COULD BE COMPLETED PRIOR TO GARAGE EXCAVATION.

PROPOSED VERTIAL SHORING PIERS WITH POSTS AND GIRDER.

PROPOSED SOIL NAIL AND SHOTCRETE WALL TO BE CONSTRUCTED IN TWO LIFTS.

LINE OF PROPOSED VERTICAL CUT SHOWN IN GREEN.
LAY BACK TOPS OF SIDE CUTS AS NEEDED TO ACHIEVE MAXIMUM 5'VERTICAL RISE IN SECOND CUT.

PROPOSED NEW GARAGE FOUNDATION WALLS, UP TO ±12' TALL AT REAR, STEPPING DOWN AT EITHER SIDE.

STEP 1: DRILL TWO 18"Ø 15'-DEEP SHORING PIERS. INSTALL TWO 6x6 POSTS AND 6x12 GIRDER TO SUPPORT EXISTING FRAMING ABOVE. NOTE: FOUNDATIONS FOR SIDE ADDITION COULD ALSO BE CONSTRUCTED AT THIS POINT.

STEP 2: DEMOLISH EXISTING FRONT FOUNDATION AND MAKE INITIAL CUT TO 5' BELOW EXISTING SLAB LEVEL. DRILL AND SET FOUR UPPER SOIL NAILS TO A DEPTH OF 15 FEET AND APPLY UPPER LAYER SHOTCRETE FACING AT BACK CUT, 6" THICK.

STEP 3: MAKE SECOND 5' CUT. DRILL AND SET NEXT EIGHT SOIL NAILS TO A DEPTH OF 10 FEET AND APPLY LOWER LAYER SHOTCRETE FACING, 6" THICK.

STEP 4: MAKE FINAL VERTICAL CUT WITHOUT SHORING, ASSUMING ROCK IS COMPETENT. THIS BANK SHOULD BE LESS THAN 5' TALL, PER OSHA REQUIREMENTS.

0' 2' 4' 6' 8'

SITE PLAN

SCALE: 1"=8'

DAVE OLNES P.E. INC.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

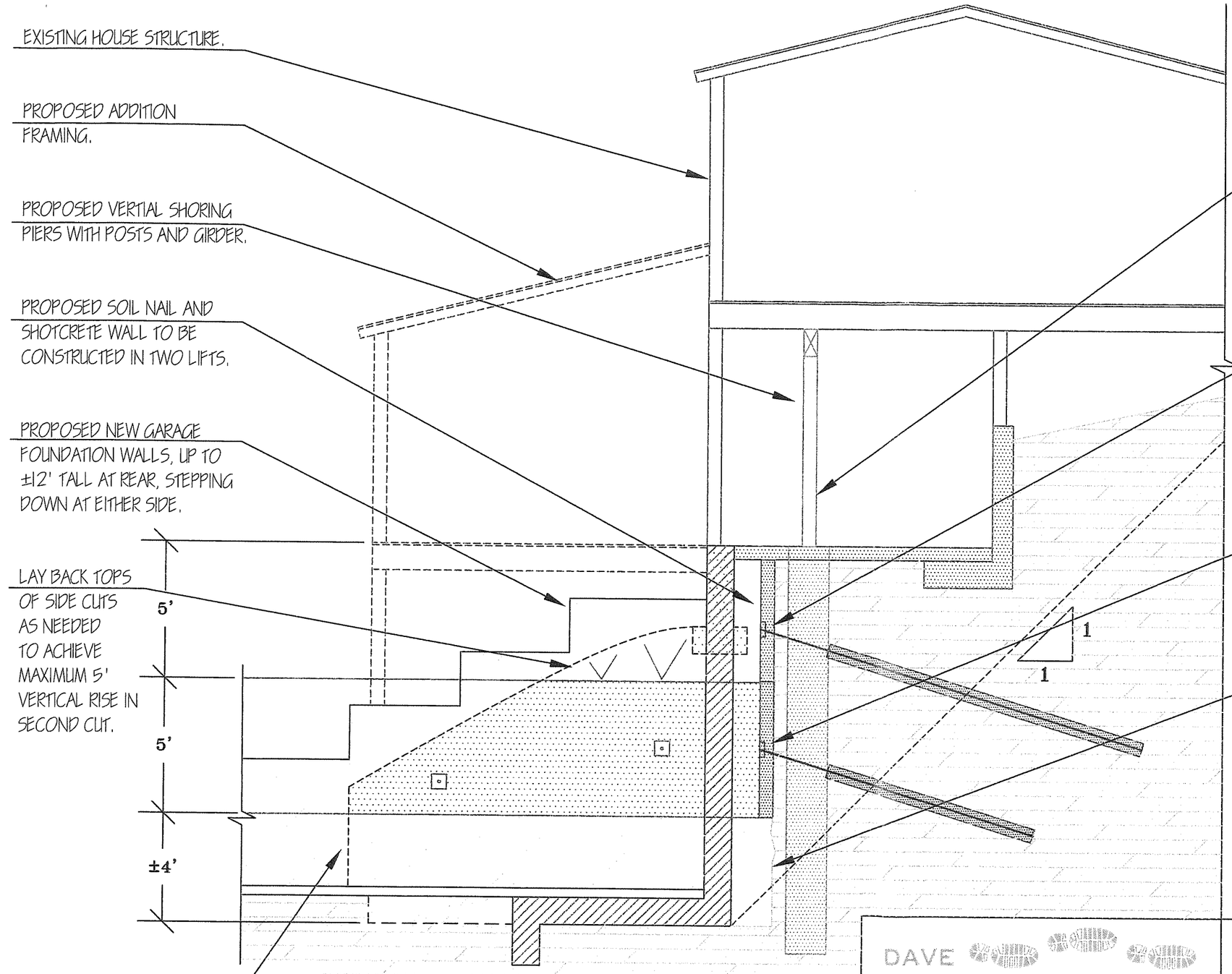
SCALE: 1"=8'

JOB #: 0-4568

DRAWN: DAO/OSO

DATE: 12/10/19

CONCEPTUAL SHORING PLAN
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA



STEP 1: DRILL TWO 18"Ø 15'-DEEP SHORING PIERS. INSTALL TWO 6x6 POSTS AND 6x12 GIRDER TO SUPPORT EXISTING FRAMING ABOVE. NOTE: FOUNDATIONS FOR SIDE ADDITION COULD ALSO BE CONSTRUCTED AT THIS POINT.

STEP 2: DEMOLISH EXISTING FRONT FOUNDATION AND MAKE INITIAL CUT TO 5' BELOW EXISTING SLAB LEVEL. DRILL AND SET FOUR UPPER SOIL NAILS TO A DEPTH OF 15 FEET AND APPLY UPPER LAYER SHOTCRETE FACING, 6" THICK.

STEP 3: MAKE SECOND 5' CUT. DRILL AND SET NEXT EIGHT SOIL NAILS TO A DEPTH OF 10 FEET AND APPLY LOWER LAYER SHOTCRETE FACING, 6" THICK.

STEP 4: MAKE FINAL VERTICAL CUT WITHOUT SHORING, ASSUMING ROCK IS COMPETENT. THIS BANK SHOULD BE LESS THAN 5' TALL, PER OSHA REQUIREMENTS.

SECTION B-B

SCALE: 1"=4'

PRELIMINARY - NOT FOR CONSTRUCTION

DAVE OLNES P.E. INC.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=4'
JOB #: 0-4568
DRAWN: DAO/OSO
DATE: 12/10/19

CONCEPTUAL SHORING PLAN
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA

PRELIMINARY – NOT FOR CONSTRUCTION

PROVIDE A CONCRETE DITCH ABOVE EXISTING CUT, WITH DISCHARGE LINE TO STREET.

OPTIONAL STRUCTURAL RETAINING WALL AND RIP-RAP SLOPE ARMOR TO STABILIZE CUT BANK ABOVE HOUSE. ±48 LINEAR FEET OF ±9'-TALL WALL WOULD BE NEEDED TO PROTECT THE RIGHT HALF OF HOUSE ONLY, OR 78 LINEAR FEET TO PROTECT ENTIRE STRUCTURE. SEE SECTION A-A. ASSUME 18"Ø, 10'-DEEP PIERS AND 6"Ø 20'-DEEP TIE BACKS AT 8' O.C.

EXISTING RESIDENCE.

PROPOSED SIDE ADDITIONS TO HOUSE.

PROPOSED GARAGE ADDITION TO HOUSE. SEE SHORING PLAN.

0' 2' 5' 10'

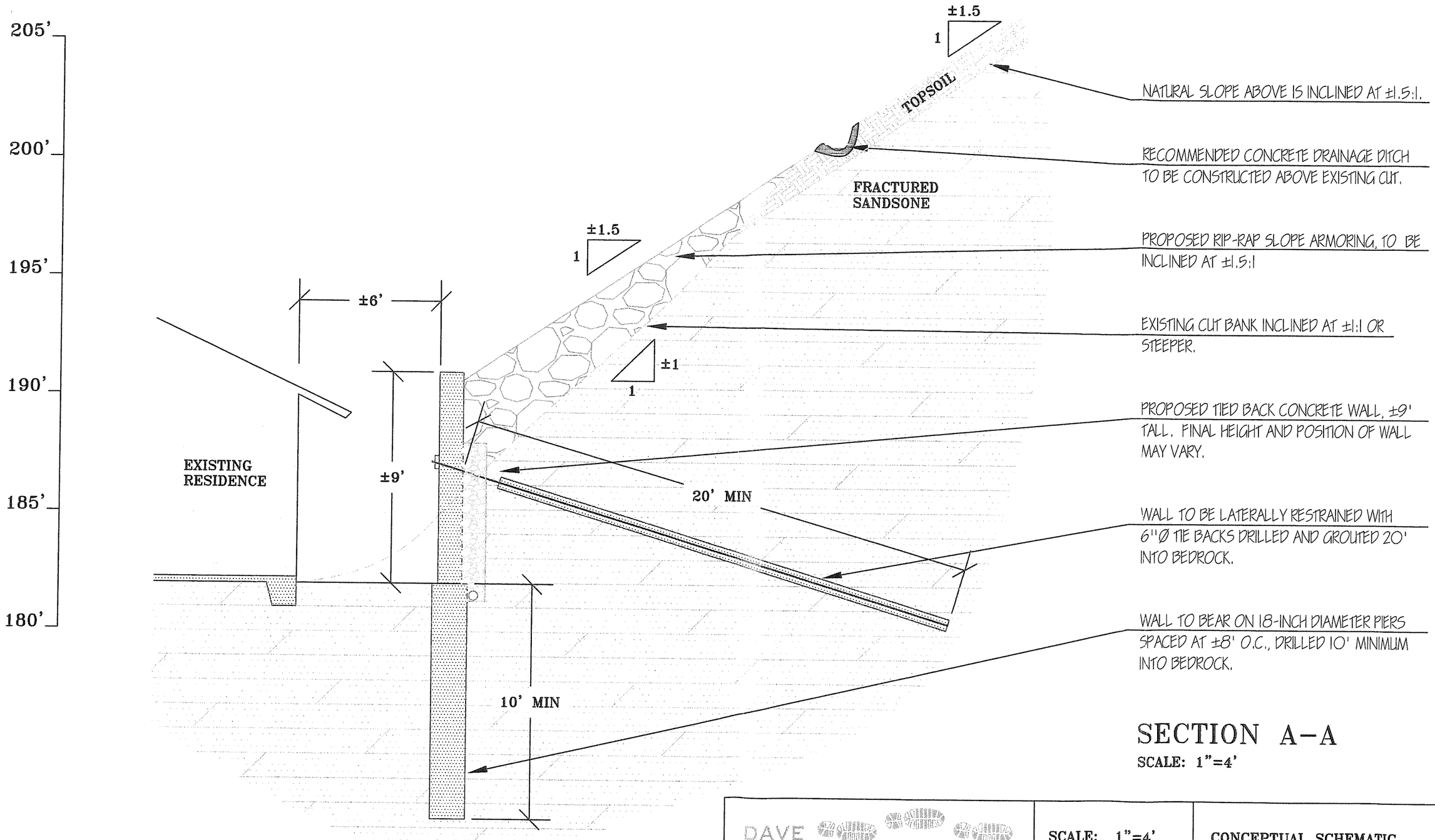
PLAN VIEW

SCALE: 1"=10'

DAVE OLNES P.E. INC.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=10'
JOB #: 0-4568
DRAWN: DAO/OSO
DATE: 12/16/19

CONCEPTUAL SCHEMATIC
REAR RETAINING WALL
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA



SECTION A–A

SCALE: 1"=4'

PRELIMINARY
– NOT FOR
CONSTRUCTION

DAVE OLNES P.E. INC.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=4'

JOB #: 0-4568

DRAWN: DAO/OSO

DATE: 12/16/19

CONCEPTUAL SCHEMATIC
REAR RETAINING WALL
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA

DAVE DINES P.E.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE, OAKLAND, CALIFORNIA 94605
PHONE & FAX: (510) 568-2162 davedines@sbcglobal.net

GEOTECHNICAL MEMORANDUM:

To: Dash Gerdes

RE: Revised Schematic Shoring and Retaining Wall Designs
181 Meernaa Avenue, Fairfax

Date: January 21, 2020

As requested, as Geotechnical Engineers of Record we have prepared the attached schematic plans depicting a possible approach for the excavation shoring for the proposed garage addition at the front of your property, and for the construction of a debris catchment wall at the base of the rear slope to protect the addition from future sloughing. These documents were requested by the City as part of their Planning review process.

SHORING SCHEMATIC: Excavation for the proposed garage will require a multi-step process, to support the existing structure above, and to meet OSHA requirements for excavation safety. As planned, the cut for the new garage will be up to 13 feet tall at the back, measuring from the existing slab level to the base of the proposed foundation wall footing. This is too tall for Soldier piers so we recommend the use of soil nails and shortcrete.

The first step would be to drill two vertical piers near the front corners of the existing structure, extending below the level of the proposed cut. These piers would support posts and a girder to hold the existing framing above so the front foundation can be removed. One of these piers may be incorporated into the forward side addition. The foundations for both of the side additions could also be constructed at this time.

The second step would be to remove the front foundation and make the first 5-foot cut below the existing slab level. Where necessary, the side slopes of this first cut could be laid back at 45 degrees. Then the first four soil nails would be drilled back under the slab. These nails would be 15 feet long, to get well beyond a 45 degree angle of repose from the ultimate cut. A 6-inch thick shotcrete facing would be cast against the back cut, locked off to the soil nails.

The third step would be to make the second 5-foot cut, which would require four more soil nails at the rear. These nails could be 10 feet long. This cut will also significantly involve the sides of the excavation, so we show two more soil nails on either side. Or you could lay the side slopes back at 45 degrees.

ATTACHMENT C3

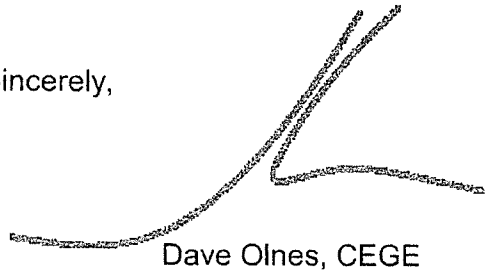
The final cut will be less than 5 feet tall, and should expose reasonably sound bedrock, so it should not require shoring (the undersigned Geotechnical Engineers will confirm the conditions at the time of excavation.

REAR RETAINING WALL: As discussed in our soils report for the project, there is a very steep cut slope behind the existing house structure. Although this cut largely revealed fractured Sandstone bedrock, it has been subject to sloughing and rock fall. There is some possibility this slope could slough against the back of the house. We discussed various treatments for this condition, including the most conservative approach, which would involve the construction of a stout wall at the base of the cut, and backfilling it with rip-rap to buttress the steep slope above. You have stated that the conservative treatment is beyond your present budget, although you may consider undertaking this approach at some point in the future, when additional funds are available. In the meantime you would like to consider construction of a modest "debris catchment" wall only in the area up-slope of the proposed additions, to provide a minimal level of protection against modest rock-fall events.

