



Staff Report

Date: February 8, 2018

To: Mayor Robbins and Council Members

From: Heidi Scoble, Planning Manager

Subject: Foley & O’Mahony Residence, 2 Crest Road, File No. 2017-036

Recommendation

Town Council approval of Resolution 2014 conditionally approving a Design Review, a Hillside Lot Permit, a Variance, and a Tree Permit to allow the new construction of a 2,814 sq. ft. single family residence on a vacant lot, which includes a 500 sq. ft. attached Accessory Dwelling Unit. Other project features would include landscape and hardscape improvements at 2 Crest Road

Project Information

Owner: Paul Foley and Mike O’Mahony

Design Professional: Kyle Thayer, Thayer Architecture Inc.

Location: 2 Crest Road

A.P. Number: 072-023-27

Zoning: R-1:B-5A (Single Family Residence, 5 acres min. lot size)

General Plan: Very Low Density (.1-1 Unit/Acre)

Flood Zone: Zone X (Outside of the 100 year floodplain)

Project Reference: 2017-019 DR-HL-VA-ADU-TRP

Project Summary Data

Lot Area	18,773 square feet		
Existing Floor Area/Ratio	0 sq. ft.	0%	(15% permitted)
Proposed Floor Area/Ratio	2,814 sq. ft.	15%	
Maximum FAR per HLO	2,815 sq. ft.	Based on a 19% slope	
Existing Lot Coverage	0 sq. ft.	0%	(15% permitted)
Proposed Lot Coverage	2,225 sq. ft.	11.5%	
Existing Impervious Surfaces	1,006 sq. ft.	5%	
Proposed Impervious Surfaces	3,764 sq. ft.	20%	

Project Description

The applicant is requesting Design Review, a Hillside Lot Permit, a Variance, an Accessory Dwelling Unit, and Tree Permit applications to allow the new construction of a 2,814 sq. ft. single family residence on a vacant lot, which includes a 500 sq. ft. attached Accessory Dwelling Unit and a 541 square foot garage. Other project features would include landscape and hardscape improvements, including the removal of 47 trees, many of which are required to comply with Wildland Urban Interface (WUI) regulations.

The project materials and colors will include the following:

Roof Fascia: Copper

Siding: Horizontal cedar stained natural
Stucco with a flat surface painted silver grey (non-speckled)

Windows: Bronze

Railings: Galvanized steel painted bronze

Foundation: Board formed concrete

As depicted on Sheet L1 of the project plans, the landscape plan would include the planting of WUI compliant trees, shrubs, and ground cover.

The proposed improvements require the following permits.

- **Design Review is required pursuant to Ross Municipal Code (RMC) Section 18.41.020** because the project would consist of a new structure on a vacant lot, more than 1,000 square feet of impervious surfaces would be added to the vacant lot, and more than 50 cubic yards of grading would be required for the project.
- **A Hillside Lot Permit is required pursuant to RMC Chapter 18.39** because a portion of the project site is located in a Hazard Zone 3, thus triggering the review of the project.
- **A Variance is required pursuant to RMC Section 18.42.065(a)** to allow a 10- foot front yard setback to allow a portion of a wood deck encroachment.
- **Accessory Dwelling Unit is required pursuant to Ross Municipal Code (RMC) Section 18.42.045** to allow the owner of the property to request an accessory dwelling unit be allowed to be constructed.
- **A Tree Removal Permit is required pursuant to Ross Municipal Code (RMC) Section 12-24.080** to allow for the removal of 47 trees (6" in diameter or greater) on vacant land as required by the Ross Valley Fire Department.

Background

The vacant project site is a downward sloping lot with an average slope of approximately 19% located at the intersection of Baywood Avenue and Crest Road. Access to the site would be from Crest Road. On February 10, 1916, the Town Council rejected an offer of dedication for road purposes over a strip of land known as Crest Avenue (the “subject property”). The owners of 70 Baywood, who owned the two parcels of land which were divided by this paper road, requested that the Town summarily vacate the paper street property. The subject property has never been improved or used as a public street and was determined not necessary for any present or future public use. On February 12, 2015, the Town approved a resolution to vacate the subject paper street property. The property was merged into a single lot and is now considered a legal lot on record.

Advisory Design Group Review

On May 23, 2017, the Advisory Design Review (ADR) Group reviewed a conceptual design review application to elicit comments prior to formal submittal of a Design Review application. The ADR Group provided design suggestions as follows:

- Make the residence look more residential and less commercial
- Soften the appearance through the use of materials and articulation
- Use less stucco
- Consider an alternative material such as copper
- Consider the project as it relates to the Redwood trees
- Provide more details on lighting

On December 19, 2017, the ADR Group reviewed the formal submittal of the project. The ADR Group appreciated how the project architecture was enhanced from the May 2018 meeting and suggested the following items to demonstrate greater compliance with purpose of Design Review and consistency with the Design review criteria and standards as follows:

- Simplify architecture and retaining walls.
- Reduce further the commercial appearance of the residence and retaining walls
- Encouraged an alternative stairway design to the Accessory Dwelling Unit so that it does not look like a fire escape.
- Add texture to the architecture through the use of more wood and less stucco
- Consider copper fascia and gutters.
- Consider an alternative to a cable rail to be more consistent with the architecture
- Consider reducing the color contrast of the materials and consider the use of treated cedar with semi-transparent stain.
- Vertical architectural corner element located adjacent to Crest Road and Baywood Avenue should be improved to provide more articulation.
- Consider not using glass for the garage door.
- Wood siding shall be placed under the roof eave soffit.

On January 23, 2018, the ADR Group reviewed a revised submittal that included design modifications to address the recommendations provided by the ADR Group at the December 29, 2017 meeting. The ADR Group concluded their review by providing a recommendation to the Town Council to support the project as proposed based on the project's conformance with the Design review criteria and standards per Section 18.41.100 of the Ross Municipal Code.

Key Issues

Design Review

The overall purpose of Design Review is to provide excellence in design consistent with the same quality of the existing development, to preserve and enhance the historical "small town," low-density character and identity that is unique to the Town of Ross, to discourage the development of individual buildings which dominate the townscape or attract attention through color, mass or inappropriate architectural expression, and to upgrade the appearance, quality and condition of existing improvements in conjunction with new development or remodeling of a site. Accordingly, pursuant to Section 18.41.100 of the Ross Municipal Code, a series of Design Review criteria and standards have been developed to guide development.

In reviewing the project, the following design review criteria and standards are most relevant to the project:

1. New structures and additions should avoid monumental or excessively large size that are out of character with their setting or with other dwellings in the neighborhood. Buildings should be compatible with others in the neighborhood and not attract attention to themselves. When nonconforming floor area is proposed to be retained with site redevelopment, the Council may consider the volume and mass of the replacement floor area and limit the volume and mass where necessary to meet the intent of these standards.
2. To avoid monotony or an impression of bulk, large expanses of any one material on a single plane should be avoided, and large single-plane retaining walls should be avoided. Vertical and horizontal elements should be used to add architectural variety and to break up building plans. The development of dwellings or dwelling groups should not create excessive mass, bulk or repetition of design features.
3. Buildings should use materials and colors that minimize visual impacts, blend with the existing land forms and vegetative cover, are compatible with structures in the neighborhood and do not attract attention to the structures. Colors and materials should be compatible with those in the surrounding area. High-quality building materials should be used.
4. Natural materials such as wood and stone are preferred, and manufactured materials such as concrete, stucco or metal should be used in moderation to avoid visual conflicts with the natural setting of the structure.
5. Soft and muted colors in the earthtone and woodtone range are preferred and generally should predominate.

6. Landscaping should include appropriate plantings to soften or screen the appearance of structures as seen from off-site locations and to screen architectural and mechanical elements such as foundations, retaining walls, condensers and transformers.

Upon review of the project, and as supported by the ADR Group, staff suggests the project is consistent with the Design review criteria and standards as follows:

1. The project's architectural design and landscape plan is designed to be compatible with the project site and the appearance to neighboring properties.
2. The project is designed to be consistent with the Town's Design Review criteria and standards of Section 18.41.100 of the Ross Municipal Code relative to mass, bulk, neighborhood compatibility, high quality design, and materials.
3. The project is designed within high quality, long lasting materials and colors.
4. The project is designed with adequate circulation and on-site parking consistent with the Town's Municipal Code and the Ross Valley Fire Department.
5. The project would not impact any creeks and drainage ways to ensure protection of any natural resource area of the riparian area because all on-site drainage would be designed on-site so that no net increase in runoff from the project site would occur beyond its existing conditions.
6. The project would add two market rate units to the Town's housing stock.

In summary and as supported above, staff suggests the project is consistent with the intent of the Town's Design Review criteria, standards, findings, and conditions of approval.

Hillside Lot Permit Regulations

The project is partially located within the Town's Slope Hazard Stability Zone 3 and thus the Hillside Lot regulations per Chapter 18.39 of the Ross Municipal Code would apply to the project. The project site has an average slope of approximately 19% and therefore is not subject to the Hillside Lot floor area formula pursuant to Section 18.39.090(a) of the Ross Municipal Code.

Staff suggests the project is designed in compliance with the hillside lot design regulations and guidelines as follows:

1. The project would not exceed the maximum permitted floor area per the Hillside Lot regulations. The resultant project would be 2,814 square feet where a maximum of 2,815 square feet would be permitted.
2. Nominal grading would occur primarily because the project due to the relatively flat topography of the site.
3. The project has been architecturally designed with high quality materials and would have a compatible scale with the neighborhood.
4. The project would not obstruct any public or private views.
5. The project is designed to comply with the WUI regulations, such as Class A roofing and fire sprinklers, in addition to providing a vegetation management plan.

6. The project would not create any long-term circulation and access impacts within the Crest Road or Baywood Avenue rights-of-way.

Impervious Surfaces

As a vacant parcel, the project would add new impervious surfaces to the project site as a result of the new construction. Although the project site is vacant, it was historically utilized by the previous owner and was moderately landscaped. As such, approximately 1,000 square feet of impervious surfaces exist. The project would result in a net increase in impervious surfaces from 1,000 square feet square feet to 3,764 square feet. Although the project would increase the impervious surfaces from 5% to 20%, the project is designed (see Sheets C1-C3 of the project plans) to meet the Town's drainage and stormwater plan to ensure the project's post-development stormwater runoff rates would be no greater than the pre-project rates as suggested by the Town's design review criteria and standards and as required by State law. A Stormwater Control Plan was also prepared by ILS Associates, Inc. dated November 17, 2017 to correspond with the drainage plans associated with Sheets C1 and C2 of the project plans (see attachment 5). Therefore, based on the existing conditions of the site and as designed, the project would be consistent with the intent and purpose of the Town's stormwater management policies.

Front Setback Variance

A Variance is required to allow a 10- foot front yard setback to allow a deck encroachment within the 25-foot front yard setback. Pursuant to Section L8.48.010, a Variance may only be permitted if the following findings can be achieved:

1. Variances shall be granted only when, because of special circumstances applicable to the property, including size, shape, topography, location or surroundings, the strict application of the zoning ordinance deprives such property of privileges enjoyed by other property in the vicinity and under identical zoning classification.
2. Any variance granted shall be subject to such conditions as will assure that the adjustment thereby authorized shall not constitute a grant of special privileges inconsistent with the limitations upon other properties in the vicinity and zone in which such property is situated.
3. A variance shall not be granted for a parcel of property which authorizes a use or activity which is not otherwise expressly authorized by the zone regulation governing the parcel of property. The provisions of this section shall not apply to use permits.

Staff suggests that all requisite Variance findings can be supported to approve the project as follows:

1. **Special Circumstance:** The project site is considered to be a corner lot that runs adjacent to Crest Road and Baywood Avenue, both private roads. Due to the parcel configuration, topography, and location, staff suggest a special circumstance exists to warrant relief from complying with the strict requirements to comply with a 25-foot front yard setback. The

setback encroachment would allow the construction of a deck in order to provide level site access around the frontage of the residence.

2. **Special Privilege:** Since incorporation, the Town of Ross has granted numerous setback Variances for setback encroachments to allow decks due to topographical and access constraints related to the location and configuration of the project site. Additionally, the Town of Ross has granted Variances for relief from the requisite on-site parking requirements due to the aforementioned parcel constraints.
3. **Use:** A detached garage for the purposes of on-site parking related to a primary residence is a permitted use in the R-1:B-5A zoning district.

Tree Removal

As shown on Sheet A1.1 of the project plans, the applicant is reluctantly proposing the removal of 47 trees. As required by the Hillside Lot Permit, the of the trees are necessary to conform with the vegetation removal requirements relative to the with state mandated WUI regulations and defensible space criteria. In working with the Ross Valley Fire Department, the applicant has prepared a Vegetation Management Plan as shown on Sheet L2 of the project plans, which identifies the trees to be removed. The Ross Valley Fire Department has also reviewed the proposed landscape plan shown on Sheet L1 and supports the plan as proposed. Although the project would remove existing trees, the project landscape plan as shown on Sheet L1 would provide WUI compliant landscaping comprised of trees, shrubs, and groundcover to replace the trees required to be removed.

Public Comment

Public Notices were mailed to property owners within 500 feet of the project site. Staff has not received comments as of the writing of this report.

Fiscal, resource and timeline impacts

If approved, the project would be subject to one-time fees for a building permit and associated impact fees, which are based the reasonable expected cost of providing the associated services and facilities related to the development. The improved project site may be reassessed at a higher value by the Marin County Assessor, leading to an increase in the Town's property tax revenues. Lastly, there would be no net funding impacts associated with the project.

Alternative actions

1. Continue the project for modifications; or
2. Make findings to deny the application.

Environmental review (if applicable)

The project is categorically exempt from the requirement for the preparation of environmental documents under the California Environmental Quality Act (CEQA) under CEQA Guideline Section 15303(e), Class 3 –New construction or Conversion of Small Structures, because the project consists of the new construction of a swimming. Furthermore, no exception set forth in Section

15301.2 of the CEQA Guidelines applies to the project including, but not limited to, Subsection (a), which relates to impacts on environmental resources; (b), which relates to cumulative impacts; Subsection (c), which relates to unusual circumstances; or Subsection (f), which relates to historical resources.

Attachments

1. Resolution 2041
2. Project Plans
3. Project Description prepared by Thayer Architecture Inc.
4. Neighbor Correspondence
5. Stormwater Control Plan dated November 17, 2017
6. Geotechnical Report prepared by Salem Howes Associates, Inc. dated August 24, 2017
7. Project History

ATTACHMENT 1

TOWN OF ROSS

RESOLUTION NO. 2041

A RESOLUTION OF THE TOWN OF ROSS APPROVING DESIGN REVIEW, A HILLSIDE LOT PERMIT, A VARIANCE, AND A TREE PERMIT TO ALLOW FOR THE NEW CONSTRUCTION OF A NEW SINGLE FAMILY RESIDENCE AND ACCESSORY DWELLING UNIT AT 2 CREST ROAD, APN 072-023-27

WHEREAS, Kyle Thayer, Thayer Architecture Inc., on behalf of property owners Paul Foley and Mike O'Mahony, have submitted a Design Review, a Hillside Lot Permit, a Variance, and a Tree Permit to allow the new construction of a 2,814 sq. ft. single family residence on a vacant lot, which includes a 500 sq. ft. attached Accessory Dwelling Unit. Other project features would include landscape and hardscape improvements at 2 Crest Road; and

WHEREAS, the project is categorically exempt from the requirement for the preparation of environmental documents under the California Environmental Quality Act (CEQA) under CEQA Guideline Section 15303(e), Class 3—New construction or Conversion of Small Structures, because the project consists of the new construction of a detached accessory structure for a pool house. No exception set forth in Section 15301.2 of the CEQA Guidelines applies to the project including, but not limited to, Subsection (a), which relates to impacts on environmental resources; (b), which relates to cumulative impacts; Subsection (c), which relates to unusual circumstances; or Subsection (f), which relates to historical resources; and

WHEREAS, on February 8, 2018, the Town Council held a duly noticed public hearing to consider the proposed project; and

WHEREAS, the Town Council has carefully reviewed and considered the staff reports, correspondence, and other information contained in the project file, and has received public comment; and

NOW, THEREFORE, BE IT RESOLVED the Town Council of the Town of Ross hereby incorporates the recitals above; makes the findings set forth in Exhibit "A", and approves a Design Review to allow the project, subject to the Conditions of Approval attached as Exhibit "B".

The foregoing resolution was duly and regularly adopted by the Ross Town Council at its regular meeting held on the 8th day of February 2018, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Elizabeth Robbins, Mayor

ATTEST:

Linda Lopez, Town Clerk

EXHIBIT "A"
FINDINGS
2 CREST ROAD
APN 072-023-27

A. Findings

I. In accordance with Ross Municipal Code Section 18.41.070, Design Review is approved based on the following findings:

a) The project is consistent with the purpose of the Design Review chapter as outlined in Ross Municipal Code Section 18.41.010:

The project would meet the purpose of the Design Review chapter through its high quality design and materials. The project is designed with a similar architectural style and materials of the existing residence. As the project is not readily seen from public vantage points, the project would not impact the "small town" character of the Town because the project is designed to maintain the overall mass, bulk, and style of the existing development pattern of the property and because the project site is not readily visible from any public vantage point. Additionally, the project would not impact any unique environmental resources due to the location of the project site relative to any sensitive wildlife habitat, species, and/or creeks. Lastly, the project would be designed to address drainage and stormwater and would be required to construct those improvements as part of the building permit process.

b) The project is in substantial compliance with the design criteria of Ross Municipal Code Section 18.41.100.

As supported in the Staff Report dated February 8, 2018, the project would be consistent with the design review criteria and standards relative to having a nominal impact on the existing site conditions by providing an architectural design that is consistent and compatible with the architecture, materials, and colors of the existing residence. Lastly, the project would address health and safety through the issuance of a building permit to ensure compliance with the building, public works, and fire code regulations.

c) The project is consistent with the Ross General Plan and zoning ordinance.

As previously stated, the entire scope of the project is consistent with the Town's General Plan and R-1:B-5A zoning district, in addition to the allowed structures and uses that may be permitted, therefore the project is found to be consistent with the Ross General Plan and Zoning Ordinance.

II. In accordance with Ross Municipal Code Section 18.38.060 - Approval of a Hillside Lot Permit is approved based on the following findings:

a) The project complies with the stated purposes of the Hillside Lot Ordinance.

The development would not obstruct views for adjacent sites or the public. The site would be served by public sewer and water and accessed from a private road. The project is feasible from a structural standpoint and will not create slides or other hazard due to the relatively flat topography of the project site. As conditioned, the project would result in a structure that is more fire safe. The project would also be required to comply with the California Building and Fire Codes and conditions of project approval to ensure erosion control, appropriate site drainage and public safety.

Lastly, the site would be developed with a single family residence with an attached two-car garage and accessory dwelling unit that is designed to be architecturally compatible with the surrounding neighborhood.

b) The project complies with the development regulations of Section 18.39.090, or that the Town Council has considered and approved a variance.

The project would meet the development regulations specified in Section 18.39.090 as follows:

1. The project would not exceed the maximum permitted floor area per the Hillside Lot regulations. The resultant project would be 2,814 square feet where a maximum of 2,815 square feet would be permitted.
2. Nominal grading would occur primarily because the project due to the relatively flat topography of the site.
3. The project has been architecturally designed with high quality materials and would have a compatible scale with the neighborhood.
4. The project would not obstruct any public or private views.
5. The project is designed to comply with the Wildland Urban Interface regulations, such as Class A roofing and fire sprinklers.
6. The project would not create any long-term circulation and access impacts within the Crest Road or Baywood Avenue rights-of-way.

c) The project substantially conforms to the hillside development guidelines in Section 18.39.090.

As supported in the above finding, the project would conform to the Hillside Lot development guidelines in Section 18.39.090 of the Ross Municipal Code.

III. In accordance with Ross Municipal Code Section 18.48.020, a Setback and Parking Variance is approved based on the following findings:

1. That there are special circumstances or conditions applicable to the land, building or use referred to in the application;

As supported in the February 8, 2018 staff report, the requisite special circumstance findings can be achieved to allow the setback Variance due to the constraints associated with the parcel configuration, location, and building envelope related to the project site.

- 2. That the granting of the application is necessary for the preservation and enjoyment of substantial property rights;**

As supported in the February 8, 2018 staff report, the granting of the project Variances would be consistent with other Variances that have been granted for similar projects in similar zoning districts within the Town.

- 3. That the granting of the application will not materially affect adversely the health or safety of persons residing or working in the neighborhood of the property of the applicant and will not be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood.**

The project would not adversely affect health and safety of nearby residents as the project would be constructed in compliance with the building code and fire codes.

- IV. In accordance with Ross Municipal Code Section 12.24.080, a Tree Removal permit is approved based on the following findings:**

1. The alteration or removal is necessary to allow the economic enjoyment of the property, such as construction of improvements because some of the trees are located over the most feasible development area;
2. The alteration or removal would not adversely impact the subject property or neighboring properties because a large number of trees will remain;
3. Tree removal would not result in significant erosion or the diversion of increased flows of surface water because engineered fill would be placed where stumps are removed;
4. The removal of the trees are necessary to conform with the vegetation removal requirements relative to the with state mandated Wildland Urban Interface regulations and defensible space criteria. The Ross Valley Fire Department has reviewed and approved a Vegetation Management Plan as shown on Sheet L2 of the project plans.

EXHIBIT "B"
CONDITIONS OF APPROVAL
2 CREST ROAD
APN 072-023-27

1. This approval authorizes a Design Review, a Hillside Lot Permit, a Variance, and a Tree Permit to allow the new construction of a 2,814 sq. ft. single family residence on a vacant lot, which includes a 500 sq. ft. attached Accessory Dwelling Unit. Other project features would include landscape and hardscape improvements at 2 Crest Road.
2. Except as otherwise provided in these conditions, the project shall comply with the plans titled, "New Residence, 2 Crest Avenue" prepared by Thayer Architecture Inc., date stamped received January 10, 2018. Plans submitted for the building permit shall reflect any modifications required by the Town Council and these conditions.
3. The project roof shall utilize non-glaring earth-tone materials.
4. Wood siding shall be placed under the roof eave soffit
5. No changes from the approved plans, before or after project final, including changes to the materials and material colors, shall be permitted without prior Town approval. Red-lined plans showing any proposed changes shall be submitted to the Town for review and approval prior to any change. The applicant is advised that changes made to the design during construction may delay the completion of the project and will not extend the permitted construction period.
6. The project shall comply with the Fire Code and all requirement of the Ross Valley Fire Department (RVFD).
7. Prior to Building Permit Issuance, the applicant shall submit proposed exterior lighting fixtures if any new lighting will be installed as a result of the project. All lighting shall be shielded (no bare bulb light fixtures or down lights that may be visible from down-slope sites). Exterior lighting of landscaping by any means shall not be permitted if it creates glare, hazard or annoyance for adjacent property owners. Lighting expressly designed to light exterior walls or fences that is visible from adjacent properties or public rights-of-way is prohibited. No up lighting is permitted. Interior and exterior lighting fixtures shall be selected to enable maximum "cut-off" appropriate for the light source so as to strictly control the direction and pattern of light and eliminate spill light to neighboring properties or a glowing night time character.
8. BEFORE FINAL INSPECTION, the applicant shall call for a Community Development Agency staff inspection of approved landscaping, building materials and colors, lighting and

compliance with conditions of project approval at least five business days before the anticipated completion of the project. Failure to pass inspection will result in withholding of the Final Inspection approval and imposition of hourly fees for subsequent re-inspections.

9. The project shall comply with the following conditions of the Town of Ross Building Department and Public Works Department:
 - a. Any person engaging in business within the Town of Ross must first obtain a business license from the Town and pay the business license fee. Applicant shall provide the names of the owner, architects, engineers and any other people providing project services within the Town, including names, addresses, e-mail, and phone numbers. All such people shall file for a business license. A final list shall be submitted to the Town prior to project final.
 - b. A registered Architect or Engineer's stamp and signature must be placed on all plan pages.
 - c. The building department may require the applicant to submit a deposit prior to building permit issuance to cover the anticipated cost for any Town consultants, such as the town hydrologist, review of the project. Any additional costs incurred by the Town, including costs to inspect or review the project, shall be paid as incurred and prior to project final.
 - d. The applicant shall submit an erosion control plan with the building permit application for review by the building official/director of public works. The Plan shall include signed statement by the soils engineer that erosion control is in accordance with Marin County Stormwater Pollution Prevention Program (MCSTOPP) standards. The erosion control plan shall demonstrate protection of disturbed soil from rain and surface runoff and demonstrate sediment controls as a "back-up" system (i.e., temporary seeding and mulching or straw matting).
 - e. No grading shall be permitted during the rainy season between October 15 and April 15 unless permitted in writing by the Building Official/Director of Public Works. Grading is considered to be any movement of earthen materials necessary for the completion of the project. This includes, but is not limited to cutting, filling, excavation for foundations, and the drilling of pier holes. It does not include the boring or test excavations necessary for a soils engineering investigation. All temporary and permanent erosion control measures shall be in place prior to October 1.
 - f. The drainage design shall comply with the Town's stormwater ordinance (Ross Municipal Code Chapter 15.54). A drainage plan and hydrologic/hydraulic analysis shall be submitted with the building permit application for review and approval by the building official/public works director.
 - g. The plans submitted for a building permit shall include a detailed construction and traffic management plan for review and approval of the building official, in consultation with the town planner and police chief. The plan shall include as a minimum: tree protection,

management of worker vehicle parking, location of portable toilets, areas for material storage, traffic control, method of hauling and haul routes, size of vehicles, and washout areas. The plan shall demonstrate that on-street parking associated with construction workers and deliveries are prohibited and that all project deliveries shall occur during the working hours as identified in the below condition 7m.

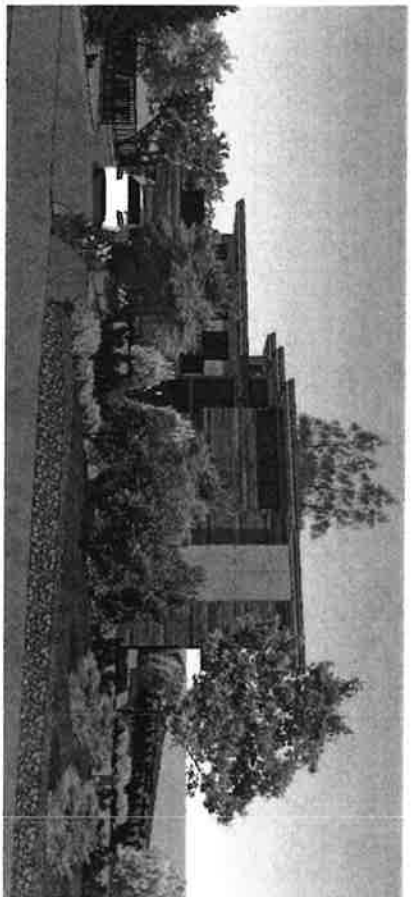
- h. The applicant shall submit a schedule that outlines the scheduling of the site development to the building official. The schedule should clearly show completion of all site grading activities prior to the winter storm season and include implementation of an erosion control plan. The construction schedule shall detail how the project will be completed within the construction completion date provided for in the construction completion chapter of the Ross Municipal Code (Chapter 15.50).
- i. A preconstruction meeting with the property owner, project contractor, project architect, project arborist, representatives of the Town Planning, Building/Public Works and Ross Valley Fire Department and the Town building inspector is required prior to issuance of the building permit to review conditions of approval for the project and the construction management plan.
- j. A copy of the building permit shall be posted at the site and emergency contact information shall be up to date at all times.
- k. The Building Official and other Town staff shall have the right to enter the property at all times during construction to review or inspect construction, progress, compliance with the approved plans and applicable codes.
- l. Inspections shall not be provided unless the Town-approved building permit plans are available on site.
- m. Working Hours are limited to Monday to Friday 8:00 a.m. to 5:00 p.m. Construction is not permitted at any time on Saturday and Sunday or the following holidays: New Year's Day, Martin Luther King Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. If the holiday falls on a Sunday, the following Monday shall be considered the holiday. If the holiday falls on a Saturday, the Friday immediately preceding shall be considered the holiday. Exceptions: 1.) Work done solely in the interior of a building or structure which does not create any noise which is audible from the exterior; or 2.) Work actually physically performed solely by the owner of the property, on Saturday between the hours of 10:00 a.m. and 4:00 p.m. and not at any time on Sundays or the holidays listed above. (RMC Sec. 9.20.035 and 9.20.060).
- n. Failure to comply in any respect with the conditions or approved plans constitutes grounds for Town staff to immediately stop work related to the noncompliance until the matter is resolved. (Ross Municipal Code Section 18.39.100). The violations may be subject to additional penalties as provided in the Ross Municipal Code and State law. If a

stop work order is issued, the Town may retain an independent site monitor at the expense of the property owner prior to allowing any further grading and/or construction activities at the site.

- o. Materials shall not be stored in the public right-of-way. The project owners and contractors shall be responsible for maintaining all roadways and rights-of-way free of their construction-related debris. All construction debris, including dirt and mud, shall be cleaned and cleared immediately. All loads carried to and from the site shall be securely covered, and the public right-of-way must be kept free of dirt and debris at all times. Dust control using reclaimed water shall be required as necessary on the site or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at site. Cover stockpiles of debris, soil, sand or other materials that can be blown by the wind.
- p. Applicants shall comply with all requirements of all utilities including, the Marin Municipal Water District, Ross Valley Sanitary District, and PG&E prior to project final. Letters confirming compliance shall be submitted to the building department prior to project final.
- q. All electric, communication and television service laterals shall be placed underground unless otherwise approved by the director of public works pursuant to Ross Municipal Code Section 15.25.120.
- r. The project shall comply with building permit submittal requirements as determined by the Building Department and identify such in the plans submitted for building permit.
- s. The applicant shall work with the Public Works Department to repair any road damage caused by construction. Applicant is advised that, absent a clear video evidence to the contrary, road damage must be repaired to the satisfaction of the Town prior to project final. Damage assessment shall be at the sole discretion of the Town, and neighborhood input will be considered in making that assessment.
- t. Final inspection and written approval of the applicable work by Town Building, Planning and Fire Department staff shall mark the date of construction completion.
- u. The Public Works Department may require submittal of a grading security in the form of a Certificate of Deposit (CD) or cash to cover grading, drainage, and erosion control. Contact the Department of Public Works for details.
- v. BEFORE FINAL INSPECTION, the Soils Engineer shall provide a letter to the Department of Public Works certifying that all grading and drainage has been constructed according to plans filed with the grading permit and his/her recommendations. Any changes in the approved grading and drainage plans shall be certified by the Soils Engineer and approved by the Department of Public Works. No modifications to the approved plans shall be made without approval of the Soils Engineer and the Department of Public Works.

