

Department of Energy
San Francisco Operations Office
1333 Broadway
Oakland, California 94612

August 2, 1985

Mr. T. C. Hinrichs
Magma Power Company
993 Oak Lane
Escondido, CA 92025

Subject: Working Meeting on East Mesa Geothermal Reservoir Research.

Dear Tom,

This letter responds to your letter of July 24 to Tony Adduci dealing with "East Mesa Reservoir Definition". It also continues the technical definition of Magma/Dow-DOE joint research at the East Mesa geothermal reservoir which we began at LBL, to which you refer in your letter.

I share your final goals: development of a conceptual geological model, a reservoir simulation model, and an optimum production/injection scheme for East Mesa. I am particularly concerned that conceptual geologic and reservoir models meet the unique chemical and pressure signatures of individual East Mesa wells, and that an effective and realistic production/injection strategy result. If researchers are able to link seismic data processing and reservoir modeling, this would be useful.

As you know, the research areas of mutual interest involve both DOE's Brine Injection Program for which ID/Susan Prestwich is Program Manager, and my Reservoir Technology (formerly Definition) Program, both of which report to Marshall Reed as DOE Headquarters Program Manager. Therefore, Susan and I will share responsibility for working with you in organizing a working meeting, and in presenting any DOE-Magma proposal to Marshall.

We already have a general understanding of the areas of technical interest on Magma/Dow's part, and you have DOE's initial reaction in my April 25th Meeting Report. The purpose of the working meeting which I now propose is to take these areas of mutual interest down to the level of definitive proposals for the necessary tasks, together with their sequence, equipment and professional requirements.

The next step will be for Susan and me to receive formal task proposals from the Labs and Universities that are interested, and to recommend East Mesa tasks to Headquarters. October 1st marks the start of the government's 1986 Fiscal Year, and FY'86 task proposals were submitted long ago. In order to accommodate East Mesa research, other tasks will have to be displaced, since our level of funding is flat. Therefore, it is likely that only a start will be made this coming year, and that significant proposals to DOE will have to wait for review in FY'87.

Once we reach a thorough understanding on tasks of mutual interest, and ID & SAN receive Headquarters approval of scope and budget, you and Tony can work out a formal DOE-Magma Agreement covering the proposed responsibilities, expected results, and release of data.

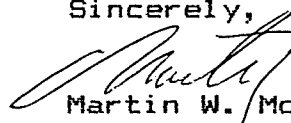
On the basis of my discussions with Marshall, Susan, LBL/Lippmann, Stanford/Gudmundsson, and UURI/Nielson (couldn't reaching LLNL/Kasameyer), I invite the following individuals to join me in representing DOE at our working meeting. We welcome your Magma and Dow colleagues.

Brine Injection Program	ID/Prestwich, EGG/Spencer
E. Mesa strat. & structure	LBL/Halfman, SAN/Holman
well test & reservoir model	Stanford/Horne, LBL/Lippmann & Benson UURI, EG&G
geochemistry & alteration	UURI/Moore
active seismics & fractures	LBL/Goldstein, LLNL/Kasameyer, (USGS/Fuis)

We have agreed to meet in the Bay Area, since most of our people are located here, and my office is out of FY'85 travel funds. As we discussed, DOE schedules are hopeless from August 24 to the end of September. You indicate that Friday, August 9 is the only time open in Magma-Dow's calendar. A half-day meeting should suffice; if we begin early, splinter groups may wish to stay late to draft detailed task statements. A proposed agenda with specific time and place is attached.

Although I will be on vacation August 5-23, I'll be at home in Palo Alto. With the meeting at Stanford, it's just a few minutes away for me, rather than three hours to and from Oakland. You can reach me at (415) 494-6639. It will be good to see you again.

Sincerely,



Martin W. Molloy, Ph.D.
Program Manager
Geothermal Reservoir Technology

cc: HQ/Reed
ID/Prestwich, EGG/Spencer (with Magma letter & map)
LBL/Lippmann, Benson, Halfman, Goldstein "
LLNL/Kasameyer "
SAN/Adduci, Holman "
Stanford/Horne, Gudmundsson "
USGS/Muffler, Fuis "
UURI/Wright, Moore, Nielson "

