



MEMORANDUM

July 10, 2025

TO: Mauna Kea Stewardship and Oversight Authority

FROM: Greg Chun, Executive Director, CMS

SUBJECT: Formal consultation, Site Plan Application for NASA Infrared Telescope Facility Geotechnical Analysis

- Date proposal rec'd: 5/1/2025
- Type A **B** C
- CMS Project #358
- ED review: 5/7/2025
- EC review: 5/8/2025
- KKM review: 6/26/2025
- MKMB review: 7/1/2025
- MKSOA review: 7/10/2025

I. Project Description

The NASA Infrared Telescope Facility (“IRTF”), located on Pu’u Hau’oki, is experiencing site erosion and requests to conduct geotechnical analysis. It will take core samples at two sites to analyze the underlying rock.

IRTF was originally permitted under Conservation District Use Permit (CDUP) HA 653. Applicable sublease and lease terms require IRTF to maintain its facility in safe working conditions, prompting needed maintenance work after four decades of operations. The proposed use will inform future measures to address erosion.

No hazardous materials are involved. No impact is expected to any identified cultural, historic, natural, recreational, or scientific resources. The action is expected to have temporary and either minimal or no significant effects to any resources.

II. Cultural Resources Identified

The project area is within the:

- Kukahau’ula Traditional Cultural Property, State Inventory of Historic Places (SIHP) Site #50-10-23-21438.
- Mauna Kea Summit Region Historic District, SIHP Site #26869; and
- Mauna A Wākea Traditional Cultural Property and District, SIHP Site 31382.

However, project activity is limited to the regularly-used and maintained sublease parcel of IRTF, where no cultural or historic resources have been identified; there are also no known historic properties within at least 1,000 feet of IRTF. The truck-mounted drill rig will be parked on the eastern side of IRTF, where it will not affect any celestial or oceanic viewplanes. The proposed land use is not anticipated to have any negative effect on any cultural or historic resources.



III. Impacts Identified

The work will not extend or enlarge IRTF's footprint and does not change the permitted use of the facility. No adverse impacts are anticipated to any natural (geological and hydrological), biological, or recreational resources.

IV. Recommended Mitigation

CMS identifies the land use as Hawaii Administrative Rules §13-5-22, P-1 Data Collection, (B-1) *Basic data collection, research, education, and resource evaluation that results in a minor disturbance to natural resources or land (e.g. corings, excavations, etc.)*. Request for Site Plan Approval from Office of Conservation and Coastal Lands (OCCL) will be submitted following consultation with KKM, the Environment Committee, Maunakea Management Board (MKMB), and the Mauna Kea Stewardship and Oversight Authority (MKSOA). CMS has also determined the project to be exempt from a Chapter 343 review based on Hawaii Revised Statutes §343-5(b), HAR §11-200.1-8, and UH's approved exemptions list. Details on claimed exemptions are provided in the attached project proposal and Site Plan application. The project will not proceed unless all applicable reviews are completed and approvals, including Land Division, are obtained. Standard Best Management Conditions, applicable CMS approval conditions, and OCCL approval conditions will be complied with.

During the Environment Committee's review of this project on May 8, 2025, members raised the following questions or suggestions:

- Whether IRTF or its desired contractor had considered that erosion could be originating from drainage off the top of the pad running down the sides, instead of from the slope itself. IRTF replied the contracted geotechnical firm will look at all possibilities. The contractor will provide recommendations to prevent additional erosion once it has analyzed the core samples.
- Whether the boreholes would be filled with the original material. CMS staff replied that it is a standard project condition for any/all uncontaminated and undestroyed sampled material to be returned. IRTF confirmed the boreholes will be refilled with the original material after analysis.
- Suggestion for geochemist/hydrologist [Don Thomas](#) to sample and/or archive the cores. CMS contacted Dr. Thomas who related that, given the relatively shallow depth of the cores, they were not likely to yield unique information and declined the offer.

Formal consultation with Kahu Kū Mauna occurred on June 26, 2025. KKM requested clarification on whether the project would extend the lifespan of the IRTF. IRTF explained it did not and is purely a maintenance issue that allows them to remain operational until the 2033 lease termination date. The request was approved by quorum, with KKM noting appreciation for the information that will be provided through this sampling analysis about the mauna in general and how it may inform other erosion concerns.

The Maunakea Management Board reviewed the project on July 1, 2025. The MKMB expressed no concerns or objections and attending members approved it unanimously to proceed to Chancellor approval.



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V. Center for Maunakea Stewardship Recommendation

The request is consistent with the Comprehensive Management Plan (CMP) and IRTF's CDUP. Further, CMS' review of project requests like this complies with applicable CMP actions. CMS recommends MKSOA approve this request with the attached "Project approval conditions."

Facility Project Proposal for the UH-Managed Lands

Proposals due by the 15th monthly

Please mark all that apply to your project

- ☒ Project was reviewed in a 5- or 3-Year Plan
- ☒ Project is a CMP, lease, or sublease compliance measure (e.g., keeps the site in safe working order)
- ☒ Project involves heavy machinery
- ☒ Project requires ground disturbance such as digging or trenching
- ☐ Project will result in a change to the facility footprint or use
- ☐ Project affects a viewplane (e.g., starline or oceanic gridline)

Facility Name

NASA Infrared Telescope Facility (IRTF)

Brief Descriptive Title of Project

Conduct geotechnical assessment of soil characteristics to determine appropriate options to restore the eroded eastern slope.

Project Description

IRTF must address erosion occurring to its eastern slope and requests approval to conduct geotechnical analysis via two corings on its facility accessway (see Figure 1). The corings will provide an anticipated total maximum volume 15.7 ft³ of sample. Sample will be assessed to determine an appropriate erosion control, for which a separate follow-up proposal will be prepared for CMS in seeking the necessary permits from regulatory bodies including Land Division, OCCL, SHPD, and the County of Hawaii.