- i. The existing vegetation shall not be disturbed until landscaping is installed or erosion control measures, such as straw matting, hydroseeding, etc, are implemented.
 - ii. All construction materials, debris and equipment shall be stored on site. If that is not physically possible, an encroachment permit shall be obtained from the Department of Public Works prior to placing any construction materials, debris, debris boxes or unlicensed equipment in the right-of-way.
 - iii. The applicant shall provide a hard copy and a CD of an as-built set of drawings, and a certification from all the design professionals to the building department certifying that all construction was in accordance with the as-built plans and his/her recommendations.
10. The applicants and/or owners shall defend, indemnify, and hold the Town harmless along with the Town Council and Town boards, commissions, agents, officers, employees, and consultants from any claim, action, or proceeding ("action") against the Town, its boards, commissions, agents, officers, employees, and consultants attacking or seeking to set aside, declare void, or annul the approval(s) of the project or alleging any other liability or damages based upon, caused by, or related to the approval of the project. The Town shall promptly notify the applicants and/or owners of any action. The Town, in its sole discretion, may tender the defense of the action to the applicants and/or owners or the Town may defend the action with its attorneys with all attorney fees and litigation costs incurred by the Town in either case paid for by the applicant and/or owners.

ATTACHMENT 2



REVISION

A0.1

DATE: 08-19-2011
 DRAWN BY: J.M.

3D MODEL
 RENDERINGS

SCALE: 1/8" = 1'-0"

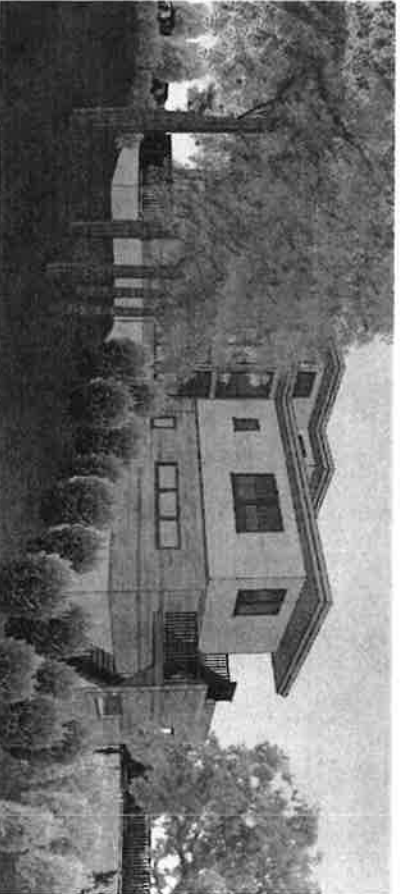
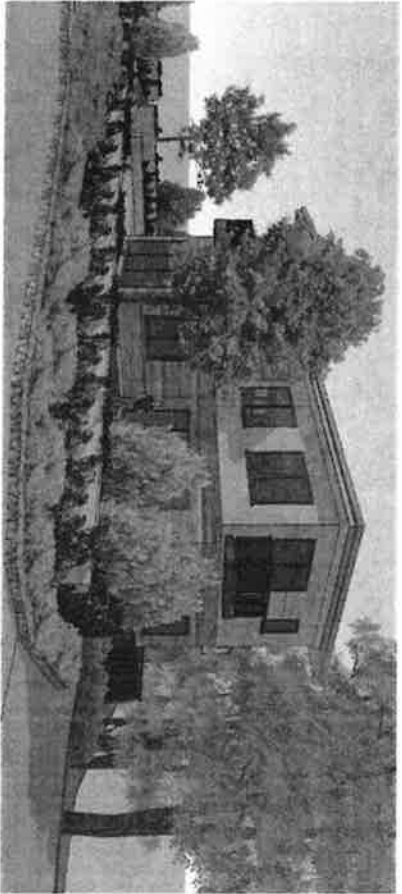
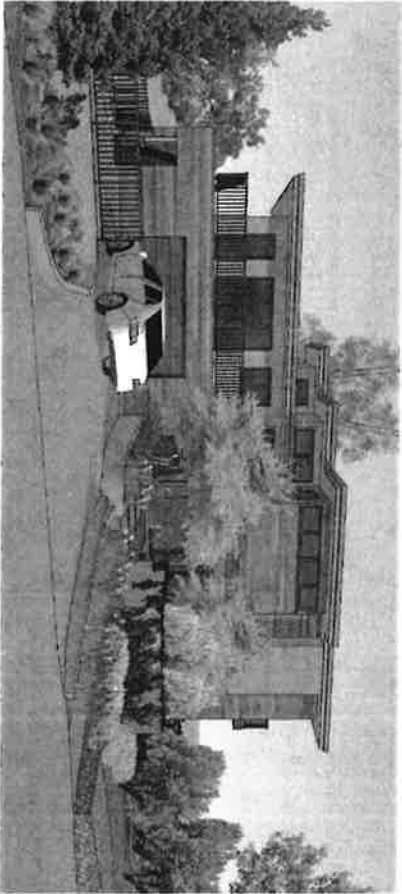
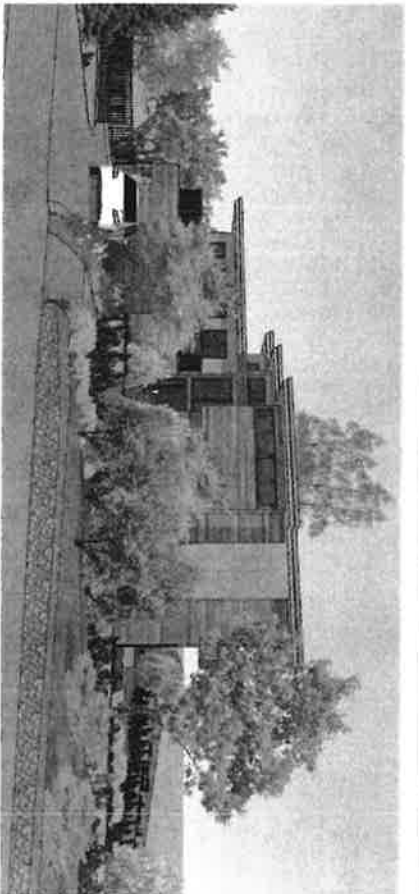
A NEW RESIDENCE
 2 CREST AVENUE
 ROSS, CA
 A P. NO. 072-023-27

THAYER
 ARCHITECTURE
 INC.

Kathy M. Thayer, Architect
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 Tel. 415 524-2775
 info@thayerinc.com

THESE DESIGN PLANS AND SPECIFICATIONS ARE THE PROPERTY OF THIS ARCHITECT AND MAY NOT BE COPIED, REPRODUCED OR USED IN ANY MANNER WITHOUT HER PERMISSION.

NO.	DATE	BY	REVISION
1	08/19/2011	J.M.	DESIGN REVIEW
2	08/19/2011	J.M.	DESIGN REVIEW



10/20/11

A0.1

3D MODEL
RENDERINGS

DATE: 10/20/11
SCALE: AS SHOWN

A NEW RESIDENCE
2 CREST AVENUE
ROSS, CA
A. P. NO. 072-023-27

THAYER
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THESE RENDERINGS, PLANS
AND SPECIFICATIONS
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ONLY FOR THE PROJECT
AND SITE SPECIFICALLY
INDICATED.

NO.	DATE	BY	REVISION
1			DESIGN REVIEW
2			DESIGN REVIEW

BUILDING DATA

AREAS:
LOT AREA 16,773 SF

ALLOWED FLOOR AREA:
15% OF LOT AREA 2,815 SF

ACTUAL FLOOR AREA:
LOWER FLOOR AREA 1,202 SF
UPPER FLOOR AREA 1,071 SF
SUBTOTAL, HOUSE 2,273 SF

GARAGE: 541 SF

TOTAL FLOOR AREA: 2,814 SF

SECOND UNIT: 500 SF

LOT COVERAGE:
EXISTING: = 0 SF

ALLOWED:
15% OF LOT AREA = 2,815 SF

PROPOSED = 2,225 SF = 11.8 %

5 PARKING SPACES: 2 COVERED PLUS 3 UNCOVERED
SEE PARKING SUMMARY, SHEET A1

ZONING: R-1: B-A
BUILDING CONSTRUCTION TYPE: VB
BUILDING OCCUPANCY GROUP: R3U

HEIGHT LIMIT IS 30'. PROPOSED MAX. BLDG HEIGHT IS 30'.

PROPOSED BUILDING SETBACKS:
FRONT: 25'-3"; SIDE: 28'-0"; REAR 42'-3"

SCOPE OF WORK

CONSTRUCTION OF A NEW SINGLE FAMILY RESIDENCE, INCLUDING HOUSE, ATTACHED SECOND UNIT, DRIVEWAY AND IMPROVEMENTS, ON AN EXISTING VACANT LOT. A VARIANCE IS PROPOSED FOR THE ENCROACHMENT OF THE DECK AND OUTSIDE LIVING AREAS INTO THE FRONT AND SIDE SETBACKS.

IMPERVIOUS SURFACE CALC.

PRE-PROJECT: 1008 SF
POST-PROJECT: 4770 SF
PROPOSED: 3764 SF
SEE GRADING AND DRAINAGE PLAN, SHEET C1

EARTHWORK QUANTITIES

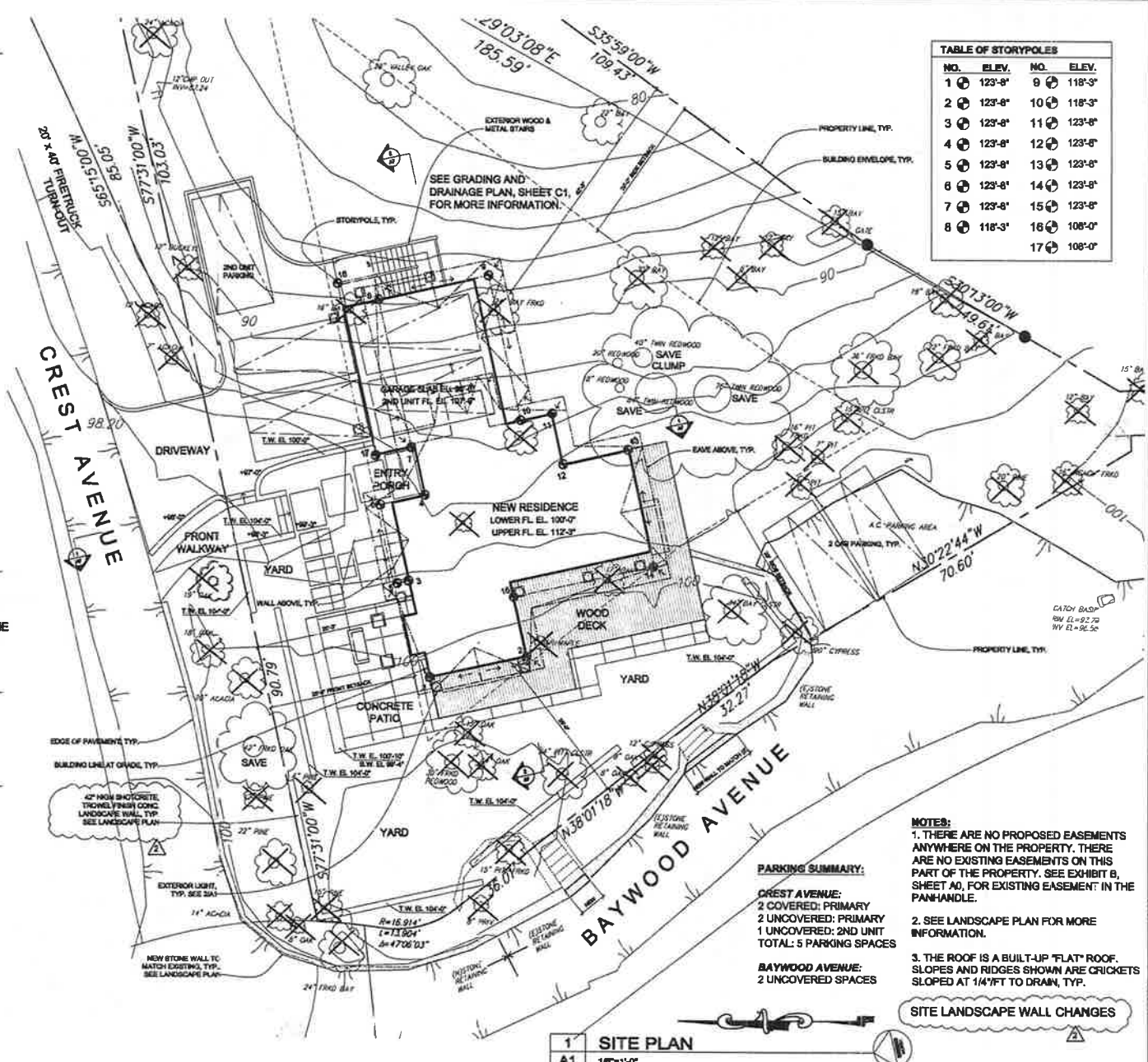
CUT: 110 CY
FILL: 440 CY FILL
SEE GRADING AND DRAINAGE PLAN, SHEET C1



Honey Atlas Outdoor Wall Sconce, No. 1940
Finish: Black

Outdoor Wall Sconce with Metal Shade - 8" Tall

2 EXTERIOR LIGHT
A1 NO SCALE



NO.	ELEV.	NO.	ELEV.
1	123'-8"	9	118'-3"
2	123'-8"	10	118'-3"
3	123'-8"	11	123'-8"
4	123'-8"	12	123'-8"
5	123'-8"	13	123'-8"
6	123'-8"	14	123'-8"
7	123'-8"	15	123'-8"
8	118'-3"	16	108'-0"
		17	108'-0"

- NOTES:**
- THERE ARE NO PROPOSED EASEMENTS ANYWHERE ON THE PROPERTY. THERE ARE NO EXISTING EASEMENTS ON THIS PART OF THE PROPERTY. SEE EXHIBIT B, SHEET A0, FOR EXISTING EASEMENT IN THE PANHANDLE.
 - SEE LANDSCAPE PLAN FOR MORE INFORMATION.
 - THE ROOF IS A BUILT-UP "FLAT" ROOF. SLOPES AND RIDGES SHOWN ARE CRICKETS SLOPED AT 1/4"FT TO DRAIN, TYP.
- PARKING SUMMARY:**
- CREST AVENUE:**
2 COVERED; PRIMARY
2 UNCOVERED; PRIMARY
1 UNCOVERED; 2ND UNIT
TOTAL: 5 PARKING SPACES
- BAYWOOD AVENUE:**
2 UNCOVERED SPACES

SITE LANDSCAPE WALL CHANGES

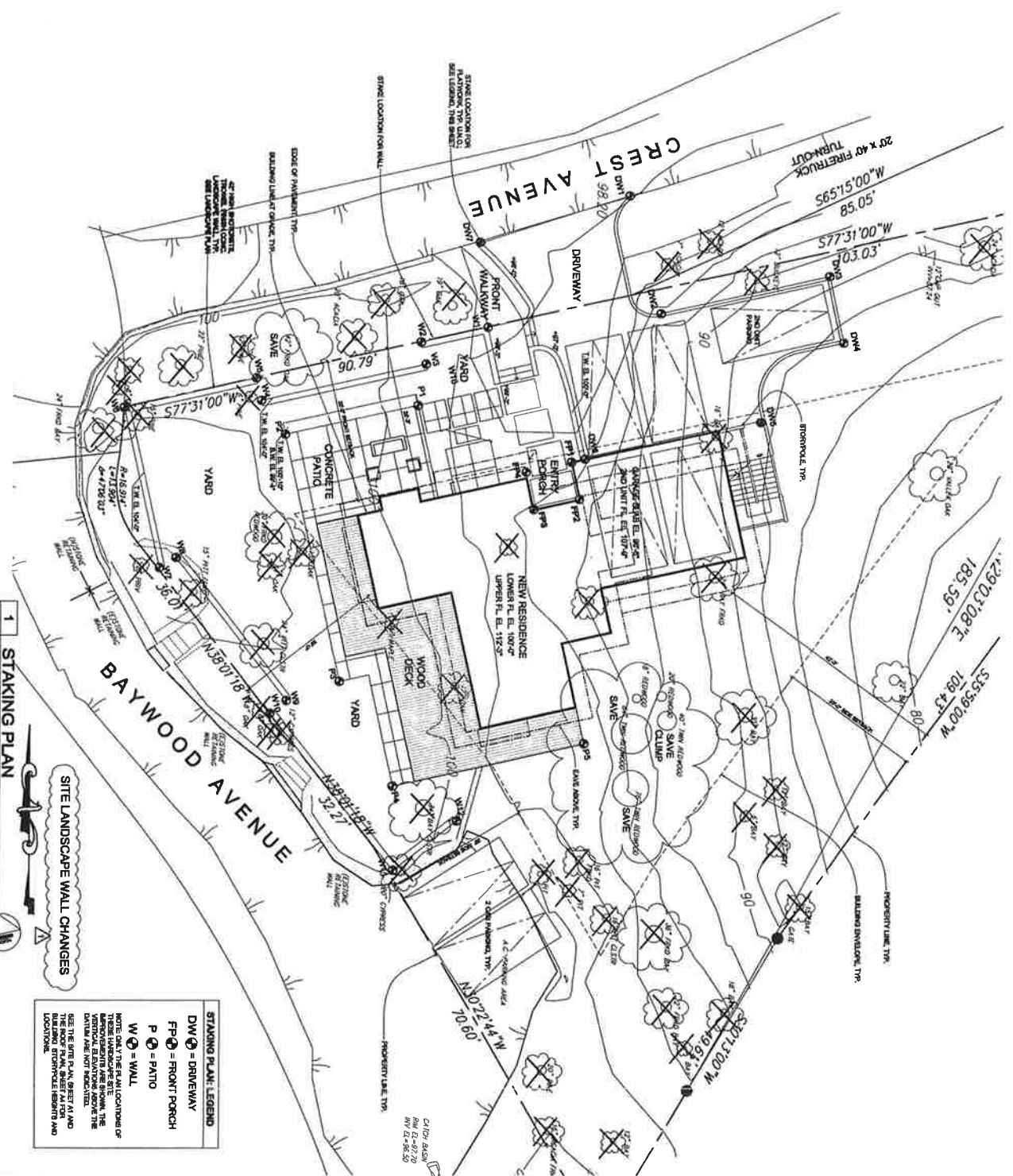
1" SITE PLAN
A1 1/8"=1'-0"

THAYER ARCHITECTURE INC.
A NEW RESIDENCE
2 CREST AVENUE
ROSS, CA
A.P. NO. 072-023-27

NO. A. Thayer, Architect
P.O. BOX 1771, OAKLAND, CA 94612
TEL. 415.863.6778
MTHAYER@GMAIL.COM

DATE: 08/11/14
BY: [Signature]

SCALE: 1/8"=1'-0"
DATE: 08/11/14
DRAWING: A1



1 STAKING PLAN
A1.1 1/8"=1'-0"

SITE LANDSCAPE WALL CHANGES

STAKING PLAN LEGEND
 DW = DRIVEWAY
 FP = FRONT PORCH
 P = PATIO
 W = WALL

NOTE: ONLY THE FINISH LOCATIONS OF THESE LANDSCAPE WALLS ARE SHOWN. THE VERTICAL ELEVATIONS ABOVE THE DATUM ARE NOT INDICATED.

SEE THE SITE PLAN SHEET A1.0 AND BUILDING APPROVAL SHEETS AND LOCATIONS.

A NEW RESIDENCE
 2 CREST AVENUE
 ROSS, CA
 A.P. NO. 072-023-27

THAYER ARCHITECTURE INC.

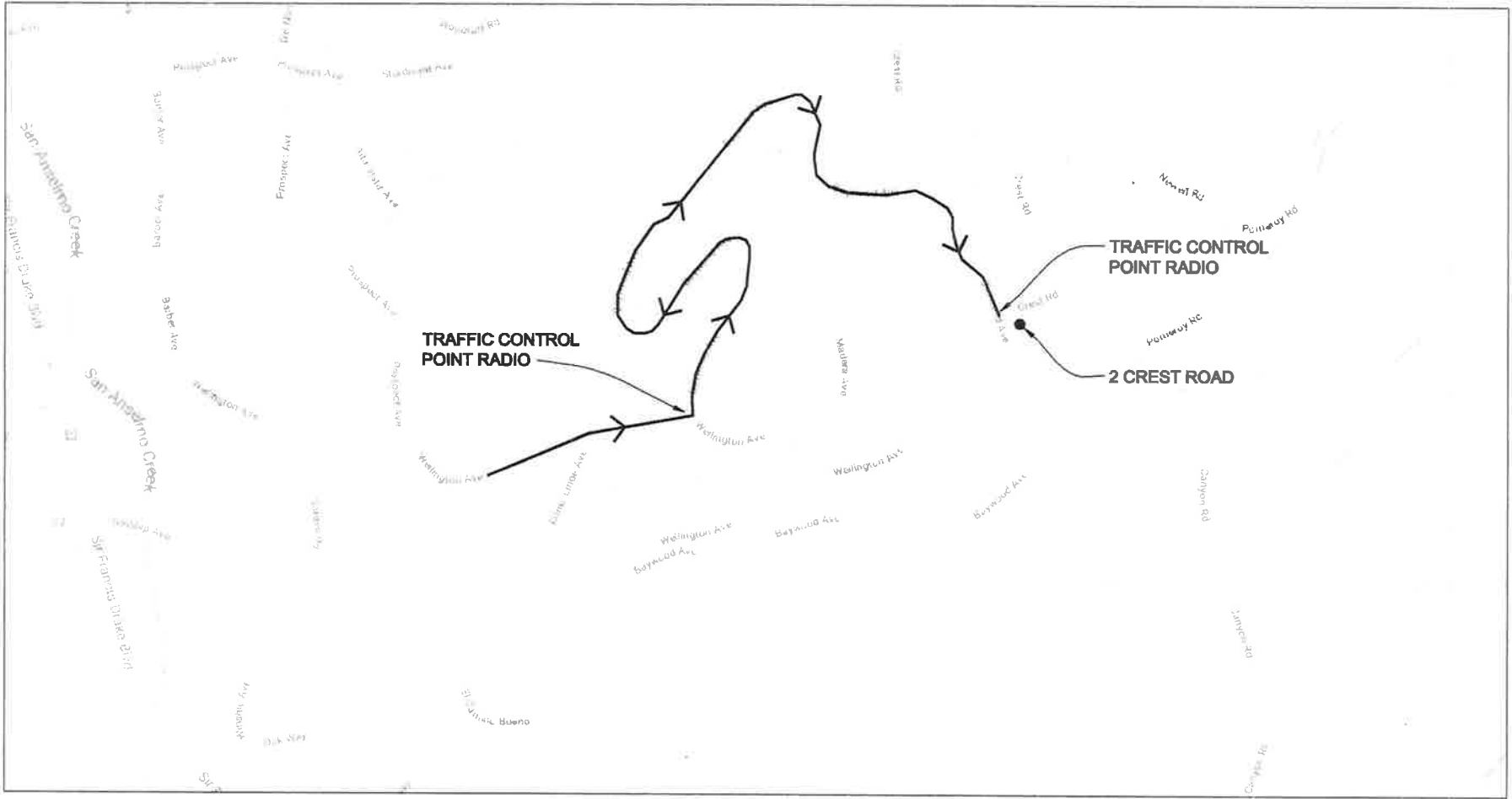
Kyle A. Thayer, Architect
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 San Anselmo, CA 94960
 Tel. 415 224-0775
 kthayer@thayer.net

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NO.	DATE	BY	REVISION
1			ISSUED FOR DESIGN REVIEW
2			ISSUED FOR CONSTRUCTION

A1.1

DATE: 02/15/2017
 DRAWN: [Name]
 CHECKED: [Name]
 SCALE: 1/8"=1'-0"



- NOTES:**
1. TRAFFIC CONTROL:
 - DELIVERIES
 - CEMENT TRUCK
 2. ALL MATERIALS TO BE DELIVERED TO THE SITE IN SMALL TRUCKS WHENEVER POSSIBLE.

1
A1.3 TRAFFIC CONTROL PLAN
NOT TO SCALE



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PROJECT NO. 072-023-27	SHEET NO. 1
DATE: DEC. 8, 2007	SCALE: AS SHOWN
PROJECT: A NEW RESIDENCE 2 CREST ROAD, ROSS, CA	
ARCHITECT: THAYER ARCHITECTURE INC.	
PROJECT ADDRESS: 2 CREST ROAD, ROSS, CA 94067	
PHONE: 415.234.3770	
FAX: 415.234.3771	
WWW.THAYERARCHITECTURE.COM	

A1.3

ADJACENT EXISTING TRUCKS

TEMPORARY STORAGE

PORTABLE TOILET

CONSTRUCTION AREA TO BE PROTECTED BY TREE PROTECTION FENCE

CONSTRUCTION AREA TO BE PROTECTED BY TREE PROTECTION FENCE

TREE PROTECTION

CONSTRUCTION AREA TO BE PROTECTED BY TREE PROTECTION FENCE

4 RM 95 Ptn. LOT 26

TREE PROTECTION

EXISTING UTILITIES

1

CONSTRUCTION MANAGEMENT PLAN

1/8" = 1'-0"



CONSTRUCTION MANAGEMENT NOTES:

1. ALL EXISTING TRUCKS, TRAILERS, OR OTHER VEHICLES WILL BE MOVED TO AN ADJACENT AREA.
2. ALL CONSTRUCTION TRUCKS, TRAILERS, OR OTHER VEHICLES WILL BE MOVED TO AN ADJACENT AREA.
3. TEMPORARY STORAGE AND PORTABLE TOILET SHALL BE LOCATED AS SHOWN ON THIS PLAN.
4. TEMPORARY POWER POLE LOCATED ON-SITE NEAR THE DRIVEWAY AND TURNAROUND.
5. ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO THE CONSTRUCTION AREA AND SHALL NOT BE CONDUCTED IN ANY OTHER AREAS OF THE PROJECT.
6. ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH THE DIRECTIONS OF THE ROSS VALLEY FIRE DISTRICT.

CONSTRUCTION NOTES:

1. PROVIDE TREE PROTECTION FOR EXISTING REDWOOD GROVE AND LARGE OAK TREES, AS SHOWN ON THE VESTIGATION AND LAYOUT PLAN.
2. THE ADJACENT NEIGHBOR'S DRIVEWAY AND GARAGE SHALL BE PROTECTED BY TREE PROTECTION FENCE AND SHALL BE KEPT CLEAR OF ALL CONSTRUCTION ACTIVITIES.
3. ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH THE DIRECTIONS OF THE ROSS VALLEY FIRE DISTRICT.