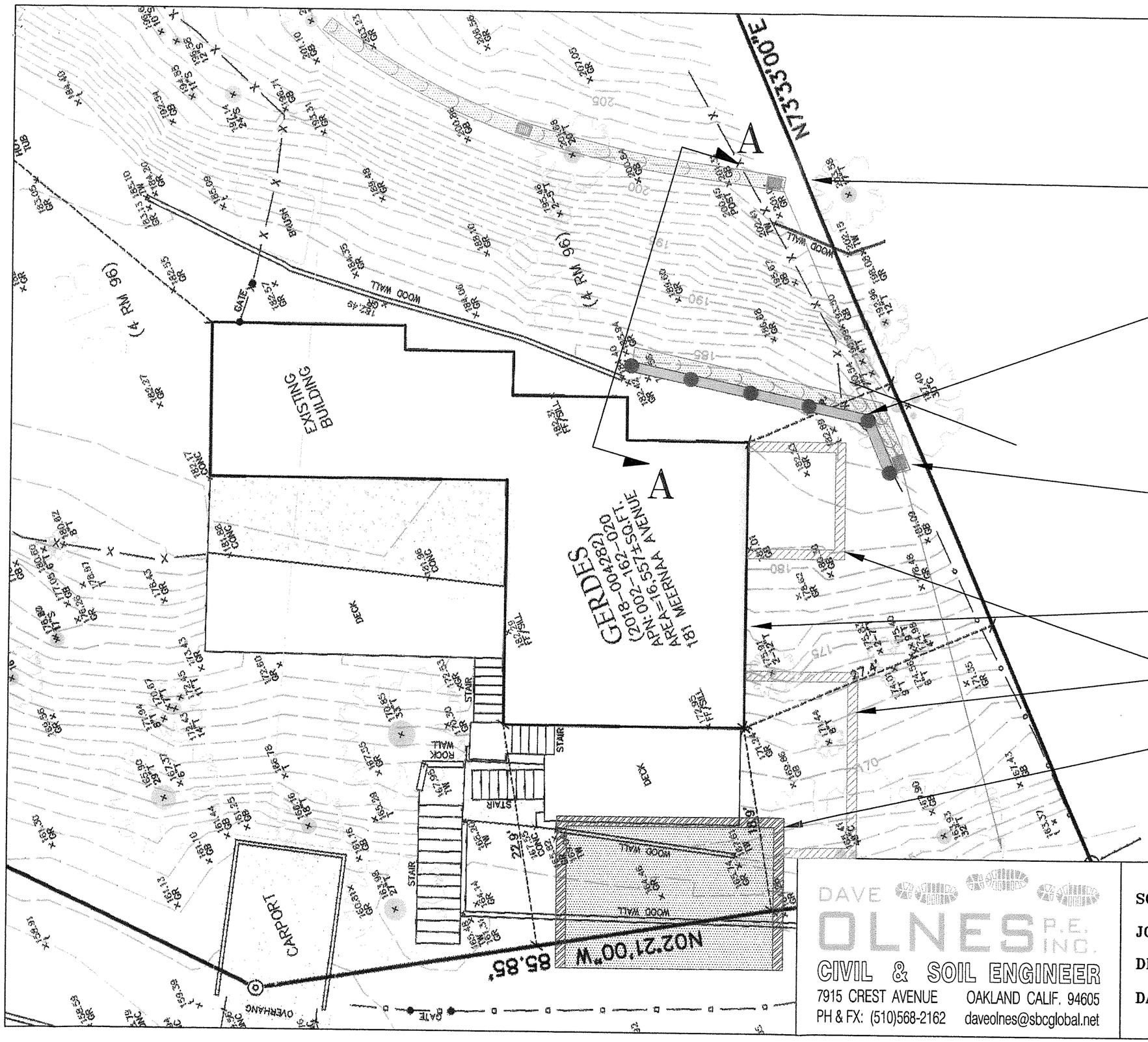
The catchment wall would be a free-standing wall, without backfill, designed to catch sloughing soil and rock before it hits the house. The wall would consist of steel I-beam posts set in 10-foot deep drilled piers spaced at 6 feet on center, lagged with 4x12 pressure treated planks (or with 6x12's spanning 8 feet). To avoid planning issues, the height of the wall will be limited to 5 feet. In order to remain functional, the wall should be cleared of debris on a regular basis. Casting a concrete ditch behind the wall will serve as a reminder to remove the debris, as well as diverting some of the runoff from the slope around the addition. Consideration could be given to adding a second ditch on the slope above the cut bank. The catchment wall concept is shown schematically on attached schematic plan

If there are further questions regarding this matter, or if you would like to formalize either of these plans, please contact my office.

Sincerely,



Dave Olnes, CEGE



PRELIMINARY
– NOT FOR
CONSTRUCTION

CONSIDER CONSTRUCTING A SECOND CONCRETE DITCH ABOVE EXISTING CUT, WITH DISCHARGE LINE TO STREET.

AS A MINIMAL MEASURE TO PROTECT THE ADDITION FROM ROCK FALL, CONSTRUCT ±30 LINEAR FEET OF 5'-TALL CATCHMENT WALL AT BASE OF EXISTING CUT SLOPE. ASSUME W8x18 I-BEAMS SET IN 18"Ø, 10'-DEEP PIERS SPACED AT 6' O.C. WITH 4x12 PRESSURE TREATED LAGGING, OR 6x12 LAGGING AT AN 8-FOOT SPACING.

CONSTRUCT A CONCRETE V-DITCH IMMEDIATELY BEHIND THE CATCHMENT WALL. DITCH MUST BE CLEANED OUT ON AN ANNUAL BASIS.

EXISTING RESIDENCE.

PROPOSED SIDE ADDITIONS TO HOUSE.

PROPOSED GARAGE ADDITION TO HOUSE. SEE SHORING PLAN.

0' 2' 5' 10'

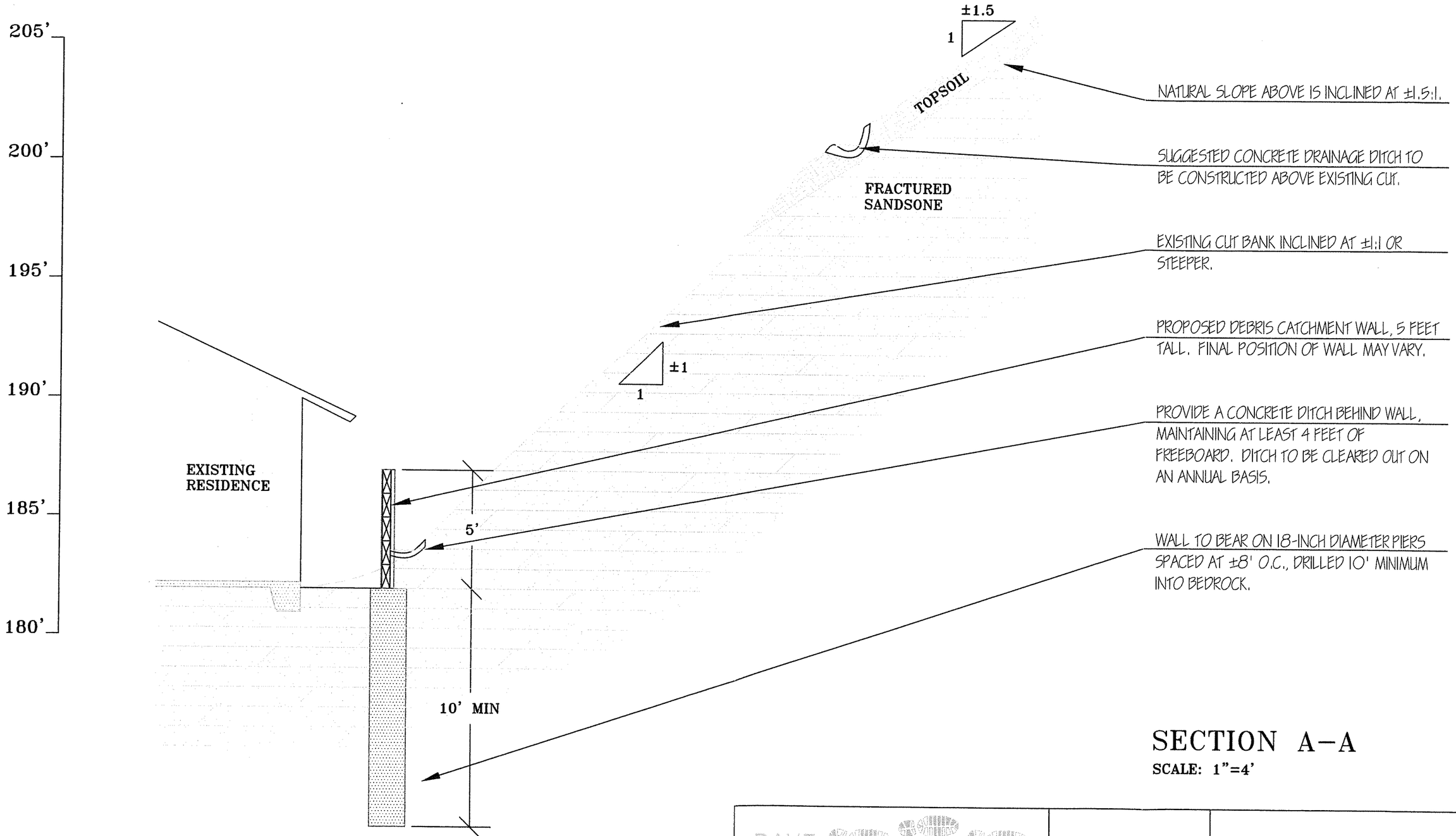
PLAN VIEW

SCALE: 1"=10'

DAVE OLNES P.E. INC.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=10'
JOB #: 0-4568
DRAWN: DAO/OSO
DATE: 1/16/20

CONCEPTUAL PLAN FOR
REAR DEBRIS WALL
181 MEERNAA AVENUE
FAIRFAX, CALIFORNIA



SECTION A–A

SCALE: 1"=4'

PRELIMINARY – NOT FOR CONSTRUCTION

DAVE OLNES P.E. INC.
CIVIL & SOIL ENGINEER
7915 CREST AVENUE OAKLAND CALIF. 94605
PH & FX: (510)568-2162 daveolnes@sbcglobal.net

SCALE: 1"=4'

JOB #: 0-4568

DRAWN: DAO/OSO

DATE: 1/16/20

CONCEPTUAL PLAN FOR REAR DEBRIS WALL 181 MEERNAA AVENUE FAIRFAX, CALIFORNIA

MILLER PACIFIC ENGINEERING GROUP

November 14, 2019
File: 201.185`altr.doc

Town of Fairfax
Planning and Building Services Department
142 Bolinas Avenue
Fairfax, California 94930

Attn: Ms. Linda Neal, Principal Planner

Re: First Planning-Level Geologic, Geotechnical, and Civil Engineering Review
Residential Remodel and New Accessory Dwelling Unit (ADU)
181 Meernaa Avenue (APN 002-162-20)
Fairfax, California

Introduction

In response to your request and in accordance with our agreement dated March 20, 2018, we have reviewed project plans and supporting documentation for the proposed remodel of the existing single-family residence and construction of a new, attached Accessory Dwelling Unit (ADU) at 181 Meernaa Avenue (APN 002-162-20) in Fairfax, California. The purpose of our services is to review the submitted documents, comment on the completeness and adequacy of the submittal in consideration of Town requirements, and to provide a recommendation to Town Planning and Building staff regarding project approval.

The scope of our services includes:

- A site reconnaissance to observe existing conditions and review proposed development features;
- Review of provided project documents for conformance to the Town of Fairfax Hill Area Residential Development Ordinance, specifically Town Code Sections 17.072.080(B), (C), (E), and (F), and Section 17.072.110 (C).
- Development of opinions regarding project compliance with applicable Town Code requirements; and
- Development of recommendations to Town staff as to whether the project may be safely constructed in consideration of any geologic, hydrologic, or geotechnical hazards.

It should be noted that the scope of our review is limited solely to geologic, geotechnical, and civil portions of the project, and does not include review of structural, architectural, mechanical, or other items beyond the scope of our qualifications. We recommend that non-geotechnical aspects of the plans be reviewed by suitably qualified professionals.

Project Description

The project includes construction of 2 new off-street parking spaces, which will be accommodated by excavation into the slope below the existing 2-story residence. New retaining walls up to 10-feet high will support the upslope side of the parking area. A new 404 square-foot, lower-level addition will be constructed over the new parking spaces, and will be combined with an existing lower-level "bonus room" to create a new, 660 square-foot ADU. A 123 square-foot addition will be

ATTACHMENT D1

constructed at the south end of the main floor to create an enlarged master bedroom as part of an interior remodel. The new upper-level addition will be accommodated by a new concrete retaining wall on the upslope side of the structure. Ancillary improvements will include new wood decks for the ADU and main floor, reconfigured entry stairs, new sewer and electrical connections, and other miscellaneous items.

Project Review

We performed a brief site reconnaissance on November 12, 2019 to observe existing conditions at the site. Additionally, we have reviewed the following documents provided by the Town:

- Dave Olnes, P.E. (2019), "Geotechnical Reconnaissance Report, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated October 11, 2019.
- Ladyne Design (2019), "181 Meernaa Ave, Fairfax, CA 94930" (Preliminary Architectural Plans), Sheets A0 through A7, dated October 16, 2019.
- Town of Fairfax application for Excavation Permit, dated October 17, 2019.

Conclusions

Based on our site reconnaissance and document review, it is our opinion that the proposed work is in conflict with the following sections of the Fairfax Municipal Code:

Fairfax Municipal Code of Ordinances – Chapter 12.20: Excavations Generally

- Section 12.20.060 Investigation Criteria

  (B) The application shall be denied if it appears to the Superintendent of Streets from his or her Investigation that the excavation or fill would:

  (2) Result in a dangerous topographic condition.
  The proposed project includes excavations up to 10-feet deep, which we judge may create a dangerous topographic condition (vertical unsupported cut) in the absence of temporary shoring or permanent retaining walls. Structural plans for shoring and walls were not provided for our review. The proposed grading and excavation appears reasonably-considered and is judged to be feasible. However, detailed plans for temporary shoring, permanent retaining walls and associated improvements should be reviewed and approved for building permits prior to issuance of an excavation permit.

  (4) Improperly divert the flow of drainage waters.
  No grading and drainage plan or Stormwater Pollution Prevention Plan (SWPPP) has been provided for review. No Construction Management Plan (CMP) showing proposed location of soil and material stockpiles, or indicating the proposed offhaul routes and schedules has been provided. We recommend that, at minimum, basic SWPPP and CMPs be provided for review prior to issuance of an excavation permit. A Grading and Drainage Plan should be submitted at the

building review level for the permanent improvements, and be approved prior to issuance of an excavation permit.

(5) Create a Nuisance
Although the proposed excavation and grading appears reasonable, we have not been provided structural plans for excavation shoring or permanent walls and related improvements, without which we judge the proposed grading and excavation will create a nuisance and, possibly, a hazard to building occupants and/or the general public. We recommend that plans for temporary shoring and permanent improvements be reviewed and approved prior to issuance of an Excavation Permit.

(6) Otherwise in any manner endanger the health, safety, or property of any other person, despite all precautions which the applicant might be ready, willing and able to take.

The project geotechnical report indicates the "steep cut behind the house is somewhat concerning, given the fractured nature of the exposed rock. There is some possibility this slope could slough against the back of the house". We acknowledge that the majority of the proposed grading and excavation will not affect the cut slope or the attendant risk of debris impact to the residence. However, we note a small section of new retaining wall is proposed to support the slope in the area of the new addition, which will require minor excavations into the toe of the slope, and the geotechnical report expresses significant safety concerns with the existing condition. Based on discussion with Planning staff regarding requirements for the proposed ADU site use, we recommend that plans be revised to incorporate some means of mitigation for the risk of debris impact to the structure. A retaining wall and rip-rap buttress is described as an option in the report, which we judge is generally appropriate. If other concepts are planned, the geotechnical engineer should provide brief commentary in regards to the suitability of the conceptual mitigation and criteria required for design and construction of the new improvements.

Recommendations

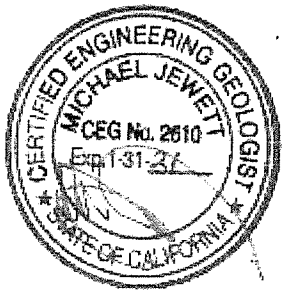
Based on our discussions with Planning staff regarding the ADU site use change, we recommend that project processing be delayed pending submittal of plans for proposed shoring and retaining walls. At the Planning level, we recommend that mitigation for the risk of debris impact to the structure be incorporated in the plans based on the recommendations of the geotechnical engineer.

Other items, including review of design-level grading, drainage, and erosion control plans, review of structural and construction management plans, and review of the design-level geotechnical report can be handled at the building permit submittal level with minimal anticipated impact. As noted previously, we recommend that building permits be issued for permanent improvements prior to issuance of an excavation permit, in order to reduce the risk that design or permit approval delays following excavation commencement may result in a nuisance or unsafe condition.

We trust that this letter contains the information you require at this time. If you have any questions, please call. We will directly discuss our comments with the applicant's consultants if they wish to do so.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

REVIEWED BY:



Mike Jewett
Town of Fairfax Contract Geologist
Engineering Geologist No. 2610
(Expires 1/31/21)

Scott Stephens
Town of Fairfax Contract Engineer
Geotechnical Engineer No. 2398
(Expires 6/30/21)

MILLER PACIFIC ENGINEERING GROUP

January 7, 2020
File: 201.185bltr.doc

Town of Fairfax
Planning and Building Services Department
142 Bolinas Avenue
Fairfax, California 94930

Attn: Ms. Linda Neal, Principal Planner

Re: Second Planning-Level Geologic, Geotechnical, and Civil Engineering Review
Residential Remodel and New Accessory Dwelling Unit (ADU)
181 Meernaa Avenue (APN 002-162-20)
Fairfax, California

Introduction

In response to your request and in accordance with our agreement dated March 20, 2018, this letter summarizes our second review of project plans and supporting documentation for the proposed remodel of the existing single-family residence and construction of a new, attached Accessory Dwelling Unit (ADU) at 181 Meernaa Avenue (APN 002-162-20) in Fairfax, California. The purpose of our services is to review the submitted documents, comment on the completeness and adequacy of the submittal in consideration of Town requirements, and to provide a recommendation to Town Planning and Building staff regarding project approval.

The scope of our services includes:

- A site reconnaissance to observe existing conditions and review proposed development features;
- Review of provided project documents for conformance to the Town of Fairfax Municipal Code of Ordinances, specifically Town Code Chapter 12.20
- Development of opinions regarding project compliance with applicable Town Code requirements; and
- Development of recommendations to Town staff as to whether the project may be safely constructed in consideration of any geologic, hydrologic, or geotechnical hazards.

