EXHIBIT 4c

Environmental Impact Report

Planning Commission Staff Report
June 11, 2015

CRC Oil and Gas Project
Case No. PL13-0150

Exhibit 4c:

Certified Environmental Impact Report

Ventura County Resource Management Agency

FINAL ENVIRONMENTAL IMPACT REPORT MODIFICATION OF CONDITIONAL USE PERMIT NO. CUP-3344

ARGO PETROLEUM CORPORATION
FERNDALE RANCH LEASE
VENTURA COUNTY

Prepared by:

McClelland Engineers, Inc.
Environmental Services

This report has been prepared pursuant to Division 13 of the Public Resources Code

Approved by:

Victor R. Husbands

Victor R. Husbands, Director
Resource Management Agency

10/4/84
Date

McClelland engineers,inc./environmental services

2140 Eastman Avenue, Ventura, California 93003, Tel. (805) 644-5535, Telex 659-241, Telecopier (805) 642-4791

September 25, 1984

County of Ventura
Resource Management Agency
Planning Division
800 South Victoria Avenue
Ventura, CA 93009

Attention: Mr. Dennis Hawkins

Dear Mr. Hawkins:

Transmitted herewith is the final EIR for Modification of Conditional Use Permit No. CUP-3344 (Argo Petroleum) that was certified by the Board of Supervisors/Environmental Report Review Committee on October 2, 1984. The report has been revised to reflect all written and verbal comments received to date. Copies of all written comments and a summary of all meetings are contained in Appendix E, as well as a response to each comment.

The public review period for this EIR was from May 25 to July 3; however, no written comments were received during this period. In order to provide all affected parties ample time to provide input, they were allowed to submit written comments and material as late as September 25. In addition, we solicited verbal comments from the affected parties (Argo Petroleum, Ferndale Ranch, Lawrence Barker) at a series of meetings after the close of the public review period.

During our meetings with the affected parties, several basic concerns were expressed. These were primarily in three areas: 1) purpose of EIR; 2) need for more detailed engineering and cost information; and 3) the ranking of the alternatives. Because these issues are basic to the understanding of the EIR, they are summarized below.

Purpose of EIR

This report is a focused EIR that only addresses the environmental consequences of providing access to Argo Petroleum's Ferndale Ranch lease. It does not address the actual drilling and production of oil from the proposed new wells. The Board of Supervisors previously found that this was adequately addressed in the Mitigated Negative Declaration for the project (Appendix A).

In accordance with the Board's October 4, 1983, decision, the objective of this focused EIR is a comparative analysis of all reasonably feasible alternative access roads available to serve oil related traffic associated with Argo Petroleum's revised drilling program for its Ferndale Ranch lease. The intent is to provide decision-makers with sufficient information to select the environmentally superior access alternative. However, this EIR is only intended to be a comparative analysis of possible access corridors; it is not a design and engineering study for specific road alignments.

Environmental vs. Engineering Study

Because the basic purpose of this EIR was not clearly understood by the affected parties, several comments were received stating that more detailed information should be provided in the EIR on the cost and engineering of the access alternatives. During our meetings with the affected parties, it was explained that the EIR scope of work did not call for detailed engineering studies. In order to provide some basis for comparing the relative costs of possible access alternatives, our scope of work included estimating rough costs of a road within each corridor. This was cursory effort that was only intended to provide a basis for comparison of the access alternatives. To provide the detailed cost and engineering information requested would necessitate the actual engineering design of a road alignment within each alternative access corridor, which was not within the scope of work for this EIR.

In accordance with the objectives of the EIR, a comparative environmental analysis of roadway corridors was performed. A corridor is a wide band in which a specific road alignment may be possible. Other than existing ranch roads, no specific road alignments were proposed by any party, and only limited engineering data was provided to us on any of the road alignments. Therefore, the EIR was a comparative environmental analysis of roadway corridors.

Ranking of Alternatives

A major point of discussion during our meetings with the affected parties was the basis for the comparison and ranking of the access road alternatives (Table 2 in the EIR). Because of the concerns expressed, it is important to understand the purpose and limitations of the ranking.

The purpose of the ranking (Table 2) is to provide a relative comparison of each access alternative in terms of the degree of impact to each environmental parameter examined (e.g. geologic hazards, biologic resources, archaeologic resources, etc.), as well as a composite ranking. Most of the parameters evaluated have no adopted criteria by which to evaluate their impact; therefore, a value judgment is necessary to rank the alternatives. The suggested ranking in Table 2 reflects the value judgment of an independent third party. Different rankings are possible depending on the perspective of the party involved.

The point that must be emphasized is that Table 2 is a suggested ranking and its limitations should be clearly understood. It is intended to provide an independent third party evaluation of the alternatives, but its inclusion in the EIR is meant for information only; it is not meant to bind decision-makers to a decision.

* * * *

I hope that this letter helps to clarify the major issues of concern. It has been a pleasure working with you on this interesting project and we look forward to the opportunity of working with you in the future.

Very truly yours,

McCLELLAND ENGINEERS, INC.

Mel Willis

Mel Willis
Program Manager
Planning and Environmental
Services

MRW:dc

FINAL ENVIRONMENTAL IMPACT REPORT
MODIFICATION TO CUP-3344
ARGO PETROLEUM CORPORATION
FERNDALE RANCH LEASE

Prepared for

Ventura County
Resource Management Agency

October 4, 1984

McClelland Engineers, Inc.
Environmental Services
Job No. 05830945

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I. INTRODUCTION AND SUMMARY

A. BACKGROUND

On July 6, 1978, the Ventura County Planning Commission approved Modification No. 3 to Conditional Use Permit No. 3344 that allowed ARGO Petroleum Corporation to drill up to 36 oil and gas wells within six approved drill sites on their Ferndale Ranch lease (Figure 1). As a part of the Planning Commission's action, an Environmental Impact Report (EIR) was certified in accordance with the State CEQA Guidelines.

Subsequent to approval of the initial drilling program, additional data obtained by ARGO through the drilling of new wells suggested that the Ferndale Ranch oil reservoir is oriented along a north-south trending reservoir rather than an east-west reservoir as originally conceived. As a result, ARGO filed an application for Modification No. 8 to CUP-3344 on May 24, 1982. The proposed modification does not involve additional wells, but rather is a request to revise the planned drilling program to allow an additional drill site and to reallocate the number of wells permitted on each drill site.

Upon initial environmental review, a Mitigated Negative Declaration was determined to be the appropriate environmental document necessary to address the environmental effects of the project. A Mitigated Negative Declaration for the project was approved by the Ventura County Environmental Report Review Committee on March 23, 1983.

On April 4, 1983, Thomas Aquinas College appealed the Environmental Report Review Committee's decision to the Board of Supervisors contending that the Mitigated Negative Declaration did not adequately address the environmental impact of the proposed project. On October 4, 1983 the Ventura County Board of Supervisors upheld the appeal by Thomas Aquinas College and determined that a focused EIR should address traffic and circulation alternatives. The Board directed that this EIR need not address the actual drilling and production of oil and gas, but only the potential for significant environmental impacts because of the expected traffic related to drilling and production activities. The Board's decision was conditioned upon ARGO's amending its application for Modification Nos. 8 and 9 to incorporate all mitigation measures included in the Mitigated Negative Declaration prepared for the project (July 16, 1982). A copy of the Mitigated Negative Declaration is included herein as Appendix A.

B. PURPOSE AND OBJECTIVES OF EIR

In accordance with the Board's October 4, 1983, decision, the objective of this focused EIR is a comparative analysis of all reasonably feasible alternative access roads that may be available to serve oil related traffic associated with Argo Petroleum's revised drilling program for its Ferndale Ranch lease. The intent is to provide decision-makers with sufficient information to select the environmentally superior access alternative. However, this EIR is only intended to be a comparative analysis of possible access corridors; it is not a design and engineering study for specific road alignments. While it is recognized that ranking systems are inherently

REGIONAL LOCATION MAP

subjective, this EIR contains a suggested ranking based on environmental factors considered for the various access concepts available. Where possible, rough cost estimates for mitigation have been provided to allow a determination of reasonableness for various alternatives.

C. LEGAL AUTHORITY

Approval of the requested Conditional Use Permit modifications is at the discretion of the Ventura County Planning Commission; therefore, it is subject to the provisions of the California Environmental Quality Act, as amended (Public Resources Code, Section 1200 et. seq.).

Pursuant to the State CEQA Guidelines (California Administrative Code, Title 14, Division 6, Chapter 3), the Planning Division of the Ventura County Resource Management Agency is the lead agency for the proposed project. The Planning Division has prepared an initial study (contained herein as Appendix B) and a Mitigated Negative Declaration (Appendix A) that address the environmental impacts and mitigation measures for all elements of the proposed project, with the exception of the determination of the environmentally superior access road alternative. As provided in Section 15163 of the State CEQA Guidelines, this focused EIR is intended to be used in conjunction with the previously prepared Mitigated Negative Declaration, which together address the full range of environmental effects associated with the proposed project.

D. RESPONSIBLE AND TRUSTEE AGENCIES

Because the proposed project requires the modification of an existing use permit, the county of Ventura is the lead agency for the EIR. Responsible agencies for the project may include the California Division of Oil and Gas, and the Regional Water Quality Control Board.

The proposed project will require permits to drill all wells from the California Division of Oil and Gas (DOG). This is initiated when an applicant files a Notice of Intention to drill a new well. Other permits that are issued by the DOG are to rework an existing well and to abandon a well.

If the project will discharge waste to surface waters or will discharge waste that may affect groundwater quality, it must receive a permit or obtain waste discharge requirements from the Regional Water Quality Control Board (RWQCB). At this time, the project is not planned to discharge any wastes that would require a permit from the RWQCB.

In addition to the responsible agencies described above, the California Department of Fish and Game is a trustee agency for any fish and wildlife resources that could be affected by the project.

E. SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table 1 is a summary of the environmental issues addressed for each access road and entrance alternative. A comparison of alternatives is contained in Section VII of this report.

F. OVERALL RANKING

In order to facilitate decision-maker review of the EIR, this section provides a suggested ranking system for various entrance and access alternatives available to accommodate oil related traffic on Argo Petroleum Corporation's Ferndale Ranch Lease. The ranking system is based strictly on environmental factors addressed in this EIR. While ranking systems are inherently subjective, this section provides a suggested ranking of access alternatives for oil activities on the subject property. Although cost estimates for mitigation are not required by the State CEQA Guidelines, and are not incorporated into this environmental ranking, rough costs have been included for reference. The intent is to provide information to decision-makers to determine the reasonableness of various options.

Table 2 presents a comparison of each access route and entrance alternative addressed in this EIR. This comparison is on a per issue basis and does not include weighting factors for degree of impact. The lowest value for each category is considered the "most preferable" and the highest value is considered the "least preferable." The final column of Table 2 identifies a ranking of alternatives.

The environmentally superior alternative for Argo's oil traffic involves the use of the following road segments (the ridge alternative):

- o Separate entrance to Ferndale Ranch for oil traffic;
- o Use of old Ferndale Ranch road;*
- o Crossing of a gully to access road to drill site 3 without using main college road;
- o Access road to drill site 3;
- o Construction of new road from drill site 3 to Planning Commission road, behind the ridge;
- o Realignment of portion of Planning Commission Road to reduce runaway vehicle hazard, while accessing drill sites 1 and 7.

*It should be noted that the cost of cliff stabilization measures may not justify the incremental environmental benefits of the use of the Old Ferndale Ranch road. The alternative is the continued use of the existing entrance road for a short distance by both the college and oil traffic.

Table 1.
Summary of Environmental Impacts and Mitigation Measures

	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
Issue	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
a. Geologic Hazards	No major geologic hazards. Surficial landsliding of adjacent slope potentially requiring road maintenance.	Crosses two major landslide areas. Mitigation measures are available but at a substantial cost.	No major geologic hazards up the canyon. However, lower portion crosses the landslide area along the Planning Commission Road. Mitigation measures are available, but at a substantial cost.	No major geologic hazards. Could require downslope slope stability measures (e.g. retaining structure).	No major geologic hazards. However, this route would require steep cut slopes and retention facilities up slope, and slope stability measures downslope.	Present geologic hazards are minimized	Potential slope stability hazard near bluffs. Mitigated by increased setback, and/or costly stabilization measures.	Potential slope stability hazard near bluffs. Mitigated by increased setback, and/or costly stabilization measures.

Issue	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
b. Traffic Safety/ Circulation	Maximum interaction of college and oil related traffic. Potential safety-impacts associated with runaway vehicles and hiker and pedestrian activities.	Five relatively sharp curves, and grades ranging from 5 - 20+ percent slope. Potential for runaway vehicles. Mitigation includes use of planning commission alignment alternative to alleviate runaway vehicle hazard.	No significant traffic or roadway alignment impacts except along the Planning Commission road segment. Potential for runaway vehicle hazard associated with Planning Commission road segment can be mitigated with an alternative alignment.	Two relatively sharp curves and a short segment in excess of 15 percent grade. Potential for runaway vehicle hazard associated with Planning Commission road segment can be mitigated with an alternative alignment.	No significant traffic or roadway alignment impacts.	Maximum interaction of college and oil related vehicles.	Development of two new intersections with the existing college access road, increasing turning movement safety hazards. Guard gate control would mitigate this impact at the site entrance but not at other intersections.	Development of one new intersection with the existing college access road. Impacts could be fully mitigated by guard gate control at the site entrance.

	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
Issue	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
c. Noise	Daily noise levels would not be expected to exceed adopted standards. However single event noise generation from truck passbys would be perceived as a significant nuisance. A noise attenuation wall would partially mitigate perceived noise impact	Potential impact to future faculty housing residents	No significant noise impact.	Noise impacts attenuated by ridgeline.	Similar impact as described for shared college road. Noise attenuation wall would partially mitigate perceived noise impact	No noise impact. Noise attenuation barrier would reduce or eliminate perceived noise impacts, but would potentially result in visual impacts.	No noise impact. Noise attenuation barrier would reduce or eliminate perceived noise impacts, but would potentially result in visual impacts.	No noise impact. Noise attenuation barrier would reduce or eliminate perceived noise impacts but would potentially result in visual impacts. Potential impact to future faculty housing residents

	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
Issue	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
d. Biologic Resources	No significant biologic impacts.	Oak tree removal as result of necessary landslide stabilization and roadway widening and improvements. Replanting of oak trees partially mitigates these impacts.	Removal of significant riparian habitat and oak trees. Replanting of oak trees would partially mitigate this impact.	No significant biologic impacts.	No significant biologic impacts.	No significant biologic impacts.	No significant biologic impacts.	No significant biologic impacts.

	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
Issue	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
e. Visual Resources	Significant impact as a result of foreground noise barrier, partially screened by existing structures. Vegetative screening would partially mitigate this impact.	Visual impact limited to distant road cut and grading impacts.	Visual impacts limited to distant road cut and grading impacts	No significant visual impact.	Significant visual impact from most college viewing locations. Vegetative screening would have some but limited effectiveness. High visibility from State Route 150, a proposed scenic highway.	High visibility of oil related truck traffic and noise attenuation walls. Vegetative screening could partially mitigate this impact.	Moderate visibility of oil related truck traffic. Potentially significant visual impact of noise wall. These visual impacts can be minimized by use of natural building materials and heavily landscaped berms, as necessary, to alleviate potential impacts.	Distant visual impact associated with wall facilities. Use of berming and/or natural materials (e.g., wood) instead of a block wall to attenuate noise.

	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
Issue	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
f. Cultural Resources	No direct impact to cultural resources is expected. The potential exists for the occurrence of subsurface archaeological remains in the immediate vicinity of the roadway. Mitigation includes on-site monitoring by a qualified archaeologist if roadway improvements are required.	The potential exists for the occurrence of subsurface archaeological remains. Mitigation includes monitoring by a qualified archeologist to prevent indirect impact to potential resources.	No cultural resources were identified and no impacts to cultural resources are expected to occur.	No cultural resources were identified and no impacts to cultural resources are expected to occur.	No direct impacts to cultural resources are expected to occur. The potential exists for the occurrence of subsurface archaeological remains in the vicinity of this roadway. Mitigation includes on-site monitoring by a qualified archaeologist.	No cultural resources were identified and no impacts to cultural resources are expected to occur.	No cultural resources were identified and no impacts to cultural resources are expected to occur.	No cultural resources were identified and no impacts to cultural resources are expected to occur.

	Access Routes					Entrance Alternatives		
			Drill Site No. 3 to Planning Commission Road					
Issue	Shared College/Ranch Road	Planning Commission Road	Canyon Alternative	Ridge Alternative	Side Hill Road	Shared Entrance	Old Ferndale Ranch Rd. Partial Traffic Separation	Old Ferndale Ranch Rd. Full Traffic Separation
g. Road Feasibility/ Costs	Feasible - Cost for wall estimated at $84,000	Feasible - Cost estimated at $740,000 including landslide stabilization	Feasible - Cost estimate at $526,000 including stabilization of Planning Commission Road segment.	Feasible - Cost estimated at $76,000.	Not feasible as trench concept - Cost estimate for roadway and 10 foot wall structure is $93,000.	Feasible - Cost of guard gate. Cost of stabilization may be required in the future.	Feasible - Cost estimate not available due to uncertainties in slope stabilization requirements and associated costs. Grading and oiling costs estimated at $21,000.	Feasible - Cost estimate not available due to uncertainties in slope stabilization requirements. Grading, oiling and culvert costs estimated at $21,000.

Table 2.

Comparison and Suggested Ranking of Access Alternatives

	Environmental Impact Comparison (1 = least impacts; 5 – most impacts)							Cost Comparison
A. Access Routes	Geologic Hazards	Traffic & Safety/ Circulation	Noise	Biologic Resources	Visual Resources	Cultural Resources	Suggested Environmental Ranking (1 = best; 5 = worst)	Estimated Cost (1 = lowest; 5 = highest)
1. Shared College/Ranch Access Rd.	1*	5***	5***	1*	4***	1*	3	2
2. Planning Commission Road	5***	4***	3**	4***	2**	2*	5	5
3. Drill Site No. 3 to Planning Commission Road								
a. Ridge Alternative	2*	3**	1**	2*	1**	1*	1	1
b. Canyon Alternative	4***	2**	1**	5***	2**	1*	4	4
4. Side Hill Route	2*	1*	4***	2*	5***	2*	2	3

Comparison and Suggested Ranking of Entrance Alternatives

	Environmental Impact Comparison (1 = least impacts; 3 – most impacts)							Cost Comparison
B. Entrance Alternatives	Geologic Hazards	Traffic & Safety/ Circulation	Noise	Biologic Resources	Visual Resources	Cultural Resources	Environmental Ranking (1 = best; 5 = worst)	Estimated Cost (1 = lowest; 5 = highest)
1. Shared	1*	3***	3*	1*	3***	1*	3	1
2. Old Ferndale Ranch Road								
a. Partial Traffic Separation	2**	2**	2*	2**	2**	1*	2	2
b. Full Traffic Separation	2**	1*	1*	2**	1**	1*	1	3

Insignificant impact *
Significant Impact that can be Mitigated**
Significant unavoidable Adverse Impact***

REVISED 8/20/84

The following modification of the above route could be significantly less costly while only increasing potential impacts somewhat.

- o Use of the shared college/ranch road entrance for college and oil related traffic.

Although less costly due to the avoidance of geotechnical evaluation and cliff stabilization costs, this modification would increase the potential for conflicts between the college and oil traffic.

II. PROJECT DESCRIPTION

A. PROJECT APPLICANT

Argo Petroleum Corporation
940 East Santa Clara Avenue
Ventura, California 93001

B. PROPERTY OWNERS

Lawrence Barker, Jr.
No. 1 Maritime Plaza, Suite 2145
San Francisco, California 94111

Thomas Aquinas College
10000 N. Ojai Road
Santa Paula, California 93060

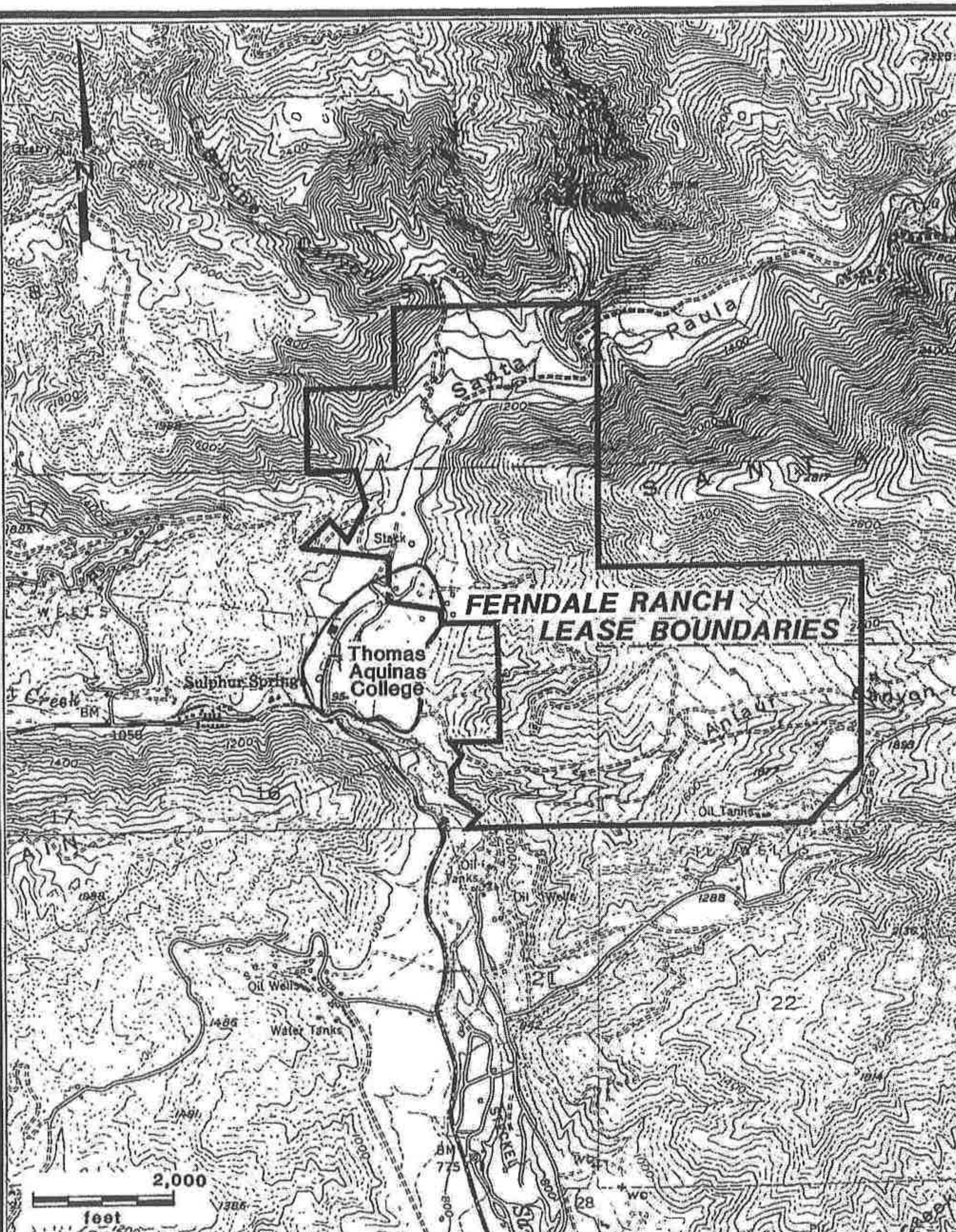
C. PROJECT LOCATION AND LEGAL DESCRIPTION

Argo Petroleum Corporation's Ferndale Ranch lease is located on the eastern portion of the Silverthread area of the Ojai oil field, approximately three miles north of the city of Santa Paula. The Ferndale Ranch property encompasses over 1100 acres immediately northeast of State Highway 150 and east of Santa Paula Creek (Figure 2). Access to the property is available via a private roadway that is presently shared by Thomas Aquinas College, Ferndale Ranch and Argo Petroleum.

The project site is presently zoned R-E-lac (Rural Exclusive - one acre minimum lot size). Oil development within the R-E-lac zone is a conditionally permitted use. Argo's existing oil operations are permitted in accordance with the provisions of Conditional Use Permit (CUP) 3344 and subsequent modifications to that permit. CUP 3344 applies to approximately 791 acres that are legally identified as Assessor's Parcel Nos. 40-060-05 and 15, and 40-010-26.

D. PROJECT OBJECTIVES

The existing CUP, approved in 1978, permits the drilling of up to 36 wells from six drill sites. At the time the original CUP application was approved, a high degree of uncertainty existed as to the exact location and extent of oil and gas resources beneath the Ferndale Ranch. This is common in the oil development industry because it is not possible to determine all reservoir characteristics without drilling development wells. Initially, based on geologic and exploration data, it was believed that the oil reserves beneath the Ferndale Ranch were located in a reservoir oriented in an east-west direction. As a result, drilling and production plans identified as a part of the application for CUP-3344 were designed to maximize production given the assumption of an east-west trending field. However, since the



SITE LOCATION MAP

McCLELLAND ENGINEERS

FIGURE 2

approval of CUP-3344, 13 wells have been drilled on the project site that have provided a substantial amount of new information concerning the subsurface oil reservoir. New information indicates that oil reserves beneath the property are oriented in a north-south direction along Santa Paula Creek.

In response to these new findings, Argo is requesting a modification to CUP-3344 to transfer the right to drill 17 oil and gas wells from three previously approved (undeveloped) drill sites to one existing drill site, and a new drill site (No. 7) located north of existing drill site No. 1. The total number of wells permitted under CUP-3344 would remain at 36. However, the number of wells permitted on the individual drill sites would be redistributed as follows:

Drill Sites	Previously Approved Wells	Wells Drilled To Date	Proposed Change	Total Proposed Wells
#1	8	8	+2	10
#2	5	4	+5	10
#3	5	1	-2	3
#4	6	0	-5	1
#5	6	0	-5	1
#6	6	0	-5	1
#7	0	0	+10	10
	36	13	0	36

E. PROJECT CHARACTERISTICS

Oil extraction operations can be broken down into four distinct components -- site preparation, drilling, production and abandonment. While these phases may overlap to a certain extent, the degree to which they overlap is largely dependent upon oil field characteristics and economic market conditions. Each of these project phases is described below.

1. Site Preparation

Other than slight modifications to drill site No. 2, site preparation will only be necessary for drill site No. 7. Site preparation involves all the activities prior to the actual commencement of drilling. These include clearing and grading of drill sites, access roads, construction of well cellars, and installation of the conductor pipe.

During the site preparation phase, a tractor-trailer will haul a rubber tired front-end loader to the site. The front-end loader will be used to grade a single lane dirt roadway to drill site No. 7 and move approximately 4,000 cubic yards of dirt to provide a 0.86 acre drill pad.

During site preparation, the maximum daily traffic expected is three heavy truck trips and two light vehicle trips. Once site preparation is completed for drill site No. 7, the only traffic related to site modification would be a result of routine or emergency site maintenance.

2. Drilling

A compact conventional rotary drilling rig will be hauled by tractor-trailer to each drill site after the roadway and drill sites have been prepared. Upon delivery, the first procedure is to "rig up," which is the process of assembling and placing the drilling rig components in position to drill. The rig drawworks, pump and tank for circulation and storage of drilling fluid will be placed within the level area of the drill site. The substructure of the drilling rig rises eight feet above ground level to provide space for blowout prevention equipment and the rotary drive assembly. The planned drilling rig mast height stands 133 feet when raised to an upright position.

The actual drilling of a well is an intensive process that may take from a few days to several weeks to complete, depending on the well depth, hardness of subsurface materials, and problems that may be encountered. While drilling, the rig turns a drill string rotating a bit at the bottom of the drilling assembly. As the hole is deepened, additional sections of drill pipe must be added. Sixty days fuel consumption by the drilling rig is estimated to range between 96 and 186 gallons per day. Fuel will be supplied to the site in drums and pumped into the rig's fuel tanks.

As the drill bit turns in the hole, it makes rock cuttings that must be removed from the hole. This is accomplished through the use of drilling mud that is continuously circulated between the surface and the bottom of the hole to pick up the cuttings from the bit and transport them to the surface. Other purposes of drilling mud are to cool the drill bit and drill string, maximize the penetration rate, prevent inflow of formation fluids into the well bore, and coat the exposed walls of the hole with filter cake to minimize fluid loss into permeable formations. During drilling operations, approximately 60 barrels of water (2520 gallons) will be required to make up the drilling mud. This will be delivered by a 60 barrel vacuum truck. All drilling mud and cuttings will be stored in steel tanks to be later hauled away for disposal at state-licensed sites.

Casing for all wells will be cemented to the top of the oil-bearing formation for protection of the fresh water aquifers in the area. Casing is simply a large steel pipe that is used for the sides of the drilled hole to keep it from caving in. The casing and cement also seal off pressure and fluids from underground formations through which the hole penetrates. To run a string of casing, the drill string is removed from the hole. Then each joint of the same diameter casing is screwed together and lowered into the hole to make up a complete casing string. After the casing is run into the hole, cement is pumped into the casing and then displaced from the bottom end to fill the annular space between the casing and the wall of the well. Once the cement hardens, the subsurface formations are permanently sealed from each other.

After the well has been drilled to its objective depth and production casing has been run and cemented, well completion can take place. The rig will then be skidded to the next well location at the same drilling site or moved to the next drill site and the drilling procedure repeated.

Drilling operations normally take between 30 and 60 days per well including production testing phases. Assuming that all of the remaining 17 wells are drilled consecutively, drilling operations are expected to last for approximately 2 to 3 years after project approval. If the drilling program is interrupted, it could be longer before all drilling is completed.

During the drilling of each well, an average of approximately 30 one-way vehicle trips per day will occur. Most of these will be light vehicles, but the drilling-related traffic will also include an average of 3 heavy truck trips per day.

3. Petroleum Production

Once a well is drilled and flowing, the production phase of an oil development project commences. Because additional wells may be necessary to fully develop an oil field, the drilling and production phases often overlap.

In contrast to development drilling which is an intensive short-term operation, petroleum production is a long-term, but less intensive operation, involving permanent location of equipment lasting over the producing life of the field. This equipment normally includes pumping units, separation/-treatment equipment, tankage, vapor recovery equipment, and assorted piping.

During the production phase of an oil and gas project, most of the vehicular traffic is associated with the transportation of oil and waste-water. However, Argo's existing CUP requires the use of a pipeline for shipment of oil. Although the temporary shipment of oil by trucks has been necessary in the past, because of pipeline repair and maintenance, the pipeline is presently in operation; therefore, this report assumes that all oil will be shipped by pipeline over the long-term.

During the production phase, routine vehicular traffic will include surveillance personnel, deliveries of supplies and fuel, and wastewater hauling. An operator will inspect each well at least twice daily for leakage of fluids or vapor, make adjustments, test wells, and generally maintain the site. Throughout each day, the operator will visit each production site three to four times.

Occasionally, major maintenance will be required of the pumps. It is normally expected that the subsurface pump will need to be replaced after nine months of operation, which will require a well service rig (approximately the same dimensions as a drilling rig) to be transported to the site. Since mechanical wear will vary from well to well, each pump replacement will be on an individual basis. During well service operations, water will be pumped from a tank facility to each well. This water will provide fluid for safety control of the well and to preclude excessive vapor emissions.

Other activities that may take place during the production phase include fracturing and acidizing. Fracturing involves artificially opening up a formation to increase its permeability and the flow of oil to the bottom of a well. This is accomplished by forcing a sand and fluid mixture into the formation to open cracks. Acidizing is another method of opening a formation to increase the oil flow. Under this method an acid solution is pumped into the well to dissolve limestone deposits in the rocks, thus opening paths for the oil to flow. Both fracturing and acidizing involve the services of a specialized contractor with custom-built pumps and equipment.

4. Abandonment

If a well is unsuccessful, or at the end of the producing life of a field, well abandonment takes place pursuant to procedures specified by the California Division of Oil and Gas in "California Laws for Conservation of Petroleum and Gas."

Surface equipment and ancillary facilities will be removed as a part of this phase.

F. DRILLING/PRODUCTION SCENARIOS

For most residential, commercial, and industrial projects, the parameters, upon which an environmental analysis is based, are well defined. However, for energy development, particularly oil and gas production, the description of the expected ultimate project is based strictly upon speculation on the amount and characteristics of petroleum deposits sought. Since many of the potential impacts (e.g., traffic) are directly related to the production level, a high degree of uncertainty exists regarding the magnitude of potential impacts.

The approach taken in this report is intended to avoid the problem of a strictly "worst case" analysis, while at the same time providing information on the full implications of the project. In this study, three scenarios for the project have been developed that are intended to cover the likely range of drilling and production possibilities. The three scenarios represent a "high find," "medium find," and "low find" and are the basis for the traffic generation assessments.

Because a substantial amount of information is available concerning existing operations, the scenarios focus upon the 23 remaining approved but undrilled wells. Assumptions regarding future levels of drilling and production have been added to existing levels. Given current conditions, only limited if any site preparation will be necessary for drill sites 1, 2 and 3.

Table 3 is a summary of the three development scenarios. These scenarios are described in further detail below.

1. High Find Scenario

Under the "high find" scenario, Argo's reservoir geologists project that the reservoir under the Ferndale Ranch lease could produce approximately 5000

TABLE 3

Project Development Scenarios

Scenario	New Wells Drilled	Production (Average Daily) Oil (bbls)[1]	Production (Average Daily) Water (bbls)[2]
High Find	23	5000	5000
Medium Find	11	1500	1500
Low Find	5	500	500

1.) Assumes equal production distribution for all 36 wells planned for the site. Total production - 5000 bbl/day - high find, 1500 bbl/day - medium find and 500 bbl/day low-find.

2.) Based on average waste/water production of 50 percent for existing Ferndale Ranch lease area (Division of oil and Gas, 1984).

barrels of oil per day (BOPD), requiring 23 additional wells to be drilled for a total of 36 wells. This oil is assumed to be transported by pipeline and not result in the generation of oil tanker truck traffic.

One of the products of oil recovery is often times water. Produced water from oil formations is generally of poor quality and must be disposed. Presently, while Argo plans to develop an acceptable on-site disposal method, produced water is pumped to a storage facility at drill site No. 3 and transported offsite by truck to a suitable disposal area. Therefore, for the purposes of this study, it is assumed that produced water generated by drilling and production operations will be trucked off-site. Produced water generation varies considerably from well to well depending upon formation characteristics and other site specific factors. Produced water generation for existing wells within the Ferndale Ranch lease ranges from 9-88 percent by volume with an average of approximately 50 percent (i.e., 1:1 oil/water ratio). Assuming that 50 percent by volume of well production is water, total water production for the high find scenario is projected to be 5000 barrels per day.

It is assumed that the water trucks used to transport wastewater off-site will have a capacity of approximately 100 barrels. Given this assumption and the estimated wastewater generation, the high find scenario is projected to generate approximately 50 (two way) truck trips per day to haul out wastewater. This is a worst case assumption. Because of the high cost of truck transport, it is likely that a more cost-effective method for disposal of wastewater would be developed such as reinjection into the reservoir.

Natural gas generated by the proposed project will be transported via pipeline to a nearby distributor or reinjected back into the formation until such time as a pipeline is available. Natural gas will not be transported off-site via truck.

Light vehicle traffic associated with the production phase is expected to be similar for all scenarios and is estimated to be about 3-4 vehicle trips per day.

Peak traffic levels will occur while the last well is being drilled and total production from the previously drilled wells nears its peak level. Under the "high find" scenario, peak traffic levels will be approximately 84 vehicle trips per day, of which 31 are light-duty vehicles and 53 are trucks. This assumes 30 trips per day for the drilling of the well (3-4 light-duty vehicles; 27 trucks) and 53 trips per day for production (3-4 light-duty vehicles; 50 wastewater trucks). If an alternative method for wastewater disposal is utilized that eliminates hauling by trucks, the peak traffic level for this scenario will be reduced to approximately 34 vehicle trips per day of which only 3 are heavy trucks.

2. <u>Medium Find</u>

This scenario assumes the drilling of 11 new wells (for a total of 24) and a total production rate of 1500 BOPD for the Ferndale Ranch lease area. Assuming 50 percent of well production is water, total water production is projected to be 1500 barrels per day.

Assuming use of a pipeline for all oil production, it is anticipated that this production level will generate and an average of 15 wastewater truck trips (100 bbl capacity) per day. It is important to note these estimates represent two-way roundtrips and that each trip would involve a vehicle passing by a point two times (one inbound and one outbound).

Light duty vehicle traffic associated with production is not directly related to production volumes and is, therefore, expected to be approximately 3-4 vehicles per day as indicated for the "high find" scenario.

The peak traffic level for the "medium find" scenario is estimated to be 49 vehicle trips per day of which 18 are heavy trucks. If an alternative method of wastewater disposal is utilized that eliminates hauling by trucks, peak traffic levels are estimated to be reduced to 34 vehicle trips per day, of which only 3 are heavy trucks.

3. Low Find Scenario

This scenario assumes only 5 new wells are drilled and that production on the Ferndale Ranch lease will be approximately 500 barrels of oil per day. Assuming 50 percent of total well production is water, total water production for this scenario is projected to be 500 barrels per day. Assuming use of a pipeline for all oil production, vehicular traffic associated with this scenario is estimated to be 5 wastewater truck trips per day and approximately 3-4 light duty vehicles per day.

The peak traffic level for the "low find" scenario is estimated to be 39 vehicle trips per day of which 8 are heavy trucks. If an alternative method of wastewater disposal is utilized, peak traffic levels would be reduced to 34 vehicle trips per day, of which only 3 are heavy trucks.

G. PRIMARY ACCESS ALTERNATIVES

The proposed modifications to CUP-3344 (Modifications 8 and 9) do not involve an increase in the number of wells that are currently allowed under CUP-3344, but rather involve the reallocation of wells to existing drilling sites, modification of the CUP to legalize already completed expansions of drill sites 1 and 2, and the development of a new drill site (No. 7) north of drill site No. 1. Drill site No. 7 will require 4,000 cubic yards of grading to provide a 0.86 acre drill pad.

While environmental issues pertaining to pad location and drill site expansion have been resolved through development conditions, the environmentally superior access road has not been determined. The focus of this analysis is to evaluate four primary access alternatives identified by the Ventura County Board of Supervisors and, to a lesser extent, evaluate other potential access routes. However, this EIR is only intended to be a comparative analysis of possible access corridors and not a design and engineering study for specific road alignments.

The four primary roadway alignment alternatives addressed in this EIR include the following (Figure 3):

I Shared College/Ranch Road (existing condition)
II Planning Commission Approved Road
III Drill Site 3 to Planning Commission Road
IV Side Hill Road

These four primary alternatives include three variations; two associated with primary alternative No. III, and one associated with primary alternative No. II. The variations associated with alternative No. III represent two ways of accessing the Planning Commission Road from drill site No. 3. These variations include a canyon route east of drill site No. 3, identified throughout this report as alternative No. IIIa, and a ridge route west of drill site No. 3, identified as alternative IIIb.

The alignment variation associated with the Planning Commission Road involves a straightening of a 600 foot segment located south of drill site No. 2 and northwest of the existing college water storage reservoir. This segment could be implemented in conjunction with alternative II as well as alternative III.

In addition to the roadway alignment alternatives identified above, there are three entrance alternatives that are evaluated in this focused EIR. Entrance alternatives addressed herein include:

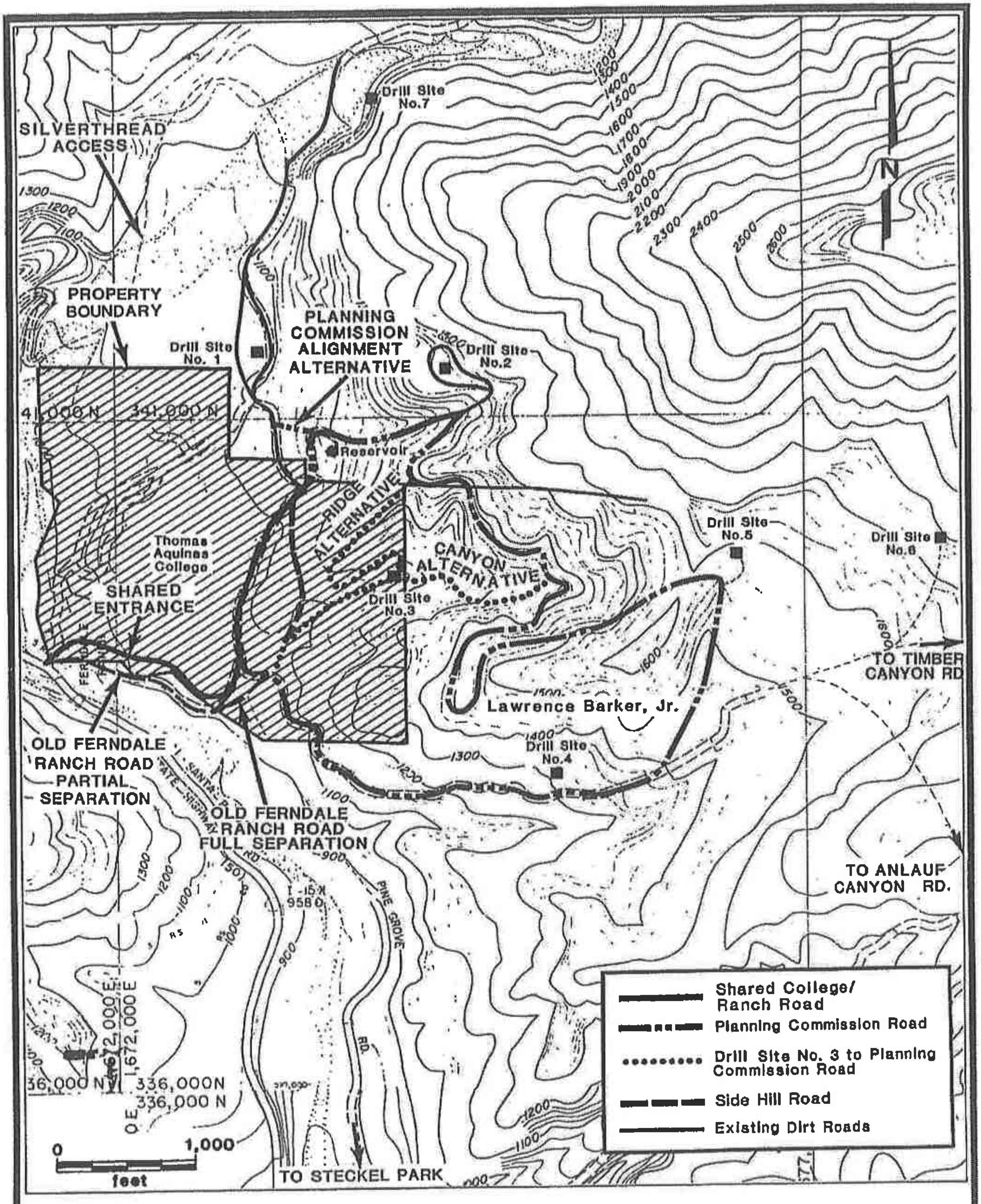
A. Shared Entrance (existing condition)
B. Old Ferndale Ranch Road
   (1) Full traffic separation alternative (includes gully crossing)
   (2) Partial traffic separation alternative

While any of the entrance alternatives indicated above could be theoretically combined with the possible primary access alternatives, many of the combinations do not serve the objective of this study to identify the environmentally superior access corridor.

Other access alternatives evaluated in a more cursory manner include use of the Silverthread roadway system or Timber Canyon Road for site access. Another entrance alternative considered is the Pine Grove Road through Steckle Park.

H. PROPERTY OWNERSHIP/ACCESS

As indicated previously in Section II.B. and on Figure 3, there are two principal property owners that own lands which affect access to oil operations on the Ferndale Ranch lease. Thomas Aquinas College owns properties that involve the Shared College/Ranch road, the Side Hill Alternative and the Drill Site No. 3 to Planning Commission Road, Ridge Alternative. In addition, Thomas Aquinas College has a "right of first refusal" upon sale of portions of the Ferndale Ranch adjacent to existing college properties.



ACCESS ALTERNATIVES AND PROPERTY OWNERSHIP

Lawrence Barker Jr. owns the remaining portions of the Ferndale Ranch. As such, construction of new roads on the respective owners' properties would require permission and rights of way agreements with those owners.

Although property ownership and rights of way agreements could preclude the viability of potential access alternatives, this study assumed that the necessary agreements could be negotiated for each access concept.

III. ENVIRONMENTAL SETTING

A. REGIONAL SETTING

The project site is located on the Ferndale Ranch, located north of and adjacent to Highway 150, approximately three miles north of the city of Santa Paula (Figure 1). The site is surrounded by relatively undisturbed mountainous terrain.

To the northeast is the eastern portion of Topa Topa Mountain and the Santa Paula Creek watershed. This area is part of the Los Padres National Forest and, according to the U.S. Forest Service, receives frequent recreational use when open to the public. The eastern part of the ranch encompasses a large portion of the Anlauf Creek drainage area, which is still primarily in a natural state except for limited avocado cultivation. South of the project area is Steckel Park and some oil recovery and agricultural uses.

Anlauf Canyon and Santa Paula Creek Canyon comprise the major topographic features of the Ferndale Ranch. Topography of the approximately 1,000 acre property varies considerably, from relatively smooth to rugged hillside terrain. The alluvial deposits east of Santa Paula Creek and within Anlauf Canyon are gently sloping while the higher elevations of the property have steep, rugged slopes. The slopes on the Ferndale Ranch range from level to in excess of 50 percent. Elevations on the property range from approximately 900 feet along Highway 150 to approximately 2,130 feet at the northeast boundary above Anlauf Canyon and within the National Forest.

The Ferndale Ranch is within a known oil producing area. West of the property is the Silverthread area of the Ojai oil field. In June, 1983, the Silverthread area had approximately 78 producing wells. East of the ranch is the Timber Canyon oil field which had 28 producing in June 1983.

B. LAND USE AND ZONING

1. Existing Land Use

Land uses on the Ferndale Ranch include cattle grazing, limited crop cultivation, oil drilling and recovery operations, and institutional activities associated with Thomas Aquinas College. In addition, the ranch includes an access corridor to the Los Padres National Forest located on the northern portion of the property. There are several ranch structures on the property including a hacienda with gardens and a private golf course.

Thomas Aquinas College presently consists of one permanent structure and 12 temporary structures. The college presently houses approximately 120 students during the school year.

Oil and gas production from the Ferndale Ranch Lease area and adjoining Sisar/Silverthread area was reported at 191,269 barrels (bbl) of oil and

235,030 million cubic feet of natural gas (MCF) in 1982. This production was generated by 14 producing wells, most within Argo's Ferndale Ranch lease. Argo's development on the project site involves six well sites and 13 existing wells. There are presently 8 producing wells on drill site No. 1, 4 producing wells on drill site No. 2, and a non-producing well on drill site No. 3.

Produced oil is transported via a 4-6 inch oil pipeline, owned and operated by Four Corners Pipeline Company. Four Corners Pipeline Company also operates a 3-6 inch natural gas pipeline in the vicinity of the Ferndale Ranch lease. This pipeline presently accommodates a portion of Argo's natural gas production, but does not have sufficient capacity to accommodate additional production. Some of Argo's natural gas production will continue to be reinjected until sufficient pipeline capacity is available. Recently, Argo obtained permit approval to construct a new natural gas pipeline that would connect with a Shell Oil Company line located near State Highway 126.

2. General Plan and Zoning Designation

The Open Space Element of the Ventura County General Plan designates most of the project site as "Open Space" with a small portion designated "Agriculture."

The project site is located adjacent to State Highway 150 which is designated by the county's Scenic Highways Element as a "proposed state scenic highway."

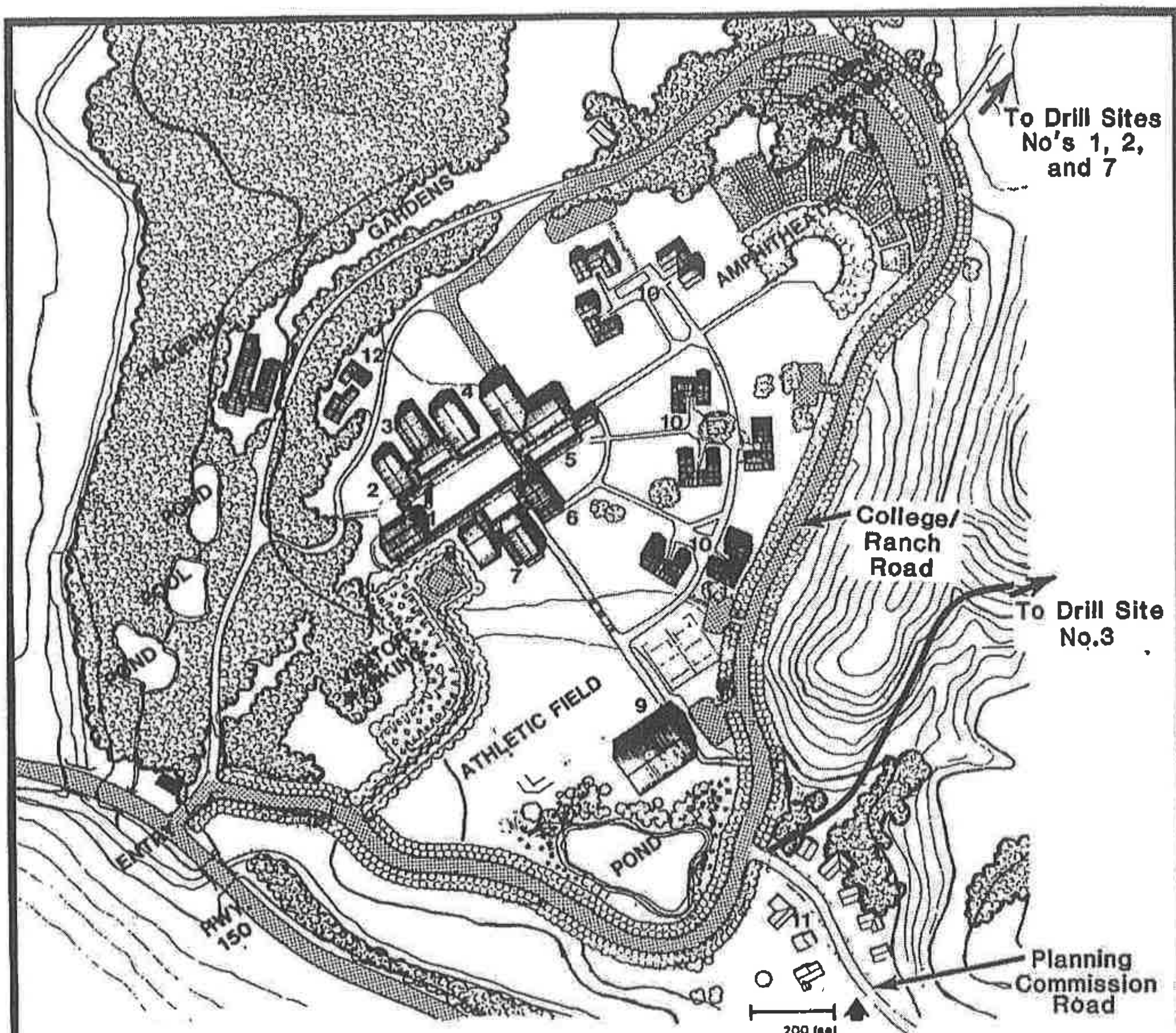
The Ferndale Ranch is presently zoned "R-E-1Ac" (Rural Exclusive - One Acre Minimum Lot Size) and "R-A-5Ac" (Rural Agricultural - Five Acre Minimum Lot Size). Surrounding zoning consists of "R-E-1Ac" with some "R-1" (One Family Residential) to the west. That portion of the Ferndale Ranch property which is zoned "R-A-5Ac" in the northern portion of the ranch is within the Los Padres National Forest.

3. Future Land Use

Presently planned for the Ferndale Ranch is the buildout of Thomas Aquinas College. Thomas Aquinas College is planned to accommodate 350 students and approximately 50 faculty and/or staff members. As shown on Figure 4, Thomas Aquinas College is planned to include 25 permanent structures including approximately 7-8 faculty housing structures located east of the existing college access road in the vicinity of the Planning Commission-approved road.

C. GEOLOGIC SETTING

The study area is situated in a structurally complex geologic setting. Several major east-west-trending faults are known to traverse the study area (Figure 5 -- see map pocket); one of these, the San Cayetano thrust fault, is suspected to be active. Large-scale fault displacements have created complex structural relationships between the exposed rock formations and have resulted in locally severe rock deformation.



ILLUSTRATIVE PLAN

1 CHURCH
2 ADMINISTRATION & FACULTY OFFICES
3 CLASSROOMS
4 LABORATORIES
5 COMMONS - DINING, CHAPEL
6 LIBRARY
7 CLASSROOMS
8 LECTURE HALL
9 GYMNASIUM
10 STUDENT RESIDENCES
11 FACULTY RESIDENCES
12 PRIESTS' RESIDENCE

MASTER PLAN FOR THOMAS AQUINAS COLLEGE

Source: Thomas Aquinas College Master Plan for Site Development, March, 1976

1. Rock Units

The following is a brief discussion of the major rock formations that are exposed in the study area and their general relationships to landsliding and mass wasting (i.e., the slow downslope movement of rock debris).

Matilija Formation (Tma). The oldest rock formation in the study area is the Matilija Formation. It crops out in a narrow band along the southern flank of Santa Paula Ridge in the northern portion of the area shown on Figure 5. Because of its well-cemented nature, the Matilija typically forms steep-sided ridges and may be locally difficult to rip with heavy earth-moving equipment. Within the study area, slopes underlain by the Matilija Formation commonly exhibit shallow rockfall and rockslide failures.

Modelo Formation (Tm). The Modelo Formation crops out in a narrow fault-bounded slice in the southern portion of the area shown on Figure 5. Where the formation crops out along the south side of the Sisar fault, the bedding planes have been tilted on end and are locally overturned. Active oil seeps occur from the fractured and deformed Modelo rocks along the Sisar fault zone in Santa Paula Creek. The Modelo is also subject to localized shallow surface failures as well.

A recent landslide that occurred in fractured Modelo Formation rocks along the Sisar fault is mapped along the southwestern edge of Figure 5. This slope failure probably resulted, in part, from erosional undercutting of the toe of the slope by heavy water flow in Santa Paula Creek.

Santa Margarita Formation (Tsm). The north-dipping Santa Margarita Formation crops out between the Anlauf and Sisar faults in the southern half of the area shown on Figure 5. Several large bedrock landslides have occurred on slopes underlain by the Santa Margarita Formation. These land-slide features show signs of significant erosion, thus suggesting that they are older (10,000-50,000 years ago) landslides. Because of their suspected age, these landslides are not likely to pose a significant hazard to the drill site access roads.

Pico Formation (Tp). Within the study area, the Pico Formation crops out between the San Cayetano and Anlauf faults, forming rounded, subdued topography. Of all of the bedrock formations exposed in the study area, the Pico Formation has the greatest potential for landslide and mass-wasting impact on the proposed access roads.

Large- and small-scale bedrock and shallow landslides are abundant in the Pico within the area shown on Figure 5. Many of these landslides under-lie or are adjacent to the proposed drill-site access roads. Ancient, bedrock landslides in the Pico are not expected to pose a significant hazard to the planned access roads during their life span; however, the active bedrock slides and the active shallow failures are likely to result in significant impacts.

2. Landslides and Mass Wasting

As described above, landslides and other mass-wasting features are common throughout the study area shown on Figure 5. This is largely due to the relative abundance of exposed weak Pico Formation bedrock. To classify the mass-wasting features in a manner useful to evaluation of the proposed route alternatives, a three-fold classification system has been used: 1) ancient bedrock landslides, 2) recent bedrock landslides, and 3) recent surficial slides. These mass-wasting classifications are based on geologic field mapping and stereo aerial photographic interpretation. No subsurface exploration or engineering stability analyses were performed to evaluate the geometry or stability of the mass wasting features because it was believed that the expense associated with such evaluations was not warranted at this stage of the route selection process. The mass wasting classifications used for the study are described below.

Ancient Bedrock Landslides (Qlsa). Several large-scale landslide features are in the project area (mapped on Figure 5). Based on their form, most of these landslides are probably ancient features (perhaps about 10,000-50,000 years ago).

Typically, the relative thickness of a landslide can be directly correlated with its observed areal extent. Usually, the larger the aerial extent, the deeper the landslide mass. Ancient deep-seated landslides in the study area generally involve bedrock materials and typically failed along unsupported planes of weakness, such as bedding planes or fracture surfaces within the rocks. In addition, it is likely that adverse ground water conditions contributed to the activation of the landslides.

When a landslide mass reaches a state of equilibrium under a given set of conditions, or if adverse conditions improve significantly, the landslide eventually stops moving and may be considered inactive. If substantial modification to the geometry of these inactive slides occurs, either by natural erosion or human grading operations, reactivation of landslide movement is possible. However, because of their size and suspected antiquity, the ancient bedrock landslides in the study area probably pose only minimal threat of hazard to the proposed drill-site access roads during the life-span of the oil field operations.

Recent Bedrock Landslides (Qlsr). A few recently active bedrock landslides are within the project area and shown on Figure 5. In some cases, the determination of recent activity is based on the observance of fresh scarps (e.g., steep slope/cliff) and noticeable ground offsets; in others it is based on apparently youthful but somewhat more subtle geomorphic expression. Those slides, mapped as recent bedrock landslides, are believed to be in excess of 10-15 feet in thickness. Because of their substantial thickness and recency of activity, these landslides may pose relatively significant hazards to those proposed drill-site access roads that cross them. In most cases, either partial or complete landslide removal, or other stabilization measures, will be advisable where access roads cross recent bedrock landslides. The actual extent of removal or stabilization measures for individual slides is unknown at this time, but should be determined through detailed engineering design studies with consideration given to the amount of periodic maintenance desired, if the final access route crosses recent bedrock landslides.

Recent Surficial Slides (Qlss). A relatively large number of recent shallow surface slides are mapped throughout the project area shown on Figure 5. Surficial slides such as these are commonly called slumps, mud-flows, or debris flows. Also included are areas affected by slow, downslope creep of near-surface materials.

Surficial slides are almost exclusively confined to the project area underlain by weak Pico Formation bedrock. The slides have occurred both on natural slopes mantled by a thick soil cover and on graded cut and fill slopes. For purposes of this study, a maximum thickness of about 10-15 feet is assumed, although typically these failures are less than 7-10 feet thick.

Although their size is typically small, surficial slope failures could represent a serious, recurrent, nuisance and maintenance problem for the proposed drill-site access roads. Surficial failures derived from above can effectively bury access roads with debris, thus rendering them impassable until such time as the debris is removed. Surficial failures directly below an access road can undermine the road's support and eventually result in the loss of a portion of the road.

Several techniques are available to prevent and control the effects of surficial slope failures. These include:

1) Construction of debris walls to deflect and/or contain mudflow debris.
2) Trim potentially unstable slopes back to a more gentle slope, removing loose surface materials.
3) Protection of access roads from undermining by the construction of deeply founded retaining walls along their downslope edge.

Selection of the most appropriate remedial technique to be employed in a given situation is dependent on a number of factors including relative costs and physical constraints (such as vegetation and topography).

Colluvium (Qc). A few localized deposits of recent colluvium (i.e., loose material/debris) are shown on Figure 5. These deposits represent downslope accumulations of debris derived from erosion and mass wasting. Colluvial deposits themselves are not inherently unstable, but their presence can indicate previous sites of debris deposition from erosion and/or mass-wasting processes where caution should be exercised.

D. FLORA AND FAUNA

1. On-Site Habitats

The natural vegetation of the project site is typical of valley slopes within the Santa Paula Creek drainage area. It is generally comprised of scattered oak woodlands and soft chaparral on the upland slopes, and riparian areas along Santa Paula Creek and its drainage channels. Interspersed are areas of over-grazed grassland. Rough estimates of the number of oak trees and the amount of riparian vegetation potentially impacted by the each alternative access points were derived from overlaying a route map onto the aerial photo of the site. Field truthing was then conducted to verify these estimates to the extent feasible. It should be emphasized that this analysis is only an approximation based on generalized route locations and widths. Engineering considerations related to slope stabilization were not included, since detailed, site-specific designs have not been prepared at this stage of the planning process.

The following is a more detailed description of the on-site habitats of the study site.

Chaparral. The most widespread natural community on the steep hillsides of the project site is soft chaparral. Chaparral is widely distributed throughout California on dry slopes and ridges at low and medium elevations, where it occupies rocky, gravelly or heavy soils. It is typically a broad-leaved sclerophyllus vegetation. However, species composition varies considerably. Chaparral species commonly grow six to twelve feet high and often form dense nearly impenetrable stands.

The chaparral community on the project site is dominated by such species as sumac (Rhus ssp.), chamise (Adenostema ssp.), and coyote bush (Baccharis pilularis).

Oak Woodland. Interspersed throughout the chaparral community are scattered oak groves. These are generally located on the north-facing slopes east of Thomas Aquinas College. Dominant species in the oak woodlands include interior live oak (Quercus wislizenii) and scrub oak (Q. dumosa). The densest concentration of oaks is found on the slope to the south of drill site 3. The majority of the oak trees within the project area are in a vigorous condition with no conspicuous signs of declining health.

The oak woodlands provide the nesting habitat, perches, and food sources preferred by many species of native wildlife, and large numbers of wildlife are generally seen in or on the edge of the woodlands on-site. The woodland canopy is particularly important as roosting and nesting habitat for birds of prey, as these large birds require remote, elevated nesting areas. Many small, insectivorous birds are also dependent on woodlands due to the abundant insect populations they support. Woodpeckers are also generally restricted to woodlands; on-site representatives probably include Nuttall's, downy, and acorn woodpeckers, based on the habitat present. The only large mammals occurring on-site, the mule deer, coyote, and bobcat, are dependent on the oak woodlands for daytime cover.

Over-Grazed Grassland. The weed-dominated annual grassland typical of rangeland throughout southern California is common on the hillsides east of Thomas Aquinas College, particularly along the Planning Commission access road and the hillside north of drill site 3. Dominant plants of this community are non-native species such as wild mustard (Brassica ssp.) and wild oats (Arena ssp.). Botanically, this community is of low value because of its disturbed nature and low species diversity.

Riparian Woodlands. The area along Santa Paula Creek and the other drainage channels on-site are vegetated by riparian woodlands of variable density. Typically, this community consists of various large, broad-leafed trees with a sparse understory of shrubs.

There are two types of riparian habitats found on or adjacent to the site, the corridor along Santa Paula Creek (a perennial stream), and those corridors along annual or run-off fed drainage channels. Both areas support typical riparian vegetation (willows, sycamore, etc.), although the annual drainage channels exhibit less dense to sparse growth. The importance to wildlife of these two areas increases as the density and variety of plant species found and the availability of water increases. Both areas serve as migration corridors for mammals, and provide food and shelter to a variety of animals. The riparian corridor along Santa Paula Creek contains big leaf maple (Acer macrophyllum), sycamore (Platanus racemosa), and willow (Salix spp.). Riparian vegetation along the drainage channels is sparse, and typically consists of willow and chaparral species.

2. Significant Plant and Animal Species

No state or federally listed rare or endangered species have been observed on-site, nor are any expected based on available habitat. However, several species considered sensitive due to their declining populations are common in large, undisturbed areas such as the project site. These are discussed as follows.

Mountain Lion (Felis concolor). This large predatory mammal has undergone marked reduction in distribution and population size due to loss of appropriate habitat. It is possible that mountain lions utilize the lower portion of the project site, although they generally prefer more rugged and remote terrain.

Bobcat (Lynx rufus). Although not seen during field observations, bobcat have been reported on the project site. The appropriate habitat is present to support this declining mammal. The bobcat is not legally protected, but there is growing concern over its status.

Raptorial Birds (Birds of Prey). California's birds of prey are considered sensitive by biologists due to their position at the top of the food chain, and because they generally require large, relatively undisturbed habitats for foraging and nesting. Several species of raptors utilize the Ferndale Ranch including the project site. These include the red-tailed hawk, red-shouldered hawk, Cooper's hawk, American kestrel, and sharp-skinned hawk. Many others, including great horned owl, spotted owl, barn owls and possibly golden eagle may utilize the site, as appropriate habitat is present. The Sespe Condor Sanctuary is present to the north of the site, and it is reasonable to expect that foraging may occur in the project vicinity.

Native Oak Trees. Although still numerous throughout much of southern California, countless native oak trees have been removed for urban development. In recent years, concern has been expressed over excessive oak tree removal, not only because of the scenic and botanical value of these trees, but also because of their importance to native wildlife. The hundreds of oaks growing on-site constitute healthy specimens worthy of concern.

3. Overall Relative Habitat Value

The overall relative habitat value of the site as been determined on the basis of several biological criteria. It should be noted that assigning habitat value to any given area involves a certain degree of subjectivity, since there is no way to quantify "value." The criteria utilized include:

- Overall distribution and abundance of habitat on a local and regional basis
- Presence of species that are declining in numbers or are uncommon, rare or endangered
- Degree of disturbance
- Isolation from urban impacts
- Native plant and wildlife species diversity and relative abundance
- Overall size of habitat
- Value of site as wildlife migration corridor

The site exhibits a moderate to high level of habitat diversity because of the presence and vitality of four distinct vegetative habitats. These conditions result in the site exhibiting moderately high habitat values overall. The general habitat value is degraded to some extent by the proximity of human activity. This tends to discourage secretive species from site usage while enabling more aggressive species to flourish.

Based on these criteria, the site can be divided into areas of varying sensitivity. The oak woodlands and the riparian corridors are the most important areas in terms of habitat value. These areas support trees, mammals, and migratory birds that are relatively limited in distribution. These woodlands also are remote from urban areas and, consequently, are important to non-urban, "shy" forms of wildlife (such as bobcats, owls, and many other birds).

Next in the overall habitat value is the riparian corridor, as this area is remote and encompasses wooded drainage corridors. Although studies on movement patterns are not available, it is expected that the wooded drainages are important migration corridors for mobile wildlife.

The project area as a whole is relatively undisturbed except for the overgrazed grassland areas. Grazing practices have significantly reduced the number of herbaceous plants growing on-site and have facilitated the spread of less palatable weeds such as horehound. There are no other obvious signs of disruptive land uses present on-site, and the site is representative of a fairly undisturbed mixed brush and wooded habitat.

E. TRAFFIC/CIRCULATION

Access to the project site is available from State Highway 150, a two lane facility that presently accommodates approximately 3600 average daily traffic (ADT) and a peak volume of 650 vehicles per hour. State Highway 150 provides direct access to the city of Santa Paula to the south and Ojai to the west.

Presently, site access is provided by the existing college/ranch access road, a paved, two lane facility approximately 24 feet wide. The college/ranch road provides direct access to college and ranch facilities and to junctions that link the college/ranch road to a series of dirt roads. Traffic volumes along the college road are variable depending upon school scheduling, oil operations, and ranch activities. Currently, oil operations involve trucking of only wastewater from the property.

Based on information derived from previous traffic counts (see Appendix B), existing traffic volumes along the College/Ranch Road are estimated to range between 200 ADT to 350 ADT with the college in session.

In addition to vehicular traffic on the project site, pedestrian access to the Los Padres National Forest along the College Road is estimated to range from 10,400 per year (Kaminsky, 1983) to 72,300 per year (U.S. Forest Service, 1983).

F. NOISE

The noise environment in the project area is typical of rural areas with ambient noise levels ranging between 45 and 50 decibels (dB(A)). The primary noise sources on the project site and in the vicinity include vehicular traffic along Highway 150 and the College/Ranch Road and noise generated by oil drilling and production equipment.

One particularly noticeable element of the existing project site noise environment is noise generated by heavy truck traffic along the college access road. This traffic passes within 50-100 feet of temporary college structures that do not achieve noise attenuation typically associated with standard wall construction. As a result, traffic noise, particularly that related to truck traffic, is perceived by college officials as a significant conflict with existing college uses.

G. VISUAL RESOURCES

The project site exhibits a high level of visual quality. This is the result of the diversity in vegetation color and form, steep and variable topography, the occurrence of rock outcrops, grazing horses and cattle, nearby Santa Paula Creek, and the lack of large visible areas of human development and activity except for college and oil operations. Views from the college offer generally undisturbed vistas of native California landscape.

Plates 1-5 are views of the project site and proposed access corridors from various viewing locations in the project vicinity. Viewing locations include State Route 150, which is a proposed scenic highway, and from Thomas Aquinas College.

H. CULTURAL RESOURCES

To assess the potential impact of various access alternatives to on-site cultural resources, a detailed cultural resources investigation was performed for the project site. The cultural resources evaluation involved a comprehensive literature research phase, as well as a field reconnaissance to determine the potential occurrence and significance of on-site cultural resources. The purpose of the evaluation was to identify potential impacts of the various access alternatives on cultural resources identified and to recommend appropriate mitigation measures, where necessary. This detailed assessment, contained herein as Appendix C, is summarized in the following sections.

Based on the literature search, no previously documented historic or prehistoric archaeological sites occur within or immediately adjacent to the existing College Road, entrance alignments, or alternative access corridors. However, the area in which the alternative access corridors are located has never been the subject of a systematic archaeologic reconnaissance. One previous archaeological reconnaissance was conducted on Ferndale Ranch during a siting study and EIR for Thomas Aquinas College (Clewlow, 1976). No new archaeological sites were located during this reconnaissance.

One previously documented site (designated CA-Ven-404), first excavated by the Reverend Stephan Bowers (1878), was relocated and two subsequent test excavations at the site have occurred (Clewlow 1977a,b,c; Moser and Seff 1977). The site, located on the Thomas Aquinas College property and measuring some 200 to 400 meters, is situated on the flat alluvial terrace overlooking Santa Paula Creek, approximately 500 feet west of the existing college access road that is presently shared with Argo. Portions of the site are now covered by college buildings or other facilities. Clewlow (1977a,b,c) and others (Lopez 1977; Glassow 1977) indicate the site represents a significant cultural resource. The site represents a large inland village site occupied well into the historic period (Singer, Wessel and Edberg 1981). Singer, Wessel and Edberg (1981) identify this site as possibly the Historic Period village site of Sis'a. Clewlow (1977a) states that Mr. Robert Randall, foreman of the present ranch operation, indicated that artifacts had also been found in the area of ranch buildings northeast of the Ven-404 where no aboriginal materials may presently be observed.

Based on existing information, possible areas for the occurrence of cultural resources on the subject property include the following: Shared College/Ranch Road; Side Hill Road; Old Ferndale Ranch Road; and the alignment alternative for Planning Commission Road. All other project elements on the subject property are expected to have a low probability for the occurrence of cultural resources.

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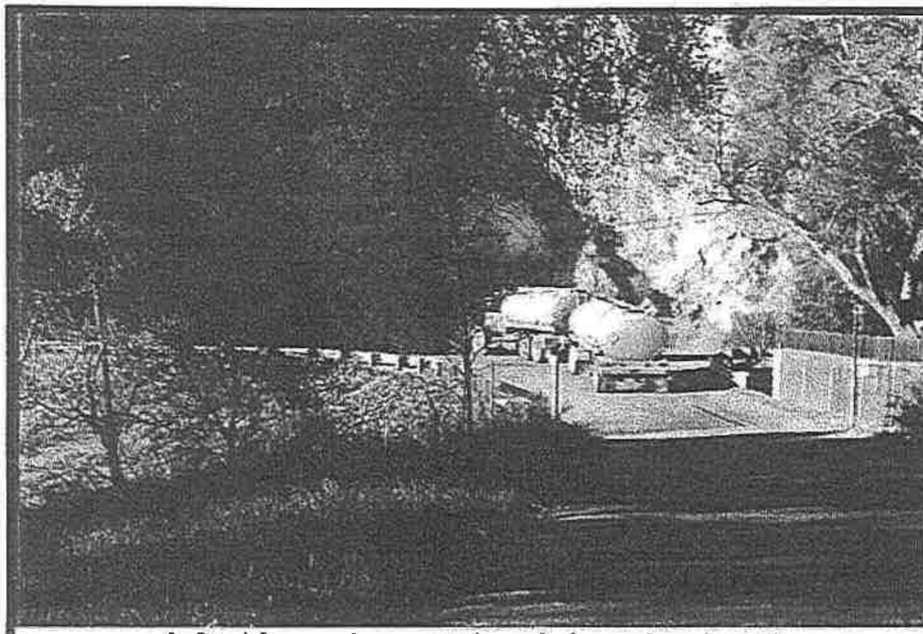
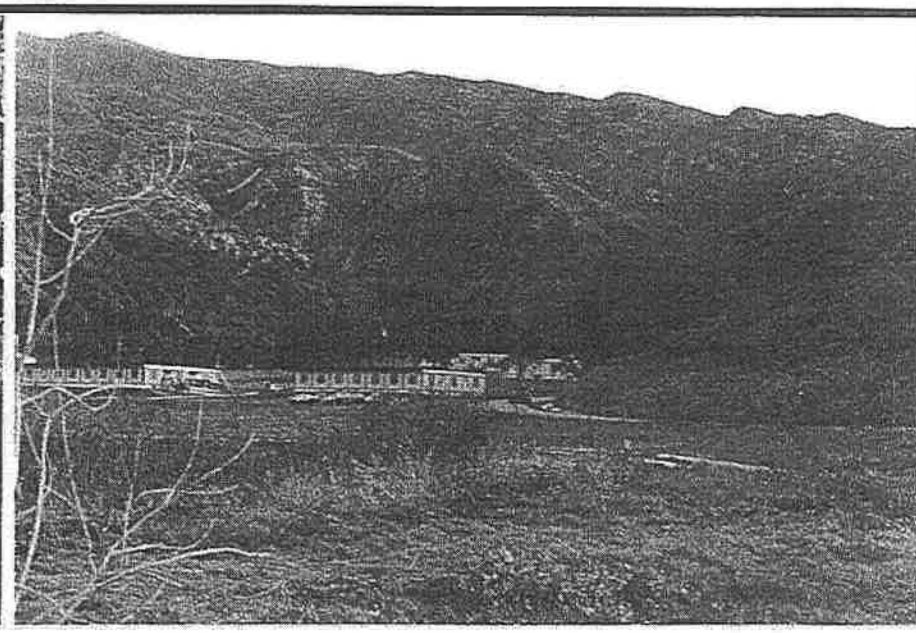
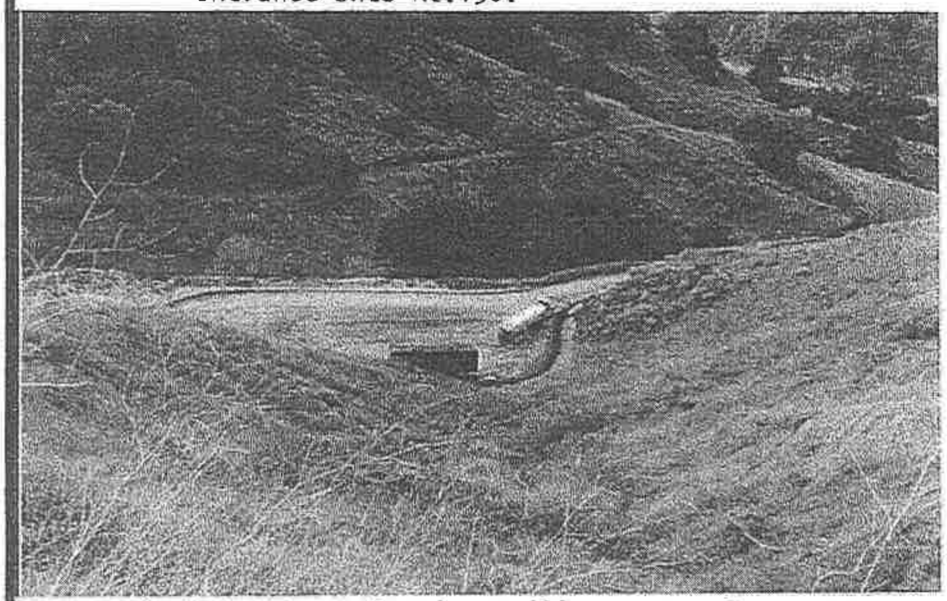


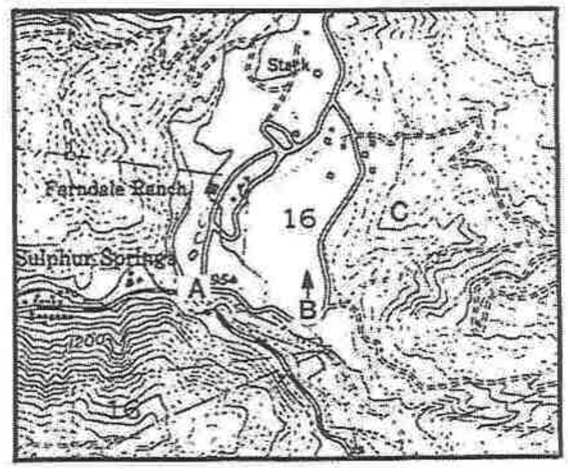
A. Double-tanker truck exiting via shared entrance onto Rt.150.



B. Maintenance truck on shared college road adjacent to dorms.



C. Water truck leaving Drill Site No. 3.



VIEWS OF THE PROJECT SITE

PLATE 1

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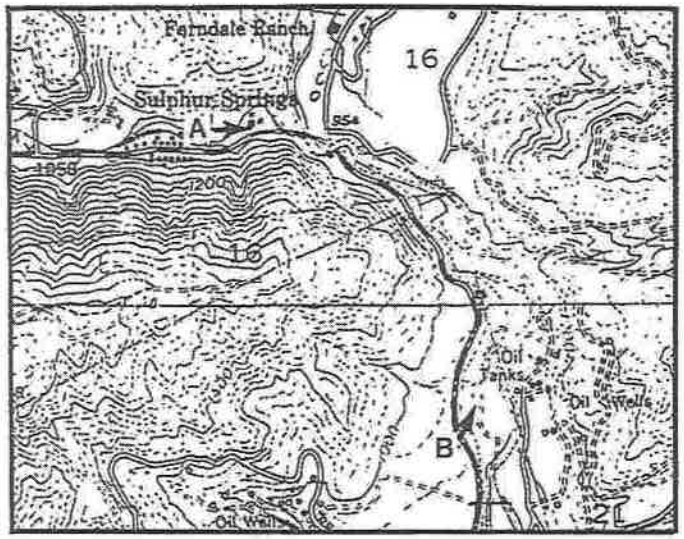
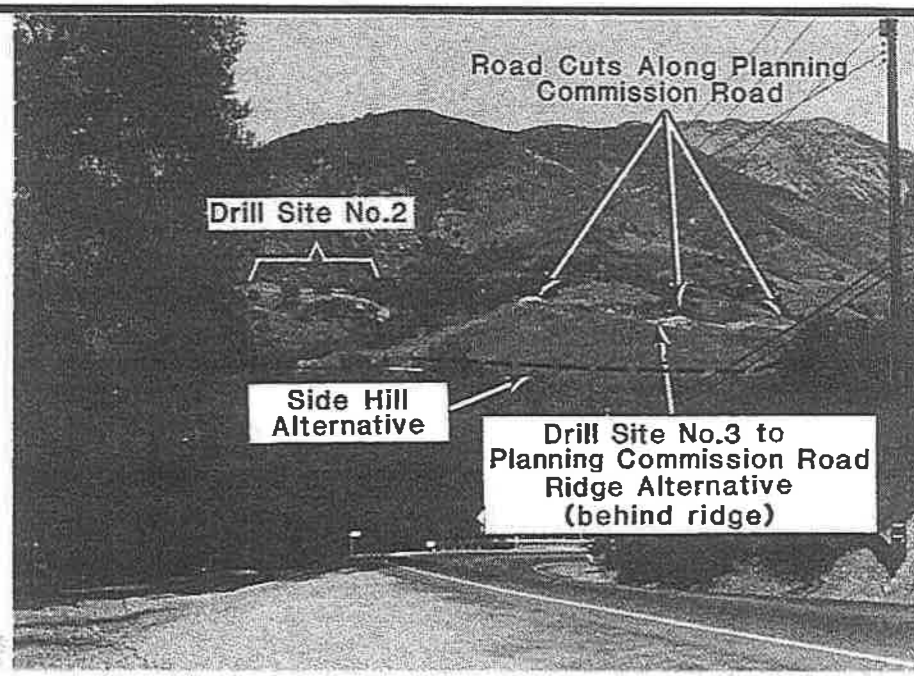
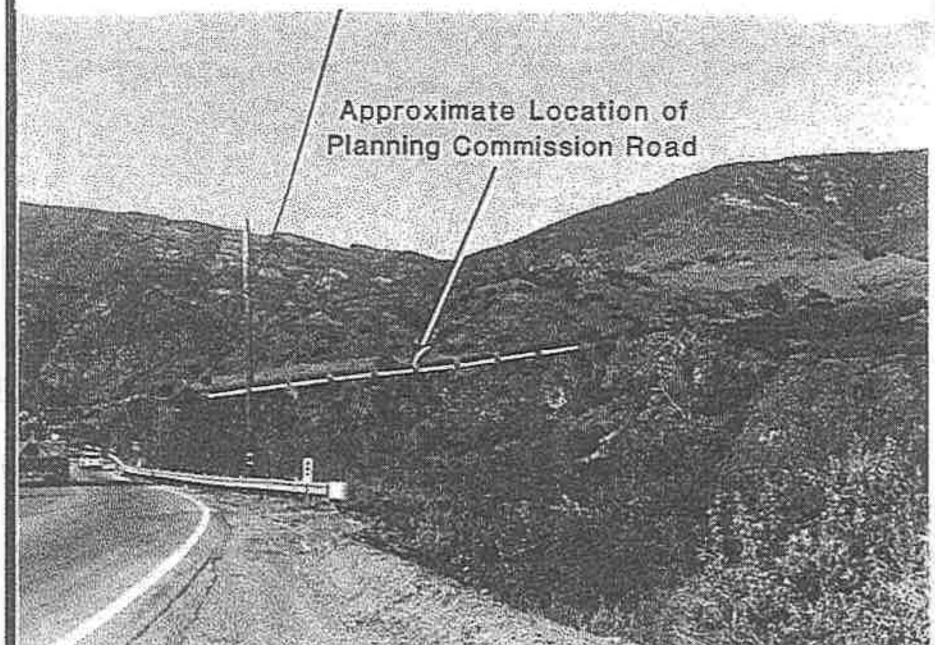




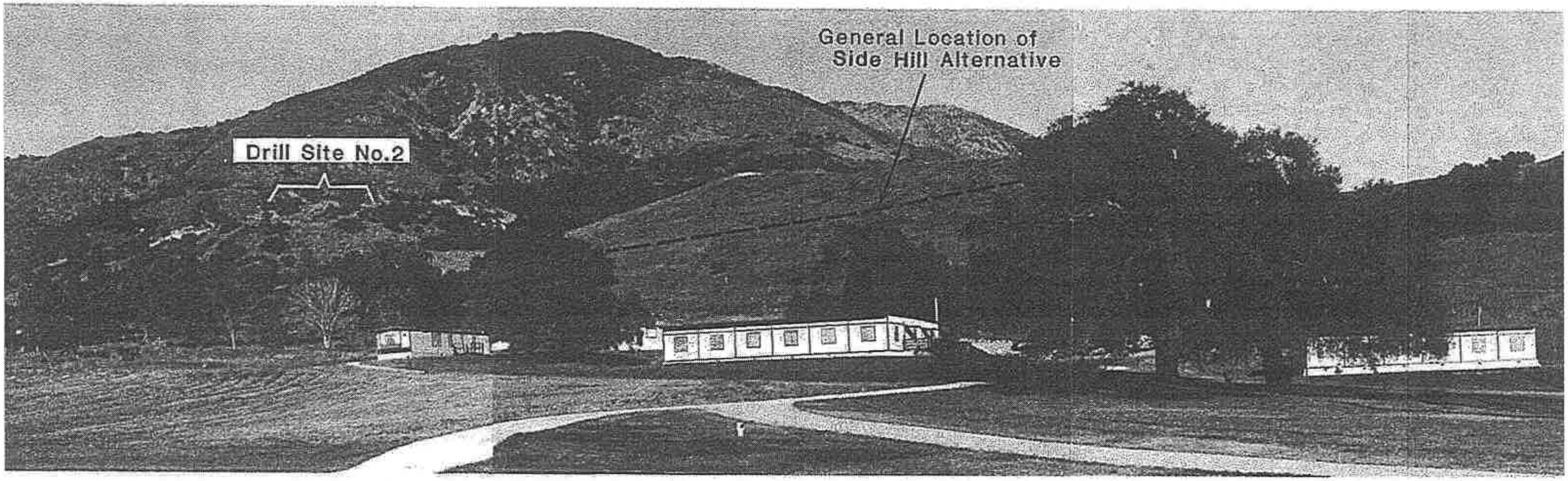
View from east-bound Rt. 150 facing northeast. School is hidden by trees. (Taken 3-5-84)



View from west-bound Rt. 150 facing north. (Taken3-5-84).

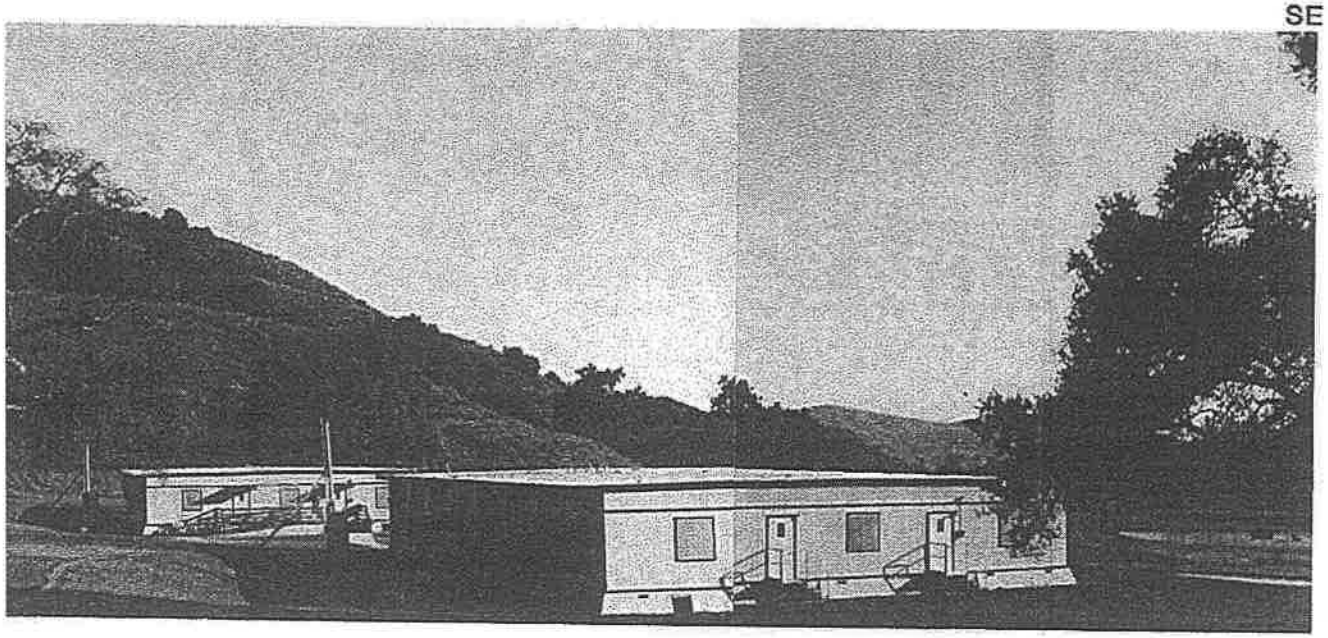
VIEWS OF THE PROJECT SITE

PLATE 2

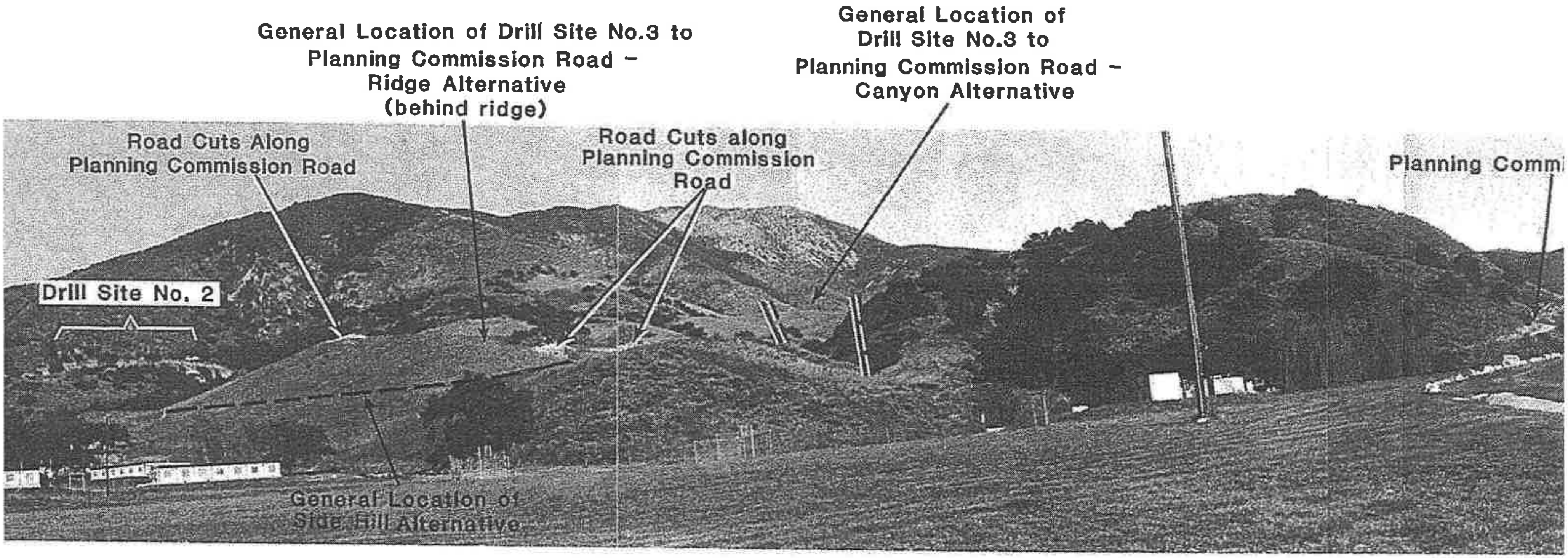


Panoramic view from central building facing east through south showing school dorms in foreground, proposed access routes in background. (Taken 3-5-84)

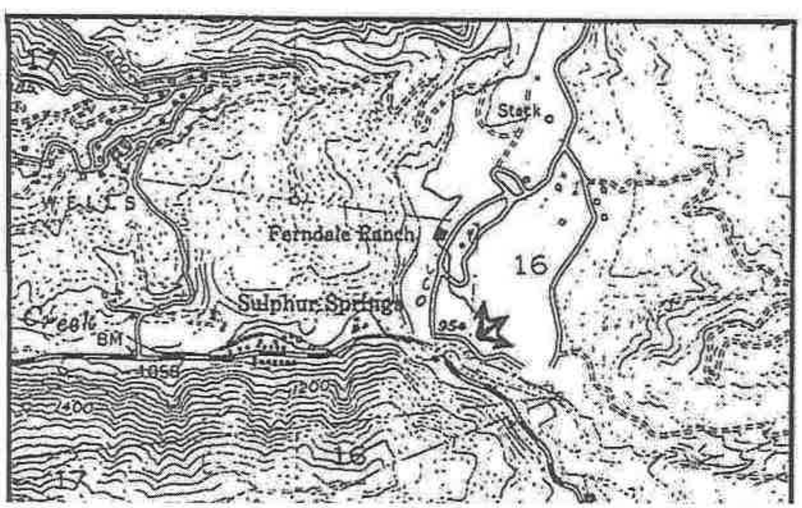
SE

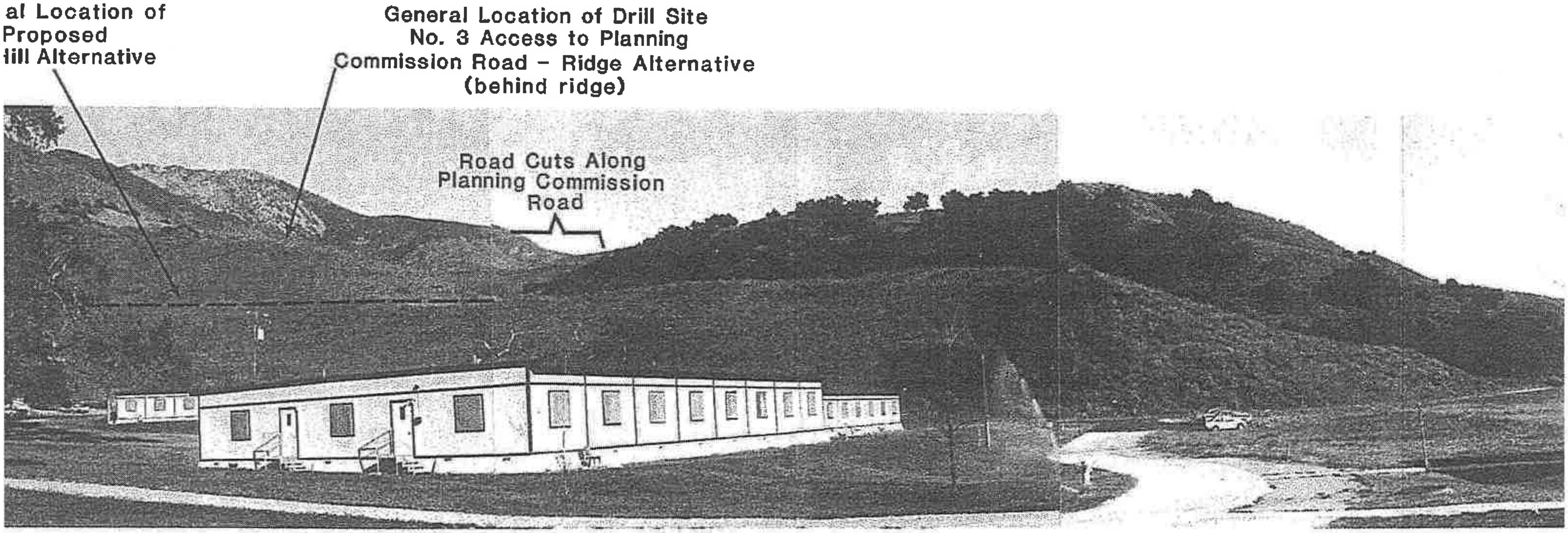


theast portion of Panoramic view showing dorms in southern portion of campus.