THAYER ARCHITECTURE INC.
 Kyle A. Thayer, Architect
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 kthayer@earthlink.net

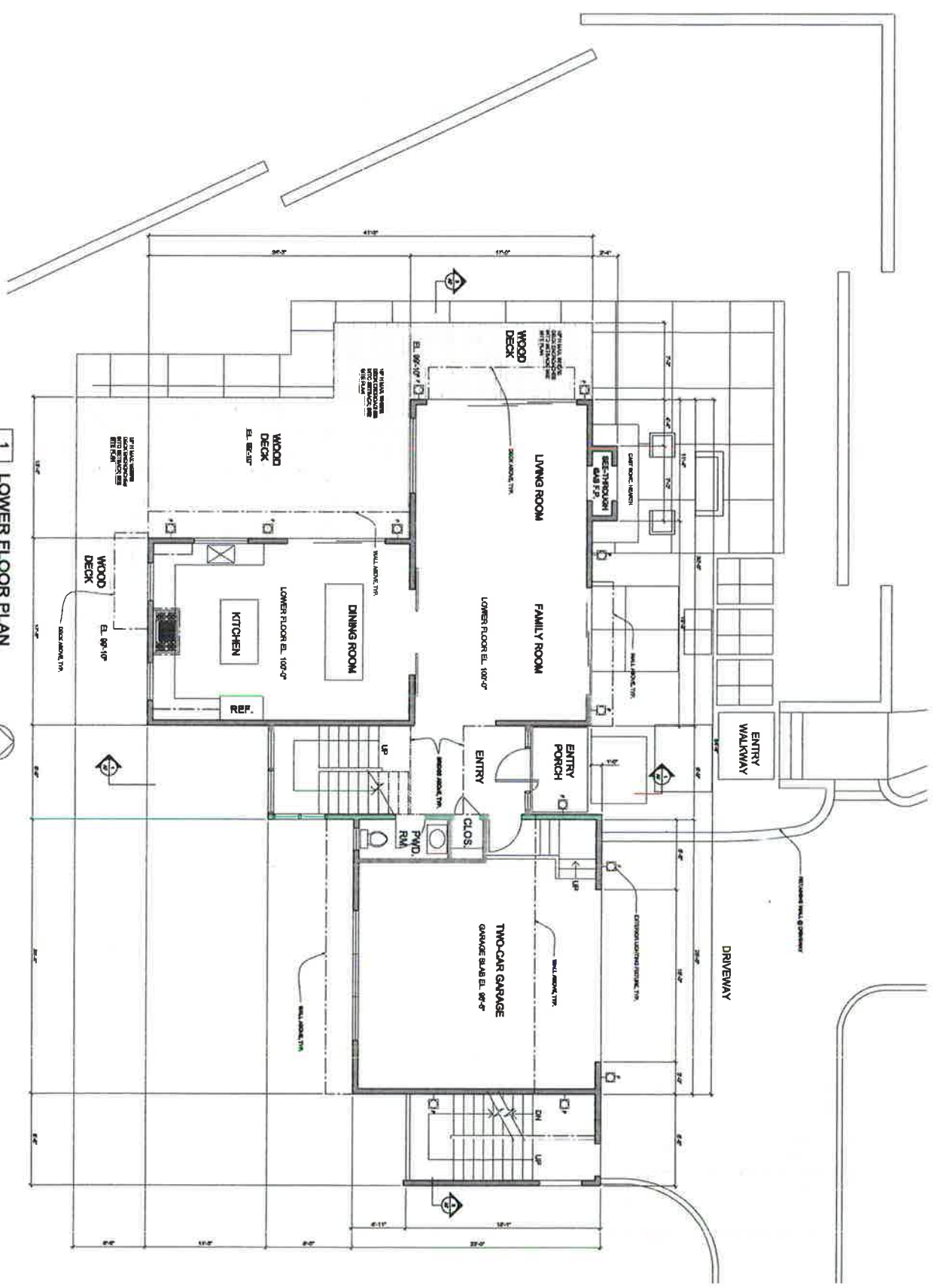
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NO.	DATE	BY	REVISION

A NEW RESIDENCE
 2 CREST ROAD
 ROSS, CA
 A.P. NO. 072-023-27

A1.4

CONSTRUCTION MANAGEMENT PLAN
 DATE: 08/18/11



1 LOWER FLOOR PLAN
A2 1/4"=1'-0"



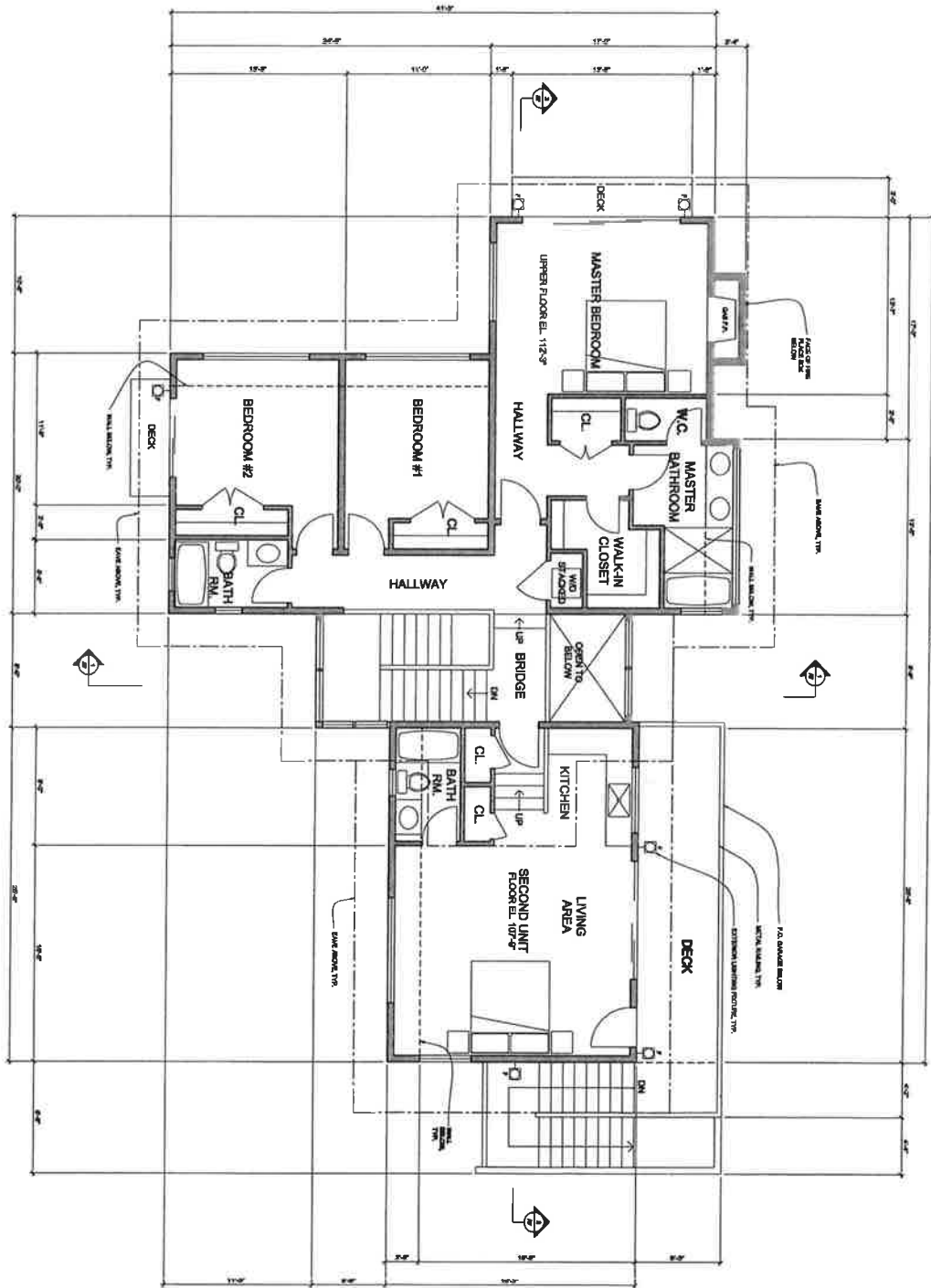
A2
LOWER FLOOR PLAN
DATE: 07/23/14
DRAWN: [Name]
CHECK: [Name]

A NEW RESIDENCE
2 CREST AVENUE
ROSS, CA
A.P. NO. 072-023-27

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1	07/23/14	[Name]	ISSUED FOR DESIGN REVIEW
2	07/23/14	[Name]	ISSUED FOR DESIGN REVIEW
3	07/23/14	[Name]	CONCEPT DESIGN REVIEW



1 UPPER FLOOR PLAN
 A3 1/4" = 1'-0"



DATE: 11/11/11
 UPPER FLOOR PLAN
 SCALE: 1/4" = 1'-0"
 DATE: 11/11/11
 DRAWN: [Name]
 CHECKED: [Name]
 A3

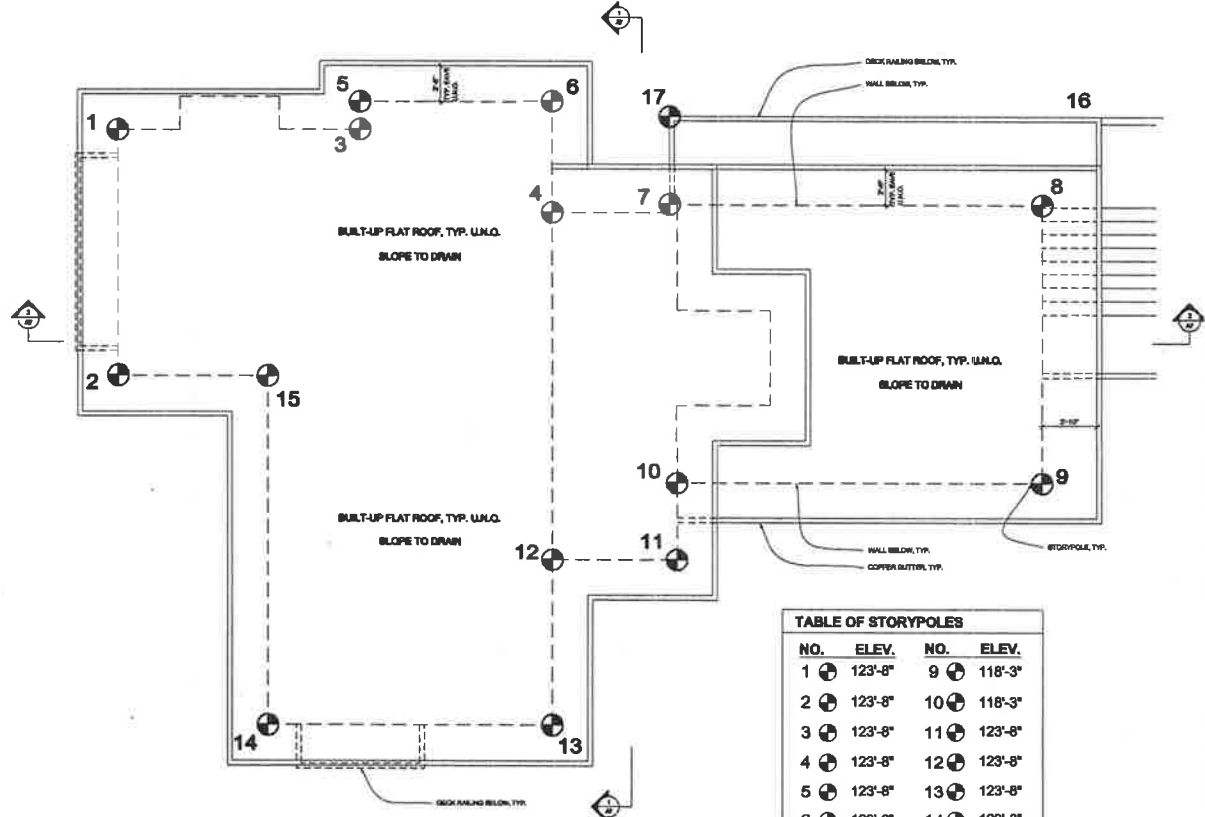
A NEW RESIDENCE
 2 CREST AVENUE
 ROSS, CA
 A.P. NO. 072-023-27

THAYER
 ARCHITECTURE
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 MThayer@earthlink.net

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1	11/11/11	T	ISSUED FOR DESIGN REVIEW
2	11/11/11	T	ISSUED FOR DESIGN REVIEW
3	11/11/11	T	CONCEPT DESIGN REVIEW



1 ROOF PLAN
A4 1/4"=1'-0"

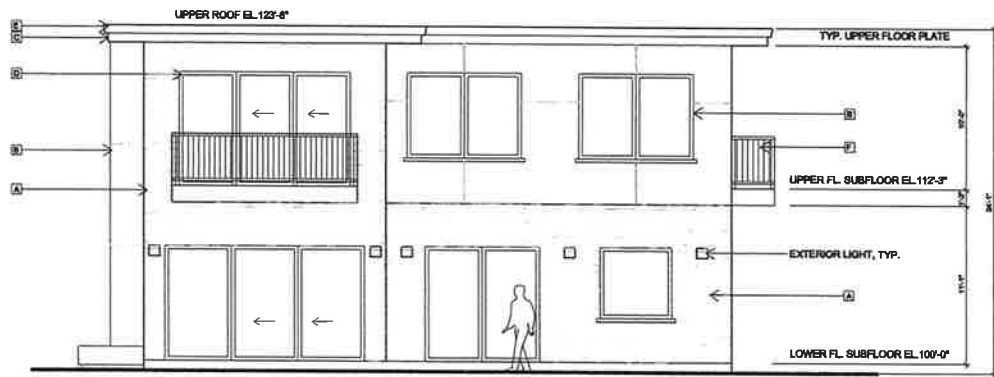
TABLE OF STORYPOLES			
NO.	ELEV.	NO.	ELEV.
1	123'-8"	9	118'-3"
2	123'-8"	10	118'-3"
3	123'-8"	11	123'-8"
4	123'-8"	12	123'-8"
5	123'-8"	13	123'-8"
6	123'-8"	14	123'-8"
7	123'-8"	15	123'-8"
8	118'-3"	16	108'-0"
		17	108'-0"

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1 NORTH ELEVATION
A5 1/4"=1'-0"

- MATERIALS AND COLORS**
- A** HORIZONTAL SIDING: STAINED NATURAL CEDAR
 - B** STUCCO PLASTER SIDING: SILVER GREY: FLAT
 - C** ROOF FASCIA: COPPER
 - D** WINDOW SASH: BRONZE
 - E** FASCIA GUTTER: COPPER
 - F** RAILINGS: GALVANIZED STEEL, PAINTED BRONZE
 - G** BOARD FORMED CONCRETE



2 WEST ELEVATION
A5 1/4"=1'-0"

NO.	DATE	BY	CHK.	DESCRIPTION
1				ISSUED FOR PERMITS REVIEW
2				ISSUED FOR PERMITS REVIEW
3				ISSUED FOR PERMITS REVIEW
4				ISSUED FOR PERMITS REVIEW
5				ISSUED FOR PERMITS REVIEW
6				ISSUED FOR PERMITS REVIEW
7				ISSUED FOR PERMITS REVIEW
8				ISSUED FOR PERMITS REVIEW
9				ISSUED FOR PERMITS REVIEW
10				ISSUED FOR PERMITS REVIEW

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**THAYER
 ARCHITECTURE
 INC.**

A NEW RESIDENCE
2 CREST AVENUE
 ROSS, CA
 A.P. NO. 072-023-27

ARCH. NO. 710

**BUILDING
 ELEVATIONS**

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

DATE: APRIL 24, 2017

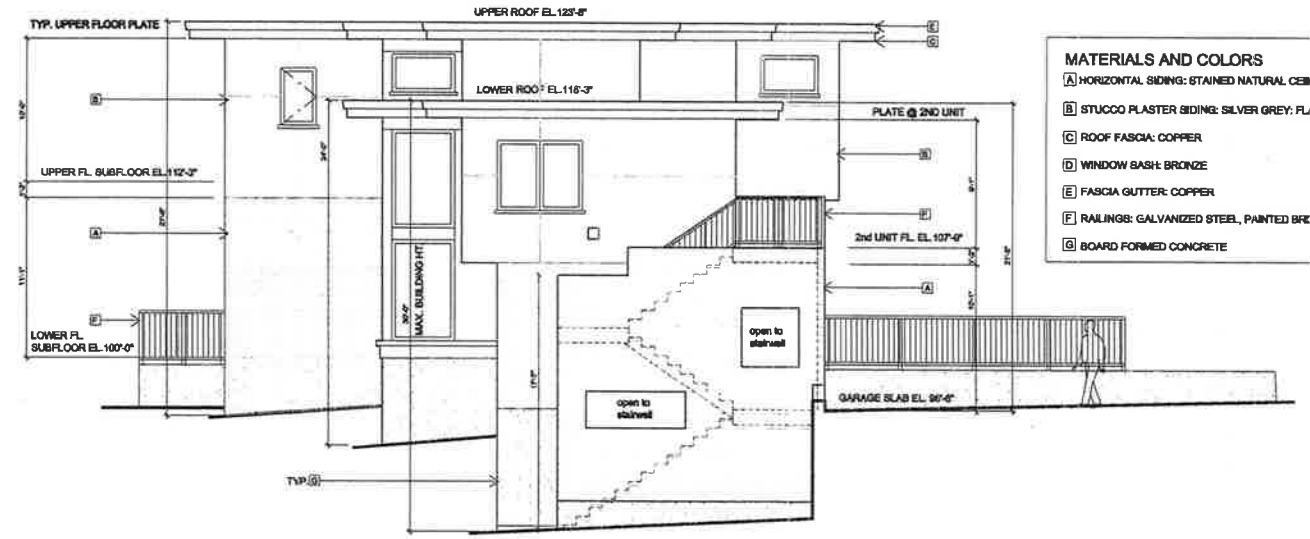
DRAWING

A3

THAYER



1 SOUTH ELEVATION
A6 1/4"=1'-0"



2 EAST ELEVATION
A6 1/4"=1'-0"

- MATERIALS AND COLORS**
- A HORIZONTAL SIDING: STAINED NATURAL CEDAR
 - B STUCCO PLASTER SIDING: SILVER GREY: FLAT
 - C ROOF FASCIA: COPPER
 - D WINDOW SASH: BRONZE
 - E FASCIA GUTTER: COPPER
 - F RAILINGS: GALVANIZED STEEL, PAINTED BRONZE
 - G BOARD FORMED CONCRETE

NO.	DATE	BY	REVISION
1			ISSUE FOR PERMITS REVIEW
2			ISSUE FOR PERMITS (CHECK)
3			ISSUE FOR PERMITS REVIEW
4			CONCEPT DESIGN REVIEW

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ARCHITECTS AND INTERIORS
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THAYER ARCHITECTURE INC.

A NEW RESIDENCE
2 CREST AVENUE
ROSS, CA
A.P. NO. 072-023-27

J28 02. 1710

BUILDING ELEVATIONS

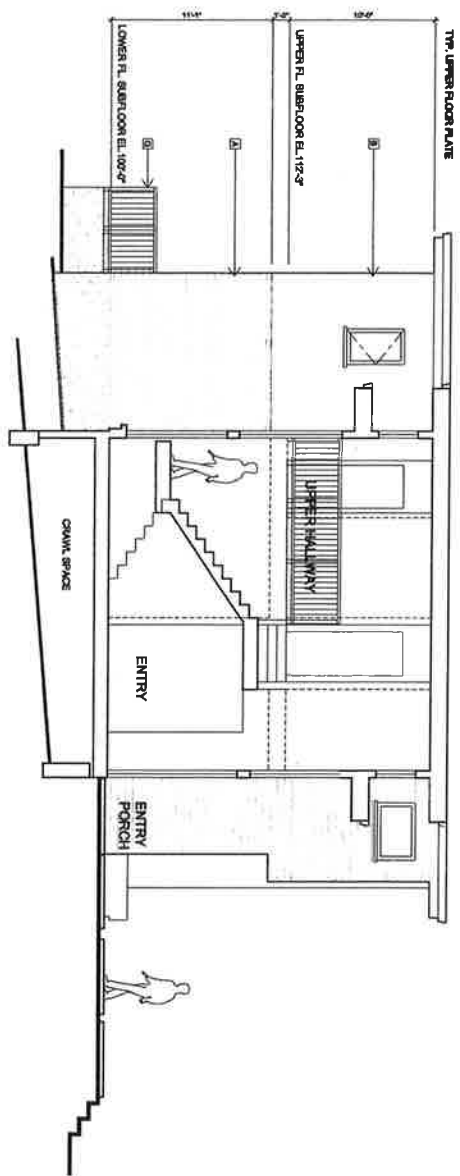
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DATE: APRIL 24, 2017

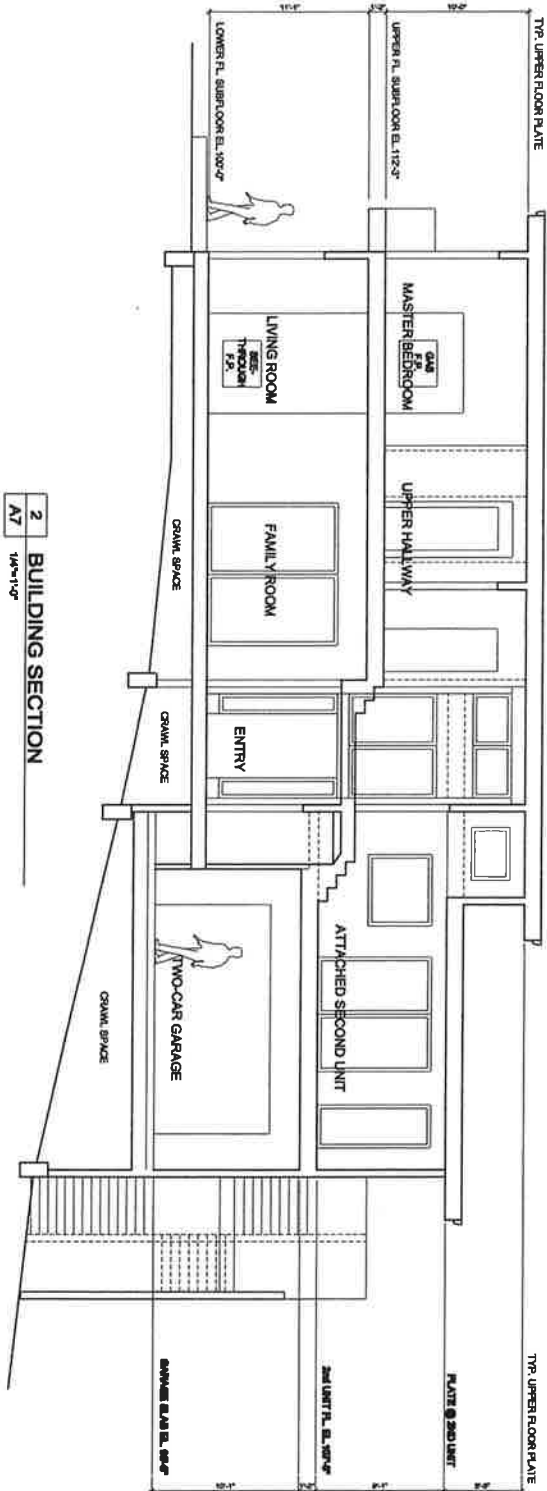
DRAWN BY

A6





1 BUILDING SECTION
A7 1/4"=1'-0"



2 BUILDING SECTION
A7 1/4"=1'-0"

A7

BUILDING SECTIONS

A NEW RESIDENCE
2 CREST AVENUE
ROSS, CA
A.P. NO. 072-023-27

THAYER ARCHITECTURE INC.

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NO.	DATE	BY	REVISION
1504	1		ISSUED FOR DESIGN REVIEW
87211	1		ISSUED FOR DESIGN REVIEW
45417	1		CONCEPT DESIGN REVIEW

Contractor	
Architect	
Structural Engineer	
Civil Engineer	
Electrical Engineer	
Other	
Designer	
Checked by	
Revisions	
Number Description	Date

Client
**PAUL FOLEY &
MIKE O'MA-HONEY**
4230 REDWOOD HWY
SAN RAFAEL, CA 94903

Project
**2 CREST AVE.
ROSS, CA**

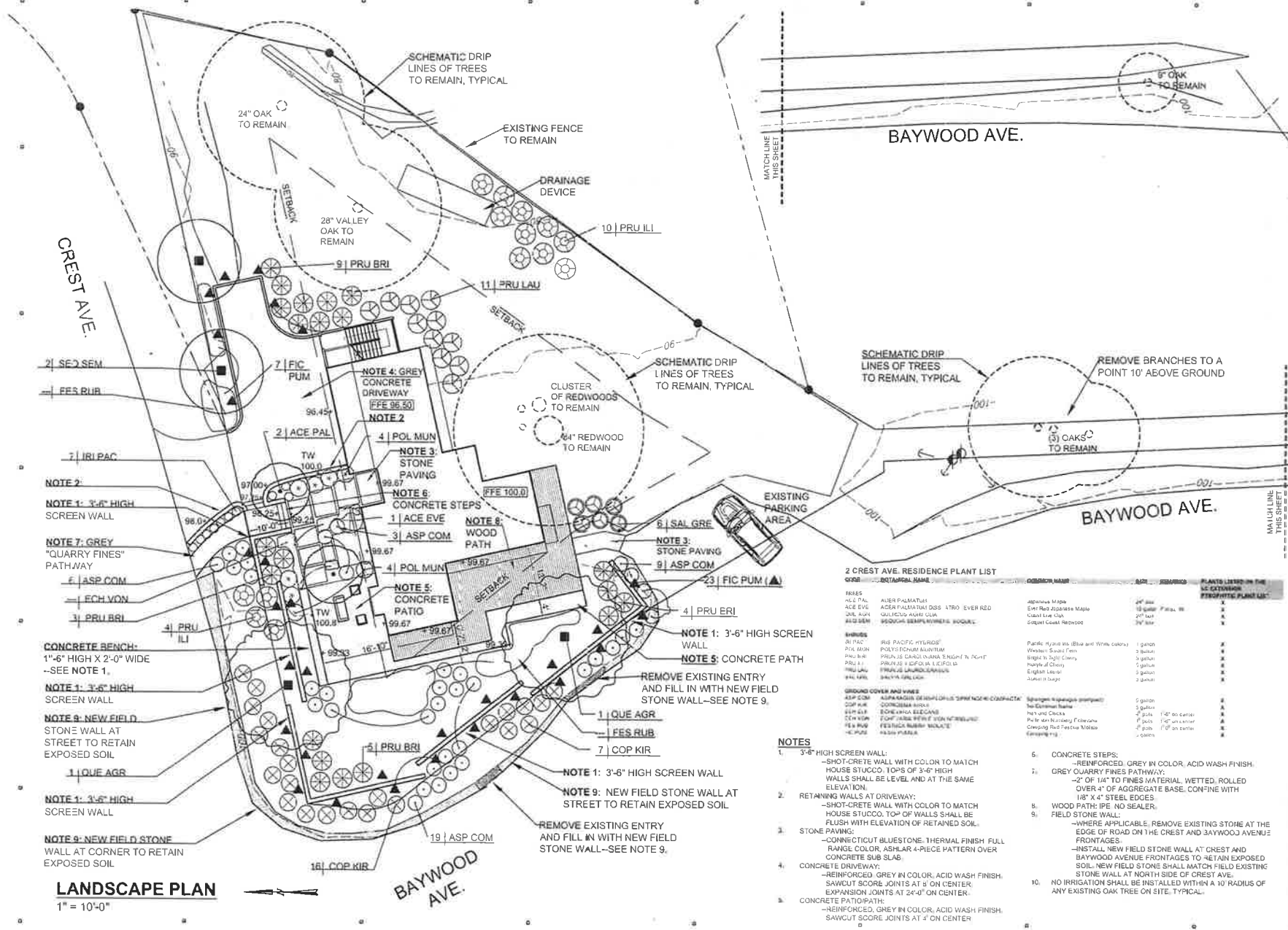
Sheet Title
LANDSCAPE PLAN

Job Number
21706

Date
JANUARY 9, 2018

Scale
1" = 10'-0"

Sheet Number
L1



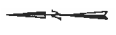
CREST AVE.

BAYWOOD AVE.

BAYWOOD AVE.

BAYWOOD AVE.

LANDSCAPE PLAN
1" = 10'-0"



NOTES

- 3'-6" HIGH SCREEN WALL WITH COLOR TO MATCH HOUSE STUCCO. TOPS OF 3'-6" HIGH WALLS SHALL BE LEVEL AND AT THE SAME ELEVATION.
- RETAINING WALLS AT DRIVEWAY: -SHOT-CRETE WALL WITH COLOR TO MATCH HOUSE STUCCO. TOP OF WALLS SHALL BE FLUSH WITH ELEVATION OF RETAINED SOIL.
- STONE PAVING: -CONNECTICUT BLUESTONE. THERMAL FINISH. FULL RANGE COLOR. ASHLAR 4-PIECE PATTERN OVER CONCRETE SUB SLAB.
- CONCRETE DRIVEWAY: -REINFORCED GREY IN COLOR. ACID WASH FINISH. SAWCUT SCORE JOINTS AT 8' ON CENTER. EXPANSION JOINTS AT 24'-0" ON CENTER.
- CONCRETE PATIO/PATH: -REINFORCED GREY IN COLOR. ACID WASH FINISH. SAWCUT SCORE JOINTS AT 4' ON CENTER.
- CONCRETE STEPS: -REINFORCED. GREY IN COLOR. ACID WASH FINISH.
- GREY QUARRY FINES PATHWAY: -2" OF 1/4" TO FINES MATERIAL. WETTED. ROLLED OVER 3" OF AGGREGATE BASE. CONFINE WITH 18" X 4" STEEL EDGES.
- WOOD PATH: IPE. NO SEALER.
- FIELD STONE WALL: -WHERE APPLICABLE, REMOVE EXISTING STONE AT THE EDGE OF ROAD ON THE CREST AND BAYWOOD AVENUE'S FRONTAGES. -INSTALL NEW FIELD STONE WALL AT CREST AND BAYWOOD AVENUE FRONTAGES TO RETAIN EXPOSED SOIL. NEW FIELD STONE SHALL MATCH FIELD EXISTING STONE WALL AT NORTH SIDE OF CREST AVE.
- NO IRRIGATION SHALL BE INSTALLED WITHIN A 10' RADIIUS OF ANY EXISTING OAK TREE ON SITE. TYPICAL.

2 CREST AVE. RESIDENCE PLANT LIST

ORIG	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS	PLANTS LISTED ON THE SC SITE PLAN	PERMANENT PLANT LCL
TREES						
ACE PAL	ACER PALMATUS	Japanese Maple	24" dia		X	
ACE EVE	ACER PALMATUS DSS. ATRO. EVER RED	Red Japanese Maple	18" dia	Plant in	X	
QLE. AUN	QUERCUS AGRI. COA	Coast Live Oak	20" dia		X	
RED SEM	RODOD. SEM. PINK. SUGAR.	Coastal Redwood	30" dia		X	
SHRUBS						
IRI PAC	IRIS PACIFIC HYDRIS'	Pacific Hybrid Iris (Blue and White colors)	1 gallon		X	
POL MUN	POLYUN MUNITAY	Western Spout Fern	3 bush		X	
PRU BR	PRUNUS CAROLINANA 5' HIGH N. NC-17	Single to High Cherry	3 gallon		X	
PRU L	PRUNUS S. CALIF. L. CALIF.	Harlowe Cherry	3 gallon		X	
PRU LAU	PRUNUS LAURUS/PRUNUS	English Laurel	3 gallon		X	
PRU BR	PRUNUS BRUNELLA	Juneberry	2 gallon		X	
GRASSING COVER AND VINES						
ASP COM	ASP. COM. DE BRASS. ORUS. SPIN. NOR. CONTRACT.	Sparganium (perennial)	5 gallon		X	
COP KIR	CONYSEUM BRUC.	Red Carpet Grass	3 gallon		X	
ESC GAR	ESCHOLIA BECCARI	Red Carpet Grass	2" dia	10" dia center	X	
ESC WAK	ESC. WAK. WIFEY. 5' HIGH. 1' WIDE.	Polygonum Nuttallii	1" dia	10" dia center	X	
FLA WAK	FLOR. WAK. WIFEY. 5' HIGH. 1' WIDE.	Chrysanthemum	4" dia	10" dia center	X	
HE. PURS	HE. PURS. WIFEY. 5' HIGH. 1' WIDE.	Chrysanthemum	4" dia	10" dia center	X	

Contractor	
Architect	
Structural Engineer	
Civil Engineer	
Electrical Engineer	
Owner	
Designer	
Checked by	
Revisions	
Submitted Description	Date

Client
**PAUL FOLEY &
MIKE O'MAHONEY**
4280 REDWOOD HWY
SAN RAFAEL, CA 94903

Project
**2 CREST AVE,
ROSS, CA**

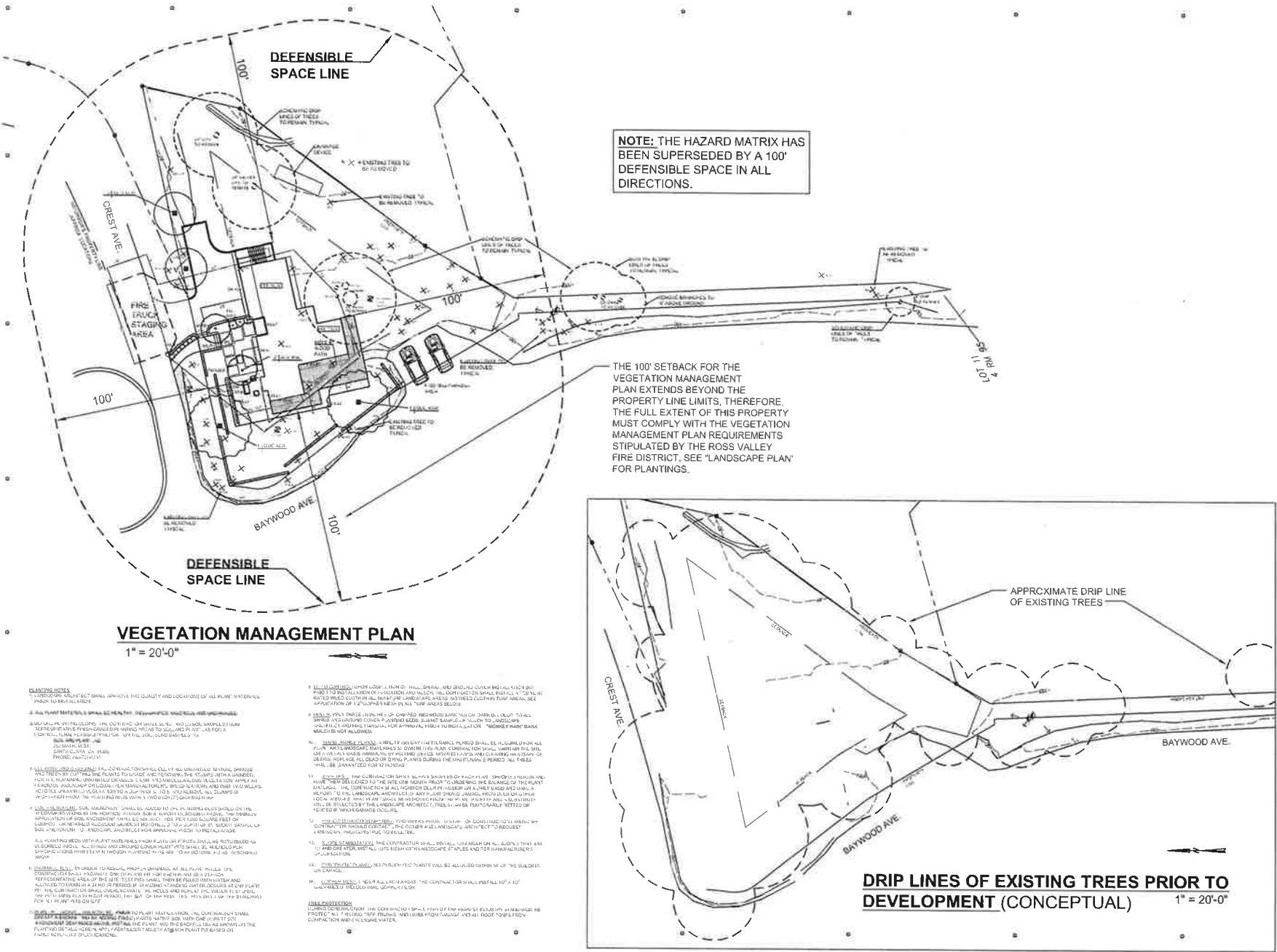
Sheet Title
**EXISTING CONDITIONS
AND VEGETATION
MANAGEMENT PLAN**

Auto Number
21706

Date
JANUARY 9, 2017

Scale
SEE PLANS

Sheet Number
L2



VEGETATION MANAGEMENT PLAN

1" = 20'-0"

NOTE: THE HAZARD MATRIX HAS BEEN SUPERSEDED BY A 100' DEFENSIBLE SPACE IN ALL DIRECTIONS.

