Attachment Q

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April 10, 2025

VIA EMAIL

Monterey County Board of Supervisors
C/O Mr. Emmanuel H. Santos
Clerk of the Board of Supervisors
168 W. Alisal Street, 1st Floor (opt. 6)
Salinas, CA 93901
Email: cob@co.monterey.ca.us

Re: Response to HCD Staff Report Re Land Use Appeal (Resolution No. 24-039)
10196 Oakwood Circle (APN 416-542-011) - Application No. PLN230127

Dear Board of Supervisors:

As you know, our office represents Rene Peinado ("Applicant") and Amy McDougall ("Owner") (collectively "Appellants") concerning their submittal of application No. PLN230127 ("Application") and their associated appeal of the Planning Commission's decision to deny Appellants a Combined Development Permit to develop a single-family home, accessory dwelling unit, and junior accessory dwelling unit at 10196 Oakwood Circle, Carmel Valley (Resolution No. 24-039). The April 1, 2025 staff report is inadequate in addressing the issues raised by Appellants' appeal. This letter is Appellants' response to the staff report and explains why state law, specifically Assembly Bill 1893's changes to the Housing Accountability Act ("HAA") and Builder's Remedy, requires the Board to reject Staff's recommendation to remand the Application back to the Planning Commission, and why it must grant the appeal and approve Appellants' Combined Development Permit.

Staff's recommendation that this matter is remanded to the Planning Commission is based on its recognition that the Planning Commission and Planning Staff erred in approving Resolution No. 24-039 and denying Appellants' Combined Development Permit Application in violation of the HAA and Builder's Remedy. We agree this was a grave mistake, but not with the proposed remedy. As further discussed below, State law requires the Board to overturn the illegal denial and approve the Combined Development Permit application.

The County is Subject to the Builder's Remedy

The Planning Commission erred in failing to treat the Application as a Builder's Remedy project, which is a violation of state law.

The HAA is a state law, which limits a jurisdiction's ability to disapprove or reduce the density of qualifying housing projects. The purpose of the HAA is ensure that jurisdictions do not reject or downsize housing projects that are crucial for jurisdictions to meet their obligations to plan for housing in their communities without a thorough analysis of the economic, social, and environmental effects of the proposed action. The Builder's Remedy is a part of the HAA, which allows projects to bypass local development standards in cities and counties that have failed to adopt a substantially compliant housing element. Under the Builder's Remedy, a local government is required to approve a housing development project, or not otherwise condition approval in a manner that renders a qualifying project infeasible unless the local government can make certain written findings based upon a preponderance of the evidence, such as the project will have an unmitigable impact on public health or safety.

The Builder's Remedy applies to this Application because Monterey County does not have a substantially compliant Housing Element, nor did it when the application was determined to be complete in June of 2024.

The Board Must Apply The Builder's Remedy 2.0 When Evaluating the Appeal

The staff report fails to address relevant changes to the HAA and Builder's Remedy that went into effect in January. Courts have ruled that Board must apply the current HAA and Builder's Remedy law to the Application. Importantly, this project no longer requires an affordable unit to be eligible for the Builder's Remedy.

The Board is hearing this appeal de novo. A fundamental characteristic of a de novo hearing is that all issues are reviewable under the law of the day. (*Breakzone Billiards v. City of Torrance* (2000) 81 Cal.App.4th 1205, 1221). Specifically, in a de novo review, the reviewing board or body is bound **to apply the laws in effect at the time of its final decision, not those in force at the time of the preliminary proceedings before any subordinate agency**. (*Russian Hill Imp. Ass'n. v. Board of Permit Appeals of City and County of San Francisco* (1967) 66 Cal.2d 34, 38.) In effect that means that as the law changes, the County must continue to evaluate the Combined Development Permit application under those new standards.

Assembly Bill ("AB") 1893, known as Builder's Remedy 2.0, went into effect on January 1, 2025 and significantly amended the HAA and the Builder's Remedy. Since the Board is considering Appellants' appeal de novo, it must apply AB 1893 to Appellants' Application.

The Application is Protected By The Builder's Remedy 2.0

There is no dispute that Monterey County is subject to the Builder's Remedy. Staff's recommendation that the Board remand this appeal to the Planning Commission is because it claims Appellants did not timely disclose the affordable unit. Although Appellants strongly deny

that is the case, it is now irrelevant because, under AB 1893, the project is no longer required to have an affordable unit to qualify as a Builder's Remedy project.

AB 1893 removed the affordability requirements from certain Builder's Remedy projects, including this project. Now, "missing middle" projects of 10 units and fewer—like the Application—are not required to include any deed-restricted affordable housing. (Gov. Code § 655895(h)(3)(C)(i)(IV).) As originally proposed, the Application meets the requirements of AB 1893, and qualifies as a Builder's Remedy project. Therefore, the Board cannot remand the Application to the Planning Commission on the basis that the Application did not timely disclose an affordable unit.

Furthermore, Planning Staff's position that an applicant must declare at the onset of its application that an application is a Builder's Remedy project is directly contradicted by the HAA. "[A] housing development project deemed complete before January 1, 2025 . . . may choose to revise their application so that the project is a builder's remedy project, without being required to resubmit a preliminary application . . . ." (Gov. Code § 65589.5(f)(7)(B).) Moreover, the Builder's Remedy constrains a local jurisdiction's ability to deny projects that have certain characteristics; it does not impose affirmative requirements on applicants to revise project descriptions, submit new applications, or "re-do" a completeness review under the Permit Streamlining Act. (*See* Gov. Code § 65589.5(d).) It is also plainly untrue that "[r]evising the application to be just a [sic] Builder's Remedy warrants additional review under the Permit Streamlining Act." (**Attachment A**, p.5.) The Housing and Community Development ("HCD") Department may want another crack at requiring Appellants to submit a new application, but the law does not allow it, and Planning Staff fail to provide any legal authority for their position.

HCD and the Planning Commission Invented Legal Requirements To Deny The Project

It is unfortunately clear that Planning Staff is inventing legal requirements in a bad faith attempt to stop this Application. (Gov. Code § 65589.5(k)(1)(A) ["Bad faith" includes, but is not limited to, an action that is frivolous, pretextual, intended to unnecessarily delay a Builder's Remedy project, or entirely without merit.].)[1]

Planning Staff's contention that an applicant must submit a preliminary application to be considered a Builder's Remedy project is completely wrong. A preliminary application allows a project developer to vest development rights under the law in place at the time of submittal, but it is certainly not required. (Gov. Code § 65589.5(o)(1); Gov. Code § 65941.1.) In fact, AB 1893 prohibits jurisdictions from singling out Builder's Remedy projects by forcing applicants to apply for, or receive, any approval or permit not generally required of a non-Builder's Remedy project of the same type and density proposed by the applicant. (Gov. Code § 65589.5(f)(6)(D-E).) Planning Staff's recommendation to the Board that the Application must go through a second review under the Permit Streamlining Act solely because it is a Builder's Remedy project is illegal

[1] As another example of bad faith, the staff report claims that the Application needs to meet the requirements of the state Density Bonus Law, despite the fact that the Application is not seeking a density bonus. (Gov. Code § 65915.)

as it plainly violates the HAA and the Builder's Remedy by requiring these applications to go through additional processes not required by traditional projects.

Since this Application is subject to the Builder's Remedy, it cannot be denied based on inconsistencies with Monterey County Planning Code or its general or specific plans. (Gov. Code § 65589.5(d).) This limitation includes inconsistencies with height, density, and setback limits. Under the HAA, a local agency may only review projects according to objective, quantifiable, written development standards. (Gov. Code § 65589.5(f)(1).) The Planning Commission's position that "earth and vegetation colors" qualifies as an objective design standard is an example of the absurdity in its decision. (*See* **Exhibit I**, "Project Renderings".) The Resolution determination that "browns, greys, and blacks" do not qualify as "earth and vegetation colors" is not supported by reference to a verifiable standard, and is a subjective judgment. (*See* Planning Commission Finding 2(b)(3).)

If the Board follows through on Planning Staff's bad faith recommendations to remand the Application, it will be akin to upholding the denial, which is a textbook bad faith violation of the law. When a local agency acts in bad faith, the Builder's Remedy allows courts to impose significant financial penalties on the local jurisdiction.

HCD Failed To Comply with the HAA's Requirement To Make a Compliance Determination

Outside of the requirements of the Builder's Remedy, HCD also failed to comply with the HAA's requirement to make a written determination about whether the Application complies with objective standards **within 30 days of its completeness determination**. (Gov. Code § 65589.5(j)(2)(A)(i).)

The penalty for a local agency that fails to make a timely written determination about whether an application complies with objective standards is that "the housing development project shall be deemed consistent, compliant, and in conformity with the applicable plan, program, policy, ordinance, standard, requirement, or other similar provision." (Gov. Code § 65589.5(j)(2)(B).) In other words, if a local agency fails to make a timely compliance determination, the local agency must deem the application to be in compliance and approve it.

It is undisputed that HCD found the Application to be complete under the Permit Streamlining Act on June 14, 2024. Yet, HCD never made the required written compliance determination. Instead, in violation of the HAA, Planning Staff has been improperly making preliminary compliance determinations for Housing Development Project applications *during* its completeness review and in its staff reports, which itself is a violation of the HAA. Damningly, the staff report states that if Planning Staff knew the Application would be subject to the Builder's Remedy, it would have treated it differently. (**Attachment A**, p.7 ["Had the project been subject to the Builder's Remedy at the time the project was deemed complete . . . the outcome or steps in the process may have looked different."]; *see* Gov. Code § 65589.5(f)(6)(D-E).) Monterey County cannot avoid crystal clear state law that if the compliance determination is not made within the 30-day period, the application is deemed compliant and must be approved. (Gov. Code §

65589.5(j)(2)(B).) Therefore, Planning Commission Resolution No. 24-039 must be overturned and the Application approved.

The Planning Commission Resolution Concluded Without Evidence That The Project Would Have Health and Safety Impacts

Planning Commission Resolution No. 24-039 improperly denied the Application based on speculative public health and safety impacts that were not supported by a preponderance of the evidence and, therefore, cannot support a denial of the Application. Specifically, the Planning Commission erred in finding that the Application would be near an earthquake fault line, alleged concerns about water supply, and that a private sewer easement would have unmitigable health and safety impacts.

First, Planning Commission Resolution No. 24-039 improperly concluded that the Application would have a determinantal effect on public health or safety due to the misidentification of the location of an earthquake fault line. The Application was submitted pursuant to suitability maps derived from geological reports under the Carmel Valley Ranch Environmental Impact Report ("EIR"). Planning Staff erroneously claimed that an earthquake fault line ran underneath the property based on inaccurate readings of a map. Appellants submitted an independent fault investigation report demonstrating that the fault line was located in an entirely different location, outside of the surrounding residential development, which matched the original findings under the EIR. (*See* **Exhibit II**.) Planning Staff are not licensed or qualified geologists and are ill-equipped to determine any danger the fault imposes, especially when compared to Appellants' qualified geologist who submitted the fault investigation report. Therefore, Planning Staff improperly concluded, based on speculation, that the Application was a threat to public health or safety.

Second, the Planning Commission Resolution identifies what it believes to be public health and safety impacts if the Appellants are not able to obtain enough water for the fixtures it proposes. Appellants will be able to obtain this water from the new MPWMD Pure Water allocations or from a domestic well, but if not, they will simply end up with fewer fixtures. In no way does this jeopardize public health or safety as adequate water will be supplied to the property, and the Planning Commission Resolution fails to identify how this would allegedly cause an unmitigable impact to public health or safety.

Third, the Planning Commission based its denial of the Application on a private sewer easement agreement, baselessly alleging that it constitutes an unmitigable health and safety impact. There is simply no evidence of that. Instead, the Resolution groundlessly claims that the Application "appear[s] to conflict" with the private easement agreement and that "could result in a potential public hazard." (Finding 3, evidence (b).) Importantly, it is not enough for the Planning Commission to speculate that there "may" be health or safety impacts. To deny this Application, the HAA required the Planning Commission to prove that the Application "as proposed *would* have a specific, adverse impact upon the public health or safety, and <u>there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact</u> . . . ." (Gov. Code § 65589.5(d)(2).)

The Planning Commission failed to make these findings as required and, therefore, violated the HAA.

The Assigned Planner's Undisclosed Contacts with Appellants' Design Team is Evidence of Bias

Applicants have been concerned for some time that the assigned planner for this project has exhibited significant bias. This suspicion is confirmed by her repeated and undisclosed contact with the Appellants' design team. It is completely inappropriate for staff to reach out to Appellants' design team without Appellants' knowledge and without disclosing such contact. The submitted arborist report clearly discloses that it was based on the site plan and a site visit in 2016. Planning Staff accepted this report in making its completeness determination. However, apparently, the planner has now reached out to the arborist, without notifying Appellants, and submitted a self-serving account of what was discussed. This "evidence" is at best unsubstantiated hearsay in violation of Appellants' due process rights. The Board should dismiss Exhibit G on that basis.

The Board Must Grant The Appeal

The HAA and Builder's Remedy requires the Board to grant the appeal and approve Appellants' Combined Development Permit. The Application qualifies for the Builder's Remedy as it was originally proposed under AB 1893, Planning Staff failed to make the required written compliance determination within 30 days of its completeness determination, and there is no evidence that the Application will have unmitigable impacts to public health or safety.

The HAA and Builder's Remedy prevent the Board from remanding this appeal and summarily dismissing Appellants' legal rights and costs. Remanding the Application would be akin to upholding the Planning Commission's denial.

If this appeal is not granted, the Appellants will immediately file an action against the County. The County will be liable for significant penalties and damages under the HAA and Builder's Remedy as well as attorneys' fees, which are recoverable under both laws and amount to more than $30,000 since the Planning Commission hearing in December.

Sincerely,

PATTERSON & O'NEILL, PC

Laura Strazzo

Laura Strazzo, Esq.

EXHIBIT I

VIEW FROM CARMEL VALLEY RD
WITH THE PROPOSED RESIDENCE
10196 Oakwood Circle, Carmel Valley, CA 93924
AVERAGE LINE OF THE TREE CANOPY ALONG THE
ROAD RETAINING WALL OF OAKWOOD CIRCLE

EXHIBIT II

David W. Abbott, PG 4310, CHg 36
Consulting Geologist
607 Chetwood Street
Oakland, CA 94610-1433
510-928-4543 (mobile) and dabbottgw@gmail.com

Date: February 3, 2025

Memorandum (Memo)

To: Laura Strazzo, Partner
Patterson & O'Neill, PC
235 Montgomery Street, Suite 950
San Francisco, CA 94104
415-907-7723 (direct tele.) and (laura@pattersononeill.com)

Rene Peinado (110pacific@gmail.com)

From: David W. Abbott, CA Professional Geologist (PG 4310) and Certified Hydrogeologist (CHg 36) (principal author) and contributor Rao Hassan Raza, Geological Engineer

Re: Seismic Fault Investigation Report for 10196 Oakwood Circle, Carmel Valley, CA

1. EXECUTIVE SUMMARY

The objective of this Memo is to evaluate whether there is evidence of a fault at (or near) 10196 Oakwood Circle (the "property"). Based on a historical analysis of fault data and a property-specific analysis, the evidence strongly indicates that there are no active faults at or near the property. The suspected location of the Tularcitos Fault (Section 62) using Very Low Frequency Electromagnetic (VLF-EM) data is ≈500 feet (ft) (≈152 meters; m) from the property. The geotechnical evaluation (Appendix E) concluded that the property is suitable for construction without fault-related restrictions. Therefore, the property does not meet the criteria for an Earthquake Fault Zone, and its development should be permitted under standard California Building Code (CBC) regulations.

The property is located within an Approved Planned Unit Development (APUD). The application for the Carmel Valley Ranch (CVR) - Specific Plan (CVR-SP) was submitted in 1975. A Final Environmental Impact Report (FEIR) (Appendix F) for the CVR-SP was adopted by the Monterey County Board of Supervisors (BOS) in 1977. The FEIR contained a geotechnical and seismic study prepared by CA Geologist Oliver E. Bowen, Jr. (CA Division of Mines and Geology; CDMG). The mapped areas determined to be suitable for development, including this property, were established based on Mr. Bowens' findings. A map, which plotted the property relative to the location of the Tularcitos Fault, was submitted to the Monterey County Planning Department (MCPD) on Nov. 6, 2024 (Appendix D). Other permits for new construction of residences in the APUD have been approved as recently as 2016 without a property-specific study.

Environmental Review/Addendum[1]
The CVR Project was approved and subject to the following environmental review documents:

- 1975 (Oct.) – FEIR for the CVR-SP was adopted by the BOS (FEIR No. 75-101).
- 1976 (Nov.) – The CVR-SP was adopted by the BOS in Dec. 1976.
- 1986 (Dec.) – BOS adopted the Carmel Valley Master Plan as an amendment to the 1982 General Plan (GP), incorporating the CVR-SP by reference.
- 1995 (Feb.) – CVR-SP revised/amended (BOS Resolution No. 95-066), subject to a negative declaration.
- 1996 (Oct.) – CVR-SP revised/amended (BOS No. 96-382/383/384), subject to a negative declaration.
- 2010 (Oct.) – BOS adopted an updated countywide GP (2010 GP), which incorporated the Carmel Valley Master Plan (Chapter 9.B), which retained the previously incorporated CVR-SP. This is documented by the 2010 GP Policy CV-1.22, which designates the CVR as a "Special Treatment Area".

The MCPD has singled out this property by requiring an additional seismic investigation study beyond what has previously been submitted in the above referenced list of environmental documents.

Key Findings
The most recent mapped trace of the Tularcitos Fault[2] (Section 62c) presented by the MCPD from an interactive website[3] is inaccurate. Historical geological maps and the Fault Activity Map of CA indicate uncertainty in its location, classifying it as "inferred" or "approximately located". Historical maps show varying fault positions, with at least four versions placing it in different locations, providing further evidence that the mapped trace is unreliability on the interactive website and is generally unknown. The CA Geological Survey (CGS) has previously acknowledged past mapping errors in their maps due to out-dated data. The fault mapping also appears arbitrary, running only through vacant land and avoiding developed areas.

Seismicity: The Monterey County Fault Activity Report identifies the San Andreas Fault as the primary hazard in this area, with no significant events tied to the Tularcitos Fault. No fault-related surface features, such as scarps or offset drainages, were observed on the property, and the geotechnical report (Appendix E) found no signs of liquefaction or soil deformation, thus confirming that no active fault crosses the property. A VLF-EM survey detected no fault beneath the property and confirmed that the nearest fault anomaly is likely 500 to 600 ft away from the property, further disproving the mapped fault location presented by the MCPD.

- *Estimated fault displacement*: The Tularcitos fault has an estimated slip rate ranging from 0.08 to 1.0 millimeters per year (mm/yr), but these values are poorly

[1] Sept. 10, 2014 – Agenda No. 1, Monterey County Planning Commission.
[2] https://www.cccarto.com/faults/sc_faults/#google_vignette
[3] https://cadoc.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=510bf02ccc9543f99b625551a3e7c7d0

constrained due to limited geological and paleo-seismic data. There have been no significant seismic events directly attributed to this fault in recent history.

- *Property classification*: As per the 2019 CBC, the property is classified as Site Class C, and Seismic Design Category D.

- The suspected location of the Tularcitos Fault using VLF-EM data suggests the fault is located ≈500 ft (≈152 m) from the 10196 Oakwood Circle property. No continuous fault or fracture zone was detected that exist on the property or directly south of the property.

Recommendations
The FEIR contained a geological and seismic study prepared by CA Geologist Oliver E. Bowen Jr., at the time working for the CDMG. The mapped areas of CVR were determined to be suitable for development, including this property and were established based upon Mr. Bowens' findings. It is recommended that the proposed project be processed in accordance with the recommendations of the FEIR and issued a building permit.

2. INTRODUCTION

Purpose: To determine whether there is evidence of a fault on (or near) this property. Note that MCPD claims there is a fault running through this property.

Project Description: This property is zoned Medium Density Residential-5-D-S-Residential Allocation Zoning (RAZ) District (MDR/5-D-S-RAZ). The proposed housing development project is a new Type V structure containing three residential units plus Garage Structure.

Regulatory Compliance: Relevant standards, such as the Alquist-Priolo Earthquake Fault Zoning Act (or AP Act), must be adhered-to in CA. The proposed property at 10196 Oakwood Circle falls under the jurisdiction of the AP Act. A thorough review of geological maps, site investigations, and historical data found no conclusive evidence of an active fault on (or near) the property. A previous FEIR confirmed no faulting hazards, and the 2019 CBC classifies the property as Seismic Design Category D, Site Class C, indicating potential shaking but no confirmed fault activity. The geotechnical evaluation (Appendix E) concluded that the property is suitable for construction without fault-related restrictions. Therefore, the property does not meet the criteria for an Earthquake Fault Zone, and its development should be permitted under standard CBC regulations (Bryant and Hart, 2007).

3. PROPERTY DESCRIPTION

Location and Topography: The property is located at 10196 Oakwood Circle, Carmel Valley, Monterey County, CA and ≈7 miles east of State Highway 1. The property is situated within an unincorporated residential area of Carmel Valley, surrounded by rolling hills, oak woodlands, and rural residential developments. The topography of the

property consists of moderate slopes ranging from 15% to 40%. The parcel itself is ≈3,500 square ft, with an elevation difference of ≈10 ft from Oakwood Circle, which is supported by a concrete retaining wall (See Figure 4).

Geologic Setting: The property lies within the Pacific Border geologic province on the Salinian Block, primarily underlain by Mesozoic-age crystalline basement rocks overlain by Tertiary-age sedimentary deposits, including the Monterey Formation. The Monterey Formation consists of siliceous and diatomaceous layers, which formed in marine environments during the Miocene-age. The broader tectonic setting is defined by the right-lateral strike-slip movement of the San Andreas Fault system, which accommodates the relative motion between the Pacific Plate and North American Plate. The Tularcitos Fault (Section 62c) is considered a secondary fault within this system, exhibiting dextral-reverse characteristics (Petersen et al., 1996). The San Andreas Fault is the dominant seismic source in the region, responsible for major historical earthquakes such as the 1906 San Francisco Earthquake and the relatively recent 1989 Loma Prieta Earthquake. The Tularcitos Fault, by contrast, has no recorded significant seismic activity in recent history, with estimated slip rates of 0.08 to 1.0 mm/yr, making it a minor contributor to regional seismic hazards. The Section 62C Fault is mapped as “inferred” or “approximately located”, with no clear Holocene-age activity confirmed near the property (Bryant and Hart, 2007).

Existing Conditions: The property is currently undeveloped, featuring oak woodland vegetation and exposed soil patches (Figures 1 through 4). The terrain gently slopes northward, with a concrete retaining wall separating the property from Oakwood Circle. No fault scarps, offset features, or ground cracks were observed on the property. The geotechnical investigation identified marine sandstone (siltstone) beneath the property, aligning with regional geological mapping. Two exploratory borings revealed very dense siltstone starting at 2 ft below the surface, with no groundwater encountered. There are no permanent water bodies or active streams on the property, and seasonal surface runoff follows the natural topographic slope toward lower elevations. Groundwater was not encountered in borings up to 7.5 ft deep, indicating deep groundwater levels (Appendix E).

4. METHODOLOGY

Desktop Study: A comprehensive desktop study was conducted to evaluate the geological setting and potential fault activity at (or near) 10196 Oakwood Circle, Carmel Valley, CA. The primary goal of the study was to assess the location and accuracy of the mapped Tularcitos Fault (Section 62c) trace and determine if it crosses the property. This investigation involved a detailed review of geological maps, historical reports, geotechnical investigations, and aerial imagery.

Multiple geological maps and fault activity reports were reviewed to evaluate the Tularcitos Fault (Section 62c). These sources revealed significant inconsistencies in the mapped fault trace, casting doubt on its location and accuracy. The CGS Fault Activity Maps classify the fault as "inferred" or "approximately located", indicating a lack of

precision in its mapped position. The CGS has acknowledged past mapping errors, noting that the fault "was not mapped correctly", as some sections were drawn using outdated and simplified data rather than precise geological surveys. Moreover, the lack of comprehensive geophysical surveys, such as seismic reflection or refraction studies, along the fault further complicates efforts to accurately locate it, particularly in the Oakwood Circle area (Jennings and Bryant, 2010).

Further inconsistencies are present in the Monterey County Open Data Fault Maps which show the fault trace as a straight line running only through vacant land, avoiding nearby buildings. This suggests the fault trace was mapped in a generalized manner rather than through detailed field-based surveys. The uncertainty margin for the Tularcitos Faults' mapped location is reported to be up to 1 kilometer (km), meaning the actual fault trace could be far from the property (Petersen et al., 1996).

Earlier geological studies indicated that the Tularcitos Fault extended westward along Carmel Valley to the mouth of the Carmel River. However, more recent research has shown that the fault actually links to the Navy Fault and San Gregorio–Hosgri Fault Zone, which may indicate that earlier mappings were inaccurate. This shift in understanding raises further questions about the fault's exact location, suggesting that the property may not lie along its path.

The U.S. Geological Survey (USGS) reports have also questioned the accuracy of the location of the Tularcitos Fault, with some studies revising its location away from the property. A review of Historical Geological Maps (1974 to 2002) further highlights discrepancies in fault placement. Clark et al. (1974 and 1997) show the fault ≈480 ft (≈146 m) away from the property, while Dibblee and Ehrenspeck (1999) placed it at ≈495 ft (≈151 m). More recent mapping by David and Bryant (2002) positions the fault just a few meters from the property, creating significant uncertainty regarding its actual location. These inconsistencies further challenge the reliability of the mapped trace and indicate that earlier surveys may have accurately located the fault (see Figures 5 through 8).

Assessment of property-specific geologic and seismic conditions: A geotechnical report for 10196 Oakwood Circle provides significant evidence that contradicts the mapped location of the fault on this property (Appendix E). No soil deformation, ground cracking, fault scarps, shifted drainages, or displacement (common indicators of active faulting) were observed. The fault is classified as exhibiting low seismic activity, with no major earthquakes directly attributed to it. The estimated slip rate for the fault ranges between 0.08 and 1.0 mm/yr; however, these values remain poorly constrained, making it difficult to definitively classify the fault as active. Additionally, no significant seismic events have been recorded along the fault in recent history (Bryant and Hart, 2007).

Geotechnical studies, such as paleo-seismic trenching, have not been conducted in the area, leaving a lack of direct subsurface evidence of fault movement. The absence of features typically associated with fault activity, such as soil liquefaction, sand boils, or ground fissures, further indicates that the fault does not cross the property. The

property is classified under the 2019 CBC as Seismic Design Category D, Site Class C, which accounts for potential ground shaking but does not confirm the presence of active faulting. The geotechnical report (Appendix E) also indicates that the potential for collateral seismic hazards (including surface fault rupture and lateral spreading) is low.

Furthermore, no displacements in drainages or fault-related features were observed in the vicinity of the mapped Tularcitos Fault (Section 62C) trace. Drainages that cross the fault trace show no signs of offset in a dextral (right-lateral) or vertical sense, further suggesting that the fault does not exhibit movement in this area.

Analysis of aerial photographs and Light Detection and Ranging (LiDAR) data: A detailed analysis of high-resolution aerial and satellite imagery was performed to identify any surface expressions of faulting near the property. This analysis focused on detecting geomorphic features, such as fault scarps, offset drainages, and sag ponds, which are often associated with active fault movement. However, no clear indicators of active faulting were observed within or near the property.

Historical land-use patterns further suggest that the mapped fault trace was drawn arbitrarily, as it avoids developed areas and instead runs exclusively through vacant land. Faults are typically associated with distinct surface features, such as linear scarps, sag ponds, or displaced stream beds. The property does not exhibit any of these typical fault-related surface features.

Additionally, the aerial photograph analysis examined tonal lineaments and vegetation anomalies, which can sometimes indicate underlying fault structures. The results showed only subtle, vague alignments, which do not constitute definitive fault indicators. These findings are consistent with property-specific geotechnical investigations, which also failed to identify fault-related deformation in the subsurface.

5. FIELD INVESTIGATIONS

Geophysical Surveys: Surveying4Water.Com in association with David W. Abbott, PG, CHg conducted an interpretive survey to convey the results of the recent reconnaissance-level (recon-level) survey that was performed on and in the vicinity of this property according to the terms of our agreement (see also Appendix C for additional discussion of VLF-EM). This *reconnaissance survey*[4] provides a rapid geological/structural survey which was made to gain a broad and general knowledge of the geology and structure of the region.

Surveying4Water.Com performed an initial recon-level and passive VLF-EM survey on this and adjoining properties. A VLF-EM survey is one of several possible exploration techniques to determine subsurface characteristics and geologic structures. The survey was conducted with a Receiver which measures the changes in the EM currents along

[4]Words in italics are defined using either the *Glossary of Geology* (5th edition, 2005) or the *Glossary of Hydrology* (1998) both are published by the American Geological Institute; or other references.

traverses. The survey yields *a* current density *profile* which is a graph or drawing that shows the variations of one property such as elevation or EM, usually on the y-axis, with respect to another property, usually distance along the ground surface on the x-axis.

EM is an *electromagnetic exploration method* based on the measurement of alternating magnetic fields (AMF) associated with artificial or natural currents occurring in the subsurface. If these currents are induced by a primary AMF, the name *inductive EM method* applies. If these currents are conducted into the ground via electrodes, the name *conductive EM method* applies. The VLF-EM method used here is an inductive survey method.

The VLF-EM method measures the induced currents produced by local subsurface features including the general distribution and properties of the geologic structure, joints and cracks, faults, and rock beneath the property. The induced currents are generated from the prevailing and transmitted current originating from usually distant and powerful AMF transmitters operated by the U.S. Navy for submarine vessel communications. These subsurface features are inferred from the VLF-EM data and can be related to the possible occurrences of fracture zones or faults. No direct or physical contact of the underlying geology or other subsurface exploration methods (i.e., borehole or test well drilling or fracture trace analysis) was performed for this recon. The findings and conclusions of this survey are based on research of readily available local geologic data coupled with instrumentation (Receiver) which measures the primary and induced (or secondary-type) currents by the induction method with computer-generated and -enhanced graphics interface provided with the Receiver.

Surveying4Water.Com visited the property and selected accessible and suitable areas for the surveys. Using ground surface and passive methods, the handheld Receiver measures and stores data sets of the primary and induced electrical parameters at each occupied station to reveal the inferred subsurface structure from the induced AMF propagated by the U.S. Navy transmitter. An occupied *station* is a position at which an observation is made along a traverse. A *traverse* is a sequence or system of measured lengths and directions of straight lines connecting a series of surveyed stations (or points) on the Earth's surface, obtained by or from field measurements, and is used in determining the relative positions of the stations. A Global Positioning System (GPS) unit was used to locate each station that was measured during the traverse. The surveys were conducted along roughly linear traverses on the property that were generally perpendicular to the regional geologic trends (geomorphic and/or structural, if known).

The field data for each station is concurrently down-loaded (when a station is occupied) into the memory of the Receiver for computer analysis. The computer-generated analysis includes the profile(s) during the traverse. The subsurface pseudo-sections (charts) (Appendix B) are later generated on a home computer with software provided with the field instrument. A *pseudo-section* (p-*section*) is used to present all of the data from a traverse in one chart; the p-section bears no relationship to a geologic cross section. The approximate locations of the survey profiles and the stations along the

profile are shown on Figures 9a through 9d and identify the approximate direction of the traverses with an arrow. Twenty traverses (totaling ≈1,555 m or ≈5,100 ft) were performed near this property (see Appendix B).

- *Property*: The ten traverses on the property include four north-south traverses in blue on Fig. 9b totaling 195 m (640 ft) averaging 49 m (160 ft) long and six east-west traverses in yellow on Fig. 9b totaling 430 m (1,410 ft) averaging 72 m (235 ft) long. There were no identifiable fault/fracture zone anomalies shown on these paired p-sections; P03E and P04W anomalies are likely from an unknown interference from local cultural features.

- *Middle Section*: The six east-west traverses on the vacant properties between south Oakwood Circle and Heron Court (Fig. 9c) total 305 m (1,000 ft) and average 51 m (167 ft) long. There was one anomaly on P32W which was probably affected by a nearby cultural feature.

- *Southern Section*: The four east-west traverses south of Heron Court in the vicinity of the golf course and property owned by the CVR (Fig. 9d) total 625 m (2,050 ft) and average 156 m (513 ft) long. Three anomalies were identified on these p-sections. Two of them P41E and P42W (the most southern traverses) are likely associated with the southwestern trending Tularcitos Fault while the third (P43E) is likely a cultural response associated with nearby Heron Court. The suspected Tularcitos Fault near P41E and P42W is very close to the 1977 mapped Tularcitos Fault as shown on Figure10.

In summary, the suspected location of the Tularcitos Fault using VLF-EM data suggests the fault is located ≈500 ft (≈152 m) southwest of10196 Oakwood Circle property. There appears to be no continuous fault or fracture zone that exists on the property and from the property through the Middle Section, and the eastern portion of the Southern traverses.

Soil and Rock Sampling: Description and laboratory tests were conducted as part of the geotechnical investigation for 10196 Oakwood Circle. Butano Geotechnical Engineering, Inc., Watsonville, CA (Appendix E) performed a subsurface exploration to assess the soil and rock conditions at the property. On Jun. 7, 2022, two exploratory borings (B1 and B2) were drilled using a 4-inch diameter continuous sampling technique with a rope and pulley portable rig. The borings were advanced to depths of 7.5 ft (B1) and 4.5 ft (B2). Representative soil and rock samples were collected during the process for laboratory testing to evaluate their engineering properties.

The upper 2 ft of the property consists of loose silty sand, indicating soil development. Below this, very dense siltstone (marine sandstone) was encountered starting at a depth of 2 ft and continuing to the maximum explored depth of 7.5 ft. Groundwater was not encountered in either of the borings, although seasonal variations may influence groundwater levels. The collected samples underwent laboratory testing to assess their physical and engineering properties. Tests that were conducted include the Expansion

Index Test, which was performed on the silty sand in the foundation zone and yielded an index of zero, indicating very low shrink-swell potential. Additionally, soil classification and gradation tests confirmed that the property is primarily underlain by marine sandstone, consistent with regional geologic mapping. Moisture content and density analysis provided data for site grading and foundation design recommendations.

The shallow subsurface is characterized by stable and competent marine sandstone, which is suitable for construction. No evidence of fault-related soil deformation, such as ground cracking or displacement, was found in the borings. The site is not prone to liquefaction or lateral spreading, further supporting the conclusion that it does not lie on an active fault trace (Appendix E).

6. FINDINGS

Geologic Units: The geotechnical investigation at 10196 Oakwood Circle, conducted by Butano Geotechnical Engineering, Inc., identified the following subsurface soil and rock units (Appendix E):

Surficial Soil (Surface Soil Development)

- Composition: The surficial soil layers consist of loose silty sand with minor organic material.
- Thickness: This layer extends from the surface to a depth of 2 ft.
- Moisture Content: The material was observed to be dry to damp in condition.
- Engineering Properties: The surficial soil is low-density and not suitable for foundation support without proper compaction.

Marine Sandstone (Siltstone) Formation

- Composition: Beneath the surficial soil is a very dense siltstone (marine sandstone) that was encountered.
- Depth: This formation was first encountered at a depth of 2 ft and extends beyond the maximum depth explored of 7.5 ft.
- Age: The marine sandstone is part of the Monterey Formation, which dates back to the Miocene-age, ≈5 to 23 million years ago.
- Moisture Content: The formation was observed to be dry to very dry.
- Engineering Properties: The marine sandstone provides stable and competent bearing material suitable for foundation support. It has a low potential for differential settlement and is non-expansive, making it well-suited for construction.

Faults Identified: In summary, the suspected location of the Tularcitos Fault (Section 62) using VLF-EM data suggests the fault is located ≈500 ft (≈152 m) from 10196 Oakwood Circle property. There appears to be no continuous fault or fracture zone that exists on the property and from the property through the Middle Section, and especially the eastern portion of the Southern traverses.

Seismic Hazards: There is no evidence of Faulting at the subject property based on a site geotechnical investigation, desk top study, and VLF-EM survey.

6. RISK ASSESSMENT

There is no evidence of Faulting on the subject property based on a site geotechnical investigation, desk top study, and VLF-EM survey.

7. RECOMMENDATIONS

The FEIR contained a geological and seismic study prepared by CA Geologist Oliver E. Bowen, Jr. (employed by CDMG). Mapped areas suitable for development, including this property were established based upon Mr. Bowens' findings. It is recommended that the proposed project be processed in accordance with the recommendations of the FEIR. The FEIR established development suitability maps. The property is located within this area. The VLF-EM survey determined there is no evidence of a fault on or near the property. The project should be approved according to Geotechnical Engineer and Structural Engineers design requirements. The Geotechnical Engineer and Structural Engineer will design the project to meet present day code requirements for seismic safety. Monitoring requirements and future investigations are not required.

8. REFERENCES

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Appendix A

Figures for Seismic Fault Investigation Report
for
10196 Oakwood Circle, Carmel Valley, CA

Figure 1 – Google Earth aerial photograph of property.
Figure 2 – Google Earth Aerial Photograph of property (closer view).
Figure 3 – Picture of Property.
Figure 4 – View of property from Carmel Valley Road.
Figure 5 – Geological map by Clark et al. (1974)
Figure 6 – Geological map by Clark and Rosenberg (1997)
Figure 7 – Geological map by Dibblee and Ehrenspeck (1999)
Figure 8 – Geological map by David and Bryant (2002)
Figure 9 – Approximate Location of VLF-EM traverses at and near 10196 Oakwood Circle, Carmel Valley, CA (including Figs. 9a – 9d).
Figure 10 – Approximate location of most southern VLF-EM traverses and estimated location of reported southwestern portion of the suspected Tularcitos Fault near 10196 Oakwood Circle, Carmel Valley CA.

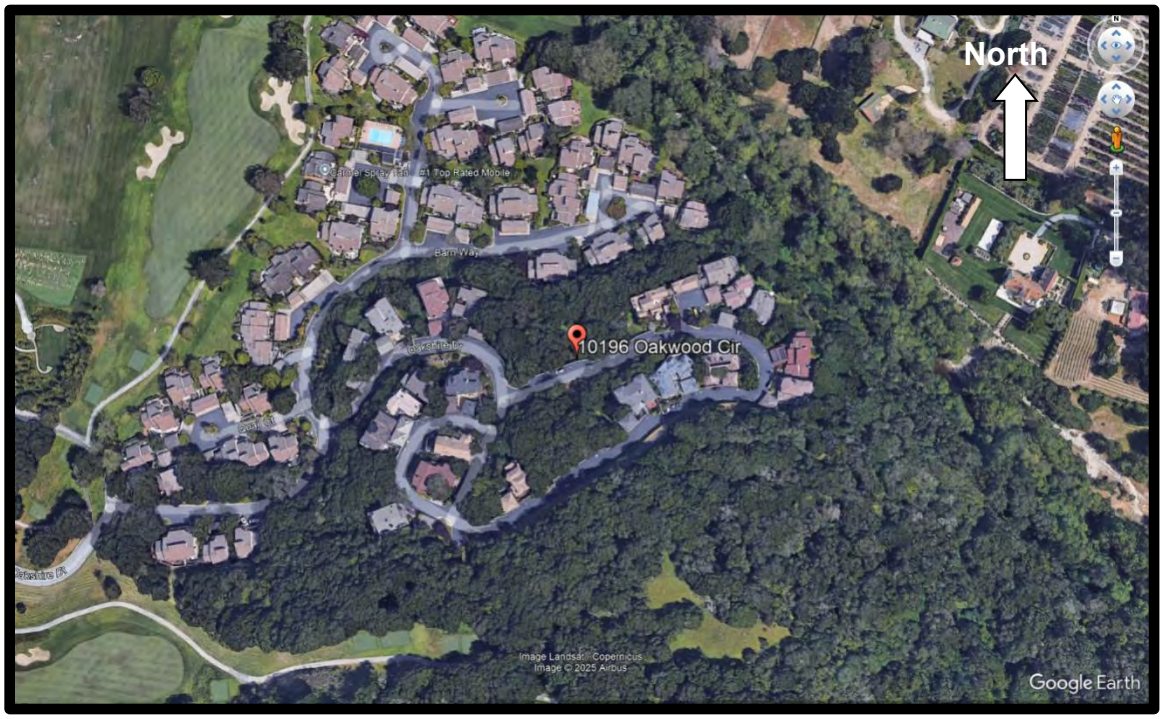

Figure 1 – Google Earth Aerial photograph of property.