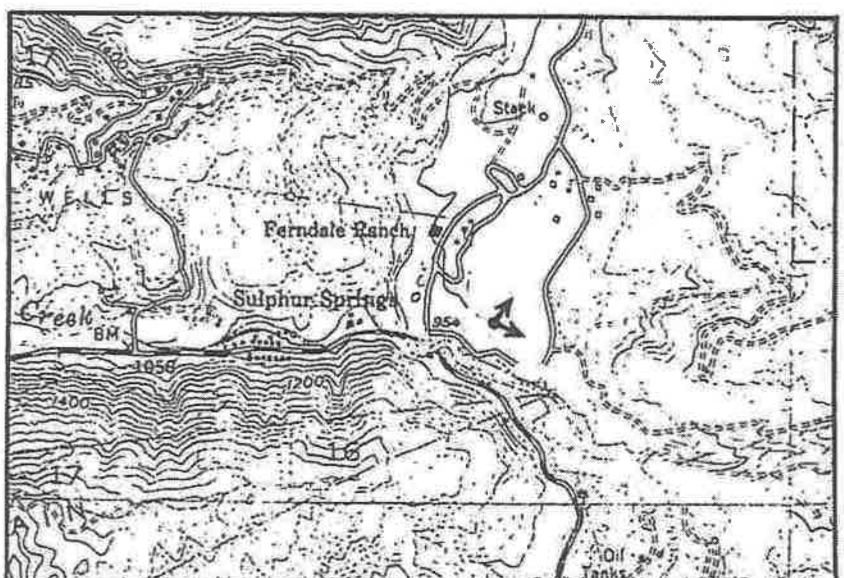


Panoramic view from playing field on southwest portion of campus, facing northeast through southeast.
School dormatories in mid-photo. (Taken 3-5-84)





Panoramic view facing east from dorms in southeastern part of campus. (Taken 3-5-84)



VIEWS OF

IV. ENVIRONMENTAL IMPACT ANALYSIS

The following subsections contain an environmental analysis of each of the primary access roads and entrance alternatives, and other potential access concepts. These are evaluated in terms of geologic hazards, biology, traffic, noise, visual, archaeology, and preliminary estimates of road construction cost. The analysis focuses upon general road corridors rather than specific alignments. The purpose of the analysis is to enable the selection of the environmentally superior access alternative; it is not intended to serve as a detailed engineering and design report for each access road.

To facilitate review of individual corridors, each subsection contains a summary of environmental impacts and mitigation as well as an assessment of technical and economic feasibility of proposed mitigation. Section VII of this report is a comparison of the alternatives.

A. SHARED COLLEGE/RANCH ACCESS ROAD

1. Corridor Description

The shared college/ranch access road alternative (Figure 3) involves the joint use by oil related traffic of the existing road that serves the college and ranch. The existing college/ranch access road is approximately 24 feet wide with one lane in each direction and is paved throughout that portion that serves college activities. The shared corridor is approximately 3050 feet in length with a slope ranging from 2 to 5 percent.

The shared road can be broken down into three segments joined by two relatively sharp curves. The first segment is at the access road junction with State Route 150. This segment, oriented in a north-south direction, is approximately 325 feet in length, adjoining the second linear segment via a 60 degree curve to the east. The second segment, oriented in an east-west direction, is approximately 1125 feet in length and passes within 575 feet of the nearest college structure. The second roadway segment adjoins the third section via a 90 degree turn to the north. The third section, oriented in a north-south direction, is approximately 1600 feet in length and parallels several college facilities. This roadway passes within 49 feet of the nearest occupied college structures. In addition to providing access to college parking areas and support facilities, this road segment intersects two oil field service roads that provide access to existing and proposed drill site locations.

The first intersection is roughly a 90 degree "T" intersection that provides access to the drill site no. 3 access road and the Planning Commission road. This intersection is located approximately 300 feet north of the 90 degree turn in the main college access road and State Highway 150. This intersection is also located within 500 feet of the southernmost college parking facilities and within 600 feet from the nearest college structure.

The second oil service road junction is located approximately 3050 feet north of the intersection of the main college access road and State Highway 150. It forms a 20 degree angle to the west with the main college road. This oil service road provides access to drill site nos. 1 and 2. The road segment that provides access to drill site no. 2 has a slope of approximately 15 percent; the steepest segment, located 780 feet north of the college access road, approaches 20-22 percent. This oil service road is located immediately west of an unpaved campus parking lot and is within 200 feet of the nearest college structure. Given the use of this road to accommodate drilling equipment and supplies, a majority of the oil related vehicular traffic would use the northernmost oil service road that presently serves drill site nos. 1 and 2.

2. Geologic Hazards

The college/ranch road traverses an area underlain by older alluvial sand and gravel; however, the roadway passes along the toe of an existing natural slope inclined at about 2:1 to 2½:1 horizontal to vertical (see Figures 5 and 6). Geologic hazards to this alternative are minimal.

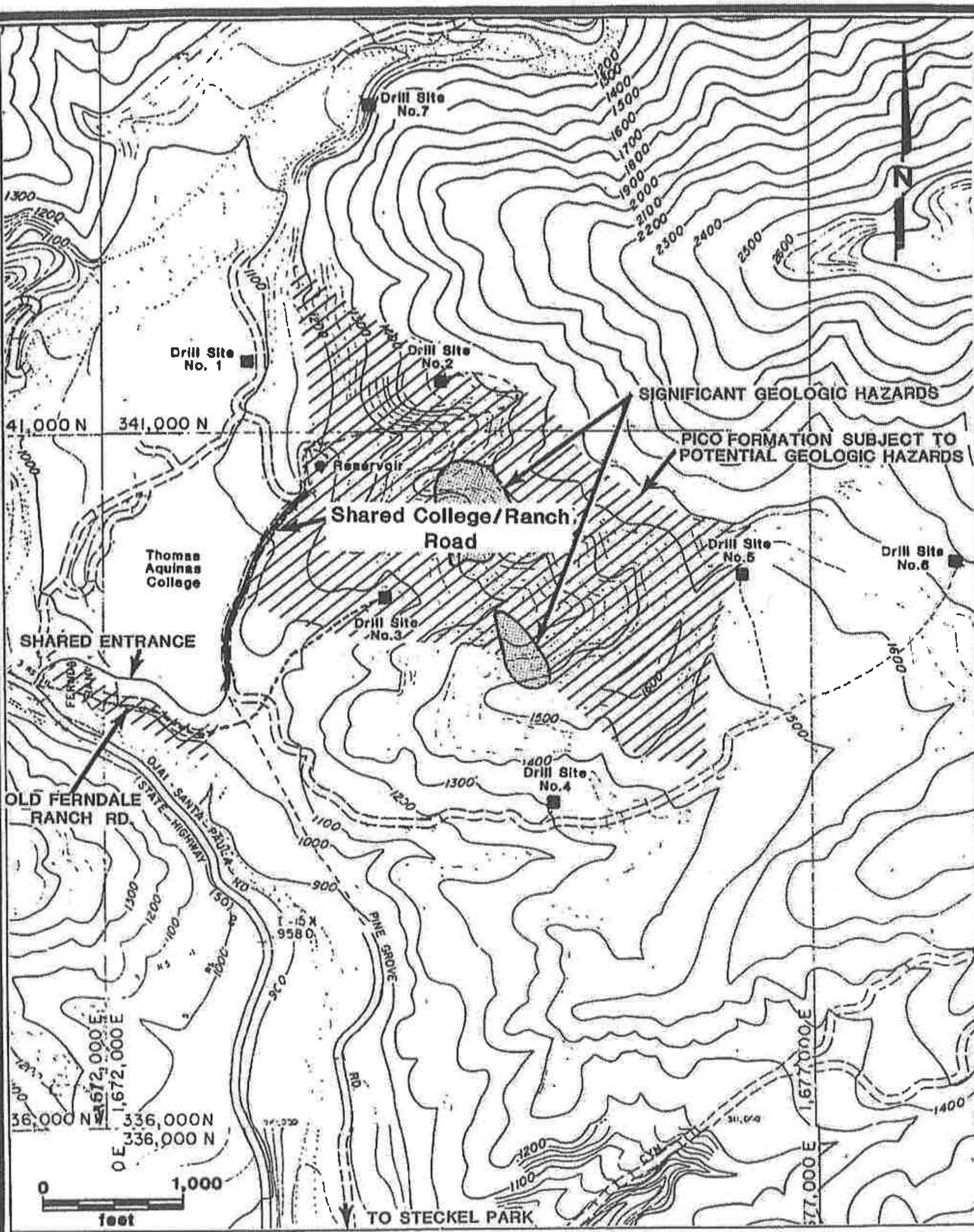
The southernly portion of this route, south of the Anlauf fault, is adjacent to a slope composed of Santa Margarita Formation bedrock that appears to be relatively free of signs of slope failures. However, the northerly portion of the shared college road is adjacent to the toe of a slope composed of surficially (near the surface) unstable Pico Formation bedrock. Although the downslope limits of recent shallow surface failures on this slope could not be accurately determined by field mapping, it appears that an existing unimproved dirt trail that is located a short distance upslope from the shared college road, and an existing concrete-lined drainage ditch at the toe of the slope, may have effectively shielded the road from recent mudflow debris. However, it seems possible that future surficial slope failures could bypass the dirt road and drainage ditch, thus resulting in impact to the shared college access road. Although the threat of significant, recurrent debris flow inundation does not seem high for the proposed shared college road, some potential does exist.

3. Flora and Fauna

The use of the college/ranch road by oil traffic would have no significant effect on biologic resources (Figure 7). The road is existing and would not require major widening or improvements. Therefore, its use for the proposed project would not result in any loss of significant biologic resources or significant impacts on vegetation and wildlife.

4. Traffic/Circulation

The shared college/ranch access road alternative involves use of the existing paved college road to accommodate present and projected future traffic volumes. These traffic volumes could vary considerably depending upon several factors including methods of wastewater transport and disposal; college activities; and projected resource recovery rates. For the purposes of this EIR, several scenarios have been developed for the range of impacts



GENERALIZED LOCATION OF GEOLOGIC HAZARD AREAS

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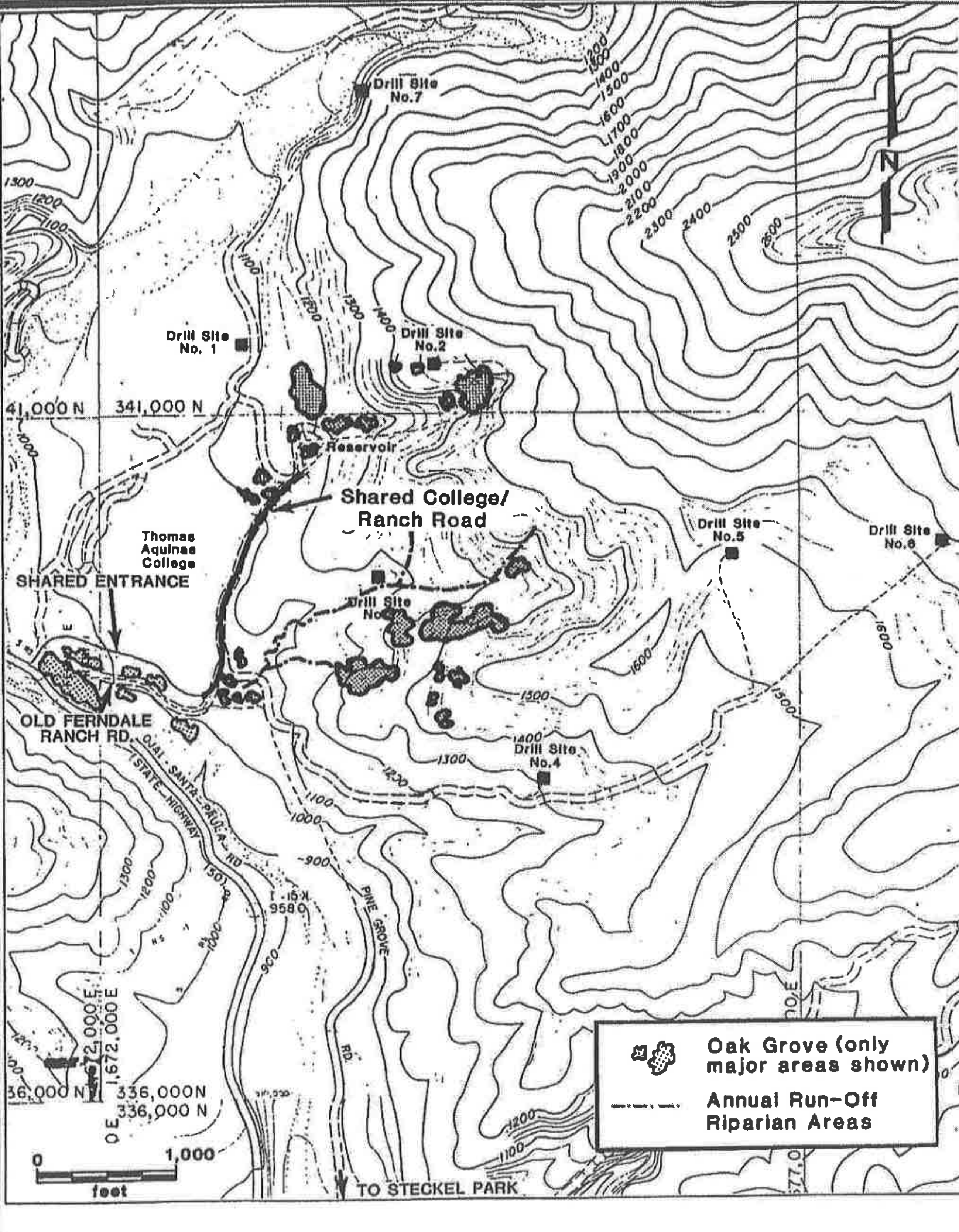
FIGURE 6



LOCATION OF THE SHARED COLLEGE/RANCH ROAD WITH RESPECT TO SENSITIVE VEGETATIVE COMMUNITIES

FIGURE 7

that could be expected given development of Argo's Ferndale Ranch lease and full buildout of the college. The results indicate that peak traffic levels along the college/ranch road will be approximately 70 percent greater than current levels, and that Argo-generated traffic will account for about one-third of the total. The result will be increased potential for conflicts between Argo and the college. It is important to note, however, that there have been no reported accidents resulting from existing traffic levels and associated interaction with college activities.

Given an existing college enrollment of 120 students and a projected enrollment of 350 students with a faculty of 50 staff members at full buildout, future college generated traffic is projected to increase by threefold over existing traffic levels. Based on previous traffic counts (Kaminsky, 1982; see Appendix B), routine college activities are estimated to generate approximately 100 average daily trips (ADT) onto the college access road. Assuming full buildout of presently planned college facilities, future college related traffic generated along the college access road is projected to be approximately 300 ADT.

Traffic associated with ranch operations, estimated at approximately 35 ADT (Kaminsky, 1982), is not expected to significantly change as a result of future ranching activities.

While traffic generation estimates associated with future college and ranch related activities are relatively simple, estimates of projected oil operation traffic are much more complicated and require several scenarios. Traffic generation estimates for future oil development assume low, medium, and high find scenarios. Because it is a requirement of Argo's existing CUP, the traffic projections assume that an oil pipeline is in operation.

Given that existing oil facilities are presently in production, it is not necessary to include site preparation and drilling traffic estimates for existing wells. Traffic generation scenarios identified on Table 4 do, however, separate out traffic associated with site preparation and drilling of new wells. To a certain extent, site preparation, drilling and production operations will overlap. For the purposes of this analysis, it is assumed that site preparation phases will overlap with existing production operations, but will not be affected by planned drilling operations. Once drilling commences it is assumed that all planned wells will be drilled consecutively over a two to three year period and that during that time drilled wells will begin production. Therefore, the maximum traffic generation is expected to occur as the final wells are being drilled and the completed wells are at maximum production. This condition would occur when the final well is being drilled at which time production would be at approximately 95 percent of the estimated peak production level.

During production, it is assumed that wastewater will be trucked to an approved disposal area. However, it is important to note that while the duration of this condition is uncertain, an alternative method of on-site wastewater disposal is currently under investigation by Argo, and it is possible that trucking of wastewater offsite is only a temporary condition.

TABLE 4.

TRAFFIC GENERATION FOR EACH PHASE
OF PROJECT DEVELOPMENT[a,b]

	Site Preparation Phase		Drilling Phase		Production Phase		Well Abandonmant Phase	
	Light Vehicles	Trucks	Light Vehicles	Trucks	Light Vehicles	Trucks	Light Vehicles	Trucks
a. "high-find" scenario	6 ADT	4 ADT	54 ADT	6 ADT	8 ADT	100 ADT	6 ADT	4 ADT
b. "medium-find scenario	6 ADT	4 ADT	54 ADT	6 ADT	8 ADT	30 ADT	6 ADT	4 ADT
c. "low-find" scenario	6 ADT	4 ADT	54 ADT	6 ADT	8 ADT	10 ADT	6 ADT	4 ADT

[a]This assumes all oil production will be shipped by pipeline.

[b]ADT = average daily trips. One two-way vehicle trip = 2 ADT.

It should be further noted that wastewater is presently transported via pipeline to a storage and truck loading facility at Drill Site No. 3; therefore, truck traffic associated with wastewater disposal would use the portion of the shared college/ranch road that is located south of existing college structures.

Recognizing the overlap of the drilling and production phases, Table 5 identifies the maximum traffic condition assuming a pipeline is in operation for petroleum transport. Given the uncertainty associated with development of alternative wastewater disposal methods, this analysis assumes that wastewater will be trucked to an approved disposal site under all scenarios analyzed.

Peak traffic levels for the proposed project are estimated to average 31 light-duty vehicles and 53 truck trips per day under the "high find" scenario, 31 light-duty and 18 truck trips per day for the "medium-find scenario, and 31 light-duty vehicle trips and 8 truck trips per day for the "low-find" scenario. These projections are for the worst case because they assume all wastewater will be removed from the site by truck. If an alternative method of wastewater disposal is used (e.g., injection well), peak traffic levels for all scenarios will be reduced to approximately 34 vehicles per day, of which only 3 will be heavy trucks. In addition, the projections are daily averages; peak individual days could be higher.

Assessment of the potential cumulative traffic impacts involves the addition to existing traffic levels of projected oil related traffic volumes, projected future college traffic volumes, and traffic generated from future ranch operations. Table 6 summarizes the projected cumulative traffic volumes along the existing college/ranch access road.

Overall traffic on the college/ranch access road is expected to increase by approximately 70 percent at the peak level of oil development and full build-out of proposed college facilities under the "high find" scenario. College traffic represents approximately 60 percent of the peak level while Argo traffic represents approximately 33 percent. Argo is projected to generate 53 truck trips per day at peak level (106 ADT), which represents 100 percent of the site generated truck traffic. However, this is the worst case situation where all wastewater is removed by truck. If an alternative method is used (e.g., reinjection), Argo-generated truck traffic would be reduced to 6 ADT.

Only a small portion of the project generated traffic would be expected to use the existing Planning Commission road to access drill site Nos. 3, 4, 5 and 6. However, if drill site No. 3 is used as a wastewater storage area, approximately 60-70 truck trips would be expected to turn at the drill site No. 3 access road junction and would not pass directly in front of the college.

The capacity of a roadway is dependent upon a number of physical factors of that roadway (e.g., width, alignment, grade, etc.,), but is also

TABLE 5.

PROJECT TRAFFIC GENERATION

(Assumes maximum overlap between Drilling and Production Phases)

	Drilling Phase		Production Phase[a]		Total	
	Light Vehicles	Trucks	Light Vehicles	Trucks	Light Vehicles	Trucks
a. High-find scenario	54 ADT	6 ADT	8 ADT	100 ADT	62 ADT	106 ADT
b. Medium-find scenario	54 ADT	6 ADT	8 ADT	30 ADT	62 ADT	36 ADT
c. Low-find scenario	54 ADT	6 ADT	8 ADT	10 ADT	62 ADT	16 ADT

[a] Assumes transport of oil by pipeline, but the worst case condition where all wastewater is removed by truck.

TABLE 6.

FUTURE PEAK TRAFFIC VOLUMES ON THE SHARED COLLEGE/RANCH ACCESS ROAD

	Ranch Traffic		Future College Traffic		Potential Peak Argo Oil Recovery		TOTAL		
Scenario	Light Duty	Truck	Light Duty	Truck	Light Vehicles	Truck	Light Vehicles	Truck	Total
a. High find	35	0	300	0	62 ADT	106 ADT	397 ADT	106 ADT	503 ADT
b. Medium find	35	0	300	0	62 ADT	36 ADT	397 ADT	36 ADT	433 ADT
c. Low find	35	0	300	0	62 ADT	16 ADT	397 ADT	16 ADT	413 ADT

contingent upon the desired function of that roadway. For example, a two-lane highway can safely accommodate greater traffic volumes than a residential street of similar width. Therefore, while the college access road could physically accommodate projected worst case traffic volumes, the question of desirability becomes a function of land use compatibility and safety.

Other factors that affect roadway capacity include: width of traffic lanes and shoulders, number of traffic lanes, grades and alignment, lateral clearance, passing sight distance, degree of access control, vehicular speed, extent of development, percentage of trucks, merging and diverging movement and the type and number of intersections and driveways.

In terms of land use and transportation planning, the movement of oil field truck traffic through a rural institutional setting within 50 feet of temporary structures results in the potential for significant land use conflicts. In addition, although there is no evidence of serious accidents resulting from existing traffic volumes along the roadway, three primary areas of safety concern exist: 1) the intersection of the college/ranch access road with the access road to drill site Nos. 1 and 2 where vegetation limits sight distances to the west for southbound vehicles (NOTE: A stop sign for eastbound vehicles would minimize this potential hazard); 2) along a 15-20 percent grade on the drill site No. 2 access road that results in a ramp situation oriented downhill towards college dormitories (NOTE: Measures to reduce this potential impact are contained in subsequest sections of this EIR); and 3) the 60 degree curve immediately north of the intersection of the college/ranch road and State Highway 150 (near junction with Old Ferndale Ranch Road). Vegetation in that area causes shadows that could limit the visibility of pedestrians and bicyclists. While the degree of these safety hazards may not be apparent at this time, increased traffic volumes could substantially increase the potential traffic safety hazard along the college/ranch access road.

The fact that the access corridor is annually used by an estimated 10,400 (Kaminsky, 1983) to 72,300 (U.S. Forest Service, 1983) hikers enroute to the Los Padres Forest further increases potential safety conflicts associated with traffic increases on the college/ranch access road.

5. <u>Noise</u>

The project site is in a rural area with few significant noise sources. Nonetheless, traffic noise has been an issue because of truck pass-bys along the college/ranch road disturbing residents of the college dormitories, located only fifty feet from the nearest lane. Because of the problem, a traffic noise assessment was prepared by BBN, Inc. (September, 1983) for ARGO Petroleum Corporation. This study was done to evaluate the traffic noise problem on the college road and to investigate methods of abatement. This report forms the basis of this assessment and is included in Appendix D.

As described in the BBN noise report, a suitable criteria for defining potential noise impact in this rural environment would be an Ldn = 55 dBA, where Ldn is the day-night equivalent sound level. This unit is a composite of hourly equivalent sound levels (LEQ) summed over a 24-hour period with an additional 10 dB penalty added to nighttime levels (10:00 p.m. to 7:00 a.m.).

Ldn can be translated into recommended daytime and nighttime levels of an hourly LEQ = 55 dBA and LEQ = 45 dBA respectively. These levels also correspond to the standards set by the Ventura County Oil Ordinance for noise levels at residences near fixed oil installations. While the ordinance does not apply to traffic noise, it can be used as a conservative criteria by which to judge noise impacts.

The standards identified above have been developed by the U.S. Environmental Protection Agency in order to protect the public health and welfare. These standards represent acceptable average daily noise leels and not noise tolerance levels.

Current ambient noise levels at the dormitories were measured by BBN on August 17, 1983, and represent a typical case for when the school is not in session. Daytime LEQ ranged from 39.5 dBA to a high of 60.9 dBA. The daytime LEQ criteria of 55 dBA was exceeded only one hour out of fifteen. However, these noise measurements are only a typical case and do not assess the complete noise problems because traffic volumes will substantially increase when school is in session and are dependent on the type of operations occurring in the oil field.

The BBN report modeled several different combinations of traffic conditions including whether or not school was in session, if the pipeline was in use, and if drilling operations were occurring. These combinations were compared against the high, medium, and low scenarios used in this report for Argo oil production and drilling as shown in Table 7. While the matching of combinations and scenarios are not exact, the difference between them is expected to be less than 1.5 dBA, as can be seen by comparing the various BBN combinations with each other.

Peak hour traffic noise levels were used to compare against the criteria to assume a "worst case" assessment. Noise levels at other times of the day are expected to be much less, as shown by the ambient noise measurements where the peak hour LEQ was 60.9 dBA (8:00 a.m.), while afternoon LEQs were around 46.7 dBA - 53.0 dBA.

The noise impact expected along the college/ranch road by the various scenarios is given in Table 8. All scenarios would exceed the LEQ = 55 dBA criteria without any barrier, while a ten foot barrier would be adequate to reduce noise levels below the criteria. It should be noted that this noise impact only includes the increase in traffic due to Argo Petroleum operations. If the college expands as previously noted, college traffic will increase from the 12 autos and two trucks used in the BBN study to an estimated peak hour of 30 vehicles. This increase in college-related traffic would be expected to increase noise levels at the dormitories (Location #2) from 52.9 dBA to about 57 dBA. This assumes that Argo traffic is rerouted and no wall is constructed. Thus in the future, college traffic alone will cause noise levels at the dormitories to exceed the criteria. If the increase in college traffic is combined with the Argo traffic, noise levels shown in Table 8 would be about 1-2 dB higher, with greater effect occurring for the low scenarios. The 10-foot barrier analyzed by BBN would still be effective in maintaining noise levels below the 55 dB criteria. However,

TABLE 7.

COMPARISON OF BBN NOISE ASSESSMENT TRAFFIC COMBINATIONS AND HIGH, MEDIUM, AND LOW SCENARIOS OF PEAK HOUR ARGO TRAFFIC VOLUMES

	Peak Hour Volumes		Scenario Corresponds Approximately to BBN
	Auto	Truck	
A. BBN Combination[1]			
1. Production and drilling	7	6	--
2. Worst Case	10	18	--
3. EIR Scenarios			
High	9	9	3 (4.5 dB)[3]
Medium	9	5	2
Low	9	3	1

1. From Table 2, Page 17, BBN 12 September 1983.
2. Based on 10% of average daily traffic volumes for ARGO.
3. Estimated correction factor to compare combinations and scenarios

TABLE 8.

EXPECTED NOISE IMPACT OF ARGO TRAFFIC ALONG COLLEGE ROAD AT DORMITORIES[1]

Scenario	Peak Hour Equivalent Noise Level, dBA		
	No Barrier	10' Barrier	12 - 15' Barrier
High	60.7	52.3	49.3
Medium	58.8	50.4	47.5
Low	57.6	49.2	46.2

1. Location #2 in the BBN study (Worst Case Location).

although projected average noise levels would be below adopted standards, truck passbys could be perceived as a significant disruption of classroom activities. An additional measure that could be considered to alleviate this perceived impact is relocation of classroom facilities that are located within 100 feet of the roadway.

During the nighttime hours, projected future traffic levels are not likely to exceed standards because of the low level of traffic. However, any oil field truck traffic passing the college during nighttime drilling operations will still likely be disturbing because of the very low ambient noise in this rural setting.

An additional noise impact will occur at the proposed faculty residences. Noise levels at the nearest proposed residence are expected to be about 2-4 dBA lower than those listed in Table 8 for the no barrier condition. Noise levels in this area would be expected to equal or exceed the criteria of 55 dB.

6. Visual Resources

The use of the college/ranch access road by oil traffic has a significant effect on the scenic rural visual character of the area around Thomas Aquinas College. The main college access road passes within 50 feet of college dorm buildings (temporary structures). The result is that oil-related traffic utilizing the road is highly visible from the campus. While the degree of significance associated with vehicular traffic is subjective by nature, existing and projected traffic volumes is perceived by college officials as a significant visual impact given the natural college setting. Nighttime traffic creates an additional adverse impact as headlights shine into dorm buildings.

Construction of sound attenuation barriers to mitigate noise impacts would, to a large extent, minimize the visual impact associated with high visibility of vehicular traffic but would interrupt lines of sight to visual amenities (e.g., hillsides) and would comprise a significant element of the visual setting.

7. Cultural Resources

One previously recorded archaeological site is located in the vicinity of the Shared College Road. This site (CA-Ven-404) is situated approximately 500 feet east of the existing roadway. However, no effect on this site is expected to result from continued use of the road.

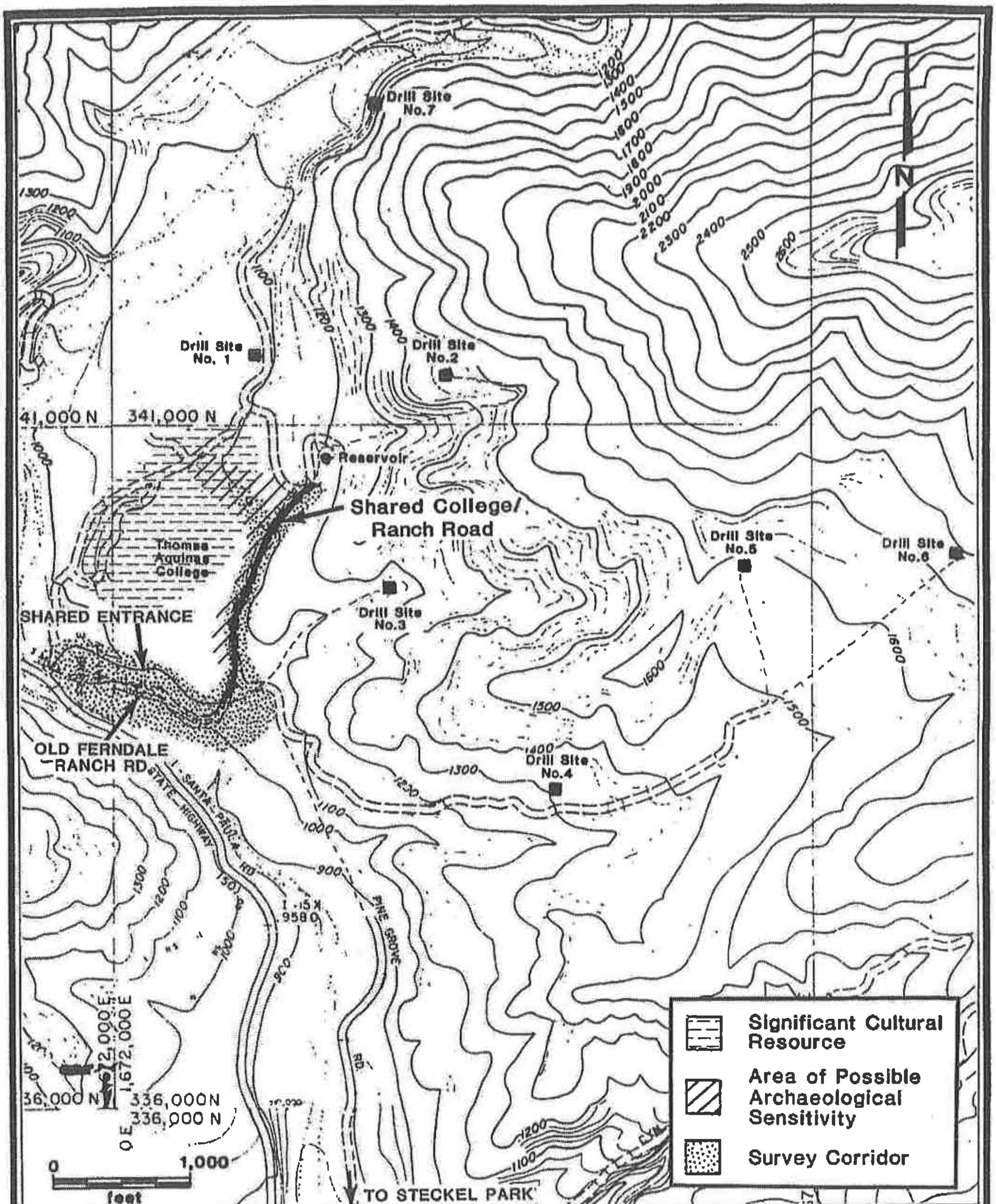
Surface visibility in the survey corridor paralleling the road was variable but generally good. No new prehistoric or historic cultural resources were identified immediately adjacent to the existing roadway; however, based on the nature of the terrain and the proximity of a significant cultural resource (Ven-404), the potential exists for the occurrence of buried cultural resources in the vicinity of the road. The area adjacent to the shared college considered archaeologically sensitive is shown on Figure 8. Should any modification to the road be required, it is recommended that a qualified archaeologist be present on-site to monitor construction activities in order to mitigate possible damage to potential buried cultural resources.

8. Road Feasibility/Cost

The existing college/ranch access road is currently a feasible alternative to accommodate oil related traffic volumes. Because this road is an existing facility, costs associated with road surfacing, grading, and slope stabilization would be minimal. However, to alleviate potential noise impacts, some method of noise attenuation may be necessary. The cost associated with constructing a 10 foot high masonry block wall is estimated at approximately $60 per foot (Widmer and Associates, 1984). Assuming that a 10 foot wall is constructed along the entire length of this route between the junction with the drill site No. 3 access road and the drill site No. 1 access road (approximately 1400 feet), the cost is estimated at approximately $84,000.

9. Summary of Environmental Impacts and Mitigation

Table 9 is a summary of the environmental impacts and mitigation measures identified for the shared college/ranch access road. Additionally, Section VII of this report provides a comparison of alternatives.



SHARED COLLEGE/RANCH ROAD ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

Table 9
Summary of Environmental Impacts and Mitigation
Measures - Shared College/Ranch Access Road

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
a. Geologic Hazards							
o Potential surface slope failures along the northerly portion of the existing roadway	Minor	Road maintenance program or implementation of a retaining structure	None	EIR	Applicant	Yes	Yes
b. Flora/ Fauna							
o Loss of significant resources	No impact	None neccessary	None				
c. Traffic/ Circulation							
o Cumulative traffic safety and land use compatibility impacts associated with movement of oil field traffic through Thomas Aquinas College	Potentially Significant	o Construction of a barrier to restrict pedestrian access onto the roadway	Effectiveness limited (also see Visual Resources Section)	EIR	Applicant	Yes	Yes
		o Adoption of an alternative access route	None	EIR	County/Applicant	Yes	Yes

Table 9
Summary of Environmental Impacts and Mitigation
Measures - Shared College/Ranch Access Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Economically
c. Traffic/ Circulation (Cont.)							
o Sight distance related safety impacts at project entrance and at the junction with the drill Site 2 access roads	Potentially significant	o Vegetation clearance o Stop signs at roadway junctions	Insignificant	EIR	Applicant	Yes	Yes
o Potential safety concerns associated with downslope "ramp effect" and additional movement of traffic onto college campus	Potentially significant	o Realign access road to eliminate ramp effect (see alternative Planning Commission Road Alignment)	Insignificant	EIR	Applicant	Yes	Yes
		o Improve roadway surface to include paving and flood control channelization	Limited effectiveness	EIR	Applicant	Yes	Yes
		o Provide "safety ramps" that could be used in the event of brake failure.	Insignificant	EIR/Property owner	Applicant	Yes	Yes
		o Reconstruct steep segments of the drill site No. 2 access road including measures to reduce grades.	Dependent upon final design	EIR	Applicant	Uncertain	Costs uncertain at this time

Table 9
Summary of Environmental Impacts and Mitigation
Measures - Shared College/Ranch Access Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
d. Noise							
o Increase of traffic noise levels above Ventura County oil Ordinance thresholds of 55dB(A) Leg - daytime, 45dB(A) Leg - nightime	Significant	o Implement-ation of 10 foot noise barrier	Insignificant (see Visual Resources Impact Assess-ment)	EIR/BBN Noise Study	Applicant	Yes	Yes
o Nuisance effects caused by truck on pass-bys	Significant	o Implementa-tion of 10 foot noise barrier	Limited effectiveness (see Visual Resources Impact Assessment)	EIR/BBN Noise Study	Applicant	Yes	Yes
		o Voluntary relo-cation of temporary college structures that are located within 100 feet of the shared College/ Ranch Road	Insignificant	EIR	College	Yes	Yes

Table 9
Summary of Environmental Impacts and Mitigation
Measures - Shared College/Ranch Access Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Economically
d. Noise (Cont.)							
o Exceedance of adopted county noise ordinance standards at proposed faculty housing locations	Significant	o Construction of 6-10 foot noise attenuation barriers to interrupt line of sight and noise path of noise generators	Insignificant (see Visual Resources Impact Assessment)	EIR	Thomas Aquinas College (at time of construction)	Yes	Yes
e. Visual Resources							
o Visual impacts associated with high visibility of vehicles traffic and/or noise attenuation walls	Significant	o Vegetative screening to minimize visual impacts of noise attenuation barriers and areas of roadway visibility	. Limited effectiveness	EIR	Applicant	Yes	Yes

Table 9
Summary of Environmental Impacts and Mitigation
Measures - Shared College Access Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Economically
f. Cultural Resources							
o Potential impacts to archaeologic resources adjacent to roadway, should roadway modifications be neccessary	Minor	o On-site construction monitoring by a qualified archaeologist, should roadway modifications be necessary	None	EIR	Applicant	Yes	Yes

B. PLANNING COMMISSION ROAD

1. Corridor Description

This alternative is the road originally approved by the Planning Commission for drill sites 2, 4, 5 and 6 when it approved CUP-3344; however, the Planning Commission did not require this road to be used for access to site 1. The Planning Commission-approved road is presently unimproved throughout its 2.3 mile length. Access to this facility is available via an 1800 foot paved section of the existing college access road. The Planning Commission road, located east of Thomas Aquinas College, winds along the southerly base of an east-west trending ridge providing access to drill site Nos. 4, 5 and 6. It then climbs in elevation along the northern side of the ridge to provide access to drill site Nos. 1 and 2 (see Figure 3).

Topographic elevations along this route range from approximately 1030 feet near the access road junction to 1575 feet along the eastern most portion of the corridor. The slope variation along the Planning Commission route varies from approximately two percent along the ridge east of drill site No. 3 to approximately 20-22 percent south of drill site No. 2.

The roadway alignment along the southern segment is relatively straight in an east-west direction turning north via a broad turn. At the easternmost section of the route, there is a sharp switch back. Approximately 2200 feet to the west, there is a second sharp switchback which turns back to the northeast overlooking drill site No. 3. The route continues to the northeast for approximately 1600 feet and curves to the northwest along the south facing ridgeline that overlooks drill site No. 3. As the roadway crosses the north-south trending ridge that overlooks the college to the west, the corridor forms an "s" turn changing direction to the north and then to the northwest. The final segment of the "s" turn is an intersection with the drill site No. 2 access road. Immediately south of the road's intersection with the drill site No. 2 and throughout the "s" turn, the slope of the roadway is approximately 7 percent with shorter segments approaching 10 percent.

The final segment of the Planning Commission road is the existing access road to drill site No. 2. As indicated in the description of the shared college road alternative, this segment averages 15 percent slope with shorter segments approaching 20-22 percent. The road surface is oiled and becomes very slippery when wet.

This road segment proceeds relatively straight down slope to the east past the college water storage reservoir and then turns to the south. Approximately 550 feet past the water reservoir, it turns sharply to the northwest providing access to drill site Nos. 1 and 7.

Because of the sharp curve south of the water storage reservoir, it is sometimes easier for large trucks to proceed south across the college access road and to make a U-turn in the college's unimproved parking area to approach the turn from the south. Because of this turning radius deficiency, and in an attempt to avoid safety hazards associated with a runaway truck (due to brake failure) headed in the direction of campus facilities, an alternative alignment for this section of roadway has been investigated as a part of this study. The alternative alignment includes an approximately 600 foot straight roadway segment that connects drill site No. 2 access road to the drill site No. 1 access road. While the alignment for this segment indicated on Figure 3 is only conceptual, the slope is estimated at approximately 15 percent.

An alternative to realignment that could alleviate this downslope ramp hazard would be the provision of "safety ramps" that could be used in the event of brake failure.

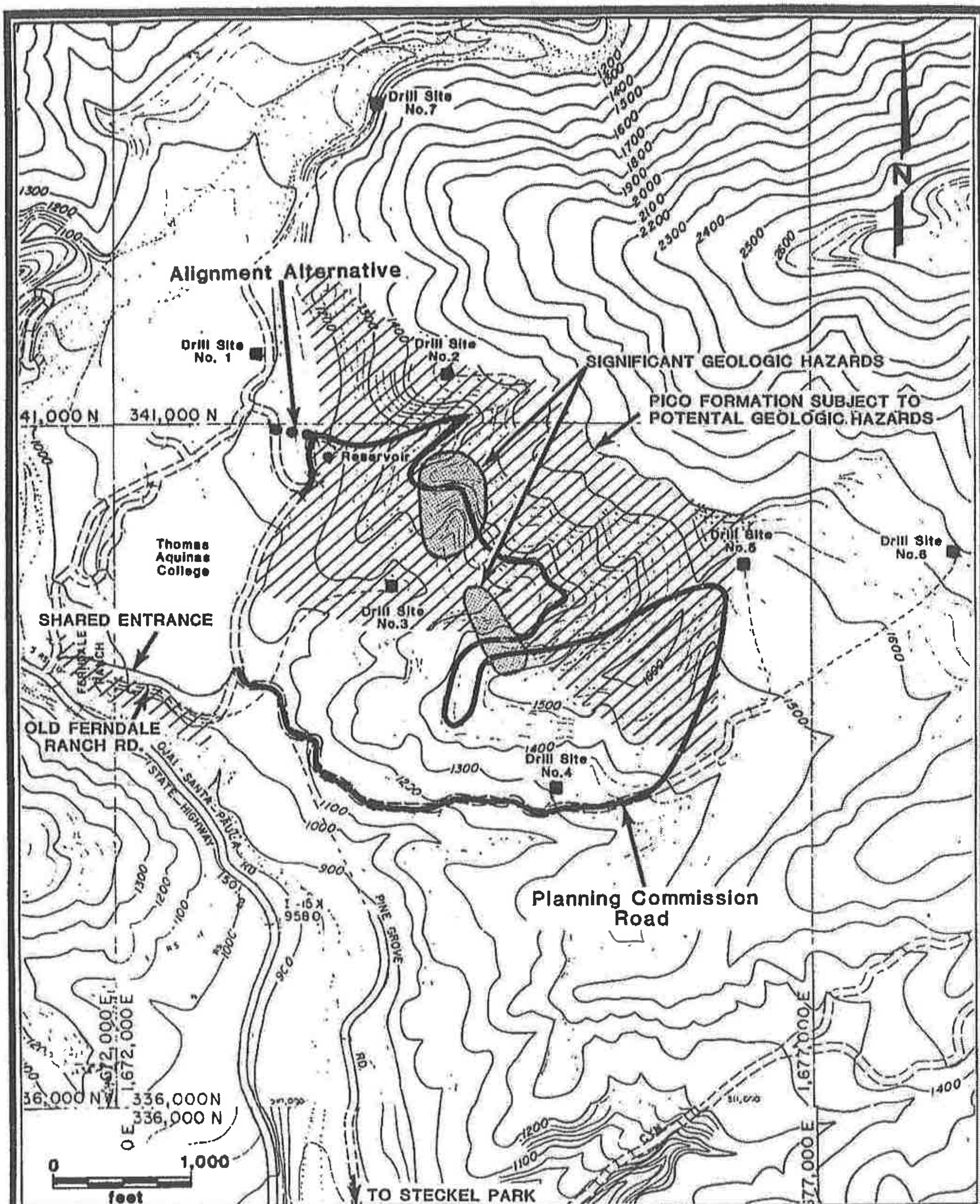
2. Geologic Hazards

The Planning Commission road crosses several significant landslide areas that will result in costly stabilization measures. This road traverses several different geologic units including older alluvium, and Santa Margarita Formation and Pico Formation bedrock. Several ancient bedrock landslides (Qlsa) are crossed by the route in both the Pico and Santa Margarita Formations (Figure 9). However, due to their apparent antiquity (geologic time) and the relatively short life span of the project, these ancient landslides will not have significant adverse impacts on the proposed access road.

At least four recent bedrock landslides (Qlsr) are crossed by the route in the area underlain by Pico Formation bedrock. Because of their size and signs of recent activity, if the roadway is to remain relatively free of continuous maintenance, remedial stabilization measures should be implemented for these recent landslides. As a result, these landslides represent a significant constraint for development of this route. Preliminary field estimates of landslide thickness and geometry suggest that most, if not all, of the volume of each of these recent landslides may need to be removed and recompacted to effectively stabilize them. This is based on the observation that the process of grading access ramps and backcuts for typical buttress fill stabilization methods is likely to involve as much earth material as would be involved in the complete removal and recompaction of the landslides.

As an alternative to removal and recompaction, it may be possible to excavate material from the heads of the slides and compact it against the toes of the slides. This alternative helps limit the amount of removal needed at the toes of slides and eliminates the need for moving the material twice. Although this method appears to be a feasible alternative for most of the recent bedrock landslides (Alsr), it may not be an effective solution for the one located on the north-facing slope on the north side of the major canyon in which drill site No. 3 is situated. For this slide, removal and recompaction may be the most reasonable stabilization method.

The Planning Commission road also traverses a significant number of historic, surface slope failures. The surficial failures shown on Figure 5 represent only those features that show easily recognizable field evidence. It should be realized that the potential for future surficial failures exists throughout the area underlain by Pico Formation bedrock.



GENERALIZED LOCATION OF GEOLOGIC HAZARD AREAS

A variety of methods are available to deal with surface failure potential; however, for the Planning Commission road, the use of walls to retain slopes, and/or cut-grading techniques to reduce slope gradients to a more gentle angle, may be the most desirable solutions. Those existing shallow failurès along the east-facing slopes (facing Anlauf Canyon) in the eastern portion of the Planning Commission road do not appear to have had an adverse impact on the road thus far; however, should major debris flows occur in the future, some potential for adverse impact could develop.

With any of the above described grading techniques, slopes should be planted with native vegetation as soon as possible after grading to help inhibit surficial erosion and debris flows.

3. <u>Flora and Fauna</u>

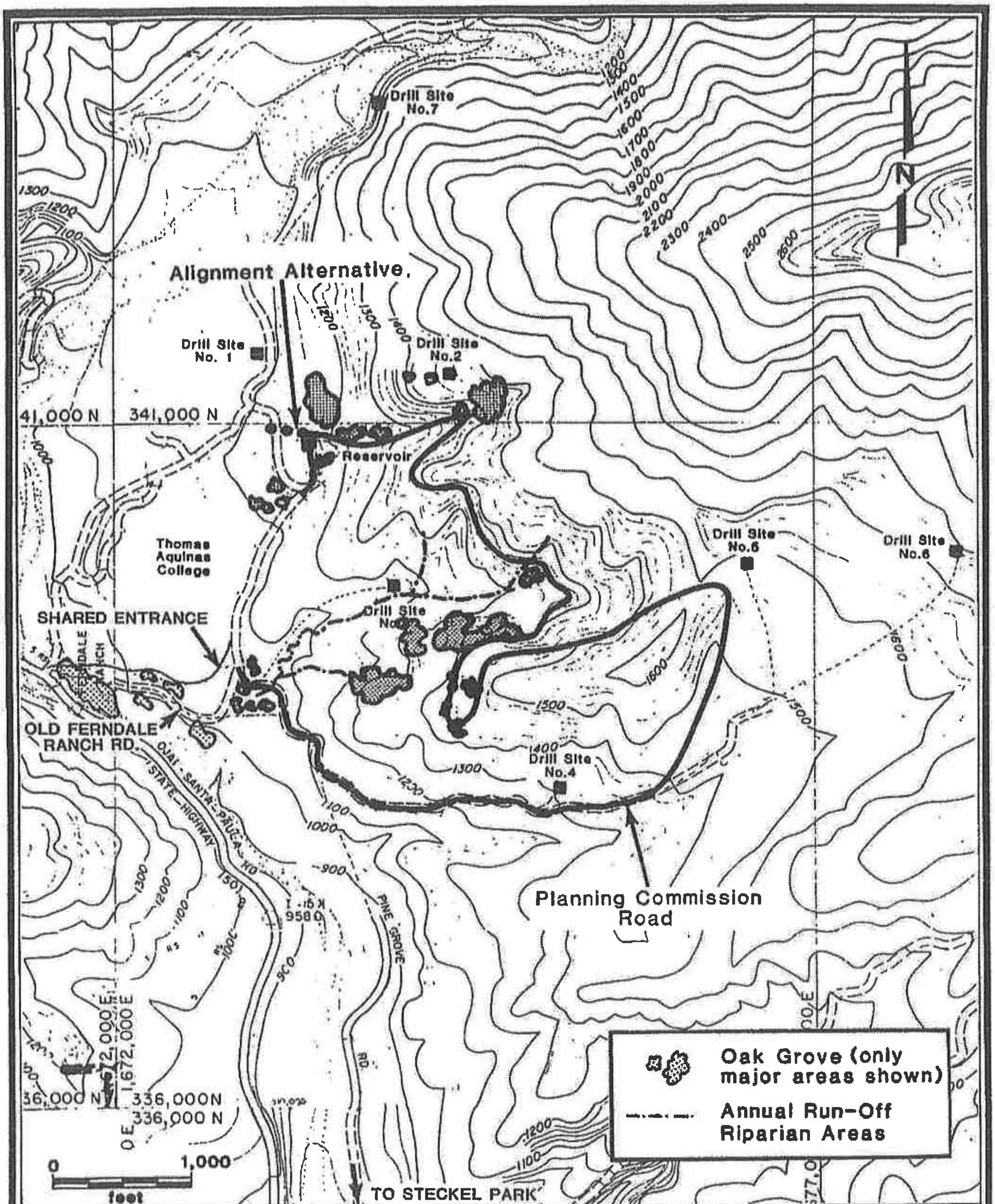
This roadway passes through nearly every vegetative community found on the site (Figure 10). Although this is an existing roadway, roadway widening, landslide stabilization, and alignment improvements could significantly impact biological resources. Road widening would result in the loss of an estimated 10-15 individual oak trees, but would not result in the loss of significant oak groves. However, landslide stabilization could significantly impact oak groves, depending upon stabilization techniques utilized.

Other concerns include the impact of increased traffic, noise, dust and vibration on sensitive wildlife species. Where oak trees occur alongside the road, heavy truck traffic would result in soil compaction in the root zone of these trees. Such compaction adversely affects trees because it alters soil permeability and percolation rates, resulting in localized dry zones where rainfall and storm runoff cannot reach tree roots. Trees in good health can tolerate minor compaction of the root zone; trees of declining health cannot.

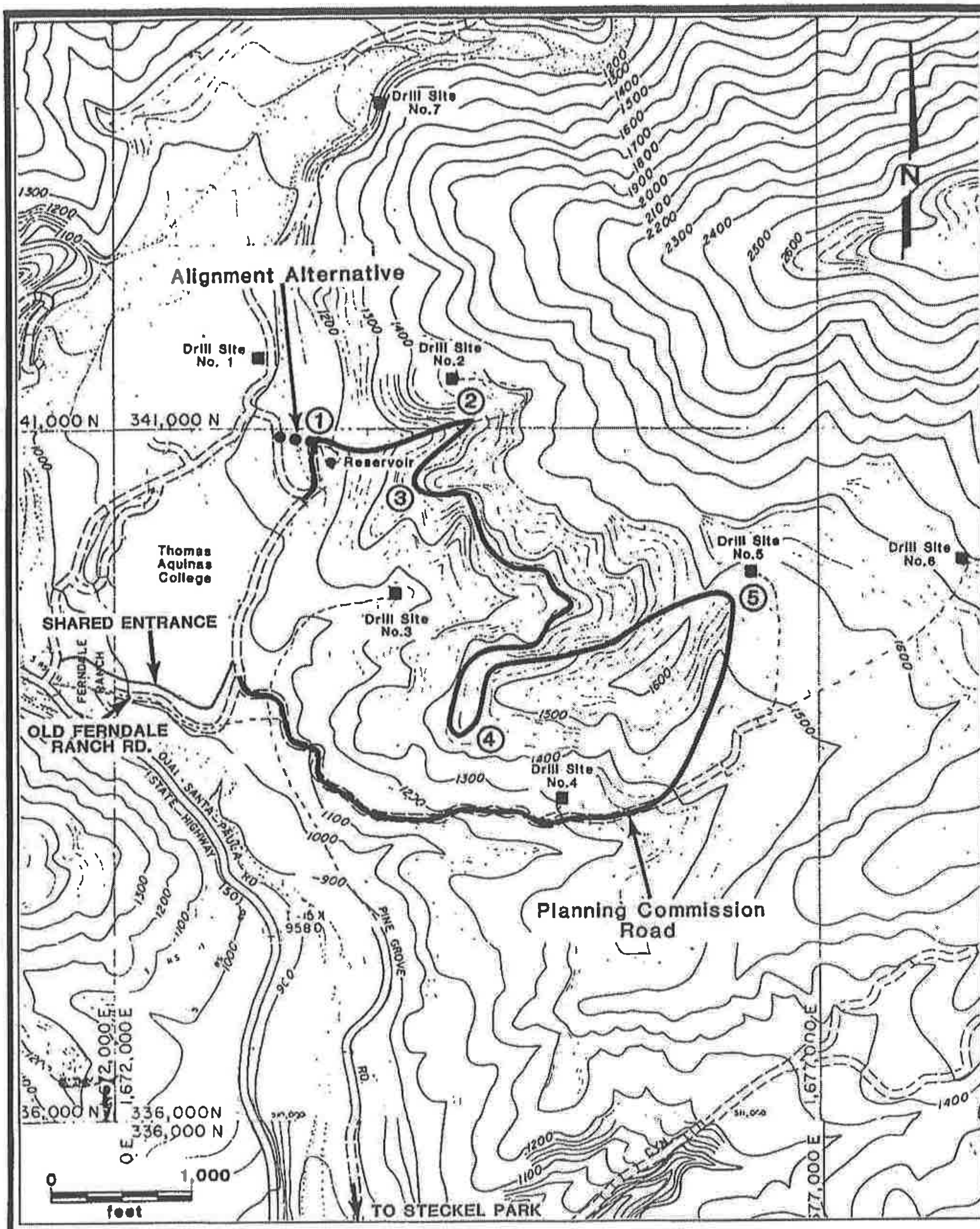
4. <u>Traffic/Circulation</u>

The Planning Commission road is approximately 2.3 miles in length and varies both in slope and configuration. In general, the southern portion of this route is relatively straight and has a gentle slope. In contrast, the northern portion of the route has several sharp turns and involves segments with a grade at or approaching 20 percent.

Although a properly designed roadway would have sufficient capacity to accommodate the projected traffic generation, roadway alignment and safety are a serious concern. Along this route there are five areas where sharp curves and grades could result in potential geometric (turning radii) safety hazards. Of particular concern are the two curves (Numbers 1 and 2 on Figure 11) in the immediate vicinity of the drill site No. 2 access road. These curves are on a very steep grade and could potentially result in a runaway vehicle if brake failure occurred. This is especially important along curve No. 1 (see Figure 11) where a runaway vehicle could be directed towards downslope college facilities. In response to this potential safety concern, an alternative alignment for the Planning Commission road was investigated.



LOCATION OF PLANNING COMMISSION ROAD WITH RESPECT TO SENSITIVE VEGETATIVE COMMUNITIES



LOCATION OF MAJOR CURVES ALONG THE PLANNING COMMISSION ROAD ALIGNMENT

The alternative alignment shown in Figure 3 would eliminate this potential safety hazard to the college and would also improve the accessibility to drill sites Nos. 1 and 7 by eliminating a sharp (120 degree) curve at the existing drill site No. 1 access road junction. An additional means of mitigating the potential "runaway vehicle" hazard would be to construct safety ramps that could be used in the event of brake failure.

By using the Planning Commission approved road, potential impacts to pedestrians and hikers would be reduced as compared to the existing access configuration. This is because oil related traffic would be removed from the main college access road and placed in a more remote area away from the established National Forest access corridor.

Given the steepness of several segments of this corridor, adverse weather conditions would not only add significantly to maintenance costs, but would also generate additional potential safety hazards associated with vehicular slippage and driver loss of control. Improvement of road surface conditions along the drill site No. 2 access road and along other 15-20 percent slope areas would help to minimize these weather related safety hazards. Additionally, it is recommended that safety ramps be constructed to mitigate potential imapcts as a result of brake failure. These safety ramps should be particularly considered in the area of curve Nos. 1 and 2, as indicated in Figure 11.

5. Noise

Under this alternative, Argo traffic will use only the Planning Commission approved access. Thus no Argo traffic will pass by the dormitories on the main college road. Therefore, no significant noise impacts to the college dormitories are expected under this alternative. Traffic noise from Argo vehicles passing between the entry and the Planning Commission road turn-off will be much less than traffic noise from college-related traffic along College Road. However, the future faculty residences would be impacted by levels similar to those noted in Table 8 for the no barrier condition. These noise levels are considerably higher than the criteria of 55 dBA as noted previously.

6. Visual Resources

The majority of this roadway is not visible from the campus or State Highway 150. Several road cuts along this route are visible, but these could easily be mistaken for natural geologic features (see Plates 2, 4 and 5).

The visibility of this road segment is minimal to travelers along Route 150 adjacent to the site. The western portion of this roadway is visible to westbound travelers along Rt. 150 (Plate 2). However, the roadway is not highly visible except when oil field traffic is actually utilizing it.

While the visibility of this route is presently limited, landslide stabilization measures could require substantial topographic alteration that would significantly change the visual character of existing slopes. However, given the limited visibility of these areas from State Route 150 and Thomas Aquinas College, this change in visual character will not significant affect key viewing locations in the immediate vicinity.

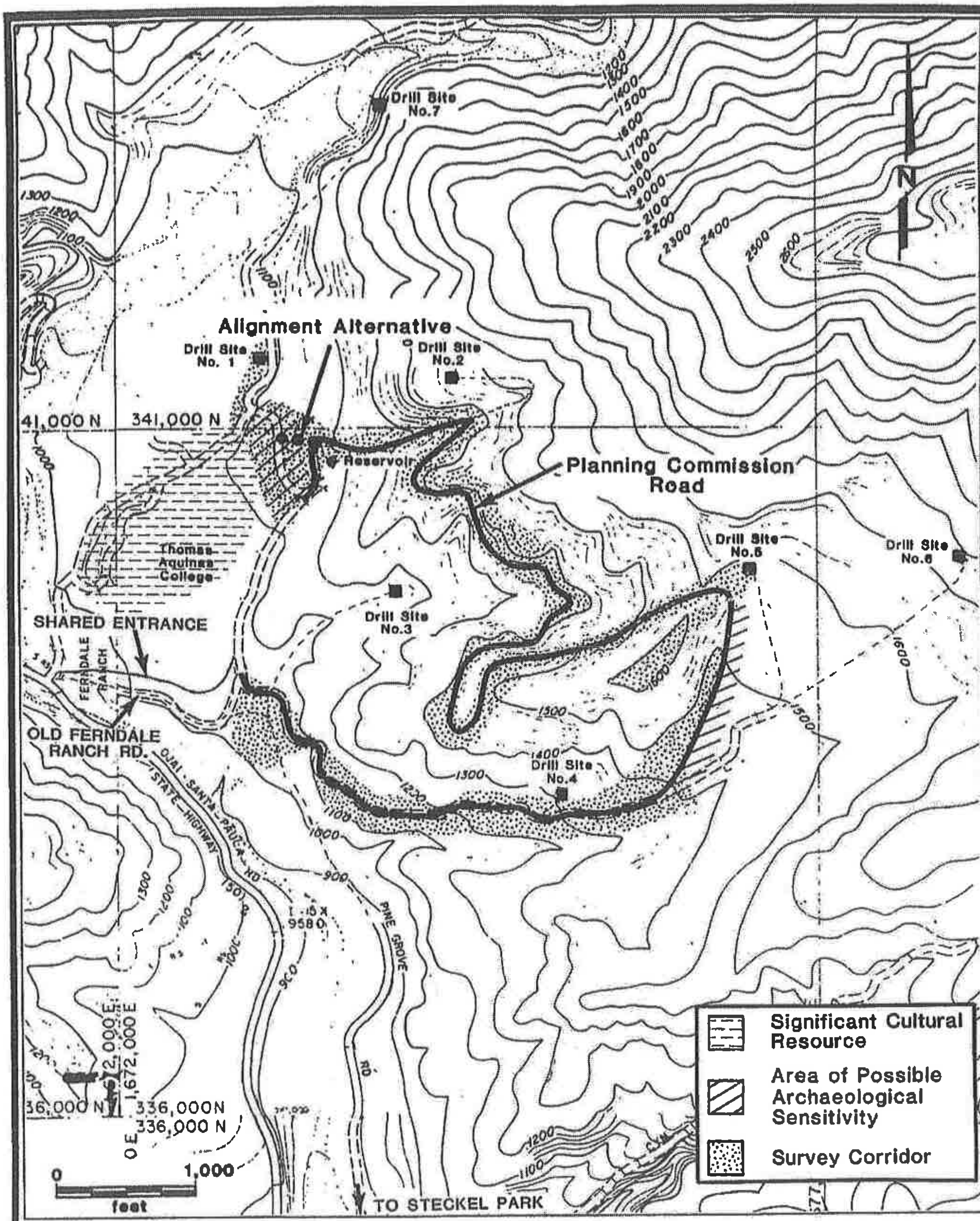
Dust from traffic using this route is not likely to impact the college due to the distance of the roadway and intervening hills.

7. Cultural Resources

No new prehistoric or historic cultural resources were identified in the vicinity of the Planning Commission Road south of the current ranch headquarters. Access to the area of producing avocado groves and pasture land adjacent to the eastern section of the road was not possible at the time of the survey. The possibility exists, therefore, that unidentified cultural resources may exist on the flat elevated terrace overlooking Anlauf Canyon in the vicinity of the avocado grove. This section of the Planning Commission road, shown on Figure 12, has the potential for the occurrence of cultural resources. However, because it is not anticipated that road widening and/or realignment will be necessary in this location, no significant impacts to cultural resources are likely.

Should this alternative be selected and realignment or widening be proposed, a qualified archaeologist should examine the unsurveyed section of road. No further work is required elsewhere along the road and no impact to cultural resources is expected to occur as a result of modification to this road.

No new cultural resources were located in the vicinity of the alternative alignment for the Planning Commission road. Selection of this alternative alignment may require modification of the northernmost section of the Planning Commission road in the vicinity of the existing ranch building and tank farm. This section of the Planning Commission road is archaeologically sensitive in that artifacts have been reported recovered in this area (Clewlow 1977a). Two groundstone fragments were observed adjacent to a stand of oak trees just south of the tank farm during the reconnaissance. The ground surface in this area appeared to be extensively disturbed by construction of the existing road. Three small shovel tests were conducted in this area as dense vegetation obscured most of the ground surface, but no additional artifacts or other cultural remains were located. The extremely disturbed nature of this area, as evidenced by the mounding of rocks and soil along the western edge of the roadway, points to the possibility that these fragments were disassociated from their original site of deposition during previous grading. However, the possibility exists for the occurrence of buried cultural resources in the vicinity of the section of the Planning Commission road from the tank farm to the southernmost ranch facility (shown on Figure 12). Should this alternative be selected, a qualified archaeologist should be present on-site during construction activities to mitigate impacts to potential buried cultural resources.



PLANNING COMMISSION ROAD
ARCHAEOLOGICAL SENSITIVITY ZONES AND
SURVEY CORRIDOR

8. Road Feasibility/Cost

The Planning Commission road is presently in place; however, several existing design deficiencies would warrant improvement if this alternative is selected. These deficiencies are primarily related to natural conditions such as slope stability and storm water containment. Measures necessary for slope stabilization require the removal of two significant landslides and recompaction of fill materials. This type of stabilization is very costly and is estimated at $670,000 for the entire route. In addition, several flood control culverts will be necessary to prevent road washouts during rainy conditions. The cost of providing drainage culverts along the Planning Commission road is estimated at $46,000 (Widmer and Associates, 1984). Other costs associated with development of the Planning Commission road include fine grading and oil along the entire length, estimated at $21,000. Therefore, the total estimated cost of utilizing the Planning Commission road is $737,000. The following is a detailed breakdown of estimated costs and assumptions used to determine these estimates.

Cost Breakdown for
the Planning Commission Road

Activity/Improvement	Unit Cost	Total Cost
Grading	--	$ 5,000.00
Culverts		
3-18 inch	$25.00/linear foot	$ 46,000.00
3-24 inch	$36.00/linear foot	
2-30 inch	$42.00/linear foot	
3-36 inch	$50.00/linear foot	
Fine Grade and Oil	$0.05/sq. ft.	$ 16,000.00
Slope Stabilization	$1.35/cu. yd.	$670,000.00
	TOTAL COST	$737,000.00

The estimated cost for utilizing the Planning Commission alignment alternative, located west of drill site No. 2, is approximately $3,000 for the grading and oil. There are no other major costs associated with this alignment alternative that have been identified.

9. Summary of Environmental Impacts and Mitigation Measures

Table 10 is a summary of environmental impacts and mitigation measures associated with use of the Planning Commission road for access to oil field activities. A comparative assessment of environmental impacts and mitigation measures associated with this route relative to other potential access corridors is contained in Section VII of this report.

Table 10.
Summary of Environmental Impacts and Mitigation
Measures - Planning Commission Road

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
a. Geologic Hazards							
o This route crosses at least four recent bed-rock landslides underlain by Pico Formation bedrock.	Significant	o Landslide stablization or landslide removal.	Minor	EIR	Applicant	Yes	At a substantial cost
o Crossing of historic surface slope failures	Minor	o Use of walls to retain slopes o Cut-grading techniques to reduce slope gradients o Replanting of manufactured slopes with native vege-tation.	Insignificant	EIR	Applicant	Yes	Yes

Table 10.
Summary of Environmental Impacts and Mitigation
Measures - Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
b. Flora/Fauna							
o Loss of an estimated 10-15 individual oak trees as a result of roadway widening.	Potentially significant	o Avoidance of oak trees in final roadway alignment design where possible. o Replanting of equivalent number of oak trees removed.	Minor	EIR	Applicant	Yes	Yes
o Potential impact to significant oak groves as a result of landslide stabilization.	Significant	o Minimize oak tree removal through the use of landslide stabilization measures that will reduce oak tree removal.	Potentially significant	EIR	Applicant	To be determined as a part of landslide stabilization design studies.	Uncertain at this time.

Table 10.
Summary of Environmental Impacts and Mitigation Measures - Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
c. Traffic Circulation							
o Several curves and grades that could result in potential turning radii and safety concerns.	Potentially significant	o Alignment adjustments, road surface improvements for sections over 15% slope.	Minor	EIR	Applicant	Yes	Yes
o Safety concerns associated with runaway vehicles as a result of the configuration and steepness of the Drill Site No. 2 access road.	Potentially significant	o Implementation, of the Planning Commission Alignment alternative.	Insignificant	EIR	Applicant	Yes	Yes
		o Provision of "Safety ramps" that could be used in the event of brake failure. The location and acceptability of these ramps should be verified by the County Public Works Department.	Insignificant	EIR/Property Owner	Applicant	Yes	Yes
d. Noise							
o Potential impact to future faculty housing,	Potentially significant	o Implementation of noise attenuation measures and/or proper structure location to minimize potential.	Insignificant	EIR	College	Yes	Yes

Table 10.
Summary of Environmental Impacts and Mitigation
Measures - Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
e. Visual Resources							
o Significant change in the visual character of existing slopes requiring landslide stabilization.	Minor	o Revegetation of slopes requiring grading.	Insignificant	EIR	Applicant	Yes	Yes
o Potential impact to future faculty housing.	Potentially significant	o Vegetative screening of those areas requiring grading that are visible from critical viewing areas such as Thomas Aquinas College and State Route 150.	Insignificant	EIR	Applicant	Yes	Yes
f. Cultural Resources							
o Potential impact to sensitive cultural resources as a result of Planning Commission alignment alternative.	Potentially significant	o It is recommended that a qualified archaeologist be be present during on-site roadway construction.	Insignificant	EIR	Applicant	Yes	Yes

C. DRILL SITE NO. 3 TO PLANNING COMMISSION ROAD

1. Corridor Description

Access to drill site No. 3 is available from an existing oil field road that intersects the main college access road, approximately 1800 feet from its intersection with State Route 150. The existing oil field road accessing drill site no. 3 is approximately 1600 feet in length and 15 feet wide. Its surface is oiled and its elevation ranges from approximately 1025 feet at its intersection with the college road to 1177 at the drill site. The grade of the existing roadway averages approximately 10 percent and is nearly 13 percent at its steepest section. The drill site area is approximately 0.6 acres with east-west dimensions of 200 feet and north-south dimensions of 130 feet. Presently one well exists on drill site No. 3 and two additional wells are planned. Drill site No. 3 presently supports a waste water storage tank that stores oil field wastewater until it can be trucked to a certified disposal area.

There are two potentially feasible ways of accessing the Planning Commission Road from Drill Site No. 3. These include: 1) a ridge route located along the backside (east facing slope) of the north-south trending ridge that overlooks Thomas Aquinas College; and 2) a canyon route that traverses the canyon east of Drill Site No. 3. The alignment for each of these alternatives is shown on Figure 3. The following sections further delineate the roadway characteristics for the Drill Site No. 3 to Planning Commission Road Alternative.

a. Ridge Route Alternative. The ridge route means of accessing the Planning Commission Road from drill site no. 3 requires a roadway to be constructed along the backside (east facing) of the ridge overlooking Thomas Aquinas College. This concept would require a cut into the east facing side of the slope and the top of the ridgeline would serve as both a visual and noise buffer to areas to the west. Because of the required 215 foot elevation change, it is necessary to begin the switch back up the grade at the eastern portion of the drill site to attain an average slope of approximately 13.5 percent. Given the preliminary alignment, this route is estimated to require approximately 40,000 cubic yards of grading along its 1600 foot length. Along the backside of the slope, sections would be in excess of 15 percent slope leveling out to a slope of 10 percent near the top of the ridge. However, the precise roadway alignment and design characteristics require a detailed engineering assessment which is not part of this report.

b. Canyon Alternative. The canyon route for accessing the Planning Commission road from drill site No. 3 requires a new road to be constructed within the canyon located east of drill site No. 3. The preliminary investigation of this corridor indicates that the most feasible location is along the north facing side of the canyon. The canyon route would be 1500 feet long starting from an elevation of 1176 at the southeastern corner of the drill site and extending east to an elevation of 1378 at the Planning Commission road. Average slope along this route would be about 13.5 percent with short segments approaching 20 percent.

2. Geologic Hazards

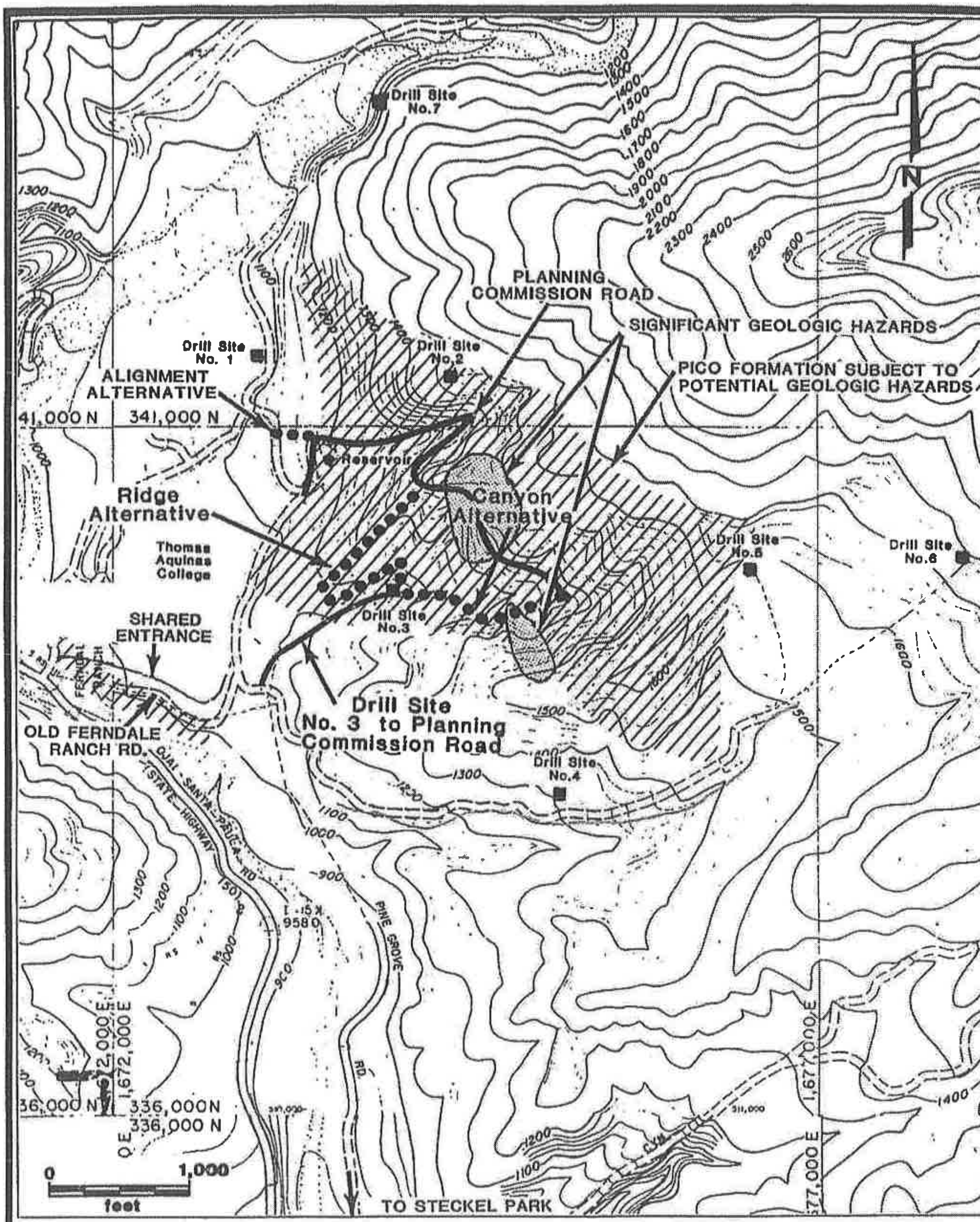
a. Ridge Alternative. The drill site 3 to Planning Commission road ridge alternative is largely within the area underlain by Pico Formation rocks. By connecting with the Planning Commission road near its northern end, this alternative avoids all of the major geologic hazards of the Planning Commission road, including all of the mapped recent bedrock landslides (Qlsr). Although this road alternative crosses large areas of surficially unstable materials (Qlss), it does not cross any mapped ancient or recent bedrock landslides (Qlsa, Qlsr).

This road alternative cuts into the east-facing ridge northwest of drill site 3. Slope gradients in cuts on the uphill side of the road can be reduced for improved stability or can be supported by retaining structures. The down-slope side of the road will need to be supported by retaining devices to protect the road from the detrimental undermining effects of shallow failures below the road.

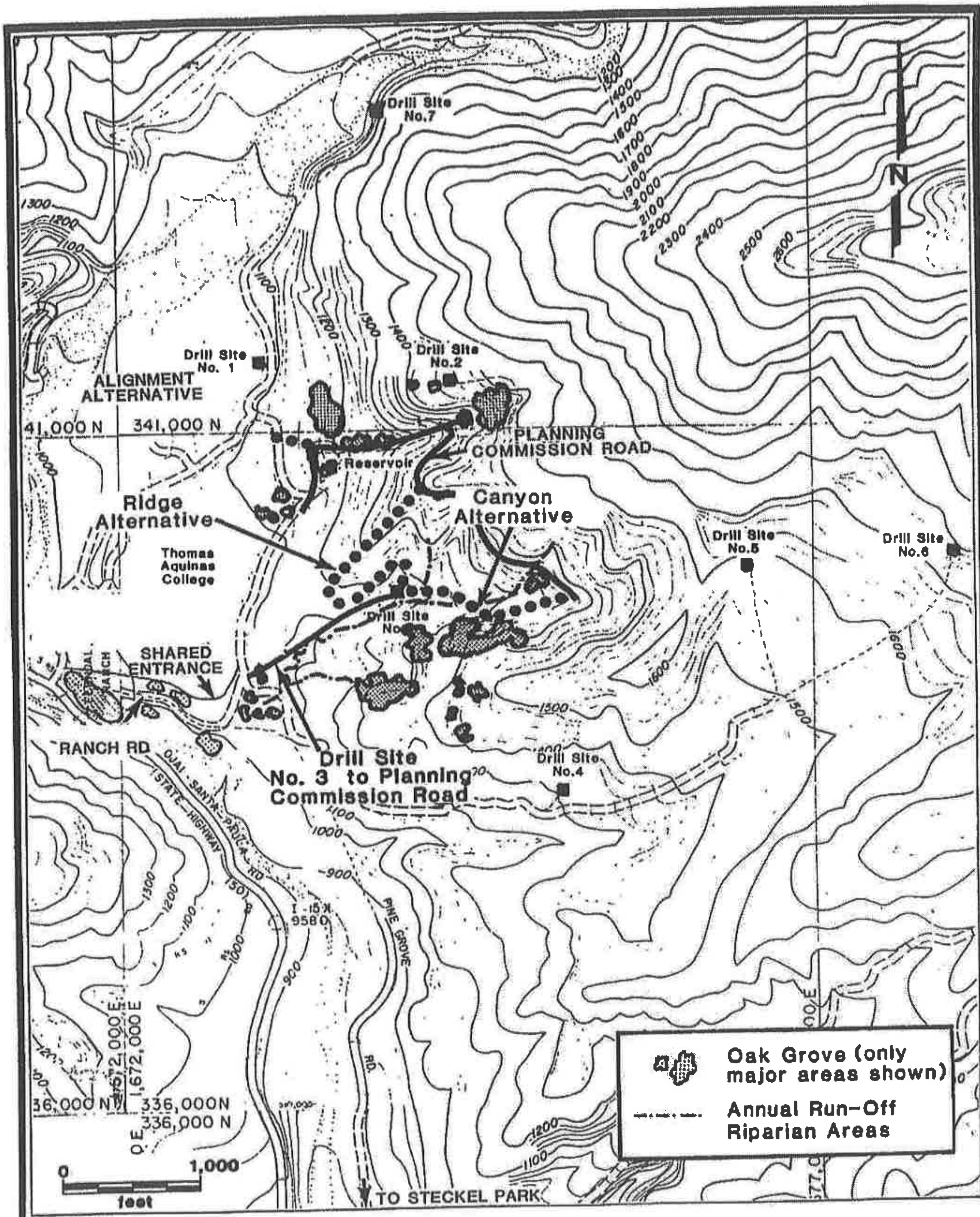
b. Canyon Alternative. The drill site 3 to Planning Commission road canyon alternative is largely within the area underlain by Pico Formation rocks (Figure 13). This road alternative avoids the geologic hazards associated with the southerly portion of the Planning Commission road, but connects with the Planning Commission road at such a point that it retains the most significant hazards of that road located in the road's northern portion. In other locations, this short road alternative crosses below a few shallow, surficial failures (Qlss), but otherwise does not appear to be affected by recent bedrock landslides (Qlsr). Slope gradients in the vicinity of the route may be reduced by grading, or walls may be employed to limit the potential impacts of surface failures. The larger landslides traversed by the route appear to be ancient bedrock failures (Qlsa) and are not expected to significantly impact the route.

3. Flora and Fauna

a. Ridge Alternative. Although the precise location of this route along the ridge is uncertain, biological impacts should be minimal for any alignment in the general area (Figure 14). This is because the entire hill is overgrazed grassland with few remaining native species. It is also of very little value to wildlife.



GENERALIZED LOCATION OF GEOLOGIC HAZARD AREAS



LOCATION OF DRILL SITE NO.3 ACCESS ALTERNATIVES WITH RESPECT TO SENSITIVE VEGETATIVE COMMUNITIES

FIGURE 14

b. Canyon Alternative. While the location of this route is also uncertain, an alignment anywhere within the canyon will adversely affect one of the most biologically significant habitat types on the site, the annual run-off fed riparian areas. Even use of the existing jeep trail would greatly disturb the canyon and necessitate removal of mature oaks as well as riparian and chaparral plant species.

4. Traffic/Circulation

There are two principal ways of accessing the Planning Commission road from drill site No. 3. These include a ridge alternative and a canyon alternative. Given either of these alternatives, all oil related traffic would travel on the existing drill site No. 3 access road. Traffic and safety impacts associated with each of drill site No. 3 access alternatives are discussed as follows.

a. Ridge Alternative. The ridge alternative, if properly designed, would have sufficient capacity to accommodate oil related traffic. As previously indicated, this route would require two switchbacks to attain a maximum grade of 15 percent. Even with these two relatively sharp curves, there should be short segments with slopes in excess of 15 percent. It is important to note that these grade estimates are based on a preliminary assessment; a detailed engineering analysis will be necessary to determine the precise slope of various road segments along this corridor. Drilling rigs can function effectively on road surfaces up to approximately 15 percent slope with short segments up to 20 percent slope. Therefore, this route is technically feasible, but may require some modifications during final engineering. The junction with the Planning Commission road could be designed in a relatively linear manner without the need for a significant turn. As previously discussed for the Planning Commission road, improved surfacing and the alternative Planning Commission road alignment would significantly reduce potential safety impacts along this road segment. Permanent road surfacing along the steep and curve segments of the ridge route would also improve its overall safety. These measures may be desirable, depending upon ultimate roadway design, because of difficulties in mitigating potential rear-end type collisions on downslope and curve road segments.

As indicated for the Planning Commission road, given the relatively remote location of the drill site No. 3 access road, these alternatives are not expected to significantly affect hiker or pedestrian safety.

b. Canyon Alternative, The canyon route alternative would not be as steep as the ridge alternative and would not require any major switchbacks. However, it is likely that its intersection with the Planning Commission road would involve a relatively sharp curve. However, this junction is not expected to result in significant turning radii or sight distance problems. The canyon route would involve a larger shared portion with the Planning Commission road than the ridge alternative and would have the same potential impacts associated with the drill site No. 2 access road previously discussed. Proper roadway design and surfacing to county standards could minimize these potential impacts.

5. Noise

The drillsite 3 access alternative results in the intervening ridge between the road and the college acting as a barrier to eliminate traffic noise impacts. Both the canyon and ridge routes would be equally effective, provided that the ridge road is always at least ten feet below the ridge crest relative to the college. While additional noise will be created by trucks going up the steep grade of the ridge road as compared to other routes, this increase is not expected to be significant because of the ridge barrier and the greater distance that this route is from the college.

As with all of the other alternatives, this alternative shares a potential noise impact on the proposed faculty residences.

6. Visual Resources

a. Ridge Route. As illustrated on Plates 4 and 5, a majority of this route would not be visible from the college, provided that it is located at least 10 feet below the ridgeline. However, it is likely that portions of this roadway, primarily those locations north of the junction with the Planning Commission Road, will be visible from the college. This condition is a significant improvement over the existing situation whereby trucks are highly visible and pass within 50 feet from college structures.

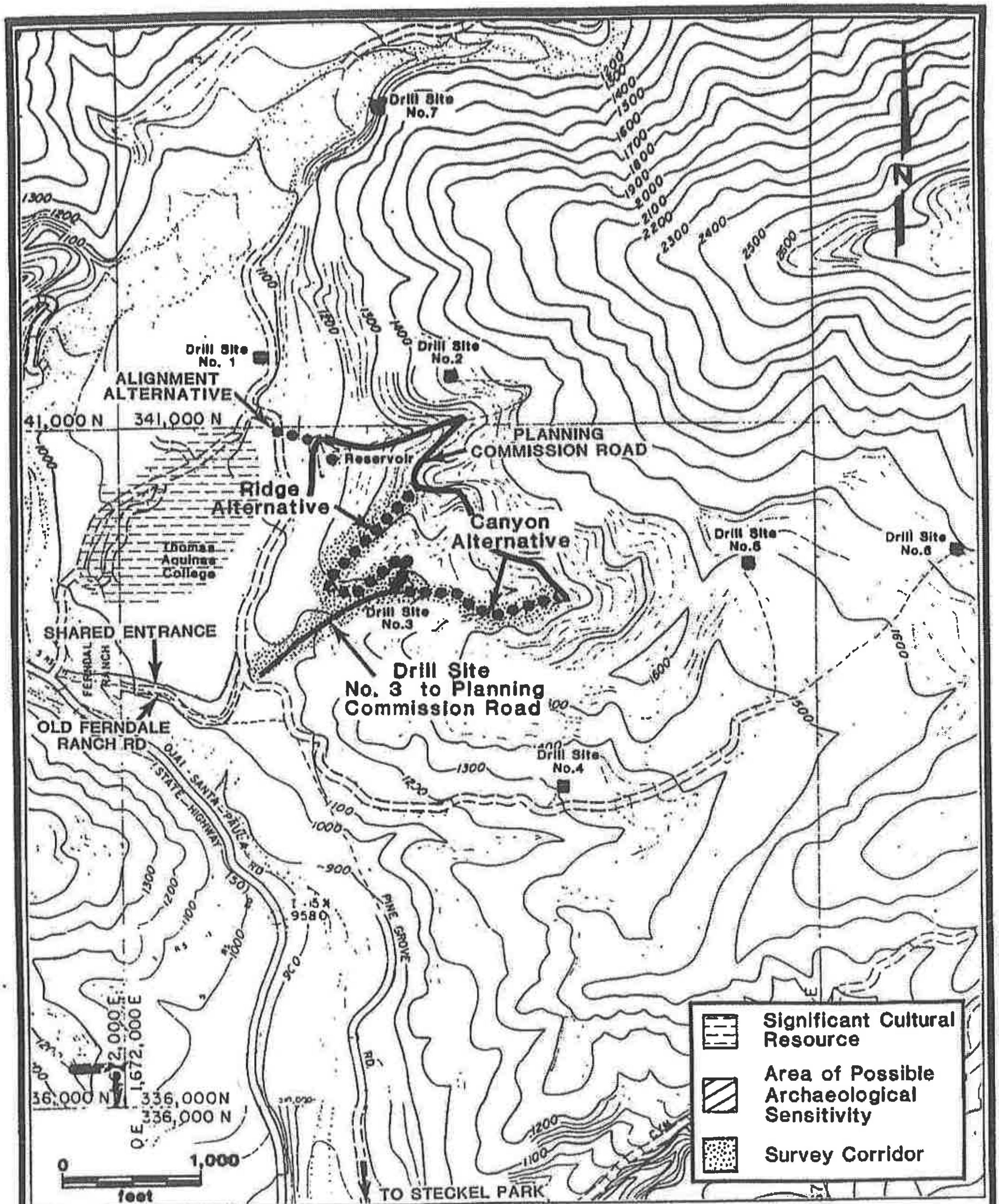
Existing impacts associated with headlights shining onto college dormitories would be avoided with this alignment. Visibility of this route from State Highway 150 is also limited due to intervening ridgelines that would effectively screen graded surfaces. Dust clouds could be generated on still days without measures to reduce such impacts. Road maintenance should include measures to minimize dust generation (e.g., oiling, revegetation of graded slopes, etc.)

b. Canyon Route. Depending on its location, portions of this route could be visible from the western end of the campus (Plate 4). It is unlikely that much of this route would be visible from the dormitory areas, although the top portion may be visible. The distance of this route from the college and the hill, which forms a separation, combine to lessen the potential visual impact of this route. Visibility of this route from State Highway 150 is limited by the presence of intervening ridgelines. Therefore, this alternative will not significantly impact scenic areas.

7. Cultural Resources

No new prehistoric or historic cultural resources were identified in this area during the surface reconnaissance (Figure 15). This alternative is not expected to impact cultural resources.

Although the steepness of the adjacent hillside makes this an unfavorable location for a prehistoric site, the presence of a small oak grove northeast of drill site 3 indicates it may have been an acorn collection area



DRILL SITE NO.3 TO PLANNING COMMISSION ROAD ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

FIGURE 15

subsidiary to the more extensive Anlauf Canyon resources. As indicated in previous sections, use of the Planning Commission alternative in conjunction with this route could result in disruption of cultural resources. Therefore, it is recommended that a qualified archaeologist be present during grading activities conducted on-site.

8. Road Feasibility/Cost

Access to drill site No. 3 from the main college access road is not expected to require a significant capital cost. The road is currently in place and will not require any major slope stabilization or grading. While not included in the overall cost estimate for this alternative, this route could require replacement of the culvert near the intersection with the college road. Replacement of this culvert, if necessary, would cost approximately an additional $12,000.

Access to the Planning Commission road from drill site No. 3 can be achieved by two alternatives, each involving different improvement costs. Cost estimates for both the canyon route and ridge route alternatives follow.

a. Canyon Alternative. Development of a road from drill site No. 3 east to the Planning Commission road appears to be most feasible along the southerly wall of the canyon. Placement of a road along this corridor will require moderate topographic modification, and the construction of two drainage culverts. The estimated cost of this improvement is $30,000. However, to maintain a through route to drill sites Nos. 1, 2 and 7, this route would require utilization of a 1,750 foot segment of the Planning Commission road. That portion of the Planning Commission road that would supplement this access corridor is underlain by a significant landslide and would require substantial slope stabilization. The estimated cost for stabilizing and constructing the 1,750 foot segment of this corridor is $496,000. Therefore, the total combined cost for constructing the canyon route to Planning Commission road alternative would be approximately $526,000 (includes Planning Commission alignment alternative). The following is a detailed breakdown of unit costs and assumptions used to derive this cost estimate.

Cost Breakdown and Assumptions
Canyon Alternative

Activity	Unit Cost	Cost
A. NEW SECTION UP CANYON		
Grading (10,000 cy)	$1.50/cubic yard	$ 15,000.00
Culverts		
1 - (24 inch)	$35.00/linear foot	$ 3,000.00
1 - (60 inch)	$125.00/linear foot	$ 10,000.00
Fine Grade and Oil	$0.05/linear foot	$ 2,000.00
	SUBTOTAL	$ 30,000.00

B. PLANNING COMMISSION ROAD SEGMENT

Grading (3-4000 cy)	$1.50/cubic yard	$ 5,000.00
Slope Stabilization (350,000 cy cut/fill/compaction)	1.35/cubic yard	$470,000.00
Culverts		
2-(36 inch)	$50.00/linear foot	$ 15,000.00
1-(24 inch)	$35.00/linear foot	$ 3,000.00
Fine Grade and Oil	0.05/linear foot	$ 3,000.00
	SUBTOTAL	$496,000.00
	TOTAL COST	$526,000.00

b. Ridge Alternative. The ridge alternative to access the Planning Commission road involves an elevation change of approximately 194 feet over a length of approximately 1,500 feet, an average slope of 13 percent. Preliminary investigations indicate that there may be short segments of this roadway over 15 percent slope. While this is feasible for oil service vehicles, a road this steep normally requires a higher degree of maintenance. However, permanent surfacing of the road could ultimately reduce maintenance costs and improve the overall safety of this roadway.

Based on an estimate that this roadway will require 40,000 cubic yards of grading, it will cost approximately $73,000. Combined with the Planning Commission alignment alternative, this route is estimated to cost approximately $76,000. The following is a detailed breakdown of unit costs and assumptions used to derive this cost estimate.

Cost Breakdown and Assumptions
Ridge Alternative

Activity	Unit Cost	Cost
Grading (40,000 cy)	$1.50/cubic yard	$60,000
Culvert		
1-(24 inch)	$35.00/linear foot	$10,000
Fine grade and oil	$0.05/linear foot	$ 3,000
	TOTAL COST	$73,000

9. Summary of Environmental Impacts and Mitigation Measures

Table 11 is a summary of environmental impacts and mitigation measures that are associated with both the ridge and canyon alternatives. Comparative analyses of the impact of these routes relative to other routes investigated are contained in Section VII of this EIR.

D. SIDE HILL ROAD

1. Corridor Description

The side hill alternative requires use of approximately 800 feet of the existing oil field access road to drill site No. 3. It would also require construction of a new road across the west facing slope of the ridgeline overlooking Thomas Aquinas College north to a point where the drill site No. 1 and drill site No. 2 access roads intersect. The general alignment for this road segment is shown on Figure 3.

To interrupt the line of sight from the college campus and to provide noise attenuation, the original concept incorporated a ten foot berm along the downslope side of the road as shown in Figure 16. As such, this alternative was originally envisioned to involve a trench shaped corridor extending along the ridgeline. However, based on preliminary investigations, it was determined that this concept may be infeasible due to the grading requirements necessary to achieve an acceptable slope gradient.

The alternative to the trench concept is a roadway buffered from the college by a 10-foot sound attenuation wall. This route would be sited approximately ten to twenty feet higher on the ridge than an existing dirt road, to minimize the elevation change along the route. The side hill alternative would begin at an elevation of about 1100 feet along the drill site No. 3 access road and end at approximately 1140 feet near the junction of the drill site No. 1 and No. 2 access roads. This route would then follow the 1135 contour along the ridge.