THE 100' SETBACK FOR THE VEGETATION MANAGEMENT PLAN EXTENDS BEYOND THE PROPERTY LINE LIMITS, THEREFORE, THE FULL EXTENT OF THIS PROPERTY MUST COMPLY WITH THE VEGETATION MANAGEMENT PLAN REQUIREMENTS STIPULATED BY THE ROSS VALLEY FIRE DISTRICT, SEE "LANDSCAPE PLAN" FOR PLANTINGS.

DRIPLINES OF EXISTING TREES PRIOR TO DEVELOPMENT (CONCEPTUAL)

1" = 20'-0"

PLANTING NOTES
1. VEGETATION SELECT SHALL APPROXIMATE THE QUANTITY AND LOCATIONS OF ALL PLANT MATERIALS PRIOR TO INSTALLATION.

2. ALL PLANT MATERIALS SHALL BE HEALTHY, DISEASE-FREE, AND FREE OF PESTS.
3. ALL PLANT MATERIALS SHALL BE SIZED TO FIT THE DESIGN AND TO BE PLANTED WITHIN THE DESIGNATED AREAS.
4. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CALIFORNIA WATERWAYS CONTROL ACT AND ALL APPLICABLE REGULATIONS.

5. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CALIFORNIA WATERWAYS CONTROL ACT AND ALL APPLICABLE REGULATIONS.
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27. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CALIFORNIA WATERWAYS CONTROL ACT AND ALL APPLICABLE REGULATIONS.
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29. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CALIFORNIA WATERWAYS CONTROL ACT AND ALL APPLICABLE REGULATIONS.
30. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH THE CALIFORNIA WATERWAYS CONTROL ACT AND ALL APPLICABLE REGULATIONS.

GENERAL NOTES:

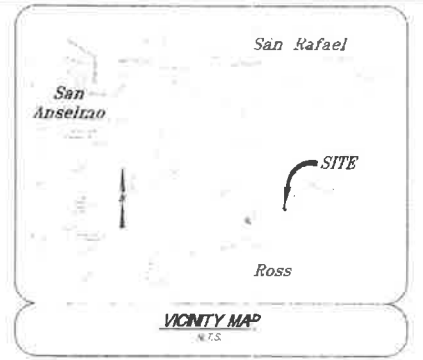
1. SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
2. ROOF DOWNSPOUTS SHALL RELEASE GUTTO APPROX. CRUSH-BLOCKS AND THEN INTO APPROPRIATELY VEGETATED OR LANDSCAPE AREAS OR CONDUCT TO STORM DRAIN SYSTEM.

EARTHWORK QUANTITIES:

110 CY CUT
440 CY FILL

IMPERVIOUS SURFACE QUANTITIES:

PRE-PROJECT IMPERVIOUS SURFACE AREA = 1,006 S.F.
POST-PROJECT IMPERVIOUS SURFACE AREA = 4,770 S.F.
PROPOSED IMPERVIOUS AREA INCREASE = 3,764 S.F.
REQUIRED BIO-FILTRATION AREA = 4,770 S.F. X 0.04
= 191 S.F.



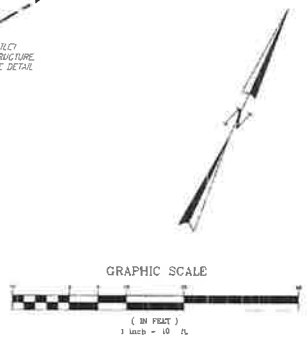
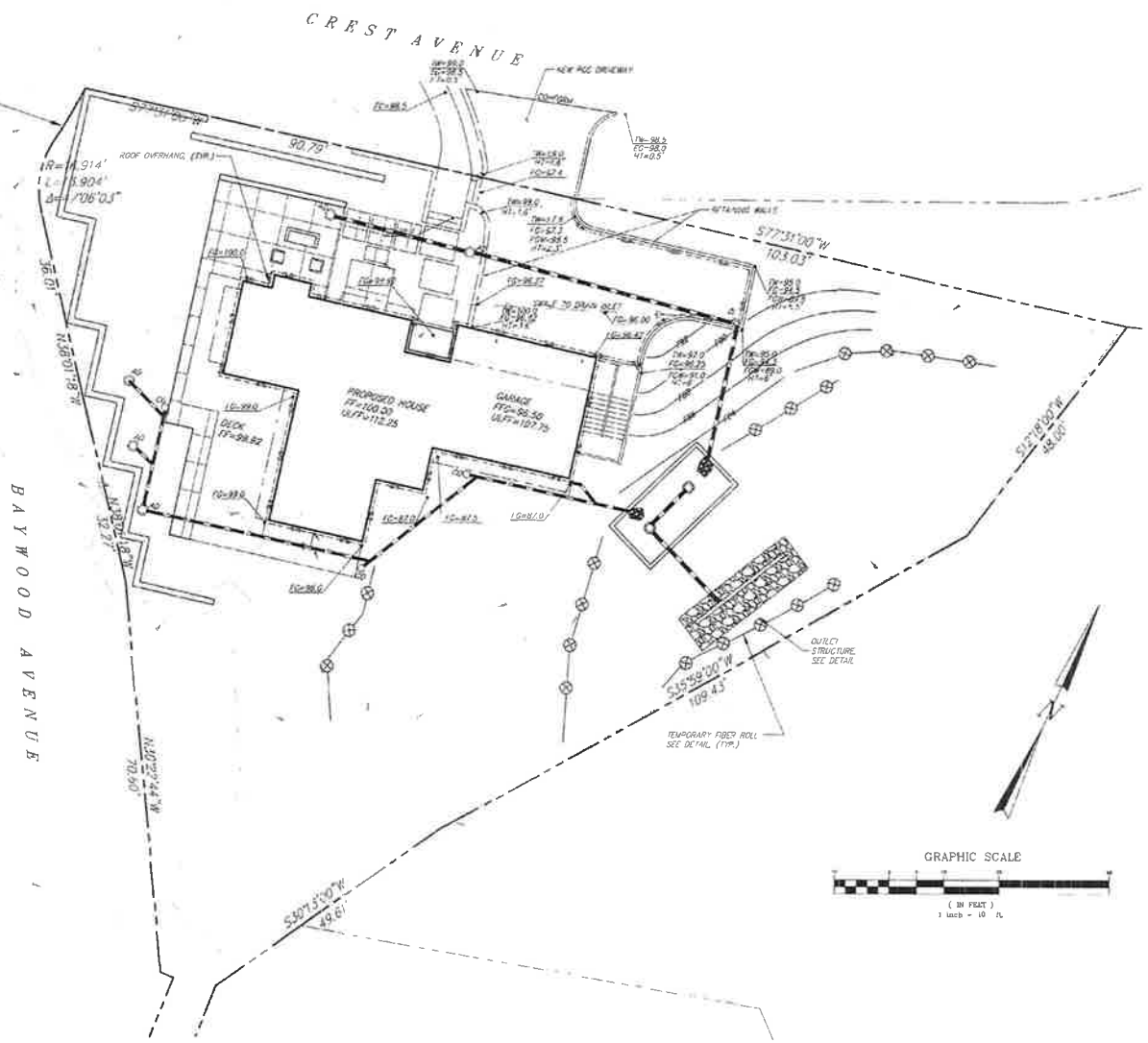
LEGEND

- RANDOM CONTROL POINT SURVEY
- EXISTING PIPE MATERIAL
- EXISTING WATER VALVE
- AREA OBV.
- CLEANOUT
- DRAINS/ WELL
- EXISTING TREE
- EXISTING STRUCTURES
- PROPOSED SEWER
- WATER UP
- PROPERTY LINE
- FOUNDATION SUBDRAIN
- PROPOSED STORM DRAIN CULVERT
- EXISTING EDGE OF PAVEMENT
- FINISHED GRADE CONTOUR
- ASPHALT CONCRETE
- INVERT ELEVATION
- CORRUGATED METAL PIPE
- FIELD ELEVATION
- TOP OF WELL ELEVATION
- FINISHED FLOOR SURFACE ELEVATION
- RIM ELEVATION
- FINISHED FLOOR ELEVATION
- FINISHED GRADE AT BOTTOM OF WALL
- UPPER LEVEL FINISHED FLOOR ELEVATION
- STORM DRAIN CULVERT
- EXISTING GRADE
- HEIGHT OF EXPOSED PORTION OF WALL
- PORTLAND CEMENT CONCRETE

SURVEY NOTES:

1. VERTICAL DATUM IS ASSUMED.
2. HORIZONTAL DATUM IS BASED UPON FIELD SURVEY AND 10 55 47.
3. CORNER MARKERS IS 2'

R=90,000'
L=10,729'
Δ=6°49'48"



DESIGN REVIEW

IS ILS ASSOCIATES, INC.[®]
CIVIL ENGINEERING AND SURVEYING

79 GULL DRIVE, SUITE A 100710, CA 94949 5777 (415)883 9200 FAX (415)883 3763

2 CREST AVENUE

TOWN OF ROSS

MARIN COUNTY CALIFORNIA

GRADING & DRAINAGE & EROSION CONTROL PLAN

John J. Kelly
John J. Kelly
Professional Engineer
No. 10000

DATE: 07-09-27
PROJECT NO: 10000

3/16/2027.cad

ILS ASSOCIATES, INC. 79 GULL DRIVE, SUITE A 100710, CA 94949 5777 (415)883 9200 FAX (415)883 3763
 JOHN J. KELLY, PROFESSIONAL ENGINEER, NO. 10000
 DATE: 07-09-27
 PROJECT NO: 10000
 3/16/2027.cad

Pollution Prevention – It's Part of the Plan

Make sure your crews and subs do the job right!

Runoff from streets and other paved areas is a major source of pollution in creeks and the Bay. Construction activities can directly affect the health of the Bay unless contractors and crews plan ahead to keep dirt, debris, and other construction waste away from storm drains and local creeks. Following these guidelines will ensure your compliance with pertinent ordinance requirements.



Materials storage & spill cleanup

Non-hazardous materials management

- ✓ Sand, dirt, and similar materials must be stored at least 10 feet from catch basins, and covered with a tarp during wet weather or when rain is forecast.
- ✓ Use (but don't overuse) reclaimed water for dust control as needed.
- ✓ Sweep streets and other paved areas daily. Do not wash down streets or work areas with water.
- ✓ Recycle all asphalt, concrete, and aggregate base material from demolition activities.
- ✓ Check dumpsters regularly for leaks and to make sure they don't overflow. Repair or replace leaking dumpsters properly.

Hazardous materials management

- ✓ Use all pesticides, herbicides and hazardous wastes (such as soil piles, paint, thinners, sovents, fuel, oil, and antifreeze) in accordance with City, state, and federal regulations.
- ✓ Store hazardous materials and wastes in secondary containment and cover them during wet weather.
- ✓ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ✓ Be sure to arrange for appropriate disposal of all hazardous wastes.

Spill prevention and control

- ✓ Keep a stockpile of spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times.
- ✓ When spills or leaks occur, contain them immediately and be particularly careful to prevent leaks and spills from reaching the gutter, street, or storm drain. Never wash spilled material into a catch basin, street, storm drain, or creek.
- ✓ Report any hazardous material spills to the appropriate agency(ies) immediately.

Vehicle and equipment maintenance & cleaning

- ✓ Inspect vehicles and equipment for leaks frequently, use drip pans to catch leaks, and if hoses are missing, repair leaks promptly.
- ✓ Fuel and maintenance activities are only to be done on or over a drip pan that is big enough to prevent runoff.
- ✓ If you must clean vehicles or equipment on site, clean with water only in a permit area that will not allow wastewater to run into gutters, streets, storm drains, or creeks.
- ✓ Do not clean vehicles or equipment on site using engine solvents, degreasers, steam cleaning equipment, etc.



Earthwork & contaminated soils

- ✓ Keep excavated or disturbed soil covered or placed in a suitable container. Transfer to dump trucks should take place on the site, not in the streets. Use laydowns, tall berms, or other control measures to minimize the dust if dirt off the site.
- ✓ Avoid scheduling earth moving activities during the rainy season if possible. If grading activities during wet weather are allowed in your permit, be sure to implement all control measures necessary to prevent erosion.
- ✓ Mature vegetation is the best form of erosion control. Minimize disturbance to existing vegetation whenever possible.
- ✓ If you disturb a slope during construction, prevent erosion by securing the soil with erosion control fabric, or seed and mulch as soon as possible. Place hay bales down slope until soil is secure, to prevent erosion.
- ✓ If you suspect contamination (from site history, discoloration, odor, texture, abandoned underground tanks or pipes, or buried debris), call the Local Agency for help in determining what testing should be done.
- ✓ Manage disposal of contaminated soil according to Local Agency instructions.



Dewatering operations

- ✓ Reuse water for dust control, irrigation, or another on-site purpose to the greatest extent possible.
- ✓ Be sure to call the Local Agency's Stormwater Manager before discharging water to a street, gutter, or storm drain. Filtration is always on through a liquid tank, or sediment trap tray, if required.
- ✓ In areas of known contamination, testing is required prior to reuse or discharge of groundwater. Consult with the Local Agency to determine what testing to do and interpret results. Contaminated groundwater must be treated or hauled off-site for proper disposal.



Saw cutting

- ✓ Always completely cover or bermeade storm drain inlets when saw cutting sawdust, lumber, hot water, steam, oil, or any other debris that may be carried out of the storm drain system.
- ✓ Shovel, absorb, or vacuum saw-cut slurry and pick up all debris as soon as you are finished in one location or at the end of each work day (whichever is sooner).
- ✓ If saw cut slurry enters a catch basin, clean it up immediately.

Concrete, grout, and mortar storage & waste disposal

- ✓ Be sure to store concrete, grout, and mortar under cover and away from drainage areas. These materials must never reach streams or waterways.
- ✓ Wash out concrete equipment/trucks off-site or in designated on-site area for washing where water will be contained in an impermeable plastic lined temporary pit to not let the water seep into the soil. Dispose of hardened concrete with trash when it is dried and hardened.
- ✓ If a suitable dirt area is not available, collect the wash water and remove it for appropriate disposal off site.
- ✓ Divert water from washing exposed aggregate concrete to a dirt area where it will not run into a gutter, street, or storm drain. If a suitable dirt area is not available, filter the water into a dirt area before discharging to a storm drain.



Paving/asphalt work

- ✓ Do not pave during wet weather or when rain is forecast.
- ✓ Always cover storm drain inlets and manholes when paving or applying seal coats, thick coats, slurry seals, or top seal.
- ✓ Place bags of absorbent material under paving equipment when not in use.
- ✓ Do not sweep or wash down excess sand from seal coating into gutters, storm drains, or creeks. Collect sand and return it to the stockpile, or recycle it if possible.
- ✓ Do not use water to wash down fresh asphalt concrete pavement.



Painting

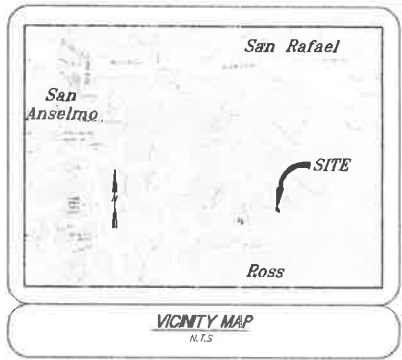
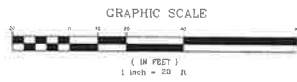
- ✓ Never use paint brushes or materials in a gutter or street.
- ✓ Paint cut excess water based paint before rinsing brushes, rollers, or equipment in a sink. If you can't use a sink, direct wash water to a dirt area and spade it in.
- ✓ Paint cut excess oil based paint before placing brushes in thinner.
- ✓ Filter paint thinners and solvents for reuse whenever possible. Dispose of oil based paint sludge and unusable thinner as hazardous waste.



Storm drain polluters may be liable for fines!

For more details of information, contact the Stormwater Manager of the appropriate local agency.

ILS AS ASSOCIATES, INC. <small>Soil, Engineering and Land Services</small>	
21 GULLY DRIVE, SUITE A, NOVATO, CA 94945-5117 415.891.4200 FAX: 415.891.2700	
21 GULLY DRIVE SUITE A, NOVATO, CA 94945	
MARIN COUNTY	CALIFORNIA
BEST MANAGEMENT PRACTICES	



LEGEND

	RANDOM CONTROL FOR SURVEY
	EXISTING FIRE HYDRANT
	EXISTING CUR ANCHOR
	EXISTING JOINT POLE
	EXISTING WATER 12" DIA
	EXISTING GAS VALVE
	EXISTING WATER 4" DIA
	EXISTING TREE
	EXISTING CONTOURS
PROPERTY LINE	
	EXISTING EDGE OF PAVEMENT
	ASPH. CONC. CURB
	CORRUGATED METAL PIPE

- NOTES**
1. VERTICAL DATUM IS ASSUMED
 2. HORIZONTAL DATUM IS BASED UPON FIELD SURVEY MAP 10 05 07
 3. CONTROL INTERVAL IS 2'

PRELIMINARY	ILS ASSOCIATES, INC. CIVIL ENGINEERING AND LAND SURVEYING 79 GALLI DRIVE, SUITE 4, NOVATO, CA 94949-5717 415/893-4200 FAX 415/891-2750	
	for PAUL FOLEY 7 CREST AVENUE	
	TOWNSHIP OF ROSE	CALIFORNIA
TOPOGRAPHIC MAP		Date: 5/12/2010 Title: 1056 Sheet No: 1 OF 1

ILS ASSOCIATES, INC. 1056
 79 GALLI DRIVE, SUITE 4, NOVATO, CA 94949-5717
 415/893-4200 FAX 415/891-2750
 5/12/2010 1056 1 OF 1

ATTACHMENT 3

Date: December 11, 2017
PROJECT NARRATIVE
2 Crest Avenue, Ross, CA

THE SITE:

The site is an irregularly-shaped wooded lot on a gently sloping hillside at the corner of Crest Avenue and Baywood Avenue. The approach is from Crest Avenue with views into a stand of heritage redwood trees on the south side. On the Baywood side, views open up to the west towards Bald Hill and the Ross Valley.

THE HOUSE:

The design of the house flows from the specific qualities of the site—topography, significant trees, access, and the shape of the building envelope. The three-bedroom, three and one half-bath house is approximately 2800 sf. (which includes the garage), plus a 500 sf attached second unit located above the garage. The two-car garage is set three and one half feet lower than the main house, with internal stairs connecting garage and entry. The main living level (entry, living room, dining room, kitchen, and family room) gives onto outdoor living spaces to the north and west. The outdoor living space on the north features a see-through outdoor gas fireplace attached to the house. Upstairs, the master bedroom suite and two bedrooms with shared bath is located in its own wing. Across the two-story high entry hall and stairwell is the internal connection to the attached second unit, which has its own deck facing Crest Avenue, and separate entrance using exterior stairs from the driveway area.

TOWN OF ROSS GENERAL PLAN POLICIES:

Building and Site Design

1. The building is a clean, modern design featuring the use of natural materials—stucco and composite siding, copper gutters and flashing, painted metal railings, with accents of stone and concrete. The building steps down the hill which helps reduce the mass. Wall planes are broken up with a composition of a variety of materials. The house has an efficient floor plan which results in a small footprint, leaving more of the site for open space with permeable surfaces and generous setbacks from the road. The project is designed using high-quality materials with special attention to details-- at the transitions between materials and the window sills, for instance.

2. Energy Conservation Measures: The project will meet the Build It Green standards, with double-glazed windows and efficient insulation used throughout. (The project will be “solar ready”, so that the new owner can easily install solar panels.)

3. Sustainable Design Principles: Natural exterior materials—stucco, ‘Boral’ composite siding with one-hour densglass underlayment, and three-ply bitumen ‘torch down” roof. The building will meet Build it Green standards.

4. Fire Resistant: Subject to the standards of the Wilderness Urban Interface (WUI), the building will be of fire-resistant construction— stucco, 'Boral' composite siding with one-hour densglass underlayment, and three-ply bitumen 'torch down' roof. Venting of the attic spaces and the crawl space shall meet the WUI standards.

5. Exterior Lighting: Exterior lighting is high efficiency, downward facing and low voltage design.

Landscape Design

6. Existing Vegetation: Some trees are planned for removal due to disease or age. Other trees are planned for removal due to the requirements of the RVFD. A stand of redwood trees to the east of the house will be saved, as will some valley oaks at the bottom of the lot, and one 42" oak to the west of the house; appropriate measures will be taken to protect these trees during construction.

7. Plant Material Selection: A mix of drought and fire-resistant plants for screening and ground cover, appropriate for the qualities of the site.

8. Minimize Water Use: Drought tolerant plants are specified.

9. Privacy and Views: Screen planting is proposed along the southeast property line to reduce the impact when viewed from the neighbor's property.

10. Minimizing Fire Hazards: Most of the existing vegetation is planned for removal in accordance with the requirements of the RVFD. Replacement plants selected are fire resistant and approved by RVFD.

11. Tree Replacement: The Town's tree replacement policy is modified to respect the fire safety measures mandated by the RVFD.

12. Fences: A four foot high non-combustable wall, is proposed for screening along the north and west sides of the house, running in a stepping pattern along the 25 foot setback line. Made of integral colored board-formed concrete, this wall will define and contain the outdoor living spaces and help screen the house when viewed from Crest and Baywood.

Buildings on Sloping Land

13. Integration with Topography: The building steps with the slope.

14. Relationship of Building size to Slope. The building has a modest footprint, is within the required height limits, and is in scale with its surroundings.

Bulk, Mass and Scale

15. Scale, Mass and Height: The proposal is for a modest sized house—only 2273 sf of living area, plus the garage. The mass of the building is broken up into a composition of different planes and materials—glass, stucco and siding—avoiding monolithic, single planes of one material. Overall the building is within the 30 foot height limit, but when viewed from Crest and Baywood the maximum building height is only 24 feet.

View Protection

16. Located near the top of the ridge, the proposed structure will have no impact on the views of the neighbors.

Windows, Roofs and Skylights

17. Windows, Roofs and Skylights: windows have been placed to avoid looking directly at neighboring properties.

Materials and Colors

18. The project color palette is composed of natural colors to blend in and complement the site and neighborhood: warm grey stucco, composite siding painted natural cedar, copper flashing and gutters and black window sash and metalwork. Natural bluestone accents will be used at the base of the building. Four foot high site walls will be of integral colored board-formed concrete.

Driveways and Parking Areas

19. Driveways: The proposed gently sloping driveway provides safe access to the garage and parking turnaround areas.

20. Parking: The design allows a generous number of parking spaces, in excess of what is required: Two covered parking spaces inside the garage, two guest parking in the garage apron and one second-unit parking adjacent to the driveway. Two additional spaces currently in use along Baywood Avenue, will be retained, for a total of seven off-street parking spaces.

Neighborhood Impact

21. The goal would be to complete the project within 10 to 12 months.

22. Site off-haul and concrete retaining walls have been minimized in order to try to reduce heavy truck traffic on the roads during construction.

23. The owners have met with neighbors, and continue to do so. The owners reached out to seven neighbors to discuss the project and hear their concerns. At least three neighbors have written letters of support, and sent them to the Town.

END OF PROJECT NARRATIVE

ATTACHMENT 4

2 Crest Avenue, Ross, CA

Neighbor Outreach; 12-7-17

<u>Name</u>	<u>Address</u>	<u>Date</u>	<u>Action</u>
1. Zack and Meg Adelman	1 Crest Road	10/4/17	wrote letter of support
2. Suzanna Anderson	23 Canyon Rd	10/4/17	wrote letter of support
3. Ken Pickart	70 Baywood Rd	11/15/17	wrote letter of support
4. Julie McMillian	--	12/2/17	met at site
5. Howard Schomer	--	12/2/17	met at site
6. Roger Poore	--	11/18/17	met at site
7. David Wedigar	--	11/18/17	met at site

October 4th, 2017

Town of Ross

Planning Department

P.O. Box 320

31 Sir Francis Drake Blvd.

Ross, Ca 94957

Re: 2 Crest Ave. Ross, Ca 94957

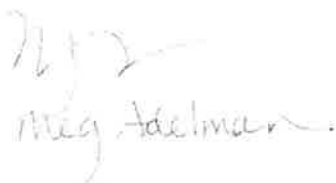
To whom it may concern,

As a neighbor to the proposed project at 2 Crest Ave. Ross, I have reviewed the Architectural Plans by Kyle Thayer dated 9/1/17. I approve the project.

Sincerely,



ZACK ADELMAN



Meg Adelman

Address: 2 CREST AVE.

ROSS, CA
94957

October 4th, 2017

Town of Ross

Planning Department

P.O. Box 320

31 Sir Francis Drake Blvd,

Ross, Ca 94957

Re: 2 Crest Ave. Ross, Ca 94957

To whom it may concern,

As a neighbor to the proposed project at 2 Crest Ave. Ross, I have reviewed the Architectural Plans by Kyle Thayer dated 9/1/17. I approve the project.

Sincerely,

Luzanna Anderson

Address: 22 Pigeon Hill

Ken and Alison Pickart

1000 1st St. N. • Minneapolis, MN 55412 • 612-338-1000

1000 1st St. N.

Minneapolis, MN 55412

Phone: 612-338-1000

Fax: 612-338-1001

1000 1st St. N. • Minneapolis, MN 55412

Phone: 612-338-1000

Ken and Alison Pickart are pleased to announce the opening of their new gallery space in Minneapolis, MN. The gallery will feature a variety of contemporary art and design. For more information, please contact Ken at 612-338-1000.

1000 1st St. N.

Minneapolis, MN 55412

1000 1st St. N.

Minneapolis, MN 55412

P. O. Box 1057
78 Baywood Avenue
Ross, CA
November 20, 2017

Town of Ross
Planning Department
P.O. Box 320
31 Sir Francis Drake Blvd.
Ross, CA 94957

re: 2 Crest Avenue
Proposed Construction

As a neighbor to the proposed project to 2 Crest Avenue, I have reviewed the Architectural Plans by Kyle Thayer dated 9/1/17, and I have visited the site in order to visualize the building that is planned.

This letter is to inform you that I, and my wife Kathryn, approve the project.

Sincerely,

A handwritten signature in black ink that reads "David Werdegar". The signature is written in a cursive style with a large, sweeping initial "D".

David Werdegar

October 4th, 2017

Town of Ross

Planning Department

P.O. Box 320

31 Sir Francis Drake Blvd.

Ross, Ca 94957

Re: 2 Crest Ave. Ross, Ca 94957

To whom it may concern,

As a neighbor to the proposed project at 2 Crest Ave. Ross, I have reviewed the Architectural Plans by Kyle Thayer dated 9/1/17. I approve the project.

Sincerely,



Roger Poore

Address:

80 Baywood Avenue
Ross, CA 94957

ATTACHMENT 5

STORMWATER CONTROL PLAN

2 CREST AVENUE
ROSS, CA

November 17, 2017
JOB NO. 9166



DRAINAGE ANALYSIS

2 Crest Avenue

Ross, CA

The property known as APN 072-213-80 comprises 0.431 acre. Currently the site is a vacant lot. A new single family residence is proposed to be constructed.

The attached hydrologic analysis compares the peak stormwater discharge from a 100 year design storm before and after improvements to the site.

The site has a pre-improvement peak discharge of 0.99 cubic feet per second and a post-improvement peak discharge of 1.08 cubic feet per second, an increase of 0.09 cubic feet per second. Post improvement roof discharge equals 0.26 cubic feet per second. Detention will be provided by a planter located in the front yard area with 4 inches of storage height to the overflow inlet/weir. The planter will reduce the roof stormwater discharge from 0.26 cubic feet per second to 0.05 cubic feet per second, a reduction of 0.21 cubic feet per second.

