

SEP 5 1984

REF. NO.: CPO-511-85  
FILE NO.: HA-3/15/84-1646  
180-Day Exp. Date: 9/11/84

SEP 5 1984

Mr. Harold Masumoto  
Vice President for Administration  
University of Hawaii at Manoa  
2444 Dole Street, Room 201  
Honolulu, Hawaii 96822

Dear Mr. Masumoto:

Conservation District Use Application for  
Construction of the University of California Ten Meter Telescope;  
Temporary Use of the Concrete Batch Plant;  
and Expansion of Hale Pohaku at Mauna Kea, Hawaii

We are pleased to inform you that the Board of Land and Natural Resources, at its meeting of August 24, 1984 approved your application subject to the following conditions:

1. That the applicant comply with all applicable statutes, ordinances, rules, and regulations of the Federal, State, and County governments, and applicable parts of Section 13-2-21 of Title 13, Chapter 2, Administrative Rules, as amended;
2. Other terms and conditions as prescribed by the Chairperson;
3. In that this approval is for use of conservation lands only, the applicant shall obtain appropriate authorization through the Division of Land Management, State Department of Land and Natural Resources for the occupancy of State lands;
4. In the event any unanticipated sites or remains such as shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered during construction, the applicant shall stop work and contact the Historic Preservation Office at 548-7460 or 548-6408;
5. That the applicant comply with all applicable Public Health Regulations;

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6. The construction, alteration, moving, demolition, and repair of any building, or other improvement on lands within the Conservation District, shall be subject to the building codes of the respective counties in which the lands are located; provided that prior to the commencement of any construction, alteration, or repair of any building, or other improvement four (4) copies each of the final location map, plans, and specifications shall be submitted to the Chairperson, or his authorized representative, for approval of which three (3) copies will be returned;
7. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, and, all work and construction must be completed within three (3) years of the approval of such use. Failure to comply with this condition shall render this application null and void;
8. That Forestry and Parks personnel are to be notified prior to the removal of any mamane and ulei;
9. That, if possible, mamane and ulei (*Osteomeles anthylidifolia*) are to be planted to enhance the project site and adjacent areas and also to replace the mamane trees removed or damaged as a result of construction;
10. That construction is not to be commenced during the palila breeding season unless birds were discouraged from nesting in the construction area prior to, and continuing into, the nest site selection, pairing, and breeding/rearing period;
11. That the sewage disposal system be monitored by the applicant on a continuing basis to identify and control any adverse environmental impact that could occur;
12. Provisions be made for inspection of post cleanup work by a Wildlife biologist or forester. Inspecting personnel shall be assigned by DLNR; expenses are to be paid by the University of Hawaii; and
13. The "batching" site be made available to public parking area is not being used, and the site be cleaned and leveled to accommodate parking when the temporary use for concrete batching is completed.

Should you have any questions on any of these conditions, please contact Mr. Gordon Soh of our Planning Office at 548-7837.

Very truly yours,

SUSUMU ONO, Chairman

SUSUMU ONO, Chairperson  
Board of Land and Natural Resources

cc: Hawaii Board Member  
Hawaii Land Agent  
Hawaii Planning Department  
DOH/DPED/EC/OEQC/OHA

Land Management/State Parks/Historic Sites  
DOWALD/DAR/DOFAW/NARS/DOCARE

Ch



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 621  
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN  
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU  
DEPUTY TO THE CHAIRMAN

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AQUACULTURE DEVELOPMENT PROGRAM  
AQUATIC RESOURCES CONSERVATION AND RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

FILE NO.: HA-3/15/84-1646  
180-Day Exp. Date: 9/11/84

August 24, 1984

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

Gentlemen:

Conservation District Use Application for  
Construction of the University of California Ten Meter Telescope;  
Temporary Use of the Concrete Batch Plant;  
and Expansion of Hale Pohaku at Mauna Kea, Hawaii

APPLICANT: Mr. Harold Masumoto  
Vice President for Administration  
University of Hawaii at Manoa  
2444 Dole Street, Room 201  
Honolulu, HI 96822

LANDOWNERSHIP: State of Hawaii

<u>TMK</u>	<u>SUBZONE</u>	<u>AREA OF PARCEL</u>	<u>AREA OF USE</u>
4-4-15:9	Resource	11,215 Acres	75,000 Square Feet (Telescope and Access Road SEE EXHIBIT 3 & 4)
4-4-15:10	Protective	3,750 Acres	20,000 Square Feet (Batch Plant SEE EXHIBIT 5)
4-4-15:1	Resource	48,895 Acres	3,000 Square Feet (Hale Pohaku SEE EXHIBIT 6)

DESCRIPTION OF AREA/CURRENT USE:

A. Mauna Kea Science Reserve and Batch Plant

Six telescopes are currently in operation within the Science Reserve (UH 88-inch; two UH 24-inch; CFHT; UKIRT; and IRIF). Two additional facilities (UK/NL MT and Caltech) are currently under construction (see EXHIBIT 3). The Science Reserve is also used for skiing snowplay, hiking, sightseeing, and other scientific research. The proposed UC TMT

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(University of California Ten Meter Telescope) site is currently undeveloped. The proposed batch plant site is used for parking during snow months.

B. Hale Pohaku

The astronomy mid-level facilities consist of three dormitories (59 beds); a common building containing dining, lounging, kitchen, and other facilities shared by all users; research support spaces; and a maintenance area. These facilities were developed to accommodate astronomers and other observatory personnel who work at the summit and must remain acclimatized during their on-duty periods. A 1,200 square foot visitor reception area and Information Station is located approximately 650 feet south/southwest of the astronomy facilities. There are also two stone cabins and five temporary buildings located on the site at the present time (see EXHIBIT 4).

PROPOSED USE:

This application consists of the following three (3) parts:

A. Mauna Kea Science Reserve - TMK: 4-4-15:09 (Por.):  
(Resource Subzone)

1. Construction and operation of the University of California Ten Meter Telescope (UC TMT) on a  $\pm$  60,000 square foot site; and
2. Construction of a  $\pm$  850 linear foot access road from the end of the existing road at the IRTF facility to the UC TMT facility including underground electrical power and communication lines.

B. Batch Plant 4-4-15:10 (por.):  
(Protective Subzone)

1. Temporary and occasional use of  $\pm$  20,000 square feet of a  $\pm$  30,000 square foot area at the 12,700 foot elevation, commonly known as the "Skiers Parking Lot" for a temporary concrete batching plant. A portion of this area is located within the Natural Area Reserve in a Protective Subzone. However, steps are underway to remove NAR designation from the batch plant area.

C. Hale Pohaku TMK: 4-4-15:01 (Por.):  
(Resource Subzone)

1. Construction and use of a 20-room dormitory building on a  $\pm$  3,000 square foot site within the Hale Pohaku mid-level astronomy facilities, together with associated infrastructure extensions and improvements and including a paved parking area; and
2. Temporary use of two existing temporary buildings--(UH) and the large stone cabin for housing construction workers.

SUMMARY OF COMMENTS:

This application was sent to the following agencies for their review and comments:

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The U.S. Fish and Wildlife Service, the County of Hawaii Planning Department, Department of Water Supply, and Department of Public Works, the State of Hawaii Department of Health, Office of Environmental Quality Control, Environmental Council, Office of Hawaiian Affairs, Department of Planning and Economic Development, and the Department of Land and Natural Resources Divisions of: Aquatic Resources, Forestry and Wildlife, State Parks, Historic Sites, Land Management, Conservation and Resources Enforcement, Water and Land Development, Natural Area Reserves System. Their comments to date are as follows:

U.S. Fish and Wildlife Service

As stated on page 15 of the CDUA, the expansion of the Hale Pohaku facility will occur within designated Palila critical habitat and may affect the Palila, a species listed as endangered by this Service. On April 22, 1982, the National Aeronautics and Space Administration (NASA) requested our formal review of the effects of such development at Hale Pohaku. On May 3, 1982, we determined that the proposed actions would not jeopardize the continued existence of the Palila nor would they be expected to destroy or adversely modify Palila critical habitat. The current CDUA proposes to increase the area to be impacted beyond that area which was addressed in our 1982 opinion. As such, if a Federal agency (such as NASA) funds or authorizes the current proposed action, consultation with this Service would be indicated. The conservation measures for Palila, listed in our 1982 letter relative to Hale Pohaku, would also apply to the present CDUA, and we would expect that the actions proposed in the present CDUA would continue to incorporate those suggestions.

County of Hawaii, Department of Public Works

The County of Hawaii presently maintains the access road up to, but not above, Hale Pohaku. We believe the maintenance jurisdiction from Hale Pohaku lies with the University of Hawaii.

Office of Environmental Quality Control

We have no objection to this CDUA. Our view is that the telescope facilities on Mauna Kea is a desirable undertaking which has numerous benefits. Our concern is that any environmental impacts be kept to a minimum.

Department of Planning and Economic Development

We have reviewed the subject application and do not find any significant adverse impacts relative to the Hawaii Coastal Zone Management Program objectives and policies.

Division of Water and Land Development

We have no objections to the proposed telescope and access road construction; however, we recommend that the power and communication line installations follow the road alignment at all times to minimize all surface evidence of the lines.



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In the past we have expressed concern regarding the impact of sewage effluent from the Summit telescope facilities on Lake Waiau and existing spring sources for the Pohakuloa water system. Although it seems unlikely that subsurface effluent flow from the UC TMT facility would contaminate the lake or lower elevation spring sources, we maintain that every effort should be made to protect these resources. We therefore recommend that the sewage disposal system be monitored by the applicant on a continuing basis to identify and control any adverse environmental impact that could occur. The Department of Health should also be given the opportunity to review the project sewage disposal system.

The "Skier's Parking Lot" has been used several times in the past as a temporary concrete batch plant site. We have no objections to its continued temporary use; however, we suggest the applicant be required to monitor construction activities and to ensure removal of all construction materials upon completion of work. We also have no objections to the proposed dormitory expansion at Hale Pohaku.

We understand that development of the UC TMT depends on the provision of a permanent power source since the existing 850 kw line near the Saddle Road as well as a proposal for paving the Summit Access Road are presently under consideration in the still pending CUA, File No. HA-1573.

It may be appropriate to delay further processing of this application until a decision is made on the pending CUA, File No. HA-1573.

#### Division of State Parks and Historic Sites

##### Historic Sites Concerns:

Our review of the subject application corresponding archaeological reconnaissance reports (B.P. Bishop Museum, 1979 and 1981) results in our concurrence with the recommendations that the proposed project will have no adverse impact to the cultural resources of the Mauna Kea Adze Quarry (site #4136), a site listed on the Hawaii and National Registers of Historic Places.

We do recommend that in the event that any previously unidentified sites or remains such as artifacts, shell, bone, charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered, please direct the applicant to stop work and contact our office at 548-7460 immediately.

##### Recreation Concerns:

There are no known State Park interests directly involved. The snow play activities in the summit area are not under State Parks jurisdiction. The existing, temporary construction worker housing at Hale Pohaku has previously been considered for department staff and/or visitor facilities at Pohakuloa but the need for these facilities, their condition, and the cost of relocation and renovation have not been determined.