2. Geologic Hazards

a. Side Hill Road. The proposed side hill road traverses slopes underlain by both the Santa Margarita and Pico Formations (Figure 17). The southerly portion of the route, south of the Anlauf fault, does not appear to have major geologic hazards associated with it, but hazards in the northerly portion of the route may be potentially significant.

A couple of shallow slope failures (Qlss) are mapped along a portion of the route where it crosses Santa Margarita rocks, but several large surficial failures (Qlss) are mapped in the Pico Formation part of the route (Figure 5). In addition, tentative grading methods discussed for the northerly portion of the road call for it to be notched into the slope for noise abatement, in such a way that it will have cut slopes on both its eastern and western sides. A potentially significant problem could develop along the

Table 11.
Summary of Environmental Impacts and Mitigation
Measures - Drillsite 3 to Planning Commission Road

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
A. RIDGE ALTERNATIVES							
a. Geologic Hazards							
o Crossing of relatively large areas of significantly (on the surface) unstable materials.	Minor	o Use of retaining devices downslope from the roadway o Minimize gradients in cut slope	Insignificant	EIR	Applicant	Yes	Yes
b. Flora and Fauna							
o No impacts to biological resources have been identified.	No impact	None necessary	None				
c. Traffic/ Circulation							
o Potential safety impacts associated with relatively steep slopes and switchbacks.	Potentially significant	o Design of roadway such steeper sections in excess of 15 percent are minimized.	Insignificant	EIR	Applicant	Yes	Yes

Table 11.
Summary of Environmental Impacts and Mitigation
Measures - Drillsite 3 to Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
c. Traffic/ Circulation (Cont.)		o Use of pavement or permanent road surface materials on roadway sections steeper than 15 percent.					
		o Design of switchbacks in a manner that minimizes potential turning radii impacts.					
d. Noise							
o Increased truck noise emissions as a result of steeper grades.	Insignificant	o Locate ridge road at least ten feet below the ridgeline.	Insignificant	EIR	Applicant	Yes	Yes
O Potential exceedance of county noise standards at proposed faculty housing.	Potentially significant	o Implementation of sound attenuation and/or setbacks in future design of faculty housing.	Insignificant	EIR	Thomas Aquinas College	Yes	Yes

Table 11.
Summary of Environmental Impacts and Mitigation
Measures - Drillsite 3 to Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
e. Visual Resources							
o Partial visibility from college and State route 150 of road segments near the junction with the Planning Commission road.	Insignificant	o Vegetative screening of sections of roadway visible from State Route 150 and Thomas Aquinas College.	Insignificant	EIR	Applicant	Yes	Yes
o Dust generation as a result of graded slopes and truck traffic on unpaved road surfaces.	Insignificant	o Oiling or paving of roadway surfaces and periodic maintenance, as necessary. o Revegetation of graded slopes.	Insignificant	EIR	Applicant	Yes	Yes

Table 11.
Summary of Environmental Impacts and Mitigation
Measures - Drillsite 3 to Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
f. Cultural Resources							
o No significant impacts to cultural resources are envisioned. However, unexpected cultural resources could be encountered during project grading.	Insignificant	o It is recommended that a qualified archaeologist be present during on-site grading activities.	Insignificant	EIR	Applicant	Yes	Yes
o Potential discription of cultural resources located within the Planning Commission Alignment Alternative Corridor.	Insignificant	o Same as above.	Insignificant	EIR	Applicant	Yes	Yes
B. CANYON ALTERNATIVE							
a. Geologic Hazards							
o Occurrance of several areas of surface failures along this route.	Minor	o Retention facilities necessary to mitigate surface failures.	Insignificant	EIR	Applicant	Yes	Yes

Table 11.
Summary of Environmental Impacts and Mitigation
Measures - Drillsite 3 to Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
a. Geologic Hazards (Cont.)							
o Crossing of major bedrock landslides discussed for the Planning Commission Road.	Significant	o Landslide stabilization measures or removal and recompaction of unstable materials.	Minor	EIR	Applicant	Yes	At a substantial cost.
b. Flora/Fauna							
o Loss of significant oak, riparian and chaparral habitat.	Potentially Significant	o Construct alignment to minimize removal of vegetation.	o Degree of significance dependent upon final alignment.	EIR	Applicant	Yes	Yes
c. Traffic/ Circulation							
o Safety impacts associated with use of steep sections of the existing Drill Site 2 access road along the Planning Commission Road.	Potentially significant	o Construction of the Planning Commission Alignment Alternative	Insignificant	EIR	Applicant	Yes	Yes

Table 11.
Summary of Environmental Impacts and Mitigation
Measures - Drillsite 3 to Planning Commission Road (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
d. Noise							
o Potential exceedance of county noise standards at proposed faculty housing centers.	Potentially significant	o Implementation of sound attenuation and/or setbacks in future design.	Insignificant	EIR	Thomas Aquinas College	Yes	Yes
e. Visual Impacts							
o. Potential loss of valuable visual amenities (e.g., riparian habitat)	Minor	o Minimize removal of riparian and oak tree vegetation. o Locate roadway behind intervening ridgelines to the extent feasible.	Minor	EIR	Applicant	Yes	Yes
f. Cultural Resources							
o Same as for Ridge Alternative. No significant impacts have been identified.							

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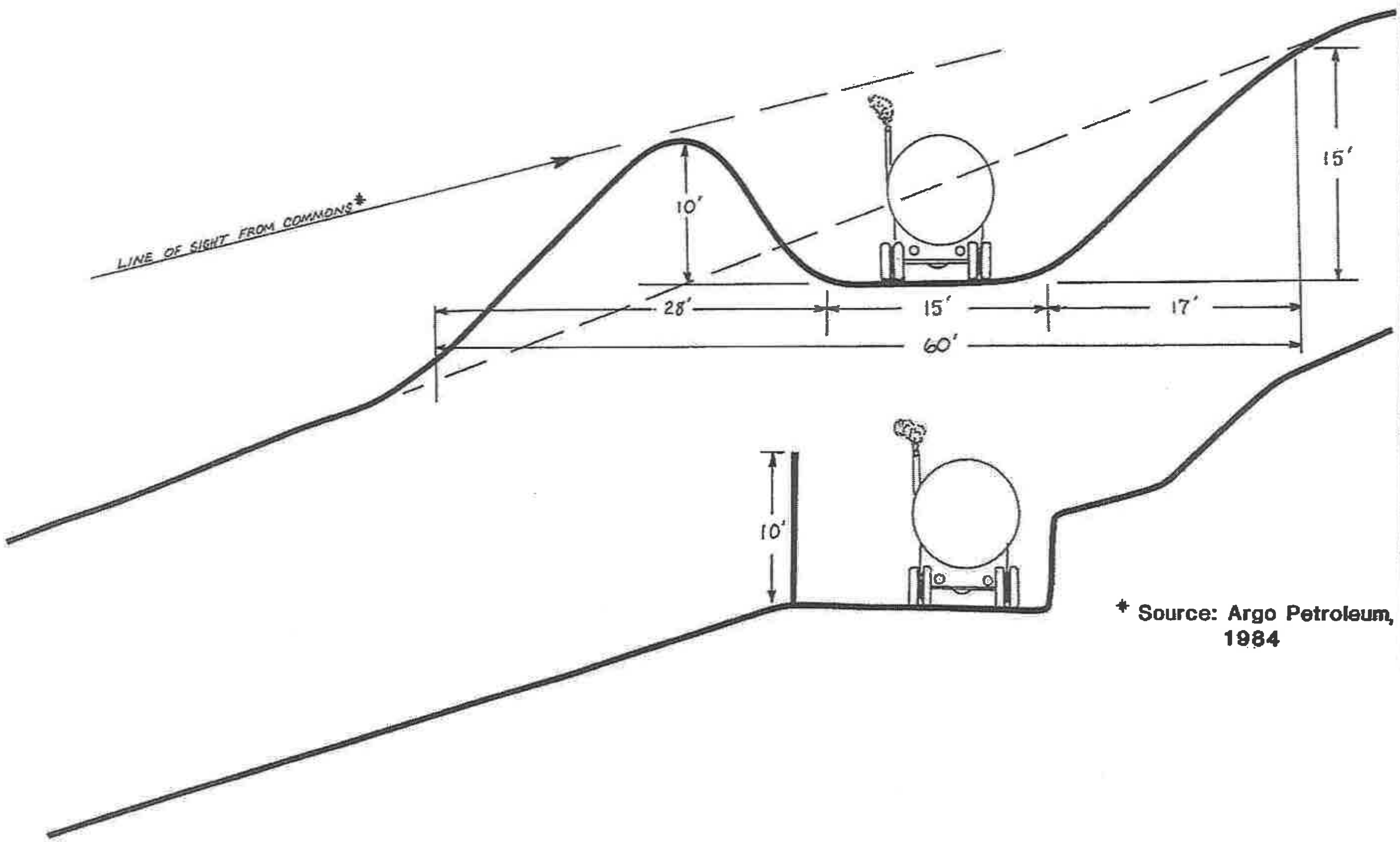
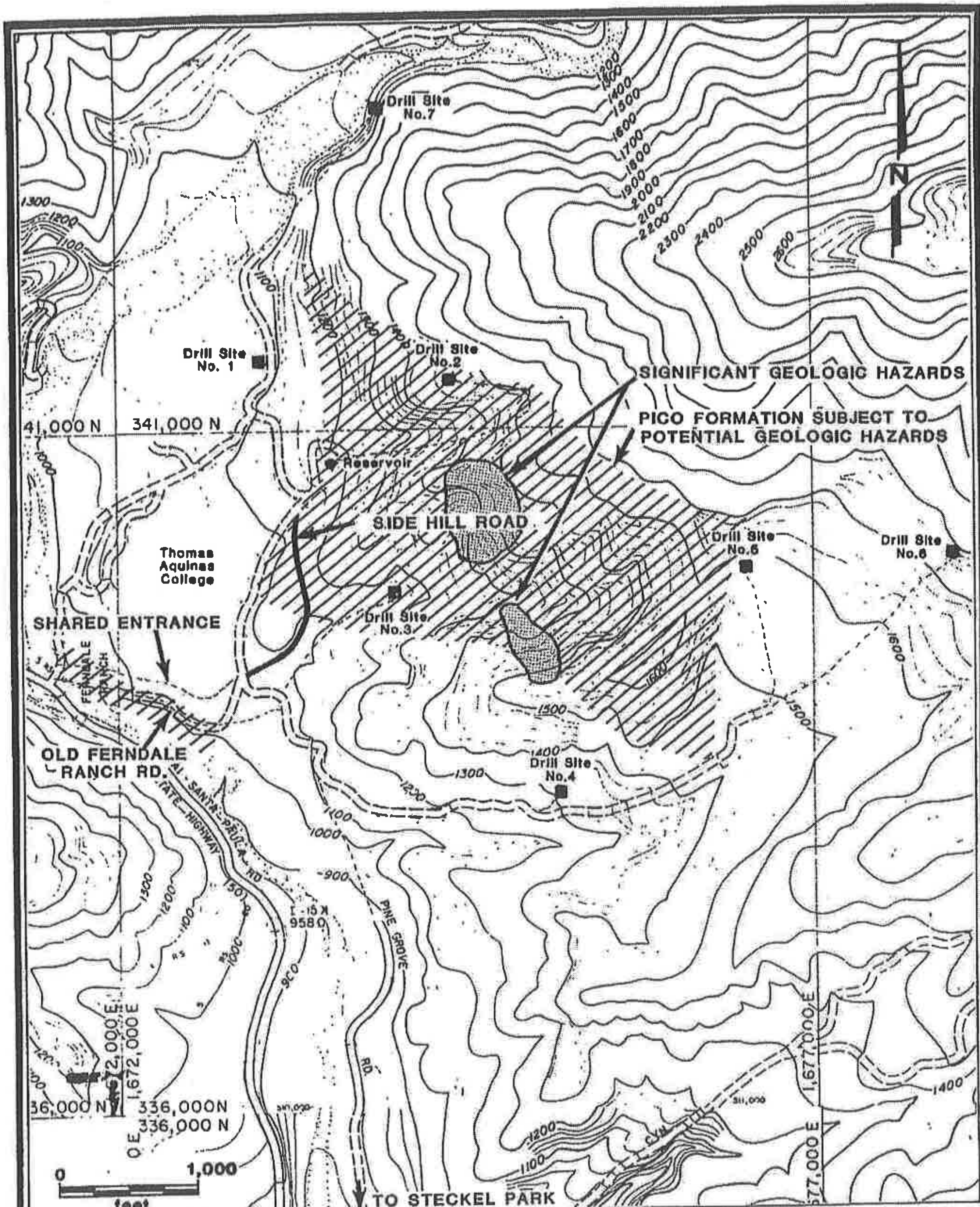


SCHEMATIC DIAGRAM OF SIDE HILL ACCESS CONCEPT

FIGURE 16



GENERALIZED LOCATION OF GEOLOGIC HAZARD AREAS

FIGURE 17

sides of this portion of the road because oversteepened cut-slopes of questionable stability are likely to result. Because of the steepness of the existing natural slopes, it may not be possible to significantly reduce the gradient of these cut slopes, hence retaining walls may be needed for stabilization.

3. Flora and Fauna

This route would pass through an area of overgrazed grassland of low biologic value (Figure 18). Therefore, biological impacts would be insignificant.

4. Traffic/Circulation

The side hill alternative requires use of the existing drill site No. 3 access road and a new route along the 1135 foot elevation contour on the west-facing side of the ridge overlooking Thomas Aquinas College. This route is not only the shortest access corridor analyzed, but also maintains a relatively gentle slope. Furthermore, this route could be designed with sufficient capacity to accommodate all potential oil related traffic. Proper design of this alignment would minimize safety hazards associated with runaway vehicles into the college area.

In addition, because of the location of this route along the ridgeline, this alignment should not significantly impact pedestrian or hiker safety. It is anticipated that college and hiker pedestrian traffic would use the more direct college road to access the National Forest.

5. Noise

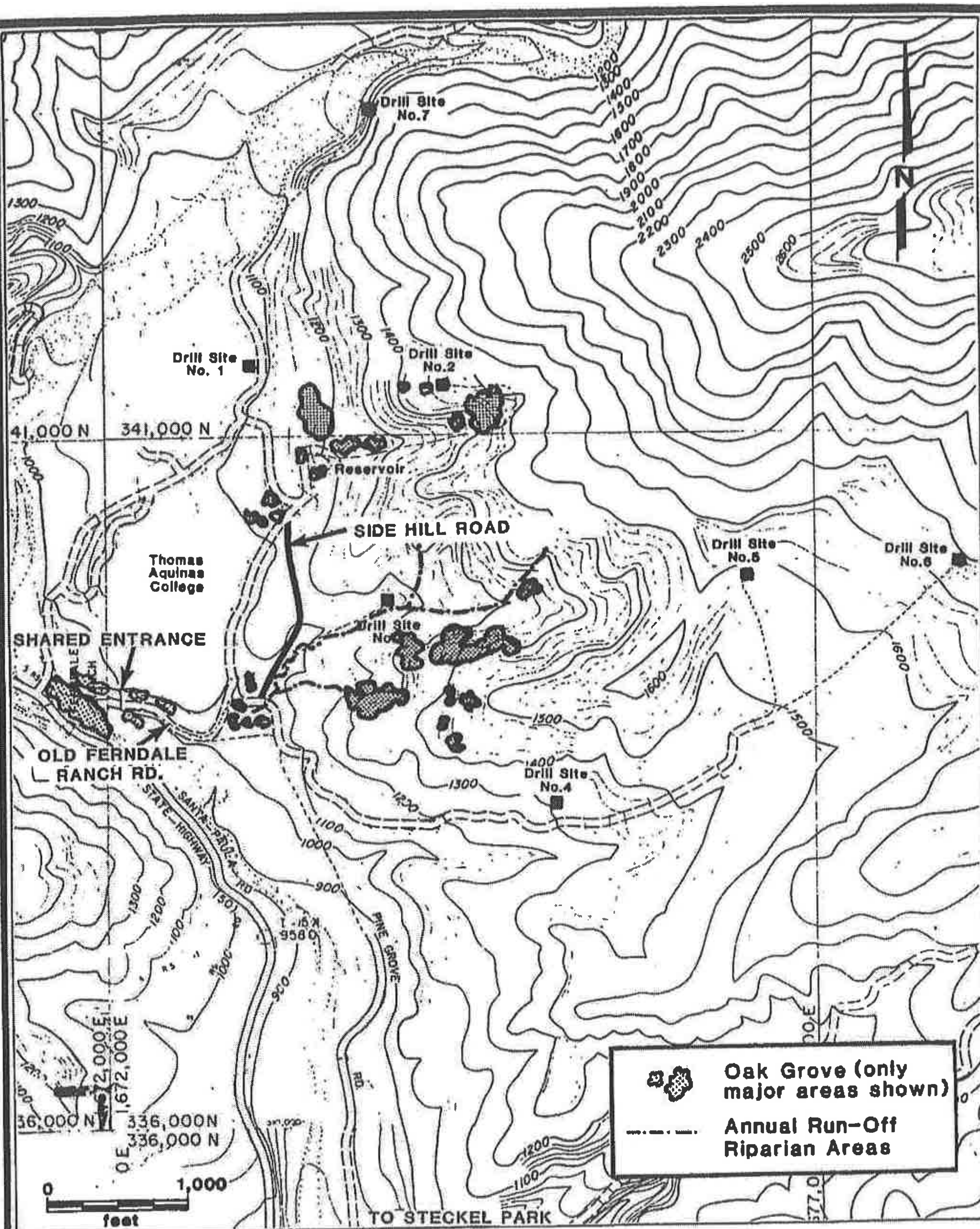
Potential noise impacts from this route have been assessed in the BBN report (Appendix C). Using the same analysis as for the college road alternative, Table 12 outlines the expected impact. Under this alternative, noise levels at the dormitories would not exceed the 55 dBA criteria, assuming use of a pipeline for all oil transport.

TABLE 12.

EXPECTED NOISE IMPACT OF ARGO TRAFFIC
USING THE SIDE HILL ROAD

	Peak Hour Equivalent Noise Level, dBA[1]	
Scenario	Natural Grade	10' Barrier
High	54.0	53.1
Medium	53.7	53.1
Low	53.5	53.0

1. No correction factor added to BBN report as college-generated traffic is major factor of the noise environment.
2. Along west side of side hill road.



LOCATION OF PROPOSED SIDE HILL WITH RESPECT TO SENSITIVE VEGETATIVE COMMUNITIES

FIGURE 18

As noted previously, the BBN analysis does not include the increase in noise levels due to potential future college traffic increases. Since college traffic by itself could cause the peak hour LEQ to reach 57 dBA, it would be the dominant noise source for the dormitory area. Traffic along the ridge road would add an additional 2 dB to this level for the high find scenario and a negligible increase for the low find scenario. Use of the ten foot barrier along the ridge road would essentially eliminate additional increases to the future college traffic noise.

As in all other alternatives, the side hill road would have traffic noise impacts on the future faculty residences.

6. Visual Resources

This route, involving a walled corridor, would be highly visible from the entire campus (Plates 3, 4 and 5). This would cause a significant adverse impact, since this route would actually be more visible than the shared college road. Truck headlights could potentially shine into dormitory buildings, dependent on the alignment and slope of the northerly portion of the roadway. However, given proper alignment and design this would not result in a significant adverse impact.

The potential exists for the route to be highly visible to eastbound travelers along Highway 150 (Plate 2). Although vegetative screening would minimize the visibility of walled surfaces and buffer the impact of this route, this alternative will significantly change the existing visual character of the existing hillside.

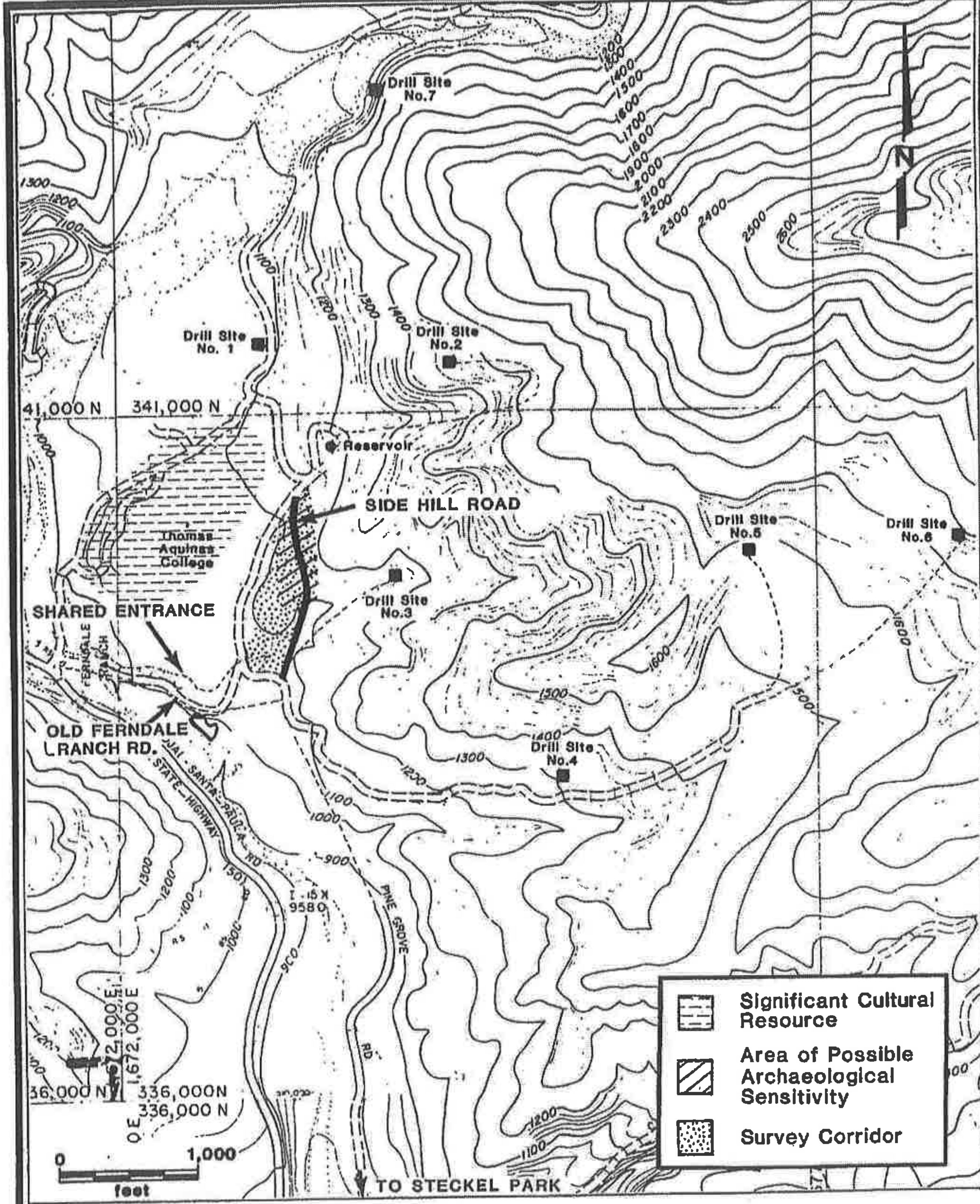
7. Cultural Resources

No new cultural resources were identified in the vicinity of this route (Figure 19). An area of slightly darker soil was visible adjacent to the existing road cut although no artifacts or other remains of aboriginal activity were observed. Due to the nature of the terrain and the presence of a significant cultural resource (Ven-404) on the flat alluvial terrace approximately 600 feet to the east, the potential exists for the occurrence of subsurface archaeological remains adjacent to this proposed route.

It is recommended that an archaeologist be present on-site during construction activities to mitigate possible impact to potential buried cultural resources.

8. Road Feasibility/Cost

The side hill road requires the use of the drill site No. 3 access road to a point approximately 1120 feet in elevation and then cuts across the ridge line at a relatively constant elevation of approximately 1135 feet. The original concept shown in Figure 16 involves a cut slope approximately 15 feet high and a downslope berm approximately 10 feet high. These two features would thereby create a trench with a 10 foot noise attenuation berm separating the roadway and the college. However, preliminary grading and design calculations indicate that a retaining wall would be necessary on the upslope side of the roadway and that the toe of the downslope side would need



PROPOSED SIDE HILL ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

FIGURE 19

to extend to the existing college road in order to attain a maximum slope of 2:1. Therefore, due to the extensive slope alteration that would be required, this alternative may be infeasible as presently envisioned (Widmer and Associates, 1984).

As an alternative to the trench concept, this analysis addresses the cost and feasibility of a roadway along the ridge buffered from the college by a sound attenuation wall. This concept utilizes the 1135 foot contour across the ridge and would require minimal grading.

The side hill alternative is estimated to cost $93,000 and would include a 10 foot block wall on a 6 foot retaining wall, fine grading and oil, and a drainage culvert. The following is a detailed breakdown of the unit costs and assumptions used for this estimate:

Cost Breakdown for Side Hill Road

Activity/Improvement	Unit Cost	Total Cost
Grading	--	--
Culverts 1-24 inch	$25.00/linear foot	$ 7,000.00
Wall (600 ft - 10 ft or a 6 ft retaining wall)	$140.00/linear foot	$ 84,000.00
Fine grading and oil	$0.05/sq ft.	$ 2,000.00
Slope Stabilization	--	--
	TOTAL	$93,000.00

9. Summary of Environmental Impacts and Mitigation Measures

Table 13 is a summary of environmental impacts and mitigation measures associated with the side hill road access concept. Comparative analyses of environmental impacts and mitigation measures relative to other access concepts are contained in Section VII of this EIR.

E. OTHER ALTERNATIVE ACCESS ROUTES

The Ferndale Ranch is located in between the Silverthread and Timber Canyon oil fields (see Figure 20). Possible access from those areas was initially investigated as part of this study, but only at a cursory level because they were found to be infeasible or would not result in significant advantages over the primary alternatives, described previously.

Table 13.
Summary of Environmental Impacts and Mitigation
Measures - Side Hill

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
a. Geologic Hazards							
o Several large surface failures along the northerly portion of this route.	Minor	o Use of retaining structures to stabilize areas of potential impact. Specific locations requiring retention structures should be determined as a part of detailed engineering.	Insignificant	EIR	Applicant	Yes	Yes
b. Flora/Fauna							
o No significant biological impacts have been identified for this alternative.	No impact	None necessary.	None				
c. Traffic/ Circulation							
o No significant traffic and circulation impacts have been identified.	No impact	None necessary.	None				

Table 13.
Summary of Environmental Impacts and Mitigation
Measures - Side Hill (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
d. Noise							
o Potential exceedance of County Noise Standards at College structures.	Significant	o Implementation of a 10-foot sound attenuation barrier adjacent to the roadway.	Insignificant	Applicant/EIR	Applicant	Yes	Yes
o Potential exceedance of county noise standards at proposed faculty housing areas.	Potentially significant	o Implementation of sound attenuation and/or setbacks in future design of faculty housing.	Insignificant	EIR	Thomas Aquinas College	Yes	Yes
o Perceived impact to college residents as a result of truck passbys.	Potentially significant	o Implementation of sound attenuation wall as indicated above.	Potentially significant	Applicant/EIR	Applicant	Yes	Yes

Table 13.
Summary of Environmental Impacts and Mitigation
Measures - Side Hill (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Economically
e. Visual Resources							
o Visual impacts to viewing locations at the college and State Route 150 associated with substantial alteration of the existing hillside and introduction of a 10-16 foot wall (includes retaining wall) along the entire length of the corridor.	Significant	o Vegetative screening of walls and revegtation of graded slopes.	Limited effectiveness	EIR	Applicant	Yes	Yes
f. Cultural Resources							
o Potential occurrance of subsurface cultural resources.	Potentially significant	o A qualified archaeologist should be present to monitor grading activities.	Insignificant	EIR	Applicant	Yes	Yes

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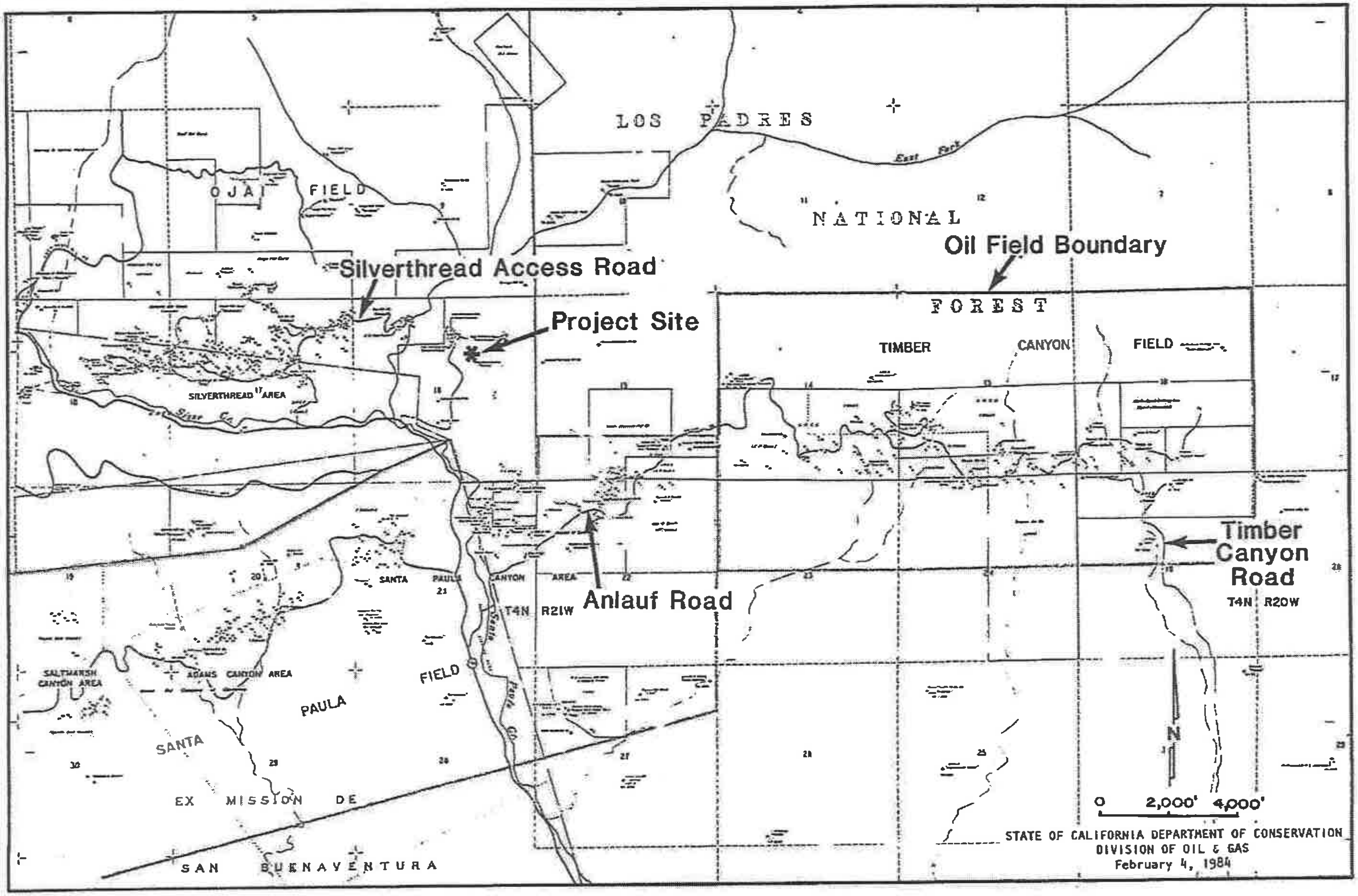

LOCATION OF OTHER ACCESS CONCEPTS AND OIL FIELD BOUNDARIES.

FIGURE 20

1. Silverthread Route

In order to maintain access to the Ferndale Ranch from the Silverthread field, a bridge across Santa Paula Creek would be necessary. The cost of constructing a bridge across Santa Paula Creek was estimated to range from 1.5 to 2 million dollars (Widmer and Associates). Although this access route was approved as the secondary access under the existing Argo CUP the Silverthread access route was found to be infeasible as a permanent access because of environmental constraints described below and the high cost of mitigating potential impacts.

Detailed geologic studies were not performed for the proposed Silverthread access road; however, published maps indicate the presence of at least one large bedrock landslide along the route (on an east-facing slope about 0.4-0.5 miles north of highway 150) and field reconnaissance observations confirmed that this slide is currently active. Another area of possible recent landsliding is located on a north-facing slope about 0.9 miles north along the road alignment from highway 150. It appears that on-going maintenance is needed for these areas.

Significant adverse biologic impacts could result where this route crosses Santa Paula Creek. The primary concern is the potential for an oil spill in or adjacent to the creek. Rapid containment and clean-up would be very difficult due to the creek's morphology.

Use of this access route would degrade the visual quality of the Santa Paula Creek in an area utilized by the public for hiking. The level of impact is directly related to the volume and frequency of truck traffic. This route would not be visible from the college or from Rt. 150.

Little is known archaeologically in the vicinity of the Silverthread access Road. This route follows an existing dirt road from the Drill Site No. 1 road where it crosses a tributary of Santa Paula Creek north of the tank farm eastward to join Highway 150 near Camp Bartlett. Portions of this route have a high potential for the occurrence of prehistoric site localities. No previous archaeological surveys have been conducted in this portion of Ferndale Ranch. This alternative access is considered potentially archaeologically sensitive.

2. Timber Canyon Route

Potential access from Timber Canyon Road or Anlauf Canyon was found to have no significant advantages over the primary alternative. In addition, this would involve traffic through Steckel Park, impacting this recreational use.

V. ENVIRONMENTAL IMPACT ANALYSIS OF ENTRANCE ALTERNATIVES

This section analyzed the potential environmental impacts and mitigation measures for three entrance alternatives capable of providing access to Argo Petroleum's oil recovery operations on its Ferndale Ranch lease (see Figure 21). The entrance alternatives analyzed below include: 1) use of the existing college/ranch entrance with no separation between oil and college related traffic; 2) use of the Old Ferndale Ranch Road that parallels the existing college road for the east-west component of the route, with a shared road segment with the existing college road up to a point where the Planning Commission and drill Site 3 access roads intersect the college road; and 3) use of an entirely separate road along the old Ferndale Ranch road corridor including the construction of a gully crossing and drainage culvert to obtain access to the Planning Commission and drill site 3 access roads.

A. SHARED ROAD ENTRANCE

1. Corridor Description

This alternative is the existing condition whereby oil related traffic and college traffic share the college/ranch access road and entrance.

2. Geologic Hazards

All three of the entrance alternatives enter the Ferndale Ranch near the present Thomas Aquinas College entrance. Although the three alternatives are slightly different, they all traverse near the edge of the older-alluvium-capped plain north of Santa Paula Creek (Figure 22). This area presents a significant geologic hazard because of the potential for catastrophic bluff failure.

Bedrock near the Sisar fault zone, at the edge of the older alluvial plain, is fractured and deformed. Due to the fractured nature of the bedrock and the erosive effects of Santa Paula creek, a bluff about 50-60 feet high has developed along the northern edge of the creek. Evidence of recent bedrock landsliding (Qlsr), shallow surficial failures (Qlss), and rock fall hazard is present along the bluff. Evidence illustrates the dynamic nature of the bluff slopes. In the event of significant storm-water discharge via Santa Paula Creek, erosional undercutting of the toe of the bluff could result in a new failure or expansion of old ones. It is for these reasons that access roads should be kept as far away from the bluff edge as possible as a mitigation of potential adverse geologic impacts. If this is not possible, consideration should be given to the installation of soldier piles along the downslope edge of the roadway, at least where it encroaches close to the present bluff edge.

Because of the probable correlation between bluff failures and periods of major storm water flow, it is very difficult to make an estimate of the rate of bluff retreat. However, there are probably irregular, extended periods of time between brief but catastrophic bluff failures.

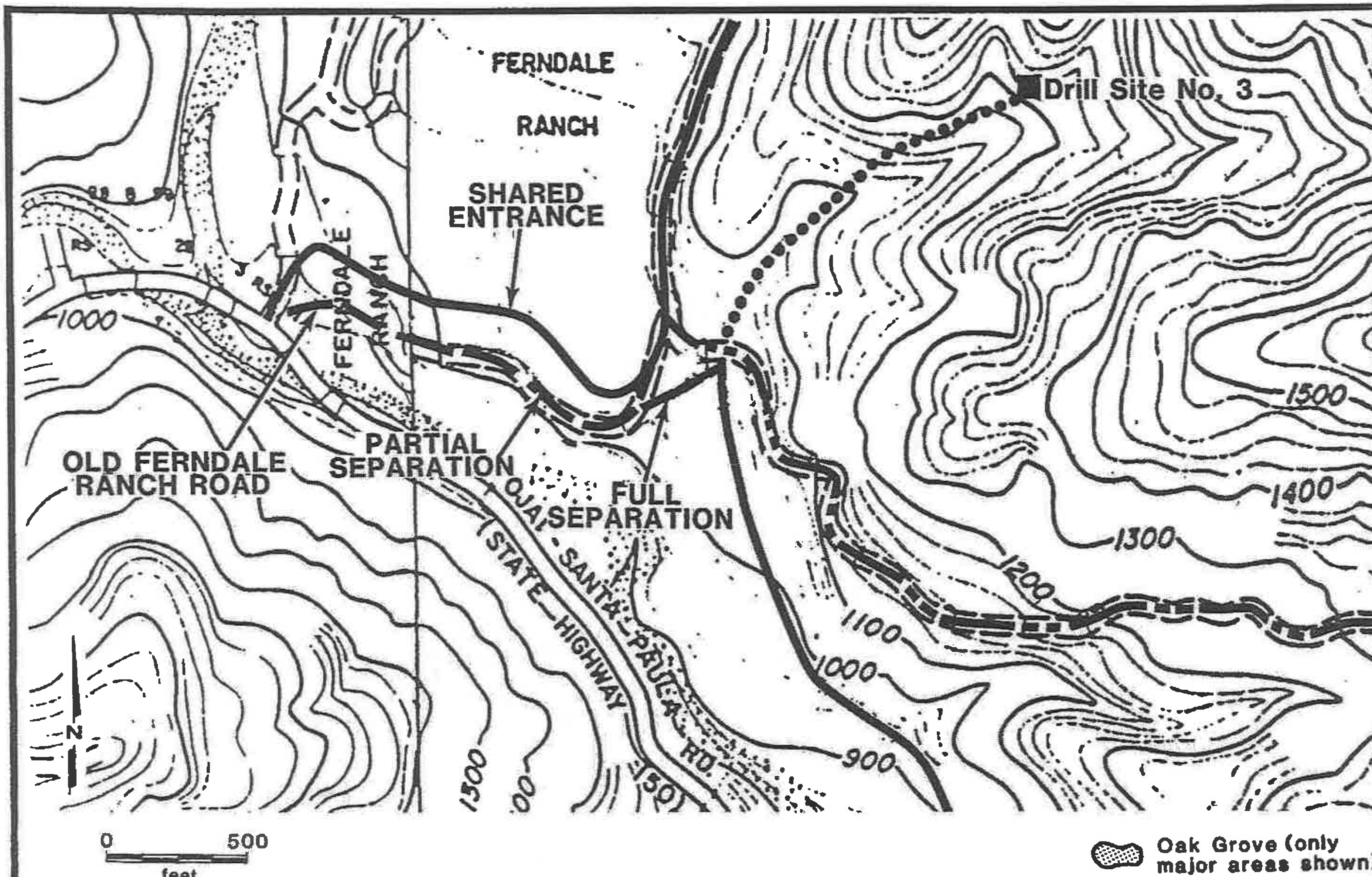

FIGURE 21

ALIGNMENT OF ENTRANCE ALTERNATIVES

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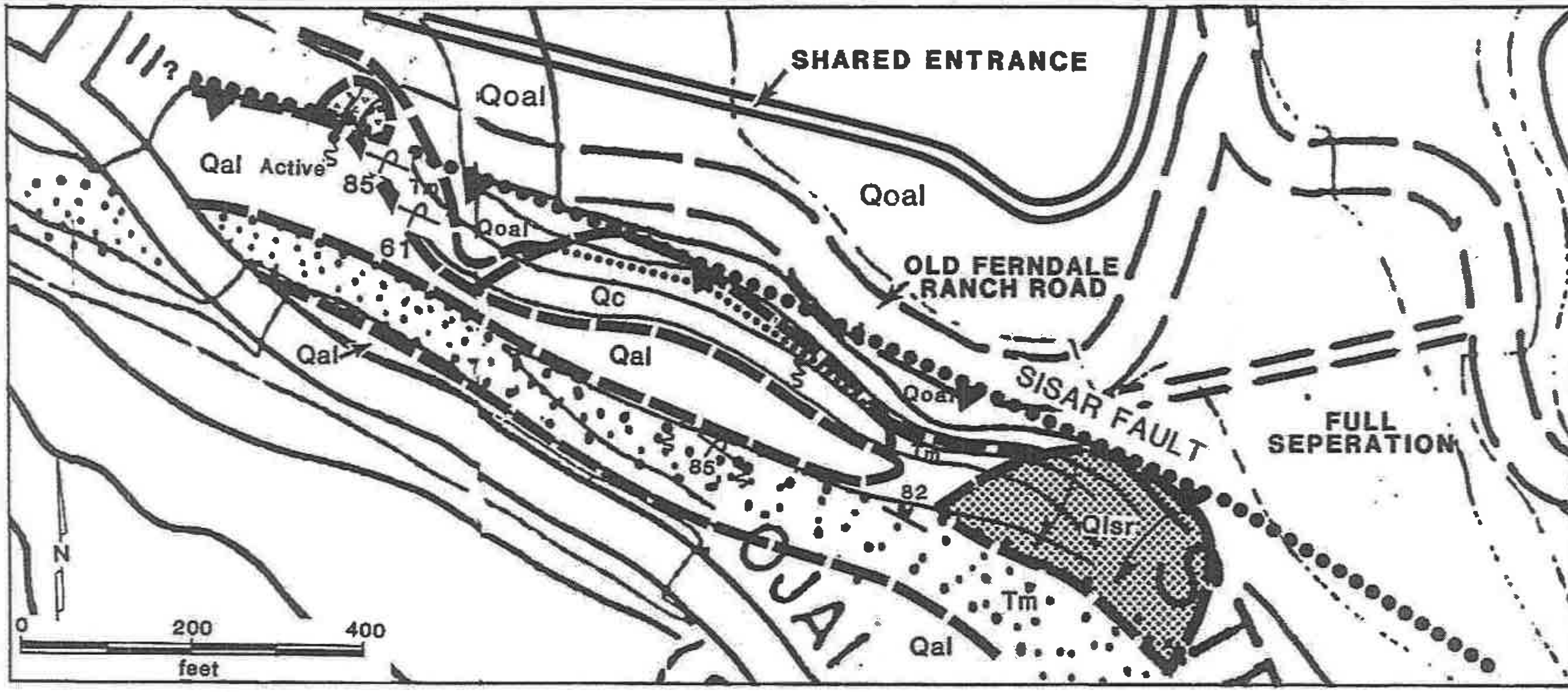
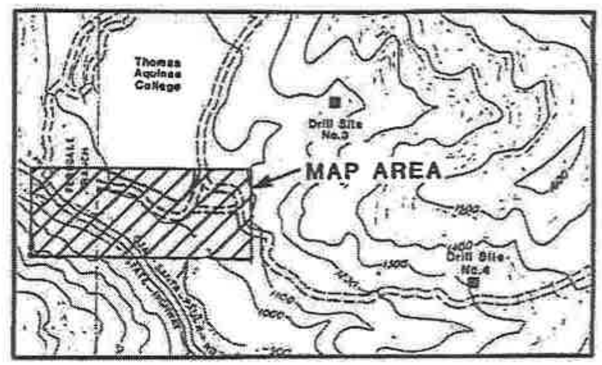


EXPLANATION

Qles	RECENT SURFICIAL SLIDE. INCLUDES RECENT MUDFLOWS, DEBRIS FLOWS, SLUMPS, AND CREEP-PRONE MATERIAL. ASSUMED TO BE LESS THAN ABOUT 10-15 FT THICK.	Tm	MODELO FORMATION. GRAY, THIN-BEDDED TO LAMINATED, SILICEOUS SHALE AND SILTSTONE. MIOCENE.
Qlsr	RECENT BEDROCK LANDSLIDE. RELATIVELY RECENT BEDROCK LANDSLIDES ASSUMED TO BE MORE THAN ABOUT 10-15 FT THICK.	82	STRIKE AND DIP OF BEDDING.
Qc	COLLUVIUM. RECENT DOWNSLOPE ACCUMULATIONS OF SOIL AND ROCK DEBRIS DERIVED FROM EROSION AND MASS WASTING PROCESSES. INCLUDES BOULDERY TALUS DEPOSITS.	85	STRIKE AND DIP OF OVERTURNED BEDDING.
Qal	ALLUVIUM STREAM-LAID DEPOSITS OF GRAVEL, SAND, SILT AND CLAY; HORIZONTALLY STRATIFIED.		CONTACT BETWEEN MAP UNITS. DASHED WHERE APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED.
Qoa	OLDER ALLUVIUM STREAM-LAID DEPOSITS OF GRAVEL, SAND, SILT, AND CLAY; HORIZONTALLY STRATIFIED; LOCALLY WELL CEMENTED. MULTIPLE OLDER ALLUVIUM LEVELS ARE REPRESENTED.		THRUST FAULT. DASHED WHERE APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED.
			OIL SEEP.



DETAILED GEOLOGIC MAP FOR THE PROJECT ENTRANCE AREA

FIGURE 22

3. Flora and Fauna

There are no biological impacts associated with the continued use of the existing college entrance. As can be seen on Figure 23, its continued use by oil traffic will not result in the loss of significant biologic resources or significant impacts on habitat areas.

4. Traffic/Circulation

Potential traffic and circulation problems associated with the entrance alternatives primary relate to conflicts with college traffic, particularly vehicular safety.

The shared entrance involves continued use of the existing college entrance for both college related and oil related traffic. If traffic volumes increase as projected, potential safety problems would be expected to increase as well. This alternative involves the maximum interaction between college and oil related traffic as compared to other potential concepts. Oil related traffic would use this route up to the intersection with drill site No. 3 access road and the Planning Commission road. Outbound vehicles would be required to turn left from the access road onto the college road. However, the sight distances in both directions at this junction are sufficient and, therefore, no traffic control measures would be necessary.

5. Noise

The existing entrance is located sufficiently far from existing college structures so that noise generated along this corridor will not cause exterior noise levels to exceed county standards at college structures. However, although anticipated noise levels are not expected to exceed county standards, periodic single event noise levels associated with truck traffic could be perceived as significant by college residents and students.

6. Visual Resources

Although this route would involve little or no topographic alteration and would not result in degradation of sensitive visual resources, the roadway is highly visible from the campus, particularly from the dorms on the western perimeter. While visibility in itself is not necessarily a significant adverse impact, the passage of trucks through the generally rural college setting could be perceived as a significant disruption to the visual setting. Vegetative screening along the northern and a western roadway shoulder would substantially reduce these perceived visual impacts. Full buildout of the College Master Plan, including planned vegetative screening, would further mitigate this potential impact.

7. Cultural Resources

The area immediately adjacent to the existing entrance road was examined during the walkover reconnaissance. Surface visibility in the area immediately adjacent to the entrance was good. No new prehistoric or historic cultural resources were located in the vicinity of the college entrance. Therefore, this entrance alternative is not expected to result in an impact on cultural resources.

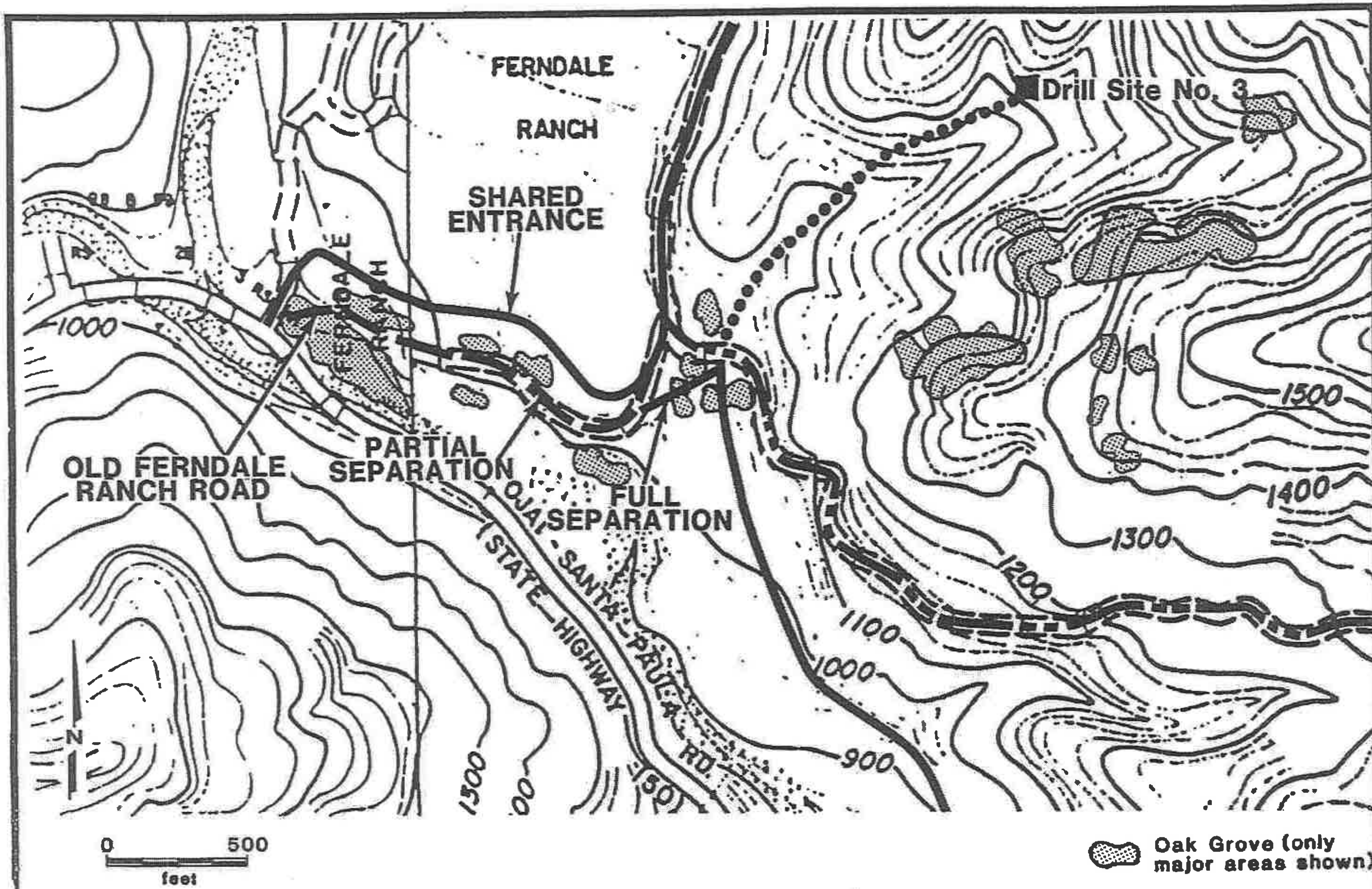


FIGURE 23

LOCATION OF ENTRANCE ALTERNATIVES WITH RESPECT TO SENSITIVE VEGETATIVE COMMUNITIES

8. Road Feasibility/Cost

The shared college/ranch entrance would not require significant improvement costs.

9. Summary of Environmental Impacts and Mitigation Measures

Table 14 is a summary of environmental impacts and mitigation measures associated with the shared entrance concept. A comparative analysis of this alternative to other entrance concepts is contained in Section VII of this EIR.

B. OLD FERNDALE RANCH ROAD PARTIAL SEPARATION

There are two ways in which the Old Ferndale Ranch Road can be utilized for access to Argo's oil operations on its Ferndale Ranch lease. These include: 1) use of the Old Ferndale Ranch Road paralleling the existing college road for the east-west component of the access and a merger with the existing college road for the north-south access component; and 2) use of the Old Ferndale Ranch road with a gully overcrossing to form an entirely separate access road. The result is an option with partial separation from the college road or an entirely separate road. Environmental impacts and mitigation measures associated with each of these alternatives are summarized in the following sections.

1. Corridor Description

The partially shared access road alternative requires improvement to an 1800 foot segment of the old Ferndale Ranch Road and a merger of that roadway into the existing college road. The shared portion of the college access road involves a 250 foot segment south of the junction with the drill site No. 3 and Planning Commission roads. This alternative reduces the amount of interaction between college vehicles and oil related vehicles as compared to the shared access road.

2. Geologic Hazards

The evaluation of the shared entrance also applies to the old Ferndale Ranch Road alternatives. However, potential impacts associated with adverse geologic bluff conditions would be greater for the old Ferndale Ranch road corridor because this roadway is closer to the cliff's edge. To minimize potential hazards, slope stabilization devices (e.g., soldier piles) should be utilized, particularly where the roadway encroaches on the present cliff edge. A detailed geotechnical engineering investigation should be conducted to determine the specifications and precise need for stabilization structures. Because these measures are expected to adequately mitigate potential impacts, this alternative is not expected to result in significant unavoidable adverse impacts with regard to geologic hazards. However, the high cost of cliff stabilization measures associated with this alignment may cause this alternative to be economically infeasible.

Table 14.
Summary of Environmental Impacts and Mitigation
Measures - Shared College Entrance

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
a. <u>Geologic Hazards</u>							
o Potential instability of the bluff adjoining Santa Paula Creek due to erosional undercutting	Potentially significant	o Use of soldier piles along the downslope edge of roadway may be necessary to stabilize bluff erosion. The extent to which these measures will be necessary should be determined based on a detailed geologic engineering investigation. However, because of this roadway's more distant location from the cliff's edge, mitigation measures may not be necessary.	Insignificant	EIR	Applicant	Yes	Uncertain at this time
b. <u>Flora and Fauna</u>							
o There are no biological impacts associated with this entrance alternative	No impact	None necessary	None				

Table 14.
Summary of Environmental Impacts and Mitigation
Measures - Shared College Entrance (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
c. Traffic/ Circulation							
o Maximum interaction between college related and oil related vehicles resulting in potential safety concerns.	Potentially significant	o Use of an entirely separate entrance	None	EIR	Applicant	Yes	Yes
d. Noise							
o Perception of noise impacts as a result of truck related single event noise emissions.	Potentially significant	o Implementation of a wall/ berm 6-10 feet in height to interrupt the the line of sight between college facilities and roadway.	Potentially Significant	EIR	Applicant	Yes	Yes

Table 14.
Summary of Environmental Impacts and Mitigation Measures - Shared College Entrance (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
e. Visual Resources							
o Perceived impact to college area as a result of high visibility of truck traffic.	Potentially significant	o Use of a 6-10 foot berm covered with heavy vegetation to interrupt the line of sight between college facilities and the roadway. Landscaping as a result of full build out of the College (per master plan) would further mitigate this potential impact.	Insignificant	EIR	Applicant	Yes	Yes
f. Cultural Resources							
o No significant impacts to cultural resources have been identified for this entrance alternative.	No impact	None necessary	None				

3. Flora and Fauna

Both of the old Ferndale Ranch road access concepts would require removal of native vegetation adjacent to the project entrance. Although this vegetation is not unique to the area, it could result in the removal of individual oak trees. To the extent possible, roadway design should minimize removal of natural vegetation. In addition, replanting of oak trees would reduce long term impacts to wildlife species that utilize this habitat.

4. Traffic/Circulation

The partially shared access route involves use of the old Ferndale Ranch road that parallels the east-west component of the existing college access road. This facility then merges with the college access road at the point where the college road turns to the north. Therefore, the shared segment involves a 200-300 foot segment between the drill site No. 3/Planning Commission road junction and the existing northward curve in the college access road.

While this access concept reduces the overall interaction between oil and college related traffic, as compared to the completely shared alternative, it results in three intersections where turning movements could result in potential conflicts. Turning movements at the intersection of the college access road and the drill site No. 3/Planning Commission access roads are not expected to result in significant safety hazards due to the adequacy of existing sight distances, relatively low traffic volumes, and comparatively slow travel speeds. However, the intersection of old Ferndale Ranch Road with the college access road is located in proximity to a relatively sharp curve to the north and the intersection with highway 150 to the south. Visibility in this area is limited as a result of roadway geometry and shadows cast by vegetation in the immediate vicinity. Therefore, this location could generate an additional traffic safety concern, given the traffic volume increases anticipated as a result of planned college facilities and expanded oil operations.

Given the adoption of this alternative, traffic control measures, such as a guard gate facility and/or speed control measures (i.e., speed bumps), could serve to minimize potential traffic and pedestrian safety hazards.

5. Noise

Similar to the shared entrance concept, either of the old Ferndale Road alternatives would not result in noise impacts resulting from exceedance of county noise standards at college structures. However, it is possible that truck traffic would generate single event noise levels that could disrupt college activities and, therefore, be perceived as a significant noise source. This is particularly true along the shared portion of the roadway in the vicinity of the drill site 3 access road. Given its slightly greater distance from college structures, the old Ferndale Ranch Road would be somewhat more favorable than the shared entrance concept with regard to potential noise impacts.

Use of a berm to interrupt the line of sight between college structures and the old Ferndale Ranch Road would further reduce potential noise impacts.

6. Visual Impacts

Potential visual impacts associated with the old Ferndale Ranch road entrance concept would be somewhat less than the shared entrance concept from college viewing locations, but would be greater for viewing locations along State Route 150. In addition, given the limited distance from the roadway surface to the cliff's edge, limited potential exists for vegetative screening to mitigate potential impacts from State Route 150. However, development of this roadway will not involve significant topographic alteration and would, therefore, not result in a significant alteration of the existing viewing corridor other than the visual presence of additional vehicular traffic.

7. Cultural Resources

No new prehistoric or historic cultural resources were identified in the vicinity of this entrance alternative.

8. Road Feasibility/Costs

Based on a preliminary engineering evaluation, the partially shared entrance concept was determined to be technically feasible. However, because the extent to which soldier piles will be necessary for geologic stabilization is uncertain at this time, it is not possible to accurately project a final cost for development of this roadway. Without geologic stabilization, this facility is estimated to cost approximately $13,000 (Widmer and Associates, 1984) including fine grading and oil for the segment south of the existing college road, and replacement of a drainage culvert at the existing junction drill site 3 and Planning Commission access roads. However, the cost of cliff stabilization is estimated to range from $75,000 to $150,000 which could significantly affect the economic viability of this concept.

9. Summary of Environmental Impacts and Mitigation Measures

Table 15 is a summary of environmental impacts and mitigation measures associated with the Old Ferndale Ranch Road partial separation entrance concept. Comparative analyses are contained in Sections II and VII of this EIR.

C. OLD FERNDALE RANCH ROAD FULL SEPARATION

1. Corridor Description

This alternative involves improvement of the old Ferndale Ranch Road and the construction of a gully crossing so that college traffic and oil traffic are completely separate except for a small section at the site entrance. Complete separation of college and oil traffic requires the construction of a 300-400 foot road segment crossing a relatively small drainage. As a result, this alternative would require filling the gully and installation of a drainage culvert to transport storm runoff.

Table 15.
Summary of Environmental Impacts and Mitigation
Measures - Old Ferndale Ranch Road Partial Separation

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility	
						Technically	Economically
a. Geologic Hazards							
o Potential geologic hazards associated with cliff erosion.	Potentially significant	o Stabilization measures (e.g., soldier piles) as determined from a detailed geotechnical engineering investigation. Because of the proximity of this road to the cliff's edge, mitigation measures are more likely to be necessary than for the shared entrance alternative.	Insignificant	EIR	Applicant	Yes	Cost uncertain Excessive costs could preclude the reasonableness of this alternative.
b. Flora/Fauna							
o Removal of individual oak trees.	Minor	o Minimize removal of native vegetation. Replanting of oak trees.	Insignificant	EIR	Applicant	Yes	Yes

Table 15.
Summary of Environmental Impacts and Mitigation
Measures - Old Ferndale Ranch Road Partial Separation (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Economically
c. Traffic/ Circulation							
o Potential traffic safety impacts at the roadway entrance.	Potentially significant	o Implementation of a guard gate facility and/or speed control measures at the junction of Old Ferndale Ranch Road and the College Road.	Insignificant	EIR	Applicant	Yes	Yes
o Safety concerns associated with the development of three intersections with the College Road.	Potentially significant	o Speed control measures, signs, and vegetation clearance maintenance to ensure maximum visibility.	Limited Effectiveness	EIR	Applicant	Yes	Yes
d. Noise							
o Potential nuisance impacts associated with single event noise levels generated by heavy truck traffic.	Potentially significant	o Implementation of earthen berms that interrupt the line of sight between college structures and the roadway.	Insignificant	EIR	Applicant	Yes	Yes

Table 15.
Summary of Environmental Impacts and Mitigation
Measures - Old Ferndale Ranch Road and Partial Separation (Continued)

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
e. Visual Impacts							
o Potentially adverse visual impacts from State Route 150.	Potentially significant	o Vegetative screening, where feasible, between the roadway and the viewing corridor along Highway 150.	Insignificant	EIR	Applicant	Yes	Yes
o Perceived adverse impact from college viewing locations.	Potentially significant	o Berming and vegetative screening to reduce roadway visibility.	Insignificant	EIR	Applicant	Yes	Yes
f. Cultural Resources							
o No impacts to cultural resources have been identified for this alternative.	No impact	None necessary	None				

2. Geologic Hazards

The discussion of geologic hazards for the partially shared old Ferndale Ranch road concept would also apply for the full separation alternative. This route could require bluff stabilization measures as determined through further detailed engineering investigations. Because of the closer proximity of this alternative to the cliff's edge than the shared concept, the degree of mitigation necessary may be greater. The cost of implementing the necessary measures could preclude the viability of this entrance concept. Filling of the gully is not expected to result in significant geologic concerns; however, as previously noted, a drainage culvert would be required.

3. Flora and Fauna

Use of the Old Ferndale Ranch Road may require a small area of oak trees to be removed in the vicinity of the entrance. Wildlife usage of the roadway areas is low and generally consists of avifauna.

Depending on the precise location of the gully crossing required to develop this route, low to moderate adverse biological impacts are anticipated. The level of impact is dependent upon the amount of mature vegetation (especially oak trees) that must be removed for this route. Careful placement of the route can minimize this impact.

4. Traffic/Circulation

The separate entrance concept involves use of the old Ferndale ranch road and a gully crossing to the east connecting the ranch road to the Planning Commission and/or drill site No. 3 access road. The only interaction between college related and oil traffic would be at the entrance where the ranch road intersects the college access road. As indicated for the partially shared alternative, visibility and associated safety hazard impacts could result at this location unless properly mitigated. Speed control measures, such as a guard gate, would mitigate potential safety impacts at this location.

5. Noise

The noise discussion for the partially shared entrance would also apply to the full separation alternative. In addition, potential conflicts with existing college structures would be minimized given this alternative. However, this alternative could result in significant noise impacts to planned faculty residences that would be located immediately east of the roadway. Development of future faculty housing as proposed would require proper structure siting, construction, and noise attenuation measures to ensure an acceptable noise environment for future residents. Even with proper acoustical planning, single event noise emissions as a result of truck passbys would be expected to result in nuisance effects to future residents.

6. Visual Resources

The visual impact discussion for the partially shared alternative would also apply to the full separation alternative. The primary difference between these two alternatives would be vegetation removal in the gully area and replacement with fill. This area would be highly visible from State Route 150, but vegetative screening could significantly reduce potential impacts. The primary advantage of this alternative is that it eliminates visual impacts from the college provided that appropriate berming and vegetative screening measures is implemented.

7. Cultural Resources

No new prehistoric or historic cultural resources were located in the vicinity of the proposed separate road crossing over a small arroyo or gully off Santa Paula Creek. The flat elevated terrace on the eastern side of the gully is a favorable location for an original site and was, therefore, more intensively surveyed. The area was found to have been previously disturbed by emplacement of several pipelines. Surface visibility in this area was excellent.

Due to the disturbed nature of the soil and good visibility, the presence of potential buried cultural resources in this area is considered unlikely. This entrance alternative is not expected to result in an impact to cultural resources.

8. Road Feasibility/Cost

Development of the Old Ferndale ranch full separation concept would require oiling and fine grading to the existing road surface and construction of a gully crossing including a drainage culvert to adjoin the drill site 3 or Planning Commission access roads. Given these improvements, this route is estimated to cost $21,000 (Widmer and Associates). However, this cost estimate does not include potential costs associated with bluff stabilization. These costs are estimated to range between $75,000 to $150,000, but would only be warranted if it was required to remove any risk of road loss. Because the alternative of using the shared entrance is still available in the event of road loss, the expense of stabilizing the bluff may not be warranted.

9. Summary of Environmental Impacts and Mitigation Measures

Table 16 is a summary of environmental impacts and mitigation measures associated with the Old Ferndale Ranch Road full separation alternative. Comparative analyses detailing impacts relative to other entrance concepts are contained in Section VII of this EIR.

D. OTHER ENTRANCE ALTERNATIVES

Other entrance alternatives were investigated in a cursory manner because they were found to be infeasible or did not result in significant advantages over the primary entrance alternatives.

Table 16.
Summary of Environmental Impacts and Mitigation
Measures - Old Ferndale Ranch Road Full Separation

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
a. Geologic Hazards							
o Potential impacts associated with bluff failure.	Potentially significant	o Stabilization measures as determined necessary through a detailed geologic engineering investigation. As indicated for the partially separated alternative, it is more likely that mitigation measures will be necessary for this alternative than the shared entrance concept.	Insignificant	EIR	Applicant	Yes	Cost Uncertain Excessive costs could preclude reasonableness of this Alternative
b. Flora/Fauna							
o Loss of native oak tree vegetation limited to individual tree removal.	Minor	o Minimize removal of native vegetation and replanting of oak trees.	Insignificant	EIR	Applicant	Yes	Yes

Table 16.
Summary of Environmental Impacts and Mitigation
Measures - Old Ferndale Ranch Road Full Separation

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
c. Traffic/ Circulation							
o Potential traffic safety/ visibility impacts at the roadway intersection with the existing college road.	Potentially significant	o Speed control measures and/or implementation of a guard gate facility at the college entrance.	Insignificant	EIR	Applicant	Yes	Yes
d. Noise							
o Nuisance effects to the college associated with heavy truck traffic.	Minor	o Construction of a berm that interrupts the line of sight between this roadway and college structures.	Insignificant	EIR	Applicant	Yes	Yes
o Potential impact to future faculty housing residents.	Potentially significant	o Implementation of noise attenuation and citing factors to minimize potentially significant noise impacts.	Limited Effectiveness	EIR	Thomas Aquinas College	Yes	Yes

Table 16.
Summary of Environmental Impacts and Mitigation Measures - Old Ferndale Ranch Road Full Separation

Issue	Potential Significance/ Conflicts	Mitigation Measures	Residual Impact	Mitigation Proposed By	Mitigation To Be Carried Out By	Mitigation Feasibility Technically	Mitigation Feasibility Economically
e. Visual Resources							
o Potentially adverse visual impacts to State Route 150 as a result of gully filling and visibility of truck traffic.	Potentially Significant	o Vegetative screening along south side of roadway and of all fill areas.	Insignificant	EIR	Applicant	Yes	Yes
o Perception of adverse visual impact to college as a result of truck traffic.	Potentially Significant	o Use of a landscaped earthern berm to interrupt the line of sight from college structures.	Insignificant	EIR	Applicant	Yes	Yes
f. Cultural Resources							
o No significant impacts to cultural resources have been identified.	No Impact	None necessary	None				

Another means of accessing the project site is through the use of Pine Grove Road, located to the south of the Planning Commission Road, paralleling Santa Paula Creek and passing through Steckel Park. The Pine Grove Road entrance concept involves using the access system established in Steckel Park and improving an existing dirt roadway that present leads to the Ferndale Ranch. The Pine Grove Road entrance would require road surface improvements over an approximately one mile corridor. This alternative would require that oil related traffic use the internal park road system, and existing access roads serving oil recovery operations along the creek. While conflicts with college traffic would be eliminated, this route would generate new conflicts associated with park use compatibility and interaction with a greater volume of traffic generated by other oil operations.

No detailed geologic studies were performed for the Pine Grove Road entrance alternative. However, based on published geologic mapping it appears that most of the route crosses deposits of alluvium and older alluvium. Slopes near the edge of the route are apparently underlain by Pico and Santa Margarita Formation bedrock. A few apparently ancient bedrock landslides and some shallow surficial failures are mapped in the vicinity of this road. Based upon a cursory reconnaissance of the route, significant geologic impacts are not anticipated. However, this route would require detailed geologic and hydrologic studies to determine the extent of improvements necessary to develop this route. Without more detailed engineering requirements to mitigate potential hydrologic impacts of this route, it is not possible to determine the extent to which necessary improvements will impact adjoining riparian vegetation.

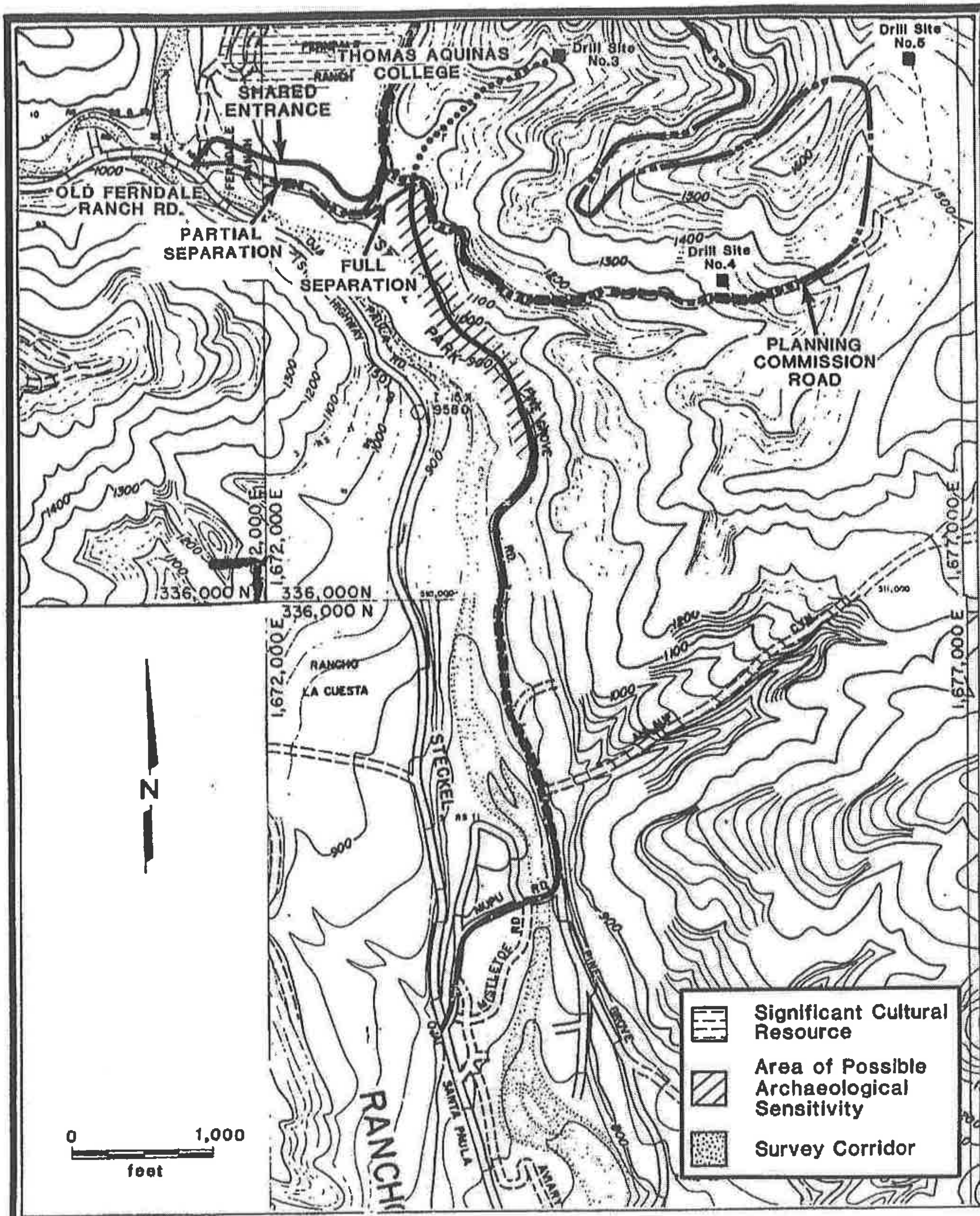
Access from Steckel Park would result in complete separation of Argo's oil related traffic and college related traffic. This roadway is relatively level and would connect with the Planning Commission road and/or drill site No. 3 access road east of the college access road. However, funneling of all oil related traffic through Steckel Park would result in an increase in potential safety hazards within the park. Additional oil traffic passing through a public recreation area could be potentially more hazardous than directing the same traffic through the college because recreational activities would involve a greater number of young children. While it is not possible to quantify the degree of risk associated with each option, encroachment of oil traffic on Steckel Park facilities would not mitigate potential safety concerns associated with the proposed project.

Because this alternative utilizes an existing roadway which would not require widening, biological impacts are minimal. Increased noise, vibration and dust are of concern, although no significant adverse effects are anticipated. This is largely a result of the presently high level of human activity in the area which includes hikers, orchard, and residential traffic, and activity related to a current oil drilling operation along this road.

Pine Grove Road would not be visible to the college, but would be visible to travelers along Rt. 150 and to park visitors. Given the length of this route with respect to entrance alternatives, this would involve the highest visibility and would subsequently result in the greatest visual impact of the alternatives considered.

Three previously identified cultural resources are located on the flat elevated terrace overlooking Santa Paula Creek in the general vicinity of the Steckel Park Entrance (Ven-501, Ven-502, and Ven-503). The site designated Ven-503 consists of a single fused shale flake found at the northern end of Steckel Park (Moss 1977:10). Ven-502 is a large site located near an asphaltum seep on the west side of Santa Paula Creek (Figure 24). Ven-501 is a smaller site on an elevated terrace east of Santa Paula Creek. In addition, three isolated artifacts were recovered in the hills adjacent to the park during a recent survey of the area (Singer, Wessel and Edberg 1981). The historic Steckel House (VS-566) is located in Steckel Park near the main entrance and is currently in use as the Park headquarters.

The Steckel Park entrance would utilize an existing roadway through the park and adjacent oil production facility. No additional surface reconnaissance was required in this area as it was shown to have been previously surveyed (Lopez 1977; Singer, Wessel and Edberg 1981). This area has a fairly high density of prehistoric site localities. The possibility exists, therefore, for the occurrence of buried cultural resources in the vicinity of the Pine Grove Road.



STECKEL PARK ENTRANCE ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

VI. GROWTH INDUCING IMPACTS

Development of an oil field service road to accommodate additional oil related traffic as a result of the proposed project will not remove obstacles to development that would stimulate growth in the immediate project vicinity. However, development of an improved oil service road infrastructure would, to a certain extent, remove significant obstacles to future oil development within the Ferndale Ranch lease area. As a result, development of the improved access system could result in growth inducing impacts with regard to oil development, but would not be expected to facilitate other types of urban growth (e.g. residential development). Expanded oil development would generate secondary growth inducement by providing a limited number of new jobs and by generating revenue that could stimulate secondary growth in the commercial sector of the economy. Secondary growth implications are not significant.

In addition, further oil development within the Ferndale Ranch lease area, in excess of the existing 36 approved wells, would require a discretionary action by local government officials.

VII. COMPARISON OF ALTERNATIVES AND MITIGATION MEASURES

Based on the environmental analysis contained in the preceding sections, this section identifies the suggested environmentally superior alternative, as well as mitigation measures that could be incorporated into design. Mitigation measures are summarized for each access concept analyzed in this report. The suggested access alternative has been determined strictly on environmental factors. Gross cost estimates have been provided to allow a comparative cost evaluation and to assist decision-makers in their evaluation of the reasonableness of various access concepts.

The environmentally superior alternative for Argo's oil traffic involves the use of the following road segments (the ridge alternative):

- Separate entrance to Ferndale Ranch for oil traffic;
- Use of old Ferndale Ranch road;*
- Crossing of a gully to access road to drill site 3 without using main college road;
- Access road to drill site 3;
- Construction of new road from drill site 3 to Planning Commission road, behind the ridge;
- Realignment of portion of Planning Commission Road to avoid runaway vehicle hazard, while accessing drill sites 1 and 7.

The following modification of the above route could be significantly less costly while only increasing potential impacts somewhat.

- Use of the shared college/ranch road entrance for college and oil related traffic.

Although less costly due to the avoidance of geotechnical evaluation and cliff stabilization costs, this modification would increase the potential for conflicts between college and oil traffic.

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*NOTE: The cost of cliff stabilization measures that may be necessary with this alternative may cause this alternative to be economically infeasible.

A. METHODOLOGY

This EIR addresses the full range of access alternatives necessary to permit a reasoned choice of the environmentally superior alternative. There are several methods that could be used to present a comparison of alternatives that would identify the environmentally superior access alternative. These methods can be very complex and include multiple variable weighting systems, computer modeling techniques, and a multitude of other sophisticated comparison methods. However, for the purposes of this analysis, a simple comparative analysis was performed to identify routes with significant environmental constraints and the relative costs of mitigating the identified problems.

Because of the severity of environmental impacts associated with particular alignments, this simplified analysis easily eliminates those routes with significant environmental constraints.

B. ACCESS ALTERNATIVES

After evaluating each of the proposed alignments, three of the alternate routes were found to have significant environmental constraints. The approved Planning Commission road and the Drill Site No. 3 canyon alternative both involve crossing a major recent bedrock landslide. While stabilization of this landslide is feasible, it would involve a significant amount of grading and would be very costly for the purposes of oil field road construction. In addition to significant geologic and economic concerns, these two routes would also impact significant biological areas.

The other route that was determined to have significant environmental constraints is the shared college road alternative. While acceptable in terms of geologic, biologic and economic considerations, this route involves significant impacts with regard to traffic safety and noise, and has a very significant visual impact on the college.

The remaining alternatives, the proposed Side Hill Road and the Drill Site No. 3 ridge alternative, were determined to have the least environmental constraints. Impacts associated with each of these alternatives were determined to be mitigatable given proper design. However, the proposed side hill route, overlooking the college, has the most significant visual impact of the alternatives considered. In determining the environmentally superior alternative this potentially significant visual impact, as well as relatively low rankings in the areas of noise and geologic hazards precluded the selection of this route as the preferred alternative.

Based on this simplified analysis, the environmentally superior access road alternative is the Drill Site No. 3 to Planning Commission Road (ridge alternative). Based on conclusions in the traffic and circulation analysis of this report, it is recommended that the alternative alignment for the Planning Commission/Drill Site No. 2 also be implemented as a part of this alternative.

C. ENTRANCE ALTERNATIVES

In determining which entrance alignment is the environmentally superior alternative, the same screening analysis was applied. The Shared College/ Ranch Access alternative involves significant environmental constraints as a result of traffic/circulation. While less preferable with regard to noise and visual impacts, these issues would not result in significant environmental constraints. Potential impacts relating to biologic resources, cultural resources, and geologic hazards are mitigatable.

Tradeoffs between use of an entirely separate access and a partially shared access involve reducing incremental traffic and circulation impacts, noise impacts and visual impacts to the maximum extent feasible at an additional estimated cost of approximately $8,000. While an entirely separate access road would result in additional grading and incremental biologic impacts, these impacts were found to be insignificant. Therefore, although the completely separate access road is a more costly alternative than the partially shared condition, it was determined to be the environmentally superior entrance alternative.

D. MITIGATION MEASURES

There are several general mitigation measures that apply to all access corridors analyzed. These measures include:

- Prepare detailed engineering design study to determine precise roadway alignment requirements and construction costs.
- Replanting of cut/fill slopes for erosion central and aesthetics.
- Replanting of the same number of oak trees that are removed.
- If cultural resources are encountered during the course of grading, applicable procedures established by the Advisory Council on Historic Preservation (36 CFR 800) should be followed. In such an event, a qualified archaeologist with expertise in the area should be contacted immediately to assess the possible significance of the resources encountered.
- Minimize sharp curves and grades to the extent feasible.
- Use of extensive vegetation for screening of walled and unwalled portions of the access corridor.
- Implementation of a guard gate facility at the site entrance to reduce vehicular speeds and eliminate unauthorized site access.
- Construction of the Alternative Planning Commission roadway alignment to reduce runaway vehicle hazards on the college.
- Restrict wastewater truck traffic to daytime hours only (Note: This is the current condition).

- o Use of alternative waste water disposal methods (e.g. injection well).

- o Within the oak woodland and riparian areas, the following general measures are suggested to minimize impacts to this significant biologic community:

  - Prior to approval of a grading plan, the actual number of native oak and sycamore trees to be removed upon project implementation should be determined. The County Staff Conservationist or a qualified biologist should review the grading plan to ascertain the actual magnitude of the impacts on the native trees.

  - The existing grades within the dripline, and three feet on either side of the oak trees, should not be altered.

  - The operation of heavy construction equipment should avoid the area within the driplines of oaks.

  - Retaining walls should be used to protect the existing grades within the driplines of oaks from surrounding cut and fill. However, these should not alter drainage from around trees.

  - No type of surface, either pervious or impervious, should be placed within a six foot radius of oak tree trunks. These areas should remain uncovered, natural, and dry, particularly during the summer.

  - Pervious types of paving should be utilized in oak environments, such as gravel, redwood chips, porous brick with sand joints, etc.

  - Surface runoff should be directed away from the trunk areas.

  - Water should not be allowed to pond or collect within the dripline of oak trees.

Other mitigation measures pertain to specific access corridors evaluated. These are listed below for each alternatives.

1. <u>Shared College/Ranch Access Road</u>

- o Construction of a 10 foot block wall along the access corridor adjacent to school structures.

- o Berming and extensive landscaping to mitigate potential visual impacts.

- o Traffic control measures such as guard gate at entrance.

2. Planning Commission Road

- o Stabilization of landslides and other unstable, slope areas along the corridor.
- o Noise attenuation measures (e.g., wall, berm etc.) should be implemented prior to construction of faculty housing units.
- o Construction of drainage culverts as necessary along the entire access route.
- o Redesign sharp curves where feasible.
- o Use of permanent surface roads along steep road segments

3. Drill Site No. 3 to Planning Commission Road

a. Ridge Alternative

- o Use of a permanent or upgraded road surface along the 15-20 percent segments of this roadway.
- o Maximize the turning radii of sharp turns along this route.
- o Implementation of slope stability structures as based on geologic recommendations.

b. Canyon Alternative

- o Minimize removal of oak trees and riparian vegetation.
- o Construct drainage culverts, and slope stability facilities as necessary.

4. Side Hill Road

- o Construction of a 10 foot wall along the entire length of this corridor that is exposed to the college.
- o Use of natural materials (e.g., wood) and heavy vegetative screening along the west side of the wall to minimize visual impacts.
- o Construction of upslope retaining structures and other slope stabilization facilities that may be necessary.

5. Entrance Alternatives

- o Implementation of a 6-10 foot wall or the combination of a berm and wall 10 feet in height along the entrance corridor.
- o Use of natural materials (e.g., wood) and heavy vegetative screening to reduce potential visual impacts.

- Implementation of slope stabilization devices should be considered to mitigate potential cliff erosion impacts. These devices should be determined based on a detailed geotechnical engineering investigation of the slope.

- Minimize removal of natural vegetation.

E. CONCLUSIONS

Based on the simplified analysis described above, the environmentally superior access route to serve Argo Petroleum Corporation's oil recovery operations or the Ferndale Ranch is the Drill Site No. 3 to Planning Commission Road ridge alternative, along with an alternative alignment for the Planning Commission road/Drill Site No. 2, using an separated entrance corridor that would share only that portion of the existing College/Ranch Road in the immediate vicinity of State Highway 150.

VIII. PERSONS AND ORGANIZATIONS CONTACTED

This Environmental Impact Report was prepared by McClelland Engineers, Inc., under contract to the County of Ventura. Persons directly involved in data gathering and report preparation include:

Mel Willis, Project Supervisor
Michael Gialketsis, Project Manager
Thomas Blake, P.E, Engineering Geologist/Geotechnical Engineer
Thomas Blanford, Cartographer
Jacqueline Bowland, Biologist/Environmental Planner
Shirley Landers, Cartographic Assistant
Virginia Lordan, Word Processing Operator
Heather Macfarlane, Archaeologist
Duane Vander Pluym, D. Env. (Candidate), Environmental Scientist

Civil engineering services concerning road feasibility/costs were provided by Mr. Thomas Wolfington, P.E., and Mr. David Widmer, P.E., of Widmer and Associates.

Individuals and organizations contacted during report preparation include:

John Blewett	Thomas Aquinas College
Robert Habel	California Division of Oil and Gas
Dennis Hawkins	Ventura County Resource Management Agency
Merle Kirk	Ventura Archaeological Society
William Lockhard	Ventura County Public Works Department
Robert Randal	Ferndale Ranch, Manager
Pat Sales	Ventura Historical Society
Donald Sperling	Argo Petroleum Corporation
David Whitley	State Archaeological Clearinghouse UCLA
Larry Wilcoxon	State Archaeological Clearinghouse, UCSB

VIII. REFERENCES

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X. APPENDICES

A. Mitigated Negative Declaration

B. Traffic Study

C. Noise Study

D. Cultural Resources Summary

E. Comments Received and Response to Comments

APPENDIX A

INITIAL STUDY AND

MITIGATED NEGATIVE DECLARATION

APPENDIX A.

INITIAL STUDY CHECKLIST

I. BACKGROUND

1. Name of Applicant ARGO Petroleum Corporation

2. Project Description Modification of Conditional Use Permit No. CUP-3344 to allow oil drilling from additional drill sites

3. Project Location Ferndale Ranch

II. ENVIRONMENTAL IMPACTS

Planning Division Input	Yes	Maybe	No
1. Land Use. Will the proposal result in a substantial alteration of the present or planned land use of an area?	X		
2. Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?			X
3. Housing. Will the proposal affect existing housing, or create a demand for additional housing?			X
4. Aesthetics. Will the proposal result in the obstruction of a scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?		X	
5. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
6. Natural Resources. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?		X	
b. Substantial depletion of any non-renewable natural resources (e.g., loss of prime agricultural land)?		X	
7. Public Services. Will the proposal and/or the cumulative demands of other pending projects have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Sanitation			X
b. Water (not under County Jurisdiction)?	X		
c. Fire Protection?		X	
d. Police Protection?			X
e. Schools?			X
f. Parks or other recreational facilities?		X	
g. Other governmental services ?			X

		Yes	Maybe	No
APCD Input				
8.	**Air.** Will the proposal result in:			
a.	Substantial air emissions or deterioration of ambient air quality?		X	
b.	The creation of objectionable odors?		X	
c.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X
d.	Is there a potential for cumulative adverse impacts on air quality in the project area?	X		
Public Works Agency Input				
9.	**Earth.** Will the proposal result in:			
a.	Unstable earth conditions or in changes in geologic substructures?		X	
b.	Disruptions, displacements, compaction or overcovering of the soil?	X		
c.	Change in topography or ground surface relief features?	X		
d.	The destruction, covering or modification of any unique geologic or physical features?			X
e.	Any increase in wind or water erosion of soils, either on or off the site?		X	
f.	Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?		X	
g.	Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, liquefaction, tsunami or similar hazards?		X	
10.	**Transportation/Circulation.** Will the proposal result in:			
a.	Generation of substantial additional vehicular movement?		X	
b.	Effects on existing parking facilities, or demand for new parking?			X
c.	Substantial impact upon existing transportation systems?		X	
d.	Alterations to present patterns of circulation or movement of people and/or goods?			X
e.	Alterations to waterborne, rail or air traffic?			X
f.	Increase in traffic problems to motor vehicles, bicyclists or pedestrians?		X	

		Yes	Maybe	No
	g. Would the project area system of roads be unable to accommodate the traffic to be generated by the project and all other pending projects in the area?		X	
11.	Utilities. Will the proposal and/or the cumulative demands of other pending projects impact or result in a need for new public service systems, or substantial alterations to the following utilities?			
	a. Electricity or natural gas?			X
	b. Communication systems?			X
	c. Street lighting annexation and improvements?			X
12.	Energy. Will the proposal result in:			
	a. Use of substantial amounts of fuel or energy?		X	
	b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?			X

Flood Control and Water Resources Department Input

		Yes	Maybe	No
13.	Hydrology. Will the proposed result in:			
	a. Effects upon a Flood Control District's jurisdiction channel?		X	
	b. Effects upon a secondary drain?		X	
	c. Changes in drainage patterns or the rate and amount of surface water runoff?		X	
	d. Alterations to the course or flow of flood waters?		X	
	e. Exposure of people to water related hazards such as flooding or tsunami?			X
	f. Degradation of groundwater quality?		X	
	g. Degradation of surface water quality?		X	
	h. Reduction in groundwater quantity?			X
	i. Increase in groundwater quantity?			X
	j. High groundwater table?			X
	k. Sewage disposal limitations?			X
14.	Plant Life. Will the proposal result in:			
	a. Affect any unique, rare or endangered plant species?			X
	b. Change the diversity of plant species?			X

	Yes	Maybe	No
c. Threaten to eliminate or otherwise reduce either native, ornamental or agricultural plant populations?			X
d. Introduce new plant species into an area which will represent a fire hazard to project residents?			X
15. Animal Life. Will the proposal result in:			
a. Restrict the range of or otherwise affect any rare or endangered animal species?		X	
b. Restrict the range of or otherwise affect any unique animal species?			X
c. Change the diversity of animal species?			X
d. Reduce wildlife populations?			X
e. Introduce new wildlife species in an area?			X
f. Affect existing wildlife food webs, habitat or migration patterns?		X	
g. Deteriorate or cause an existing fish or wildlife population to drop below self-sustaining levels?			X
16. Archaeological/Historical. Will the proposal:			
a. Affect possible unknown archaeological or historical sites?		X	
b. Result in destruction or alteration of a known archaeological or historical site within the vicinity of the project?		X	
c. Result in destruction or alteration of a known archaeological or historical site near the vicinity of the project?		X	
17. Water Supply (Purveyors Under County Jurisdiction): Will the proposal result in:			
a. A project and/or cumulative demand for additional off-site water facilities?			
b. A significant project and/or cumulative demand on existing water supply?			
Environmental Health Input			
18. Sanitation. If the proposal will utilize septic tank systems, can the sewage generated by the project create a significant adverse health impact on the area?			
19. Water. Will the proposal and/or all other pending projects in the area result in substantial reduction in the amount of water otherwise available from public water supplies?		X	

	Yes	Maybe	No
20. <u>Solid Waste</u>. Will the proposal result in:			
a. Production of significant amounts of solid waste?			X
b. Would this waste create a significant impact on the existing solid waste disposal system?			X
21. <u>Noise</u>. Will the proposal result in:			
a. Significant increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?		X	
22. <u>Light and Glare</u>. Will the proposal produce significant amounts of new light or glare?		X	
23. <u>Risk of Upset</u>: Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?		X	
24. <u>Human Health</u>. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X

III. MANDATORY FINDINGS OF SIGNIFICANCE

	Yes	Maybe	No
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X	
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future?)			X
3. Does the project have impacts which are individually limited, but cumulatively considerable? (Several projects may have relatively small individual impacts on two or more resources, but where the effect of the total of those impacts on the environment is significant?)		X	
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X	

IV. RECOMMENDATION:

On the basis of this initial evaluation:

/__/ In conformance with Section 15060 of the State EIR Guidelines, I find with certainty that the proposal would not have a significant impact on the environment.

/__/ I find the proposed project is categorically exempt pursuant to Class ________.

/__/ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION should be prepared.

/__/ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet could be applied to the project. A CONDITIONAL NEGATIVE DECLARATION SHOULD BE PREPARED.

/X/ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

/__/ I find the proposed project MAY have a significant effect on the environment, and an ADDENDUM to an existing certified Environmental Impact Report is required.

/__/ I find the proposed project MAY have a significant effect on the environment, and this effect is adequately addressed in a certified Environmental Impact Report, and thus SUBSEQUENT USE of the existing EIR is required.

Date: September 7, 1976

Jon Holen
(Signature of Environmental Planner)

MITIGATED NEGATIVE DECLARATION

VENTURA COUNTY RESOURCE MANAGEMENT AGENCY
800 South Victoria Avenue
Ventura, California 93009

I. PROJECT DESCRIPTION:

1. Entitlement: CUP-3344 Mod #8 and Mod #9 (combined)

2. Applicant: Argo Petroleum Coporation

3. Proposal: The applicant currently has a Conditional Use Permit to drill and produce from 36 oil wells located on six different drill sites. The applicant proposes to transfer the location of 17 of these wells which have not yet been drilled. Two wells would be transferred to Drill Site No. 1 for a total of 10 wells at that site, five wells would be transferred to Drill Site No. 2 for a total of 10 wells at that site, and ten wells would be transferred to a new Drill Site No. 7. The proposal would decrease the number of wells that could be drilled at Drill Site Nos. 3, 4, 5 and 6 so that the total number of wells for the entire permit area would remain at 36. (Refer to Attachment "A").

   The applicant further proposes to legalize expansion of Drill Site Nos. 1 and 2 and legalize a different access road to Drill Site No. 2. (Refer to Attachments "C" and "D").

4. Location and Parcel Number(s): (See attached map)

   The subject property is located within the Ferndale Ranch approximately three miles north of the City of Santa Paula (Assessor's Parcel Nos. 40-60-05, -15 and 40-010-26).

5. Responsible Agencies: California Division of Oil and Gas

II. STATEMENT OF ENVIRONMENTAL FINDINGS:

An initial study was conducted by the Planning Division to evaluate the potential effect of this project upon the environment. Based upon the findings contained in the attached initial study it has been determined that this project could have a significant effect upon the environment. However, these potentially significant impacts can be satisfactorily mitigated through adoption of the following identified measures as conditions of approval.

