Cheetah Conservation Fund

Somaliland Cheetah Rescue & Conservation Centre

Facilities Master Plan Report

24 JUNE 2021

Cheetah
CONSERVATION FUND

PARTICIPANTS

Dr. Laurie Marker, Founder & Executive Director

Dr. Bruce Brewer, General Manager
Matt Renninger, Master Planner
Susan Yannetti, Senior Advisor, Strategic Initiatives
Johan Britz, Farms and Biomass Manager
Mark Natt, CCF Somaliland Project Manager
Cameron Carver, Facility Engineer
Joe Bottiglieri, CCF Somaliland Interim Project Manager

TABLE OF CONTENTS

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

INTRODUCTION

IN-a: confiscated cheetahs at CCF Somaliland safe house

DOCUMENT SCOPE

This document presents facilities concepts for housing, education, animal enclosures and infrastructure for Cheetah Conservation Fund's new cheetah facility at Geed-Deeble in the Republic of Somaliland, with a focus on Phase 1 of the project.

The Phase 1 existing site is complicated by many factors: physical, operational, organizational, financial, seasonal, etc. Welfare of cheetah and local wildlife species and what is required to operate a facility have been reviewed with a goal of planning a project that will benefit cheetah and wildlife, the Republic of Somaliland, the Cheetah Conservation Fund, and cheetah conservation efforts across the region.

This document includes detail about existing conditions, potential infrastructure resources, and proposed conceptual Somaliland Cheetah Rescue & Conservation Centre facilities (CRCC). Project test budget and project timelines are in separate documents.

IN-b: proposed wildlife reserve landscape

EXECUTIVE SUMMARY

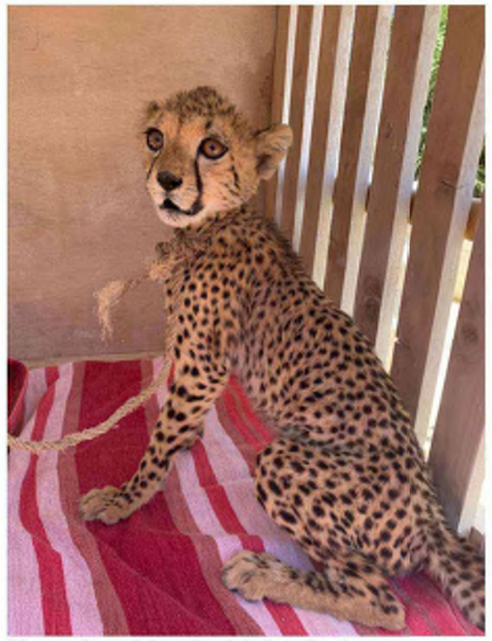
The world's fastest land animal, the sleek and long-legged cheetah, Acinonyx jubatus, is losing its race for survival. Once a species widely dispersed over five continents, today there are fewer than 7,500 cheetahs in just 23 countries in Africa. Fewer than 50 Asiatic cheetahs remain in Iran. Conflict with humans, loss of habitat, and illegal wildlife trade are the species' main threats to survival.

Wild cheetahs in the Horn of Africa are under intense pressure. A combination of conflict with nomadic farmers and illegal trade threatens to eliminate cheetahs from the landscape. In Somaliland, nomadic farmers will often kill or chase away cheetahs threatening their livestock. Traditionally blessed with a rich diversity of wild animal and plant life, species that have been historically documented include cheetah, leopard, elephant, lion, giraffe, and African wild ass. However, as in many countries, survival is threatened due to a widespread lack of awareness of the importance of protecting wildlife and habitat.

A considerable threat to cheetah in the Horn of Africa region is illegal trade. Cubs are taken from the wild and trafficked to fulfill an international demand for exotic pets, zoo exhibits, and body parts for traditional medicines, clothing or ornaments. They are also threatened by human-wildlife conflict, primarily with rural livestock farming communities who fear predation. Nomadic herders will chase away or kill mother cheetahs and either attempt to domesticate the cubs or sell them to wildlife traders. While the international trade of cheetahs is banned under CITES, animals continue to be smuggled from the Horn of Africa to the Arabian Peninsula via a well-established trade route between Somaliland and Yemen.

Cheetah Conservation Fund (CCF) believes as many as 300 cubs are removed from the landscape each year due to these threats. The cubs are being taken from a population in the Horn of Africa of less than 500 adults and adolescents. The numbers are not sustainable, and within a matter of years, cheetahs could be lost in this part of the world.

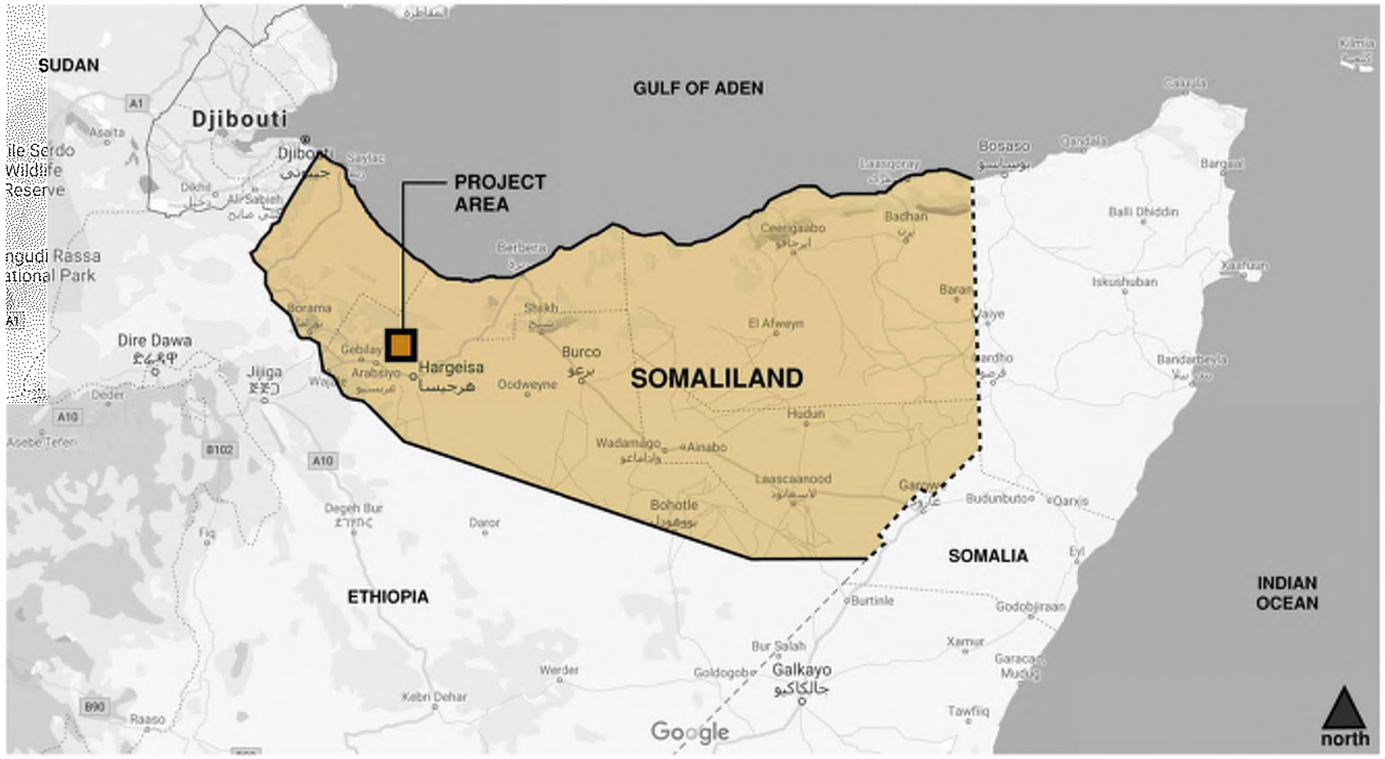
Dedicated to conserving the cheetah throughout its range, Cheetah Conservation Fund (CCF) seeks to support the populations remaining in the Horn of Africa. CCF makes its extensive knowledge, resources and contacts available to the governments there who are working to sustain their cheetah populations. Through efforts to understand and stop the illegal trade in cheetah cubs, CCF developed an alliance with Ministry of Environment and Rural Development (MoERD) of Somaliland. Over the past decade, MoERD and CCF have worked tirelessly to conserve cheetahs in the Horn of Africa, and MoERD has become CCF's leading partner in the campaign to end the illegal trade. With guidance from MoERD, CCF is presently adapting two of its signature programs for Somaliland: **Future Conservationists of Africa**, its education outreach program for Somaliland schools, and **Future Farmers of Africa**, a vocational training program for livestock farmers to improve livelihoods and promote coexistence with wildlife.



IN-c: confiscated cheetah cub in Somaliland

IN-d: confiscated cheetah cubs in Somaliland

GLOBAL CONTEXT MAP
DO NOT SCALE



SOMALILAND MAP
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INTRODUCTION
EXECUTIVE SUMMARY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

CHEETAH CONSERVATION FUND & SOMALILAND: A DECADE OF PARTNERSHIP

- CCF began intensively monitoring illegal wildlife trade in cheetahs after Dr. Marker visited Ethiopia in 2005, when she helped save cubs that were tied up outside a restaurant in a remote village and then helped develop a facility in Ethiopia - the Born Free Facility.
- In 2011, CCF began assisting the Republic of Somaliland's Ministry of Environment and Rural Development (MoERD) in placing cheetahs they seized from traffickers. For five years, CCF helped arrange for any seized cheetahs to be transferred to DECAN Refuge in Djibouti or Born Free Foundation in Ethiopia. This plan worked for a while. But in 2016, the law of Somaliland changed, and animals could no longer be sent out of the country.
- In April 2017, CCF received two groups of cheetah cubs from MoERD . They were very young, malnourished and terribly dehydrated, and there were no veterinary facilities or proper housing for them in Somaliland. These cubs had little chance for survival and no place to be housed.
- CCF immediately realized the need for cheetah care inside Somaliland, so CCF rented a house in Hargeisa, the capital city of Somaliland. In October 2018, CCF rented a larger compound where pens were built and began admitting confiscated cheetahs in this new location. This facility is known as Safe House 1 (SH1). Building of this facility continued with a veterinary clinic, cheetah food preparation space, shelters and a quarantine area for new arrivals.
- In August 2019, CCF rented a second compound, called Safe House 2 (SH2). This was an open field which needed to be cleared and built from ground up. Two houses were built, along with a meat processing area, freezer and refrigerators for the cheetah meat, and 13 fenced compounds built for housing the cheetahs. This facility was opened March 2020 and filled with cheetahs, moving all cubs out of SH1. CCF international staff, veterinarians and volunteers began joining the team and CCF rented a large compound for staff housing, Staff House 1.
- With Safe House 1 empty, the facility was torn down and rebuilt from the ground up.
- In mid 2020, a new property was rented, Safe House 3. This was an empty property, and during the next 5 months, after building SH1, Safe House 3 was built from the ground up. The three CCF facilities currently house a total of 55 cheetahs and one leopard. In November, CCF added another staff housing compound for extra staff housing and to accommodate trainings.
- In February 2021, CCF trained its first group of Somaliland livestock veterinarians in cheetah care to build up capacity in remote areas of Somaliland where the conflict and trafficking occur. The goal is to have CCF-trained veterinarians in each region of Somaliland to help care for confiscated cubs until the MoERD-CCF team arrives, improving the cubs' chances for survival.
- Also in February 2021, CCF embarked on the development phase of a multipurpose facility for cheetahs modeled after the CCF Centre in Namibia. The **CCF Somaliland Cheetah Rescue & Conservation Centre** (CRCC) will be built on land the government has set aside to become Somaliland's first national park. The location is approximately 35 km northwest of Hargeisa at Geed-Deeble ("Land of Trees"). From this location, CCF will continue to care for cheetahs, but in future years, the facility will educate people about wildlife and provide vocational training for veterinarians, ecotourism guides and livestock farmers.