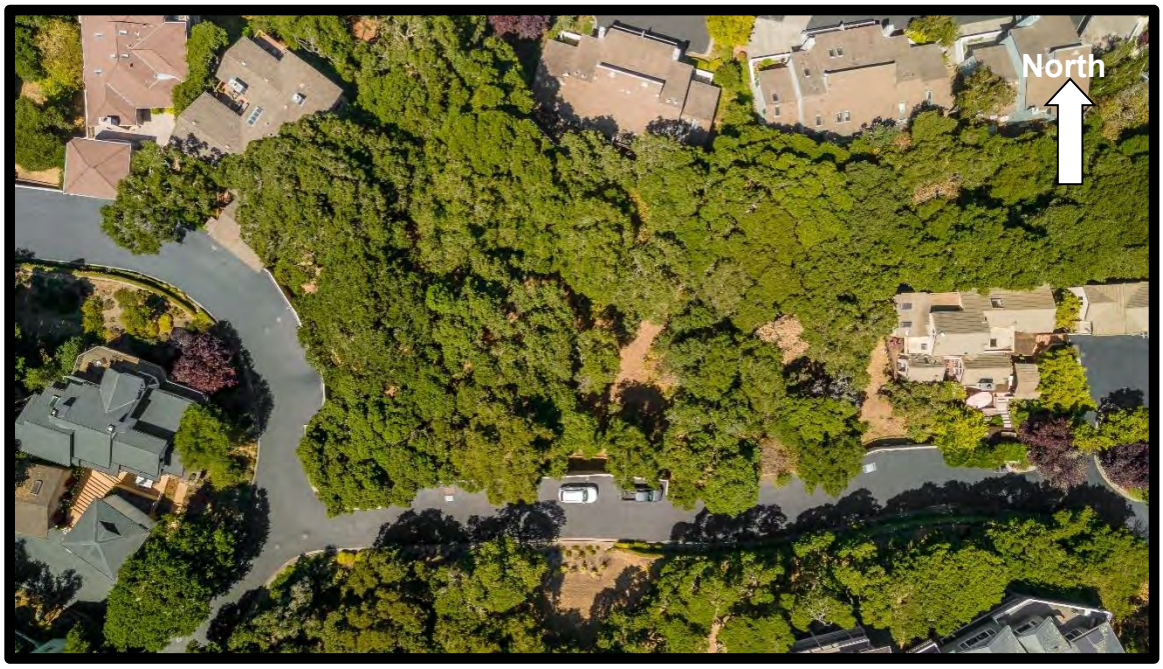

Figure 2 – Google Earth Aerial photograph of property (closer view).

Figure 3 – Picture of Property with Retaining Wall.

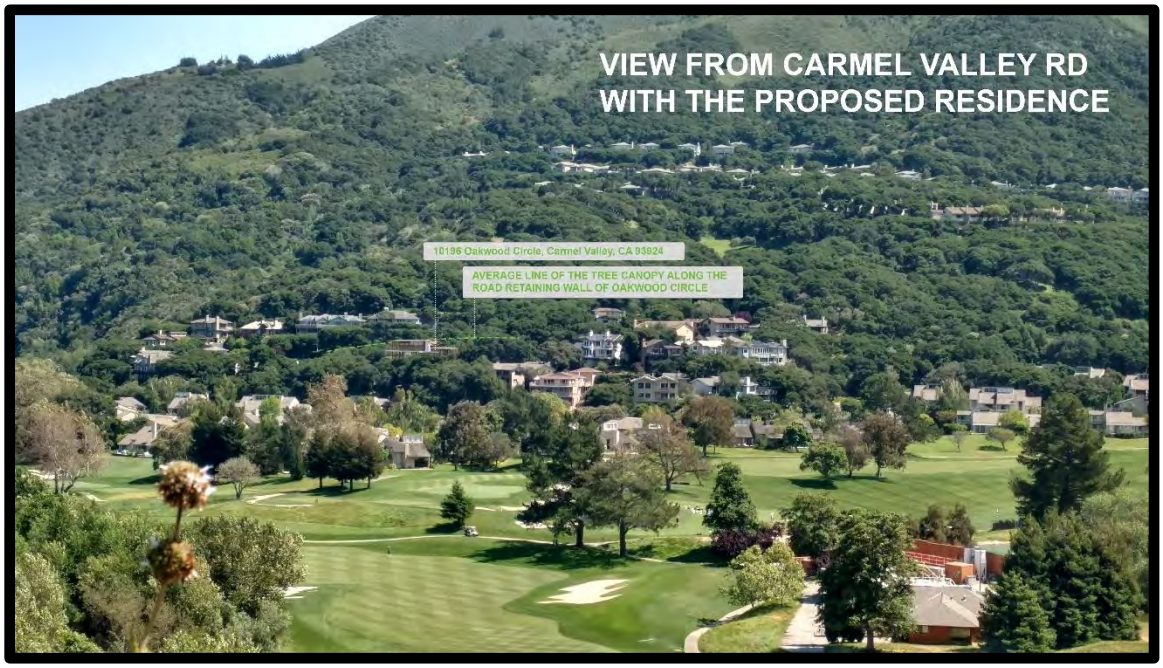

Figure 4 – View of property from Carmel Valley Road.

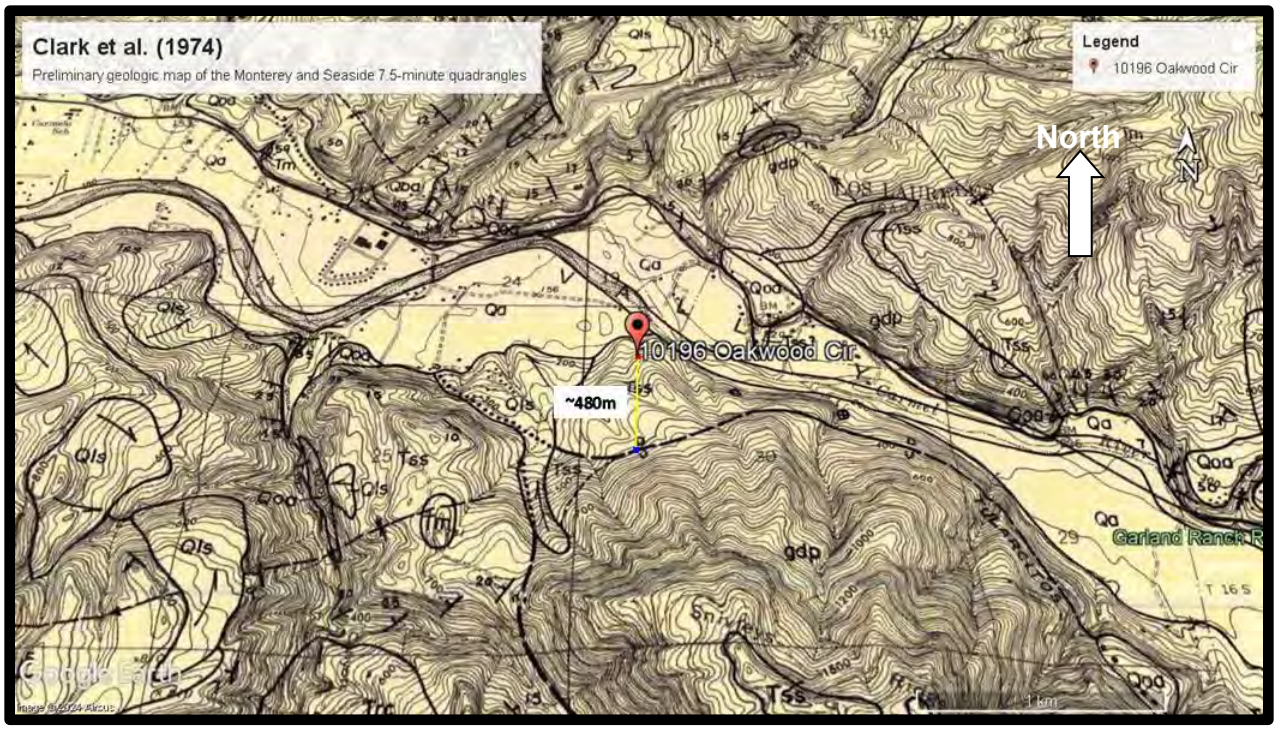

Figure 5 – Geological map by Clark et al. (1974).

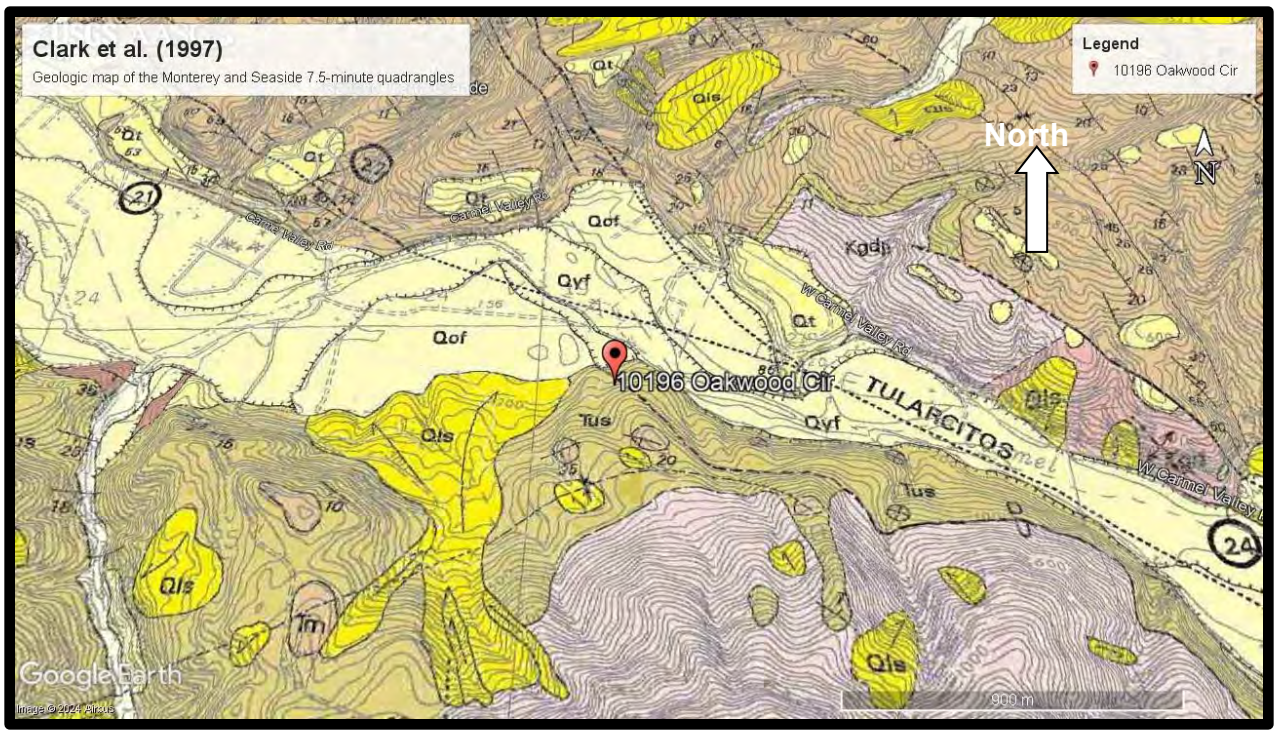

Figure 6 – Geological map by Rosenberg (1997).

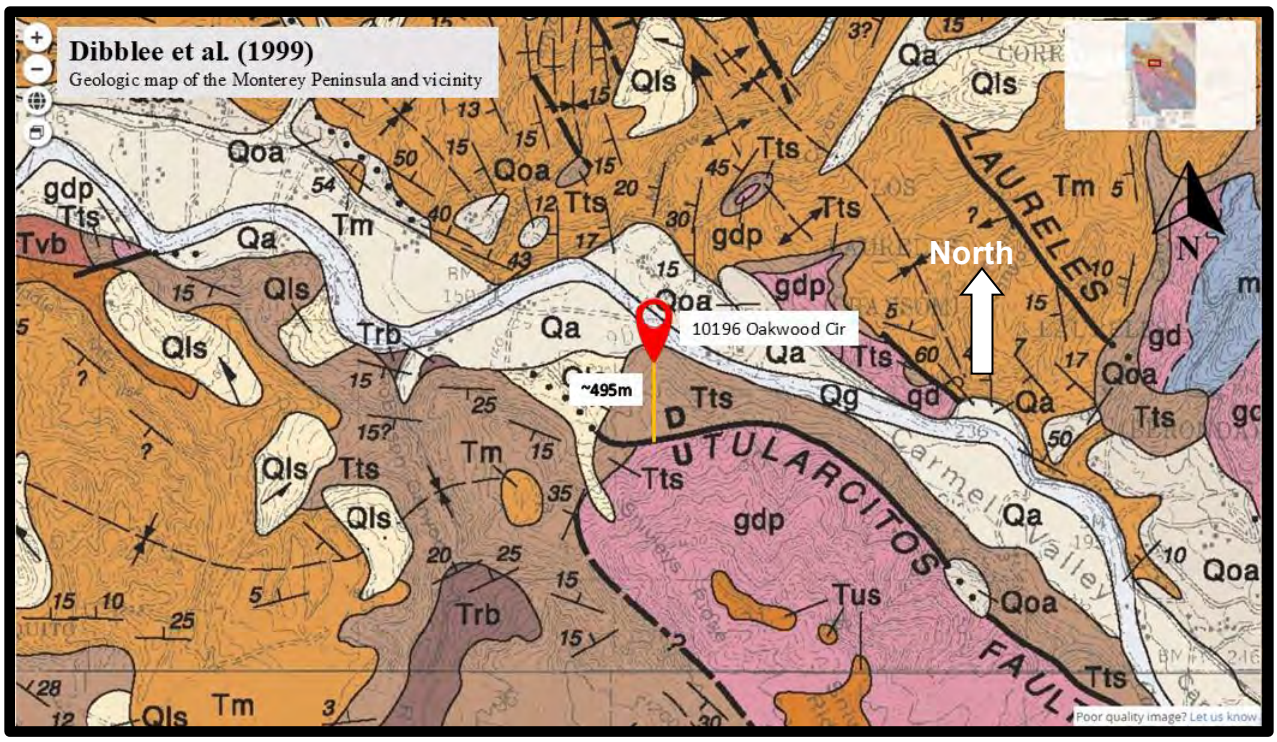

Figure 97 – Geological map by Dibblee and Ehrenspeck (1999).

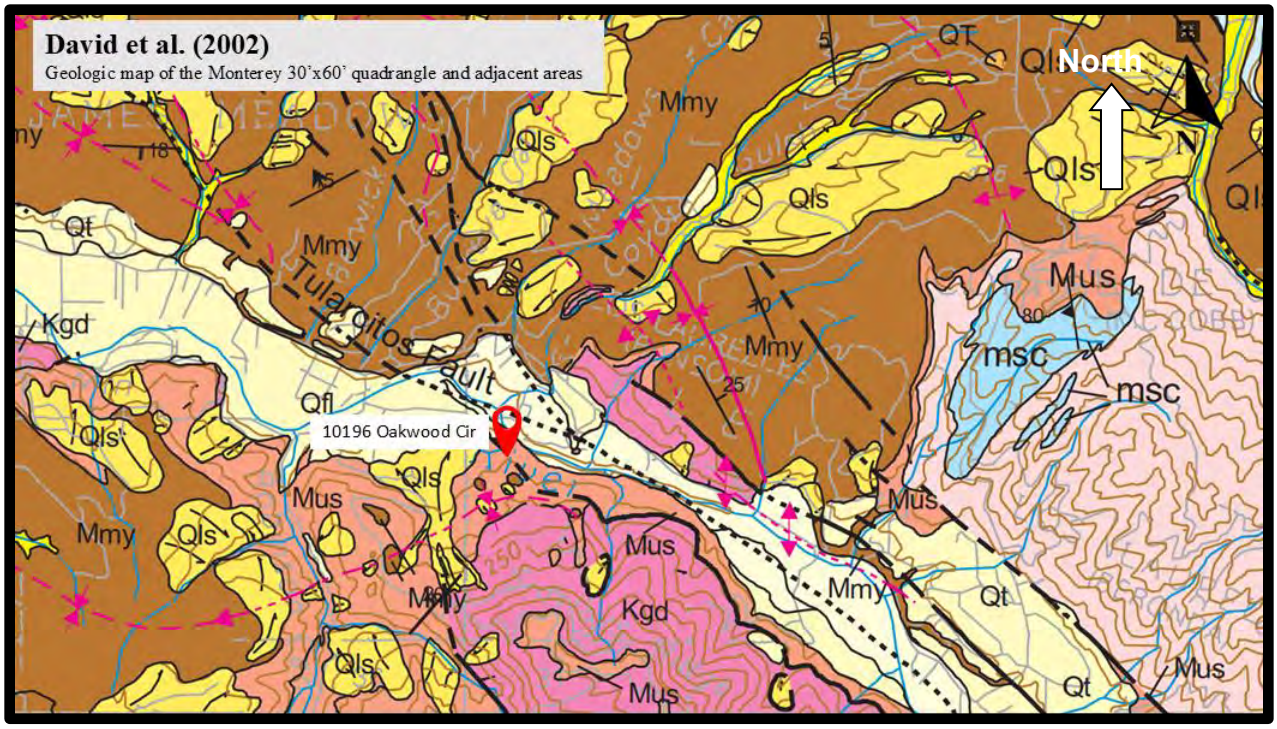

Figure 8 – Geological map by David and Bryant (2002).

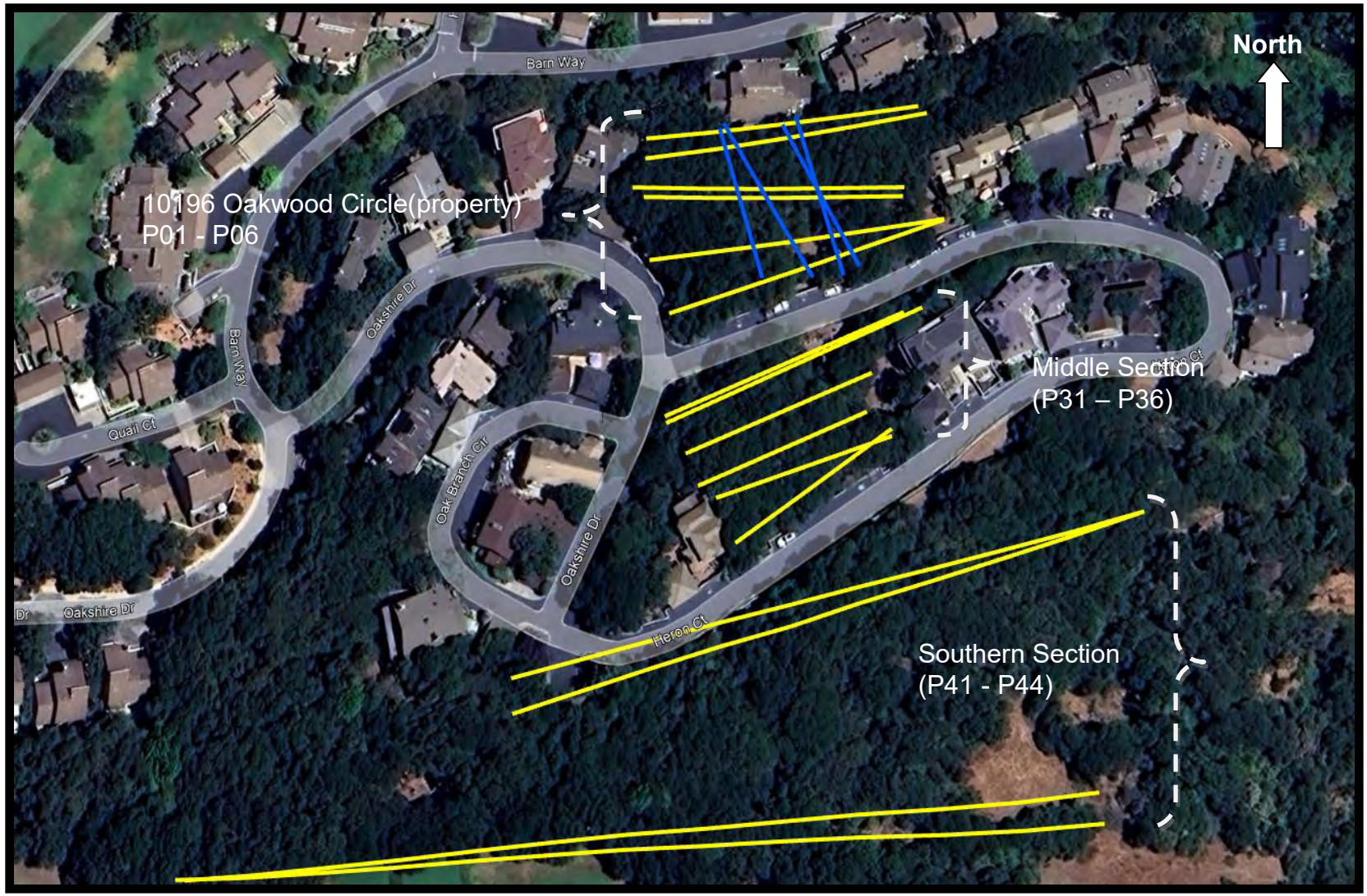

Figure 9a – Approximate Location of VLF-EM traverses at and near 10196 Oakwood Circle, Carmel Valley, CA. See the following Figures (9b through 9d) for labeling of each traverse.

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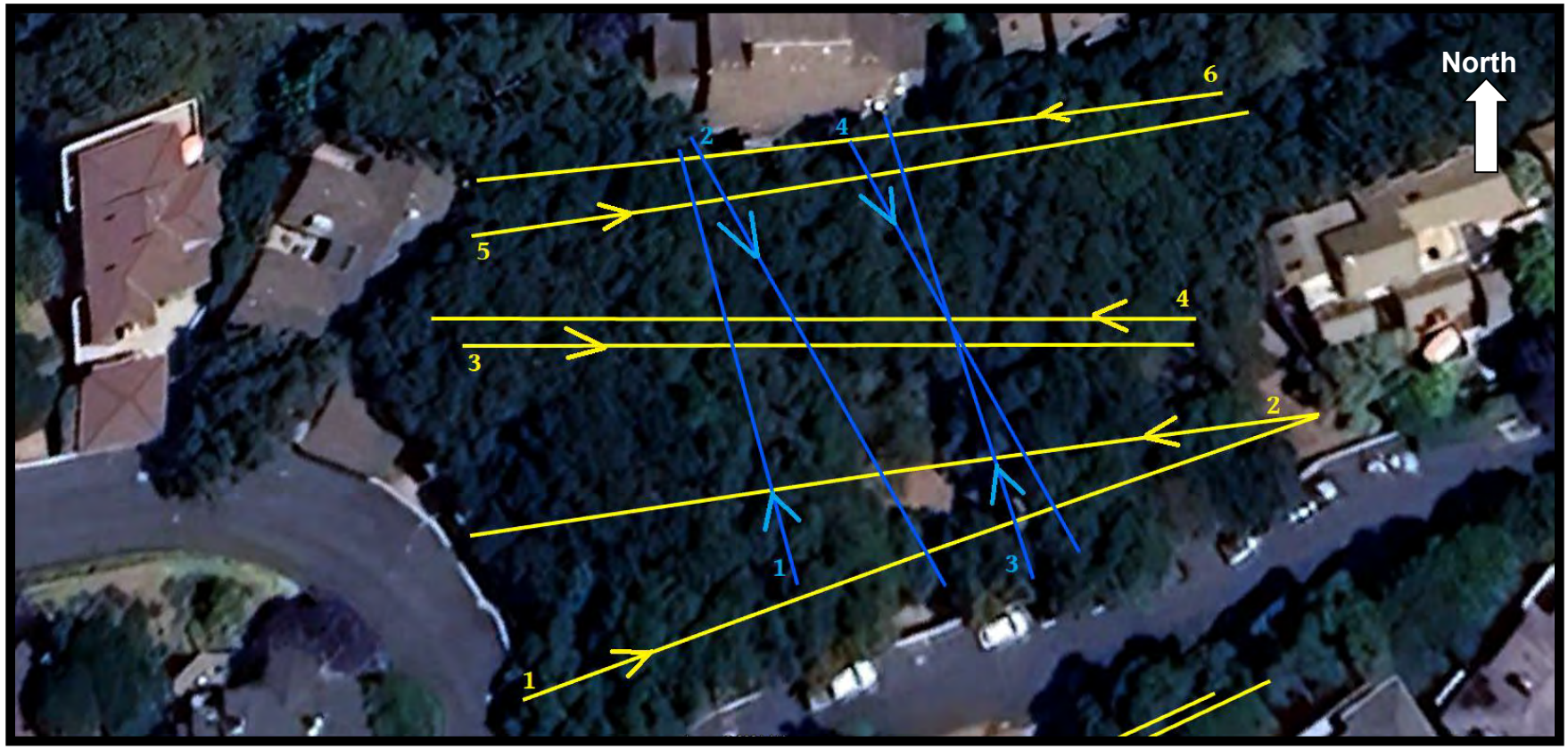


Figure 9b – Property traverses. All odd numbered transverses have an "E" after them and all even numbered traverses have a "W" after them; i.e. P01E or P02W, etc. The "E" is the direction of the traverse – East and the "W" denotes West while P01N (north) and P02S (south), etc.

Figure 9c – Middle traverses. All odd numbered transverse have an "E" after them and all even numbered traverses have a "W" after them; i.e. P31E or P32W, etc. The "E" is the direction of the traverse – East and the "W" denotes West.

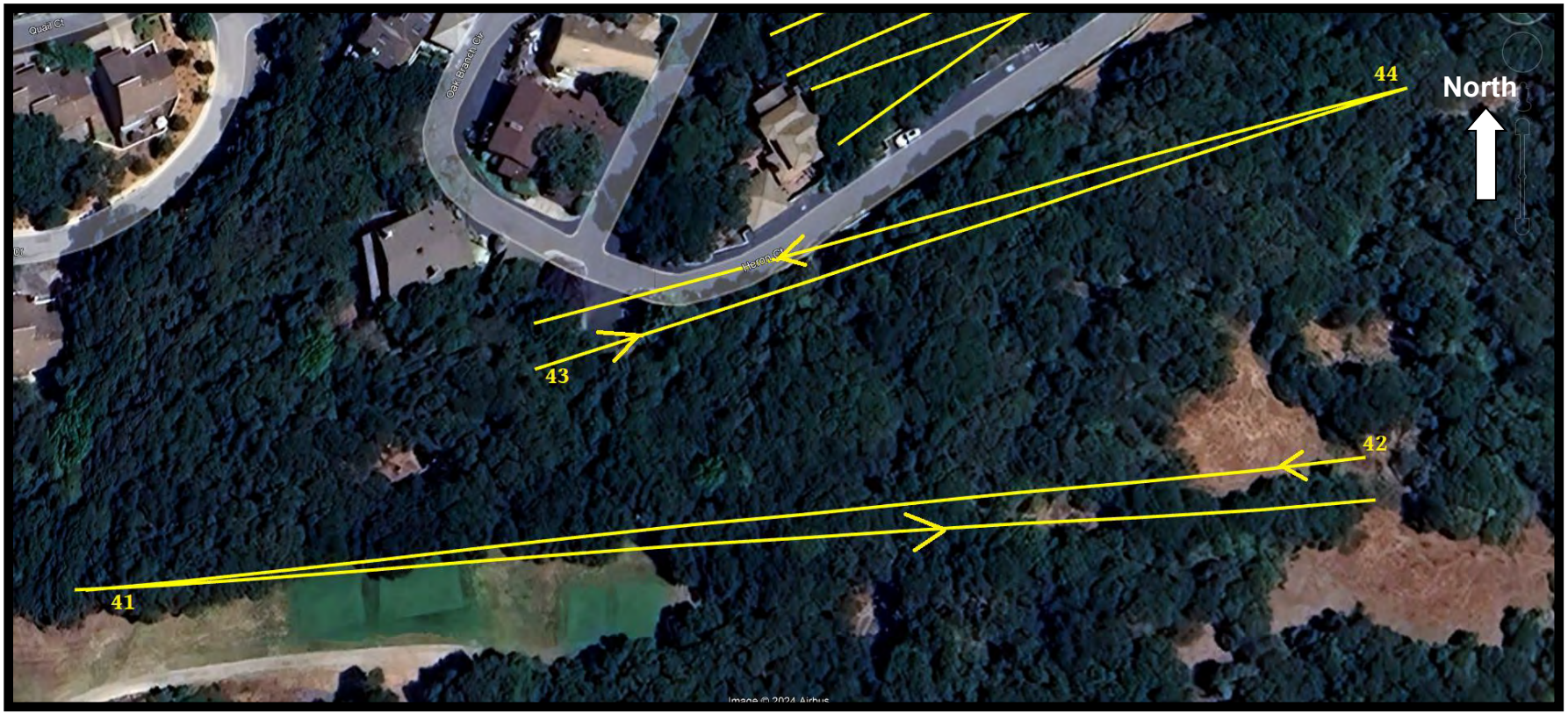


Figure 9d – Southern traverses. All odd numbered transverse have an "E" after them and all even numbered traverses have a "W" after them; i.e. P41E or P42W, etc. The "E" is the direction of the traverse – East and the "W" denotes West.

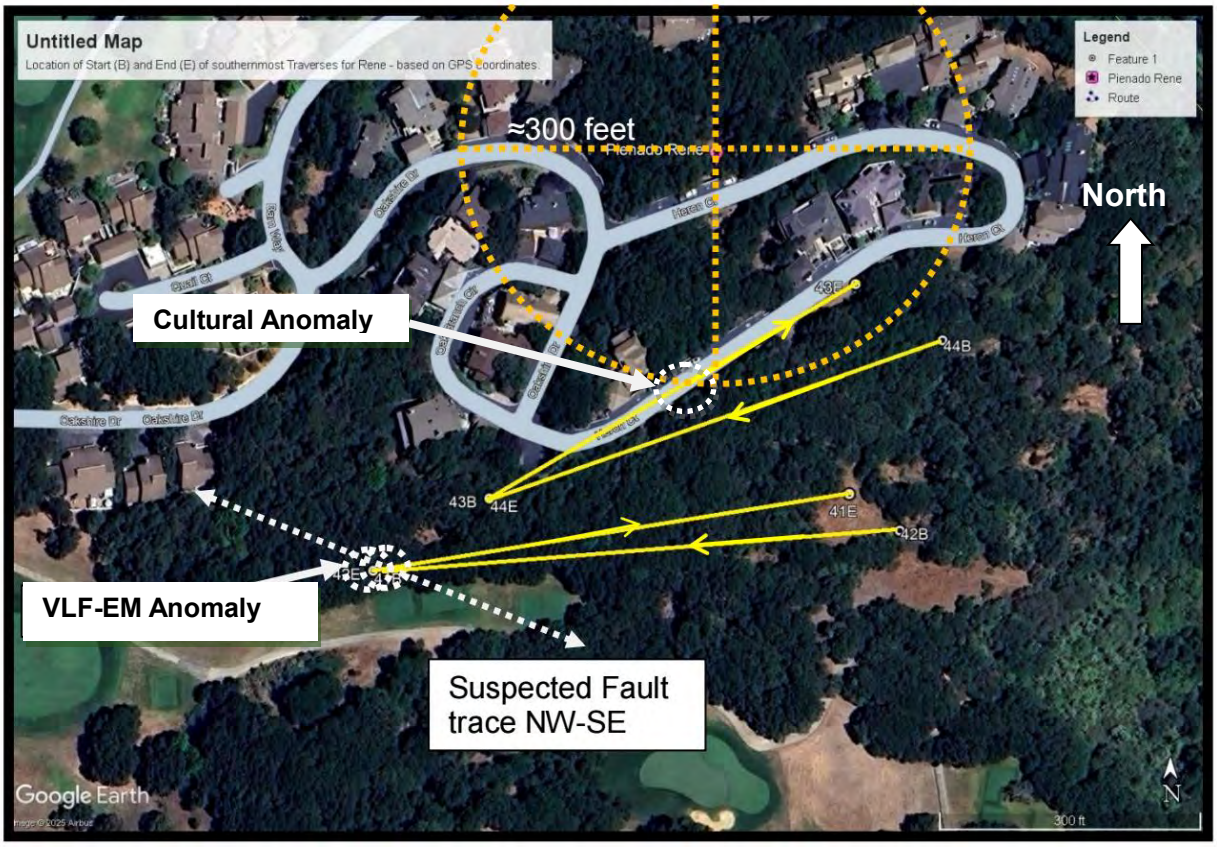
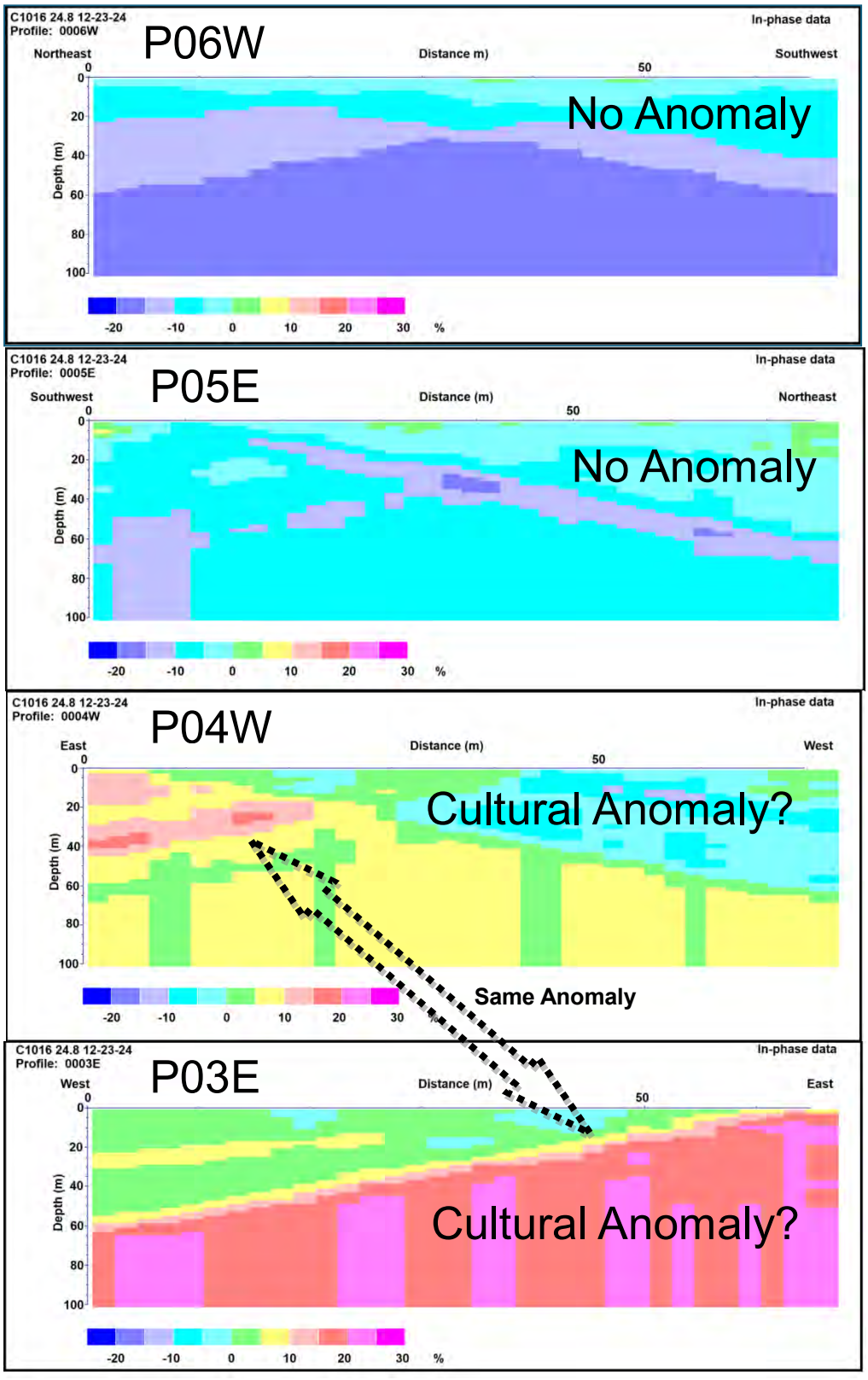


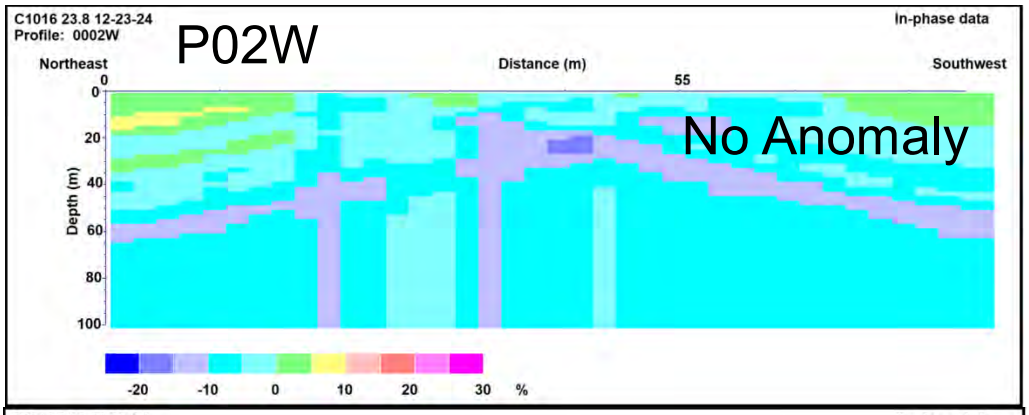
Figure 10 – Approximate location of most southern VLF-EM traverses and estimated location of reported southwestern portion of the suspected Tularcitos Fault near 10196 Oakwood Circle, Carmel Valley CA. Small white dashed circles are estimated location of anomalies observed from the P41 to P44 sections (see Appendix B); dashed white line is the 1970s suspected fault trace; and orange circle is a 300 ft radius around the property.