Identified Land Use (see HAR § 13-5-22 through 13-5-25)

HAR §13-5-22, P-1 DATA COLLECTION, (B-1) Basic data collection, research, education, and resource evaluation that results in minor disturbance to natural resources or land (e.g. corings, excavations, etc.).

Identify the existing CDUP this proposal alters or affects, if any

HA 653

Identify [University of Hawai'i exemption](#) per HAR § 11-200-8(a), if any

The project claims the following exemptions: HAR §11-200.1-15 (c) The following general types of actions are eligible for exemption: Exemption Class (5) Basic data collection, research, experimental management, and resource and infrastructure testing and evaluation activities that do not result in a serious or major disturbance to an environmental resource; and HAR §11-200-8(a) Exemption Class #5, Basic data collection, research, experimental management, and

resources evaluation activities which do not result in a serious or major disturbance to an environmental resource, (3) Topographic, land use, soils, and drainage surveys.

Tax Map Key(s)

3-4-4-015:009 – Mauna Kea Science Reserve (por.)

Proposed Commencement Date

01 September 2025, pending necessary approvals

Proposed Completion Date

10 September 2025, pending weather

Estimated Project Cost

\$30,000

Total size / area of proposed use

Area to be sampled shown in Attachment 1. Coring will be conducted using either a four-inch (4") or six-inch (6") drill bit. The estimated amount of soil sample to be obtained will be:
6.842 cubic feet maximum if drilling depth of 20' is achieved with a 4" diameter drill.
15.71 cubic feet maximum if drilling depth of 20' is achieved with a 6" diameter drill.

Project Purpose and Need

The project is needed to devise measures to address erosion occurring along the eastern slope of the IRTF facility, in accordance with terms of the IRTF sublease and CMP management action for Infrastructure and Maintenance IM-6, Finalize and Implement Erosion Control Plan. The eastern slope supports the driveway leading to IRTF's rear receiving area. In addition to providing access for large deliveries and vehicles servicing IRTF, the driveway also allows transport for IRTF's primary mirror to undergo necessary maintenance, conducted offsite at another facility. The driveway needs to be widened by five (5) feet for continued mirror movement and maintenance.

Has professional peer-review occurred

Yes, the project has been developed and reviewed by engineering consultants with IRTF staff. Review by CMS staff, community advisory boards, and the Mauna Kea Stewardship and Oversight Authority will proceed in accordance with these boards' scheduled meetings.

Are there any related ongoing, pending, or planned projects associated with this submission?

Yes, the project will determine erosion mitigation measures for the eastern slope, to be submitted as a separate project request.

Existing Conditions at Project Site(s)

Geology, Climate, & Hazards

Geology: The project area is located in the summit region of Maunakea, a shield volcano. Primary geological features on the summit include cinder cones and 'a'a lava flows. The summit area has also been shaped by past glacial activity and lava-ice interaction, including subglacial eruptions where lava erupted through or near glaciers. The main rock type here is hawaiiite and bears signs of glacial striation and is interlaid with cinder, ash and other volcanic pyroclasts.

Flora, Fauna, Ecology, Water Resources

The alpine stone desert where the project will occur experiences freezing temperatures, high solar radiation, and annual precipitation of 12 inches or less due to the inversion layer that prevents cloud formation or their upward movement. The flora and fauna of the area includes algae, lichens, mosses and over three dozen arthropod species, some of which may occur at the project site. The site, however, has had no documented rare, threatened, or endangered species. Regular arthropod monitoring is conducted by CMS pursuant to the 2022 Comprehensive Management Plan Supplement. IRTF complies with the Standard Operating Procedures of the Maunakea Invasive Species Management Plan to reduce introduction of invasive species. The project is not anticipated to have any negative impacts to any floral, faunal or ecological resources.

Cultural, Historical, and Recreational Resources

The project site is within Kūkahau'ula Traditional Cultural Property, SIHP Site 21438; the Mauna A Wākea Traditional Cultural Property and District, SIHP Site 31382; and the Mauna Kea Summit Region Historic District, State Inventory of Historic Places (SIHP) Site #50-10-23-26869. The nearest identified historic property, SIHP site 26224 on Pu'uwēkiu, is over 1,000 feet from the project site. No archaeological resources have been identified within the observatory sublease parcel. No cultural resources or historic properties are anticipated to be adversely impacted by this project. Given the limited timeframe and physical scope of the activity, the project is not anticipated to have adverse

impact on viewplanes, a cultural resource, beyond the project period. During the daytime, when the proposed land use would occur, IRTF may see a few recreational visitors. The project is not anticipated to involve any road closures. However, for public safety, IRTF may determine to close its sublease area, where the drill rig will be parked during the project duration. Any subsequent impacts to recreation are expected to be brief (ten days or less) and only affecting those visitors seeking to access the IRTF site. Other areas such as the rest of the Pu'u Hau'oki ridge and its viewplanes will remain open to public access.

Built Infrastructure

Existing infrastructure on the IRTF site includes the main telescope housing, an outbuilding, electrical and telecommunication lines, vehicle accessway and parking.

Landscaping & Visual Conditions

Visual conditions include local cinder/regolith; no manmade landscaping with vegetation exists.

Description of the Project

Location

The proposed use will occur at the IRTF sublease, shown in Figure 1. Coring sites are depicted in the attached "Preliminary Boring Location Plan."



Figure 1: View of IRTF and eastern face of Pu'u'hau'oki. Evidence of erosion shown in precipitation run-off marks. Existing retaining wall appears as a slightly curved black line near the top of the pu'u.