Water quality will also be treated by the biofiltration planters. The planter sizing factor will be 0.2 inches per hour, the rainfall intensity, divided by 5 inches per hour, the infiltration rate, equaling 0.04. The required surface area of the planters is 1,310 square feet (the post improvement impervious area) x 0.04 equaling 52 square feet. The proposed planter surface area is 199.5 square feet.

Step 1: Project Data Form and Runoff Reduction Measure Selection

Complete all fields.

Project Name/Number	2 CREST AVENUE, ROSS
Application Submittal Date [to be verified by municipal staff]	NOVEMBER, 2017
Project Location [Street Address if available, or intersection and/or APN]	2 CREST AVE., ROSS, CA APN: 072-023-27
Name of Owner or Developer	PAUL FOLEY CLM BUILDERS
Project Type and Description [Examples: "Single Family Residence," "Parking Lot Addition," "Retail and Parking"]	SINGLE FAMILY RESIDENCE
Total Project Site Area (acres)	0.431 ACRES
Total New or Replaced Impervious Surface Area (square feet) [Sum of impervious area that will be constructed as part of the project]	3,764 S.F.
Total Pre-Project Impervious Surface Area	1,006 S.F.
Total Post-Project Impervious Surface Area	4,770 S.F.
Runoff Reduction Measures Selected (Check one or more)	<input checked="" type="checkbox"/> 1. Disperse runoff to vegetated area <input checked="" type="checkbox"/> 2. Pervious pavement <input type="checkbox"/> 3. Cisterns or Rain Barrels <input checked="" type="checkbox"/> 4. Bioretention Facility or Planter Box

Step 2: Delineate impervious areas and locations of runoff reduction measures

Delineate the impervious area. On a site plan or sketch, show the impervious area—for example, a roof, or portion of a roof, or a paved area—that will drain to your runoff reduction measure. Typically these delineations follow roof ridge lines or grade breaks. Alternatively, show the type and extent of pervious paving. An example sketch is attached.



ILS ASSOCIATES, INC.
CIVIL ENGINEERING AND LAND SURVEYING

BY: AJS JOB NO: 9166

DATE: 11/15/17 SHEET NO: _____

RATIONAL METHOD COMPUTATION FORM

(From Cal-Trans Rainfall Intensity-Duration-Frequency Analysis)

PRE - PROJECT HYDROLOGY

$$Q = C \times I \times A$$

Watershed 2 CRESA AVE At Point Low Point

Area = 18,774 sq. ft. = 0.43 acres.

Time of Concentration (TC)

$$t_c = \frac{1.48(1.1-C) \sqrt{L}}{[S(100)]^{1/3}} + 5 \text{ Min.} = \frac{1.48(1.1-0.72)\sqrt{160}}{[1.5(100)]^{1/3}} + 5 = 8.5 \text{ Min}$$

C = Runoff Coefficient* = 0.72

L = Longest run in feet = 160

$$S = \text{Average Slope in ft/ft} = \frac{\Delta H}{L} = \frac{102-78}{160} = 0.15$$

Intensity

I_{60} (chart I) = 1.3 zone (chart V) = C subzone (chart v) 2

I_{100} (chart k) = 3.2 R_{d10} (chart k) _____

$I_{10} = I_{100}$ _____ $\times R_{d10}$ (chart k) _____ = _____ in/hr.

I _____ = R_d _____ (from Chart R) $\times I_{100}$ _____ = _____ in/hr.

Coefficient of Runoff 'C'

Relief = 0.3

Soil infiltration = 0.15

Vegetal cover = 0.1

Surface storage = 0.15

C = 0.7 (0.70 minimum)*

Pre-Project Impervious
1006

$$\left[\frac{1006}{18,774} \times 1 \right] + \left[\frac{18,774-1006}{18,774} \times 0.7 \right]$$

C = 0.72

Peak Discharge $Q = C \times I \times A$

$$Q_{100} = 0.72 \times 3.2 \times 0.43 = 0.99 \text{ c.f.s.}$$



ILS ASSOCIATES, INC.
CIVIL ENGINEERING AND LAND SURVEYING

BY: AJS JOB NO: 9166
DATE: 11/14/17 SHEET NO: 1

RATIONAL METHOD COMPUTATION FORM

(From Cal-Trans Rainfall Intensity-Duration-Frequency Analysis)

POST-PROJECT HYDROLOGY
 $Q = C \times I \times A$

Watershed 2 CREST AVE At Point LOW POINT OF LOT
Area = 18,774 sq. ft. = 0.43 acres.

Time of Concentration (+C)

$$t_c = \frac{1.8(1.1 - C) L}{[S(100)]^{1/3}} + 5 \text{ Min.} = \frac{1.8(1.1 - 0.76) \sqrt{160}}{[0.15(100)]^{1/3}} + 5 = 8.1 \text{ min.}$$

C = Runoff Coefficient* = 0.76

L = Longest run in feet 160

S = Average Slope in ft/ft = $\frac{\Delta H}{L} = \frac{102 - 78}{160} = 0.15$

Intensity

I_{60} (chart I) = 1.3 zone (chart V) = C subzone (chart v) 2

I_{100} (chart k) = 3.3 Rd_{10} (chart k) _____

$I_{10} = I_{100}$ _____ x Rd_{10} (chart k) _____ = _____ in/hr.

I _____ = Rd _____ (from Chart R) x I_{100} _____ = _____ in/hr.

Coefficient of Runoff 'C'

Relief = 0.3

Soil infiltration = 0.15

Vegetal cover = 0.1

Surface storage = 0.15

C = 0.70 (0.70 minimum)*

POST 'C'
 $\left[\left(\frac{4770}{18,774} \right) \times 1 \right] + \left[\left(\frac{14,004}{18,774} \right) \times 0.7 \right]$
C = 0.76

Peak Discharge $Q = C \times I \times A$

$Q_{100} = 0.76 \times 3.3 \times 0.43 = 1.08$ c.f.s.

DRIVEWAY AND

ROOF FLOW TO BIO-FILTRATION
PLANTER

$$\left. \begin{array}{l} \text{ROOF AREA} = 2005 \text{ S.F.} \\ \text{DRIVEWAY AREA} = 1031 \text{ S.F.} \end{array} \right\} = 3,036 \text{ S.F.} = 0.07 \text{ acre}$$

$$I_{T=5min} = 4$$

$$C = 0.95$$

$$Q_{100} = 0.95 \times 4 \times 0.07 = 0.27 \text{ cfs}$$

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.26	1	5	79	---	---	---	Inflow Bio-retention
2	Reservoir	0.05	1	9	13	1	100.37	75	2 Crest

Proj. file: 9166 Hydro_11-17-17.gpw Return Period: 100 yr

Run date: 11-17-2017

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	Rational	-----	-----	0.00	-----	-----	0.00	0.00	-----	0.26	Inflow Bio-retention
2	Reservoir	1	-----	0.00	-----	-----	0.00	0.00	-----	0.05	2 Crest

Proj. file: 9166 Hydro_11-17-17.gpw

Run date: 11-17-2017

Hydrograph Report

Page 1

Hydraflow Hydrographs by Intelsolve

Hyd. No. 1

Inflow Bio-retention

Hydrograph type = Rational
Storm frequency = 100 yrs
Drainage area = 0.1 ac
Intensity = 3.983 in/hr
IDF Curve = Ross.idf

Peak discharge = 0.26 cfs
Time interval = 1 min
Runoff coeff. = 0.95
Time of conc. (Tc) = 5 min
Asc/Rec limb fact = 1/1

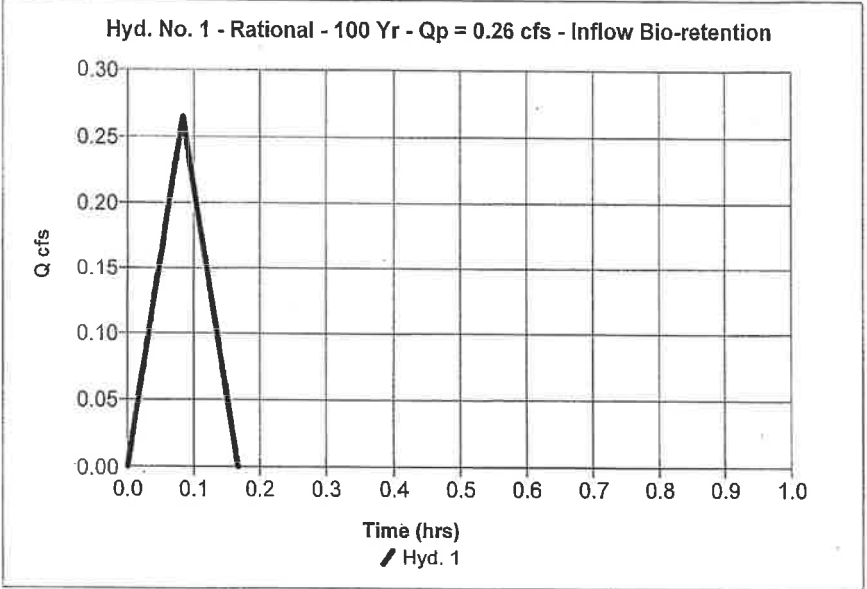
Hydrograph Volume = 79 cuft

Hydrograph Discharge Table

Time -- Outflow
(hrs cfs)

0.02	0.05
0.03	0.11
0.05	0.16
0.07	0.21
0.08	0.26 <<
0.10	0.21
0.12	0.16
0.13	0.11
0.15	0.05

...End



Hydrograph Report

Hyd. No. 2

2 Crest

Hydrograph type = Reservoir
 Storm frequency = 100 yrs
 Inflow hyd. No. = 1
 Max. Elevation = 100.37 ft

Peak discharge = 0.05 cfs
 Time interval = 1 min
 Reservoir name = planter outflow
 Max. Storage = 75 cuft

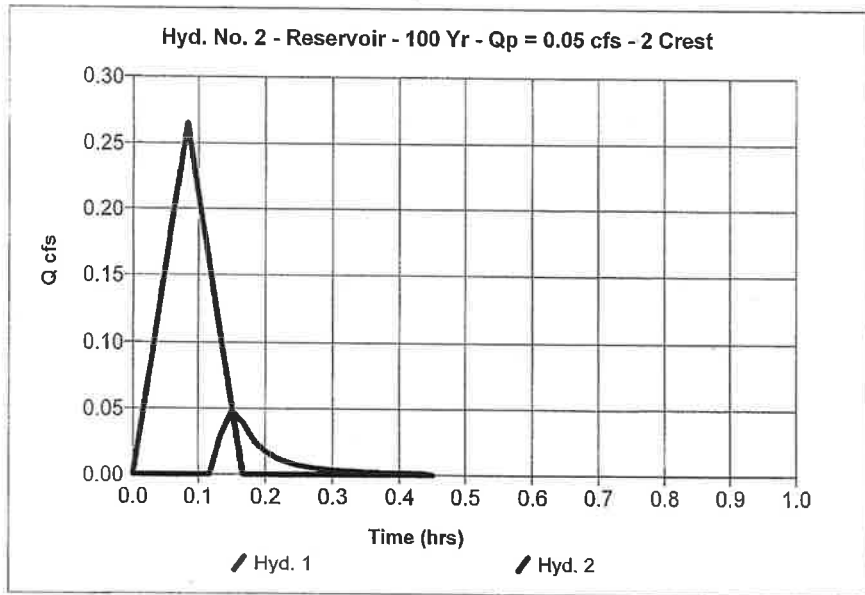
Storage indication method used.

Outflow hydrograph volume = 13 cuft

Hydrograph Discharge Table

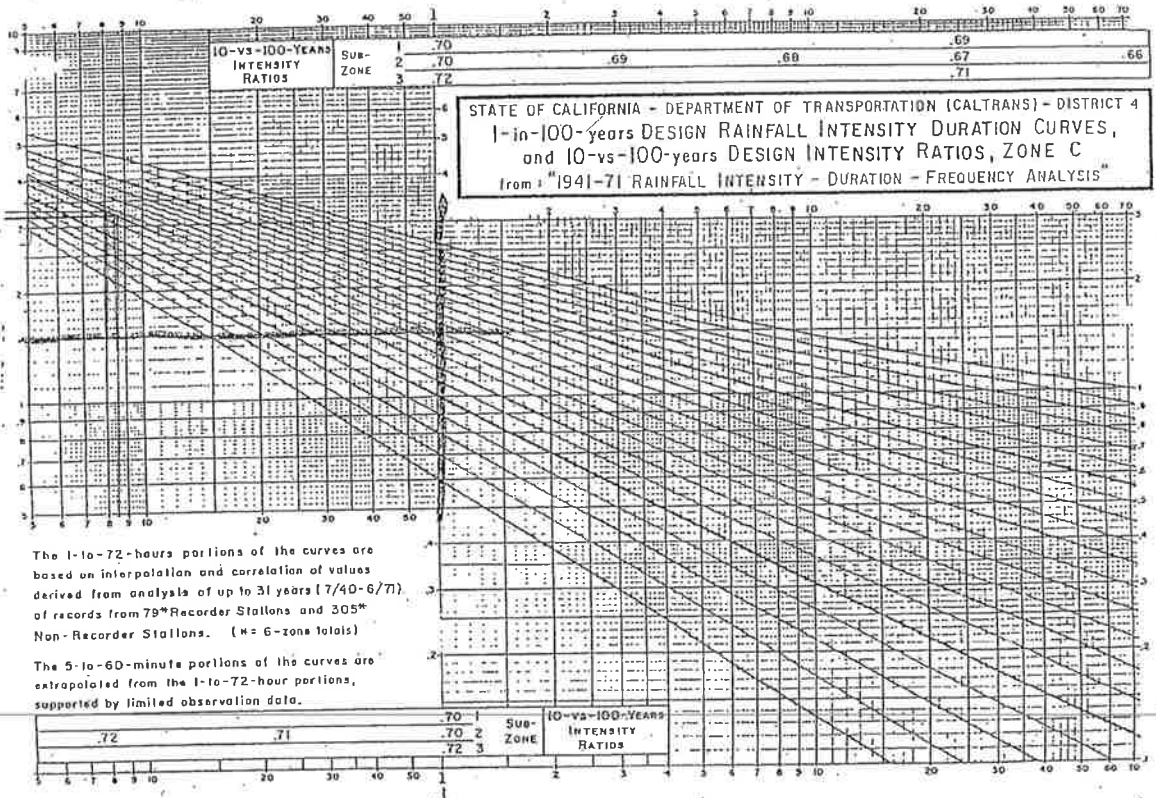
Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
0.13	0.11	100.36	---	---	---	---	0.03	---	---	---	---	0.03
0.15	0.05	100.37 <<	---	---	---	---	0.05	---	---	---	---	0.05 <<
0.17	0.00	100.37	---	---	---	---	0.04	---	---	---	---	0.04
0.18	0.00	100.36	---	---	---	---	0.03	---	---	---	---	0.03
0.20	0.00	100.35	---	---	---	---	0.02	---	---	---	---	0.02
0.22	0.00	100.35	---	---	---	---	0.01	---	---	---	---	0.01
0.23	0.00	100.34	---	---	---	---	0.01	---	---	---	---	0.01
0.25	0.00	100.34	---	---	---	---	0.01	---	---	---	---	0.01
0.27	0.00	100.34	---	---	---	---	0.01	---	---	---	---	0.01
0.28	0.00	100.34	---	---	---	---	0.00	---	---	---	---	0.00
0.30	0.00	100.34	---	---	---	---	0.00	---	---	---	---	0.00
0.32	0.00	100.34	---	---	---	---	0.00	---	---	---	---	0.00
0.33	0.00	100.34	---	---	---	---	0.00	---	---	---	---	0.00
0.35	0.00	100.34	---	---	---	---	0.00	---	---	---	---	0.00
0.37	0.00	100.33	---	---	---	---	0.00	---	---	---	---	0.00
0.38	0.00	100.33	---	---	---	---	0.00	---	---	---	---	0.00
0.40	0.00	100.33	---	---	---	---	0.00	---	---	---	---	0.00
0.42	0.00	100.33	---	---	---	---	0.00	---	---	---	---	0.00
0.43	0.00	100.33	---	---	---	---	0.00	---	---	---	---	0.00

...End



Q = CIA

3.3
3.2



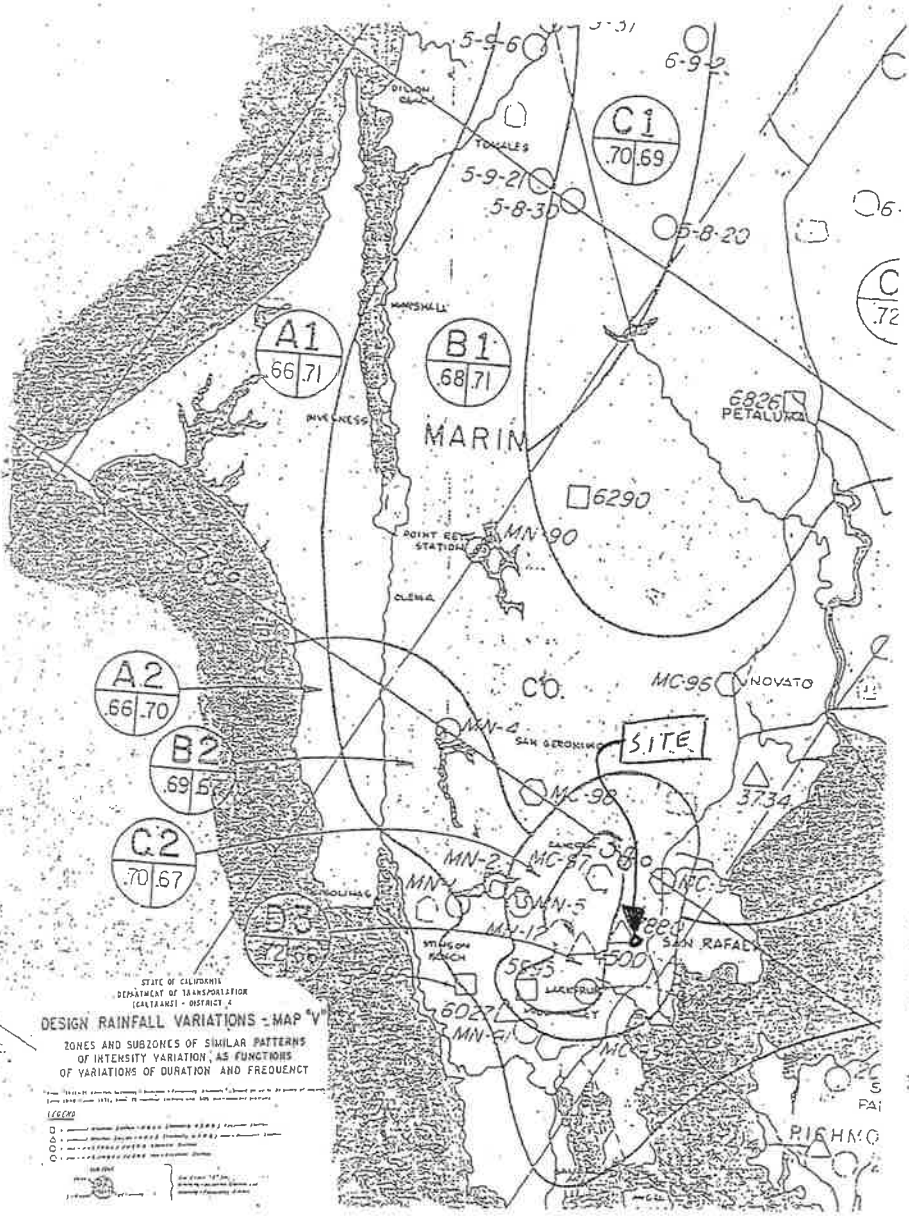
The 1-to-72-hour portions of the curves are based on interpolation and correlation of values derived from analysis of up to 31 years (7/40-6/77) of records from 79*Recorder Stations and 305* Non-Recorder Stations. (* = 6-zone totals)

The 5-to-60-minute portions of the curves are extrapolated from the 1-to-72-hour portions, supported by limited observation data.

MINUTES — DURATION — HOURS CHART "K" . ZONE C

EK/ERR
9/74

APPENDIX "D" - C



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CALTRANS - DISTRICT 4

DESIGN RAINFALL VARIATIONS - MAP "V"
ZONES AND SUBZONES OF SIMILAR PATTERNS
OF INTENSITY VARIATION, AS FUNCTIONS
OF VARIATIONS OF DURATION AND FREQUENCY

1. This rainfall variation boundary frequency diagram is based on the 30 years of record from 1949 through 1978, based on monthly averages and 100-year return periods.

LEGEND

- 100-year return period (100-year frequency) average annual rainfall
- 50-year return period (50-year frequency) average annual rainfall
- 20-year return period (20-year frequency) average annual rainfall
- 10-year return period (10-year frequency) average annual rainfall

RAIN (INCH)

100 50 20 10

100 50 20 10

100 50 20 10

CHART I

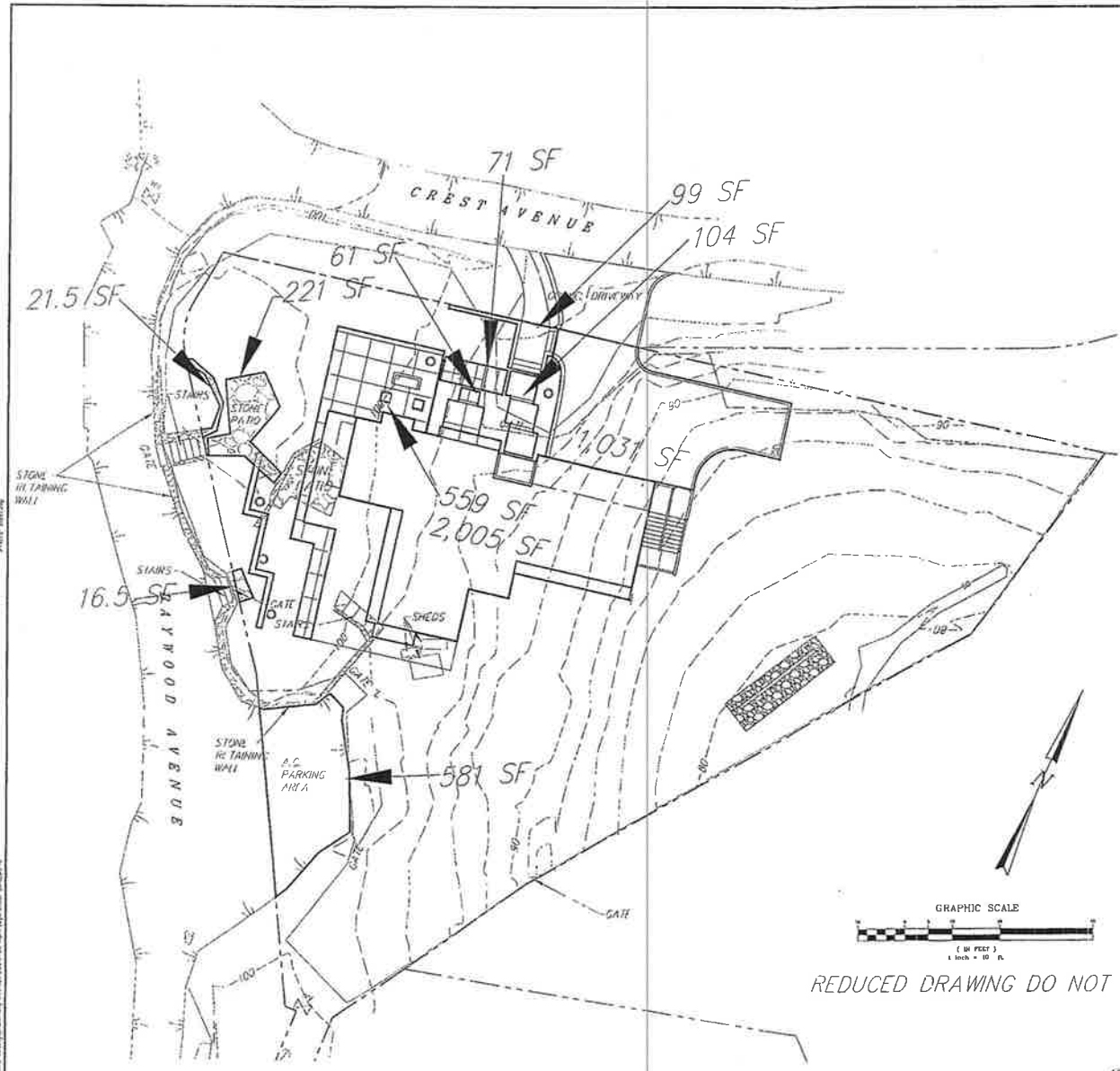
RUNOFF COEFFICIENTS FOR AGRICULTURAL AND OPEN AREAS *

WATERSHED CHARACTERISTICS			
A	B	C	D
RELIEF	SOIL INFILTRATION	VEGETAL COVER	SURFACE STORAGE
<p><u>0.40</u></p> <p>Steep rugged terrain Average slopes greater than 50%</p>	<p><u>0.20</u></p> <p>No effective soil cover; either rock or thin soil mantle negligible infiltra- tion capacity</p>	<p><u>0.20</u></p> <p>No effective plant cover; bare or very sparse soil cover</p>	<p><u>0.20</u></p> <p>Negligible; surface depression few and shallow; drainage ways steep and small; no ponds or marshes</p>
<p><u>0.30</u></p> <p>Hilly with average slopes of 10 to 30%</p>	<p><u>0.15</u></p> <p>Slow to take up water; clay or other soil of low infiltration capaci- ty such as heavy gumbo</p>	<p><u>0.15</u></p> <p>Poor to fair; clean cultivated crops or poor natural cover; less than 10% of area under good cover</p>	<p><u>0.15</u></p> <p>Low; well defined system of small drain- age ways; no ponds or marshes</p>
<p><u>0.20</u></p> <p>Rolling with average slopes of 5 to 10%</p>	<p><u>0.10</u></p> <p>Normal, deep loam</p>	<p><u>0.10</u></p> <p>Fair to good; about 50% of area in good grass land, woodland or equivalent cover</p>	<p><u>0.10</u></p> <p>Normal; considerable surface depression storage; typical of prairie lands; lakes, ponds and marshes less than 20% of area</p>
<p><u>0.10</u></p> <p>Intensely flat land average slopes 0 to 5%</p>	<p><u>0.05</u></p> <p>High; deep sand or other soil that takes up water readily and rapidly</p>	<p><u>0.05</u></p> <p>Good to excellent; about 90% of area in good grass land, woodland or equiv- alent cover</p>	<p><u>0.05</u></p> <p>High; surface depres- sion storage; high drainage system net sharply defined. Lg. flood plain storage; large number of ponds and marshes</p>

NOTE: Runoff coefficient is equal to sum of coefficients from the appropriate block in Rows A, B, C and D.

* After H. L. Cook, as published in *Engineering for Agricultural Drainage*, by Harry B. Roe and Quincy C. Ayres, McGraw-Hill Book Co., Inc., New York, 1954, p. 165.

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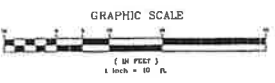


IMPERVIOUS SURFACE TABLE

1,031 SF
99 SF
104 SF
71 SF
61 SF
559 SF
221 SF
21.5 SF
2,005 SF
16.5 SF
581 SF
4,770 SF

SURVEY NOTES:

- 1. NEARICAL SURFACE IS ASSUMED
- 2. HORIZONTAL DATUM IS BASED UPON FIELD SURVEY AND TO 03.4 F
- 3. CONTIGUOUS SURFACE IS 2'



REDUCED DRAWING DO NOT SCALE

DESIGN REVIEW

ILS ASSOCIATES, INC.
 CIVIL ENGINEERING AND LAND SURVEYING
 79 CALIF DRIVE, SUITE A, REDWOOD, CA 94068-5917 (415)863-1200 FAX (415)863-2164

2 CREST AVENUE		DATE	9/25/2017
MAYN OF ROSS		BY	SWNS
MARIN COUNTY	CALIFORNIA	CHK	SWNS
POST-PROJECT IMPERVIOUS AREA		DATE	01

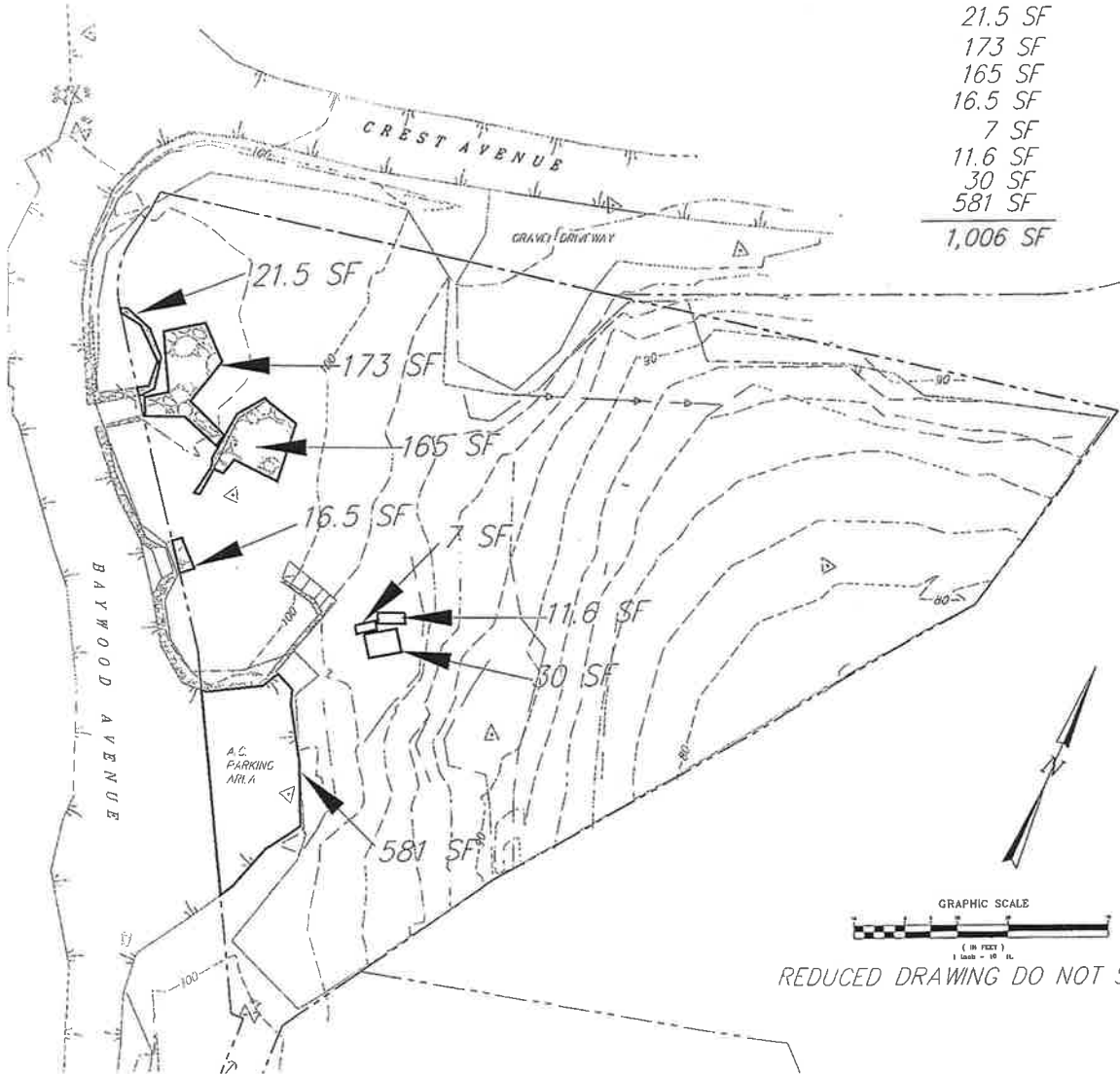
APPX. 2/2-2/2-27
 FIELD BOOK NO. 278

PROJECT NO. 105C

N:\P9000\9166\dwg\9166DR.dwg, P3624-10SC-PRE PROJ: IMPER, 11/15/2017 2:45:47 PM, ILS Associates, Inc. - A.S.