Appendix B

20 Pseudo-Sections (anotated)
for
10196 Circle, Carmel Valley, CA

East and West P-sections for Property (part 1)

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Profile: 0002W
P02W
In-phase data
Northeast
Distance (m)
Southwest
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55
Depth (m)
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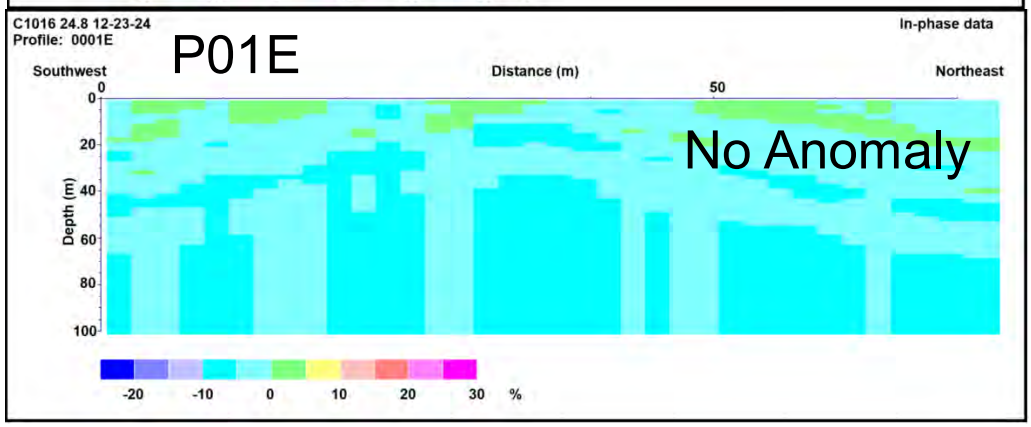
20
40
60
80
100
No Anomaly
-20
-10
0
10
20
30
%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P01E
In-phase data
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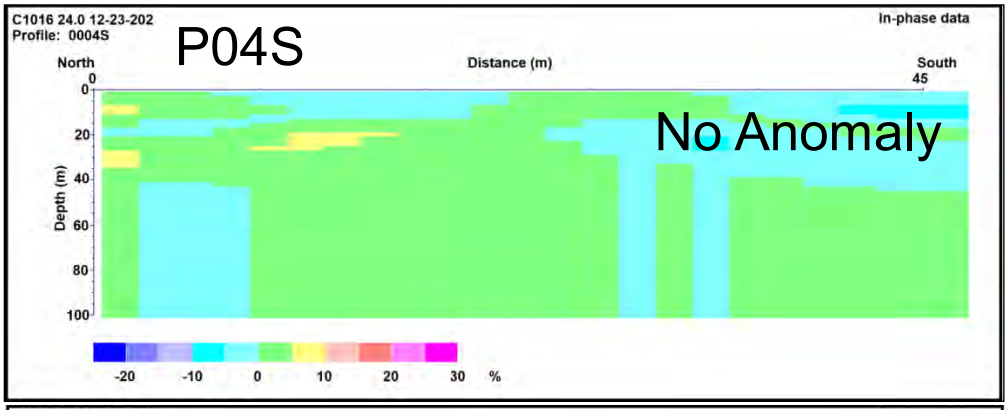
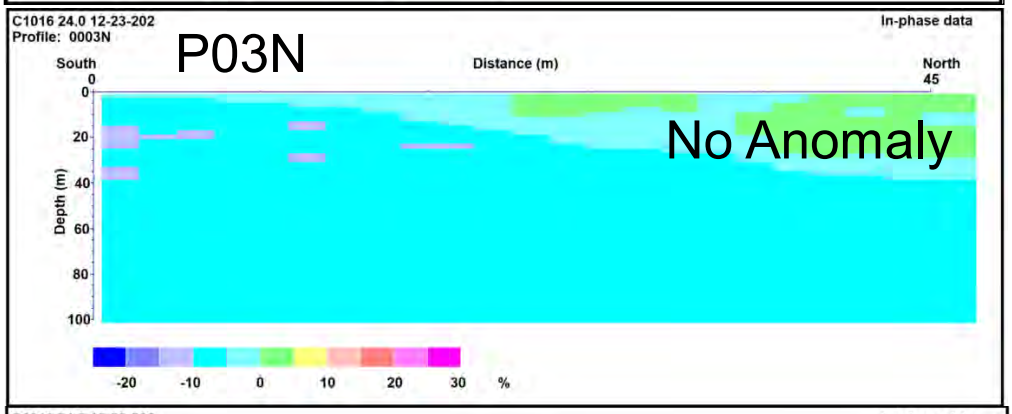
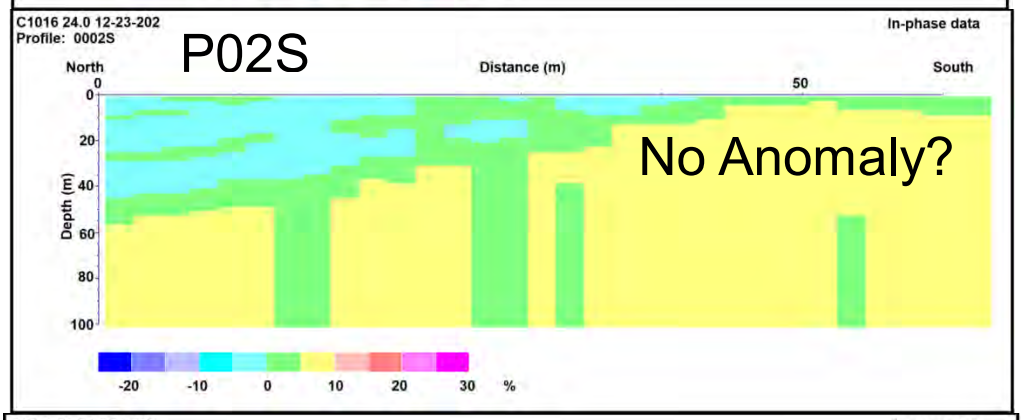
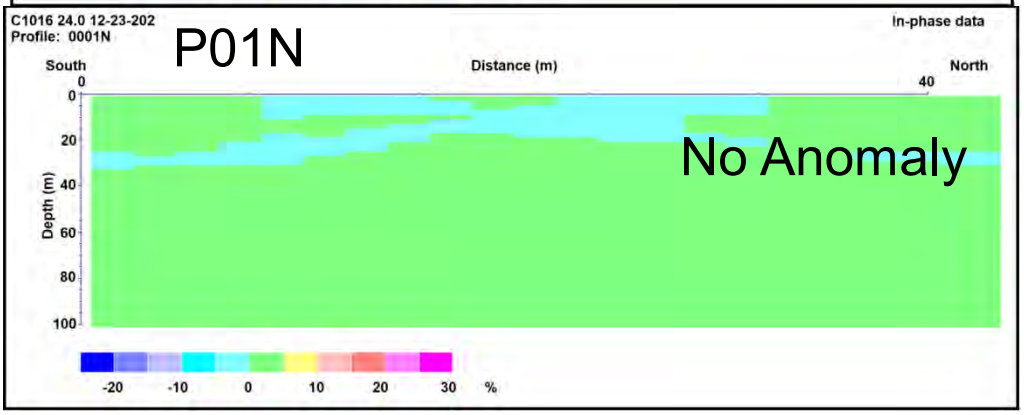
Distance (m)
Northeast
0
50
Depth (m)
0
20
40
60
80
100
No Anomaly
-20
-10
0
10
20
30
%

North and South P-sections for Property (part 2)

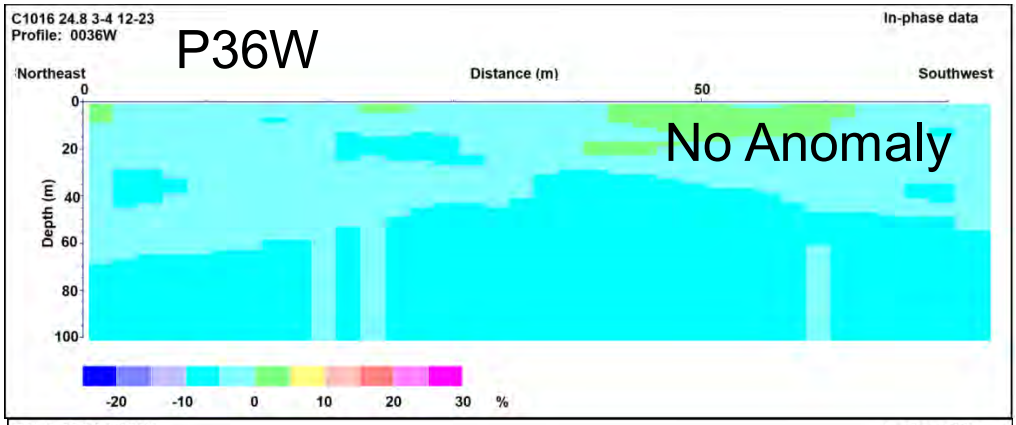


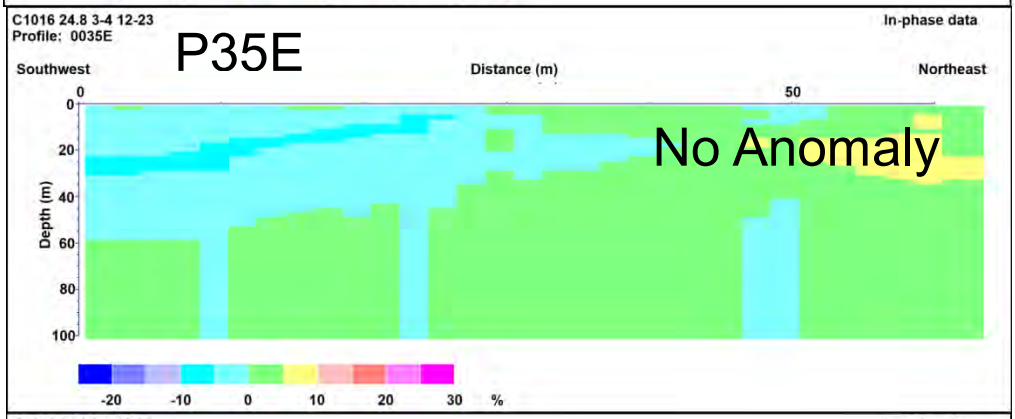


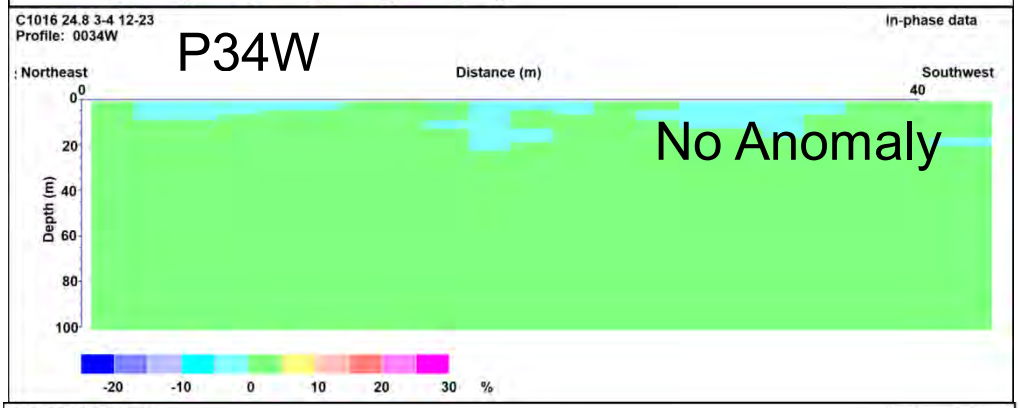


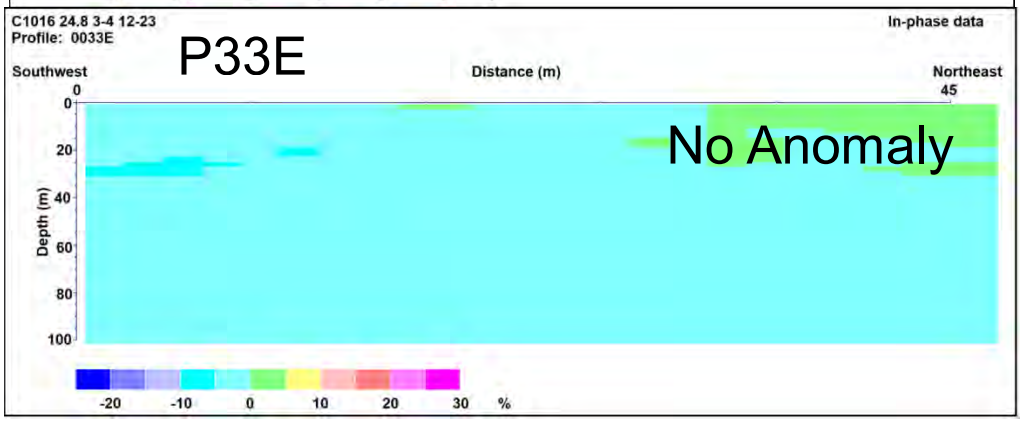


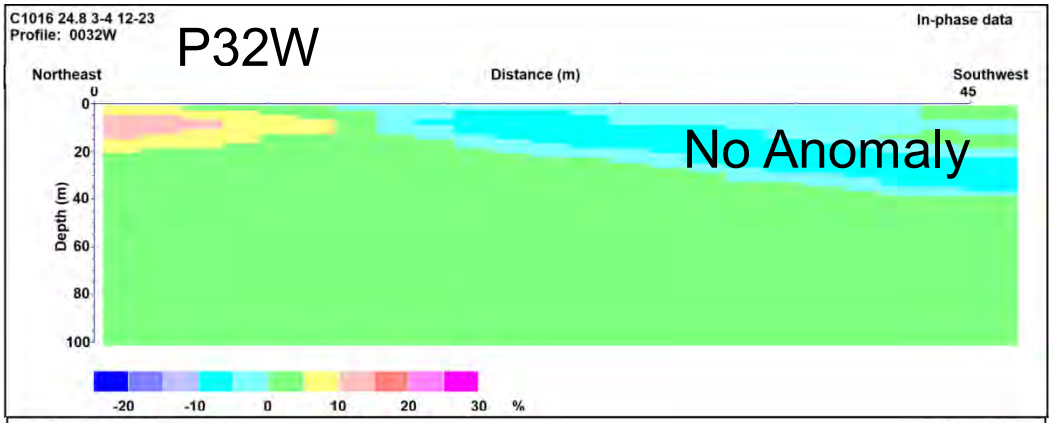
East and West P-sections for Middle Section







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P32W
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Northeast
Distance (m)
Southwest
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40
60
80
100
Depth (m)
No Anomaly
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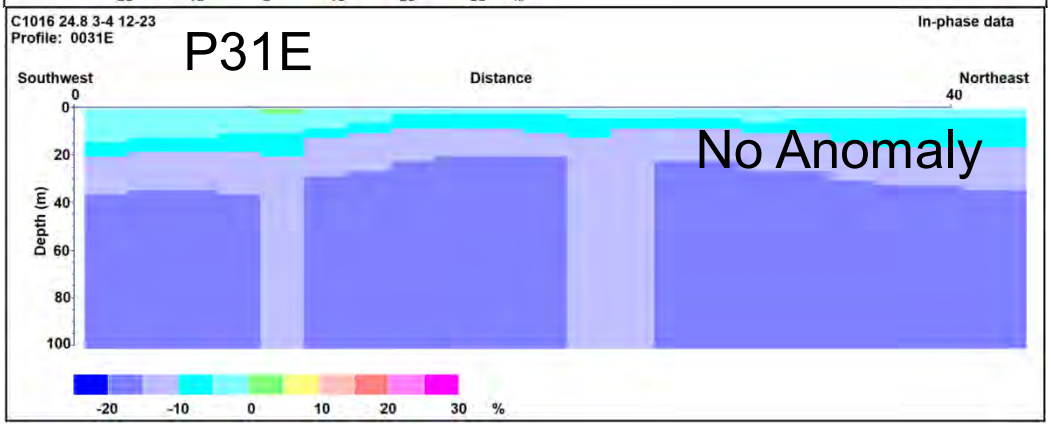
10
20
30
%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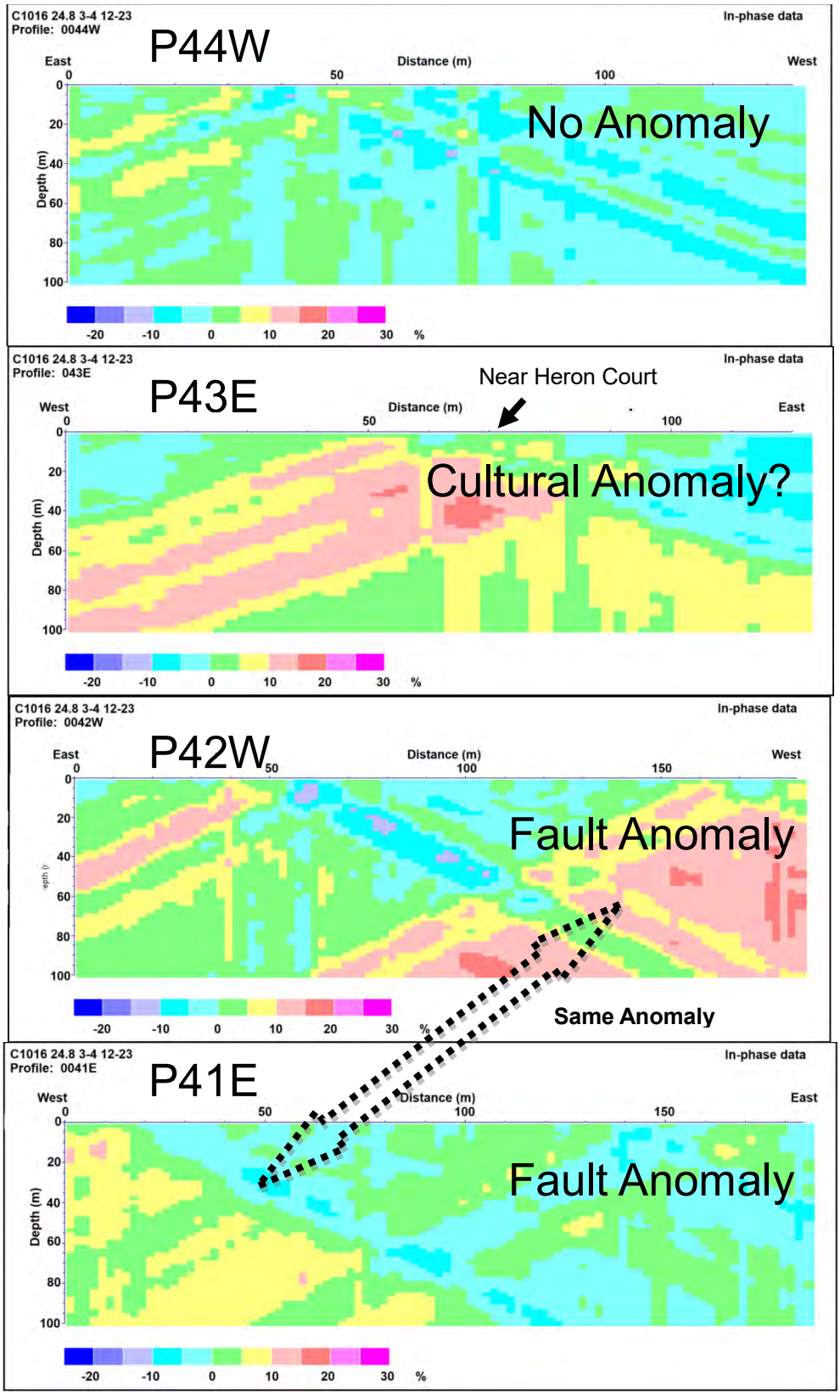
P31E
In-phase data
Southwest
Distance
Northeast
0
40
0
20
40
60
80
100
Depth (m)
No Anomaly
-20
-10
0
10
20
30
%

East and West P-sections for Southern Section



Appendix C

Additional Description of VLF-EM Surveys

Additional Description of VLF-EM Surveys

VLF-EM surveys are sometimes referred to as secondary-type exploration methods since there is no direct physical contact with the ground surface or subsurface geologic formations. The underlying geologic structure is inferred from the induced AMF caused by the U.S. Navy transmitter and measured by the Receiver. If available, geologic information, geologic maps, and topo maps can help to interpret the surveys. Using state-of-the-art instrumentation and methodology, this non-invasive method is useful in the identification of the general structural features beneath the ground surface. The inferred geologic and structural features may include identification of faults, fracture zones, joints, and cracks that disrupt the homogeneity of the otherwise homogenous subsurface rocks. This method is especially useful where the property conditions, access, and project budgets make direct subsurface exploration with test wells or trench studies costly or impractical.

Surveying4Water.Com performs VLF-EM surveys for its clients with the Receiver. Natural and manmade primary currents (waves) penetrate the rock formations underlying the ground surface. In rock formations which are homogeneous with respect to electrical conductivity (EC) and resistivity (R) (note that EC is the mathematical reciprocal of R), the primary current will continue to penetrate both laterally and with depth until the energy of the wave dissipates. If the primary current encounters a subsurface feature with a different R than the surrounding rocks, a new or secondary (*induced*) current develops and its wave energy will alter the primary wave energy of the original transmission. The subsurface features identified by the induced current can be buried geologic features or manmade (cultural) objects (i.e., pipelines, buried drums, septic tanks, leach fields, etc.).

In general, un-fractured rock has a greater R and is more dense and massive than fractured and jointed or faulted rocks. The secondary electrical currents generated from fractured/faulted rock deviates from and are anomalous to the background measurements of the more homogeneous surrounding un-fractured rocks. The tentative locations of anomalies are recorded by Surveying4Water.Com with the Receiver which may suggest locations for additional investigations, if needed (i.e., trench studies). An *anomaly* is a geological feature, especially in the subsurface, which is different from the general surroundings and possibly of potential economic value; like a VLF-EM anomaly. At the conclusion of the passive ground surface survey, this information is provided to the PG for his review and additional research into the local geology and faulting.

The Receiver measures and records the primary and reflective (secondary currents produced by induction) at the stations along a given traverse. Twenty traverses were conducted across the ground surface of this property and the approximate locations are shown on Fig. 9a. The computer-enhanced and -analyzed data set from the transverses are graphically depicted on charts. The variation (percent difference between the primary and secondary currents) of the signals measured from the underlying rocks is shown with various shades of color as depicted on the charts.

A color bar scale (ranging from -25 to +30%) is provided with the charts (see Appendix B); the colors on the left-hand side (cooler or colder) of the scale indicate that the rocks are more homogeneous (i.e., no fractures), while the right-hand side (warmer and hotter colors) of the bar scale suggests the underlying geology or structure are heterogeneous or anomalous in contrast to the surrounding un-fractured rocks. The observed hotter anomalies along the profile are inferred to be faults or fracturing. The warmer colors indicate the degree to which the rocks may be fractured which could indicate a fault zone. For example red colors on the chart would indicate that the rock has a greater amount of fracturing than the yellows.

Occasionally, anomalies shown on the charts are not well developed at properties underlain with crystalline igneous, metamorphic, or sedimentary rocks. In general, crystalline rocks are formed beneath the ground surface from cooling of a hot magma or through metamorphism into a massive, hard, host rock; generally having fewer discontinuities, faults, fractures, and joints. When discontinuities, faults, fractures, or joints occur from thermal cooling, geologic processes, or tectonic activities they commonly do not have large openings or apertures; locating them with passive survey techniques becomes more difficult. Passive ground surface methods rely on fractured rock areas having properties (EC and R) differing from those of the host rocks. The electrical contrast between the host rock and the faults/fractures is inferred from this survey.

It is clear that this data is subject to interpretation and the results obtained from this method are not unique. Despite the risks of EM exploration methods, this method allows Surveying4Water.Com to access the subsurface geological characteristics (by inference) of a particular portion of the property in a rapid manner.

Field measurements are collected along each individual traverse at ≈30 to 50 ft intervals (stations). However, all computer-generated profiles are illustrated using length units of meters rather than feet both in terms of linear distances and depths along the profile and p-section. The theoretical depth limitation for collection of meaningful data is ≈330 ft (≈100 m) or greater in crystalline rock. One meter is equal to 3.28 ft; or one foot is equal to 0.305 m. Surveying4Water.Com experience has shown that the depth of data collection for the profiles usually extends to at least 330 ft below the ground surface in crystalline rocks; less in sedimentary rocks.

In general, the greater the length of the traverse: the better the quality of the data because it encompasses more of the anomaly (see in Appendix B P41-P44 and compare to the other profiles). Some property conditions with the presence of manmade objects will restrict the lengths of the profiles and limit the length and access to portions of the property. Examples of property conditions that can impact the profiles are overhead and underground power wires, phone wires or buried metal conduits, metal fences, buildings, roads, and other objects. These conditions are noted and accounted for during the survey and are generally avoided (if known) during the survey.

These cultural objects emit induced electrical currents that may affect the data from the VLF-EM survey.

The Receiver software cannot differentiate between ground surface elev. changes along a given traverse. All computer software generated profiles are assumed to be representative of nearly-level ground surface. Consequently, depths on hillsides may tend to be deeper than depths in relatively flat terrain.

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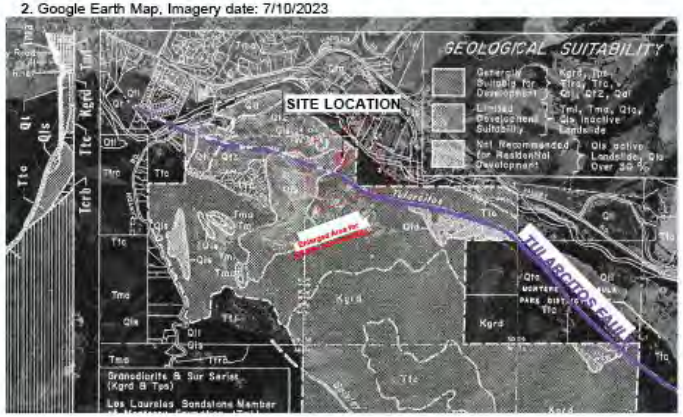
Appendix D

Location of the Tularcitos Fault reported in the FEIR (submitted to the County in Nov. 2024)

GEOLOGICAL SUITABILITY /GS/ GREATER AREA MAP
prepared by overlaying:

1. Geological Suitability Map (Figure 2.6, page 34) of the Environmental Impact Report for Carmel Valley Ranch Specific Plan, prepared by County of Monterey, Department of Planning, Environmental Section (PC-2134; EIR #75-101) on June, 1975

2. Google Earth Map, Imagery date: 7/10/2023



NTS

NOTES:

1. The most apparent landmarks and roads have been used to properly align the maps (1 and 2) processing the overlay.
2. The line of ***TULARCITOS FAULT*** (well visible on the Geological Suitability Map (Figure 2.6, page 34) of the Environmental Impact Report is highlighted in purple.
3. The site location is precisely marked based on the Google Earth map and the Parcel coordinates.
4. Expected average discrepancy of overlay around 30'. Expected maximum discrepancy of overlay less than 100'.

GEOLOGICAL SUITABILITY /GS/ SITE LOCATION MAP,
based on the GEOLOGICAL SUITABILITY SITE GREATER AREA MAP

The map is drawn on a scale of 1"=100'. It represents in detail the data provided in the Geological Suitability Map (Figure 2.6, page 34) of the Environmental Impact Report (1) and overlays in scale the property lines (in red color) of Parcel ID 91682, together with the retaining wall of Oakwood Circle road and the contour of the proposed SFR.

GEOLOGICAL SUITABILITY
1" = 100'-0"

NOTES:

1. The shortest distance from the street retaining wall of the Parcel to the ***TULARCITOS FAULT*** line as per the Geological Suitability Map (Figure 2.6, page 34) of Environmental Impact Report is **368.2'**.

10196 Oakwood Circle - Oakshire Tract 1045 - Carmel Valley Ranch
GEOLOGICAL SUITABILITY
G1
Date: 06/27/2024
Scale: As Indicated

Appendix E

Geotechnical Report
by
Butano Geotechnical Engineering, Inc.
231 Green Valley Road, Suite E
Watsonville, CA 95019

GEOTECHNICAL INVESTIGATION
DESIGN PHASE

FOR
PROPOSED RESIDENTIAL CONSTRUCTION
10196 OAKWOOD CIRCLE
CARMEL, MONTEREY COUNTY, CALIFORNIA

PREPARED FOR
RENE TEIMADO
PROJECT NO. 22-181-M

PREPARED BY

BUTANO GEOTECHNICAL ENGINEERING, INC.
JUNE 2022

BUTANO GEOTECHNICAL ENGINEERING, INC.
231 GREEN VALLEY ROAD, SUITE E, FREEDOM, CALIFORNIA 95019
PHONE: 831.724.2612
WWW.BUTANOGEOTECH.COM

June 22, 2022
Project No. 22-181-M

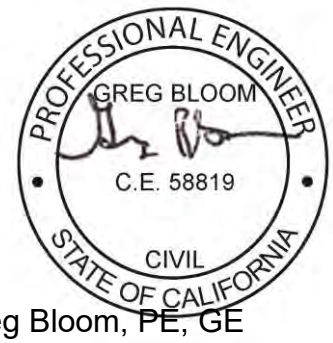
Rene Teimado
101 A Clay Street, Suite 254
San Francisco, CA 94111

SUBJECT: **GEOTECHNICAL INVESTIGATION - DESIGN PHASE**
Proposed Residential Project
10196 Oakwood Circle
Carmel, Monterey County, California

In accordance with your authorization, we have completed a geotechnical investigation for the subject project. This report summarizes the findings, conclusions, and recommendations from our field exploration and engineering analysis. It is a pleasure being associated with you on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office.

Sincerely,

BUTANO GEOTECHNICAL ENGINEERING, INC.



Greg Bloom, PE, GE
Principal Engineer

Appendices:
1. Appendix A Figures and Standard Details
2. Appendix B Field Exploration Program
3. Appendix C Laboratory Program

Distribution: (4) Addressee

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed residential project at 10196 Oakwood Circle in unincorporated Carmel, Monterey County, California.

The purpose of our investigation is to provide preliminary geotechnical design parameters and recommendations for the proposed construction. Conclusions and recommendations related to site grading, drainage, slab-on-grades, retaining walls and foundations are presented herein.

This work includes site reconnaissance, subsurface exploration, soil sampling, laboratory testing, engineering analyses, and preparation of this report. The scope of services for this investigation is outlined in our agreement dated May 23, 2022.

The recommendations contained in this report are subject to the limitations presented in Section 8.0 of this report. The Association of Engineering Firms Practicing the Geosciences has produced a pamphlet for your information titled *Important Information About Your Geotechnical Report*. This pamphlet has been included with the copies of your report.

2.0 PROJECT DESCRIPTION

Based on our discussions with the client the project consists of constructing a single-family residence on the moderately sloping parcel.

3.0 FIELD EXPLORATION AND LABORATORY TESTING PROGRAMS

Our field exploration program included drilling, logging, and interval sampling of two borings on June 7, 2022. The borings were advanced to depths of 7 and 3 feet using 4-inch continuous sampling with rope and pulley portable rig. Details of the field exploration program, including the Boring Logs and the Key to the Logs, are presented in Appendix B, Figures B-3 through B-5.

Representative samples obtained during the field investigation were taken to the laboratory for testing. Laboratory tests were used to determine physical and engineering properties of the in-situ soils. Details of the laboratory testing program are presented in Appendix C. Test results are presented on the Boring Logs and in Appendix C.

4.0 SITE DESCRIPTION

4.1 Location

The project site is located approximately 7 miles east of Highway 1 at 10196 Oakwood Circle in unincorporated Carmel, Monterey County California. The site location is shown on the Site Location Plan, Appendix B, Figure B-1.

4.2 Surface Conditions

The parcel is approximately 3,500 square feet size, close to rectangular in shape and slopes to the north at gradients of approximately 15-25 percent.

The subject parcel is located below oakwood court by approximately 10 feet. This grade separation is supported by a concrete retaining wall.

The vegetation at the site consists of oak trees.

4.3 Subsurface Conditions

The parcel is geologically mapped as being underlain by marine sandstone (siltstone) Our geotechnical exploration generally agrees with the geologic mapping of the area.

The borings were drilled in the area of the proposed construction.

Borings B1 and B2 encountered loose silty sand (soil development) in the upper 2 feet. Very dense siltstone was encountered at 2 feet to the maximum depth explored of 7 ½ feet.

Groundwater was not encountered in either boring. The depth to groundwater may vary seasonally.

Complete soil profiles are presented in the Boring Logs, Appendix B, Figures B-4 and B-5. The boring locations are shown on the Boring Site Plan, Figure B-2.

5.0 GEOTECHNICAL HAZARDS

5.1 General

In our opinion the geotechnical hazards that could potentially affect the proposed project are:

- Intense seismic shaking
- Collateral seismic hazards

5.1.1 Intense Seismic Shaking

The hazard of intense seismic shaking is present throughout central California. Intense seismic shaking may occur at the site during the design lifetime of the proposed structure from an earthquake along one of the regions many faults. Generally, the intensity of shaking will increase the closer the site is to the epicenter of an earthquake, however, seismic shaking is a complex phenomenon and may be modified by local topography and soil conditions. The transmission of earthquake vibrations from the ground into the structure may cause structural damage.

The County of Monterey has adopted the seismic provisions set forth in the 2019 California Building Code to address seismic shaking. The seismic provisions in the 2019 CBC are minimum load requirements for the seismic design for the proposed structure. The provisions set forth in the 2019 CBC will not prevent structural and nonstructural damage from direct fault ground surface rupture, coseismic ground cracking, liquefaction and lateral spreading, seismically induced differential compaction, seismically induced landsliding, or seismically induced inundation.

Table 1 has been constructed based on the 2019 CBC requirements for the seismic design of the proposed structure. The Site Class has been determined based on our field investigation and laboratory testing.

Table 1. Seismic Design Parameters

S_S	S_1	Site Class	F_a	F_v	S_{DS}	S_{D1}	F_{PGA}	PGA_M	Risk Category	Seismic Design Category
1.281	0.474	C	1.2	1.5	1.024	0.474	1.2	0.659	II	D

Design Coordinates - (Lat: 36.51751350, Lng: -121.79456280)

5.1.2 Collateral Seismic Hazards

In addition to intense seismic shaking, other seismic hazards that may have an adverse affect to the site and/or the structure are: fault ground surface rupture, coseismic ground cracking, seismically induced liquefaction and lateral spreading, seismically induced differential compaction, seismically induced landsliding, and seismically induced inundation (tsunami and seiche). It is our opinion that the potential for collateral seismic hazards to affect the site and to damage the proposed structure is low.

6.0 DISCUSSIONS AND CONCLUSIONS

One expansion index test was conducted on the silty sand (soil development) within the foundation zone. The expansion index yielded an index of 0 indicating that the soil has a very low potential to shrink and swell seasonally.

7.0 RECOMMENDATIONS

7.1 General

Based on the results of our field investigation and engineering analysis it is our opinion that from the geotechnical standpoint, the subject sites will be suitable for the construction of the residential development.

7.2 Site Grading

7.2.1 Site Clearing

The site should be cleared of non-engineered fill, remaining root masses, loose soil, organics, and debris within the project limits.

7.2.2 Preparation of On-Site Soils

Areas to receive fill (subgrade) should be scarified, cleared of organics, moisture conditioned to within 2 percent over optimum moisture, and compacted to a minimum of 90 percent relative compaction. The compacted subgrade should extend 2 feet laterally of any proposed improvements.

All fill should be compacted to a minimum of 90 percent relative compaction based on the optimum moisture and density in accordance with ASTM D1557. See Paved Areas for additional requirements.

Engineered fill should be well mixed and homogenous, moisture conditioned to 0 to 2 percent over optimum moisture, placed in relatively thin lifts, and compacted using heavy vibratory equipment.

Site Grading-General

The on-site soil may be re-used as engineered fill once it is broken down to clasts less than 2 ½ inches in diameter.

Imported fill material should be approved by a representative of Butano Geotechnical Engineering, Inc. prior to importing.

Imported fill should be primarily granular with **no material greater than 2½ inches in diameter** and no more than 20 percent of the material passing the #200 sieve. The fines fraction of fill should not consist of expansive

material. The Geotechnical Engineer should be notified not less than 5 working days in advance of placing any fill or base course material proposed for import. Each proposed source of import material should be sampled, tested, and approved by the Geotechnical Engineer prior to delivery of any soils imported for use on the site.

Any surface or subsurface obstruction, or questionable material encountered during grading, should be brought immediately to the attention of the Geotechnical Engineer for proper processing as required.

Paved Areas

The paved areas should be prepared as above and the upper 6 inches of subgrade and all aggregate baserock in paved areas should be compacted to a minimum of **95 percent** relative compaction. The subgrade compaction should extend a minimum of 2 feet laterally of all paved areas.

7.2.3 Cut and Fill Slopes

Permanent cut and fill slopes should be graded no steeper than 2:1 (H:V) and be erosion controlled. Fill slopes should be keyed and benched into the hillside. A typical keying and benching detail is shown on Figure A-3.

7.2.4 Excavating Conditions

The on-site soil may be excavated with standard earthwork equipment. The sandstone may require rock teeth and/or jacking to excavate.

7.2.5 Surface Drainage

Positive drainage should be maintained away from the structures at a minimum gradient of 3 percent for 10 feet. If this is not feasible swales may be constructed to control drainage. Collected drainage should be released at approved locations as indicated by the project civil engineer or designer.

7.2.6 Utility Trenches

Utility trenches should be backfilled based on the County of Monterey standard details. At a minimum, this should consist of 4 inches of bedding sand below the utility and 8 inches of bedding sand above the utility.

Backfill of all exterior and interior trenches should be placed in thin lifts not to exceed 8 inches and mechanically compacted to achieve a relative compaction of not less than 95 percent in paved areas and 90 percent in other areas per ASTM D1557. Care should be taken not to damage utility lines.

The on-site native soils may be utilized for trench backfill above the bedding sand. If sand or granular material is used for trench backfill, a 3 feet concrete plug should be placed in each trench where it passes under the exterior footings.

Utility trenches that are parallel to the sides of a building should be placed so that they do not extend below a line sloping down and away at an inclination of 2:1 (V:H) from the bottom outside edge of all footings.

Trenches should be capped with 1 1/2 feet of relatively impermeable material. Import material must be approved by the Geotechnical Engineer prior to its use.

Trenches must be shored as required by the local regulatory agency, the State of California Division of Industrial Safety Construction Safety Orders, and Federal OSHA requirements.

7.3 Foundations

7.3.1 Conventional Shallow Foundations

General

The proposed improvements may be supported on conventional shallow foundations bearing on in situ sandstone or engineered fill per section 7.2.2. Footings should be level and stepped up the hillside.

Footing excavations must be checked by the Geotechnical Engineer before steel is placed and concrete is poured.

Footing Dimensions

Footing widths should be based on the allowable bearing value but not less than 15 inches. The minimum recommended depth of embedment is 12 inches into in-situ sandstone or engineered fill per Section 7.2.2. Any engineered fill should extend a minimum of 24 inches laterally of the footing. Embedment depths should not be allowed to be affected adversely, such as through erosion, softening, digging, etc. Should local building codes require deeper embedment of the footings or wider footings, the local codes must apply.