PROPOSED AGENDA

Magma/Dow-DOE Working Meeting
East Mesa Geothermal Research Definition

Stanford University
Petroleum Engineering Department
Mitchell Building, Room 350

Friday, August 9, 1984

10 am	Purpose	Magma/Hinrichs DOE/Molloy & Prestwich
	Summary of E. Mesa Field & Problem	Magma-Dow, LBL
	Task Identification	All
	<ul style="list-style-type: none">- conceptual geologic model- fault/fracture detection & mapping- production tests & modeling- injection tests & modeling- reservoir production/injection strategy- integrated seismic/reservoir modeling	
12 pm	Lunch	
1 pm	Complete Task Identification, above	
2 pm	Summary and Close	Magma & DOE
2-4 pm	Task Drafting Splinter Meetings	(as required)

MAGMA POWER COMPANY
993 OAK LANE
ESCONDIDO, CAL. 92025

(619) 743-7008

July 24, 1985

Mr. Anthony J. Aducci
Chief, Fossil and Geothermal Branch
San Francisco Operations Office
1333 Broadway
Oakland, CA. 94612

Dear Tony:

I have reviewed your letter of July 3, 1985 relative to several subjects associated with Magma/DOE involvement in the Imperial Valley and agree with your desire to resolve certain items.

Niland Clarifier/Sand Filter System Contract (Contract No. AC0380-SF10838)

In this contract, in exchange for the DOE Clarifier/Sand Filter System installed at the site, Magma agreed to provide operation data on the Clarifier/Sand Filter System and to provide a brine supply for testing experimental apparatus. Due to the upgrade of the size of the plant a larger Clarifier/Sand Filter System has been installed, and with the addition of a low pressure turbine, surplus high temperature brine will not be available.

We agree to provide operating data on the ne Clarifier/Sand Filter System - which will satisfy the intent of the contract relative to data acquisition.

In regard to brine supply for testing, you indicated that DOE may have a desire to test a direct contact heat exchanger with a low flow quantity (approximately 60 gpm) of brine. If you can provide us with some specific details on this we will look at the feasibility of providing a supply of brine for that test.

Battelle Northwest Instrument Probes

You inquired as to the possibility of installation of probes in the Vulcan plant similar to what was done at East Mesa. We will be unable to accomodate this at the Vulcan Plant.

East Mesa Reservoir Definition

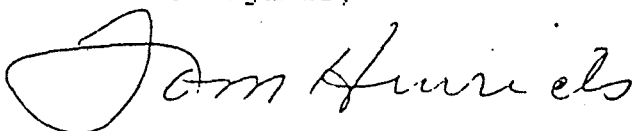
Magma believes there would be mutual benefit to a Magma/DOE copoperative venture on developing an accurate definition of the East Mesa reservoir. Magma is prepared to agree to the release of data to the public which would evolve from such a venture. Marty Molloy's report on the April 25, 1985 meeting of Magma/Dow and LBL/DOE personnel (copy attached) is a good summary of the joint interest.

We suggest that an agreement be drafted which would have the following general concepts:

1. Each party would fund their own aspects of the research with no money crossing between the two parties.
2. Each party to provide to the other all scientific and operating data available at present and that developed in the future.
3. A jointly agreed to time schedule and respective tasks be established with quarterly reviews of the program.
4. DOE to provide the seivices of LBL logging trulck for spinner and temperature/pressure surveys. Magma to assist in providing necessary operational personnel.
5. DOE to carry out jointly agreed to injection tracer studies, seismic and other activities which will have possibility of providing accurate reservoir definition.
6. The development of a conceptual geological model, a reservoir simulation model and an optimum production and injection scheme will be the final goal of the venture.