III. MITIGATION MEASURES INCLUDED TO AVOID POTENTIALLY SIGNIFICANT EFFECTS:

Please refer to Initial Study and Discussions for further details on potentially significant effects and mitigation measures.

A. Mitigation Measures Imposed by the Environmental Report Review Committee:

   1. Require landscaping or screening of drill sites and production facilities.

   2. Require painting of all permanent facilities to mask the facilities from the surrounding environment.

   3. Require that the permit area be maintained in a neat and orderly manner so as not to create any hazardous or unsightly conditions.

   4. Require fencing around Drill Site Nos. 1 and 7 and the oil and gas production facility site.

   5. Require that the applicant cooperate with surface owners, including Thomas Aquinas College, and the United States Forest Service to establish a new hiking trail.

6. Require all oil be transported off-site by pipeline.

7. Require all oil field waste water be transported by pipeline to a truck loading facility to minimize water tanker truck traffic on the main College/Ranch Road.

8. Require the permittee to provide gate control to minimize unnecessary oil related traffic during drilling or maintenance operations.

9. Require detailed grading information for Drill Site No. 7 including hydrological and hydraulic calculations.

10. Require a Grading Permit for Drill Site No. 7.

11. Prohibit the permittee from obstructing natural drainage courses.

12. Require submittal design plans for the oil flow line between Drill Site No. 7 and the oil and gas production facility site.

13. Require compliance with County oil development standards as provided in Section 8147-1.7.13 to 8147-1.7.18 of the County Ordinance Code relating to establishment of a noise standard for oil operations and requirements for preventive noise insulation, hours of well maintenance, limited drilling hours, and compliance with the noise standard.

14. Require that traffic noise monitoring be established on a periodic basis to determine if acceptable noise standards as determined by the Planning Division are being violated. In the event that violations of the traffic noise standard occur the applicant will be required to take action to attenuate the noise impact.

B. Additional Mitigation Measures added by the Board of Supervisors:

15. The temporary waste water truck loading facility, as required by Mitigation 7, will be located between the main College/Ranch Road and the old Ferndale Ranch Road as shown on Attachment "A".

16. The applicant will be required to fence Drill Site No. 3 when a producing well has been obtained.

17. The applicant will be required to modify landscaping plans for Drill Site No. 1 so that the proposed pipe storage area will be fenced and landscaped. Thomas Aquinas College will be given an opportunity to review Argo's landscape plans prior to approval by the County.

18. The applicant would be required to pave the first 200 feet of the access road to Drill Site No. 3 from the intersection with the main College/Ranch Road, and all access roads will be treated to prevent the emanation of dust.

19. The proposed access road between Drill Site No. 1 and 2 will be evaluated by the County Public Works Agency to assure the road meets County requirements and to assure that adequate measures are taken to ensure that the access road will not impact the College reservoir.

20. The applicant will be required to limit oil traffic to the access roads as shown on Attachment "A".

IV. <u>PUBLIC REVIEW</u>:

1. <u>Legal Notice Method</u>: Direct mailing to property owners within 300 feet.

2. <u>Document Posting Period</u>: July 14, 1982 to August 13, 1982

3. <u>Environmental Report Review Committee Hearing</u>: August 11, 1982 and March 16 and March 23, 1983

4. <u>Board of Supervisors Hearings</u>: April 26, May 10 and May 24, 1983.

5. <u>Written Comments</u>: Written comments concerning this environmental document and other exhibits considered by the Environmental Report Review Committee and the Board of Supervisors are on file with the Planning Division.

Prepared by: Dennis Hawkins

Approved by:

_______________________________ Date _____________________

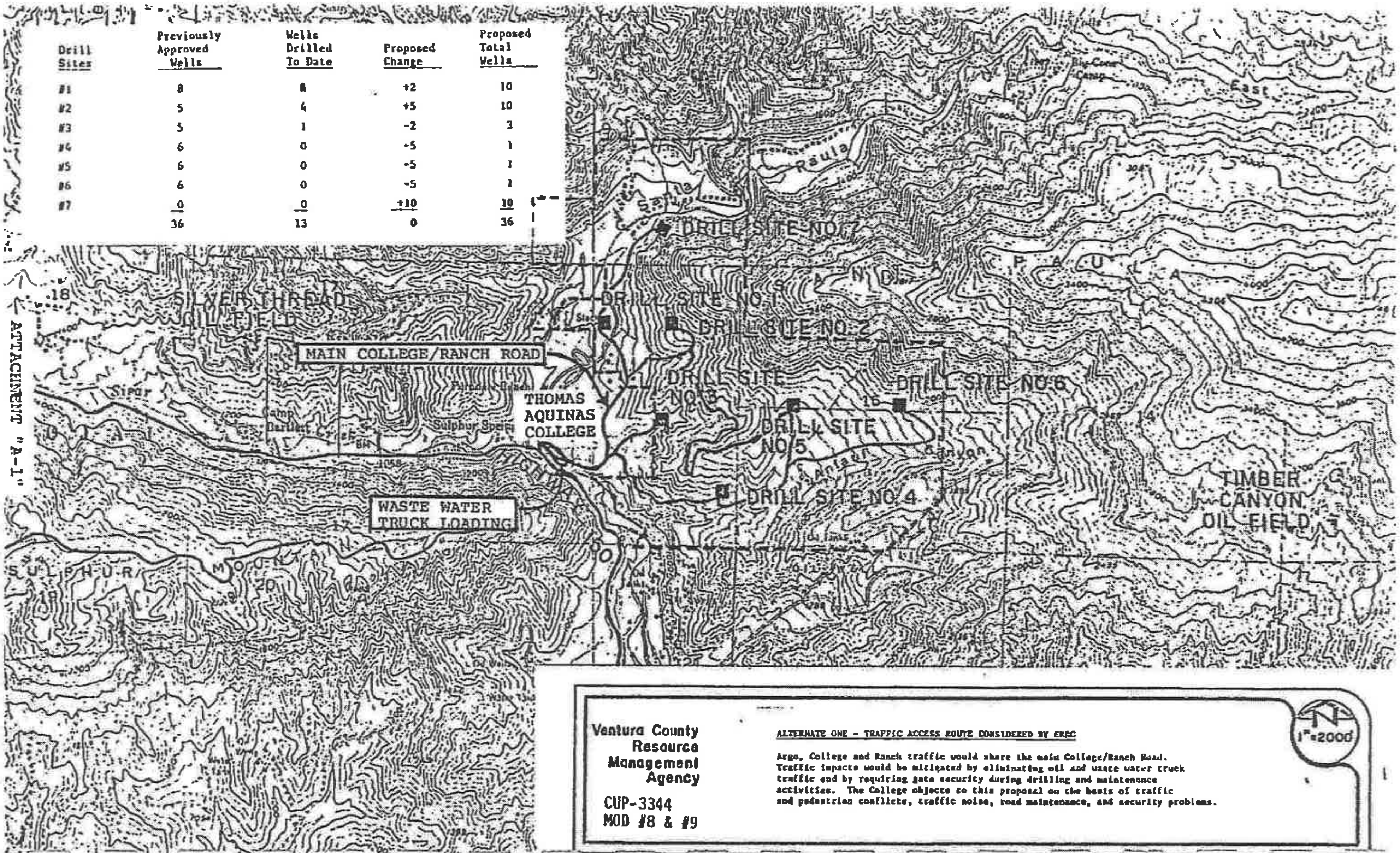
Robert K. Laughlin, Supervisor
Commercial/Industrial Land Use Section

RKLd1EIR15

Attachments:

Attachment "A" (A-1, A-2, A-3, A-4) Map of CUP-3344 Permit Boundaries and Drill Sites and Access Roads
Attachment "B" Map of Thomas Aquinas College and Drill Site Nos. 1, 2, 3, and 7
Attachment "C" Plot Plan for Modification of Drill Site No. 1
Attachment "D" Plot Plan for Modification of Drill Site No. 2
Attachment "E" Initial Study Checklist
Attachment "F" Discussion of Environmental Impacts and Mitigations

Drill Sites	Previously Approved Wells	Wells Drilled To Date	Proposed Change	Proposed Total Wells
#1	8	8	+2	10
#2	5	4	+5	10
#3	5	1	-2	3
#4	6	0	-5	1
#5	6	0	-5	1
#6	6	0	-5	1
#7	0	0	+10	10
	36	13	0	36



ATTACHMENT "A-1"

Ventura County Resource Management Agency

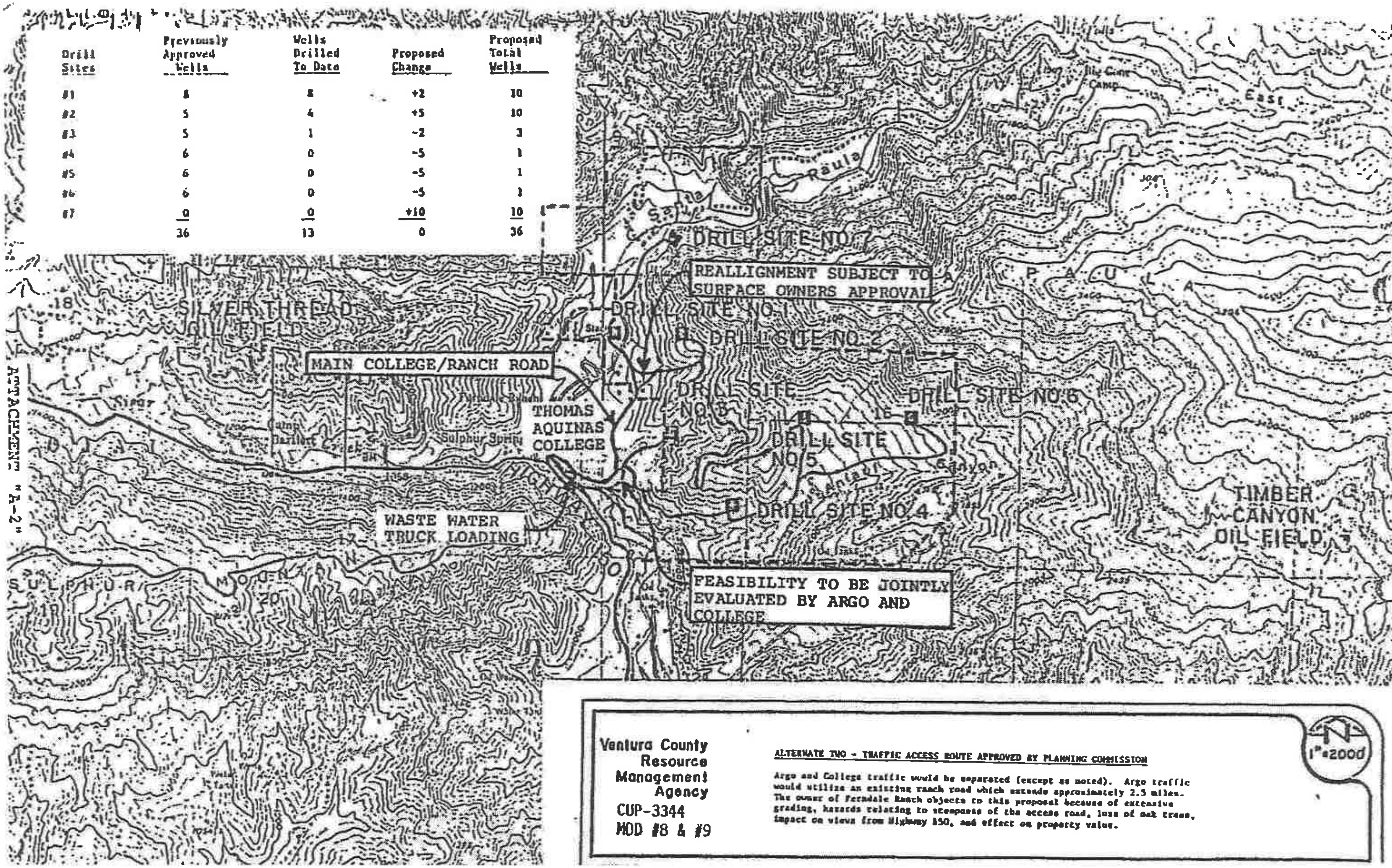
CUP-3344
MOD #8 & #9

ALTERNATE ONE - TRAFFIC ACCESS ROUTE CONSIDERED BY ERRC

Argo, College and Ranch traffic would share the main College/Ranch Road. Traffic impacts would be mitigated by eliminating oil and waste water truck traffic and by requiring gate security during drilling and maintenance activities. The College objects to this proposal on the basis of traffic and pedestrian conflicts, traffic noise, road maintenance, and security problems.

ATTACHMENT "A-2"

Drill Sites	Previously Approved Wells	Wells Drilled To Date	Proposed Change	Proposed Total Wells
#1	8	8	+2	10
#2	5	4	+5	10
#3	5	1	-2	3
#4	6	0	-5	1
#5	6	0	-5	1
#6	6	0	-5	1
#7	0	0	+10	10
	36	13	0	36



Ventura County Resource Management Agency

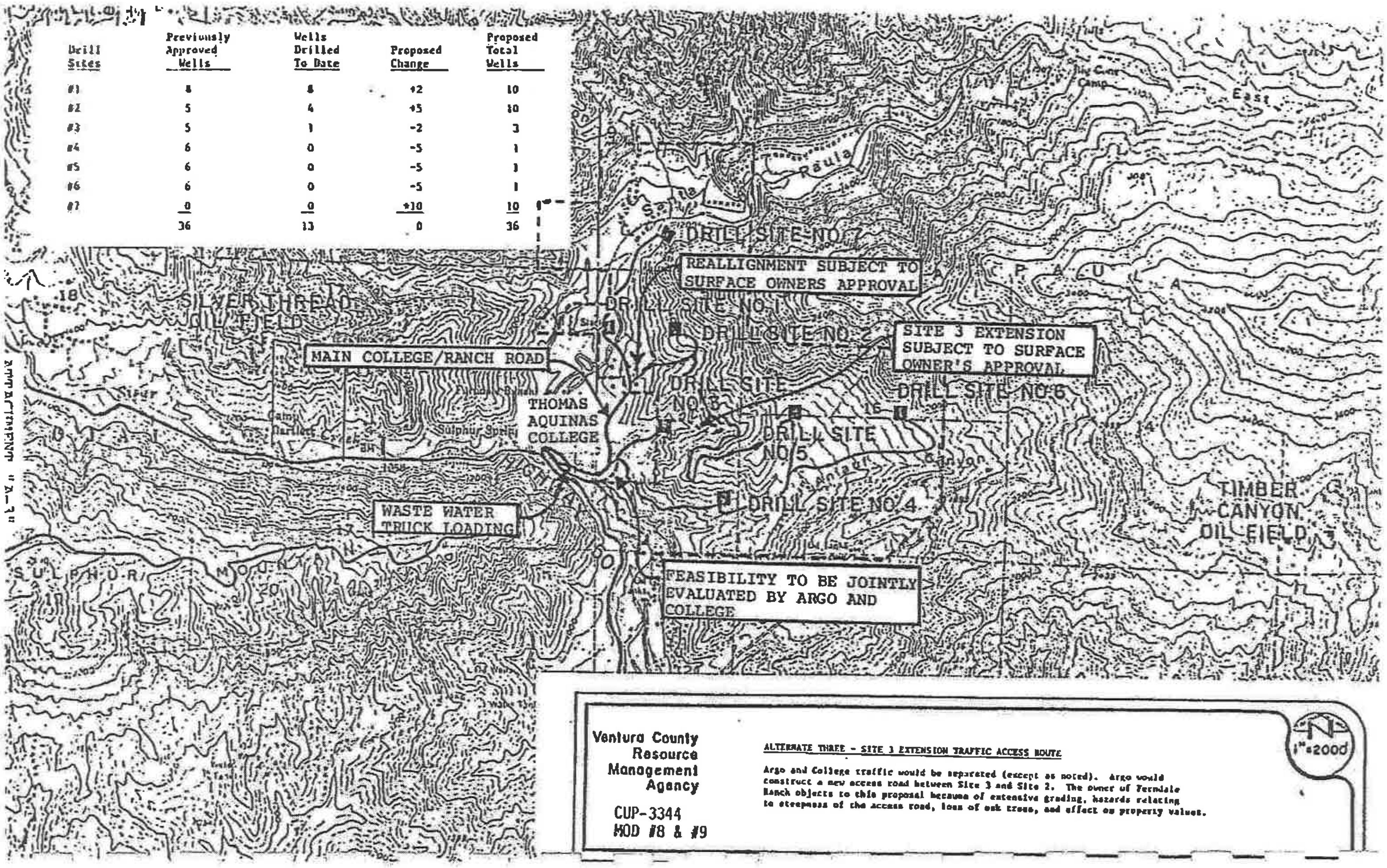
CUP-3344

MOD #8 & #9

ALTERNATE TWO - TRAFFIC ACCESS ROUTE APPROVED BY PLANNING COMMISSION

Argo and College traffic would be separated (except as noted). Argo traffic would utilize an existing ranch road which extends approximately 2.5 miles. The owner of Ferndale Ranch objects to this proposal because of extensive grading, hazards relating to steepness of the access road, loss of oak trees, impact on views from Highway 150, and effect on property value.

ATTACHMENT "A-3"



Drill Sites	Previously Approved Wells	Wells Drilled To Date	Proposed Change	Proposed Total Wells
#1	8	8	+2	10
#2	5	4	+5	10
#3	5	1	-2	3
#4	6	0	-5	1
#5	6	0	-5	1
#6	6	0	-5	1
#7	0	0	+10	10
	36	13	0	36

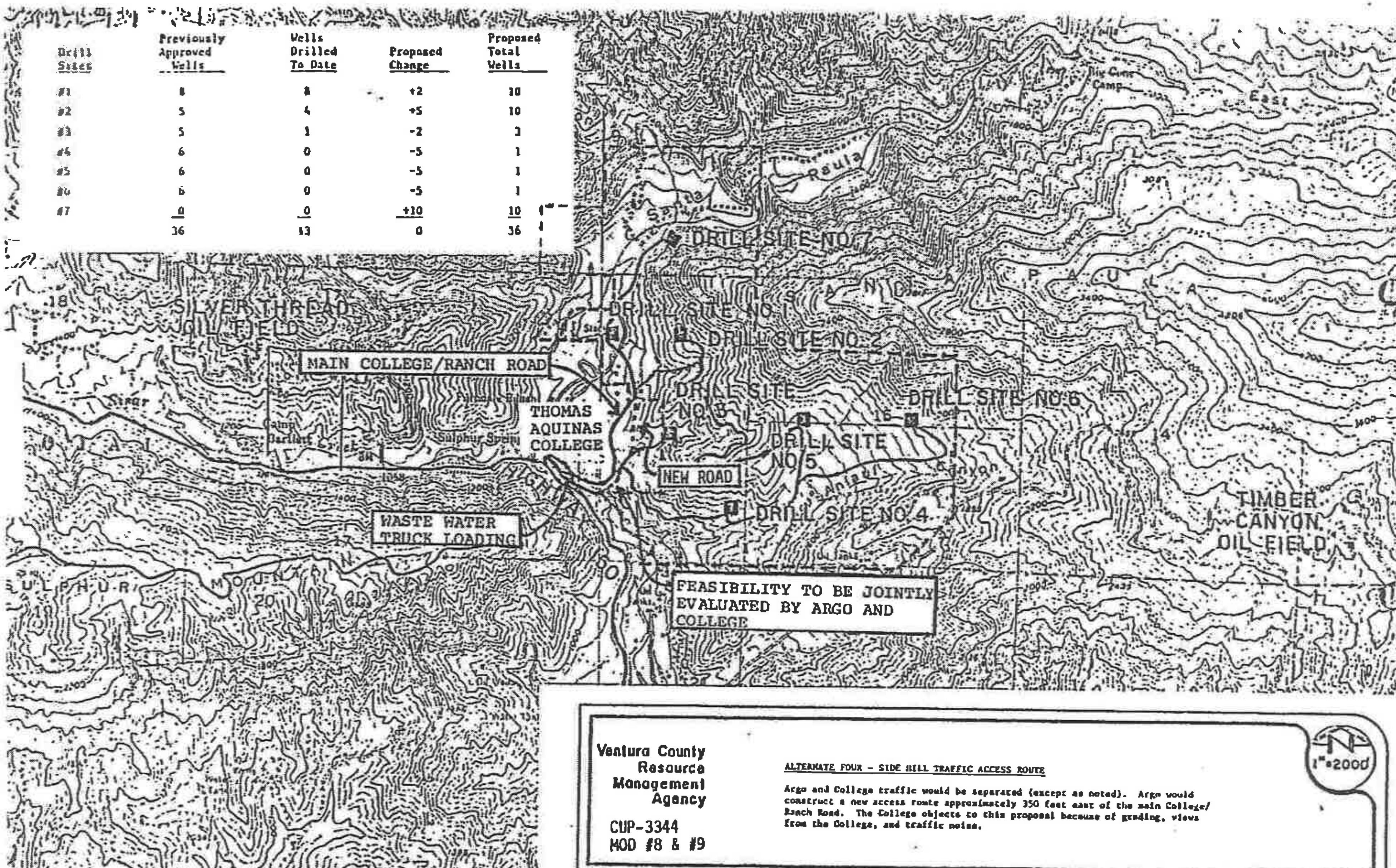
Ventura County
Resource
Management
Agency

CUP-3344
MOD #8 & #9

ALTERNATE THREE - SITE 3 EXTENSION TRAFFIC ACCESS ROUTE

Argo and College traffic would be separated (except as noted). Argo would construct a new access road between Site 3 and Site 2. The owner of Ferndale Ranch objects to this proposal because of extensive grading, hazards relating to steepness of the access road, loss of oak trees, and effect on property values.

Drill Sites	Previously Approved Wells	Wells Drilled To Date	Proposed Change	Proposed Total Wells
#1	8	8	+2	10
#2	5	4	+5	10
#3	5	1	-2	3
#4	6	0	-5	1
#5	6	0	-5	1
#6	6	0	-5	1
#7	0	0	+10	10
	36	13	0	36

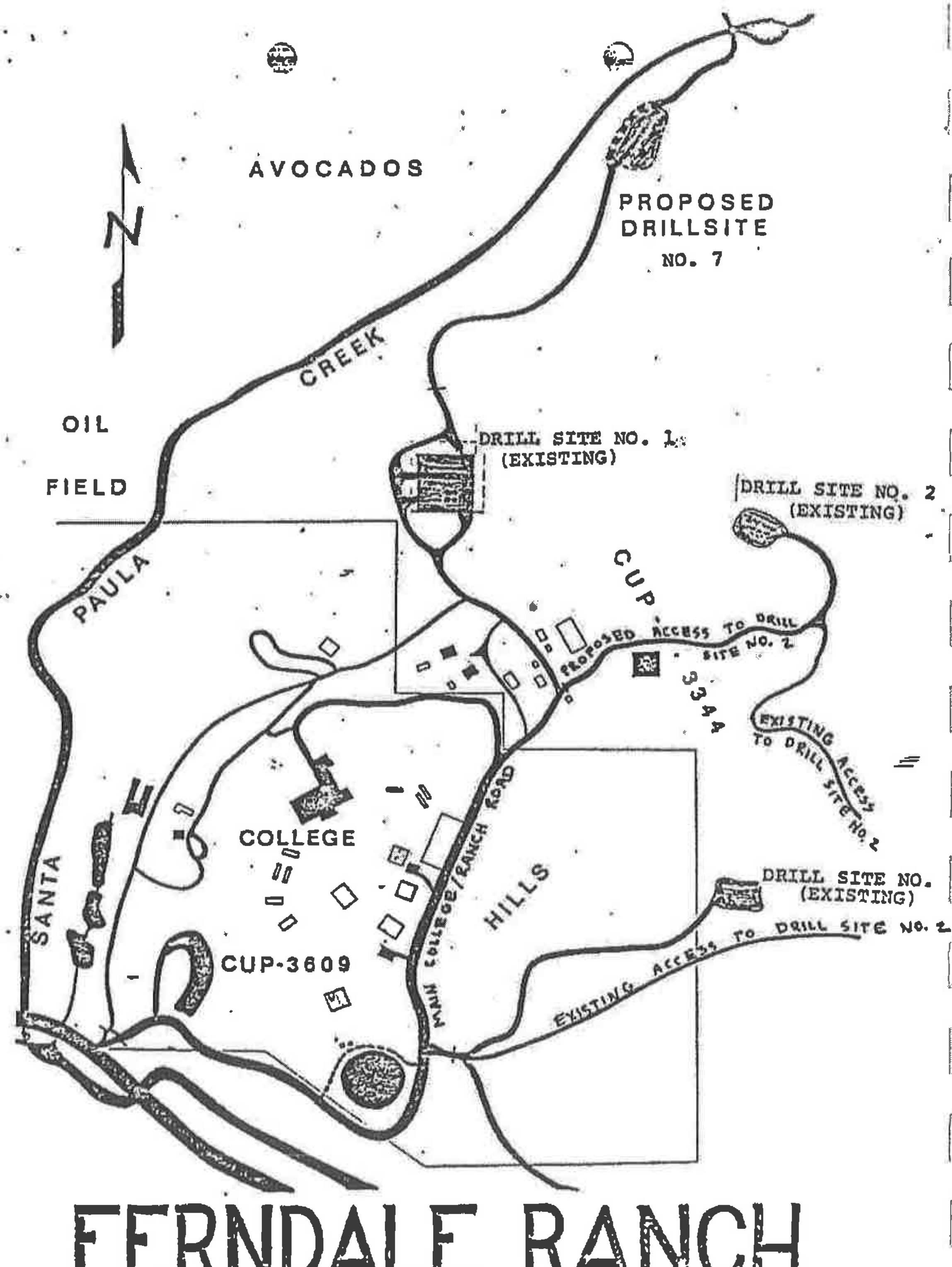


Ventura County Resource Management Agency

CUP-3344
MOD #8 & #9

ALTERNATE FOUR - SIDE HILL TRAFFIC ACCESS ROUTE

Argo and College traffic would be separated (except as noted). Argo would construct a new access route approximately 350 feet east of the main College/Ranch Road. The College objects to this proposal because of grading, views from the College, and traffic noise.

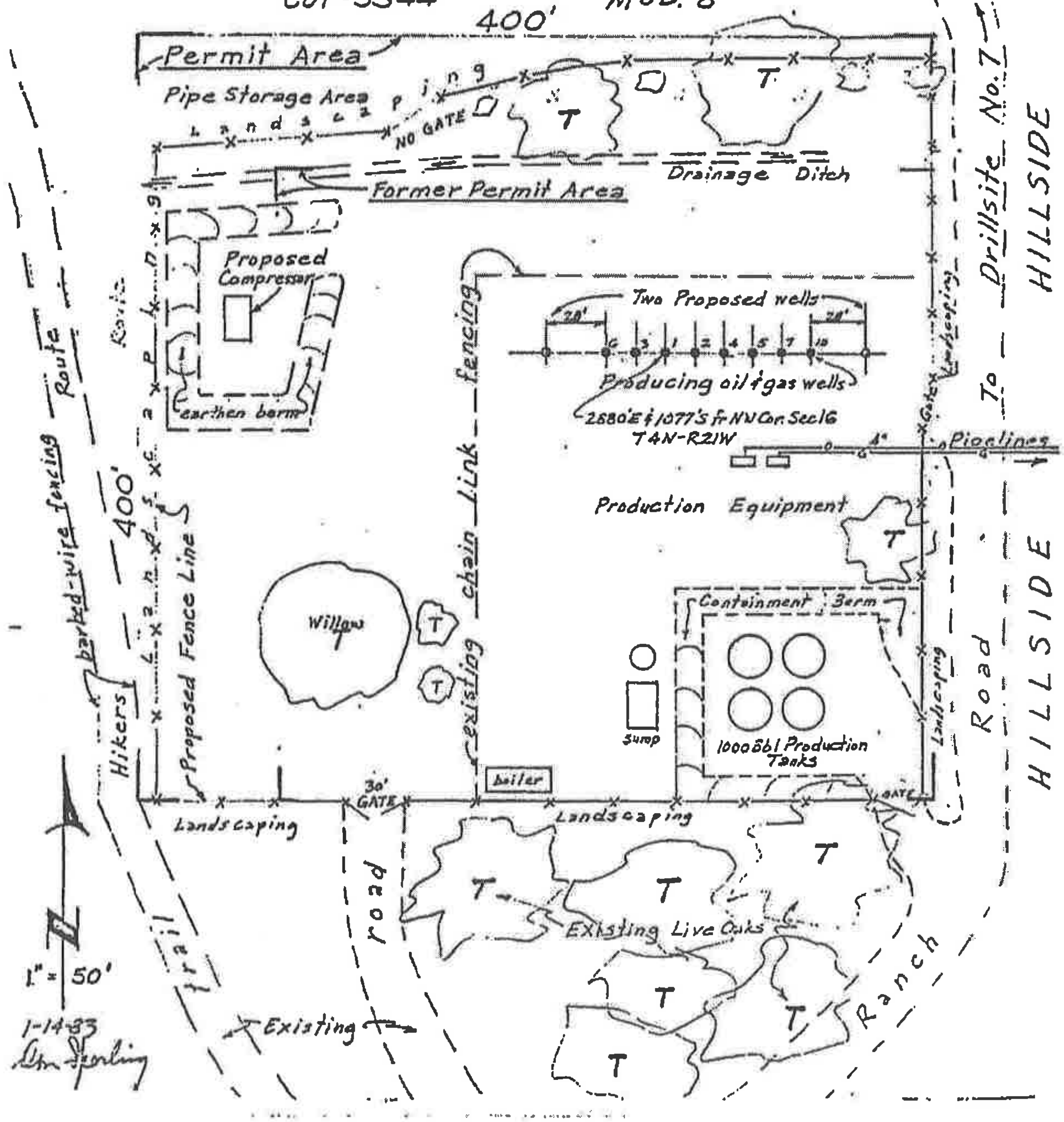


FERNDALE RANCH

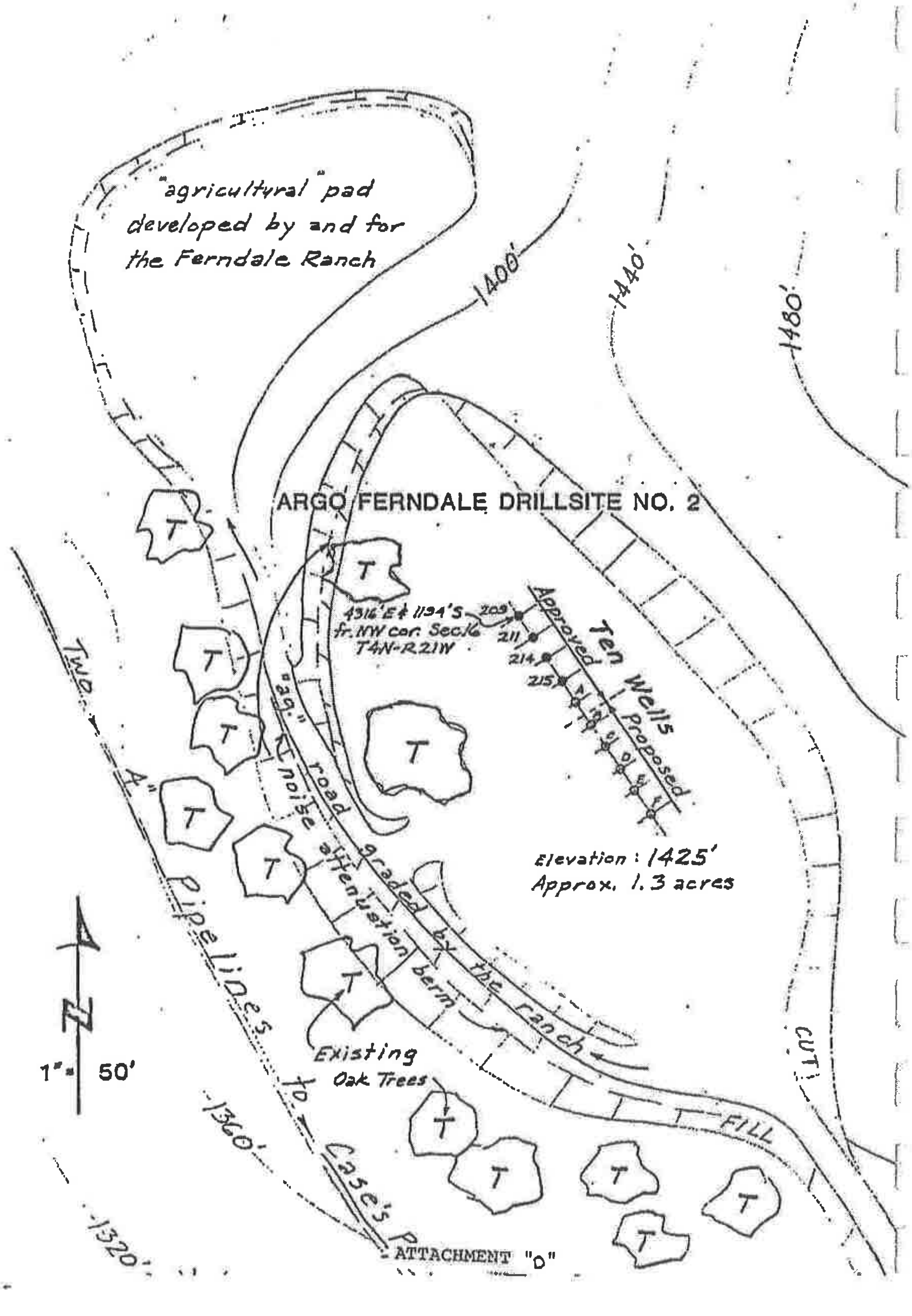
ATTACHMENT "B"

ARGO – FERNDALE DRILLSITE NO. 1

CUP-3344 MOD. 8



ATTACHMENT "C"



ATTACHMENT "D"

INITIAL STUDY CHECKLIST

I. BACKGROUND

1. Name of Applicant Argo Petroleum Corporation

2. Project Description To relocate 17 previously approved oil and gas wells

3. Project Location Ferndale Ranch

4. Date Checklist Completed February 10, 1983

II. ENVIRONMENTAL IMPACTS

Planning Division Input

	Yes	Maybe	No*
1. Land Use. Will the proposal result in a substantial alteration of the present or planned land use of an area?			X
2. Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?			X
3. Housing. Will the proposal affect existing housing, or create a demand for additional housing?			X
4. Aesthetics. Will the proposal result in the obstruction of an scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?		X	
5. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
6. Natural Resources. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?			X
b. Substantial depletion of any non-renewable natural resources (e.g., loss of prime agricultural land)?			X
7. Public Services. Will the proposal and/or the cumulative demands of other pending projects have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Sanitation			X
b. Water (not under County Jurisdiction)?			X
c. Fire Protection?		X	
d. Police Protection?			X
e. Schools?	X		
f. Parks or other recreational facilities?			X
g. Other governmental services ?			X

* The County reviewing agency has determined this issue not to be significant.

		Yes	Maybe	No*
APCD Input				
8.	Air. Will the proposal result in:			
a.	Substantial air emissions or deterioration of ambient air quality?		X	
b.	The creation of objectionable odors?			X
c.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X
d.	Is there a potential for cumulative adverse impacts on air quality in the project area?		X	
Public Works Agency Input				
9.	Earth. Will the proposal result in:			
a.	Unstable earth conditions or in changes in geologic substructures?			X
b.	Disruptions, displacements, compaction or overcovering of the soil?	X		
c.	Change in topography or ground surface relief features?	X		
d.	The destruction, covering or modification of any unique geologic or physical features?			X
e.	Any increase in wind or water erosion of soils, either on or off the site?			X
f.	Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	X		
g.	Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, liquefaction, tsunami or similar hazards?		X	
10.	Transportation/Circulation. Will the proposal result in:			
a.	Generation of substantial additional vehicular movement?		X	
b.	Effects on existing parking facilities, or demand for new parking?			X
c.	Substantial impact upon existing transportation systems?			X
d.	Alterations to present patterns of circulation or movement of people and/or goods?			X
e.	Alterations to waterborne, rail or air traffic?			X
f.	Increase in traffic problems to motor vehicles, bicyclists or pedestrians?		X	

* The County reviewing agency has determined this issue not to be significant.

		Yes	Maybe	No*
g.	Would the project area system of roads be unable to accommodate the traffic to be generated by the project and all other pending projects in the area?			X
11.	Utilities. Will the proposal and/or the cumulative demands of other pending projects impact or result in a need for new public service systems, or substantial alterations to the following utilities?			
a.	Electricity or natural gas?			X
b.	Communication systems?			X
c.	Street lighting annexation and improvements?			X
12.	Energy. Will the proposal result in:			
a.	Use of substantial amounts of fuel or energy?			X
b.	Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?			X

Flood Control and Water Resources Department Input

		Yes	Maybe	No*
13.	Hydrology. Will the proposed result in:			
a.	Effects upon a Flood Control District's jurisdiction channel?			X
b.	Effects upon a secondary drain?	X		
c.	Changes in drainage patterns or the rate and amount of surface water runoff?			X
d.	Alterations to the course or flow of flood waters?		X	
e.	Exposure of people to water related hazards such as flooding or tsunami?			X
f.	Degradation of groundwater quality?			X
g.	Degradation of surface water quality?		X	
h.	Reduction in groundwater quantity?			X
i.	Increase in groundwater quantity?			X
j.	High groundwater table?			X
k.	Sewage disposal limitations?			X
14.	Plant Life. Will the proposal result in:			
a.	Affect any unique, rare or endangered plant species?			X
b.	Change the diversity of plant species?			X

* The County reviewing agency has determined this issue not to be significant.

		Yes	Maybe	No*
c.	Threaten to eliminate or otherwise reduce either native, ornamental or agricultural plant populations?	___	___	X
d.	Introduce new plant species into an area which will represent a fire hazard to project residents?	___	___	X
15.	Animal Life. Will the proposal result in:			
a.	Restrict the range of or otherwise affect any rare or endangered animal species?	___	___	X
b.	Restrict the range of or otherwise affect any unique animal species?	___	___	X
c.	Change the diversity of animal species?	___	___	X
d.	Reduce wildlife populations?	___	___	X
e.	Introduce new wildlife species in an area?	___	___	X
f.	Affect existing wildlife food webs, habitat or migration patterns?	___	___	X
g.	Deteriorate or cause an existing fish or wildlife population to drop below self-sustaining levels?	___	___	X
16.	Archaeological/Historical. Will the proposal:			
a.	Affect possible unknown archaeological or historical sites?	___	___	X
b.	Result in destruction or alteration of a known archaeological or historical site within the vicinity of the project?	___	___	X
c.	Result in destruction or alteration of a known archaeological or historical site near the vicinity of the project?	___	___	X
17.	Water Supply (Purveyors Under County Jurisdiction): Will the proposal result in:			
a.	A project and/or cumulative demand for additional off-site water facilities?	___	___	X
b.	A significant project and/or cumulative demand on existing water supply?	___	___	X
	Environmental Health Input			
18.	Sanitation. If the proposal will utilize septic tank systems, can the sewage generated by the project create a significant adverse health impact on the area?	___	___	X
19.	Water. Will the proposal and/or all other pending projects in the area result in substantial reduction in the amount of water otherwise available from public water supplies?	___	___	X

* The County reviewing agency has determined this issue not to be significant.

	Yes	Maybe	No*
20. Solid Waste. Will the proposal result in:			
a. Production of significant amounts of solid waste?			X
b. Would this waste create a significant impact on the existing solid waste disposal system?			X
21. Noise. Will the proposal result in:			
a. Significant increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?			X
22. Light and Glare. Will the proposal produce significant amounts of new light or glare?		X	
23. Risk of Upset: Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?		X	
24. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X

III. MANDATORY FINDINGS OF SIGNIFICANCE

	Yes	Maybe	No*
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future?)			X
3. Does the project have impacts which are individually limited, but cumulatively considerable? (Several projects may have relatively small individual impacts on two or more resources, but where the effect of the total of those impacts on the environment is significant?)			X
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X	

* The County reviewing agency has determined this issue not to be significant.

Initial Study Checklist
Page Six

IV. RECOMMENDATION

On the basis of this initial evaluation:

[ ] In conformance with Section 15060 of the State EIR Guidelines, I find with certainty that the proposal would not have a significant impact on the environment.

[ ] I find the proposed project is categorically exempt pursuant to Class ________.

[ ] I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION should be prepared.

[X] I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet could be applied to the project. A CONDITIONAL NEGATIVE DECLARATION SHOULD BE PREPARED.

[ ] I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

[ ] I find the proposed project MAY have a significant effect on the environment, and an ADDENDUM to an existing certified Environmental Impact Report is required.

[ ] I find the proposed project MAY have a significant effect on the environment, and this effect is adequately addressed in a certified Environmental Impact Report, and thus SUBSEQUENT USE of the existing EIR is required.

Date: February 10, 1983

(Signature of Environmental Planner)

Initial Study Contributors:

APCD
Public Works
Environmental Health
Fire Dept

JH:ss/401

CONDITIONS FOR: CUP-3344 MOD #8 and MOD #9 (Combined)

APPLICANT: Argo Petroleum Corporation

DATE: May 24, 1983

PAGE NO.: 1

DISCUSSION OF ENVIRONMENTAL IMPACTS AND MITIGATIONS:

Item 1. Land Use: The applicant currently has a permit for 36 oil and gas wells on six separate drill sites located within the Ferndale Ranch, approximately three miles north of the City of Santa Paula. The applicant proposes to transfer the location of 17 previously approved but undrilled oil and gas wells from four previously approved drill sites to two existing drill sites and a seventh (new) drill site (see Attachment "A"). The total number of permitted wells allowed by the project would remain at 36. However, the number of wells permitted on the individual drill sites would be redistributed in accordance with the following table:

Drill Sites	Previously Approved Wells	Wells Drilled To Date	Proposed Change	Proposed Total Wells
#1	8	8	+2	10
#2	5	4	+5	10
#3	5	1	-2	3
#4	6	0	-5	1
#5	6	0	-5	1
#6	6	0	-5	1
#7	0	0	+10	10
	36	13	0	36

The applicant also proposes to legalize modifications to Drill Site No. 1 and Drill Site No. 2 which were initiated on December 16, 1982, and August 10, 1982, respectively.

Drill Site No. 1 was modified to expand an existing 2.5 acre drill site by adding 1.17 acres for a total of 3.6 acres. The purpose of the expansion was to improve surface water drainage in the project area and accommodate two temporary gas compressor units which were required to inject produced gas into a depleted subsurface strata. Once a proposed gas pipeline (recently approved) is complete, the temporary compressor units will be removed and replaced with a smaller compressor which will be used to compress gas into the gas pipeline (see Attachment "C").

Drill Site No. 2 was modified to add approximately 0.4 acres to an existing drill site resulting in a 1.3 acre drill site. The expansion was accomplished in order to ensure adequate space to align drilling equipment (see Attachment "D"). The applicant further proposes to legalize use of the currently used access road to Drill Site No. 2. The original permit designated a two mile long route which will eventually be used to access previously approved but undrilled Drill Site Nos. 4, 5, and 6. The applicant proposes to utilize an existing shorter route which connects Drill Site No. 2 with the main College/Range Road (see Attachment "B").

Land use within and adjacent to the Ferndale Ranch include horse and cattle grazing, avocado orchards, Thomas Aquinas College, and oil and gas production. West of Ferndale Ranch is the Silverthread Oil Field and east of the Ranch is the Timber Canyon Oil Field.

Thomas Aquinas College is a private liberal arts college. Approximately 120 students reside on campus during the school year. In addition, several faculty members live on campus. Drill Site Nos. 1 and 3 are located within 1,200 feet of the College. Drill Site No. 2 is located approximately 1,800 feet from the College. Drill Site Nos. 4, 5, and 6, and proposed Drill Site No. 7 are all located 3,000 feet or more from the College (see Attachment "B").

In addition to the College, the Ferndale Ranch foreman's residence is located within about 600 feet of Drill Site No. 1.

The project will not substantially alter present or planned land use in the area. Impacts on the College and the foreman's residence are discussed in subsequent sections. (See Item 4 Aesthetics, Item 7e Schools, Item 10 Traffic, and Item 21 Noise).

Item 4. Aesthetics: Highway 150 has been designated as a proposed State Scenic Highway on the Scenic Highways Element of the County General Plan however, intervening terrain and vegetation obscure views of the existing and proposed drilling operations from Highway 150. Drill Site Nos. 1 and 7 are clearly visible to hikers utilizing the Santa Paula Creek trail. In addition, cut and fill slopes from grading of Drill Site No. 2 are visible from the College and, during the drilling phase of the project, the drilling mast at Drill Site No. 2 would also be visible from the College. The visual impacts can be mitigated to an insignificant level by imposition of standard oil development conditions which would: (1) authorize the Planning Director to require fencing, landscaping, and/or screening of drill sites and production facilities; (2) require painting of all permanent facilities to mask the facilities from the surrounding environment; and (3) require that the permit area be maintained in a neat and orderly manner so as not to create any hazardous or unsightly conditions.

Additional mitigation measures imposed by the Board of Supervisors to further mitigate potential aesthetic impacts include: (4) The applicant will be required to modify landscaping plans for Drill Site No. 1 so that the proposed pipe storage area will be fenced and landscaped (Thomas Aquinas College will be given an opportunity to review Argo's landscape plans prior to approval by the County); and (5) The applicant would be required to pave the first 200 feet of the access road to Drill Site No. 3 from the intersection with the main College/Ranch Road, and all access roads will be treated to prevent the emanation of dust.

Item 5. Recreation: Santa Paula Canyon is a very heavily used hiking and backpacking route. The U.S. Forest Service estimates that 40,000 to 100,000 people utilize the hiking trail each year during the open session which lasts approximately seven months from November to July (see Attachment "I"). Jerry Kaminsky, a traffic consultant employed by the applicant has stated in a report dated January 4, 1983, that the actual usage of the hiking trail probably would be closer to 10,400 hikers per year, based on the availability of parking facilities (see Attachment "I").

The portion of the hiking trail which traverses Ferndale Ranch has recently been relocated so that it now uses the same road shared by Thomas Aquinas College, Argo Petroleum, and the Ferndale Ranch.

Increased oil development activities within the Santa Paula Creek Canyon could affect recreational users safety and enjoyment of the hiking trail. To mitigate these impacts to an insignificant level, the Planning Division recommends that conditions be imposed which would require: (1) that Drill Site No. 1, Drill Site No. 3, Drill Site No. 7, and the Oil and Gas Production Facility Site be completely surrounded by chain link fencing; and (2) that the applicant be required to cooperate with the surface owners, including Thomas Aquinas College, and the U.S. Forest Service to establish a new hiking trail.

Item 7c. Fire Protection: The project is located in a high fire hazard area as identified by the Fire Department. To mitigate potential fire hazard impacts, standard fire department oil permit conditions would be imposed. These conditions would include requirements for all-weather access roads to the drilling sites, water supply for fire protection purposes, brush clearance, spark arrestors on all internal combustion engines, and the issuance of a Uniform Fire Code Permit prior to drilling, and other measures imposed by the Fire Department on all oil drilling permits, including those located in high fire hazard areas. Therefore, this issue was determined to be insignificant.

Item 7e. Schools: The proposed project would result in traffic, noise and aesthetic impacts on Thomas Aquinas College (see Item 10 Traffic, Item 21 Noise, and Item 4 Aesthetics).

Item 8. Air Quality: The project is located within the Oxnard Plain Airshed. The 1982 Air Quality Management Plan indicates that attainment of National Ambient Air Quality Standards (NAAQS) for ozone will not occur in the Oxnard Plain airshed. As a result, APCD staff has determined that new emission sources such as oil wells can have a significant impact on air quality within this airshed. However, since the proposed project does not involve the drilling of any more wells than currently permitted, APCD staff has determined that with the imposition of standard APCD conditions, which require that all facilities be constructed and operated in accordance with APCD Rules and Regulations, the project will not have a significant impact on air quality.

Item 9b., 9c., and 9f. Grading and Erosion: Grading of the proposed Drill Site No. 7 would require that 4,000 cubic yards of earth be moved in order to create a 0.86 acre drill pad. Public Works Agency staff has identified significant environmental impacts relating to erosion of the adjacent Santa Paula Creek bank causing flooding of the drill site which in turn could cause pollution of Santa Paula Creek (see Item 13b. and 13d. Flooding).

Grading for the expansion of Drill Site No. 1 involved the movement of at least 933 cubic yards of earth to create a drainage ditch and a 7 to 8 foot high, 15 foot wide earthen berm around the gas compressor units.

Grading for the expansion of Drill Site No. 2 involved the movement of approximately 8,000 cubic yards of earth movement. The drill site was enlarged by cutting into the adjacent slope creating new cut and fill slopes of about 800 feet in height. The applicant utilized the excavated material to create a 3-5 foot high earthen berm along the edge of Drill Site No. 2 to mitigate noise and aesthetic impacts from oil operations.

Item 9g. Geologic Hazards: A fault line traverses the Ferndale Ranch in an east-west direction approximately midway between Drill Site No. 1 and proposed Drill Site No. 7. Public Works Agency staff have identified a significant environmental issue relating to the potential rupture of the oil flow line between Drill Site No. 7 and the oil and gas production facility located at Drill Site No. 1. A rupture of the flow line could result in pollution of Santa Paula Creek (see Item 13g. Surface Water Quality).

Item 10. Traffic: In reports dated August 29, 1982, and January 4, 1983, prepared by Jerry Kaminsky, a traffic engineer retained by Argo Petroleum, the following traffic information was derived (see Attachments "H" and "I").

Traffic during production phase (which included formation fracturing operations) averaged 8.4 oil related vehicles per hour during the 17.5 hours monitored (August 10, 11, 12, and 13, 1982). This amounts to about 110 oil related vehicle trips per day, or 55% of all traffic utilizing the main College/Ranch Road.

Traffic during drilling phase (which included production traffic from the existing wells) averaged 9.4 vehicles per hour during the 21.25 hours monitored (October 19, and 21, 1982). This amounts to about 156 oil related vehicle trips per day or about 52% of all traffic utilizing the main College/Ranch Road.

Peak hour traffic volumes for oil related vehicles were recorded on August 16, 1982. This was the day that a drilling rig was moved to Drill Site No. 2. A total of 23 oil related vehicles utilized the main College/Ranch Road in one hour.

Based upon conclusions by the traffic consultant, Public Works has determined that the proposed access roads are adequate to safely accommodate existing and anticipated traffic volumes.

However, Thomas Aquinas College has indicated that project related traffic (particularly truck traffic) has an adverse impact on College operations. The proposed project would increase drilling and production traffic originating from Drill Site Nos. 1, 2, and 7. In order to mitigate traffic impacts on College operations to an insignificant level the Planning Division recommends conditions which would: (1) require all oil to be transported off-site via pipeline; (2) require all oil field waste water to be transported by pipeline to a truck loading facility to be located so as to avoid water truck traffic utilizing the main College/Ranch Road. The temporary waste water truck loading facility will be located between the main College/Ranch Road and the old Ferndale Ranch Road as shown on Attachment "A"; (3) require the permittee to provide appropriate gate control during drilling and maintenance operations to eliminate unnecessary oil traffic and provide improved campus security; and (4) require applicant to limit oil traffic to the access road as shown on Attachment "A" (see also Item 21, Noise).

Item 13b. and 13d. Flooding: The proposed Drill Site No. 7 is located as close as 20 feet to the main bank of Santa Paula Creek. The drill pad elevation is 2-6 feet below the 100 year flood level. In order to avoid potential flooding problems and the resulting pollution of Santa Paula Creek, the applicant proposes to construct an eight foot high earthen berm covered with native rock rip-rap. In order to mitigate flooding impacts to an insignificant level, Public Works recommends conditions which would: (1) require the permittee to submit detailed grading information including hydrological and hydraulic calculations; (2) require the permittee to obtain a grading permit; and (3) prohibit the applicant from obstructing natural drainage courses.

Item 13f. Groundwater Quality: Some migration of drilling fluids and contamination of freshwater is remotely possible during the drilling phase. However, if the proposed wells are properly drilled and sealed, pollution of groundwater in the area is considered extremely unlikely. The California Division of Oil and Gas requires the installation of a continuous annular cement seal from ground surface to the base of freshwater. Once the seals are in place, pressure tests are performed to ensure integrity of the seal. Standard conditions require compliance with Division of Oil and Gas Regulations and sealing of the well space from ground level through the base of freshwater. Therefore, with the imposition of standard conditions, groundwater impacts would not be significant.

Item 13g. Surface Water Quality: Some degradation of the adjacent Santa Paula Creek is possible due to oil spills, or storm water carrying materials off-site, or the rupturing of the flow line between proposed Drill Site No. 7 and the oil and gas production facility located at Drill Site No. 1. Standard conditions would require that a berm be constructed around the drill site to ensure that any spills are contained on site. Storm damage to Drill Site No. 7 would be mitigated by construction of an eight foot high earthen berm covered with rip-rap (see Item 13b. and 13d. Flooding). The applicant proposes to minimize danger of pipe rupturing by placing an expansion loop on the flow line to relieve stress caused by earth movement or temperature expansion of the metal pipe. In addition, at each end of the flow line the applicant will install an isolation block valve and a check valve to reduce any accidental spill to a minimum. In order to mitigate surface water pollution impacts to an insignificant level, Public Works recommends imposition of a condition which would require the permittee to submit design plans for the flowline.

In addition, the following mitigation measure is imposed by the Board of Supervisors to mitigate potential surface water impacts at the College reservoir due to trucks using the access road between Drill Site Nos. 1 and 2:

> The proposed access road between Drill Site Nos. 1 and 2 will be evaluated by the County Public Works Agency to assure the road meets County requirements and to assure that adequate measures are taken to ensure that the access road will not impact the College reservoir.

Item 21. Noise: Drilling activity on Drill Site Nos. 1, 2, and 3 may have a significant noise impact on the Ranch Foreman's residence and Thomas Aquinas College. The Ranch Foreman's residence is located approximately 600 feet from Drill Site No. 1. The College dormitories are located within 1,200 feet of Drill Site Nos. 1 and 3, and within about 1,800 feet of Drill Site No. 2. Drill Site Nos. 4, 5, and 6, and proposed Drill Site No. 7 are all located more than 3,000 feet from the College or any residence.

In a report prepared by Dames & Moore (acoustical consultants for Argo Petroleum) dated August 30, 1982, (see Attachment "K") noise measurements were taken during site preparation and drilling operations at Drill Site No. 2 (noise generated by operations at Drill Site Nos. 1 and 3 are expected to have less impact on the College due to intervening vegetation and terrain). The Dames & Moore report indicates that noise measurements taken at the College during drilling operations resulted in Lmax readings of up to 72 decibels and Leq readings of 44 to 50 decibels at various times of the day and night. An Lmax reading is the peak sound level measured and an Leq reading is an average of sound levels recorded during the measurement period. Recently adopted County noise standards established maximum Leq noise levels during daytime hours of 55 dBA during drilling and maintenance operations and 45 dBA during production operations. Maximum nighttime Leq noise levels were established at 45 dBA during drilling and maintenance operations and 40 dBA during production operations. Based on information supplied by Argo's acoustical consultant, nighttime noise standards may be exceeded during the drilling phase.

In order to mitigate noise impacts of drilling and maintenance operations to an insignificant level, the applicant has constructed an earthen berm at Drill Site No. 2, which is estimated to have reduced noise levels by 7-9 decibels and the Planning Division recommends imposition of standard oil development conditions which would: (1) require compliance with adopted County noise standards for drilling, maintenance and production operations; (2) require installation of soundproofing materials when drilling or maintenance operations are located within 1,600 feet of occupied sensitive uses including schools and residences; (3) require that all non-emergency well maintenance operations be limited to daytime hours; (4) require drilling activities to be limited to daytime hours when located less than 800 feet of a residence unless a waiver is obtained; (5) require the permittee to provide the name and telephone number of a responsible party who may be contacted on a 24 hour basis in the event of a complaint; and (6) establish procedures for responding to noise complaints. These procedures include: (a) The permittee must take informal noise measurements and report findings to the complainant within three hours; (b) If the problem is not resolved, the Planning Director is authorized to require formal noise evaluations to be made at the expense of the permittee; (c) If the Director determines that the operations are in violation of the noise standards, the permittee is required to minimize noise generating activities; and (d) If the noise problem has not been corrected by 7:00 p.m. of the following day operations shall be suspended until the problem is corrected.

The expansion of Drill Site No. 1 involved the installation of two large relatively noisy natural gas compressor units. To mitigate noise generated by these units, the applicant has constructed a 7 to 8 foot high earthen berm around the units.

The College has expressed concern that noise from oil related truck traffic adversely impacts College operations. Dames & Moore, acoustical consultants for Argo Petroleum, also evaluated noise from truck traffic in a separate report dated August 25, 1982 (see Attachment "J"). This report indicates that peak sound levels from trucks were measured at 72-74 dBA at the College dormitories. In order to mitigate noise impacts from trucks to an insignificant level, the Planning Division recommends a condition which would require traffic noise monitoring be established on a periodic basis to determine if acceptable noise standards as determined by the Planning Division are being violated. In the event that violations of the traffic noise standard occur the applicant will be required to take action to attenuate the noise impact.

Item 22. Light and Glare: During the drilling period, operations will require flood lighting at night. In order to assure that light and glare impacts would be minimized standard conditions would require that lighting be controlled so as not to produce glare or abnormal light conditions directed at any surrounding uses. Therefore, with the imposition of standard conditions light and glare impacts would not be significant.

Item 23. Risk of Upset: Certain activities during the drilling and production phases are critical with respect to well control, fire, explosion, oil spills, and other discharges or emissions. However, standard conditions would require the applicant to comply with California Division of Oil and Gas regulations, County Fire Department regulations and Air Pollution Control District regulations. Therefore, with the imposition of standard oil permit regulations, the risk of impact would be mitigated to insignificant levels.

DHcmC12

APPENDIX B

TRAFFIC STUDY

Jerry Kaminsky
Civil Engineer 24806, Traffic Engineer 191
1666 Santa Ynez Street
Ventura, California 93001

January 4, 1983

Dennis Hawkins
Ventura County Planning Division
800 South Victoria Avenue
Ventura, California 93009

Re: CUP-3344
Modification No. 8, Traffic

Dear Mr. Hawkins:

You requested additional information to my August 29, 1982 traffic report on the Ferndale Ranch regarding traffic safety and volumes when the Thomas Aquinas College is in session, and also with the issue of hikers using the main paved road through the Ferndale Ranch.

On October 21, 1982, I made a 12-1/2 hour hand count which covered a time period from 5:45 a.m. to 6:15 p.m., and represents approximately 95 percent of the traffic generated during a 24 hour period. This count was made when the site activities included: college in session, production, drilling activities, and the oil pipeline in operation. This operating phase generated the highest traffic volume that could be expected from all of the Ferndale Ranch activities.

Exhibit 1A shows a summary of the October 21, 1982 hand count data. Comparing this data to the earlier August traffic surveys, I found an increase in both the peak and the 12-1/2 hour traffic volume. This increase was approximately 20 percent and is within the day-to-day traffic fluctuations with the exception of the college traffic. Their volume doubled over previous counts with most of the additonal volume being generated by staff and support services. There did not appear to be a significant number of students driving on or off campus; I counted 39 vehicles in the parking lot of the college dormatories at 5:45 a.m. and 40 vehicles at 6:15 p.m.

The October 21st count showed a total of 235 cars and 47 trucks. Argo Petroleum contributed 52.5 percent of all of the vehicles and 80.9 percent of all of the truck traffic. Fourteen of the 38 Argo trucks were attributed to solid and produced water tankers. Two extra-ordinary activities took place which contributed to approximately 35 vehicle trips. Landscaping work and production problems at wells Nos. 214 and 215 took place. The production problems were rectified by 5:00 p.m. Ten of the trips were also attri-

FERNDALE ROAD S/O THOMAS AQUIANAS DORMS

SITE ACTIVITIES: NO SCHOOL, DRILLING & PRODUCTION, NO PIPELINE

HANDCOUNT DATA

	Date	Time	No. Hrs.	Peak
1.)	8/19/82	2:45-6:30 PM	3 3/4	4:45-5:45 PM
2.)	8/19/82	10-12 PM	2	11-12 PM

BOTH DIRECTIONS

	COLLEGE				FARM				ARGO				SUMMARY			
	TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.
1.)	13	0	7	0	6	2	1	1	14	14	3	11	33	16	11	12
2.)	1	0	0	0	0	0	0	0	4	1	2	0	5	1	2	0
									ARGO PEAK HOUR AVG.		2.5	5.5				

ARGO TRAFFIC
AS %

	TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs
1.)	42	88	27	92
2.)	80	100	100	0

buted to salesmen and occurred after 1:00 p.m.

Gate control could eliminate unneeded and unwanted oil related trips. To attain a 24 hour hand count, I utilized the 40+ count hours made during the August study period and the count data which was supplied by the college. I found that the 24 hour week day count varies from approximately 200 to 350 with the peak hour volume ranging from 20 to 40 vehicles. I estimate that the average peak hour volume will be 30 with the ADT being 300.

The present level of service on this road is Level A (free flow, low volume and density). This is the best level of service that a road can attain.

From the standpoint of traffic safety considerations, there does not appear to be any conflict between the college, farm, or Argo Petroleum traffic. The main Ferndale Ranch road from the main gate to the "Y" where the ranch and oil traffic turn right is approximately 2,100 feet long and has a paved width of 24 feet with four foot shoulders. This width permits the safe passage of one lane of moving traffic in each direction.

This street is designed to discourage excessive speeds through the use of curvilinear alignment. There are numerous horizonatal curves which are quite apparent and accomplish this purpose. The average speed is 25 MPH. Speed samples using the distance to time method found that most vehicles travel at or below 25 MPH.

The minimum stopping sight distance, passing sight distance, stopping sight distance on horizontal curves are more than adequately met. Motorists attempting to enter or exit the school property have more than double the sight distance to perform this maneuver confortably and safely.

Therefore, as far as traffic safety and road capacity on the Ferndale Ranch with the college in session is concerned, my conclusions would be the same as those I reached in the August 29, 1982 report: "well within the findings of the 1978 Environmental Impact Report".

I did not do an official count as to the number of hikers and/or fishermen entering the Ferndale Ranch. There were no hikers using the main road through the ranch during my August traffic count; however, I understand that in September, 1982, all hikers into Santa Paula Canyon were diverted to the main paved road. On Thursday, October 21, 1982, during my 12-1/2 hour count, I only counted three fishermen using this road. When a vehicle would approach, they moved off the paved surface onto the shoulder. The weather was ideal for hiking.

VENTURA PLANNING DIVISION
Dennis Hawkins

I talked to the people who live on the Ferndale Ranch regarding the hiker traffic. They estimate that not more than 200 people enter the canyon over the weekend. Inasmuch as there is a limiting factor of where the hikers can park, not more than 50 vehicles can be accommodated in the two parking areas outside the ranch entrance. A conservative estimate might then be: four persons per vehicle times 50 vehicles times two weekend days for 26 weekends in a year equaling 10,400 hikers (the canyon is closed between May and November of each year). Bad weather and school holidays would tend to cancel each other. The ranch personnel support these figures.

To get firsthand knowledge of weekend hiking demands, I visited the Ferndale Ranch on Sunday, December 26, 1982, between the hours of 8:30 and 10:30 a.m. The weather was sunny and in the low 60's and ideal for hiking. During this time period, I counted three vehicles occupied by eight people (six were overnight campers). This re-affirms the fact that the 10,400 figure is quite a conservative extimate.

I do not foresee any serious pedestrian/vehicle conflict on the paved portions of the main road for the reason that hikers are more sophisticated than the average pedestrian, because they have a definite goal in mind and do not take unnecessary chances. However, where the road reduces to one lane, north of Drill Site No. 1, a separate trail should be provided.

Very truly yours,

Jerry Kaminsky

JK/DS:sas

Attachment

EXB. 1A

FERNDALE ROAD
TRAFFIC VOLUME DATE
OCTOBER 21, 1982
Site Activities: College in Session, Production, Drilling Activities, & Oil Pipeline in Operation

Source of Traffic	12½ Hour Count	% of Total	Peak Hour
Argo cars & trucks	148	52.5	19
Ranch Operation	35	12.4	4
Thomas Aquinas College	99	35.1	11
Total	282	100	34

FERNDALE ROAD S/O THOMAS AQUIANAS DORMS

SITE ACTIVITIES: NO SCHOOL, MOVING DAY FOR DRILLING EQUIPMENT *

HANDCOUNT DATA

Date	Time	No. Hrs.	Peak
8/16/82	6-9 AM	3	7-8 AM

BOTH DIRECTIONS

COLLEGE				FARM				ARGO				SUMMARY			
TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK	
Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.
6	0	0	0	7	0	4	0	32	14	14	9	45	14	28	9

ARGO TRAFFIC AS %

TOTAL		PEAK	
Crs.	Trs.	Crs.	Trs.
71	100	50	100

FERNDALE ROAD S/O THOMAS AQUIANAS DORMS

SITE ACTIVITIES: NO SCHOOL, DRILLING & PRODUCTION, NO PIPELINE

HANDCOUNT DATA

Date	Time	No. Hrs.	Peak
8/19/82	7-10 AM	3	8-9 AM

BOTH DIRECTIONS

COLLEGE				FARM				ARCO				SUMMARY			
TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK	
Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.
10	0	6	0	11	0	4	0	17	2	10	1	38	2	20	1

ARCO TRAFFIC AS %

TOTAL		PEAK	
Crs.	Trs.	Crs.	Trs.
48	100	50	100

FERNDALE ROAD S/O THOMAS AQUIANAS DORMS

SITE ACTIVITIES: NO SCHOOL, PRODUCTION, NO PIPELINE, ENG. & GEO. ACTIVITIES

HANDCOUNT DATA

	Date	Time	No. Hrs.	Peak
1.)	8/10/82	3-5:30PM	2½	3:30-4:30PM
2.)	8/10/82	10-12 PM	2	10-11PM
3.)	8/12/82	12-6 PM	6	3-4 PM

BOTH DIRECTIONS

	COLLEGE				FARM				ARGO				SUMMARY			
	TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.
1.)	15	0	4	0	3	0	1	0	16	6	11	3	34	6	16	3
2.)	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0
3.)	33	0	16	0	7	0	2	0	27	18	5	2	67	18	23	2
ARGO PEAK HOUR AVG.											8	2.5				

ARGO TRAFFIC AS %

	TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.
1.)	47	100	69	100
2.)	0	0	0	0
3.)	40	100	22	100

FERNDALE ROAD S/O THOMAS AQUIANAS DORMS

SITE ACTIVITIES: NO SCHOOL, PRODUCTION, NO PIPELINE, ENG. & GEO. ACTIVITIES

HANDCOUNT DATA

	Date	Time	No. Hrs.	Peak
1.)	8/11/82	7-9 AM	2	8-9 AM
2.)	8/13/82	7-12AM	5	7:45-8:45 AM

BOTH DIRECTIONS

	COLLEGE				FARM				ARGO				SUMMARY			
	TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.
1.)	6	0	5	0	13	1	5	1	10	5	5	3	29	6	15	4
2.)	26	0	9	0	12	0	4	0	49	16	9	5	87	16	22	5
ARGO PEAK HOUR AVG.											7	4				

ARGO TRAFFIC AS %

	TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.
1.)	35	83	33	75
2.)	56	100	41	100

FERNDALE ROAD S/O THOMAS AQUIANAS DORMS

SITE ACTIVITIES: NO SCHOOL, PRODUCTION, NO PIPELINE, ENGINEERING & GEO. ACTIVITIES

HANDCOUNT DATA

	Date	Time	No. Hrs.	Peak
1.)	8/12/82	12-6 PM	6	3-4 PM
2.)	8/13/82	7-12 AM	5	7:45-8:45 AM

BOTH DIRECTIONS

	COLLEGE				FARM				ARGO				SUMMARY			
	TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK		TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.	Crs.	Trs.
1.)	33	0	16	0	7	0	2	0	27	18	5	2	67	18	23	2
2.)	26	0	9	0	12	0	4	0	49	16	9	5	87	16	22	5
									COMBINATION				154	34		
									TOTAL NUMBER OF VEHICLES				188			

ARGO TRAFFIC AS %

	TOTAL		PEAK	
	Crs.	Trs.	Crs.	Trs.
1.)	40	100	22	100
2.)	56	100	41	100

The minimum stopping sight distance, passing sight distance, stopping sight distance on horizontal curves are more than adequately met. Motorists attempting to enter the ranch property have more than double the required sight distance to perform this maneuver. The intersection of Ferndale Road at Highway 150 appears to be more than adequate from the standpoint of traffic safety considerations. An acceleration and deceleration lane in place along with a 50 foot curb return radius for the entering vehicles.

There is a problem with rutting on the outside of the curves, but this could be remedied by dressing up the shoulders.

The Public Works Agency did not show any accidents on record for Ferndale Road during the past 12-month period.

3. c. The hours of operation in the oil field is 6:30 a.m. to 6:00 p.m. During drilling, fracturing and sandpacking, the operations are increased to 24 hours with an additional shift beginning at 11:00 a.m. The estimated increase in traffic is 12 ADT for those operations.

3. d. Exhibit No. 7 is a chart showing the hours when the vehicular trips are occurring for the three major traffic generators and a cumulation of all the trips.

In my opinion, the Argo oil field traffic using the Ferndale Ranch road, which was found to be approximately 50 percent of the traffic using the road even though the college was not in session, is well within the findings of the 1978 Environmental Impact Report. At that time, the Public Works Agency stated, "both the internal and external road networks have adequate capacity to handle traffic from both projects".

Yours very truly,

Jerry Kaminsky

JK:sas

Attachments

Jerry Kaminsky
Civil Engineer 24806, Traffic Engineer 191
1666 Santa Ynez Street
Ventura, California 93001

August 29, 1982

Argo Petroleum Corporation
940 East Santa Clara Street
Ventura, California 93001

Re: Conditional Use Permit No. CUP-3344 (Mod. 8)

Gentlemen:

Reference is made to Item No. 3 of the Environmental Report Review Committee's minutes of August 11, 1982. Answers to questions propounded to Argo Petroleum Corporation are as follows:

1. The pipeline went into operation on August 25, 1982.

2. Before the product line went into operation in late August, the average number of tanker trucks per day serving the site was six (12 Average Daily Traffic (ADT). This truck traffic has now been eliminated.

3. a. The number of vehicles related to the oil field operations which use Ferndale Road (referred to as College Road in the minutes), depend on the various types of operation phases. These phases also overlap with one another. Manual traffic counts were taken on nine different occasions. Counts were taken during three operation phases, namely: Production and Engineering-Geological Activities, Drilling and Production, and Drilling Rig Moving Day. During this count period, school was not in session and the pipeline was not in operation. The large sampling was taken to attain an ADT volume and morning and evening peak hour volumes, and to assure statistical sufficiency. Peak hour volumes are used to evaluate capacity and the level of service. A street interview was also conducted to determine the destination of each vehicle.

   Vehicles were classified into two general classes: passenger cars which include light vehicles, panels and pickups, and trucks which include single unit and heavier. This is per the American Association of State Highway Transportation Officials (AASHTO) designation.

ATTACHMENT "H"

The highest a.m. peak hour Argo traffic volumes occurred on August 16, 1982. This was during the drilling rig moving day. A total of 23 vehicles utilized this roadway, nine of which were trucks. See Exhibit No. 4.

The highest p.m. peak hour Argo traffic volume was 14, and occurred on three differenct dates. See Exhibit Nos. 1, 2 and 6.

The traffic on Ferndale Road during no school, production, no pipeline, engineering and geological activities was determined to be approximately 200 vehicles. This was based on an 11 hour count made on August 12 and 13, 1982.

Of the 200 vehicles, 110 were related to the oil field operations. This volume would have been less than 100 vehicles if the pipeline had been in operation. See Exhibit No. 1 and Item No. 2.

At the present time, Argo is trucking its produced saline water from the ranch via said road. They have been working on a proposed water injection system for several months and when it is put in operation, an additional five tanker trucks will be eliminated.

3. b. A thorough traffic safety analysis was made on Ferndale Road. This road was constructed and designed in accordance with the County of Ventura Private Road Policy. As such, this road meets the minimum county road standards. The road between Highway 150 and Ferndale/Argo Road is approximately 2,100 feet long and has a paved width of 24 feet with four foot shoulders. This width permits the safe passage of one lane of moving traffic in each direction. Even semi-trailer combinations and tankers can safely pass oncoming vehicles inasmuch as their overall width is 8.5 feet.

This street was designed to discourage excessive speeds through the use of curvilinear alignment. There are numerous horizontal curves which are quite apparent and accomplish this purpose. The average speed on this road is 25 MPH. Speed samples using the distance-to-time method found that most vehicles travel at or below 25 MPH.

Oil Company Traffic Count Entering On College Peripherial Road
One Way Only

July 30, 1982

7:00 A.M.

1. frame truck - Sierra Production
2. pick-up Chemical Mc D
3. pick-up Baker Tool
4. 4 door sedan (green)
5. Ford 4 wheel drive
6. Mc D Crew Cab
7. orange service Truck Mc D
8. H & H Service Truck
9. Rust color tanker truck - Vac Barnet
10. 2 door Ex-Granada dark blue
11. Vac truck (yellow) Argo
12. pick-up--light blue--Argo tool pusher
13. 4 door - Ex light yellow sedan
14. trailer truck - Mc D (orange)
15. trailer truck - Mc D
16. 4 door EX light yellow sedan
17. Argo truck big white pick-up
18. Argo single tanker vak truck
19. Argo off white service truck
20. Argo truck small crane on back
21. Argo light blue - small pick-up
22. White Big pick-up tool truck
23. Argo Big pick-up white with small crane
24. White truck Mc D crew cab
25. OST flat-bed truck
26. maroon Chevy pick-up
27. light brown GMC pick-up Argo foreman
28. 4 door Ex light yellow sedan
29. Argo light blue small pick-up (Chevy Luv)
30. light brown ex sedan
31. white chev. pick-up with back seat
32. white ford pick-up, round yellow SPS sign on door
33. orange "Dowell"
34. white flatbed truck with red objects in back
35. white chev. pick-up crew cab Mc D

12:00 Noon

36. 3# Big pick-up white with small crane
37. white chevy 4 door crew cab pick-up with small crane
38. 2 tone dark and light blue Ford pick-up "Baker"
39. light blue Ford Courier pick-up
40. light brown Ford sedan w/C.B. antennae
41. Red & white Ford pick-up
42. Silver Ford pick-up with tool box
43. Yellow Ford Ex. sedan

2:30 P.M.

44. Vacuum truck yellow "Argo"
45. black Ford with tan vinyl roof ex sedan
46. white 4-door Crewcab pick-up
47. white 4 door Ex-Granada car
48. yellow "Argo" vacuum truck
49. black motorcycle with fairing
50. Lt. green Chev. pick-up, raised suspension
51. white Ford pick-up, little orange & white sign on door
52. dark brown or black 2-door hard top, tan roof

Oil Company Traffic Count Entering On College Peripherial Road
One Way Only

August 4, 1982

6:30 A.M.

1. green & white top 4 door Granada
2. blue & black top 4 door LTD
3. Argo yellow-cab Vac tanker truck
4. maroon color pickup truck
5. white car 4 door Argo
6. white car 4 door Argo
7. light brown 2 door Hornet
8. Argo truck trailer vacuum truck
9. Argo pick-up pumper
10. white A frame truck
11. white pick-up
12. SPS A frame
13. SPS tool truck 2½ ton
14. black Granada - off yellow top
15. white/cab - black vac truck
16. welder - truck
17. light yellow sedan Argo
18. white big pick-up
19. black top 2 door Granada
20. light blue small pick-up truck Argo
21. Ex white 2 door car - sedan
22. light yellow cab Argo vac truck
23. blue & rust color crew cab big pick-up truck

8:30 A.M.

24. light blue Argo Chevy Luv pick-up
25. big white truck with crane
26. white Ford pick-up
27. blue GMC pick-up truck
28. white Ford pick-up truck
29. big white truck with crane
30. white Chevy Ex 2-door
31. big red and white truck with tank
32. brown 4 door Ex sedan
33. white utility pick-up truck
34. 4-door Buick sedan beige
35. brown GMC pick-up truck with C.B. antennae
36. white 4-door Ex sedan
37. red twin-tank semi truck

12:00 P.M.

38. green Plymouth 2 door
39. white Ford 3/4 SPS
40. pick-up blue Baker tool
41. MCK tanker truck, Tank #1760
42. GMC, #236 white pick-up
43. pick-up truck white body
44. green pick-up Chevrolet
45. white hood pick-up with blue body, welder truck
46. pick-up GMC white hood and open body
47. pick-up GMC, red, open body with big light on top
48. Henshel - West Lines tanker, #1267, green hood
49. Henshel - West Lines tanker #1267, white hood
50. Dodge Ram, pick-up 3 ton, white open body, #2716 (written on tailboard)
51. Pick-up, Chevrolette, R. Electric, white hood
52. Barnet, Tanker, black body
53. Station wagon, yellowish green car
54. tanker #406 yellow hood, white body
55. Buick, gray car
56. Buick, car painted gray lower side, top black plate #BKL 529
57. Chevrolette pick-up, white open body
58. Crew cab, white

3:00 P.M.

59. White flatbed truck carrying 2 "bomb shaped" objects and other machinery
60. brown Fiat sports car (convertible)
61. Gold Chev. (/) 4-wheel drive, white top
62. blue Chev. pick-up, little antennae on top
63. maroon chev. pick-up, white wheels ·
64. white Ford pick-up, orange & black sign on door
65. white 10-wheel "semi" (cab only), green stripes on side
66. white Ford pick-up, orange & black sign on door
67. small gray station wagon
68. light green and white pick-up
69. 2-tone blue Ford pick-up
70. white truck, orange & black sign on door, pulley on back
71. gray Chev. pick-up "SPS" sign on door
72. yellow Ford 4-door sedan
73. green & white "ECI" vac truck, black tank
74. white "H & H" flatbed truck

Oil Company Traffic Count Entering On College Peripherial Road
One Way Only

August 6, 1982

7:00 A.M.

1. SPS A-frame
2. SPS Pickup
3.
4. silver blue 4-door sedan Ex
5. Mft pick-up
6. Argo chevrolet Luv truck light blue
7. silver Ford welders truck
8. Argo truck-trailer vacuum truck
9. light yellow sedan 4 door Ex
10. green El Camino
11. Bo Horner's (red) dump truck
12. dark blue Ford 2 door Ex
13. SPS crew cab Chevrolet silver
14. Argo white A-frame
15. silver blue 4-door Ex
16. white Chevrolet sedan 2 door
17. Argo service truck pumper
18. white Ford Mft
19. Argo service truck with wench mechanic
20. Argo truck vacuum
21. light blue sedan Ex
22. Argo light blue Chevrolet Luv pumper
23. blue Chevrolet 3/4 ton pick-up

8:30 A.M.

24. service truck 3/4 ton, blue "All Stars"
25. Tipper, Ford, red front and black body
26. white Chevrolet pick-up (crew cab)
27. crane trailer, dark gray
28. Ford car, gray body with blue convertible top
29. sedan car, grat on lower side, upper part black
30. vacuum truck, Kenkwor, ECI, B26
31. white pick-up truck, "Siera production Co"
32. Ford, vacuum truck, gray hood with black body "Midway Fishing C
33. #229 small vacuum truck, white
34. Ford, pick-up truck, gray "Siera Production Co"
35. black tanker ECI
36. pick-up 3/4 light green Argo
37. service truck, light blue
38. pick-up, Ford, pink with light yellow strip going lenghtwise
39. Ford pick-up, gray
40. dark blue pick-up
41. white pick-up supply truck
42. cement mixer truck, black hood, yellow body #LG249

Oil Company Traffic Count Entering On College Peripherial Road
One Way Only

August 6, 1982

7:00 A.M.

1. SPS A-frame
2. SPS Pickup
3.
4. silver blue 4-door sedan Ex
5. Mft pick-up
6. Argo chevrolet Luv truck light blue
7. silver Ford welders truck
8. Argo truck-trailer vacuum truck
9. light yellow sedan 4 door Ex
10. green El Camino
11. Bo Horner's (red) dump truck
12. dark blue Ford 2 door Ex
13. SPS crew cab Chevrolet silver
14. Argo white A-frame
15. silver blue 4-door Ex
16. white Chevrolet sedan 2 door
17. Argo service truck pumper
18. white Ford Mft
19. Argo service truck with wench mechanic
20. Argo truck vacuum
21. light blue sedan Ex
22. Argo light blue Chevrolet Luv pumper
23. blue Chevrolet 3/4 ton pick-up

8:30 A.M.

24. service truck 3/4 ton, blue "All Stars"
25. Tipper, Ford, red front and black body
26. white Chevrolet pick-up (crew cab)
27. crane trailer, dark gray
28. Ford car, gray body with blue convertible top
29. sedan car, grat on lower side, upper part black
30. vacuum truck, Kenkwor, ECI, B26
31. white pick-up truck, "Siera production Co"
32. Ford, vacuum truck, gray hood with black body "Midway Fishing Co
33. #229 small vacuum truck, white
34. Ford, pick-up truck, gray "Siera Production Co"
35. black tanker ECI
36. pick-up 3/4 light green Argo
37. service truck, light blue
38. pick-up, Ford, pink with light yellow strip going lenghtwise
39. Ford pick-up, gray
40. dark blue pick-up
41. white pick-up supply truck
42. cement mixer truck, black hood, yellow body #LG249

43. Crane truck Argo, white body, black hood
44. Ford pick-up, white lower part, light blue upper
45. Tanker (2 tanks), blue hood, gray tanks

12:00 p.m.

46. yellow truck (service truck)
47. SPS truck with a trailer, white
48. Argo white truck
49. tanker truck, silver tank, (East-West Lines) off-brown with dark brown stripe
50. Forest service truck off-green
51. small light blue Argo pick-up truck
52. dark blue 4-door Ex-sedan
53. large white pick-up truck SPS
54. Argo large white truck crew-cab
55. SPS white truck
56. white Ford pick-up truck
57. El Camino beige with shell
58. Maroon Ex. sedan
59. silver crew-cab pick-up
60. silver ford pick-up truck
61. yellow vacuum truck

4:30 p.m.

62. white vacuum truck, gray tank, blue stripe
63. white "H & H" flatbed truck

PARRENT SECURITY RECORDS
(used during Well No. 8 Drilling Operation)

DATE	DAY	College	Argo	Ranch	Others*	Total
April 6	Wednesday	46	37	10	3	96
7	Thursday (Move-in Rig)	57	89	9	5	160
8	Friday	68	70	12	0	150
9	Saturday	60	34	10	3	107
10	Sunday	53	35	5	6	99
11	Monday	47	50	10	3	110
12	Tuesday	54	71	9	7	141
13	Wednesday	59	76	5	4	144
14	Thursday	66	44	5	3	118
15	Friday	83	58	9	2	152
16	Saturday (To 3:00pm)	13	46	3	3	65
		45% 606	610 45%	87 6%	32	1335

Eleven day ave: 55.1 55.4 8 3 121.36

× 2

Weekends: 42 38

ADT: 242

During drilling

* County & USFS, "speed-bys" unidentified

APPENDIX C

CULTURAL RESOURCES SURVEY

CULTURAL RESOURCES INVESTIGATION
PROPOSED ALTERNATE ACCESS ROADS
ARGO PETROLEUM
FERNDALE RANCH, NEAR SULPHUR SPRINGS,
VENTURA COUNTY, CALIFORNIA

Prepared by
Heather Macfarlane
Senior Archaeologist

McCLELLAND ENGINEERS, INC.
Environmental Services
Ventura, California

March 18, 1984

CONTENTS

FIGURES

1.0 INTRODUCTION

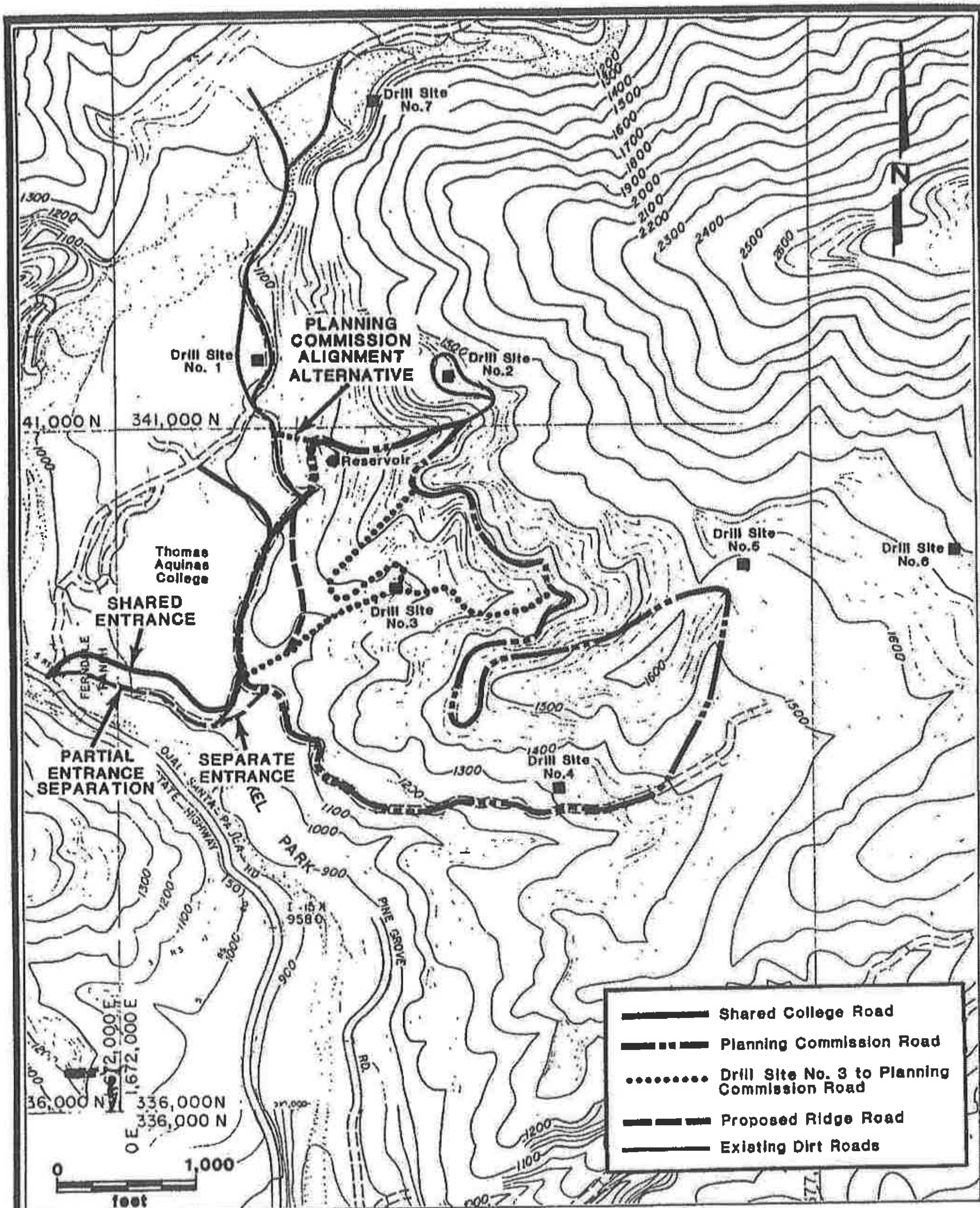
The following report has been prepared in conjunction with an Environmental Impact Report (EIR) being prepared for Ventura County by McClelland Engineers, Inc. (MEI). The focus of both the EIR and this cultural resources investigation is an analysis of feasible alternate access roads to Argo Petroleum's existing & proposed drill sites on their Ferndale Ranch lease, near Sulphur Springs in Ventura County, California.

Ferndale Ranch is situated between Santa Paula and Ojai in the hills north of Anlauf Canyon and Sisar Creek. The northern portion of the property falls within the Los Padres National Forest.

Argo currently shares access to the property off Highway 150 with Thomas Aquinas College. Figure 1.0 defines the project area, access road alternatives and survey coverage.

The objective of this cultural resources investigation is to identify areas of possible cultural resources sensitivity within those portions of the Ferndale Ranch lease which may be affected by the proposed project. To achieve this objective a comprehensive literature and records search was undertaken and an intensive archaeological reconnaissance of each of the road alternatives to access Argo's existing and proposed drill site locations was conducted.

This report has been prepared in accordance with Appendix K of the California Environmental Quality Act (CEQA), National Environmental Quality Act (NEPA) and current professional standards and procedures as outlined in 36 CFR 800, 36 CFR 64 and 36 CFR 66.



PROJECT AREAS AND ACCESS ALTERNATIVES

2.0 LITERATURE SEARCH

In order to assess the potential cultural resources in the project area a literature search was conducted to identify known prehistoric and historic archaeological sites which might be affected by the proposed project. Archival records, published reports and unpublished manuscript materials and maps were reviewed at the University of California Archaeological Survey in Los Angeles which functions as the regional repository and clearing house for the State of California. This institution maintains files for the Ventura County area, and current information pertaining to extant cultural resources is available there for review. The Ventura County Historical and Archaeological Societies were also consulted regarding prehistoric and historic sites or landmarks of local, state or national significance; and the National Register of Historic Places and California Historic Landmarks (1979) were reviewed. This research provided locational data for known sites and permitted a summary of regional culture history and previous research in the area.

Following this preliminary research, a systematic field reconnaissance was conducted. No new archaeological sites were located during this "walkover" survey. The results of this research and survey are presented below.

2.1 Archaeological Context

The literature search revealed that no previously documented historic or prehistoric archaeological sites occur within or immediately adjacent to the primary roadway, entrance or sub alternative routes. However, the area in which the above alternative routes are located has never been the subject of a systematic archaeological reconnaissance. One previous archaeological reconnaissance was conducted on Ferndale Ranch during a siting study and EIR for Thomas Aquinas College (Clewlow 1976). No new archaeological sites were located during this reconnaissance. One previously documented site (designated CA-Ven-404), first excavated by the Reverend Stephan Bowers (1878) was relocated and two subsequent test excavations at the site have occurred (Clewlow 1977a,b,c; Moser and Seff 1977). The site, located on the Thomas Aquinas College property and measuring some 200 to 400 meters, is situated on the flat alluvial terrace overlooking Santa Paula Creek approximately 500 feet west of the current access road shared with Argo.

Portions of the site are now covered by college buildings or other facilities. Clewlow (1977a,b,c) and others (Lopez 1977; Glassow 1977) indicate the site represents a significant cultural resource. However, subsequent construction coupled with archaeological testing by Moser & Seff (1977) as cited by Clewlow (1977c), Lopez (1977) and Glassow (1977) as inadequate has resulted in the loss of part of this valuable resource. Other portions of the site are protected from disturbance by a covering of sterile soil. The remaining site area may be situated under the existing hacienda and formal gardens west of the college. The site represents a large inland village site occupied well into the historic period (Singer, Wessel and Edberg 1981). Singer, Wessel and Edberg (1981) identify this site as possibly the Historic Period Village site of Sis'a. Clewlow (1977a) states that Mr. Robert Randall, foreman of the present ranch operation, indicated that artifacts had also been found in the area of ranch buildings northeast of the Ven-404 where no aboriginal materials may presently be observed.

Based on existing information the following assumptions concerning the study area were made.

Areas with a high to moderate probability for the occurrence of cultural resources on the subject property included the following project elements: Shared College Road; Proposed Ridge Road; Shared Entrance Separate Road (gully crossing); the southern portion of the Planning Commission Road; and the Alignment Alternative for Planning Commission/Drill Site 2. All other project elements on the subject property were expected to have a low probability for the occurence of cultural resources. The off-site Silverthread Access and Timber Canyon Road alternatives are discussed in section 3.0.

Sites in the general vicinity appear to be situated primarily on river terraces of the major tributaries of the Santa Clara River, Santa Paula and Sisar Creeks and the confluence of these creeks with smaller tributaries. However, when regarded in the context that these site locations may be a function of property development and access and may not represent the actual distribution of sites in the area, the probability of finding archaeological sites in the upland portion of smaller tributaries is regarded as somewhat higher.

Singer, Wassel and Edberg (1981) indicate that the relatively high incidence of prehistoric sites on the eastern side of Santa Paula Creek, may be a function of topography and uneven distribution of natural resources due to the greater watershed on the creek's eastern side. Other factors which may have influenced site location include flooding and accessability, and possible socio-economic factors of trade or other social interaction. The major sites along Santa Paula Creek are situated at least 80 feet (25 meters) above the present level of the creek.

The artifactual assemblage from Ven-404 indicates utilization of riverine resources within the subject property and its is assumed that such utilization would manifest itself along similar terrace or river bank locations. Because subsequent flooding of the area would have buried or removed surface evidence of sites located within the creek bed itself, the portion of the survey corridor which lies within or crosses the creek bed is considered a low probability area for the occurrence of sites. Based on the disadvantages imposed by steep terrain the uplands and higher elevations are also considered low probability areas for the location of cultural resources.

In order to verify the above assumptions, an intensive systematic survey of the survey corridor was initiated.

2.2 Cultural Context

The project area lies in the eastern part of the territory of the Ventureno Chumash, a Hokan speaking group of unspecialized hunters and gatherers whose ancestors settled in the Ventura/Santa Barbara region 9,000 years ago and gradually evolved toward a degree of marine exploitation which may be unique in the Americas (Landberg, 1965). Chumash territory extends along the California coast from Malibu (L.A. County) northward and westward to the coast range mountains and includes the Santa Barbara Channel Islands. A number of Chumash placenames have been attributed to this region by early ethnographers. Van Valkenberg (1935) indicates that the large number of placenames known for the project area may be a good indication of extensive utilization of this area during prehistoric times (Applegate 1975).

A few of these place names are listed below. A more complete list may be found in Singer, Wessel and Edberg (1981) and Applegate (1975).