#### Natural Area Reserves System

1. TMK: 4-4-15:10 is not listed in the application. This TMK is for

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the Mauna Kea Ice Age NAR where the Skiers Parking Lot"--the proposed concrete batching site--is located.

2. For the proposed batching activity in the NAR, Hawaii Revised Statutes, Section 195-5 and Administrative Rule 209 requires a special-use permit to be issued by the Land Board, subject to the approval of the NARS Commission.

That a permit is required should be made known to the applicant when notified of the acceptance of the CDUA for processing or in other correspondence related to the project application.

#### Division of Forestry and Wildlife

The proposed construction of the University of California's 10 meter telescope, temporary use of the existing unpaved parking area for a concrete batching plant, and the expansion of the Hale Pohaku mid-elevation facilities appear to be in line with the established plans for the area.

We are concerned with the allowable level of development of the area in relation to its carrying capacity and limits of expansion relative to the values of the area which should be preserved.

#### Additional Comments from Forestry and Wildlife

Since our comments would generally be redundant of comments made on earlier CDUAs for telescopes and Hale Pohaku facilities, we will only reiterate our primary concerns that:

1. The Department carefully consider the natural values of Mauna Kea and set a definite limit on the development of observatory facilities on the summit and support facilities at Hale Pohaku.
2. Public use and enjoyment of Mauna Kea not be unduly restricted.

We recommend that:

1. Provisions be made for inspection of post cleanup work by a Wildlife Biologist or Forester. Such cleanup/restoration be done as per their interpretation of the Mauna Kea Plan.
2. The "batching" site be made available to public parking when the area is not being used. The site be cleaned and leveled to accommodate parking when the temporary use for concrete batching is completed.

On a similar subject, we are very pleased with your taking the position that the 7 acres at Hale Pohaku not be leased until it is withdrawn from Forest Reserve status.

The County of Hawaii Department of Water Supply, the State of Hawaii Department of Health, Department of Hawaiian Home Lands, and the Department

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of Land and Natural Resources Divisions of Aquatic Resources and Land Management had no objections to the proposed use.

PUBLIC HEARING SUMMARY:

A public hearing pursuant to Chapter 183-41, Hawaii Revised Statutes, was held at 6 P.M., on May 10, 1984, in the State Conference Room B, 75 Aupuni Street, at Hilo, Hawaii.

The Board expressed the following concerns with respect to this application:

1. Has the University of Hawaii studied the potential impacts on the telescopes in the event that Mauna Kea erupted? How long ago was the last eruption?

The applicant indicated that no formal contingency plan has been developed for the Mauna Kea Science Reserve in the event of an eruption. Furthermore, they indicated that the last known eruption of Mauna Kea was a "flank eruption" which occurred approximately 4000 years ago; and the last summit eruption occurred approximately 20,000 years ago.

2. Does the Environmental Impact Statement (EIS) for the Mauna Kea Science Reserve: Complex Development Plan address the three projects in this current application?

The Final EIS for the Mauna Kea Science Reserve: Complex Development Plan addresses the three projects in this application. The EIS was completed and accepted by the Governor on January 20, 1983.

3. Has the University designated a liaison person to work with the U.S. Fish and Wildlife Service?

The University indicated that a semi-retired person will be working part time assisting the University in coordinating with the various government agencies.

4. Is it the Board's position "that the 7-acre site at Hale Pohaku not be leased until it is withdrawn from the Forest Reserve status?"

This statement was made in comments received from the Division of Forestry and Wildlife, Hilo Office, to the Forestry Administrator in Honolulu. Their comments reflect the position of the Division of Forestry and Wildlife and not the Board.

At this time, Staff would like to correct an erroneous statement made at the public hearing. Staff indicated at the hearing that the summit area, covered in General Lease No. S-4191, had been removed from the Forest Reserve. We have, subsequently, been informed that the Science Reserve Complex (leased area), the mid-level facilities at Hale Pohaku, (right-of-entry), and the Summit Access Road (easement) have not been withdrawn from Forest Reserve status.



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Testifying in support of the applicant were the University of Hawaii, University of California, County of Hawaii, and the Hawaii Island Chamber of Commerce. Written testimony was also received from the Japanese Chamber of Commerce and Industry of Hawaii, and the Hawaii Island Contractors Association in support of this application.

At the public hearing, the University indicated that they were discussing the option of either removing the skier's parking lot from the Natural Area Reserves System (NARS) designation or obtain a permit from the NARS Commission each time they used the area. Staff has had an opportunity to discuss the matter with the University personnel and suggested that insofar as the Management Plan cites the skier's parking lot as a future parking area, the University should initiate the process of having the area known as the "skier's parking lot" removed from the NARS designation.

Also at the public hearing, a representative of the University of California indicated that preliminary plans of the Ten Meter Telescope would be completed by early July. These preliminary plans are attached as EXHIBITS 10 through 13.

ANALYSIS:

Following review and acceptance of the application for processing, the applicant, by letter dated March 29, 1984, was notified that:

1. The proposed use is a conditional use in the Protective and Resource Subzones of the Conservation District according to Administrative Rules, Title 13, Chapter 2, as amended;
2. A public hearing pursuant to Chapter 183-41, Hawaii Revised Statutes, as amended, will be required; and
3. Based on the description of the proposed actions, there may be a significant effect, as defined by Section 1:31 of the Environmental Impact Statement (EIS) Regulations. As a consequence, we require that you submit an EIS in accordance with EIS Rules and Regulations as established under Chapter 343, Hawaii Revised Statutes. Written clearance from the County of Hawaii regarding SMA requirements has been obtained. The three projects in this proposed use were covered in the Final EIS for Mauna Kea Science Reserve Complex Development Plan which was completed and accepted by the Governor in January of 1983.

The objective of the Protective Subzone is to protect valuable resources in such designated areas as restricted watershed; marine, plant, or wildlife sanctuaries, significant historic, archaeological, geological, and volcanological features and sites; and other designated unique areas.

The objective of the Resource Subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.

Section 13-2-21(b)(1) relating to standards requires all applications be reviewed in such a manner that the objective of the subzone is given primary consideration.

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BACKGROUND:

In the past, development of telescopes on Mauna Kea was done individually, on a piecemeal basis, with no apparent long-range plan. Due to this apparent lack of planning, the University was criticized by government agencies, private groups, and individuals for their piecemeal approach to development on Mauna Kea.

The University, subsequently, prepared the Mauna Kea Science Reserve Complex Development Plan which addressed the overall, long-range development on Mauna Kea. Using this plan, the University filed Conservation District Use Application HA-1573 for a permanent power line, road improvements, and implementation of a Management Plan for Mauna Kea.

The Board, in February of 1984, approved the permanent power line and road improvements on Mauna Kea. The Board also approved "conceptually" the Management Plan for Mauna Kea. The final details of the Management Plan are currently being worked on by this Department and the University.

In the past, the availability of electric power at the summit was one of the limiting factors to the development of telescopes on Mauna Kea. However, with the recent approval by the Board of the permanent power line, electric power at the summit is no longer a limiting factor to the development of telescopes.

Currently there are eight (8) approved telescopes within the Science Reserve Complex. This application, if approved, would raise the number of the sites to nine (9).

In the Final EIS for the Mauna Kea Science Reserve Complex Development Plan, the University considered the following two scenarios regarding future telescope development on Mauna Kea:

Scenario One - Infrastructure Improvements

This scenario envisions that no new telescopes will be constructed on the summit after the Caltech facility is completed, however, a permanent power line from a HELCO source to the summit will be constructed and the road from Hale Pohaku to the summit will be improved for safety and paved. Roads within the Science Reserve will also be paved. The Hale Pohaku mid-elevation facility will not be expanded.

A permanent connection to the public power supply and the paved road, with adequate safety features, are both part of the State's original, planned contribution to the development of the Mauna Kea Observatory.

Scenario Two - Maximum Capacity of Mauna Kea Science Reserve

This scenario envisions development to the maximum physical capacity of the summit cinder cones (Puu Hau Oki, Puu Poliahu, and Puu Wekiu), the 13,000-foot plateau, the shield areas to the north of the summit cinder cone, and the eastern plateau. Development would include two to five single dish millimeter-wave telescopes, two interferometers, and 15 to 18 major optical facilities for a total of 19 to 22 total major facilities on the mountain. It also includes a widened, as well as

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paved, access road, a permanent power line, and expansion of the mid-level facility at Hale Pohaku.

Although development of this scale may, or may not, exceed the "carrying capacity" of the mountain, such development is not possible in the foreseeable future. Even if it could be demonstrated that development could be accomplished without unacceptable environmental impacts, it is certain that the international demand for telescope sites (and the necessary funding) would fall well below the number of facilities projected under this scenario.

The University also considered a suggestion that as telescopes become obsolete, the old telescopes could be replaced with new ones in the same enclosures (domes). They indicated that:

"...telescopes are primarily light-gathering devices, however, whose basic concept and function has not changed significantly over the past 75 to 100 years. The principle advances in astronomical observations have occurred as a result of the invention of more sensitive light detectors and more sophisticated means of recording and depicting characteristics of the light received from astronomical objects. Therefore, with updated instrumentation and detectors, the existing telescopes will continue to play as important a role in the future as they have in the past in contributing to the knowledge of astronomy. The proposed and planned future are intended to provide new capabilities in new wavelength ranges (infrared and submillimeter) or to provide telescopes to groups who presently have none; they are not intended as replacements to existing facilities."

At present, this Department and the University are in the process of working out the final details of the Management Plan. However, no decision has been reached on the specific issue of establishing a "carrying capacity" (i.e. maximum limit) on the number of telescopes which should be allowed in the Mauna Kea Science Reserve. Although this current request does not specifically address the "carrying capacity", Staff feels that the Board must be aware of the long-range goals of the University while keeping in mind the resource value of Mauna Kea when assessing these individual proposals.

#### ANALYSIS - SPECIFIC:

##### 1) Telescope and Access Road

Staff is of the opinion that the proposed University of California Ten Meter Telescope, located within the Science Reserve Complex, is in line with the development proposed in the Mauna Kea Science Reserve Complex Development Plan. However, after reviewing the comments from the various agencies with respect to this section of the application, Staff shares the concerns of several divisions that development at the summit must be done prudently in light of natural resource value of the summit area.

More specifically, Staff also shares the concern of the Division of Water and Land Development regarding the potential impact of sewage effluent from the Summit telescope facilities on Lake Waiau and the existing spring source for the Pohakuloa water system.

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2) Temporary Use of the Batch Plant Area

Again Staff is of the opinion that the temporary use of the Batch Plant area, commonly known as the "skier's parking lot" is in line with the development proposed in the Mauna Kea Science Reserve Complex Development Plan.

This area was, and is, being used as a batching plant for construction of telescopes on Mauna Kea. Staff's only concern at this time is that the jurisdiction of the area be clarified. Currently, the skier's parking lot is within the Mauna Ice Age Natural Area Reserve. The University indicated at the public hearing that they were in the process of discussing with your Staff the alternative of either removing the area from the NARS designation or obtaining a user permit from the NARS Commission each time they use the area.