It should be noted that the scope of our review is limited solely to geologic, geotechnical, and civil portions of the project, and does not include review of structural, architectural, mechanical, or other items beyond the scope of our qualifications. We recommend that non-geotechnical aspects of the plans be reviewed by suitably qualified professionals.

Project Description

The project includes construction of 2 new off-street parking spaces, which will be accommodated by excavation into the slope below the existing 2-story residence. New retaining walls up to 10-feet high will support the upslope side of the parking area. A new 404 square-foot, lower-level addition will be constructed over the new parking spaces, and will be combined with an existing lower-level "bonus room" to create a new, 660 square-foot ADU. A 123 square-foot addition will be constructed at the south end of the main floor to create an enlarged master bedroom as part of an

ATTACHMENT D2

interior remodel. The new upper-level addition will be accommodated by a new concrete retaining wall on the upslope side of the structure. Ancillary improvements will include new wood decks for the ADU and main floor, reconfigured entry stairs, new sewer and electrical connections, and other miscellaneous items.

Project Review

We performed a brief site reconnaissance on November 12, 2019 to observe existing conditions at the site. We previously reviewed the following documents provided by the Town,as summarized in our November 14, 2019 letter:

- Dave Olnes, P.E. (2019), "Geotechnical Reconnaissance Report, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated October 11, 2019.
- Ladyne Design (2019), "181 Meernaa Ave, Fairfax, CA 94930" (Preliminary Architectural Plans), Sheets A0 through A7, dated October 16, 2019.
- Town of Fairfax application for Excavation Permit, dated October 17, 2019.

More recently, we reviewed additional documentation in response to our first review comments, including the following:

- Dave Olnes, P.E. (2019), "Geotechnical Memorandum, Preliminary retaining Wall and Shoring Schematics, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated December 17, 2019.
- Ladyne Design (2019), "Revisions Response Letter, 181 Meernaa Ave, Fairfax, CA 94930", dated December 20, 2019.

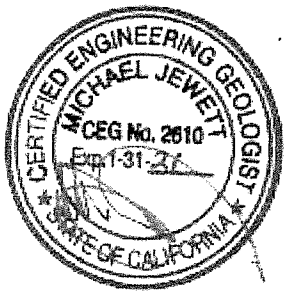
Conclusions and Recommendations

Based on our review of the submitted materials, we judge that all of our planning-level engineering comments have been suitably addressed. We judge that review of design-level grading, drainage, and erosion control plans, review of structural and construction management plans, and review of the design-level geotechnical report can be handled at the building permit submittal level with minimal anticipated impact.

As noted in our previous letter, we recommend that building permits be issued for permanent site walls prior to issuance of a grading/excavation permit, in order to reduce the risk that design or permit approval delays following excavation commencement may result in a nuisance or unsafe condition. Alternatively, excavation permit issuance could be contingent, at least, upon approval of shoring plans.

We trust that this letter contains the information you require at this time. If you have any questions, please call. We will directly discuss our comments with the applicant's consultants if they wish to do so.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP



Mike Jewett
Town of Fairfax Contract Geologist
Engineering Geologist No. 2610
(Expires 1/31/21)

REVIEWED BY:

Scott Stephens
Town of Fairfax Contract Engineer
Geotechnical Engineer No. 2398
(Expires 6/30/21)

MILLER PACIFIC ENGINEERING GROUP

February 3, 2020
File: 201.185cltr.doc

Town of Fairfax
Planning and Building Services Department
142 Bolinas Avenue
Fairfax, California 94930

Attn: Ms. Linda Neal, Principal Planner

Re: Third Planning-Level Geologic, Geotechnical, and Civil Engineering Review
Residential Remodel and New Accessory Dwelling Unit (ADU)
181 Meernaa Avenue (APN 002-162-20)
Fairfax, California

Introduction

In response to your request and in accordance with our agreement dated March 20, 2018, this letter summarizes our third review of project plans and supporting documentation for the proposed remodel of the existing single-family residence and construction of a new, attached Accessory Dwelling Unit (ADU) at 181 Meernaa Avenue (APN 002-162-20) in Fairfax, California. The purpose of our services is to review the submitted documents, comment on the completeness and adequacy of the submittal in consideration of Town requirements, and to provide a recommendation to Town Planning and Building staff regarding project approval.

The scope of our services includes:

- A site reconnaissance to observe existing conditions and review proposed development features;
- Review of provided project documents for conformance to the Town of Fairfax Municipal Code of Ordinances, specifically Town Code Chapter 12.20
- Development of opinions regarding project compliance with applicable Town Code requirements; and
- Development of recommendations to Town staff as to whether the project may be safely constructed in consideration of any geologic, hydrologic, or geotechnical hazards.

It should be noted that the scope of our review is limited solely to geologic, geotechnical, and civil portions of the project, and does not include review of structural, architectural, mechanical, or other items beyond the scope of our qualifications. We recommend that non-geotechnical aspects of the plans be reviewed by suitably qualified professionals.

Project Description

The project includes construction of 2 new off-street parking spaces, which will be accommodated by excavation into the slope below the existing 2-story residence. New retaining walls up to 10-feet high will support the upslope side of the parking area. A new 404 square-foot, lower-level addition will be constructed over the new parking spaces, and will be combined with an existing lower-level "bonus room" to create a new, 660 square-foot ADU. A 123 square-foot addition will be constructed at the south end of the main floor to create an enlarged master bedroom as part of an

ATTACHMENT D3

interior remodel. The new upper-level addition will be accommodated by a new concrete retaining wall on the upslope side of the structure. Ancillary improvements will include new wood decks for the ADU and main floor, reconfigured entry stairs, new sewer and electrical connections, and other miscellaneous items.

Project Review

We performed a brief site reconnaissance on November 12, 2019 to observe existing conditions at the site. We previously reviewed the following documents provided by the Town,as summarized in our November 14, 2019 letter:

- Dave Olnes, P.E. (2019), "Geotechnical Reconnaissance Report, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated October 11, 2019.
- Ladyne Design (2019), "181 Meernaa Ave, Fairfax, CA 94930" (Preliminary Architectural Plans), Sheets A0 through A7, dated October 16, 2019.
- Town of Fairfax application for Excavation Permit, dated October 17, 2019.

More recently, we reviewed additional documentation in response to our first review comments, including the following:

- Dave Olnes, P.E. (2019), "Geotechnical Memorandum, Preliminary retaining Wall and Shoring Schematics, Proposed Residential Improvements, 181 Meernaa Avenue, Fairfax", dated December 17, 2019.
- Ladyne Design (2019), "Revisions Response Letter, 181 Meernaa Ave, Fairfax, CA 94930", dated December 20, 2019.

Finally, we reviewed the following in response to our second review comments:

- Dave Olnes, P.E. (2019), "Conceptual Plan for Rear Debris Wall, 181 Meernaa Avenue, Fairfax", 2 pages, dated January 16, 2020.

Conclusions and Recommendations

The latest concept submitted from the project Geotechnical Engineer of Record differs from that submitted for our Second Review only in terms of planned height. It is our opinion that the Geotechnical Engineer of Record is within the ordinary local standard of care in his professional judgment regarding catchment wall height.

As such, and based on our review of the submitted materials, we judge that all of our planning-level engineering comments have been suitably addressed. We judge that review of design-level grading, drainage, and erosion control plans, review of structural and construction management plans, and review of the design-level geotechnical report can be handled at the building permit submittal level with minimal anticipated impact.

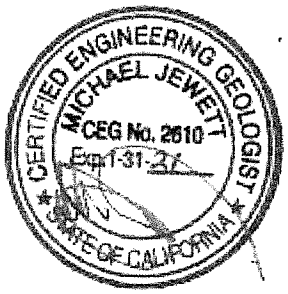
As noted in our previous letter, we recommend that building permits be issued for permanent site walls prior to issuance of a grading/excavation permit, in order to reduce the risk that design or

permit approval delays following excavation commencement may result in a nuisance or unsafe condition. Alternatively, excavation permit issuance could be contingent, at least, upon approval of shoring plans.

We trust that this letter contains the information you require at this time. If you have any questions, please call. We will directly discuss our comments with the applicant's consultants if they wish to do so.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

REVIEWED BY:



Mike Jewett
Town of Fairfax Contract Geologist
Engineering Geologist No. 2610
(Expires 1/31/21)

Scott Stephens
Town of Fairfax Contract Engineer
Geotechnical Engineer No. 2398
(Expires 6/30/21)

October 15, 2019

Dear Town of Fairfax,

I am the owner of the property at 187 Meernaa Ave, Fairfax, adjacent to the Gerdes family at 181 Meernaa Avenue.

I understand the Gerdes' proposed addition project may involve the removal of a few trees immediately adjacent to our shared property line (as shown in their site plan), in order to construct a retaining wall for their proposed Master Bedroom addition at the Southeast corner of their residence.

I grant permission for the Gerdes family to perform the necessary tree removal on our property (at their expense) in the specific area described above.

Regards,

Joan and Dave Getz

187 Meernaa Ave

ATTACHMENT E

TO: Town of Fairfax

RE: 181 Meernaa Ave – A.D.U. Project

Dear Fairfax Town Council and Planning Commission,

We are residents of the Deer Park neighborhood and live nearby to Peg and Dave Gerdes. They have been good neighbors and residents of Fairfax for the 15 plus years we have been here. We always see Peg and Dave when we are all walking our dogs in the area.

Recent magazines have been featuring articles about two individual families that band together to live together. The costs of long-term care have risen to where one family alone cannot bear the cost of care alone. Peg and Dave (of 181 Meernaa Ave) are becoming early adaptors of this wave of living. To see this form multiple residence just look at Berkeley for example. When I see houses for sale there in the million dollar plus range, there have to be cheaper solutions as our population ages.

Lisa and I support Peg and Dave Gerdes' plan for multigenerational housing in Fairfax. I suspect this form of housing will grow by underground activity just as second units did. We commend Peg and Dave for seeking to do it legally correct and model the future of housing in Fairfax.

Specifically, the proposed addition has a smaller foot print than an additional separate unit. The new design does not appear to take up much more footprint. The overall view of the lot will not make much of an impact.

As you can tell from this letter, we totally and lovingly endorse this project. And we encourage and hope that the Town Council and Planning Commission will totally approve this project.

Sincerely,

Irv Busbee and Lisa Dickson
Oct 13, '19

156 Meernaa Ave.
Fairfax, CA. 94930

TO: Town of Fairfax

RE: 181 Meernaa Ave – A.D.U. project

Dear Fairfax Town Council & Planning Commission,

I am a resident of Meernaa Ave and live near Peg & Dave Gerdes. They have been good neighbors and residents of Fairfax for the past 16 years. Peg & Dave are often seen taking daily walks with their dogs throughout the neighborhood.

They shared their proposal to create an A.D.U. which allows them to stay here in our community after retirement, and enables their son Dash Gerdes' family and their 3 lovely young grandchildren to occupy the main house. This project seems consistent with the family values and character of Fairfax.

I understand the new A.D.U. will be constructed in the area where their lower front deck currently is, along with off-street parking underneath. I also understand that an additional curb cut will be required to access the new parking area. The plans appear to do a good job to fit in with the steep terrain and takes steps to reduce the overall on-street parking burden.

I support this type of project that helps bring multi-generational families together and creates affordable housing opportunities for our aging residents. I would encourage the Town Council & Planning Commission to approve this project.

Sincerely,

187 Meernaa Ave

Sharon Rowbury

167 Meernaa Ave

Fairfax CA 94930

October 15, 2019

To Whom It May Concern:

I live next door to Dave and Peg Gerdes. They are great neighbors. I am very impressed with their design for the ADU. It's good looking and fits in nicely with the neighborhood. Also, I appreciate the fact that they've thought about extra parking to eliminate the need to use street parking.

I approve the proposed project.

Sincerely,

Sharon Rowbury

TO: Town of Fairfax

RE: 181 Meernaa Ave – A.D.U. project

Dear Fairfax Town Council and Planning Commission,

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Sincerely,

180 Meernaa Ave

TO: Town of Fairfax

RE: 181 Meernaa Ave – A.D.U. project

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Sincerely,

Carolyn Hart and

Carolyn and P.K. Hart
182 Meernaa Avenue

TO: Town of Fairfax

RE: 181 Meernaa Ave – A.D.U. project

Dear Fairfax Town Council and Planning Commission,

I am a resident of the Deer Park neighborhood and live nearby to Peg and Dave Gerdes. They have been good neighbors and residents of Fairfax for the past 16 years. Peg and Dave are often seen taking daily walks with their dogs in the area.

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Sincerely,

Sherri Fong

Fong Family 176 Meernaa Ave
Fairfax, CA 94930

SFong2000@gmail.com

TO: Town of Fairfax

RE: 181 Meernaa Ave – A.D.U. project

Dear Fairfax Town Council and Planning Commission,

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I support this type of project that helps bring multi-generational families together and creates affordable housing opportunities for our aging residents. I would encourage the Town Council and Planning Commission to approve this project.

Sincerely, Anya Schendel

4 Barker Avenue

PROJECT INFORMATION

LOCATION:	181 MEERNAA AVE, FAIRFAX CA	
APN:	002 162 20	
OWNER:	GERDES FAMILY TRUST	
LOT AREA:	17,121 SF	
PERCENT SLOPE:	33.54 %	
ZONING DISTRICT:	RS 6	
OCCUPANCY GROUP:	R3	
WUI FIRE ZONE:	YES	
NUMBER OF STORIES:	2	
NUMBER OF UNITS:	1	
ORIG. CONSTRUCTION:	1924	
PARKING	EXISTING	PROPOSED
COVERED	1 SPACES	NO CHANGE
UNCOVERED	-	+2 SPACES (A.D.U. + 1 EXTRA)

AREA ANALYSIS

FLOOR AREA	EXISTING	PROPOSED
MAIN HOUSE		
GROUND FLOOR:	256 SF	- SF
LEVEL 1:	1199 SF	1322 SF
ACCESSORY UNIT		
GROUND FLOOR:	-	660 SF
TOTAL LIVING AREA	1455 SF	1982 SF
ACCESSORY:	281 SF	NO CHANGE
PATIO:	280 SF	NO CHANGE
CARPORT:	150 SF	NO CHANGE
FLOOR AREA RATIO:	8.5 %	11.6 %
LOT COVERAGE:	11.5 %	14.4 %

SCOPE OF WORK

NEW A.D.U. & RESIDENTIAL REMODEL (LESS THAN 50%)

GROUND FLOOR - CREATE NEW 660 SF ATTACHED ACCESSORY DWELLING (1 BED/1 BA) UNIT BY CONVERTING EXISTING LIVING AREA WITH +404 SF ADDITION

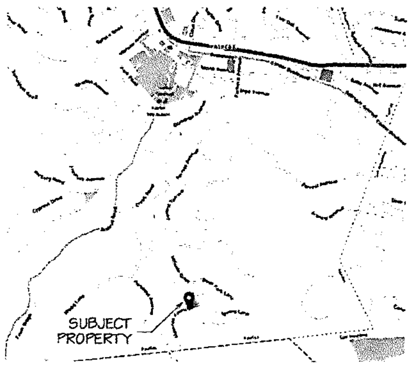
CREATE (2) NEW PARKING SPACES BELOW ADDITION VIA NEW FOUNDATION / RETAINING WALLS

FIRST FLOOR - NEW MASTER BEDROOM / BATH BY CONVERTING EXISTING LIVING AREA WITH +123 SF ADDITION & RECONFIGURE EXISTING HALF BATH

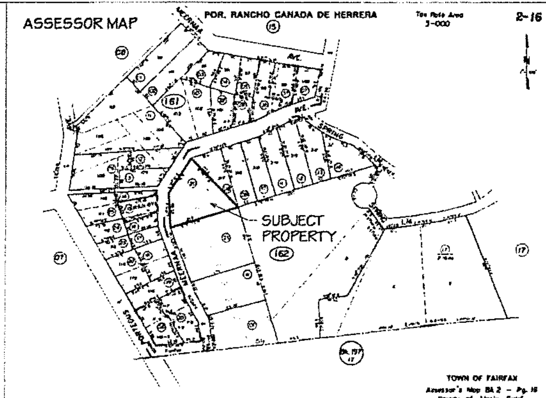
NEW DECKS & RECONFIGURE EXTERIOR ENTRY STAIRS

NEW ELECT. SERVICE DROP & METER, RELOCATE GAS METER, NEW SEWER LATERAL

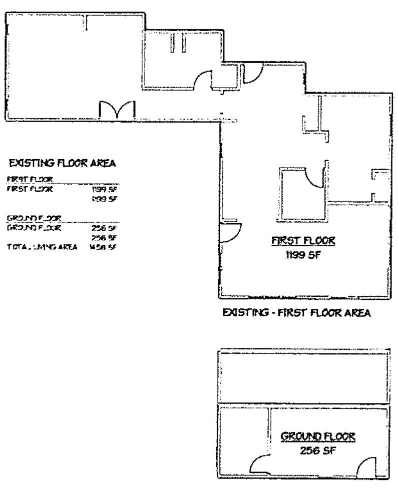
VICINITY MAP



ASSESSOR MAP



AREA PLAN



EXISTING - FIRST FLOOR AREA

EXISTING - GROUND FLOOR AREA

EXISTING FLOOR AREA

FIRST FLOOR	
FIRST FLOOR	1199 SF
	1199 SF
GROUND FLOOR	
GROUND FLOOR	256 SF
	256 SF
TOTAL LIVING AREA	1458 SF

PROPOSED FLOOR AREA

FIRST FLOOR	
FIRST FLOOR	1199 SF
ADDITION	123 SF
	1322 SF
GROUND FLOOR	
A.D.U. GROUND FLOOR	256 SF
A.D.U. ADDITION	404 SF
	660 SF
TOTAL LIVING AREA	1982 SF

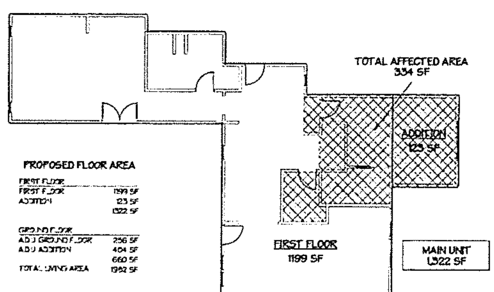
ADU AREA & RATIO

ACCESSORY DWELLING UNIT	660 SF
MAIN HOUSE PROPOSED	1,322 SF
ADU % RATIO	49.9 %

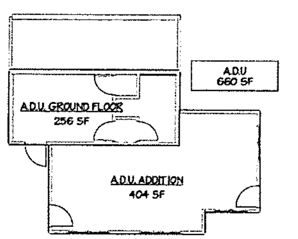
AFFECTED AREAS

(FIRST FLOOR ONLY - A.D.U. NOT INCL.)