SAFE HOUSE 1

IN-e: CCF volunteers building SH1

IN-f: rows of enclosures at SH1, before rebuild

IN-g: rebuilt SH1 pens

IN-h: rebuilt SH1 pens

SAFE HOUSE 2

IN-i: Somaliland men and women provided labor to build the SH2 facilities

IN-j: SH2 enclosures near completion

IN-k: SH2 meat processing amenities

SAFE HOUSE 3

IN-l: SH3 has large runs for the cats in CCF's care and more space for exercise

IN-m: SH3 enclosures' shaded feed pens

IN-n: Minister Shukri Ismail and DG Abdinasir Hersi of MoERD tour the facilities with Somaliland Vice President Abdirahman Saylici on March 1, 2020

COMMUNITY OUTREACH

IN-o: MoERD and CCF staff interviewing community members at cheetah confiscation site

IN-p: Dr. Marker addresses the media and the audience of government leaders at SH2 opening

IN-q: Dr. Laurie Marker with CCF staff at livestock veterinary training

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

IN-r: confiscated cheetah cubs at CCF's Hargeisa safe houses

"**CCF is Changing the World to Save the Cheetah**"
– Dr. Laurie Marker

CHEETAH CONSERVATION FUND'S MISSION

Founded in Namibia in 1990, Cheetah Conservation Fund (CCF) is dedicated to saving the cheetah in the wild.

CCF's mission is to be the internationally recognized center of excellence in the conservation of cheetahs and their ecosystems. CCF will work with all stakeholders to develop best practices in research, education, and land use to benefit all species, including people.

CCF's vision is to see a world in which cheetahs live and flourish in coexistence with people within a sustainable system that is protective of the environment, socially responsible, and economically viable.

CHEETAH CONSERVATION FUND'S APPROACH

CCF is a proactive organization that finds practical solutions to help people to help the cheetah.

CCF's stance is that understanding the cheetah's biology and ecology is essential to stabilize the population and manage its sustainability for the future. Its strategy to save the wild cheetah is a three-pronged process of research, conservation, and education, beginning with long-term studies to understand and monitor the factor affecting the cheetah's survival. Results of these sustain its populations. CCF actively works with local, national, and international communities to raise awareness, communicate, educate and train. CCF's approaches include:

1. Conducting intensive scientific research and publishing papers on research findings—in cheetah genetics, biology, ecology, health and reproduction, human impact, and species survival, and distribution of cheetah throughout the world.

2. Creating and managing long-term conservation strategies for the cheetah throughout their range. CCF researchers develop, test, and promote alternative land-management practices such as conservancy development, and eco-tourism. CCF also develops predator-friendly livestock management practices. These include CCF's Livestock Guarding Dog Program, and the relocation of problem cheetahs, which attempt to eliminate the need for farmers to kill cheetah.

3. Carrying out local and international conservation education programs to illustrate ways in which the species can be protected, by addressing community development needs and sharing predator education materials worldwide.

4. Building capacity in countries that still harbor cheetah populations. The international program currently includes distributing CCF materials, lending resources and support, and providing training throughout Africa and the rest of the world.

IN-s: Dr. Marker conducting farmer survey in Awdal Somaliland

IN-t: adult cheetahs at CCF's Namibia facility

CHEETAH CONSERVATION FUND AROUND THE WORLD

CCF is the global leader in research and conservation of cheetahs and dedicated to saving the cheetah in the wild. Founded in 1990, CCF is an international non-profit organization headquartered in Namibia with a field base in Somaliland. CCF is a registered charitable organization in Namibia and Somaliland, with affiliates in the United States, Canada, the United Kingdom, Italy, France, The Netherlands and Australia, and a fundraising partner in Germany. In 2020, CCF marked its 30th anniversary, making CCF the longest running and most successful conservation organization for cheetahs.

Dr. Laurie Marker, an American zoologist who is CCF's Founder and Executive Director, has grown CCF from a field research project into an internationally recognized institution for cheetahs. Today, CCF specializes in human-wildlife conflict mitigation strategies and economic business initiatives that encourage people to co-exist with cheetahs.

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

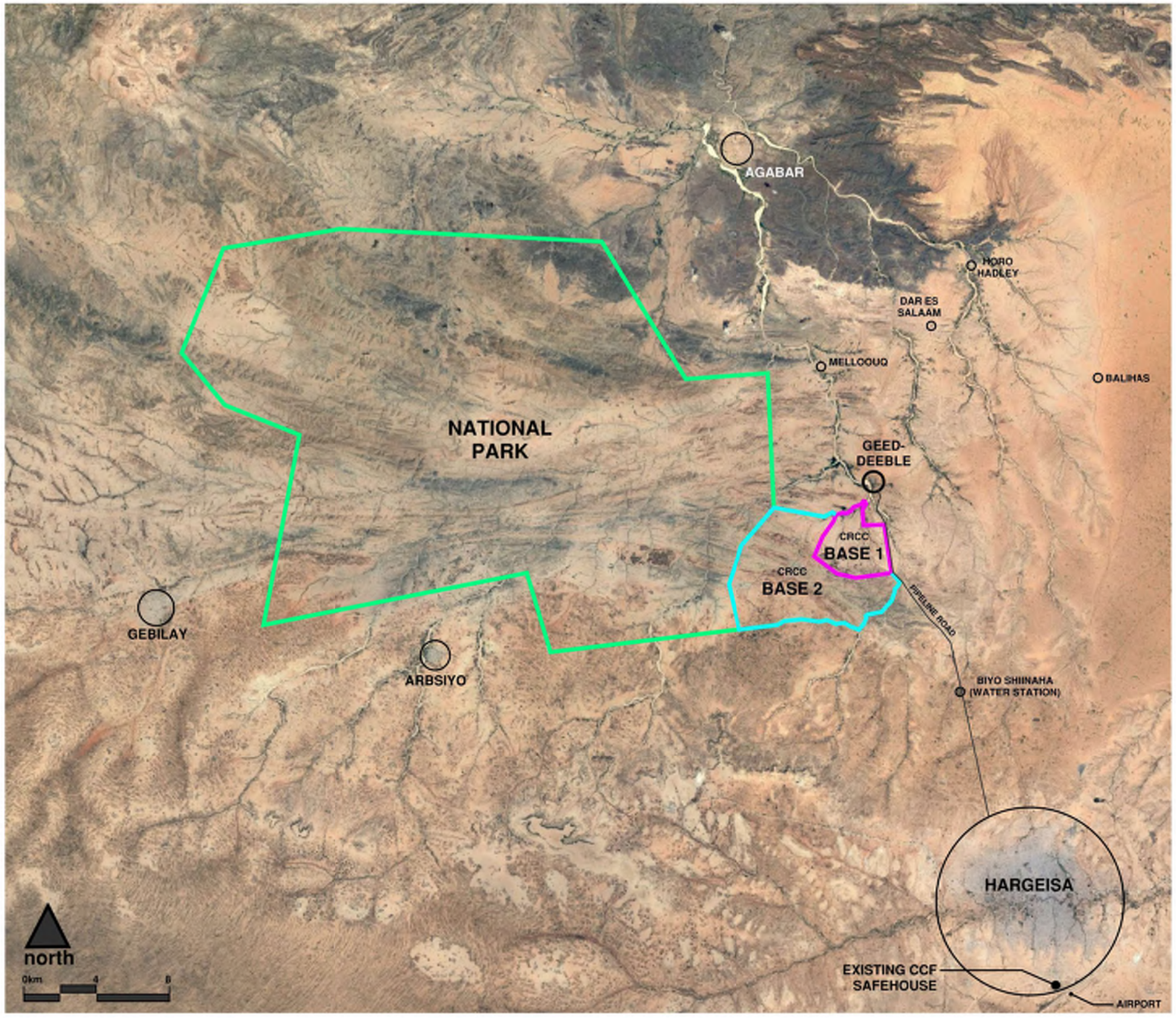
OVERVIEW

BACKGROUND

The Republic of Somaliland and its Ministry of Environment and Rural Development (MoERD) has set aside many square kilometers of land in the region of Maroodi Jeeh, approximately 25 kilometers northwest of the capital city of Hargeisa for establishing Somaliland's first national park and a wildlife facility for cheetahs. The area is semi-arid and dominated by mountains (Ogo Mountains) and wadi course carved valleys, dotted with rural villages and homesteads. Flatter areas and vegetated swaths make it a promising region for establishing a wildlife reserve.

CCF has been allocated thousands of hectares of land (Base 1 and Base 2) from MoERD to create a cheetah and wildlife reserve, the Cheetah Rescue & Conservation Centre (CRCC). CCF will work to first establish the Base 1 area (hereafter referred to as CRCC Campus or Base 1), followed by the Base 2 area (hereafter referred to as CRCC Wildlife Reserve or Base 2) in the future.

.



AREAS MAP

DO NOT SCALE

SEE INTRODUCTION FOR COUNTRY CONTEXT

SUMMARY OF AREAS

NATIONAL PARK
This area is not part of Cheetah Conservation Fund's scope of work. CCF will work in partnership with MOERD to implement synergetic conservation objectives of the National Park. The National Park boundary is an approximate size and exact location may depend on involvement of other parties and the park needs. This could include further expansion north and west.

CRCC CAMPUS (BASE 1)
This area will be developed first and developed the most densely. The central compound for animal care, housing, and infrastructure amenities will be located here. Apart from the compound several large animal enclosures of varying size and seclusion will be constructed.

CRCC RESERVE (BASE 2)
This area will be developed second and developed less intensively than Base 1. It will serve as a cheetah holding facility that CCF will manage and monitor. It will also serve as a buffer and connection to the National Park as well as a possible expansion area for the CRCC Campus facilities.

This report does not provide detail on the Base 2 development which will be minimal compared to Base 1 and can be better detailed after the Base 1 Campus is operational. For more information on implementation and land attainment see the Implementation Section of this report.

AREAS - SEE MAP TO LEFT

Areas illustrated are approximate. See Inventory & Analysis section for more precise proposed boundaries.

PRELIMINARY NATIONAL PARK BOUNDARY
Area: 53,791 ha / 538 km2
Perimeter: 104 km

CRCC BASE 1 BOUNDARY (CRCC CAMPUS)
Area: 1,115 ha / 11.1 km2
Perimeter: 14.5 km

CRCC BASE 2 BOUNDARY (CRCC RESERVE)
Area: 3,761 ha / 28.4 km2
Perimeter: 38 km
(Approximately 23km of additional perimeter)

LOCAL WILDLIFE

The National Park and CRCC can provide protected habitat for many species.
Animal Wildlife Observed (list not exhaustive):

- baboon
- black back jackal
- dik dik
- gerenuk
- ground squirrel
- hare
- mongoose
- porcupine
- leopard tortoise
- warthog

OV-a: dik diks along pipeline road

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
AREAS SUMMARY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

BASE 1 SITE CONTEXT SUMMARY

CRCC Base 1 (CRCC Campus) Neighbors
Base 1 has several neighbors that provide opportunities for partnership and cooperation. CCF plans to develop the CRCC respecting all parties' mutually beneficial goals.