In subsequent discussions with the University on their Management Plan, "the skier's parking lot" was identified as one of the proposed designated "permanent" parking areas on Mauna Kea (SEE EXHIBIT 7). Staff is of the opinion that insofar as the University proposes to use the skier's parking lot as a "designated parking area", the University should initiate the process of removing the skier's parking lot from the Natural Area Reserve designation.

3) Expansion of Hale Pohaku

Over 30,000 acres of the Mamane/Naio Forest Area on Mauna Kea has been designated as the critical habitat of the endangered Palila. (SEE EXHIBIT 8)

The designated area encompasses Hale Pohaku and extends above the 10,000 feet elevation. This area was established on August 11, 1977, because the Palila habitat was being adversely modified by the browsing of feral sheep on the mamane trees.

Mamane is the primary vegetation food near Hale Pohaku. However, the area for the dormitory expansion was selected because it is already disturbed and no mamane, or other vegetation, would have to be removed.

The applicant does understand that since the proposed expansion occurs within the designated critical habitat of the Palila, consultation between the affected Federal agency and the U.S. Fish and Wildlife Service must be undertaken if federal funds are involved in developing the new dormitory. Furthermore, Staff understands that the applicant will comply with the following conservation measures listed in the U.S. Fish and Wildlife letter of May 3, 1982, to the National Aeronautics and Space Administration: (COPY ATTACHED, SEE EXHIBIT 9)

1. As few mamane trees as possible are to be removed or transplanted from the project site.
2. If possible, mamane and ulei (*Osteomeles anthylidifolia*) are to be planted to enhance the project site and adjacent areas and also to replace the mamane trees removed or damaged as a result of construction.

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3. Construction is not to be commenced during the palila breeding season unless birds were discouraged from nesting in the construction area prior to, and continuing into, the nest site selection, pairing, and breeding/rearing period.

As such, Staff recommends as follows:

RECOMMENDATION:

That the Board approve this application for construction of the University of California's Ten Meter Telescope; temporary use of the concrete batch plant and expansion of Hale Pohaku at Mauna Kea, Hawaii subject to the following conditions:

1. That the applicant comply with all applicable statutes, ordinances, rules, and regulations of the Federal, State, and County governments, and applicable parts of Section 13-2-21 of Title 13, Chapter 2, Administrative Rules, as amended;
2. Other terms and conditions as prescribed by the Chairperson;
3. In that this approval is for use of conservation lands only, the applicant shall obtain appropriate authorization through the Division of Land Management, State Department of Land and Natural Resources for the occupancy of State lands;
4. In the event any unanticipated sites or remains such as shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered during construction, the applicant shall stop work and contact the Historic Preservation Office at 548-7460 or 548-6408;
5. That the applicant comply with all applicable Public Health Regulations;
6. The construction, alteration, moving, demolition, and repair of any building, or other improvement on lands within the Conservation District, shall be subject to the building codes of the respective counties in which the lands are located; provided that prior to the commencement of any construction, alteration, or repair of any building, or other improvement four (4) copies each of the final location map, plans, and specifications shall be submitted to the Chairperson, or his authorized representative, for approval of which three (3) copies will be returned;
7. Any work or construction to be done on the land shall be initiated within one (1) year of the approval of such use, and, all work and construction must be completed within three (3) years of the approval of such use. Failure to comply with this condition shall render this application null and void;
8. That as few mamane trees as possible are to be removed or transplanted from the project site;
9. That, if possible, mamane and ulei (*Osteomeles anthylidifolia*) are to

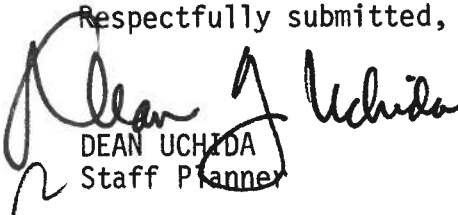
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be planted to enhance the project site and adjacent areas and also to replace the mamane trees removed or damaged as a result of construction;

10. That construction is not to be commenced during the palila breeding season unless birds were discouraged from nesting in the construction area prior to, and continuing into, the nest site selection, pairing, and breeding/rearing period;
11. That the sewage disposal system be monitored by the applicant on a continuing basis to identify and control any adverse environmental impact that could occur;
12. That the applicant initiate the process of removing the skier's parking lot from the Natural Area Reserve designation and while that request is processed, the applicant obtain a special use permit to use the skier's parking lot for the temporary batch plant;
13. Provisions be made for inspection of post cleanup work by a Wildlife biologist or forester. Such cleanup/restoration be done as per their interpretation of the Mauna Kea Plan; and
14. The "batching" site be made available to public parking when the area is not being used, and the site be cleaned and leveled to accommodate parking when the temporary use for concrete batching is completed.

Respectfully submitted,

  
DEAN UCHIDA  
Staff Planner

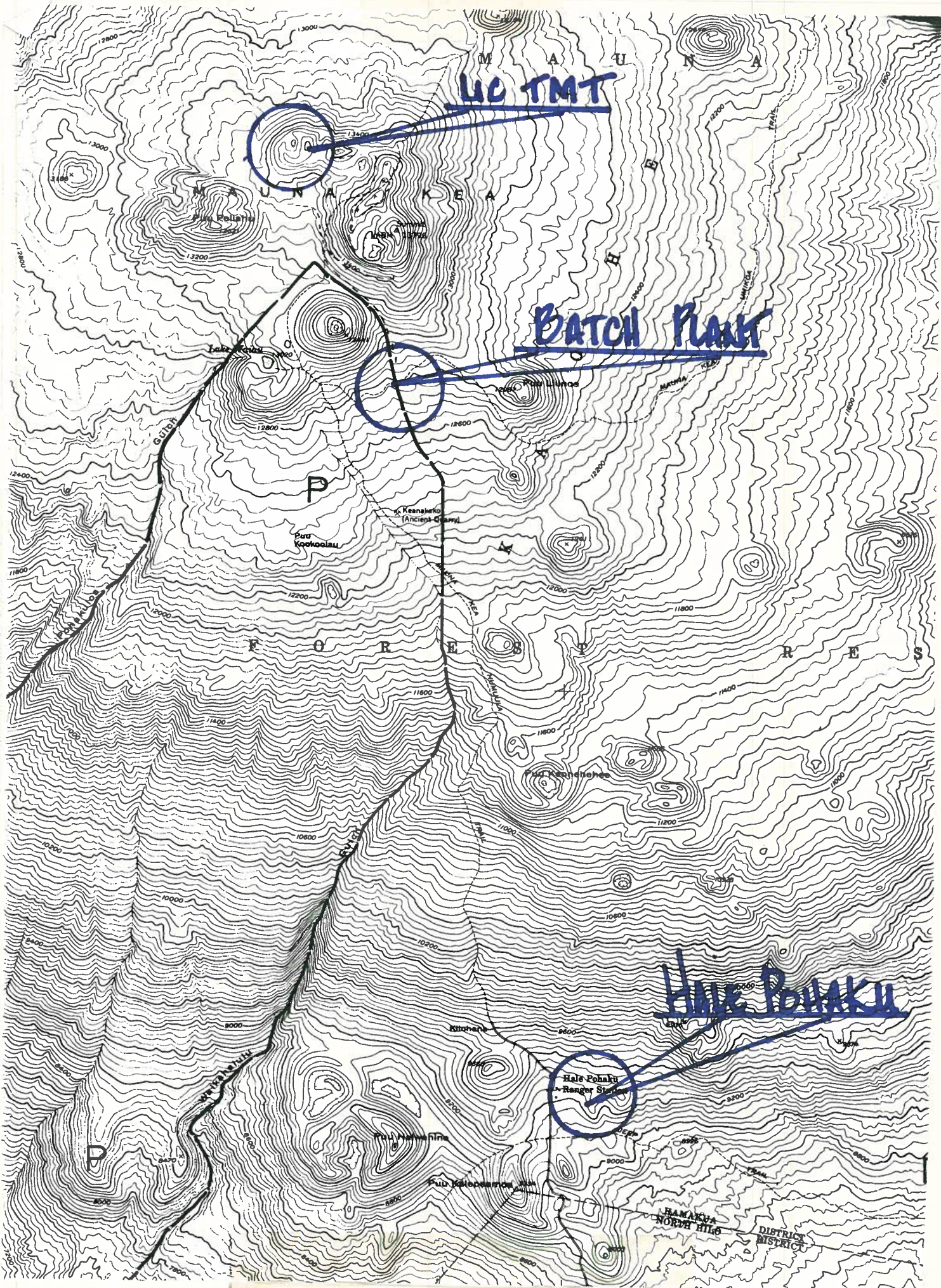
Attachments

APPROVAL FOR SUBMITTAL:



Susumu Ono, Chairperson  
Board of Land and Natural Resources



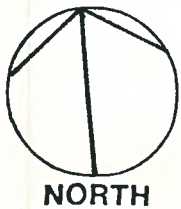


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 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:149410  
 SCALE \_\_\_\_\_