MASTER ADDITION	334 SF
FIRST FLOOR EXISTING AREA	1,199 SF
% AFFECTED AREA	27.9 %



PROPOSED - FIRST FLOOR AREA



PROPOSED - GROUND FLOOR

PROJECT NOTES

1 IF THIS PROJECT INVOLVES EXCAVATION, DRILLING, OR OTHER EARTHWORK OR ANY BARE GROUND IS EXPOSED BETWEEN OCTOBER 15 AND APRIL 15, AN EROSION CONTROL PLAN MUST BE SUBMITTED AND APPROVED TO START OF WORK. EROSION CONTROL MEASURES MUST BE IN PLACE AND MAINTAINED CONTINUOUSLY DURING THOSE PERIODS. A SIGNED COPY OF THE EROSION CONTROL PLAN MUST BE POSTED AT THE SITE, ALONG WITH THE BUILDING PERMIT.

2 STATE LAW REQUIRES SMOKE ALARMS AND CARBON MONOXIDE ALARMS BE INSTALLED. CONTRACTOR MUST INSTALL OR VERIFY THE EXISTENCE OF SMOKE ALARMS AND CARBON MONOXIDE ALARMS OUTSIDE EACH BEDROOM AS WELL AS ONE ON EVERY LEVEL. AN ADDITIONAL SMOKE ALARM IS REQUIRED INSIDE EACH BEDROOM. ALARMS IN EXISTING AREAS WHERE ACCESS TO THE AREA ABOVE THE CEILING IS NOT POSSIBLE MAY BE POWERED BY A D/C BATTERY SOURCE. IN THE AREAS OF NEW CONSTRUCTION OR EXISTING ROOMS WHERE THE AREA ABOVE THE CEILING IS ACCESSIBLE, ALARMS MUST BE POWERED BY AN A/C POWER SOURCE WITH A BATTERY BACK UP AND BE INTERCONNECTED. (CRC 314, 315)

3 REQUIRES SEWER LATERAL INSPECTION FOR PROJECTS HAVING GREATER THAN $50,000 VALUE, MEASURED CUMULATIVELY OVER 36 MONTHS. PERMITTING AND APPROVAL DONE THROUGH SEWER DISTRICT.

4 SCHOOL DISTRICT FEES: PROJECTS OF LESS THAN 500 SQUARE FEET OF ADDITIONAL LIVING FLOOR AREA SHALL BE EXEMPT. APPLICANTS ARE REQUIRED TO OBTAIN A LETTER OF EXEMPTION FROM THE GOVERNING SCHOOL DISTRICT PRIOR TO ISSUANCE OF PERMIT.

5 THIS PROJECT MUST COMPLY WITH THE ZERO WASTE MARIN ORDINANCE. VERIFICATION OF THE MATERIALS DIVERTED MUST BE PRESENTED TO THE BUILDING INSPECTOR PRIOR TO OCCUPANCY AND FINAL SIGN OFF FROM THE BUILDING DEPARTMENT.
SEE: http://zerowastemarin.org/wp-content/uploads/2016/02/FINAL-MARIN-FORM-021216.pdf

6 THIS PROJECT MUST COMPLY WITH THE MARIN COUNTY GREEN BUILDING ORDINANCE. SEE CALGREEN CH 4 RESIDENTIAL MANDATORY MEASURES CHECKLIST. CONTRACTOR SHALL FOLLOW AND ADHERE TO APPLICABLE REQUIREMENTS. SEE ALSO "BUILD IT GREEN" CHECKLIST TO BE COMPLETED AND ACHIEVE NECESSARY POINTS. THESE MUST BE COMPLETED AND HAVE THE CHECKLISTS SIGNED OFF BY THE COUNTY BUILDING INSPECTOR. SEE SHEETS GB1, GB2 & GB3

7 WILDFIRE URBAN INTERFACE (W.U.I.) CODES APPLY INCLUDING BUT NOT LIMITED TO:

A. EXTERIOR DOORS AND WINDOWS:
- WINDOWS MUST BE INSULATED GLASS WITH ONE PANE TEMPERED GLAZING (PREFERABLY THE EXTERIOR); OR 20 MIN FIRE RATING
- DOORS SHALL BE NON COMBUSTIBLE (METAL CLAD); OR SOLID CORE NOT LESS THAN 1 3/4" THICK WITH FIELD PANELS NOT LESS THAN 1 1/4" THICK; OR 20 MIN FIRE RATING

B. VENTS:
VENT OPENINGS IN EXTERIOR WALLS SHALL RESIST THE INTRUSION OF FLAME AND EMBERS INTO THE STRUCTURE OR VENTS SHALL BE SCREENED WITH A CORROSION RESISTANT, NONCOMBUSTIBLE WIRE MESH WITH 1/4 INCH (6 MM) OPENINGS OR IT'S EQUIVALENT. ROOF AND FOUNDATION VENTS SHALL BE SCREENED FOR WUI COMPLIANCE - (VULCAN, BRANDGUARD BRAND OR EQUIV.)

C. DECKING:
DECKING, SURFACES, STAIR TREADS, RISERS, AND LANDINGS OF DECKS, PORCHES, & BALCONIES WHERE ANY PORTION OF SUCH SURFACE IS WITHIN 10 FEET (3048 MM) OF THE PRIMARY STRUCTURE SHALL COMPLY WITH ONE OF THE FOLLOWING METHODS:
- SHALL BE CONSTRUCTED OF IGNITION RESISTANT MATERIALS AND PASS THE PERFORMANCE REQUIREMENTS OF SFM 12-7A-4, PARTS A AND B
- SHALL BE CONSTRUCTED WITH HEAVY TIMBER (2X SOLID LUMBER OR GREATER), EXTERIOR FIRE RETARDANT TREATED WOOD OR APPROVED NON COMBUSTIBLE MATERIALS

D. EXTERIOR WALLS:
THE EXTERIOR WALL COVERING OR WALL ASSEMBLY SHALL BE OF NONCOMBUSTIBLE MATERIAL OR IGNITION RESISTANT MATERIAL.
EXTENT OF EXTERIOR WALL COVERING: EXTERIOR WALL COVERINGS SHALL EXTEND FROM THE TOP OF THE FOUNDATION TO THE ROOF, TERMINATING AT 2" NOMINAL SOLID WOOD BLOCKING BETWEEN RAFTERS AT ALL ROOF OVERHANGS, OR TERMINATING AT THE ENCLOSURE OF ENCLOSED EAVES

GENERAL NOTES

1 ALL CONSTRUCTION AND INSTALLATION SHALL CONFORM TO THE FOLLOWING CODES: 2016 CALIFORNIA BUILDING, RESIDENTIAL, PLUMBING, MECHANICAL, ELECTRICAL CODE, AND STATE ENERGY STANDARDS

2 AND ANY OTHER GOVERNING CODES AND ORDINANCES

3 IN THE EVENT OF CONFLICT, THE MOST STRINGENT REQUIREMENTS SHALL APPLY. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS OF BUILDING AND SITE AND NOTIFY THE DESIGNER OF ANY DISCREPANCIES BEFORE PROCEEDING WITH CONSTRUCTION

4 THE GENERAL CONTRACTOR SHALL VERIFY AND ASSUME RESPONSIBILITY FOR ALL DIMENSIONS AND SITE CONDITIONS. THE GENERAL CONTRACTOR SHALL INSPECT THE EXISTING PREMISES AND TAKE NOTE OF EXISTING CONDITIONS PRIOR TO SUBMITTING PRICES. NO CLAIM SHALL BE ALLOWED FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE REASONABLY BEEN INFERRED FROM SUCH AN EXAMINATION

5 CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN ARCHITECTURAL, STRUCTURAL, LANDSCAPE, CIVIL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION. THIS INCLUDES REVIEWING REQUIREMENTS OF INDIVIDUAL SYSTEMS BEFORE ORDERING AND INSTALLATION OF ANY WORK. VERIFY ALL ARCHITECTURAL DETAILS AND ALL FINISH CONDITIONS (WHETHER DEPICTED IN DRAWINGS OR NOT) WITH SAME DISCIPLINES

6 ANY ERRORS, OMISSIONS, OR CONFLICTS FOUND IN THE VARIOUS PARTS OF THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER AND THE OWNER BEFORE PROCEEDING WITH THE WORK

7 NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN. ALL CLEAR DIMENSIONS ARE NOT TO BE ADJUSTED WITHOUT APPROVAL OF THE DESIGNER

8 DETAILS SHOWN ARE TYPICAL. SIMILAR DETAILS APPLY IN SIMILAR CONDITIONS

9 THE CONTRACTOR SHALL BE RESPONSIBLE FOR APPLYING AND OBTAINING ALL REQUIRED INSPECTIONS TO CONFORM WITH LOCAL BUILDING AND FIRE CODES

ABBREVIATIONS

ABV. - ABOVE
A.B. - ANCHOR BOLT
A.F.F. - ABOVE FINISHED FLOOR
A.F.G. - ABOVE FINISHED GRADE
A.G. - ABOVE GRADE
ALT. - ALTERNATE
ASPH. - ASPHALT
BLDG. - BUILDING
B.O. - BOTTOM OF
BTM. - BOTTOM
CSMNT. - CASEMENT
CAB. - CABINET
C.L. - CENTER LINE
CLG. - CEILING
C.J. - CEILING JOIST
CONC. - CONCRETE
D/W - DISHWASHER
DBL. - DOUBLE
DEMO. - DEMOLITION
DIM. - DIMENSION
DN - DOWN
(E) - EXISTING
EA. - EACH
ELECT. - ELECTRIC, ELECTRICAL
EQ. - EQUAL
EST. - ESTIMATE
E.W. - EACH WAY
EX. - EXISTING
EXT. - EXTERIOR
FDN. - FOUNDATION
FIN. - FINISH
F.J. - FLOOR JOIST
FLR. - FLOOR
FLUOR. - FLUORESCENT
F.O. - FRONT OF
GA. - GAUGE
G.C. - GENERAL CONTRACTOR
G.F.C.I. - GROUND FAULT CIRCUIT INTERRUPT
GYP. - GYPSUM
HGT. - HEIGHT
HOR. - HORIZONTAL
HR. - HOUR
HTR. - HEATER
H.W. - HOT WATER
I.D. - INSIDE DIAMETER
INSUL. - INSULATION
INT. - INTERIOR
L.F. - LINEAR FEET
LIN. - LINEAR
MAT. - MATERIAL
MAX. - MAXIMUM
MIN. - MINIMUM
(N) - NEW
N.T.S. - NOT TO SCALE
NOM. - NOMINAL
O.C. - ON CENTER
P.L. - PROPERTY LINE
PLY. - PLYWOOD
P.T. - PRESSURE TREATED
QTY. - QUANTITY
REF. - REFRIGERATOR
RET. - RETURN
REV. - REVISION
R.O. - ROUGH OPENING
RR. - ROOF RAFTER
SCHED. - SCHEDULE
S.D. - SMOKE DETECTOR
SECT. - SECTION
SHT. - SHEET
SHTG. - SHEATHING
SKL. - SKYLIGHT
SPECS. - SPECIFICATIONS
STD. - STANDARD
T.&G. - TONGUE AND GROOVE
T.O. - TOP OF
TYP. - TYPICAL
UNF. - UNFINISHED
U.N.O./U.O.N. - UNLESS NOTED OTHERWISE
V.B. - VAPOR BARRIER
V.I.F. - VERIFY IN FIELD
W.C. - TOILET (WATER CLOSET)
WH - WATER HEATER
WD. - WOOD
W.U.I. - WILDFIRE URBAN INTERFACE

SHEET INDEX

CONSULTANTS

DESIGNER/DRAFTING:	LADYNE DESIGN STEPHEN LADYNE 551 CASCADE DR FAIRFAX, CA 94930 415 200 6046
SURVEYOR:	BAY AREA LAND SURVEYING RYAN C. ENGEL 3065 RICHMOND PARKWAY #101 RICHMOND, CA 94806 510 223 5167
SOIL ENGINEER:	DAVE DUKES, P.E. INC 7915 CREST AVE OAKLAND, CA 94605 510 568 2162

BUILDING CODE

2016 CALIFORNIA BUILDING CODE
2016 CALIFORNIA RESIDENTIAL CODE
2016 CALIFORNIA MECHANICAL CODE
2016 CALIFORNIA PLUMBING CODE
2016 CALIFORNIA ELECTRICAL CODE
2016 CALIFORNIA ENERGY CODE
2016 CALIFORNIA FIRE CODE
2016 CALIFORNIA GREEN BUILDING CODE

SYMBOLS

SECTION NUMBER / SHEET REFERENCE	WINDOW NUMBER
CALLOUT NUMBER / SHEET REFERENCE	DOOR NUMBER
GRID LINE	NOTE TAG
ELEVATION / LEVEL	REVISION ID

LADYNE DESIGN
STEPHEN LADYNE
stephen@ladynedesign.com
415 200 6046

181 MEERNAA AVE
FAIRFAX, CA 94930

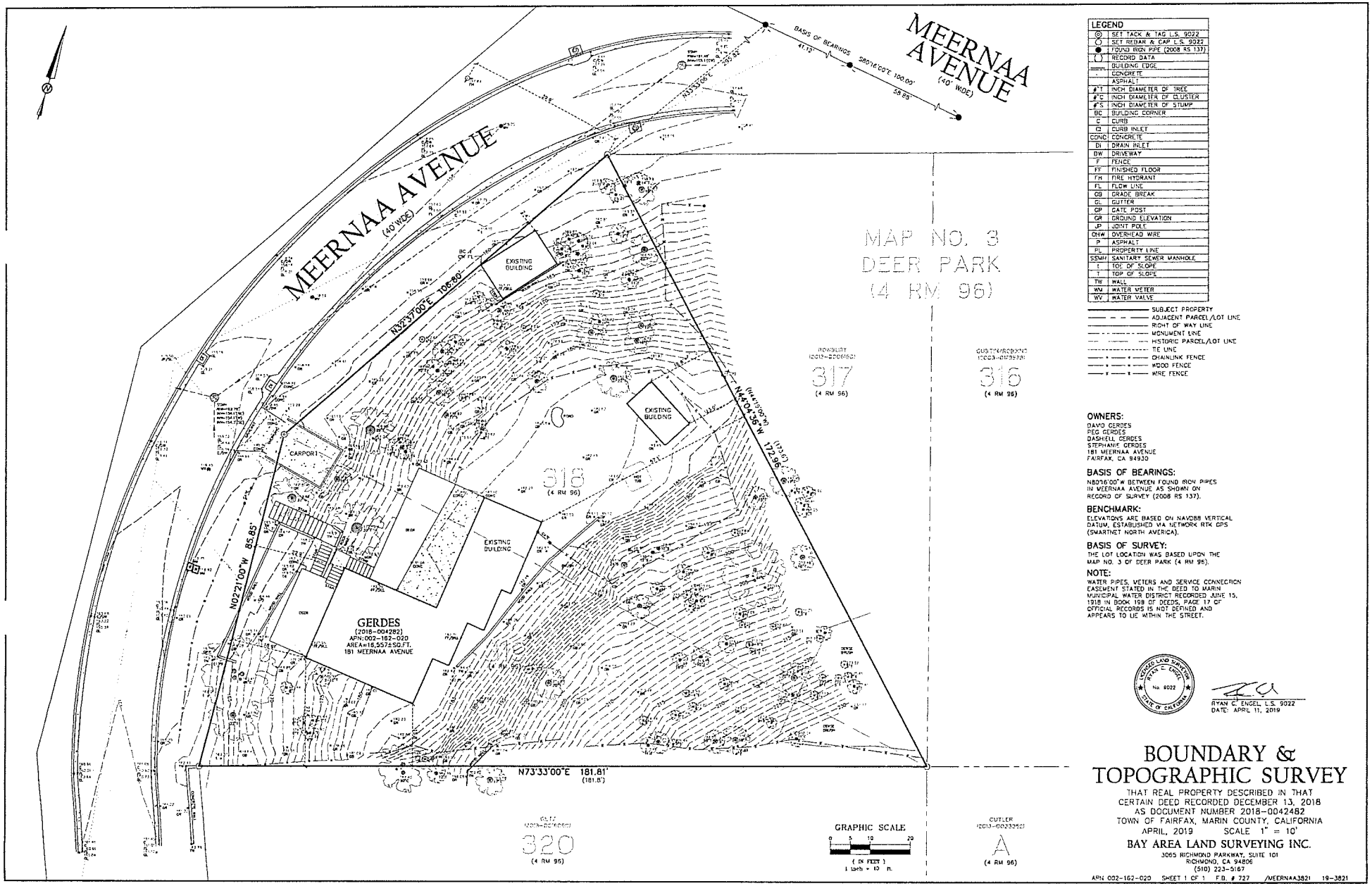
GERDES RESIDENCE - ADU & REMODEL
APN: 002-162-20