- **NORTH:** Directly north of the CRCC Campus is the Barwaaqo Voluntary Organization (BVO) land. BVO is an NGO whose main goals center around creating a botanical garden for the Somaliland people. BVO is currently in the process of planning its facility. MoERD has establish a one-kilometer buffer zone to separate the BVO site from the CRCC and the National Park.

- **WEST:** To the west is CRCC Base 2 which will be developed in the future. Farther west is the National Park.

- **NORTHEAST:** To the northwest is the village of Geed-Deeble. The village has a small agrarian population that is also partially employed by the Hargeisa Water Authority (HWA). HWA operates the water plant in Geed-Deeble which provides Hargeisa its potable water via a water pipe running south along the Pipeline Road.
A private farm sits on the northeast corner of the Base 1 boundary. This farm belongs to a high-ranking Somaliland politician.

- **SOUTH & EAST:** Along the eastern boundary runs the Pipeline Road. This is the main road from Hargeisa to the village of Geed-Deeble. To the south (past Base 2) and east is open landscape populated by small agrarian homesteads and bomas (livestock enclosures).

LEGEND

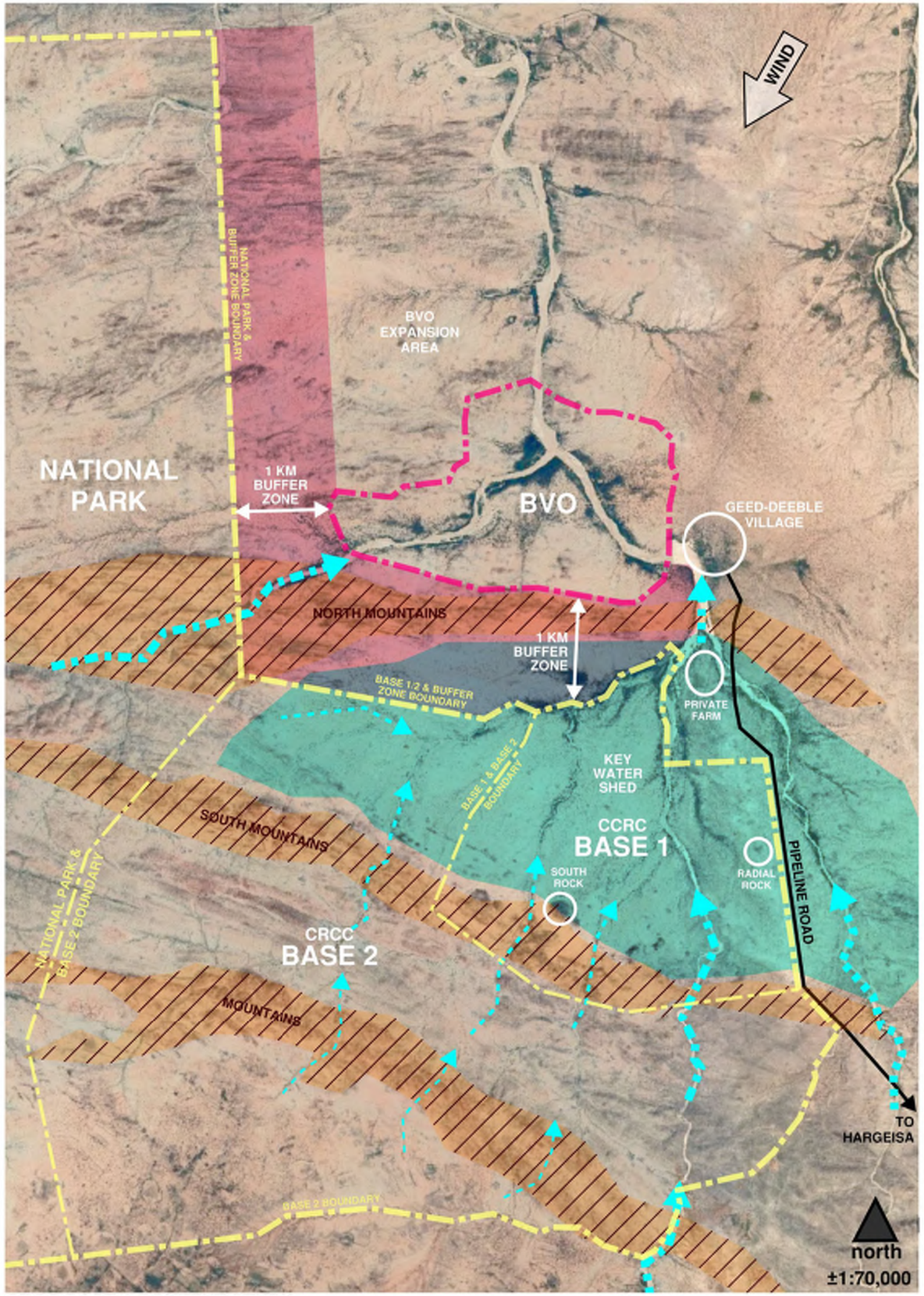
- Approximate Boundary Line
- BVO Boundary: Barwaaqo Voluntary Organization, a botanical NGO
- Pipeline Road: main road from Hargeisa to Geed-Deeble, parralled by HWA pipeline
- Wadi and Ravines: break through mountains
- Buffer Zone: 1 km buffer zone between BVO and CCF/National Park sites
- Key Site Watershed
- Exposed Rock Outcrops: out crops frame the Base 1 site (north and south mountains)

NOTE:
1. Information is from generalizations observed in field and interpreted from Google Earth Maps.

Terrain
The CRCC Base 1 site is at an elevation of ±1,150m (Hargeisa: ±1,300m). Taller bedrock outcrops (mountains) break the campus into a series of valleys. The valleys are divided by multiple wadi courses (streams that have water running on the surface only after large rain events) that flow from the south to the north. The Campus's watershed converges just north of the Campus and continues north through the Ogo Mountains. Subsurface water drains in the same direction as on the surface. It is captured by an almost impervious basement made of crystalline rocks, like granites and gneisses. The results of these below surface water movement are large aquifers north of the site that serve as a reliable water source for Hargeisa (via HWA).

Climate
The region north of Hargeisa has a semi-arid climate. The Ogo Mountain Ranges' high elevation captures precipitation from winds off the water from the north and east, which accounts for approximately 400 millimeters of rainfall annually. The rainy season typically occurs from March to May (some in October). The higher elevations also allow for average monthly temperatures in Hargeisa that range from average of 16 °C (60 °F) in the winter months (November to February) to 22 °C (72 °F) in the summer months (June to September).

OV-b: view west from the top of Radial Rock



CRCC BASE 1 CONTEXT STUDY
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
SITE CONTEXT

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

CHALLENGES & OPPORTUNITES

Local Community
The CRCC Campus site is located near the village of Geed-Deeble. Geed-Deeble and surrounding communities could benefit from their proximity to the CRCC Campus for income and education. By creating a mutually beneficial relationship these community members will serve as an invaluable local knowledge base and have the opportunity to provide the CRCC a local labor force as it's employment needs grow to tackle the project's ambitious goals.

OV-c: Dr. Marker working with community members in Somaliland

Desertification
Somaliland's semi-arid climate is susceptible to desertification from over grazing of livestock and erosion from natural forces. The result is significant soil erosion and ravine carving (see photo OV-f). The resulting landforms create many challenges for access and development. See CRCC Base 1 Landform to the right.

Invasive Plants
Invasive plant species have been introduced to the landscape, competing with the native plant species. Natural wildlife and livestock tend to refrain from grazing on invasive species leading to its dominance. Overtime CCF will explore methods to control spread of the persistent species.

Livestock
The CRCC occupies the middle of an agrarian based community. Livestock in the region tends to be predominantly goat, sheep, and camels. (see photo OV-d) As a result, goats, camels, and other livestock graze the countryside. As semi-arid climates are vulnerable to overgrazing, overgrazing has had negative impacts on the environment and caused resource competition among the native wildlife. To control neighboring wildlife border fencing is required.

OV-d: observed livestock (goat herding)

Roads and Accessibility
Access to the CRCC Base 1 and Base 2 sites are limited by rough terrain and primitive roads (tracks). The CRCC Campus is accessible via the Pipeline Road which runs north from Hargeisa to the village of Geed-Deeble along the eastern edge of Base 1. Rainy season can make the road and site impassable due to sloppy road conditions and high-water levels at wadi crossings. Pipeline Road wadi crossings are currently being built as part of public work projects in the area, hopefully completed later this year (2021/2022). Access within the CRCC Campus is limited to 4x4 tracks (sand/dirt vehicle paths). See CRCC Base 1 Landform Study below. These tracks have their own wadi crossings with restricted access. Off-track driving is limited as well due to many deep ravine cuts not traversable by 4x4, even in the dry seasons. See photos OV-e and OV-f.

The planned CRCC will reuse existing track paths as well as create new pathways. CFF plans to address wadi crossings within the Campus project site and fortify dangerous road conditions and/or divert water to prevent erosion. See Project Highlight: Infrastructure-Roads for more detailed information.

Usable Land
Desertification and erosion has resulted in land with limited "flat" areas that could realistically support development. Ravine cuts and wadis occupy major portions of the site. These areas will also have limited access during the rainy seasons at wadi crossings. See CRCC Base 1 Landform Study to the right.

Fortunately, the largest areas of usable land are located on the east side of the site closest to the Pipeline Road access. Sitting on an elevated bluff it affords a dramatic view west across the Base 1 site. Several large hectare of development zones lays in between north-south running ravine zones more ideal for secluded animal enclosures.