**EXHIBIT 1**

SUBZONE		PROTECTIVE
		RESOURCE
		LIMITED
		GENERAL PROJECT AREA





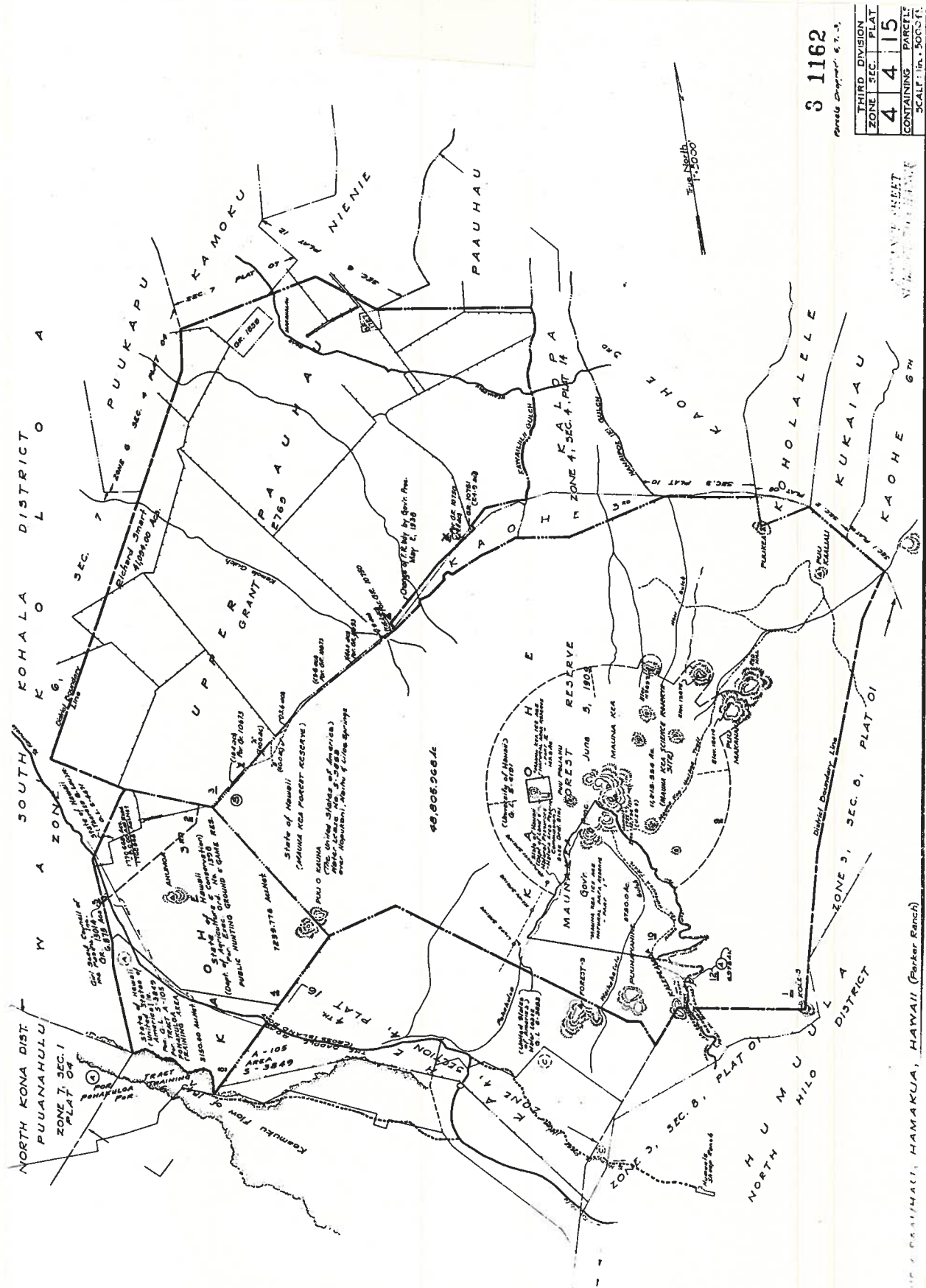
NORTH

CDUA no. HA - 1646  
 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:139,10  
 SCALE \_\_\_\_\_

**EXHIBIT 2**

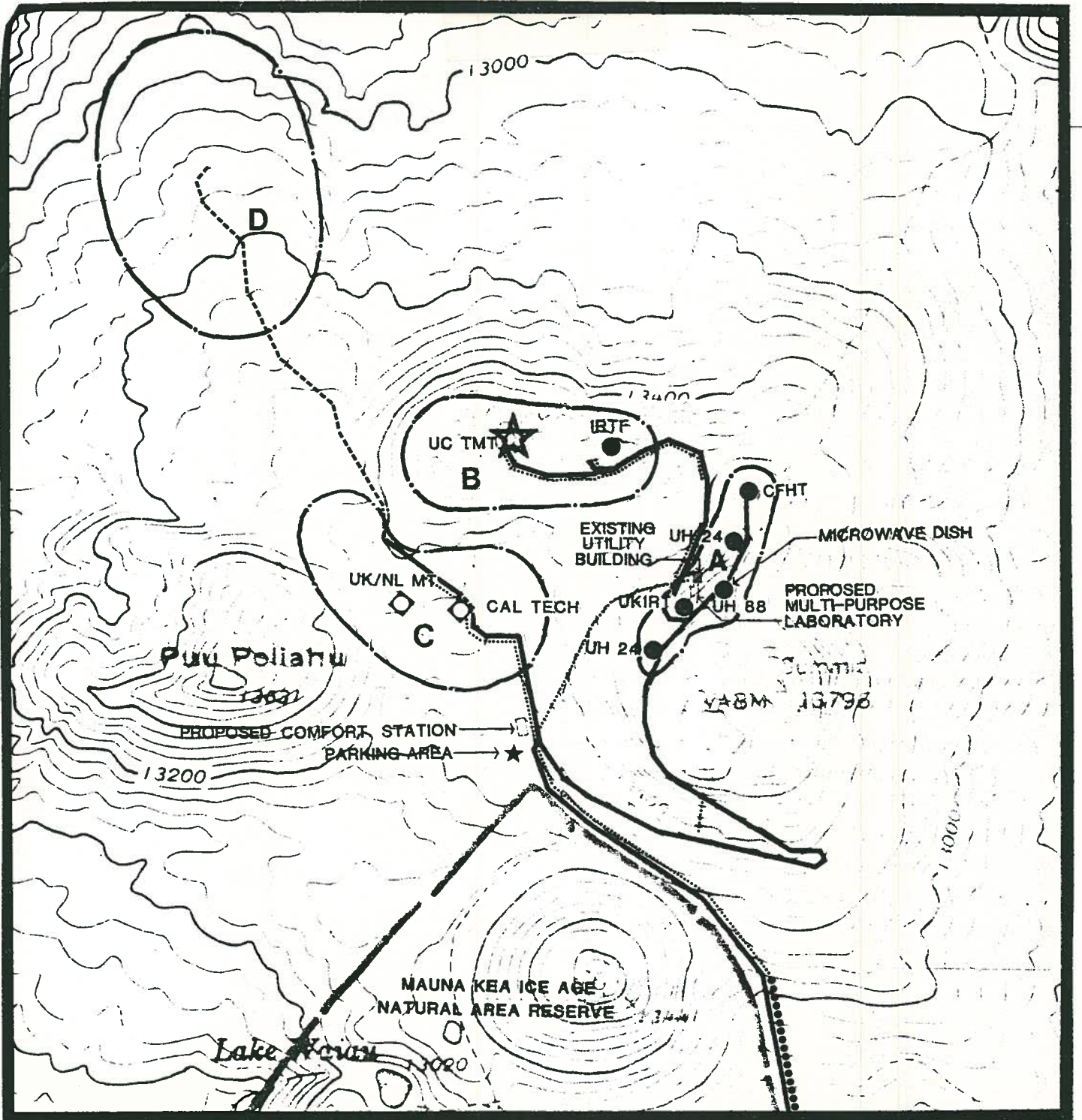
SUBZONE

- PROTECTIVE
- RESOURCE
- LIMITED
- GENERAL PROJECT AREA



3 1162  
 Third Division  
 Zone 4, Sec. 15  
 Contains Parcel  
 Scale: 1 in. = 500 ft.  
 PRINTED

EXHIBIT 2  
 UNIVERSITY OF HAWAII



**LEGEND**

- EXISTING TELESCOPES
- ◇ PROPOSED TELESCOPES
- ROAD IMPROVEMENTS 1ST PHASE
- - - - ROAD IMPROVEMENTS 2ND PHASE
- HELCO POWERLINE
- ..... UNDERGROUND COMMUNICATIONS & POWERLINE CONDUITS
- TELESCOPE SITING AREAS
- ★ PROPOSED UC TMT FACILITY



**PHYSICAL PLAN FOR THE SUMMIT TO YEAR 2000**

**MAUNA KEA SCIENCE RESERVE CDP FIG. 2**



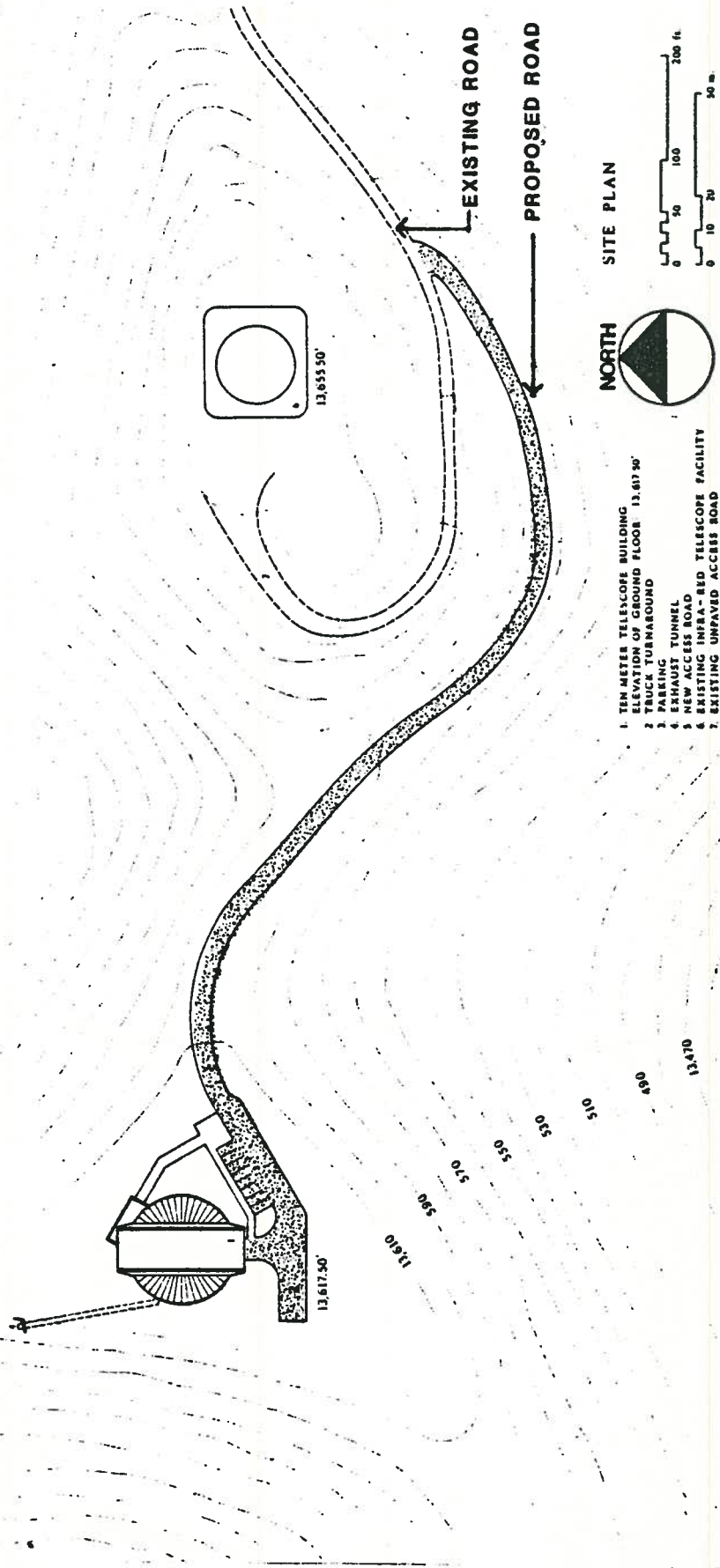
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 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:1,9 & 10  
 SCALE \_\_\_\_\_

**EXHIBIT 3**

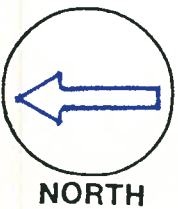
SUBZONE PROTECTIVE  
 RESOURCE  
 LIMITED  
 GENERAL  
 PROJECT AREA