OCT 17 2019

PROJECT INFORMATION

10.16.19
As indicated

A0



LEGEND	
◎	SET TACK & TAG L.S. 9022
○	SET REBAR & CAP L.S. 9022
●	FOUND IRON PIPE (2008 RS 137)
( )	RECORD DATA
═══	BUILDING EDGE
. . .	CONCRETE
. . .	ASPHALT
#"T	INCH DIAMETER OF TREE
#"C	INCH DIAMETER OF CLUSTER
#"S	INCH DIAMETER OF STUMP
BC	BUILDING CORNER
C	CURB
CI	CURB INLET
CONC	CONCRETE
DI	DRAIN INLET
DW	DRIVEWAY
F	FENCE
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FL	FLOW LINE
GB	GRADE BREAK
GL	GUTTER
GP	GATE POST
GR	GROUND ELEVATION
JP	JOINT POLE
OHW	OVERHEAD WIRE
P	ASPHALT
PL	PROPERTY LINE
SSMH	SANITARY SEWER MANHOLE
T	TOE OF SLOPE
T	TOP OF SLOPE
TW	WALL
WM	WATER METER
WV	WATER VALVE

SUBJECT PROPERTY
ADJACENT PARCEL/LOT LINE
RIGHT OF WAY LINE
MONUMENT LINE
HISTORIC PARCEL/LOT LINE
TIE LINE
CHAINLINK FENCE
WOOD FENCE
WIRE FENCE

OWNERS:
DAVID GERDES
PEG GERDES
DASHELL GERDES
STEPHANIE GERDES
181 MEERNAA AVENUE
FAIRFAX, CA 94930

BASIS OF BEARINGS:
N80°16'00"W BETWEEN FOUND IRON PIPES IN MEERNAA AVENUE AS SHOWN ON RECORD OF SURVEY (2008 RS 137).

BENCHMARK:
ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM, ESTABLISHED VIA NETWORK RTK GPS (SMARTNET NORTH AMERICA).

BASIS OF SURVEY:
THE LOT LOCATION WAS BASED UPON THE MAP NO. 3 OF DEER PARK (4 RM 96).

NOTE:
WATER PIPES, METERS AND SERVICE CONNECTION EASEMENT STATED IN THE DEED TO MARIN MUNICIPAL WATER DISTRICT RECORDED JUNE 15, 1918 IN BOOK 198 OF DEEDS, PAGE 17 OF OFFICIAL RECORDS IS NOT DEFINED AND APPEARS TO LIE WITHIN THE STREET.

LICENSED LAND SURVEYOR RYAN C. ENGEL No. 9022 STATE OF CALIFORNIA

RYAN C. ENGEL L.S. 9022
DATE: APRIL 11, 2019

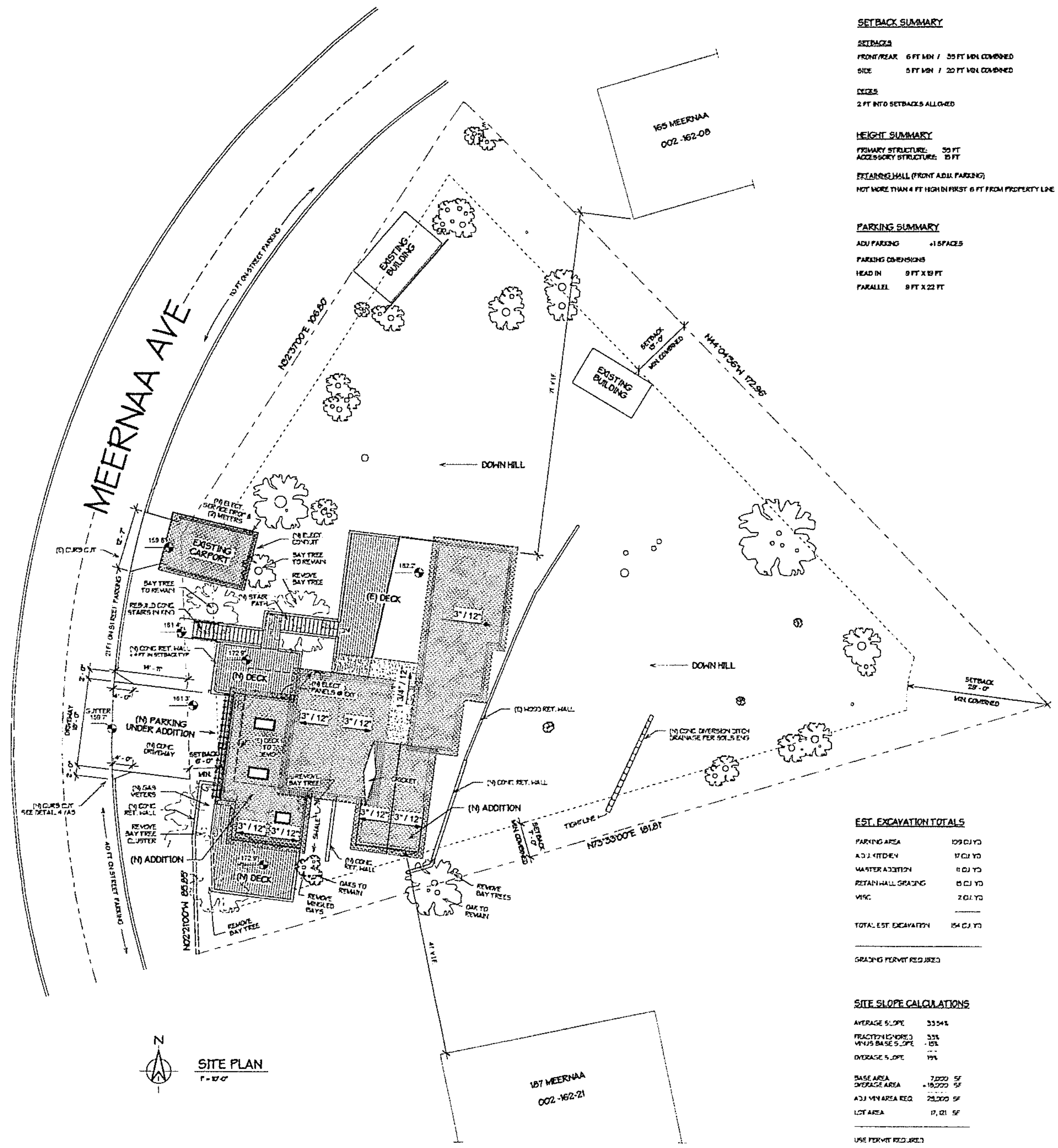
BOUNDARY & TOPOGRAPHIC SURVEY

THAT REAL PROPERTY DESCRIBED IN THAT CERTAIN DEED RECORDED DECEMBER 13, 2018 AS DOCUMENT NUMBER 2018-0042482 TOWN OF FAIRFAX, MARIN COUNTY, CALIFORNIA

APRIL, 2019 SCALE 1" = 10'

BAY AREA LAND SURVEYING INC.
3065 RICHMOND PARKWAY, SUITE 101
RICHMOND, CA 94806
(510) 223-5167

APN 002-162-020 SHEET 1 OF 1 F.B. # 727 /MEERNAA3821 19-3821



SITE PLAN
1" = 10'-0"

SETBACK SUMMARY

SETBACKS

FRONT/REAR 6 FT MIN / 35 FT MIN COMBINED
SIDE 5 FT MIN / 20 FT MIN COMBINED

DECKS

2 FT INTO SETBACKS ALLOWED

HEIGHT SUMMARY

PRIMARY STRUCTURE: 35 FT
ACCESSORY STRUCTURE: 15 FT

RETAINING WALL (FRONT A.D.U. PARKING)

NOT MORE THAN 4 FT HIGH IN FIRST 6 FT FROM PROPERTY LINE

PARKING SUMMARY

ADU PARKING +1 SPACES

PARKING DIMENSIONS

HEAD IN 9 FT X 19 FT
PARALLEL 9 FT X 22 FT

EST. EXCAVATION TOTALS

PARKING AREA	109 CU YD
A.D.U. KITCHEN	17 CU YD
MASTER ADDITION	11 CU YD
RETAIN WALL GRADING	15 CU YD
MISC	2 CU YD
TOTAL EST. EXCAVATION	154 CU YD

GRADING PERMIT REQUIRED

SITE SLOPE CALCULATIONS

AVERAGE SLOPE	33.54%
FRACTION IGNORED	33%
MINUS BASE SLOPE	-15%
OVERAGE SLOPE	19%
BASE AREA	7,000 SF
OVERAGE AREA	+19,000 SF
ADJ. MIN AREA REQ.	26,000 SF
LOT AREA	17,121 SF

USE PERMIT REQUIRED

ADU SQ. FOOTAGE

17.048.060 STANDARDS FOR ACCESSORY DWELLING UNITS

(F) Maximum size

(1) The increased floor area of an attached accessory dwelling unit shall not exceed 50 percent of the existing living area, with a maximum increase in floor area of 1,200 square feet.

(2) The total area of floorspace for a detached accessory dwelling unit shall not exceed 1,200 square feet.

SETBACKS

17.080.070 YARDS

SLOPED LOTS
(B) Except as otherwise permitted by variance, each building site in the RS 6 zone having a slope of more than ten percent shall have yards as follows:

(1) A front and a rear yard having a combined depth of not less than 35 feet, but the front yard having a depth of not less than six feet and the rear yard of not less than 12 feet; and

(2) Two side yards having a combined width of not less than 20 feet, but neither yard having a width of less than five feet.

17.044.070 PROJECTIONS INTO REQUIRED YARDS

(A) Certain architectural features may project into required yards or courts as follows:
(1) Cornices, canopies or eaves may project a distance not exceeding two feet.
(2) Bay windows, balconies, decks and chimneys may project a distance not exceeding two feet.
(3) Bay windows, balconies, decks and chimneys may project a distance not exceeding two feet unless greater projection is required by the building code of the town.
(B) Projection allowed in this section shall not come closer than three feet to a property line unless otherwise allowed by variance.

17.044.080 FENCES, WALLS, HEDGES AND BULKHEADS.
(A) A fence, wall, hedge or bulkhead, maintained so as not to exceed six feet in height, may be located along side and rear lot lines; provided that, fences, walls, hedges or bulkheads may be maintained at higher heights only after obtaining a variance from the Planning Commission.
(B) Fences, walls and hedges may be located in required yards as follows:
(1) If not exceeding at any point four feet in height above the elevation of the surface of the ground at such point, they may be located in any yard or court.
(2) If not exceeding at any point six feet in height above the elevation of the surface of the ground at such point, they may be located at any point to the rear of the front setback line.

PARKING

17.048.060 STANDARDS FOR ACCESSORY DWELLING UNITS

(L) Parking
(1) Except as provided in subparagraph (2):

(a) Accessory dwelling units must meet the following parking standards:

1. For accessory dwelling units with no separate bedrooms, one off-street parking space shall be provided for the accessory dwelling unit.

2. For accessory dwelling units with at least one separate bedroom, one off-street parking space shall be provided per bedroom.

(b) If parking is required:
1. The required parking spaces may be located on setback areas approved by the Director or tandem parking on an existing driveway, unless specific findings are made under subparagraph (2).

2. Parking arrangements in subparagraph (1) may be prohibited if the Director makes specific findings that such parking arrangements are not feasible based upon specific site or regional topographical or fire or life safety conditions, or that such arrangements are not permitted anywhere in the jurisdiction.

3. When a garage, carport, or covered parking structure is demolished in conjunction with the construction of an accessory dwelling unit, the replacement parking spaces may be located in any configuration on the same lot as the accessory dwelling unit, including but not limited to, as covered spaces, uncovered spaces, tandem spaces, or by the use of mechanical automobile parking lifts.

(2) Parking standards shall not be imposed on an accessory dwelling unit if any of the following circumstances exist on the property:
(a) The accessory dwelling unit is located within one-half mile of public transit. For purposes of this section, "public transit" shall mean a public transit stop or station.
(b) The accessory dwelling unit is located within an architecturally and historically significant historic district.
(c) The accessory dwelling unit is part of the existing primary residence or an existing accessory structure.
(d) When on-street parking permits are required but not offered to the occupant of the accessory dwelling unit.
(e) When there is a car share vehicle located within one block of the accessory dwelling unit.

17.052.040 STANDARDS FOR PARKING SPACES

(A) Parking facilities shall be designed to provide for safe circulation of vehicular and pedestrian traffic within the parking area and in relation to adjacent streets. Direct backing into or out of parking from a public street shall not be permitted, except for one family and two family dwellings.
(B) Minimum dimensions of parking spaces shall be as follows:
(1) Width: nine feet, excluding any interfering structure.
(2) Length: 19 feet, or 22 feet if abutting and parallel to a curb, wall or other obstruction.
(C) In all zones except RS-7.5, RS 6 and RD 5.5-7, 25 percent of the assigned spaces may have a minimum size of 8 feet by 16 feet.
(D) Width of parking aisles shall be according to the schedule in Appendix A to this chapter.
(E) No tandem parking stall shall be allowed, except for a guest space in tandem with required parking for the principal residence. Tandem parking shall not be used in conjunction with a parking space required for a residential second unit.

17.052.010 (C)(2) Uncovered parking spaces may be created in the portion of the required front yard setback not included in the side yard.

17.052.020 EXCEPTIONS
(A) If particular circumstances justify an exception, the amount, dimensions and location of required parking and loading facilities may be altered by variance or design review requirements.

DRIVEWAY ENTRANCE / CURB CUT

12.12.030 REQUIREMENTS; RESIDENTIAL PREMISES

Any driveway entrance or approach leading from the street into any premises, structure or building to be used exclusively for residential purposes shall not be of greater width than 20 feet, measured over the sidewalk area, nor shall any such driveway entrance or approach be permitted within 30 feet of the corner of any intersecting street.

12.12.050 ADDITIONAL ENTRANCES OR APPROACHES; RESIDENTIAL PREMISES

No additional driveway entrances or approaches shall be erected, constructed or maintained into or from the same premises, structure or building used for residential purposes in the town; except that, if any such premises, structure or building is located on a corner of intersecting streets, then one additional driveway or approach may be erected, constructed or maintained into or from the premises, structure or building provided each of the driveways or approaches shall be from separate street frontages; and further excepting that, if any such premises, structure or building shall be maintained for multiple housing, then one additional driveway or approach may be erected, constructed or maintained into or from the premises, structure or building provided that, the two driveways or approaches on one street frontage shall be separated by a sidewalk area or island not less than 40 feet in width from any other driveway entrance or approach, measured at the narrowest point.

12.12.090 VARIANCES

The Town Council is authorized and empowered to grant adjustments and variances from the provisions of this chapter, provided it is shown to the satisfaction of the Town Council, and the Town Council finds that all of the following are shown to exist in the particular case:
(A) There are exceptional or extraordinary circumstances or conditions applying to the land, building or use referred to in the application, which circumstances or conditions do not apply generally to land, buildings or uses in the same district;
(B) The granting of the application is necessary for the preservation and enjoyment of substantial property rights of the petitioner; and
(C) The granting of the application will not, under the circumstances of the particular case, materially affect adversely the health or safety of persons residing or working in the neighborhood of the property of the applicant, and will not under the circumstances of the particular case be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood.

SLOPE / SITE AREA / USE PERMIT

17.080.050 BUILDING SITE REQUIREMENTS

Except as otherwise provided in §§ 17.044.030 through 17.044.050 of this title, a use permit or hill area residential development permit (HRD) must be first secured in the RS 6 zone for any use, occupancy or physical improvement of or on a building site failing to meet the following requirements:

(A) Minimum area of 6,000 square feet and minimum width of 60 feet with a slope of ten percent or less;

(B) The minimum building site area shall be increased by 500 square feet for each one percent increase in slope over ten percent to and including 15 percent; and the minimum width shall be increased by one foot for each 500 square feet of additional area required;

(C) Building sites having a slope of more than 15 percent shall increase in area above 7,000 square feet, and a minimum width of 65 feet, at a rate of 1,000 square feet of area and three feet of width for each one percent increase in slope; and

(D) Fractions shall be disregarded and dropped in all computations made under this section.