OV-e: typical wadi in wadi zones

OV-f: typical ravine / erosion in ravine zones

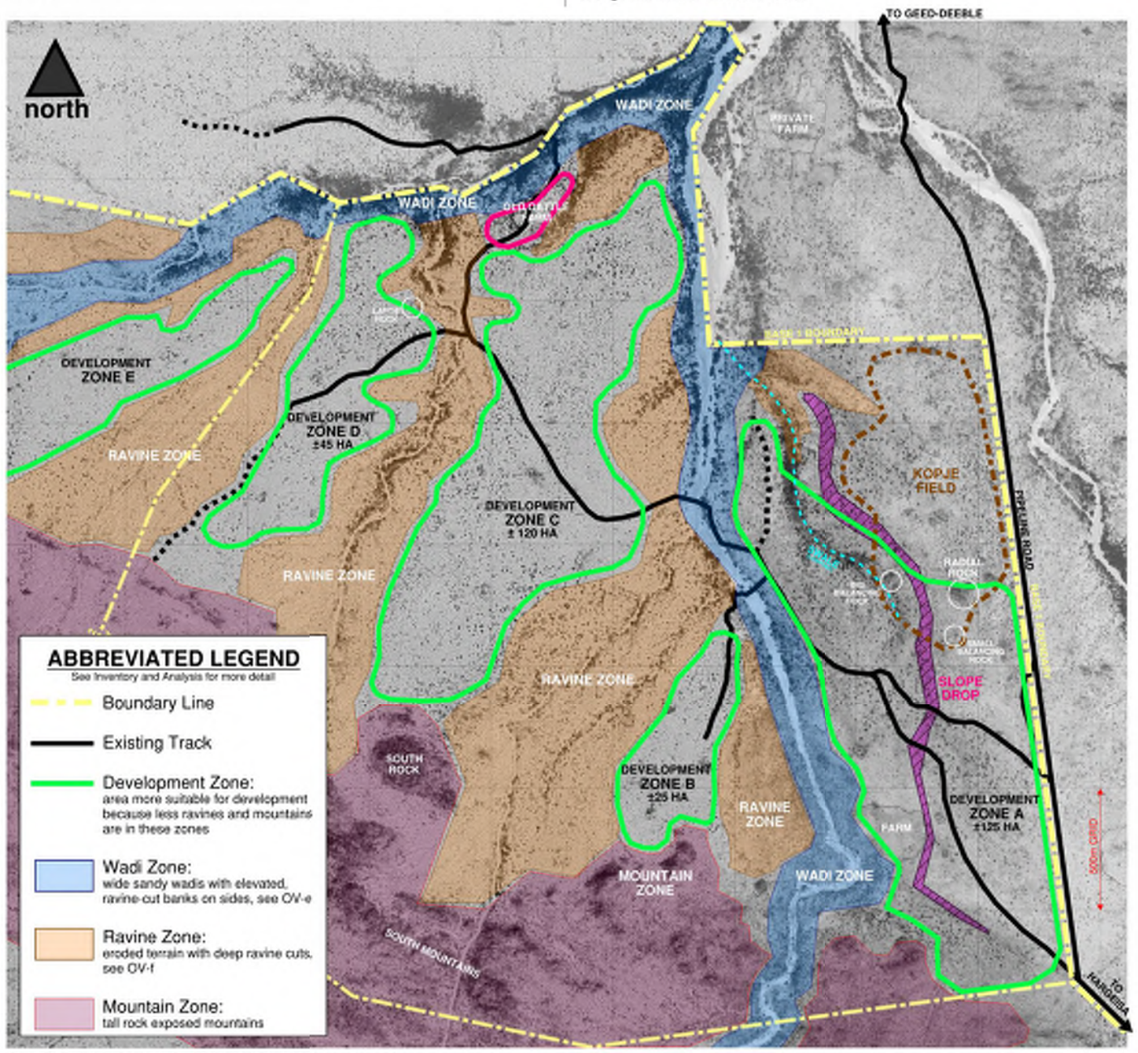
Water
Potable water is a high priority for the project. CCF will be working with other stakeholders to have a consistent source of potable water at the CRCC centre compound. An aquifer to the north with be the main source of this water, either via existing boreholes or a new exclusive CRCC borehole. CCF will also be working to implement multiple water reuse projects including gray water reuse and rainwater harvesting. See Project Highlight: Infrastructure-Water for more detailed information.

Electric
The CRCC Campus's closest electric on-grid service would come from the village of Geed-Deeble to the northeast. Short term electric may be needed, but CCF's goal is to have full electric needs fulfilled completely sustainable and off-grid. Solar power technology with backup generator is the preferred system to use. See Infrastructure: Electric for more detailed information.

Views
The vast landscape of the region affords dramatic, breath-taking views. The views are comprised of both landform features and scenic panoramic vistas. The proposed CRCC Centre should be sited to take advantage of the stunning views.

Old Cattle Farm
The CRCC Campus area contains an old, ruined cattle farm from the 19th century. The ruins are comprised of several derelict structures including two stone barn structures, a milking building and a farmhouse. While the structures are past reasonable rehabilitation they could serve as attractive destinations for future education and/or eco-tourism groups. See OV-g and Inventroy & Analysis for photos.

OV-g: old cattle farm barn ruin



CRCC BASE 1 LANDFORM STUDY
DO NOT SCALE

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
CHALLENGES & OPPORTUNITIES

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND

PLANNING DRIVERS

Four key planning drivers were used to ascertain this masterplan's framework. This framework was instrumental in shaping this masterplan's vision. These key drivers were used along with the CRCC's site opportunities and challenges for creating a logical, sustainable, and feasible masterplan. The following report outlines the conceptual masterplan for the proposed CRCC facilities.

Cheetah Rescue

- Create veterinary facilities and associated amenities for cheetah welfare.
- Include nursery facilities for care of young, confiscate cheetah cubs.
- Create meat-processing and livestock staging for a constant and sustainable cheetah food source.
- Create large cheetah camps for housing non-releasable cheetahs.
- Incorporate cheetah camps of varying sizes to allow for variety of cheetah coalition sizes.
- Include amenities for supporting veterinary and animal husbandry staff.

Wildlife Reserve

- Develop a safe haven for local/native wildlife.
- Secure land for wildlife; free from livestock overgrazing and wildlife poaching.
- Foster a mutually beneficial relationship with the adjacent National Park.
- Strive for a transient wildlife population between the CRCC and the National Park.
- Include amenities for supporting ecological research in the region.

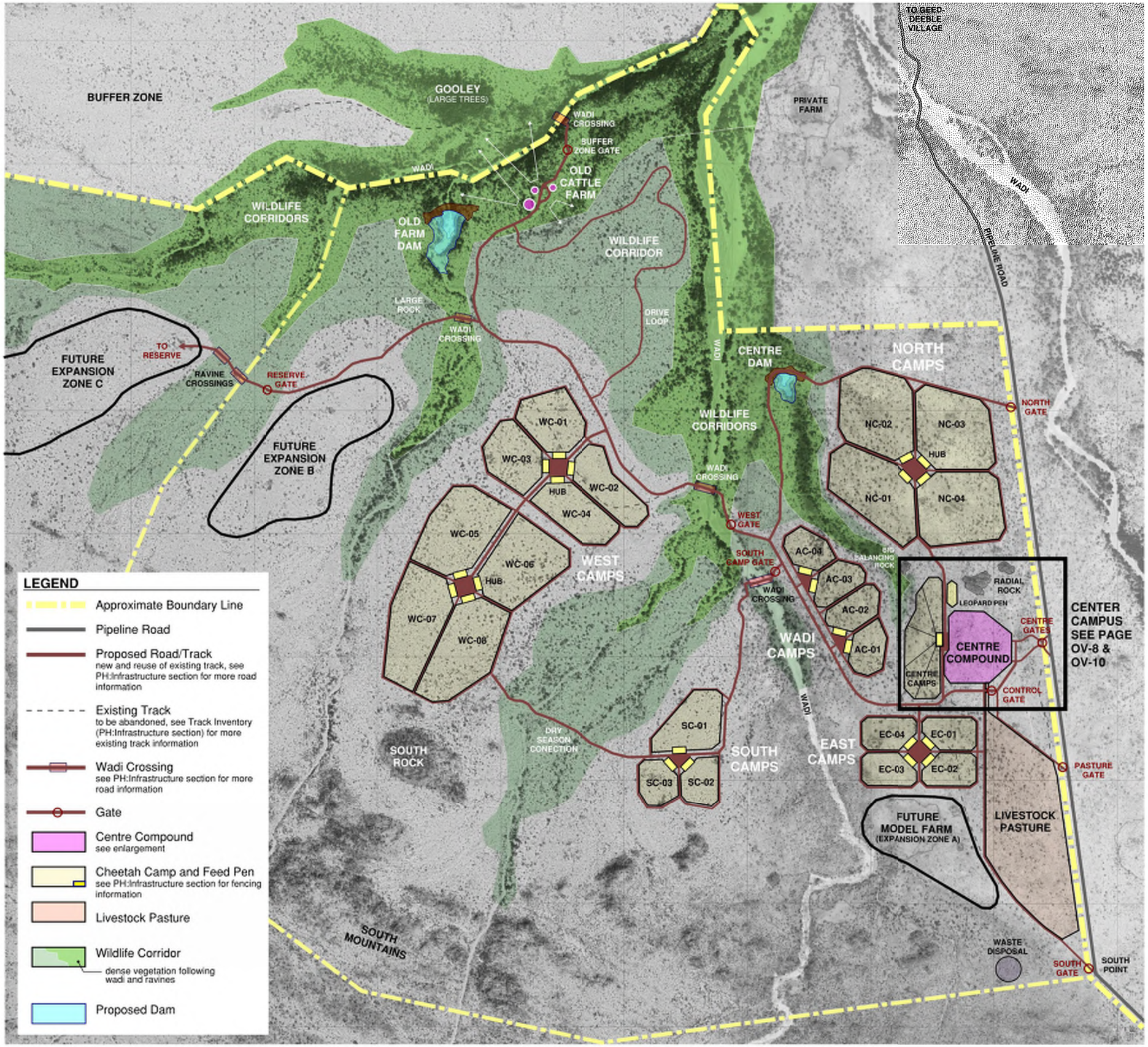
Conservation Education

- Create a forward thinking education centre for fostering conservation-oriented education.
- Develop a cheetah rescue centre that can be observed by CRCC day-visitors.
- Include amenities for visitor comfort including food and sleep accommodations.
- Include amenities for supporting education and visitor staff.

Environmentally Conscious Practices

- Aspire for a self-sufficient campus.
- Integrate solar power technologies as a main source of electric power.
- Strive to minimize water consumption and incorporate water reuse concepts into facilities.
- Develop the campus to minimize erosion and other destructive forces on the landscape.
- Create amenities for best waste disposal practices (including recycling and reuse).

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021



CRCC CAMPUS SUMMARY

The CRCC Campus (Base 1) will be composed of a few major components: a centre compound, animal enclosures, livestock facilities, and the wildlife reserve. These components have been located on the Base 1 site to best take advantage of the site's access, topography, seclusion, climate, and views. See next page for more information.

CAMPUS PROGRAM

CENTRE COMPOUND

Central hub for CRCC ammenities: education, mission, housing and infrastructure

WILDLIFE CORRIDORS

Area with denser vegetation and composed of wadi and ravines likely to support a greater variety of wildlife and promote wildlife movement around the Centre Compound and CRCC Campus

DAMS

Proposed dams for collecting water runoff, and supporting local wildlife (and/or water troughs)

OLD CATTLE FARM

Old ruin structures to be reused as open air space for outdoor education and wildlife observation

ANIMAL ENCLOSURES

Centre Camps	5 camps
Wadi Camps	4 camps
North Cheetah Camps	4 camps
South Cheetah Camps	3 camps
East Cheetah Camps	4 camps
West Cheetah Camps	8 camps
Leopard Enclosure	1 capped enclosure
Livestock Pasture	1 fenced in area

FUTURE EXPANSION AREAS

Zone A:
Potential model farm location.

Zone B:
Potential future cheetah camps or left for undeveloped, will require a fortified stream crossing.

Zone C:
If required, cheetah camp expansion into Base 2 area.