Bearing Capacity

The allowable bearing capacity used should not exceed 4,000 psf for footings bearing on in-situ sandstone or engineered fill. The allowable bearing capacity may be increased by one-third in the case of short duration loads, such as those induced by wind or seismic forces. In the event that footings are founded in structural fill consisting of imported materials, the allowable bearing capacities will depend on the type of these materials and should be re-evaluated. **Passive resistance should be ignored until there is a minimum of 6 feet of cover measured horizontally to daylight.**

Lateral Resistance

Friction coefficient - 0.40, between the sandstone and rough concrete. A passive resistance of 400 pcf may be assumed below a depth of 12 inches for engineered fill. Where both friction and the passive resistance are

utilized for sliding resistance, either of the values indicated should be reduced by one-third.

7.3.2 Concrete Slabs-on-Grade

General

We recommend that concrete slabs-on-grade be founded on sandstone or engineered fill per section 7.2.2.

The subgrade should be proof-rolled just prior to construction to provide a firm, relatively unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

Capillary Break and Vapor Barrier

The following paragraph outlines the minimum capillary break and vapor barrier that shall be utilized for interior slab-on-grades, or slab-on-grades where moisture sensitive floor coverings are anticipated.

The vapor barrier shall consist of a waterproof membrane (Stegowrap 15 Mil or equivalent) placed directly below the floor slab and in direct contact with the concrete. Sheet overlap for the vapor barrier shall be a minimum of 6 inches. A 4-inch minimum layer of ¾ inch drainrock shall be placed below the waterproof membrane to act as a capillary break. Care must be taken to not rip the vapor barrier. A 6-inch layer of compacted Class II Baserock may be employed to prevent rips or tears in the vapor barrier if desired, and to keep the subgrade from becoming saturated prior to pouring concrete.

If the manufacturer's recommendations or the project requirements for the capillary break and vapor barrier are more stringent than the minimums outlined above, the designer should follow those recommendations and requirements. Recommendations by the manufacturer may include but is not limited to specifications for; concrete mix design, puncture resistance of vapor barrier, permeance of vapor barrier, soil flatness, capillary break section, structural section, and testing recommendations.

7.3.3 Settlements

Total and differential settlements beneath the new foundation elements are expected to be within tolerable limits. Vertical movements are not expected to exceed 1 inch. Differential movements are expected to be within the normal range (½ inch) for the anticipated loads.

7.4 Retaining Structures

Proposed retaining walls should be supported by shallow foundations per section 7.3.

7.4.1 Lateral Earth Pressures

The lateral earth pressures presented in Table 2 are recommended for the design of retaining structures with a gravel blanket and backfill soil consisting of engineered fill or intact sandstone.

Table 2A. Lateral Earth Pressures (engineered fill)

Soil Profile	Soil Pressure (psf/ft)	
	Active	At-rest
Level	36 ½	56 ½

Table 2B. Lateral Earth Pressures (in-situ sandstone)

Soil Profile	Soil Pressure (psf/ft)	
	Active	At-rest
Level	20	40

Pressure due to any surcharge loads from adjacent footings, traffic, etc., should be analyzed separately. Pressures due to these loadings can be supplied upon receipt of the appropriate plans and loads. Refer to Appendix A, Figure A-1.

An earthquake load (ultimate) may be considered for retaining walls as follows:

For unrestrained walls over 6 feet, as measured from the base of the footing, a seismic load of $10H^2$ may be applied at a height of 0.6H from the base of the wall.

No evaluation of seismic earth pressure is needed for restrained walls under 12 feet in height, as measured from the base of the footing, provided a minimum static factor of safety of 1.5 is achieved. For rigidly restrained walls over 12 feet a seismic load of $15H^2$ should be added to the active earth pressure and applied at a height of 0.3H from the base of the wall. The greater of the seismic loading and at rest loading conditions should be used for design. The recommendations for restrained retaining walls are based on the SEAOC 2010 Conventions Proceedings: *Seismic Earth Pressures on Deep Building Basements*, Lew, Sitar.

A factor of safety of 1.1 is considered appropriate with respect to earthquake loading.

7.4.2 Backfill

Backfill should be placed under engineering control. Backfill should be compacted per Subsection 7.2.2; however, precautions should be taken to ensure that heavy compaction equipment is not used immediately adjacent to walls, so as to prevent undue pressures against, and movement of the walls. Refer to Appendix A, Figure A-2.

The granular backfill should be capped with at least 12 inches of relatively impermeable material.

7.4.3 Backfill Drainage

Retaining structures must be fully drained. Backdrains should consist of 4-inch diameter Schedule 40, PVC pipe or equivalent, embedded in 3/8 inch to 3/4 inch, clean crushed gravel, enveloped in **Mirafi 180N** or approved equivalent. The drain should be a minimum of 12 inches in thickness and should extend to within 12 inches from the surface. The pipe should be 4± inches above the trench bottom; a gradient of 2± percent being provided to the pipe and trench bottom; discharging into suitably protected outlets. As an option weep slits consisting ½ inch thick galvanized steel spacers should be placed between the lagging. Weep holes may also be used if a concrete cantilevered wall is constructed. See Appendix A, Figure A-2 for the standard detail for the backdrain.

Perforations in backdrains are recommended as follows: 3/8 inch diameter, in 2 rows at the ends of a 120 degree arc, at 3 inch centers in each row, staggered between rows, placed downward.

Backdrains should be approved by the Geotechnical Engineer after placement of bedding and pipe and prior to the placement of clean crushed gravel.

An unobstructed outlet should be provided at the lower end of each segment of backdrain. The outlet should consist of an unperforated pipe of the same diameter, connected to the perforated pipe and extended to a protected outlet at a lower elevation on a continuous gradient of at least 1 percent.

7.4 Plan Review

The recommendations presented in this report are based on preliminary design information for the proposed project and on the findings of our geotechnical investigation. When completed, the Grading Plans, Foundation Plans and design loads should be reviewed by Butano Geotechnical Engineering, Inc. prior to submitting the plans and contract bidding. Additional field exploration and laboratory testing may be required upon review of the final project design plans.

7.5 Observation and Testing

Field observation and testing should be provided by a representative of Butano Geotechnical Engineering, Inc. to enable them to form an opinion regarding the adequacy of the site preparation, the adequacy of fill materials, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications, and the recommendations presented in this report.

Butano Geotechnical Engineering, Inc. should be notified **at least 5 working days** prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction meeting should be held on the site to discuss project specifications, observation and testing requirements and responsibilities, and scheduling.

8.0 LIMITATIONS

The recommendations contained in this report are based on our field explorations, laboratory testing, and our understanding of the proposed construction. The subsurface data used in the preparation of this report was obtained from the borings drilled during our field investigation. Variation in soil, geologic, and groundwater conditions can vary significantly between sample locations. As in most projects, conditions revealed during construction excavation may be at variance with preliminary findings. If this occurs, the changed conditions must be evaluated by the Project Geotechnical Engineer, and revised recommendations be provided as required. In addition, if the scope of the proposed construction changes from the described in this report, our firm should also be notified.

Our investigation was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

This report is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Engineer for the project and incorporated into the plans,

and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommended actions presented herein to be unsafe.

The findings of this report are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they are due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

The scope of our services mutually agreed upon did not include any environmental assessment or study for the presence of hazardous to toxic materials in the soil, surface water, or air, on or below or around the site. Butano Geotechnical Engineering, Inc. is not a mold prevention consultant; none of our services performed in connection with the proposed project are for the purpose of mold prevention. Proper implementation of the recommendations conveyed in our reports will not itself be sufficient to prevent mold from growing in or on the structures involved.

REFERENCES

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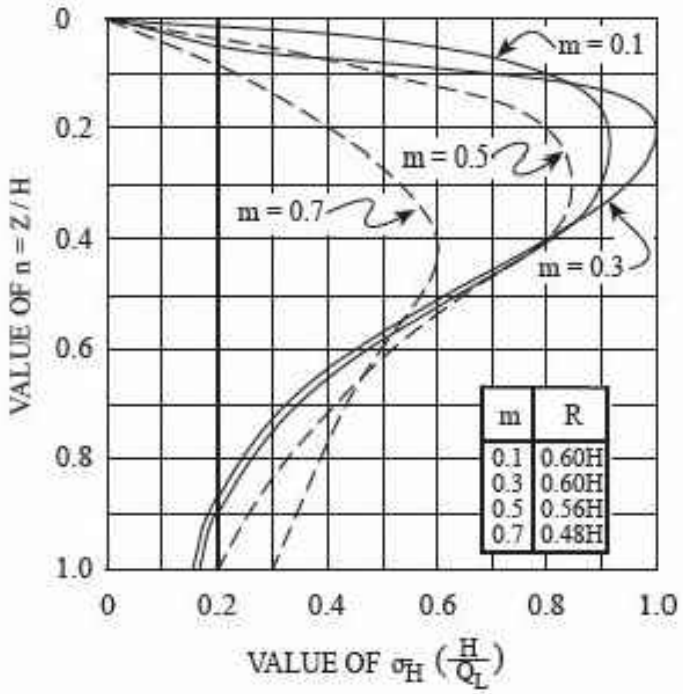
California Building Code (2019).

APPENDIX A

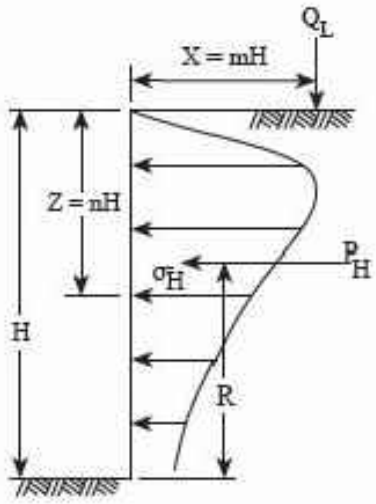
FIGURES AND STANDARD DETAILS

Surcharge Pressure Diagram	Figure A-1
Retaining Wall Backdrain Detail	Figure A-2
Key and Bench Detail	Figure A-3

LINE LOAD



m	R
0.1	0.60H
0.3	0.60H
0.5	0.56H
0.7	0.48H



FOR m ≦ 0.4:

$$\sigma_H \left(\frac{H}{Q_L}\right) = \frac{0.20\,n}{(0.16+n^2)^2}$$

$$P_H = 0.55\,Q_L$$

FOR m > 0.4:

$$\sigma_H \left(\frac{H}{Q_L}\right) = \frac{1.28\,m^2 n}{(m^2+n^2)^2}$$

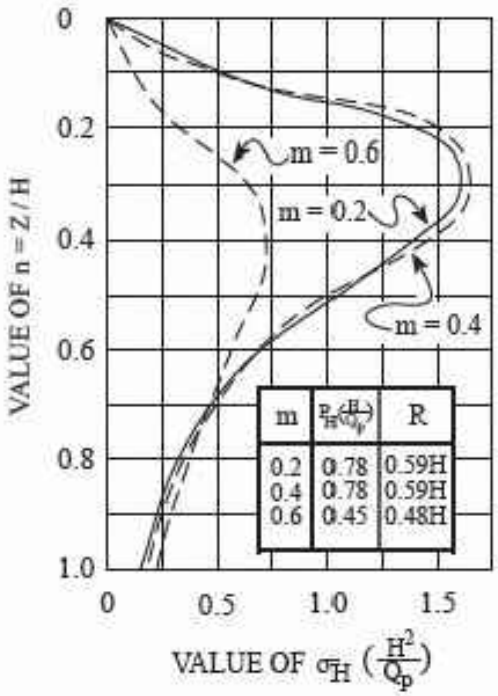
RESULTANT $P_H = \frac{0.64\,Q_L}{(m^2+1)}$

PRESSURES FROM LINE LOAD Q_L

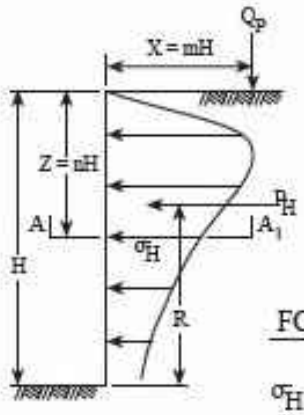
(BOISSINESQ EQUATION MODIFIED BY EXPERMENT)

REFERENCE: Design Manual
NAVFAC DM-7.02
Figure 11
Page 7.2-74

POINT LOAD



m	$\frac{P_H}{Q_p}\left(\frac{H}{Q_p}\right)$	R
0.2	0.78	0.59H
0.4	0.78	0.59H
0.6	0.45	0.48H



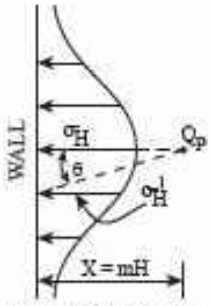
FOR m ≦ 0.4:

$$\sigma_H \left(\frac{H^2}{Q_p}\right) = \frac{0.28\,n^2}{(0.16+n^2)^3}$$

FOR m > 0.4:

$$\sigma_H \left(\frac{H^2}{Q_p}\right) = \frac{1.77\,m^2 n^2}{(m^2+n^2)^3}$$

$$\sigma_H^1 = \sigma_H \cos^2(1.1\,\theta)$$

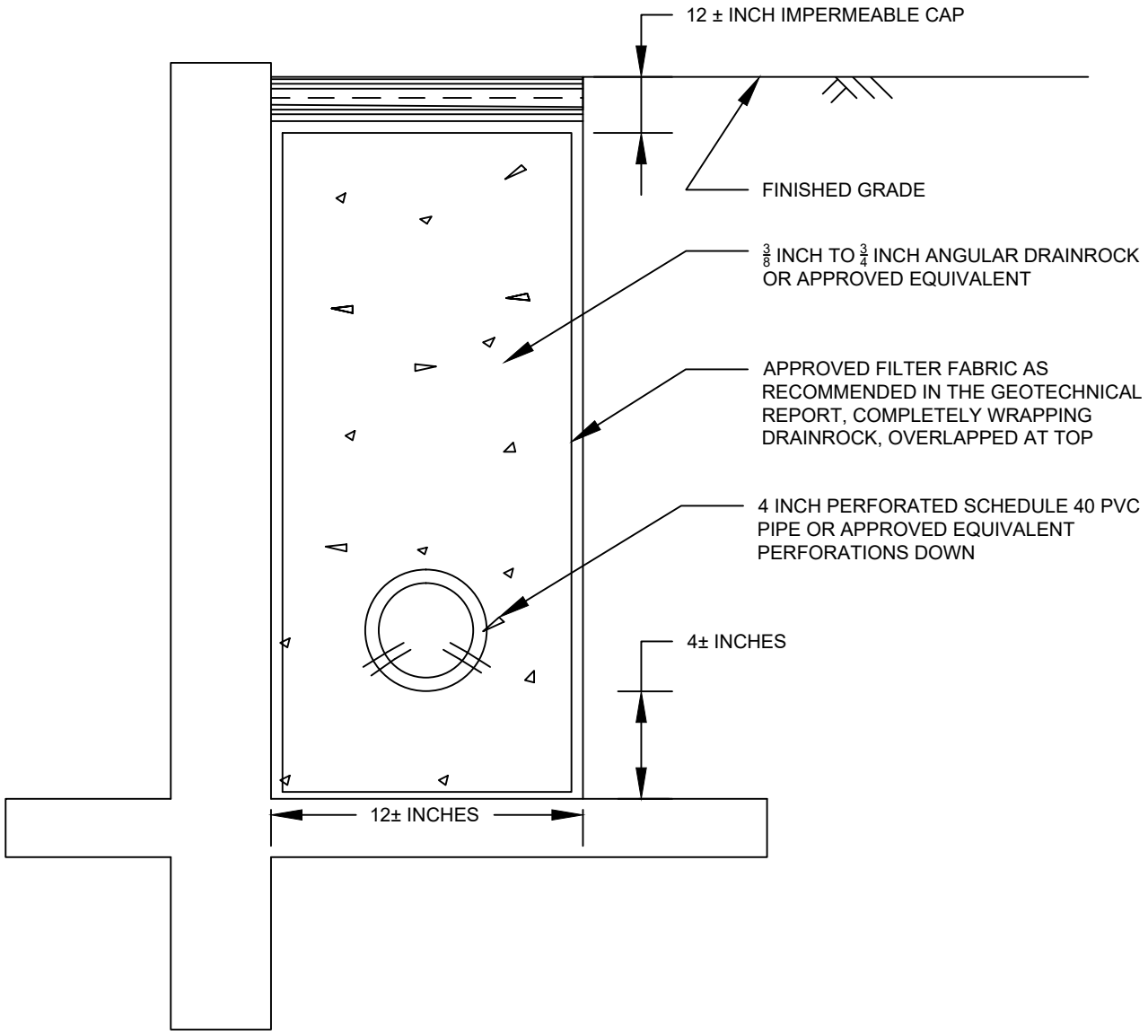


SECTION A-A_1

PRESSURES FROM POINT LOAD Q_P

(BOISSINESQ EQUATION MODIFIED BY EXPERMENT)

BUTANO GEOTECHNICAL ENGINEERING, INC.	**SURCHARGE PRESSURE DIAGRAM**	FIGURE A-1

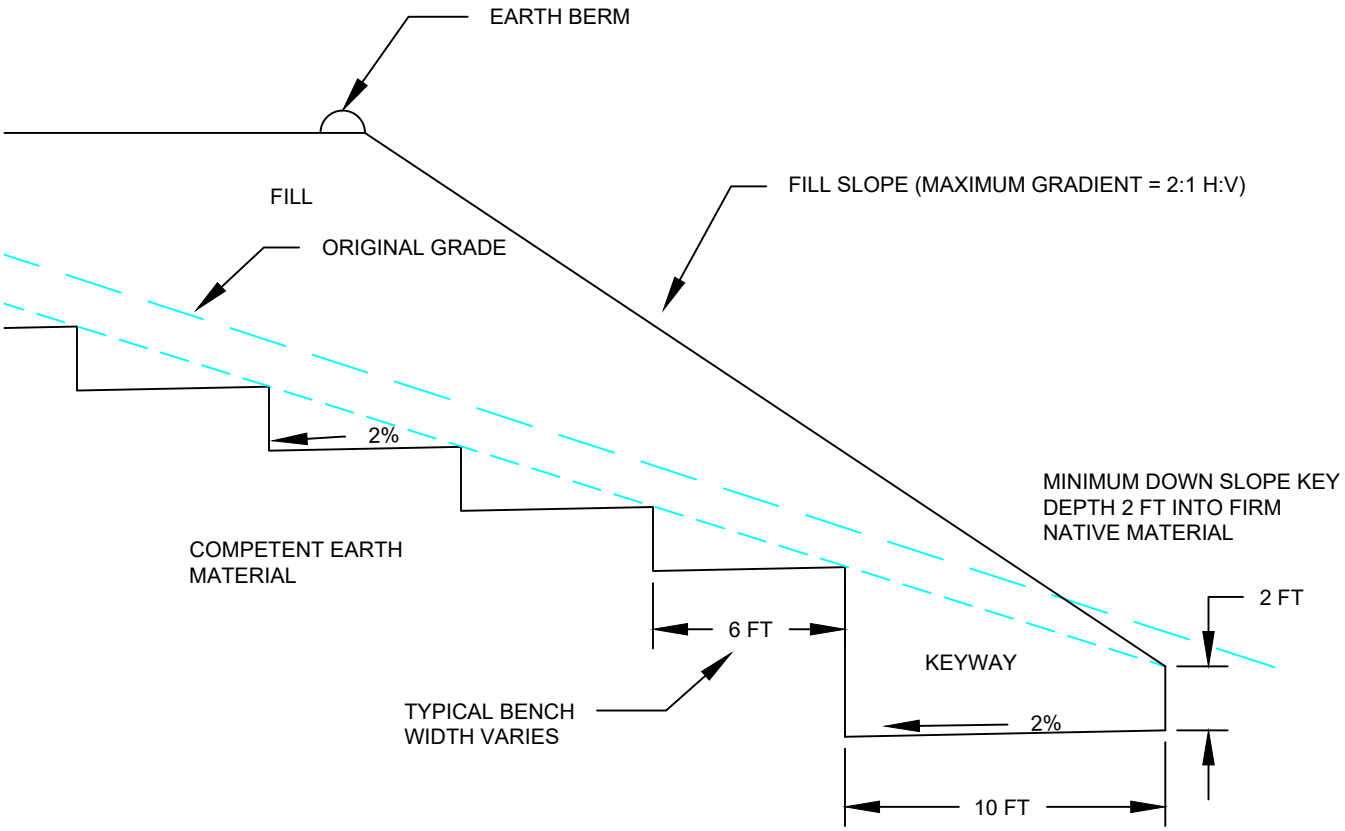


NOTES:

1. DRAWING IS NOT TO SCALE.
2. 2±% GRADIENT TO PIPE AND TRENCH BOTTOM CONNECTED TO A CLOSED CONDUIT THAT DISCHARGES TO AN APPROVED LOCATION.

N.T.S.

BUTANO GEOTECHNICAL ENGINEERING, INC.	**TYPICAL RETAINING WALL BACKDRAIN DETAIL**	FIGURE A-2



NOTES:

1. DRAWING IS NOT TO SCALE
2. FILLS SITUATED ON SLOPES STEEPER THAN 5:1 (H:V) SHOULD BE KEYED AND BENCHED.
3. FILL MATERIAL SHOULD BE PLACED PER THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
4. LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER.

N.T.S.

BUTANO GEOTECHNICAL ENGINEERING, INC.	**KEYING AND BENCHING DIAGRAM**	FIGURE A-3

APPENDIX B

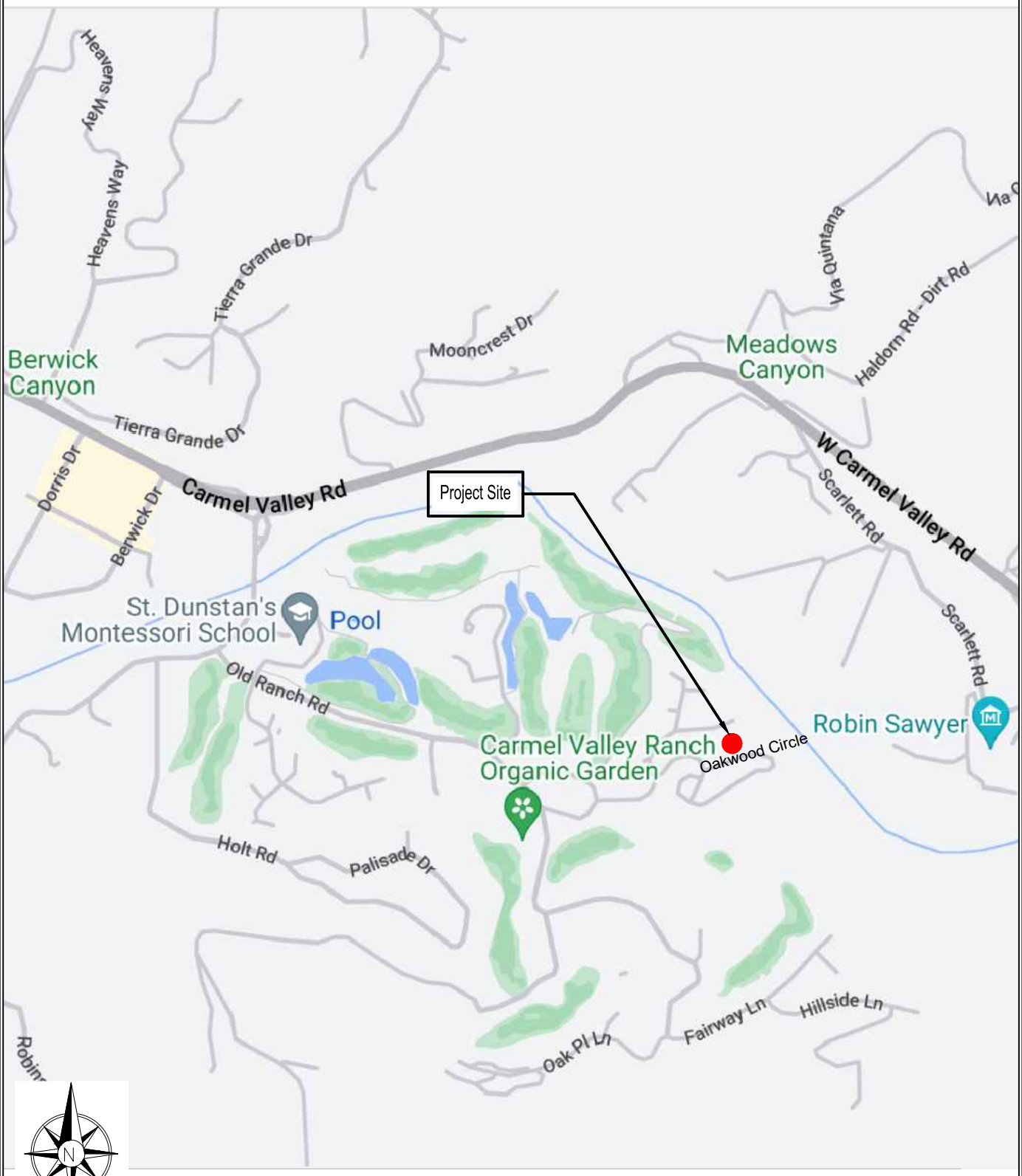
FIELD EXPLORATION PROGRAM

Field Exploration Procedures	Page B-1
Site Location Plan	Figure B-1
Boring Site Plan	Figure B-2
Key to the Logs	Figure B-3
Logs of the Borings	Figures B-4 and B-5

FIELD EXPLORATION PROCEDURES

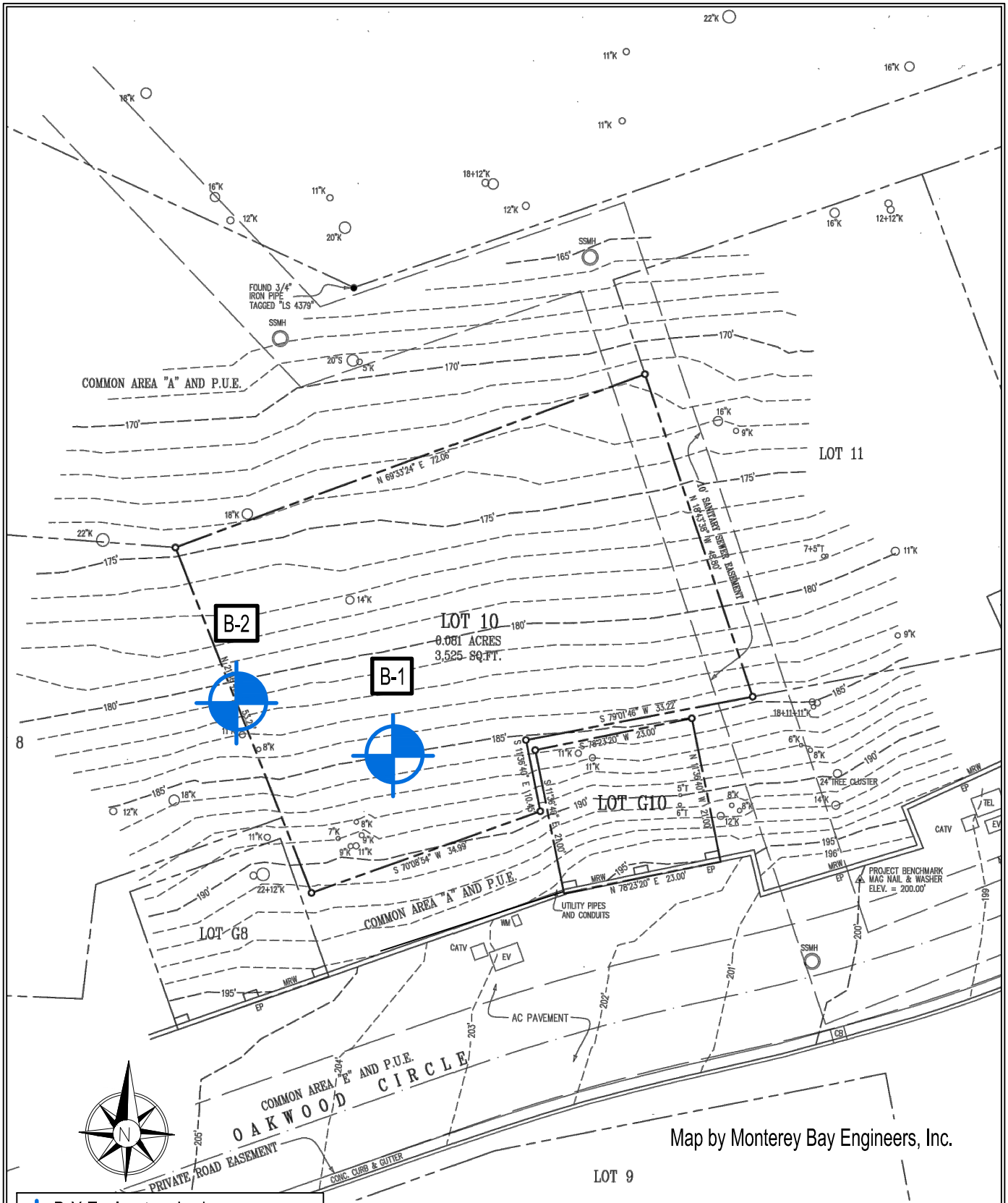
Subsurface conditions were explored by advancing two borings below the existing grade. The borings were advanced using four-inch continuous sampling with rope and pulley portable rig. The Key to The Logs and the Logs of the Borings are included in Appendix B, Figures B-3 through B-5. The approximate locations of the borings are shown on the Boring Site Plan, Figure B-2. The borings were located in the field by tape measurements from known landmarks. Their locations as shown are therefore within the accuracy of such measurement.

The soils encountered in the borings were continuously logged in the field by a representative of Butano Geotechnical Engineering, Inc. Bulk and relatively undisturbed soil samples for identification and laboratory testing were obtained in the field. These soils were classified based on field observations and laboratory tests. The classifications are in accordance with the Unified Soil Classification System (USCS: Figure B-3).



N.T.S

BUTANO	**SITE LOCATION PLAN**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	10196 Oakwood Circle	B-1



BUTANO	**BORING SITE PLAN**	FIGURE
GEOTECHNICAL ENGINEERING, INC.	10196 Oakwood Circle	B-2

KEY TO LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More than half of the material is larger than the No. 200 sieve	GRAVELS More than half of the coarse fraction is larger than the No. 4 sieve	CLEAN GRAVELS (Less than 5% fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	SANDS More than half of the coarse fraction is smaller than the No. 4 sieve	CLEAN SANDS (Less than 5% fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands, gravelly sands, little or no fines
		SAND WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS More than half of the material is smaller than the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50		ML	Inorganic silts and very fine sands, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomacaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils

GRAIN SIZE LIMITS

SILT AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
No. 200	No. 40	No. 10	No. 4	3/4 in.	3 in.	12 in.	

US STANDARD SIEVE SIZE

RELATIVE DENSITY	
SAND AND GRAVEL	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY	
SILT AND CLAY	BLOWS/FT*
VERY SOFT	0 - 2
SOFT	2 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	OVER 32

MOISTURE CONDITION	
CLAY	DRY
	MOIST
	SATURATED
SAND	DRY
	DAMP
	WET
	SATURATED

* Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch I.D.) split spoon (ASTM D-1586).

LOG OF EXPLORATORY BORING

Project No.:	22-181-M	Boring:	B1
Project:	10196 Oakwood Circle	Location:	See Figure B-2
		Elevation:	
Date:	June 7, 2022	Method of Drilling:	4-inch continous sampling,
Logged By:	EJ		rope and pulley

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM		X	Dark brown Silty SAND, loose, dry-damp (soil development)	11	4		5.7	0				
	BR			Brown Silty SAND, medium dense, very damp, some gravel, (Marine sandstone)	44	29		35.7					
5				Very dense, dry	58	48		3.4					
				Very dense, dry	50/3"	N/A		3.9					
				Very dense, dry	50/2"	N/A		2.7					
10				Boring terminated at a depth of 7 1/2 feet. Groundwater was not encountered during drilling.									
15													
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.:	22-181-M	Boring:	B2
Project:	10196 Oakwood Circle	Location:	See Figure B-2
		Elevation:	
Date:	June 7, 2022	Method of Drilling:	4-inch continous sampling,
Logged By:	EJ		rope and pulley

2" Ring Sample | 2.5" Ring Sample | Terzaghi Split Spoon Sample | Bulk Sample

Perched Water Table | Static Water Table | Water Encountered During Drilling

Change in Soil Classification | Gradation or Minor Change in Classification

Depth (ft.)	Soil Type	Undisturbed	Bulk	Description	Blows / Foot	N_{60}	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Particle Size (% fines)	Unconfined - q_u (psf)	Atterberg Limits L.L.	Atterberg Limits P.I.
	SM			Brown Silty SAND, loose, dry, (soil development)	15	5		4.3					
	BR			Brown Silty SAND, very dense, dry, some gravel	80	66		2.9					
				(Marine sandstone)	50/2"	N/A		2.8					
5				Boring terminated at a depth of 4 1/2 feet. No groundwater was encountered during drilling.									
10													
15													
20													
25													
30													
35													

APPENDIX C

LABORATORY TESTING PROGRAM

Laboratory Testing Procedures Page C-1

LABORATORY TESTING PROCEDURES

Classification

Soils were classified according to the Unified Soil Classification System in accordance with ASTM D 2487 and D 2488. Moisture content and density determinations were made for representative samples in accordance with ASTM D 2216. Results of moisture density determinations, together with classifications, are shown on the Boring Logs, Figures B-4 and B-5.

Expansion Index

One expansion index test was performed on a representative bulk sample of the foundation zone soil in accordance with ASTM D 4829. The result is shown on the Boring Logs, Figure B-4.

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
THE BEST PEOPLE ON EARTH

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

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BUTANO GEOTECHNICAL ENGINEERING, INC.
404 WESTRIDGE DRIVE, WATSONVILLE, CALIFORNIA 95076
PHONE: 831.724.2612
WWW.BUTANOGEOTECH.COM

June 6, 2024
Project No. 22-181-M

Rene Teimado
101 A Clay Street, Suite 254
San Francisco, CA 94111

SUBJECT: **FOUNDATION OBSERVATION**
Proposed Single-family residence
10196 Oakwood Circle
Carmel, Monterey County, California

REFERENCE: Butano Geotechnical Engineering, Inc., Geotechnical Investigation-Design Phase for 10196 Oakwood Circle, June 22, 2022, Project No. 22-181-M.

County of Monterey Department of Planning Environmental Section, Environmental Impact Report for Carmel Valley Ranch Specific Plan, PC-2134, EIR #75-101, June 1975

It is our understanding that Monterey County is asking for more details/clarification of the referenced Butano Geotechnical Engineering report. The referenced Environmental Impact Report states that development on slopes between 30 and 50 percent may have limitations or require remedial measures.

The subject site is to be developed on slopes with grades of approximately 25 percent. Some of the slopes on the property are steeper (up to 50 percent). The earth materials at the site consist of a thin veneer of loose silty sand (approximately 2 feet thick) overlying very dense silty sand (Marine sandstone). The site is not within a mapped landslide. Based on the density and type of soil at the site the potential for creep is very low.

Based on our investigation there are no remedial measures to take with respect to landsliding or creep. It is a pleasure being associated with you on this project. If you have any questions or if we may be of further assistance please do not hesitate to contact our office.

Sincerely,
BUTANO GEOTECHNICAL ENGINEERING, INC.
Greg Bloom, PE, GE
Principal Engineer

Appendix F

Carmel Valley Ranch Specific Plan (1975)
Final Environmental Impact Report
(EIR 75-101)

ENVIRONMENTAL IMPACT REPORT

for

CARMEL VALLEY RANCH SPECIFIC PLAN

Prepared by: County of Monterey
Department of Planning
Environmental Section

PC-2134
EIR #75-101

Applicant: Unique Golf Concepts, Inc.
2252 Fremont Avenue
Monterey, California 93940

June 1975

SUMMARY

THE PROJECT PROPOSAL IS A SPECIFIC PLAN FOR THE DEVELOPMENT OF A RESIDENTIAL AND RESORT LODGE COMPLEX OF 1,055 UNITS ON 1,700 ACRES, PROVIDING GOLF, TENNIS AND OPEN SPACE RECREATION. THE PROJECT IS LOCATED IN MID-CARMEL VALLEY. THE FOLLOWING IS A SUMMARY OF THE ADVERSE ENVIRONMENTAL EFFECTS EXPECTED TO RESULT FROM IMPLEMENTATION OF THE PROPOSED SPECIFIC PLAN:

1. LOSS OF WILDLIFE HABITAT (PAGE 45)
2. LOSS OF GRAZING LAND (PAGE 46)
3. INCREASED LOAD ON SCHOOLS (PAGE 59)
4. INCREASE IN TRAFFIC (PAGE 52)
5. INCREASE IN NOISE (PAGE 50)
6. INCREASED RUNOFF FROM SITE (PAGE 42)
7. VISUAL IMPACT ON AREA FROM THE LOSS OF A NATURAL ENVIRONMENT (PAGE 50)
8. INCREASED COMMITMENT OF ENERGY AND RESOURCES (PAGE 56)
9. INCREASED EROSION POTENTIAL (PAGE 36)
10. LOCATION OF RESIDENCES WITHIN THE 100-YEAR FLOOD PLAIN OF THE CARMEL RIVER (PAGE 42)
11. GROWTH INDUCING IMPACT OF THE ADDITION OF 2,200 PEOPLE IN CARMEL VALLEY (PAGE 71)
12. INCREASED DEMAND FOR WATER (PAGE 57)
13. INCREASED FIRE POTENTIAL (PAGE 61)
14. REMOVAL OF NATURAL VEGETATION (PAGE 46)
15. VISUAL AND PHYSICAL IMPACTS ON LANDFORMS FROM THE CUT AND FILL OPERATIONS (PAGE 36)
16. SHORT-TERM INCREASE IN AIR POLLUTION (PAGE 55)

MITIGATING FACTORS:

SEE SECTION 3.2 OF REPORT (PAGE 64)

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1. INTRODUCTION

1.1 Purpose and Authorization

On January 9, 1975 the applicant, Unique Golf Concepts, Inc., waived environmental determination by the Planning Commission on a Specific Plan for development of Carmel Valley Ranch and voluntarily submitted information for preparation of the draft Environmental Impact Report. Much of the basic data contained in this report was submitted on behalf of the applicant by Leighton and Associates. The data were analyzed by the staff and the environmental impact of the proposed Specific Plan was determined by independent staff analysis.

This document is a statement on environmental considerations for a Specific Plan proposal associated with an application for zoning reclassification of Carmel Valley Ranch, prepared by the Environmental Section of the Monterey County Planning Department. The degree of specificity in this report is relative to the nature of this development plan. Additional information may be required during the subsequent phased implementation of the Specific Plan.

An Environmental Impact Report is an informational document which will inform the public decision-makers and the general public of the environmental effects of projects they propose to carry out or approve. The Environmental Impact Report process is intended to enable the County of Monterey to evaluate a project, to determine whether it may have a significant effect on the environment, examine and institute methods of reducing adverse impacts, and consider alternatives to the project as proposed. An Environmental Impact Report may not be used as an instrument to rationalize approval of a project, nor do indications of adverse impact, as enunciated in an Environmental Impact Report, require that a project be disapproved.