'Awha'y	"moon"	Mission Period Village at Ojai; Probably in the Upper Ojai Valley
Ka'alishaw Ka'o	"hot water"	Hot springs at Sulphur Mountain on Santa Paula Creek just below its confluence with Sisar Creek.
Kawach'iwshmu	"archery match place"	Place on Santa Paula Creek north of Mud Creek.
Mupu	(possibly "East")	Mission Period Village near Santa Paula.
Sis'a	"the eyelash"	Mission Period Village on Sisar Creek. (Possibly Ven 109 or Ven 404).

The cultural and ethnohistoric background of the Ventureno Chumash and their predecessors has been adequately described elsewhere (Kroeber 1925; Landberg 1965; Olson 1930; Orr, 1952; Rogers, 1929; and locally, Hanks 1972; Lopez 1977; Moss and Glassow 1977; Wessel, Edberg and Singer 1981) and will be, therefore, only briefly outlined.

Rogers (1929) and Olson (1930) provided an early synthesis of culture history for the Santa Barbara Channel region which has been subsequently expanded and modified to fit this region into the wider context of California prehistory. Researchers who have focused on the development of a cultural historical sequence for the Ventura/Santa Barbara coast agree that there has been a development of technology and social organization from simple to complex. Chumash culture appears to have been the final development of over 7000 years of occupation in the Ventura/Santa Barbara region (Clewlow, 1977c). This cultural sequence has been divided into three developmental periods termed herein, the Early, Middle and Late periods.

2.2.1 Early Period (9,000-5,000 years B.P.). The lower limit of the Early period is estimated at 9,000 years B.P. Occupation dates vary locally within the Chumash area, but the general chronological sequence has been verified by Carbon-14 dating. The transition to the Middle period is thought to have taken place about 5,000 years B.P.

The Early period in the Santa Barbara Channel region was originally defined by D.B. Rogers (1929). He termed this period "Oak Grove", a name which continues in use today. Rogers based his definition of this period on artifact types and physical characteristics of midden soil, concluding that the millingstone (mano and metate) was its diagnostic feature. Wallace (1955), using data from coastal southern California, has described a regional Early period, the "Millingstone Horizon" in which Roger's "Oak Grove" was a local variant.

Most reconstruction of Early period subsistance stress dependence on terrestrial food resources (Wallace 1955, 1978). It is generally accepted that Early period peoples were primarily plant food collectors and processors with hunting and fishing strategies developed to a lesser extent. It is also generally accepted that "Oak Grove" settlement patterns consisted of seasonal shifts from centralized habitation sites (usually located on isolated knolls and oak topped ridges in inland valley and canyons, and on high sea terraces along the coast) to smaller de-centralized resource specific campsites (Greenwood 1969). Recently dated Early period components at sites in Diablo Canyon (Greenwood 1972) and Surf (Horne, 1980), however, show evidence of substantial maritime collecting in the period between 9,000-7,000 years b.p. As a sample of Early period sites increases, a better understanding of subsistence practises will emerge.

Although permanent villages had been established on the coast at this time, peoples in the lower Santa Clara River Valley may have remained nomadic. However, no early period sites are known in the upper Ojai and lower Santa Clara River Valleys (Singer, Wessel and Edberg 1981).

2.2.2 Middle Period (5,000-1,500 B.P.). The Middle period is thought to span a period from approximately 5,000 to 1,500 year B.P. Some authorities, however, place the terminal Middle period much earlier, at about 4,000 years

B.P. While extensive exploitation of the nearshore fishery is evident in the Santa Barbara Channel region during the early Middle period, inland populations continued to rely on more terrestrially based resources (Wells, et al. 1978). It was during this period that maritime fishing and sea mammal hunting become focal subsistence activities on the coast. In addition, there is evidence that this shift in resource emphasis led to a more complex social institutional base and to an expanding trade network that included the Santa Barbara Channel Islands and the development of larger more permanent settlements on the mainland coast (U.S. Bureau of Land Management 1978). However, the pattern of gathering vegetal resources appears to have continued in much of the interior until 300-500 A.D., with only limited development of other food procurement strategies, such as hunting (Ancient Enterprises 1979). Clewlow (1976, 1977a) indicates that occupation of Ven-404 may have begun during this period.

2.2.3 Late Period (1,500-1,000 years B.P. to A.D. 1772). The Late period includes the time frame sometimes referred to as the Proto-Historic or Ethno-Historic period (A.D. 1542-1772). The Late period is marked by an increase in population and a greater degree of specialized adaptations to local microenvironmental zones and a more efficient utilization of local resources (U.S. Bureau of Land Management 1978), especially marine resources at coastal sites and seasonal utilization of acorns, deer and grasses at inland sites. With the increase in population, the complexity of intersite (particularly coastal-inland village) interaction also increased (Ancient Enterprises 1979). At the time of Chumash occupation of the region, settlement patterns consisted of centralized long-term occupation sites supported by secondary diversified, resource-specific, short-term camp sites which were occupied seasonally. This settlement pattern is typified by large, well-defined, named, nucleated villages, known as rancherias. Villages were typically situated near water sources, usually at the lower ends of valleys, with campsites located near streams, in rock shelters or on open slopes (Clewlow 1976). Clewlow (1977d) has noted that due to their highly successful adaptation, the Chumash attained a level of socio-cultural complexity comparable to that of many agricultural peoples, indicating their subsistence pattern supported a high population density and their villages arranged in sizable well planned settlements. The introduction of standardized shell bead money indicates a development of a market economy and complex exchange system (King 1971). In addition, economic and social alliances consolidated large numbers of people under a single regional political system (Singer, Wessel, Edberg 1981).

2.3 Historical Context

As stated previously, during the Late prehistoric and Proto-Historic periods, the Upper Ojai and Lower Santa Clara River Valleys were inhabited by the Ventureno Chumash. Cabrillo first contacted the Chumash of Ventura County in 1542. Sporadic contact between the Spanish and Chumash peoples continued during the next two centuries, although the first historic accounts of contact near Santa Paula Creek date from the Portola expedition of 1769-1773. Between 1770 and 1795 there were no major expeditions along the lower Santa Clara River Valley. During the 1770's, the Spanish established a chain of missions stretching from Baja California north to the San Francisco Bay region. Five of these missions were founded in Chumash territory: San Buenaventura, Santa Barbara, Santa Ines, La Purisima de la Concepcion, and San Luis Obispo. The mission program drastically affected the traditional way of life of the Chumash, disrupted hunting and gathering activities, settlement patterns, and introduced diseases for which these native peoples has no natural immunity. Both wide scale epidemics and disruption of settlement/subsistence activities decimated Chumash populations. In 1795, Fray Santa Maria established the site of the San Fernando Mission and returned to Ventura via the Lower Santa Clara River Valley, visiting the village of Mupu (Englehardt 1927). Shortly thereafter, an assistencia named "Santa Paula" was established by Mission San Buenaventura at or near Mupu (Singer, Wessel, Edberg 1981). Hanks (1972) cites 1810 for the date it was established, and Englehardt indicates Mupu was known as Santa Paula by 1827. Although Chumash subsistence and settlement patterns continued for a time, agricultural activities of the missions was the focal point of much of the population. Neophytes made frequent trips to their native villages and participated in some food-gathering activities, and Chumash cemeteries continued in use until the 19th century. When secularization of the Missions was ordered, most mission-connected Chumash became workers on ranchos while others fled to the interior or lived on the outskirts of towns, their culture effectively destroyed.

The principal Chumash rancheria in the area was Mupu (Clewlow 1977) although 'awaha'y (Ven 132), Secpe (S'eqp'e), Sisa (Ven 109 or Ven 404) are also cited. Other principal villages in the area include Mahahal, Sisxulkuy, Alalehue, Kach, Antuk, Max'aw, Max Axal and S'aqtik'oy.

Three years after secularization of the Missions, the lands of the Upper Ojai Valley were granted to Fernando Tico as Rancho Ojai (1837). In 1829, the governor of Mexico granted the Rancho Sespe to Don Carlos Antonio Carrillo. The western boundary of the rancho was at the Arroyo Mupu or Santa Paula Creek. By 1890's portions of the extensive rancho had been sold off and Lopez (1981) indicates that the first oil wells drilled in the area were drilled during this period.

At the Rancho of Santa Paula, the padres had the Indians build a reservoir. The Mupu reservoir may have been located at Ven-404 on Ferndale Ranch, based on the notes of the Reverend Stephen Bowers (1878). The Rancho Santa Paula was occupied and operated by the Mission until 1834 when the missions were secularized.

Singer, Wessel and Edberg (1981) identify Ven-404 as possibly the Historic Period village site of Sisa and not the rancheria of Mupu as proposed earlier by Bowers (1878). Most archaeologists agree that Mupu lay along Santa Paula Creek somewhere between the Santa Clara River and Sisar Creek (Van Valkenburgh 1935; Brown 1967; Applegate 1975, King 1975; Lopez 1977; Moss 1977). Kroeber (1925: Plate 48), Van Valkenburgh (1935), Brown (1967), Hanks (1972:2) and Hoover and Whitehead (in Applegate 1975: Map) place Mupu at the confluence of Santa Paula Creek and the Santa Clara River. Sisa (meaning "eyelash") was a large Chumash village located north of Mupu (Applegate 1975:42). Studies by Brown (1967) and King (1975) have placed Sisa at the junction of Sisar and Santa Paula Creeks.

A Historic Period burial site at Ven-404 excavated by Bowers (1878) was found to contain wooden planks that may possibly indicate that it was the grave of a canoe (Tomol) owner. However, as Bowers does not mention asphaltum plugs common in Tomols, the boards may simply represent remains of a "coffin".

Singer, Wessel and Edberg (1981) state that if the boards were indeed remnants of a canoe, it may indicate that CA-Ven-404 possibly had kin ties with coastal villages. Fragments of shell obtained by Clewlow (1977a) during the limited test excavations at Ven-404 in 1976-77 appears to confirm this theory.

Artifacts obtained from the site included numerous large stone bowls or mortars and grinding tools, manos, pestels, projectile points, asphaltum, shell and glass trade beads, steatite and shell beads, bone awls and beads, quartz crystals, taring pebbles, hammerstones, drills, bifaces, knives, scrapers, and flakes. Only a preliminary report of these investigations is available (Clewlow 1977a).

The records search revealed that no historic sites or landmarks of National, State or local significance occur within or immediately adjacent to the project area. The closest National Register sites are located in Ventura and Oxnard. Several County of Ventura Historic Landmarks are located in the City of Santa Paula and one within Steckel Park (VS-566). One site of local historic interest is located on Ferndale Ranch, west of Thomas Aquinas College. This "mission style" hacienda, built in 1929, was designed by Wallace Neff for the Doheny family. Two California State Historic Landmarks (No. 727) a campsite of the Portola Expedition, and (No. 757) Sycamore Tree are located in Santa Paula and Fillmore, respectively.

3.0 RECONNAISSANCE AND RESULTS

The survey area was divided into survey corridors on the basis of the individual project alternatives and environmental factors. A survey corridor of approximately 30 feet (10 meters) paralleling each of the access road alternatives was walked in two parallel or zig zag transects by MEI Senior Archaeologist Heather Macfarlane between February 10-14, 1984. Areas judged to be favorable for the location of prehistoric sites such as terraces, small knolls, and ridgetops especially those situated near water sources were surveyed more intensively. In these areas the survey corridor was extended to 60 feet (20 meters) paralleling the proposed access roads and distances between transects were reduced to 15 feet (5 meters). The archaeologist walked in predominantly zig zag transects in order to afford maximum coverage of the corridor. Where vegetation was extremely dense or the terrain unusually rough, transects of opportunity were utilized. Special attention was given to all exposed ground surfaces including areas disturbed by recent rodent activity, road cuts, recently eroded terraces and creek bed areas. Where vegetation density obscured visual examination of the ground surface, small areas of ground cover were removed every 15 to 20 feet (5 to 7 meters).

The Ranch consists of generally foothill terrain ranging from steep rugged slopes (greater than 40%) to gentle slopes (less than 20%) and flat alluvial plains. The majority of slopes within the property area are oriented toward the west and southwest with a few oriented toward the north and east. Elevations within the project area range from 950 feet at Highway 150 to 1600 feet at the southeastern boundary of the survey area above Anlauf Canyon. Vegetation within the property consists of mixed woodland and riparian vegetation along the Creek and other major drainage areas with cottonwood, chaparral and conifers occuring on steep north facing slopes. South facing slopes are characterized by light chaparral, yucca and other Xeryphytic plants.

The geologic structure of the Ranch is complex. Surrounding mountains are composed primarily of sedimentary deposits of Eocene, Miocene, Pliocene and Pleistocene age. Bedrock is composed of rock formations generally consisting of shale, siltstone and sandstone. Terrace deposits consist of mainly recent alluviam of Quaternary age over bedrock. Stones imported into the area by prehistoric inhabitants include "fused shale", Franciscian chert, and obsidian. Results of the reconnaissance are represented on Figure 3.0.

3.1 Shared College Road

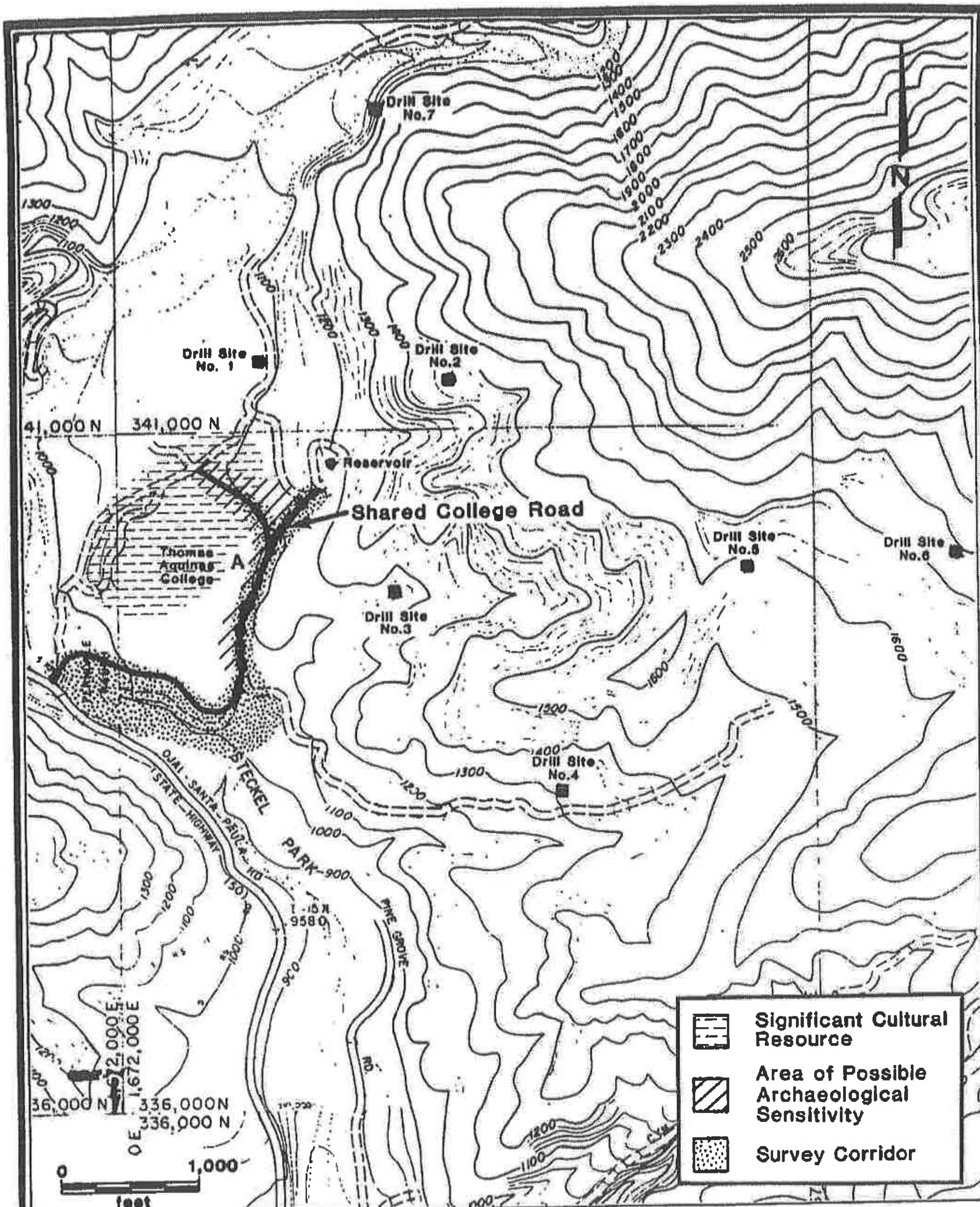
One previously recorded archaeological site is located in the vicinity of the existing paved Shared College Road. This site (CA-Ven-404) is situated approximately 500 feet east of the existing roadway.

Surface visibility in the survey corridor paralleling the road was variable but generally good. No new prehistoric or historic cultural resources were identified immediately adjacent to the existing roadway; however, based on the nature of the terrain and the proximity of a significant cultural resource (Ven-404), the potential exists for the occurrence of buried resources in the vicinity of the road. The area adjacent to the shared college sensitive for the occurrence of buried cultural resources is represented on Figure 3.0-1 as Area A.

3.2 Planning Commission Road

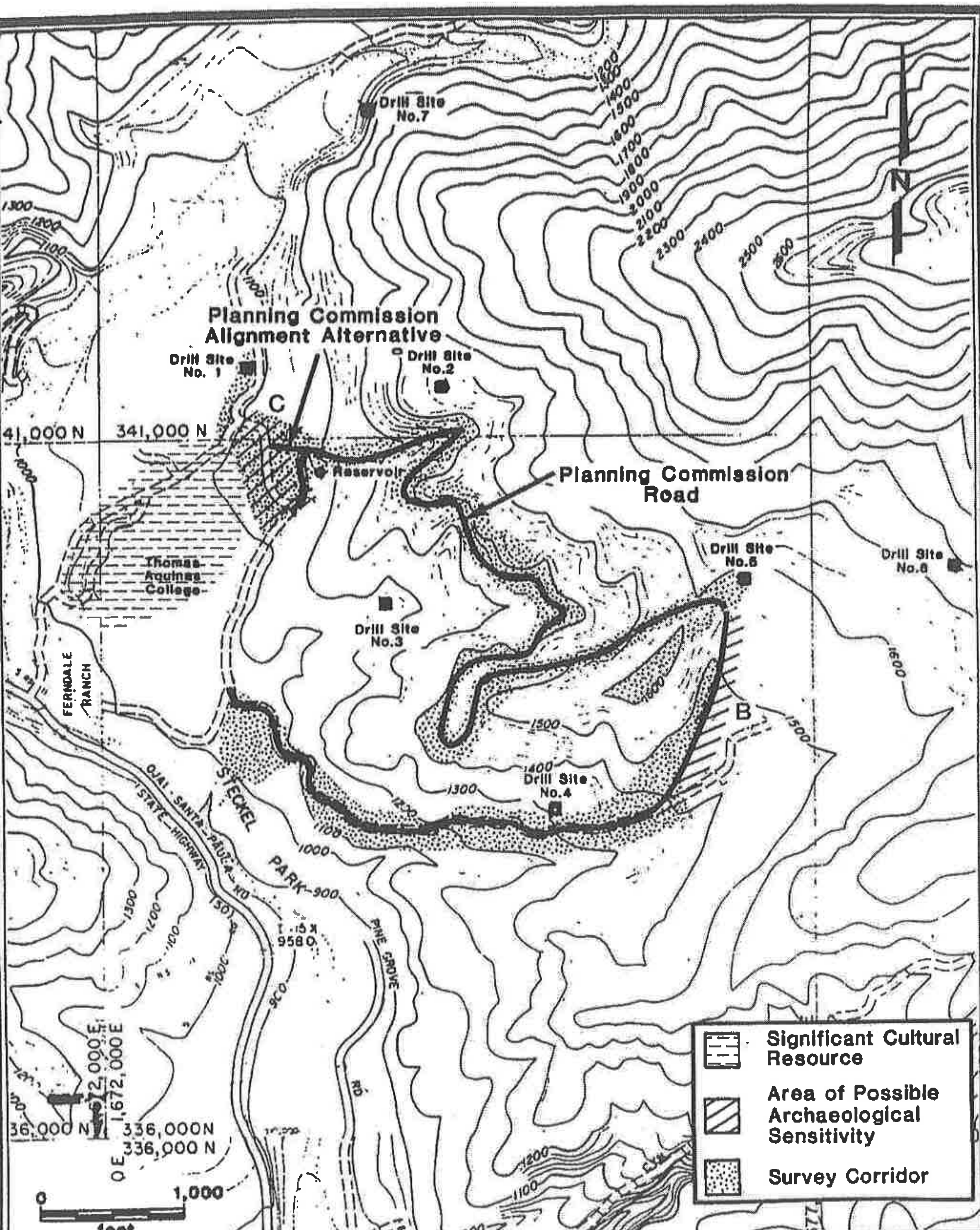
The southern section of this road cuts across a broad gently sloping hillside and terrace overlooking Anlauf Canyon judged to be favorable for the occurrence of a site locality was more intensely surveyed. Access to the area of producing avocado groves and pasture land adjacent to the eastern section of the road was not possible at the time of the survey. The possibility exists, therefore, that unidentified cultural resources may exist on the flat elevated terrace overlooking Anlauf Canyon. This area is shown on Figure 3.0-2 as Area B. No new prehistoric or historic cultural resources were identified elsewhere along the Planning Commission Road.

The northern most section of the planning commission road in the vicinity of the existing ranch buildings and tank farm is considered archaeologically sensitive in that artifacts have been reported recovered in this area (Clewlow 1977a). Two groundstone fragments were observed adjacent to a stand of oak trees just south of the tank farm during the reconnaissance. The ground surface in this area appeared to be extensively disturbed by construction of the existing road. Three small shovel tests were conducted in this area as dense vegetation obscured most of the ground surface, but no



SHARED COLLEGE ROAD ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

FIGURE 3.0-



PLANNING COMMISSION ROAD ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

FIGURE 3.0-2

additional artifacts or other cultural remains were located. The extremely disturbed nature of this area as evidenced by the mounding of rocks and soil along the western edge of the roadway points to the possibility that these fragments were disassociated from their original site of deposition during previous grading. However, the possibility exists for the occurrence of buried cultural resources in the vicinity of the section of the planning commission road from the tank farms to the southern most ranch facility. This area is represented on Figure 3.0-2 as Area C.

3.2.1 Alignment Alternative for Planning Commission/drill site 2 Access Road. Visibility in this area was excellent. No new cultural resources were located in the vicinity of this alignment alternative which extends west from the planning commission road down a gently sloping hill across a horse pasture and corral to rejoin the planning commission road just north of ranch buildings (see Section 3.2).

3.3 Drill Site 3 to Planning Commission Road

3.3.1 Canyon Alternative.

A portion of this road is an existing paved road located at the base of a hillside adjacent to and paralleling a small canyon and intermittent stream (Figure 3.0-3). Although the steepness of the adjacent hillside makes this an unfavorable location for a prehistoric site, the presence of a small oak grove northeast of the drill site indicates it may have been an acorn collection area subsidiary to the more extensive Anlauf Canyon resources. Surface visibility was variable, but generally good. No new prehistoric or historic cultural resources were identified in this area during the surface reconnaissance.

No new prehistoric or historic sites were identified in the portion of the corridor adjacent to the canyon which runs from Drill site 3 east to the planning commission road. The route crosses a small intermittent stream and oak grove and small areas of bedrock outcrop adjacent to the stream were examined for the presence of bedrock mortars utilized in acorn processing. Visibility in the canyon area was generally poor and necessitated the removal of small areas of vegetation to examine the ground surface. Where vegetation was extremely dense, transects of opportunity were employed. No new prehistoric or historic cultural resources were identified in this area.

3.3.2 Ridge Alternative. Visibility in the portion of the corridor which follows the hillside and ridge northeast from Drill site 3 to join the planning commission road, was generally poor necessitating the removal of small areas of vegetation to examine the ground surface (Figure 3.0-3). Where vegetation was extremely dense, transects of opportunity were employed. No new prehistoric or historic cultural resources were identified along the ridge route from drill site 3 northeast to the planning commission road.

3.4 Proposed Ridge Road

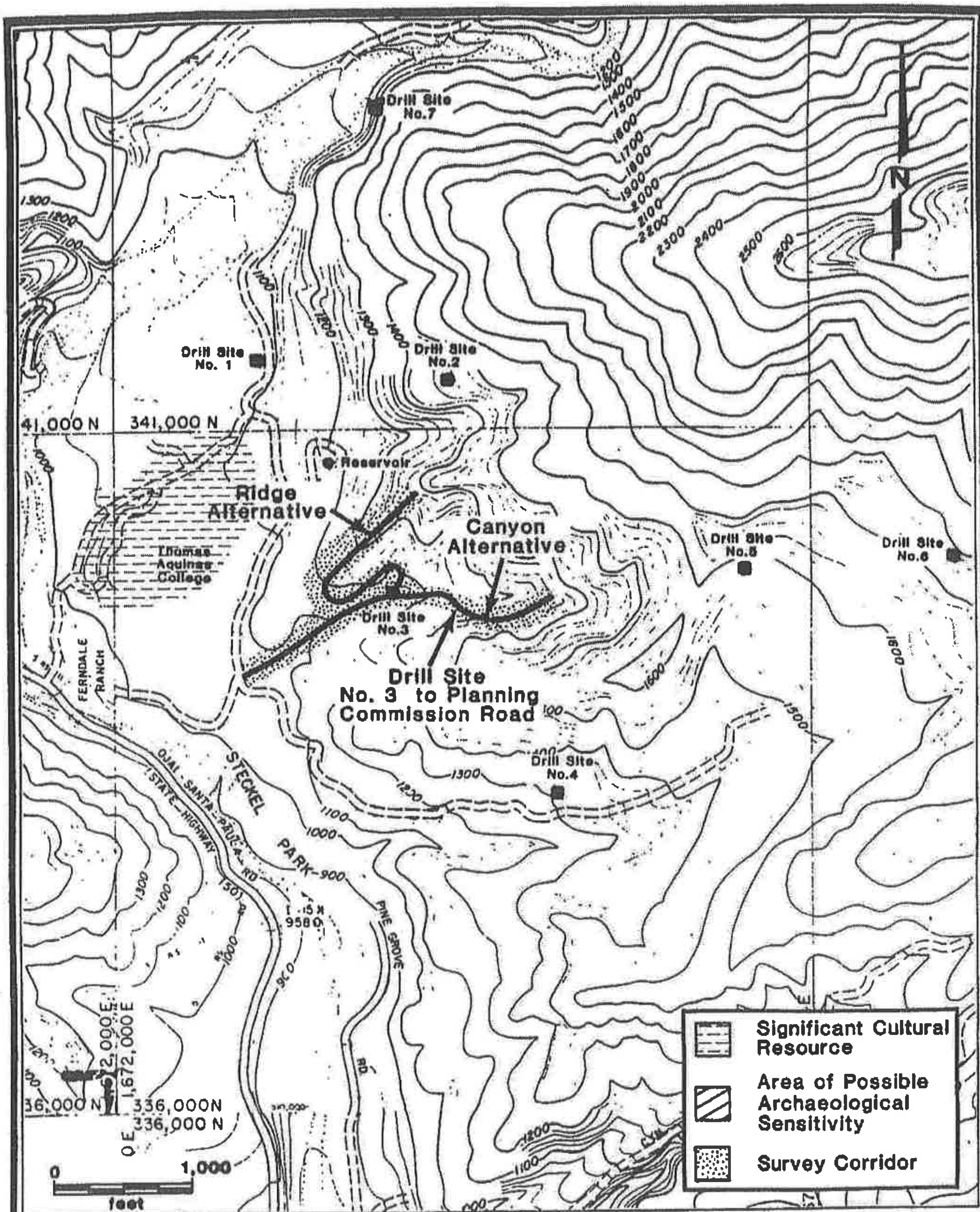
No new prehistoric or historic cultural resources were identified in the vicinity of the proposed ridge road. However, this area is considered more archaeologically sensitive due to the proximity of Ven-404 and the possibility exists that buried resources may occur in this area. This area is represented on Figure 3.0-4 as Area D.

3.5 Entrance Roads Alternatives

3.5.1 Shared College Entrance Road. The area immediately adjacent to the existing entrance road was examined during the walkover reconnaissance. Surface visibility in the area immediately adjacent to the entrance was good. No new prehistoric or historic cultural resources were located in the vicinity of the college entrance.

3.5.2 Shared College Entrance Partial Separation (No Gully Crossing). The survey corridor paralleled an existing dirt road south of the Shared College Road. Surface visibility in the survey corridor was generally good. No new prehistoric or historic cultural resources were identified in the vicinity of this entrance alternative.

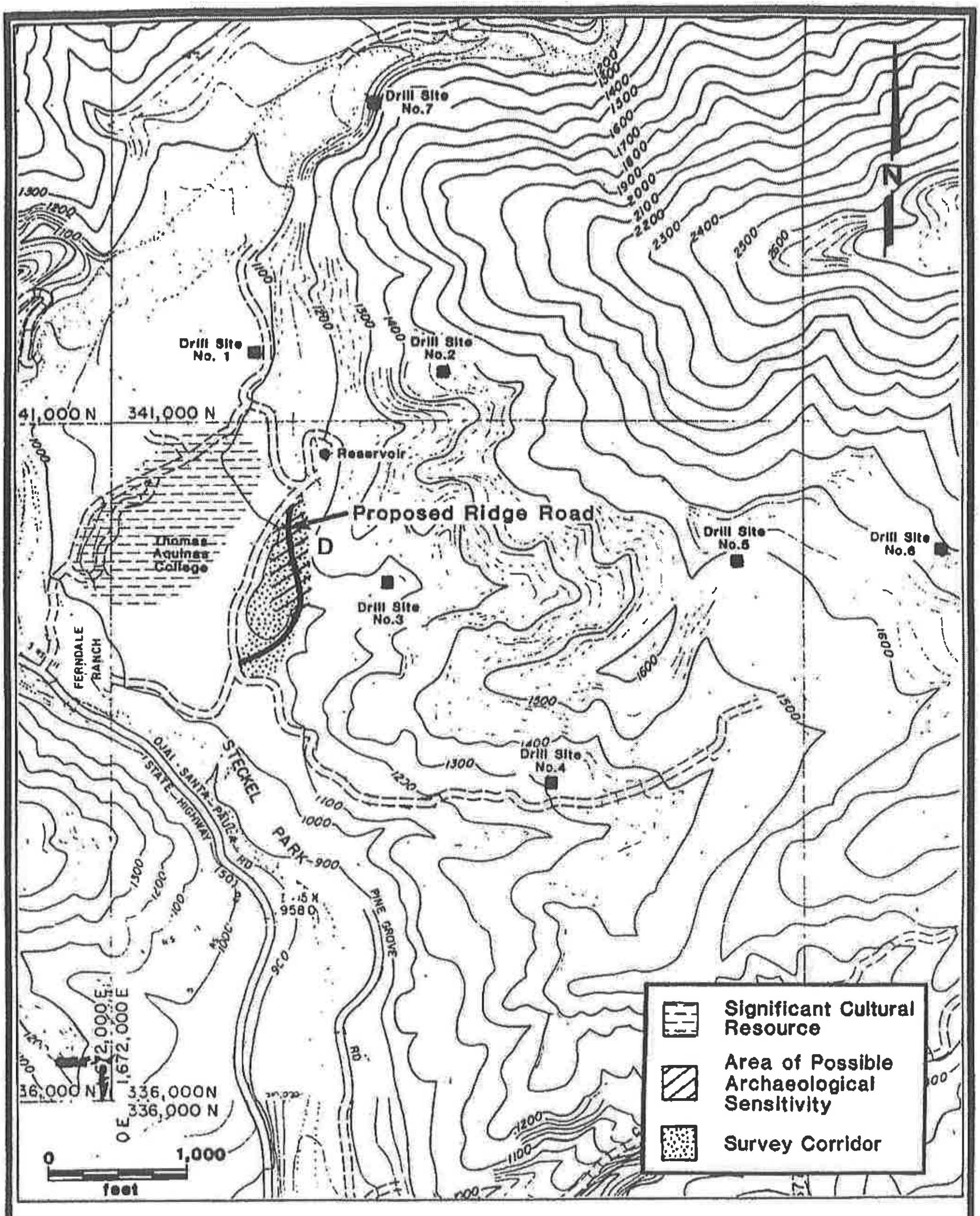
3.5.3 Shared Entrance Separate Road (gully crossing). The flat elevated terrace on the eastern side of the gully was judged to be a favorable location for an aboriginal site and was, therefore more intensively surveyed.



DRILL SITE NO.3 TO PLANNING COMMISSION ROAD ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

McCLELLAND

FIGURE 3.0-3



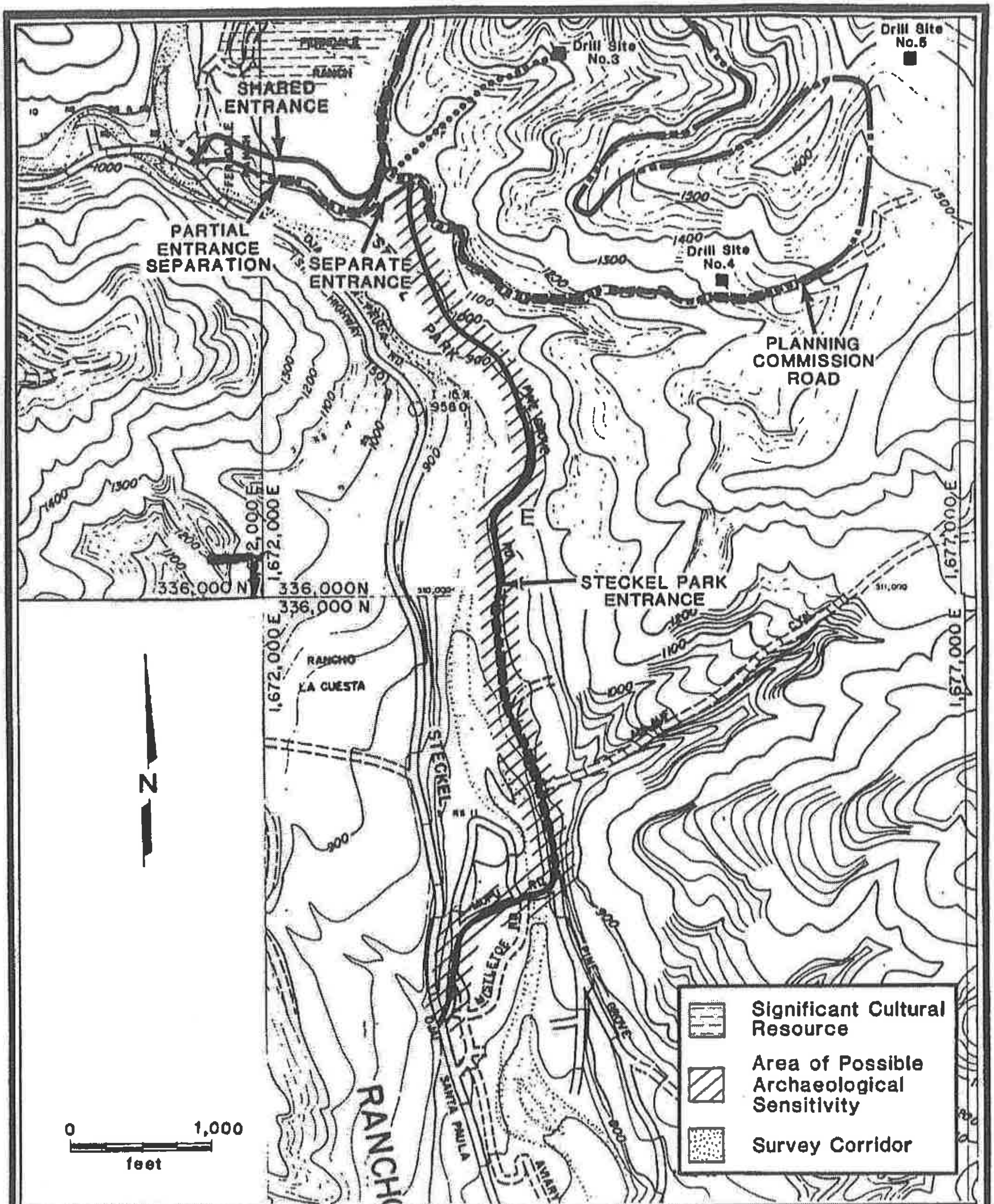
PROPOSED RIDGE ROAD
ARCHAEOLOGICAL SENSITIVITY ZONES AND
SURVEY CORRIDOR

The area was found to have been previously disturbed by emplacement of several pipelines. Surface visibility in this area was excellent. No new prehistoric or historic cultural resources were located in the vicinity of the proposed separate road crossing over a small arroyo or gully off Santa Paula Creek. Due to the disturbed nature of the soil and good visibility the presence of potential buried cultural resources in this area is considered unlikely.

3.5.4 Steckel Park Entrance. Three previously identified cultural resources are located on the flat elevated terrace overlooking Santa Paula Creek in the general vicinity of the Steckel Park Entrance (Ven-501, Ven-502, and Ven-503). The site designated Ven-503 consists of a single fused shale flake found at the northern end of Steckel Park (Moss 1977:10). Ven-502 is a large site located near an asphaltum seep on the west side of Santa Paula Creek. Ven-501 is a smaller site on an elevated terrace east of Santa Paula Creek. In addition, three isolated artifacts were recovered in the hills adjacent to the park during a recent survey of the area (Singer, Wessel and Edberg 1981). The historic Steckel House (VS-566) is located in Steckel Park near the main entrance and is currently in use as the Park headquarters. The Steckel Park Entrance will utilize an existing roadway through the park and adjacent oil production facility. No additional surface reconnaissance was required in this area as it was shown to have been previously surveyed (Lopez 1977; Singer, Wessel and Edberg 1981). This area has a fairly high density of prehistoric site localities. The possibility exists therefore for the occurrence of buried cultural resources in the vicinity of the Steckel Park Road. This area is considered archaeologically sensitive and is shown on Figure 3.0-5 as Area E.

3.6 Other Alternatives

3.6.1 Silverthread Access. Little is known archaeologically in the vicinity of the Silverthread Access Road. This route follows an existing dirt road from the Planning Commission Road where it crosses a tributary of Santa Paula Creek north of the tank farm eastward to join Highway 150 near Camp Bartlett.



STECKEL PARK ENTRANCE ARCHAEOLOGICAL SENSITIVITY ZONES AND SURVEY CORRIDOR

Portions of this route have a high potential for the occurrence of prehistoric site localities. No previous archaeological surveys have been conducted in this portion of the Ferndale Ranch. This alternative access is therefore considered archaeologically sensitive.

3.6.2 Timber Canyon Access. Little is known archaeologically in the vicinity of Timber Canyon. Few archaeological surveys have been conducted along this route. The portion of the route which passes through the Canyon itself is an existing paved road requiring little or no modification. The area immediately adjacent to this portion of Timber Canyon Road has a high potential for the occurrence of both historic and prehistoric cultural resources and must be considered archaeologically sensitive. This road also passes through Orcutt Canyon, Mud Creek Canyon, and Anlauf Canyon. The area immediately adjacent to the road in the vicinity of these canyons known to have been utilized prehistorically for resource procurement has a moderate potential for the occurrence of cultural resources and must also be considered archaeologically sensitive.

4.0 RECOMMENDATIONS

Those portions of the survey area considered to be archaeologically sensitive are represented on Figures 3.0-1, 3.0-2, 3.0-4, and 3.0-5. No cultural resources were identified in the remaining portion of the project area; however, should such resources be encountered during construction activities, a qualified archaeologist should be contacted to evaluate the significance of the find.

4.1 Shared College Road (Area A).

This alternative would utilize the existing paved road currently shared with the college. The one known archaeological site located on the Ferndale Ranch is located east of this road. No effect on this site is expected to result from continued use of this facility. No new cultural resources were identified adjacent to this facility during the surface reconnaissance. However, due to the nature of the terrain and the proximity of this facility to a significant cultural resource (Ven-404), the potential exists for the occurrence of subsurface archaeological remains in the area designated Area A on Figure 3.0-1. Should modification of this facility be required it is recommended that a qualified archaeologist be present on-site to monitor construction activities in Area A in order to mitigate possible impact to potential buried cultural resources.

4.2 Planning Commission Road (Area B)

Should the Planning Commission Road access alternate be selected, the area shown on Figure 3.0-2 as Area B must be surveyed prior to any modification of the existing dirt road.

4.2.1 Alignment Alternative for Planning Commission/Drill Site 2 Access Road (Area C)

Should the Alignment Alternative for Planning Commission/Drill Site 2 Access Road alternative be selected, modification of the portion of the existing planning commission road in the vicinity of ranch facilities and tank farm (designated Area B on Figure 3.0-2) may be necessary. The area immediately adjacent to this portion of the Planning Commission Road is considered archaeologically sensitive based on reports of artifacts recovered previously from this area (Clewlow 1976) and the presence of two ground stone fragments observed during the surface reconnaissance. The possibility exists, therefore, for the presence of subsurface archaeological remains in this area. It is recommended that a qualified archaeologist be present on-site to monitor construction activities in Area C in order to mitigate possible impact to potential buried cultural resources.

4.3 Proposed Ridge Route (Area D).

No new cultural resources were identified in the vicinity of this proposed route. An area of slightly darker soil was visible adjacent to the existing road cut although no artifacts or other remains of aboriginal activity were observed. Due to the nature of the terrain and the presence of a significant cultural resource on the flat alluvial terrace approximately 600 feet to the east, the potential exists for the occurrence of subsurface archaeological remains adjacent to this proposed route. This area is designated Area D on Figure 3.0-4. Should this alternate be selected it is recommended that an archaeologist be present on-site to monitor construction activities in order to mitigate possible impact to potential buried cultural resources.

4.4 Steckel Park Entrance (Area E).

The Steckel Park property and adjacent oil facilities is estimated to have a moderate to high potential for the occurrence of subsurface cultural resources. This estimation is based on the nature of the terrain and the high density of prehistoric sites in the area. Should this alternate entrance route be selected it is recommended that a qualified archaeologist be present to monitor construction activities necessary to modify the existing road in order to mitigate possible impact to potential buried cultural resources. This area is represented on Figure 3.0-5 as Area E.

4.5 Silverthread Access

The area adjacent to the Silverthread Access Road has never been subjected to a systematic archaeological reconnaissance. Should the Silverthread access be selected an archaeological survey of this route will need to be conducted by a qualified archaeologist.

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APPENDIX D

NOISE STUDY

REPORT 5327/A

TRAFFIC NOISE ASSESSMENT ON THE FERNDALE RANCH

12 September 1983

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Submitted to:

ARGO Petroleum Corporation
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Ventura, CA 93001

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1.0 INTRODUCTION

The Ferndale Ranch is located near state highway 150 approximately three miles north of the City of Santa Paula, California. At present, in addition to the ranch activities, the land use includes the Thomas Aquinas College and oil exploration and production activities conducted by ARGO Petroleum Corporation. Figure 1 shows the general layout of the college buildings, local access roads and drill sites.

Common access from highway 150 is provided to the site by a roadway which services the campus, the ranch and the currently producing drill sites. At issue is the noise generated by the ARGO traffic on the main roadway (called College Rd.), especially near the campus dormitories (see Figure 1).

The objective of this study is to evaluate the traffic noise problem on College Rd. and to investigate methods of abatement. As a possible alternative, a separate roadway for the ARGO traffic is also investigated. The proposed alignment of the new roadway (called Ridge Rd.) is shown on Figure 1.

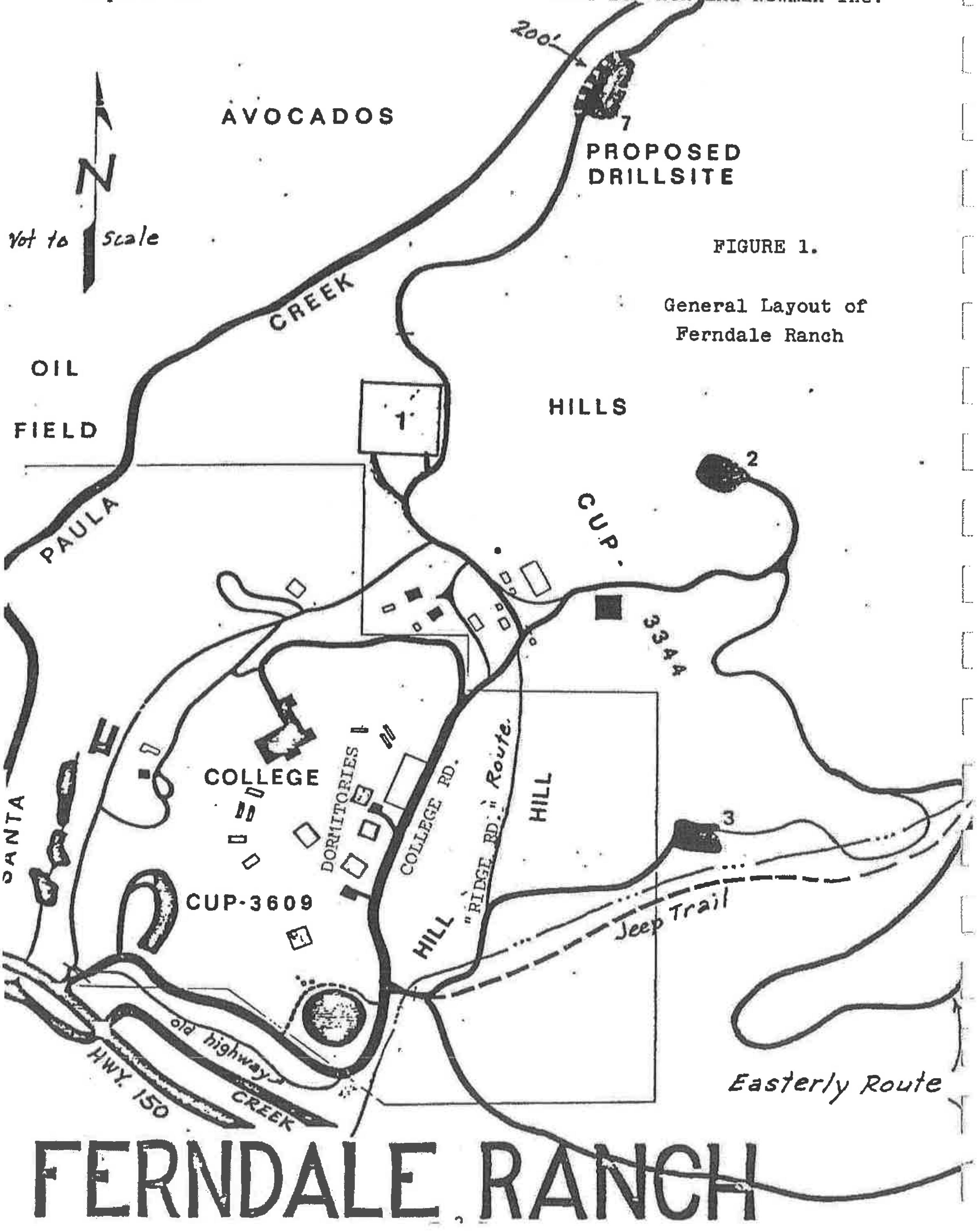

FIGURE 1.

General Layout of Ferndale Ranch

2.0 NOISE CRITERIA

To make a judgment as to the acceptability of any noise level environment, noise criteria must be selected. In general, noise criteria have been divided into two categories:

1. Criteria which is based on environmental conservation, and
2. Criteria which is based on environmental utility.

Criteria based on environmental conservation is based on the ambient noise levels which exist at the site before the intruding noise source is added. This criteria are usually very difficult to define and enforce since the ambient noise at the location varies from hour to hour and certainly from day to day. When applied, average values of existing noise environments have been used to make these types of judgments.

In this report, comparisons will be made to the existing ambient noise levels where the existing ambient noise is defined as the levels generated by the traffic from the College and ranch operations.

Environmental utility refers to criteria developed on the basis of people's ability to perform certain tasks such as speech intelligibility, sleep interference, etc. Such criteria, developed based on task interference studies, result in the assignment of fixed noise level goals below which a given land use is considered compatible.

No fixed criteria associated with environmental utility exist in the County of Ventura to cover the situation at hand. The following three documents can be brought to bear when assessing the situation from that point of view.

The first and most important is the Levels Document published by the Environmental Protection Agency (EPA). The objective of EPA, as mandated by Congress, was to develop a goal which would protect the U.S. population from the effects of noise with an adequate margin of safety. As a result, EPA published the Levels Document which identified a level of L_{dn} = 55 dB where,

L_{dn} = day-night equivalent A-weighted sound level.

The L_{dn} is a composite unit derived by summing 24 hourly equivalent sound levels (LEQ) with an additional 10 dB penalty imposed on levels between 10:00 P.M. and 7:00 A.M. and is defined as

$$L_{dn} = 10 \log_{10} \frac{1}{24} \left[15.10^{(L_d/10)} + 9.10^{\{(L_n + 10)/10\}} \right]$$

Where L_d is the equivalent weighted sound level between 7:00 A.M. and 10:00 P.M., otherwise known as a daytime equivalent sound level and LEQ is the equivalent sound level defined as the dBA level of a steady state sound which has the same dBA weighted sound energy as that contained in the actual time varying sound being measured over a specific time period.

Most new noise regulations in the country, as well as the EPA Levels Document, use the LEQ descriptor over a one-hour period as the basis for noise standards. The complex day-night equivalent sound level (L_{dn}) of 55 dB can be translated into recommended levels during the daytime and during the nighttime. The corresponding daytime level is 55 dB and the nighttime level, which carries a penalty of 10 dB, is 45 dB.

In explaining the development of the L_{dn} = 55, EPA is very careful in emphasizing that:

"...On the basis of interpretation of available scientific information, the identified levels are sufficient to protect the public health and welfare from the effects of environmental noise. Since the protective levels were derived without concern for technical or economic feasibility and contain a margin of safety to ensure their protective value, they must not be viewed as standard criteria, regulation or goal. Rather, they should be viewed as levels below which there is no reason to suspect that the general population will be at risk from any of the identified effects of noise."

EPA, in explanation of the misuses and misunderstandings of the Levels Document, goes to great length in emphasizing the conservative nature of these levels. When referring to these, they say:

"They are not regulatory goals. They are levels defined by a negotiated scientific consensus. These levels were developed without concern for economic or technological feasibility, are intentionally conservative to protect the most sensitive portion of the American population, and include an additional factor of safety."

The American National Standards Institute has also published ANSI Standard S3.23-1980 in which the question of land use compatibility is explored. Figure 2 shows the summary of the land use compatibility for outdoor environment based on the day-night average sound level defined earlier. In these guidelines, the L_{dn} = 55 dB is again the lowest number recommended for a compatible environment.

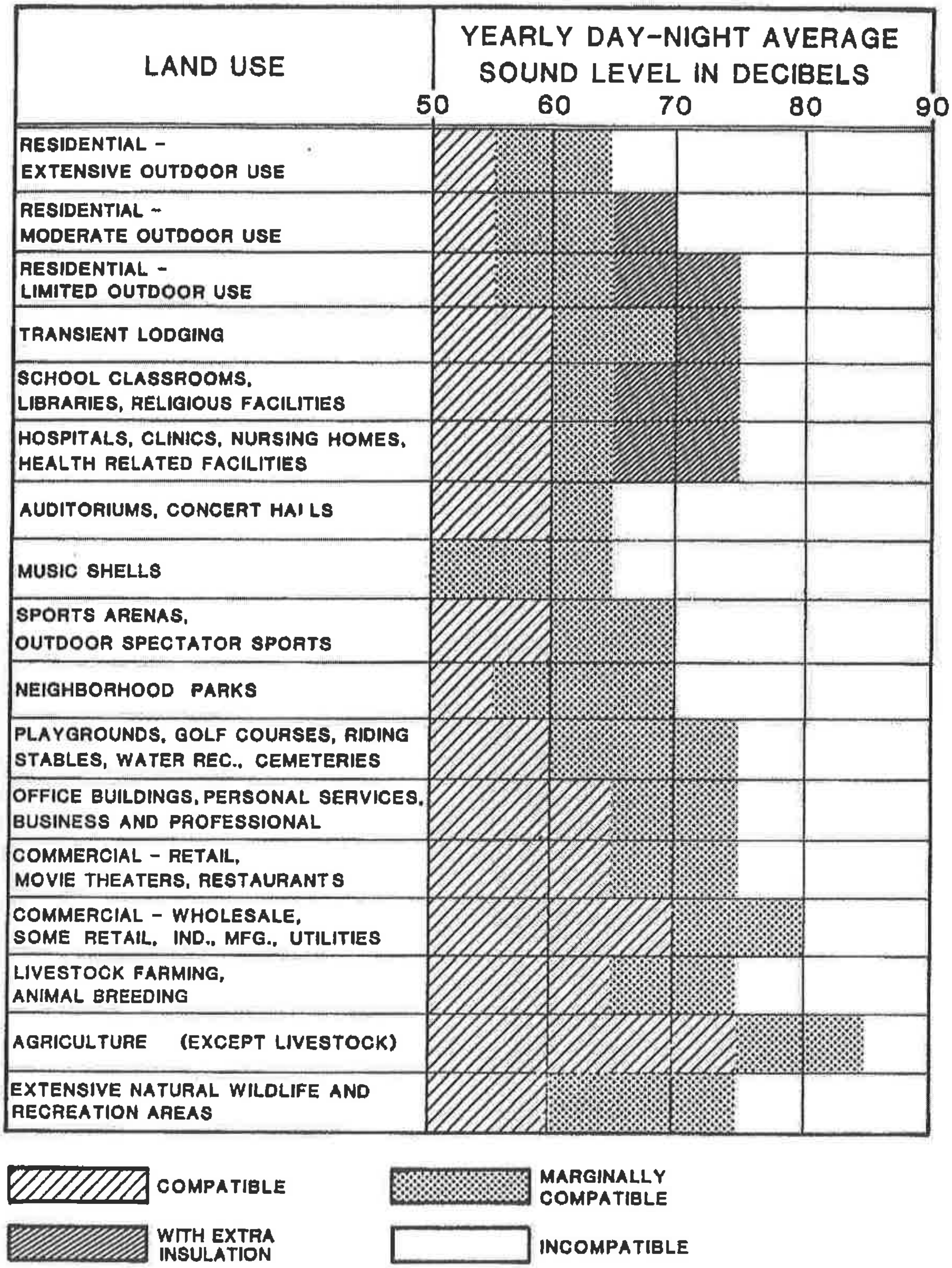

FIGURE 2. LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVEL AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED (AFTER ANSI STD S 3.23 - 1980)

Finally, the newly-enacted Oil Drilling and Production Noise Ordinance in the County of Ventura can be considered. Although this ordinance applies only to fixed oil site installations where oil production and drilling take place and does not cover oil-related traffic, the adopted numbers, by the County in this case, can be considered when judging the acceptability of the traffic noise problem at hand. The Ventura County ordinance calls for a maximum LEQ level equal to 55 db during the day and a maximum LEQ level equal to 45 dB during the nighttime period.

This report does not suggest that the above noise levels be used to judge the acceptability or non-acceptability of the traffic noise environment at the College. However, since no specific noise limits are applicable to the situation at hand, the LEQ = 55 dB during the day will be used as a conservative parameter that can be considered in judging the current situation.

3.0 NOISE MEASUREMENTS

A 24-hour survey was conducted on August 17, 1983. The objective of the survey was to provide a description of the ambient noise levels in the area and to describe the contribution of traffic noise at a critical location near the roadway, i.e., the closest dormitory window to College Rd.

It should be noted that this survey is not intended to and does not describe the general traffic noise problem at the college. As will be later shown, the traffic volumes on College Rd. (and traffic noise) vary substantially depending on whether or not school is in session, and on the particular operations being conducted by ARGO. This survey however describes accurately the conditions and traffic noise found on August 17. In that, when the traffic volumes for specific traffic scenarios described later correspond to the traffic conditions measured, valid comparisons can be drawn. Furthermore, the survey data can be used to validate the calculated noise levels.

Figure 3 shows the microphone position. The microphone is located approximately 50 ft. from the near lane and represents the noise environment experienced outside the dormitory window.

Data was acquired using a Digital Acoustics, Model 607 noise monitor. This instrument is an automated noise measuring device which continuously samples the noise environment and computes various acoustical descriptors which are programmable by the operator. A sample output is shown in Figure 4.

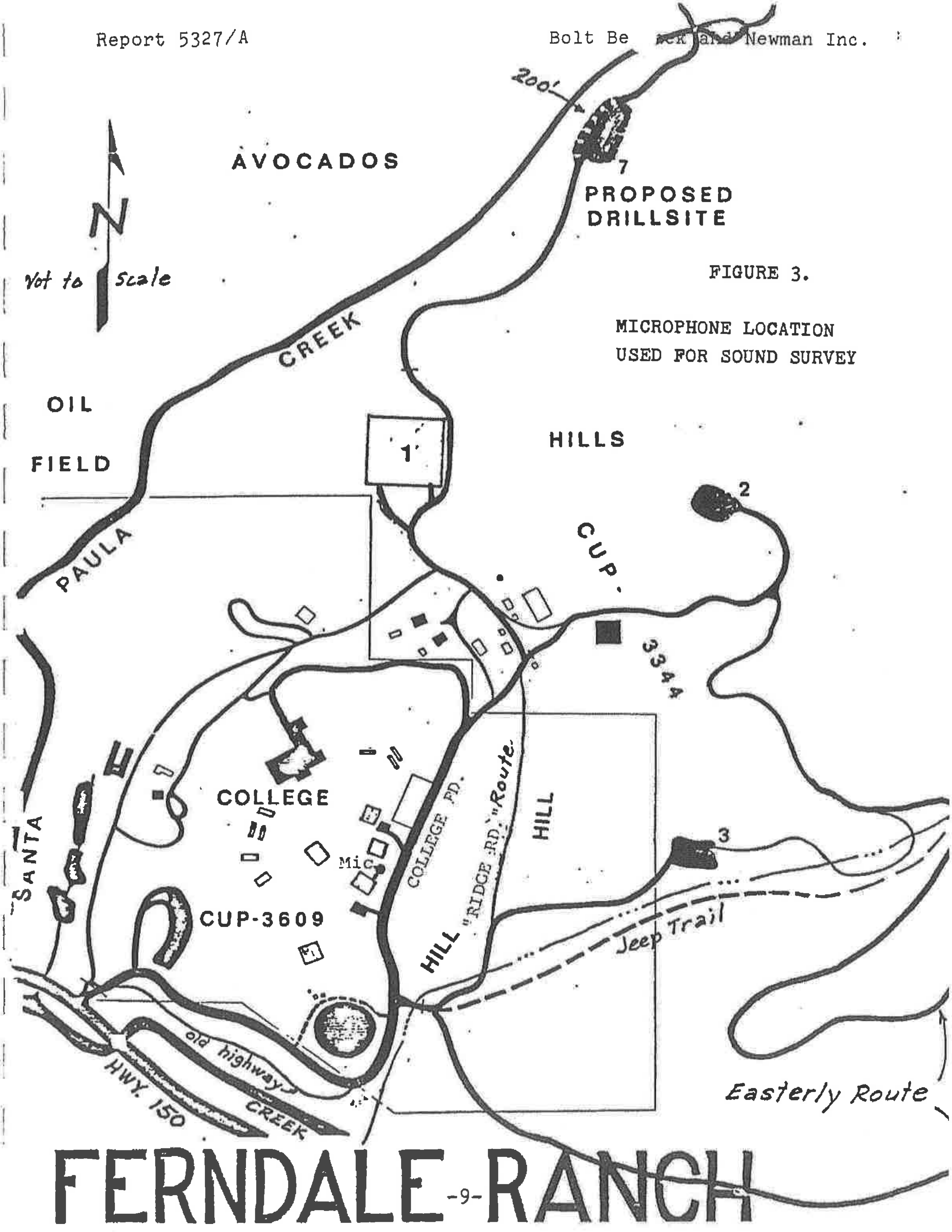

FIGURE 3.

MICROPHONE LOCATION USED FOR SOUND SURVEY

TIME INTERVAL
Start 10:00 A.M.
Stop 11:00 A.M.

```
HNL= 49.6DB   HOUR 11

LEQ= 49.6DB   8/17/83
INTERVAL MAX= 71.3DB   Maximum Noise Level
OVER THR. 0H   0M 26S   in Time Period
START AT 10H   0M

L( 0.10)= 70DB
L( 1.00)= 63DB
L( 5.00)= 52DB
L(10.00)= 49DB
L(33.33)= 40DB    Statistical Descriptors, Ln
L(50.00)= 38DB
L(90.00)= 31DB
L(99.00)= 27DB
```