CAMPUS ILLUSTRATIVE PLAN (BASE 1)
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
CAMPUS ILLUSTRATIVE PLAN (BASE 1)

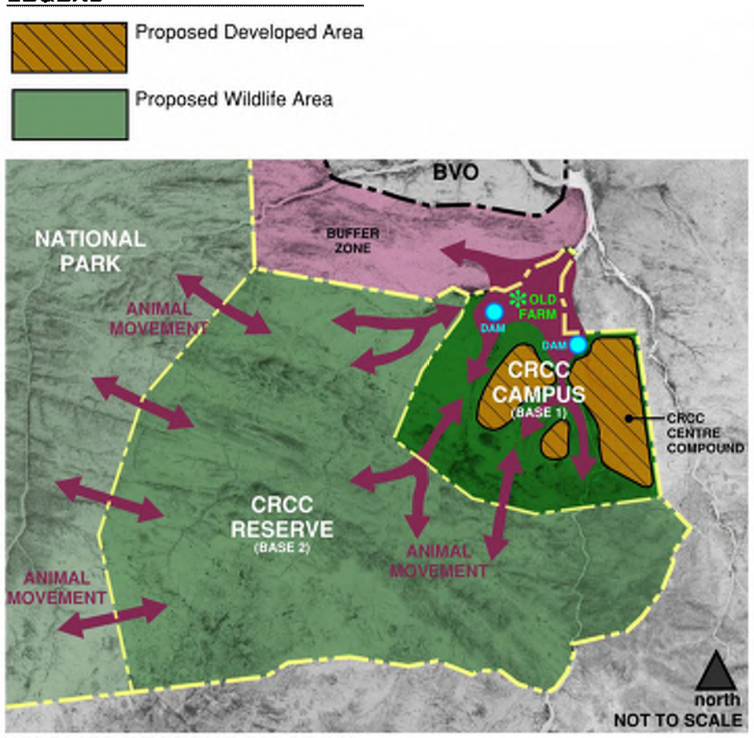
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND

CRCC RESERVE (BASE 2)

CRCC promotes transient wildlife populations that move across boundaries. While the Base 2 area is exclusively an area for wild cheetah and other local species, the CRCC Campus (Base 1) serves as both a wildlife reserve and cheetah rescue centre. Wildlife will be able to move from the National Park to the CRCC Reserve and then into the CRCC Campus. Non-developable areas in the Base 1 area will create good corridors for wildlife to move throughout the Campus and closer to the Campus center. The wildlife area will serve as an excellent area for study of the Somaliland natural flora and fauna. Ecological research will be able to be conducted in the Base 1 and Base 2 areas using the CRCC as a basecamp.

See Wildlife Reserve Diagram below that illustrates the relationship between the CRCC Campus and Wildlife Reserve and the National Park.



WILDLIFE RESERVE DIAGRAM
DO NOT SCALE

CRCC CAMPUS (BASE 1) SUMMARY

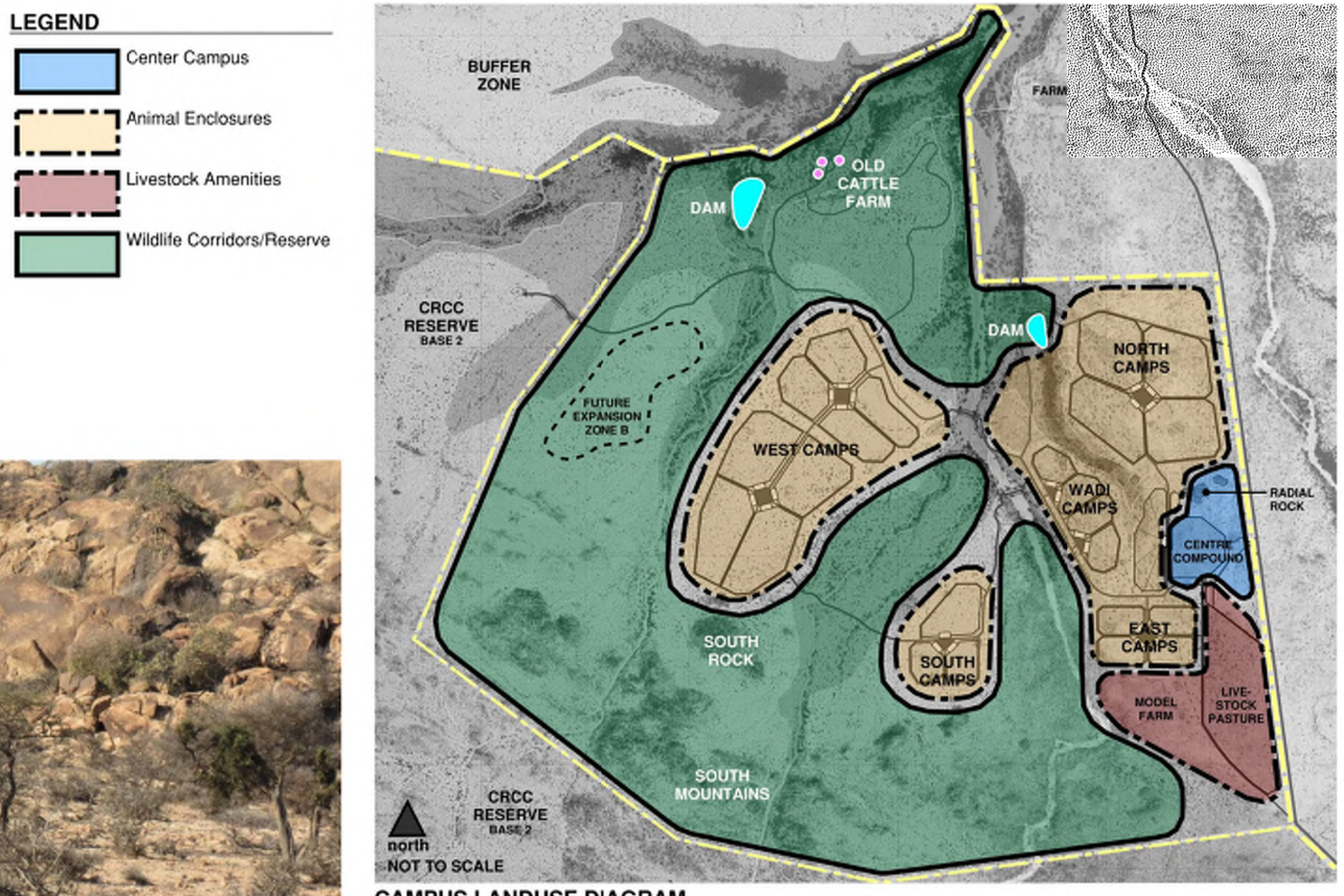
The CRCC Campus will be composed of a few major components: a centre compound, animal enclosures, livestock facilities, and the wildlife reserve. These components have been located on the Base 1 site to best take advantage of the site's access, topography, seclusion, climate and views.

Centre Compound
The Centre Compound serves as the operational hub for CRCC activities: animal welfare facilities, education programs and administrative and operations amenities. Located on the east side of Base 1, it will have easy access to the Pipeline Road year-round. Roads will extend into the rest of the CRCC Reserve from the Centre Compound. All major utilities will be based and distributed from the Compound. For the Centre Compound enlargement plan see the next page and for more information on the compound see the Centre Compound Summary.

Animal Enclosures
The facility will require many fenced enclosures (camps) to house the many confiscated cheetahs CRCC cares for. These enclosures will vary in size to accommodate the different cheetah group sizes. Due to both the Campuses landforms and the need to minimize exposure to human activity, the camps will be dispersed across the CRCC Campus in clusters. Some camps can be close to the Centre Compound for cats that are acclimated to human presence, while other camps will be secluded in the bush to shield wilder cheetahs from overexposure to humans. For a detailed breakdown of cheetah camps and other animal enclosures see the Project Highlight: Fencing section.

Livestock Amenities
Cheetah husbandry requires a steady supply of livestock (mainly camels) for supporting the captive cheetah population. A large livestock pasture and other associated amenities is needed for accepting and storing the livestock until they are processed for use. This report includes a placeholder location for a model farm for showcasing conservation and economically friendly farming practices. For more information on the livestock pasture and see the Project Highlight: Fencing section.

Wildlife Reserve
The Wildlife Reserve in the Base 1 region will be ideal for the CRCC educational and research programs. CRCC visitors could be brought into the reserve for wildlife observation, education, and research.
Multiple dams and/or water troughs will be constructed to create watering points to improve wildlife water accessibility and in turn increase their numbers and ease monitoring. The old cattle farm could serve as an excellent basecamp for environmental education deeper in the bush with excellent views of the landscape and wildlife. Game drives and walking trek routes could be created to bring visitors and researchers closer to and deeper into the bush.



CAMPUS LANDUSE DIAGRAM
DO NOT SCALE

OV-h: kopje rock and browsing gerenuk

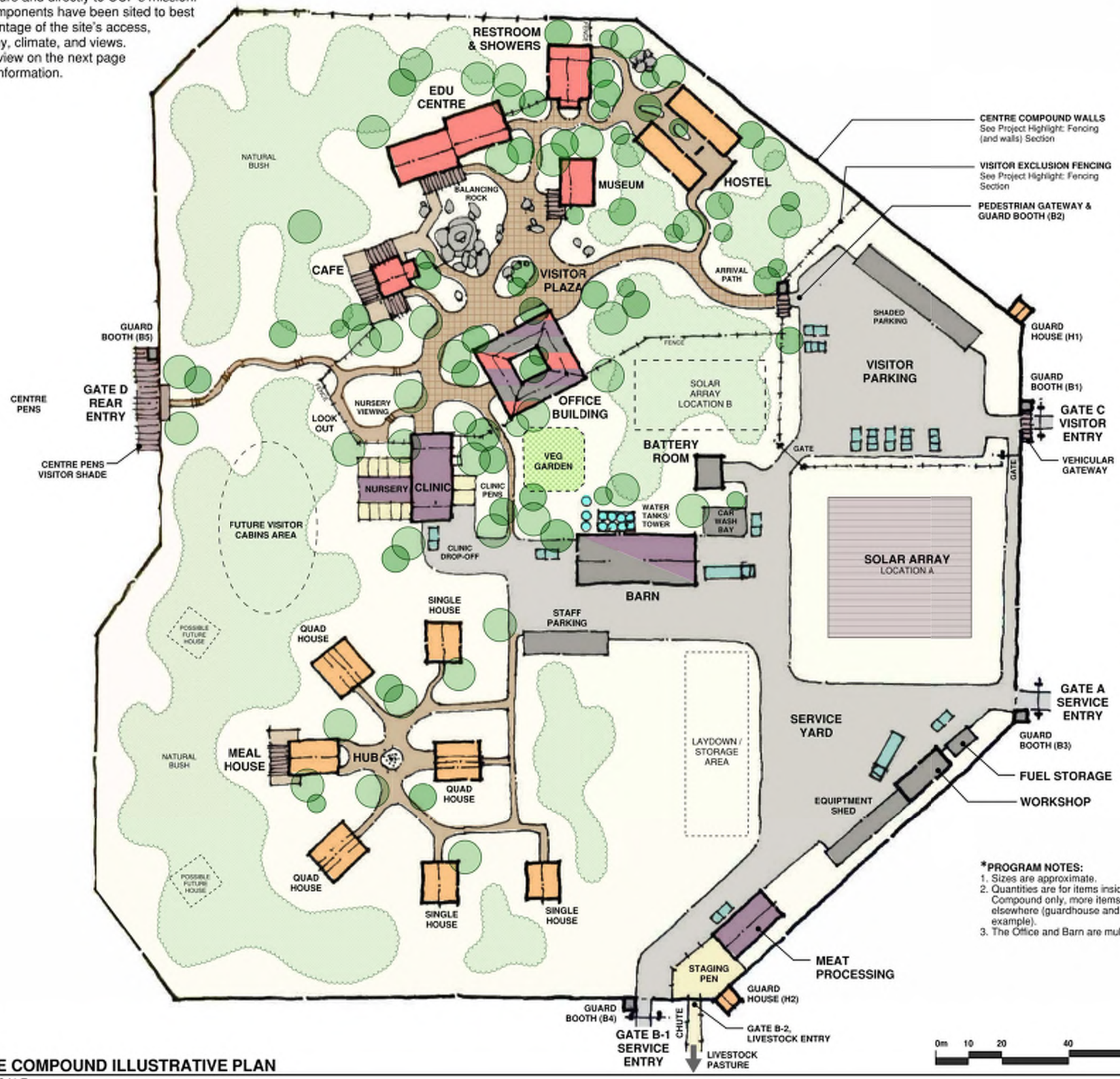
ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
RESERVE & CAMPUS SUMMARIES

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

CENTRE COMPOUND SUMMARY

The CRCC Compound has amenities dedicated to education and visitors, housing, infrastructure and directly to CCF's mission. These components have been sited to best take advantage of the site's access, topography, climate, and views. See Overview on the next page for more information.



