

May 30, 1974

MEMORANDUM

TO: James J. Deter, Program Administrator
Division of Land Management

FROM: Sunao Kido, Chairman and Member
Board of Land and Natural Resources

SUBJECT: Board Action on Conservation District Use Applications

HA-1/29/74-527: CDUA for Telescope and Observatory Use at Mauna Kea,
Island of Hawaii

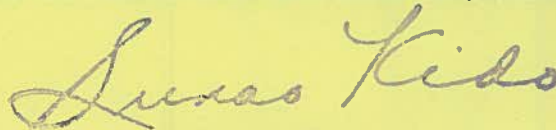
The Board of Land and Natural Resources, at its meeting of May 24, 1974, approved your request subject to conditions listed in Item H-7, attached hereto.

KA-3/11/74-539: CDUA for Commercial Mooring Facility Use at
Naviliwili, Kauai

The Board, at its meeting of May 24, 1974, approved your request subject to conditions listed in Item H-1, attached hereto.

Your follow-up action on these application will be appreciated.

BOARD OF LAND AND NATURAL RESOURCES



SUNAO KIDO
Chairman and Member

cc: County Planning Dept.
County Water Dept.
DOH
CEQC
LUC
DOT
Corps Engrs.
Land Agents
Board Members

bcc: Divisions

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Honolulu, Hawaii

May 24, 1974

HA-1/29/74-527

Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Conservation District Use Application for
Telescope and Observatory Use at Mauna Kea,
Island of Hawaii

APPLICANT:

State of Hawaii at the request of
Canada-France-Hawaii Telescope Corp. by
Fred Zobrist, President, Neighbor Island Consultants

USE REQUESTED:

Telescope and Observatory Facilities

LOCATION:

Mauna Kea, Hawaii; TMK: 4-4-15:9

AREA OF PARCEL/AREA OF USE:

13,321 acs./ 2 acres

DESCRIPTION OF AREA:

The project site is located at the 13,736 foot elevation near the summit of Mauna Kea.

The summit consists essentially of volcanic ash and cinders, erosive and highly permeable.

Mean temperature is at or slightly above freezing. Winds are generally from the east at 10 to 15 miles per hour. Precipitation averages 15 inches a year and falls at any time of the year, however, snow accumulates between December and March. Permafrost is known to exist below.

The summit of Mauna Kea rises well above the level of cloud cover. The summit is usually clear and dry. About 55% of nights are clear and stable enough for photometry. An additional 20% of nights are useful for less critical observations. There are no built-up areas or engines about to radiate or generate heat to cause atmospheric instability and spoil observations.

The air is dry with little water vapor to absorb radiation in the infrared. Skies are dark, not illuminated by the lights of nearby cities.

ADDED ITEM H-7

Slopes at the site range from 0 to over 57 percent. In the immediate vicinity of the existing and proposed observatory, however, the ground is flat with slopes of 2 to 3 percent.

The UH Institute for Astronomy has examined a topographic map of the summit and believes there are at least ten sites suitable for building an observatory with telescopes in the 4-meter aperture class.

Vegetation above the 9,850 elevation is sparse. Except for game driven by hunting effort to high elevations, wildlife is scarce.

Access to the site is by a single-lane dirt road from Hale Pohaku. An improved road is planned and is the subject of another application.

Power is supplied by three portable generators located in a trailer near the present observatory. Sewage is disposed of by cesspool. Solid waste is hauled to a dump site at Hale Pohaku. Water is stored in an 8000 gallon underground tank 50 feet south of the present observatory. Water is trucked in every 20 days, 500 to 1,000 gallons at a time, coincident with the 5,000 gallon deliveries to Hale Pohaku.

Nearby is a 24-9inch "planetary patrol" scope, a concrete slab, the existing 88-inch scope and observatory, an old power shed used as a shelter by the ski patrol. There is also another 24-inch scope used by the University in the vicinity. The existing 88-inch scope was built about in 1970.

Lake Waiau (elev. 13,020') is located nearly a mile southwest of the observatory. Keanakakoi Adze Quarry (elev. 12,400') is about 1-1/2 miles south of the observatory.