UC TMT PRELIMINARY SITE PLAN  
 MAUNA KEA SCIENCE RESERVE CDP FIG. 3



-5-

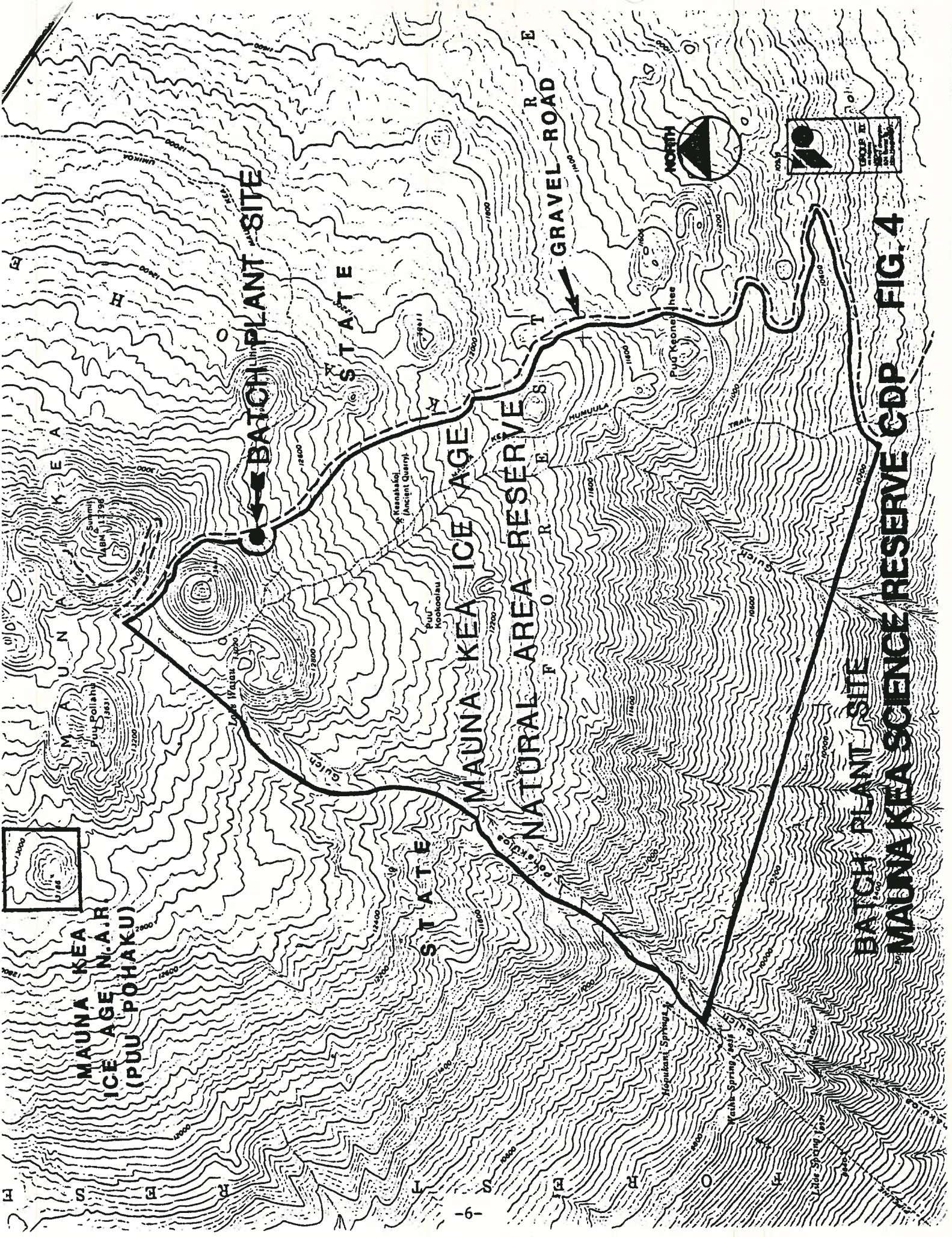


CDUA no. HA-1646  
 APPLICANT U.H.  
 AGENT \_\_\_\_\_  
 TMK 4-4-15: 1,9310  
 SCALE \_\_\_\_\_

Exhibit 4

SUBZONE PROTECTIVE  
 RESOURCE  
 LIMITED  
 GENERAL  
 PROJECT AREA





MAUNA KEA SCIENCE RESERVE CDP FIG. 4

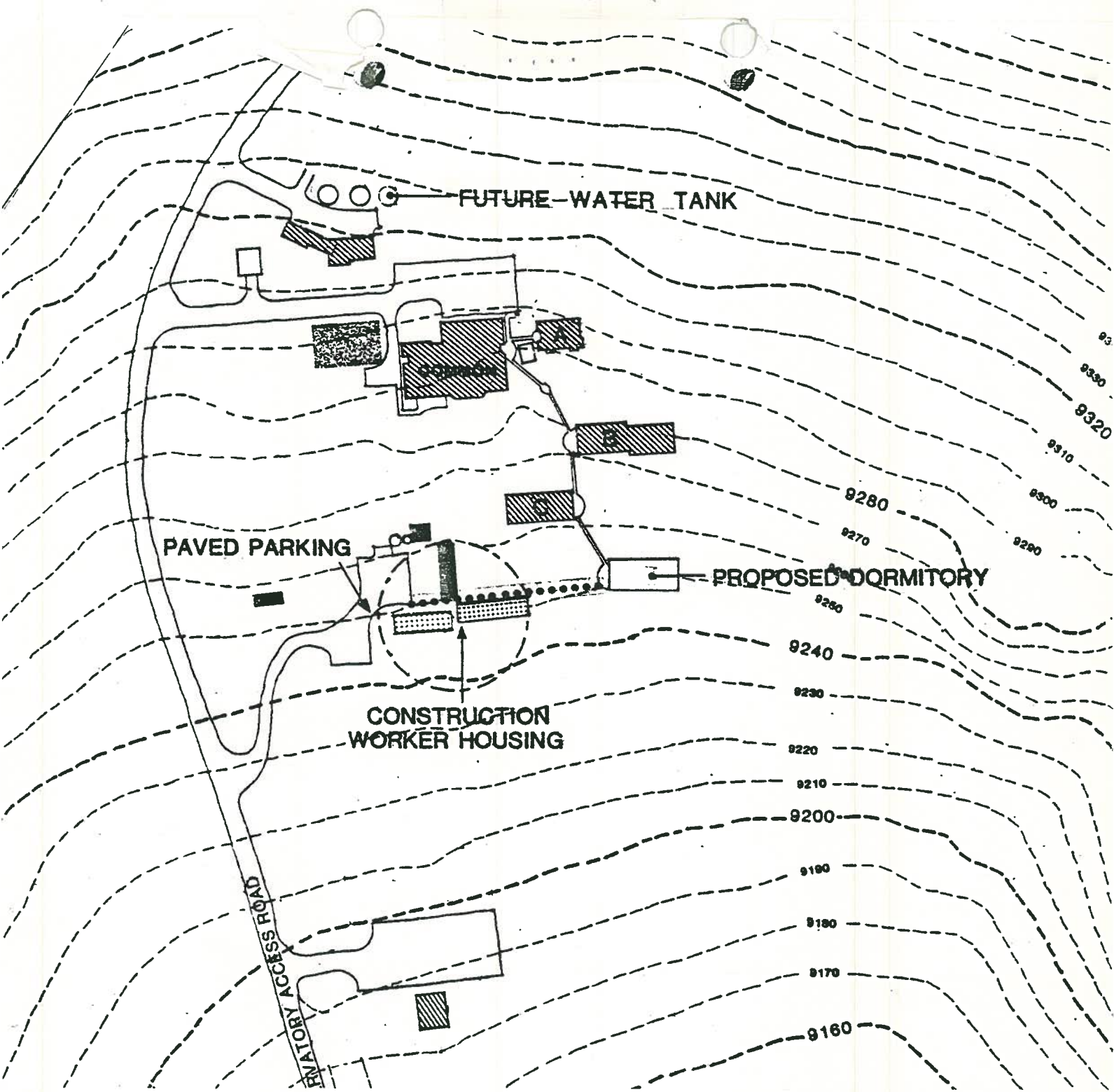


CDUA no. HA-1646  
 APPLICANT u.4  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:1,9 & 10  
 SCALE \_\_\_\_\_





*Batch 5*

- SUBZONE PROTECTIVE
- RESOURCE
- LIMITED
- GENERAL
- PROJECT AREA





**LEGEND**

-  MID LEVEL FACILITIES
-  EXISTING STONE CABINS
-  PROPOSED DORMITORY EXPANSION
-  EXISTING UH TEMPORARY BUILDINGS



**PROPOSED NEW DORMITORY**

**HALE POHAKU, MAUNA KEA, HAWAII FIG. 5**



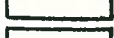

-7-



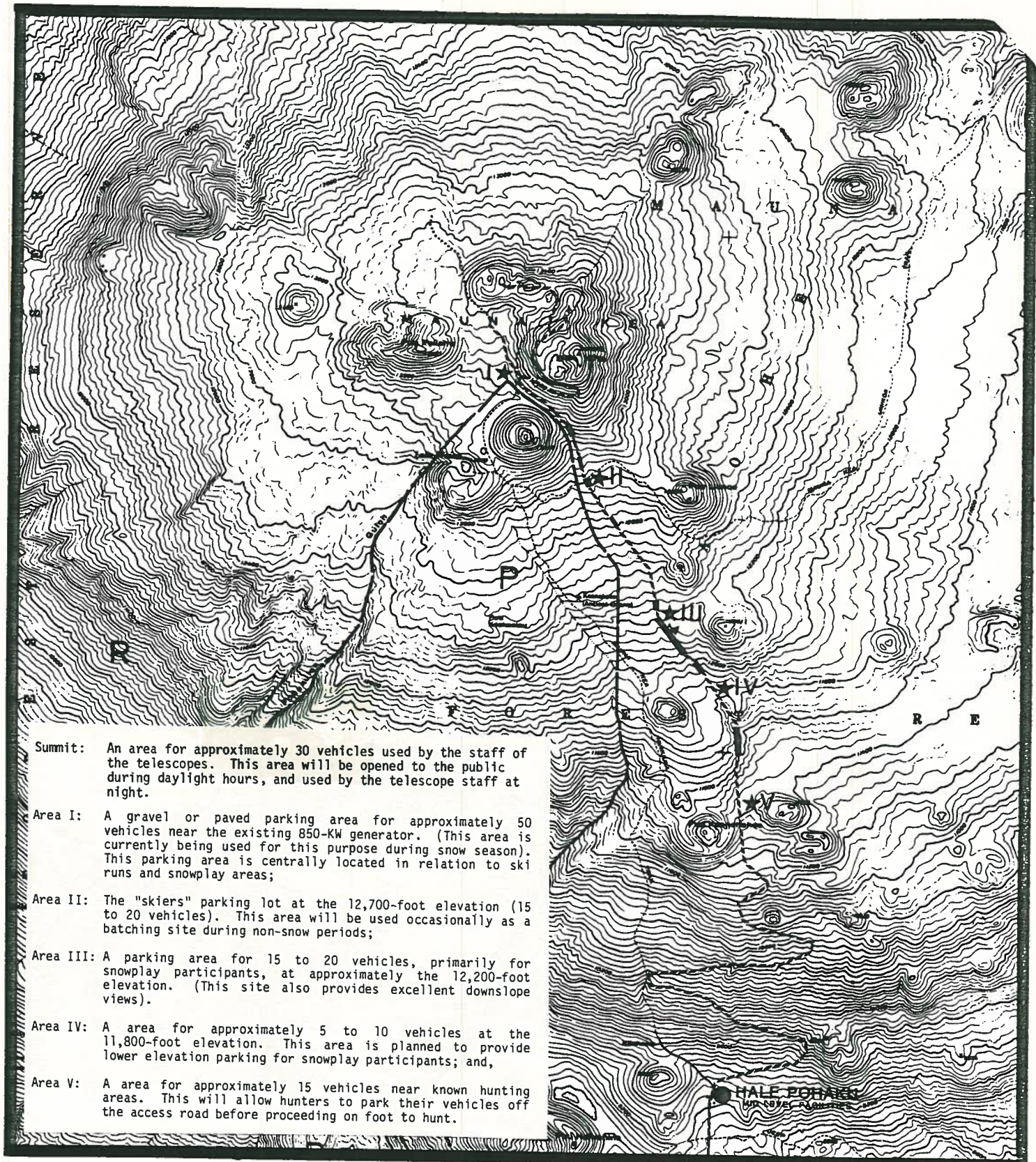
NORTH

CDUA no. HA-1046  
 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:1,9&10  
 SCALE \_\_\_\_\_