***PROGRAM NOTES:**
1. Sizes are approximate.
2. Quantities are for items inside the CRCC Compound only, more items may exist elsewhere (guardhouse and booths for example).
3. The Office and Barn are multi-use items.

CENTRE COMPOUND ILLUSTRATIVE PLAN

DO NOT SCALE

COMPOUND PROGRAM

MISSION

ITEM	SIZE*	QTY*
Office Building (includes courtyard)*	306 m²	1
Clinic (excluding pens and nursery)	225 m²	1
Clinic Pens	27 m²	1
Nursery	270 m²	1
Meat Processing	200 m²	1
Barn*	420 m²	1

EDUCATION / VISITOR

ITEM	SIZE*	QTY*
Office Building*	see above	
Education Centre	336 m²	1
Café (excludes deck)	100 m²	1
Gateways & Entry Sign		
Restroom & Showers	222 m²	1
Small Muesum	100 m²	1

HOUSING

ITEM	SIZE*	QTY*
Quad House	144 m²	3
Single House	100 m²	3
Meal House (excludes deck)	103 m²	1
Hostel	276 m²	1
Guard Houses	10 m²	2*
Guest Cabins	12 m²	TBD

INFRASTRUCTURE

ITEM	SIZE*	QTY*
Office Building*	see above	
Barn*	see above	
Water (network and tanks)	NA	1
Battery/Inverter Structure	80 m²	1
Solar Field and Battery Room	TBD	1
Car Wash Bay	30 m²	1
Fuel Storage	25 m²	1
Workshop (mechanic/welding)	144 m²	4
Equiptment Shed	180 m²	1
Parking Shade Structure	8 cars	2
Guard Booths	1 m²	5*
Compound Wall & Gates	1,005 m	1

USE LEGEND

BUILDINGS
- Mission
- Education / Visitors
- Housing
- Infrastructure

SITE
- Animal Use
- Road/Parking
- Concrete Paver Path
  Gravel Path
- Landscape

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
CENTRE COMPOUND ILLUSTRATIVE PLAN

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

CRCC CENTRE COMPOUND SUMMARY

The CRCC Compound has amenities dedicated to different uses: CCF mission (directly), education, housing, and infrastructure. These amenities have been sited to best take advantage of the site's access, topography, climate, and views. The Compound can be organized by these amenity uses, see Compound Organization Diagram to the right.

The amenities are part of the CRCC's specially managed sequences, processes, and activities that have direct relationship to their locales. See the next page for a brief overview of some of the CRCC process and activities that occur at the Campus center.

Direct Mission Amenities
To support the project mission driven activities like cheetah husbandry and ecological research several structures including but not limited to a veterinary clinic, a cheetah nursery, research offices and laboratories, agricultural structures and meat processing facilities are contained within the compound walls. Most of these amenities are located at the heart of the compound and will provide the heartbeat for compound staff's workday. The exception being the meat processing facilities which are sited for proximity to livestock access.
For more information on the mission focused structures see the Project Highlight: Buildings section.

Education and Visitors Amenities
Education and visitor amenities are intended to support the local community and visitors (day and overnight) seeking environmental activities and/or education. Structures in the CRCC compound include but are not limited to an education centre, a café, an office building, a small museum, a restroom/shower block, secure parking, and a landscaped visitor plaza. These items are on the north side of the compound where they take advantage of the panoramic views (see below). Visitors to the compound should be restricted (exclusion fence) to the visitor/education zone of the compound. For more information on education and visitor amenities see the Project Highlight: Buildings section.

Housing Amenities
To support the CRCC staff needs accommodations are required on site for work efficiency and safety. Staff housing is grouped together on the southwest side of the CRCC Compound affording great westward views (see below). Separation from the mission and visitor zones provide the staff privacy. A meal house (and laundry) is central to the housing zone and able to function as a basecamp for non-work-related life. The one housing exception is the hostel, which is kept in the visitor zone of the Compound closer to education centre. For more information on housing see the Project Highlight: Buildings section.

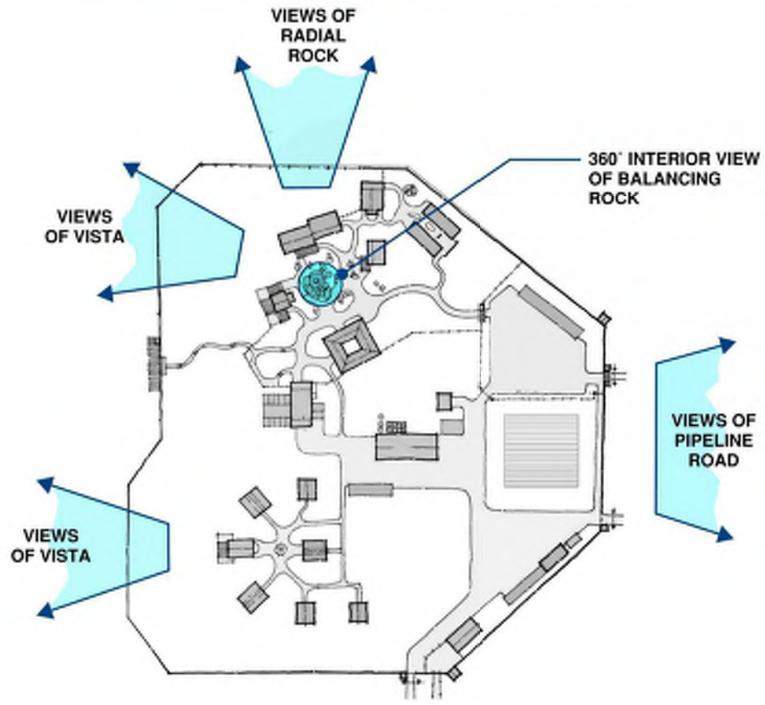
Infrastructure Amenities
The CRCC Compound will be constructed to be as environmentally conscious and self-sufficient as possible. This includes solar power, water reuse concepts, a private potable water source, and responsible waste disposal. Security will be a major concern for the Compound. Necessary measures including fortification and security personnel will need to be employed. For more information on infrastructure see the Project Highlight: Infrastructure section.

Views
The compound has been sited at the edge of a small bluff (slope drop) to take advantage of the views afforded by the site, inward and outward. Grand views to the north and west shall be exploited, while public views to the east must be addressed for privacy. See Compound Views Diagram and photo OV-i to the right.

- **Vista:**
  Vast view west across the wadi carved valley, with stoic mountains beyond provides a panoramic view of the CRCC Campus landscape.
- **Radial Rock:**
  Prominent rock to the north provides a dominant presence.
- **Small Balancing Rock:**
  Inward view to a sculptural rock formation provides anchor for the visitor plaza.
- **Pipeline Road:**
  View to/from the compound to the east requires privacy from the Pipeline Road that will have passing traffic.

COMPOUND ORGANIZATION DIAGRAM
DO NOT SCALE

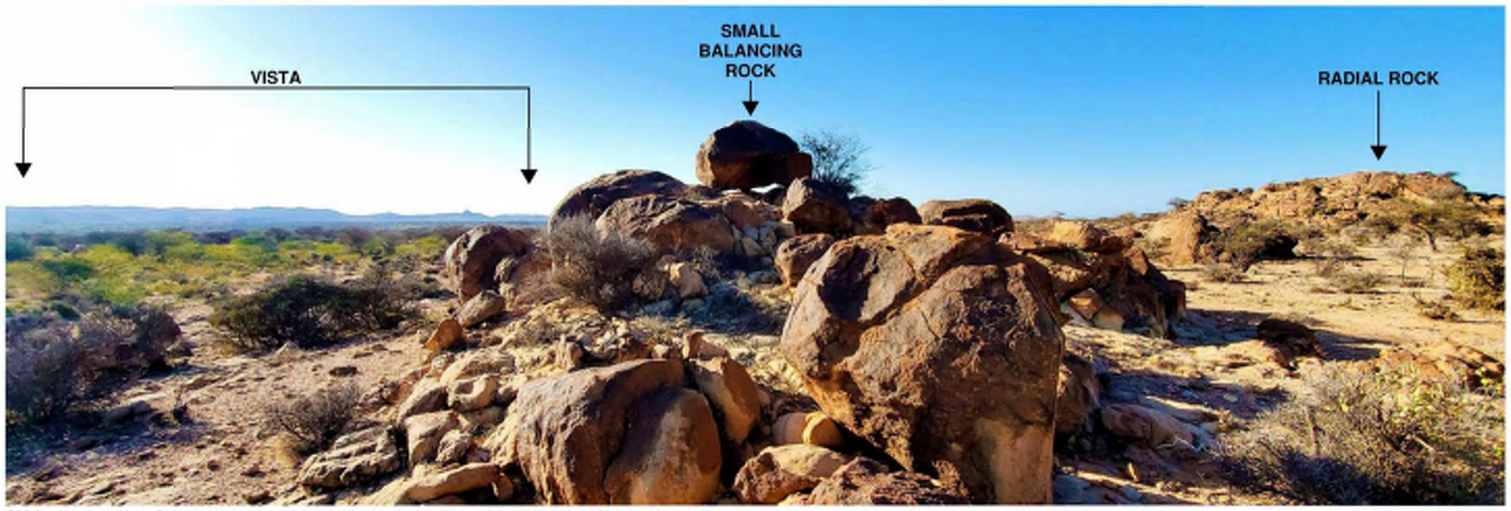
north



See photo OV-i below of views

COMPOUND VIEWS DIAGRAM
DO NOT SCALE

north



OV-I: views across Base 1 from the proposed centre compound location (looking north-west)

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
CENTRE COMPOUND SUMMARY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

CENTER CAMPUS DIAGRAM SUMMARY

The CRCC Campus center has amenities that are part of the CRCC's managed processes and activities. See the Center Campus Diagram to the right for a brief overview of some of the CRCC processes and activities that occur at the center of Campus.

OPERATIONAL SUMMARY

MAJOR MISSION AMENITIES

- A **Clinic:** Animal welfare and husbandry hub
- B **Office:** Ecology, visitor and administration offices
- C **Barn:** Major support structure
- D **Meat Processing:** Major support for animal husbandry (see below)
- E **Education Centre:** A variety of educational amenities (see visitor plaza below)

SERVICE AREA

Area for facilities and infrastructure activities, located for easy delivery and vehicular access. Amenities include but are not limited to: barn, workshop, fuel storage, meat processing, car wash bay, water tanks, and battery room.

SERVICE SEQUENCE

- 1 **Pipeline Road Turnoff:** Marked by large boulders and CRCC signage. Staff and deliveries take the left gate (Centre Gate B).
- 2 **Staff and Delivery Entry:** Security check point.
- 3 **Service Yard Area:** See above.
- 4 **Clinic:** Separated from other facilities for privacy for animals.
- 5 **Staff Gate:** Gate for easy access to reserve.