1.2 Project Description

1.2.1 Location

Carmel Valley Ranch, formerly known as the Holt Ranch, is proposed for a residential, resort lodge and recreational project. The 1700 acre property is located

in Carmel Valley, 7.6 miles southeast of Carmel-by-the-Sea and 5.5 miles northwest of the unincorporated community of Carmel Valley Village.

The property lies south of Carmel Valley Road, with access to the site provided by Robinson Canyon Road. The Carmel River generally forms the northern boundary of the property, while the summit of Snivley's Ridge, just below Pinyon Peak, marks the southern boundary of the property. (See Figures 1.1, 1.2, and 1.3 for location maps and the Specific Plan for development)

1.2.2 Objective

The objective of the project is to develop a residential and resort lodge complex focused on golf, tennis, and open-space recreation.

1.3 General Description

The Carmel Valley Ranch Specific Plan envisions land uses divided into the following areas:

Residential	403.5 ac.	23.7%
Resort Lodge	47.0 ac.	2.8%
Golf Course and Clubhouse	149.5 ac.	8.8%
Stables	10.0 ac.	0.6%
Tennis Facility and Clubhouse	10.0 ac.	0.6%
Open Space	1080.0 ac.	63.5%
TOTAL AREA	1700.0 ac.	100.0%

The Specific Plan will be implemented in five phases. Each phase represents approximately 3 years, with total occupancy expected by 1990. The plan envisions 1055 units on 1700 acres, which computes to a gross density of 1 unit/1.6 acres. The water and sewer facilities, open space, recreation, private roads and security system will be managed by a Community Services Organization. (See Figure 1.4 for phased development program and Figure 1.5 for open space, recreation and conser-

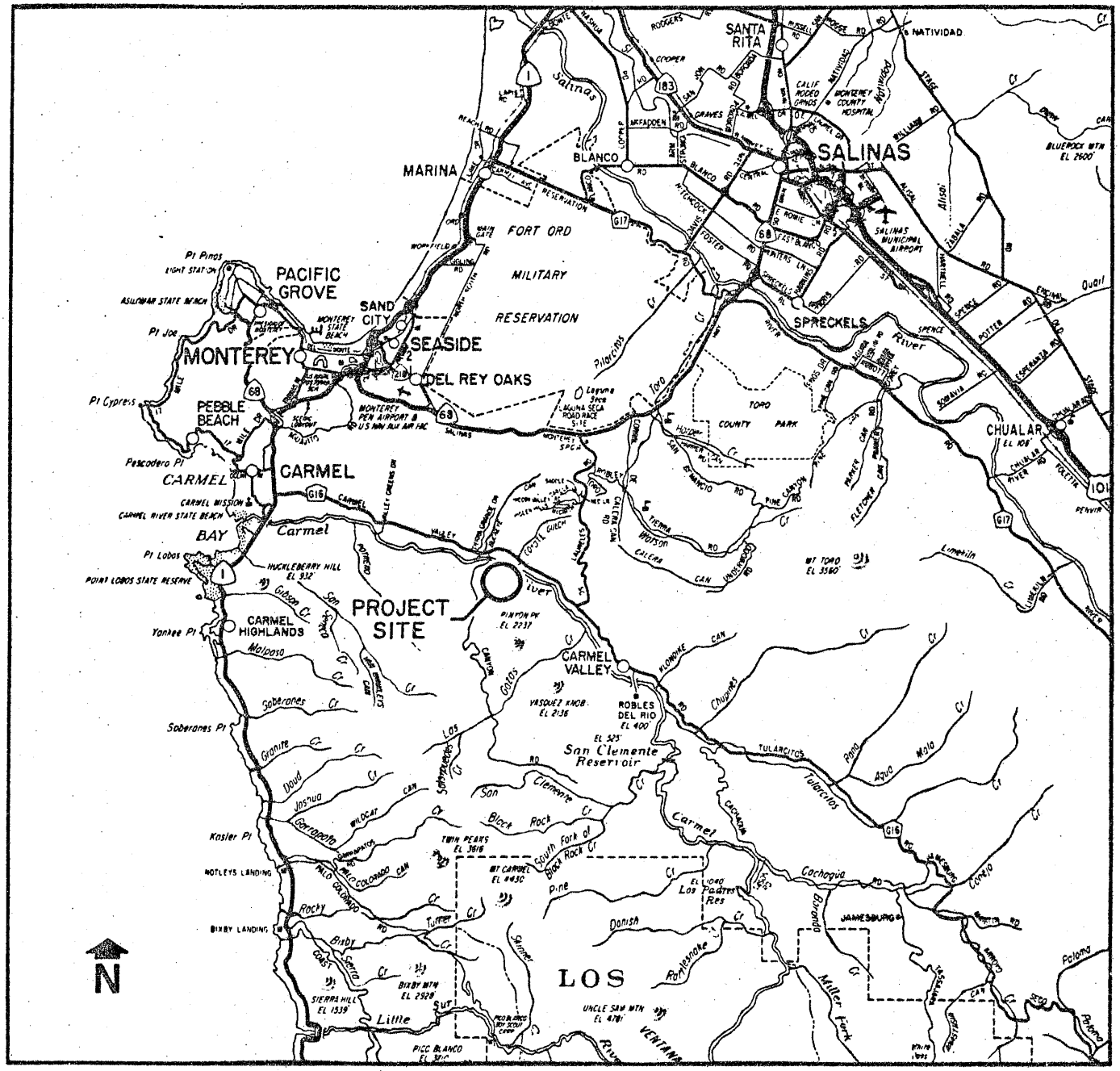
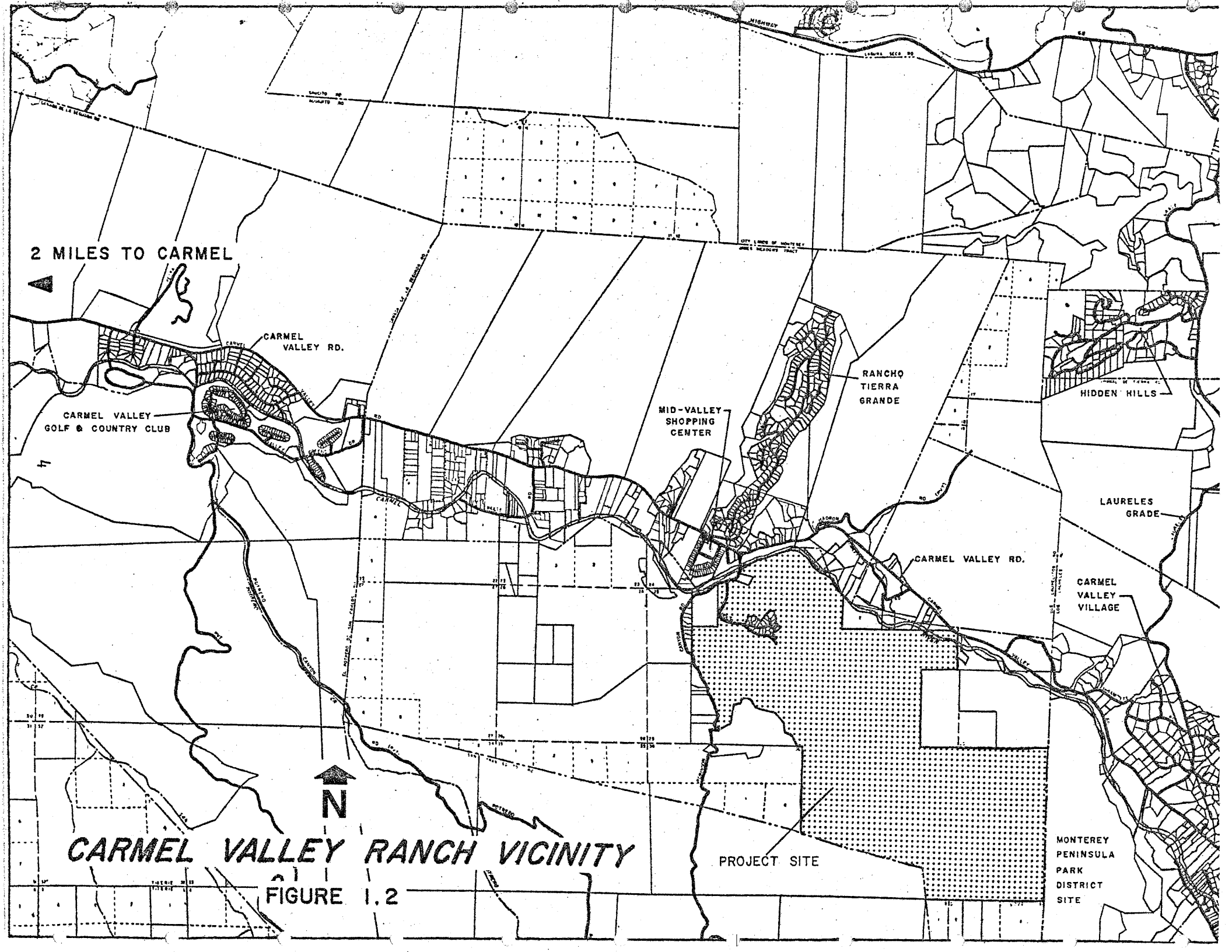


FIGURE 1.1

CARMEL VALLEY RANCH
REGIONAL LOCATION



CARMEL VALLEY RANCH VICINITY

FIGURE 1.2

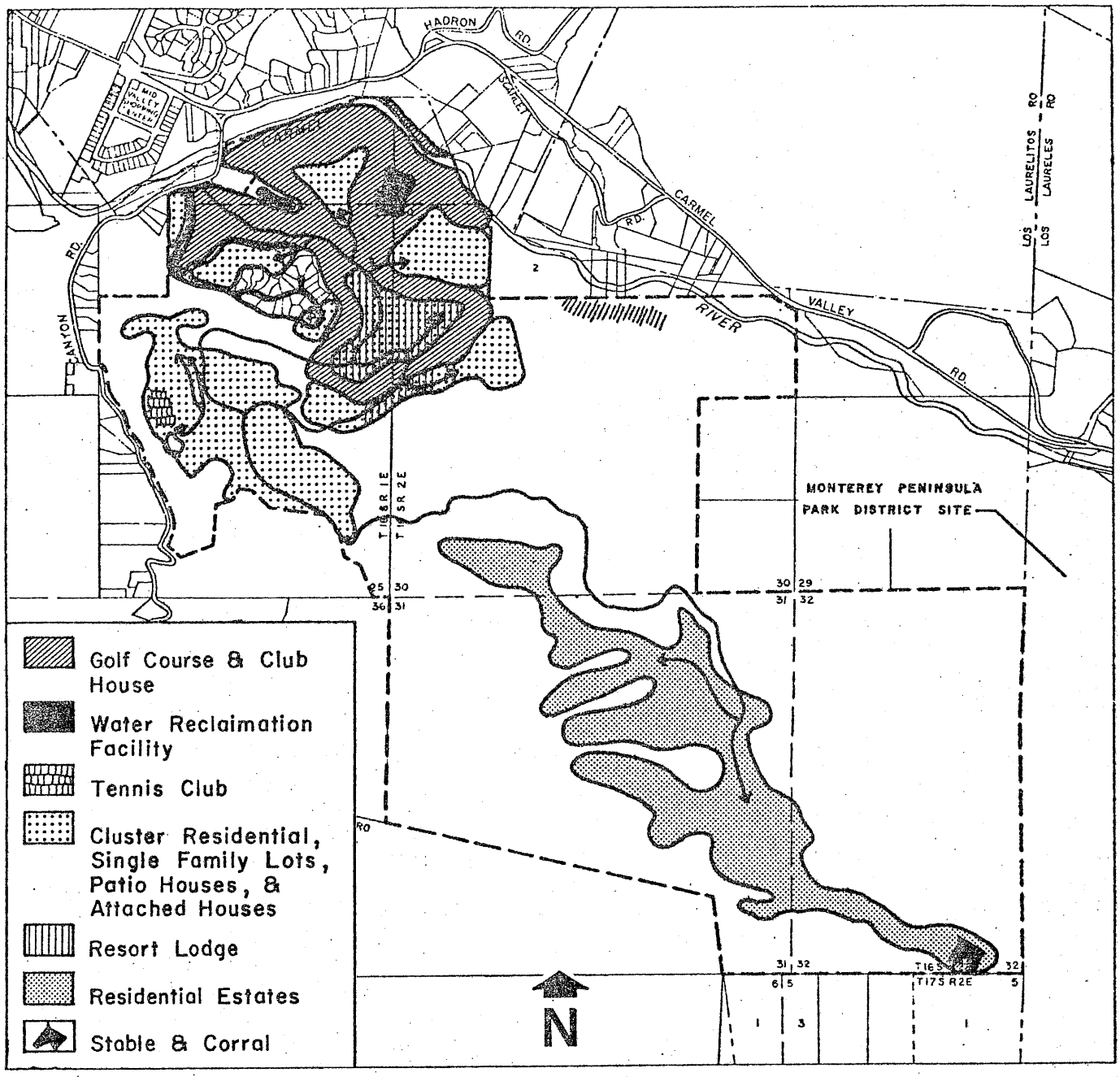


FIGURE 1.3

THE SPECIFIC PLAN FOR DEVELOPMENT OF CARMEL VALLEY RANCH

		du.	ac.	density
1	residential			
	a.	100	16.5	
	b.	130	26.0	
	resort lodge	100	31.5	
	golf club		149.5	
	natural reserve		126.5	
	sub-total	330	350.0	1 du./1.1 ac.

		du.	ac.	density
2	residential			
	c.	11	3.0	
	d.	90	17.5	
	e.	20	8.0	
	f.	52	16.0	
	natural reserve		155.5	
	sub-total	173	200.0	1 du./1.2 ac.

		du.	ac.	density
3	residential			
	g.	52	16.0	
	h.	135	40.0	
	resort lodge		15.5	
	tennis club		10.0	
	natural reserve		218.5	
	sub-total	187	300.0	1 du./1.1 ac.

		du.	ac.	density
4	residential			
	i.	165	50	
	natural reserve		150	
	sub-total	165	200	1 du./1.2 ac.

		du.	ac.	density
5	residential			
	j.	100	210.5	
	natural reserve		439.5	
	sub-total	100	650.0	1 du./6.5 ac.
	total	1055	1700.0	1 du./1.6 ac.

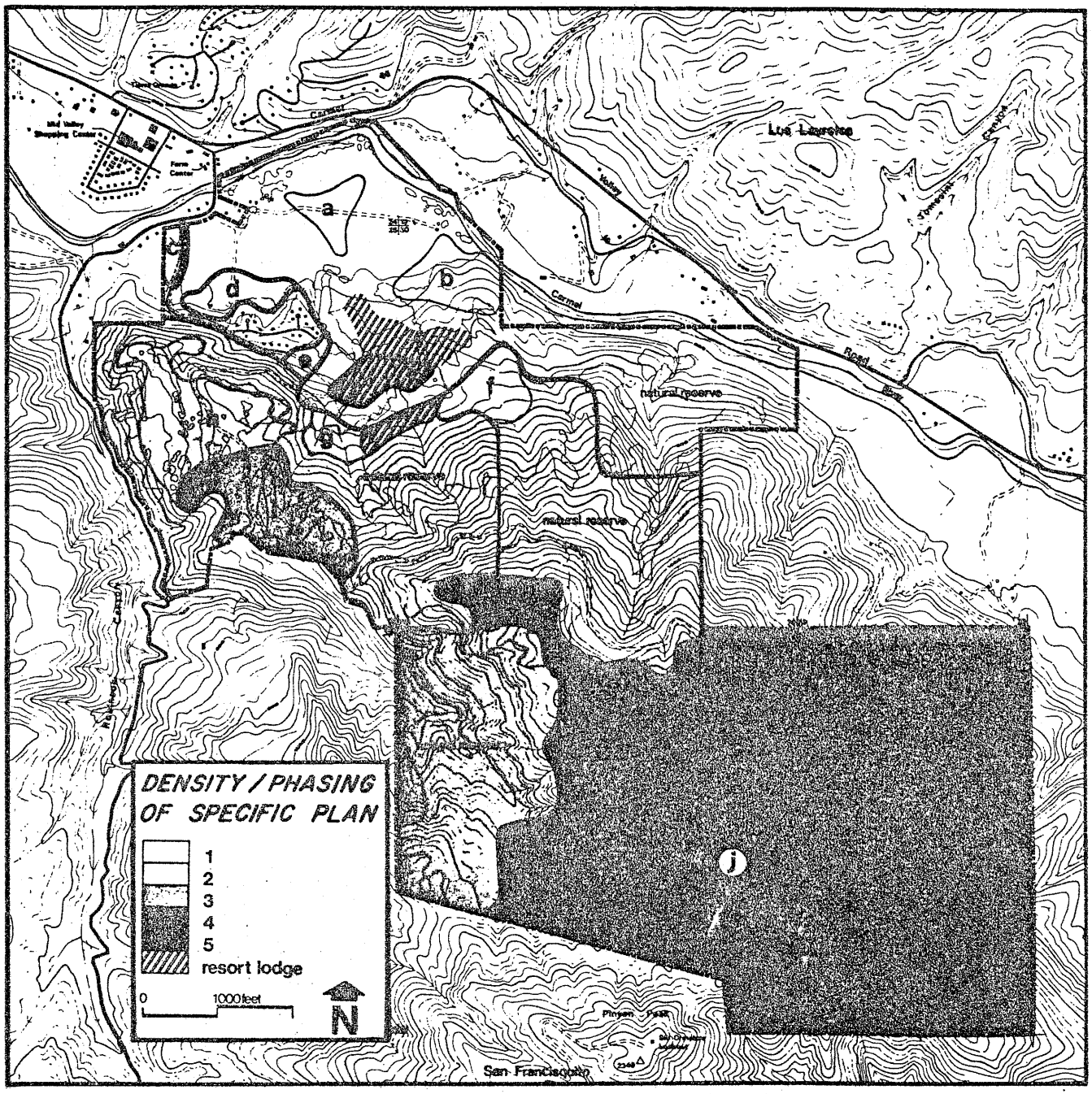


FIGURE 1.4

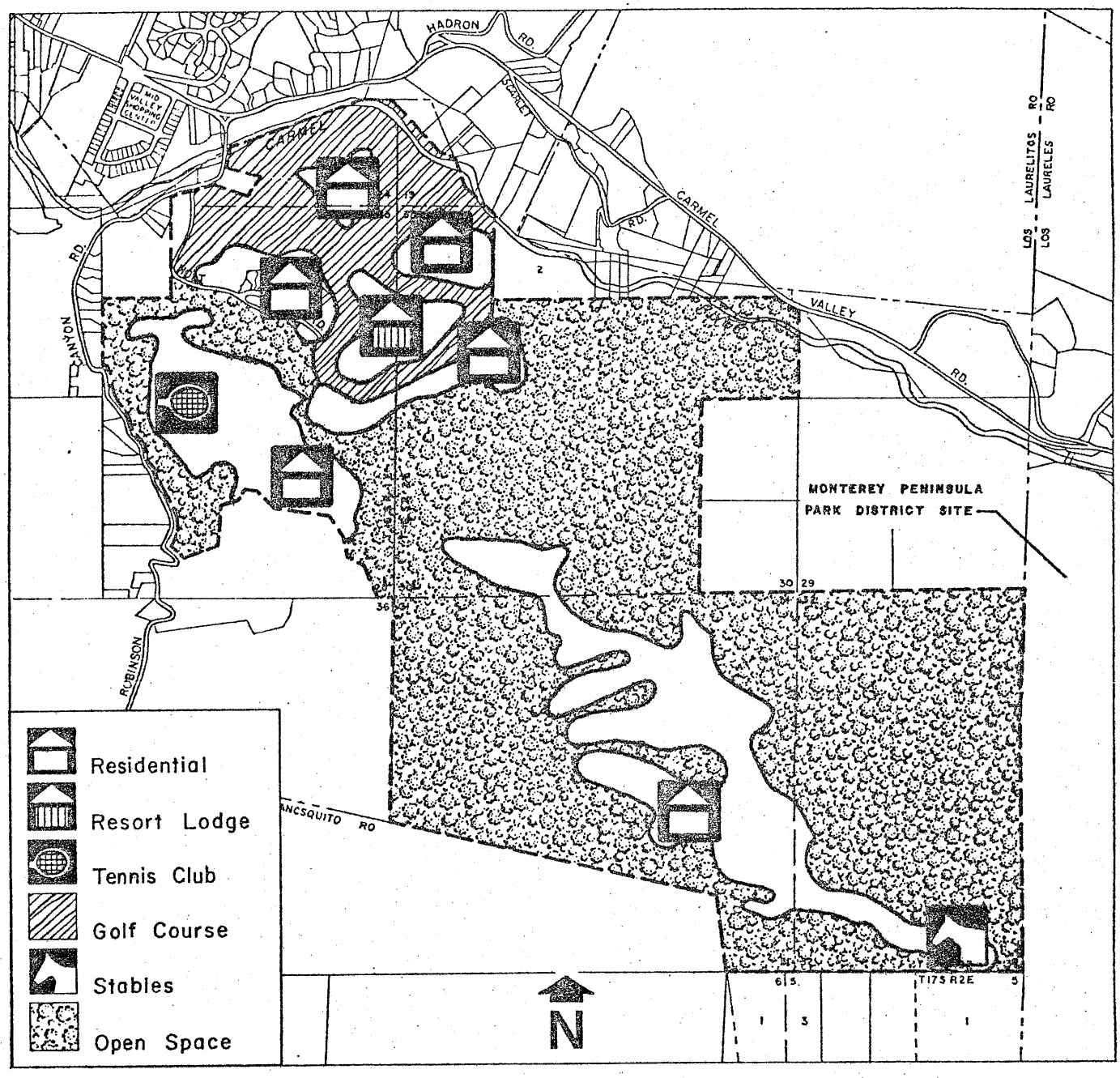


FIGURE 1.5

OPEN SPACE, CONSERVATION AND RECREATION ASPECTS OF THE SPECIFIC PLAN

vation aspects of the Specific Plan)

The following represents a brief description of various land uses included in the Specific Plan:

1.3.1 Residential Units

There are 855 residential units proposed including 290 townhouses, 365 patio homes and 200 single-family home sites. With the exception of 100 single-family estate sites on Snivley's Ridge all three types of units will be integrated in residential clusters and located around the golf course and tennis club area.

Townhouse units will range in size from 1000 to 2000 square feet. Patio homes will range in size from 1400 to 2200 square feet. The 100 single-family lots interspersed among the patio homes and townhouse clusters will range in building site area from 4800 square feet to 12,000 square feet, with a minimum structure size of 1800 square feet. On Snivley's Ridge the 100 single-family estate building sites will be a minimum of 1 acre, with a minimum structure size also of 1800 square feet.

All residential units will have a maximum height of 35 feet from ground to eave. Site design for single-family sites will be controlled by architectural covenants, with all design to be approved by an architectural control committee. On Snivley's Ridge each building site will be individually selected, limiting construction to within a designated building envelope. Site plan and building design will also be subject to architectural control committee approval.

1.3.2 Resort Lodge

A 200-unit resort lodge is proposed for a tree-covered knoll on the moderate slopes adjacent to the valley floor. The resort lodge will consist of a main lodge building with core facilities (including a restaurant/lounge and commercial facilities) and satellite units clustered in a campus concept. Parking will be centralized; internal circulation will emphasize golf cart and pedestrian linkages.

1.3.3 Golf Course and Clubhouse

An 18-hole championship golf course and clubhouse are proposed to be developed

on 149.5 acres. The golf course and clubhouse will be operated as a private facility with 300 memberships offered and playing privileges for guests. The course will be routed between building clusters on the valley floor, with several holes playing through the bordering hillside areas. A cart bridge will cross the Carmel River to provide access to two holes located on the north side of the river.

The golf clubhouse will be centrally located on the golf course. The clubhouse facility will be approximately 10,000 square feet plus golf cart storage, and will provide parking for approximately 120 cars.

1.3.4 Tennis Club

Ten acres of the middle ridge area will be devoted to tennis facilities comprising 12 outdoor courts, a clubhouse, a swimming pool and parking for approximately 50 vehicles. The tennis club will be operated as a private facility with resident and non-resident memberships.

1.3.5 Stables

Approximately 10 acres will be set aside for the development of a corral and shelter building where resident homeowners may board horses. This facility will be located on Snivley's Ridge and will be remotely situated from any residential units.

1.3.6 Open Space, Nature and Scenic Reserve Areas

Open Space will encompass 1080 acres of the property. Three locations within this area have been designated for special consideration as natural and scenic reserves; the palisades area, Snivley's Gulch area and the northeastern slopes of Snivley's Ridge. Natural and scenic reserve areas will be maintained to preserve vegetation, wildlife and scenic qualities. Open Space areas are proposed to be placed under a scenic easement and conservation management program and will be maintained in their present state with the exception of constructing or upgrading fire access or emergency vehicle roads and bridle trails.

1.4 Zoning and Master Plan

1.4.1 Zoning

The property is currently zoned "K-G-J-B-4," Agricultural-Residential, Rural-

Professional, Trailer Exclusion and one-acre minimum building site area. The Agricultural-Residential district ("K") has permitted uses such as one-family dwellings and all agricultural uses. Some of the uses permitted subject to first securing a Use Permit are country clubs, golf courses, and riding stables. The Rural-Professional district ("G") requires a Use Permit for resort hotels and clubs, with a minimum building site area of 10 acres, and executive offices of commercial or industrial firms, with a minimum building site area of 5 acres. "G" districts are subject to "Regulations for Design Control" or "D" districts. A "J" district excludes trailer or mobile homes used as living quarters. "B-4" districts require a minimum building site area of 1 acre. The applicant has applied for zoning reclassification associated with this Specific Plan.

The Holt Subdivision, located in the middle of the property, is presently zoned "R-1-B-3." This classification is for single-family residences with a minimum building site area of 20,000 square feet. The area surrounding the property has the same zoning classification as the site except for an area on the eastern border zoned "K-G-J-B-5 5 Acre Minimum Building Site Area." (See Figure 1.6 for Zoning Map)

1.4.2 Master Plan

Historically, the area of this Specific Plan was originally covered by the Carmel Valley Master Plan, which was adopted in January, 1961. In July, 1966 the Monterey Peninsula Area Plan was adopted, superseding the Carmel Valley Master Plan for the Carmel Valley. Concurrently, a plan was adopted for the Carmel Valley Ranch itself. The Carmel Valley Ranch Plan is part of the Del Monte Plan and supersedes the Monterey Peninsual Area Plan for this property.

The proposed Carmel Valley Ranch Specific Plan, upon which this document reports, is a refinement of the adopted Carmel Valley Ranch Plan prepared by Del Monte Properties Company. The Carmel Valley Ranch Plan designates Open Space, Residential and Resort-Residential-Residential Complex, with a minimum of 500 units and a maximum of 1,500 units.[1] The Specific Plan proposes 1,055 units in an arrangement similar to the existing Carmel Valley Ranch Plan. Therefore, there is no apparent inconsistency

with the existing plan, despite the fact that Hugh Bein of Del Monte Properties Company, in a letter dated June 22, 1966, states: "In the upper brown area (Snivley's Ridge) consisting of 250 acres, which probably will not be developed for many years in the future, we presently visualize 10 to 25 acre estate type parcels."[2] Although the use is consistent, the Specific Plan designation for Snivley's Ridge envisions 100 residential units on 210.5 acres. As further clarification, the text for the Carmel Valley Ranch Plan states: (on Snivley's Ridge) "Guest cottages and privately owned weekend homes would be sited around the recreational areas in suitable locations."[3] (See Figure 1.7 for the existing Carmel Valley Ranch Plan)

It should also be noted that the property falls within the boundaries proposed by the Preliminary State Coastal Plan, however, the site is not within the permit zone.

1.5 Economic Factors

The following chart gives a description and market valuation of the various aspects of the Carmel Valley Ranch Specific Plan:

Project Description and Market Valuation

	Number of Units	Average Market Value Per Unit	Total Market Value	Assessed Value at 25% of Market Value
Townhomes	290	$ 75,000	$21,750,000	$ 5,437,500
Patio Homes	365	80,000	29,200,000	7,300,000
Single Family	200	85,000	17,000,000	4,250,000
Total Residential	855	79,500	67,950,000	16,987,500
Resort Lodge	20 ac.	4,000,000	4,000,000	1,000,000
Tennis Club	5 ac.	300,000	300,000	75,000
Golf Club	140 ac.	3,000/ac.	420,000	105,000
Club House	5 ac.	1,250,000	1,250,000	312,500
Vacant Land	1,200 ac.	1,300/ac.	1,560,000	390,000
Total	1,700 ac.	$ 44,400/ac.	$75,480,000	$18,870,000

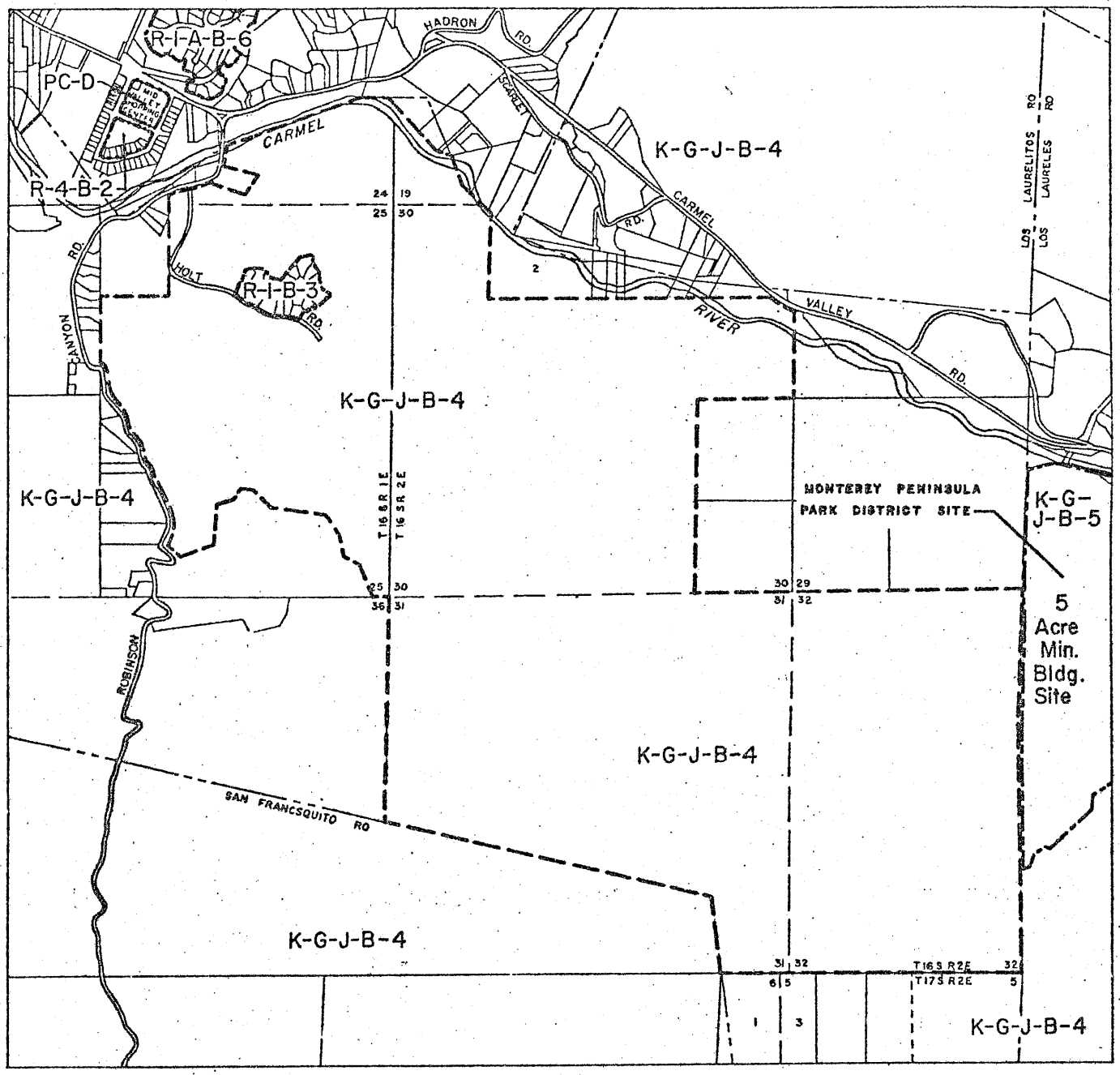


FIGURE 1.6

ZONING

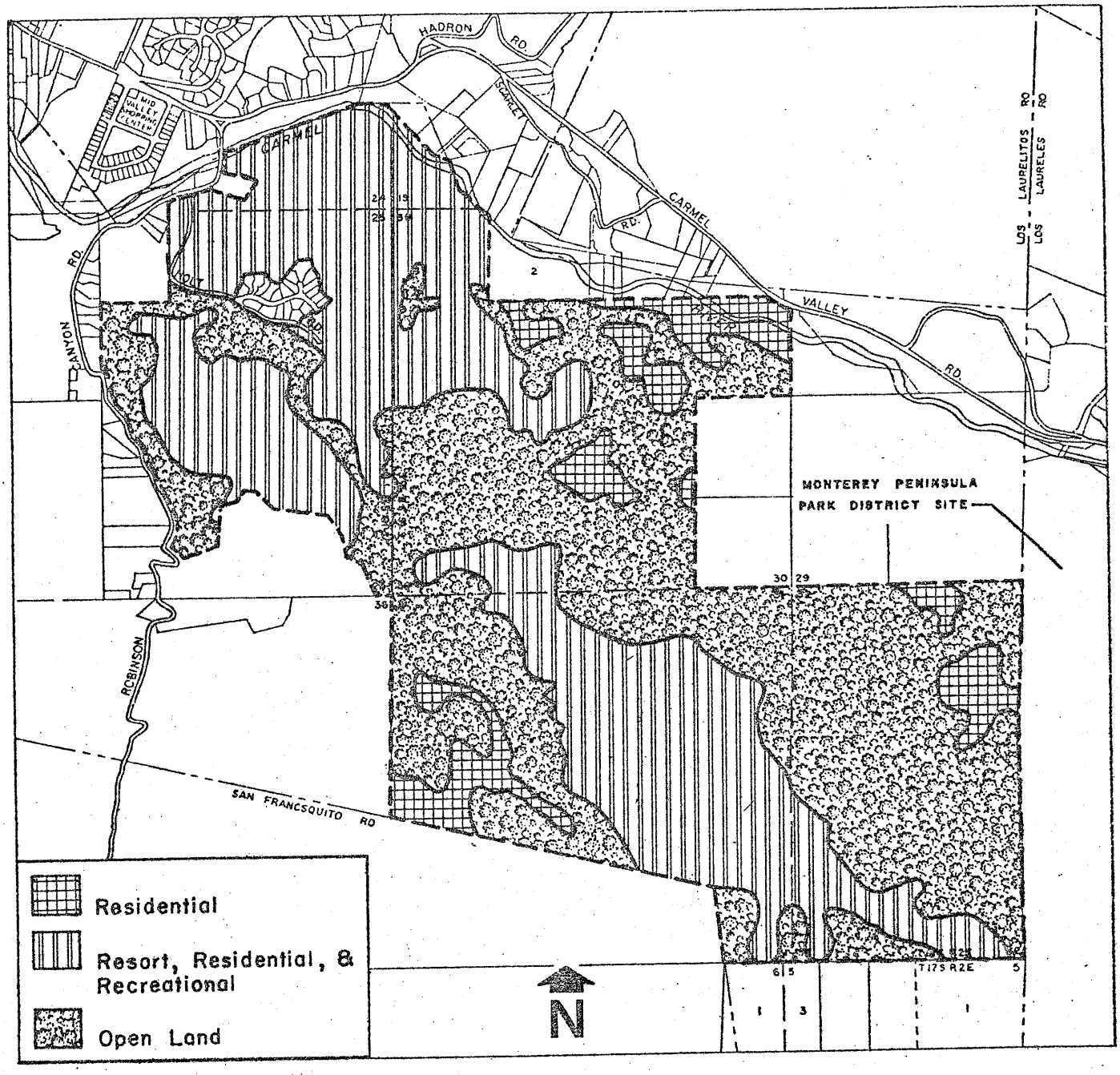


FIGURE 1.7

THE ADOPTED DEL MONTE CARMEL VALLEY RANCH PLAN

Residential construction will begin in 1976 and will continue through 1989 at a rate of about 60 units per year during the first 13 years of construction; during the 14th year (1989) 75 units will be constructed. Occupancy of units is expected to occur in the year following construction. The phasing of residential construction will be as follows:

Type of Unit	Number of Units	Annual Construction During First 13 Years 1976-1988	Construction During 14th Year - 1989
Townhouse	290	20	30
Patio Home	365	25	40
Single Family	200	15	5
Total	855	60	75

In 1976 one hundred units of the resort lodge and the golf course and clubhouse will be constructed. One hundred additional units of the resort lodge will be constructed in 1982, and the tennis club will be constructed in 1984.

Employment opportunities generated by development of the project will be distributed as temporary jobs during construction and permanent jobs following construction. The following chart illustrates this job breakdown:

PERMANENT JOBS

Number	Area	Time Period
15	Golf Course	1977 - 1990 +
3	Security Office	1977 - 1990 +
80	Resort Lodge	1977 - 1982
30	Resort Lodge	1983 +
5	Tennis Club	1984 +

133 Total Permanent Jobs

CONSTRUCTION JOBS

Number	Area	Time Period
100	Residential	1976 - 1989
60	Resort Lodge, Golf Course and Clubhouse	1976
30	Resort Lodge	1982
10	Tennis Club	1984

160 Total Construction Jobs

The 1974-1975 total tax rate is $7.243 per hundred dollars of assessed value. This is distributed to various taxing districts (See Figure 1.8). The Carmel Valley Ranch is in an area that is currently being reassessed. It is estimated that the new assessed value will be $552,500, which is an increase over the previous assessed value of $110,620.[4] (See Figure 1.9 for the estimated future tax revenues, assuming the 1974-1975 tax rate and also assuming each homeowner utilizes his homeowner's exemption of $1,750 of assessed value)

Property taxes from this development will pay most of the expenses of educating the children generated by the residents and employees of the ranch. As the average housing value on the ranch ($80,000) is higher than the average for Carmel Valley ($60,000), a housing unit on Carmel Valley Ranch will pay about 33% more in school property taxes than the average Carmel Valley unit. (See Figure 1.10 for a summary of the cost/revenue impact of the Carmel Valley Ranch on the Carmel Unified School District)

Monterey County's 1974-1975 budget for county-wide services is $67,625,308; or $751 per residential unit. The amount of this budget raised through property taxes is $20,319,578; or $266 on the average per residential unit. A housing unit on the Carmel Valley Ranch will pay $444 to the County for county-wide services, compared to the average structural unit in Monterey County which pays $140 to the County, and the average unit for Carmel Valley which pays $322 to the County. (See Figure 1.11 for a summary of this information)

The development will generate other revenue in addition to property tax revenue. Annually, upon completion of the lodge, income will be generated for the County by a 5% surcharge on transient room rates. Income will also come from the 6% sales tax on retail expenditures by guests at the hotel, 1.25% of which is refunded to Monterey County. Revenue to the County for licenses and building permits needed for unit construction is estimated at $100 per unit. (See Figure 1.12)

1.6 Population

The residential population of Carmel Valley Ranch will be approximately 2,200, and the average number of guests at the resort lodge, assuming 70% occupancy, will be approximately 250. When recreational facilities are in full operation there will be approximately 133 permanent employees.