Description of the process of completing the project

The contractor will drill and sample two borings 4"-6" in diameter at the project site, extending to depths at least 15 feet below the existing ground surface, or until refusal conditions (unable to drill any further). The boreholes will be drilled utilizing either a truck or trailer-mounted drill rig equipped with continuous flight augers and coring tools. Soil samples will be collected from the drilled borings using split-spoon and split-barrel samplers. If needed to lubricate the bit, the contractor will take water from IRTF's tank. The current proposal assumes that the proposed boring locations (attached "Preliminary Boring Location Plan") will be accessible to the contractor's drill rig. IRTF agrees that all unused and uncontaminated sample material will be returned to its origins. IRTF anticipates it may need to block off its eastern accessway to the public for general safety. At this time, no other road or area closures are anticipated.

Who will do the work?

A contractor will do the geotechnical sampling and analysis, with an estimated two employees working onsite. Only the coring will occur onsite and is expected to take

Equipment & Transportation

One service truck, or a truck with trailer, will be used to transport the rig. The drill rig decibels range from 70-80 decibels within a 100 foot radius.

Measures to protect the environment and/or mitigate impacts

Impacts

The project is not anticipated to cause any permanent adverse impacts.

Protective Measures

Protective measures are provided in the attached “Standard Approval Conditions” and may include additional measures recommended by community committees, MKSOA, Land Division and OCCL.

Compliance with Lease, Sublease, or Comprehensive Management Plan (CMP)

The project is a sublease compliance action.

Identify other required or associated permits

None.

Three Year Outlook

The project was included in IRTF’s 2025-2027 Three Year Outlook and reviewed by Kahu Kū Mauna on February 6, 2025. KKM agreed with CMS’ designation as an In-Depth Consultation, scheduled to occur during a special meeting on June 26, 2025.

Community Benefits

Benefits to other Maunakea entities and/or global astronomy community

Maintains IRTF’s sublease in good working conditions.

Benefits to the Hawaii Island community

N/A

Will data, publications, or other products be free and available to the public?

N/A

DLNR Evaluation Criteria

After approval by the Maunakea Management Board, the Department of Land & Natural Resources or Board of Land & Natural Resources will evaluate the merits and approve the project based on the following eight criteria (§13-5-30). See <http://dlnr.hawaii.gov/occl/files/2013/08/13-5-2013.pdf>

1. The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. (ref §13-5-1) How is the proposed land use consistent with the purpose of the conservation district?

This proposed land use is an allowable use within the Conservation District, pursuant to HAR 13-5-24, R-3, Astronomy Facilities, (D-1), and under an approved management plan. The approved management plan is the 2022 Maunakea Comprehensive Management Plan Supplement. In

addition to the proposed project being an identified use, IRTF is committed to managing the natural and cultural resources of the UH Management Areas in a way that fulfills the objective of the Resource subzone of the Conservation District. The project will facilitate sustained use of the site for existing, approved uses. No change in type, extent, or intensity of use will occur as a result of this project. No cultural resources and only sparse biological resources (lichens/moss) exist on the site; thus, there is minimal if any negative impact to those resources.

2. How is the proposed use consistent with the objectives of the Resource subzone of the land on which the land use will occur?

The objective of the Resource subzone pursuant to HAR §13-5-13, where IRTF is located, is "...to ensure, with proper management, the sustainable use of the natural resources of those areas. This subzone shall encompass: lands necessary for providing future parkland and lands presently used for national, state, county, or private parks. Lands suitable for outdoor recreational uses such as hunting, fishing, hiking, camping, and picnicking..." The project will facilitate sustained use of the site for existing, approved uses by carefully addressing erosion. No change in type, extent, or intensity of use will occur as a result of this project. Natural and cultural resources will not be negatively impacted

3. Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management".

The site of the proposed use is over 20 miles from the coast and is not connected to shoreline resources. The project will have no effect on any of the coastal resources identified in 205A, including, but not limited to, recreational opportunities, historic resources, scenic and open space, ecosystems, economic uses, beach and coastal dune protection, and/or marine and coastal resources. The project is also not a coastal development. Consequently, the project complies with the objectives of HRS 205A.

4. Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

The project site is currently used for regular operations including vehicle movement, vehicle parking, and routine maintenance, as well as by occasional recreational visitors. The sampling will be performed using industry standard methods and best management practices to avoid any adverse impacts. CMS will also ensure the project complies with the 2022 CMP Supplement to ensure that no identified resources are harmed and to prevent introduction of any invasive species. The project will also comply with reasonable conditions recommended by the Environment Committee, Kahu Ku Mauna Council, Mauna Kea Management Board, the Mauna Kea Stewardship and Oversight Authority; and approval conditions provided by OCCL.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

The proposed land use is compatible with the locality and surrounding area given its brief duration (ten days at most), no lasting visual impacts, and its allowing for continued scientific operations of IRTF.

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

During the project period, heavy machinery will be onsite to conduct work (coring samples). However, this does not impact the long-term natural beauty and open space characteristics, which will be preserved through to-be-determined erosion control measures.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

No new subdivision of land will occur.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The project will have no negative impact to public health, safety and welfare. All of these aspects will be maintained through Best Management Practices.

PRELIMINARY BORING LOCATION PLAN
New Retaining Wall and Erosion Mitigation
NASA Infrared Telescope Facility
4/3/2025



Project approval conditions

Prepare to Start the Project

- Identify and comply with other permit requirements, such as County of Hawai'i building permits or Department of Land & Natural Resources permits (see *both*/any applicable DLNR permit and [HAR §13-5-42 Standard conditions](#)).
- Use of real-time GPS during any surveying or equipment operation requires advance written approval from CMS and the Institute for Astronomy. GPS use should be requested at least four (4) weeks prior to the proposed activity.
- Any required Best Management Practices, Communication Plans, contract scope questions, etc. must be finalized and approved by CMS prior to final approval.
- CMS will provide a final, written notice explicitly stating whether the project is approved to commence (i.e., issue a "Notice to Proceed"). The Notice to Proceed will include any additional, project-specific conditions. **No project work may commence before this time.**
- Project approval may not be transferred or assigned without prior authorization. A copy of the approval/permit must be present on-site and available for review at all times while working on UH-managed lands.
- Applicant shall comply with all actions and measures described in the proposal, including (community) benefits, CMP compliance list, and mitigation measures.