MEATING PROCESS

- 1 **Delivery:** Livestock purchased from community is delivered at control gate.
- 2 **Pasture:** Livestock is managed in pasture to ensure constant supply of fresh meat.
- 3 **Livestock Gate:** Livestock brought in through the livestock gate when it is time to process.
- 4 **Staging Pen:** Fenced space inside the compound walls.
- 5 **Processing:** Meat is slaughtered and butchered.

COMPOUND GATES SUMMARY

- A **GATE A:** Service entry for deliveries, staff entry and large vehicles.
- B **GATE B:** Service entry (B-1) for direct access to the large CRCC Campus with adjacent livestock gate (B-2).
- C **GATE C:** Visitor entry for guests to access the visitor parking lot.
- D **GATE D:** Rear entry for quick access to the centre camps and other guided visitor activities.

HOUSING

- A **Meal House:** Center of daily life. Kitchen serves meals for staff with outdoor deck located for panoramic views across campus.
- B **Housing Hub:** Central gather space for community activities. Firepit and/or other gathering catalyst.
- C **Housing:** Quad and Single unit houses surround the meal house and hub.

VISITOR SUMMARY

VISITOR ARRIVAL SEQUENCE

- 1 **Pipeline Road Turnoff:** Marked by large boulders and CRCC signage to be located here for way-finding and controlled by Centre Gate A serves as control point monitored by guard.
- 2 **Entry Road:** Road oriented to exhibit the Radial Rock view.
- 3 **Visitor Entry:** Vehicular Gateway and security check point.
- 4 **Visitor Parking**
- 5 **Arrival Path:** Pedestrian Gateway and path through natural vegetation
- 6 **Visitor Plaza:** Welcoming/orientation space where visitors have access to a variety of the CRCC amenities. See below.

VISITOR ZONE

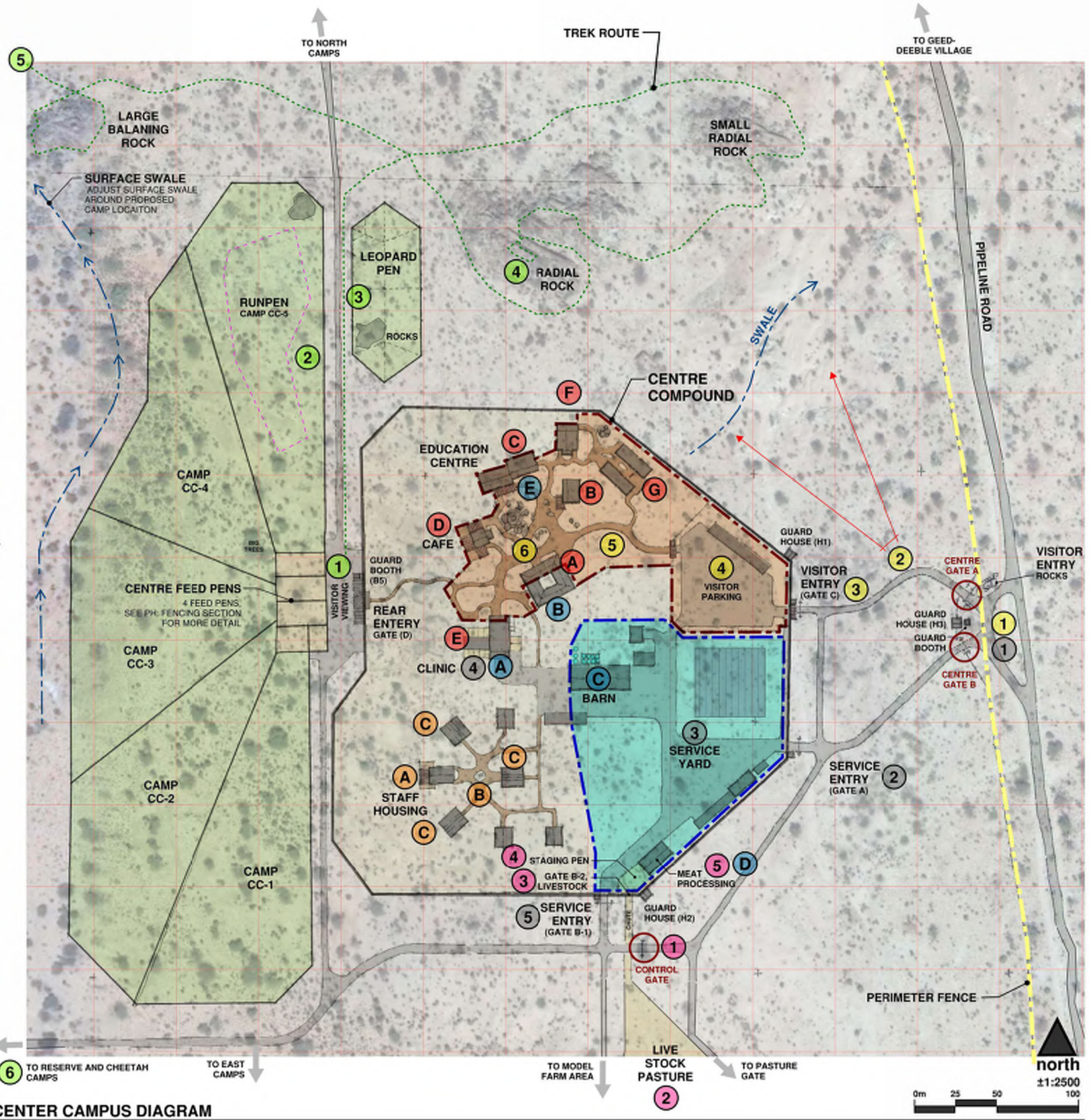
Visitors are contained to the visitor zone by an exclusion fence. Visitors outside this area should be accompanied by CRCC staff.

VISITOR PLAZA

- A **Office Building:** Ecological research is showcased to public.
- B **Museum:** Modest exhibit on the plight of the cheetah and educational conservation messages.
- C **Education Centre:** Centre for hosting large meetings/lectures and small classrooms for intimate learning groups.
- D **Café:** Refreshments with a view for CRCC guests and staff alike.
- E **Clinic and Nursery:** Veterinary clinic can be observed by guests and the nursery offers controlled viewing of confiscated cheetah cubs.
- F **Restroom (and Showers)**
- G **Hostel:** Larger volume boarding structure able to accommodate education and workshop guests.

NON-COMPOUND VISITOR ACTIVITIES

- 1 **Centre Camps and Feed Pens:** Similar to CCF Namibia, some cheetah enclosures will be located closer to the Centre Compound where human activity is more common. Cheetahs living in these camps will serve an important role in the conservation of their species. These cats could serve as ambassadors (educational tools) to visitors at the CRCC Campus. Here visitors have the opportunity to see cheetahs in large camps or the cheetahs can be brought to feed pens for feeding.
- 2 **Run Pen:** Guests can observe cheetah enrichment activities like cheetah runs.
- 3 **Leopard Pen:** Housing for one leopard confiscated by MoERD
- 4 **Radial Rock:** Summit the Radial Rock for a 360° of the area.
- 5 **Walking Treks:** Additional activities can be explored by a CRCC guided walk.
- 6 **Campus:** Additional activities can be explored via CRCC guided vehicle through the rest of the CRCC Campus and Reserve.



CENTER CAMPUS DIAGRAM

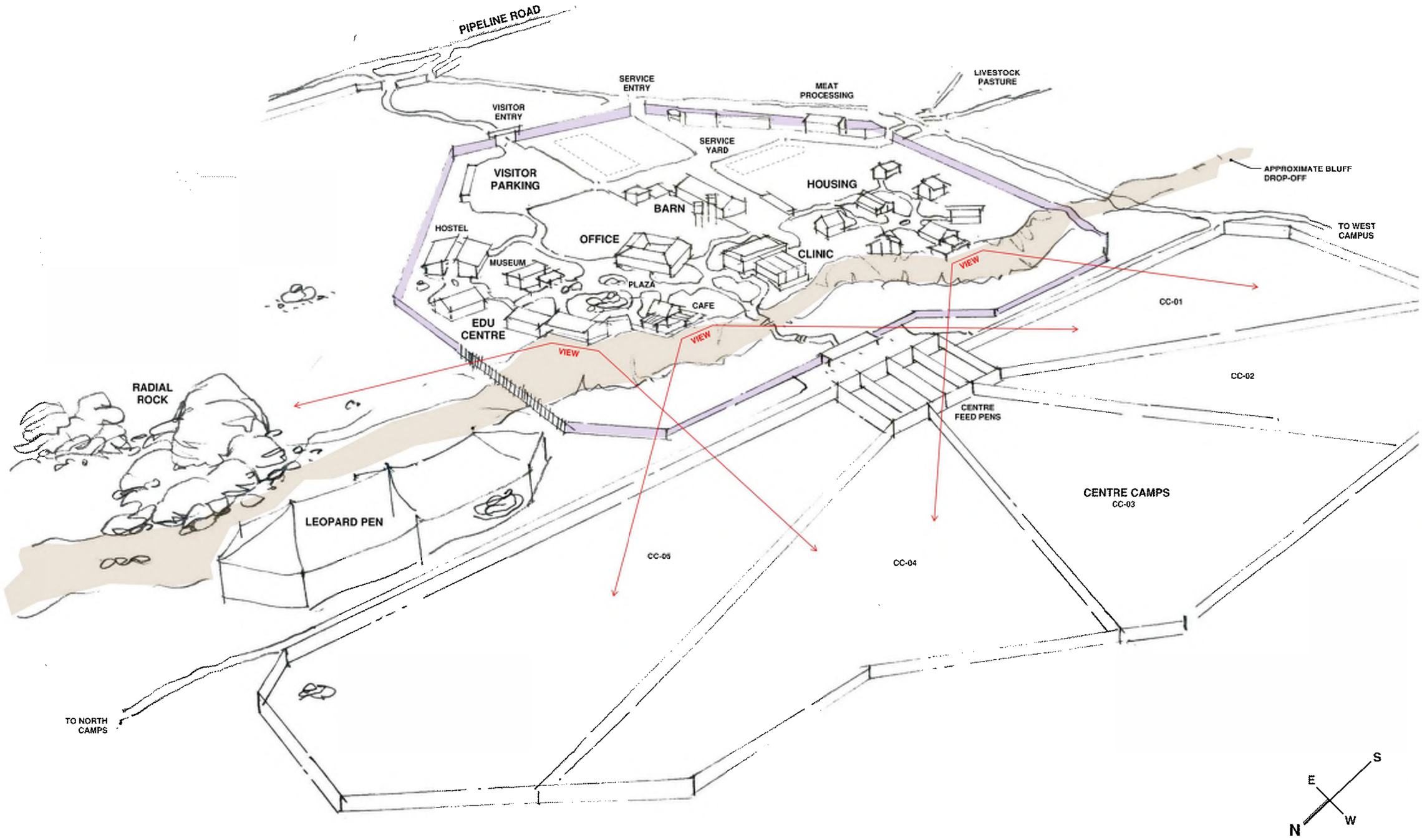
DO NOT SCALE

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
CENTER CAMPUS DIAGRAM

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND



CENTRE COMPOUND AERIAL PERSPECTIVE SKETCH

DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
OVERVIEW
CENTRE COMPOUND AERIAL