**EXHIBIT 6**

SUBZONE  PROTECTIVE  
 RESOURCE  
 LIMITED  
 GENERAL  
 PROJECT AREA





- Summit: An area for approximately 30 vehicles used by the staff of the telescopes. This area will be opened to the public during daylight hours, and used by the telescope staff at night.
- Area I: A gravel or paved parking area for approximately 50 vehicles near the existing 850-KW generator. (This area is currently being used for this purpose during snow season). This parking area is centrally located in relation to ski runs and snowplay areas;
- Area II: The "skiers" parking lot at the 12,700-foot elevation (15 to 20 vehicles). This area will be used occasionally as a batching site during non-snow periods;
- Area III: A parking area for 15 to 20 vehicles, primarily for snowplay participants, at approximately the 12,200-foot elevation. (This site also provides excellent downslope views).
- Area IV: A area for approximately 5 to 10 vehicles at the 11,800-foot elevation. This area is planned to provide lower elevation parking for snowplay participants; and,
- Area V: A area for approximately 15 vehicles near known hunting areas. This will allow hunters to park their vehicles off the access road before proceeding on foot to hunt.

**LEGEND**

- PROPOSED PAVED ROAD
- FUTURE ROAD EXTENSION
- SLOPE ≥ 15%
- ★ PARKING AREAS



**SUMMIT ACCESS ROAD IMPROVEMENTS  
MAUNA KEA SCIENCE RESERVE CDP — FIG. 10**



NORTH

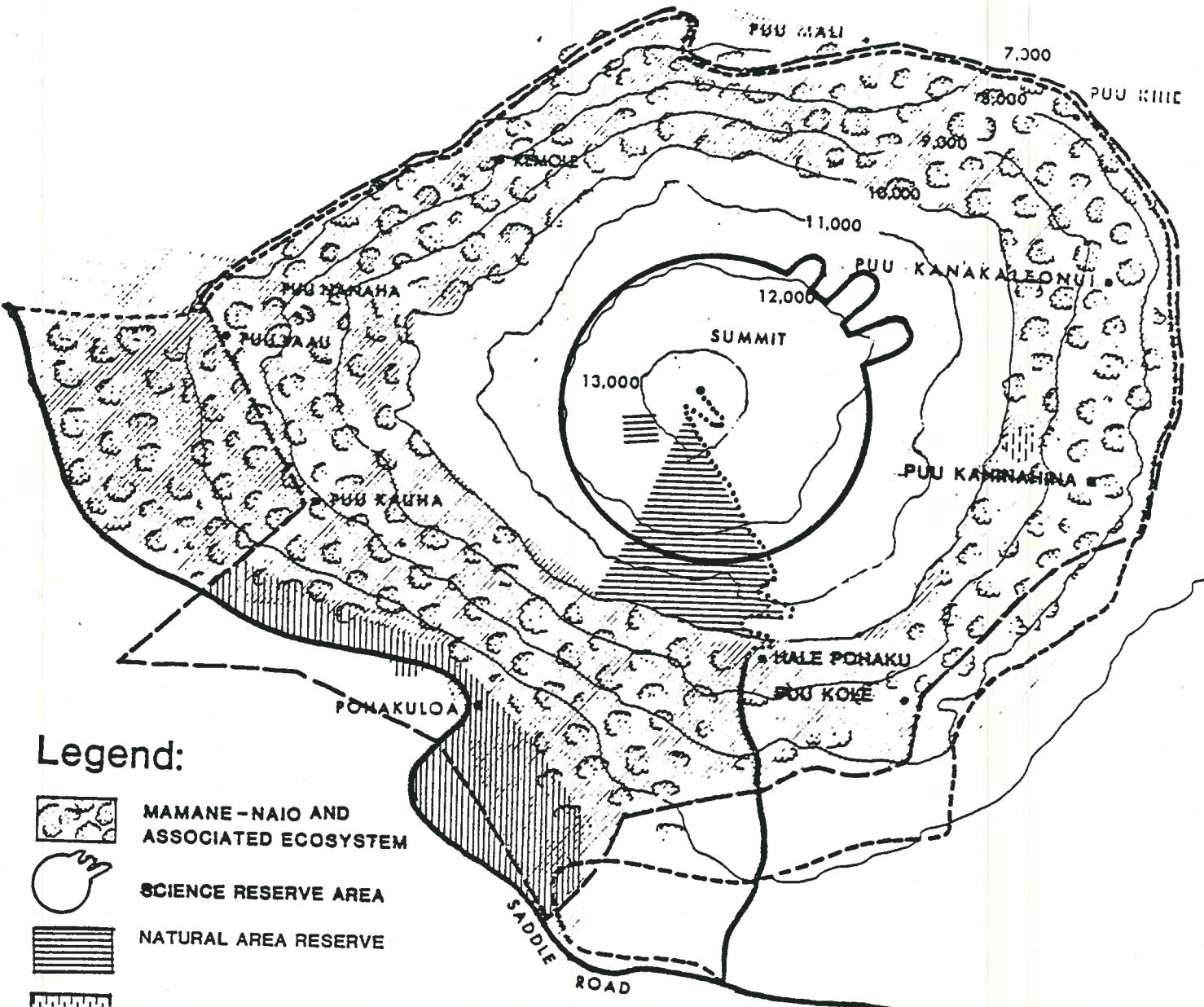
CDUA no. HA-1646  
 APPLICANT U.H.  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:1, 9 & 10  
 SCALE \_\_\_\_\_

*EXHIBIT 7*











SUBZONE

PROTECTIVE  
 RESOURCE  
 LIMITED  
 GENERAL  
 PROJECT AREA





**Legend:**

-  MAMANE-NAIO AND ASSOCIATED ECOSYSTEM
-  SCIENCE RESERVE AREA
-  NATURAL AREA RESERVE
-  SILVERSWORD AREA
-  MILITARY AREA
-  PALILA CRITICAL HABITAT
-  CONSERVATION DISTRICT
-  FOREST RESERVE BOUNDARY
-  PAVED ROAD
-  4-WHEEL DRIVE ROAD



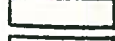
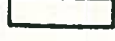


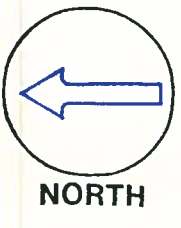
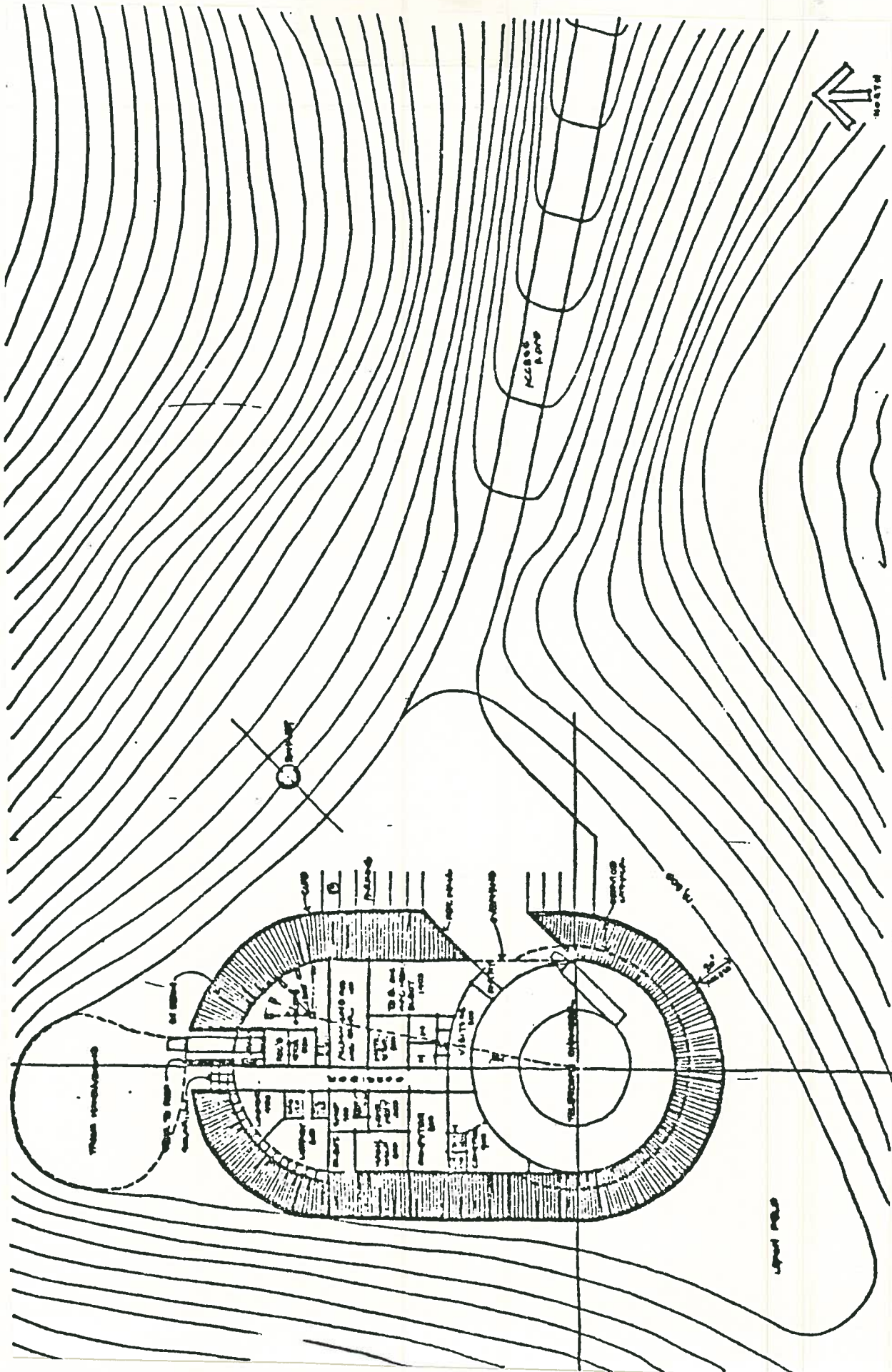
SCALE: 1 : 125,000  
0 2 4 MILES