SINGLE EVENT NOISE EXPOSURE LEVEL

```
SENEL= 73.4DB
MAX= 70.1DB   8/17/83
DURATION=  63.12 SEC   Duration above
MAX AT   10H  8M  8S   65dBA threshold

SENEL= 72.9DB
MAX= 67.3DB   8/17/83
DURATION=  64.25 SEC
MAX AT   10H 39M 51S

SENEL= 79.7DB
MAX= 71.3DB   8/17/83
DURATION=  10.87 SEC
MAX AT   10H 56M 20S
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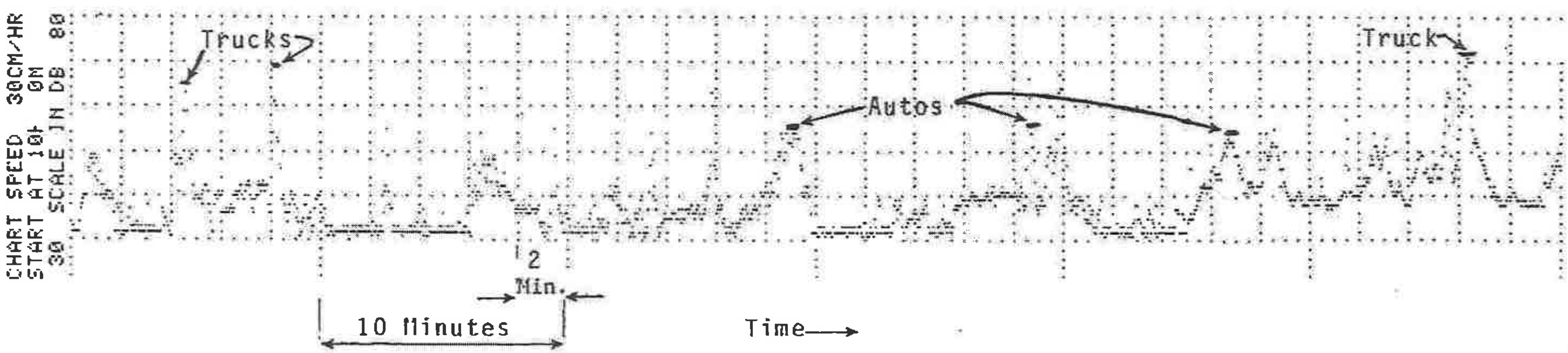


FIGURE 4. EXAMPLE OF FIELD NOISE MEASUREMENT OUTPUTS

First of all, on an hourly basis, the several descriptors are computed. These are:

- Equivalent Noise Level (LEQ): The steady dBA level which would produce the same A-weighted sound energy over a stated period of time as a specified time-varying sound.

- Hourly Noise Level (HNL): The Equivalent Noise Level where the period is one-hour. Since the period was set at one hour, both HNL and LEQ descriptors give the same results.

- Internal Max: The maximum noise level recorded during the hour period.

- Statistical Noise Level (L_n): The dBA level exceeded N% of the time, e.g., L (10.00) is the noise level exceeded 10% of the time during a one-hour period.

  It is common to relate the L_{10} level with the "intrusive" sound, the L_{50} to the "median" and the L_{90} to the "ambient or background noise level."

- Single Event Noise Exposure Level (SENEL): The dBA level which, if it tested for one second, would produce the same A-weighted sound energy as the actual event. This descriptor is especially useful to identify specific single events; in this case, trucks. In the example on Figure 3, three such events were recorded which corresponds with the actual truck count made on the site.

Finally the LEQ data computed continuously is printed on a time-history chart as shown. Each division on the time scale corresponds to a 2-minute interval. An average value LEQ is computed every 2.5 seconds and displayed as a dot on the chart.

This display is also very useful in identifying singular events such as truck passbys.

The summary of the noise survey data is presented in Figure 5 and Table 1. Several important results should be noted referring to Table 1.

1. The LEQ level during the daytime hours is controlled by traffic noise and especially by truck noise since the number of automobiles is relatively small.

2. The SENEL measurements correspond almost exactlywith the number of truck passbys during each hour, therefore, can be used to identify truck events accurately.

3. The measurements during the period of 10:00 P.M. and 5:00 A.M. were controlled by wind noise. This can be readily seen by the absence of statistical variability among the L_{10}, L_{50} and L_{90} descriptors, high ambient noise level and the absence of L_{max} levels of significance.

The above results can be used to compare and validate with traffic noise predicted levels for various traffic conditions possible on this site.

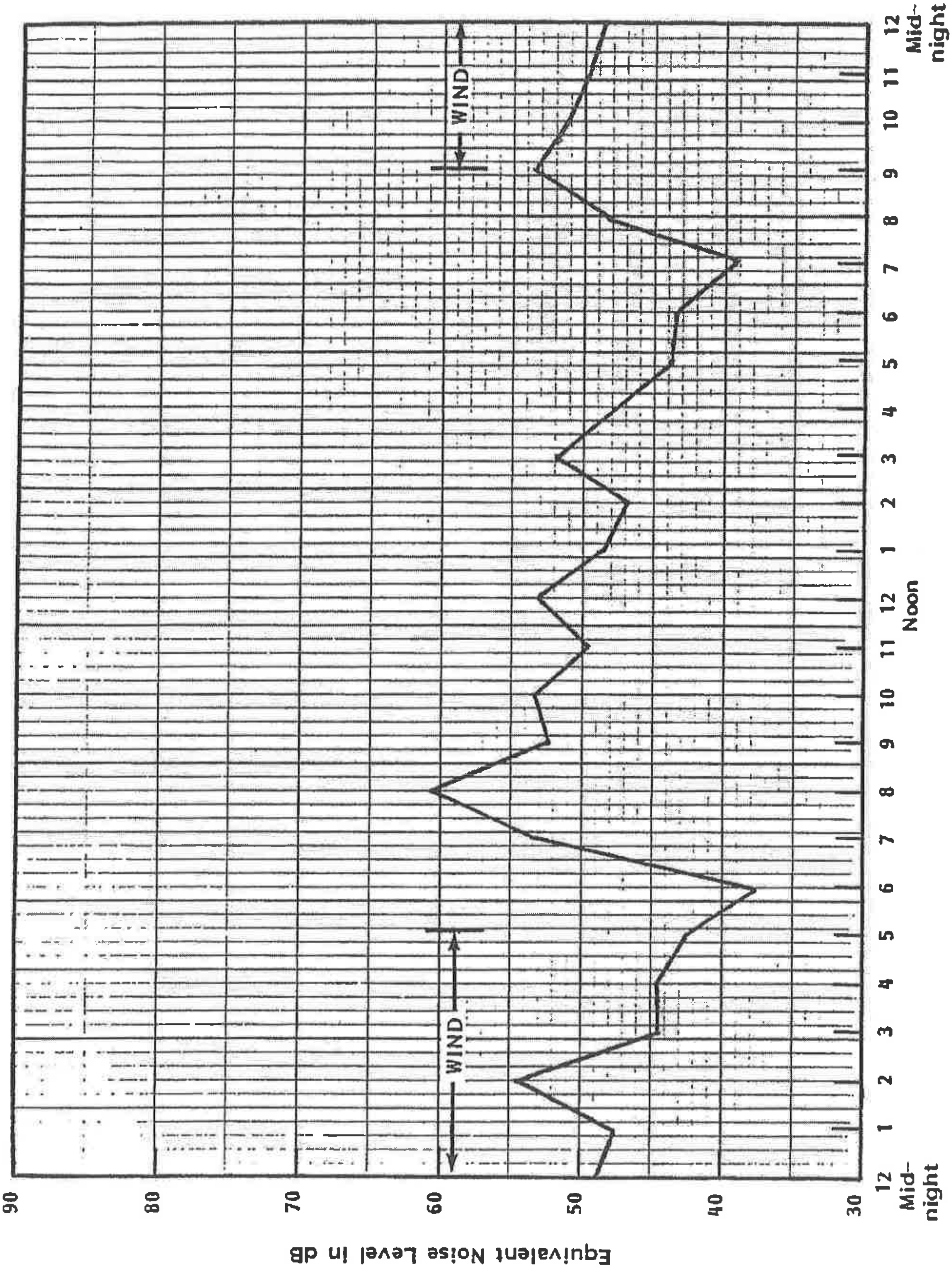


FIGURE 5. SUMMARY OF THE NOISE SURVEY RESULTS SHOWING HOURLY NOISE LEVELS

TABLE 1 - SUMMARY OF AMBIENT NOISE
MEASUREMENT DATA AT LOCATION 2

	LEQ (dB)	L_1	L_{10}	L_{50}	L_{90}	L_{max}	COMMENTS	Number of SENEL Meas.- Truck (above 65)	Actual Traffic Counts	
									Auto	Truck
12 A.M.	48.5	50	48	47	43	73.9	Wind Controlled	1		
1	47.9	50	48	47	47	56.2	Wind Controlled	0		
2	48.6	50	49	48	47	54.6	Wind Controlled	0		
3	44.6	49	48	43	37	53.9	Wind Controlled	0		
4	44.6	46	45	44	42	48.9	Wind Controlled	0		
5	42.5	45	44	42	39	47.9	Wind Controlled	0		
6	37.3	44	40	34	30	59.2		0		
7	53.1	64	41	36	32	77.7		2		
8	60.9	69	49	40	38	86.5		6	6	6
9	52.1	66	48	40	37	73.7		6	15	5
10	53.2	65	49	41	37	76.5		5	11	5
11	49.6	63	49	38	31	71.3		3	11	3
Noon	53.0	65	48	40	37	76.3		5	13	5
1 P.M.	48.8	60	46	41	38	71.8		2		
2	46.7	58	43	37	31	71.9		1	13	2
3	51.8	63	46	40	37	75.9		2	14	2
4			RAIN/WIND				Measurement Stopped – Rain			
5	43.3	54	42	39	32	67.0		0		
6	43.1	55	41	36	32	66.3		0		
7	39.5	48	40	36	32	62.2		0		
8	48.1	54	41	35	31	74.4		1		
9	53.1	59	50	49	40	78.9	Wind Controlled	1		
10	51.0	52	51	50	50	67.3	Wind Controlled	0		
11	49.6	51	50	49	48	62.7	Wind Controlled	0		

4.0 PREDICTED NOISE LEVELS

This section presents the predicted noise environment at a number of locations on the college campus and investigates the performance of two noise reduction alternatives. Traffic noise levels vary as a function of many variables, the most important being vehicle volume (number of automobiles and number of trucks in one hour), vehicle speed and road grade. Since the vehicle volumes on College Rd. depend on the College and ARGO operations, two parameters must be first defined before noise predictions can be undertaken:

1. A description of the traffic scenarios that are common on a yearly basis, and

2. The automobile and truck volumes and speeds which are associated with each scenario.

4.1 Traffic Scenarios

Traffic volumes due to Thomas Aquinas College can be divided into two categories or conditions:

Condition 1 - School not in session. Only Administrative, maintenance and teaching personnel are on campus.

Condition 2 - School in session. Same as above, but with the student body on campus.

Similarly, the ARGO traffic volume is highly dependent on the operations being conducted at the drill sites. The major categories or conditions defined are:

Condition 3 - Production only - Pipeline in operation. This condition represents the lowest traffic volumes. Only well support and maintenance traffic present on a daily basis.

Condition 4 - Production only - No pipeline. This condition is similar to above except that the oil production and waste water is removed from the site via tanker truck.

Condition 5 - Production and Drilling - Pipeline in Operation. This condition covers the traffic under Condition 3 and the added traffic associated with drilling or rework operations.

Condition 6 - Production and Drilling - No Pipeline. This condition covers the traffic associated with Condition 4 and the added traffic associated with drilling or reworking operations.

Condition 7 - Worst Case. This condition is intended to represent the highest traffic volumes expected from the ARGO operations. It is our understanding that this case does not occur frequently and it is shown here only to describe the maximum rather than the norm.

4.2 Traffic Volumes

Traffic counts were conducted by Mr. Jerry Kaminsky (Traffic Engineer registered in the State of California) during the period of August 10 through August 19, 1982, and again later on October 21st when the school was in session. These counts include a breakdown between College, Ranch and ARGO traffic and identify the number of automobiles and trucks within the total. Furthermore, the peak hour (highest number of passbys) during each count period was also identified.

The condition for each count (college in session, not in session, production only, drilling, etc.) was identified in close agreement with the traffic scenarios defined earlier.

TABLE 2. PEAK HOUR TRAFFIC VOLUMES ON COLLEGE RD. AT THE FERNDALE RANCH

CONDITION NO. COMBINATIONS	COLLEGE IN SESSION	ARGO OPERATIONS	PIPELINE	TOTAL		COLLEGE		RANCH		ARGO	
				Auto	Truck	Auto	Truck	Auto	Truck	Auto	Truck
1 & 3	No	Production only	Yes	15	1	7	0	1	0	7	1
2 & 3	Yes	Production only	Yes	20	3	12	2	1	0	7	1
1 & 4	No	Production only	No	15	5	7	0	1	0	7	4
2 & 4	Yes	Production only	No	20	6	12	2	1	0	7	4
1 & 5	No	Production & Drilling	Yes	15	6	7	0	1	0	7	6
2 & 5	Yes	Production & Drilling	Yes	20	8	12	2	1	0	7	6
1 & 6	No	Production & Drilling	No	17	7	7	0	1	0	7	9
2 & 6	Yes	Production & Drilling	No	20	11	12	2	1	0	7	9
2 & 7	Yes	Worst case	No	24	20	12	2	2	1	10	18

The data shown on Table 2* represents a summary of Mr. Kaminsky's results for the "peak hour" traffic counts. The "peak hour" traffic is normally used in traffic noise analysis since it closely corresponds to the "noisiest hour" due to the traffic input. Compliance with the daytime standard under this "worst condition" would automatically result in compliance at other times during the day. If nighttime traffic noise is at issue, which in this case was indicated to BBN as not a problem, then traffic counts for nighttime conditions are used to compare with nighttime criteria.

Traffic count data was also provided to BBN by the Thomas Aquinas College. The data was acquired by students between July 30 and August 24, 1982, by recording one-way traffic to the ARGO/Ranch turnoff. No college traffic was recorded.

The difficulty with using the data directly with Mr. Kaminsky's information stems from the following:

(a) No clear definition is provided between automobiles and trucks (trucks are defined as vehicles over 10,000 lbs. gross weight or having three axles or more). For purposes of comparison, all vehicles called "trucks" on the college report are considered as such, although on some occasions these may have been pickups.

(b) The data was collected over the entire day period (starting at 6:30 or 7:00 a.m. until approximately 4:30 p.m.) when most of the 24-hour day traffic takes place. However, no indication of hourly volumes is provided.

---

*All traffic volume data was provided to BBN by ARGO.

(c) Counts are made only in one direction. In this comparison, we will assume that all vehicles going up also return, which is not always the case.

(d) The specific operations at ARGO (production, drilling, etc.) were not identified.

Based on the above, the following results were obtained from the College data:

Date	Total Vehicle Count	Automobiles/ Pickups	Trucks
7/30/82	104	70	34
8/04/82	148	92	56
8/19/82	88	64	26
8/20/82	150	102	48
8/24/82	164	118	46

Mr. Kaminsky's report found that the total vehicle volume varied from 200 to 350 vehicles per day with 20 to 40 vehicles (10-12%) during the peak hour. The average ADT was estimated to be 300 and 30 vehicles during the peak hour.

This information correlates well with the college data since the school, when in session, was found to contribute 40 to 45% to the total ADT. The peak hour volume was also found to agree with Mr. Kaminsky's assumption being on the conservative side. All traffic was estimated at 25 mph.

Based on this analysis, the data in Table 2 will be used to perform the traffic noise calculation provided in the next section. Note that the "Worst Case" condition assumes a total vehicle volume of 44 versus 40 suggested by Mr. Kaminsky. More importantly, the ARGO traffic assumes 18 truck passbys, which is twice the highest case recorded by Mr. Kaminsky (on August 16) and represents 32% of the total daily truck traffic measured by the College on the worst day.

4.3 Estimated Noise Levels

All predicted noise levels were computed using the FHWA highway traffic noise prediction model (FHWA-RD-77-108) for the various conditions defined earlier.

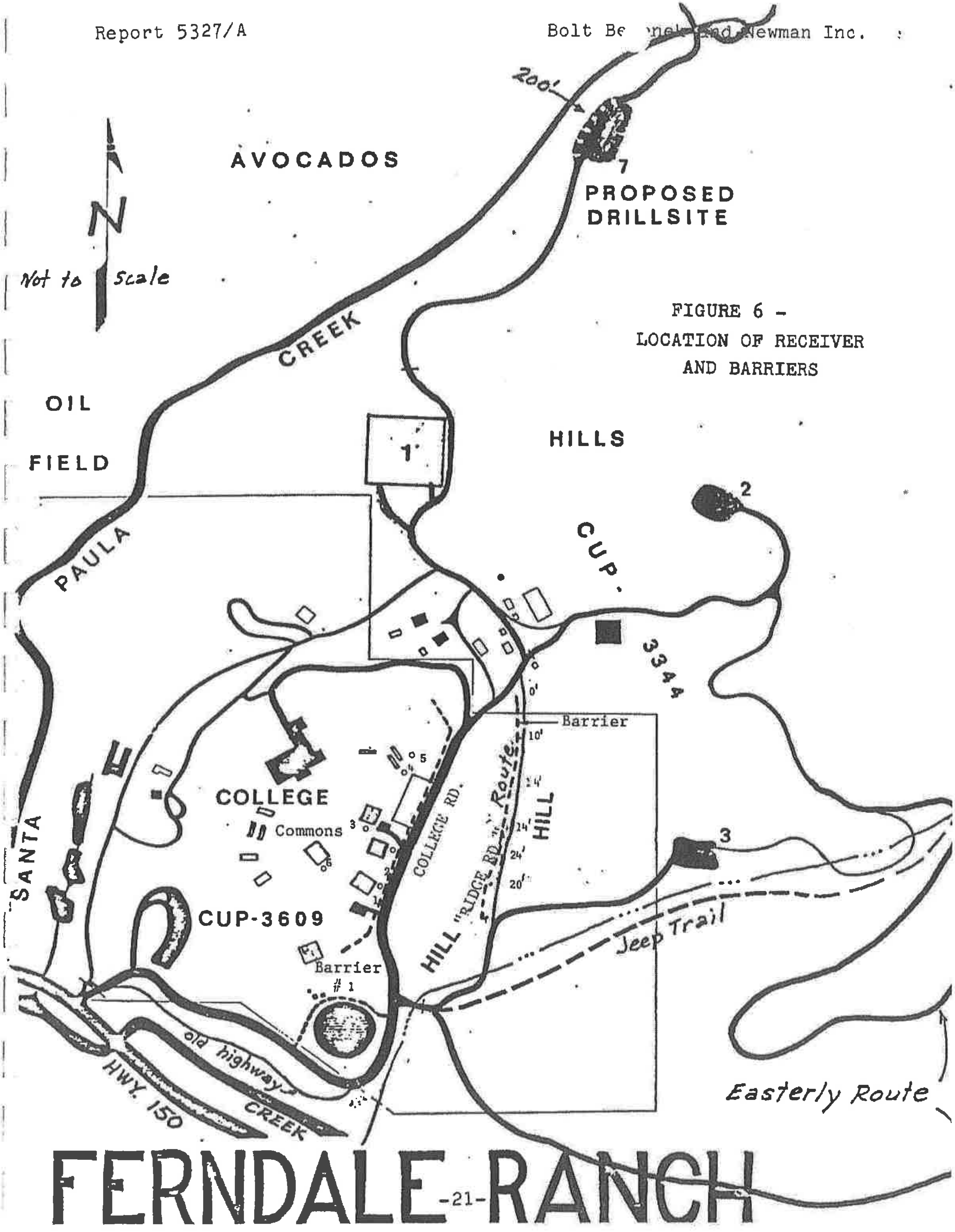
Noise levels were computed at six campus locations as shown on Figure 6. Five of these locations correspond to dormitories (students and faculty). The computed values correspond to the Equivalent Noise Level (LEQ) during the peak traffic hour as measured 10 feet in front of the nearest building surface to the road and 5 feet above the ground level.

For ease of comparison, the EPA day and the EPA night suggested levels (see Section 2.0) are also plotted. These levels correspond to the recently adopted Oil Drilling and Production Noise Ordinance by the County of Ventura.

For each condition, the following cases are computed:

Case 1. Baseline (College/Ranch Traffic only). This case corresponds to the predicted noise levels based on College and ranch traffic only. No ARGO traffic is present.

Case 2. College Road. This case corresponds to the predicted noise levels under present conditions. All traffic - college, ranch and ARGO - moves on College Rd. The difference between the baseline and these levels reflects the increase in noise due to ARGO traffic.


200'
AVOCADOS
7
PROPOSED
DRILLSITE
N
Not to Scale
FIGURE 6 -
LOCATION OF RECEIVER
AND BARRIERS
CREEK
OIL
FIELD
1
HILLS
2
PAULA
CUP - 3344
0'
Barrier
10'
COLLEGE
Commons
COLLEGE RD.
"RIDGE RD." Route
HILL
3
CUP-3609
SANTA
Jeep Trail
HILL
Barrier
1
old highway
HWY. 150
CREEK
Easterly Route
FERNDALE RANCH

Case 3. <u>College Road with Barrier</u>: This case is identical to Case 2 except that an earthmound wall combination as shown on Figure 6 is assumed. Barriers, which can be designed in many shapes and forms, are the most common noise control element used today to control traffic noise. This particular barrier has a total elevation of 10 feet above the surrounding terrain throughout most of its run.

Case 5. <u>ARGO Traffic on Ridge Road</u>: This case assumes that a new road will be constructed as shown on Figure 6 to carry all of ARGO traffic. The college and ranch traffic will remain on College Road. The Ridge Road will be cut into the hill and have an earthmound barrier constructed between the road and the college. An example of the this configuration is shown on Figure 7 with actual barrier height assumed as shown on Figure 6.

Two additional cases were calculated but are not plotted. Case 4 assumes the same configuration as in Case 3 except that the barrier varies between 12 and 15 feet in elevation. Finally, Case 6 assumes the ARGO traffic on Ridge Road except that only the natural shielding provided by the topography is considered and no earthmound barrier is included. The Equivalent Noise Level (LEQ) values for all these cases are shown on Table 3.

Figure 8 presents a comparison of these predictions for traffic scenario with the least traffic volume.* Comparison of all cases are made to the fixed EPA/County of Ventura goals discussed

*In fact, lesser traffic volumes are predicted when the school is not in session but since the impact of traffic noise on the school is the problem, these cases are not computed in this report.

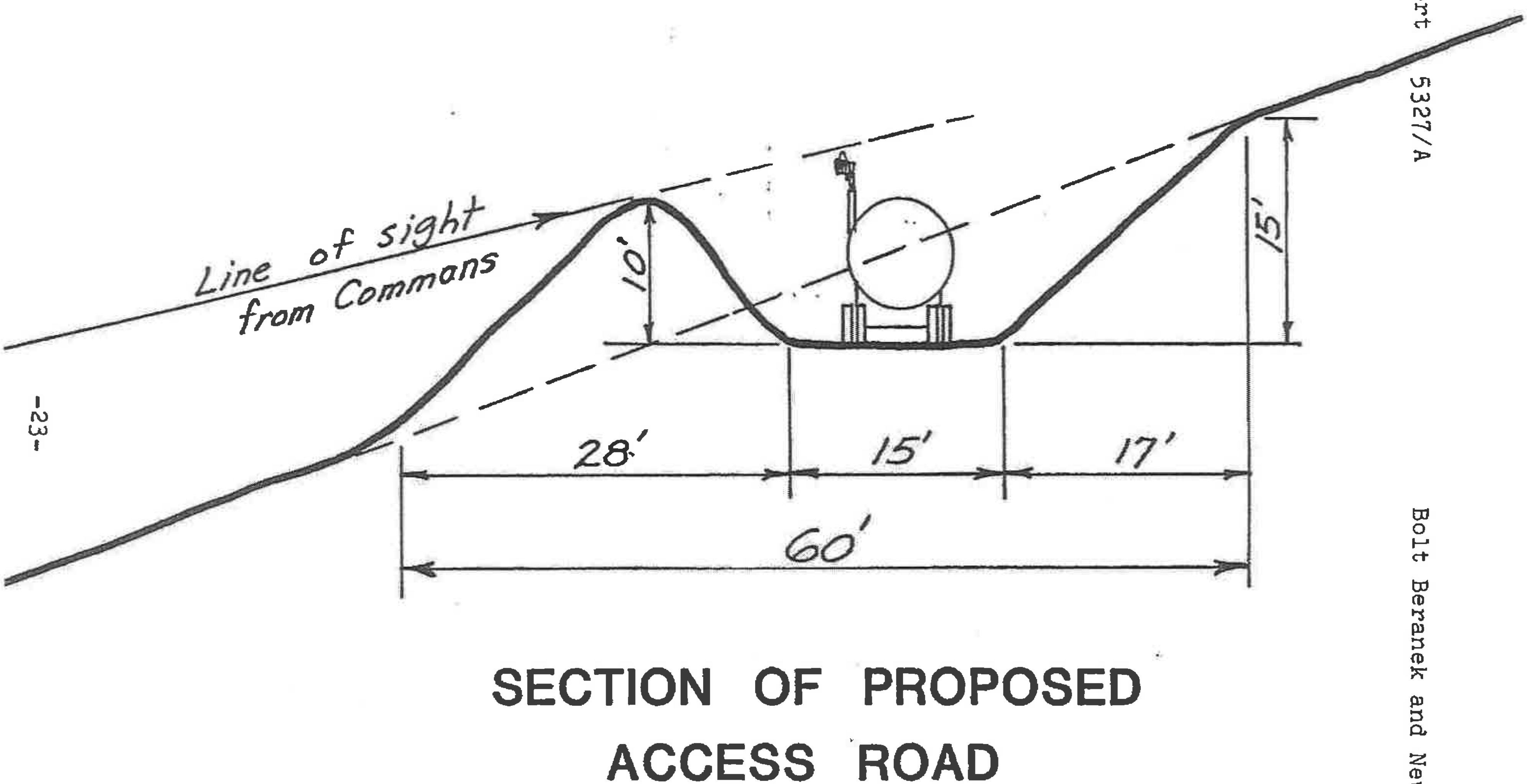


FIGURE 7 - TYPICAL CROSS-SECTION THROUGH RIDGE ROAD SHOWING PROPOSED ROADWAY AND EARTHMOUND BARRIER (FROM ARGO)

TABLE 3. CALCULATED PEAK HOUR EQUIVALENT NOISE LEVELS DUE TO TRAFFIC AT THE FERNDALE RANCH

CONDITION	Case No.	LOCATION 1	2	3	4	5	6
COLLEGE IN SESSION	1	50.8	52.9	48.8	53.1	53.4	36.8
ARGO PRODUCTION ONLY	2	52.5	54.7	50.6	54.8	55.1	38.6
PIPELINE IN OPERATION	3	45.9	46.2	45.2	47.2	47.1	37.4
	4	43.4	43.3	40.2	41.9	42.1	34.1
	5	50.8	53.0	48.9	53.1	53.5	37.3
	6	50.9	53.1	49.2	53.3	53.6	38.1
COLLEGE IN SESSION	1	50.8	52.9	48.8	53.1	53.4	36.8
ARGO PRODUCTION ONLY	2	55.4	57.6	53.3	57.7	58.1	41.5
NO PIPELINE	3	48.9	49.2	48.2	50.2	50.1	40.4
	4	46.4	46.2	43.2	44.9	45.1	37.0
	5	50.9	53.0	49.2	53.3	53.7	38.6
	6	51.2	53.5	50.2	53.8	54.1	40.7
COLLEGE IN SESSION	1	50.8	52.9	48.8	53.1	53.4	36.8
ARCO PRODUCTION AND DRILLING	2	56.6	58.8	54.7	59.0	59.3	42.7
PIPELINE IN OPERATION	3	50.1	50.4	49.4	51.4	51.3	41.6
	4	47.6	47.5	44.4	46.1	46.3	38.2
	5	50.9	53.1	49.4	53.4	53.8	39.2
	6	51.4	53.7	50.7	54.2	54.4	41.7
COLLEGE IN SESSION	1	50.8	52.9	48.8	53.1	53.4	36.8
ARGO PRODUCTION & DRILLING	2	58.0	60.2	56.1	60.3	60.6	44.0
NO PIPELINE	3	51.5	51.8	50.8	52.8	52.7	43.0
	4	49.0	48.8	45.8	47.5	47.7	39.6
	5	51.0	53.1	49.7	53.6	54.0	40.1
	6	51.7	54.0	51.4	54.6	54.9	42.7
COLLEGE IN SESSION	1	50.8	53.0	48.8	53.1	53.4	36.8
ARGO WORST CASE	2	60.6	62.7	58.6	62.9	63.2	46.6
	3	54.1	54.4	53.4	55.4	55.3	45.6
	4	51.6	51.4	48.4	50.1	50.3	42.2
	5	51.2	53.4	50.4	54.1	54.6	41.9
	6	52.4	54.9	53.0	55.7	56.0	45.1

NOTE:

Case 1 - College/Ranch traffic only on College Rd.
Case 2 - All traffic on College Rd.
Case 3 - All traffic on College Rd. with Barrier No. 1.
Case 4 - All traffic on College Rd. with Barrier No. 2.
Case 5 - ARGO traffic on Ridge Rd. with earthmound.
Case 6 - ARGO traffic on Ridge Rd. - natural shielding only.

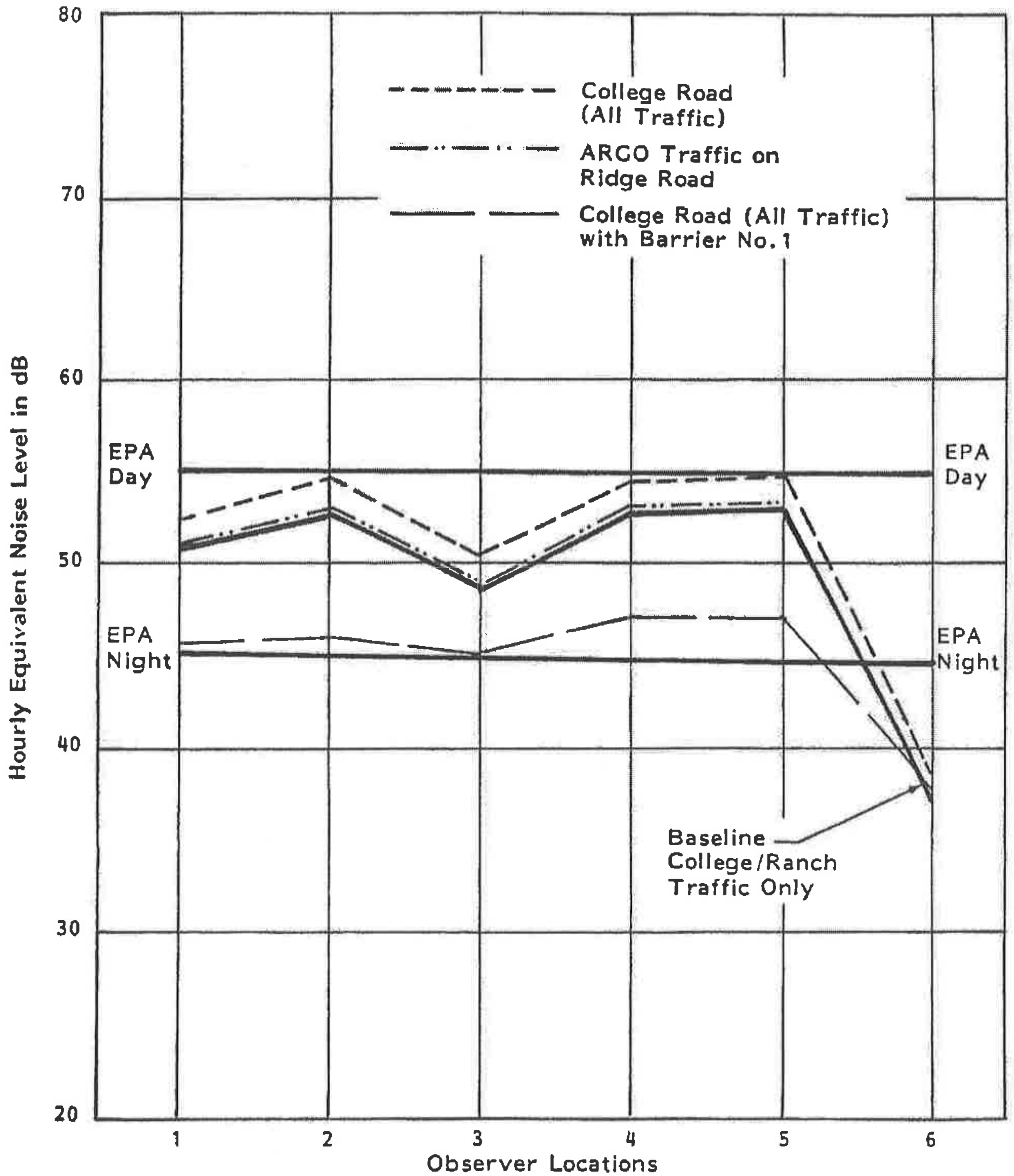


FIGURE 8. PEAK HOUR NOISE LEVEL WITH COLLEGE IN SESSION AND ARGO PRODUCTION-WITH PIPELINE (COND. 2 and 3)

in Section 2 and to the traffic noise created by the college/ ranch traffic only, referred to previously as the baseline. The following conclusions can be drawn:

1. At present, the ARGO traffic contributes approximately 2 dB to the baseline environment; however, for this condition, noise levels at all locations are below the LEQ = 55 dB.

2. The construction of the 10 ft. barrier would reduce the noise levels at the dormitories by 4 to 7 dB as compared to the baseline.

3. The use of Ridge Rd. by ARGO traffic will reduce the noise levels to approximately the baseline level. That is, the ARGO traffic will have a negligible contribution to the total.

Figures 9, 10 and 11 represent subsequently higher traffic volume scenarios as described in Table 2. As expected, the contribution of ARGO traffic to the total noise increases in each case. The current scenario with ARGO using the College Rd. shows noise levels as much as 5 dB higher than the baseline and also an excess of the 55 dB day limit. However, this figure also shows that the construction of the 10 ft barrier along College Rd. would reduce noise level to the baseline or below except at the Commons observer location. At the Commons, the predicted noise levels are below even the LEQ = 45 dB level. As in the previous case, the Ridge Rd. alternative will result in negligible changes in baseline noise levels.

Figures 10 and 11 represent increased noise level conditions due to ARGO production plus drilling operations. Again, the construction of the College Rd. barrier will result in a noise

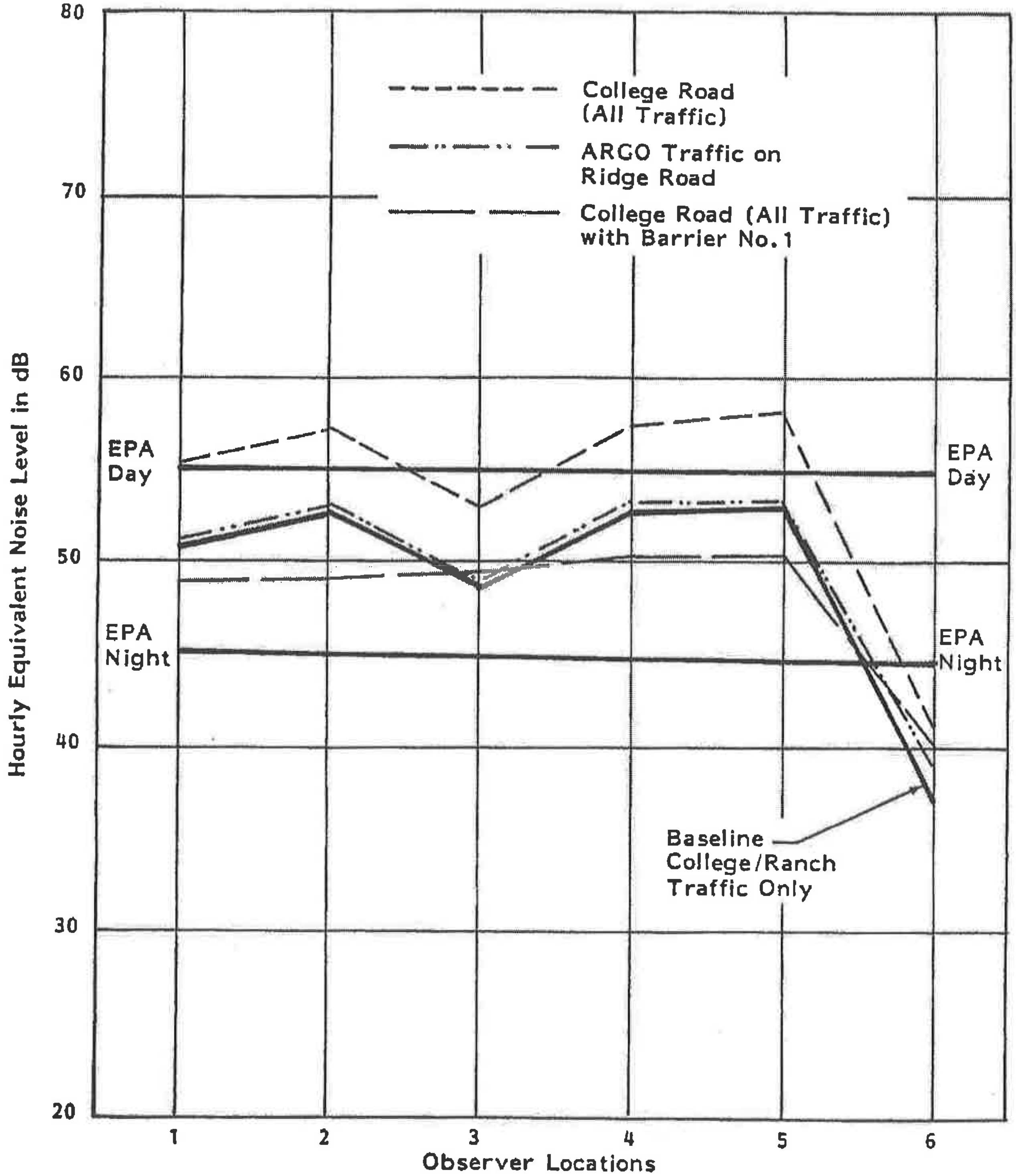


FIGURE 9. PEAK HOUR NOISE LEVELS WITH COLLEGE IN SESSION AND ARGO PRODUCTION-NO PIPELINE (Cond. 2 and 4)

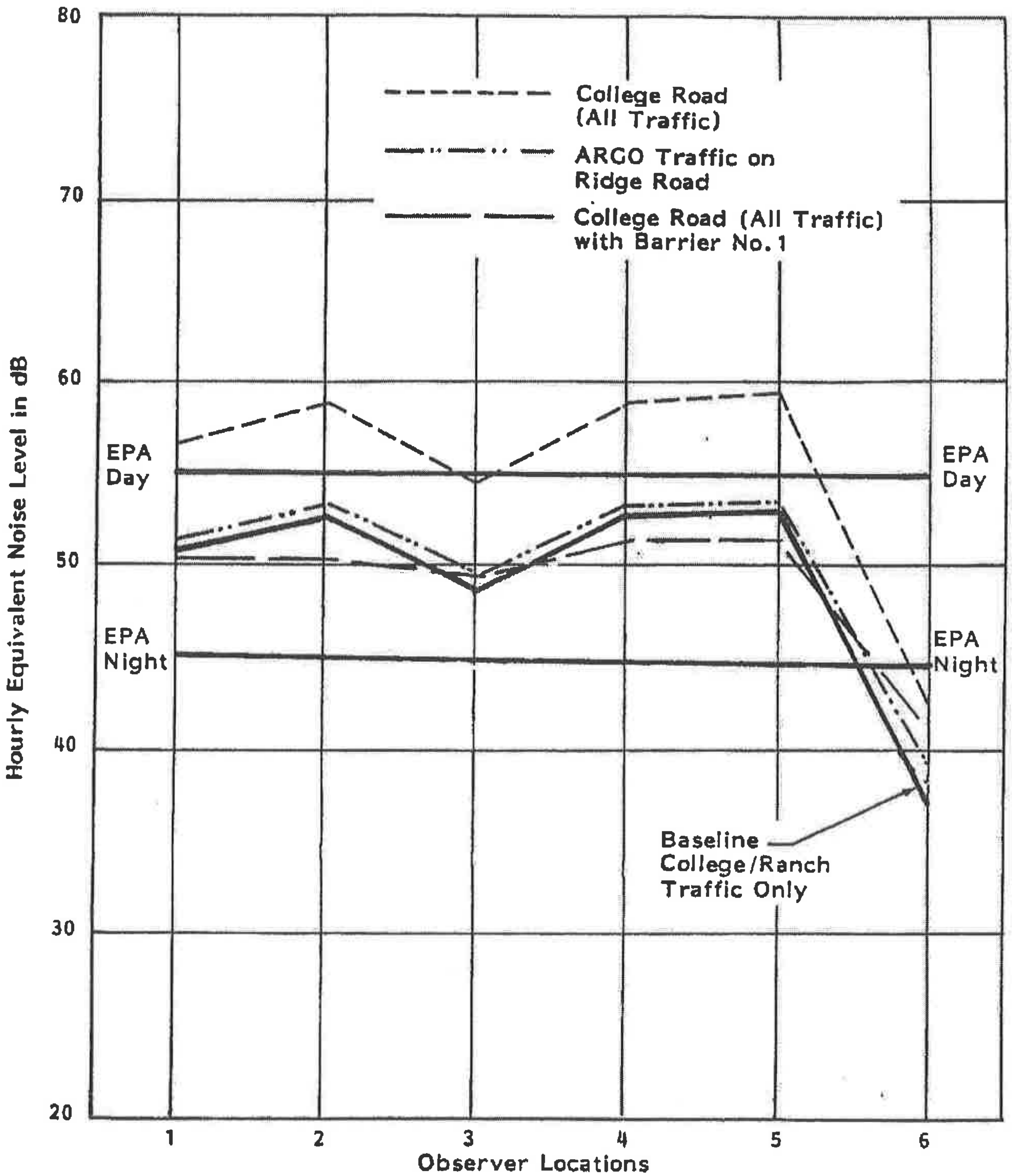


FIGURE 10. PEAK HOUR NOISE LEVEL WITH COLLEGE IN SESSION AND ARGO PRODUCTION/DRILLING-WITH PIPELINE (Cond.2 and 5)

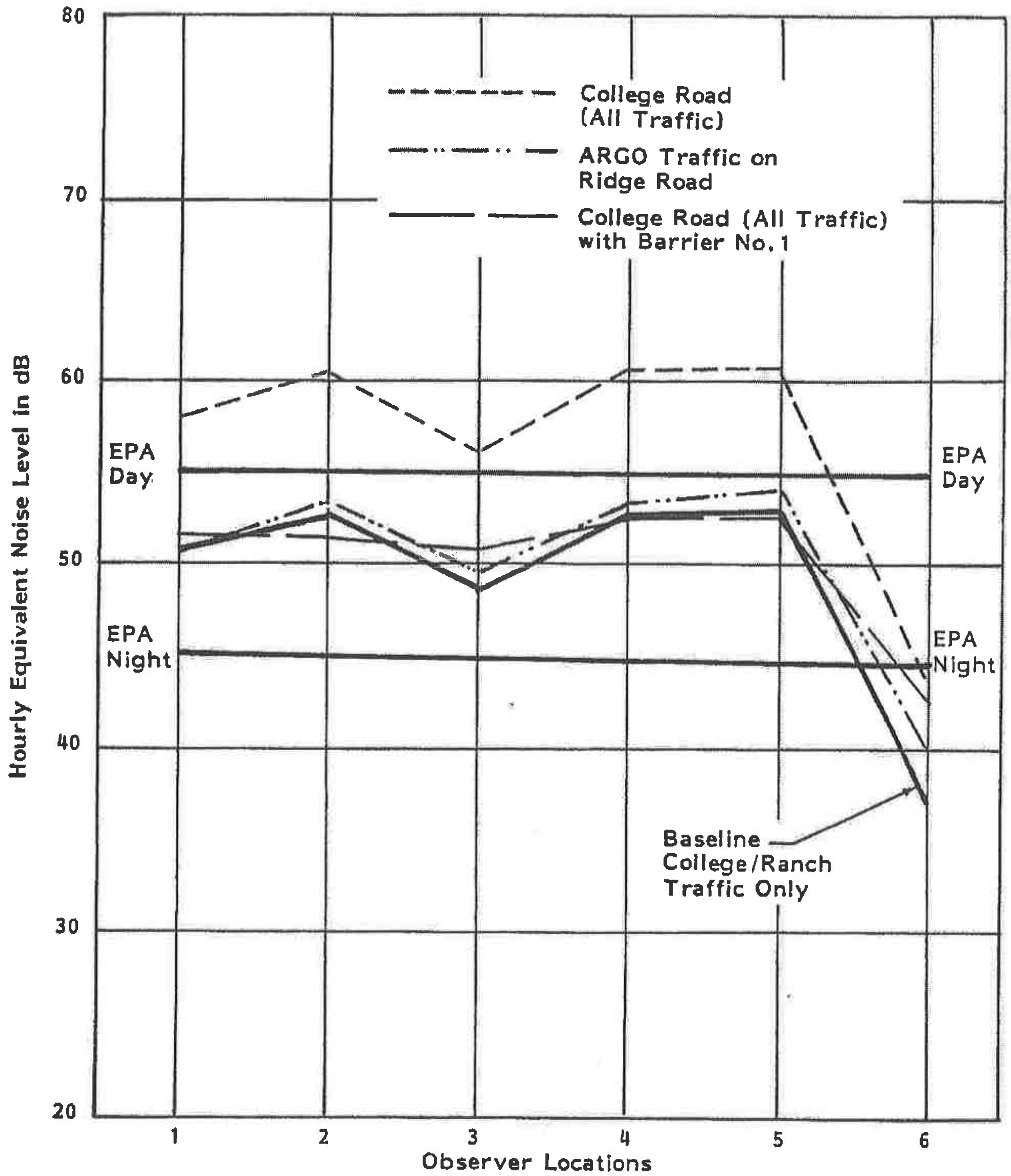


FIGURE 11. PEAK HOUR NOISE LEVELS WITH COLLEGE IN SESSION AND ARGO PRODUCTION/DRILLING-NO PIPELINE (Cond. 2 and 6)

environment similar to the baseline case. The Ridge Rd. alternative shows only minor contribution from ARGO traffic to the baseline. Note that both the College Rd. plus barrier and Ridge Rd. cases result in predicted levels below LEQ = 55 dB.

Finally, Figure 12 presents the "Worst Case" condition assumed. Here the baseline condition and the LEQ = 55 dB level are substantially exceeded with levels as high as LEQ = 63 dB predicted at one location.

It must be remembered, however, that this traffic condition represents truck traffic volumes twice as high as recorded during the busiest day surveyed and are considered unlikely (according to the available information) except under very rare circumstances.

Construction of the College Rd. barrier would bring the environment to the 55 dB level although still above the baseline case. The alternate barrier (Case 4) shown on Table 3, however, would achieve the baseline case at most locations. The Ridge Rd. alternative would, on the average, add 1.0 dB to the baseline case.

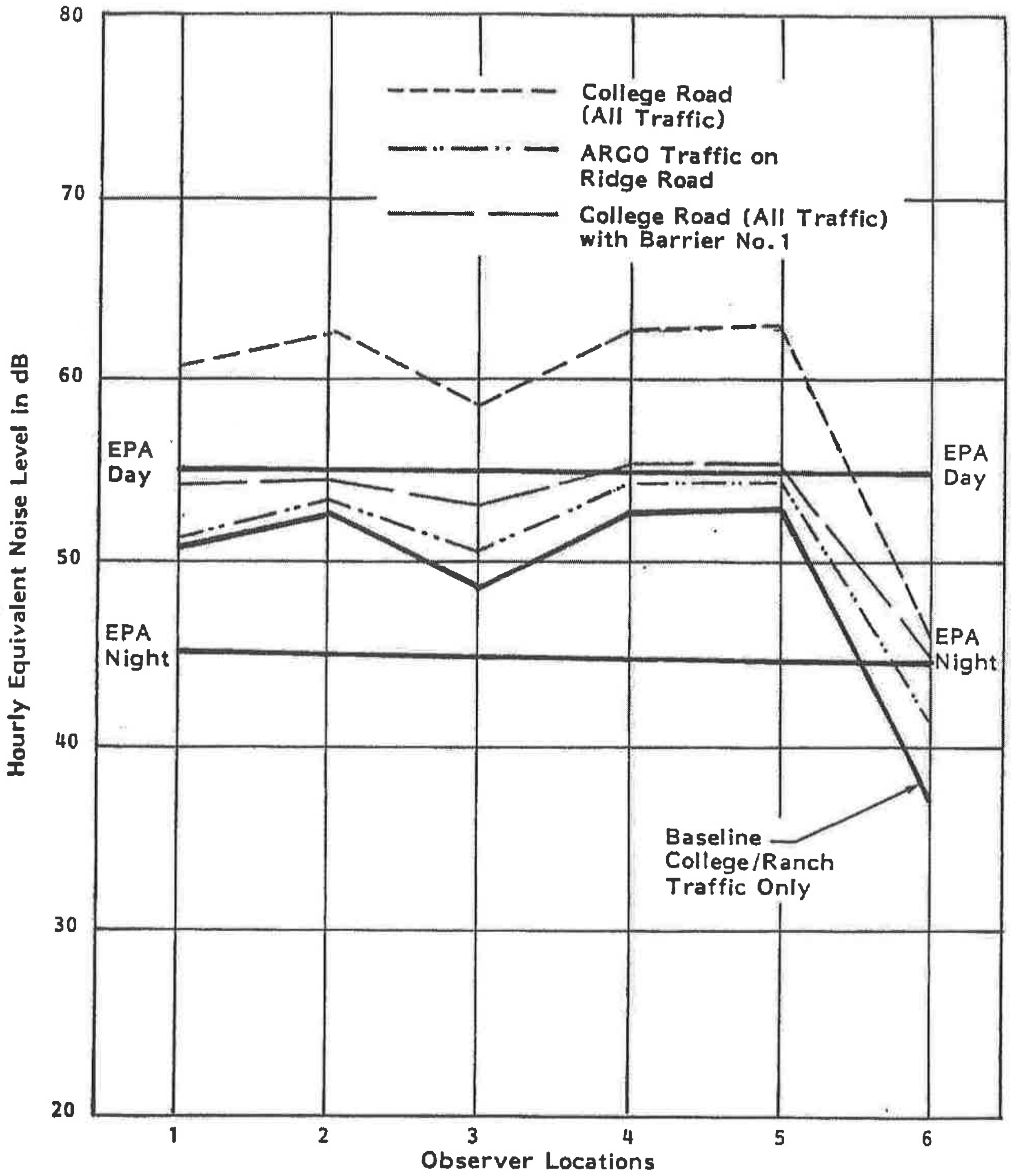


FIGURE 12. PEAK HOUR NOISE LEVELS WITH COLLEGE IN SESSION AND ARGO "WORST" CASE - (Cond. 2 and 7)

5.0 CONCLUSIONS

The analysis of the traffic noise problem on the Thomas Aquinas College Road shows that the ARGO-generated traffic does, under some operating conditions, contribute significantly to the existing noise level environment at the nearby college structures. Ambient noise measurements conducted by BBN showed that truck traffic volume correlated well with the noise levels measured at a critical location on the campus. These measurements also validated the result of the prediction procedures used by BBN to describe the noise environment under a variety of possible traffic scenarios on College Rd. From the various alternative evaluations, the following conclusions can be made:

1. The construction of a 10 foot high barrier along the College Road will reduce the traffic-generated noise at all dormitories for all traffic scenarios. For the most common cases (production only), the expected noise levels will be well below the current baseline case. In other words, peak hour noise levels will be lower for all traffic, including ARGO, than for that expected from campus and ranch operations only.

2. The construction of an alternate road (called Ridge Rd.) to carry the ARGO traffic will reduce the present situation to the baseline level except in the "Worst Case" when a small increase is expected. In most situations, the ARGO traffic will not add to the noise environment.

3. For all traffic scenarios, the construction of the College Rd. barrier or the Ridge Rd. will reduce the overall noise environment to or below the EPA (daytime) goal and the Ventura County Oil Noise Ordinance.

It should be noted that the College Rd. barrier and Ridge Rd. earthmound barrier assumed are not unique. No attempt to optimize the design of either was undertaken since no firm noise criterion goals are given. More or less attenuation is possible if that is considered desirable. Furthermore, the comparisons with the 55 dB goal and the baseline condition in the absence of ARGO traffic represent very conservative goals and should not be construed as recommended criteria from BBN for what should be acceptable or not acceptable.

APPENDIX E

COMMENTS RECEIVED AND RESPONSES

McClelland engineers,inc./environmental services

2140 Eastman Avenue, Ventura, California 93003, Tel. (805) 644-5535, Telex 659-241, Telecopier (805) 642-4791

September 24, 1984

Ventura County Resource Management Agency
800 South Victoria Avenue
Ventura, CA 93009

Attention: Dennis Hawkins

Subject: Response to Comments Submitted on the Draft EIR for Modification of CUP-3344

Dear Dennis,

The following sections provide clarification on several major points concerning the purpose, methodology and conclusions of the above referenced document. As you know, there were no public comments received during the official public review period established by OPR (May 29 - June 28, 1984) or the extended public review period initiated by Ventura County (May 25 - July 3, 1984).

Comments addressed herein are in response to oral comments received during non-mandatory courtesy meetings conducted with Lawrence Barker (July 12, 1984), Argo Petroleum Corporation (July 18, 1984) and Thomas Aquinas College (July 30, 1984), letters written by Andrew Kugler submitted July 18, 1984, Jerry Kaminsky submitted August 9, 1984, and Lawrence Barker submitted July 17, 19, and 30, 1984.

Although we had requested that written comments be submitted summarizing each interested parties' comments on the Draft EIR, only Mr. Barker was responsive to this request. Therefore, rather than a point-by-point summary of responses to individual comments discussed at our informal meetings, this submittal contains an overview of concerns raised and responses to those concerns.

Given the unavailability of further written comments, this submittal represents our best effort to incorporate response to all comments received to date into the Final EIR.

If you have any questions or feel that additional information should be incorporated into the Final EIR, please do not hesitate to contact us.

Very truly yours,

McCLELLAND ENGINEERS, INC.

Michael P. Gialketsis
Project Manager

MPG:val

A. Introduction

The official public review period identified by OPR for the EIR on modification of CUP-3344 was from May 29, 1984 to June 28, 1984. However, given the potential for public controversy surrounding the proposed project, Ventura County Resource Management Agency allowed an extended public review period from May 25, 1984 to July 3, 1984. During this period, there were no written public comments submitted concerning the EIR.

In order to further solicit public input on the Draft EIR, McClelland, accompanied by Ventura County Staff, met separately with each interested party (Lawrence Barker, July 12, Argo Petroleum, July 19 and Thomas Aquinas College July 30) to discuss their concerns with the draft document.

At each of these meetings, written comments were requested in order to summarize the key issues of concern. To date, we have received three letters from Lawrence Barker summarizing his concerns raised at the July 12 meeting and two letters from Argo Petroleum Corporation representatives (Andrew Kugler and Jerry Kaminsky). Although requested, no other written comments have been received.

B. Summary of Meetings

In addition to meetings conducted at the county building with Lawrence Barker (July 12), Argo Petroleum Corporation (July 18) and Thomas Aquinas College (July 30) after the close of the public review period, McClelland staff attended two field briefings during preparation of the Draft EIR. These meetings, conducted separately on-site with Mr. Don Sperling of Argo Petroleum Corporation and Mr. John Blewett of Thomas Aquinas College, were approximately one-half hour to one hour long and focused primarily on familiarizing us with the property and history of the project. Each party offered to provide additional information regarding the history of the project should it be necessary. No other formal or informal meetings were scheduled although some interaction with Mr. Bob Randall did occur during field surveys.

RESPONSE TO ORAL COMMENTS SUBMITTED BY LAWRENCE BARKER (MEETING JULY 12, 1984)

These comments were submitted in letter form and are responded to in the following.

LAWRENCE BARKER, JR.
ONE MARITIME PLAZA
SAN FRANCISCO, CALIFORNIA 94111
415 986-7545

July 17, 1984

CERTIFIED MAIL - RETURN
RECEIPT REQUESTED

Mr. Dennis T. Davis
Manager, Planning Division
County of Ventura
800 So. Victoria Ave.
Ventura, CA 93009

Re: Meeting with the County of Ventura and McClelland Engineers, Inc. re Draft of EIR on Ferndale

Present at the meeting on July 12, 1984, were Robert Laughlin, County; Thomas Blake, Michael Gialketsis, and Melvin Willis, McClelland Engineers; Bob Randall, Lawrence Barker, Jr., Ferndale Ranch, surface owner.

I appreciated the opportunity to have met with Bob Laughlin and with Melvin Willis with respect to the above matter last Thursday. The following are my comments with respect to the meeting and with respect to additional information I would like from McClelland Engineers.

I recognized that there was a requirement of the County that the McClelland representatives and the parties involved in the environmental study meet with a representative of the County present. I asked what meetings had occurred with the participants, like Argo, the college and Bob Randall without County presence. Mel replied that he had introductions at brief meetings with Don Sperling and Bob Randall and a half hour meeting with John Blewett who attempted to get him to interview some of the students.

I pointed out to Mel that I was quite a different party from the oil interests and the college and that I had a different point of view with both. He said he had not understood that until I explained it to him, and he appreciated the explanation. I said that I wanted no unsafe roads on the ranch and no disturbance by unnecessary roads. At the college's request, Argo might have built the Planning Commission road, the worst alternate of the McClelland study, if I had not objected.

Since there are consulting engineers involved in the report, I would like to know the names of the individuals involved, the exact work they did, what was their bill (this would give an idea of the time they spent on the project) and education and experience like the resumes provided for the employees of McClelland. It would also be good to have, for all the individuals involved, the years of experience as acting or supervising civil engineers on traffic and road construction. I know this is an environmental impact report, but it has significant safety implications that will eventually have to be solved by detailed road engineering reports, which were not included.

1. Discussion on Ridge Alternative:

I specifically asked for grade details of this proposed road, and not one could give me the answer. It was explained to me that this was a draft environmental study on the alternate roads and not a detailed engineering report on any specific alternative road. It is evident from the contour map that a road without switchbacks would be far too steep (24% grade) and a road with probably 3 switchbacks - sharp uphill-downhill turns with significant grades - would be required to connect with drillsite #2 access road . Such turns are a non-no for heavy trucks.

I also pointed out that the narrow ground available for switchbacks between the landslides to the north, to the west, and to the east would give the civil engineer real design problems.

With unstable ground it would appear to me impossible to design a road to avoid the mapped slides. Bob Randall recalls springs on the ridge flanks after wet winters, not evident this spring at the time of McClelland's examination. It is my experience that a road cut, even though graded, makes such ground more unstable than before and increases the size of the slide areas, especially with the dynamics of heavy moving trucks on shale that expands when wet and contracts and cracks when dried out in the dry seasons. Weighty reinforcement, rather than bringing stability, could bring the risk of deeper level slides.

There are severe weather factors involved on this higher ground with higher wind velocities and rain intensities in contrast to the valley below at the college. We have proof of this if the County would like to see it. There are rainy seasons with a range in excess of 50" to sometimes less than 10" in dry years. We have sometimes 2 or 3 years of rainy seasons and then some long cycles of dry seasons. The actual weight of the absorbed water is quite significant. Lubricated surfaces develop, also cracks. These circumstances often cause unexpected results. Bob Randall has lived on the property long enough to know he has to expect the unexpected, particularly on the steep upper portion of the ranch. Hills that have long appeared stable all of a sudden develop slides.

I asked about the cost estimates and who prepared them. Mel said consultants prepared the estimates. I felt they were very low considering the problems. Would he consider them 10% low, 100% low or lower still? In other words, I would like to have a confidence number attached to the estimates. In addition, I would also like the engineer to produce an estimate of maintenance costs for this Ridge Alternative.

Page Four

Truck driver and oil field worker safety on the Ridge Alternative is of extreme concern to me. Will guard rails be provided? How will they be supported? Will they do any good? There are steep hillsides involved. A truck moving only a few feet off course either due to mechanical problems, human error, or weather could easily result in a fatal accident.

McClelland does express proper concern about the two sharp curves (Numbers 1 and 2 on figure 11) in the vicinity and along the drillsite 2 access road. McClelland made no suggestions as to curve #2, a sharp uphill-downhill grade for trucks, but straightened out and thereby eliminating curve #1 indicated as the "Alignment Alternative". This curve #1 has long bothered me and I have spent a good deal of time studying the problem. I am working on other alternatives to the straight line downhill runoff which also worries me. What about the truck driver? The only way he can save himself with a runaway truck in this situation is to bail out before it gets going too fast, and allow the truck to take off, unguided, careening at increasing speed downhill toward Santa Paula Creek wiping out whatever or whoever is in its path. This is what the truck would do anyway if it lost its brakes well above curve #1, or else it would turn over as a brave driver tried to make the curve around the reservoir. My alternate suggestions will be sent in as soon as I get a chance to be on the property again.

I would like to see the site 2 road used for access only to site 2, and not for access also to sites 1 and 7. This would eliminate entirely the critical problems of curve #2 as well as the other problems I have with the Ridge Alternative, and reduce the total traffic on the site 2 access so that a runaway truck would be less likely. The site 2 road has been used since 1981 for drilling and service equipment for four wells with access from the Shared College Road, and there have been no reported accidents or problems.

I would hope, in this environment sensitive world, that safety still has a high priority, and when there are safer alternatives, they would be considered over environmental concerns. The present report has a category of evaluation entitled "Traffic/Circulation," and safety falls in as a part of this larger area of concern. Environmental studies show concern over the animals and plants, cultural resources and the quality of lives as to health and what we see, hear, smell, etc. Safety is concerned with reducing the risk of injury and death and property damage. I believe it has a special and separate place in an environmental report rather than being buried into the related traffic/circulation category. From our discussion on July 12th, I believe that Mel Willis agreed with me on this matter, and I hope he will respond with a "Safety" category in his final report. How else can safety be measured as to alternatives unless it is a separate category?

2. Discussion on the "Shared College Access Road":

If I am to understand the rough estimates given for traffic, the present college generates 100 ADT and when fully developed approximately 300 ADT. The ranch traffic only 35 ADT. The oil field traffic is somewhere between 18 and 108 ADT, with most of the oil field traffic being trucks.
The waste water is presently removed by trucks from site 3, and the impact of these trucks is more remote from the college buildings and involves only about 925 ft. of the 3050 ft. of the shared access. The oil is in a pipeline now where it should stay, so the truck impact is significantly less than 108 ADT.

> To quote from page 57, the report states:
> "...while the College Access Road could physically accommodate projected worst case traffic volumes, the question of desirability becomes a function of land use compatibility and safety.
>
> "In terms of land use and transportation planning, the funneling of heavy truck traffic through a rural institutional setting within 50 feet of temporary structures results in the potential for significant land use conflicts."

Compare the short section of shared roadway of less than one mile to some miles of Highway 150 above Santa Paula to the Ojai School for compatibility, safety, and land use conflicts. This segment of Highway 150 has two schools whose population is somewhat higher than the college's, it is thus a rural institutional setting, with the homes and schools along the highway often closer to the passing cars and trucks than are any of the college buildings to the shared road. The college staff have often testified that the oil field traffic is "intolerable". How then do the people along Highway 150 tolerate 20 times or more in ADT with vehicles moving at twice or three times the speed? Perhaps we are spending too much of time and money trying to satisfy the college staff who appear not to be satisfied unless the oil traffic disappears completely.

With respect to what appears to be my favorite subject, Safety, the most dangerous place on the "Shared College Access Road" appears to be its intersection with the Access Road to sites 1 and 2. Above the college on my property and a short distance above this intersection, I have placed a full stop for all vehicles. I have asked all parties entering on my property, as well as those crossing through the college property, whether entering from the highway or from the drillsites, to restrict their speed to 20 mph and refrain from passing. All parties received a letter from me on this matter last year and all parties except the college staff and students have complied. I asked the college to consider a full stop sign before their vehicles enter the shared portion of the road from the west at the top of the campus, and I have had no response. I would like more stop signs and traffic signs reminding those using the shared road to stop before entering and to proceed with caution. Perhaps, with help from Mel Willis and the County, I could get the college's attention to the benefits of increased traffic safety for the shared road.

Because of the care which we have taken, both oil and ranch people, there has been an excellent safety record for the 12 years of oil field activity at Ferndale. It would be nice to have college cooperation.

While you might think that the turnoff to site 3 is a problem area, I am concerned about the location and condition of the student parking lots on the west side and adjoining the shared roadway. The master plan, shown on page 29 of the new EIR, as well as the college CUP, provide for the student parking lot to be to the north and to the west of the shared roadway, and also that it be paved and lined for organized parking. Over a year ago I asked the college to correct these violations to their CUP for safety reasons. I would like to ask McClelland Engineers, Inc. to consider reminding the college of the safety and aesthetic advantages of relocating the parking lot to the location as provided in their master plan and to ask the County to enforce the conditions of the college's CUP. Maybe this can be accomplished this summer so I will not have to worry further about students backing out of their disorganized lots into the path of a truck.

The noise and sight of trucks and other vehicles can be reduced by a properly designed and landscaped wall or barrier as mentioned in the third paragraph of page 61. The college buildings close to the shared road are temporaries, with axles still in place for moving them. Can the college tell us when they will build their campus with permanent soundproof buildings? In the meantime, if the college staff feels the students in the temps cannot stand the noise, their buildings can be moved to a location more remote from the roadway. There will be some cost in relocating the buildings and their associated utilities, but nothing compared to the road costs and safety risks for alternates other than "the Shared College Access Road." The sound barrier could be a joint expense of the oil company and the college, and would bring mutual advantages to both college and oil company.

With all these suggestions implemented, the "Shared Access" will be more attractive and safer. It would improve the noise and visual ratings in Table 2, Page 13, for the "Shared College Access Road" and also the Traffic/Circulation and Safety rating. This would bring this alternative into strong competition with the "Ridge Alternative" whose ratings on safety, geological hazards, and costs I consider much too optimistic.

3. As to shared entryway, I agree with McClelland that the abandoned cliffside road should not be reactivated. I do not understand McClelland's concept of a guard gate facility at the college entrance mentioned at the bottom of page 145 and perhaps elsewhere. Please explain.

4. There are over three pages of discussion concerning the geologic setting, some of this a repeat of the earlier EIR, and some very useful (pages 28, 30, 33, 34). I think McClelland is overly optimistic though in attempting to prevent and control the effects of superficial slope failures by the measures listed on page 34.

5. As an earth scientist who supports archaeological studies, I find Dr. Heather Macfarlane's report, Appendix C, most interesting. But as a businessman concerned with costs and an economy of words, I find that we could have been spared her 14 pages plus 4 pages of bibliography by a single simple statement that "a qualified archaeologist be present on-site to monitor construction activities in order to mitigate possible impact to potential buried cultural resources." I would like to caution the McClelland Engineers for Environmental Services and other environmental groups that I find businessmen getting tired of excessively lengthy appendices such as this which they have to pay for as a matter of law. As I attempt to raise funds for such basic research, I find it more and more difficult to get companies to contribute, whereas before they have been an easy touch. Such abuses in legally required environmental studies are making less and less corporate grants available for valuable environmental, paleo anthropologic and archaeologic field research.

Like everything else in what I have written above, I hope Mel Willis and his people will take what I said the other day and what I have written herein as my attempt at constructive criticism. I do sincerely seek and hope to find just solutions for me, for the college and for the oil interest in areas of environment and safety.

My major area of disagreement with the draft EIR is over the Ridge Alternative, where we had lively and thoughtful argument on both sides during our meeting last Thursday. On other matters discussed last Thursday, I feel there was substantial agreement. If this is not the opinion of Mel Willis, I would like to hear from him as to his version. This letter has added some requests for information and new issues perhaps, and I hope that McClelland can reply to them.

Sincerely,

Lawrence Barker, Jr.

cc: Mr. Robert Laughlin
McClelland Engineers, Inc.
Bob Randall

RESPONSE TO COMMENTS SUBMITTED BY LAWRENCE BARKER (LETTER DATED JULY 17, 1984)

Page 1, Paragraph 1. No response necessary

Page 1, Paragraph 2. No response necessary

Page 1, Paragraph 3. Points of clarification: It is not a county requirement that county staff be present at all meetings conducted as a part of an EIR. These courtesy meetings were scheduled to include county and consultant staff that could best clarify issues pertaining to the EIR. Another point of clarification is that Mr. John Blewett did not attempt to set up interviews with students, but rather indicated that he could provide us with additional information if necessary. Interviews were only mentioned as a means of providing additional data. Sufficient information regarding the project's history was available in county files and therefore interviews were not necessary.

Page 1, Paragraph 4. No response necessary.

Page 1, Paragraph 5. As noted in our meeting, Widmer and Associates provided consulting services regarding road feasibility and cost. Resumes and statements of qualifications for those individuals involved in preparation of the EIR have been submitted directly to Mr. Barker, Argo Petroleum, and Thomas Aquinas College as requested. Total budget for this analysis was $1,000.00 as indicated in the county approved scope of work for the EIR (revised version January 31, 1984).

Page 2, Paragraph 1. Grade characteristics for the Ridge Route Alternatives are discussed in Section IV.-C.1.a (page 80) of the Draft EIR. The EIR states the following:

> "Because of the required 215 foot elevation change, it is necessary to begin the switch back up the grade at the eastern portion of the drill site to attain an average slope of approximately 13.5 percent. Given the preliminary alignment, this route is estimated to require approximately 40,000 cubic yards of grading along its 1600 foot length. Along the backside of the slope, sections would be in excess of 15 percent slope leveling out to a slope of 10 percent near the top of the ridge. However, the precise roadway alignment and design characteristics require a detailed engineering assessment which is not part of this report."

Page 2, Paragraph 2. Preliminary engineering investigations indicate that this roadway appears to be feasible.

Page 2, Paragraph 3. Shallow surficial slides and slope saturation were not determined to be significant constraints that would preclude safe design of this roadway.

Page 2, Paragraph 4. While severe weather conditions should be a consideration in roadway design, these factors do not affect the geotechnical feasibility conclusions in the EIR. Given proper design, on-site weather characteristics are not expected to significantly impact slope stability as a result of roadway implementation within this corridor.

Page 3, Paragraph 1. As indicated in previous sections, the cost estimates contained in the EIR are for comparative purposes and are based on standard unit costs assuming normal construction. They are considered accurate to the extent that special design techniques are not necessary. Therefore, as special design requirements have not been determined, these estimates represent the best available information. Assuming standard construction requirements, these estimates are considered to be accurate ±20 percent. Additional cost breakdown information has been added to the EIR.

While projections of roadway maintenance costs is beyond the scope of the EIR, it is recommended that these studies be conducted as a part of design feasibility.

Page 3, Paragraph 2. These questions should be answered as a part of design feasibility. A safely designed road should not result in significant safety impacts.

Page 3, Paragraph 3. Comment noted. Safety ramp recommendations have been added to the text.

Page 3, Paragraph 4. Information regarding accident history along the shared college/ranch road has been added to the text.

Page 3, Paragraph 5. Traffic safety is addressed in the EIR as a key issue in the Traffic and Circulation analysis. Amendment to the report format is not considered to be warranted.

Page 4, Paragraph 1. As stated in Table 5 of the Draft EIR, oil related traffic is expected to range from 78 ADT (including 62 trucks) to 168 ADT (including 106 trucks) given the assumption that all oil is transported by pipeline. Clarification of the fact that the wastewater collection staging area is located on Drill Site No. 3 has been added to the text.

Page 4, Paragraph 2. Comment noted.

Page 5, Paragraph 1. No response necessary.

Page 5, Paragraph 2. Information regarding accident history on the college/ranch access road has been added to the EIR.

Page 5, Paragraph 3. College adherence to specifications in their CUP is a matter that should be investigated by the County.

Page 5, Paragraph 4. Relocation of college structures has been added to the EIR as a voluntary means of mitigating potential noise impacts. The referenced sound barrier has been addressed in the EIR.

Page 6, Paragraph 1. Comment noted. It should be further noted that the State CEQA Guidelines Section 15151 states that ". . . Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement . . . . " In this case, the ranking system is identified as suggested based on environmental considerations and conclusions contained in the EIR. While the inherently subjective nature of the ranking system has been noted, it should also be indicated that these recommendations reflect our best professional judgment.

Page 6, Paragraph 2. Our conclusions do not indicate that the cliffside road should not be reactivated. However, additional clarification of potential geologic concerns and their relationship to the ranking system has been added to the EIR.

The guard gate facility is simply a small structure occupied by a guard that would monitor traffic flow to/from Thomas Aquinas College.

Page 6, Paragraph 3. Comment noted.

Page 6, Paragraph 4. The archaeological assessment was prepared in accordance with Appendix K of the State CEQA Guidelines for a fixed fee, not-to-exceed, budget of $1,800.00 in accordance with our county approved scope of work.

Page 6, Paragraph 5. Comment noted.

Page 7, Paragraph 1. This response to comments in conjunction with amendments to the text indicated above is consistent with the State CEQA Guidelines. Direct correspondence with each commentator is not required by CEQA.

LAWRENCE BARKER, JR.
ONE MARITIME PLAZA
SAN FRANCISCO, CALIFORNIA 94111
415 986-7545

CERTIFIED MAIL

July 19, 1984

Mr. Dennis T. Davis
Manager, Planning Division
County of Ventura
800 So. Victoria Avenue
Ventura, CA 93009

Re: Draft EIR by McClelland
Ridge Alternative and Access
Road to Drillsite 2

Dear Mr. Davis:

With respect to the access road to drillsite 2, which might be a part of the proposed "Ridge Alternative", McClelland suggested that curve #1 could be eliminated by extending the road straight downhill to the west at the college reservoir. In lieu of this solution which I have discussed in my letter of July 17, 1984, I would suggest that McClelland examine another solution:

1. Leave curve #1 in place at the reservoir.

2. Construct a runoff to the right (north) for a runaway truck in case of brake failure above the reservoir turn.

3. Construct another runoff to the left for a runaway truck in case of brake failure below the reservoir turn.

Both runoffs would be sufficiently long and have an uphill component toward the end which would bring the truck without brakes to a stop. The runoffs should be graveled and maintained for that rare emergency. So now the truck driver has a way out when he detects brake problems.

A map is attached which diagrams the above suggestions. The exact locations for such emergency roads should be selected following a more detailed surface examination.

We have not had and may never have a runaway truck at Ferndale. But to be safe, it is well to provide for the possibility.

I took another look at curve 2 in McClelland's description of the "Ridge Alternative" and can see no solution which would reduce the hazard and difficulty of this uphill/downhill switchback. Further, I still cannot visualize how at least two more such dangerous turns can be avoided between curve 2 and drillsite 3. I hope someone can develop solutions for these turns between drillsite 3 and the access road to drillsite 2 to improve the feasibility of the "Ridge Alternative."

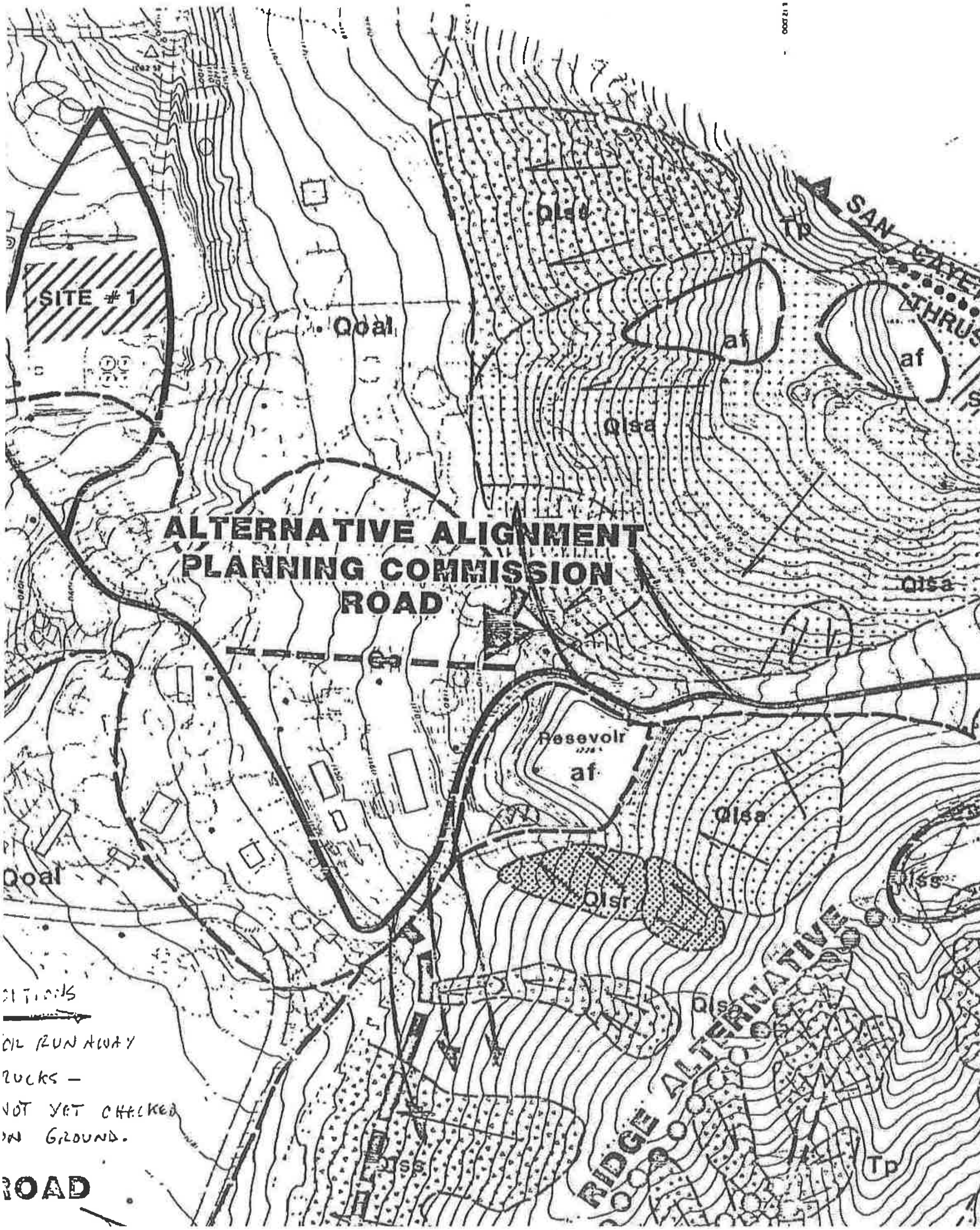
Yours truly,

Lawrence Barker

Lawrence Barker, Jr.

Enc.

cc: McClelland Engineers
Bob Randall



SITE # 1
Qoal
Qlsa
Tp
SAN CAYET
THRUS
af
ALTERNATIVE ALIGNMENT
PLANNING COMMISSION
ROAD
Resevoir
af
Qlsa
Qoal
Qlsr
Qlss
RIDGE ALTERNATIVE
Tp
Qlss
OR RUNAWAY
RUCKS —
NOT YET CHECKED
ON GROUND.
ROAD

RESPONSE TO COMMENTS SUBMITTED BY LAWRENCE BARKER (LETTER DATED JULY 19, 1984)

Page 1, Paragraphs 1, 2, 3 and 4. These potential safety measures have been added to the EIR.

Page 2, Paragraph 1. Comment noted.

LAWRENCE BARKER, JR.
ONE MARITIME PLAZA
SAN FRANCISCO, CALIFORNIA 94111
415 986-7545

July 30, 1984

CERTIFIED MAIL - RETURN
RECEIPT REQUESTED

Mr. Dennis T. Davis
Manager, Planning Division
County of Ventura
800 So. Victoria Avenue
Ventura, CA 93003

Re: Draft Environmental Impact Report
CUP-3344, Ferndale

Dear Mr. Davis:

With further respect to three primary areas of safety concern mentioned at the top of page 60 in the above report, I have already discussed item 2. Item 1 involves the limited visibility towards the west for southbound vehicles because of vegetation. The vegetation is primarily on college property, and perhaps partly on my property. I would ask McClelland to be very specific as to what they suggest so that major trees are not damaged. I would also like to suggest that a full traffic stop be made for college traffic entering this intersection from the west. There is already a full stop for southbound vehicles entering this intersection.

Item 3 mentions the 60 degree turn at the intersection of the access road with State Highway 150 and is concerned with the vegetation in that area. I have checked this on the ground, and it appears to me that there is a wide range of visibility in all directions for traffic approaching and entering on Highway 150. For the careful driver there should be no problem. If McClelland still has concern about this area, I would like them to be more specific as to which trees or vegetation should be trimmed or removed to improve visibility.

I look forward to receiving in the near future answers from McClelland Engineers, Inc. to this and previous letters.

Very truly yours,

LB/pw

CC: McClelland Engineers, Inc.

RESPONSE TO COMMENTS SUBMITTED BY LAWRENCE BARKER (LETTER DATED JULY 30, 1984)

Page 1, Paragraph 1. Removal of ground-level vegetation would help to mitigate this potential safety impact. The recommendation that an eastbound stop sign be implemented at this location has been added to the text.

Page 1, Paragraph 2. This reference is to vegetation in the immediate vicinity of Old Ferndale Ranch Road at its intersection with the college road. The potential visibility problem is for southbound vehicles on the college road as they approach Old Ferndale Ranch Road. Visibility at State Route 150 is sufficient as indicated by Mr. Barker.

RESPONSE TO ORAL COMMENTS PROVIDED BY ARGO PETROLEUM CORPORATION (MEETING JULY 18, 1984)

On July 18, 1984, McClelland Engineers and Ventura County Staff met with Mr. Dennis Vandervort and Mr. Don Sperling of Argo Petroleum Corporation to discuss their concerns with regard to the Draft EIR. At the close of the meeting it was requested that Argo submit all comments on the Draft EIR in writing to Ventura County so as to ensure their incorporation into the Final EIR.

During the meeting with Argo, several suggestions regarding wording were discussed orally. In general, Argo's main concerns with regard to the EIR involved the suggested ranking system and, in particular, the engineering feasibility of the recommended environmentally superior alternative. Additionally, there was concern over cost estimates and their accuracy.

Mr. Sperling suggested that we include a map showing property line boundaries.

It was Argo's contention that the EIR overestimated potential impacts associated with the shared college access road and that information documenting traffic safety records should be incorporated into the EIR.

There was also concern that the geologic hazards identified for the Old Ferndale Ranch Road entrance alternative were under estimated in the ranking system.

As a result of Argo's oral comments received additional information has been added to the text including: 1) a detailed breakdown of cost factors, unit costs and assumptions; 2) a property ownership map has been included; 3) information regarding the traffic safety history along the shared college/ ranch road has been added to the text; 4) the significance of geologic hazards at the project entrance along Old Ferndale Ranch Road has been clarified; 5) information has been added to clarify that the proposed ranking system is suggested based on our professional judgment; 6) the suggested ranking system (Table 2) has been reevaluated and adjusted where appropriate and; 7) wording revisions have been incorporated into the text, where appropriate. Specific responses to comments submitted in writing are contained in the following sections.

Los Angeles Office
21120 Vanowen Street
Post Office Box 633
Canoga Park, CA 91305
Telephone (213) 347-8360

Bolt Beranek and Newman Inc.
Consulting Development Research

12 July 1984

Mr. Don Sperling
Argo Petroleum Corporation
940 East Santa Clara
Ventura, CA 93001

Subject: Draft Environmental Impact Report
Modification of Conditional Use Permit
No. COP-3344
BBN Job No. 165198

Dear Mr. Sperling:

I have reviewed the above subject report as you requested. The following are my comments as they apply to the noise issue at the Thomas Aquinas College (Ferndale Ranch).

The report evaluates several access route alternatives as follows:

a) Shared College Road
b) Planning Commission Road (PCR)
c) Canyon Alternative to PCR
d) Ridge Alternative to PCR
e) Side Hill Road

In addition the report addresses three different entrance alternatives from Hwy 150 to the access roads:

a) Shared Entrance
b) Old Ferndale Ranch Road - Partial Traffic Separation
c) Old Ferndale Ranch Road - Full Traffic Separation.

The report uses and quotes extensively the data and results from BBN Report 5327 submitted to Argo on 24 August 1983. It should be pointed out, however, that BBN Report 5327 studied the noise impact of only two alternatives; the Shared College Road and the Side Hill Road (called Ridge Rd. in the BBN report).

The Draft EIR concludes (pg. 145) that the Ridge Road Alternative to the Planning Commission Road, together with entrance alternative (b) would be the most desirable and recommended solution.

From my brief review it appears that, indeed, the Ridge Road alternative would be "quieter" than the two alignments considered in the BBN report as far as the Argo traffic only is concerned. The alternative moves the Argo traffic much further from the College than the present road and uses the shielding provided by the ridge for further shielding. However, in arriving at this conclusion several important points are disregarded.

First of all, the BBN report and the EIR detail the criteria on which noise impact assessments are made, i.e., the EPA Levels Document which specifies an L_{dn} = 55 dB. This is equivalent to an L_{eq} (day) of 55 dBA and an L_{eq} (night) of 45 dBA. These criteria, although apparently endorsed by the EIR, is <u>not used</u> as the method to judge the various alternatives. Specifically, in Table 2 (p. 13), the EIR rates the noise impact generated by the Shared College Road as having a "Significant Impact" although it was shown that projected traffic volumes (Argo and College) will generate noise levels below L_{eq} = 55 dBA.* 5

It must be remembered that the EPA criteria was developed from the standpoint of protecting the public health and welfare from any identified effects of noise and that it contains a margin of safety to ensure their protective values. The L_{eq} (day) of 55 dBA is also in compliance with the Ventura Oil Noise Ordinance.

Therefore, <u>any</u> alternative that meets or falls below the L_{dn} = 55 dB level should be judged as acceptable from the standpoint of noise although some may be "quieter" than others. A simple analogy is, in building standards where if two construction designs meet the code, one design will not be judged "unsafe" just because a competing design is twice as strong.

---

* This conclusion assumes the construction of a barrier along College Road

Mr. Don Sperling
Argo Petroleum Corporation
12 July 1984
Page Three

Although the EIR does not use the 55 dB criteria to arrive at the impact assessment in Table 2, the report in describing the EPA and the Ventura Oil Ordinance calls them a "conservative criteria by which to judge noise impacts", (see p. 60) - a sizable contradiction.

Second, the EIR on p. 61 states that College related traffic alone is expected to increase noise levels at the dormitories (Location #2) to about 57 dBA. This assumes that Argo traffic will be re-routed and no wall will be constructed near College Road. Noise is noise and the effect of noise on people is the same, regardless who is the offender.

In summary, it appears that the EIR is very complete and thorough in its discussion and presentation of the data. My main objections are with the methodology used to arrive at the final conclusions and recommendations. I hope this is sufficient for your present needs. I must emphasize that this is a very quick review of an extensive document, so I was able only to center on the main point.

Very truly yours,

BOLT BERANEK AND NEWMAN Inc.

B. Andrew Kugler, Deputy Manager
Los Angeles Regional Office

BAK:bc

RESPONSE TO COMMENTS SUBMITTED BY ANDREW KUGLER OF BOLT BERENAK AND NEWMAN (LETTER DATED JULY 12 1984)

Page 1. No response necessary.

Page 2, Paragraph 1. No response necessary.

Page 2, Paragraph 2. Comment noted.

Page 2, Paragraph 3. The EPA Levels Document criteria was used as a basis for evaluating average daily noise levels. Based on the estimated average daily noise levels, adjusted to the recommended Ldn scale, projected traffic volumes will not exceed recommended average daily standards. The conclusion that use of the shared college/ranch road for the transport of heavy equipment could have a significant impact on the college is based on perceived impacts as a result of single event noise levels associated with truck passbys.

The fact that projected noise emissions are within recommended average daily limits does not mean that single event noise levels are not significant, particularly with regard to noise sensitive uses. The EIR accurately states projected noise levels, recognized recommended standards but also indicates that single event noise levels associated with truck traffic could be perceived as significant with or without a sound attenuation barrier.

Page 2, Paragraph 4. Additional information has been added to the text identifying the rational for developing EPA criteria. The EIR supports this conclusion that projected noise levels are in compliance with the Ventura County Oil Noise Ordinance.

Page 2, Paragraph 5. The EIR does not concur with this conclusion. Single event noise levels can be perceived as significant regardless if identified noise levels do not exceed recommended daily standards. This is particularly true when ambient noise levels are very low, thereby making the single event intrusion seem more significant. While this observation would be less significant for noise tolerant uses, college facilities are identified as noise sensitive uses by the EPA.

Page 3, Paragraph 1. The EIR uses EPA and County Noise Ordinance criteria to evaluate average daily noise levels, but also recognizes that single event noise levels generated by heavy trucks could be perceived as a significant impact by college residents.

Page 3, Paragraph 2. Comment noted. This information has been added to the text as a point of reference.

Page 3, Paragraph 3. No response necessary.

July 27, 1984

Argo Petroleum Corporation
940 E. Santa Clara Street
Ventura, California 93001

Subject: Draft Environmental Impact Report Modification to CUP-3344 - May 21, 1984 with a Focus on Traffic Capacity and Traffic Safety

Gentlemen:

I am a registered traffic and civil engineer in the State of California. I worked as a traffic/civil engineer for approximately 19 years, 12 of which were with the County of Ventura. I have helped prepare and review numerous E.I.R. reports. I have an extensive background in laws relating to traffic flow, traffic generation and accident analysis.

At the Ferndale Ranch/Argo lease area, I have spent approximately 80 on-site field hours. I walked the various proposed alternate routes to study grades, geology, and terrain. (My reports have been incorporated into the subject EIR). I have reviewed the CUP-3344 modification report as per your request.

The report is supposed to address significant environmental impacts because of expected traffic relating to oil activities. Referring to page 147 of the report, I was quite amazed by the people not contacted during the preparation of this report. Although some of my reports were included, no attempts were made to contact me for input. In looking over the list, not one of McClelland's people appear to be qualified to address traffic safety matters.

I have gone through the report and offer the following:

Two major problems I see with the report: First the report didn't utilize the Shared College road cross-section for the other alternatives. Second, the cross-section utilized was a 15-foot-wide oil on dirt roadway as mentioned on pp. 78, 80, 92, and 101. By not utilizing the 24' paved roadway with a 4' wide shoulder cross-section, there is no way to evaluate each alternative on an equal basis with the shared College Road. The cross-section proposed for each of the alternates is nothing more than a high standard jeep trail. It would be a one lane roadway, and could not handle the 100 to 200 ADT which it might carry. Contray to statements made in paragraph 6 on page 74, this type of cross-section does not have capacity to accommodate the projected traffic volumes. I am not going to go into much detail about one-lane roadways because the drawbacks are quite evident. That type of facility is only constructed when the traffic volumes are extremely light and it is necessary for extreme economy or when there are no alternatives. This report went out of its way to promote danger!

Second, in the last two paragraphs on page 57, I disagree with the philosophy, reasons, concept, basis and conclusions, and will explain my reasons for doing so. These paragraphs appear to have been written by person or persons who were taking and trying to justify the College's position. The intent of the present shared college road was to accommodate future volumes from all land uses which includes college, farm and oil activities. This is why the roadway was designed in such a manner that it could handle theoretically a peak hour volume of 2000 vehicles.

I agree that the capacity, to a limited extent, is also contingent on the desired function of the road; however, this is not the only element that must be considered which the report seems to imply. To illustrate the desired function concept, and example was given which is incorrect. True, a two-lane highway in certain cases can safety accommodate greater traffic volumes than a residential street, but the reverse can also be true. Rather than make "off the wall" statements, the report should stick to the factors which must be evaluated to determine capacity and level of service. Capacity factors which should have been used in the evaluation are listed below.

Capacity is a measure of the ability of a roadway to accommodate traffic. The report is partially right, but it just scratches the items to consider. The capacity of a roadway is affected by such items as width of traffic lanes and shoulders, the number of traffic lanes, the grades and alignment, the lateral clearance, passing sight distance, the degree of access control, the vehicular speed of the roadway, the extent of development, the percentage of trucks, merging and diverging movement, and type and number of intersections and driveways.

I disagree with the following statement made in the last paragraph of page 57: "In terms of land use and transportation planning, the funneling of heavy truck traffic through a rural institutional setting within 50 ft. of temporary structures results in the potential for significant land use conflicts". I gather by this statement that there are only land use conflicts, not traffic conflicts. Based on my calculation, the capacity is Level "A" as stated in my previous reports. (Level "A" is the safest level). The question should also be asked: how long will the structures be classified "temporary"?

Other observations that I made while reading this report: On page 5, it appears that all the alternate routes have major geological hazards except the shared College Road.

Suggested changes to Tables on pages 6 and 13 are shown on the attached Tables I and II.

Costs on page 11, are based on 15-foot-wide road sections with apparently no consideration as to County side slope standards. I feel the cost data is useless if it is agreed that the 15-foot widths are unacceptable.

I would like to know where the 10.7% grade is that is being referred to on page 51. There is no such grade on the "Shared" road.

On page 55, I disagree that there is a "significant" conflict between Argo and the College. I feel that it is only a "minor" conflict. It is my opinion that the projected ADT from future college development will be 150, not 300. The 300 is a "High Find" scenerio (unrealistic).

Comments regarding traffic/circulation on pp 65, 66, and 67: How do you "funnel" oil field traffic thru the College? I do not find in the report the foundation for "downslope ramp effect", "funneling" traffic into college campus. Funneling must be an important point the writer is attempting to make, because it is used twice. The only way that I can evaluate this, is when I know what the point is supposed to be. The mitigating measure is to reconstruct roadway including measures to reduce grades. Funny, I read further on in the report where 20-22 grades were acceptable in some of the alternatives.

Page 74 addresses the 15-foot roadway as sufficent to accommodate the projected traffic generation volumes. I disagree with this statement.

On page 85, I question the geological hazards and feel that they are "significant" for both the ridge and canyon routes.

On page 93, additional geological studies should be made to determine the extent of geological hazards.
Traffic/circulation-runoff, head on, rear end accidents, steep grades are almost impossible to negotiate. Mitigating measures wouldn't correct switchback or steep grade problems.

On page 101, again a mention is made that a 15' road could not have sufficient capacity to accommodate all potential oil related traffic: but a 24 foot roadway on relatively flat land doesn't because of "land compatibility"? This is not consistent reasoning!

On page 105, I disagree that this road can be built for $93,000.

On page 107, I do not feel that sufficient geological data was taken into consideration to make a statement that the conflict is "minor". On traffic/circulation, one lane roads present major accident and circulation problems.

On page 113, access road should be kept away from the bluff's edge because of erosion and other problems. This should eliminate the Old Ferndale Road as an entrance alternative. The oil field could produce for 40-50 years. There are no valid reasons in the report to require a separation of traffic along the south portion of the shared route. On page 118, you're putting traffic which has two lanes on a roadway which will have one unpaved dirt lane and parallels the two lane facility.

On page 120, the maximum interaction between college and oil related traffic is minimal, and not as stated on this page and by the College.

On page 141, under methodology, it is correct that this was a simple analysis, but it wasn't comparable on an equal basis as the report would lead you to believe. You can't compare a 2 lane high class road to a one lane unpaved roadway and say that this is a comparable analysis. If the 24 foot cross-section was used on all the alternatives, all of the other routes would be unacceptable.

On page 145 under conclusions, it confirms that this was a very simplified report which as far as I'm concerned proves nothing. I disagree with the conclusions and methodology. This report failed to utilize the shared college road cross-sections for comparison with other alternates. It utilized a one lane roadway and treated it as two lanes. The cost estimates are meaningless because a one lane section was used. I question whether enough geology information was attained to evaluate all land slides and other geology hazards. I question the use of an oil-dirt roadway from the standpoint of traffic safety, maintenance, and all hazards associated with such a roadway in a rather hilly, unstable terrain.

CONCLUSION:

The future shared college, ranch and oil field traffic on the main college, ranch road cannot be considered as great a traffic hazard as that which would occur if any of the alternate routes were employed.

Very truly yours,

Jerry Kaminsky
TE-191
RCE-24806

TABLE II (Kaminsky)

Comparison and Ranking of Access Road Alternatives

Access Route	Geologic Hazards	Traffic & Safety/ Circulation	Estimated Cost (1 Est. lowest) (5 Est. highest)	Ranking
1. Shared College Access Rd.	1	1	1	1**
2. Planning Commission Rd.	5	5	5*	5**
3. Drill Site No. 3 to Planning Commission Rd.				
a. Ridge Alternative	4	5	4*	5**
b. Canyon Alternative	5	5	4*	5**
4. Side Hill Route	3	3	3*	3**
Entrance Alternatives				
1. Shared	1	2	1	3**
2. Old Ferndale Ranch Rd.				
a. Partial Traffic Separation	3	3	2	5**
b. Full Traffic Separation	3	1	4*	5**

* Insufficient data available in this E.I.N. to give reasonable estimate. Some of the areas are highly unstable and costs could run 3 times the estimate.

** Overall Environmental Ranking (1 = best; 5 = worst)

TABLE I (Kaminsky)

Issue	Access Routes: Shared College Road	Access Routes: Planning* Commission Road	Drill Site No. 3* to Planning Commission Road: Canyon Alternative	Drill Site No. 3* to Planning Commission Road: Ridge Alternative	Side Hill Road	Entrance Alternatives: Shared Entrance	Entrance Alternatives: Old Ferndale Ranch Rd. Partial Traffic Separation	Entrance Alternatives: Old Ferndale Ranch Rd. Full Traffic Separation
B. Traffic Safety/ Circulation	Road operates under level "A" service. Accident potential is minimal. No problem between College, Argo & farm traffic.	Grades present capacity & accident problems. Rear end, run off road & head on accident problems. Sharp & numerous curves, steep grades. Safety serious concern.	Grades present capacity & accident problems. Rear end, run off road & head on accident problems. Slope switchback problems.	Grades present capacity & accident problems. Rear end, run off road & head on accident problems Steep section problems.	Run off the road accidents. Safety and capacity problems in addition to two intersections.	Intersection of College and oil related vehicles.	Development of two new intersections with the existing College access road, increasing turning movement safety hazards.	Development of one new intersection with the existing College access road. Gully crossing subject to wash out; thereby subjecting motorists to hazards & lawsuits.

*Assume same cross-sections as shared College Road — I question if any of the other alternates can be constructed to this standard. Only way a realistic comparison could be made.

RESPONSE TO COMMENTS SUBMITTED BY JERRY KAMINSKY (LETTER DATED JULY 27, 1984)

Page 1, Paragraph 1. No response necessary.

Page 1, Paragraph 2. No response necessary.

Page 1, Paragraph 3. Traffic studies prepared by Mr. Kaminsky were incorporated into the Draft EIR and no further input was necessary. McClelland staff have conducted several studies relative to transportation planning and traffic safety. These staff qualifications were reviewed and approved by Ventura County prior to award of contract.

Page 2, Paragraph 1. The access alignment concepts identified in the EIR are not intended as specific designs. As such, it is recognized that a 24 foot wide road may be necessary to safely accommodate projected traffic volumes. Specific design requirements would be determined based on subsequent engineering studies as indicated in the EIR.

While a 15 foot cross section was used as an assumption in the cost calculation, it is important to note that these preliminary estimates are for comparative purposes only. While the use of a 15 foot cross section may tend to under estimate overall costs, particularly if a 24 foot road is necessary as Mr. Kaminsky suggests, this assumption has been used for all new road construction and is therefore useful for comparison.

Information has been added to the text indicating that a properly designed road would have sufficient capacity to safely accommodate oil related traffic.

Page 2, Paragraph 2. Based on surface inspection of the existing roadway facility, and evidence of deterioration it is questionable whether or not the existing college/ranch roadway is designed to accommodate heavy vehicles. The EIR indicates that the roadway would operate at a level of Service A given projected traffic volumes.

Page 2, Paragraph 3. Additional factors used to determine roadway capacity have been added to the text.

Page 2, Paragraph 4. Additional factors used to determine roadway capacity have been added to the text.

Page 3, Paragraph 1. The EIR states that there is sufficient capacity on the college/ranch road to accommodate projected traffic volumes while maintaining a level of service A. The conflict identified is a land use concern regarding the desirability of truck traffic through an institutional setting.

Provision of the college's CUP are not at question within this EIR.

Page 3, Paragraph 2. Page 5 of the Draft EIR states that there are "no major geologic hazards" for the shared college/ranch road, the Drill Site No. 3 to Planning Commission Road, (Ridge or Canyon Alternatives), or the Side Hill Road.

Page 3, Paragraph 3. Comments noted.

Page 3, Paragraph 4. Because roadway cost projections are based on the same assumptions they are useful from a comparative standpoint. These estimates are gross cost estimates and are not based on detailed engineering studies.

Page 3, Paragraph 5. This typographical error has been corrected.

Page 3, Paragraph 6. College enrollments are expected to more than triple given full buildout of facilities. Therefore, traffic volumes of 300 ADT represent a realistic "worst case" condition.

Page 3, Paragraph 7. The word "funnel" has been replaced by "movement". The text now refers to the movement of oil related traffic through the college campus.

Page 3, Paragraph 8. The text has been amended to further clarify the conceptual nature of the access corridors. Development of an access road along this corridor could be designed with sufficient capacity to accommodate oil related traffic.

Page 4, Paragraph 1. No response is necessary.

Page 4, Paragraph 2. A discussion concerning the difficulty of mitigating these types of impacts has been added to the text.

Page 4, Paragraph 3. This has been addressed in previous responses.

Page 4, Paragraph 4. Additional information has been added to the text documenting assumptions and unit costs used for this estimate. It should be further noted that these are gross costs, not detailed costs based on an engineering analysis.

Page 4, Paragraph 5. Geologic - no response is necessary. Traffic/Circulation - Additional information has been added to the text identifying potential problems associated with a one-lane 15-foot road.

Page 4, Paragraph 5. Proper design of Old Ferndale Ranch Road would minimize potential geologic impacts. Therefore, it was not eliminated from the analysis.

Page 4, Paragraph 6. Of the potential alternatives, this would involve the most interaction between oil related traffic and college activities. Additional information regarding accident history has been added to the text.

Page 4, Paragraph 7. This has been addressed in previous comments.

Page 4, Paragraph 8. These comments have been addressed in previous responses. It should be reemphasized that the access corridors analyzed were not based on a specific design (e.g. 15-foot width). A 15-foot design width was used only for cost comparison of new road construction. These estimates represent gross costs and should not be mistaken for detailed costs based on engineering and design studies. They are for comparison only.

Page 5, Paragraph 1. Additional information regarding safety considerations and accident history have been added to the text.

RESPONSE TO ORAL COMMENTS SUBMITTED BY THOMAS AQUINAS COLLEGE (MEETING JULY 30, 1984)

On July 30, 1984, McClelland Engineers and Ventura County staff conducted a meeting with Mr. John Blewett, Joe Kern and Richard Regnier representing Thomas Aquinas College. The intent of the meeting was to solicit comments concerning the Draft EIR on Modification of CUP-3344. As with previous meetings with Lawrence Barker and Argo Petroleum Corporation, it was requested that college representatives submit their comments in writing in order to ensure incorporation into the final EIR. The following is a summary of the major concerns raised at the July 30 meeting as well as response to those concerns.

Comment: Substantiation of cost estimates was requested.

Response: This information has been incorporated into the EIR.

Comment: Additional analysis of the Silverthread access and other potential access roads should be included in the EIR.

Response: Based on preliminary environmental screening, other access routes including the Silverthread were determined not to be environmentally superior to the primary alternatives analyzed. Therefore, further detailed analysis was not warranted.

Comment: Impacts of Drill Site no. 7 on the creek bed were not addressed.

Response: As determined by the Ventura Board of Supervisors, the scope of the EIR was to address access corridors and not drilling pad locations.

Comment: College representatives requested that it be noted that they have the "right of first refusal" upon sale of the adjoining ranch property.

Response: This information has been added to the text.

Comment: College representatives requested that it be noted that the Silverthread access route was approved as the alternate access under the original CUP.

Response: This information has been added to the EIR.

Comment: The EIR did not address the cumulative impacts associated with Sun Oil's expansion of operations.

Response: The focus of the analysis was on alternative access concepts and the effect of cumulative projects that might use each corridor. Cumulative effects of each alternative access route were addressed in the EIR. It is not expected that Sun Oil would utilize the access roads analyzed.

Comment: The text should be amended to indicate that the Hacienda is part of Thomas Aquinas College rather than the ranch.

Response: The text has been amended accordingly.

Comments: Traffic projections are too low.

Response: These estimates are based on the best data available.

LAW OFFICES OF
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NOEL A. KLEBAUM
KEVIN G. STAKER
SANDRA M. ROBERTSON

IN REPLY
PLEASE REFER TO:

3898

September 19, 1984

County of Ventura
Planning Department
800 South Victoria Avenue
Ventura, California 93009

Attention: Dennis Hawkins
Case Planner

Re: Draft Environmental Impact Report (EIR) for
CUP-3344 Mod #8 and #9 (Argo Petroleum Corp.)

Dear Mr. Hawkins:

As counsel for Thomas Aquinas College in the matter of Argo Petroleum's application for modification of CUP-3344, this office has reviewed the Draft EIR and consulted with appropriate experts. As the serious environmental consequences of this large scale petroleum exploitation project are objectively investigated and analyzed, the conclusion is inescapable that the use of the College's Campus Drive by huge petroleum and waste water tanker trucks, heavy equipment hauling tractor-trailers, and similar noisy and highly visible vehicles, as well as extensive light and medium oil field truck traffic, is totally incompatible with the effective functioning of an exquisite institution of higher learning. In meeting its commitment to academic excellence, Thomas Aquinas College requires a tranquil environment - unimpacted by Argo activities that have violated and will violate CEQA in the absence of mandated access alternatives and indispensable mitigating measures.

The Draft EIR prepared by McClelland Engineers forthrightly recognizes alternative access is essential. This must include not only separate entrances for the College and Argo, but also off campus interior roadway access to the drill sites. The College, of course, concurs in these conclusions. With the benefit of further input from independent civil engineers, a geologist, and a hydrologist whom the College felt compelled to consult, it is now quite clear there are several feasible access alternatives to the drill sites, one or more of which may be environmentally superior to the Draft EIR's recommended ridge route from drill site 3 to the Planning Commission Road. Further specifics on the investigation, analysis and studies by these experts is currently being provided to you by them and will be presented to the Board of Supervisors at the forthcoming public hearing on the Draft EIR.

In addition the following comments are submitted on behalf of the College. First, based on personal observations by College employees, the Draft EIR understates both the expected Argo traffic volume and the disruptions and noise impacts upon the College's students and faculty.

Secondly, the College objects to the limited focus of the Draft EIR because the proposed project will inflict severe, unmitigated environmental impacts which have not been addressed. This is the result of the erroneous Mitigated Negative Declaration issued by the Environmental Report Review Committee which found that certain mitigating measures eliminated the impacts of the proposed new drill site 7 and the expansion of drill site 2.

Further investigation has confirmed, however, the addition of drill site 7 will have a significant adverse impact upon the College and may well entail catastrophic consequences when Santa Paula Creek reaches flood stage. Frankly, just walking and carefully viewing the area immediately raises concern that drill site 7 is effectively situated in the creek bed. Backed up against a steep canyon wall with nowhere else to go but further out in the watercourse, the nearly one acre drill site is being proposed for ten oil wells. It is astonishing that this aspect of Argo's request has not received far more scrutiny by the responsible governmental agencies and either sorely needed additional mitigation measures imposed or drill site 7 disapproved. Succinctly stated, there has not been the requisite full assessment of significant environmental impacts which the proposed large new drill site 7 will impose. For this reason this serious oversight is being brought to your attention and the Board of Supervisors so that it can be remedied in timely fashion and CEQA's policy and requirements fulfilled.

As to the highly visible drill site 2 which overlooks the entire College, it is submitted that doubling the number of wells to 10 will create environmental effects that are cumulatively considerable.

Because of the erroneous Mitigated Negative Declaration, the Draft EIR does not address the foregoing issues. Thus, it provides an insufficient basis for approval of Argo's modification requests.

Until the environmental issues raised by the addition of drill site 7 and the expansion of drill site 2 are adequately addressed, and unless strictly off campus access to every drill site is required, approval of the modifications would violate the California Environmental Quality Act.

Respectfully submitted,

Richard A. Regnier

RICHARD A. REGNIER

RAR:sh

cc: Thomas Aquinas College

RESPONSE TO COMMENTS SUBMITTED BY FERGUSON, REGNIER AND PATTERSON (LETTER FROM RICHARD REGNIER DATED SEPTEMBER 19, 1984)

Page 1, Paragraph 1: This information does not pertain to the adequacy of the EIR and therefore, no response is necessary.

Page 1, Paragraph 2: Additional studies referenced in this comment verify preliminary findings of the EIR concerning roadway feasibility. However, no additional data has been presented to support the contention that another alternative may be "environmentally superior" to the Drill Site No. 3 to Planning Commission Road Alternative suggested in the EIR.

Page 2, Paragraph 1: The best available statistical data does not support these observations.

Page 2, Paragraph 2: The scope of the EIR was reviewed and approved by the Ventura County Resource Management Agency.

Page 2, Paragraph 3: The adequacy of the County's Mitigated Negative Declaration is not within the scope of the EIR.

Page 2, Paragraph 4: These impacts are considered in the Mitigated Negative Declaration.

Page 2, Paragraph 5: The adequacy of the Mitigated Negative Declaration is not within the Scope of the EIR.

Page 3, Paragraph 1: This does not pertain to the adequacy of the EIR.

JOHN F. MANN, JR.
CONSULTING GEOLOGIST AND HYDROLOGIST
945 REPOSADO DRIVE
LA HABRA, CALIFORNIA 90631

TELEPHONE
(213) 697-9604

September 19, 1984

County of Ventura
Planning Department
800 South Victoria Ave.
Ventura, CA 93009

Attn: Mr. Dennis Hawkins, Case Planner

Re: CUP No. 3344

Dear Mr. Hawkins:

I am writing to you at the request of Thomas Aquinas College with comments on CUP No. 3344, especially as regards the potential for pollution of ground water and surface water supplies. In addition to my visit to the college and vicinity on June 29, 1984, I have reviewed the following documents:

February 1976 - Environmental Impact Report, Thomas Aquinas College, Ferndale Ranch, Ventura County, California, Albert C. Martin & Associates.

June 21, 1978 - Final Environmental Impact Report for Modification of Conditional Use Permit No. CUP-3344, Argo Petroleum Corporation, Ferndale Ranch, Ventura County Environmental Resource Agency.

July 16, 1982 - Conditional Negative Declaration, Conditional Use Permit No. CUP-3344, Mod. #8 Argo Petroleum Corporation.

May 21, 1984 - Draft Environmental Impact Report, Modification of Conditional Use Permit No. CUP-3344, McClelland Engineers, Inc. Environmental Services.

In the Initial Study Checklist for the June 21, 1978 FEIR, degradation of ground water quality and of surface water quality were listed as possible environmental impacts. The Mitigated Negative Declaration approved March 23, 1983 (p. 4) mentions the possibility of rupturing the flow line between Drill Site No. 7 and Drill Site No. 1. Although accidental rupturing might be unpredictable, rupturing during a flood could be anticipated. During the short periods of severe flooding consideration should be given to suspending production and draining the vulnerable lines.

One potential for ground water pollution was not mentioned in the Mitigated Negative Declaration. Drill Site No. 1 and Drill Site No. 7 are both on permeable alluvial materials. Whereas encircling berms might possibly protect flood waters from pollution, such a plan does not protect the underlying ground waters from pollution. To mitigate potential pollution of underlying ground waters, these two sites should be paved or otherwise made impermeable.

In summary, I believe the possibilities for surface water and ground water pollution can be further reduced if the following steps are taken:

1. Discontinuing pumping from certain drill sites during periods of severe flooding and draining vulnerable lines carrying oil or brine.

2. Paving of Drill Sites Nos. 1 and 7.

Very truly yours,

John F. Mann, Jr.

John F. Mann, Jr.

JFM:ae

RESPONSE TO COMMENTS SUBMITTED BY JOHN MANN JR. (LETTER DATED SEPTEMBER 19, 1984

Page 1, Paragraph 1: This information does not address the adequacy of the EIR and therefore, no response is required.

Page 1, Paragraph 2: Same response as above.

Page 2, Paragraph 1: These comments refer to the adequacy of the Mitigated Negative Declaration and not to this EIR.

Page 2, Paragraph 2: No response is necessary.

KEVIN KEEGAN & ASSOCIATES, INC.
Civil Engineering ● Surveying ● Land Planning
22924 Lyons Avenue, Suite 207
Newhall, California 91321
(805) 254-3029 (818) 349-1924

September 18, 1984
W.O. #316-1-84

County of Ventura
Planning Dept.
800 S. Victoria Ave.
Ventura, CA 93009

ATTN: Dennis Hawkins, Case Planner

SUBJECT: Modification of Conditional Use Permit No. CUP-3344, Roadway Analysis

Dear Mr. Hawkins:

Pursuant to our previous telephone conversations, and at the request of Thomas Aquinas College, we have prepared preliminary grading and roadway alignment studies for those roadways described in the Draft Environmental Impact Report, for the above mentioned CUP-3344 prepared by McClelland Engineers, Inc. The purpose of these studies was to further evaluate, in more detail, the alternative alignment for access roads for oil drilling operations on the Ferndale Ranch, located adjacent to Thomas Aquinas College, for construction and use feasibility.

Our investigation and analysis consisted of, or utilized, the following:

1. Review of the "Draft Environmental Impact Report Modification to CUP 3344", Argo Petroleum Corp., Ferndale Ranch Lease, prepared for Ventura County Resource Management agency dated May 21, 1984 by McClelland Engineer Inc.

2. Review of all correspondence contained within the County of Ventura files regarding this modification of the conditional use permit.

3. Discussions with you, and members of your staff, with regards to the history of the project, the existing condition, and the existing and future needs of the college.

4. A site inspection of the project and the proposed roadway alignments.

5. Preparation of 1"=100' base topographic maps from the base topographic survey supplied to this firm by McClelland Engineers, at the request of the County of Ventura.

6. Preparation of photo enlargements of portions of the geologic hazards map supplied this firm by McClelland Engineers, at the request of the County of Ventura.

7. Consultation with outside consultants with regards to existing geologic conditions and probable future restoration and/ or construction requirements for construction of the various access roads.

In preparing our analysis we specifically considered, among many other items, the following:

1. That the existing Campus Drive is the principal access for the three currently producing drill sites located on the adjacent Ferndale Ranch lease. These drill sites are 1,2,&3.

2. Heavy truck traffic, due to drilling, maintenance and related production and shipping operations of these sites, has, in the past, severly broken down the existing Campus Drive and caused classes at the college to be disrupted due to the heavy traffic and noise.