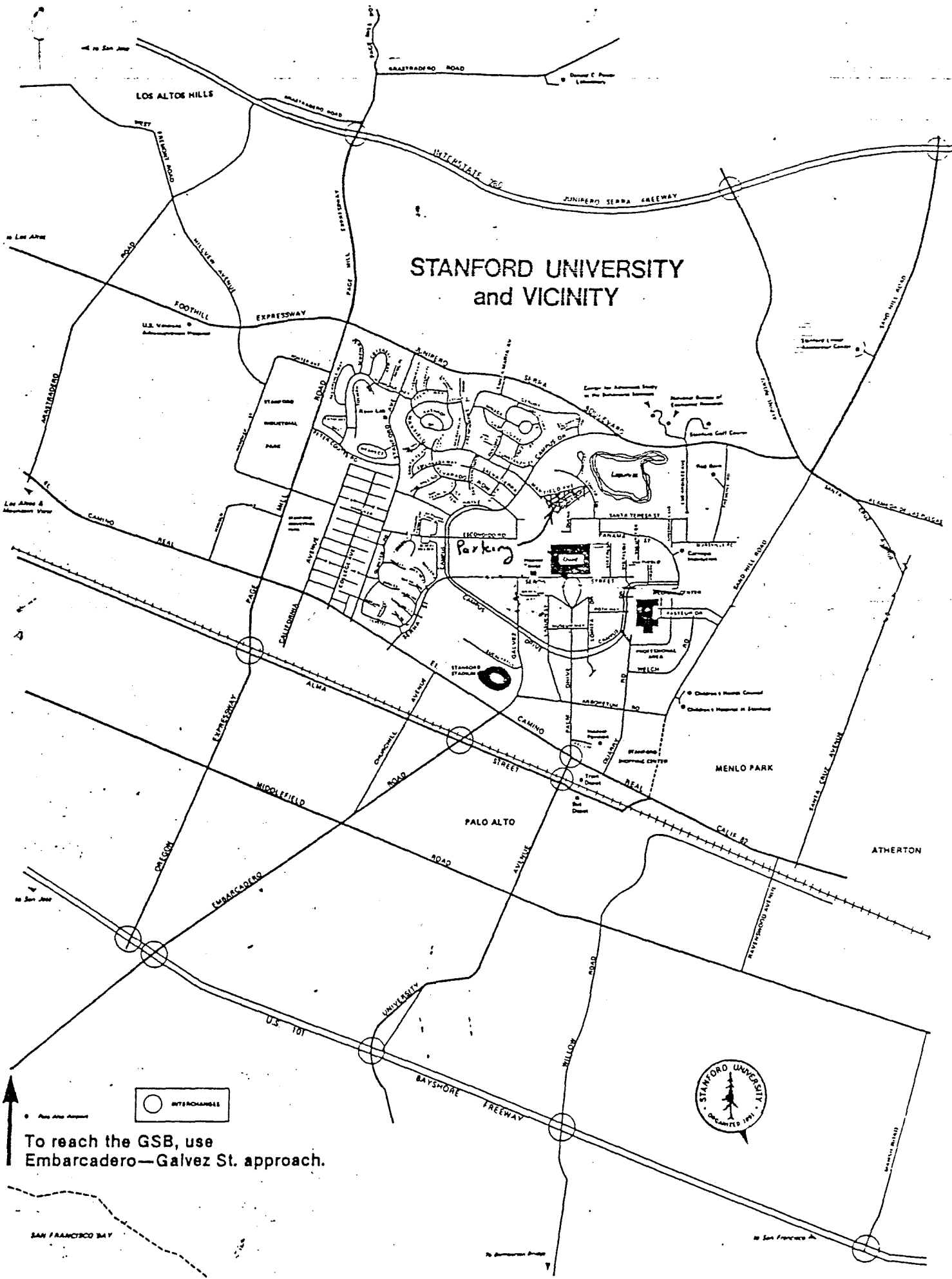
We appreciate your willingness to persue these ideas and look forward to your response.

Best regards,



T. C. Hinrichs

STANFORD UNIVERSITY and VICINITY



○ INTERCHANGE

To reach the GSB, use
Embarcadero—Galvez St. approach.