The quarry has been designated a Natural Historic Landmark. Mauna Kea has been nominated as a National Natural Landmark.

The summit area is also used by skiers with various slopes bearing names such as Pele's Parlor and Poi Bowl. The applicant reports the area is also used by off-duty military personnel who drive their jeeps down the slopes of cinder cones, and by people who visit the quarry and remove artifacts.

The University of Hawaii has a lease for 13,321 acres of the summit which runs from January 1, 1968 to December 31, 2033.

DESCRIPTION OF USE:

The University of Hawaii has joined with the National Center of Scientific Research (France) and the National Research Council (Canada) to build and operate a 141.2 inch telescope and observatory with facilities to operate and maintain the telescope.

Near the telescope there would be small underground buildings to house a workshop, laboratories, water tank, emergency generator and pumps, compressors and other accessory facilities. The underground buildings will be supported by shallow spread footings on natural

ground or compacted fill. Locations, dimensions and plans for the support buildings are yet to be determined.

The telescope will be mounted on a concrete pier set at least 40 inches into the ground. It would be enclosed by a metallic dome 105 feet in diameter atop a squat silo five levels high. All levels of the structure would be served by three elevators and a large hatch.

At ground level there would be a crane travelling in a circle of about 50 feet diameter. There would be room for washing mirrors, storing the scope cover and for an aluminizing tank. There would also be rails for carrying mirrors and room for a mechanical shop, mechanical room, storage, entrances for vehicles and people, and various small rooms. Bathrooms appear to be provided at the ground and fourth levels.

The second and third levels would contain cryogenics electronic cameras, ~~cloud observing rooms~~, bedrooms, darkrooms, laboratory, storage and uncommitted space.

The fourth level has a library and chartroom, control room, computer and instrument room, electronic lab, lounge and kitchenette. There is also storage space and an outdoor platform encircling the silo.

The fifth or observation level has rails for carrying mirrors between the hatch and telescope. There would also be room for storage and a visitors' gallery.

The applicant also proposes to build an 18-foot wide paved road from the existing observatory about 800 feet away. There would also be a paved turn-around and parking area near the proposed observatory. Utilities would be underground, but line, locations have not been determined. This application does not cover a proposed powerline to be brought to the summit.

All on-site earthwork will be limited to the 2-acre site.

The proposed use will be in a GU subzone. Under section 2.B.(1)(e) governmental uses are permitted in the GU subzones.

The applicant originally indicated the foundations for the observatory will be built in 1974, the silo in 1975, the dome in 1976, and the telescope in place in 1977.

COMMENTS RECEIVED:

The Health Department recommends approval of the project.

The County Planning Department writes it has no objections to a sub-lease for development of telescope and observatory facilities on Mauna Kea. It also has written the Office of Environmental Quality Control that it supports scientific endeavors on Mauna Kea.

PUBLIC HEARING:

A public hearing on this application was held in Kamuela, Hawaii, on April 11, 1974.

Staff presented a summary of the record to date on this application.

Ms. Mae Mull indicated she could not hear the section where comments

had been offered on this application. Chairman Kido asked staff to clarify this. Staff then repeated the section dealing with comments received from public agencies. On further questioning by Mrs. Mull, Chairman Kido replied that it was staff which expressed concern about the appearance of Mauna Kea.

Mr. James Peterson of Neighbor Island Consultants testified for the applicant. He introduced others who were with him to represent the applicant.

He indicated that the applicant wished to change the original application. Instead of having a foundation using cylindrical footings, the applicant would now like to have a solid concrete slab -- acting as a floating platform. This would require excavating 8000 cubic yards of cinder. The applicant proposes to use a storage area of 400 feet by 600 feet formerly used for a similar purpose. The site would be restored to its present condition in two years. He indicated construction would begin in July 1974. The storage site was pointed out on a map - "just below of Puu Goodrich." He asked this change be made an addendum to the application. The applicant wanted to make the change two weeks before the hearing, but the hearing had already been scheduled.