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181 MEERNAA AVE
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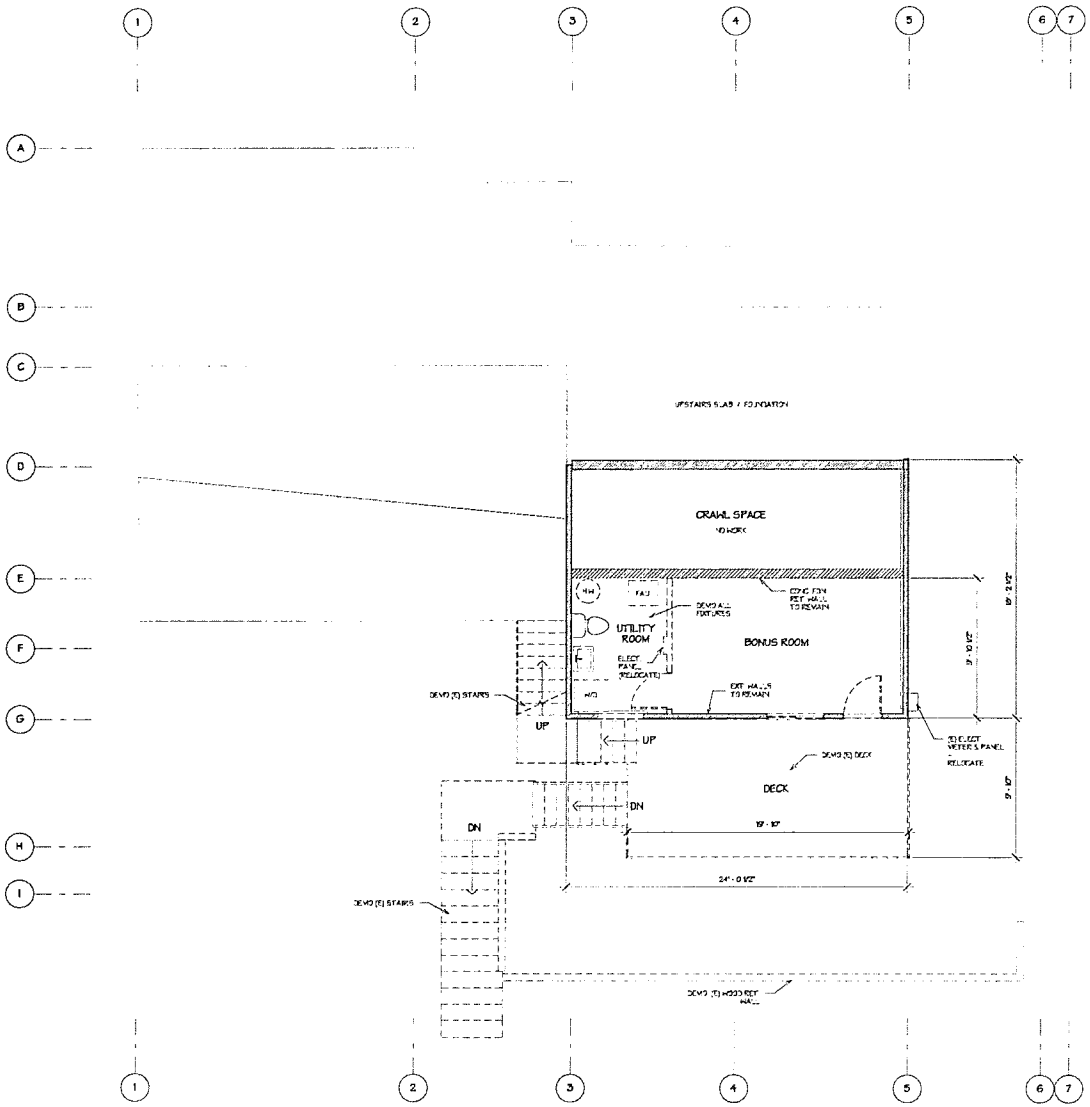
GERDES RESIDENCE - ADU & REMODEL
APN: 002-162-20

SITE PLAN & PLANNING DATA

10.18.19
1" = 10'-0"

A1



1 GROUND FLOOR - EXISTING & DEMO

NOTES

GENERAL NOTES

VERIFY ALL DIMENSIONS IN FIELD

2x4 WALL FRAMING INTERIOR AND EXTERIOR U.N.O

HORIZONTAL DIMENSIONS ARE TO FACE OF STUD, CENTERLINE OF COLUMN, EDGE OF DOOR/WINDOW, TYPICAL, U.N.O

VERTICAL DIMENSIONS ARE TO TOP OF SLAB, TOP OF FOUNDATION, FINISH FLOOR AND TOP OF ROOF SHEATHING, U.N.O

LEGEND

EXISTING WALLS TO BE REMOVED

EXISTING WALLS TO REMAIN

ITEMS TO BE REMOVED

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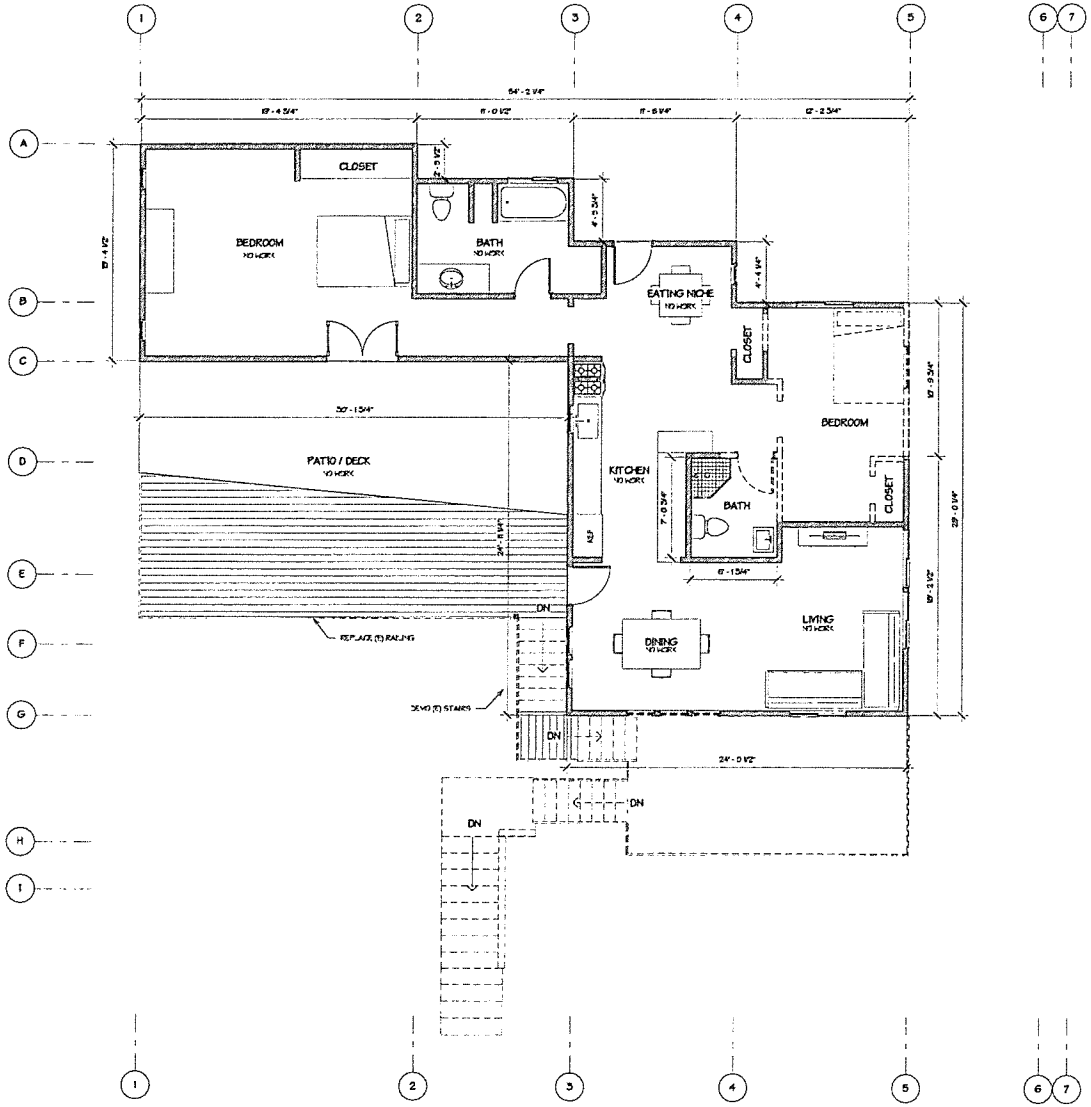
GERDES RESIDENCE - ADU & REMODEL
APN: 002-162-20

GROUND FLOOR EXISTING & DEMO PLAN

10.16.19

A2.1



1 FIRST FLOOR - EXISTING & DEMO PLAN
1/4" = 1'-0"

NOTES

GENERAL NOTES

VERIFY ALL DIMENSIONS IN FIELD

2x4 WALL FRAMING INTERIOR AND EXTERIOR U.N.O.

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LEGEND

EXISTING WALLS TO BE REMOVED

EXISTING WALLS TO REMAIN

ITEMS TO BE REMOVED

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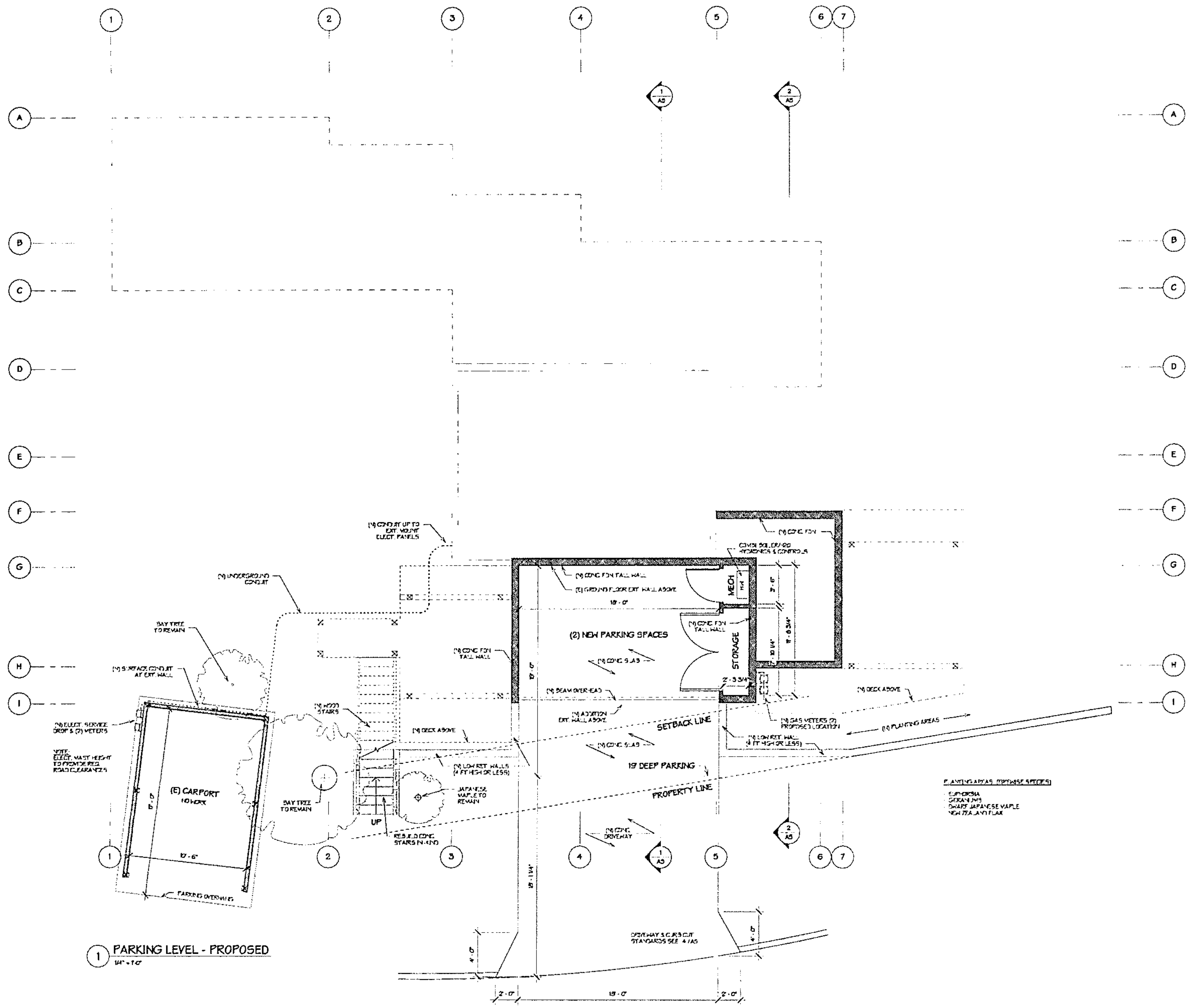
APN: 002-162-20

FIRST FLOOR EXISTING & DEMO PLAN

10.16.19

1/4" = 1'-0"

A2.2



NOTES

UTILITIES NOTE

ELECTRICAL UTILITIES:
- NEW ADU DISRUPTS CURRENT ELECT METER
NEW ELECT. SERVICE DROP & METER AT (E) CARPORT
- TALL MAST TO MEET ROAD CLEARANCE
UNDERGROUND CONDUIT TO EXT. PANELS AT HOUSE

GAS UTILITIES:
- NEW ADU DISRUPTS CURRENT GAS METER LOCATION
NEW LOCATION PROPOSED PER PLAN

SEWER UTILITY:
- NEW PARKING AREA TO DISRUPT CURRENT SEWER LATERAL ANTICIPATED LOCATION
- PLAN FOR NEW SEWER LATERAL (CODE COMPLIANT)

GENERAL NOTES

VERIFY ALL DIMENSIONS IN FIELD

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LEGEND

EXISTING WALL TO REMAIN

NEW WALL

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GERDES RESIDENCE - ADU & REMODEL
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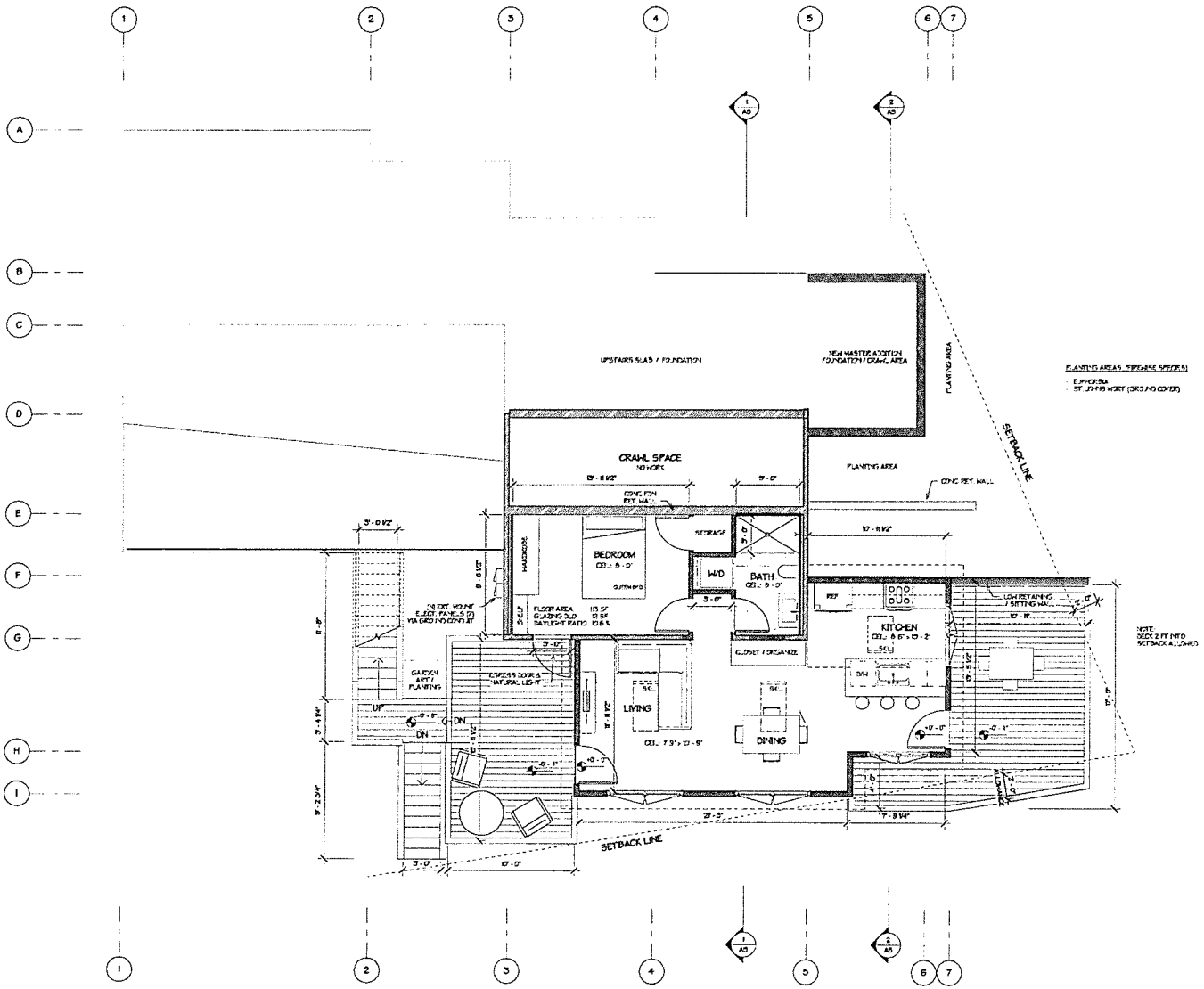
PARKING LEVEL PLAN PROPOSED

10.16.19
1/4" = 1'-0"

A3.0



1 GROUND FLOOR - PROPOSED
1/4" = 1'-0"

NOTES

MECHANICAL - A.D.U.