**MAUNA KEA PLAN MANAGEMENT AREAS  
MAUNA KEA SCIENCE RESERVE CDP - FIG. 3**





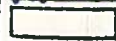
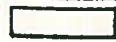
CDUA no. HA-1646  
 APPLICANT U.H.  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:1,9&10  
 SCALE \_\_\_\_\_

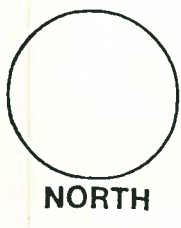
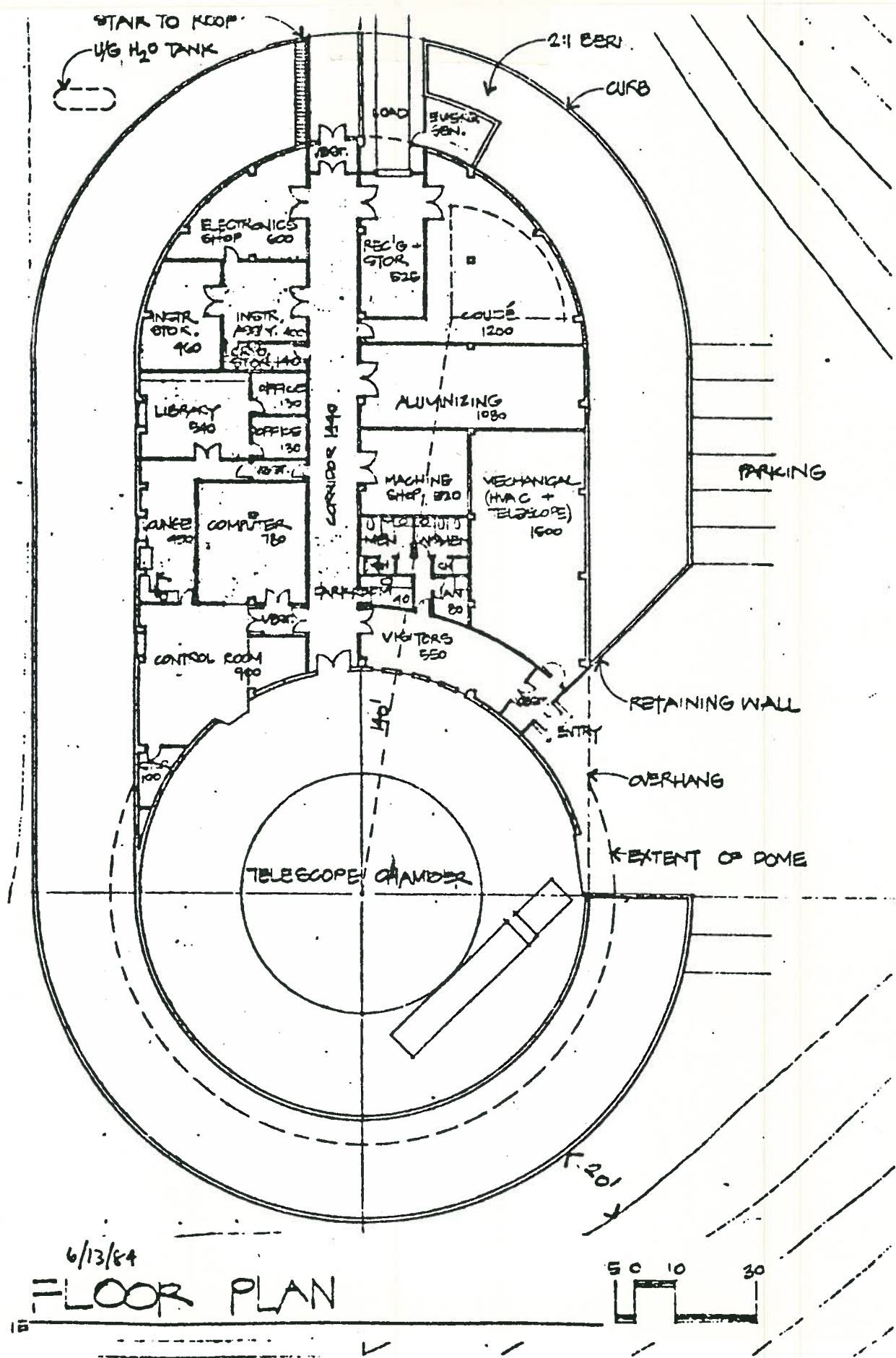
*Exhibit 8*  
 SUBZONE  PROTECTIVE  
 RESOURCE  
 LIMITED  
 GENERAL  
 PROJECT AREA



CDUA no. HA-1646  
 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:139310  
 SCALE \_\_\_\_\_

**Exhibit 10**

SUBZONE		PROTECTIVE
		RESOURCE
		LIMITED
		GENERAL
		PROJECT AREA

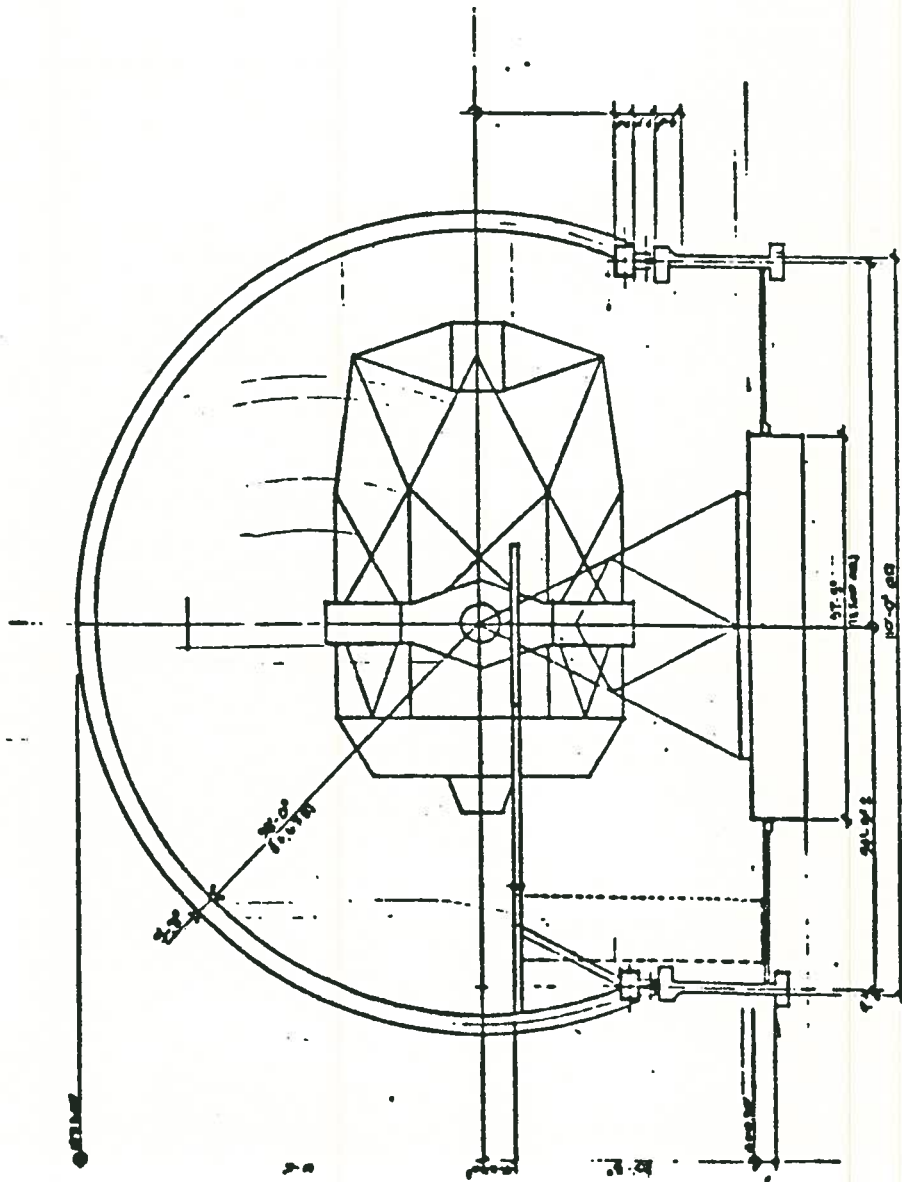


CDUA no. LA-1646  
 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-A-15:1,9&10  
 SCALE \_\_\_\_\_