IMPERVIOUS SURFACE TABLE

21.5 SF
173 SF
165 SF
16.5 SF
7 SF
11.6 SF
30 SF
581 SF
<hr/>
1,006 SF



REDUCED DRAWING DO NOT SCALE

- SURVEY NOTES:**
1. VERTICAL DATA IS ASSIGNED.
 2. HORIZONTAL DATA IS BASED UPON FIELD SURVEY AND 10 DS ± P.
 3. CONTOUR INTERVAL IS 2'.

DESIGN REVIEW	
 ILS ASSOCIATES, INC.[®] CIVIL ENGINEERING AND LAND SURVEYING	
79 CALL DRIVE, SUITE A, NOVATO, CA 94948-5313 (415) 883-9300 FAX (415) 883-2163	
2 CREST AVENUE TOWN OF ROSS	
MARIN COUNTY	CALIFORNIA
PRE-PROJECT IMPERVIOUS AREA	SHEET NO. 218 DATE 2/15/2017

A.P.N.: 021-021-27
 FIELD BOOK NO.: 270
 09/20/17
 ILS

N:\P0000\91666.dwg (9166DR.dwg, P3624-105C-BLDG-SHT, 11/15/2017 3:07:52 PM, ILS Associates, Inc., A.S.)

GENERAL NOTES:

1. SEE ARCHITECTURE AND LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
2. SOUP DISPENSERS SHALL BELIEVE CIVIL APPROVED GRASS-BLOCKS AND FROM INTO APPROPRIATELY DESIGNATED OF LANDSCAPE AREAS OR CORRECT TO SHOW DRAIN SYSTEM.

EARTHWORK QUANTITIES:

110 E.C. CUT
492 C.F. FILL

IMPERVIOUS SURFACE QUANTITIES:

PAV - PROJECT IMPERVIOUS SURFACE AREA = 1,008 S.F.
POST-PROJECT IMPERVIOUS SURFACE AREA = 4,210 S.F.
PROPPOSED IMPERVIOUS AREA REDUCE = 3,204 S.F.
ROUNDING BI-FILTRATION AREA = 4,770 S.F. X 0.01
= 47.7 S.F.



VICINITY MAP
N.T.S.

DMA-1,2,3 & 4 Flows
TO BIO-FILTRATION
DMA-5 TO YARD

LEGEND

- △ PANDUM CONTROL FOR SURVEY
- XX EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- AD AREA DRAIN
- CD CLEANOUT
- P DRAINAGE INLET
- EXISTING TREE
- EXISTING CONTOUR
- PROPOSED SHALE
- WELLS LINE
- PROPERTY LINE
- FOUNDATION SUBGRADE
- PROPOSED STORM DRAIN CULVERT
- EXISTING EDGE OF PAVEMENT
- FINISH FINISHED GRADE CONCRETE
- A.C. ASPHALT CONCRETE
- RW PAVED FLOOR ELEVATION
- FC CORRUGATED METAL PIPE
- RW FINISHED GRADE
- RW TOP OF WALL ELEVATION
- RW FINISHED FLOOR GARAGE ELEVATION
- RW FINISHED FLOOR ELEVATION
- RW FINISHED GRADE AT BOTTOM OF WALL
- RW UPPER LEVEL FINISHED FLOOR ELEVATION
- RW STORM DRAIN CULVERT
- RW EXISTING GRADE
- RW HEIGHT OF EXPOSED PORTION OF WALL
- RW PORTLAND CEMENT CONCRETE

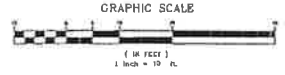
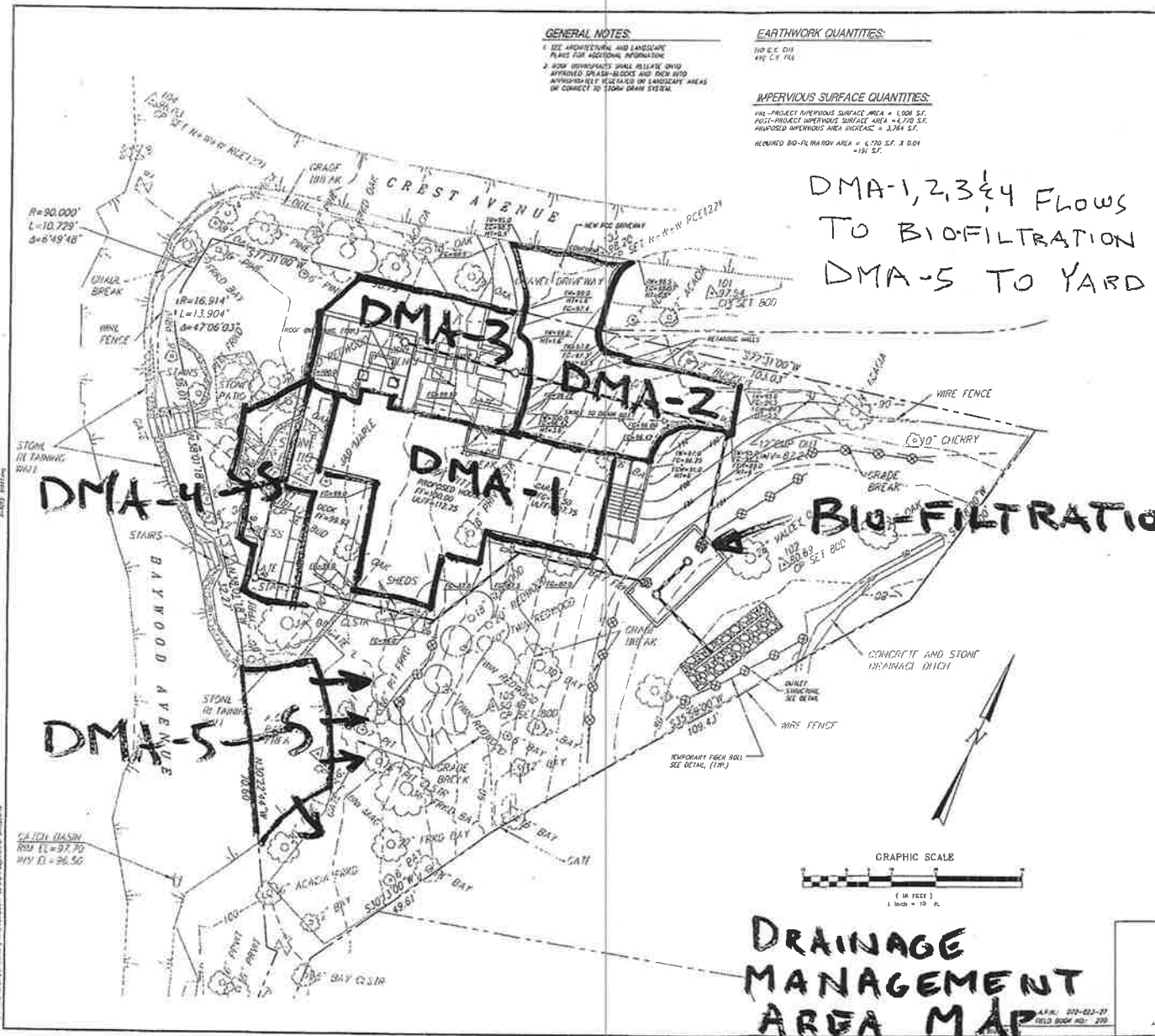
SURVEY NOTES:

1. VERTICAL DATUM IS ASSUMED.
2. HORIZONTAL DATUM IS BASED UPON FIELD SURVEY AND TO US FT.
3. CONTROLLER INTERVAL IS 2'.

DESIGN REVIEW

ILS ASSOCIATES, INC.
CIVIL ENGINEERING AND LAND SURVEYING
78 CALIF. CIVIL, STATE A, MONTECAL, CA 94920-5171 (415)883-1000 FAX (415)883-2744

2 CREST AVENUE CITY OF ROSS		DATE 11/15/2017
MARIN COUNTY	CALIFORNIA	DRAWN BY JL
GRADING & DRAINAGE & EROSION CONTROL PLAN		CHECKED BY JL



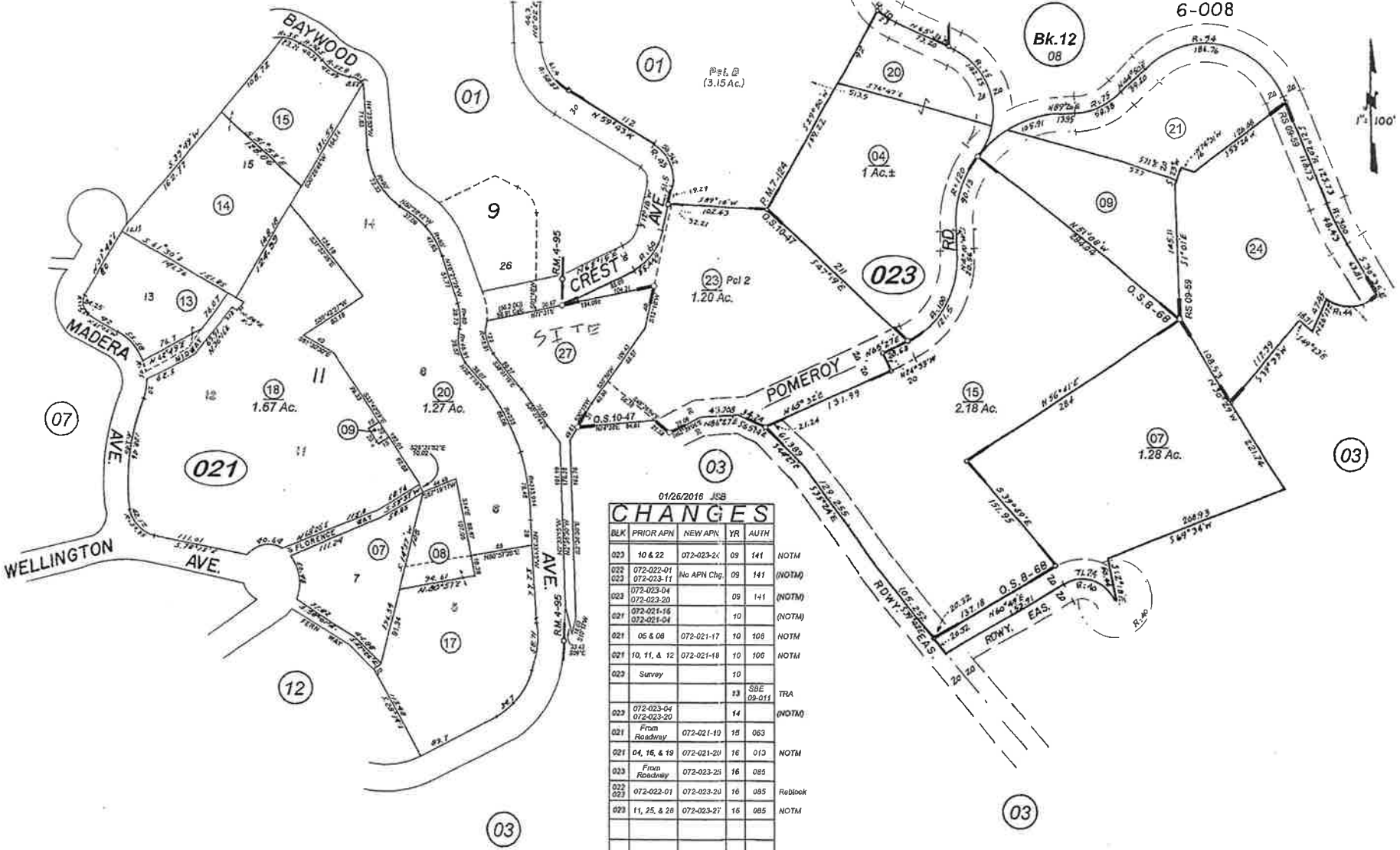
DRAINAGE MANAGEMENT AREA MAP

A.P.R. 012-013-27
FIELD BOOK NO. 210

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES.

POR. PUNTA DE QUENTIN RANCHO

Tax Area Code
6-000
6-008
72-02



01/26/2016 JSB

BLK	PRIOR APN	NEW APN	YR	AUTH	
023	10 & 22	072-023-21	09	141	NOTM
022	072-023-01		09	141	(NOTM)
023	072-023-11	No APN Chg.	09	141	(NOTM)
023	072-023-04		09	141	(NOTM)
023	072-023-20		09	141	(NOTM)
021	072-021-16		10		(NOTM)
021	072-021-04		10		(NOTM)
021	05 & 08	072-021-17	10	108	NOTM
021	10, 11, & 12	072-021-18	10	108	NOTM
023	Survey		10		
			13	SBE	TRA
			09-011		
023	072-023-04		14		(NOTM)
023	072-023-20		14		(NOTM)
021	From Roadway	072-021-19	15	063	
021	04, 15, & 19	072-021-20	16	013	NOTM
023	From Roadway	072-023-23	16	085	
022	072-022-01	072-023-23	16	085	Reblock
023			16	085	
023	11, 25, & 28	072-023-27	16	085	NOTM

NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

TOWN OF ROSS
Assessor's Map Bk.72-Pg.02
County of Marin, Calif.

ATTACHMENT 6



SALEM HOWES ASSOCIATES INC

GEOTECHNICAL CONSULTANTS

1202 Grant Avenue, Suite F
Novato, CA 94945
415/892-8528
howesgeo@aol.com

REPORT GEOTECHNICAL INVESTIGATION

NEW RESIDENCE
2 CREST ROAD
ROSS, CA

24 AUGUST 2017

RECEIVED
Planning Department

OCT - 2 2017

Town of Ross

24 August 2017

CLM Builders Inc
4280 Redwood Hwy., Suite 7
San Rafael, CA 94903

Job .1707047

SUBJECT: Report
Geotechnical Investigation,
2 Crest Road, Ross

Contents

Page 2	Introduction
Page 2	Discussion and Summary
Page 3	Geology and Slope Stability
Page 4	Ground Water
Page 4	Earthquake Hazards and Seismic Design
Page 5	Foundation Conditions
Page 6	Design Recommendations
Page 6	Summary of Design Parameters
Page 7	Drilled Piers
Page 8	Footings
Page 9	Retaining Walls
Page 10	Tiebacks
Page 11	Geotechnical Considerations for Slab on Grade Construction
Page 12	Cuts and Fills
Page 12	Geotechnical Drainage Considerations
Page 14	Drainage Checklist
Page 14	Construction Observations
Page 15	Key Observation Points
Page 15	Additional Engineering Services
Page 15	Limitations on the Use of This Report
	Attachments
	References

Introduction

This report presents the results of our geotechnical investigation of the proposed residential building site located at the above address. It conforms to the requirements of section 1803 in the 2016 California Building Code (CBC). The purpose of our investigation was to evaluate the geotechnical feasibility of the proposed development, assess the suitability of the building site, and provide detailed recommendations and conclusions as they relate to our specialty field of practice, geotechnical engineering and engineering geology. The scope of services specifically excluded any investigation needed to determine the presence or absence of issues of economic concern on the site, or of hazardous or toxic materials at the site in the soil, surface water, ground water, or air.

If this report is passed onto another engineer for review it must be accompanied by the approved architectural and structural drawings so that the reviewer can evaluate the exploration and data in the context of the complete project. Ground conditions and standards of practice change; therefore, we should be contacted to update this report if construction has not been started before the next winter or one-year from the report date.

For us to review the drawings for compliance with our recommendations the four following notes must be on the structural drawings:

- The geotechnical engineer shall accept the footing grade / pier holes prior to placing any reinforcing steel in accordance with the CRC requirements. Notify geotechnical engineer before the start of drilling. (If that isn't stated they may require inspections in accordance with CBC Section 1702-Definitions, "Special Inspections, Continuous". This would require a full time inspector during drilling.)
- Drainage details may be schematic, refer to the text and drawings in the geotechnical report for actual materials and installation.
- Refer to Geotechnical Report for geotechnical observation and acceptance requirements. Along with the structural drawings, to complete the review, we need the pertinent calculations from the structural engineer or the geotechnical design assumptions should be included on the drawings notes per requirements of the 2016 CBC.
- ***It is the owner's responsibility*** that the contractor knows of and complies with the BMP's (Best Management Practices) of the Regional Water Quality Control Board, available at www.swrcb.ca.gov, ↓ water quality ↓ stormwater ↓ construction

The fieldwork consisted of reconnaissance mapping of exposed geologic features on the site and in the immediate surrounding area and the drilling of five test borings. The borings were advanced using a portable hydraulic drill rig with 3-inch flight augers and sampled by Standard Penetration Tests* (see *notes to borings logs*). Fieldwork was conducted in July of 2017. During this period we reviewed select geotechnical references pertinent to the area and examined stereo-paired aerial photographs of the site, which were available from Pacific Aerial Surveys in Oakland.

Discussion and Summary

The building site is underlain by sandstone bedrock at depths ranging from three to 20 feet. The property sits on the edge of a swale which is filled with colluvium soil*, the depth to the top of rock increases from west to east as the building site encroaches on the area of the swale. Drawing A shows the depth to the top of the bedrock at the location of our test borings. The underlying sandstone bedrock will provide substantial support for either footing or drilled pier foundation. All

foundations must bear on the unweathered sandstone bedrock by drilled pier or footing type foundations. The depth to rock can be interpolated from the data on Drawing A. The design engineer should compare the topography, building elevations and geotechnical report to determine the appropriate active earth pressures and type of foundation to be used. The actual type of foundation should be determined by the architect and design engineer based on construction and economic considerations. The use of a mixed foundation design is usually a practical solution.

During our investigation we did not observe any local geologic hazards that would adversely affect the site. We judge that following the recommendations in this report and standard Marin County hillside construction practices a structure can be safely constructed on this site without adversely impacting the slope stability or changing the drainage in any measurable manner. Detailed discussions and recommendations are covered in the following sections of this report.

Geology and Slope Stability

The site has been mapped by others⁽¹⁾ as the Cretaceous Sandstone [Ks] member of the Franciscan Geologic Assemblage. The sandstone is described in the literature as thinly interbedded to massive deposits of sandstone and shale, is generally fractured and inclined and friable where weathered. The site is located at the north-south trending crest of the slope bordering and including a topographic saddle with a broad and extensive swale that incorporates a larger drainage watershed that continues to the south-southeast and parallels Canyon Rd in Ross. The west of the property is located upon a flatter area that may have been flattened in the past and leads to the broad swale to the east side of the property. The northern side of the property borders the road fill for Crest Road while the southern side of the property contains generally evenly sloped topography and flanks the broad swale. A small fill bench is located at the center of property off the northern property line with a culvert located to the east of the fill bench and aids in draining the upslope areas and onto the property that is currently used as a dispersion area with sedge growing at the surface. All of the borings encountered bedrock except boring "D" that did not encounter bedrock at sixteen and one half feet. Borings "A" and "B" are located within the flatter area along the west side of the proposed residence and encountered bedrock at three to three and one half feet. Boring "C" encountered bedrock at six and one half feet. Boring "E" encountered bedrock at twenty and one half feet. Borings "A", "B" and "C" are located within the confines of the topographic saddle and along the flanks of the swale while borings "D" and "E" are located along the flanks and within the central portions of the broad swale. The swale in this area trends to the north of Crest Rd and to the southeast past the property and down slope paralleling Canyon Rd. The highly weathered nature of the sandstone and shale is visible within the road cuts leading to the site along Baywood Ave and consists of inclined and highly fractured sandstone and shale. Where encountered in horizontal beds, the bedrock is generally very strong and where inclined, rates of weathering increase as the bedding planes are more readily exposed to the elements and become more friable with the greatest weathered profile encountered where bedrock is inclined vertically. The bedrock in the vicinity appears to be inclined from thirty to forty five degrees with some areas encompassing greater or less inclined bedrock. The increased weathering of the bedrock may have yielded a deeply weathered soil horizon that also incorporated a thicker colluvium [Qc] sequence as was encountered within borings "D" and "E". The colluvium is described in the literature as the soil that has accumulated upon the slope from areas of higher elevation and can incorporate soils and clasts from bedrock sources upslope. The colluvium encountered is a stiff, reddish brown clayey [CL] soil matrix with subrounded to subangular sandstone and shale clasts, moist to damp in hand at the time of

sampling. The steepness of the western edge of Baywood Ave and the presence of deeply weathered and inclined sandstone and shale may yield difficult excavations due to rapidly descending bedrock profile across the site. Rock of this formation has been classified ⁽¹⁾ as highly stable on natural slopes and fresh sandstone and shale will stand in vertical cuts except where blocks slip along outward dipping joints or bedding planes. The rock weathers readily to a silty, non-swelling, easily erodible soil. Rock surfaces of low relief are covered with a thick layer of deeply weathered soil; however steep slopes are stripped bare of soil cover. Landslides and debris flows in this formation are confined to well-developed swales and drainages where deep soil deposits have accumulated. The topographic position of this property along the topographic saddle and within the flanks of a broad swale exposes it to these types of natural hazards. During our investigation we did not identify any geomorphic features that would indicate that any unusual geologic hazards would affect this site as the site is fairly evenly slope with no obvious geomorphic abnormalities.

Ground Water

Ground water was not observed in the test borings, yet damp soil conditions were encountered during our investigation at depth, however, with the onset of the rainy season, wet soil conditions will continue well into the spring. There are not any clusters of Pampas Grass (*Cortderia Jubata*) or seeps which are indicators of high ground water. However, ground water conditions vary with the seasons and annual fluctuations in weather. A general rise in ground water can be expected after one or more seasons of above average rainfall. Based on the limited time we have been able to collect ground water data on this site, it is not possible to accurately predict the range of ground water fluctuations in the future. Therefore, ground water sensitive structures such as retaining walls, basements, swimming pools and wine cellars should be designed to anticipate a rise in the water level that could potentially affect their function and stability. During construction it should be anticipated that ground water will be encountered at the rock/soil contact.

Earthquake Hazards and Seismic Design

This site is not subject to any unusual earthquake hazards, located near an active fault, within a current Alquist-Priolo Special Studies Zone or Seismic Hazards Zone as shown on the most recently published maps from the California Geologic Society. There were no geomorphic features observed in the field or on air photos, or geologic features in the literature that would suggest the presence of an active fault or splay fault traces. However, historically the entire San Francisco Bay Area has the potential for strong earthquake shaking from several fault systems, primarily the San Andreas Fault which lies approximately 8 miles to the southwest and the Hayward/Rodgers Creek Faults, 10 miles to the northeast. The U.S. Geologic Survey has estimated ⁽²⁾ (we realize these percentage estimates have been up dated practically every year; however, the basic message is that we live in earthquake country and one should be prepared) there is up to 21 percent chance of a major quake (Magnitude 8) from 2000 to 2030 on the San Francisco Bay region segment of the San Andreas Fault. The probability is lower north of San Francisco and increases to the south. However, in the same period, there is a 32 percent chance of a major event (Magnitude 7) on the Hayward fault and Rodgers Creek Faults. The total 30-year probability of one or more large earthquakes occurring in the entire San Francisco region is 70 percent (see Plate 1). Based on the bedrock and soils observed at the site, we do not anticipate those seismically induced hazards, specifically: liquefaction, settlement and differential compaction, landsliding, and flooding are present. Generally speaking structures founded on bedrock fare far better during an earthquake than structures on soil, fill or bay mud.

For California Building Code design purposes on this site the top 100 feet of the ground has an average Soil Profile Site of Class B per section 1613.3.2. Seismic design criteria in conformance with the latest edition of the CBC and ASCE-7 should be obtained from the USGS web site. In California, the standard of practice requires the use of a seismic coefficient of 0.15, and minimum computed Factor of Safety of 1.5 for static and 1.1 to 1.2 for pseudo-static analysis of natural, cut and fill slopes.

Retaining walls which support rock cuts will stand vertical with only nominal shoring to prevent weathering. This inherently means there is no active pressure in the rock zone. Therefore, only a nominal value for active pressure is required to support the rock. For seismic analysis the dynamic loads from a slope only occur from the Rankine wedge, which in soils is typically 30 to 40-degrees (from the vertical) in a ϕ type material. However, with rock slopes the Rankine wedge is non-existent to near vertical. Consequently there is no measurable seismic force from the slope on the wall in a rock section. In a thin soil section (< 4-ft) the active pressure of 45 lbs/ft³ is sufficiently conservative to account for any additional seismic loading. In thicker soil sections a simple approach⁽⁶⁾ is to include in the design analysis an additional horizontal force P_E to account for the additional loads imposed on the retaining wall by the earthquake, as follows:

$$P_E = \frac{3}{8} (\alpha_{max}) \gamma_t H^2 \text{ (acting at a distance of } 0.6H \text{ above the base of the soil layer)}$$

Where H = height of soil section, $\alpha_{max} = 0.15$ & γ = unit weight of soil in slope. Because P_E is a short-term loading it is common to allow a $\frac{1}{3}$ increase in bearing pressure and passive resistance for earthquake analysis. Also, for the analysis of sliding and overturning of the retaining wall it is acceptable to lower the factor of safety to 1.1 under the combined static and earthquake loads⁽⁷⁾.

As a homeowner there are a number of measures one can take to limit structural damage, protect lives and valuable objects in the event of a major earthquake. To be prepared and understand the mechanics of earthquakes we strongly recommend that you purchase a very practical book entitled "Peace of Mind in Earthquake Country" by Peter Yanev. This book is written for the homeowner and, while currently out of print, used copies are available in paperback (Chronicle Books/S.F.) from Amazon.com and other locations.

Foundation Conditions

Sandstone bedrock lies between three and 20 feet below the surface. The depth to the top of bedrock at the location of the test borings is shown on Drawing A. The overlying soil is stiff and will stand in vertical cuts up to five feet when dry. During winter construction shoring will be required. In wet weather ground water can be expected at the soil/rock contact. The rock, albeit hard, is generally highly fractured and can normally be excavated by common means; however, hard massive areas may be encountered that could require the use of an excavator mounted "hoe ram" or core barrel.

CalOSHA regulations require shoring on cuts over five feet. Temporary slopes and shoring design are the responsibility of the contractor. For planning and design the soil above the bedrock is an OSHA "Type A", below that the bedrock is in the OSHA classification of "Stable rock"; however, even though rock slopes will stand vertically for short periods of time as they are exposed to air and start to dry out block failures will occur if not shored; this can happen as soon as the night after excavation. We recommend shoring as excavations progress downward.

No laboratory testing was performed; since all foundations will be in rock, soil properties, such as moisture and density, do not provide any relevant engineering data for foundation design. In view of the fact that bedrock features in the Franciscan Formation can rarely be correlated over short distances, testing of small rock pieces provides no viable data for use in design. We based our recommendations on assessment of rock mass properties. During exploration in situ testing and sampling of the soil was performed by Standard Penetration Tests (ASTM D-1586)*. We will continue to evaluate the ground conditions during excavation and modify our recommendation if warranted.

Bedrock is not exposed on the site; however rock is exposed in road cuts along Baywood Avenue for evaluation of engineering properties. The contractor may use these exposures to determine the difficulty of excavation and the appropriate type of equipment to use.

Design Recommendations

All foundations must bear on the unweathered sandstone bedrock by drilled pier or footing type foundations. The depth to rock can be interpolated from the data on Drawing A. Retaining walls bottomed in a full rock cut with the recommended toe confinement may use footing type foundations. For tall retaining walls the use of tiebacks for lateral restraint should be considered in lieu of deep keyways or piers. With rock cuts, rock bolting and shotcrete (reinforced shotcrete) may be an economic alternative to traditionally formed retaining walls. There are now local contractors with jackleg air-tract drills that can readily install rock bolts. Per CalOSHA regulations shoring will be required on rock cuts over six feet.

Structures with foundations on rock will not experience any measurable settlement and there are no conditions that require provisions to mitigate the effects of expansive soils, liquefaction, soil strength or adjacent loads. The slope setback provisions in §1808.7 of the CBC do not apply to foundations on slopes that are bottomed in bedrock. Except for seismic none of the requirements in CBC § 1803.5.11 and .12 apply.

Summary of Design Parameters

The design engineer should compare the topography, building elevations and geotechnical report to determine the appropriate active earth pressures and type of foundation to be used. The actual type of foundation should be determined by the architect and design engineer based on construction and economic considerations. The use of a mixed foundation design is usually a practical solution. Design parameters in this report were determined by field observations and testing and per section 1806.2 of the CBC supersede the presumptive values in the CBC table 1806.2.

- Seismic Design (See Earthquake Hazards Section)
Soil Profile Site Class Type B. Ground motion parameters from USGS web site with site coordinates.
- Active earth pressure: (see lateral loading formula in Eq. and Seismic Design Section)
In a Soil Section = 35 for level and 45 lbs/ft³ equivalent fluid pressure for sloping backslope
In a Rock Section = 35 lbs/ft² (pounds per square foot)
- Allowable Bearing Capacity (P_{allow}) On Bedrock⁽¹⁾
 $P_{allow} = 0.33 * 10.0 * (\text{footing width in feet}) = (\text{kips/ft}^2)$ (Not to exceed 10.0)

A 20-percent increase is allowed for each additional foot, beyond one-foot, of depth that the footing is excavated into the bedrock subgrade.