HEATING	
TYPE:	RADIANT IN FLOOR
FUEL:	NATURAL GAS
DETAIL:	DUAL CORE BOILER
MANUFACTURER:	
MODEL:	
WATER HEATER	
TYPE:	ON DEMAND (HIGH EFFICIENCY)
FUEL:	NATURAL GAS
DETAIL:	DUAL CORE BOILER
MANUFACTURER:	
MODEL:	

GENERAL NOTES

VERIFY ALL DIMENSIONS IN FIELD

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LEGEND

EXISTING WALL TO REMAIN

NEW WALL

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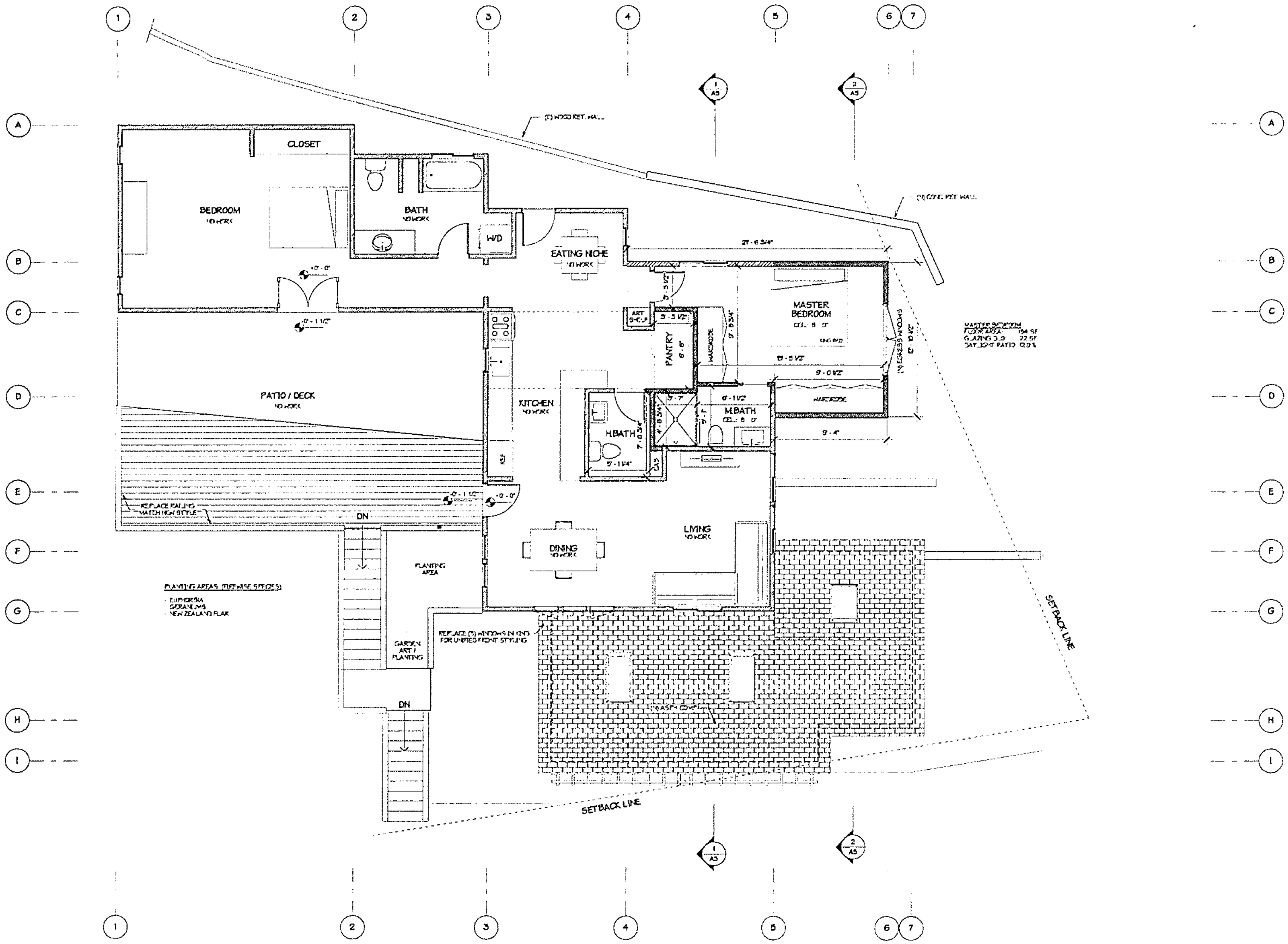
GROUND FLOOR PLAN PROPOSED

10.16.19
1/4" = 1'-0"

A3.1



FIRST FLOOR - PROPOSED
1/4" = 1'-0"

NOTES

MECHANICAL

HEATING
TYPE: HYDRONIC BASEBOARD & RADIANT IN FLOOR
FUEL: NATURAL GAS
DETAIL: DUAL CORE BOILER (SHARED IN MECH ROOM)
MANUFACTURER:
MODEL:

WATER HEATER
TYPE: ON DEMAND (HIGH EFFICIENCY)
FUEL: NATURAL GAS
DETAIL: DUAL CORE BOILER (SHARED IN MECH ROOM)
MANUFACTURER:
MODEL:

GENERAL NOTES

VERIFY ALL DIMENSIONS IN FIELD

2x4 WALL FRAMING INTERIOR AND EXTERIOR U.N.O.

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VERTICAL DIMENSIONS ARE TO FINISH GRADE, TOP OF FOUNDATION, FINISH FLOOR AND TOP OF ROOF SHEATHING, U.N.O.

LEGEND

EXISTING WALL TO REMAIN

NEW WALL

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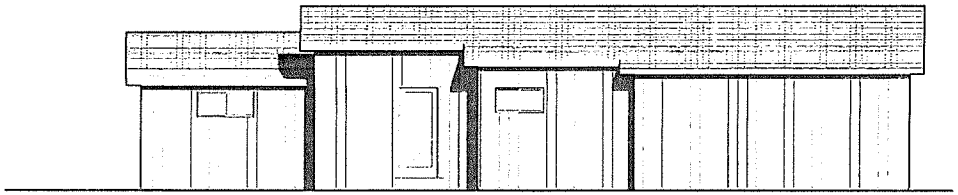
APN: 002-162-20

FIRST FLOOR PLAN PROPOSED

10.18.19
1/4" = 1'-0"

A3.2



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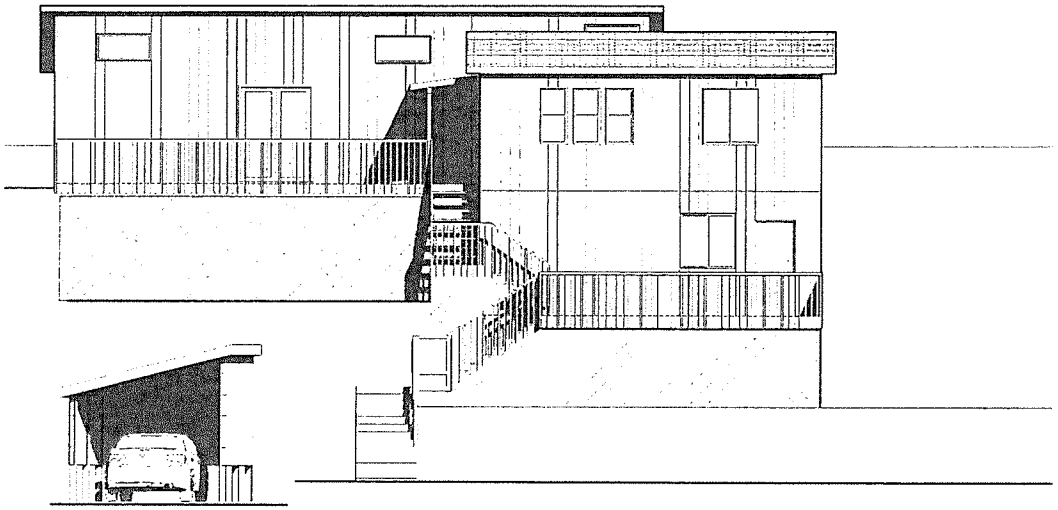
1/4" = 1'-0"



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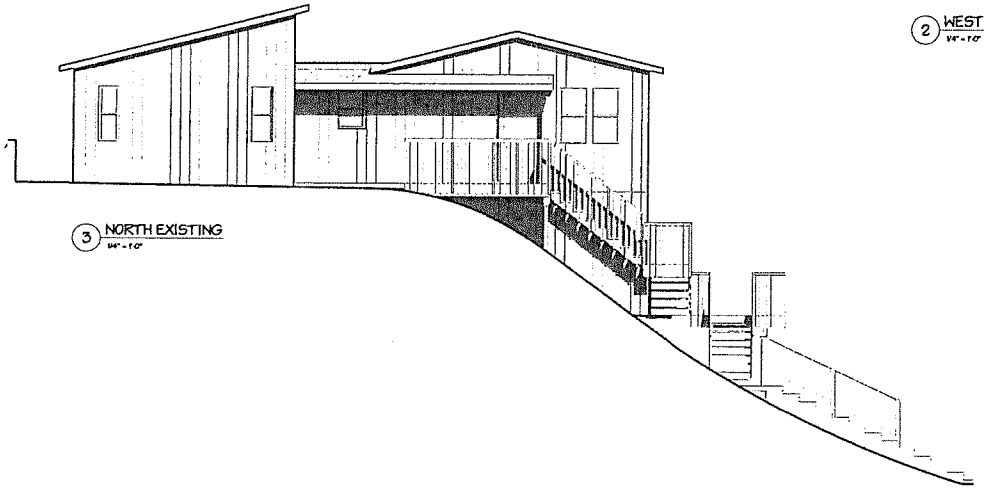
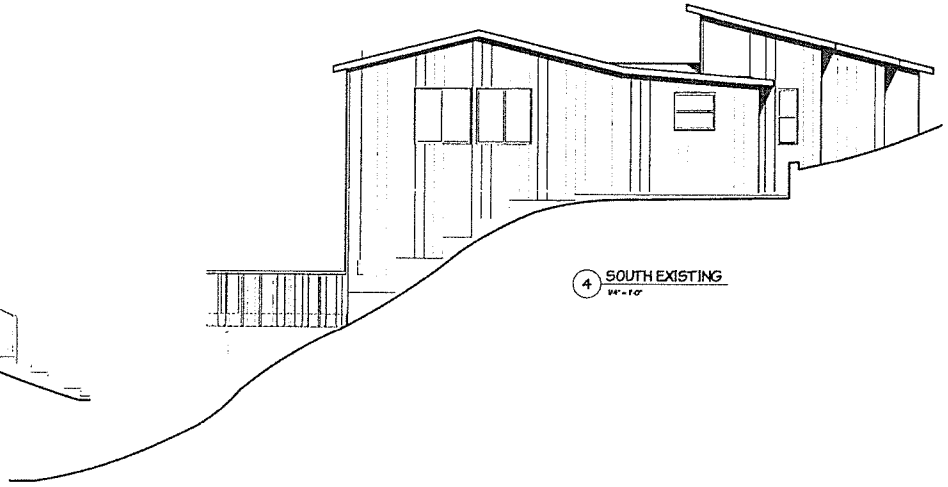


3 NORTH EXISTING
1/4" = 1'-0"



4 SOUTH EXISTING
1/4" = 1'-0"

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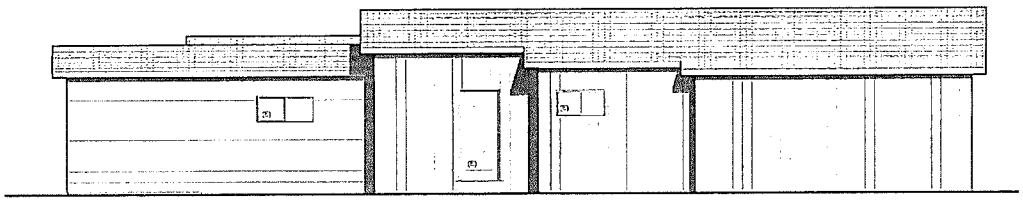
GERDES RESIDENCE - ADU & REMODEL
APN: 002-162-20

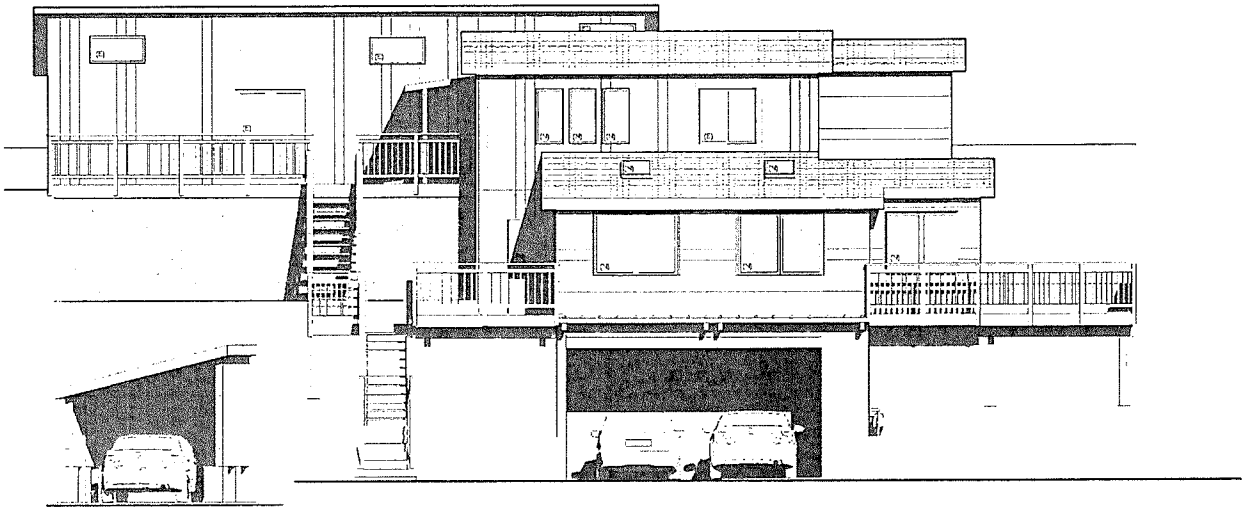
ELEVATIONS EXISTING

10.16.19
1/4" = 1'-0"

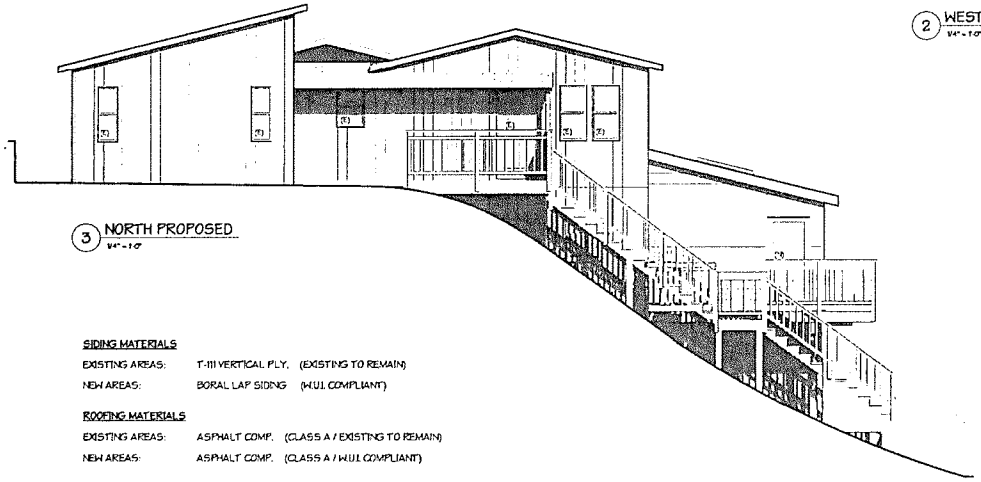
A4.0



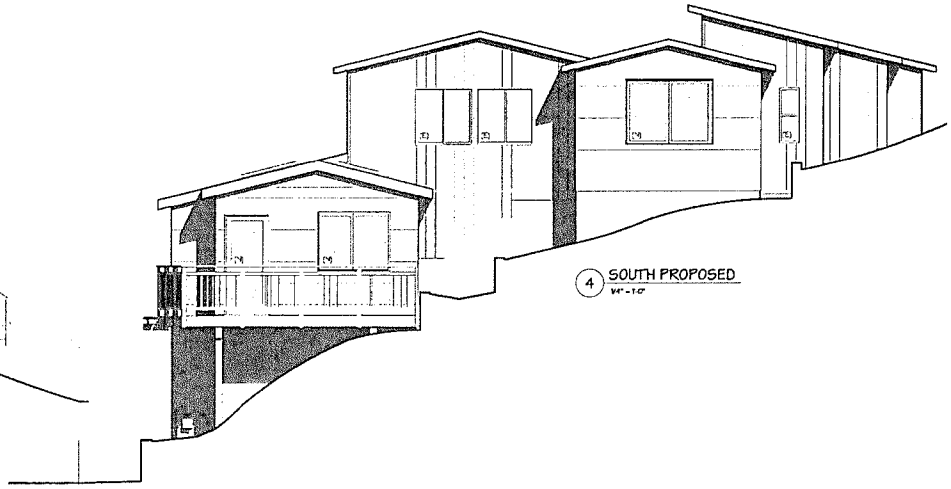
1 EAST PROPOSED
1/4" = 1'-0"