The following chart illustrates the population breakdown by individual unit.[5]

Type of Unit	Number of Units	Family Size	School Children Per Unit	Total School Child Yield	Total Population
Townhouses	290	2.3	.3	87	667
Patio Homes	365	2.5	.4	146	913
Single-Family	200	3.1	.9	180	620
TOTAL	855	2.6	.5	413*	2200*

1.7 Traffic and Circulation System

The proposed Specific Plan will have a private internal road system with controlled access. Pedestrian circulation between various development areas will be encouraged by the construction of a footpath system and the use of mini-shuttle vehicles such as golf carts. A network of footpaths and bridle trails will also be developed throughout the open space area of the project. (See Figure 1.13 for internal circulation system - it should be noted that a "Specific Plan" must in-

* The discussion of population and related impacts is based on the maximum potential number of people from this project. It can be assumed, however, that some residential units will be used as second homes (15% is an estimated proportion)[6]

TAX RATE SCHEDULE

Monterey County	2.432
County Library	.162
Monterey County Education	.056
School Service Fund Special Ed.	.090
Equalization Aid Offset Tax	.131
Carmel Unified School District	2.471
Carmelo School District Bond	.014
Carmel Unified Sch. Dist. Bond 4	.044
Carmel Unified Sch. Dist. Bond 5	.107
Monterey Peninsula Jr. College	.478
Monterey Peninsula Jr. College Bond	.046
Monterey Peninsula Jr. College Bond 2	.023
Monterey Peninsula Jr. College Bond 3	.058
Monterey Peninsula Jr. College Bond 4	.021
County Service Area No. 59	1.000
MCFC X WC District	.010
Monterey Peninsula Regional Park	.100
TOTAL RATE FOR NET VALUES	7.243

FIGURE 1.8

TAX REVENUE GENERATED

	Assessed Value (AV)	AV minus Homeowners' Exemptions	Total Property Tax Levy	Monterey County	Carmel Unified Schools	All other Districts
			.07243	.02432	.02636	.01275
1975	$552,500	552,500	40,000	13,400	14,600	12,000
1976	552,500	552,500	40,000	13,400	14,600	12,000
1977	2,772,600	2,667,600	193,200	64,900	70,300	58,000
1978	3,950,000	3,740,000	270,900	91,000	98,600	81,300
1979	5,127,600	4,812,600	348,600	117,000	126,900	104,700
1980	6,305,000	5,885,000	426,300	143,100	155,100	128,000
1881	7,482,600	6,957,000	503,900	169,200	183,400	151,300
1982	8,660,000	8,030,000	581,600	195,300	211,700	174,600
1983	10,212,600	9,477,600	686,500	230,500	249,800	206,200
1984	11,465,000	10,625,000	769,600	258,400	280,100	231,100
1985	12,642,600	11,697,600	847,300	285,500	308,400	254,400
1986	13,820,000	12,770,000	924,900	310,600	336,600	277,700
1987	15,013,800	13,858,800	1,003,800	337,100	365,300	301,400
1988	16,207,500	14,947,500	1,082,600	363,500	394,000	325,100
1989	17,401,300	16,036,300	1,161,500	390,000	422,700	348,800
1990 & after	18,870,000	17,373,750	1,258,400	422,500	458,000	377,900

FIGURE I.9

	Residential Property (855 Units)			Non-Residential Property (resort lodge, golf & tennis facilities, and vacant land)			
	Revenue to District from Property Taxes	School Children	Education Cost @$1,200 Per Student	Revenue to District from Property Taxes	Employees	Employees School Children	Educational Cost @$1,200 Per Student
1975	$3,500	0	0	11,100	0	0	0
1976	3,500	0	0	11,100	0	0	0
1977	31,900	29	$34,000	37,800	98	51	61,200
1978	60,400	58	69,000	37,800	98	51	61,200
1979	88,800	87	104,400	37,800	98	51	61,200
1980	117,300	116	139,200	37,800	98	51	61,200
1981	145,700	145	174,000	37,800	98	51	61,200
1982	174,200	174	208,000	37,800	98	51	61,200
1983	202,600	203	243,600	47,700	128	67	80,400
1984	231,100	232	278,400	49,700	133	70	84,000
1985	259,500	261	313,200	49,700	133	70	84,000
1986	288,000	290	348,000	49,700	133	70	84,000
1987	316,400	319	382,800	49,700	133	70	84,000
1988	344,900	348	417,600	49,700	133	70	84,000
1989	373,300	377	452,400	49,700	133	70	84,000
1990 & after	408,300	413	495,600	49,700	133	70	84,000

Residential property taxes pay for $408,300 or 82.4% of the $495,600 in property taxes required to educate the 413 students. The balance of the property tax revenue required comes from the assessed value of commercial properties, utilities, and vacant land. More directly, the assessed value of commercial property has increased because of the increase in capital improvements required for new jobs. The new jobs must be there or there would be little demand for new housing units - families would not come to the area or would move elsewhere to find work.

The construction of the resort lodge and the golf course and tennis facilities will create 133 new jobs. Using Monterey County's constant job-household ratio of 5 to 4, these new jobs imply 106 new households. Presently there are .66 students K-12 per household. Therefore, 106 households indicate 70 students. The property tax needed to educate these students is at $1,200 per student - $84,000. Anticipated property taxes for this education are $49,700 or 59.2% of the needed revenue. The balance comes from residential property, utilities, and vacant land. More directly, the balance comes from the property tax on the employees' homes.

FIGURE 1.10

1 - Total per student education cost is $1,345: $145 in state and federal subsidies and $1,200 from property taxes.

Property Tax

Revenue and Cost Analysis

for the

County of Monterey

1975	Cost		Average Property Tax Revenue to Monterey County per structural residential unit		
	Total	per[1] residential unit	Monterey[2] County	Carmel Valley	Carmel Valley Ranch
Budget of County wide Services	$67,625,308	$751	$140	$322	$444
Amount Raised through Property Tax @ $2.432 per $100 of Assessed Value	$20,319,578	$266	$140	$322	$444
Estimated Average Market Value of Structural Residential Unit			$30,000	$60,000	$80,000

1. 90,000 residential units (includes single family dwellings, duplexes, apartments, condominium units, and mobile homes)

2. The balance of the required property tax revenue comes from commercial property, utilities, and vacant land.

FIGURE I.11

REVENUE TO MONTEREY COUNTY

YEAR	PROPERTY TAX TO COUNTY	COUNTY SUR-CHARGE ON TRANSIENT ROOMS	SALES TAX REVENUE REFUND	COUNTY PERMITS AND LICENSES	TOTAL COUNTY REVENUE
1975	$ 13,400	0	0	0	$ 13,400
1976	13,400	0	0	0	13,400
1977	64,900	44,700	5,400	6,000	121,000
1978	91,000	44,700	5,400	6,000	147,100
1979	117,000	44,700	5,400	6,000	173,100
1980	143,100	44,700	5,400	6,000	199,200
1981	169,200	44,700	5,400	6,000	225,300
1982	195,300	44,700	5,400	6,000	251,400
1983	230,500	85,400	10,900	6,000	332,800
1984	258,400	85,400	10,900	6,000	360,700
1985	285,500	85,400	10,900	6,000	387,800
1986	310,600	85,400	10,900	6,000	412,900
1987	337,100	85,400	10,900	6,000	439,400
1988	363,500	85,400	10,900	6,000	465,800
1989	390,000	85,400	10,900	7,500	493,800
1990 & after	422,500	85,400	10,900	0	518,800

FIGURE 1.12

clude all proposed streets and their names; this information will be supplied at a later date)

1.8 Water Management System

Waste water will be collected and treated at an on-site advanced secondary treatment plant to standards specified by the Monterey County Heatlh Department and the California Regional Water Quality Control Board. The treated water will be temporarily stored in a retention pond on the golf course prior to being recycled in the golf course irrigation system. The treatment plant will be located on the valley floor and will be visually screened by earthen berms and landscaping. (See Figure 1.3 for treatment plant location)

Street Standards

Major Collector:

Main interior street collecting traffic from development areas; no parking; no direct driveway access; two lanes divided and undivided with turning lanes at intersections; 15' paved travel lanes with curb and gutter.

Minor collector:

Minor interior streets collecting traffic from limited development areas; limited parking; minimal driveway access; two lanes with 24' paved section and curb and gutter; designated eight-foot parking bays; 18' paved section with curb and gutter.

Minor streets:

Minor streets providing direct access within development areas; limited street parking with designated eight-foot parking bays; 18' paved section with curb and gutter.

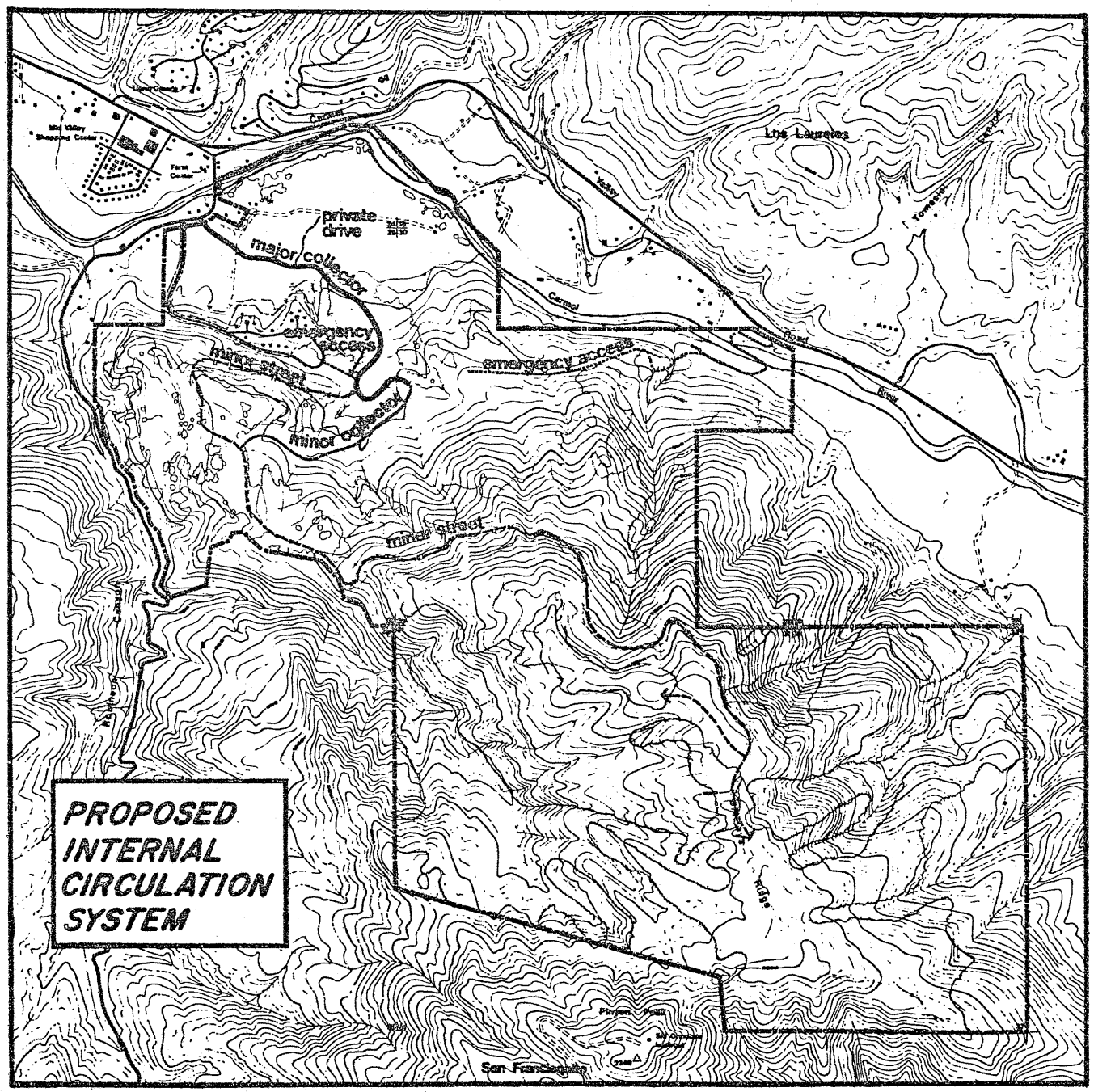


FIGURE 1.13

2. ENVIRONMENTAL SETTING AND PROJECT IMPACT

2.1 Regional Setting

Carmel Valley, an east-west trending valley in western Monterey County, lies approximately 130 miles south of San Francisco, 82 miles south of San Jose and 337 miles north of Los Angeles.

The project site is located 7 miles east of Carmel Bay and 7 miles southeast of Monterey Bay. Shopping facilities are available in the Mid-Valley Shopping Center (0.5 miles from the property), Carmel Valley Village (5.5 miles) and Carmel Rancho Shopping Center (6.1 miles). Additional general facilities for food, clothing, and services are available in the larger business and shopping centers of Carmel (7.6 miles), Monterey (11.0 miles) and Salinas (18.7 miles).

2.2 Surrounding Area

Carmel Valley Ranch is surrounded on three sides by open land primarily used for grazing. South of the property is the grazing land of the San Carlos Ranch. East is additional grazing land and an approximate one mile contiguous border with a 541 acre site newly acquired by the Monterey Peninsula Regional Park District. West, in the Robinson Canyon area, is grazing land and scattered residences. On the north side of Carmel Valley Road is the Tierra Grande Subdivision, a single-family residential development of 258 lots on 400 acres. Also located to the north is the Mid-Valley Shopping Center, the Farm Center and a residential and farming area. (See Figure 2.1 for surrounding area land use map)

With the exception of the Mid-Valley Shopping Center and the Tierra Grande Subdivision, the area of the site along Carmel Valley Road is rural in characteristic. Most prominant are undeveloped tracts and scattered farms, ranches and residences.

IMPACT:

Development of Carmel Valley Ranch will have little impact on the Monterey Peninsula Regional Park. An integration of the park bridle trails with those of

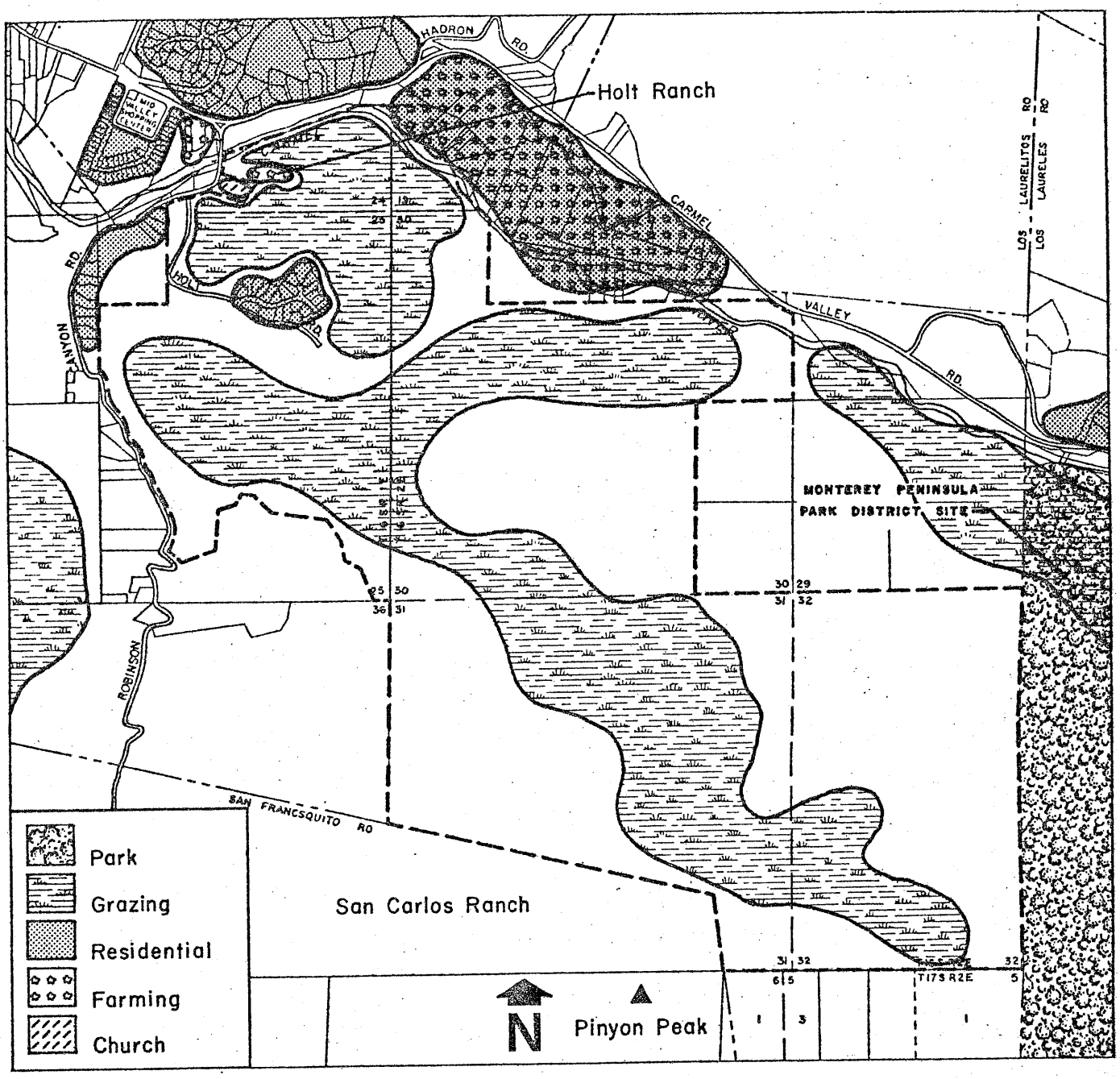


FIGURE 2.1

PRESENT LAND UTILIZATION

the ranch would be a positive result of implementation of this Specific Plan. It should also be noted that a riding and hiking trail is proposed along the Carmel River in the Monterey County Recreational Trails Plan.

According to the Monterey County Assessor's Office, land values of large acreages in this area would only be affected by subsequent demand to purchase these lands and will not be affected by this development. Smaller acreages that will have exposure on the golf course, such as the Holt Subdivision and Tierra Grande Subdivision, would probably feel the effects of this development in subsequent increased land values.[7]

2.3 Site Description

The site slopes irregularly from the Carmel River south to Snivley's Ridge. Over a 2.5 mile distance the site terrain rises from approximately 115 feet above sea level at the riverbed to approximately 2039 feet along Snivley's Ridge. The proposed development plan for the property relates to four distinct geographical regions.

The valley floor and the moderate slopes adjacent to the valley floor are located at the lower elevations in the northerly section of the property. Included in the moderate slopes is a conspicuous grassy area, which is a coalesced landslide. An oak-woodland tree line separates the grass covered valley floor from the adjacent moderate slopes, and also marks the "toe" area of the landslide. The Holt Subdivision is completely surrounded by the Carmel Valley Ranch property and is also located within the moderate slopes.

A mid-elevation plateau is located in the western section of the property below the steeper slopes that surround Snivley's Ridge. The plateau slopes to the southwest towards Robinson Canyon. Located in roughly the southern section of the site is the northwesterly trending Snivley's Ridge. The lower extremity of Snivley's Ridge is covered by oak-woodland, which turns into chaparral encircling the ridge crest. Along the ridge summit is a scattered oak-woodland covering and expanses

of grassland.

Two other prominant landforms are Snivley's Gulch, in the southwestern section, and the Palisades facing the Carmel River. (See Figure 2.2 for landforms map)

IMPACT:

The physical characteristics of the site offer constraints to development. A development suitability map was prepared by Unique Golf Concepts, combining the available environmental data on the site. Although the use of this map does not preclude there being environmental impacts, the information is valuable as a planning guide. The Specific Plan appears to be flexible enough to avoid definite problem areas except for an area within the 100-year flood plain of the Carmel River. This data was obtained after the Specific Plan was prepared. (See Figure 2.3 for development suitability map)

2.4 Climate

Carmel Valley is located in the Central California region, with a climate characterized by moderatly warm dry summers and mild rainy winters. Average temperatures vary between 35°F and 55°F in winter and between 45°F and 70°F in summer. Extremes for the past five years have ranged from 20°F to 110°F. The site periodically experiences fog during the summer and fall.

The topographic extremes of Carmel Valley Ranch result in microclimatic variations within the limits of the property. Precipitation falls predominantly as rain and is concentrated between October and March, with nearly one-half occurring in December and January. Because of the elevation of Snivley's Ridge, precipitation occasionally falls as snow. Average annual precipitation is about 18 inches for the lower elevations of the property, increasing to 20 inches for the higher elevations along Snivley's Ridge.

During summer and early fall the site is subject to sea breezes up-valley during the day and land breezes down-valley occurring at night. Up-valley/down-valley flows become disrupted during winter by the frequent passage of frontal systems. Pre-

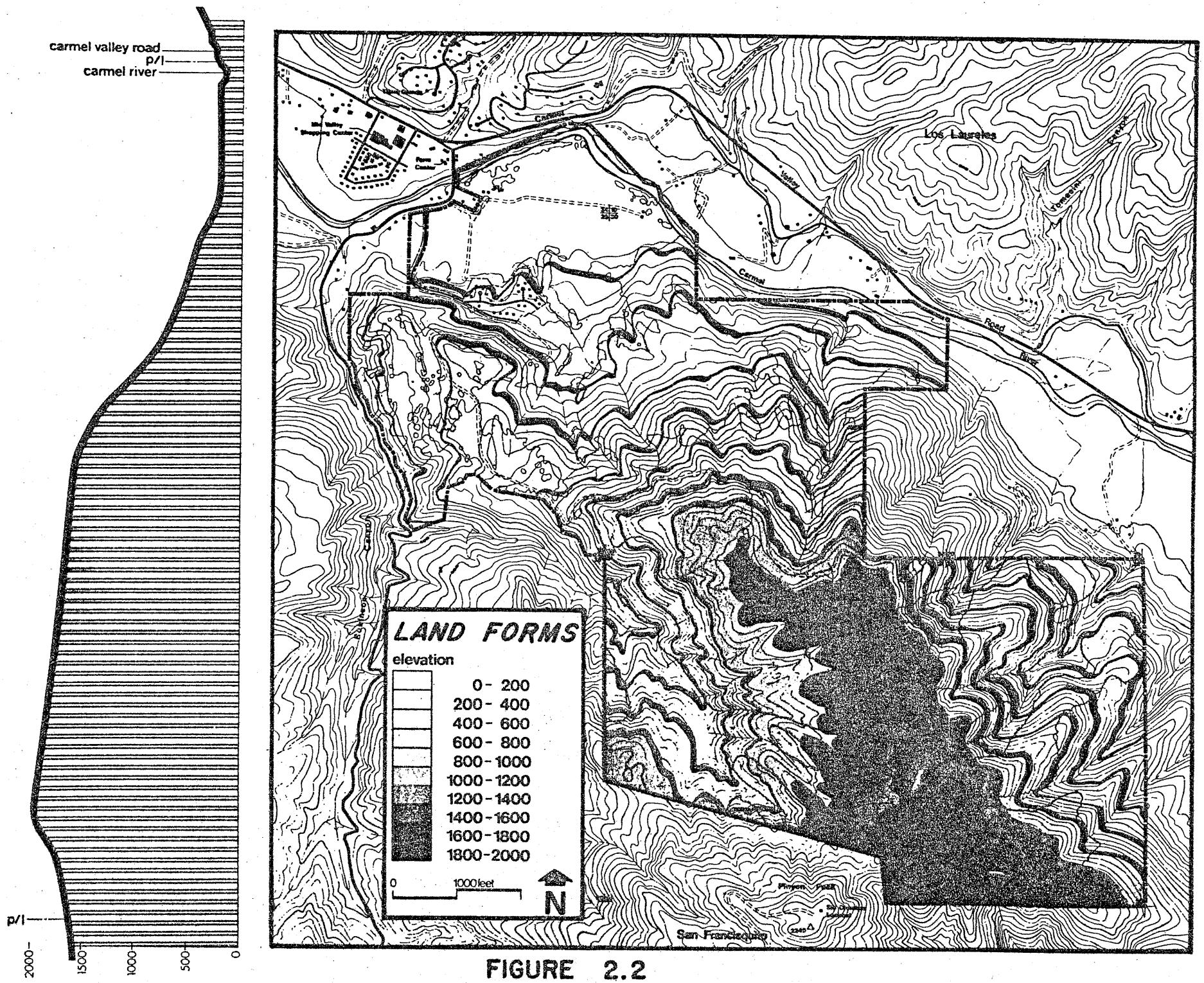

carmel valley road
p/l
carmel river
p/l
2000
1500
1000
500
0
LAND FORMS
elevation
0 - 200
200 - 400
400 - 600
600 - 800
800 - 1000
1000 - 1200
1200 - 1400
1400 - 1600
1600 - 1800
1800 - 2000
0
1000 feet
N
Los Laureles
Carmel
Road
River
San Francisquito

FIGURE 2.2

Development Suitability Factors

Suitable for development:
- 0 - 30% slopes
- stable soil and geologic conditions
- low-moderate visual sensitivity
- no unusual or sensitive wildlife or vegetation

Suitable for development with limitations or remedial measures:
- slopes 30 - 50%
- stabilized landslides
- soils subject to creep and flow
- sensitive vegetation or wildlife habitat
- moderate to high visual sensitivity

Not recommended for development:
- slopes over 50%
- active landslide areas
- 100-year flood plain
- major drainageways
- unique natural area

FIGURE 2.3

frontal winds are from the south, exposing Snivley's Ridge to 40 m.p.h. plus winds. Post-frontal winds have a similar velocity but are from the northwest. Areas of the ranch at lower elevations are less affected by extreme winds, being partially protected by surrounding topographic barriers. (See Figure 2.4 for site climate map)

IMPACT:

Implementation of the Specific Plan, as proposed, will not result in a significant impact on climate. However, climatic impacts on the project could be significant. Fog and the occasional presence of snow in Snivley's Ridge present hazardous conditions for driving. House construction and placement must take into account the high winds from frontal storms.

2.5 Slopes

The entire property lies on the south side of Carmel Valley, with the majority of the slopes facing north and northeast. Slopes exceeding 30% occur on both sides of Snivley's Ridge and along the west boundary of the ranch adjacent to Robinson Canyon. Approximately 60 percent of the site consists of 30% slope or greater. (See Figure 2.5 for slope map)

IMPACT:

Access roads to the residences in the mid-elevation plateau and Snivley's Ridge will traverse slopes greater than 50%, with the Snivley's Ridge road involving further cutting of the existing dirt road into the bedrock. Much of the land designated as open space also contains very steep slopes; approximately 455 of the 1080 acres in open space is over 50% slope.

2.6 Geology

2.6.1 General Geological Description

The property is underlain principally by granodiorite of early Cretaceous age and on-lapping marine and continential sediments of Middle and Upper Miocene age. Generally, those portions of the ranch adjacent to the Carmel River are immediately underlain with up to 175 feet of recent (Holocene) river alluvium composed primarily

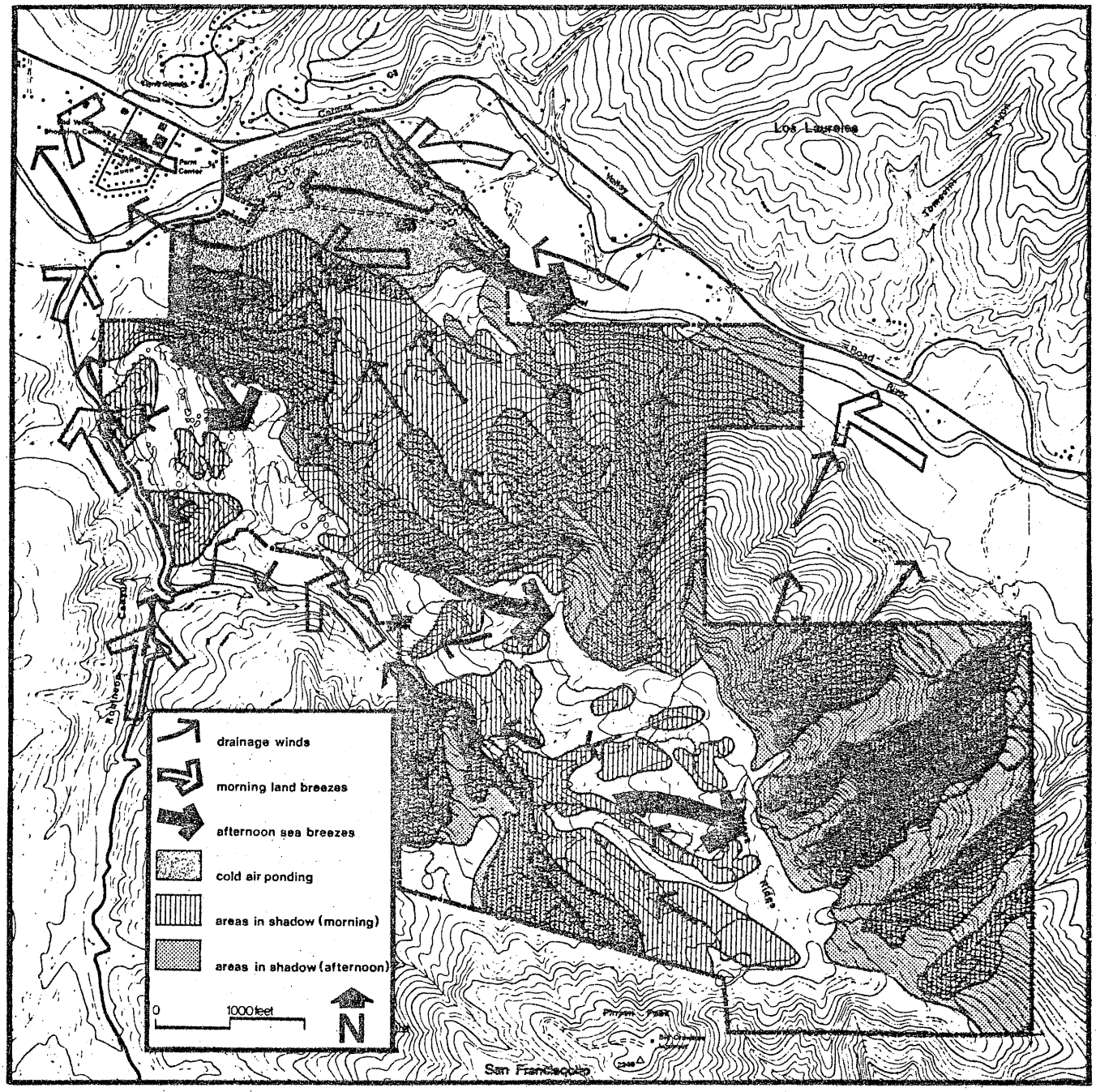


FIGURE 2.4

CLIMATE

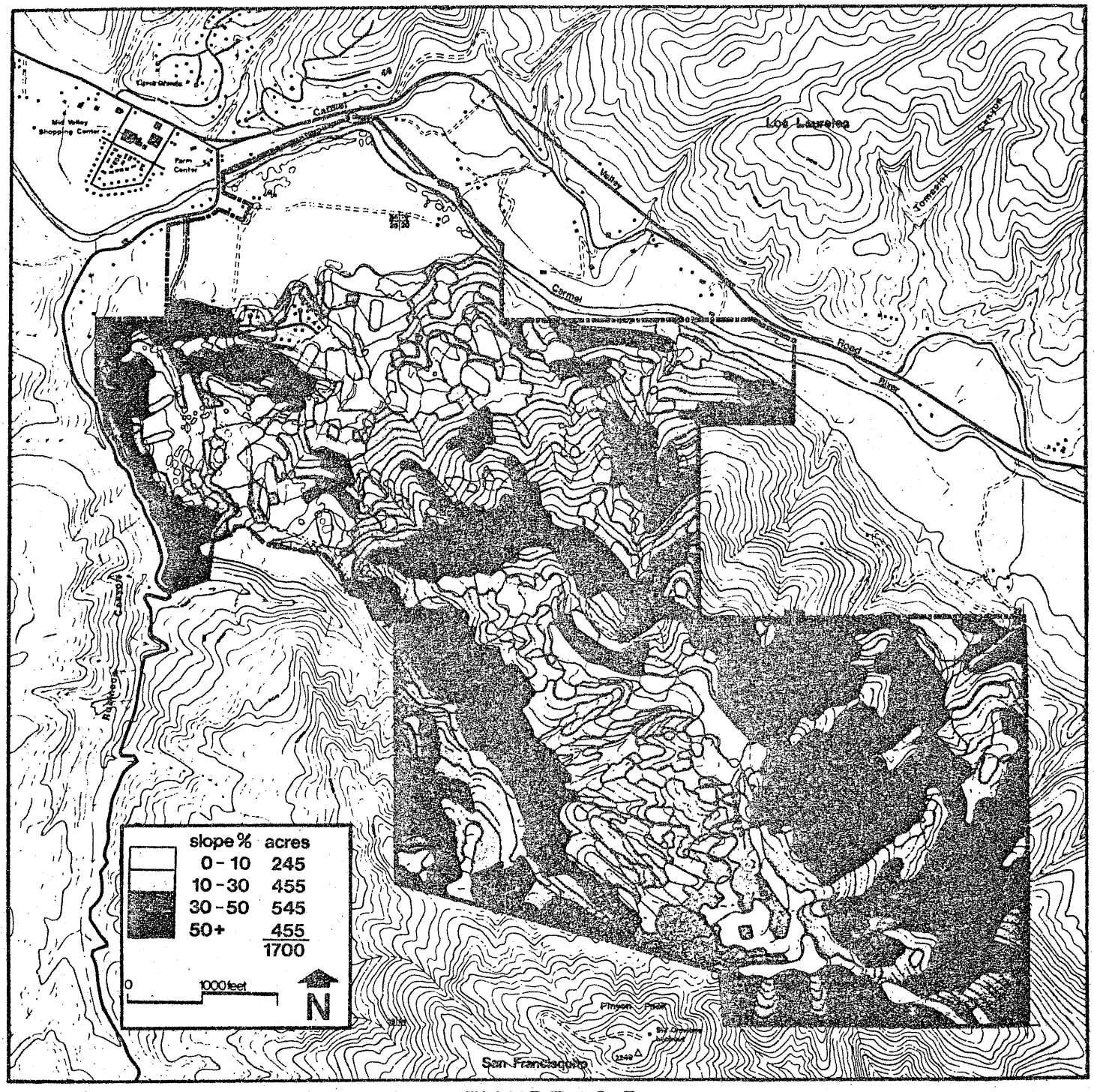


FIGURE 2.5

SLOPES

of sand and gravel. The more mountainous sections of the property are generally composed of granodiorite and Sur Series rock of igneous and metamorphic origin. The granodiorite of Snivley's Ridge is deeply weathered and disintegrated near the surface and extensive piedmont talus cones have developed on the north facing slopes of the ridge.

Several areas of coalesced landslides are located on the property, all but one of which have stabilized. The one active slide on the property occurs near the crest of Snivley's Ridge just north of Pinyon Peak. (See Figure 2.6 for geological suitability map and Appendix A for criteria used to formulate the geological suitability map)

IMPACT:

The active landslide on Snivley's Ridge and the talus cones and aprons on greater than 30% slopes (where sliding could occur) are designated as open space. The two stable landslides have been designated for golf course, tennis club and some residences. Portions of residential clusters B and G (as shown in Figure 1.4) are located on the stable landslide adjacent to the valley floor. A detailed analysis should be made in regard to major cuts, fills and the percolation of water into the slides. Also included should be methods to increase slide stability. According to consulting geologist Oliver Bowen, potential hazards from reactivating the two stable landslides can be eliminated by development of an adequate surface drainage system and preservation of the "toe" areas.[8] Some drilling and soil testing should also be done on the Tularcitos Member of the Chamisal Formation to pinpoint hazardous spots where instantaneous liquefaction can occur during storms.