SAN FRANCISCO BAY

San Francisco Bay

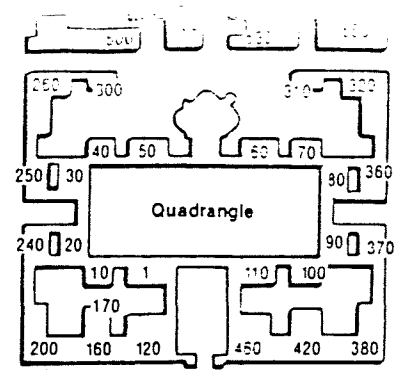


North

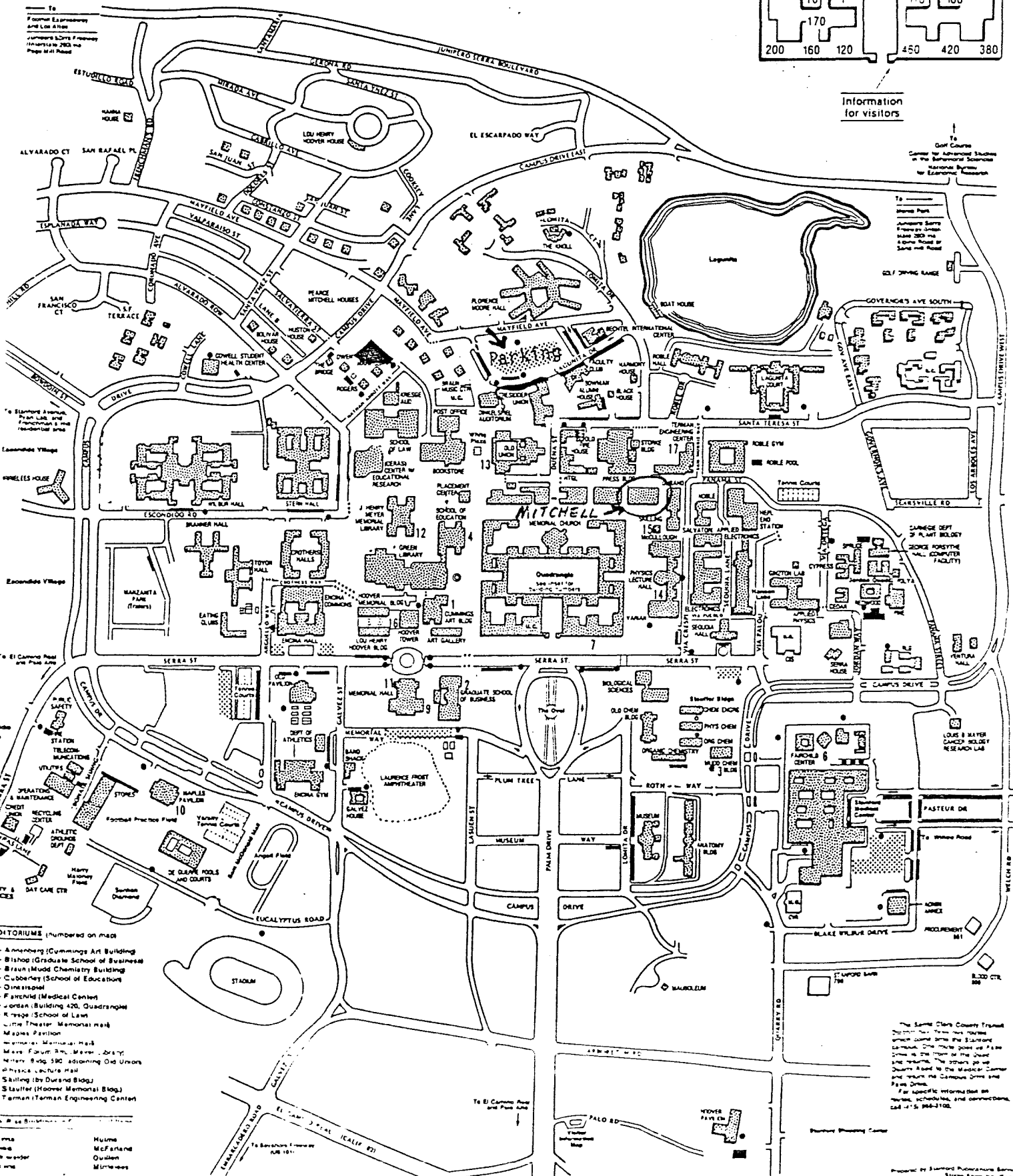
Pay parking lot (quarters only)

• Parking for the physically limited
Enforced 24 hours, 7 days per week.

~~Free parking for Workshop Registrants in C-10C,~~
southeast of Wilbur Hall - or pay parking (3 quarters)
near Tresidder.



Information for visitors



- DIATORIUMS** (numbered on map)
- Annenberg (Cummings Art Building)
 - Bishop (Graduate School of Business)
 - Braun (Mudd Chemistry Building)
 - Cushman (School of Education)
 - Dierkes (Hospital)
 - Farnold (Medical Center)
 - Jordan (Building 420, Quadrangle)
 - Kresge (School of Law)
 - Little Theater (Memorial Hall)
 - Madras Pavilion
 - Memorial (Memorial Hall)
 - Morse (Furness, Mrs. Morse Library)
 - Myers (Bldg. 59C, adjoining Old Union)
 - Physics (Lecture Hall)
 - Skilling (by Durand Bldg.)
 - Stauffer (Hoover Memorial Bldg.)
 - Terman (Terman Engineering Center)

The Same Olds County Transit
Station is located on the corner
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University and the El Escarpado
Road. The station is on
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Hume
McFarland
Quadrangle
Museum

U.C. - under construction