Notifications

- Applicant may request to arrange a pre-construction meeting with CMS before work commences. These meetings review orientation content, implications of project non-compliance, project-specific concerns regarding resource protection, health and safety, visitor and/or traffic impacts, etc. Meetings may be held in person or via phone, webinar, or other means.
- Notify CMS in writing via email to cmshilo@hawaii.edu at least five (5) days prior to beginning field work on UH-managed lands (Halepōhaku, Road Corridor, Maunakea Science Reserve, or Astronomy Precinct) with the following:
 - Identify the date that onsite work will commence.
 - Identify by name-of-entity all observatories, contractors, vendors, suppliers, etc. anticipated to be associated with and substantively present on UH-managed lands for the project.
 - Identify the individual(s) who will be coordinating all invasive species inspections.
 - Attest that the observatory or relevant entity will ensure compliance with all permit conditions and communicate with CMS if there is any uncertainty.
 - Notify CMS in writing of any other entities responsible for elements of compliance.
 - Attest that all individuals anticipated to be associated with the project have completed the Maunakea User Orientation.
 - CMS is not liable or responsible for delays due to inadequate or late submissions or submissions requiring verification.

Onsite Activity

General

- Use of lighting from sunset to sunrise is prohibited unless described in the project proposal and approved.
- Use of cell-phones, other than in airplane mode, is prohibited except in case of emergency.
- Placement of permanent markers, monuments, mag nails, or survey pins, etc. is not allowed without explicit prior approval from CMS (and the State if required). ALL surveyors' work must be shared with CMS in digital format with coordinate info stored in and using a common, transferrable coordinate reference system such as "State Plane Coordinates (NAD83), Hawai'i Zone 1".
- Allow CMS Rangers to visit and monitor activities.

Transportation and Motorized Equipment

- No use of mechanized equipment is allowed unless authorized by this permit.
- 4-wheel-drive required for travel above Halepōhaku.
- Large, heavy, non-4-wheel-drive or oversized loads must submit notification to the Maunakea Road Conditions listserv, MK-ROAD-CONDITIONS@lists.hawaii.edu, at least one day prior to transit. Loads requiring an escort on public roadways must have this escort accompany them to the final destination. Projects failing to submit notification or arrange for escort to the summit may be denied entry to Halepōhaku or above.
- During public closures of the Summit Access Road, vehicle access above Halepōhaku is limited to explicitly-marked observatory, CMS, federal, or state of Hawaii vehicles. Vehicles must be operated by approved employees or representatives on official business and possessing requisite orientation, training, safety, and rescue supplies.
- Motorized equipment, when stationary, must have a drain-pan in place suitable for catching fuel or fluid leaks.

Debris Prevention and Severe Weather Concerns

- Ensure that any debris, tools and equipment are secured to avoid becoming windblown and are properly stored at the end of each day.
- Projects occurring in the summit region must verify that temporary and permanent infrastructure and improvements can sustain 120 MPH winds and severe weather.

Environmental Concerns

- All perishable items including food, food wrappers, and containers must be removed from the site daily and properly disposed of.
- Remove and properly dispose of all waste material.
- Nēnē (*Branta sandvicensis*) may be present. If a nēnē appears within 100 feet (30.5 meters) of ongoing work, all activity shall be temporarily suspended until the animal leaves the area of its own accord. Federal law prohibits feeding or any "taking" (e.g., harassing, harming, killing) of nēnē.
- Best Management Practices for seabirds, including the endangered Hawaiian petrel (*Pterodroma sandwichensis*)
 - Use red light bulbs outside to the maximum practicable extent.
 - Fully shield outdoor bulbs so the light is only visible from below.
 - Install motion sensors or turn off lights when human activity is not occurring in the area.

- September-December: Avoid nighttime construction.
- Best Management Practices for the endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*)
 - No barbed-wire fencing allowed.
 - June-November: Do not trim, remove, or disturb trees over 15 feet tall.

Invasive Species Prevention

- Employ invasive species prevention best practices, including inspections of materials by a DLNR-approved biologist, as identified in the Maunakea Invasive Species Management Plan prior to entering UH-managed lands.
 - Inspections can only occur at locations where landowners have given permission (i.e. facilities, baseyards, and vendor locations).
 - Inspections shall not occur on UH-managed lands on Maunakea, at State or County parks, along public roadsides, or on Department of Hawaiian Homelands lands.

Upon Project Completion

- The project must be completed within the time frame specified in the proposal and, when applicable, as specified by DLNR. Projects that cannot be completed within this timeframe are not allowed to continue (or commence) without explicit prior written approval from CMS.
- Notify CMS in writing when field activity associated with the project is completed.
- Unless otherwise stated in the proposal, copies of all data, field notes, photos, log books, collected specimens, and other forms of documentation will be shared with CMS for future, unrestricted use by CMS or its designee. All geospatial data, metadata or applications must be in a format compatible with CMS GIS software or other industry standard identified in advance.
- Collected specimens that are not consumed in analysis will be returned to CMS unless otherwise specified.
- Provide CMS with electronic and paper copies of all publications resulting from the work. When applicable, annual, final reports must be submitted to CMS.
- When applicable, a brief, approximately 1-page, non-technical summary suitable for public outreach (school groups, community meetings, newsletter articles, etc.) must be provided to CMS within 90 days of project completion or publication. Photos and illustrations are encouraged.