3. That an oil pipeline has been constructed to transport oil from each producing drill site to drill site 1; and from there easterly into the Arco Four Corners common carrier pipeline.

4. That a new drill site, drill site 7, is proposed within the confines of the Santa Paula Creek. This additional drill site will be constructed in addition to the other six drill sites located elsewhere on the property.

5. That there will be heavy truck traffic to these drill sites during the initial drilling operation and for periodic refitting and maintenance of the wells. Production from these sites will be transported offsite via oil pipe lines to be constructed.

6. That the alignment for the roadways should consider all aspects discussed in the Draft Environmental Impact Report. This would include routing, rates of grade, aesthetics, impact on flora, fauna, and site geologic conditions.

Our studies indicate that a network of roadways may be constructed within the area designated as the Ferndale Ranch lease to service the drill sites without requiring access to the sites via the College Campus Drive. Assumptions for design for these roadways were as follows:

1. Minimum road bed width = 30'. This will allow large truck traffic to pass either way comfortably while also allowing for a graded shoulder between an edge of pavement (should pavement be constructed) and the top of slope.

2. 2:1 (horizontal to vertical ratio) for all cut and fill slopes and benches at a maximum vertical separation of 30' within all cut and fill slopes as required by the Ventura Co. Grading Ordinance.

3. Maximum road grades = 15% where possible. This maximum grade is less than some of the existing roadway grades (in excess of 15%) that are currently being used on the lease property.

4. Minimum centerline radius = 70'. The minimum centerline radius required by the Ventura Co. Fire Dept. for turning their largest equipment is 50'. A centerline radius for the roadways of 70' is excess of this standard requirement and far in excess of the radii indicated on the preliminary roadway alignments contained within the Draft Environmental Impact Report.

The result of our analysis and studies is a network of roadways that can and will service the existing, as well as future, drill sites without the need to utilize the College Campus Drive. These routes assume that access to the Ferndale Ranch area will utilize a regraded version of the existing road that currently parallels the College Campus Drive from a point just inside the Ferndale Ranch area after leaving Hwy. 150. A brief summary of each of the routes is as follows:

1. The Planning Commission Road

   The alignment for the Planning Commission Road, as shown in the Draft Environmental Report, basically follows the existing dirt road on the site. Our studies utilize this alignment as much as possible with the exception of a realignment of portions of the roadway to reduce the grading and geologic impact. Those sections that have been realigned are:

   a. That section of road beginning at the most easterly switchback of the road (located at approximately elevation 1530) westerly to the next switchback (located approximately 1460). This realignment consists of taking the road higher along and near the top of the existing east-west trending ridge. This allows for a decrease in grading as well as a realignment over and above some of the existing mapped geologic instabilities as shown on the Draft Environmental Impact Report.

   b. A realignment of the portion of the roadway contained between the intersection of the Planning Commission Road and the Canyon Alternative (located at approximately elevation 1385), and a point adjacent to the existing reservoir on the road between drill sites 1 and 2. The realignment of this portion of the road consists of rerouting the road higher along the existing slope therefore reducing its exposure within the mapped geologic instabilities and reducing the probable amount of corrective grading for construction of the road. This alignment also reduces the amount of overall grading necessary to construct the road as well as reducing the grades for the roadways that currently serve drill site 2.

It is our opinion that this roadway alignment, as presented in this analysis, yeilds a satisfactory and safe route for the purposes intended. This route will be safer than those portions of the roads that are currently in service and, with paving of the roadways, the safety will increase significantly. This route is a viable alternative to service all drilling sites except site no. 3.

2. The Canyon Alternative

The Canyon Alternative consists of a roadway to be constructed from drill site 3, easterly up or along the existing canyon bottom to a point of intersection with the Planning Commission Roadway at approximately elevation 1385. This route provides direct access from drill site 3 to the Planning Commission Road via a relatively short stretch of roadway. Maximum grades on this roadway are 15%. This route is relatively free of geologic hazards though care will have to be taken with regards to grading within the existing canyon and around the existing oak trees. It is our opinion that this route is a viable route and should be considered as part of the overall roadway system.

3. The Ridge Alternative

This route connects drill site 3 to the Planning Commission Road by traversing through the existing canyon that lies adjacent to, and northerly of, drill site 3 and then switching back and making its way northerly up and along the ridge to the point of connection. This route has been altered from the preliminary alignment shown on the Draft Environmental Impact Report due to problems with grades and centerline radii on the switchbacks and a realignment of the Planning Commission Road within the area of the intersection. Roadway grades within one stretch of this alignment exceed 16%.

This alignment is relatively free of geologic instabilities. The alignment crosses some minor sufficial landslides, as mapped in the Draft Environmental Impact Report, but passes well above and beyond the more significant features contained within the adjacent areas.

This alignment utilizes an 8' to 10' high earthen berm along its southern and westerly exposures, while on the ridge, to mitgate visual and sound impacts onto the adjacent college below. These earthen berm structures can also serve as edge of road markers to increase the safety of traffic traveling downhill on this roadway.

This alignment should be studied in more detail with regards to vehicular and driver safety prior to it being accepted as a viable alternative for heavy truck or tanker traffic. However, this road is superior to many existing mountain roads currently used by normal traffic and therefore can be considered as being a viable route for light truck and automobile traffic that would normally service the drill site. Therefore, it is our opinion that this alternative presents a viable route for light vehicular traffic and should be further studied with regards to use for heavier truck and/or tanker traffic.

4. The Sidehill Road

The proposed route for the sidehill road, as presented in the Draft Environmental Impact Report, is located such that the

4. cont.

visual impact of the grading and traffic noise would be severe with regards to the college. Therefore, after preparing some initial studies for this alignment, it is the opinion of this firm that for the reasons stated above this route is not a viable alternate route unless the college reviews and accepts the results of further detailed engineering studies addressing these two factors. Utilizing the topographic survey furnished by McClelland Engineers we do not feel it is possible to prepare studies of that nature and detail at this time.

5. The Silver Thread Access

The Silver Thread Access route utilizes existing oil field roads adjacent to, and westerly of, the college. These existing roadways terminate northwesterly of Santa Paula Creek. Visually it appears possible to construct a roadway from this terminus to service the proposed drill site no. 7 and the existing drill site no. 1.

Construction of the crossing for Santa Paula Creek can vary with the intention and needs of the crossing. If the requirement for crossing Santa Paula Creek is not year around then possibly an Arizona type crossing may be constructed. If year around access is required then a complete bridge structure is in order.

Assuming that year round all weather access to the drill site is not required (as is often the case) then construction of an Arizona type crossing is possible. The construction cost for this type structure is far less than that of a full bridge structure.

Further study of this route should be done to determine its viability. Construction of any graded areas or structures within natural creeks such as Santa Paula Creek should be carefully reviewed by all departments of the applicable governing agency. In particular, the effects of backwater, ponding, scour downstream of the structure as well as of the adjacent banks should be thoroughly investigated by the proposing engineers and by the Ventura County Department of Public Works and Flood Control Department.

In addition to the roadway alignments discussed herein we would also like to take this time to comment on the proposed drill site no. 7. We have seen only preliminary plans for this drill site but the questions of bank erodability of the fill and the possible danger of a catastrophic oil spill deeply concerns us.

It is our understanding, from the Draft Environmental Impact Report, that the final elevation of the proposed site no. 7 is to be 2 to 6 feet below the projected water surface for a 100 year flood event. This will require pad protection by a levee type device. If this is indeed the case then it is imperative that this site be closely and stringently reviewed by the Co. of Ventura Dept. of Public Works agency; principally the Building and Safety, Flood Control and Hydrology sections prior to permitting its construction. Failure to require adequate engineering studies and analysis regarding; streambed flow velocities, bank erosion, levee protection and adverse effects of the final pad configuration upon the existing flow patterns within the stream could result in long term serious environmental damage. In addition, and also prior to issuance of a permit, the subjects of groundwater contamination from the drilling operation, liquifaction and drainage of the drilling pad during periods of high flow in Santa Paula Creek should be addressed and reviewed by the appropriate consultant and agencies.

These studies have utilized the existing 1"=100' topographic map furnished us by McClelland Engineers. These studies are general in nature and should be considered preliminary. Final construction drawings for these roadways should be prepared at a scale no smaller than 1"=40' on a topographic map prepared specifically for this purpose. At that time, it is our feeling that minor changes with regards to roadway gradients, turning radius' etc. can be made during the design phase which will further enhance and improve the overall design.

Regarding the corrective grading for the roadway improvements. We have reviewed our roadway alignments with an independent Engineering Geologist, who has visited and examined the site, and feel that the existing affected geologic instabilities can be repaired or stabilized by normal corrective measures. At this time a detailed geologic investigation of the site has not been done and prior to preparation of working drawings, one must be completed. In addition it is also possible that the slope gradients may be reduced from 2:1 (as used in this study) as a result of that same geologic investigation. This would result in a further reduction in graded areas and quantities of earth to be moved.

In conclusion, it is our opinion that the roadway alignments, as generally shown in the Draft Environmental Impact Report prepared by McClelland Engineers (with exception of the Sidehill Road), are viable roadway alternatives and that access to the existing and proposed drill sites can be obtained without the use of the Thomas Aquinas College Campus Drive.

Should you have any questions regarding any of the matters discussed herein please do not hesitate to contact this office at your earliest convenience.

Respectfully submitted,

KEVIN KEEGAN & ASSOCIATES, INC.

By: Kevin Keegan
President
RCE29333

KK:pm

Encl: Alternative Access Road Alignment Study Dated 9/16/84

cc: Mr. John Blewett, Thomas Aquinas College
Mr. Dick Regnier, Ferguson, Regnier, & Patterson
Mr. Allan Seward, Allan Seward Geology

RESPONSE TO COMMENTS SUBMITTED BY KEVIN KEEGAN AND ASSOCIATES (LETTER DATED SEPTEMBER 18, 1984):

Page 1, Paragraph 1: This information addresses the scope of an additional study prepared at the request of Thomas Aquinas College. No response is necessary.

Page 2, Paragraph 1 and 2: These comments also address the scope of an additional study prepared for Thomas Aquinas College. The scope of this study was to further address the engineering feasibility of access alternatives addressed in the EIR.

Page 3, Paragraph 1 and 2: These paragraphs introduce an additional access concept that was not addressed in the EIR. The exhibit depicting this alignment is available for review at the Ventura County Resource Management Agency. Because of the location of this concept with regard to significant geologic hazards, this refined Planning Commission Road alternative does not appear to be "environmentally superior" to other alternatives discussed in the EIR.

Page 4, Paragraph 1-6: These comments provide additional refined engineering feasibility data that generally concurs with the preliminary findings in the EIR. However, the EIR conclusion, that the Side Hill Road alternative is technically feasible, is still valid.

Page 5, Paragraph 1-4: Based on preliminary engineering investigations conducted for the EIR, this alternative is not considered feasible for all-weather year-round access, unless a bridge structure is implemented. This letter does not provide sufficient additional information to change this conclusion.

Page 5, Paragraph 5 and 6: The location of Drill Site No. 7 was addressed in the County Prepared Mitigated Negative Declarations. As such, these comments do not pertain to the adequacy of the EIR.

Page 6, Paragraph 1: This comment does not pertain to the adequacy of the EIR.

Page 6, Paragraph 2: Based on preliminary engineering studies prepared for the EIR the Side Hill Road concept is also a viable alternative from an engineering standpoint.

Argo Petroleum Corporation

September 18, 1984

Mr. Dennis Davis
Manager of Planning
County of Ventura Resource
Management Agency
800 South Victoria Avenue
Ventura, California 93009

RE: Draft Environmental Impact Report
Modification (8 & 9 Combined) CUP-3344

Dear Mr. Davis:

As you know, Argo Petroleum met with County staff and McClelland Engineers on July 18, 1984 to discuss the subject Draft Environmental Impact Report prepared for Modifications 8 & 9 (combined) to CUP-3344. In this meeting many changes were discussed and agreed upon. It was also indicated that a letter would be forthcoming from McClelland Engineers confirming that these changes would be made and showing the new language to actually be incorporated into the final report. Argo also wished to respond in writing with those comments it wished to make, however, it was our desire to see McClellands changes first so that we would not unnecessarily comment on those items that had been corrected to our satisfaction. This no longer appears possible, however, because we still have not received any correspondence from the County or McClelland regarding these changes. As a result, we would like to offer our own conclusion based on the same information made available in the Report and follow this with a list of comments addressing those specific areas we feel need correcting.

Based on the <u>factual</u> information contained in the Report itself, it appears obvious that the safest, most reasonable and least environmentally damaging access route for Argo's operations is the paved 24 foot wide roadway now being used. This conclusion is not only supported by the Report itself but is strongly supported by Jerry Kaminsky's letter dated July 27, 1984 to Argo (see attached Exhibit "B") and also by letter dated July 12, 1984 from Bolt Beranek and Newman Inc. (see attached Exhibit "C").

For example, we would like to emphasize a point brought out by Jerry Kaminsky that was not at all considered in the report and that is the width of the roadway for each of the alternatives considered. Without the benefit of any engineering studies to support its conclusions, the Report recommends an access that Mr. Kaminsky says "does not have the capacity to accommodate the projected traffic volumes". As a result, this recommended access is far more dangerous than the road now in use. Even the Report itself says on Page 113 that the area where a portion of the recommended access is to go "presents a significant geologic hazard because of the potential catastrophic bluff failure", and "It is for these reasons that access roads should be kept as far away from the bluff edge as possible". On Page 118 the Report says again, "potential impacts associated with adverse geologic bluff conditions would be greater for the old Ferndale Ranch road corridor because this roadway is closer to the cliff's edge." How then could the Report ignore its own warnings and recommend this as part of the "environmentally superior" route? As also pointed out in Mr. Kaminsky's letter, it appears that all of the access routes evaluated except the access currently in use involve having to encounter significant geologic hazards.

In summary, we believe that the report ignores its own findings, does not sufficiently address safety and does not properly weigh the very environmental impacts being analyzed. This causes the rankings shown in Table 2 and from which the Report draws its conclusions, to be in error. For instance, the "Shared" entrance alternative currently in use rates a No. 1 (least impact) in five (5) categories yet is placed last in the overall ranking. In addition, under Traffic Safety, the alternative that puts Argo traffic at the cliff's edge is shown as the best alternative. All this cannot be true! Similar errors in ranking show the existing shared road as least desirable for traffic safety and noise yet this conclusion is not supported by the independent reports included as Exhibits B and D to the Report. We suggest that the obvious conclusion generated by the information contained in the Report and supported by the revised Table 2 attached hereto as Exhibit "A" is that the paved roadway now in use is both the safest and least environmentally damaging and should be the recommended access.

The balance of our comments are as follows:

1. On page 1 in Paragraph I.B it says that the report is a "comparative analysis of all reasonably feasible alternative access roads available to serve oil related traffic associated with Argo Petroleum's revised drilling program for its Ferndale Ranch lease." We question that all the alternatives

investigated are actually "available" since the surface owner, Mr. Barker, has steadfastly indicated he will not allow Argo to build any new roads on his property.

2. On Page 1 in the last sentence it says that the report is only intended to be a comparative analysis and is not a design and engineering study for specific road alignments. This appears to conflict with both the intent and final result of the report since we do not agree that any fair analysis or recommendation of one road over another can be meaningful without some engineering study to support the analysis and conclusions.

3. We seriously question the "Comparision and Ranking of Access Road Alternatives" as shown on Table 2 beginning on page 13. At the top of page 4 it is indicated that Table 2 does not include weighting factors for degree of impact and we think this is a serious omission. Quite to the contrary, it seems that all environmental impact reports should, out of necessity, strive to accurately weight those very factors that are creating the impacts being analyzed and the degree to which each is determined to be a concern. We, therefore, believe that if you use all the data contained in the report as it is now written, and weigh each for its proper degree of impact, that the ranking shown on Table 2 will be dramatically different. Attached hereto as Exhibit "A" is our interpretation of what Table 2 should look like correctly utilizing all the information generated in the report itself.

4. On Page 7 under item C - Noise, it says for the Shared College (it should say College/Ranch) Road, "daily noise levels would not be expected to exceed adopted standards". This sentence is then contradicted with a vague sentence about a 'perceived' significant noise nuisance which is not documented by any facts or studies contained in the report. It appears that the writer is biased against his own statement of fact and this second sentence should be deleted.

5. On Page 11 under item g - Road Feasibility Costs, we question the figures shown as we do not feel they are reliable without some preliminary engineering studies. Of particular concern is the extremely low figure of $76,000 for the Ridge alternative which we do not believe is realistic to build a safe oil field road. Please refer to Jerry Kaminsky's letter to Argo

dated July 27, 1984 (Exhibit "B") wherein Mr. Kaminsky states that "a fifteen foot wide oil on dirt roadway does not have the capacity to accommodate the projected traffic volumes".

6. On Page 27 in the second paragraph reference is made to "heavy recreational use for the eastern portion of Topa Topa Mountain and Santa Paula Creek". This is a subjective definition that we do not feel is supported by fact.

7. On Page 28 under item III B.1 in the last paragraph reference is made to a Texaco oil storage facility in Fillmore. To our knowledge no such facility exists.

8. On Page 29 in the diagram labled "Master Plan for Thomas Aquinas College", it shows a line for the Proposed Ridge Route. Since the proposed ridge route exists only as a result of this report, we do not believe it is part of the existing Master Plan for Thomas Aquinas College now on file with the County.

9. On Page 36 under item III D.2 the statement is made that "No state or federally listed rare or endangered species have been observed on site, nor are any expected based on available habital." This clear definitive statement is followed by an irrelevant reference to "other large undistrubed areas such as the project site". This misleading and unnecessary reference should be deleted as should the balance of this item III D.2.

10. On Page 38 in the second paragraph reference is made to the "existing College access road". We would like to point out that this road has always been the Ferndale Ranch Road which evolved to the Ferndale Ranch/Argo road and more recently evolved to the Ferndale Ranch/Argo/College access road. All references in the report to this being solely the "College" road are in error and should be corrected.

11. On Page 38 in the last sentence of the second paragraph it says "Currently oil operations involve trucking of both petroleum and wastewater from the property". This is in error and should be deleted as all oil is removed from the property via pipeline. On page 19 the it even states that "this report assumes that all oil will be shipped by pipeline over the long term.

12. On Page 38 under item 3.F. - Noise, there is

no acknowledgement that contributory noise is also generated by the College and the trucks that service the College on a daily basis. It should also be stated in this paragraph that the College "perception" of a significant conflict is not supported by the noise studies included as part of the report and written by independent consultants.

13. On page 38 under item 3.G. - Visual Resources it represents that the area in question exhibits the "lack of large visible areas of human development and activity". We feel that with the existence of a 35 acre campus with classrooms, housing and parking for over 100 students and faculty this statement is misleading and inaccurate.

14. We feel that the second sentence at the top of page 39 relative to concern for viewing locations from a "proposed" scenic highway should be stricken as it is simply the writers impression and is not supported by any information contained in the report.

15. On Page 39 in the first paragraph of item III.H. - Cultural Resources reference is made to appendix D. This is incorrect as it should be Appendix C.

16. Also on Page 39, in the second paragraph of item III.H. it says "no previously documented historic or prehistoric archaeological sites occur within or immediately adjacent to the existing College (should say College/Ranch) Road. Below, however, it says that the shared College (Ranch) Road has a "high to moderate probability" for the occurance of cultural resources. This conflict should be eliminated by removing the last paragraph on page 39.

17. On Page 55 in the last sentence of the first paragraph, reference is made to "significant" potential for conflicts between Argo and the College. Again this is a misleading and interpretive comment which should be stricken as it is not supported by the facts contained in the report itself.

18. On Page 56 - Table 4 it says under footnote a. that under typical operating conditions truck transport of petroleum may occur 5 percent of the time. We question both the source and accuracy for this statement.

19. We disagree strongly with the inference generated in the last paragraph of Page 57. First of

all oil field traffic existed on the shared road long before the emergence of a so called rural institutional setting. Existing traffic patterns, therefore, have not been "funneled through" this setting in order to create a potential land use conflict. In addition the use of the word "heavy" truck traffic is both non definitive and misleading and should be stricken. With the emphasis on certain leading words in this paragraph it somehow appears that the writer is trying to lead the reader away from the obvious conclusion that the problem results from the emergence and intrusion of temporary mobile structures into an already existing land use. If there is a problem at all with land use and transportation planning, it is that the County allowed the installation of temporary structures as an exception to the Master Plan of CUP 3609 and somehow years later continues to allow temporary structures to exist in place of the planned sound attenuated permanent structures.

20. In the first paragraph on Page 60 under item D, we do not concur that there is a safety hazard at the intersection of the College/Ranch Road with the road to Drillsite No. 1 and No. 2 "due to vegetation limiting sight distances to the West for southbound vehicles."

21. We do not concur with the reference of 40,000 to 60,000 hikers in the second paragraph on Page 60.

22. The reference to Appendix C in the first paragraph of item IV.5. - Noise, on Page 60 is incorrect and should be changed to Appendix "D".

23. The last sentence on Page 60 which is a disclaimer to the preceeding facts should be deleted as it is simply conjecture on the part of the writer.

24. On Page 61 under item IV.6. - Visual Resources in the first paragraph it states that "the main College access road passes within 50 feet of College dorm buildings". It should say that the main joint access road passes within 50 feet of existing temporary College dorm buildings.

25. On Page 65 in Table 9 under item C in the first column the words "funneling of" should be deleted as they are misleading and interpretative and not supported by fact.

26. On Page 80 under item IV.C.1. it says "Presently one well exists on drill site No. 3 and five additional wells are planned". This is in error and should be corrected as our pending modification calls for only two more wells on Site 3.

27. On Page 103 under item IV.D.6 it says, "truck headlights could potentially shine into dormitory buildings, dependent on alignment and shape of the northerly portion of the roadway". This is incorrect and should be stricken as it again shows bias on the part of the writer. The whole concept of the side hill or "trench" route as shown in Figure 16 is to place the road (and traffic) so they would not be visible to the College. To infer that headlights could shine into the dorms despite the existence of a barrier is slanted and misleading.

28. On Page 105 at the top its says that the side hill alternative was "determined to be infeasible as presently envisioned". We believe that this statement is totally erroneous as we have engineering drawings showing how this route would be graded and these drawing have been made available to McClelland Engineers. This sentence should be therefore deleted.

29. On Page 116 under item V.6. - Visual Resources in the last sentence it says "Vegetative screening along the northern and a western roadway shoulder would substantially reduce these 'perceived' visual impacts. First of all, we feel only actual verified impacts should be addressed in this report, and secondly the vegetative screening to be installed by the College as part of their Master Plan (see page 29) would automatically eliminate the need for this comment.

30. On Page 120 in Table 14 under items C and D the reference to "Potentially significant" in the column headed "Potential Significant Conflicts" are in error as they are not supported by the traffic and noise studies included in the report appendix. This should be corrected.

31. On Page 121 the same is true for item E since the vegetation shown in the College Master Plan would screen the visibility of all traffic on the shared road.

32. On Page 142 under item VII.C in the first paragraph it says "The Shared College Access alternative involves significant environmental

constraints as a result of traffic/circulation noise and visual resources." Apparently the writer did not read the traffic and noise studies included with the report as Appendix B and D because their conclusions do not support such a statement. This sentence should be deleted.

33. On Page 143 in item VII.D. it refers to restriction of oil tanker truck traffic to daytime hours yet it has been confirmed that all oil is removed via pipeline.

34. On Page 143 in the fourth paragraph from the bottom it says "The County Staff conservationist or a qualified biologist should review the grading plan to ascertain the actual magnitude of the impacts on the native trees". It would seem this should be done before recommending the ridge route.

35. We believe that a serious omission exists in that nowhere in the Report are property lines shown. Since this Report, and its contents, potentially affect more than one surface owner, we feel that these boundaries should be reflected when considering the different alternatives.

We hope that the above comments sufficiently cover all the items that were raised in our informal discussion session. We also hope that you will be able to forward your comments, or those of McClelland Engineers, before this report is submitted in its final form for consideration by the Board of Supervisors.

Very truly yours,

ARGO PETROLEUM CORPORATION

Dennis Vandervort

Dennis Vandervort
Division Land Manager

DV/im

EXHIBIT "A"

Table 2. (Amended by Argo)

Comparison and Ranking of Access Road Alternatives

Access Route	Geologic Hazards	Traffic & Safety/ Circulation	Noise	Biologic Resources	Visual Resources	Cultural Resources	Estimated Cost (1 = lowest; 5 = highest)	Overall Environmental Ranking (1 = best; 5 = worst)
	Environmental Impact Comparison (1 = least impacts; 5 - most impacts)						Cost Comparison	
1. Shared College Access Rd.	1*	1** A ~~5***~~	2** B ~~5***~~	1*	2** ~~4***~~	1*	1	1 ~~4~~
2. Planning Commission Road	5***	4***	3**	4***	2**	2*	5	5
3. Drill Site No. 3 to Planning Commission Road								
a. Ridge Alternative	4*** ~~2**~~	3***	3** ~~1*~~	1*	3** ~~1*~~	1*	4 ~~3~~	3 ~~1~~
b. Canyon Alternative	5*** ~~4***~~	2***	3** ~~1*~~	5***	2**	1*	4	4
4. Side Hill Route	2**	1*	3** ~~4***~~	1*	2** ~~5***~~	2*	2	2 ~~3~~
Entrance Alternatives								
1. Shared	1*	3** A ~~4***~~	1*	1*	3***	1*	1	1 ~~2~~
2. Old Ferndale Ranch Road								
a. Partial Traffic Separation	5*** C ~~3***~~	2** ~~3***~~	1*	3** ~~*~~	2** ~~*~~	1*	2	3 ~~2~~
b. Full Traffic Separation	5*** C ~~3***~~	1*	1*	3** ~~*~~	1* ~~**~~	1*	3	2 ~~1~~

No Impact *
Insignificant impact **
Significant Impact ***

A. The traffic numbers for even the "high find" are still very small, not significant (Kaminsky report).

B. The least noise impact on the dorms would be a landscape berm and fence along the shared road; the College's own traffic will impact the dorms for any other route. Further, Albert C. Martin, the College's engineer, stated that all dorms would be so constructed as to attenuate traffic noise to acceptable levels, especially for all future permanent buildings.

C. There may be a need for "soldier piles", even with the existing road. The oilfield operation could run for 50 years; therefore, the old road can not be justified.

EXHIBIT "B"

July 27, 1984

Argo Petroleum Corporation
940 E. Santa Clara Street
Ventura, California 93001

Subject: Draft Environmental Impact Report Modification to CUP-3344 - May 21, 1984 with a Focus on Traffic Capacity and Traffic Safety

Gentlemen:

I am a registered traffic and civil engineer in the State of California. I worked as a traffic/civil engineer for approximately 19 years, 12 of which were with the County of Ventura. I have helped prepare and review numerous E.I.R. reports. I have an extensive background in laws relating to traffic flow, traffic generation and accident analysis.

At the Ferndale Ranch/Argo lease area, I have spent approximately 80 on-site field hours. I walked the various proposed alternate routes to study grades, geology, and terrain. (My reports have been incorporated into the subject EIR). I have reviewed the CUP-3344 modification report as per your request.

The report is supposed to address significant environmental impacts because of expected traffic relating to oil activities. Referring to page 147 of the report, I was quite amazed by the people not contacted during the preparation of this report. Although some of my reports were included, no attempts were made to contact me for input. In looking over the list, not one of McClelland's people appear to be qualified to address traffic safety matters.

I have gone through the report and offer the following:

Two major problems I see with the report: First the report didn't utilize the Shared College road cross-section for the other alternatives. Second, the cross-section utilized was a 15-foot-wide oil on dirt roadway as mentioned on pp. 78, 80, 92, and 101. By not utilizing the 24' paved roadway with a 4' wide shoulder cross-section, there is no way to evaluate each alternative on an equal basis with the shared College Road. The cross-section proposed for each of the alternates is nothing more than a high standard jeep trail. It would be a one lane roadway, and could not handle the 100 to 200 ADT which it might carry. Contray to statements made in paragraph 6 on page 74, this type of cross-section does not have capacity to accommodate the projected traffic volumes. I am not going to go into much detail about one-lane roadways because the drawbacks are quite evident. That type of facility is only constructed when the traffic volumes are extremely light and it is necessary for extreme economy or when there are no alternatives. This report went out of its way to promote danger!

Second, in the last two paragraphs on page 57, I disagree with the philosophy, reasons, concept, basis and conclusions, and will explain my reasons for doing so. These paragraphs appear to have been written by person or persons who were taking and trying to justify the College's position. The intent of the present shared college road was to accommodate future volumes from all land uses which includes college, farm and oil activities. This is why the roadway was designed in such a manner that it could handle theoretically a peak hour volume of 2000 vehicles.

I agree that the capacity, to a limited extent, is also contingent on the desired function of the road; however, this is not the only element that must be considered which the report seems to imply. To illustrate the desired function concept, and example was given which is incorrect. True, a two-lane highway in certain cases can safety accommodate greater traffic volumes than a residential street, but the reverse can also be true. Rather than make "off the wall" statements, the report should stick to the factors which must be evaluated to determine capacity and level of service. Capacity factors which should have been used in the evaluation are listed below.

Capacity is a measure of the ability of a roadway to accommodate traffic. The report is partially right, but it just scratches the items to consider. The capacity of a roadway is affected by such items as width of traffic lanes and shoulders, the number of traffic lanes, the grades and alignment, the lateral clearance, passing sight distance, the degree of access control, the vehicular speed of the roadway, the extent of development, the percentage of trucks, merging and diverging movement, and type and number of intersections and driveways.

I disagree with the following statement made in the last paragraph of page 57: "In terms of land use and transportation planning, the funneling of heavy truck traffic through a rural institutional setting within 50 ft. of temporary structures results in the potential for significant land use conflicts". I gather by this statement that there are only land use conflicts, not traffic conflicts. Based on my calculation, the capacity is Level "A" as stated in my previous reports. (Level "A" is the safest level). The question should also be asked: how long will the structures be classified "temporary"?

Other observations that I made while reading this report: On page 5, it appears that all the alternate routes have major geological hazards except the shared College Road.

Suggested changes to Tables on pages 6 and 13 are shown on the attached Tables I and II.

Costs on page 11, are based on 15-foot-wide road sections with apparently no consideration as to County side slope standards. I feel the cost data is useless if it is agreed that the 15-foot widths are unacceptable.

I would like to know where the 10.7% grade is that is being referred to on page 51. There is no such grade on the "Shared" road.

On page 55, I disagree that there is a "significant" conflict between Argo and the College. I feel that it is only a "minor" conflict. It is my opinion that the projected ADT from future college development will be 150, not 300. The 300 is a "High Find" scenerio (unrealistic).

Comments regarding traffic/circulation on pp 65, 66, and 67: How do you "funnel" oil field traffic thru the College? I do not find in the report the foundation for "downslope ramp effect", "funneling" traffic into college campus. Funneling must be an important point the writer is attempting to make, because it is used twice. The only way that I can evaluate this, is when I know what the point is supposed to be. The mitigating measure is to reconstruct roadway including measures to reduce grades. Funny, I read further on in the report where 20-22 grades were acceptable in some of the alternatives.

Page 74 addresses the 15-foot roadway as sufficent to accommodate the projected traffic generation volumes. I disagree with this statement.

On page 85, I question the geological hazards and feel that they are "significant" for both the ridge and canyon routes.

On page 93, additional geological studies should be made to determine the extent of geological hazards.
Traffic/circulation-runoff, head on, rear end accidents, steep grades are almost impossible to negotiate. Mitigating measures wouldn't correct switchback or steep grade problems.

On page 101, again a mention is made that a 15' road could not have sufficient capacity to accommodate all potential oil related traffic: but a 24 foot roadway on relatively flat land doesn't because of "land compatibility"? This is not consistent reasoning!

On page 105, I disagree that this road can be built for $93,000.

On page 107, I do not feel that sufficient geological data was taken into consideration to make a statement that the conflict is "minor". On traffic/circulation, one lane roads present major accident and circulation problems.

On page 113, access road should be kept away from the bluff's edge because of erosion and other problems. This should eliminate the Old Ferndale Road as an entrance alternative. The oil field could produce for 40-50 years. There are no valid reasons in the report to require a separation of traffic along the south portion of the shared route. On page 118, you're putting traffic which has two lanes on a roadway which will have one unpaved dirt lane and parallels the two lane facility.

On page 120, the maximum interaction between college and oil related traffic is minimal, and not as stated on this page and by the College.

On page 141, under methodology, it is correct that this was a simple analysis, but it wasn't comparable on an equal basis as the report would lead you to believe. You can't compare a 2 lane high class road to a one lane unpaved roadway and say that this is a comparable analysis. If the 24 foot cross-section was used on all the alternatives, all of the other routes would be unacceptable.

On page 145 under conclusions, it confirms that this was a very simplified report which as far as I'm concerned proves nothing. I disagree with the conclusions and methodology. This report failed to utilize the shared college road cross-sections for comparison with other alternates. It utilized a one lane roadway and treated it as two lanes. The cost estimates are meaningless because a one lane section was used. I question whether enough geology information was attained to evaluate all land slides and other geology hazards. I question the use of an oil-dirt roadway from the standpoint of traffic safety, maintenance, and all hazards associated with such a roadway in a rather hilly, unstable terrain.

CONCLUSION:

The future shared college, ranch and oil field traffic on the main college, ranch road cannot be considered as great a traffic hazard as that which would occur if any of the alternate routes were employed.

Very truly yours,

Jerry Kaminsky
TE-191
RCE-24806

TABLE II (Kaminsky)

Comparison and Ranking of Access Road Alternatives

Access Route	Geologic Hazards	Traffic & Safety/ Circulation	Estimated Cost (1 Est. lowest) (5 Est. highest)	Ranking
1. Shared College Access Rd.	1	1	1	1**
2. Planning Commission Rd.	5	5	5*	5**
3. Drill Site No. 3 to Planning Commission Rd.				
a. Ridge Alternative	4	5	4*	5**
b. Canyon Alternative	5	5	4*	5**
4. Side Hill Route	3	3	3*	3**
Entrance Alternatives				
1. Shared	1	2	1	3**
2. Old Ferndale Ranch Rd.				
a. Partial Traffic Separation	3	3	2	5**
b. Full Traffic Separation	3	1	4*	5**

* Insufficient data available in this E.I.N. to give reasonable estimate. Some of the areas are highly unstable and costs could run 3 times the estimate.

** Overall Environmental Ranking (1 = best; 5 = worst)

EXHIBIT "C"

Los Angeles Office
21120 Vanowen Street
Post Office Box 633
Canoga Park, CA 91305
Telephone (213) 347-8360

Bolt Beranek and Newman Inc.
Consulting Development Research

12 July 1984

Mr. Don Sperling
Argo Petroleum Corporation
940 East Santa Clara
Ventura, CA 93001

Subject: Draft Environmental Impact Report
Modification of Conditional Use Permit
No. COP-3344
BBN Job No. 165198

Dear Mr. Sperling:

I have reviewed the above subject report as you requested. The following are my comments as they apply to the noise issue at the Thomas Aquinas College (Ferndale Ranch).

The report evaluates several access route alternatives as follows:

a) Shared College Road
b) Planning Commission Road (PCR)
c) Canyon Alternative to PCR
d) Ridge Alternative to PCR
e) Side Hill Road

In addition the report addresses three different entrance alternatives from Hwy 150 to the access roads:

a) Shared Entrance
b) Old Ferndale Ranch Road - Partial Traffic Separation
c) Old Ferndale Ranch Road - Full Traffic Separation.

The report uses and quotes extensively the data and results from BBN Report 5327 submitted to Argo on 24 August 1983. It should be pointed out, however, that BBN Report 5327 studied the noise impact of only two alternatives; the Shared College Road and the Side Hill Road (called Ridge Rd. in the BBN report).

TABLE I (Kaminsky)

Issue	Access Routes: Shared College Road	Access Routes: Planning Commission Road	Drill Site No.3* to Planning Commission Road: Canyon Alternative	Drill Site No.3* to Planning Commission Road: Ridge Alternative	Side Hill Road	Shared Entrance	Entrance Alternatives: Old Ferndale Ranch Rd. Partial Traffic Separation	Entrance Alternatives: Old Ferndale Ranch Rd. Full Traffic Separation
E. Traffic Safety/ Circulation	Road operates under level "A" service. Accident potential is minimal. No problem between College, Arco & farm traffic.	Grades present capacity & accident problems. Rear end, run off road & head on accident problems. Sharp & numerous curves, steep grades. Safety serious concern.	Grades present capacity & accident problems. Rear end, run off road & head on accident problems. Steep switchback problems.	Grades present capacity & accident problems. Rear end, run off road & head on accident problems Steep section problems.	Run off the road accidents. Safety and capacity problems in addition to two intersections.	Interaction of College and oil related vehicles.	Development of two new intersections with the existing College access road, increasing turning movement safety hazards.	Development of one new intersection with the existing College access road. Gully crossing subject to wash out; thereby subjecting motorists to hazards & lawsuits.

*Assume same cross-sections as shared College Road – I question if any of the other alternates can be constructed to this standard. Only way a realistic comparison could be made.

Mr. Don Sperling
Argo Petroleum Corporation
12 July 1984
Page Two

The Draft EIR concludes (pg. 145) that the Ridge Road Alternative to the Planning Commission Road, together with entrance alternative (b) would be the most desirable and recommended solution.

From my brief review it appears that, indeed, the Ridge Road alternative would be "quieter" than the two alignments considered in the BBN report as far as the Argo traffic only is concerned. The alternative moves the Argo traffic much further from the College than the present road and uses the shielding provided by the ridge for further shielding. However, in arriving at this conclusion several important points are disregarded.

First of all, the BBN report and the EIR detail the criteria on which noise impact assessments are made, i.e., the EPA Levels Document which specifies an L_{dn} = 55 dB. This is equivalent to an L_{eq} (day) of 55 dBA and an L_{eq} (night) of 45 dBA. These criteria, although apparently endorsed by the EIR, is not used as the method to judge the various alternatives. Specifically, in Table 2 (p. 13), the EIR rates the noise impact generated by the Shared College Road as having a "Significant Impact" although it was shown that projected traffic volumes (Argo and College) will generate noise levels below L_{eq} = 55 dBA.*

It must be remembered that the EPA criteria was developed from the standpoint of protecting the public health and welfare from any identified effects of noise and that it contains a margin of safety to ensure their protective values. The L_{eq} (day) of 55 dBA is also in compliance with the Ventura Oil Noise Ordinance.

Therefore, any alternative that meets or falls below the L_{dn} = 55 dB level should be judged as acceptable from the standpoint of noise although some may be "quieter" than others. A simple analogy is, in building standards where if two construction designs meet the code, one design will not be judged "unsafe" just because a competing design is twice as strong.

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* This conclusion assumes the construction of a barrier along College Road

Although the EIR does not use the 55 dB criteria to arrive at the impact assessment in Table 2, the report in describing the EPA and the Ventura Oil Ordinance calls them a "conservative criteria by which to judge noise impacts", (see p. 60) - a sizable contradiction./

Second, the EIR on p. 61 states that College related traffic alone is expected to increase noise levels at the dormitories (Location #2) to about 57 dBA. This assumes that Argo traffic will be re-routed and no wall will be constructed near College Road. Noise is noise and the effect of noise on people is the same, regardless who is the offender.

In summary, it appears that the EIR is very complete and thorough in its discussion and presentation of the data. My main objections are with the methodology used to arrive at the final conclusions and recommendations. I hope this is sufficient for your present needs. I must emphasize that this is a very quick review of an extensive document, so I was able only to center on the main point.

Very truly yours,

BOLT BERANEK AND NEWMAN Inc.

B. Andrew Kugler, Deputy Manager
Los Angeles Regional Office

BAK:bc

RESPONSE TO COMMENTS SUBMITTED BY ARGO PETROLEUM CORPORATION (LETTER DATED SEPTEMBER 18, 1984.

Page 1, Paragraph 1: At the close of the July 18, 1984 courtesy meeting with Argo Petroleum Corporation it was recommended that Argo submit its comments in writing to ensure that all of their concerns were addressed in the final EIR. In addition, it was further agreed that Argo could review responses to comments prior to the Environmental Report Review Committee Hearing.

Written responses to both oral and written comments were submitted in draft form to the county on August 14, 1984. These responses contained a brief description of issues discussed at the informal courtesy meeting as well as detailed responses to letters submitted by Mr. Andrew Kugler and Mr. Jerry Kaminsky.

Page 1, Paragraph 2: The EIR does not concur with this contention. Information in the EIR states that while there have been no record of reported accidents on the existing college/ranch road, this option would involve the most vehicular interaction with college activities. As a result, it was determined that a properly designed alternative could mitigate both traffic safety and noise impacts. The suggested "environmentally superior" access road in the EIR (pending detailed engineering design studies) was determined to be the Drill Site No. 3 to Planning Commission Road - Ridge route.

Page 2, Paragraph 1: As indicated in our July 18 meeting with Argo, the EIR is not an engineering study but rather addresses environmental impacts associated with conceptual access corridors. The EIR has been amended to indicate that a properly designed roadway could provide sufficient capacity to accommodate project related traffic.

As indicated in the EIR, potential bluff failure impacts can be mitigated through the implementation of slope stabilization measures. The EIR recommends that a detailed engineering geology study be prepared to determine the extent of mitigation that may be necessary.

Additional information has been added to the text indicating that potential costs associated with slope stabilization could preclude the reasonableness of this alternative given the incremental environmental benefit that it provides.

Mr. Kaminsky's contention that all off the access routes evaluated except the existing college/ranch road involve significant geologic hazards, is not supported by geologic data contained in the EIR.

Page 2, Paragraph 2: Information has been added to the EIR indicating that the ranking system is suggested based on the findings contained in the EIR and our best professional judgment.

The ranking system has been reevaluated and the following has been added to the text: While the separate entrance is suggested, costs associated with slope stabilization could preclude the reasonableness of this alternative.

Page 2, Paragraph 3, Comment No. 1: The text has been amended to clarify this point.

Page 3, Comment No. 2: Additional detailed engineering studies are recommended in the EIR to verify report conclusions.

Page 3, Comment No. 3: A statement indicating that the ranking system is suggested based on report findings has been added to the text. Argo's suggested ranking is included in this appendix as a point of reference for decision-makers.

Page 3, Comment No. 4: The fact that project related noise levels will not exceed adopted noise standards does not mean that single event noise levels are not significant. Therefore, there is no contradiction.

Page 3, Comment No. 5: Cost estimate assumptions have been added to the text. These estimates are based on preliminary concept engineering analyses. These estimates are useful for comparison.

Page 4, Comment No. 6: The source of this information has been added to the text.

Page 4, Comment No. 7: This information has been deleted from the text.

Page 4, Comment No. 8: The text has been amended accordingly.

Page 4, Comment No. 9: This statement is relevant with regard to the overall habitat value of the project area.

Page 4, Comment No. 10: The text has been amended accordingly.

Page 4, Comment No. 11: The text has been revised accordingly.

Page 4, Comment No. 12: Perceived noise impacts as a result of truck passbys are considered significant in accordance with the State CEQA Guidelines, Appendix G Section (w).

Page 5, Comment No. 13: Clarification has been added to the text concerning this point.

Page 5, Comment No. 14: Views from a "proposed" scenic highway are a concern that must be addressed in the EIR pursuant to Appendix G Section (a) of the State CEQA Guidelines.

Page 5, Comment No. 15: This correction has been made in the final EIR.

Page 5, Comment No. 16: Although no significant cultural resource sites have been documented their potential for occurrence is high as stated in the EIR. There is no inconsistency in the EIR.

Page 5, Comment No. 17: Additional information has been added to the text indicating that there have been no reported accidents along the shared college/ranch road. Relative to alternative concepts evaluated, this alternative has the maximum potential for conflict between Argo and college related traffic.

Page 5, Comment No. 18: This statement has been deleted from the text.

Page 5, Comment No. 19: Wording has been revised to indicate "movement" of traffic instead of "funneling" along the shared college/ranch road. Also the reference to "heavy" trucks has been changed to "oil field" trucks.

While the terms of the College Master Plan CUP (3609) is not the subject of this EIR, this comment implies that there is an existing land use conflict as a result of temporary college classroom structures. The EIR concurs with this implication.

Page 6, Comment No. 20: The text has been amended to indicate that there is a potential safety hazard that can be mitigated by implementing a stop sign for southbound (eastbound) vehicles.

Page 6, Comment No. 21: These numbers have been revised and references cited.

Page 6, Comment No. 22: The text has been amended accordingly.

Page 6, Comment No. 23: No revision is considered necessary because noise conflicts are contingent upon types of school activities.

Page 6, Comment No. 24: This clarification has been added to the text.

Page 6, Comment No. 25: The wording has been changed to indicate the "movement of" traffic rather than the "funneling of" traffic.

Page 7, Comment No. 26: The text has been amended accordingly.

Page 7, Comment No. 27: The text has been revised to indicate that proper design would not result in lights shining into dorm buildings.

Page 7, Comment No. 28: This determination is based on preliminary grading estimates that would require grading to the toe of the slope. While this alternative may be technically feasible, the more feasible, less environmentally damaging concept was analyzed in the EIR.

Page 7, Comment No. 29: Information regarding landscaping involved with the College Master Plan has been added to the EIR.

Page 7, Comment No. 30: The shared college/ranch road concept involves the maximum interaction between college and oil related traffic as compared to other alternatives. In addition, potential noise impacts would be perceived with or without the wall structure. Therefore, no text revision is necessary.

Page 7, Comment No. 31: Information regarding proposed landscaping contained in the College Master Plan has been added to the text.

Page 7, Comment No. 32: This information is based on use of the existing studies in conjunction with an independent assessment of the report findings. Noise impacts will be perceived at college structures as a result of single event truck passbys with or without a wall facility. In addition, the shared college/ranch road would involve greater level of interaction between college activities and oil related vehicular activities than other alternatives considered. The data has been presented accordingly.

Page 8, Comment No. 33: The text has been amended accordingly.

Page 8, Comment No. 34: This general recommendation applies to all of the alternatives considered. However, while there are no native trees identified within the proposed ridge route corridor, this measure would not be necessary unless there was a significant deviation of the ultimate corridor layout. As for the other alternatives, a precise botanical impact assessment cannot be determined until detailed design (i.e., grading) plans are available.

Page 8, Comment No. 35: A property boundary map provided by Argo has been included in the text.

Page 8, Last Paragraph: No response is necessary.

Exhibit A: Comments relative to Exhibit A have been addressed in response to Comment No. 3.

Exhibit B: Responses to Exhibit B are addressed separately in this section.

Exhibit C: Responses to Exhibit C are addressed separately in this section.

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.

SINCE 1958

REGISTERED GEOLOGIST 571
ENGINEERING GEOLOGIST 246

September 21, 1984 Job No.: 4-647-9

County of Ventura
Planning Department
800 S. Victoria Avenue
Ventura, California 93009

Attn: Mr. Dennis Hawkins
Case Planner

Subject: **PRELIMINARY GEOLOGIC REPORT**
Access Roads - Oil Well Drill Sites
ARGO Petroleum - Ferndale Ranch Lease
Modification of CUP No. 3344
Ventura County, California

Gentlemen:

In response to the request of Thomas Aquinas College, this report presents our opinions regarding the existing geologic factors and their affects on the access roads and Drill Site No. 7, as outlined in the Draft EIR Modification to CUP No. 3344 dated May 21, 1984 and prepared by McClelland Engineers, Inc.

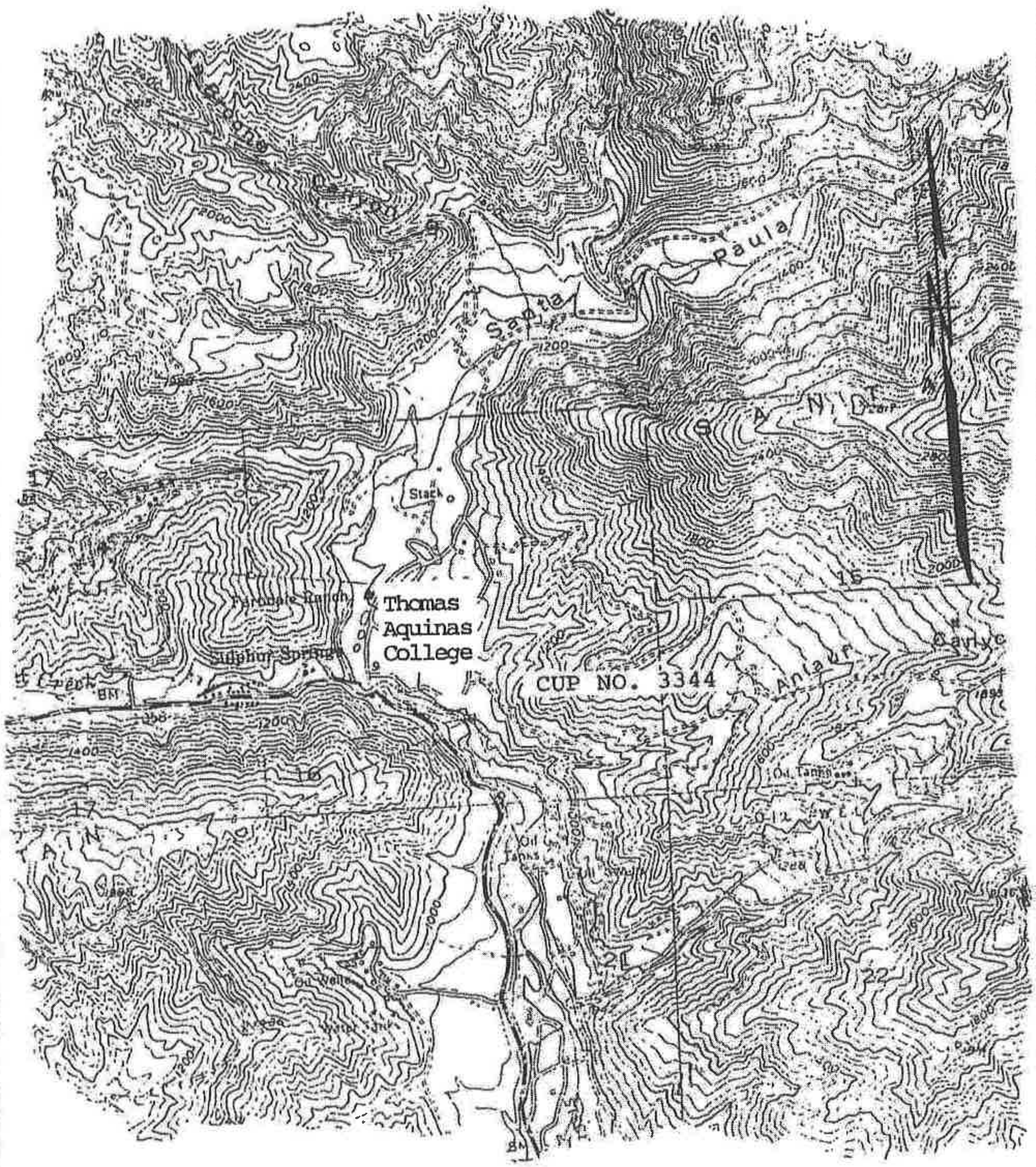
This investigation was conducted between August and September, 1984.

SCOPE OF INVESTIGATION

This investigation included the following:

1. Review of the "Draft Environmental Impact Report Modification of Conditional Use Permit No. CUP-3344, ARGO Petroleum Corporation, Ferndale Lease", dated March 21, 1984 by McClelland Engineers, Inc.

LOCATION MAP



This Map is Not a Survey of the Property.

JOB NUMBER: 4-647-9

SANTA PAULA PEAK QUADRANGLE

Scale: 1"=2000'

ALLAN E. SEWARD
Engineering Geology

2. Review of the following geologic - letter report by Tierra Tech Testing Laboratory, Inc.:

   Ferndale Ranch Drill Site
   Access Road
   Santa Paula Area of
   Ventura County, CA
   Dated March 7, 1984

3. Review of California Division of Mines and Geology, Geology and Occurrences of Oil in the Ojai - Santa Paula Area, Ventura County, Bull-170, Map Sheet 28 by Fine (1954).

4. Review of California Division of Mines and Geology, Geology and Mineral Resources Study of Southern Ventura County, California (1973) Preliminary Report 14.

5. Review of United States Geological Survey Professional Paper 851, Soil Slips, Debris Flows, and Rainstorms in the Santa Monica Mountains and Vicinity, Southern California by Campbell (1975).

6. Review of California Division of Mines and Geology, Seismic Hazards Study of Ventura County, California, Open File Report 76-5-LA.

7. Review of California Division of Mines and Geology, Geoseismic Map of Southern Ventura County, California, Open File Report No. 76-5-LA, Plate 5A (1976).

8. Consultation with Dr. John F. Mann, Jr., Hydrologist, concerning the potential for ground water pollution.

9. Review of letter by Mr. Lawrence Barker, Jr., Re: Meeting with the County of Ventura and McClelland Engineers, Inc. re: Draft EIR on Ferndale, dated July 17, 1984.

10. Reconnaissance site inspection and reconnaissance geologic mapping of subject area using the topographic base map enlarged to a scale of 1"=100' and provided for this investigation by Kevin Keegan & Associates.

11. Close coordination with Kevin Keegan & Associates relative to the existing geologic conditions during the preliminary design phase of the subject road alignments (See Plate I).

12. Geologic analysis, conclusions, and recommendations based upon existing site conditions and future use intended.

13. Preparation of Location Map, Geologic Map, and this report.

BACKGROUND

This firm, along with Kevin Keegan & Associates, was retained by Thomas Aquinas College, to perform an independent evaluation of Drill Site No. 7 and the alternate access road alignments for CUP No. 3344.

GEOLOGY

The subject site is located within the Transverse Range Province along the north-central portion of the Ventura Basin. The axis of the Ventura Basin is essentially coincidental with the Santa Clara River. The Ventura Basin contains a very thick sequence of Cenozoic marine sediments that have been uplifted and deformed by past tectonic forces to produce the present topography.

The San Cayetano Thrust fault is located along the northern portion of the subject area. At the present time, this fault has not been classified as active by the State Geologist via the Alquist - Priolo Special Studies Zone Act.

BEDROCK

Matilija Formation (Tma)

The Matilija Formation is a well-cemented sandstone and conglomerate unit that is Eocene in Age. Due to its age, indurated nature, and structure on the subject site, this unit is geologically grossly stable.

Modelo Formation (Tm)

The Modelo Formation is in fault contact with the Santa Margarita Formation south of the Sisar Fault. This rock unit consists of thin-bedded shales, siltstones, and sandstones that have been undercut by erosion within Santa Paula Creek.

Santa Margarita Formation (Tsm)

The Santa Margarita Formation is located between the Anlauf and Sisar Faults and consists of interbedded mudstones, siltstones, and sandstones. Bedrock landslides occur within this unit when bedding planes are daylighted unsupported either by nature and/or man.

Pico Formation (Tp)

The Pico Formation is located between the Anlauf and San Cayetano Faults, and consists of siltstone and sandstone beds. The stability of this unit is a function of: (1) the geologic structure (bedding and fault orientations), along with (2) the lithology (siltstones) at a specific site.

Surficial Units

Older Alluvium (Qoal)

The Older Alluvium consists of fluvial sands, silts, and gravels that are deposited prior to the Recent Alluvial sediments.

ENGINEERING GEOLOGY

Cut-Slopes

The Cut-slopes for the access roads (See Attached Geologic Map) have been designed at 2:1 (horizontal to vertical) gradients.

Fill Slopes

The Fill slopes for the access road have been designed at 2:1 gradients. The major portions of the various proposed access roads within the central portion of the ARGO Petroleum - Ferndale Ranch Lease should probably qualify as an "Isolated, self-contained area" (See Chap. 70 of the Uniform Building Code, Sec. 7003-1). This could allow the construction of 2:1, benched, non-compacted fills, which would drastically reduce the construction costs, yet would be safe for the use intended.

Ground Water - Potential Contamination

Drill Site 7

Drill Site 7 is located within the constricted alluvial flood plain of the Santa Paula Canyon drainage area. Extensive mitigation measures (ex: Elevated oil pad, large rip rap - 6-8 Ft. in diameter, bulkheads, elevated oil lines, automatic shut off valves, etc.) will be required to assure the stability of the well site and associated oil lines from rupture during periods of severe flooding.

The potential for liquefaction during a seismic event and the potential affects on the stability the drill site should be evaluated.

Rupturing of the oil well casing and/or oil lines from Drill Site No. 7 during a severe storm or major seismic event would result in both surface and ground water pollution.

Due to the porous and permeable nature of the alluvial sediments in Santa Paula Canyon any breaks in the oil lines up stream from Thomas Aquinas College (Drill Sites 1 and 7) could potentially contaminate the ground water and the existing college well.

Landslides

General

On our Geologic Map (See Plate I), we differentiated the following two types of failures:

1. Bedrock Landslides (Qls)

2. Surficial Slope Failure (Sf)

The landslides represent failures within the bedrock that are primarily controlled by the bedding planes within the rock unit. Since no subsurface exploration was conducted during this phase of the investigation, we have not tried to speculate on the depth of the lowest failure planes.

Based upon our field mapping, and the exposures within the numerous existing road cuts, the Surficial Slope Failures (Sf) are confined to the soil and/or weathered bedrock zones.

At design gradients of 2:1 the areas mapped as Surficial Slope Failures (Sf) will not create a gross geologic instability for the access roads. Minor maintenance of soil debris may be required following periods of prolonged and intense precipitation.

Subsurface Exploration

Following the tentative adoption of the access road alignments, a subsurface, geologic-soils engineering exploration should be undertaken to determine the following:

1. The three-dimensional geometry of the bedrock units in the proposed cut-slope areas.

2. The maximum depth and lateral limits of the bedrock landslides traversed by the road alignments.

3. The thickness of the surficial slope failures.

Stabilization Measures

Depending on the results of the subsurface data, the following alternatives are available for stabilization of cut-slopes and/or landslides:

1. Redesign cut-slopes to flatter angles
2. Re-orient direction of cut-slope
3. Design cut-slope with multiple gradients
4. Buttresses
5. Stability Fills
6. Retaining walls, crib walls, etc.

Entrance Road - Full Separation

Due to the existing steep natural bluff, the **Entrance Access Road** should be kept as far from the edge of the bluff as the southern property line of Thomas Aquinas College will allow. This bluff has probably been in existence since the beginning of Recent Time (last 11,000 years).

The relative age of this bluff indicates that this alternative access road will probably be stable for the life of the Conditional Use Permit. At this time, it is not possible to predict future seismic events and/or severe storms that could affect the stability of the existing natural bluff.

Planning Commission Road

The redesign of the Planning Commission Road requires a cut-slope only in Landslide Qls-A. Landslides Qls-B and Qls-C will be buttressed by fill slopes. The re-alignment of the Planning Commission Road upslope and to the northeast of Drill Site 3 avoids the area of existing numerous Surficial Slope Failures (See Plate I).

Canyon Alternative

The only bedrock landslide traversed by this road alignment is Landslide Qls-D and this landslide is buttressed by the roadway fill.

The Side Hill Road

It is our understanding that the Side Hill Road is completely within the College property and therefore is not an acceptable alternative.

Ridge Alternative

This alignment traverses an area with an abundance of Surficial Slope Failures, which will require extensive over-excavation for fill keys and benching. The steepness of the topography requires extensive fill slopes above Drill Site No. 3 that might be potentially hazardous to the drill site during a major seismic event.

CONCLUSIONS AND RECOMMENDATIONS

1. Excluding the Thomas Aquinas College Property, the most viable access road alignments geologically are the:

   Entrance Road - Full Separation;
   Canyon Alternate to the Re-alignment
   of the Planning Commission Road
   (colored orange)

2. The potential for surface and ground water contamination relative to flood hazard and liquefaction potential for Drill Site No. 7 should be evaluated, along with appropriate mitigation measures.

3. When a tentative road alignment has been adopted, a detailed geologic and soils engineering investigation with subsurface exploration should be undertaken in order to finalize the grading plan design.

4. If the grading of the access roads falls within the "Isolated, self-contained" category, detailed geologic and soils engineering reports should ascertain that the proposed grading does not affect offsite property.

This opportunity to be of service is appreciated. If you have any questions, please give us a call.

Respectfully,

Allan E. Seward

Allan E. Seward
Certified Engineering Geologist 246

Enclosure: Geologic Map - Plate I (In-Pocket)

Distribution:

(8) County of Ventura
Planning Dept.
Attn: Mr. Dennis Hawkins

(2) Thomas Aquinas College
Attn: Mr. John Blewett

(1) Ferguson, Regnier & Patterson
Attn: Mr. Richard Regnier

(1) Kevin Keegan & Associates
Attn: Mr. Kevin Keegan

RESPONSE TO COMMENTS SUBMITTED BY ALLAN E. SEWARD (REPORT SUBMITTED SEPTEMBER 21, 1984)

The geologic report does not specifically address the adequacy of the EIR but rather contains additional independent assessment of geologic constraints on the project site. Exhibits referenced in this report are on file, and available for review, at the Ventura County Resource Management Agency. The following is a response to specific areas that involve the findings in the EIR.

Page 7, "Subsurface Exploration": This section outlines the content of a subsurface investigation that should be performed for various access alternatives involving deep-seated landslides.

Page 8, "Stabilization Measures": The EIR concurs that the recommendations from further geotechnical evaluation should be implemented.

Page 8, Entrance Road - Full Separation: This analysis does not provide sufficient information concerning bluff stabilization requirements and therefore recommendations in the EIR to prepare an additional slope stabilization investigation are still applicable for the separate entrance.

Page 9, Planning Commission Road: This additional information refers to an alternative alignment for the Planning Commission road. The degree to which stabilization measures will be necessary has not been determined for this alternative.

Page 9, Canyon Alternative: Comment noted, no response necessary.

Page 9, Side Hill Road: Comment noted.

Page 9, "Ridge Alternative": Surficial slides along this route are not considered to be a significant geologic hazard.

Page 10, "Conclusions and Recommendations" Conclusion No. 1: Additional subsurface geotechnical studies are necessary to validate this conclusion.

Page 10, Conclusion No. 2: Conditions for development of Drill Site No. 7 are addressed in the County's Mitigated Negative Declaration contained herein as Appendix A.

Page 10, Conclusion No. 3: This supports the conclusions in the EIR.

Page 10, Conclusion No. 4: This should be considered in the scoping of additional geotechnical studies, as necessary.

VENTURA COUNTY ENVIRONMENTAL RESOURCE AGENCY

FINAL

ENVIRONMENTAL IMPACT REPORT

FOR

MODIFICATION OF CONDITIONAL USE PERMIT NO. CUP-3344
ARGO PETROLEUM CORPORATION
FERNDALE RANCH

both from mod 3

THIS REPORT HAS BEEN PREPARED PURSUANT TO DIVISION 13 OF THE PUBLIC RESOURCE CODE.

APPROVED BY:

M L Koester

M. L. KOESTER, DIRECTOR
ENVIRONMENTAL RESOURCE AGENCY

DATE: 6/21/78

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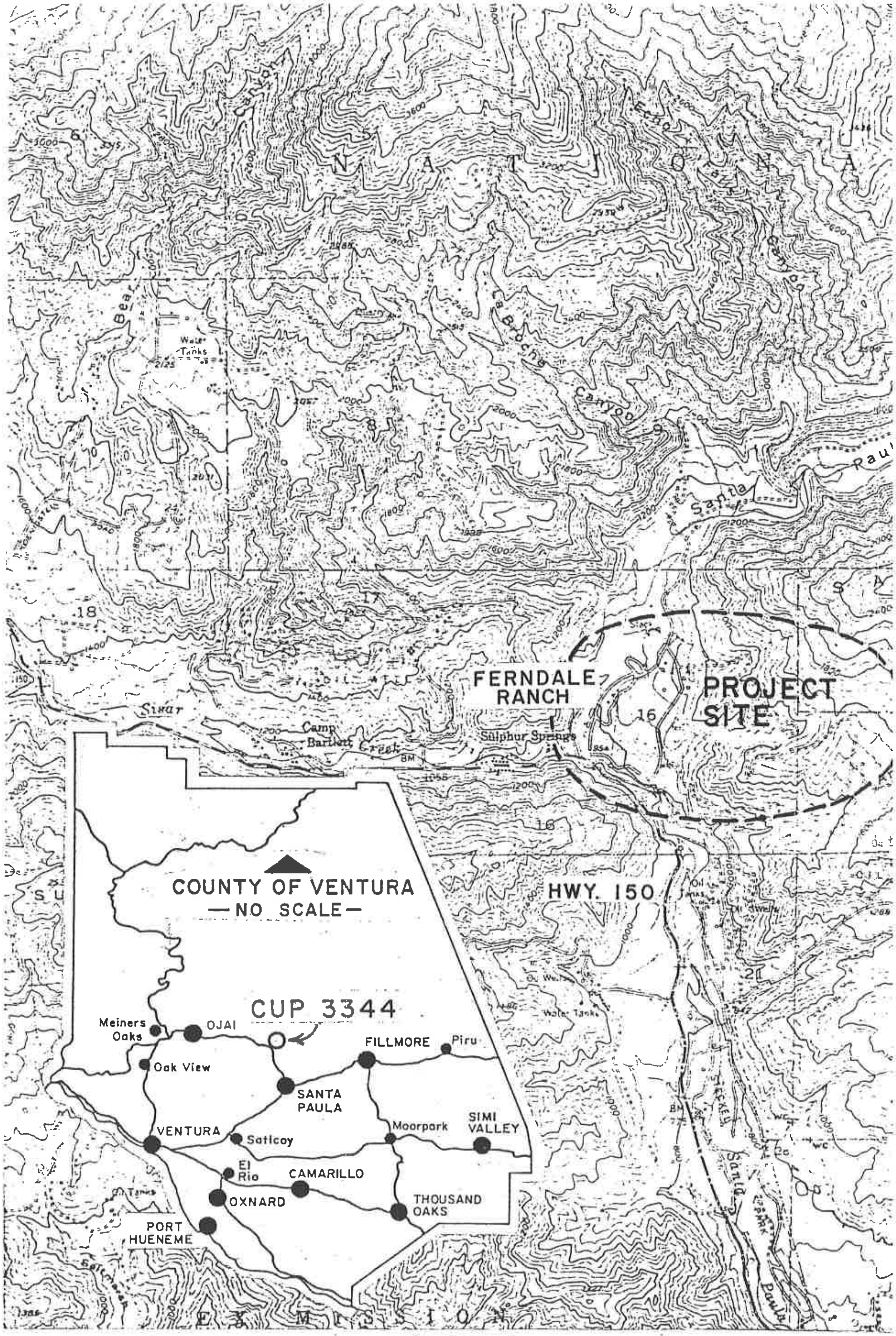
I. INTRODUCTION

ARGO Petroleum has filed an application for a modification of Conditional Use Permit No. CUP-3344. The existing Conditional Use Permit allows drilling and production from six wells on a single drill site located along Santa Paula Creek on the Ferndale Ranch (see Figure 1). The modification of CUP-3344 is being requested to allow the drilling and production of up to 30 new wells from five additional drill sites, for a total of 36 wells from six drill sites within the permit area, and to install a product pipeline.

An initial study of the proposed project was conducted by the County Environmental Assessment Committee which determined that the project may have a significant effect on the environment and that an Environment Impact Report (EIR) should be prepared. The potentially significant issues that are addressed in this report are traffic, air quality, water supply and quality, flooding, noise and fire prevention. This report addresses the project-related impacts in relation to the impacts of the recently approved Thomas Aquinas College, which is also located on the Ferndale Ranch. In addition, a preliminary cumulative impact assessment of all pending oil drilling/production activities in the area has been included in this report.

A copy of the initial study for the proposed project is contained in Appendix A.



Ventura County Environmental Resource Agency

CUP 3344

1"= 2000'

Figure 1.
Regional and Site Location Map

II. PROJECT DESCRIPTION

A. PROJECT APPLICANT

ARGO Petroleum Corporation
10880 Wilshire Blvd.
Los Angeles, California

B. PROJECT TITLE

Modification of Conditional Use Permit No. CUP-3344.

C. PROJECT LOCATION AND LEGAL DESCRIPTION

The proposed project is located on Ferndale Ranch northeast and adjacent to State Highway 150 near the junction of Santa Paula Creek and Sisar Creek, approximately three miles north of the City of Santa Paula (See Figure 1).

The area of the proposed permit modification contains 670.78 acres, consisting of two parcels known as Assessor's Parcel Nos. 040-06-05 and 040-06-11.

D. PURPOSE OF PROJECT

The applicant is seeking a modification of an existing CUP in order to expand drilling operations in a known field for the purpose of completing the desired pattern of production. The drilling of this lease is a joint venture between the land owner and the applicant.

E. DESCRIPTION OF OPERATIONS

The applicant is seeking a modification of an existing CUP in order to drill an additional 30 "step-out" wells* from a total of five drill sites in the project area. The applicant has agreed to a condition whereby construction of a product pipeline would commence within 90 days of granting of the permit modification and would be completed within 180 days of commencement of construction. Upon production, the oil and/or natural gas produced would be collected by flow lines at the single existing drill site where it then will be transported offsite by pipeline to connect with the existing ARCO pipeline. Following completion of the pipeline, truck traffic from the site will decrease from two trucks per day from the existing wells to zero. Figure 2 is a map depicting the location of proposed drill sites and pipelines.

According to the applicant, the new drilling program will commence at Site No. 2. Depending on the results of this first well, the applicant would continue developing additional wells at Site No. 2 and expand eastward to the other requested sites, as required. If the initial two or three wells drilled from Site No. 2 are dry, marginal or sub-commercial, no further drilling would be likely. The proposed project would allow the drilling of six wells from each of the five proposed new drill sites. If one well is drilled every 21 days as estimated by the applicant, continuous drilling operations could last for approximately one year and eight months, assuming that all proposed wells are successful and that only one well is drilled at a time. If, however, the first three wells are unsuccessful, the drilling program will be abandoned after lasting only approximately three months.

In order to accomplish the objectives of project (if the entire drilling program is successful), the applicant would have to construct five new drilling pads, install flowlines to the existing tank farm, and install a pipeline to transport offsite any oil produced.

The project will consist of four phases which overlap because of the phasing of the drilling/production operations.

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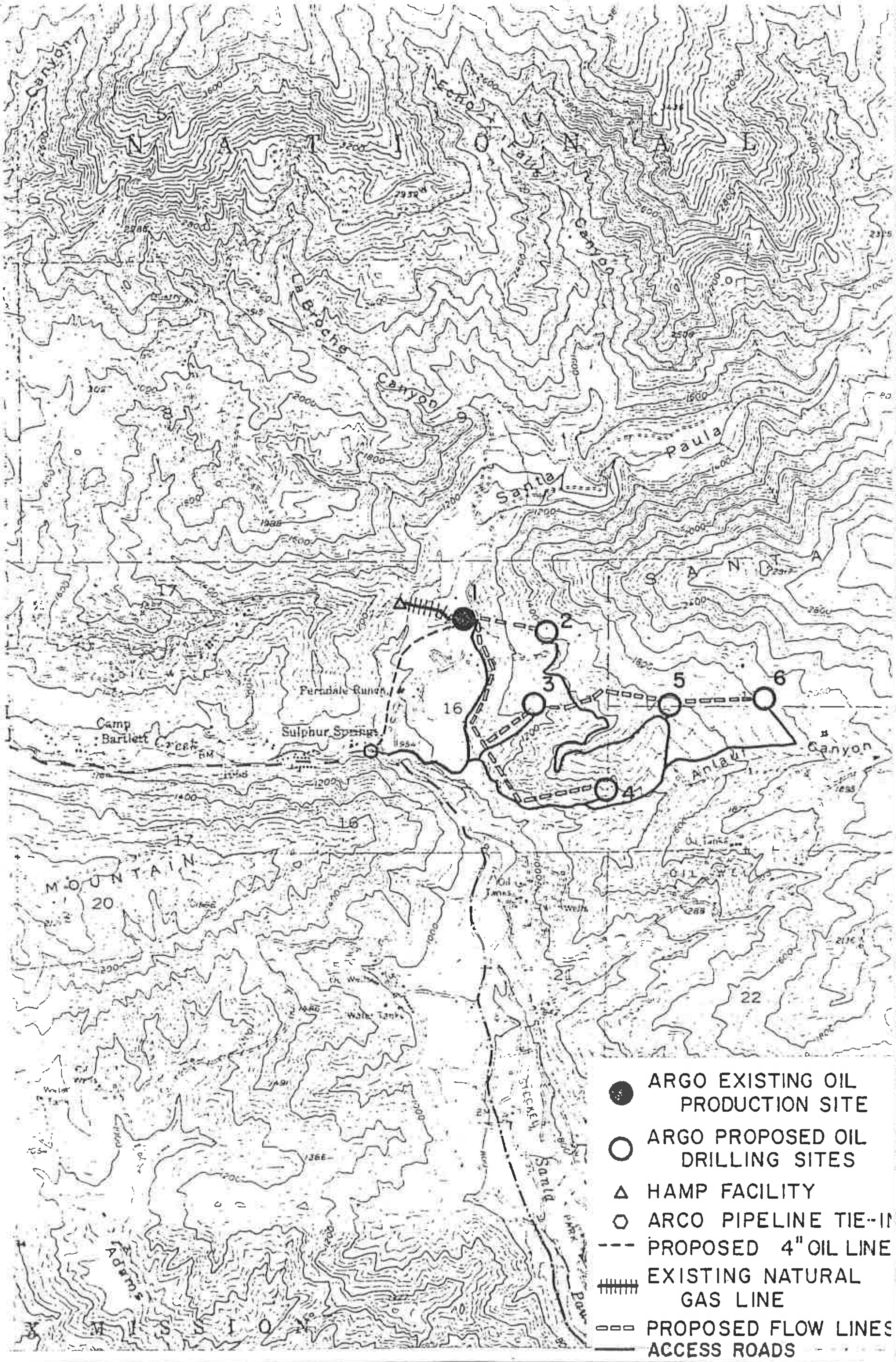
* A step-out well is one that is drilled adjacent to a proven well but located in an unproven area in an effort to determine the boundaries of a producing formation.



Ventura County Environmental Resource Agency

CUP 3344

Figure 2.
Drill Sites and Project Facilities Location Map

1. Construction Phase

All grading required for preparation of the new drill sites would be done immediately prior to occupying the drill site for drilling purposes. No grading will be necessary for access roads to the drill sites. The grading of each site will last approximately three days and could increase the traffic on Highway 150 by up to 40 Average Daily Traffic (ADT). Each pad will be 200 feet by 200 feet in area (0.9 acres). Table I lists the amount of dirt that will be moved at each proposed new drill site. Detailed grading plans will be submitted to the Public Works Agency for approval prior to commencing grading of each site. The exact size and orientation of the pads may be subject to minor change from that depicted on the preliminary grading plans. Six trucks will be required to transport a 100 foot drilling mast to a site where it will be assembled to drill a well.

TABLE I - Proposed Grading

Site No.	Cut (Cubic Yards)	Fill (Cubic Yards)
1	0	0
2	3230	3230
3	8020	8020
4	5640	5640
5	3940	3940
6	7590	7590
Access Roads	0	0

2. Drilling Phase

Figure 3 is a site plan that depicts the layout of a typical drilling pad. The actual drilling will be done by a portable rig which would be run by diesel or gas engines and have self-contained electrical generating equipment for lighting. (Appendix B contains a description of the proposed type of drilling rig to be utilized).

During drilling operations up to 40 ADT of vehicular trafic will be added to Highway 150, of which approximately 10 to 15 percent of that traffic will be trucks. Approximately 264,000 gallons of fresh water are to be used during each drilling operation which will be supplied from existing artesian wells on the Ferndale Ranch. In addition, approximately 900 barrels (37,800 gallons) of drilling fluid will be used during each drilling operation. All wastes will be accumulated in steel tanks and hauled to a licensed disposal site off the project area.

The applicant states that drilling of each well will be to a depth of approximately 7,000 feet, thus necessitating approximately 21 days for each well to be drilled. Assuming that each well is drilled consecutively, the drilling program could take from three months to one year and eight months to complete, depending on the success of the operation.

3. Production

According to the applicant, a total of approximately 200 to 250 barrels per day of oil are produced from the six existing permited wells at Site No. 1 as well as 500,000 cubic feet of natural gas. The oil produced is stored in existing tanks at Site No. 1 and requires the use of two oil trucks per day to transfer produced oil out of the area. For the natural gas produced, there is an existing shipping line which transports produced natural gas off the property to the Sun Oil Company's Hamp facility in the Silverthread area, west of the Ferndale Ranch.

Upon completion of a successful producing well, pumping engines would be installed to pump the oil out of the well. The applicant has indicated that primary recovery techniques (i.e. pumping) are anticipated to be an effective method of recovery. However, recognizing that primary recovery techniques are not always successful, especially once a field has been partially depleted, the applicant

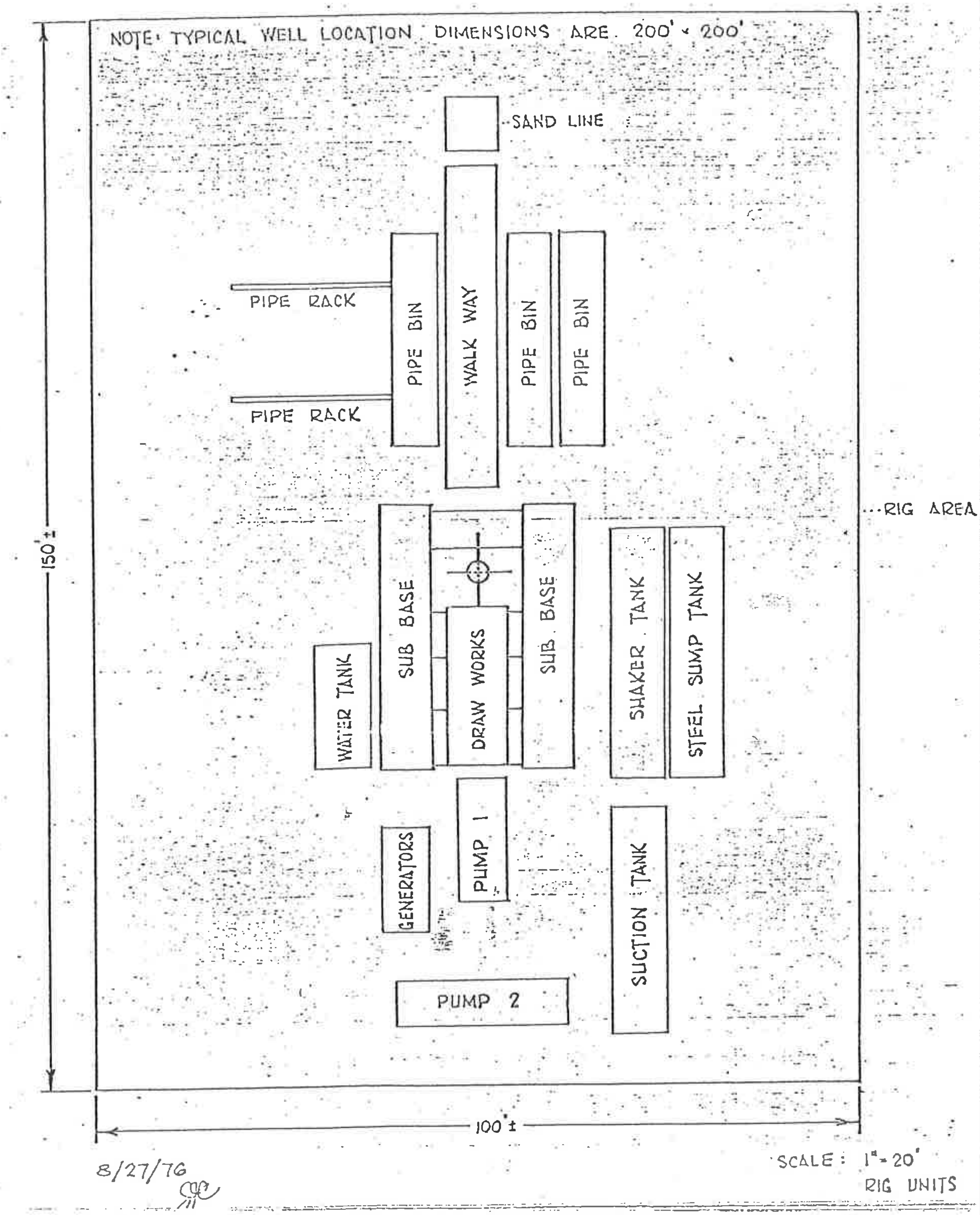


Figure 3.
Typical Drilling Rig Location Plan

has stated that secondary recovery techniques, if necessary, would be limited to the reinjection of produced gas. Secondary recovery involves injection of a substance into above or below the oil deposit to maintain original reservoir pressure and facilitate extraction of the resource.

The applicant estimates that the maximum peak production from the permit area could be approximately 1200 barrels of oil per day. Flowlines would be constructed above ground to transport oil and gas in separate lines to the holding tanks on the existing Site No. 1. Figure 4 depicts the physical layout of the production facility at existing Site No. 1.

The applicant has agreed to a condition whereby construction of a product pipeline (i.e., shipping line) would commence within 90 days of granting of a permit modification and would be completed within 180 days of commencement of construction. The shipping line would be constructed to connect Site No. 1 to the existing ARCO pipeline and would necessitate crossing Santa Paula Creek. The alignment of this new shipping line is depicted on Figure 2. The applicant has stated that the oil would be shipped through the existing ARCO pipeline to a refinery in Bakersfield or Los Angeles. While drilling is taking place, the natural gas produced will be used for drilling rig fuel. Upon completion of the drilling program, any natural gas produced may be disposed of by reinjection, or it may be sold to ARCO. (No flaring of natural gas will occur, according to the applicant, except possibly temporarily during the testing of the wells to determine productivity.)

Should the requested modification to CUP-3344 be granted for the proposed project, it has been the recent policy of the Planning Commission and Board of Supervisors to grant permits for oil production for a 50-year permit length.

4. Abandonment

Once the oil field has been depleted, the wells would be abandoned according to the regulations of the State Division of Oil and Gas (DOG). The DOG regulations on abandonment require that all equipment and debris be removed and the land graded to its original condition. Also the site could be required to be planted to restore the vegetation; however, the DOG states that it does not require planting and there are provisions in the regulations for exceptions to grading where this requirement conflicts with local or federal requirements or upon application of the property owner with good reason.

F. RESPONSIBLE AGENCIES

In addition to the requirement for a modification to the existing Conditional Use Permit, the applicant must also file an application with the DOG for a drilling permit and post a \$10,000, \$15,000 or \$25,000 individual bond, dependent on the proposed total depth of the well, or a \$100,000 blanket bond. The DOG also requires notices for altering or abandoning the well. Additionally, the applicant must comply with the California Public Resources Code, Division 3, Chapter 1, entitled "California Laws for Conservation of Petroleum and Gas" and California Administrative Code, Title 14, Division 4.

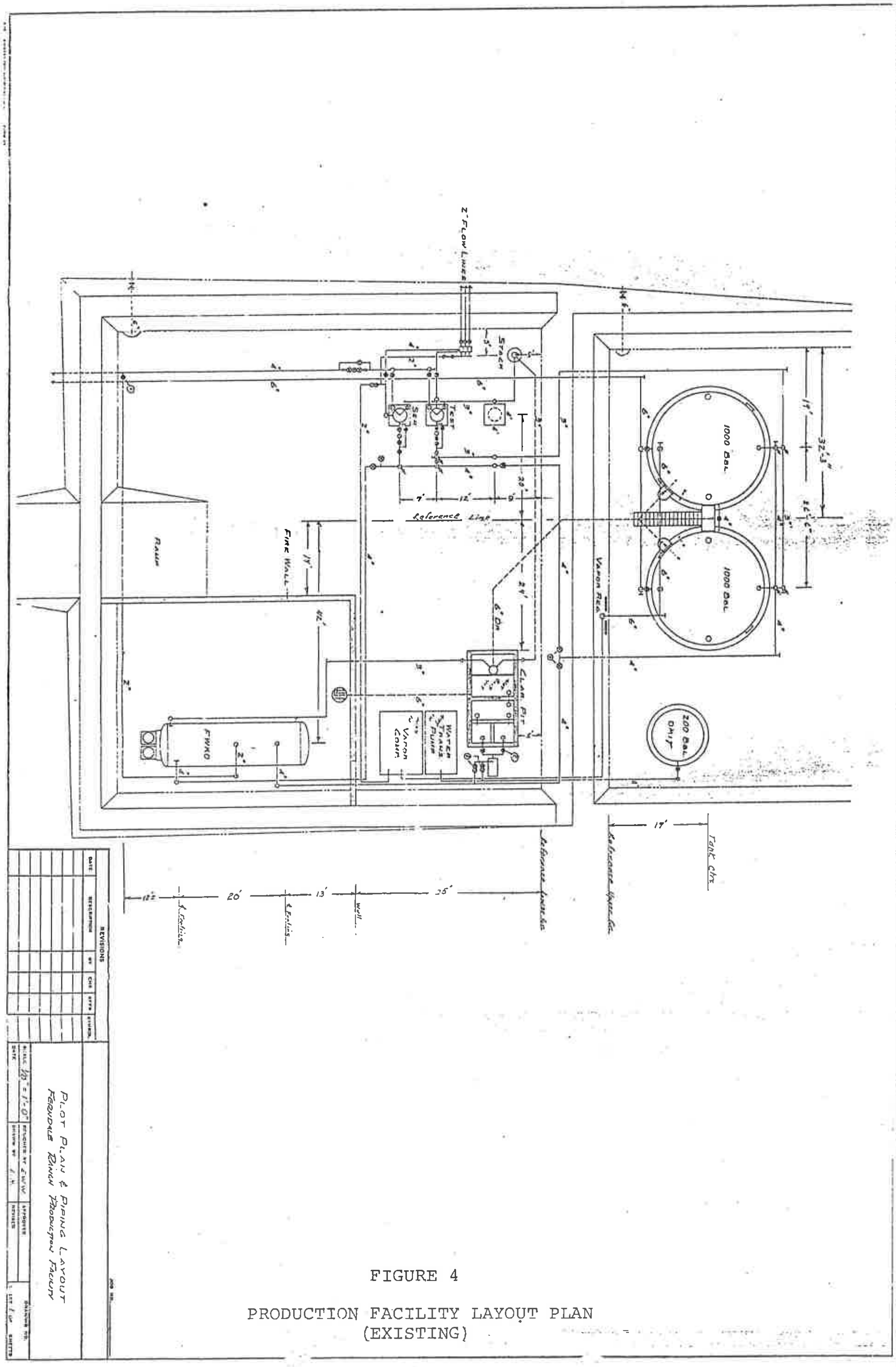


FIGURE 4

PRODUCTION FACILITY LAYOUT PLAN
(EXISTING)

III. SUMMARY OF IMPACTS

A. BENEFICIAL IMPACTS

If the drilling phase of the project is sucessful, oil production from the applicant's existing lease on the Ferndale Ranch could increase from the current 200-250 barrels per day to as much as 1,200 barrels per day, thus benefitting the County in terms of increased tax revenues. Other beneficial impacts are increased employment and increased energy resources.

B. UNAVOIDABLE ADVERSE IMPACTS

1. Landform Modification

If all requested drill sites are constructed, a significant amount of grading would be required. The amount of grading required for the five new drill sites ranges between 3,230 cubic yards of dirt to 8,020 cubic yards for a total of 28,420 cubic yards for all five sites. No grading is necessary for the access roads.

2. Potential Oil Spillage

The proposed new oil shipping line from existing Site No. 1 to tie into the ARCO pipeline would cross Santa Paula Creek, thus exposing the line to possible breakage and spillage of contents into the creek during flood periods. This potential adverse impact will be partly mitigated by the installation of automatic shutoff valves in the line which will confine the maximum amount of oil that could be spilled into Santa Paula Creek to 45 barrels (1,890 gallons).

3. Nitrogen Oxide Emissions

According to the APCD, emissions during the short-term drilling phase of the project would not be significant, with the exception of nitrogen oxide (NOx) emissions. (The drilling phase could last for up to one year and eight months, assuming all requested wells are drilled.)

4. Flora and Fauna

There would be some displacement of wildlife as the result of the project. No rare or endangered species would be affected.

C. IMPACTS WHICH CAN BE MITIGATED

1. Exposure to Groundshaking

The project site is located in proximity to an active fault zone. (No facilities are proposed to be located on or across an active fault.) Therefore, project facilities could be exposed to significant groundshaking during a major seismic event. The Public Works Agency recommends that the permanent project facilities (e.g., storage tanks and pipelines) be designed to withstand breakage or spillage of contents from groundshaking during a major seismic event unless adequate emergency containment or impoundment areas are provided.

2. Landslide and Fault Movement Potential

According to the Public Works Agency, Site Nos. 2 and 4 may be on or adjacent to existing landslides but the landslides appear to be stable and development of the sites would not impact their stability. Installation of automatic shutoff valves can prevent major spillage of oil in the event of structural breakage from a landslide, but the likelihood of ground failure is greater due to the location on a possible landslide or fault movement.

3. Traffic

Increased oil production from the site could result in an increase in truck traffic to transport the oil offsite. However, the applicant will begin construction of an oil shipping line to transport the oil offsite within 90 days after being granted approval of the permit. Therefore, during the interim period before the shipping line is constructed, truck traffic would remain at its current level of two trucks per day.

4. Reactive Hydrocarbon (RHC) Emissions

The Air Pollution Control District will require that vapor recovery systems be installed on all permanent oil storage tanks and oil transfer operations so that RHC emissions to the atmosphere are reduced by at least 90 percent. This will result in insignificant levels of RHC emissions during the production phase of the project.

5. Truck Noise

During drilling operations, three or four truck trips per day would be required to use the Ferndale Ranch road system which would generate noise that would directly impact future facilities of the approved Thomas Aquinas College. This noise impact could be reduced by limiting the truck traffic as much as possible to daytime hours.

6. Archaeology

The proposed oil shipping line has the potential to disturb archaeological site VEN-404. Prior to any ground modification activity, areas that could be directly or indirectly impacted by the proposed project should be surveyed by a qualified archaeologist.

7. Onsite Oil Spillage

Accidental leakage or spills during either the drilling or production phases of the project could be retained on the drill pad if compacted earth berms are constructed.

8. Fire Hazard

The project site is located in a hazardous fire area. The County Fire Department will require a 20,000 gallon water storage tank onsite, brush clearance, and the use of spark arrestors.

9. Visual

The project site is located in an area that is utilized by hikers seeking entry into the Los Padres National Forest through Santa Paula Canyon. Landscaping can be installed to screen the sites following completion of drilling.

IV. ENVIRONMENTAL SETTING

A. LAND USE AND ZONING

The project site is located on the Ferndale Ranch which is surrounded by mountainous terrain, primarily in a natural state. West of the site is the developing Silverthread oil field and several residential buildings (Sulphur Springs). To the north is the eastern portion of Topa Topa Mountain and the Santa Paula Creek watershed which receive heavy recreational use when open to public use. The eastern portion of the Ferndale Ranch encompasses a large portion of the Anlauf Creek drainage area which is still primarily in a natural state, except for some citrus cultivation. South of the site is Steckle Park and some agricultural use.

The Ferndale Ranch is presently used for grazing and some cultivated crops. In addition, there are ranch related structures and the Hacienda with its gardens and golf course. The existing Site No. 1 is slightly northeast of the Hacienda and golf course.

The recently approved Thomas Aquinas College (a 350-student liberal arts college) will be located in the area previously used for cultivated crops. This area is located near the Hacienda and the entrance to the ranch.

The Ferndale Ranch is presently zoned "R-E-1Ac" (Rural Exclusive - One Acre Minimum Lot Size) and "R-A-5Ac" (Rural Agricultural - Five Acre Minimum Lot Size). Surrounding zoning consists of "R-E-1Ac" with some "R-1" (One Family Residential) to the west. That portion of the Ferndale Ranch property which is zoned "R-A-5Ac" in the northern portion of the ranch is within the Los Padres National Forest.

B. GENERAL PLANS

The Open Space Element of the Ventura County General Plan designates the project site as both "Rural" and "Open Space." The portion of the site east of Highway 150 is primarily "Rural," while the areas adjacent and north of the National Forest boundary are designated as "Open Space."

The project site is located adjacent to State Highway 150 which is designated by the County Scenic Highways Element as a "proposed State scenic highway."

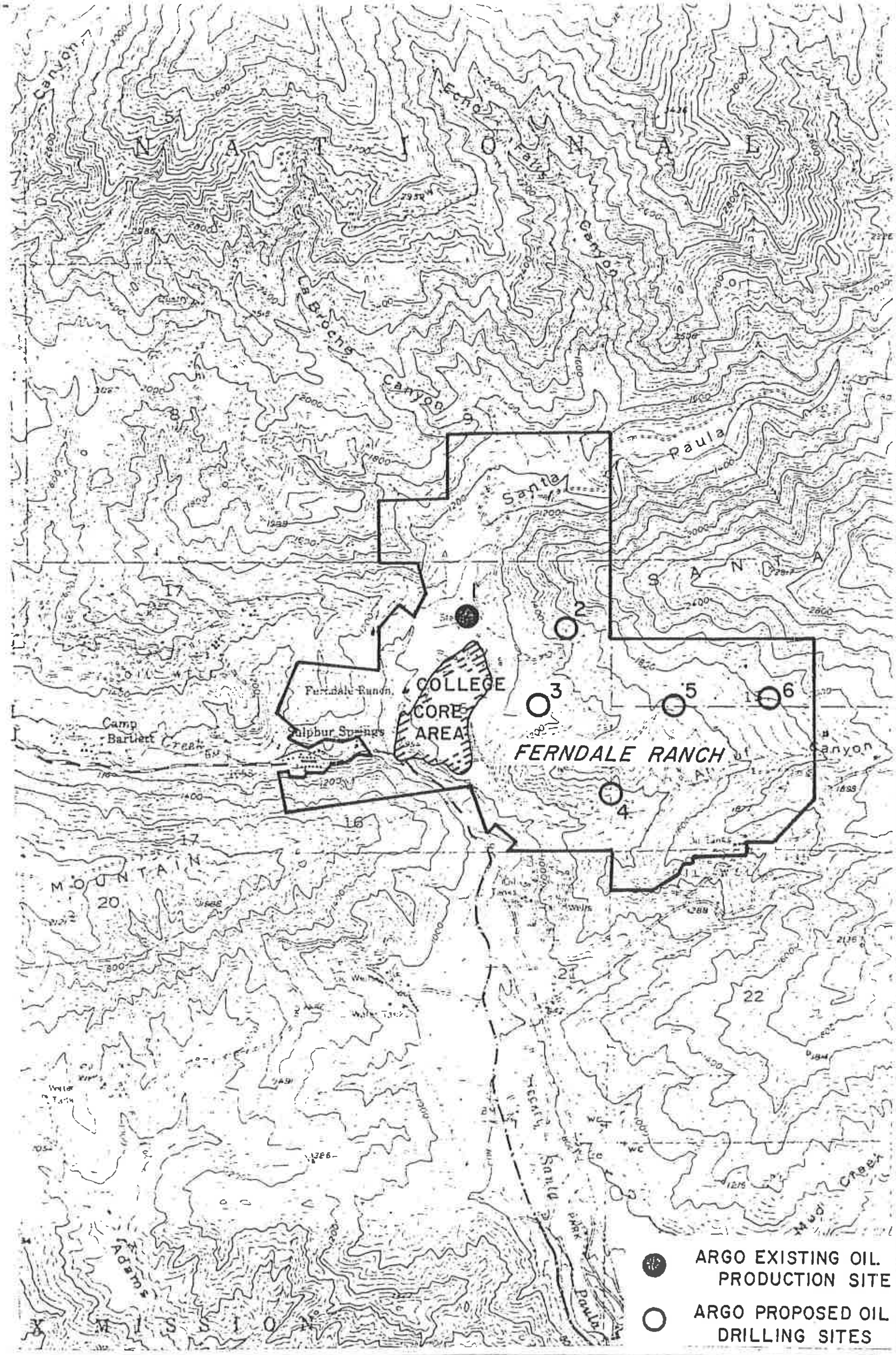
C. PHYSICAL CHARACTERISTICS

Anlauf Canyon and the Santa Paula Canyon comprise the major topographic features of the Ferndale Ranch. The topography of the approximately 1,000 acre property varies considerably from relatively smooth to rugged hillside terrain. The alluvial deposits east of Santa Paula Creek and within Anlauf Canyon are gently sloping while the higher elevations of the property have steep, rugged slopes. The slopes on the Ferndale Ranch range from level to in excess of 50 percent. Elevations on the property range from approximately 900 feet along Highway 150 to approximately 2,130 feet at the northeast boundary above Anlauf Canyon and within the National Forest.

D. PENDING PROJECTS

At the time of filing of the application for the subject permit, there were no other pending applications for exploratory oil and gas drilling in the project area. However, during the preparation of this report, applications for up to 35 additional drill sites and 203 wells in the Upper Ojai Valley were filed by three separate oil companies, although the oil companies involved have stated it is unlikely that the maximum number of requested wells will ever be drilled.

The recently approved Thomas Aquinas College site is also located on the Ferndale Ranch and classes are expected to begin in 1978. When fully constructed, the College will be a liberal arts college with about 350 students. The school will be constructed in phases and is not expected to be fully utilized until the middle of the 1980's. The College will require its own water and sanitation systems. Figure 5 is a map that depicts the relationship of the proposed project to the College.



Ventura County Environmental Resource Agency

CUP 3344

1"=2000'

FIGURE 5.
Ferndale Ranch, Thomas Aquinas College
And Proposed Project Location Map

V. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. GEOLOGY

1. Setting