2.6.2 Seismicity

There are two faults which cross the Carmel Valley Ranch property. Snivley's Fault crosses the southwestern corner of the property and the Tularcitos Fault, which runs parallel with Carmel Valley, crosses under the alluvium of the valley floor. Snivley's Fault is considered to be inactive and the Tularcitos Fault is considered to be potentially active.[9] The property is within 10 miles of the active San

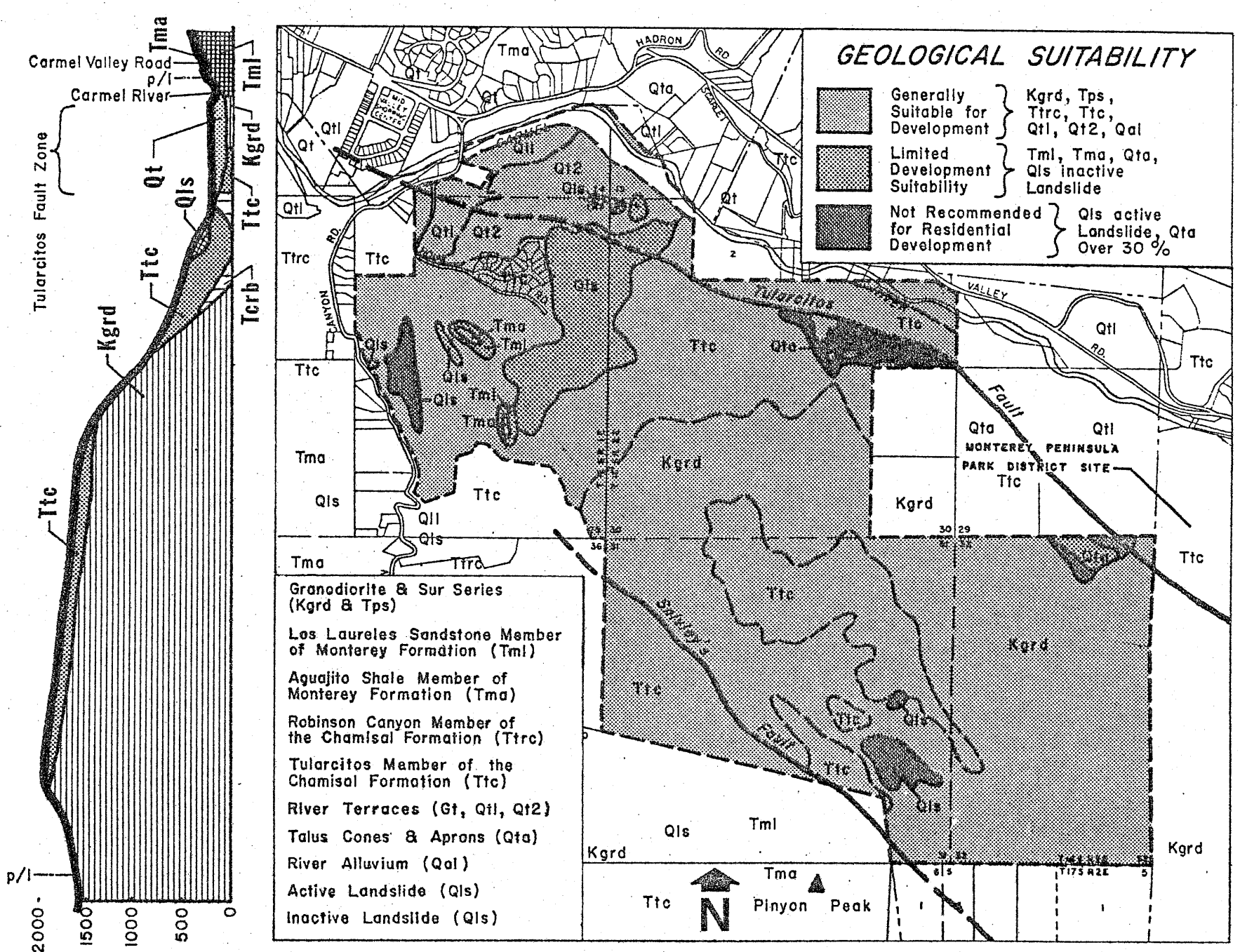

Carmel Valley Road
p/l
Carmel River
Tularcitos Fault Zone
Tma
Tml
Kgrd
Qt
Qls
Ttc
Tcrb
2000
1500
1000
500
0
GEOLOGICAL SUITABILITY
Generally Suitable for Development
Kgrd, Tps, Ttrc, Ttc, Qtl, Qt2, Qal
Limited Development Suitability
Tml, Tma, Qta, Qls inactive Landslide
Not Recommended for Residential Development
Qls active Landslide, Qta Over 30 %
HADRON RD.
Tularcitos
Fault
MONTEREY PENINSULA PARK DISTRICT SITE
Granodiorite & Sur Series (Kgrd & Tps)
Los Laureles Sandstone Member of Monterey Formation (Tml)
Aguajito Shale Member of Monterey Formation (Tma)
Robinson Canyon Member of the Chamisal Formation (Ttrc)
Tularcitos Member of the Chamisal Formation (Ttc)
River Terraces (Gt, Qtl, Qt2)
Talus Cones & Aprons (Qta)
River Alluvium (Qal)
Active Landslide (Qls)
Inactive Landslide (Qls)
N
Pinyon Peak

FIGURE 2.6

Gregorio-Palo Colorado Fault Zone and 24 miles from the San Andreas Fault. Bowen states:

> "The chances of surface rupture on the Tularcitos Fault or of subsidence along the Snivley's Fault on the Carmel Valley Ranch are small in comparison to the likelihood of damage due to lurching from a distant strong motion epicenter on some other active fault .... The entire perimeter of Monterey Bay is in counties subject to strong-motion earthquakes. Carmel Valley Ranch is not, however, in a position any more hazardous than most other areas of equivalent size and relief in the Central Coast Ranges."[10]

IMPACT:

Bowen states: "No special plans need be formulated to allow for activity on the Tularcitos and Snivley's Faults except to reduce structures to a minimum within 100 feet of the mapped trace."[11]

Much of the property is underlain by granite or by undisturbed, moderately well cemented sandstone of the Chamisal Formation. These offer good foundation conditions which in most places will be wholly satisfactory for low-rise structures.[12] The deeply alluviated portions of the ranch are somewhat more susceptable to lurching by earthquake waves than the portions underlain by granitic rock or cemented sandstone.[13] In regard to areas underlain by recent alluvium, the proposed Seismic Safety Element of the Monterey County General Plan states:

> "The hazard potential for these areas are moderate to high with respect to ground failures, whereas the hazard potential for ground shaking is considered high to severe. The effects of ground failure and the potential effects of ground shaking should be considered with respect to future land use. It is recognized that areas underlain by recent alluvium cannot always be avoided for future development. However, the alternatives should be carefully considered and the benefits and risks carefully weighed ...."[13]

2.7 Soils

The U.S.D.A. Soil Conservation Service has mapped 11 different types of soils located on the Carmel Valley Ranch property. Unfavorable characteristics of the site soils are as follows: approximately 90% of the site has rapid to very rapid runoff, approximately 80% of the site has a high to very high erosion hazard and approximately 1% of the site has a high shrink-swell potential.

The capability classification* is a practical grouping of soils. Soils on the property suited for cultivation and other uses include: the Tujunga fine

sand (TuAB, 0-5% slopes), generally located on the valley floor, with a capability classification of IVs4; and the Elder very fine sandy loam (EdBC, 2-9% slopes), generally located in the moderate slopes adjacent to the valley floor and in the mid-elevation plateau, with a capability classification of IIIe1. The remaining soils are considered limited in use, and thus generally not suited for cultivation. (See Figure 2.7 for the Land Capability Classification, Figure 2.8 for soils map and Figure 2.9 for corresponding soils chart)

IMPACT:

The most significant impact on soils will be from the grading necessary for access roads, the golf course, residential units and the parking area for the lodge. The Specific Plan, however, appears to be flexible enough to avoid residential construction on slopes greater than 30%. By not allowing construction in these areas there would be a significant reduction in the amount of grading that would be necessary. A significant impact could occur if the residential construction and golf course grading on the valley floor occur at the same time. This would denude the area of vegetation, making the Tujunga fine sand susceptible to wind erosion.

Approximately 80% of the site soil has a high to very high erosion hazard. This causes problems with surface runoff and cut and fill areas. Especially crucial are the access roads to the mid-elevation plateau and to Snivley's Ridge.

It should also be noted that the Tujunga fine sand has a severe limitation in regard to the installation of a golf course because it has very rapid subsoil permeability. This soil characteristic poses the maintenance problem of requiring a great deal of water for irrigation.

From an engineering standpoint, an analysis of the soils on the site by Leighton and Associates indicates that the present plan limits construction to areas that appear to be feasible for development.

2.8 Hydrology

2.8.1 Groundwater

Three sources of groundwater have been identified on Carmel Valley Ranch.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CF-CONS.-214
March 1970

THE LAND CAPABILITY CLASSIFICATION

The capability classification is a practical grouping of soils. Soils and climate are considered together as they influence use, management, and production on the farm or ranch.

The classification contains two general divisions: (1) Land suited for cultivation and other uses, and (2) land limited in use and generally not suited for cultivation. Each of these broad divisions has four classes which are shown on the map by a standard color and number. The hazards and limitations in use increase as the class number increases. Class I has few hazards or limitations, or none, whereas Class VIII has a great many.

LAND SUITED FOR CULTIVATION AND OTHER USES

CLASS I — Soils in Class I have few or no limitations or hazards. They may be used safely for cultivated crops, pasture, range, woodland, or wildlife.

CLASS II — Soils in Class II have few limitations or hazards. Simple conservation practices are needed when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

CLASS III — Soils in Class III have more limitations and hazards than those in Class II. They require more difficult or complex conservation practices when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

CLASS IV — Soils in Class IV have greater limitations and hazards than Class III. Still more difficult or complex measures are needed when cultivated. They are suited to cultivated crops, pasture, range, woodland, or wildlife.

LAND LIMITED IN USE--GENERALLY NOT SUITED FOR CULTIVATION

CLASS V — Soils in Class V have little or no erosion hazard but have other limitations that prevent normal tillage for cultivated crops. They are suited to pasture, range, woodland, or wildlife.

CLASS VI — Soils in Class VI have severe limitations or hazards that make them generally unsuited for cultivation. They are suited largely to pasture, range, woodland, or wildlife.

CLASS VII — Soils in Class VII have very severe limitations or hazards that make them generally unsuited for cultivation. They are suited to grazing, woodland, or wildlife.

CLASS VIII — Soils and land forms in Class VIII have limitations and hazards that prevent their use for cultivated crops, pasture, range, or woodland. They may be used for recreation, wildlife, or water supply.

Capability classes are divided into subclasses. These show the principal kinds of conservation problems involved. The subclasses are: "e" for erosion, "w" for wetness, "s" for soil, and "c" for climate.

Capability classes and subclasses, in turn, may be divided into capability units. A capability unit contains soils that are nearly alike in plant growth and in management needs.

The units are: "1" erosion hazard; "2" wetness problems; "3" slowly permeable subsoil; "4" coarse texture, low water-holding capacity, "5" fine textures, tillage problems; "6" salinity or alkali; "7" cobbly, rocky, or stony; "8" root zone limitation, bedrock, or hardpan; "9" low fertility, acidity, or toxic properties; and "0" very coarse textured substratum.

EXAMPLE

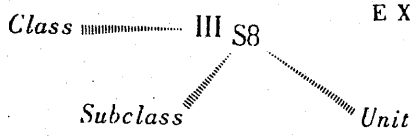


FIGURE 2.7

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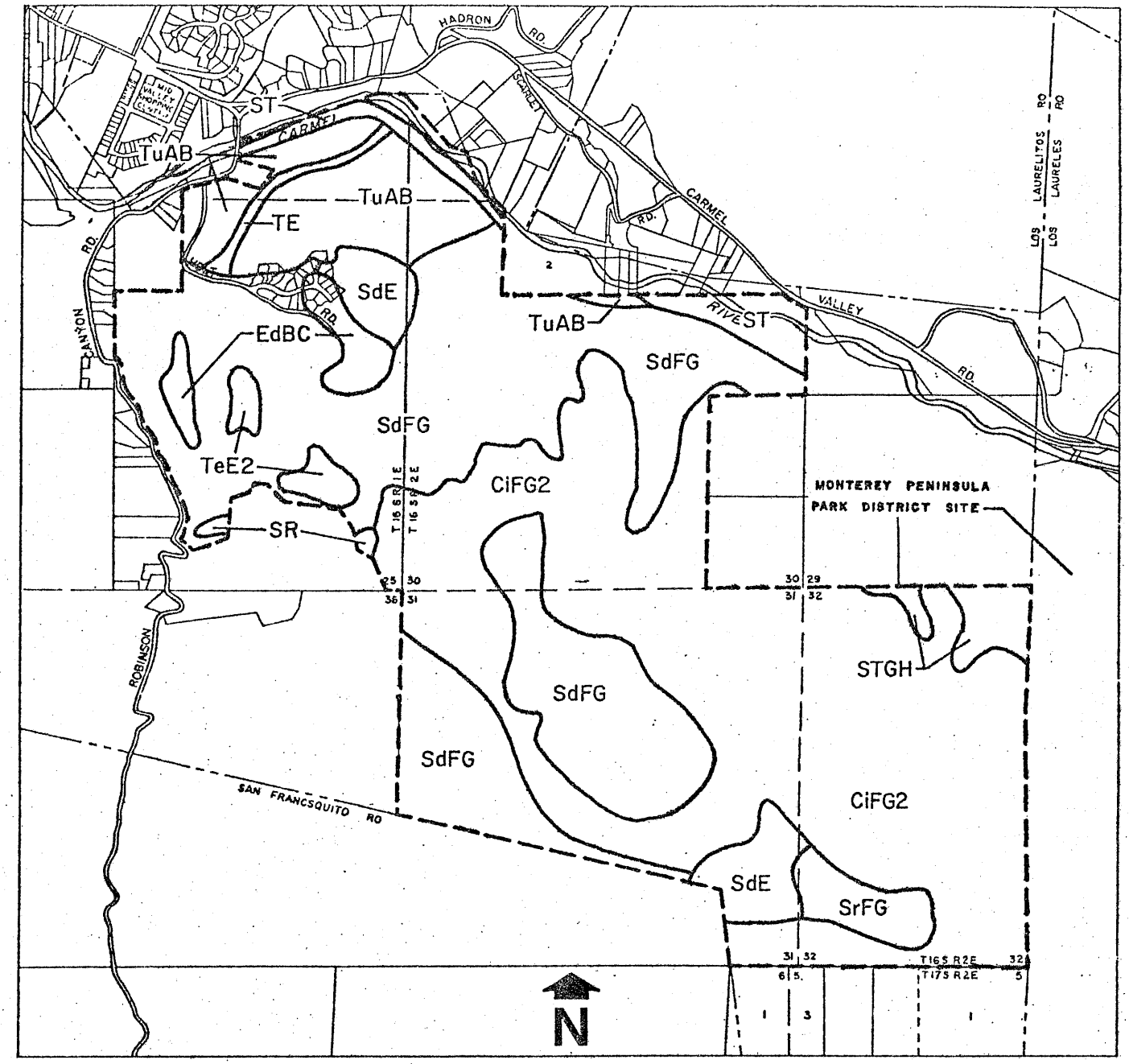


FIGURE 2.8

SOILS

FROM U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SOIL SURVEY FIELD SHEETS

MAP SYM.	SOIL NAME	NATURAL DRAINAGE	SUBSOIL PERM	RUNOFF	EROSION HAZARD	SHRINK-SWELL BEHAVIOR	WATER RETENTION LIMIT	LAWN & GOLF FAIRWAY LIMITATION	CAPAB UNIT
TuAB	Tujunga fine sand, 0-5% slope	Excessive	Very Rapid	Very slow	Slight Channeled	Low	Impoundment -Severe-	Severe	IVs4
TeE2	Tierra fine sandy loam 15 to 30% slopes, eroded.	Moderately Well	Very Slow	Rapid	High	High	Impoundment -Severe-	Severe	VIe3
TE	Terrace Escarpments	Variable	Variable	Variable	Variable	Moderate	Impoundment -Severe-	Severe	VIe1
ST	Stony Alluvial Land	Variable	Variable	Variable	Variable	Low	Impoundment -Severe-	Severe	VIIs7
SR	Sandstone and shale rockland	Excessive	Slow	Very Rapid	Very High	Low	Impoundment -Severe-	Severe	VIIIe1
SdFG	San Andreas fine sandy loam, 30 to 75% slopes	Well	Moderate	Rapid or Very Rapid	High	Low	Impoundment -Severe-	Severe	VIIIe1
SdE	San Andreas fine sandy loam, 15 to 30% slopes	Well	Moderate	Rapid	Moderate	Low	Impoundment -Severe-	Severe	VIe1
EdBC	Elder very fine sandy loam, 2 to 9% slopes	Well	Moderate	Medium	Moderate	Low	Impoundment -Severe-	Moderate	IIIe1
CiFG2	Ciereba fine gravelly sandy loan, 30 to 75% slopes, eroded	Excessive	Moderately Rapid	Very Rapid	Very High	Low	Impoundment -Severe-	Very Severe	VIIIe4
STGH	Junipero-Sur Complex	Somewhat Excessive to Excessive	Moderately Rapid	Rapid to Very Rapid	High to Very High	Low	Impoundment -Severe-	Severe	VIIIs1 VIIIs7
SrFG	Sheridan course sandy loam, 30 to 75% slopes	Well	Moderately Rapid	Rapid or Very Rapid	Moderate or High	Low	Impoundment -Severe-	Severe	VIIIe1

FIGURE 2.9

Two of these are deep aquifer sources which were previously untested. Two small yield wells (16s/2E - 19N1 and 16s/1E - 25B1) are already in use, extracting water from the Carmel Valley Alluvium Aquifer. These wells are used for irrigation, producing approximately 170 acre feet per year.

A test well, Holt #1, has been drilled adjacent to Robinson Canyon along the western border of the ranch. This well potentially has tapped a new producing aquifer and a new structural trap for good quality water in a major Synclinal* Aquifer involving the continental Middle Miocene and the Tularcitos Member (both sandstone and conglomerate units) of the Chamisal Formation. Water was encountered in this formation at various depths and the electric log and sidewall samples indicate a high-yield well in a newly defined structural trough. This structure extends west from Snivley's Ridge nearly to Coast Highway 1, roughly parallel to the trend of Carmel Valley.

A third, as yet untested, potential source of water lies near the southern border of Carmel Valley Ranch where the Robinson Canyon and Tularcitos Members of the Chamisal Formation are buttressed against granite along Snivley's Fault. This forms a Homoclinal* trough where water has collected. In addition, the broken zone of Snivley's Fault proper is a potential for water.

On-site wells have been measured for depth to groundwater on the valley alluvium. Between 1960 and 1969 the water level in the northeastern well (16s/2E - 19N1) has ranged between 26.0 feet and 44.3 feet below ground, and the water level

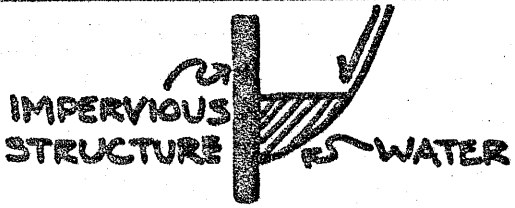
---

* Capability Classification - Soils and climate are considered together as they influence use, management and production on the ranch.

* Syncline - A fold in which the strata dips inward from both sides toward the axis.

* Homocline - A structural condition in which the beds dip uniformly in one direction.

(For illustration only)



in the northwestern well (16s/1E - 25B1) has ranged between 12.2 feet and 28.0 feet below ground. (See Figure 2.10 for hydrology map and Appendix B for water quality chart)

IMPACT:

An adequate water supply for the project must be established. The applicant proposes to withdraw all water for residential use from the newly discovered Synclinal Aquifer, which should be test pumped to assure adequate supply. The residential waste water will be treated at an onsite treatment plant and then used for irrigation of the golf course, thus recharging the Carmel Valley Alluvium Aquifer with approximately 30% of the water used for irrigation. For the project to have this beneficial effect on the Carmel Valley Aquifer it must be proven that pumping from the deep Synclincal Aquifer, or the other potential water sources, will not draw from the shallow Carmel Valley Aquifer. If these newly discovered potential sources of water do draw from the Carmel Valley Aquifer, or if they do not have an adequate supply, consideration must be given to the condition of the Carmel Valley Aquifer and the impacts of increased withdrawal.

In regard to the condition of the Carmel Valley Aquifer, the State Department of Water Resources states:

> "Additional well fields could be installed to operate the basin more extensively. Such fields could lower the average water table another 10 feet over that reached in 1972 and provide an additional 8,600 acre-feet, increasing the total yield to about 15,000 acre-feet."[15]

This investigation has two conclusions relating directly to this development; one, that additional near-term water requirements can be met in the California-American Water Company service area from groundwater in Carmel Valley, and two, that future growth will require additional water supplies over and above that available from the Carmel Valley Aquifer. (See Section 2.15.1 for additional impacts)

2.8.2 Surface Hydrology

The entire property is within the 255 square mile Carmel River watershed. On the property itself there are 18 sub-watershed areas, ranging in size from 436

acres to 6 acres. The series of small ridges and valleys on the slopes north of Snivley's Ridge drain directly into the alluvium along the Carmel River. The area lying south of Snivley's Ridge drains south and west into Snivley's Gulch, then to Robinson Canyon and finally into the Carmel River. Two sub-watershed areas drain south, eventually into the Carmel River via Las Gazas Creek. (See Appendix B for watershed map and runoff calculations)

IMPACT:

Disturbance of soil through excavation, paving, building, vehicular or foot travel or removal of vegetation by fire usually causes greatly increased runoff. Development associated with the Carmel Valley Ranch Specific Plan will increase the runoff on site approximately 27%. As noted in the Soil section of this report (Section 2.7), approximately 90% of the site has rapid to very rapid runoff and approximately 80% of the site has a high to very high erosion hazard. The increased runoff, along with the rapid runoff and high erosion hazard characteristics of the soils, compounds the usual erosion problems associated with development. A detailed hydrology study should be undertaken to recommend methods to properly channel the runoff, especially in those areas subject to landslide activity.

Based on a flood hazard evaluation for the Carmel Valley Ranch by the U.S. Army Corps of Engineers (revised since the 1967 Flood Plain Information report), only a small area of the golf course would be inundated by a 100-year frequency flood from Robinson Canyon Bridge upstream.[16] By extending this flood level downstream from Robinson Canyon Bridge, the 11 units in the residential cluster west of Holt Road and a small portion of the residential cluster below the Holt Subdivision (clusters C and D in Figure 1.4) would be inundated by a 100-year flood. (See Figure 2.11 for the 100-year flood plain on the Carmel Valley Ranch)

Depending on design, the golf cart bridge could catch debris and present a hazard by causing water to back-up. According to Bob Binder of the Monterey County Flood Control and Water Conservation District, a fragile bridge would have little flood hazard impact and a more strongly constructed bridge would have a greater

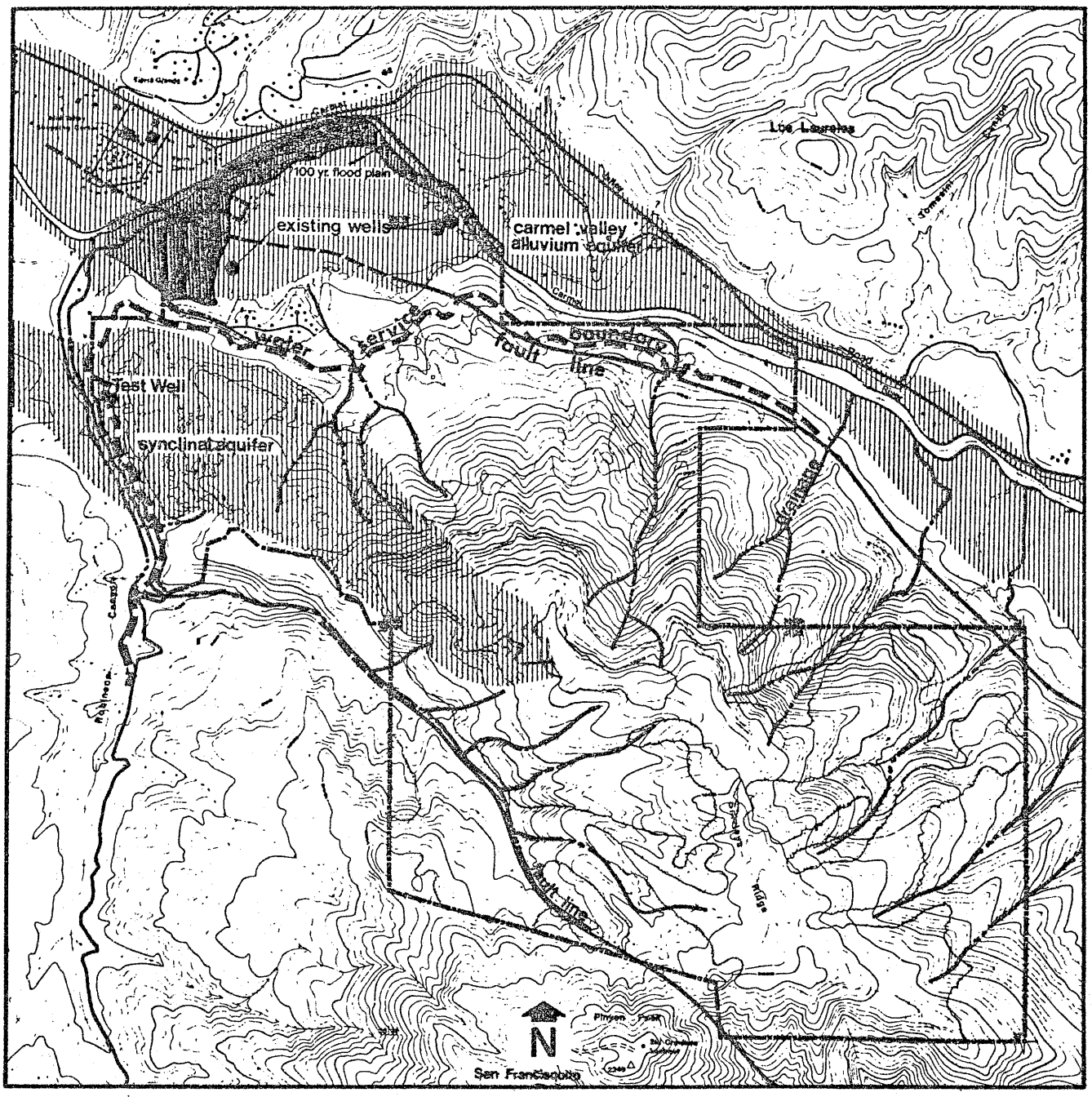


FIGURE 2.10

HYDROLOGY

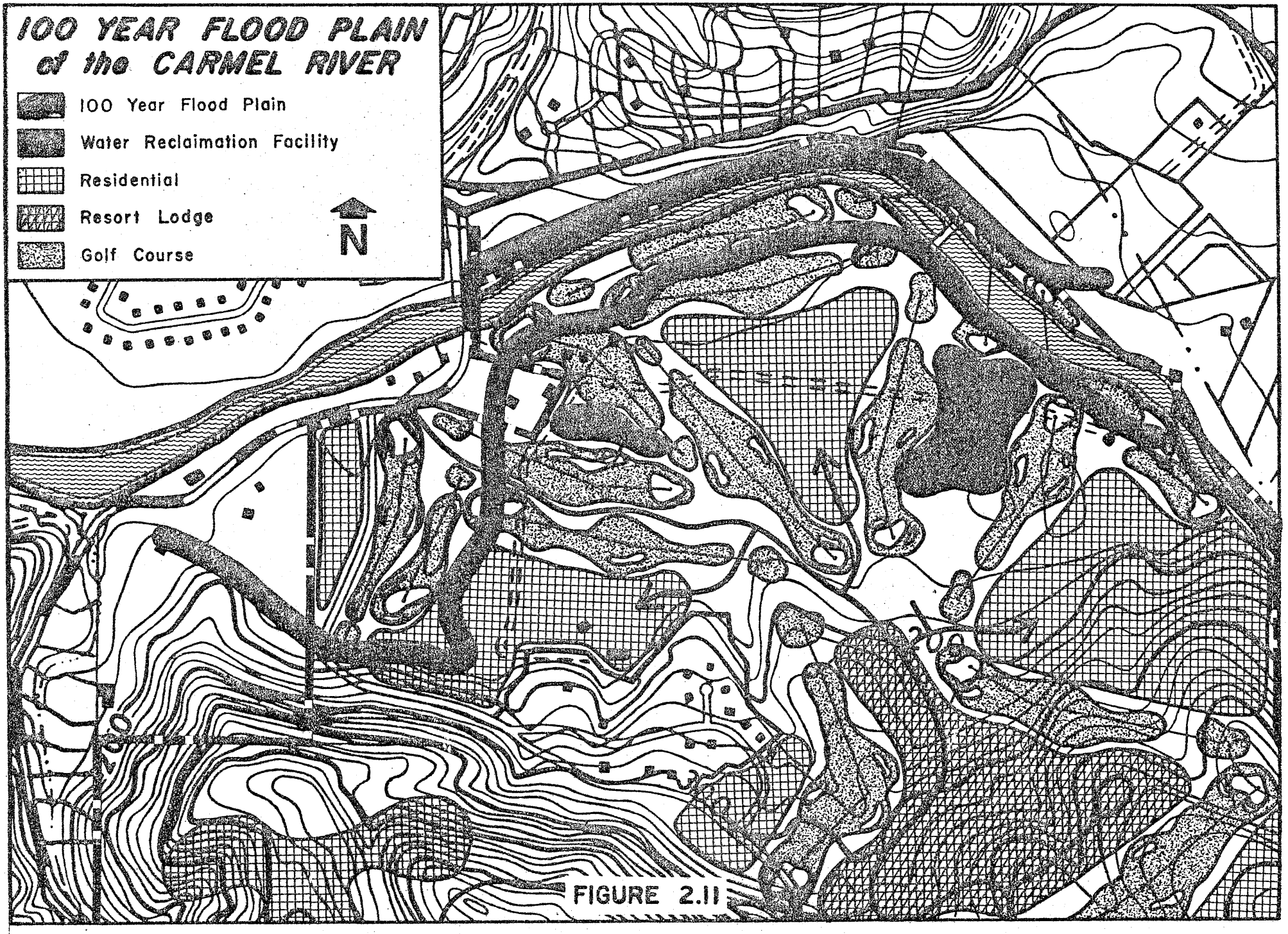

100 YEAR FLOOD PLAIN
of the CARMEL RIVER
100 Year Flood Plain
Water Reclaimation Facility
Residential
Resort Lodge
Golf Course
N

FIGURE 2.11

Christmas berry and infrequent sycamore. There are also nearly pure stands of coastal live oak along the ridge crests. Few interior live oaks or blue oaks were encountered on the property. Deer, woodrats, junco, bushtits, tree creepers and towhees are common.

There are no rare or endangered wildlife on the property.[18] There is also no indication of rare or endangered vegetation species.[19] (See Figure 2.12 for vegetation and wildlife habitat map and Appendix C for vegetation and wildlife on the property)

IMPACT:

Development of the Carmel Valley Ranch will impact vegetation, wildlife and the present human usability of the property. There will be a loss of wildlife habitat, loss of hunting area, loss of grazing land and removal of trees and natural vegetation.

Specifically, impacts on wildlife will result through disruption of animal feeding and local movement patterns between water supply, nesting areas, feeding areas and cover. The residential clusters, recreational facilities and resort lodge will be located on 620 acres. Open space will encompass 1080 acres. The proximity of houses, increase in noise, introduction of domestic animals, placement of roads, use of bridle trails and accessibility of the property to roughly 2,500 people will diminish the usefulness of the open space areas as a wildlife habitat.

The golf course will disturb riparian vegetation along the river, which, according to the State Department of Fish and Game, "provides living conditions for a greater variety of wildlife than any other type."[20] A well-developed riparian area on the north side of the Carmel River, particularly, will be significantly disturbed by golf course placement. An evaluation of the groundwater requirements for trees in riparian areas (sycamore, cottonwood, willow) is necessary in regards to golf course grading plans, water application rates, and possible use of water from the Carmel Valley Aquifer if the alleged Synclinal Aquifer is proven not to have adequate storage.

Preliminary data indicates that withdrawal of water from the Synclinal Aquifer will not have a significant impact on the Redwood trees in Snivley's Gulch. Redwoods are very strong trees, dependent on a great deal of moisture, and because

flood hazard impact. The bridge could also present a hazard if it has narrow spans compared to widespans.[17] Another factor to be considered is the possible impact of debris from the bridge, assuming it washes out, lodging downstream and causing water to back-up.

Implementation of the Specific Plan will result in an increased fertilization of the golf course area. Surface runoff may have a secondary effect of reducing water quality in the Carmel River because of the increase in nitrates and phosphates from fertilization.

2.9 Vegetation and Wildlife

The Carmel Valley Ranch lies at the edge of the coastal fog belt and has a relatively undisturbed vegetation and wildlife. The vegetation on the ranch can be divided into five types whose location define a similarly named wildlife habitat.

Grasslands are located along the ridge crests and in the irrigated pasture and at lower elevations. This habitat provides feeding areas for cattle, deer, gophers and various birds. Raptors range over this territory.

Riparian habitat is located along the Carmel River, Snivley's Creek and adjacent to several stock watering ponds. Cottonwood is located along the river, while willow, California bay, sycamore and big-leaf maple are indicative of springs and seeps. A varied and extensive wildlife population frequents riparian areas.

Coyote Brush Chaparral is distributed at lower elevations along north and east facing slopes. Included in this area are coyote brush, poison oak and emergent trees and shrubs such as elderberry, sycamore, Christmas berry and hoary nettle. Animals seeking shelter in this area include deer, bobcat, brush rabbit, brown towhee and fence swifts.

Chamise Chaparral covers the more exposed south and west facing slopes up to the ridge crests. Typical plants include manzanita, coastal sage and chamise. This area has the same inhabitants as the coyote brush chaparral.

Lower elevations of the ranch have a well-developed mixed evergreen Oak-Woodland plant community of mature coastal live oak, California buckeye, California bay,

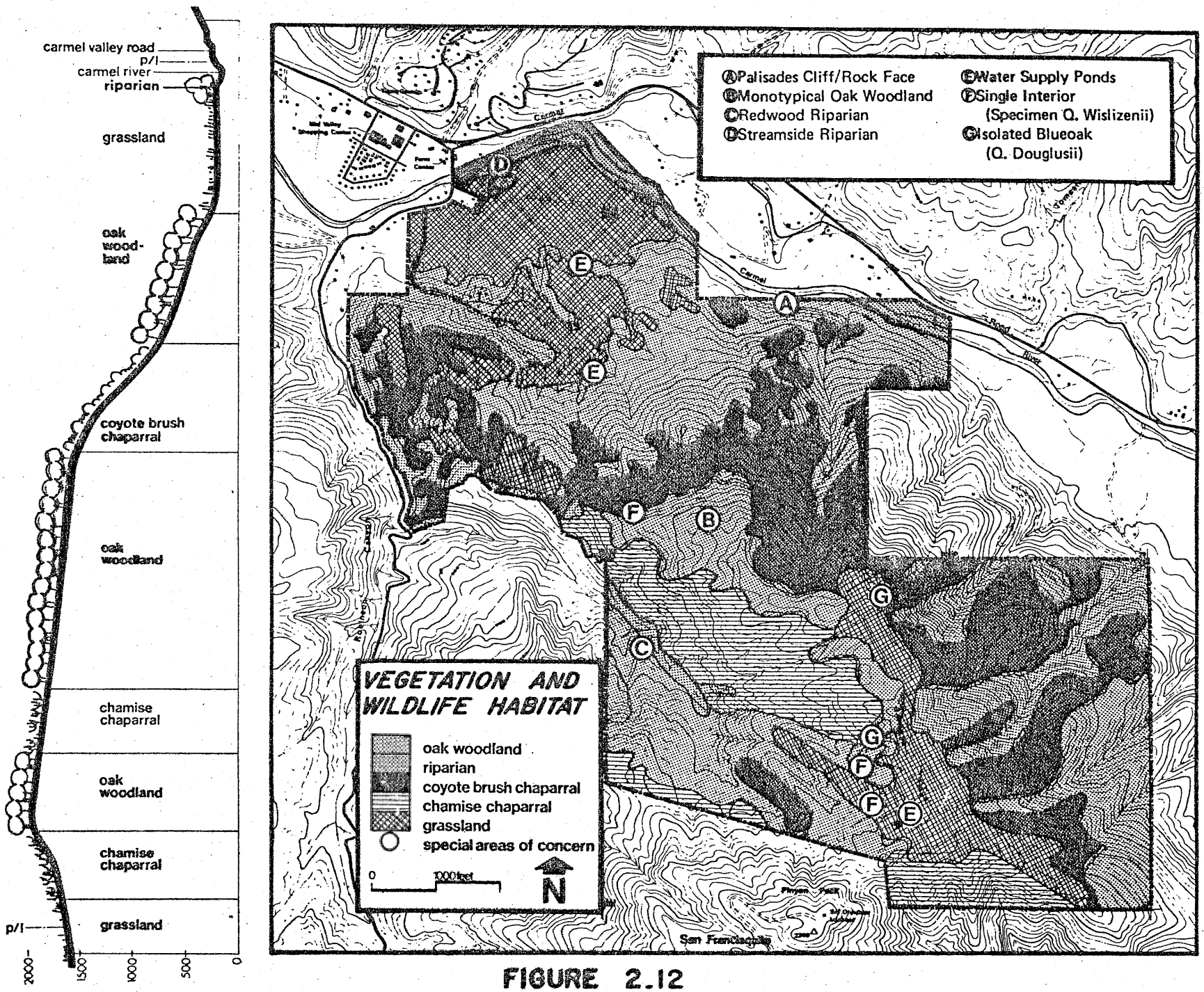

carmel valley road
p/l
carmel river
riparian
grassland
oak wood-land
coyote brush chaparral
oak woodland
chamise chaparral
oak woodland
chamise chaparral
grassland
p/l
2000
1500
1000
500
0
Ⓐ Palisades Cliff/Rock Face
Ⓑ Monotypical Oak Woodland
Ⓒ Redwood Riparian
Ⓓ Streamside Riparian
Ⓔ Water Supply Ponds
Ⓕ Single Interior (Specimen Q. Wislizenii)
Ⓖ Isolated Blueoak (Q. Douglusii)
VEGETATION AND WILDLIFE HABITAT
oak woodland
riparian
coyote brush chaparral
chamise chaparral
grassland
special areas of concern
0
1000 feet
N
Carmel
Point Lobos
San Francisquito

FIGURE 2.12

they have a broad shallow root system the source of water is usually from surface runoff (which is Snivley's Creek) and the percolation of water into a drainage bottom (Snivley's Gulch). The judgement that there will not be a significant impact on these trees is based on the following assumptions: this is a well-developed grove, that Snivley's Creek could be separate from the Synclinal Aquifer, that this structural trap for water extends nearly to Highway 1, and that the seepage of water down to Snivley's Gulch (even during the summer) will not be affected by withdrawal from the Synclinal Aquifer. Obviously, more extensive investigation is needed to determine the exact source of water for the Redwoods and the structural characteristics of the Synclinal Aquifer (whether it is an open aquifer or confined aquifer, and whether withdrawal from the Synclinal Aquifer will affect surface or subsurface flow in Snivley's Creek).

2.10 Views

The property is currently an undeveloped tract except for 3 houses located on the valley floor and the Holt Subdivision located in the middleground area. Generally, the south side of Carmel Valley is undeveloped.

The visual characteristics of the property are defined by landforms and vegetation. The foreground area is composed of the riparian vegetation along Carmel River and the gently sloping grassland of the valley floor. Across this area fence lines have been laid. The remaining middleground and background provide an irregular backdrop of oak-woodland and chaparral on steep slopes.

Views from the lower sections of the property are restricted to views down the valley and across to the south facing slopes of the valley, where conspicuous scars have been left from road cuts. Views from Snivley's Ridge are unrestricted and include the Monterey Peninsula, Santa Cruz and the Salinas Valley.