- Lateral Bearing In Bedrock
Passive equivalent fluid pressure of 750 lbs/ft³ and a friction factor of 0.45 to resist sliding. They may be combined and a one third increase is allowed for transitory loading.
- Pier Design (Per 2016 CBC section 1807)
Rock passive pressure: 800 lbs/ft²/ft to calculate S₁ or S₃ (1.5-ft below the top of rock on slopes)
Adhesion: (skin friction) 900 lbs/ft² (In the rock)
- Tiebacks
Refer to Table 1
- Foundation Drainage
Include items in "Drainage Check List"

Details on the application of these design values are included in the following sections of this report.

Drilled Piers

Drilled, cast-in place, reinforced concrete piers should be a minimum of 18 inches in diameter and should extend at least six feet into competent bearing stratum as determined by the Engineer in the field. The structural engineer may impose additional depths. The piers shall extend into the bearing stratum six feet below a 30° line projected up from the bottom of the nearest cut slope or bank. Piers should be designed to resist forces from the gravitational creep of the soil layer. The height of the piers subject to the creep forces is equal to the depth to the top of rock. For design purposes this may be, interpolated from the data on Drawing A. Creep forces should be calculated using an equivalent fluid pressure⁽³⁾ of 45 lbs/ft³ acting on two pier diameters. Because the rock and soil are discontinuous media, for geotechnical considerations, the piers should have a nominal spacing of eight feet or less on center and connected by tie and grade beams in a grid like configuration. The piers should be no closer than two-diameters, center to center. In general, isolated interior and deck piers should be avoided. Normally end bearing should be neglected (see conditions below).

Piers should be designed by the formula in section 1807 the 2013 CBC, with 'P' equal to the soil creep forces between the surface and top of rock (plus any lateral loads from the structure) and 800 lbs/ft²/ft used to calculate 'S₁' or 'S₃'. **Note** that in this formula 'b' is the actual diameter of the pier not a multiple and 'h' is measured from the point of fixity. These values are not appropriate for other methods of design. The structural engineer should contact us for the applicable values if another method of pier design is to be used.

Note: (The value used to calculate "s" for the fractured bedrock was selected by rock mass classification and conservatively assuming the bedrock to be a dense gravel with a $\phi = 50^\circ$ ⁽⁴⁾ then equating the results of Bowles⁽³⁾ design for cantilevered sheet piles in a granular soil to the CBC formula. Since bed rock features in the Franciscan Formation can rarely be correlated over short distances, testing of small rock pieces provides no viable data for design. Using these values to calculate "s" in the CBC formula results in a conservative pier depth calculation. The "s" values are not passive pressure in the technical soil mechanics sense; they are only related to the CBC formula.)

We judge that when piers are in a full rock cut or the tops are connected by rigid moment connections, in the upslope-downslope direction, fixity occurs at the rock surface and the conditions result in a constrained top of the pier. For this case the depth may be calculated by using the CBC formula in section **1807.3.2.2 Constrained**.

Design Parameters

Depth of fixity below top of bedrock surface for a sloping area:	1.5 feet
Soil active pressure on pier	45 lbs/ft ³
Rock active pressure:	$K_a = 0.0$
Rock passive pressure:	800 lbs/ft ² /ft to calculate S_1 or S_3
Adhesion: (skin friction)	900 lbs/ft ²

Neglect adhesion in the soil section

The values recommended for the calculation of "S" incorporate a 1.5 factor of safety. There is no requirement for the retaining wall designer to add an additional factor of safety for overturning.

Piers drilled into bedrock are completely confined and should not be designed as columns: there is no shear in the pier below the rock surface.

In order for these strength values to be realized, the sides of the pier holes must be scaled of any mudcake.

End bearing may be used if the bottoms of the holes are thoroughly cleaned out with a "PG&E" spoon or other means. Drilled piers may be any convenient diameter that allows for readily cleaning the bottom of the holes. The end allowable bearing capacity may be determined as follows:⁽¹⁾

$$P_{\text{allow.}} = 0.33 * 10.0 * (\text{pier width in feet}) = (\text{kips/ft}^2) \quad (\text{Not to exceed } 10.0)$$

Bearing may be increased 10 percent of the allowable value for each foot of depth extending below one foot of the rock surface.

Notice: We will not accept the foundation for concrete placement if the pier holes are over 48 hours old and will require that they be redrilled. One should plan ahead and have the pier cages assembled prior to drilling the holes so that there is no delay in placing the concrete. The contractor may submit plans for remedial measures, such as spraying or covering the excavation, to extend this time period. However, acceptance is always subject to the condition of the foundation grade immediately prior to the pour.

Ground water may be encountered in the drilled pier holes and it may be necessary to dewater, case the holes and/or place the concrete by tremie methods. All construction water displaced from the pier holes must be contained on site and filtered before discharging into the storm water system or natural drainages. Hard drilling will be necessary to reach the required depths. The contractor should be familiar with the local conditions in order to have the appropriate equipment on hand. The rock to be encountered in the drilling can be observed in outcrops in the area.

Footings

Footings foundations may be used where the entire footing is excavated into unweathered rock. For retaining wall footings the toe of the footing must be excavated into rock, if a keyway is not used the top of the toe must have three feet of horizontal confinement in the unweathered rock.

As a minimum, spread footings should conform to the requirements of Section 1809 of the CBC except that for foundations bottomed on rock the "Depth Below Undisturbed Ground Surface" in the

Table shall be interpreted as to mean "The Depth Below the Top of Weathered Rock". The footings should be stepped as necessary to produce level bottoms and should be deepened as required to provide at least 10 feet of horizontal confinement between the footing base and the edge of the closest slope face. Stepped footing configuration per 1809.3 shall be accepted by the soil engineer. In addition, the base of the footing should be below a 30 degree line projected upward from the toe of the closest cut slope or excavation. For geotechnical considerations, since rock and soil are discontinuous media, footings should be connected up and downslope in a grid like fashion by tie beams. Isolated interior and deck footings should be avoided.

The maximum allowable bearing pressure for dead loads plus Code live loads for footing type foundations bottomed in rock can be determined by the following formula⁽¹⁾ :

$$P_{allow} = 0.33 * 10.0 * (\text{footing width in feet}) = (\text{kips/ft}^2) \quad (\text{Not to exceed } 10.0)$$

A 20-percent increase is allowed for each additional foot, beyond one-foot, of depth that the footing is excavated into the subgrade. The portion of the footing extending into the undisturbed subgrade may be designed with a coefficient of passive earth pressure (K_p) equal to 6.0 with rock unit weight of 130 lbs/ft³ or a passive equivalent fluid pressure of 750 lbs/ft³ and a friction factor of 0.45 to resist sliding. Lateral bearing and lateral sliding may be combined and a one third increase is allowed for transitory loading.

Note: (1) The allowable bearing pressure was based on visual rock mass classification and one-half the presumptive value in NAVFAC DM-7.2 Table 1⁽¹⁾ for this rock type; lateral bearing was calculated assuming $\phi = 45^\circ$ and $\gamma = 130 \text{ lbs/ft}^3$

Retaining Walls

All retaining walls should be supported on rock by piers or spread footing type foundations. Design parameters for retaining wall foundations are covered under the appropriate section for footings or drilled piers. The toe of footing type retaining walls should be excavated below grade and the concrete poured against natural ground, the toe should not be formed.

Retaining walls supporting *sloping soil slopes* or the soil portion of the cut above the rock contact should be designed for a coefficient of active *soil* pressure (K_a) equal to 0.41, or an equivalent fluid pressure of 45 lbs/ft³⁽⁴⁾. Level backslope may use 35 lbs/ft³ for active pressure. For seismic loading from the soil portion of the cut, refer to the previous section on Seismic Design. Since the backfill never truly provides rigid support that prevents mobilization of the active pressure, this value is appropriate for normal or restrained walls. Based on the principles of Rock Mechanics, when protected from erosion intact bedrock does not produce an active fluid pressure with a triangular distribution; therefore the portion of any wall *supporting a rock backslope may be designed for a nominal pressure of 35 lbs/ft²* (yes, that is square feet). See Drawing A for the depth of the soil layer. Any wall where the backfill is subject to vehicular loads within an area defined by a 30-degree (from vertical) plane projected up from the base of the wall or *top of bedrock*, should have the design pressure increased equivalent to a 200-lbs/ft² (q') surcharge. In this case if a uniform surcharge load q' acts on the soil behind the wall it results in a pressure P_s in lbs/ft. of wall equal to:

$$P_s = q' * (\text{height of wall}) * K_a \quad (\text{where } K_a \text{ is taken as } 0.41)$$

It acts midway between the top and bottom of the wall. Or the design height of wall may be increased two feet to account for the surcharge.

When determining wall loads the civil structural engineer should consult with us if using a proprietary design program to be sure the soil loads are appropriately applied.

Allowable foundation bearing and lateral resistance to sliding should be obtained from the formulae in the respective sections on pier or footing foundations. The factor of safety may be reduced to 1.1 for combined static and dynamic loading.

Piers for 'garden' type walls (supporting only landscaping) founded in the stiff soil may be designed using the criteria in section 1807.3.2.1 (Equation 18-1) of the CBC, with an allowable lateral bearing pressure of 200 lbs/ft²/ft of depth to calculate S_1 . Also Marin County Standard Type A, B or C may be used⁽³⁾.

All retaining walls should have a backdrainage system consisting of, as a minimum, drainage rock in a filter fabric (e.g. Mirafi™ 140N) with at least three inch diameter perforated pipe laid to drain by gravity. If Caltrans specification Class 2 Permeable is used the filter fabric envelope may be omitted. The pipe should rest on the ground or footing with no gravel underneath. **The pipe should be rigid drainpipe, 3000 triple wall HDPE, 3 or 4 inch ID, ASTM F810 or Schedule 40.** Pipes with perforations greater than 1/16 inch in diameter shall be wrapped in filter fabric. A bentonite seal should be placed at the connection of all solid and perforated pipes. All backdrainage shall be maintained in a separate system from roof and other surface drainage. The two systems may be joined two-feet in elevation below the lowest backdrain at a bubbler to prevent surface water from backing up and into the backdrainage system. Cleanouts should be provided at convenient locations, per §1101.12 of the CPC; however, that is a plumbing and maintenance consideration and not a geotechnical concern.

Retaining walls which are adjacent to living areas should have additional water proofing such as three dimensional drainage panels and moisture barriers (e.g. "Miradrain™ 6000" panels and "Paraseal™") and the invert of the drainage pipe should be a minimum of four inches below the adjacent interior finished floor or crawl space elevation. Drainage panels should extend to 12 inches below the surface and be flashed to prevent the entry of soil material. The heel of the retaining wall footing should be sloped towards the hill to prevent ponding of water at the cold joint; the drainage pipe should be placed on the lowest point on the footing. The backslope of the retaining walls should be ditched to drain to avoid infiltration of surface run-off into the backdrainage system. All waterproofing materials must be installed in strict compliance with the manufacturer's specifications. A specialist in waterproofing should be consulted for the appropriate products, we are not waterproofing experts and do not design waterproofing, we only offer general guidelines that cover the geotechnical aspect of drainage. We have worked with Division 7 in Novato for waterproofing design services.

Tiebacks

The anchor section of the tieback must be in unweathered bedrock. The capacity of tiebacks should be determined by the methods in Table 1, Capacity of Anchor Rods in Fractured Rock⁽¹⁾, which does not use an unbonded length. While a ten-foot long unbonded length is preferred it is not necessary to develop the low capacity tieback normally required for retaining wall stability. One should observe the property lines and not extend the tiebacks into the adjacent property

Regardless of the type of anchor used (e.g. mechanical, grouted or helical) tiebacks must meet the following two criteria:

- Proof testing to 1.25 times the design capacity
- Depth of anchor must equal or exceed that determined by Table 1

The structural engineer should prepare detailed shop drawings, for approval, of the specific materials and connection methods to be used at the bulkhead. Installation should follow manufacturer's specifications. The anchor rods should be high strength threaded rods specifically manufactured for this application, such as "Williams" or "Dywidag" threadbars. For corrosion protection contact the manufacturer.

Grout should be tremmied to the bottom of each hole so that when the bar is inserted the grout will be displaced to the surface. The bar should be provided with centering guides, and when placed in the hole rotated and vibrated several times to assure thorough contact between the bar and grout.

When the grout has obtained the desired strength the anchor bars should be tested to 125 percent of the design load and tied off at a designated post tensioning load, normally about 33 percent of the design load. The lift-off readings should be taken after the nut has been set to confirm the post tensioning. Typical tieback configuration is attached.

Geotechnical Considerations for Slab on Grade Construction

Slab on grade construction which spans cut and fill or rock and soil sections will settle differentially and crack. Therefore this type of construction is not recommended for living areas or garages unless the areas are completely excavated into rock or underlain by compacted fill or the slab is designed as a structural slab. If the slab is underlain by a wedge of fill or natural soil over rock a floating slab will still settle differentially, sloping towards the thickest section of fill. Because the loads on a floating slab are usually small the settlement may be negligible.

The base for slabs on grade should consist of a 4-inch capillary moisture break of clean free draining crushed rock or gravel with a gradation between 1/4 and 3/4 inch in size. The base should be compacted by a vibratory plate compactor to 90 percent maximum dry density as determined by ASTM D-1557. A 10-mil impermeable membrane moisture vapor retarder should be placed on top of the gravel. An under-slab drain system, as shown on the attached drawing, should be installed in/under the drainrock. The gravel should be "turned down" by a vibratory roller or plate to provide a smooth surface for the membrane. Recycled material is never acceptable.

Where migration of moisture vapor would be undesirable (e.g. under living spaces and areas covered by flooring) a "true" under-slab vapor barrier, such as "Stego[®] Wrap", should be installed. In this case one should consult an expert in waterproofing, our recommendations only apply to the geotechnical aspect of drainage and do not address the prevention of mold or flooring failures.

The top of the membrane should be protected during construction from puncture. Any punctures in the membrane will defeat its purpose. The contractor is responsible for the method of protecting the

membrane and concrete placement. *Drains and outlets should be provided from the slab drain rock.* (See attached Drawing for Typical Under-slab Drains)

Cuts and Fills

Unsupported cuts and fills are generally not recommended for this site. Fills behind retaining walls should be of material approved by the geotechnical engineer and compacted to a maximum dry density [MDD] of 90 percent as determined by ASTM D-1157. Fills underlying pavements shall have the top 12 inches compacted to 95 percent MDD. Unclassified landscape fills need only be compacted to 80-percent MDD. After clearing and grubbing native soil (if accepted by the engineer) underlying pavements and hardscape shall be scarified to a depth of 12-inches and compacted to 90-percent MDD. Structural fills shall be compacted to 90-percent MDD and placed under the direction of the geotechnical engineer.

For fill specifications in utility trenches refer to the project civil drawings. Do not use standard PG&E trench specifications, as the trench will act as a drain and has caused landslides.

Geotechnical Drainage Considerations

These recommendations apply to the geotechnical aspect of the drainage as they affect the stability of the construction and land. They do not include site grading and area drainage, which is within the design responsibility of civil engineers and landscape professionals. The civil and landscape professionals should make every effort to comply with the Marin County "Stormwater Quality Manual for Development Projects In Marin County" by the Marin County Stormwater Pollution Prevention Program (MCSTOPPP www.mcstoppp.org) and Bay area Stormwater Management Agencies Association (BASMAA www.basmaa.org) when possible.

The site should be graded to provide positive drainage away from the foundations at a rate of 5 percent within the first ten feet (per requirements of the CBC section 1804.3). All roofs should be equipped with gutters and downspouts that discharge into a solid drainage line. Gutters may be eliminated if roof runoff is collected by shallow surface ditches or other acceptable landscape grading. All driveways and flat areas should drain into controlled collection points and all foundation and retaining walls constructed with backdrainage systems. Surface drainage systems, e.g. roofs, ditches and drop inlets *must be maintained separately* from foundation and backdrainage systems. The two systems may be joined into one pipe at a drop-inlet that is a minimum of two feet in elevation below the invert of the lowest back or slab drainage system. A bentonite seal should be placed at the transition point between drainpipes and solid pipes.

One should observe the ponding of water during winter and consult with your landscape professional for the location of surface drains and with us if subdrains are required.

All drop inlets that collect water contaminated with hydrocarbons (e.g. driveways) should be filtered before discharged into a natural drainage.

All cross slope foundations should have backdrainage. In compliance with section 1805.4.2 of the CBC foundation drains should be installed around the perimeter of the foundation. On sloping lots only the upslope foundation line requires a perimeter drain. Interior and downslope grade beams and foundation lines should be provided with weep holes to allow any accumulated water to pass

through the foundation. The top of the drainage pipe should be a minimum of four inches below the adjacent interior grade and constructed in accordance with the attached Typical Drainage Details. All drainpipes should rest on the bottom of the trench or footing with no gravel underneath. Drain pipes with holes greater than 1/8-inch should be wrapped with filter fabric, if Class 2 Permeable is used, to prevent piping of the fines into the pipe. If drain rock, other than Class 2 Permeable, is used the entire trench should be wrapped with filter fabric to prevent the large pore spaces in the drain rock from silting up. On hillside lots it may not be possible to eliminate all moisture from the substructure area and some moisture is acceptable in a well-ventilated area. Site conditions change due to natural (e.g. rodent activity) and man related actions and during years of below average rainfall, future ground water problems may not be evident. One should expect to see changes in ground water conditions in the future that will require corrective actions.

All surface and ground water collected by drains or ditches should be dispersed across the property below the structure. Since a legally recognized storm drainage system is not present downslope, we recommend that your attorney be consulted to determine the legal manner of discharging drainage from the roof and surface area drains. It should be noted that improperly discharged concentrated drainage might be a source of liability and litigation between adjacent property owners. The upslope property owner is always responsible to the adjacent lower property owner for water, collected or natural, which may have a physical effect on their property.

One suggestion is that water from drains or ditches should be naturally dissipated across the surface of the slope along a length equal to that of the collected area. Some engineers believe that a buried dispersal system might increase the risk of slope instability and surficial soil sliding. There are numerous civil engineering and landscape solutions to the dispersal of surface water; some are more aesthetically pleasing than others, for instance the dispersion pipe can be located behind garden walls or in shrubbery. We should discuss possible solutions with your landscape professional at an appropriate time. Suggested dispersion field details are attached. When it is not possible to locate outfalls in an established drainage, there is a risk that sloughing may occur. The owner should be diligent in maintaining the energy dissipating riprap and correcting minor slumps as they occur. The upslope property owner is always responsible to the adjacent lower property owner for water, collected or natural, which may have a physical effect on their property.

All laterals carrying water to a discharge point should be SDR 35, Schedule 40 or 3000 triple wall HDPE pipe, depending on the application and should be buried. 'Flex pipe' is never acceptable. Cleanouts for stormwater drains should be installed in accordance with §1101.12 of the CPC, without pressure testing. However, this is not a geotechnical consideration and is the responsibility of the drainage contractor.

Retaining walls, cut and fill slopes should be graded to prevent water from running down the face of the slope. Diverted water should be collected in a lined "V" ditch or drop inlet leading to a solid pipe.

If the crawl space area is excavated below the outside site grade for joist clearance, the crawl space will act as a sump and collect water. If such construction is planned, the building design must provide for *gravity or pumped drainage from the crawl space*. If it is a concern that moisture vapor from the crawl space will affect flooring, a specialist in vapor barriers should be consulted, we only design drainage for geotechnical considerations.

The owner is responsible for periodic maintenance to prevent and eliminate standing water that may lead to such problems as dry rot and mold.

Construction grading will expose weak soil and rock that will be susceptible to erosion. Erosion protection measures must be implemented during and after construction. These would include jute netting, hydromulch, silt barriers and stabilized entrances established during construction. Typically fiber rolls are installed along the contour below the work area. Refer to the current ABAG⁽⁹⁾ manual for detailed specifications and applications. Erosion control products are available from Water Components in San Rafael. The ground should not be disturbed outside the immediate construction area. Prevention of erosion is emphasized over containment of silt. Post construction erosion control is the responsibility of your landscape professional. ***It is the owner's responsibility*** that the contractor knows of and complies with the BMP's (Best Management Practices) of the Regional Water Quality Control Board, available at www.swrcb.ca.gov, ↓ water quality ↓ stormwater ↓ construction. In addition, summer construction may create considerable dust that should be controlled by the judicious application of water spray. After construction, erosion resistant vegetation must be established on all slopes to reduce sloughing and erosion this is the responsibility of a landscape professional. Periodic land maintenance should be performed to clean and maintain all drains and repair any sloughing or erosion before it becomes a major problem.

Drainage Checklist

Before submitting the project drawings to us for review the architect and structural engineer should be sure the following applicable drainage items are shown on the drawings:

- Under-slab drains and outlets
- Crawl space drainage
- Cross-slope footing and grade beam weep holes
- Retaining wall backdrainage pipes with no gravel under the pipes
- Top of retaining wall heel sloped towards rear at 1/8 - inch per foot
- Drain pipe located at lowest part of footing
- Invert of foundation drains located 4-inches below interior grade
- No gravel under any drainpipe
- Upslope exterior foundation drains
- Drains installed in accordance with §1101.12 of the CPC
- Bentonite seals at drainpipe transition to solid pipe
- Proper installation of the drainage panels
- Outfall details and location
- Subdrains under any fill slopes

In lieu of the above details actually being shown on the drawings there may be a:

- ***Note on the structural drawings:*** "Drainage details may be schematic and incomplete, refer to the text and drawings in the geotechnical report for actual materials and installation"

Construction Observations

In order to assure that the construction work is performed in accordance with the recommendations in this report, SalemHowes Associates Inc. must perform the following applicable inspections. We will provide a full time project engineer to supervise the foundation excavation, drainage, compaction

and other geotechnical concerns during construction and accept the footing grade / pier holes prior to placing any reinforcing steel in accordance with the CRC or CBC Section 1702-Definitions and Table 1704.9 continuous inspections for drilled piers and earthwork, if required. Otherwise, if directed by the Owner, these inspections will be performed on an "periodic as requested basis" by the Owner or Owner's representative. We will not be responsible for construction we were not called to inspect. In this case it is the responsibility of the Owner to assure that we are notified in a timely manner to observe and accept each individual phase of the project.

Key Observation Points

- Map excavations in progress to identify and record rock/soil conditions.
- Observe and accept pier drilling and final depth and conditions of all pier holes. *We must be on site at the start of drilling the first hole.* We will perform special inspections in accordance with the CRC or, unless otherwise required by the building official, CBC Section 1704-Definitions, "Special Inspections, Continuous".
- Accept final footing grade prior to placement of reinforcing steel.
- Accept subdrainage prior to backfilling with drainage rock.
- Accept drainage discharge location.

Additional Engineering Services

We should work closely with your project engineer and architect to interactively review the site grading plan and foundation design for conformance with the intent of these recommendations. We should provide periodic engineering inspections and testing, as outlined in this report, during the construction and upon completion to assure contractor compliance and provide a final report summarizing the work and design changes, if any.

Any engineering or inspection work beyond the scope of this report would be performed at your request and at our standard fee schedule.

Limitations on the Use of This Report

This report is prepared for the exclusive use of CLM Builders and their design professionals for construction of the proposed new residence. This is a copyrighted document and the unauthorized copying and distribution is expressly prohibited. Our services consist of professional opinions, conclusions and recommendations developed by a Geotechnical Engineer and Engineering Geologist in accordance with generally accepted principles and practices established in this area at this time. This warranty is in lieu of all other warranties, either expressed or implied.

All conclusions and recommendations in this report are contingent upon SalemHowes Associates being retained to review the geotechnical portion of the final grading and foundation plans prior to construction. The analysis and recommendations contained in this report are preliminary and based on the data obtained from the referenced subsurface explorations. The borings and exposures indicate subsurface conditions only at the specific locations and times, and only to the depths penetrated. They do not necessarily reflect strata variations that may exist between such locations. The validity of the recommendations is based on part on assumptions about the stratigraphy made by the geotechnical engineer or geologist. Such assumptions may be confirmed only during earth work and foundation construction for deep foundations. If subsurface conditions are different from

those described in this report are noted during construction; recommendations in this report must be re-evaluated. It is advised that SalemHowes Associates Inc. be retained to observe and accept earthwork construction in order to help confirm that our assumptions and preliminary recommendations are valid or to modify them accordingly. SalemHowes Associates Inc. cannot assume responsibility or liability for the adequacy of recommendations if we do not observe construction.

In preparation of this report it is assumed that the client will utilize the services of other licensed design professionals such as surveyors, architects and civil engineers, and will hire licensed contractors with the appropriate experience and license for the site grading and construction.

We judge that construction in accordance with the recommendations in this report will be stable and that the risk of future instability is within the range generally accepted for construction on hillsides in the Marin County area. However, one must realize there is an inherent risk of instability associated with all hillside construction and, therefore, we are unable to guarantee the stability of any hillside construction. For houses constructed on hillsides we recommend that one investigate the economic issues of earthquake insurance.

In the event that any changes in the nature, design, or location of the facilities are made, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by SalemHowes Associates Inc. We are not responsible for any claims, damages, or liability associated with interpretations of subsurface data or reuse of the subsurface data or engineering analysis without expressed written authorization of SalemHowes Associates Inc. Ground conditions and standards of practice change; therefore, we should be contacted to update this report if construction has not been started before the next winter.

We trust this provides you with the information required for your evaluation of geotechnical properties of this site. If you have any questions or wish to discuss this further please give us a call.

Prepared by:

SalemHowes Associates, Inc.

A California Corporation

Reviewed by:

E Vincent Howes

Geotechnical Engineer
GE #965 exp 31 Mar 18



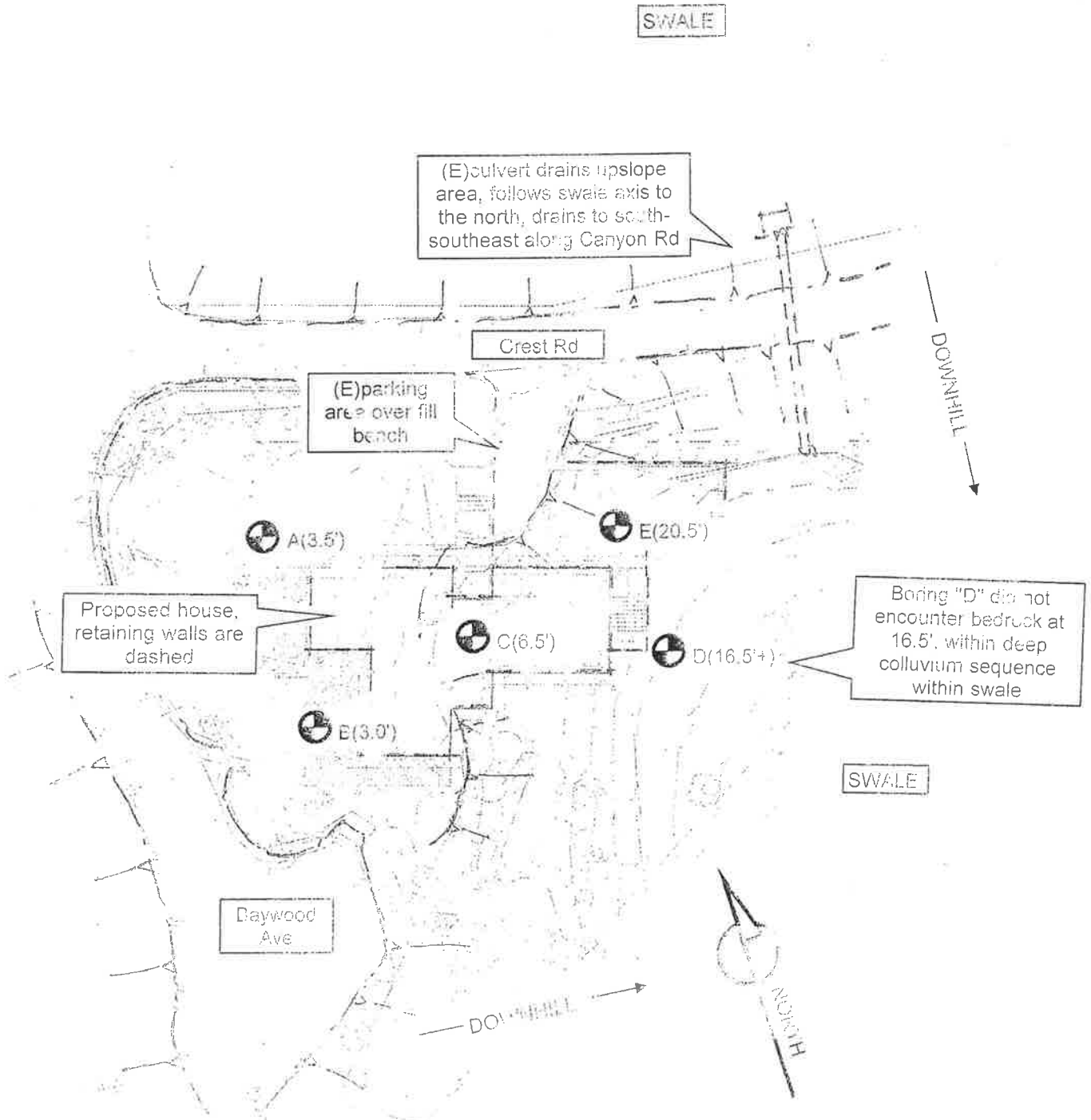
Attachments: Drawing A, Site Plan and Location of Test Borings
Typical Under-slab Drains
Typical Drain Detail
Typical Dispersion Field Details
Typical Retaining Wall Drainage
Logs of Test Borings
Plate 1, San Francisco Bay Region Earthquake Probabilities

References:

General: 2016 California Building Code and Residential Building Code

- ⁽¹⁾ Rice, Salem J; Smith, Theodore C and Strand, Rudolph G.; Geology for Planning Central and Southeastern Marin County, California, California Divisions of Mines and Geology, 1976 OFR 76-2 SF.
- ⁽²⁾ USDA, Soil Conservation Service, Soil Survey of Marin County California, March 1985
- ⁽²⁾ U.S. Geological Survey, Probabilities of Large Earthquakes in the San Francisco Bay Region, 2000 to 2030. Open-File Report 99-517, 1999
- ⁽³⁾ California Department of Conservation, Division of Mines and Geology, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, February 1988, International conference of Building Officials
- ⁽⁴⁾ Department of the Navy, Naval Facilities Engineering Command, Soil Mechanics, Design Manual 7.1, 7.2, (NAVFAC DM-7) May 1982.
- ⁽⁵⁾ Uniform Construction Standards, most recent edition, Marin County Building Department
- ⁽⁶⁾ Leps, Thomas M., Review of Shearing Strength of Rockfill, Journal of the Soil Mechanics and Foundation Division, Proc. ASCE, Vol.96 No.SM4, July 1970, pp1159
- ⁽⁷⁾ Bowles, Joseph, E., Foundation Analysis and Design, fourth edition, McGraw-Hill, 1988 pg. 614
- ⁽⁸⁾ Seed, H.B. and Whitman, R.V. (1970) Design of Earth Structures for Dynamic Loads. Lateral Stresses in the Ground and Design of Earth Retaining Structures, ASCE, Cornell University
- ⁽⁹⁾ Association of Bay Area Governments (ABAG), Manual of Standards for Erosion & Sediment Control Measures. Most recent edition. Storm Water Quality Task Force, California Storm Water Best Management Practice Handbooks, Construction Activity, March 1993.
- ⁽¹⁰⁾ USGS web site at <http://earthquake.usgs.gov/research/hazmaps/design>

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LEGEND



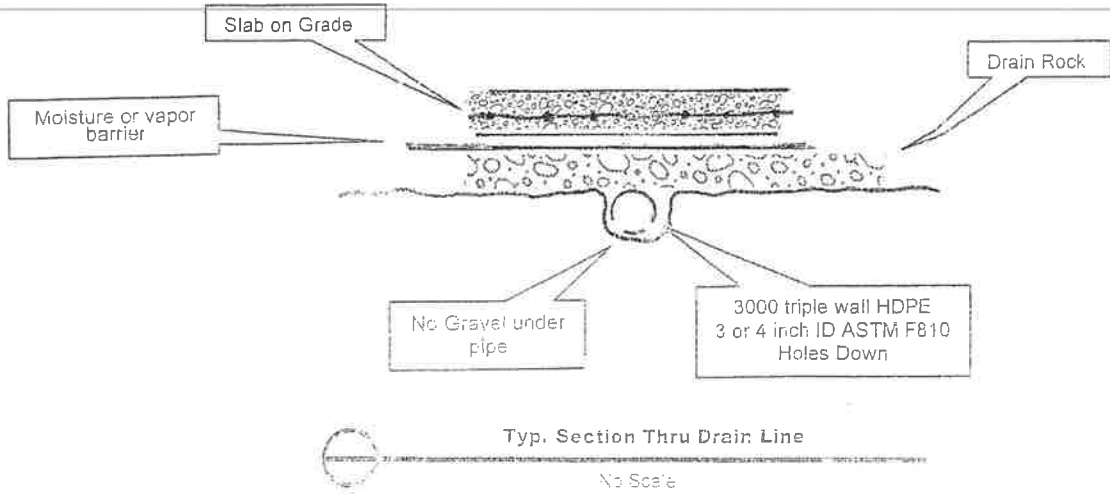
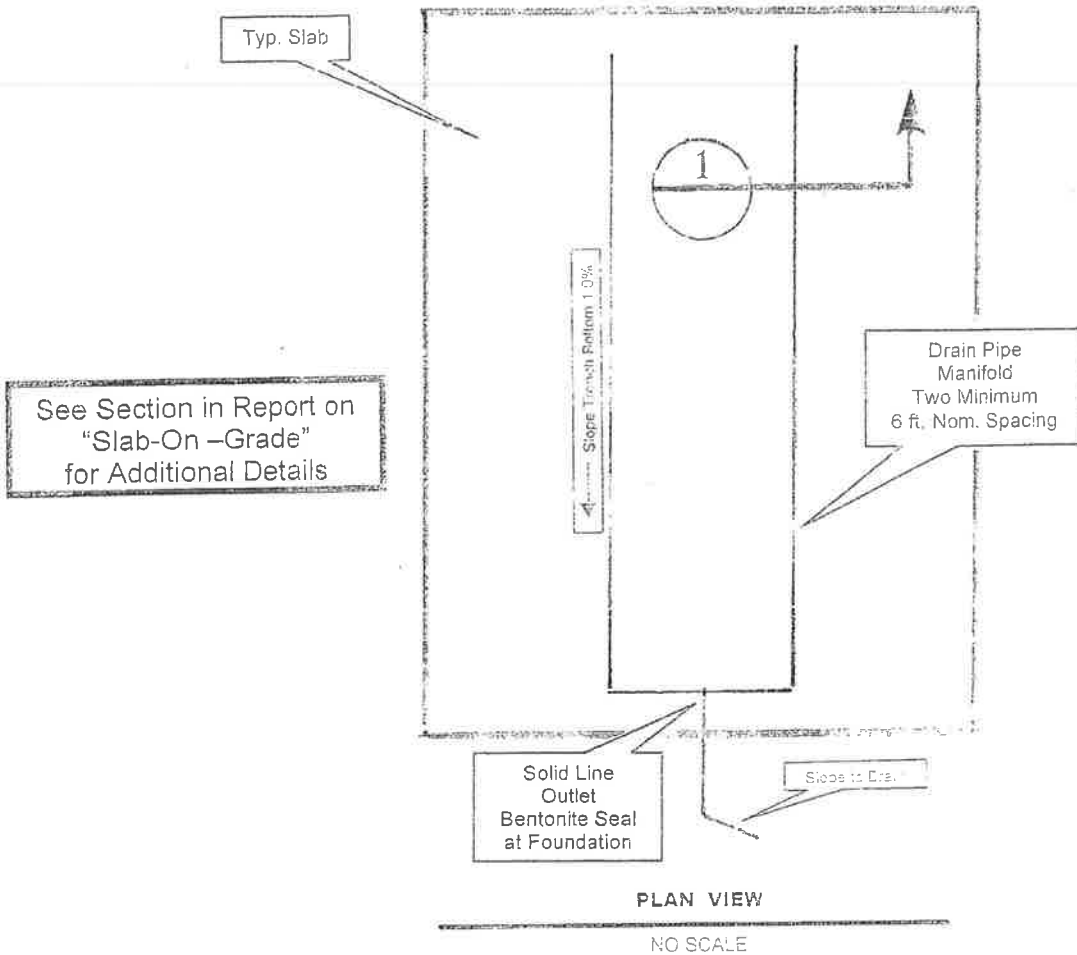
SITE PLAN AND LOCATION OF TEST BORINGS

REDUCED COPY == S.A.D.



Location of Test Boring

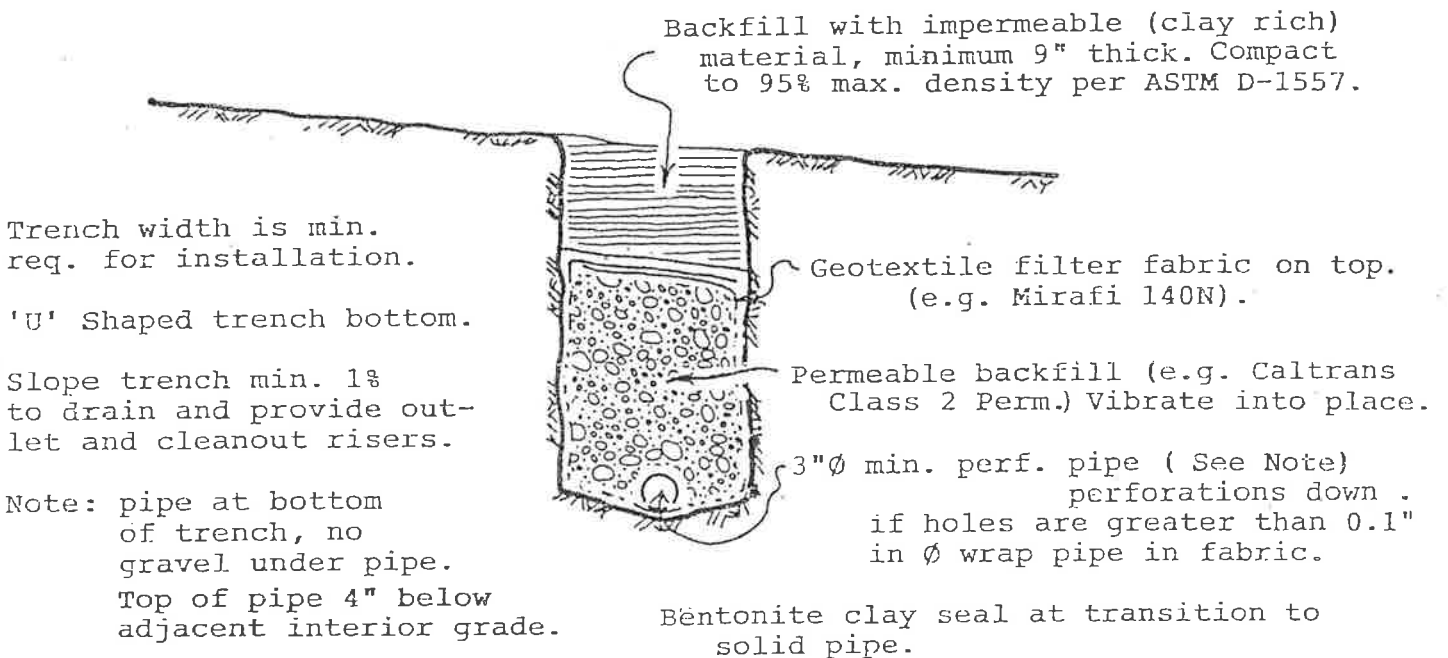
(n') Depth to rock in feet



TYPICAL UNDERSLAB DRAINS

NO SCALE

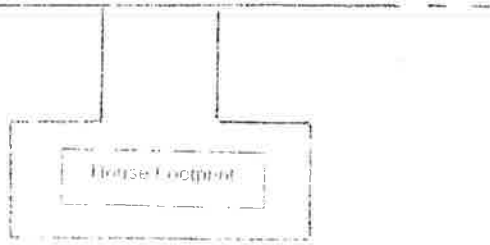
CALIFORNIA WATER RESOURCES DIVISION



NOTE: We recommend rigid drainpipe 3000 triple wall HDPE, 3 or 4 inch ID, ASTM F810.

TYPICAL DRAIN DETAILS

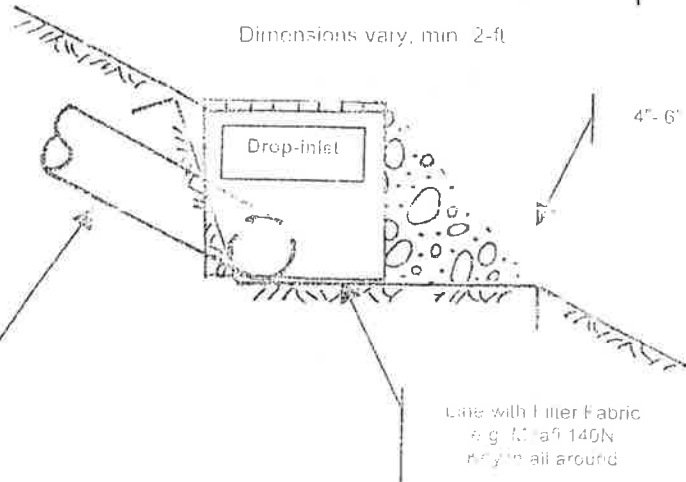
Street



NOTE: Dispersion field may be incorporated into the landscaping, such as behind a stonewall. Consult with your landscape design professional.

Length of dispersion line equal to width of house. It may be in multiple segments and drain lines to accommodate landscaping.

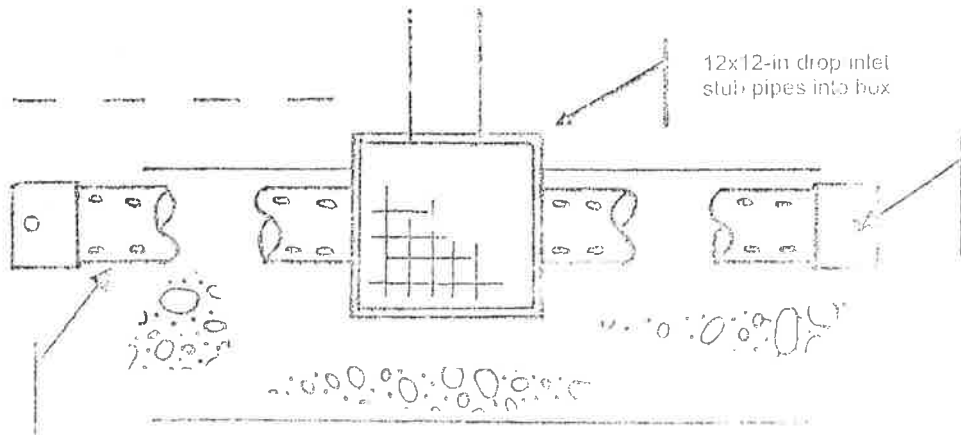
Dimensions vary, min. 2-ft



Buried solid line, SDR 35 or better 4\"/>

Line with Filter Fabric e.g. Maf 140N 4\"/>

Contour Line

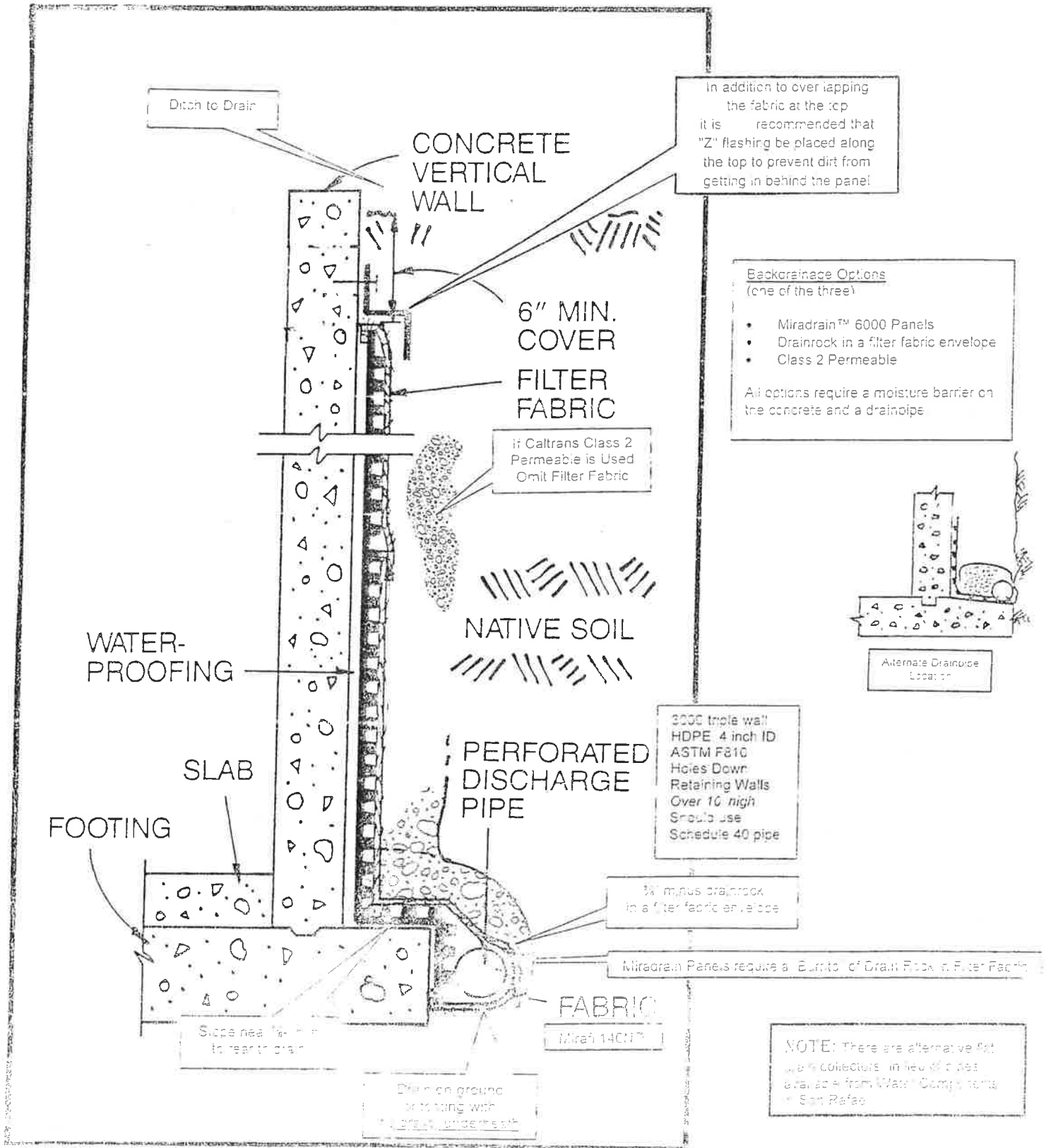


3\"/>

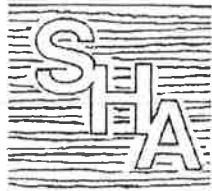
Lay pipe level according to contour

SKETCH-TYPICAL DISPERSION FIELD DETAILS

NO SCALE



TYPICAL RETAINING WALL DRAINAGE DETAILS



PROJECT: 2 Crest Rd	BORING: A
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 1707047	DATE: 26 July 2017

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1		TOPSOIL 0.0'-2.0'		
				2		dark brown, silty to loamy [ML] texture, trace rooting near surface.		
		SPT	27	3		RESIDUAL SOIL 2.0'-3.5'		
				4		weathered, reddish brown silty clayey [ML-CL] soil with increasing rock fragments with depth, fine rooting near surface.		Top of rock 3.5'
				5		SANDSTONE [Ks] 3.5'-4.5'		SANDSTONE [Ks]
				6		hard, weathered, fractured and friable sandstone, granular texture, no rooting, dry		
				7		End of Log		
				8				
				9				
				10				
				11				
				12				
				13				Ground water was not Encountered in boring
				14				
				15				
				16				
				17				
				18				
				19				
				20				

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1



PROJECT: 2 Crest Rd BORING: B
 ENGINEER: E. V. Howes LOGGED BY: J. Gillis
 JOB #: 1707047 DATE: 26 July 2017

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1		TOPSOIL 0.0'-2.0' dark brown, silty to loamy [ML] texture, trace rooting near surface.		
		SPT	28	2		RESIDUAL SOIL 2.0'-3.0' weathered, reddish brown silty clayey [ML-CL] soil with increasing rock fragments with depth, fine rooting near surface.		Top of rock 3.0'
				3				SANDSTONE [Ks]
				4		SANDSTONE [Ks] 3.0'-4.5' hard, weathered, fractured and friable sandstone, granular texture, no rooting, dry		
				5		End of Log		
				6				
				7				
				8				
				9				
				10				
				11				
				12				Ground water was not Encountered in boring
				13				
				14				
				15				
				16				
				17				
				18				
				19				
				20				

DRILLED BY: TransBay EQUIPMENT: Portable Hydraulic
 BORING SIZE: 3" SHEET: 1 of 1



PROJECT: 2 Crest Rd	BORING: C
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 1707047	DATE: 28 July 2017

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1		TOPSOIL 0.0'-2.0' dark brown, silty to loamy [ML] texture, trace rooting near surface.		Ground water was not Encountered in boring
		SPT	19	2				
				3		RESIDUAL SOIL 2.0'-6.5' stiff, highly weathered, reddish brown silty clayey [ML-CI] soil with increasing rock fragments of shale and sandstone with depth, clayey [CL] from 4.0'-5.0' and softer texture. returns to typical residual soil texture at 5.0', fine rooting near surface. slightly moist to damp throughout		
				4				
				5				
				6				
		SPT	22	7		SANDSTONE [Ks] 6.5'-7.5' hard, weathered, fractured and friable sandstone with trace shale. no rooting, dry		
				8				
				9		End of Log		
				10				
				11				
				12				
				13				
				14				
				15				
				16				
				17				
				18				
				19				
				20				

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1



PROJECT: 2 Crest Rd	BORING: E
ENGINEER: E. V. Howes	LOGGED BY: J. Gillis
JOB # : 1707047	DATE: 26 July 2017

PLASTICITY INDEX (PI)	LIQUID LIMIT	SAMPLE TYPE	(N) Blows Per foot	DEPTH (feet)	WATER LEVEL	DESCRIPTIVE LOG	GRAPHIC LOG	REMARKS
				1		TOPSOIL 0.0'-3.0' dark brown, silty to loamy [ML] texture, trace rooting near surface.		
				2				
				3				
		SPT	11	4		COLLUVIUM [Qc] 3.0'-20.5' stiff, reddish brown colluvium, relatively uniform throughout section. slightly moist clayey to silty clayey [ML-CL] soil with trace subangular to subrounded sandstone and shale clasts throughout. damp past 5.0' and remains slightly moist throughout. grades to bedrock at 20.5'		Ground water was not Encountered in boring
				5				
				6				
				7				
				8				
				9				
		SPT	12	10				
				11				
				12				
				13				
				14				
				15				
		SPT	17	16				
				17				
				18				
		SPT	15	19				
				20				
		2.5"DIA	30			SANSTONE [Ks] 20.5'-21.5' hard, weathered, fractured and friable sandstone, granular texture, no rooting, dry		Top of rock 20.5' SANDSTONE [Ks]
						End of Log		

DRILLED BY: TransBay	EQUIPMENT: Portable Hydraulic
BORING SIZE: 3"	SHEET: 1 of 1

Notes to Boring Logs

- 1) Soil designations in this report conform to the Unified Soil Classifications per ASTM D22487, Classification of Soil for Engineering Purposes. Rock classifications conform to NAVFAC DM-7.
- 2) The SPT, Standard Penetration Test, is made using a standard 2" OD - 1.375" ID sampler driven by a 140# hammer falling 30" (per ASTM D-1586). A MPT, Modified Penetration Test, is made using the same standard sampler driver by a 70# hammer falling 30". Other sampler and hammer size data for information only. TW indicates a Thin Wall sampler. The sample is driven 18" and the number of blows required to penetrate the last 12" is indicated on the log. "REF" (refusal) indicates the number of blows required to penetrate 6" exceeded 50.
- 3) Borehole and test pit data are considered representative of the subsurface condition only for the time and location at which the data were obtained. Interpretation or extrapolation of these data represent an exercise in judgment based on education and experience and is not warranted as precisely representing subsurface conditions at all locations. During construction variations will be observed in the field and field design changes should be expected.
- 4) PP indicates in situ measurements made by a standard pocket penetrometer in tons per square foot unconfined compressive strength.

TV indicates in situ measurements made by a Torvane in kilograms per square centimeter.
- 5) LL indicates the Liquid Limit of soils and
PI indicates the Plasticity Index of soils per ASTM D-4318
Quc indicates the unconfined compressive strength per
ASTM D-2166
TX/UU indicates an Unconsolidated Undrained Triaxial Test,
Confinement pressure/Ultimate strength in psf.
DD indicates dry density in pcf.
mc indicates moisture content in percent.
- 6) Qaf = artificial fill
Qc = colluvium
Ks = sandstone bedrock

*Colluvium - Unconsolidated and unsorted soil material and weathered rock fragments which have accumulated on or at the base of slopes by natural gravitational or slope wash processes, derived by weathering and decomposition of the underlying bedrock material.

Residual Soil - Soil formed in place by the disintegration and decomposition of the rocks and the consequent weathering of the mineral materials. Presumably developed from the same kind of rock as that on which it lies.

ATTACHMENT 7

TOWN OF ROSS

RESOLUTION NO. 1884

A RESOLUTION OF THE ROSS TOWN COUNCIL ORDERING THE SUMMARY VACATION OF A PORTION OF CREST AVENUE THAT WAS OFFERED FOR DEDICATION TO THE TOWN BUT REJECTED BY THE TOWN COUNCIL IN 1916

WHEREAS, the Town Council of the Town of Ross is authorized to summarily vacate excess right of way that is not required for street or highway purposes pursuant to Streets and Highways Code Section 8334; and

WHEREAS, on February 10, 1916, the Town Council rejected an offer of dedication for road purposes over a strip of land known as Crest Avenue (the "subject property"); and

WHEREAS, the owners of 70 Baywood, who also own two parcels of land which are divided by this paper road, have requested that the Town summarily vacate the subject property.

WHEREAS, the subject property has never been improved or used as a public street and is not necessary for any present or future public use.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Town Council hereby adopts the above recitals as true and correct.
2. The subject property proposed for summary vacation is described in Exhibit A, attached hereto, and depicted on the map attached hereto as Exhibit "B."
3. Pursuant to the provisions of Chapter 4 of Part 3 of Division 9 of the California Streets and Highway Code, the Town Council declares that the subject property is not necessary for present or future public use and is surplus to all present and prospective needs of the public and orders that any rights of the Town to the use of such property are hereby terminated, abandoned and vacated.
4. The Town Clerk is hereby directed to cause a certified copy of this resolution to be recorded in the office of the County Recorder of the County of Marin.


The foregoing resolution was duly passed at a regular meeting of the Town Council of the Town of Ross held on the 12th day of February, 2015, by the following vote:

AYES: Council Members Brekhus, Hoertkorn, Kuhl, Robbins, Small

NOES:

ABSENT:

ABSTAIN:


Elizabeth Brekhus, Mayor

ATTEST:



Linda Lopez, Town Clerk

EXHIBIT "A"

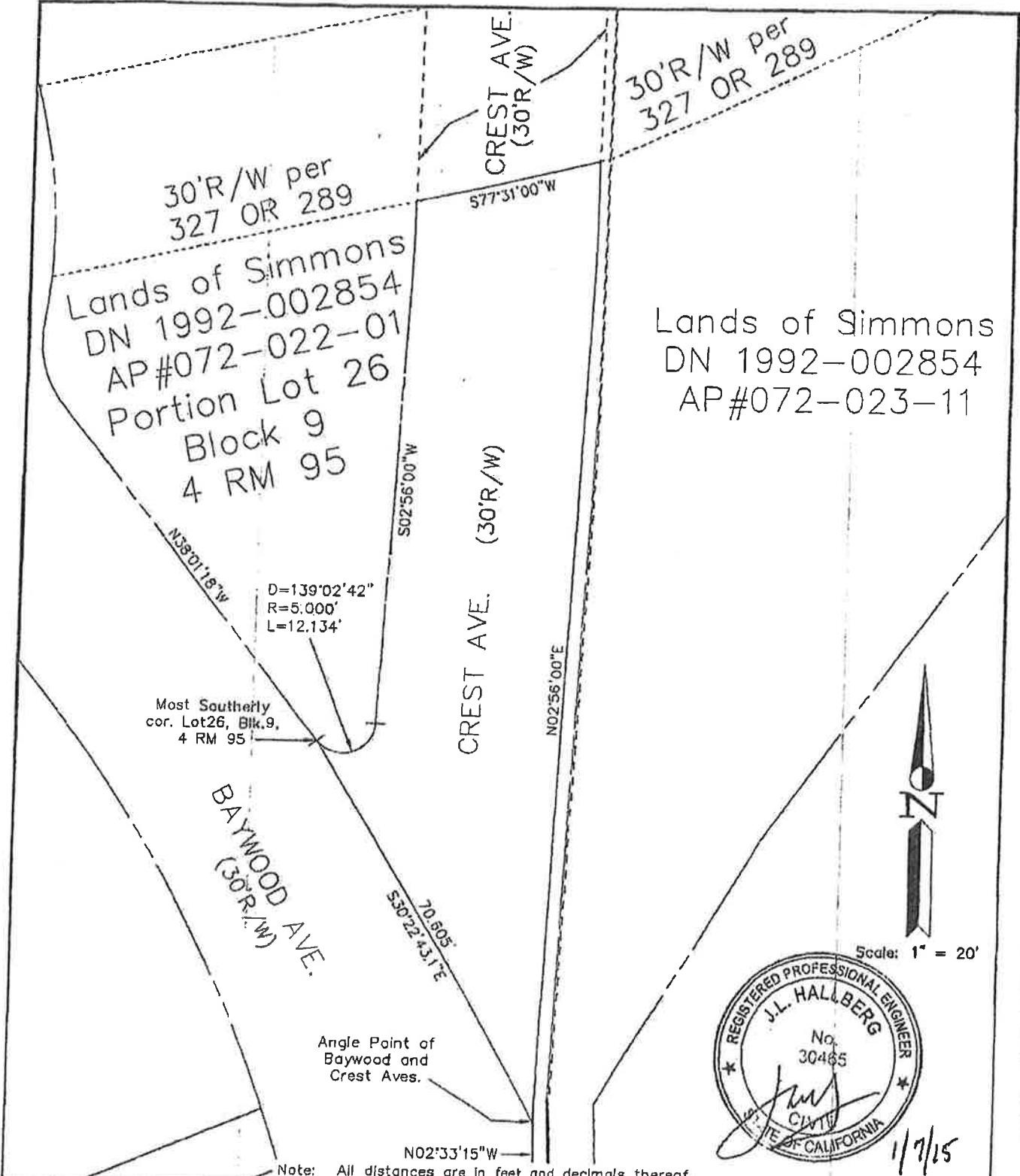
"Legal Description of that Portion of Crest Ave. to be vacated by the Town of Ross"

ALL THAT CERTAIN real property situated in the Town of Ross, County of Marin, State of California, being a that certain Portion of a Right of Way known as Crest Ave., as shown upon that certain map entitled "Amended Map of Winship Park", filed for record March 7, 1916, in Book 4 of Maps, Page 95, Marin County Records, lying adjacent to, and contiguous with, Parcel 26, as said Lot is shown upon said Map, bounded Northerly by the Southerly line of a 30 foot Right of Way, as filed for record September 12, 1936 in Book 327, Page 289, Marin County Records; Bounded Southerly by a direct line from the Southerly corner of said Lot 26, to that certain Easterly angle point formed by the courses North 2°33'15 West and North 2°56'00" East of Baywood Ave. and Crest Ave., as said Avenues are shown upon the aforesaid Map.

Containing approximately 3,889 square feet.

Prepared by: James L. Hallberg, RCE 30465





Note: All distances are in feet and decimals thereof.

SHEET	1	OF	1
SCALE:	1" = 20'	DESIGN:	PR
DATE:	Nov 2014	DRAWN:	PR
FILE:	2014-051	CHECKED:	J.L.H
2014-061\DWG\2014-051-BASE,VAC_CRE			

J.L. ENGINEERING
 CIVIL ENGINEERS-LAND SURVEYORS
 1539 4th ST, SAN RAFAEL, CA. 94901 (415) 457-8847

EXHIBIT "B"
 Vacation of Crest Ave. - Town of Ross
 APN 072-021-16, Town Of Ross, Marin County, CA