The Ferndale Ranch is located in the western portion of the Ventura Basin which is part of the Transverse Range geomorphic province of California. In this province, geologic structures trend mostly east and west in contrast to the prevailing northwest trends elsewhere in the State. In the southern Ventura County portion of the Transverse Range province, the Ventura Basin is the dominant geologic feature. This basin is an east trending region that has been down warped for the most part and upon which has been deposited a great thickness of predominately marine sediments. The resultant sedimentary rocks have been tectonically deformed and partly uplifted to form hills and mountains.

The Ferndale Ranch is dominated by three large fault systems - the Sisar, Big Canyon, and San Cayetano faults. Of these three faults, the County Geologist considers only the San Cayetano fault as being active. In addition, there are two other active faults in the area which could affect the site. These are the Red Mountain and Ventura faults which are located approximately five and ten miles southeast of the project site, respectively. Therefore, the project site can be considered to be located in a seismically active region.

Southern Ventura County is a significant source of petroleum. During the last 500,000 to several million years, petroleum has migrated into various types of geologic traps created by folding and faulting in the Ventura Basin. This folding and faulting has resulted in the Red Mountain, San Cayetano, Oak Ridge, Simi-Santa Rosa, and other fault zones which have been instrumental in the entrapment of petroleum. The Ojai oilfield ranks sixth among 55 active fields in Oil and Gas District Two, encompassing all of Ventura and portions of Los Angeles and Santa Barbara counties. Northwest of the site is the Silverthread area, a productive portion of the Ojai oilfield. Production from the Silverthread occurs predominately from the Big Canyon fault zone and from fractured or sandy units of the Saugus and Monterey geologic formations. Natural oil seeps are present throughout the area.

2. Impacts

Figure 6 is a map that depicts the location of the proposed project facilities in relation to faults and landslides. According to the Public Works Agency, the drilling of new wells as the result of the proposed project would not result in increased seismic activity or movement along faults in the project area. Should any facilities be located on or across an active fault, damage to the well site or rupture of pipelines could result from fault movement.

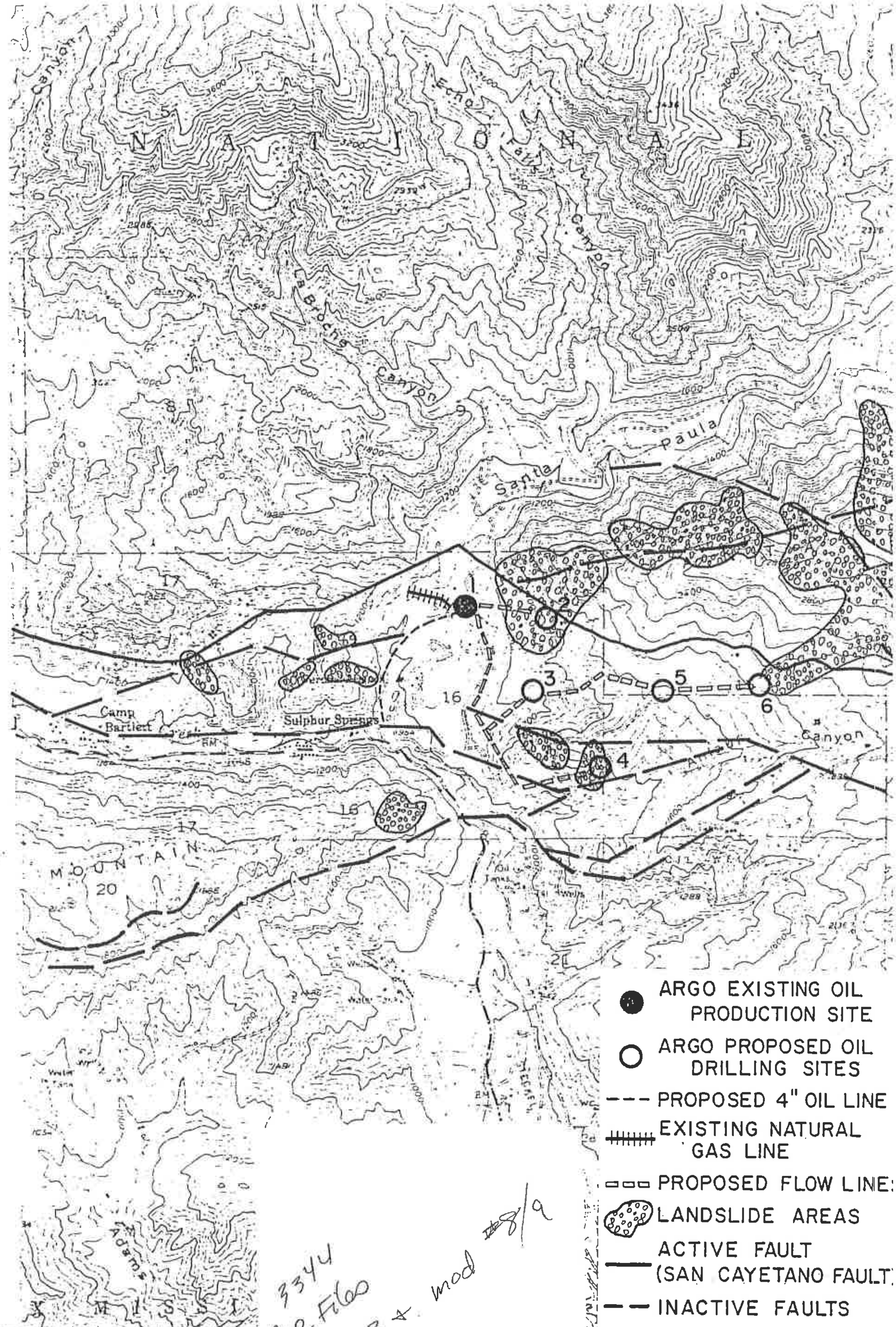
3. Mitigation Measures

Permanent project facilities (e.g. tanks, pipelines, etc.) should be designed to withstand breakage or rupture from groundshaking during a seismic event unless adequate emergency containment or impoundment areas are provided. Automatic shut-off valves should be installed on all pipelines, especially those located on hillsides or in the vicinity of faults.

B. SOILS AND ENGINEERING GEOLOGY

I. Setting

Several soils investigations have been conducted on Ferndale Ranch, including one in 1969 by the U.S. Soil Conservation Service. Approximately 400 acres were found to be suitable for avocados. However, much of the land is not a deep alluvial soil and there is a high potential of frost in the winter. According to the Public Works Agency, there are several existing landslides and margionally stable slopes on the Ferndale Ranch property, primarily on the steeper eastern portion of the ranch.



3344
EIR Files
mod #3 + mod #8/9

Ventura County
Environmental
Resource
Agency

The shale, clayey silts, clays, and gravels in the project area are considered to have a very low potential for liquefaction. Saturated, loose fine sandy soils, which are considered to be the most susceptible to liquefaction, were not found within the project area.

2. Impacts

According to the Public Works Agency, the proposed locations of drill Site Nos. 2 and 4 may be on or adjacent to existing landslides (see Figure 6), but the landslides appear to be stable. Therefore, development of drill sites as proposed in these areas would not adversely affect their stability.

3. Mitigation Measures

The Public Works Agency recommends that wells and pipelines not be located over landslides or marginally stable areas which could be subject to downslope movement. Automatic safety valves should be installed on all pipelines to prevent major spillage of oil in the event of pipeline breakage. The cut slope at Site No. 4 should be made no steeper than 1½:1.

C. FLOOD CONTROL AND DRAINAGE

1. Setting

The Ferndale Ranch is crossed by three drainage channels. The largest is Santa Paula Creek which flows through the northern part of the property from the northeast and continues around the western portion of the property where it flows under Highway 150 and joins Sisar Creek, near the entrance to the ranch. Sisar Creek, the second largest drainage channel, flows into the area from the west. The Anlauf Canyon channel is close to the southern boundary of the ranch property and flows in an east to west direction, joining Santa Paula Creek approximately 0.25 miles south of the junction of the Sisar and Santa Paula Creeks.

In 1969, areas along Santa Paula Creek were flooded and a bridge adjacent to the site on Highway 150 was washed out. Extensive flooding in Santa Paula Creek occurred again in the winter of 1977-78, but flood damage was not as extensive as in 1969.

2. Impact

According to the Public Works Agency, none of the drill sites nor the flow lines would be subject to flooding. However, the proposed new shipping line for oil would necessitate crossing Santa Paula Creek (see Figure 2) and, therefore, could be exposed to possible breakage and spillage of contents during flood conditions and a maximum spill of 45 barrels (1,890 gallons) could occur if line breakage happened along the creek.

3. Mitigation Measures

The applicant will install automatic safety valves on the shipping line so that the maximum amount of oil that could be spilled into Santa Paula Creek, in the event of pipeline breakage, would be 45 barrels (1,890 gallons). In addition, a properly designed suspension bridge would reduce the likelihood of pipeline breakage from flooding.

D. WATER SUPPLY AND QUALITY

1. Setting

Water for the proposed project would come from existing developed artesian wells and springs on the Ferndale Ranch. The project would utilize water which would otherwise flow to Santa Paula Creek. Water in Santa Paula Creek is used by agricultural users and Santa Paula Water Works, Ltd., the local water purveyor in Santa Paula. When water in Santa Paula Creek is only marginally available, Santa Paula Water Works is required to supplement its supply with well water pumped from the Santa Clara River Valley.

2. Impacts

During the drilling of each well, approximately 300 barrels of water per day per well (12,600 gallons) would be required. Each well would require an average of 21 days to complete and would, therefore, require a total of about 264,000 gallons of water per well. This requirement for water would be short-term lasting only as long as the drilling phase of the project.

According to the applicant, the lease area is presently suitable for primary oil recovery techniques. In the event secondary recovery methods are eventually necessary, the preferred method would be the reinjection of recovered gas rather than water. Therefore, water consumption during the production phase of the project should be minimal.

The proposed project is, therefore, not expected to result in a significant reduction in water availability. In addition, given the proposed use and methods of disposal of drilling fluids (see Section V-J, Solid and Liquid Waste Disposal), there should be no adverse effects on water quality in the Santa Paula Creek. However, the potential exists for a temporary adverse impact on water quality in the event of a washout and subsequent breakage of the oil shipping line proposed to cross Santa Paula Creek .

3. Cumulative Impacts

The water consumption of the proposed project is not significant in relation to the total water consumption of the recently approved Thomas Aquinas College. Additionally, the proposed project would occur only for a short term period (one year and eight months assuming all requested wells are drilled). However, in conjunction with the approved Thomas Aquinas College, also located on the Ferndale Ranch, the proposed project could have an adverse cumulative effect on downstream water quality and availability.

The proposed College would be the primary cause of the potential adverse impact since it would require 200,000 gallons of water per day from Santa Paula Creek on a permanant basis, while the proposed project would require a maximum of 12,600 gallons of water per day on a short-term basis (for approximately one year and eight months, assuming all wells are drilled). The proposed project and Thomas Aquinas College, together, would have the combined effect of diverting 212,600 gallons of water per day from Santa Paula Creek. During the low flow period of the year (July through October), this requirement would exceed the total flow in the Creek approximately 14.2 percent of the time. This could require Santa Paula Waterworks, the local water purveyor to the City of Santa Paula, to supplement agricultural water supplies by commencing supplementary pumping from the Santa Paula basin approximately seven days earlier than normal.

According to the Public Works Agency, the cumulative effect on water quality of this potential depletion would be to increase the total dissolved solids (TDS) level in Santa Paula Creek from approximately 755 parts per million to 786 ppm during low creek flow periods.

4. Mitigation Measures

None required.

E. TRAFFIC

1. Setting

The Ferndale Ranch is located along Highway 150, approximately three miles north of the City of Santa Paula. Highway 150 is a two lane highway, with graded shoulders, that provides the only motor vehicle access to the site. According to CALTRANS, Highway 150 has a capacity of 8,000 average daily traffic (ADT) and recent traffic counts (1975) indicate an ADT of 3,000 vehicles. The bridges and roadway of Highway 150 in the vicinity of the project site could be subject to washout and flooding during flood flows.

Access to the project site would be through an existing entry into the Ferndale Ranch from State Highway 150 and would be shared with the recently approved Thomas Aquinas College. There are no turn pockets at the entry site; however, at the point of entry visibility in either direction along Highway 150 is good according to the Public Works Agency.

The six wells at the existing site (Site No. 1) require two truck trips per day to transport the oil produced out of the area.

2. Impact

On the average, a single drilling rig operation generates up to 40 ADT, consisting primarily of employees but including maintenance and supply vehicles.

The production phase of the project would include the construction of a shipping line for the transport of oil offsite to connect with the existing ARCO pipeline in which the oil will be shipped to a refining center in either Bakersfield or Los Angeles. According to the applicant, construction of the shipping line would begin within 90 days after being granted approval for the permit. Therefore, approval of the project would not adversely affect traffic circulation in the area.

3. Cumulative Impacts

Access to the project site would be shared with the approved Thomas Aquinas College. The College is to be constructed in phases and is not expected to be in full operation for another ten years, by which time the drilling phase of the proposed project would be completed. Therefore, the proposed project is not expected to significantly add to the impacts of traffic from the College.

According to the Public Works Agency, both the internal and external road networks have adequate capacity to handle the anticipated traffic from both projects. In addition, the Public Works Agency states that the present condition and size of Highway 150 are adequate to handle the additional traffic during periods when the road is not subject to flooding. However, the Public Works Agency is concerned that the cumulative impacts from other potential oil drilling and production activities in the Upper Ojai Valley could have a significant adverse impact on Highway 150.

4. Mitigation Measures

The maximum expected production level from the project is approximately 1200 barrels of oil per day. This could require as many as twelve trucks per day to transport the oil offsite. However, the applicant has agreed to begin construction of a new shipping line offsite, to connect with the ARCO pipeline, within 90 days after being granted a permit. This will mitigate any adverse truck impacts during the production phase of the project.

F. AIR QUALITY

1. Setting

The airshed for the project site is approximated by Regional Statistical Area 2 (RSA-2) which includes Santa Paula, Ojai, Ventura and surrounding areas. The Ferndale Ranch is located in Santa Paula Canyon, among mountains ranging in elevation from 1,000 to 2,500 feet. According to APCD records, during the summer and early fall (i.e., smog season) the site has little or no wind in the mornings and variable winds to about six miles per hour in the afternoons. The topographical and meteorological conditions result in poor mechnical mixing of air (i.e., ventilation) causing oxidant forming materials to be trapped in the area during the day. If winds disperse the trapped pollutants, it tends to be towards Santa Paula and the Santa Clara River or in the direction of the Ojai Valley.

In 1976, the number of adverse days (i.e., days in which average ozone exceedes 0.08 ppm for at least one hour) in Ojai was 101 days (28.1 percent of the year) and in Santa Paula was 65 days (18.6 percent of the year).

In RSA-2 in 1975, 38 percent by weight of the reactive hydrocarbons (RHC) were produced by mobile sources, 25 percent by petroleum activities, 6 percent by petroleum refining and marketing, 23 percent by pesticides, and 8 percent by other sources. For the same period, 56.5 percent of the nitrogen oxide (NOx) emissions were generated by petroleum production, 1.5 percent by petroleum refining and marketing, 37 percent by mobile sources, and 5 percent by other sources. Therefore, petroleum production is a direct source of 25 percent of the RHC emissions and 56.5 percent of NOx emissions in RSA-2. In addition, oil drilling contributes to emissions from secondary auto and truck traffic that result from oil exploration and production.

2. Impacts

The project may contribute to air pollution in the Ojai Valley and Santa Paula by diesel engines required for drilling and auto/truck traffic. During the drilling phase, air pollution emissions will be from diesel engines used to operate the drilling rig. In addition, the proposed project would also induce vehicular traffic during the drilling operation which would indirectly add to the emissions during the drilling phase. The production phase of the project should have minimal emissions due to the proposed use of a pipeline and the APCD requirement for vapor recovery systems.

Table 2 is a summary of the project related emissions for both the drilling and production phase of the project. According to the APCD, emissions of carbon monoxide, RHC, and particulate matter during the drilling phase would not be significant; however, emissions of NOx could have a significant effect during each of the 21 day drilling periods which could cumulatively last for as long as one year and eight months, assuming all wells are drilled.

Table 2

AIR EMISSIONS*

	NOx		RHC		PARTICULATES	
	Tons/ Day	Percent RSA-2	Tons/ Day	Percent RSA-2	Tons/ Day	Percent RSA-2
Total RSA-2 (1975):	27.2	100.0	32.6	100.0	28.6	100.2
Drilling Phase:						
Drilling Rig**	0.796	2.93	0.064	0.196	0.057	0.199
Vehicles	0.001	0.004	0.001	0.003	0.0002	0.001
Total	0.797	2.934	0.065	0.199	0.0572	0.200

* Memorandum from Steve Milan, Air Pollution Control District (June 29, 1977).
** Assumes worst case operation of diesel engines at 100 percent capacity which overestimates actual emissions because the drilling rig is expected to operate under normal conditions at 100 percent capacity for 4 hours per day and 30 percent capacity for 15 hours per day.

Table 2A

EMISSION SUMMARY - PRODUCTION PHASE

	Existing Emissions (lbs/hr)			Existing and ProjectEmission (lbs/hr)		
Source	THC	RHC	NOx	THC	RHC	NOx
Wellhead	0.5	0.3	0.0	12.0	5.3	9.3
Flowlines		Negligible			Negligible	
Gas Traps	0.03	0.02	0.0	0.2	0.1	0.0
Heater Treaters		Negligible	0.2		Negligible	0.1
Storage	5.1	2.7	0.0	1.5	0.8	0.0
Transfer						
Crude Loading	32.9	17.6	1.2	0.0	0.0	0.0
Diesel Exhaust	0.1	0.1	1.2	0.0	0.0	0.0
Gas Reinjection	0.0	0.0	0.0	4.0	0.3	4.2
TOTALS	38.6	20.7	1.22	17.7	6.5	14.6

Emissions from the production phase of the proposed project have been estimated and are summarized in Table 2A. The total project is expected to decrease emissions of reactive hydrocarbons by 14.2 lbs/hr and increase emissions of oxides by nitrogen by 12.4 lbs/hr.

Although maximum development, based on known geology, is anticipated to be 16 additional wells, the production phase emission estimates are based on the assumption of 30 additional wells as requested in the permit application. The pumping units at wellheads are currently planned to be powered by natural gas fired engines if fuel is available. Electric pump units may also be used. Utilization of electrically driven pumping units, exclusively, would effectively mitigate the emission impacts indicated in Table 2A.

The increased production resulting from the proposed project will be processed utilizing existing tanks. Because a vapor recovery system will be installed, total storage emissions will be reduced by the project.

If the project is approved, tanker truck transfer of crude oil would be replaced by the construction of a pipeline segment to an existing ARCO pipeline. As a result, transfer emissions will be greatly reduced.

Potential use of the secondary recovery technique of gas reinjection has been suggested by the applicant. It is assumed in the emission estimate that a natural gas fired compressor would be installed with attendant emission increases.

Emissions from flow lines, gas traps, heater treaters, and service vehicles are of minor importance. All crude oil and gas transmission lines will be serviced by electric pumps and compressors.

The proposed project is currently exempt from evaluation under the Ventura County APCD's New Source Review (NSR) rule, as the new equipment is not subject to District permit requirements. Modifications to the District's permit regulations have been proposed which would require the project to demonstrate compliance with the NSR rule. A more detailed engineering analysis would be undertaken at the time an APCD Authority to Construct is requested, if the project becomes subject to the NSR rule.

3. Cumulative Impacts

The proposed project will add to the cumulative impact of residential, commercial and industrial development in RSA-2, all of which will contribute to a significant degradation of air quality in the Ojai Valley. Over the past six years at the Ojai monitoring station on Signal Street, 69 to 98 percent of the days during the peak smog months exceeded the mandated federal air quality standard for ozone. Ojai is second only to Simi Valley in the frequency of first stage smog alerts, which occur at a level considered by medical authorities to be hazardous to health. According to the Air Pollution Control District, achievement of federal mandated air quality standards in the Ojai Valley will not occur, given current stationary and mobile source controls.

4. Mitigation Measures

In order to minimize air pollution from the proposed project, the following mitigation measures are recommended.

a. Producing well equipment should be routinely maintained in a manner representative of good oil industry practices.

b. All valves, flanges, and connections should be routinely maintained.

c. Permanent oil storage tanks and oil transfer operations should have vapor recovery equipment which reduce emissions to the atmosphere by at least 90 percent or a control system acceptable to the APCD.

d. Dust during the construction of the drilling sites can be substantially reduced by keeping the earth sufficiently watered to supress dust. Also, vehicle speeds should be kept to a minimum (less than 15 mph) to reduce dust.

e. In order to mitigate the NOx emissions during the drilling phase, electric drilling rigs could be utilized. However, the availability of these rigs is uncertain.

The applicant's intent to install a shipping line will reduce emissions during the production phase of the project to an insignificant level. Furthermore, the applicant states that there will be no venting or flaring of well head gas.

G. NOISE

1. Setting

The location of the proposed project is on the Ferndale Ranch which is also the site of the recently approved Thomas Aquinas College that is anticipated to begin classes in the Fall of 1978. The College will be located approximately 400 feet south of the existing Site No. 1; 1,000 feet southwest of proposed Site No. 2; and 1,000 feet west of proposed Site No. 3 (see Figure 7). The access road to the proposed drillsites would traverse the eastern and southern perimeters of the College site.

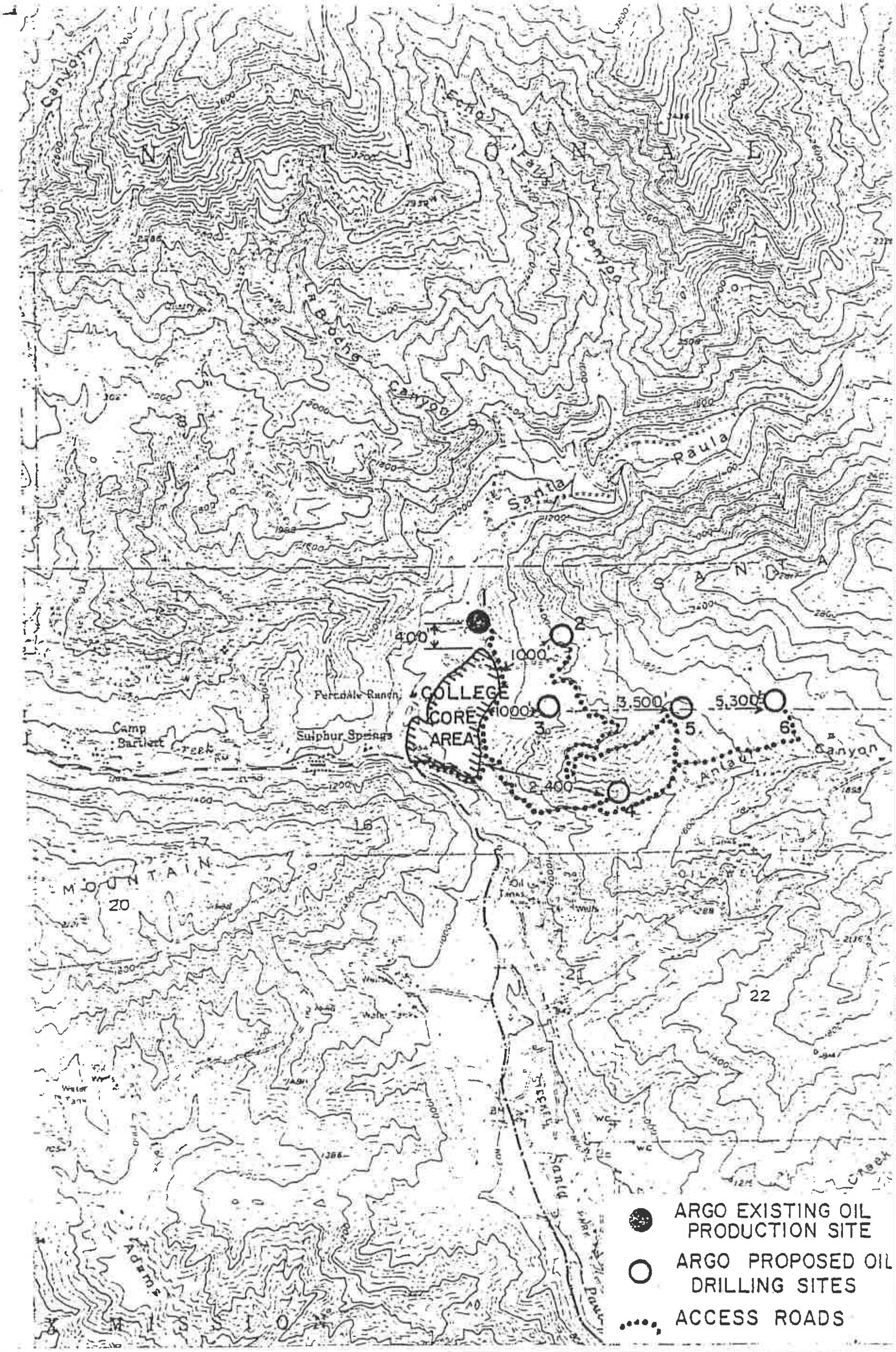
On January 20, 1977, the low residual noise levels at the proposed College campus site were measured by the County Environmental Health Division and found to be approximately 40 dB(A). According to HUD noise standards, this would be equivalent to a quiet suburban residential area.

2. Impact

Noise from the proposed project will be generated by drilling operations, increased truck traffic during drilling, and pumping equipment. No new drilling operations will take place at the existing Site No. 1. Based on an analysis by Environmental Health, drilling operations at Site Nos. 2 and 3 would cause noise levels of 57 dB(A) at the eastern perimeter of the college site. These levels would be in the "normally acceptable" range, according to HUD Guidelines, but would exceed Environmental Health's recommended condition that noise should not exceed 55 dB(A) during the day and 45 dB(A) at night at nearby residences. However, it is uncertain whether the College will be in operation at the time Site Nos. 2 and 3 are drilled. The noise impact from drilling operations at the remaining proposed drill sites would be insignificant.

Noise from trucks carrying drilling equipment to and from the drill sites would result in an adverse impact on the College once it is completed. During drilling activity, three or four truck trips per day would be required for each drilling operation. Since these trucks would be required to use the College's access road, noise generated as a result of this truck movement would directly impact developed facilities on the school site, according to Environmental Health. Typically, diesel trucks generate peaks of 85 dB(A) at a distance of 50 feet.

Noise from a typical gas engine that pumps oil out of wells is estimated to be 68-74 dB(A) at 25 feet. Existing Site No. 1 generates noise at the northern perimeter of the College site in the range of 42-50 dB(A). This is in the "normally acceptable" range according to HUD Guidelines. However, this noise level may exceed Environmental Health's recommended nighttime noise limitation of 45 dB(A) if occupied College facilities are built close to the perimeter of the College. Noise from pumps at Site Nos. 3 and 4 would generate 36-45 dB(A) at the eastern perimeter of the College, which is in the range considered to be "clearly acceptable," according to HUD Guidelines.



Ventura County Environmental Resource Agency

CUP 3344

1" = 2000'

FIGURE 7.
Distance to Noise Sources

3. Mitigation Measures

The only potentially significant noise impacts to the College are from the three to four trucks per day required during the drilling operations. This noise impact could be reduced by limiting the truck traffic to daytime hours.

The applicant's intent to construct a shipping line will eliminate adverse truck noise impacts during the production phase of the project.

H. FLORA AND FAUNA

1. Setting

Most of the Ferndale Ranch is covered with vegetation indigenous to the foothills of California. This includes areas of grassland, chaparral, and woodlands. Grassland and light chaparral associations make up the majority of the vegetation on the property. Grassland vegetation is found both on the gently sloping alluvial plain and the steeper rocky slopes. The chaparral is found mostly on the steeper slopes. Oaks, sycamores, and a few other species are scattered in the grassland and chaparral areas. The grassland and chaparral vegetation has been modified to some extent by the grazing of cattle. The chaparral and grassland vegetation which covers most of the property is highly flammable. Consequently there is a risk of fire, especially during dry, windy summer and fall months. Mixed woodland and riparian vegetation is found mainly along Santa Paula Creek and other major drainage areas.

Although current land use has restricted resident wildlife diversity, the project site still provides a valuable foraging zone for several transitory animals from adjacent habitats. The abundant herbaceous vegetation is likely to be utilized by mule deer, coyote, grey fox, longtailed weasel, skunk, raccoon, and several other species. Surrounding undeveloped areas are known to be inhabited by these animals as well as a full range of wildlife species, including the mountain lion. Nearby riparian habitats of Sisar and Santa Paula Creeks add to the overall diversity of this area by providing important habitat resources such as complex aquatic and terrestrial food webs, perennial water supplies and diversified cover for nesting and breeding. Together these support a variety of resident invertebrates, fish, reptile, mammal, and bird species. Coastal sage scrub, chapparal, grassland, and southern oak woodland associated with hillside and mountainous terrain further contribute to this resource base and, combined with the relative isolation of these areas, provide extensive habitat for wildlife.

According to the U.S. Forest Service, the northeast corner of the Ferndale Ranch property abuts a critical Condor habitat. The Public Works Agency indicates that the nearest known nesting site of the California Condor is approximately 1.75 miles northeast of the project site.

2. Impact

The proposal would result in a temporary displacement of some species during the drilling phase and a permanent displacement of a number of individuals that currently use the site as habitats. The animals most affected would be large animals such as mule deer and coyote.

The location of the drill sites in the canyon bottom and on the ridge to the northeast are factors which tend to reduce the impact of the project on nesting and roosting Condors in the area. It should be noted, however, that any activity beyond the proposed sites could have severe adverse impacts on this endangered species.

The effects of an oil spill or line breakage into Santa Paula Creek could have an adverse effect on this unique riparian habitat, particularly resident and anadromous fish, as well as other aquatic wildlife species. However, the applicant will install shutoff valves in the line on both sides of Santa Paula Creek which would confine the amount of oil spilled in the event of line breakage to 45 barrels (1,890 gallons).

3. Cumulative Impact

According to the Public Works Agency, the proposed project, together with the recently approved Thomas Aquinas College, would have the potential for cumulatively impacting a greater range of wildlife over a larger area than the proposals considered separately. The effects of each project would differ mainly in the degree of human activity in the immediate area and in species affected, with the Thomas Aquinas College having the most pronounced effect on the greatest number of species and individuals. The proposed project, though less permanent and less inhibiting, would be in a more remote section of the Ferndale Ranch and would affect animals that are less tolerant of human activities. The combination of the two projects would have an effect that would be greater than the individual proposals because a larger number of animals would be displaced and a greater number of species would be affected.

4. Mitigation Measures

There are no measures which would prevent loss of habitat as the result of site preparation. Should the sites be abandoned, care should be given to site restoration. The site should be planted with grasses typical to the area and trees should be replaced.

The applicant will install shutoff valves in the oil shipping line so that the maximum amount of oil that could be spilled into Santa Paula Creek in the event of line breakage would be 45 barrels (1,890 gallons).

I. ARCHAEOLOGY

1. Setting

Based upon the findings of a preliminary survey and test excavation on the Thomas Aquinas College site, field excavation sampling was conducted during the Summer of 1976. Although the sampling covered an area of less than one percent of the area, the results were the discovery of an archaeological resource considered to be of the highest significance. This discovery was designated as archaeological site VEN-404 in the official California site record archives. It is probably the largest of the inland village sites of the Chumash Indians and contains data critical to the understanding of the entire Chumash economic sphere and social network. Moreover, much of this data seems to be intact and in an excellent state of preservation and may be the best data bank that archaeologists have for understanding the prehistory of the area within the Santa Clara River drainage.

2. Impact

Due to the nature of archaeological site VEN-404, the potential exists that archaeologic resources could be located throughout the entire Ferndale Ranch. However, the likelihood of impacting archaeological resources on the ranch during grading of drill sites is considered by the Public Works Agency to be minimal since the drill sites are located outside the designated archaeological site and in less inhabitable areas.

With regard to the proposed oil shipping line that will be constructed from existing Site No. I to connect with the ARCO pipeline, Dr. C. W. Clewlow, Chief Archaeologist, UCLA Institute of Archaeology, has indicated that the boundaries of VEN-404 may extend to Santa Paula Creek, which would place it within the proposed shipping line corridor. However, the applicant is proposing to build the shipping line above ground which will considerably reduce the possibility of impacting subsurface archaeological resources.

3. Mitigation Measures

Because the proposed route of the shipping line is within the area of VEN-404, the Public Works Agency recommends that all areas susceptible to direct and indirect impact by the proposed project be surveyed by a qualified archaeologist prior to zone clearance.

J. SOLID AND LIQUID WASTE DISPOSAL

1. Setting

Solid and liquid wastes resulting from the project include cuttings of earth materials encountered during drilling and fluids used in the actual drilling process. No toxic wastes will be discharged according to the applicant.

There is no sump proposed for the project site and the 50 barrels of drilling waste that will be generated each day will be contained in steel tanks on site. Subsequently, these drilling wastes will be hauled to an approved sump, probably the Elkins Sump in Bardsdale, south of Fillmore. The Elkins Sump is a 220 acre site which was opened in 1953 for oil field wastes (e.g., saltwater and emulsions), and is not expected to reach its capacity for at least 10 years. It is anticipated that drilling wastes will be hauled daily in 20 foot long 10 wheeled diesel trucks (capacity 60 barrels) during each of the 21 day drilling periods.

2. Impacts

Leakage of drill fluids into the adjoining earth materials is not likely as sumps will not be utilized for the project. Other wastes will be hauled from the site to an approved landfill. These wastes will be minimal during construction, drilling, and possibly the abandonment stages. There will be other production wastes such as water and oil from well head cellars, produced water, and well cleaning and maintenance operation wastes. The only potential impact is from spillage of oil during drilling or production.

3. Mitigation Measures

Accidental leakage or spills from either the exploration or production phases could be retained on the graded pad if compacted earth berms are constructed and maintained at the top of adjoining fill slopes.

K. FIRE SERVICES

1. Setting

The project site is in a hazardous fire area due to brush and terrain. The nearest Ventura County Fire Station is the Summit Station on Highway 150, approximately four miles from the project site. The response time to the project site from the Summit Fire Station is approximately six minutes.

2. Impact

The phase of the project with the greatest fire hazard is the drilling phase when there is more activity and transferring of combustible liquids at the site. There is also a potential fire hazard from any oil spills during loading and unloading, or in the event of a vehicle accident or equipment failure.

3. Mitigation Measures

During the drilling phase, a 20,000 gallon water storage tank will be required on site mainly for rescue, exposure protection, and ground fire extinguishment. In the event of a well fire,flow of oil and gas would have to be stopped before the fire could be arrested, and fire protection equipment might be needed, especially if nearby brush is ignited. Additional mitigation measures suggested by the Fire Department are spark arrestors on all internal combustion engines, brush clearance around the drill sites, access roads that will accomodate emergency vehicles, and compliance with all local and State regulations.

L. VISUAL

1. Setting

The proposed project site is located in an area that is utilized by hikers seeking entry into the Los Posas National Forest through Santa Paula Canyon. In addition, the Ferndale Ranch is to be the site of a new college.

2. Impact

Figures 8 through 12 are preliminary grading plans for each proposed new drill site. The amount of grading ranges between 3,230 cubic yards of dirt to 8,020 cubic yards. The maximum cut slope would be 50 feet for Site No. 6.

The primary issue is the compatibility of the proposed oil drilling activity with the proposed College. According to the consultant for Thomas Aquinas College, the location of the proposed drill sites were selected for having the least individual impact on the proposed College core area. Therefore, there should be no conflict between the proposed project and the College. However, recreational users entering the Los Padres National Forest through Santa Paula Canyon will encounter an expanded oil field operation.

3. Mitigation Measures

Following completion of drilling, landscaping should be provided to completely camouflage each production site from the view of recreational users of Santa Paula Canyon. Should drilling be unsuccessful, the site should be restored to the original condition. The restoration should include proper compaction and testing of soils, replacement of soils to their original contour, planting of an appropriate seed mixture of grasses or forbs for erosion control, replacement of scenic or specimen trees that are removed by the project's development, and the minimization of additional environmental damage that may be incurred during the restoration process.

VI. GROWTH INDUCING IMPACTS

The proposed project has, itself, been induced by the success of the original exploratory drilling on Site No. 1. The applicant has made no indication of intentions to drill additional wells if the proposed project is successful. However, if a significant new discovery is made by the proposed additional drilling, it can only be assumed that expanded drilling operations may at some later date be requested.

VII. ALTERNATIVES TO THE PROJECT

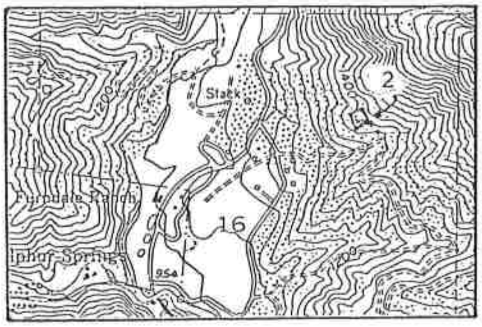
A. NO PROJECT

This alternative would maintain the existing environment, including the existing Site No. 1. Temporary drilling-related traffic, air pollution, seismic hazards, and noise associated with the proposed project would not occur. The visual impact associated with the excavation of the site and construction of oil related facilities (e.g., tanks and pipelines) would also not occur. However, the shipping line would not be constructed and existing truck levels would be maintained at approximately two trucks per day, rather than be reduced as would occur with the shipping line.

B. ALTERNATIVE LOCATIONS

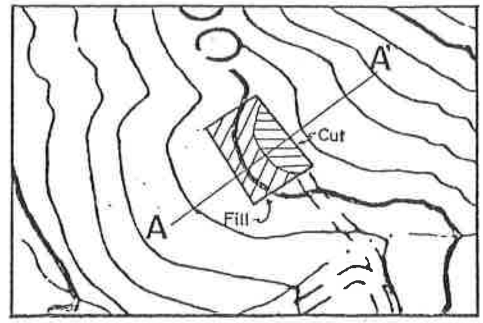
Generally the location of oil exploration is determined by location of the petroleum and there is very little latitude for changing the location of the well. However, the applicant has modified the original project somewhat by deleting two proposed drill sites that were located in the flood plain of Santa Paula Creek, as the result of concerns expressed by County Geologist and the Flood Control District.

SITE LOCATION



1" = 2000'

PRELIMINARY GRADING PLAT



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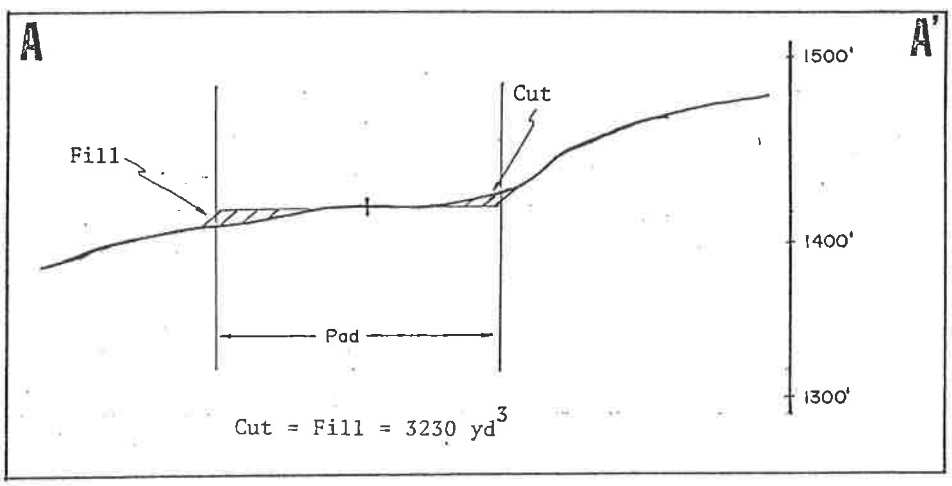
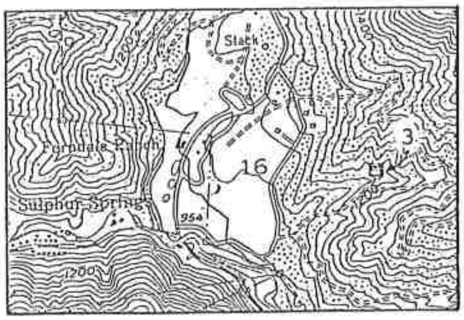


1" = 100'

DRILL SITE # 2
Cut and Fill Diagrams
X-Section of Drilling Pad

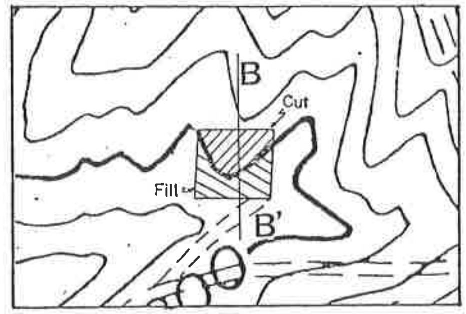
Figure 8.
Preliminary Grading Plan - Site No. 2

SITE LOCATION

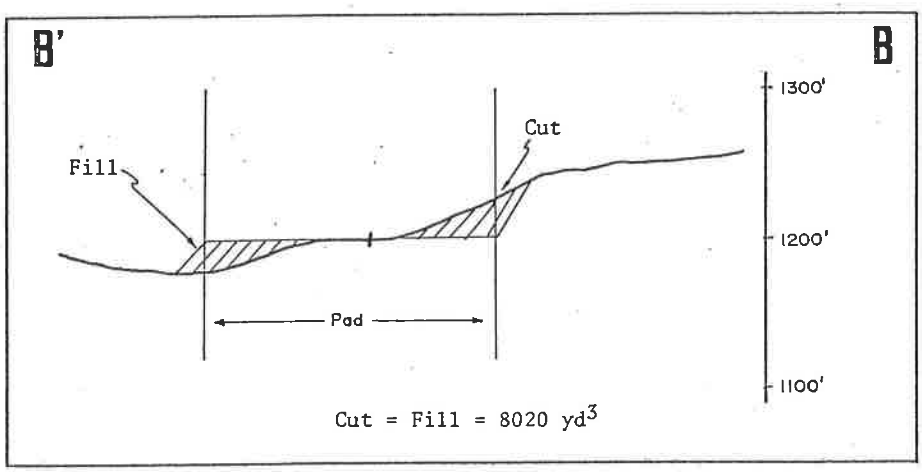


1" = 2000'

PRELIMINARY GRADING PLAT



1" = 400'

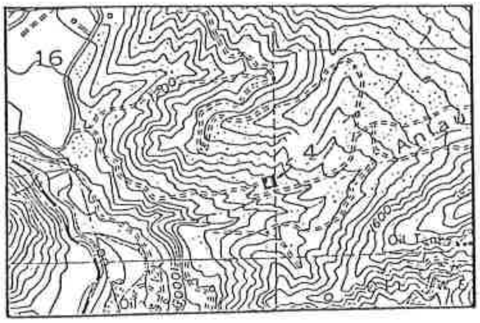


1" = 100'

DRILL SITE #3
Cut and Fill Diagrams
X-Section of Drilling Pad

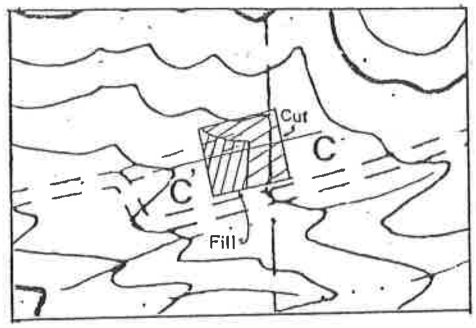
Figure 9.
Preliminary Grading Plan - Site No. 3

SITE LOCATION



1" = 2000'

PRELIMINARY GRADING PLAT



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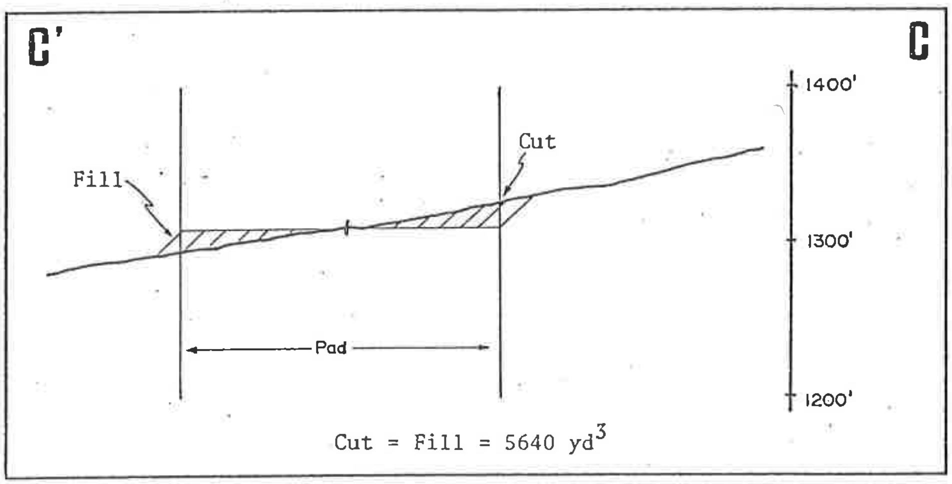
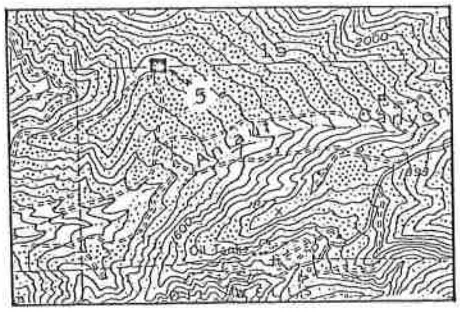


1" = 100'

DRILL SITE #4
Cut and Fill Diagrams
X-Section of Drilling Pad

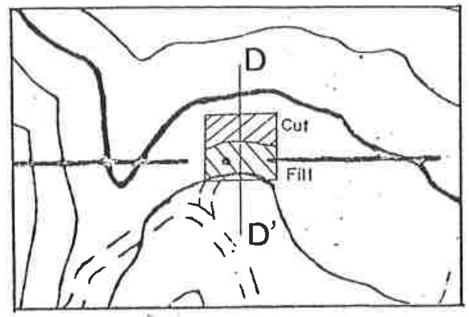
Figure 10.
Preliminary Grading Plan - Site No. 4

SITE LOCATION



1" = 2000'

PRELIMINARY GRADING PLAT



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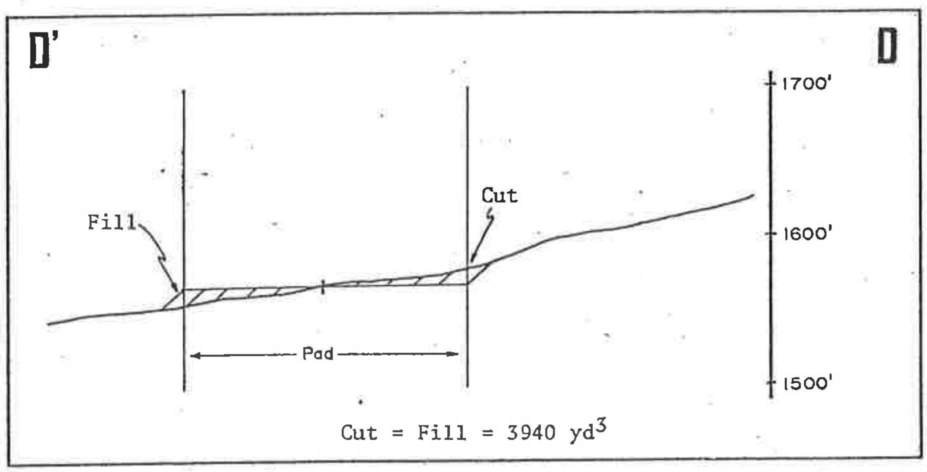
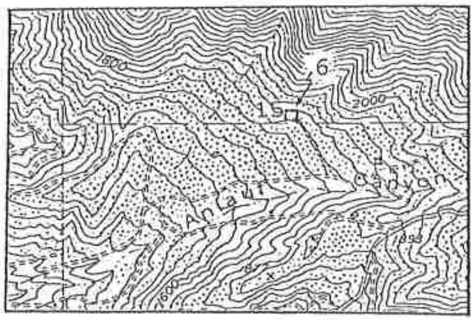


1" = 100'

DRILL SITE #5
Cut and Fill Diagrams
X-Section of Drilling Pad

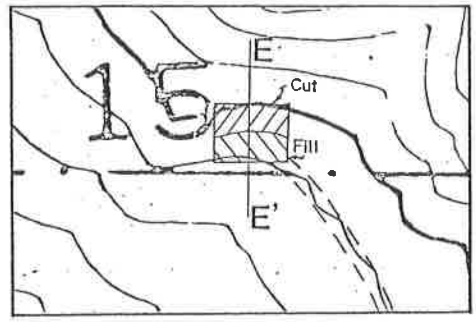
Figure 11.
Preliminary Grading Plan - Site No. 5

SITE LOCATION

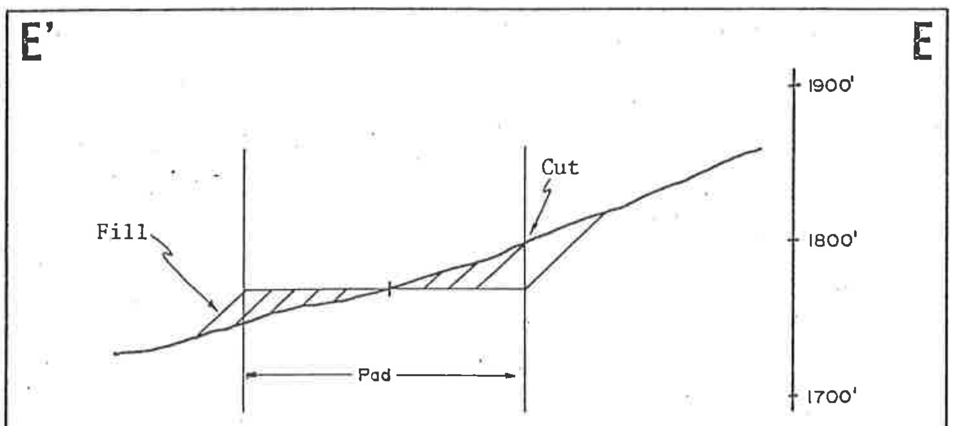


1" = 2000'

PRELIMINARY GRADING PLAT



1" = 400'



Cut = Fill = 7590 yd^3

1" = 100'

DRILL SITE # 6
Cut and Fill Diagrams
X-Section of Drilling Pad

Argo Petroleum Corporation

Figure 12.
Preliminary Grading Plan - Site No. 6

C. REDUCED DRILLING PROGRAM

From the standpoint of grading, Site Nos. 3 and 6 represent the greatest amount of grading and the largest cut/fill slope. Elimination of these two sites would reduce visual impacts, but may preclude the applicant's ability to maintain the maximum feasible production from the field.

VIII. CUMULATIVE ASSESSMENT

A. SETTING

Historically, the Upper Ojai Valley has been the scene of oil drilling and production activity on a continuous basis since the late 19th Century. Prior to 1947, there was no attempt to regulate this activity by the County of Ventura. On March 25, 1947, the first County Land Use Ordinance (No. 412) was adopted requiring a special use permit in all zones for the "development of natural resources, together with necessary buildings, apparatus or appurtenances incident thereto."

Following the establishment of County Land Use Ordinance No. 412 in 1947, several permits were granted to oil companies for drilling and extraction of oil and natural gas in the Upper Ojai Valley. A significant aspect of these first permits was that no conditions of operation were attached to them as was the case for all permits granted prior to 1961. On November 30, 1961 the Ventura County Board of Supervisors adopted Section 8163-14 of the Ventura County Ordinance Code which imposes eleven primary conditions on all existing and future oil and gas drilling and extraction permits. Commencing in 1970, the Ventura County Planning Commission began to impose additional conditions, specific to the permit being requested, in order to mitigate potential impacts.

Table 3 lists all existing oil permits in the Upper Ojai Valley. Those permits marked with an asterisk (*) have no conditions other than the eleven primary conditions imposed by the Ventura County Ordinance Code on all oil drilling permits.

B. PENDING PROJECTS

At the time the proposed project was filed with the Planning Division, there were no pending applications for oil drilling permits in the Upper Ojai Valley. However, during the preparation of this EIR, several new applications were filed by three separate oil companies for additional oil drilling in the Upper Ojai Valley. These new pending permit requests in the Upper Ojai Valley are listed in Table 4 and total 35 new drill sites and up to 203 wells. Figure 13 is a map that identifies the location of the proposed new oil drilling activities in the Upper Ojai area.

C. CUMULATIVE IMPACTS

Because of the number of new oil drilling requests in the Upper Ojai Valley, the County Environmental Assessment Committee determined that a master cumulative impact analysis of all pending oil drilling/production activity will be prepared. This master study is currently underway and is expected to be completed in approximately six months. The following is a preliminary identification of those impacts which may be associated with the cumulative effects of all potential new oil drilling/production activities in the Upper Ojai Valley:

1. Air Quality

The existing air quality and meteorological conditions of the Upper Ojai and Ojai Valleys are discussed in the Air Quality Assessment Section. Cumulative impacts on air quality are unlikely during the drilling phase of the pending projects due to the short time interval involved in drilling (14-30 days) and the limited number of drilling rigs that can operate in the area at one time. (Records submitted by the oil companies indicate that no more than four drilling rigs have ever operated in the Upper Ojai Valley at any one time.) Therefore, the maximum potential impact on air quality from the cumulative effects of the proposed new oil development in the Upper Ojai Valley is expected to occur during the production phase. The production, transport and storage of crude oil will mean that increases can be expected in fugitive hydrocarbon emissions. These emissions will be dependent on the amount of oil discovered during the drilling phase, the means of transporting the crude oil (whether by truck or by pipeline), the number of storage facilities required for the additional production, and the efficiency of various vapor recovery control techniques to be utilized on the well heads and storage tanks.

Table 3

EXISTING OIL PERMITS IN THE
UPPER OJAI VALLEY AND FERNDALE RANCH

Permit No.	Permittee	Location	Production Wells
CUP-15	ARCO and Chanslor-Western	7680 acres on southern half of Upper Ojai	68 (5 more planned[a])
CUP-325*	Sun Oil	Silverthread Field	32 (approx.)
CUP-764*	Dr. Harold Alexander	Silverthread Field	3
CUP-224*	Silver Exploration Co.	East of Koenigstein Rd.	7 (approx.)
CUP-293*	Ojai Oil Co.	Near Sisar Road	11 (approx.)
CUP-3319	ARGO Petroleum	North of Silverthread Field	3 (approx.)
CUP-3344	ARGO Petroleum	Ferndale Ranch	6
CUP-3543	Phoenix West	Northwest of Koenigstein Road	1 (5 more approved)
b	Gulf Oil	In U.S. Forest- north of Silverthread Field	1 (1 more proposed)
		TOTAL	132 (approx.) plus 11 more under existing permits

* No conditions on permit except those imposed by Ventura County Ordinance Code Section 8163-14.

[a] Five more wells are planned under existing permit; therefore, these are not included in pending projects.

[b] No permit request filed by Gulf because site was located on Forest Service lands. Pending litigation.

Table 4

PENDING OIL PERMITS IN THE
UPPER OJAI VALLEY AND FERNDALE RANCH

Permit No.	Applicant	Location	New Sites	Potential Wells
CUP-3700	Phoenix West	South side of	1	1
CUP-3680	Union Oil	Sulphur Mtn.	1	10
CUP-3681	Union Oil	Sulphur Mtn.	1	10
CUP-3685	Phoenix West	Koenigstein Rd.	1	1
CUP-3543 Mod.	Phoenix West	Koenigstein Rd.	3	18
CUP-3688	ARGO Petroleum	North of Highway 150	10	60
CUP-3745	ARGO Petroleum	North of Highway 150	11	66
CUP-37 Mod.	Phoenix West	Black Mountain	5	30
CUP-3653 (M-74)	Phoenix West	Sulphur Mountain	1	1
		TOTAL	35	203

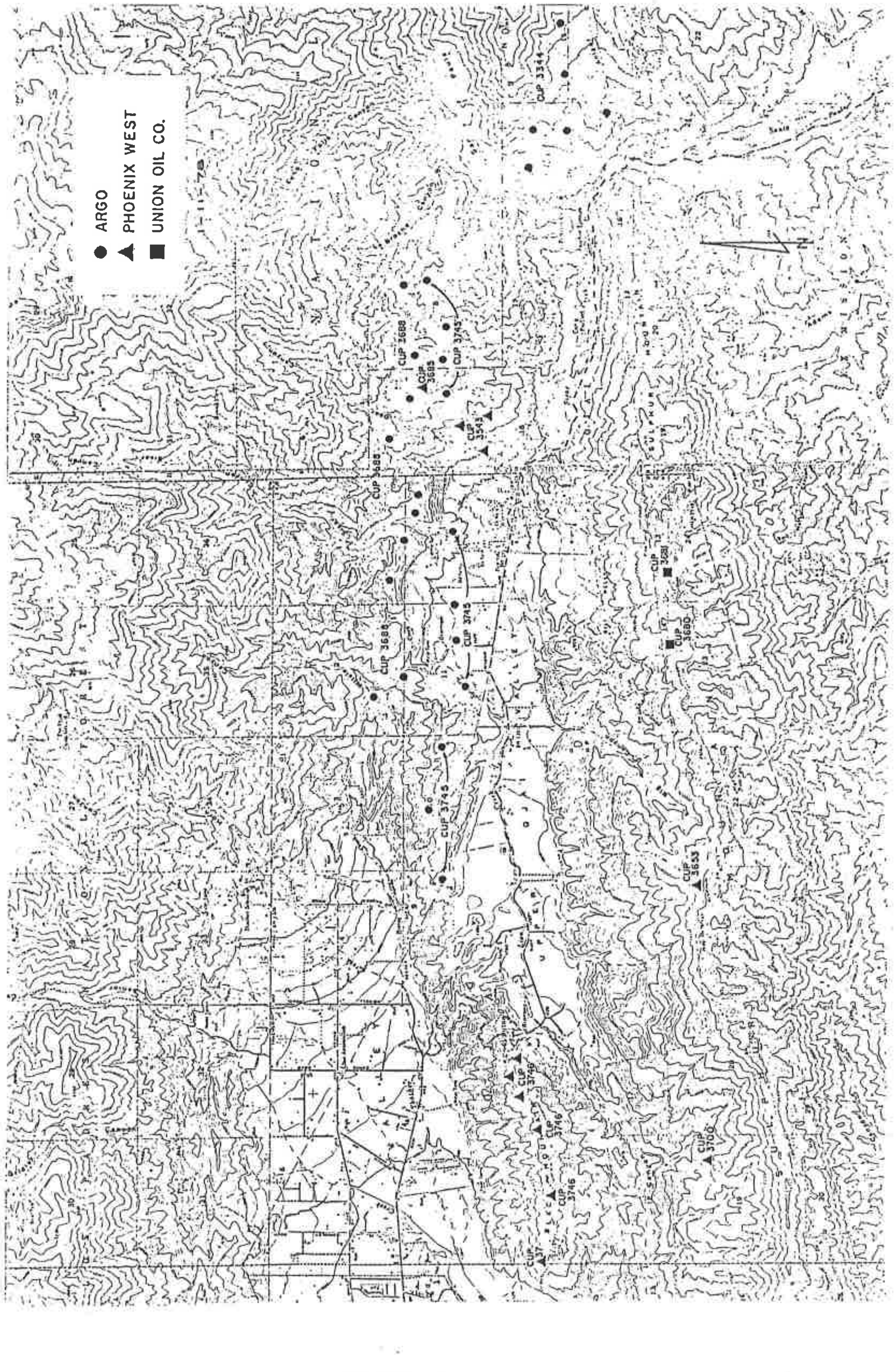


FIGURE 13

PENDING PROJECTS
UPPER OJAI VALLEY

2. Traffic

The existing oil drilling/production activities in the Upper Ojai Valley utilize the rural road system of the area for vehicular access to the sites. Access roads in the Upper Ojai Valley that are utilized by both oil field traffic and residential traffic include Sulphur Mountain Road, Sisar Road, and Koenigstein Road. These roads intersect State Highway 150 which connects the area with the City of Ojai to the west and the City of Santa Paula to the southeast. Most of the oil related traffic travels east and southeast to the City of Santa Paula along Santa Paula Creek. Existing traffic volumes on Highway 150 are well within its design capacity. However, the road is winding in several places and complaints have been received from area residents regarding safety on this road in relation to truck traffic. Traffic generated by the pending new oil development projects during the drilling and production phases may aggravate the traffic conditions on the access roads in the project area as well as on State Highway 150.

3. Hydrology

Groundwater beneath the Upper Ojai Valley is utilized for water well production. Exposure of the shallow fresh water sands to drilling fluids is anticipated during some of the drilling of the pending projects; however, exposure time is short and the base of the drilling fluid itself is fresh water. In addition, the drilling fluid has the quality of sealing off the hole and preventing loss of excessive amounts of drilling fluid. The drilling procedure is to quickly drill to 500-800 feet, which usually requires less than 24 hours, and then to set the first string of casing, called "surface casing." The surface casing is required by the State Division of Oil and Gas (DOG) to be cemented in order to protect the fresh groundwaters and to provide an adequate base for operation of "blow out prevention" equipment. In the majority of cases, surface casing extends to all of the fresh water sands and thus provides sufficient protection. There is the possibility that fresh water sands may be exposed by drilling below the surface casing, particularly in areas which have not seen prior drilling. These sands would be protected during the drilling phase by the sealants in the drilling fluid.

4. Noise

As stated previously, because of the short time interval involved in the actual drilling of a well and the constraints on the number of drilling rigs that may operate within the project area, the cumulative noise impacts, as a result of the pending projects, is expected to be minimal. However, the noise impacts can be accentuated if drilling activity is concentrated in one area with several rigs operating simultaneously in the same general area.

5. Land Use

The existing population of the Upper Ojai Valley is approximately 320 persons. The residential areas are primarily located in the Summit area, near the intersection of Sisar Road and State Highway 150. A second residential area is located near the intersection of Sulphur Mountain Road and State Highway 150. Generally, residential development has been concentrated on the valley floor and has been restricted by the lack of necessary public facilities to support urban levels of development. The proximity of the residential development to the existing oil activities has resulted in numerous complaints from Valley residents. By expanding the oil drilling/production activities westward, the pending projects are likely to increase the interface between Valley residents and oil activities and, therefore, result in an increase in land use conflicts. This may also result in an adverse cumulative impact on the visual and aesthetic environment of the Upper Ojai Valley. However, the pending application of ARGO Petroleum for a modification of Conditional Use Permit No. CUP-3344 for additional drilling on the Ferndale Ranch will not contribute to this problem since it is remote from existing residential development.

IX. APPENDICES

A. Initial Study

B. Typical Drilling Rig Equipment Inventory

C. Draft EIR Distribution List

D. Comments Received and Responses

APPENDIX A.

INITIAL STUDY CHECKLIST

I. BACKGROUND

1. Name of Applicant ARGO Petroleum Corporation

2. Project Description Modification of Conditional Use Permit No. CUP-3344 to allow oil drilling from additional drill sites

3. Project Location Ferndale Ranch

II. ENVIRONMENTAL IMPACTS

Planning Division Input	Yes	Maybe	No
1. Land Use. Will the proposal result in a substantial alteration of the present or planned land use of an area?	X		
2. Population. Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?			X
3. Housing. Will the proposal affect existing housing, or create a demand for additional housing?			X
4. Aesthetics. Will the proposal result in the obstruction of a scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?		X	
5. Recreation. Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities?		X	
6. Natural Resources. Will the proposal result in:			
a. Increase in the rate of use of any natural resources?		X	
b. Substantial depletion of any non-renewable natural resources (e.g., loss of prime agricultural land)?		X	
7. Public Services. Will the proposal and/or the cumulative demands of other pending projects have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
a. Sanitation			X
b. Water (not under County Jurisdiction)?	X		
c. Fire Protection?		X	
d. Police Protection?			X
e. Schools?			X
f. Parks or other recreational facilities?		X	
g. Other governmental services ?			X

APCD Input		Yes	Maybe	No
8.	Air. Will the proposal result in:			
a.	Substantial air emissions or deterioration of ambient air quality?		X	
b.	The creation of objectionable odors?		X	
c.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?			X
d.	Is there a potential for cumulative adverse impacts on air quality in the project area?	X		
Public Works Agency Input				
9.	Earth. Will the proposal result in:			
a.	Unstable earth conditions or in changes in geologic substructures?		X	
b.	Disruptions, displacements, compaction or overcovering of the soil?	X		
c.	Change in topography or ground surface relief features?	X		
d.	The destruction, covering or modification of any unique geologic or physical features?			X
e.	Any increase in wind or water erosion of soils, either on or off the site?		X	
f.	Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?		X	
g.	Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, liquefaction, tsunami or similar hazards?		X	
10.	Transportation/Circulation. Will the proposal result in:			
a.	Generation of substantial additional vehicular movement?		X	
b.	Effects on existing parking facilities, or demand for new parking?			X
c.	Substantial impact upon existing transportation systems?		X	
d.	Alterations to present patterns of circulation or movement of people and/or goods?			X
e.	Alterations to waterborne, rail or air traffic?			X
f.	Increase in traffic problems to motor vehicles, bicyclists or pedestrians?		X	

		Yes	Maybe	No
g.	Would the project area system of roads be unable to accommodate the traffic to be generated by the project and all other pending projects in the area?		X	

11. Utilities. Will the proposal and/or the cumulative demands of other pending projects impact or result in a need for new public service systems, or substantial alterations to the following utilities?

		Yes	Maybe	No
a.	Electricity or natural gas?			X
b.	Communication systems?			X
c.	Street lighting annexation and improvements?			X

12. Energy. Will the proposal result in:

		Yes	Maybe	No
a.	Use of substantial amounts of fuel or energy?		X	
b.	Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?			X

Flood Control and Water Resources Department Input

13. Hydrology. Will the proposed result in:

		Yes	Maybe	No
a.	Effects upon a Flood Control District's jurisdiction channel?		X	
b.	Effects upon a secondary drain?		X	
c.	Changes in drainage patterns or the rate and amount of surface water runoff?		X	
d.	Alterations to the course or flow of flood waters?		X	
e.	Exposure of people to water related hazards such as flooding or tsunami?			X
f.	Degradation of groundwater quality?		X	
g.	Degradation of surface water quality?		X	
h.	Reduction in groundwater quantity?			X
i.	Increase in groundwater quantity?			X
j.	High groundwater table?			X
k.	Sewage disposal limitations?			X

14. Plant Life. Will the proposal result in:

		Yes	Maybe	No
a.	Affect any unique, rare or endangered plant species?			X
b.	Change the diversity of plant species?			X

		Yes	Maybe	No
c.	Threaten to eliminate or otherwise reduce either native, ornamental or agricultural plant populations?			X
d.	Introduce new plant species into an area which will represent a fire hazard to project residents?			X
15.	Animal Life. Will the proposal result in:			
a.	Restrict the range of or otherwise affect any rare or endangered animal species?		X	
b.	Restrict the range of or otherwise affect any unique animal species?			X
c.	Change the diversity of animal species?			X
d.	Reduce wildlife populations?			X
e.	Introduce new wildlife species in an area?			X
f.	Affect existing wildlife food webs, habitat or migration patterns?		X	
g.	Deteriorate or cause an existing fish or wildlife population to drop below self-sustaining levels?			X
16.	Archaeological/Historical. Will the proposal:			
a.	Affect possible unknown archaeological or historical sites?		X	
b.	Result in destruction or alteration of a known archaeological or historical site within the vicinity of the project?		X	
c.	Result in destruction or alteration of a known archaeological or historical site near the vicinity of the project?		X	
17.	Water Supply (Purveyors Under County Jurisdiction): Will the proposal result in:			
a.	A project and/or cumulative demand for additional off-site water facilities?			
b.	A significant project and/or cumulative demand on existing water supply?			
	Environmental Health Input			
18.	Sanitation. If the proposal will utilize septic tank systems, can the sewage generated by the project create a significant adverse health impact on the area?			
19.	Water. Will the proposal and/or all other pending projects in the area result in substantial reduction in the amount of water otherwise available from public water supplies?		X	

	Yes	Maybe	No
20. Solid Waste. Will the proposal result in:			
a. Production of significant amounts of solid waste?			X
b. Would this waste create a significant impact on the existing solid waste disposal system?			X
21. Noise. Will the proposal result in:			
a. Significant increases in existing noise levels?		X	
b. Exposure of people to severe noise levels?		X	
22. Light and Glare. Will the proposal produce significant amounts of new light or glare?		X	
23. Risk of Upset: Does the proposal involve a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?		X	
24. Human Health. Will the proposal result in:			
a. Creation of any health hazard or potential health hazard (excluding mental health)?			X
b. Exposure of people to potential health hazards?			X
III. MANDATORY FINDINGS OF SIGNIFICANCE			
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X	
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future?)			X
3. Does the project have impacts which are individually limited, but cumulatively considerable? (Several projects may have relatively small individual impacts on two or more resources, but where the effect of the total of those impacts on the environment is significant?)		X	
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X	

IV. RECOMMENDATION:

On the basis of this initial evaluation:

/ / In conformance with Section 15060 of the State EIR Guidelines, I find with certainty that the proposal would not have a significant impact on the environment.

/ / I find the proposed project is categorically exempt pursuant to Class ________.

/ / I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION should be prepared.

/ / I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet could be applied to the project. A CONDITIONAL NEGATIVE DECLARATION SHOULD BE PREPARED.

/X/ I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

/ / I find the proposed project MAY have a significant effect on the environment, and an ADDENDUM to an existing certified Environmental Impact Report is required.

/ / I find the proposed project MAY have a significant effect on the environment, and this effect is adequately addressed in a certified Environmental Impact Report, and thus SUBSEQUENT USE of the existing EIR is required.

Date: September 7, 1976

Jon Holan
(Signature of Environmental Planner)

APPENDIX B

Typical Drilling Rig Equipment Inventory

ATLANTIC OIL COMPANY

Rig #12

DRAWWORKS:	NATIONAL 50A
POWER:	2 SETS TWIN 6-71 GMC (680 HP) THROUGH TORQUE CONVERTORS
MAST:	127' BENDER 350,000# SUBBASE 9'6" HIGH
PUMP #1:	OIL WELL 220-P (6"x20")
POWER:	FOUR 6-71 GMC (680 HP) THROUGH TORQUE CONVERTORS
PUMP #2:	EMSCO D-300 (6½"x14")
POWER:	TWO 6-71 GMC (340 HP) THROUGH TORQUE CONVERTORS
FUEL:	DIESEL
SAND REEL:	INCORPORATED IN DRAWWORKS 8,500' of 9/16" LINE
GENERATORS:	2-50 KW
POWER:	GMC 6-71 GMC 3-71
DRILL PIPE:	FOUR ½" 16.60# GRADE E, RANGE 2
DRILL COLLARS:	Six 3/4" O.D. 210' Five 3/4" O.D. 210'
ROTARY TABLE:	17½" NATIONAL
BLOWOUT EQUIPMENT:	10" 900 SERIES DOUBLE SHAFFER GATE, HYDRIL BAG AND 80 GALLON ACCUMULATOR WITH REMOTE CONTROLS ON RIG FLOOR
MUD STORAGE:	SHAKER TANK AND CIRCULATING SYSTEM 300 BBLS
DRILLING RANGE:	MIN. 5,500 MAX. 9,500 (BASED ON 4½" DRILL PIPE)
CREW SIZE:	5 MAN
	ALL COMPONENTS TO MAKE COMPLETE DRILLING RIG IN GOOD RUNNING ORDER

APPENDIX C

DRAFT EIR DISTRIBUTION AND NOTIFICATION LIST

A. EIR DISTRIBUTION

1. State Agencies (15 copies)

State Clearinghouse
1400 Tenth Street
Sacramento, Ca. 95814

2. Cities

Michael Paige, Planning Director
City of Ojai
401 S. Ventura Street
Ojai, Ca. 93023

Kris Duncan, Planning Director
City of Santa Paula
970 Ventura
Santa Paula, Ca. 93060

3. County Agencies

Public Works Agency
Air Pollution Control District
Environmental Health Division
Fire Department

4. Applicant

ARGO Petroleum Corporation
940 E. Santa Clara Street
Ventura, Ca. 93001

5. Organizations

Committee to Preserve the Upper Ojai
c/o Greg Churchill
12170 Santa Paula-Ojai Road
Ojai, Ca. 93023

Committee to Preserve the Ojai
P. O. Box 635
Ojai, Ca. 93023

Building Industry Assoc.
P. O. Box 5466
Oxnard, Ca. 93030

Audobon Society
c/o John Borneman
1973 S. Victoria Avenue
Ventura, Ca. 93003

League of Women Voters
c/o Rorie Skei
348 Hickory Grove Ave.
Thousand Oaks, Ca. 91360

Sierra Club
c/o Martin Rosenberg
577 San Clemente
Ventura, Ca. 93001

Environmental Coalition
c/o Laurie Chisler
P.O. Box 68
Ventura, Ca. 93001

Friends of the Ventura River
63 So. Olive Street
Ventura, Ca. 93001

B. NOTIFICATION LETTERS

Agnes Baron
9902 Sulphur Mt. Road
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Standard Oil Co.
225 Bush Street
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Star Free Press
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District Ranger, Ojai District
Los Padres National Forest
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Thomas Aquinas College
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APPENDIX D

COMMENTS RECEIVED AND RESPONSES

1. May 16, 1978 letter from Walter C. Schloer, District Ranger, Ojai Ranger District, U.S. Forest Service.

   Response: May 26, 1978 letter from Victor R. Husbands.

2. May 25, 1978 letter from Deni Greene, Director, State Clearinghouse.

   Response: June 13, 1978 letter from Victor R. Husbands.

3. May 19, 1978 memorandum from Thomas E. Bailey, Assistant Chief, State Water Resources Control Board.

   Response: June 14, 1978 letter from Victor R. Husbands.

4. May 19, 1978 memorandum from Dr. Knox Mellon, State Historic Preservation Officer, Office of Historic Preservation.

   Response: June 14, 1978 letter from Victor R. Husbands.

5. May 19, 1978 memorandum from Harmon Wong-Woo, Chief, Stationary Source Control Division, Air Resources Board.

   Response: June 16, 1978 letter from Victor R. Husbands.

6. May 18, 1978 memorandum from Donald L. Jackson, Environmental Protection Officer, Department of Conservation, The Resources Agency of California.

   Response: June 6, 1978 letter from Victor R. Husbands.

7. June 1, 1978 letter from Dick Bensen, Geologist, ARGO Petroleum Corporation.

   Response: June 6, 1978 letter from Victor R. Husbands.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Ojai Ranger District
1190 E. Ojai Avenue
Ojai, California 93023

1560

May 16, 1978

Mr. Robert K. Laughlin
Supervisor, Project Evaluation Section
Environmental Resource Agency
625 East Santa Clara Street
Ventura, California 93001

Dear Mr. Laughlin:

Review of the draft environmental impact report for modification of CUP-3344 by the Forest Service indicated that an adequate job has been done in evaluating the adverse impacts associated with the proposed development, particularly those that would affect the interests of this agency.

A permissive option you have chosen not to include in this EIR is any mention of the economic and social impacts. For example, somewhere in the range of \$300,000 to \$500,000 per well in expense on the part of the proponent results in a similar income to various contractors. It would appear that this effect on economic growth in the county, particularly when one considers the ripple effect in the local market place, would be worth mentioning. The purpose in so doing would be to fully inform the general public and public decision makers of the trade-offs needed to avoid the adverse impacts.

Thank you for the opportunity to comment on the draft EIR.

Sincerely,

Walt Schloer

WALTER C. SCHLOER, JR.
District Ranger

6200-11 (1/69)

ENVIRONMENTAL RESOURCE AGENCY
county of ventura

Building & Planning Services
Victor R. Husbands
Director

May 26, 1978

Walter C. Schloer, Jr. District Ranger
United States Department of Agriculture
Forest Service, Ojai Ranger District
1190 East Ojai Avenue
Ojai, CA 93023

Dear Mr. Schloer:

Subject: Draft Environmental Impact Report for Modification of Conditional Use Permit No. CUP-3344 (ARGO Petroleum Corporation)

Thank you for your May 16, 1978 letter to Robert Laughlin commenting on the subject draft EIR. Your letter suggests that there is a need for the draft EIR to include a discussion of socioeconomic impacts of the project. However, it has been the policy of this Agency not to require that an EIR address the socioeconomic impacts of a project, since it is not mandated by the California Environmental Quality Act (CEQA) and would, therefore, be an additional expense on the part of a project applicant. There are currently several bills in the State Legislature which would amend CEQA to require that EIRs for private projects address socioeconomic impacts. Until such time as this information becomes mandated, it will be considered as an optional requirement and only be included in an EIR at the specific request of a project applicant.

Thank you for commenting on the subject draft EIR. A copy of your letter, as well as this Agency's response, will be attached to the final EIR for consideration by the appropriate decision-making body. If you have any questions, please contact Mel Willis at 654-2489.

Sincerely,

ENVIRONMENTAL RESOURCE AGENCY

Victor R Husbands

Victor R. Husbands, Director
Building and Planning Services

VRH:lp/740

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State of California
GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814
(916) 445-0613

EDMUND G. BROWN JR.
GOVERNOR

May 25, 1978

Robert K. Laughlin
Environmental Resource Agency
800 South Victoria
Ventura, California 93009

SUBJECT: SCH# 78042424 - MODIFICATION OF CONDITIONAL USE PERMIT NO. CUP-3344

Dear Mr. Laughlin:

This is to certify that State review of your environmental document is complete.

The results of the State review are attached. You should respond to the comments as required by the California Environmental Quality Act. You should address your responses to the commenting agency with a copy to the Clearinghouse.

Sincerely,

Laurie K. Wright
for
Deni Greene
Director
State Clearinghouse

DG/ddt
Attachment
cc: Ken Fellows, DWR
Mary Schell, Library
Thomas E. Bailey, SWRCB
Dr. Know Mellon, DPR
James P. Tryner, DPR
Donald L. Jackson, Conservation
Harmon Wong-Woo, ARB

June 13, 1978

Deni Greene, Director
State Clearinghouse
Governor's Office of Planning and Research
State of California
1400 Tenth Street
Sacramento, CA 95814

Dear Ms. Greene:

Subject: Draft EIR for Modification of Conditional Use Permit No. CUP-3344 ARGO Petroleum (SCH No. 78042424)

This Agency has received the State agencies' comments on the subject draft EIR transmitted by your May 25, 1978 letter, and will be responding to these separately. I wish to make you aware of certain problems that this Agency has encountered with the State Clearinghouse during the review of the subject draft EIR in hopes that a recurrence can be prevented.

As you are aware, Section 15160(c) of the State EIR Guidelines states that the public review period for draft EIRs shall be no less than 30 days, unless the document is to be submitted to the State Clearinghouse for review; then the public review period shall be at least 45 days, unless a shorter period is approved by the State Clearinghouse. In order to comply with this requirement, this Agency set the public review period for the subject draft EIR from April 10, 1978, to May 25, 1978. On April 6, 1978, this Agency transmitted by United Parcel, a Notice of Completion and the required 20 copies of the subject draft EIR, so that your office's 45 day review period would coincide with our 45 day review period. However, your office did not acknowledge receipt of the draft EIR nor did it set the State Clearinghouse's public review period to begin until April 17, 1978 (eleven days after mailing). Upon receipt of your letter of acknowledgement, this Agency contacted your office and inquired as to why the State Clearinghouse did not acknowledge receipt of the subject draft EIR until April 17, when it was delivered on April 10. The only explanation that was given by your office was that the person who normally logs in draft EIRs from local agencies was sick that week and the document may have sat around without being logged in. After this Agency explained that the tentative public hearing schedule for the project had been affected by this error, your office stated that it would expedite State agency review of the draft EIR and send the comments to us by May 20th. However, they were not mailed until May 25th (38 days after the State Clearinghouse acknowledged receipt and 49 days after mailing of the document) and were, therefore, not received by this Agency until May 30th (five days after close of our public review period). Since this Agency must still respond to these comments, it will cause a postponement in the scheduled public hearing.

Under normal circumstances, a 30 day public review period for draft EIRs is sufficient; however, in the event that State Clearinghouse review is necessary, a 45 day review period is required. Since comments from the State agencies are generally not mailed to local agencies until the last day of the 45 day review period, mailing time for document transmittal to the State Clearinghouse and receipt of comments, in effect, causes the review period to be at least 60 days. (This does not include the time necessary to respond to comments received from the State after the close of the public review period).

Considering that Assembly Bill 884 now requires that a project be acted upon no more than one year after a complete application is submitted, it is encumbent upon all public agencies, including the State Clearinghouse, to tighten up on their procedures. I trust that the comments submitted in this letter will assist your office in reviewing its procedures.

If you have any questions, please contact Mel Willis at (805)654-2489.

Sincerely,

ENVIRONMENTAL RESOURCE AGENCY

Victor R. Husbands, Director
Building and Planning Services

VRH:ss

cc: M.L. Koester, Director, ERA

State of California THE RESOURCES AGENCY

Memorandum

To : 1. Mr. L. Frank Goodson
Projects Coordinator
Resources Agency, 13th Floor
Resources Building

2. Ventura County Environmental Resource Agency
800 South Victoria
Ventura, CA 93009

Date: MAY 19 1978

In Reply Refer To: 420:DD

(916) 322-4517

From: STATE WATER RESOURCES CONTROL BOARD
Division of Planning and Research
P. O. Box 100, Sacramento, California 95801

Subject: REVIEW OF NOTICE OF INTENT: SCH 78042424
DRAFT ENVIRONMENTAL IMPACT REPORT, MODIFICATION OF CONDITIONAL USE PERMIT NO. CUP-3344, VENTURA COUNTY

Introduction:

We have coordinated the review of the subject environmental document with the Hydrogeologic/Geotechnical Section of the State Board and the California Regional Water Quality Control Board, Los Angeles Region.

Recommendation:

The final environmental impact report should address the following comments.

General Comments:

1. The final EIR should indicate how the project proponent will comply with the Los Angeles Regional Water Quality Control Board's Resolution No. 56-45, specifying procedures for legal disposal of drilling wastes (see attachment).

2. The water supply discussion (pages 15-16) should identify whether water diverted from springs on the Ferndale Ranch would be obtained under a riparian or appropriative water right. The Division of Water Rights (916-920-6301) should be consulted regarding the need to obtain a water rights permit to implement the project.

Specific Comments:

Page 33 - Hydrology

Sealants in the drilling mud will not necessarily protect fresh water sands from being impacted. All fresh water sands exposed by drilling below the initial surface casing should be cased off to provide protection.

If you have any questions on these comments, please contact David Deckman at (916) 322-4517.

L R Dunham

for Thomas E. Bailey
Assistant Chief

Attachment

cc: State Water Resources Control Board
Division of Water Rights
77 Cadillac Drive
Sacramento, CA 95825

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
Los Angeles Region
107 South Broadway- Suite 4027
Los Angeles, California 90012

RESOLUTION NO. 56-45

ADOPTING AN OPERATING PROCEDURE FOR SIMPLIFYING FILING OF REPORTS ON DISPOSAL OF ROTARY MUD RESULTING FROM OIL WELL DRILLING OPERATIONS

WHEREAS, based upon the Attorney General's Opinion No. 50/139, dated October 25, 1950, rotary mud, when it is no longer used as a drilling fluid for oil wells, becomes an industrial waste within the statutory definition; and

WHEREAS, when such wastes are dumped or allowed to drain into waters of the State, the Regional Water Pollution Control Boards may act to control pollution or nuisance; and

WHEREAS, investigations conducted by the staff of this Board indicate, in general, that in those instances where uncontaminated and unpolluted rotary mud, resulting from the drilling of one well, is disposed of at the well site in such a manner that it is not dumped or allowed to drain into waters of the State, there is no threat of pollution or nuisance; however, structural failures or washout by storm water flow have been responsible for the discharge of rotary mud into natural water-courses, drainage channels, public highways, or private properties from a central disposal site used for the disposal of rotary mud from more than one well; and

WHEREAS, uncontaminated and unpolluted rotary mud shall mean clay base drilling mud mixed with fresh water and containing weight materials and conditioning chemicals ordinarily used by the oil industry in oil well drilling operation; oils contained in the mud shall only be in amounts utilized as additives, and when the chemical constituents of the leachate from the drilling mud does not exceed the following limits: Total Dissolved Solids - 2,000 ppm; Chloride - 250 ppm; Boron - 1.5 ppm; and percent sodium 60%; and

WHEREAS, it is the objective of this Board to simplify reporting of uncontaminated and unpolluted rotary mud discharges for the oil operators by the adoption of uniform operating procedures in the Los Angeles Region; and

WHEREAS, the problem of disposal of rotary muds, resulting from oil well drilling operations, and operating procedures for simplifying filing of reports on the disposal of rotary drilling muds have been discussed with representatives of local agencies, the Industrial Waste Committee of the Western Gas and Oil Association; and with other persons interested in this disposal problem.

Requirements
Operating Procedure for Simplifying Filing
of Reports-Rotary Mud

NOW, THEREFORE, BE IT RESOLVED, that the following operating procedure for filing reports on disposal of uncontaminated and unpolluted rotary mud, resulting from oil well drilling operations, be adopted by the Los Angeles Regional Water Pollution Control Board No. 4 for use in administering Section 13054 of the Water Code:

1. When a person proposes to dispose at the well site, uncontaminated and unpolluted rotary mud resulting from the drilling of one oil well in such a manner that it will not be dumped or allowed to drain into any waters of the State, a Report of Proposed Waste Discharge will not be required to be filed with this Board.

2. When a person proposes to dispose of uncontaminated and unpolluted rotary mud in any other manner except as specified in paragraph 1 above, a Report on Proposed Waste Discharge shall be filed with this Board in accordance with the provisions of Section 13054 of the Water Code of the State of California; and

BE IT FURTHER RESOLVED, that the disposal of all other oil field wastes, including all other rotary drilling muds which do not comply with the characteristics hereinbefore specified for uncontaminated and unpolluted rotary mud, shall be reported to this Board in accordance with the provisions of Section 13054 of the Water Code, and in accordance with the attached standard procedures adopted by the Division of Oil and Gas and the Water Pollution Control Boards for reporting proposed oil field waste discharges; and

BE IT FURTHER RESOLVED, that Resolution No. 52-1 (Adopting An Operating Procedure for Simplifying Filing of Reports on Disposal of Rotary Mud Resulting from Oil Well Drilling Operations) adopted by this Board on July 24, 1952, is hereby rescinded and superseded by this Resolution; and

BE IT FURTHER RESOLVED, that the Executive Officer of this Board is hereby authorized and directed to transmit copies of this Resolution to the oil operators, all State and local agencies concerned, and to all other interested persons.

I, Linne C. Larson, Executive Officer of the Los Angeles Regional Water Pollution Control Board No. 4, State of California, do hereby certify that the foregoing is a full, true, and correct copy of a resolution adopted by the Los Angeles Regional Water Pollution Contr Board at the Board meeting held on December 20 1956.

Linne C. Larson
LINNE C. LARSON, Executive Officer

11-23-56
LCL/mh

ENVIRONMENTAL RESOURCE AGENCY

county of ventura

Building & Planning Service

Victor R. Husbanc
Directc

June 14, 1978

Thomas E. Bailey, Assistant Chief
State Water Resources Control Board
Division of Planning and Research
P.O. Box 100
Sacramento, CA 95801

Dear Mr. Bailey:

Subject: Draft Environmental Impact Report for Modification of Conditional Use Permit No. CUP-3344, Argo Petroleum (SCH No. 78042424)

Your May 19, 1978 memorandum requested to know how the project proponent will comply with the Los Angeles Regional Water Quality Control Board's Resolution No. 56-45, specifying procedures for legal disposal of drilling wastes. If the project is approved, this will be accomplished by the following condition which will be applied to the permit:

> That all liquid drilling discharge wastes will be accumulated in steel tanks on the subject permit area and hauled away from the subject property for disposal at any approved disposal site, and such steel tanks shall be removed within thirty days after completion or abandonment of the subject wells. However, solid drilling waste materials may be temporarily deposited in an earthen depression with the final disposition of said solid waste materials to be accomplished in compliance with the rules and regulations of the California Regional Water Quality Control Board.

Regarding your question on how water diverted from springs on the Ferndale Ranch will be obtained, the applicant states that this will be accomplished through riparian water rights.

The final EIR has been changed to reflect your comments on the ability of sealants in the drilling mud to project fresh water sands.

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Thank you for submitting comments on the subject draft EIR. A copy of your comments, as well as this Agency's response, will be attached to the final EIR. If you have any questions, please contact Mel Willis at (805) 654-2489.

Sincerely,

ENVIRONMENTAL RESOURCE AGENCY

Victor R. Husbands, Director
Building and Planning Services

VRH:r9u

CC: State Clearinghouse

State of California

The Resources Agency of Californi

Memorandum

Date : MAY 19 1978

To : (1) Mr. L. Frank Goodson
Projects Coordinator
Resources Agency

(2) Mr. M. L. Koester, Director
Ventura County Environmental
Resource Agency
Ventura, CA 93001

From : Department of Parks and Recreation

Subject: DEIR - SCH 78042424, Modification of Conditional Use Permit No. CUP-3344, Argo Petroleum Corporation, Ferndale Ranch, Ventura County

The Office of Historic Preservation has reviewed the Draft EIR submitted for the proposed undertaking referenced above.

We recommend, in compliance with the California Environmental Quality Act, that a cultural resource survey of the project's area of potential environmental impact be conducted at this early planning stage. With the necessary cultural resource locational information, the project can be designed to preserve CA-Ven-404 and any additional identified cultural resources; thus, avoiding potentially expensive last minute delays or project changes due to the discovery of previously unidentified sites.

Local Native Americans should be contacted to obtain their comments about the concerns and values they have regarding potential impacts to CA-Ven-404 and any cultural resources located within the project area.

We look forward to receiving a copy of the Cultural Resource Identification and Assessment Report, compiled by qualified professionals of appropriate disciplines.

If we can be of assistance in this matter, please feel free to contact Nicholas Del Cioppo at (916) 322-8703.

William E Padgett for

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation

James P. Tryner

James P. Tryner, Chief
Resource Preservation and
Interpretation Division

I-7493A

0 2051

ENVIRONMENTAL RESOURCE AGENCY

county of ventura

Building & Planning Services

Victor R. Husbands
Director

June 14, 1978

Dr. Knox Mellon
State Historic Preservation Officer
Office of Historic Preservation
The Resources Agency of California
1400 Tenth Street
Sacramento, CA 95812

Dear Dr. Mellon:

Subject: Draft Environmental Impact Report for Modification of Conditional Use Permit No. CUP-3344, Argo Petroleum (SCH No. 78042424)

This is in response to your May 19, 1978 memorandum on the subject project transmitted to this Agency by the State Clearinghouse.

Your memorandum recommends that a cultural resource survey of the project area be conducted at this stage of the planning process. However, as stated on page 22 of the subject draft EIR, field excavation sampling of the project area has already been conducted in 1976 by Dr. C.W. Clewlow, Chief Archaeologist, UCLA Institute of Archaeology, as part of the archaeological study for the proposed Thomas Aquinas College. Furthermore, the proposed drilling sites are outside of the archaeologically significant area and the only aspect of the project that may be in the boundaries of VEN-404 is the route of the proposed oil shipping line. The applicant, however, is proposing to build the shipping line above ground which will considerably reduce the possibility of impacting subsurface archaeological resources. Nevertheless, should the proposed project be approved, all aspects of the project will be conditioned to require a survey by a qualified archaeologist prior to any ground modification activities.

It was suggested by your memorandum that local Native Americans be contacted to obtain their comments about their concerns and values. This has already been accomplished, though, as part of the archaeological investigation of the Thomas Aquinas College site which is within the project area.

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Dr. Knox Mellon
Conditional Use Permit No. CUP-3344
Page 2

Thank you for submitting comments on the subject draft EIR. A copy of your comments, as well as this Agency's response, will be attached to the final EIR. If you have any questions, please contact Mel Willis at (805) 654-2489.

Sincerely,

ENVIRONMENTAL RESOURCE AGENCY

Victor R. Husbands, Director
Building and Planning Services

VRH:r9t

cc: State Clearinghouse

State of California

Memorandum

To : Frank Goodson
Projects Coordinator
Resources Agency

Date : May 19, 1978

Subject : DEIR on the Modification of Conditional Use Permit SCH #78042424

From : Air Resources Board
Harmon Wong-Woo, Chief
Stationary Source Control Division

INTRODUCTION

ARGO Petroleum Corporation proposes to expand its drilling and production activities from 6 wells to 36 wells. The 30 new wells located on the Ferndale Ranch, Ventura County, have proved to be productive of oil and gas.

Currently the six existing wells produce 200 to 250 barrels per day (BPD) of oil which requires two trucks to transfer offsite. By the time the production rate approaches 300 to 350 BPD, ARGO would build a pipeline connected to the existing ARGO pipeline to transport crude oil to refineries in the Bakersfield and Los Angeles areas.

COMMENTS

(1) The DEIR should estimate air emissions not only from the drilling phase, but also from the production phase, since the wells to be drilled are development wells rather than exploratory wells. Four sources of air emissions should be considered in the production phase, i.e., well production piping network, field processing including oil and gas processing, storage, and transportation. Fugitive hydrocarbon emissions from well heads, valves, compressor seals, pump seals, storage tanks, and oil water separators in oil production field can be significant. For example, based on a peak production rate of 1200 BPD, the total hydrocarbon emissions from compressor seals, relief valves, waste water separators, pipeline valves and pump seals were estimated to be 128 pounds per day (5.3 lb/hr) which is greater than the new source review cutoff of 5 lbs/hr. As a result, the DEIR should discuss how the project could comply with the District's new source review rule. If heater-treaters were used to separate water from oil, emissions from the combustion of fuel oil or fuel gas should be included. In addition, air emissions generated by pumps to transport oil to markets should also be estimated.

(2) Table 2, air emissions from total RSA-2 and drilling phase expressed as tons/yr should be tons/day. We recommend that air emissions be expressed in terms of lbs/hr as well.

ENVIRONMENTAL RESOURCE AGENCY

county of ventura

Building & Planning Services

Victor R. Husbands
Director

June 16, 1978

Harmon Wong-Woo, Chief
Stationary Source Control Division
Air Resources Board
P.O. Box 2815
Sacramento, CA 95814

Dear Mr. Wong-Woo:

Subject: Draft Environmental Impact Report for Modification of Conditional Use Permit No. CUP-3344, ARGO Petroleum (SCH No. 78042424)

This is in response to your May 19, 1978, memorandum on the subject project which was transmitted to this Agency by the State Clearinghouse.

Emissions from the production phase of the proposed project have been estimated by the Air Pollution Control District and are summarized in the attached table. The total project is expected to decrease the emissions of reactive hydrocarbons (RHC) by 14.2 pounds per hour and increase emissions of oxides of nitrogen (NO_x) by 12.4 pounds per hour.

Although maximum development, based on known geology, is anticipated to be 16 additional wells, the production phase emission estimates are based on the assumption of 30 additional wells, as requested in the permit application. The pumping units at the wellheads are currently planned to be powered by natural gas fired engines if fuel is available. Electric pump units may also be used. Utilization of electrically driven pumping units, exclusively, would effectively mitigate the emission impacts indicated in the table.

The increased production resulting from the proposed project will be processed utilizing existing tanks. Because a vapor recovery system will be installed, total storage emissions will be reduced by the project.

If the project is approved, tanker truck transfer of crude oil will be replaced by the construction of a pipeline segment to an existing ARCO pipeline. As a result, transfer emissions will also be greatly reduced.

Potential use of the secondary recovery technique of gas reinjection has been suggested by the applicant. It is assumed in the emission estimates that a natural gas fired compressor would be installed with attendant emission increases.

Emissions from flow lines, gas traps, heater treaters and surface vehicles are of minor importance. All crude oil and gas transmission lines will be serviced by electric pumps and compressors.

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The proposed project is currently exempt from evaluation under the Ventura County Air Pollution Control District's New Source Review (NSR) rule, as the new equipment is not subject to District permit requirements. Modifications to the District permit regulations have been proposed which would require the project to demonstrate compliance with the NSR rule. A more detailed engineering analysis will be undertaken at the time an APCD Authority to Construct is requested, if the project becomes subject to the NSR rule.

Thank you for submitting comments on the subject draft EIR. A copy of your comments, as well as this Agency's response, will be attached to the final EIR. If you have any questions, please contact Mel Willis at (805) 654-2489 or Karl Krause at (805) 654-2665.

Sincerely,

ENVIRONMENTAL RESOURCE AGENCY

Victor R. Husbands, Director
Building and Planning Services

VRH:r15x

cc: State Clearinghouse

Attachment

TABLE I

Emission Summary - Argo Ferndale Production Phase

Source	Current (lbs/hr) THC	Current (lbs/hr) RHC	Current (lbs/hr) NO_x	Project and Existing (lbs/hr)) THC	Project and Existing (lbs/hr)) RHC	Project and Existing (lbs/hr)) NO_x
Wellheads	0.5	0.3	0.0	12.0	5.3	9.3
Flowlines		Negligible			Negligible	
Gas Traps	0.03	0.02	0.0	0.2	0.1	0.0
Heater Treaters		Negligible	0.02		Negligible	0.1
Storage	5.1	2.7	0.0	1.5	0.8	0.0
Transfer						
Crude Loading	32.9	17.6	0.0	0.0	0.0	0.0
Diesel Exhaust	0.1	0.1	1.2	0.0	0.0	0.0
Service Vehicles		Constant			Constant	
Gas Reinjection	0.0	0.0	0.0	4.0	0.3	4.2
Totals	38.6	20.7	1.2	17.7	6.5	13.6

j15x

State of California

THE RESOURCES AGENCY OF CALIFORNIA

Memorandum

To : L. Frank Goodson
Projects Coordinator
The Resources Agency

Robert K. Laughlin
Ventura Co.
800 S. Victoria
Ventura, CA 93009

Date : May 18, 1978

Subject: Ventura Co. CUP on Argo Ferndale Ranch (SCH 78042424)

From : Department of Conservation—Office of the Director

Comments on the above environmental document are attached.

Donald L. Jackson
Environmental Protection Coordinator

Attachment

EIR REVIEW AND COMMENTS
OIL DEVELOPMENT ON FERNDALE RANCH
OJAI OIL FIELD, VENTURA COUNTY

May 16, 1978

The draft environmental impact report for modification of conditional use permit No. CUP-3344, Argo Petroleum Corporation, Ferndale Ranch, Ventura county, was reviewed and the following comments listed according to sections are offered for your consideration:

II-E-3, page 8, first paragraph states in part that "(No flaring of natural gas will occur, according to the applicant.) Insert after gas, "except temporarily during the testing of the well to determine productivity."

II-E-3, page 8, last paragraph states that the proposed wells will be development wells, and the footnote on this page defines an exploratory well as a well drilled in unproved territory.

Sites 2, 3, 4, 5 and 6 are located where none of the existing wells have penetrated the objective zone, therefore all or nearly all of the subject area would be considered exploratory.

II-E-4, page 8, states in part that sites would be required by DOG to be graded to its original condition and planted to restore vegetation. The Division of Oil and Gas does not require planting and there are provisions in the regulations for exceptions to grading where this requirement conflicts with local or federal requirements or upon application of the property owner with good reason.

II-F, The first sentence indicates that the applicant must file a $10,000 bond. Change to $10,000 or $15,000 or $25,000 individual bond dependent on the proposed total depth of the well or a $100,000 blanket bond.

Rearrange the second sentence to "The applicant must submit a complete record of the drilling, altering or abandonment operations performed in an oil or gas well, including all chemical, electrical and physical logs, tests or surveys made.

III-A, add increased employment and increased energy resources as beneficial impacts.

III-B-4, add to the first line the word "systems" after vapor recovery.

V-A-1, third paragraph states that the Ojai field is the most significant field within the region. It would be more accurate to say that Ojai oil field ranks sixth among the 55 active fields in Oil and Gas District two encompassing all of Ventura and portions of Los Angeles and Santa Barbara counties.

V-A-1, add the word "natural" to the last sentence before "oil seeps".

V-D-2, page 16, the last paragraph refers to (Section 1, Solid and Liquid Waste Disposal). This should be "Section V-J".

Rewrite the last sentence as follows: However, the potential exists for a temporary adverse impact on water quality in the event of a washout and subsequent breakage of the oil shipping line proposed to cross the Santa Paula Creek.

JLH:b

ENVIRONMENTAL RESOURCE AGENCY

county of ventura

Building & Planning Services

Victor R. Husbands
Director

June 6, 1978

Donald L. Jackson
Environmental Protection Coordinator
Department of Conservation
The Resources Agency of California
1416 Ninth Street, Room 1354
Sacramento, CA 95814

Dear Mr. Jackson:

Subject: Modification of Conditional Use Permit No. CUP-3344, ARGO Petroleum (SCH No. 78042424)

This is in response to your May 18, 1978, memorandum, forwarded to this Agency by the State Clearinghouse, commenting on the subject draft EIR.

You point out that the proposed new wells do not meet the definition of development wells and should be referred to as exploratory wells because they are all outside the area penetrated by the existing wells. However, a more precise definition of the proposed wells, according to the Handbook of Oil Industry Terms and Phrases, (1974), is step-out wells since they are to be located a "step-out" from the proven territory in an effort to determine the boundary of the producing formation. The Final EIR has been revised to refer to the proposed wells as of the step-out type.

All other changes suggested in your May 18, 1978, memorandum have been made in the Final EIR.

Thank you for commenting on the subject Draft EIR. A copy of your memorandum, as well as this Agency's response, will be attached to the Final EIR. If you have any questions please contact Mel Willis at (805) 654-2489.

Sincerely,

ENVIRONMENTAL RESOURCE AGENCY

Victor R. Husbands

Victor R. Husbands, Director
Building and Planning Services

VRH:rc

cc: State Clearinghouse

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