Mr. Peterson pointed out the excavation site at Mr. Kido's request. Mr. Kido asked why the drainage was made. Mr. Hans Boesgaard Chief Engineer, for the Institute of Astronomy, answered that it was based on soils reports and the decision of the Canadian designers. He pointed out that most of the excavated material would be put back. Mr. Kido pursued the question further. Mr. Boesgaard answered saying the change in foundation design is a structural consideration. Preliminary soils examination had indicated solid lava rock 40 feet below the surface, but subsequent investigation proved this was not true.

Chairman Kido asked Deputy Attorney General Fukumoto if the petition could be amended at the time of the public hearing. Mr. Fukumoto said it could.

ANALYSIS:

Staff is concerned that additional developments are proposed for Mauna Kea with no clear idea of the extent and manner in which the summit area should be built. There is no plan.

Staff is of the opinion that a conceptual plan or overview for the summit is desirable. It should seek to place a limit to development of the summit without denying the obvious natural advantages for astronomy use. It should, however, prevent pre-emption of the summit by astronomy and sustain the area as a public space with recreational and natural values.

Staff feels there is no apparent management of the area to prevent proliferation of structures and equipment. There appears to be no specific provision for maintenance of roads, other facilities and grounds. Staff is concerned that the area will end up as littered and neglected as Haleakala's Science City.

Staff is further concerned that with both lack of planning and lack of management, problems will arise such as allocation of water supplies in the area, handling increased wastes and traffic, and providing other vital services to a summit population.

Staff appreciates the University's efforts to promote the advancement of science and is aware of the achievements and capabilities of its Institute for Astronomy. If, however, in its quest for excellence in astronomy, the University chooses to host the nation and other countries, staff feels the University must also undertake the management and housekeeping chores that go with this role.

RECOMMENDATION:

It is recommended that this application be approved, including, if necessary, subdivision of the sub-lease area, subject to the following conditions:

1. The University of Hawaii shall submit a master plan of the summit for the department's approval. The master plan shall be submitted no later than December 31, 1974.
2. The University of Hawaii shall provide personnel necessary for the maintenance and management of the summit.
3. All excavated material not restored to the excavation site shall be disposed of in a manner suitable to the department. No more than 8,000 cubic yards shall be excavated. The bulk of the material shall not be stored for more than two years, and all material shall be removed at the end of five years.
4. The area shall be kept clean, tidy and uncluttered.
5. The University shall be responsible for seeing that these conditions are met.
6. The applicant shall submit a minimum of three copies of plans for earthwork, construction, and landscaping to the Chairman for review and approval prior to the start of work activity.
7. The applicant shall notify the department upon the commencement and at the completion of all work.
8. All clearing and grading work shall be subject to the approval of the department.
9. All debris and rubbish from the work activity shall be removed to approved sanitary disposal sites.
10. The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State and County governments.
11. The applicant shall obtain clearance from the appropriate County agency as to the safety of the proposed construction.
12. Upon termination of the use, the area shall be restored to a suitable condition, satisfactory to the department.

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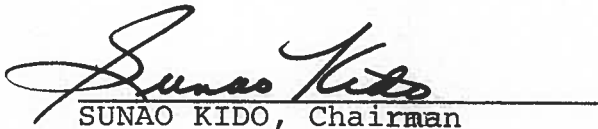
13. Time Limit of Permit. Upon approval of this application, the applicant will have a period not to exceed one year from the date of approval in which to start the project.
14. The applicant, its successors and assigns shall indemnify and hold the State of Hawaii harmless from and against any loss, liability, claim or demand for property damage, personal injury and death arising out of any act or omission, and not occasioned through the fault of the State, of the applicant, its successors, assigns, officers, employees, contractors and agents under this permit and also any loss, liability, claim or demand for property damage, personal injury and death arising out of or relating to or connected with the granting of this permit, and not occasioned through the fault of the State.

Respectfully submitted,



GORDON SOH, Program Planning
Coordinator

RECOMMENDED FOR APPROVAL:



SUNAO KIDO, Chairman