SITE PLAN APPROVAL APPLICATION (SPA)

File No:

Acceptance Date:

30-Day Expiration Date:

Assigned Planner:

for DLNR Use

Pursuant to Hawai'i Administrative Rules (HAR) §§13-5-22 through 24, identified land uses beginning with letter (B) require a site plan approval by the department.

PROJECT NAME: NASA IRTF Geotechnical Analysis

Conservation District Subzone: Resource

Identified Land Use: HAR §13-5-22, P-1 DATA COLLECTION, (B-1) Basic data collection, research, education, and resource evaluation that results in minor disturbance to natural resources or land (e.g. corings, excavations, etc.).

(See Hawai'i Administrative Rules (HAR) §13-5-22 through §13-5-25)

Project Address: NASA Infrared Telescope, Maunakea summit area

Ahupua'a, District, Island: Ka'ohe mauka, Hamakua, Hawaii Island

Tax Map Key(s): 3-4-4-015:009, Mauna Kea Science Reserve (por.)

Proposed Commencement Date: 01 Sept 2025, or as soon as all necessary approvals are obtained

Proposed Completion Date: 10 Sept 2025

Estimated Project Cost: \$30,000

Total area of proposed use: Estimated 15.71 cubic ft (two corings, using up to a 6-inch diameter bit)

ATTACHMENTS

- ☐ \$50 application fee (*ref §13-5-32 through 34*)
- ☒ Location map
- ☐ Site plan
- ☐ Construction, grading, site restoration, landscaping, or fire buffer plans, as applicable

Note: The application fee for State projects is waived pursuant to HAR §13-5-32.

REQUIRED SIGNATURES

Applicant

Name: University of Hawaii at Hilo, Center for Maunakea Stewardship (CMS)

Title; Agency: Center for Maunakea Stewardship

Mailing Address: 200 West Kawili Street, Hilo, Hawaii 96720

Contact Person & Title: Greg Chun, Executive Director, CMS

Phone: 808-933-0734

Email: cmshilo@hawaii.edu

Interest in Property: Property lessee, General Lease S-4191

Signature: _____ Date: _____

Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

Landowner (if different than the applicant)

Name: State of Hawaii, Land Division

Title; Agency: Candace Martin, Land Agent

Mailing Address: 75 Aupuni Street, #204, Hilo, Hawaii 96720

Phone: 808-974-6203

Email: candace.m.martin@hawaii.gov

Signature: _____ Date: _____

For public lands, the government entity with management control shall sign as landowner.

Agent or Consultant

Agency: Click or tap here to enter text.

Contact Person & Title: Click or tap here to enter text.

Mailing Address: Click or tap here to enter text.

Phone: Click or tap here to enter text.

Email: Click or tap here to enter text.

Signature: _____ Date: _____

For DLNR Managed Lands

Chairperson, Board of Land and Natural Resources

P.O. Box 621

Honolulu, Hawai'i 96809-0621

Signature: _____ Date: _____

PROPOSED USE

Total size/area of proposed use (indicate in acres or sq. ft.): Maximum 15.71 cubic feet

Please provide a detailed description of the proposed land use(s) in its entirety. Information should describe what the proposed use is; the need and purpose for the proposed use; the size of the proposed use (provide dimensions and quantities of materials); and how the work for the proposed use will be done (methodology). If there are multiple components to a project, please answer the above for each component. Also include information regarding secondary improvements including, but not limited to, grading and grubbing, placement of accessory equipment, installation of utilities, roads, driveways, fences, landscaping, etc.

As part of needed site maintenance, the NASA Infrared Telescope ("IRTF") requests to conduct geotechnical analysis via two corings. Analysis of the corings will determine appropriate options to address erosion occurring to IRTF's eastern slope; if left unchecked, the erosion will make IRTF's accessway impassable and prevent IRTF from taking its mirror offsite for regular required maintenance (cleaning and recoating). The roadway is also essential for regular operations including daily worker transit, large deliveries, and other routine servicing.

The geotechnical work involves drilling at two locations on the IRTF sublease parcel, shown in the attached image. Drilling will be via a truck/trailer-mounted drill rig using either a four inch or six inch drill bit, to at least 15 ft below groundsurface or until refusal, and will obtain an estimated sample volume of up to 15.71 cubic feet. All unused and uncontaminated sample will be returned to the coring site.

No other activity such as secondary improvements are involved in the current request. However, the results of this proposed land use will determine IRTF's efforts to address the erosion. IRTF anticipates submittal of a Conservation District Use Application for that forthcoming land use.

PROPOSED EXEMPTION

An exemption from needing an environmental assessment (EA) refers to specific situations or projects that are not required to undergo the standard EA process due to their minimal potential impact on the environment.

Government agencies should use the appropriate exemption list as concurred by the Environmental Advisory Council as found at planning.hawaii.gov/erp/agency-exemption-list

Private parties should use DLNR's Exemption List as concurred by the Environmental Council on November 10, 2020 as found at files.hawaii.gov/dbedt/erp/Agency_Exemption_Lists/State-Department-of-Land-and-Natural-Resources-Exemption-List-2020-11-10.pdf

The project claims the following exemptions: HAR §11-200.1-15 (c) The following general types of actions are eligible for exemption: (5) Basic data collection, research, experimental management, and resource and infrastructure testing and evaluation activities that do not results in a serious or major disturbance to an environmental resource; and HAR §11-200-8(a) Exemption Class #5, Basic data collection, research, experimental management, and resources evaluation activities which do not result in a serious or major disturbance to an environmental resource, (3) Topographic, land use, soils, and drainage surveys.

EXISTING CONDITIONS

Please describe existing conditions on the parcel (geology, ecology, cultural and recreational resources, historic resources, structures, landscaping, etc). Provide information regarding existing buildings and structures as well as infrastructure and utilities as applicable.