2 WEST PROPOSED
1/4" = 1'-0"



3 NORTH PROPOSED
1/4" = 1'-0"



4 SOUTH PROPOSED
1/4" = 1'-0"

SIDING MATERIALS

EXISTING AREAS: T-111 VERTICAL PLY. (EXISTING TO REMAIN)
NEW AREAS: BORAL LAP SIDING (W.U.I. COMPLIANT)

ROOFING MATERIALS

EXISTING AREAS: ASPHALT COMP. (CLASS A / EXISTING TO REMAIN)
NEW AREAS: ASPHALT COMP. (CLASS A / W.U.I. COMPLIANT)

DECKING MATERIALS

EXISTING AREAS: SOLID 2X - T.K. REDWOOD DECKING (W.U.I. COMPLIANT / EXISTING TO REMAIN)
NEW AREAS: SOLID 2X - T.K. REDWOOD DECKING (W.U.I. COMPLIANT)

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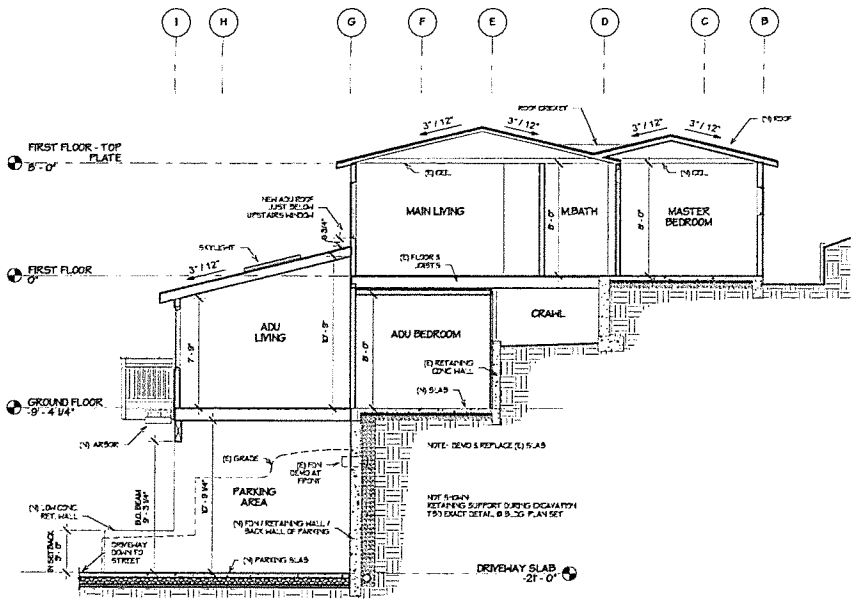
APN: 002-162-20

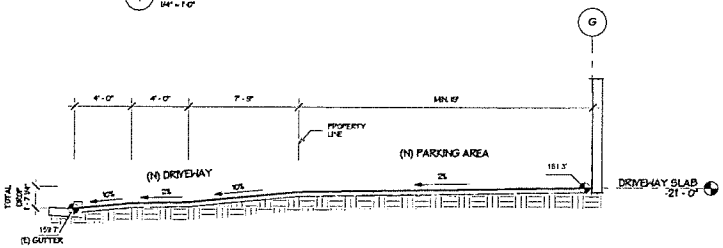
ELEVATIONS PROPOSED

10.16.19
1/4" = 1'-0"

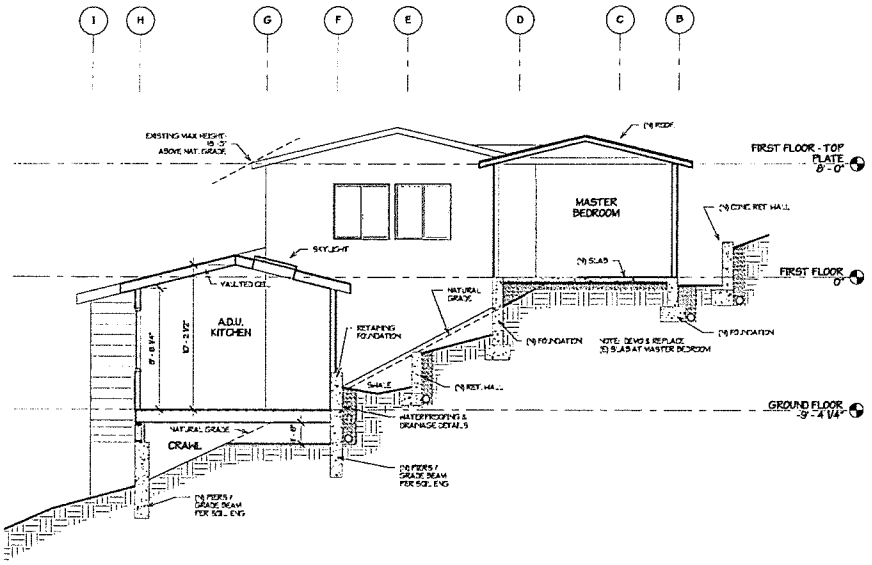
A4.1



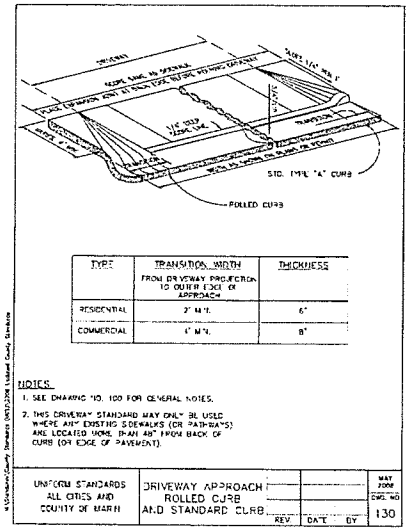
1 ADU LIVING / MAIN LIVING SECTION
1/4" = 1'-0"



3 NEW DRIVEWAY & PARKING SLOPE
1/4" = 1'-0"



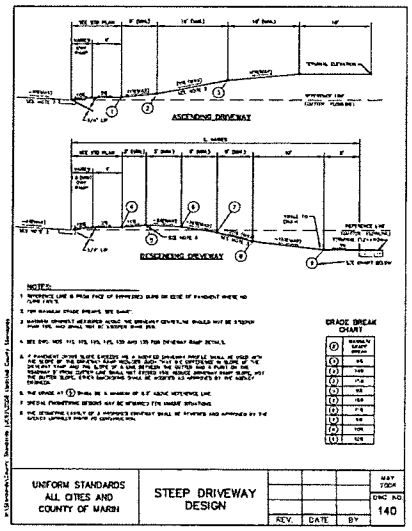
2 ADU KITCHEN / MASTER ADDITION SECTION
1/4" = 1'-0"



TYPE	TRANSITION WIDTH FROM DRIVEWAY PROJECTION TO OUTER EDGE OF APPROACH	THICKNESS
RESIDENTIAL	3' MIN.	6"
COMMERCIAL	4' MIN.	8"

NOTES
1. SEE DRAWING NO. 100 FOR GENERAL NOTES.
2. THIS DRIVEWAY STANDARD MAY ONLY BE USED WHERE ANY EXISTING SIDEWALKS (OR PATHWAYS) ARE LOCATED WITHIN 18-IN 48" FROM BACK OF CURB (OR EDGE OF PAVEMENT).

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	DRIVEWAY APPROACH ROLLED CURB AND STANDARD CURB	REV.	DATE	BY	MAY 2006 DWG. NO 130



UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	STEEP DRIVEWAY DESIGN	REV.	DATE	BY	MAY 2006 DWG. NO 140

4 CURB CUT & DRIVEWAY UNIFORM STANDARDS
N.T.S.

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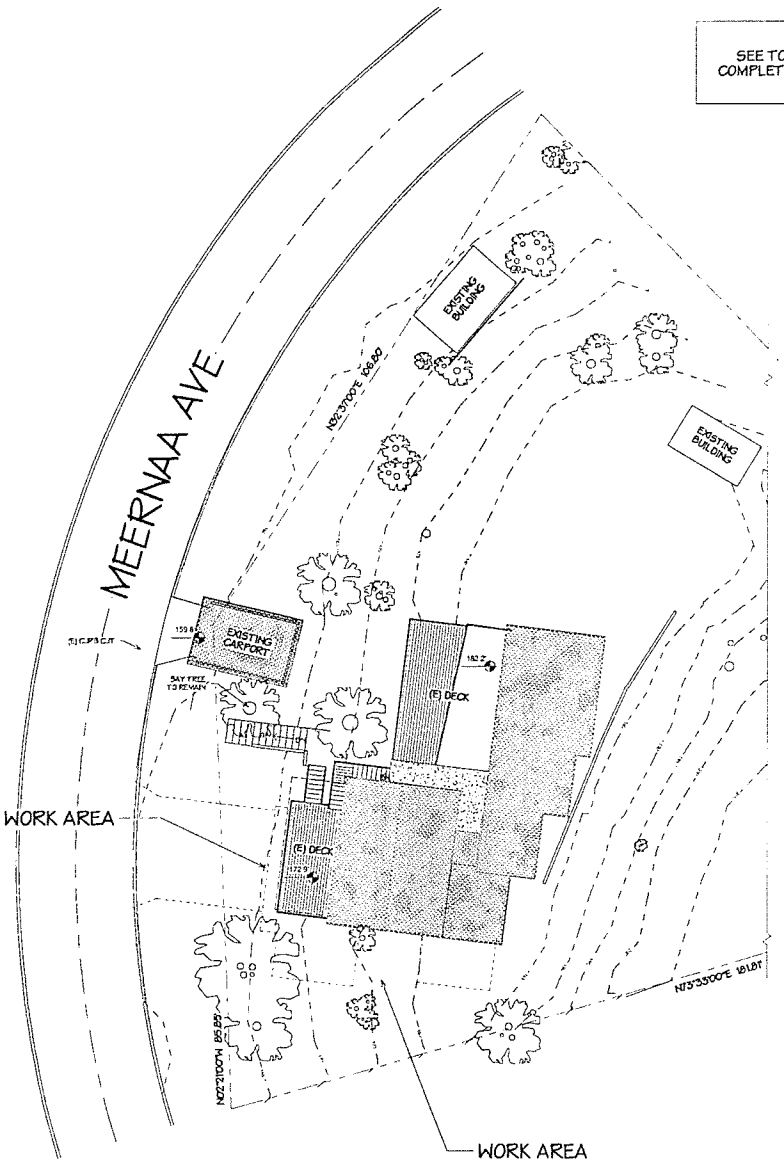
GERDES RESIDENCE - ADU & REMODEL
APN: 002-162-20

SECTIONS & DETAILS

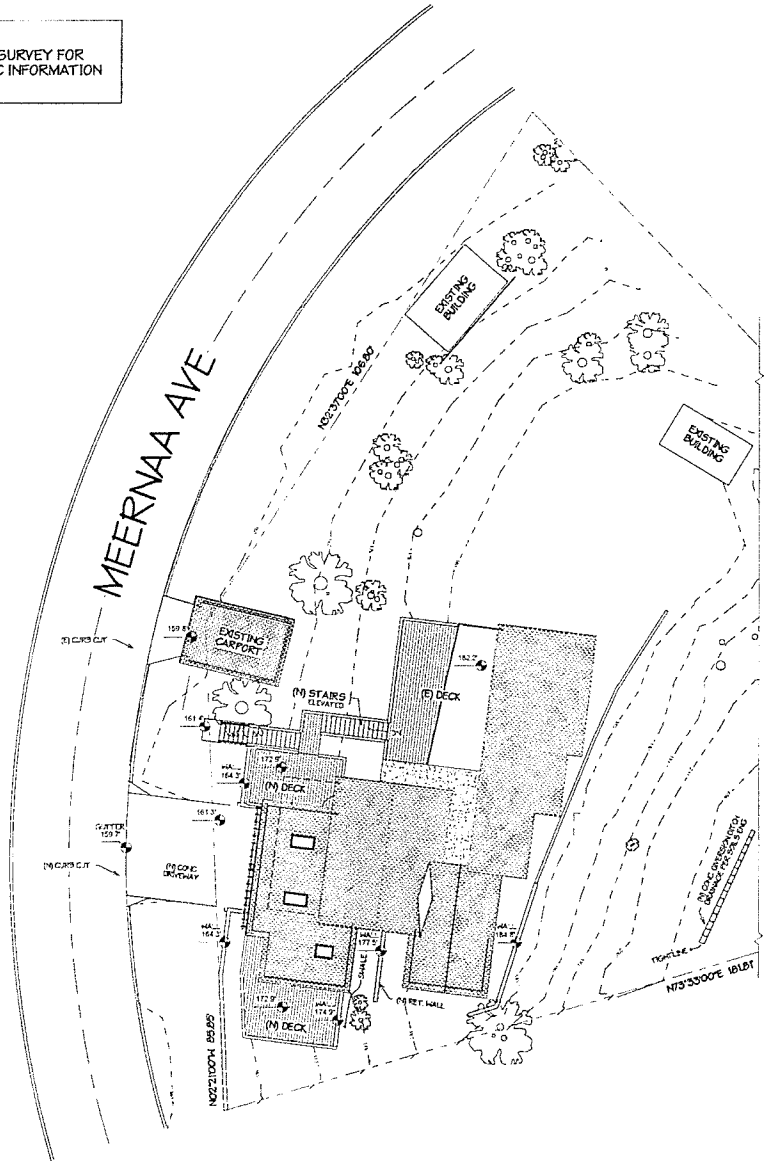
10.16.19
1/4" = 1'-0"

A5

SEE TOPOGRAPHICAL SURVEY FOR COMPLETE TOPOGRAPHIC INFORMATION



1 EXISTING TOPOGRAPHY
1" = 10'-0"



2 PROPOSED TOPOGRAPHY
1" = 10'-0"

LEGEND
PROPERTY LINE
CONTOUR LINE - 5 FT
ELEVATION

N

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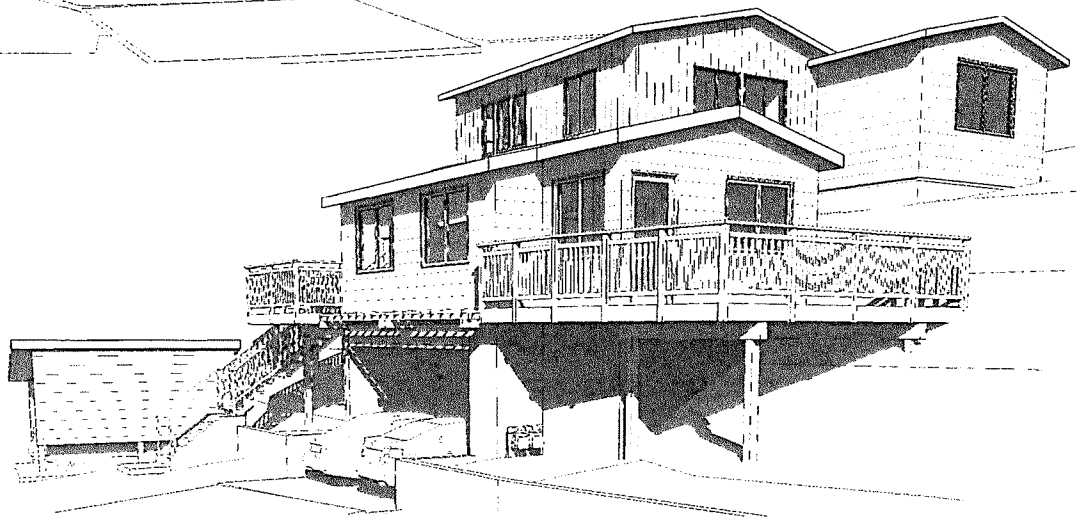
APN: 002-162-20

TOPOGRAPHY CHANGES

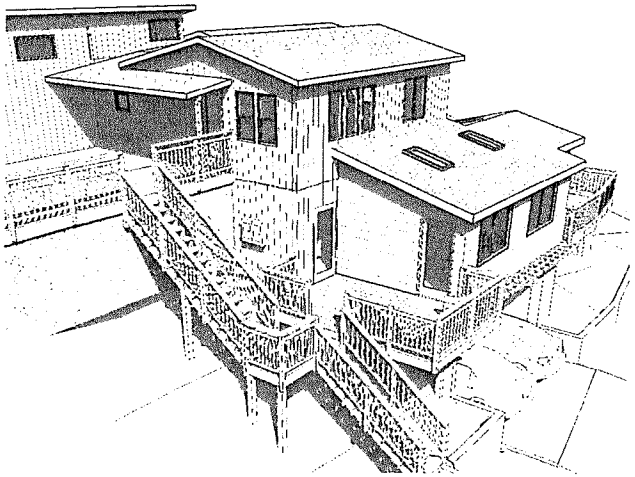
10.16.19
1" = 10'-0"

A6

1 FRONT STREET VIEW



2 SOUTHWEST STREET VIEW



3 EXT. STAIRS & ENTRIES

NOTE: APPROX TOPOGRAPHIC VISUAL RENDERING

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3D EXTERIOR VIEWS

10 16 19

A7