**Exhibit 11**

	PROTECTIVE RESOURCE
	LIMITED
	GENERAL PROJECT AREA





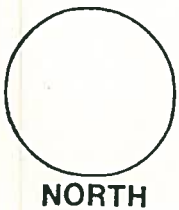
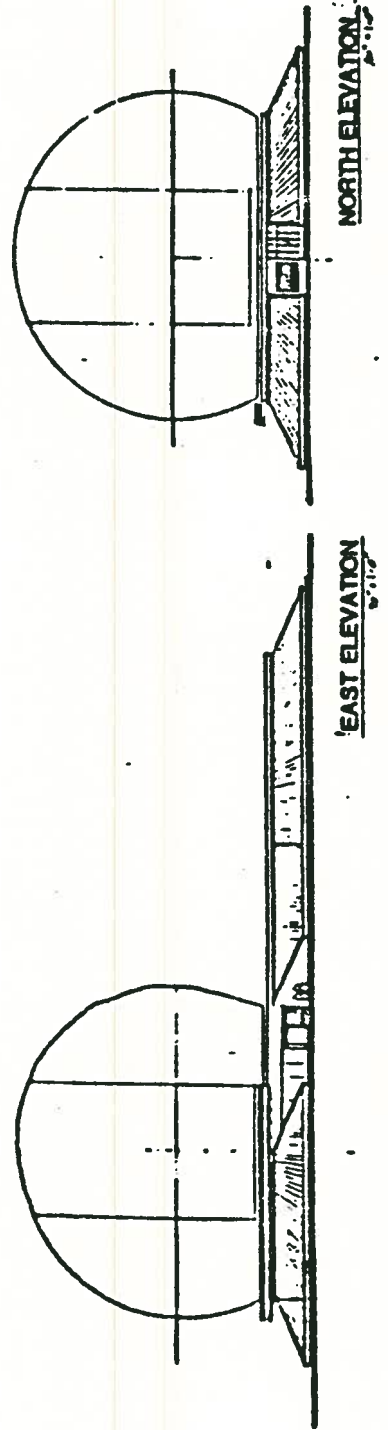
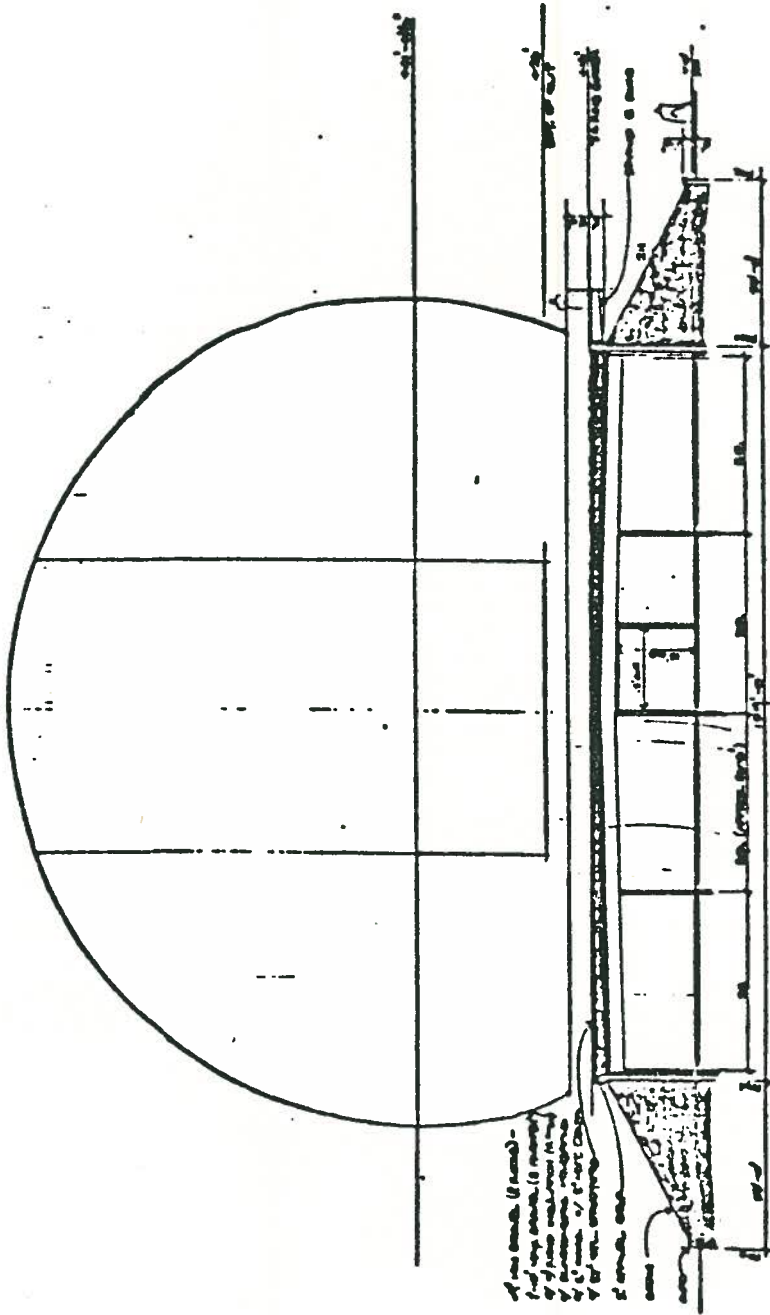
ST. JOHN'S UNIVERSITY







CDUA no. HA-1646  
 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15: 1, 9 & 10  
 SCALE \_\_\_\_\_

**EXHIBIT 12**

- |         |  |              |
|---------|--|--------------|
| SUBZONE |  | PROTECTIVE   |
|         |  | RESOURCE     |
|         |  | LIMITED      |
|         |  | GENERAL      |
|         |  | PROJECT AREA |



CDUA no. HA-1646  
 APPLICANT UNIVERSITY OF HAWAII  
 AGENT \_\_\_\_\_  
 TMK 4-4-15:1,9&10  
 SCALE \_\_\_\_\_

Exhibit 13  
 SUBZONE  PROTECTIVE  
 RESOURCE  
 LIMITED  
 GENERAL  
 PROJECT AREA



JK 4/30  
4/30  
CME 5/1  
7/18/83  
C. Campbell  
5/1/82

ES  
Room 6307

MAY 3 1982

Mr. Nathaniel B. Cohen  
Director, Management Support Office  
National Aeronautics and Space Administration  
Washington, D.C. 20546

Dear Mr. Cohen:

This responds to your April 22, 1982 request for consultation under Section 7 of the Endangered Species Act of 1973, 16 U.S.C. 1531, et seq, on the possible impacts of the most recent plan for construction of the Hale Pohaku Mid-level Facility on Mauna Kea, Hawaii on the palila, an endangered species. The National Aeronautics and Space Administration's (NASA) contribution of funds for the construction and use of the facility requires this consultation.

This letter represents the biological opinion of the U.S. Fish and Wildlife Service in accordance with Section 7, "Interagency Cooperation Regulations" (50 CFR 402, 43 FR 870) on the project as modified by recent changes to building design and positioning.

On April 30, 1982, we completed our review of the information provided by you along with other related information in our files. We also contacted some of those familiar with the biology, management and recovery of the species involved. Copies of pertinent documents and documentation are contained in an administrative record maintained in this office.

Biological Opinion

It is our biological opinion that the recent changes and additions to the original plan (submitted for our review in 1979) will not jeopardize the continued existence of the palila, Psittirostra bailleui, nor would they be expected to destroy or adversely modify Palila Critical Habitat.

The following summarizes some of those factors considered in this determination, and recommends several actions which would help to minimize negative impacts which the project may generate in relation to the listed species.

Project Description and Consultation History

On May 14, 1979, NASA requested formal consultation with this Service in reference to their funding of operation and use (no construction) of a mid-level facility for observatory personnel at the Hale Pohaku area on Mauna Kea, Hawaii. At that time, it was determined that the palila and its designated critical habitat might be affected by NASA's action. After investigation by this Service, a biological opinion was issued on November 12, 1979. It con-

Exhibit 9

cluded that NASA's participation would not be likely to jeopardize the continued existence of the palila or its critical habitat.

Early in 1981, the University of Hawaii informed us that they would be funding the construction segment of the project. This was to be done with private, not Federal, funds. We advised them on precautions which should be taken in relation to the palila.

During the first months of fiscal year 1982, we learned that two changes had occurred concerning Hale Pohaku. First, several major building plan modifications were incorporated into the total design. The number of structures to be built, their size, and their positioning were changed (a copy of the State of Hawaii's amendment to the original environmental impact statement is enclosed). Secondly, NASA's role in funding had shifted from just support of the use and operation of the facility to funding for construction as well. As the last paragraph of our 1979 opinion states "If site selection or project modifications beyond those submitted to the Service or discussed above occur, reinitiation of consultation may be appropriate", NASA has complied by their reinitiation request.

#### Species Account

##### Palila:

This member of the Hawaiian honeycreeper family (Drepanididae) received Federal recognition as an endangered species in 1966. The primary reasons for this status classification were that it no longer occupied a significant portion of its historical range, its present habitat was being adversely modified by feral sheep browsing, and its total population had decreased to the low hundreds. Originally occurring widely over the Island of Hawaii, its present range is believed to be limited to the mamane-naio ecosystem above approximately 6,000 feet on Mauna Kea. Although the details of this decline are not well known, feral sheep browsing on mamane trees is established as the major factor in the birds' decline. Because mamane provides most of the food, nest sites, and shelter for the palila, the implications of the trees' decline can be easily recognized. In response to the circumstances of the birds' decline, a critical habitat was designated for the palila on August 11, 1977.

The nesting season for the palila usually starts in the late spring and lasts from five to six months.

#### Analysis of Impacts

The possible impact of the construction and use of the Hale Pohaku facility is three-fold. First, the facility (buildings, parking areas, sidewalks, etc.) will be constructed in the designated Palila Critical Habitat and will require the removal of several mamane trees. Secondly, increased noise and other disturbances created during construction and use of the facility may directly disturb area birds. Third, the impact of the project on other factors in the general area may indirectly affect the palila.

As with the original (1979) plan, as few trees as is possible will be removed or transplanted. No significant increase in the number of trees to be removed is expected. Therefore, the impact of tree removal on the birds does not appear to be greater than that addressed in our 1979 opinion.

Of primary importance is that the palila be disturbed as little as possible during the period of active nesting. The University of Hawaii requested our recommendations on this issue, and readily accepted our advice that birds should be discouraged from nest building in trees scheduled for removal or within the area of forecast construction disturbance. Owing to the high elevation of the site (9,000 feet) and inclement winter weather, the desirable construction season and the palila nesting season overlap. Since construction is scheduled to commence during the 1982 nesting season, the University is discouraging nest construction by using facility generators and construction site perimeter roads as much as possible. Palila nesting in the affected area have not been noted in the past, and, hopefully, palila will continue to nest outside of the construction area again this year. Once the construction is completed, disturbances will be greatly lessened.

The third consideration is the effects of the project on the area ecosystem as a whole. There will be increased use of the Hale Pohaku road, expected increases in roadside litter, a greater use of the facility resulting in increased sewage and water demand and general human activity.

All proposed activities will be conducted within 1/8 mile of the existing Hale Pohaku road. Increased use of the road and resulting litter would not be expected to be significant in relation to the palila, its reproduction and recovery. Water will be trucked in, and septic tanks will be designed to accommodate sewage flows. One possibly beneficial effect is that increased activity will discourage sheep from entering the area. As sheep destroy young mamane trees, their absence may result in more mature trees, an improvement of palila habitat.

In consideration of the data available and the proposed scope of the project, it is our biological opinion that your action of funding construction and use of the Hale Pohaku facility will not jeopardize the continued existence of the palila nor will it result in the destruction or adverse modification of Palila Critical Habitat.

#### Conservation Measures

Section 7 (a) (1) of the Endangered Species Act also requires federal agencies, in consultation with this Service, to utilize their authorities to carry out programs for the conservation of listed species. We believe that you have this opportunity by incorporating the following stipulations and measures in your project considerations. The goal is to allow the proposed project to be completed while assuring as much protection of the palila and its habitat as possible.

1. As few mamane trees as possible are to be removed or transplanted from the project site.

- 4
2. If possible, mamane and ulei (Osteomeles anthylidifolia) are to be planted to enhance the project site and adjacent areas and also to replace the mamane trees removed or damaged as a result of construction.
  3. Construction is not to be commenced during the palila breeding season unless birds were discouraged from nesting in the construction area prior to and continuing into the nest site selection, pairing, and breeding/rearing period.

Note: In informal communication with the University of Hawaii, it is our understanding that this is currently being accomplished.

NASA is reminded of its continuing responsibility to review its activities and programs in light of Section 7 and to reinitiate this consultation if new information becomes available which identifies that the project may affect species listed or proposed for listing in ways not addressed in this opinion, the action described is modified, or if a new species or new critical habitat area is listed that may be affected by your action.

Sincerely yours,

(sgd) Dale T. Coggeshall

Pacific Islands Administrator

Enclosures:  
List of References  
Amendment to EIS

6

cc: Regional Director, FWS, Portland, OR (AFA-SE)

LKRAMER:md:4-29-82

POURI 2C

References

State of Hawaii Department of Land and Natural Resources. The Mauna Kea Plan.  
May, 1977.

State of Hawaii Department of Land and Natural Resources. Amendment to the  
Maie Pohaku Mid-level Facilities Master Plan Environmental Impact State-  
ment. 1982.

U.S. Fish and Wildlife Service. Palila Recovery Plan. 1977.