Geology: The project site is in the summit region of Maunakea, a shield volcano. The main geological features here include clinker, cinder, cinder cones, and 'a'a lava flows. The main rock, hawaiiite, may bear signs of past glacial striation and is interlaid with cinder, ash, and other volcanic pyroclasts. The proposed use will continue into native clinker and cinder to identify the load-bearing capacity of the cinder and characterize other geophysical properties.

Ecology: The alpine stone desert where the proposed land use will occur experiences freezing temperatures, high solar radiation, and annual precipitation of 12 inches or less due to the inversion layer that prevents cloud formation and upward movement of clouds. The flora and fauna of the area may include algae, lichens, mosses, and over three dozen arthropod species, some of which may occur at the project site. The site, however, has had no documented rare, threatened, or endangered species. Regular arthropod monitoring is conducted by CMS pursuant to the 2022 Comprehensive Management Plan Supplement and Standard Operating Procedures of the Maunakea Invasive Species Management Plan to reduce introduction of invasive species. The project is not anticipated to have any negative impacts to any flora, faunal or ecological resources.

Cultural and Historic Resources: The project site is within the following state-designated areas: the Kukahau'ula Traditional Cultural Property, State Inventory of Historic Places (SIHP) Site #50-10-23-21438; the Mauna Kea Summit Region Historic District, SIHP Site #26869; and the Mauna A Wakea Traditional Cultural Property and District, SIHP Site #31382. The nearest identified historic property, SIHP Site #26224, on Pu'uwekiu, is over 1,000 feet south of IRTF. No historic properties, archaeological resources, or cultural resources have been identified within the observatory sublease and none are therefore anticipated to be adversely impacted by this project. In addition, there are no known celestial viewplanes or oceanic gridlines visible from the project site that would be impacted by the proposed land use.

Recreational Resources: Occasional recreational visitors traverse the Summit Access Road ("Road") and may visit the IRTF site. Due to the presence and activity of heavy machinery with this proposed project, portions of the Road near IRTF and the access to the facility may be closed to the public for safety. These impacts are expected to be brief, no more than a few days. Other summit areas will remain open to public access.

Infrastructure, including existing buildings, structures and utilities: Existing infrastructure at the project site include the IRTF telescope building, northern retaining wall, access ramp, loading dock, a separate outbuilding referred to as the 'exhaust building' or bunker, electrical and telecommunication lines, vehicle parking and accessways to and around the facility, and underground water and wastewater storage.

Landscaping - N/A

EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria (*ref §13-5-30(c)*)

1. **The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. How is the proposed land use consistent with the purpose of the conservation district? (*ref §13-5-1*)**

The Board of Land and Natural Resources adopted the 2022 Comprehensive Management Plan (CMP) Supplement for Maunakea as the approved management document for land use and activities in the University of Hawaii Management Areas on Maunakea; BLNR also previously adopted the CMP subplans. The proposed land use complies with the CMP and subplans, whose management strategies are designed to preserve and protect the resources located in the UH Management Areas. The project has been reviewed and will avoid impacts to any natural and cultural resources and will protect the resources. With appropriate safety procedures, the requested land use is also not anticipated to cause any public health, safety and welfare effects.

2. **How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? (*ref §13-5-11 through §13-5-15*)**

IRTF is located within the Resource subzone. The objective of this subzone is "...to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." This proposed land use is an allowable use within the Conservation District Resource subzone, pursuant to HAR §13-5-22, P-1 DATA COLLECTION, (B-1) Basic data collection, research, education, and resource evaluation that results in minor disturbance to natural resources or land (e.g. corings, excavations, etc.). In addition to the proposed project being an identified use, the work will ensure sustained use of the site for existing, approved uses and will inform future proposed uses including appropriate erosion control measures, without negatively impacting any resources. IRTF is committed to managing the natural and cultural resources of the UH Management Areas in fulfillment of the objective of the Resource subzone. No change in type, extent, or intensity of use will occur as a result of this project.

3. **Describe how the proposed land use complies with the provisions and guidelines contained in chapter 205A, HRS, entitled "Coastal Zone Management" (*see 205A objectives on p. 7*).**

The site of the proposed use is over 20 miles from the coast and is not connected to shoreline resources. The project will have no effect on any of the coastal resources identified in 205A, including, but not limited to, recreational opportunities, historic resources, scenic and open space, ecosystems, economic uses, beach and coastal dune protection, and/or marine and coastal resources. The project is also not a coastal development. Consequently, the project complies with the objectives of HRS 205A.

4. **Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.**

IRTF is currently used for regular operations as well as by occasional recreational visitors. The parcel is regularly monitored for native and non-native species and CMS has not observed any plant or animal species to inhabit the site. The coring to be done is the least invasive of the engineering

proposals received by the applicant. CMS will ensure the project complies with the 2022 CMP Supplement; all applicable Standard Operating Procedures of the Maunakea Invasive Species Management Plan to ensure that natural resources are not harmed and no invasive species are introduced; applicable CMS approval conditions; any reasonable alternative measures and/or additional conditions recommended by the Environment Committee, Kahu Ku Mauna Council, Maunakea Management Board, the Mauna Kea Stewardship and Oversight Authority; and approval conditions provided by Land Division and OCCL. This proposed use will not cause any substantial adverse impact to existing natural resources within the surrounding area, community or region

5. **Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.**

The project is compatible with the locality and surrounding area as it seeks to maintain the natural slope and allow for continued scientific operation of IRTF, an approved use of the parcel. The proposed use will also better characterize the soil for future uses.

6. **Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.**

Maintaining the natural slope through erosion mitigation measures is an effort to preserve the existing physical and environmental aspects of the land.

7. **If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.**

No subdivision of land will occur.

8. **Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.**

IRTF is required to keep its sublease area in clean working conditions. The slope that is subject to the proposed use is experiencing erosion that threatens site operations, worker safety, and potentially the safety of the visiting public. The requested project seeks to address erosion and maintain sublease terms. The project will not be materially detrimental to the public health, safety and welfare when conducted in accordance with approval conditions.

CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State, require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiian and other ethnic groups.

Please provide the identity and scope of cultural, historical, and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

The proposed land use is located within a historic district and two Traditional Cultural Properties identified on the State Inventory of Historic Places (SIHP). The nearest identified historic property, SIHP site 26224 on Pu'uwēkiu, is at least 1,000 feet southeast from the project site. No archaeological resources have been identified within IRTF's sublease. CMS has considered impacts to cultural resources such as celestial viewplanes and ocean gridlines, significant to modern practitioners of kilo hoku, and finds negligible impacts given the project's brief duration. Regarding natural resources, the project site is within the alpine stone desert ecosystem, which significantly limits the abundance and diversity of plant and animal species that can survive here; CMS' invasive species and arthropod monitoring programs provides the most comprehensive reference for species discovered at the project site and document no rare, threatened or endangered species. Geologically, the project site is composed of local backfilled cinder and rocks. There are no hydrological resources on the site. Additional details provided in the "Existing Conditions" section of this application.

Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

The roadway area is regularly used for parking, deliveries, and daily staff movement for maintenance and operations. The slope was previously disturbed during IRTF construction. The cultural advisory council, Kahu Ku Mauna, will be formally consulted with as part of project review to identify any traditional and customary Native Hawaiian rights that may be affected by the project. The applicant does not anticipate any degree of disturbance or impacts to cultural, historical, and natural resources, including traditional and customary Native Hawaiian rights.

What feasible action, if any, could be taken by the Board of Land and Natural Resources regarding your application to reasonably protect Native Hawai'i rights?

The applicant defers to BLNR on feasible actions to reasonably protect Native Hawaiian rights.

CHAPTER 205A – COASTAL ZONE MANAGEMENT

Land uses are required to comply with the provisions and guidelines contained in Chapter 205A, Hawai'i Revised Statutes (HRS), entitled "Coastal Zone Management," as described below:

- **Recreational resources:** Provide coastal recreational opportunities accessible to the public.
- **Historic resources:** Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.
- **Scenic and open space resources:** Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
- **Coastal ecosystems:** Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.
- **Economic uses:** Provide public or private facilities and improvements important to the State's economy in suitable locations.
- **Coastal hazards:** Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.
- **Managing development:** Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
- **Public participation:** Stimulate public awareness, education, and participation in coastal management.
- **Beach protection:** Protect beaches for public use and recreation.
- **Marine resources:** Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.

Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

I hereby authorize *Click or tap here to enter text.* to act as my representative and to bind me in all matters concerning this application.

Signature of applicant(s)

EXEMPTION NOTICE FORM

Center for Maunakea Stewardship
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii, 96720

TO: 1. Agency-Maintained Public Files for Chapter 343 HRS Exemption Determinations
2. Office of Planning and Sustainable Development, if publication is desired
3. National Aeronautics and Space Administration Infrared Telescope Facility (NASA IRTF, "IRTF")

FROM: Greg Chun, Executive Director, Center for Maunakea Stewardship

SUBJECT: Exemption Notice for IRTF Geotechnical Analysis, CMS project #358

DATE: 6/30/2025

AGENCY OR APPLICANT ACTION

Check applicable box

- ☒ This exempted action is an agency action as defined by Section 343-5(b), Hawai'i Revised Statutes (HRS), and Section 11-200.1-8, Hawai'i Administrative Rules (HAR),
- ☐ This exempted action is an applicant action as defined by Section 343-5(e), HRS, and Section 11-200.1-9, HAR

EXEMPTION TYPE:

The Exemption Notice for the action described below is based on the general types enumerated in Section 11-200.1-15(c), Hawai'i Administrative Rules (HAR), Exemption Type **5, Basic data collection, research, experimental management, and resource and infrastructure testing and evaluation activities that do not result in a serious or major disturbance to an environmental resource.**

As applicable, the exemption for the action described below is also supported by the Exemption List for the [University of Hawaii], reviewed and concurred to by the Environmental Council on 2001].

- Exemption List Class **5, Basic data collection, research, experimental management, and resources evaluation activities which do not result in a serious or major disturbance to an environmental resource.**
- Item Number **(3) Topographic, land use, soils, and drainage surveys.**
- Applicable language from the exemption list: Click here to enter text.

DESCRIPTION OF ACTION

Proposing Agency or Applicant: (Proposing Agency) Center for Maunakea Stewardship
Project Name & Address/Location: NASA IRTF Geotechnical Analysis, Mauna Kea Science Reserve, Kahohe Mauka, Hāmākua District, Hawaii

Anticipated Start Date: 8/11/2025

Anticipated End Date: 8/21/2025

Island and District: Hawai'i Hamakua

Tax Map Key(s) and other geolocation means: TMK (3)4-4-015:009

All Necessary Permits and Approvals: Landowner signature, Land Division, Department of Land and Natural Resources; Site Plan Approval, Office of Conservation and Coastal Lands, Department of Land and Natural Resources

NARRATIVE

Describe the action and why it qualifies for the exemption: The specific action is to core at least 15' below surface into native rock, or until refusal, at two sites within IRTF's sublease parcel using either a four-inch or six-inch drill bit to collect samples for geotechnical analysis (total sample volume approximately 15.7 ft³). The geotechnical analysis will guide plans for needed maintenance to address site erosion. The parcel is subzoned Resource within Conservation District lands subject to Conservation District Rules. IRTF is an astronomy facility originally permitted under Conservation District Use Permit HA 653. This geotechnical analysis is an allowed use pursuant to Conservation District rules HAR §13-5-22, P-1 DATA COLLECTION, (B-1) *Basic data collection, research, education, and resource evaluation that results in minor disturbance to natural resources or land (e.g. corings, excavations, etc.)*, and fulfills the objective of the Resource subzone, "...to develop, with proper management, areas to ensure sustained use of the natural resources of those areas." Further, under the terms of IRTF's sublease, effective through December 2033, IRTF shall be responsible for all repair and maintenance of the grounds, buildings and improvements upon the premises. IRTF's sublease also requires the site be maintained pursuant to requirements set by the University's General Lease S-4191, namely, that the site be maintained in good working order. The action is expected to have minimal or no significant adverse effects to any natural (biological, ecological, hydrological, geological), cultural, historic, recreational, and scientific resources.