It should be noted that Laureles Grade Road is an officially "designated" county scenic route and Carmel Valley Road is a "proposed" County scenic corridor according to the Scenic Highway Element of the Monterey County General Plan. (See Figure 2.13 for visual sensitivity map)

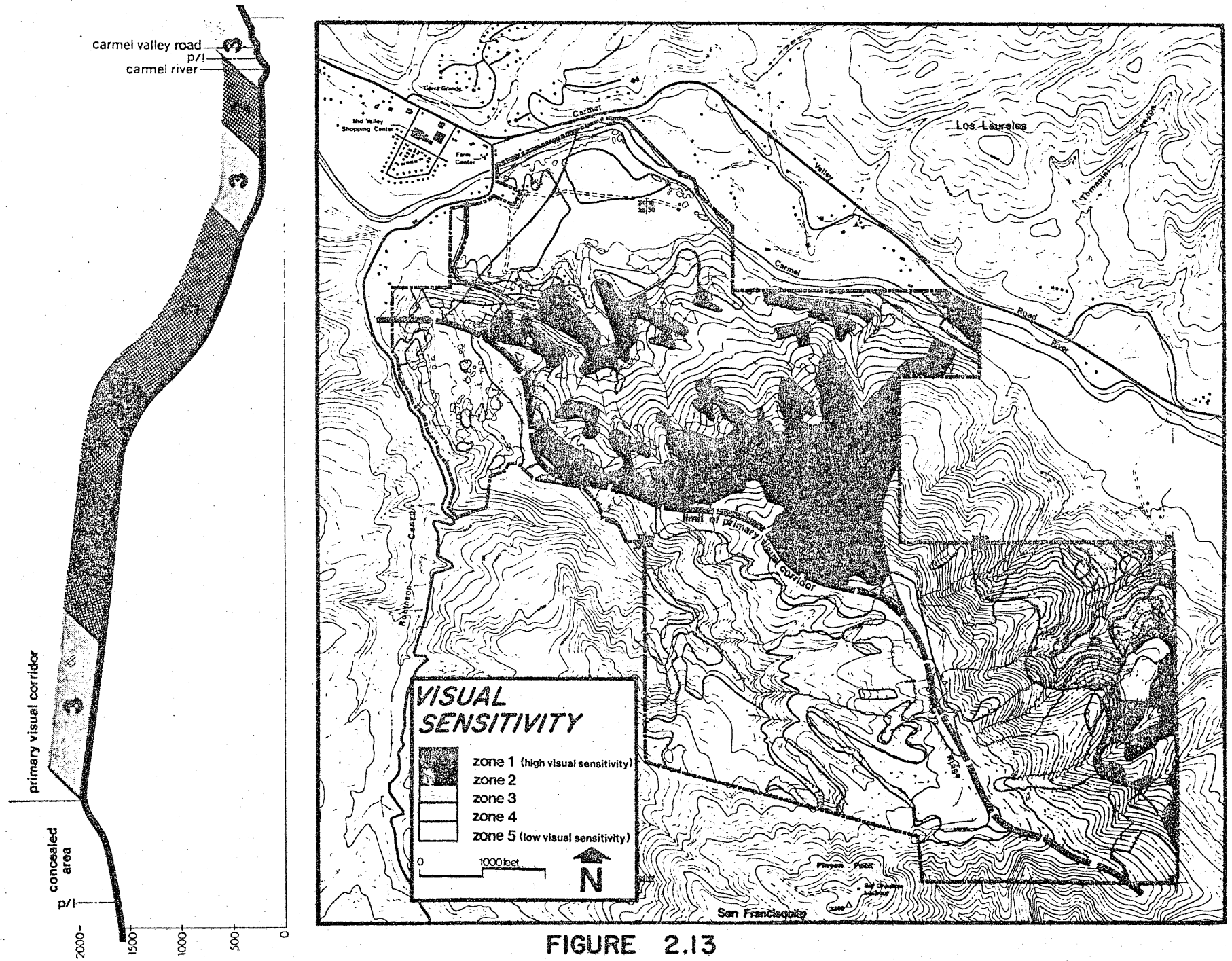

carmel valley road
p/l
carmel river
primary visual corridor
concealed area
p/l
2000
1500
1000
500
0
Carmel
Valley
Road
River
Los Laureles
Mid Valley Shopping Center
Farm Center
Carmel
limit of primary visual corridor
Robinson Canyon
Ridge
San Francisquito
VISUAL SENSITIVITY
zone 1 (high visual sensitivity)
zone 2
zone 3
zone 4
zone 5 (low visual sensitivity)
0
1000 feet
N

FIGURE 2.13

IMPACT:

The placement of residential clusters on the valley floor and moderate slopes adjacent to the valley floor will significantly change the rural character of the site. Distant views of the property from Laureles Grade Road and the western edge of Carmel Valley will probably include the residential cluster on Snivley's Ridge. The mid-elevation plateau clusters will not be visible from the surrounding area.

The placement of roads will also detract from the present visual assets of the property. An additional impact could be the scars left from road cuts, especially the access road to Snivley's Ridge.

2.11 Noise

Current noise levels on the ranch are low due to the undeveloped nature of the property. The ambient noise level is in the 30 to 40 dbA range, more than 50% of the time. The intrusive noise events, predominantly from Carmel Valley Road, are infrequent and low due to the distance between the ranch and the noise sources. Only aircraft events regularly exceed 50 dbA, typically between 50 and 60 dbA depending on distance. (See Appendix D for sound levels on the property and additional data on noise)

IMPACT:

There will be increased noise on the site due to construction and the addition of people, traffic, pets and mechanical devices. The major impact on noise levels will be associated with traffic. Based on HUD acceptability criteria, projected traffic volumes will necessitate placement of suitable noise barriers or setbacks of 250 feet from Carmel Valley Road and 50 feet from Robinson Canyon Road and the main road of the development.

Increased traffic associated with growth in Carmel Valley will increase noise levels adjacent to Carmel Valley Road. The project will have adequate setback from Carmel Valley Road, however, other development along Carmel Valley Road will also be affected by increasing noise levels.

2.12 Population

Carmel Valley Ranch presently has a permanent population of approximately 10 people. There are 3 dwelling units occupied on site and a hunting shack on Snivley's Ridge that is occasionally used.

From Hatton Canyon and Highway 1 to Tassajara Road, a distance of 22 miles, the population in Carmel Valley is approximately 8,200. In the vicinity of Carmel Valley Ranch, a 6 mile distance along Carmel Valley Road between Valley Greens Drive and Laureles Grade Road, there are approximately 1,450 residents (based on 2.6 people in 558 dwelling units).

IMPACT:

Full development of Carmel Valley Ranch is expected by 1990. At that time there will be 2,200 residents, 133 employees and an average of 250 resort lodge guests added to the population of Carmel Valley. The project will also employ approximately 160 craftsmen and construction workers during 1976, decreasing thereafter through buildout. By 1990 Carmel Valley will have an estimated population of 16,400 (based on an annual growth rate of 4.4%). Carmel Valley Ranch would represent 13% of the valley population at that point.

Implementation of the Specific Plan will also result in the displacement of 3 families.

2.13 Traffic and Circulation

According to a rating system used by the Monterey County Department of Public Works and the Monterey County Transportation Study (formerly SMATS), Carmel Valley Road both west and east of the Robinson Canyon Road intersection is operating at a level of service "C" ("stable flow"). The Annual Average Daily Traffic (AADT) west of Robinson Canyon Road is 7,500, and the level of service will fall to "D" ("approaching unstable flow") when an additional 680 movements per day are added. The AADT east of Robinson Canyon Road is 5,000, and the level of service in this section of Carmel Valley Road will fall to "D" when an additional 2,920 movements per day are added. The Monterey County Transportation Study considers any road

below a service level "C" as deficient.

Laureles Grade Road is at a level of service "C" from Carmel Valley Road to Miramonte Road, and will remain at that level until 3,780 additional movements per day are added. North of Miramonte Road the level of service falls to "D."

The Department of Public Works has rated the "Practical Capacity" for Robinson Canyon Road as being 800 movements during the peak hour. The present peak hour traffic for Robinson Canyon Road is approximately 70 movements.

Carmel Valley Road is four lanes divided in the lower 2 miles, from Carmel Rancho Boulevard to Via Petra. In 1978 the County plans to improve the next 1.7 miles to four lanes, from Via Petra to Valley Greens Drive. The effect of improving a road to four lanes doubles the capacity of the road in that particular section.

In the Monterey County Recreational Trails Plan a bicycle trail is proposed along Carmel Valley Road.

IMPACT:

Full development of Carmel Valley Ranch is expected by 1990. At that time the development will generate a total of 7,871 movements per day, of which 26% will be internal and 74% will be external. The following is a summation of traffic generated by implementation of the Specific Plan:

	Internal Movements Per Day	External Movements Per Day
Resort Lodge	323	627
Golf Club	44	29
Patio Homes	657	1,971
Townhouses	435	1,305
Single Family Homes	471	1,411
Employees	150	448
TOTAL	2,080	5,791

There will be a major impact on Carmel Valley Road west of Robinson Canyon Road. Approximately 90% of the external movements, or 5,212 movements, will be west on Carmel Valley Road. This development alone will reduce the level of service in this area to "D."

The remaining 10% of the external movements, or 579 movements, will be east of Robinson Canyon Road and will use Laureles Grade Road. This will affect a portion of Laureles Grade Road which already has a level of service "D." The movements from Laureles Grade Road onto Highway 68 will be evenly divided to the east and west.[21]

The project will bring the peak hour traffic on Robinson Canyon Road to approximately 580 movements, which is below the "Practical Capacity." This addition represents a signficant increase. Robinson Canyon Road also serves as an alternate access to the 20,000 acre Rancho San Carlos, which has an adopted master plan indicating a satellite city development concept for between 5,500 and 11,000 households.

Approximately 60% of the movements west of Robinson Canyon Road are expected to use Highway 1. The addition of approximately 3,127 movements per day will increase congestion at the mouth of the valley and will severely aggrevate an already congested traffic situation on Highway 1.

According to the Department of Public Works: "The Robinson Canyon/Carmel Valley intersection is the major concern in the traffic section of this EIR. Acceptable intersection design could likely be developed, and could range from minor intersection modification to a major interchange ...."[22]

Several road construction projects are presently under consideration, although exact dates cannot be predicted due to financial restraints. These include replacement of a two lane section of Highway 1 with a full freeway in Hatton Canyon, widening Carmel Valley Road to four lanes through to Robinson Canyon Road, and, although unlikely, Canada de la Segunda Road connecting Carmel Valley Road with Highway 68. Construction of these roads would reduce the impacts of this development. It should be noted, however, that this project could cause a growth inducing impact by making the widening of Carmel Valley Road to Robinson Canyon Road a necessity. (See Figure 2.14 for circulation map and Appendix E for additional information on traffic)

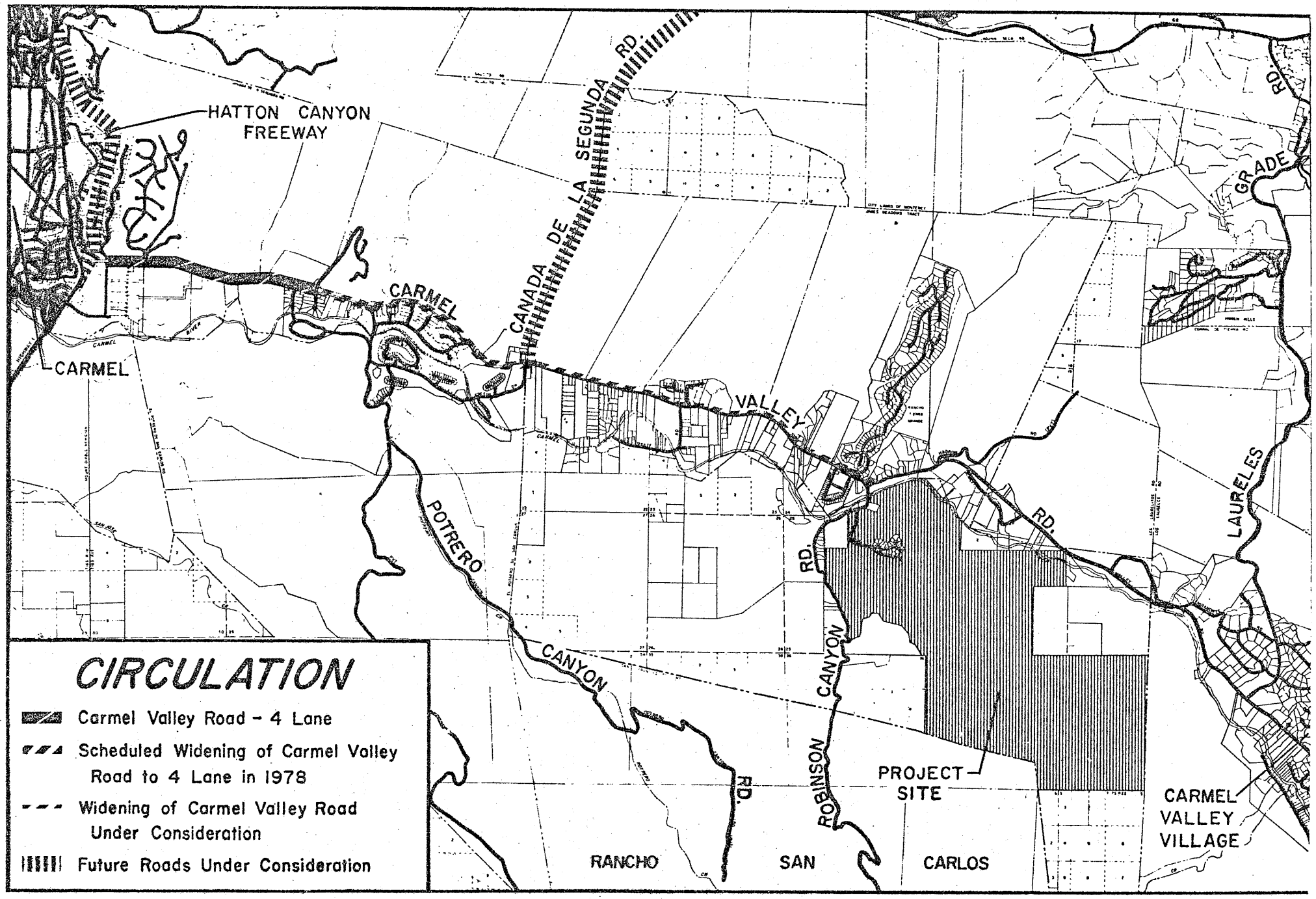

HATTON CANYON FREEWAY
CARMEL
CANADA DE LA SEGUNDA RD.
CARMEL VALLEY
GRADE RD.
LAUREL RD.
POTRERO CANYON RD.
ROBINSON CANYON RD.
PROJECT SITE
CARMEL VALLEY VILLAGE
RANCHO SAN CARLOS
CIRCULATION
Carmel Valley Road - 4 Lane
Scheduled Widening of Carmel Valley Road to 4 Lane in 1978
Widening of Carmel Valley Road Under Consideration
Future Roads Under Consideration

FIGURE 2.14

2.14 Air Quality

In general, air quality in Carmel Valley is better than that experienced in other parts of the Monterey Bay Unified Air Pollution Control District. Oxidant measurements at the Mid-Valley Shopping Center monitoring station exceeded the Federal Standard (.08 ppm) on 37 days for a total of 121 hours between 1973 and 1974. By using the State Air Resources Board unofficial correction factor of .78 for these figures*, only 2 days for a total of 2 hours exceeded the Federal standard between 1973 and 1974.

IMPACT:

Additional air pollution sources from this development include: dust from construction, which is temporary; emissions from natural gas, which are comparatively small; and the more significant amounts of emissions from fireplaces and vehicles.

The following chart indicates the total emissions at full development of the Specific Plan (in pounds per day).

	Co	Hc	NOx	PM
Space Heating[1]	34	14	86	32
Fireplaces[2]	1228	352	19	299
Vehicles[3]	500	38	104	39
TOTAL	1762	404	209	370

1. 855 D.U. x 2000 feet ^{3}/day natural gas consumption x EPA emission factors.
2. 855 fireplaces in D.U.'s plus 1 each at golf clubhouse and lodge x 25 pounds per day wood consumed x ARB emission factors.
3. 24,900 VMT/day off-site at highway speed of 50 mph plus 7700 VMT/day on site at speed of 30 mph x EPA emission factors for year 1990 vehicle mix.

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* Preliminary findings (November, 1973) indicate that those monitoring stations using the ARB methodology, which includes this station, have been currently over estimating the measured values by 25 to 30 percent.[23]

Emissions from fireplaces and vehicles are potentially significant sources of local pollution when a low-level temperature inversion confines the emissions to the area. Emission rates for vehicles are expected to decline in response to emission control regulations.

The following chart indicates the estimated emissions from vehicular traffic on Carmel Valley Road (in pounds per day):

	Co	Hc	NOx	PM
1973	7997	911	1935	117
Carmel Valley Ranch (1990)	342	26	83	30
1990 Total[1]*	2073	157	507	180

1. Includes Carmel Valley Ranch contribution.

The following chart notes vehicular emissions within Monterey County. The vehicular emissions from Carmel Valley Ranch are insignificant compared to the vehicular emissions within the County.

AVERAGE VEHICULAR EMISSIONS OF AIR POLLUTANTS
(Tons Per Day)

	Co	Hc	NOx	PM
1970	275	53.1	21.9	2.2
1971	265	51.6	28	2.3
1972	271.8	53.1	30.7	2.3
1973	227.6	38.4	27.8	2.1
1974	221.8	35.5	23.6	2.1

2.15 Municipal Services and Utilities

2.15.1 Water

The California-American Water Company serves approximately 27,000 customers

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* Based on approximately 30% increase in estimated daily vehicle miles travelled (VMT) from 1973 to 1990. In 1990 there will be an estimated 151,200 VMT per day on Carmel Valley Road.[24]

on the Monterey Peninsula and in Carmel Valley. The service area on Carmel Valley Ranch extends to 300 feet MSL. Currently there is a P.U.C. ruling prohibiting Cal-Am from extending mains to service new customers. As stated in the groundwater section of this report (Section 2.8.1), the applicant proposes to withdraw water for residential use from the newly discovered Synclinal Aquifer.

IMPACT:

Upon total development of the project (1990), water consumption will be divided into the following amounts:

	Peak Day (gallons)	Annual Consumption (acre-feet)
Golf Course Irrigation	440,000	340
Hotel Irrigation	16,000	12
Hotel Domestic	42,000	35
Golf Club Domestic	5,000	4
Residential	440,000*	308*
TOTAL	943,000 g.p.d.	699 acre-feet/year

Assuming there is an adequate supply of water in the Synclinal Aquifer, and that this newly discovered aquifer is separate from the Carmel Valley Aquifer, this development will not compete with Cal-American for the available water from the Carmel Valley Aquifer. Prior to domestic use reaching full capacity most of the water for golf course irrigation must be withdrawn for the Carmel Valley Alluvium Aquifer. The peak will be 340 acre-feet per year during the initial phase, decreasing to approximately 60 acre-feet upon full development. The result will be a decrease from the amount presently used.

Based on selected water quality standards utilized by the U.S. Public Health Service, the quality of water from Holt #1 (drawing from the Synclinal Aquifer) is acceptable as drinking water. The exception is a high iron content indicated for Holt #1 (1.3 p.p.m. versus 0.3 p.p.m. allowable). (See Appendix B for water quality)

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* Residential use based on 120 gallons per person per day average, with peak usage of 200 gallons per person per day.[25]

According to Bill Parsons, Monterey Peninsula Sanitation District, the landfill at Marina is currently utilizing the initial 25 acres, servicing approximately 130,000 people, and there will be no significant impact from this development.[27] Elio Chiappe of the Carmel Valley Disposal Service states that no additional manpower will be needed until 800 units are developed, at which point the addition of 2 men and 1 truck will be required.[28]

2.15.4 Natural Gas and Electricity

Service is provided by Pacific Gas and Electric Company. Facilities are currently serving the Holt Subdivision.

IMPACT:

According to Ray Benson of P.G. & E., facilities necessary to serve this development will not require additional staff.[29] The applicant states that all existing and proposed transmission lines will be placed underground where feasible.

2.15.5 Telephone

Carmel Valley is served by Pacific Telephone and Telegraph Company.

IMPACT:

Pacific Telephone and Telegraph Company anticipates no significant problems servicing Carmel Valley Ranch, and no increase in the work force is expected.[30]

2.15.6 Schools

Carmel Valley Ranch is located within the Carmel Unified School District. Schools that would presently serve this project are the Tularcitos Elementary School (5 miles east), Carmel Middle School (5 miles west) and Carmel High School (6 miles west).

The following chart illustrates the present situation at the various schools:

	Current Enrollment	Capacity
Tularcitos School	374	475
Carmel Middle School	813	800
Carmel High School	1,145	1,000

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The following chart illustrates the present situation at the various schools:

	Current Enrollment	Capacity
Tularcitos School	374	475
Carmel Middle School	813	800
Carmel High School	1,145	1,000

IMPACT:

The proposed Specific Plan would add 413 students to the school district upon full implementation in 1990. According to Dr. Harris Taylor, Superintendent of the Carmel Unified School District, the major impact of increased attendance will be felt at the Middle School and high school. Specifically, this development will require the addition of 7 rooms at the high school, 6 rooms at the Middle School and 3 rooms at the elementary school level. Development will also reuqire 17 additional teachers, 2 additional support personnel and 2 additional classified personnel.[31] Based on the project phasing plan, approximately 29 new students will be added per year. (See Figure 1.10 for School District revenue and cost analysis)

2.15.7 Police Protection

Police protection is provided by the Monterey County Sheriff's Department, with coverage of Carmel Valley originating at the courthouse in Monterey, approximately 12 miles from the ranch.

IMPACT:

Don Ennis, Monterey County Assistant Sheriff, states there is no immediate need for additional staff. The cumulative impact from additional growth in Carmel Valley, however, will eventually require additional manpower.[32]

2.16 Fire Hazard and Fire Protection

Fire protection for Carmel Valley Ranch is currently provided by the State Division of Forestry. Beginning July 1, 1975 fire protection for the area on the ranch up to the Holt Subdivision will convert to the Mid-Valley Fire District, which is in the process of being formed. The Carmel Valley Ranch development will have to meet various requirements of the Mid-Valley Fire District before the entire property could be annexed to the district.[33]

The State of California Resources Agency has established criteria to classify fire hazard areas within the state. Vegetation, fire weather and slope are the factors to be considered when classifying a given area. The project site ranges

from moderate to high hazard, with one-half of the site in the high hazard range due to the steepness of slopes and the nature of vegetation.[34]

IMPACT:

Residential areas in a high fire hazard area must be carefully planned for fire protection. Should a fire occur at this site, it is probable that damage would result to some of the homes. In addition, the increased human activities could result in an even greater fire danger than the site is now exposed to. Fire represents an additional hazard by removing vegetation and increasing the erosion rate.

2.17 Archaeological Resources

A reconnaissance of Carmel Valley Ranch was undertaken by archaeological consultants and no indication of archaeological resources were found.[35] There are, however, several sites recorded near the ranch. These are located near the mouth of Robinson Canyon (4-Monterey-26), adjacent to Carmel Valley Road (4-Monterey-27), and at the junction of Carmel Valley Road and Robinson Canyon Road (4-Monterey-499). (See Appendix F for brief history of the site)

IMPACT:

The project will have little impact on known archaeological resources. The applicant states that if artifacts are unearthed during construction an archaeologist will be contacted for assessment.

2.18 Housing Needs of Monterey County

The Housing Element of the Monterey County General Plan forecasts the housing needs for the residents of Monterey County. There are not enough units being constructed at this time to take care of the normal population growth of the County. As an example, it is predicted that between 1970 and 1975 approximately 20,000 housing units will be needed to meet growth demands; included in this number are replacement of older housing units, renovating substandard housing units and construction of additional housing units. These new units must meet the needs of all segments of the population, with a special emphasis placed on supplying the needs

of the County's low and moderate income families.

The following chart illustrates the need for various types of new housing.[36]

Income Group	Gross Family Income	Number	Percentage
Low (under $20,000 dwelling unit)	0 - 2,999	4,904	8.6%
	3,000 - 4,999	5,896	10.3%
	5,000 - 7,999	11,242	19.7%
Moderate (under $37,500 dwelling unit)	8,000 - 9,999	7,533	13.2%
	10,000 - 14,999	15,622	27.4%
Upper (over $37,500 dwelling unit)	15,000 - 25,000	9,147	16.0%
	25,000 - Over	2,761	4.8%
TOTAL		57,105	100.0%

To find the housing unit affordable the gross family income was multiplied by 2.5. For example, a family income of $8,000 x 2.5 equals a maximum affordable unit of $20,000.

It is estimated that the least expensive unit on the Carmel Valley Ranch will cost approximately $75,000. Units on Carmel Valley Ranch will, therefore, be made available to upper income group families, and probably to those families with gross income of $25,000 or more. Thus, development of Carmel Valley Ranch would not be meeting the more pressing need of low or moderate income group housing. It should also be noted, however, that units in Carmel Valley have the highest market value of any area in Monterey County.

2.19 Competitive Facilities

Based on Monterey Peninsula Chamber of Commerce figures there are 5,462 transient rooms available on the Peninsula as of February, 1975. At the present time there are also 16 public and private golf courses.

The following list gives the name of the 12 largest hotels or motels and the number of units for each:

1.	Hyatt House	416
2.	Asilomar	285
3.	Royal Inn	200
4.	Holiday Inn on the Beach	196
5.	Holiday Inn in Carmel	165
6.	Hotel San Carlos	149
7.	Del Monte Lodge	135
8.	Highlands Inn	133
9.	Casa Munras	131
10.	Fairgrounds Travelodge	100
11.	Quail Lodge	96
12.	Ramada Inn	80

IMPACT:

When completed the Resort Lodge in the Carmel Valley Ranch development will be the third largest on the Peninsula in terms of guest rooms.

3. ENVIRONMENTAL IMPACT ANALYSIS

3.1 Adverse Environmental Effects That Cannot Be Avoided if the Proposed Plan Is Implemented

The following is a summary of the adverse environmental effects expected to result from implementation of the proposed Specific Plan:

1. Loss of wildlife habitat.
2. Loss of grazing land.
3. Increased load on schools.
4. Increase in traffic.
5. Increase in noise.
6. Increased runoff from site.
7. Visual impact on area from the loss of a natural environment.
8. Increased commitment of energy and resources.
9. Increased erosion potential.
10. Location of residences within the 100-year flood plain of the Carmel River.
11. Growth inducing impact of the addition of 2,200 people in Carmel Valley.
12. Increased demand for water.
13. Increased fire potential.
14. Removal of natural vegetation.
15. Visual and physical impacts on landforms from the cut and fill operations.
16. Short-term increase in air pollution.

3.2 Mitigating Measures Proposed to Minimize the Impact of the Specific Plan as Proposed

Specific environmental studies have been undertaken by the applicant to aid in preparation of the Specific Plan for development of Carmel Valley Ranch. Many of the following mitigating measures have been proposed by the applicant.

3.2.1 Geological Mitigation

a. Placement of golf course and tennis facilities on stabilized landslides.

b. Talus cones and aprons on greater than 30% slope and the active landslide will be placed in Open Space.

c. More extensive soils and drainage studies to recommend mitigation for placement of cut and fill and adequate drainage for landslide areas, and locating exactly where liquefaction can occur.

d. Down cutting access road to Snivley's Ridge rather than side cutting which would create a larger scar.

e. Methods used to increase slide stability, such as: buttressing the "toe" area, removal of upper portions of the slide to reduce weight, portions of the slide removed to permit the old slick sliding surface to be broken up and replaced by uniform compacted fill, avoid ponding and having adequate drainage. Consideration should also be given to the influence of earthquake induced lateral forces.

3.2.2 Seismic Mitigation

a. All structures to be designed to withstand shaking and peak acceleration levels in various parts of the property.[37]

b. Investigation by a qualified geologist to pin-point exact fault locations relative to the golf club, valley floor residential clusters and the resort lodge. Included should be recommendations for adequate setbacks and proper foundation design. The applicant states that these recommendations will be included in construction specifications for structures and improvements.

3.2.3 Soils Mitigation

a. The placement of residential clusters in relatively gentle sloping areas will reduce potential cut and fill amounts.

b. Complete analysis by a soils engineer to recommend methods to reduce erosion and to locate special problem areas.

c. Upon completion of grading operations the topsoil should be returned to aid in revegetation. Revegetation should be completed prior to each rainy season.

d. Use of temporary erosion and sedimentation control devices.

e. Grading for golf course implemented so as not to affect normal river bank stability.

3.2.4 Climatic Mitigation

a. Proper tree placement and foundation design to reduce the effects of high winds.

3.2.5 Energy Mitigation

There are several ways in which Carmel Valley Ranch may be designed and operated to make efficient and wise use of energy. Among these are:

a. Insulation and other protection from heat loss and heat gain.

b. Alternative means of transportation such as organized car pooling and bicycle lanes on roads.

c. Use of solar energy for water and space heating.

d. Building design relative to climatic conditions, such as building orientation to capitalize on natural heating and cooling effects.

3.2.6 Hydrology Mitigation

a. Using gravelly surfaces for parking lots and driveways.

b. Use of golf course ponds (separated from wastewater storage ponds) or construction of surge detention siltation ponds that will limit flows to approximately the peak of rate prior to development.

c. A detailed hydrology study to recommend adequate surface drainage facilities.

d. Golf course irrigation operated with timers, and consideration of the use of tensiometers.

e. Location of all residential clusters above the 100-year flood plain.

f. Heavy construction equipment prohibited from operating in the Carmel Riverbed except during period of low flow.

g. Minimizing surface drainage into the Carmel River reduces the impact the runoff water quality will have on the river.

h. Floor levels in houses constructed within the 100-year flood plain to be one foot above the 100-year flood level.

3.2.7 Vegetation and Wildlife

a. The use of vegetation native to Carmel Valley in revegetation of the site.

b. Revegetation to occur immediately following construction activities and before the rainy season.

c. A tree removal and vegetation management plan be developed in site plan preparation for the resort lodge and residential clusters in the oak-woodland area. Based on this plan better quality tree specimens, especially those in visually sensitive areas, can be protected.

d. Use of fire retardant vegetation.

e. Revegetation of Riparian areas.

f. Use of cluster type development compared to low density sprawl development.

g. Avoiding development of areas immediately around existing springs, seeps, streams and watering ponds. Also, providing additional water sources.

h. Scenic easement coverage of open space.

3.2.8 Traffic and Circulation Mitigation

a. Use of a shuttle system between the airport and the resort lodge.

b. A system of golf cart/pedestrian pathways to reduce automobile use. This will also reduce energy consumption.

c. Extension of public transport down Carmel Valley.

d. Private shuttle system from Carmel Valley Ranch to existing public transport in the Carmel Rancho Shopping Center.

e. Extension of Center Street in the Mid-Valley Shopping Center to provide alternative access to Robinson Canyon Road from Carmel Valley Road.

f. Mitigation for traffic hazards caused by fog include reflective or lighted traffic control markings.

3.2.9 Noise Mitigation

a. Establishment of a maximum speed limit of 25 - 35 mph within the development.

b. Plant appropriate vegetation along roadways.

c. Strategic placing of housing on building sites.

3.2.10 Air Quality Mitigation

a. Consideration of limiting the number of fireplaces.

b. Use of golfcart/pedestrian pathways limits automobile use.

c. Dust generated during construction can be controlled by wetting down the site and stabilizing exposed surfaces.

d. Reduction in air pollution from vehicles due to more stringent emission regulations.

3.2.11 Visual Mitigation

a. Down cutting of access road to Snivley's Ridge will minimize visual impact. Sight angles from the valley floor to the elevation of the new road will obscure new cut surfaces.

b. All utilities will be underground.

c. Areas of unusual aesthetic value, such as the palisades, will be designated for open space.

d. Proper site selection and house placement on lots.

e. Design review by an Architectural Control Committee.

f. Extensive landscaping throughout the property. Especially the sewage treatment plant, the resort lodge and residences on the valley floor.

g. Scenic Easement coverage of open space in perpetuity.

h. Limited development and construction along ridgelines.

3.2.12 Sewage Treatment Plant Mitigation

a. Lining of sewage storage ponds.

b. Location of treatment plant so that any odors are not carried directly to any existing or proposed residences or the resort lodge.

c. Satisfactory visual screening of facility.

d. Location in a flood proof area.

e. No discharge is made to the Carmel River or the underground aquifer.

f. Storage ponds large enough to handle peak flows.

g. No accessibility by the public to the sewage treatment ponds.

3.2.13 Archaeological Mitigation

a. The applicant states that if artifacts are unearthed during construction an archaeologist will be contacted for assessment. This should be through the South Central Coast Clearinghouse at U.C. Santa Cruz.

3.3 Alternatives of the Proposed Specific Plan

3.3.1 No Project

This alternative would have the least impact on the natural environment. With no development on this site it would retain its usefulness as a grazing area and wildlife habitat. This alternative would also preserve the ranch for future land use options.

3.3.2 Another Site

The relocation of this project closer to an urban center is a viable alternative . This alternative would reduce the effects of non-contiguous growth.

3.3.3 Carmel Valley Master Plan Alternative

According to the Carmel Valley Master Plan, adopted by the Board of Supervisors in 1961, the portion of the property below Snivley's Ridge was designated for Rural Residential Expansion (based on 3.2 persons per net acre). This alternative could potentially create a greater disruption of the environment. "Low density sprawl" communities compared to higher density developments result in higher economic costs, environmental costs and natural resource consumption for a given number of dwelling units.[38]

3.3.4 Del Monte Carmel Valley Ranch Plan Alternative

The Del Monte Carmel Valley Ranch Plan, which is the existing plan for the property, calls for a range of from 500 units to 1500 units. A reduction in density to 500 units could reduce the impact on the site by requiring less grading, which would result in less potential for erosion. This alternative might present itself as an excellent way to mitigate the adverse impacts of Section 3.1. An increase in density to 1500 units would result in greater degradation of the natural environment. It should be noted that the Del Monte Carmel Valley Ranch Plan does not restrict development on the three landslides, in areas of steep slope or in the palisades area.

3.3.5 Monterey Peninsula Area Plan Alternative

The Monterey Peninsula Area Plan, which is superceded by the Carmel Valley Ranch Plan, designates the valley floor area as Rural with 1 family per net acre, the area adjacent to the valley floor is designated as greenbelt, and the remaining areas of the property are designated as Agriculture and Grazing. This plan limits development to the relatively flat valley floor, and comparatively, the effects on other areas of the property would be less. This plan and the Specific Plan would have a similar visual impact from Carmel Valley Road.

3.3.6 Design Alternatives

Other design configurations and operational procedures include:

a. Less intensive structural development on the valley floor.

b. More intensive development of the Snivley's Ridge area.

c. Different access road arrangements.

d. Variations in golf course routing.

e. Connection to the Carmel Sanitary District trunk line.

f. Alternate means of access to Carmel Valley Road.

3.4 The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The property is presently useful for grazing and as a scenic and open space

resource supporting a natural and interesting plant and animal community. Implementation of the proposed Specific Plan will commit 600 acres of the land to an urban use for an indefinite number of years.

If this proposed plan is implemented it will enhance the long-term productivity of the property in terms of social and cultural benefits, however, it will replace a natural self-perpetuating environment with low maintenance requirements (in terms of energy and material) for a non-perpetuating human environment with high maintenance requirements. Therefore, a decision has to be made as to whether the need for this project is greater than the need of this land for grazing and wildlife habitat.

3.5 Irreversible Environmental Changes That Would Be Involved in the Proposed Plan Should it be Implemented

The proposed project will commit this property to a specific urban use for an essentially permanent period of time. Grading and the construction of buildings and roads are virtually irreversible uses of the land. The project will alter the visual and aesthetic resources of the site. Also, a reduction of resident wildlife population and damage to vegetation and wildlife habitat will occur.

3.6 Growth Inducing Impact of the Proposed Plan

An estimated 2,200 people will live in the 855 housing units. The project itself will induce population growth in Carmel Valley, although not by 2,200 people as some families would choose to live elsewhere in the valley if the project was not built. However, a portion of the families will be induced to live in Monterey County because of this project. (See Figure 3.1 for growth patterns on the Monterey Peninsula and in Carmel Valley)

There will be additional population growth inducement from this project other than the people who will live there. The 133 jobs created will support about 106 households, bringing some families to the area and enabling some other families, who would otherwise move elsewhere to find work, to remain in the area.

The additional residents will also require the creation of new jobs to pro-

vide them with the services they need. For example, it is estimated that 21 new teachers and support personnel are required to educate the children. The induced jobs will include bank clerks, mechanics, barbers, painters, store clerks, carpenters and dentists. Most of these jobs will not be held by residents of Carmel Valley Ranch, as a household income of over $25,000 is needed to live there. Few of the created jobs will provide this income and additional growth will result.

Carmel Valley Ranch could initiate a growth inducing effect situation in Carmel Valley. The cumulative effect of residential developments may bring about the extension of municipal services such as gas, water and sewer service. If this happens, a growth inducing effect might occur by merely having these services available for the surrounding undeveloped areas.

The Mid-Valley Shopping Center, located .5 miles from the project, will be the commerical area most likely affected by this development. A positive effect on Carmel Valley could result through the additon of commercial establishments concentrated in this area. By creating a larger shopping complex, people in the valley would not necessarily have to drive to the mouth of the valley or further to find needed goods.

The cumulative effects of growth in Carmel Valley must also be considered. A determining factor will be the supply of water, however, other impacts such as increased traffic, increase in noise associated with traffic, the loss of wildlife habitat, the effects of increased land values on undeveloped lands, and visual impacts from the loss of natural areas will also effect the environmental setting in the valley.

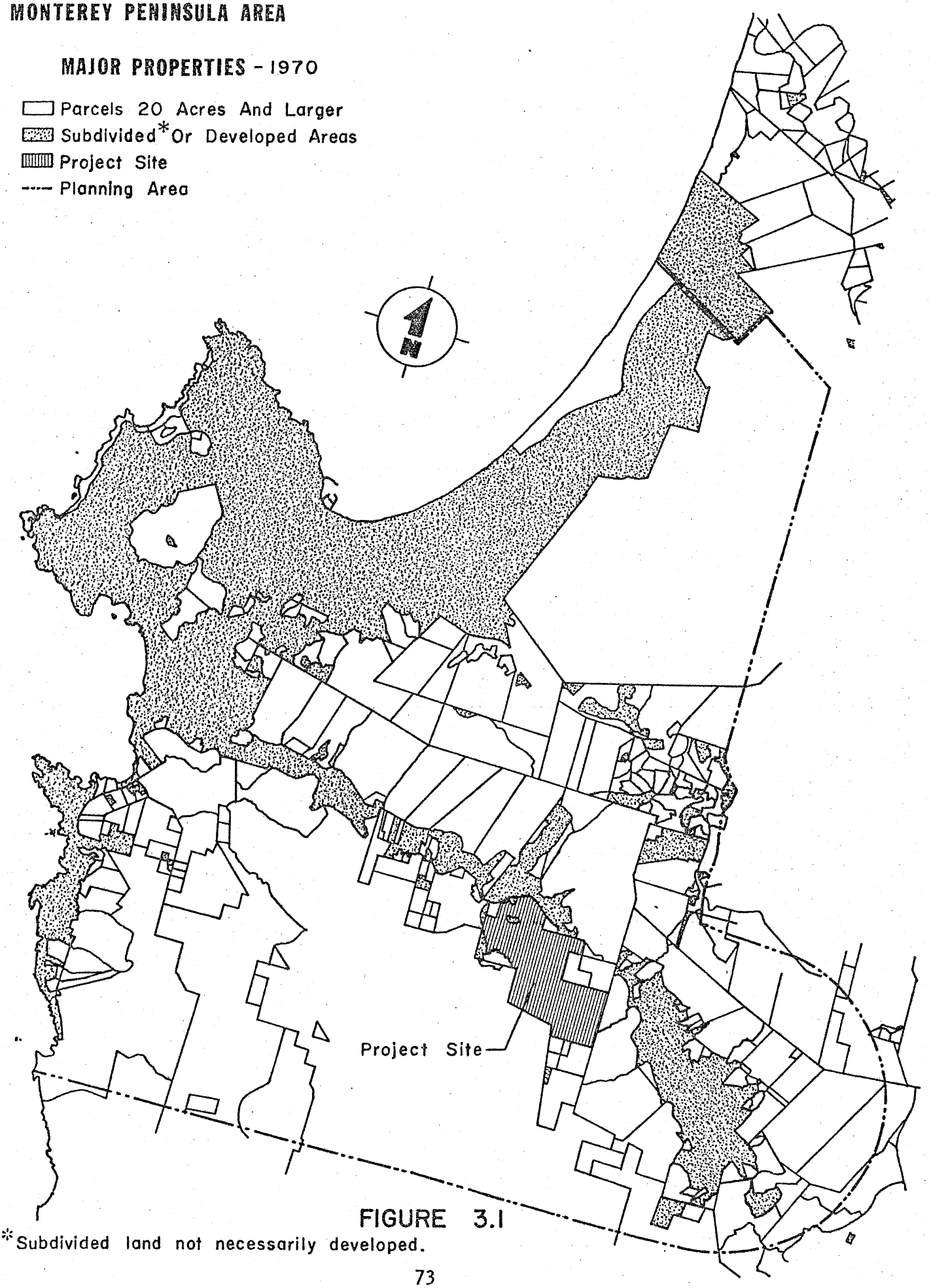

FIGURE 3.1

*Subdivided land not necessarily developed.

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