RECEIVING ENVIRONMENT

Describe the site, including any impacts on the receiving environment: The project site is the IRTF sublease parcel, a developed site located on Pu'u Hauoki in the alpine stone desert of Maunakea's summit region. IRTF is a permitted astronomy facility that is regularly used and maintained. The main geological features in the region include ash, cinder, cinder cones, and Hawaiite lava rock. Given the low precipitation rate of less than 12 inches per year and the porous substrate, there are no surface water or groundwater resources at or near the site. Flora and fauna at the site may include algae, lichens, mosses, and over three dozen arthropod species. No rare, threatened, or endangered species have been documented at the site. The IRTF parcel is within three sites listed on the State Inventory of Historic Places: Kukahau'ula Traditional Cultural Property (SIHP #50-10-23-21438), the Mauna Kea Summit Region Historic District (SIHP #26869), and the Mauna A Wakea Traditional Cultural Property and District (SIHP #31382). The nearest identified historic property is SIHP #26224, on Pu'uwēkiu and over 1,000 feet southeast of IRTF. In addition, there are no known celestial viewplanes or oceanic gridlines visible from the project site. Noise generated by the drill rig is rated between 70 to 80 decibels within a 100-foot radius. Negligible to minimal air pollutant emissions are anticipated, in the form of fugitive dust, which will be actively controlled by spraying with water, and greenhouse gas emissions and combustion emissions. Occasional recreational visitors park at IRTF during the daytime, when heavy machinery associated with the proposed use will be in use. Visitors may be blocked from entering the active work area, but only for a brief period, and other summit areas will remain open to public access.

ENVIRONMENTAL ANALYSIS

I have considered the potential effects of the proposed project and all related activities against the criteria checked below:

Not Applicable

- | | |
|--|-------------------------------------|
| ☒ Land Use and Zoning Conformance | ☐ |
| ☒ Traffic (Vehicles, Bicycles, Pedestrian) | ☐ |
| ☒ Infrastructure (Roads, Buildings, Utilities) | ☐ |
| ☒ Air Quality Pollutant Emissions | ☐ |
| ☒ Noise Emissions | ☐ |
| ☐ Solid, Hazardous, and Liquid Waste Management | ☒ |
| ☐ Social | ☒ |
| ☐ Economic | ☒ |
| ☒ Health and Safety | ☐ |
| ☒ Recreation | ☐ |
| ☐ Public Beach Access | ☒ |
| ☒ Cultural Resources and Practices | ☐ |
| ☒ Visual/Aesthetic | ☐ |
| ☐ Environmental Justice | ☒ |
| ☒ Rare, Threatened, and/or Endangered Species | ☐ |
| ☒ Surface and Ground Water Resources | ☐ |
| ☐ Wetlands | ☒ |
| ☐ Floodplains | ☒ |
| ☐ Riparian/Coastal Resources | ☒ |
| ☒ Other | ☒ |

Comments/summary of impact analysis: IRTF is a developed astronomy facility. The site is used for regular operations, as well as for sightseeing by occasional recreational visitors. Past resource surveys and ongoing monitoring by CMS staff do not identify any existing historic properties (considered as "Other" criteria), or cultural resources within the sublease area, nor any rare, threatened, or endangered species. Impacts are anticipated to be brief in duration (no more than ten business days), and temporary and minimal in overall effect.

MITIGATION

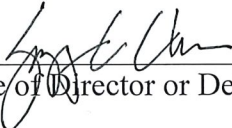
Describe all mitigation measures and best management practices planned to address impacts during the project activities and after project completion: Of the responding geotechnical bidders, IRTF prefers to select the least-invasive option. CMS has reviewed the proposed action for conformance with IRTF's sublease, the University's General Lease for the Science Reserve (S-4191), and the state's approved management plan for the Maunakea Lands (Comprehensive Management Plan 2022 Supplement). In addition, the proposed action is undergoing public review to identify any resources, threats by this action to those resources, potential mitigations, and any other concerns. The request will then seek site plan approval from the Department of Land and Natural Resources (DLNR). The project will not proceed unless it obtains all necessary approvals and will adhere to approval conditions. The drilling rig will be operated during the daytime only, adhere to industry Best Management Practices, and be closely monitoring by onsite IRTF day crew staff. In addition, Maunakea Rangers will conduct site visits to ensure compliance with approval conditions. Following completion of the soils analysis, all unused sample material (uncontaminated and in its original form) will be returned to the coring site.

CONSULTATION

The following parties have been consulted about this declaration exemption (Name, affiliation, consultation date): Kahu Kū Mauna Council, June 26, 2025; Maunakea Management Board, July 1, 2025; Mauna Kea Stewardship and Oversight Authority, July 10, 2025.

EXEMPT DECLARATION

The direct, cumulative, and potential impacts of the action described above have been considered pursuant to Chapter 343, Hawai'i Revised Statutes and Chapter 11-200.1, Hawai'i Administrative Rules. I declare that the action described above will have minimal or no significant impact on the environment and is therefore exempt from the requirement to prepare an environmental assessment.



Signature of Director or Delegate

6/24/25

Date

This document is to be kept on file in the agency's records and made available for public review

- ☒ Please check here if this document is being submitted to the Office of Planning and Sustainable Development for voluntary publication in *The Environmental Notice*