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

IMPLEMENTATION

IMPLEMENTATION SUMMARY

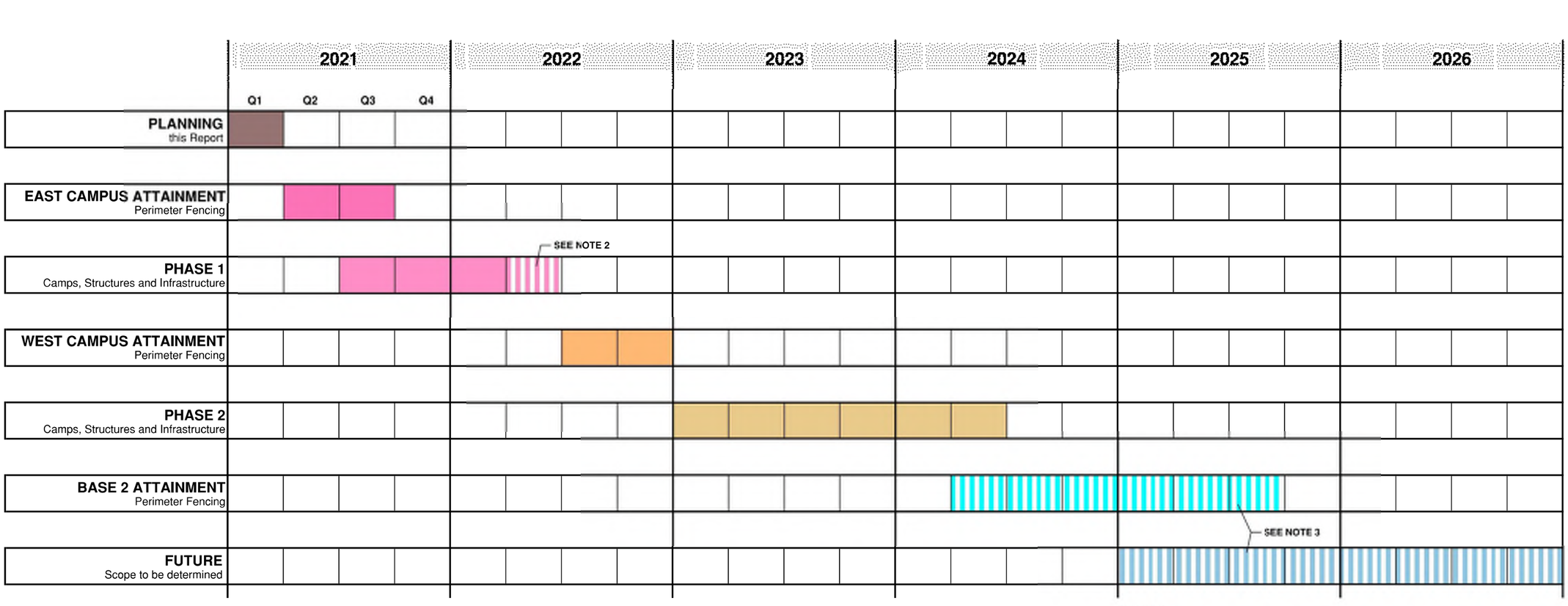
This facilities masterplan is an ambitious project in goals and scope. To realize such a complex project special attention must be paid to the construction schedule. The Test Implementation Schedule below attempts to capture an approximation of a timeline for implementation.

This masterplan is divided into both land attainment (east and west Campus and Base 2) and construction phases (Phase 1, 2 and Future). East Campus, West Campus and Base 2 Attainment is specific to staking control of the land with a perimeter fence. Phase 1 and Phase 2 are related to the construction of other amenities (non-perimeter fence). This includes but is not limited to structures, walls, roads, utilities, fencing, and animal enclosures.

Phase 1 includes amenities required for initial operations of the Campus. Some animal enclosures, some staff housing, essential animal welfare/husbandry amenities and required infrastructure.

Phase 2 includes more amenities for realizing the full goals of the CCF mission in Somaliland including more animal enclosures, housing, animal welfare/husbandry amenities and infrastructure. This will also include education and visitor amenities.

Future Phase is not fully developed; as the CRCC evolves additional amenities will be needed. A few items have been identified as potential work.



*NOTES:
1. Schedule is approximate. Actual implementation is dependent on a variety of variables.
2. Completion to be determined based on scope
3. Future work. Time periods are placeholders.

TEST IMPLEMENTATION SCHEDULE

DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

PHASING TABLE

The table below lists CRCC amenities and organizes them by implementation phase. It is not exhaustive. See the following two pages for phases illustrated on the plans.

Item may be not be required or provided by other stakeholder

CAMPUS FENCE & PHASE 1

INFRASTRUCTURE

Item	Size	QTY
Borehole and Pipe	100 deep	1
Water (network and tanks)		1
Electric (from grid?)		1
Battery/Inverter Structure	80 m²	1
Solar Power System & Electric Network		1
Roads / River Crossings		1
Fuel Storage	25 m²	1
Trash Pit	4m deep	1
Data (reciever and wifi network)		1

STRUCTURES

Item	Size	QTY
Quad House	156 m²	2
Clinic & Clinic Pens	300 m²	1
Meal House	65 m²	1
Meat Processing	200 m²	1
Barn	420 m²	1
Guard House (relocation)	10 m²	3
Compound Wall & Gates (km)	1,000 m	1.5
Guard Booth	1 m²	3

FENCING & ENCLOSURES

Item	Size	QTY
9 HA Camp	9 HA	4
5 HA Camp	5 HA	0
2.5 HA Camp	2.5 HA	8
1 HA Camp	1 HA	5
Nursery (reuse Hargeisa materials)		10
Camel Fence (km)		4
Base 1 East Campus Perimeter Fence	per km	7.11
Base 1 West Campus Perimeter Fence	per km	10.1
Leopard Enclosure (capped)		1

RESERVE FENCE & PHASE 2

INFRASTRUCTURE

Item	Size	QTY
Water Network Expansion		1
Solar Power System Expansion		1
Roads / River Crossings		1
Water Troughs (in Base 2)		2
Dams		2
Car Wash Bay (water recycling)	30 m²	1
Greywater Reuse		1
Trash Sorting/Recycle		1

STRUCTURES

Item	Size	QTY
Single House	140 m²	3
Quad House	156 m²	1
Restroom and Showers	20 m²	1
Hostel (open air)	276 m²	1
Office/Admin Building	300 m²	1
Workshop (mechanic/welding)	100 m²	1
Education Center (partial open air)	336 m²	1
Café	95 m²	1
Gateway & Entry Sign		1
Welcome Plaza/Landscape		1
Guard House (new)	12 m²	2
Guard Booth	1 m²	3

FENCING & ENCLOSURES

Item	Size	QTY
9 HA Camp	9 HA	4
5 HA Camp	5 HA	4
2.5 HA Camp	2.5 HA	2
1 HA Camp	1 HA	0
Nursery		0
Camel Fence (km)		0
Base 2 Perimeter Fence (km)		26
		0
		0

FUTURE

INFRASTRUCTURE

Item	Size	QTY
Water Network		
Solar System Expansion		
Roads / River Crossings		
Model Farm (TBD)		
Water Troughs		
Dams		
Center Feeding Visitor Shade		

STRUCTURES

Item	Size	QTY
Single House	140 m²	
Quad House	156 m²	
Guest Cabins		
Small Muesum	100 m²	
Center Feeding Shading		
Model Farm (TBD)		

FENCING & ENCLOSURES

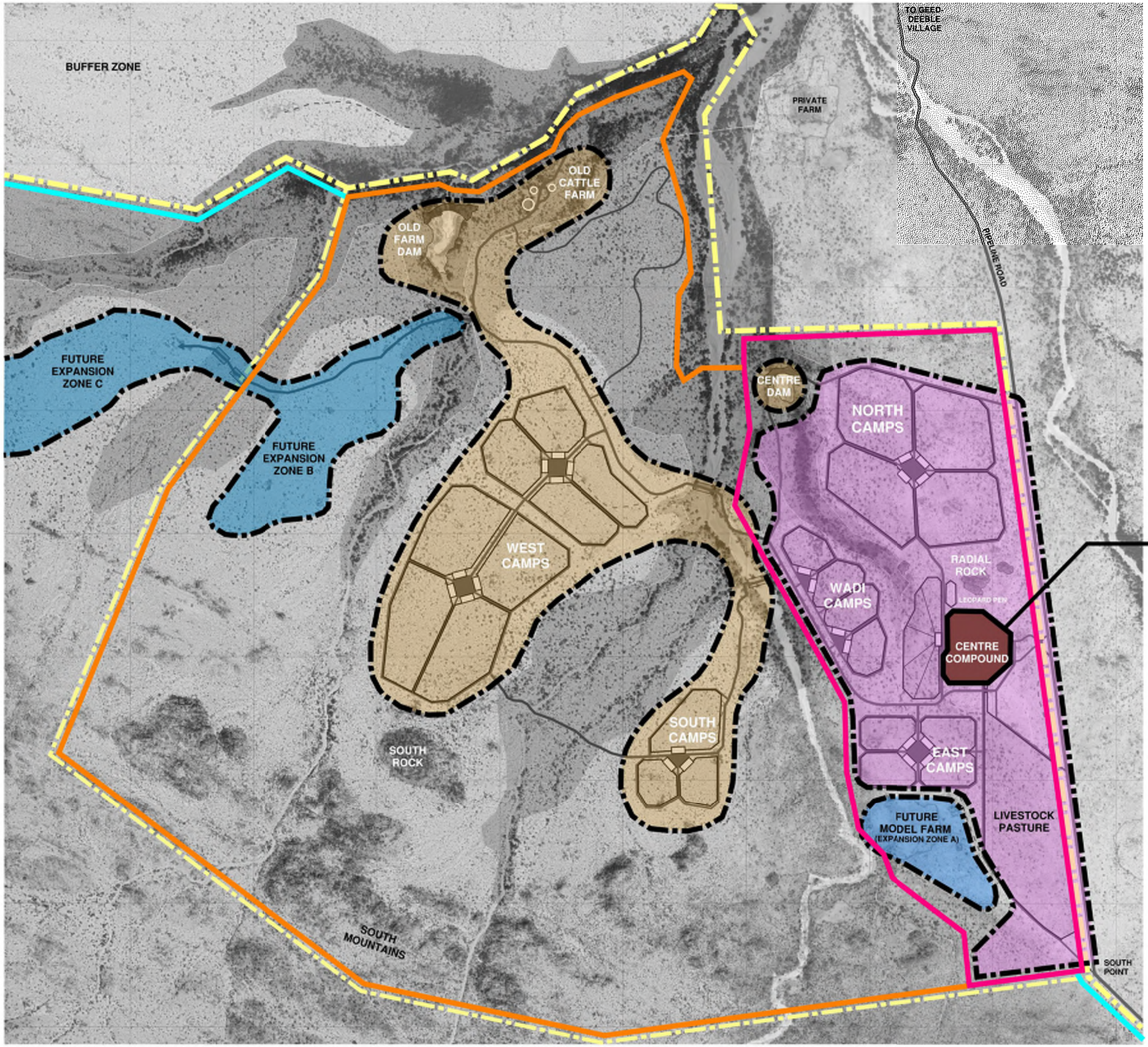
Item	Size	QTY
9 HA Camp		
5 HA Camp		
2.5 HA Camp		
1 HA Camp		
Nursery		
Camel Fence (km)		
Perimeter Fence (km)		

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
IMPLEMENTATION PHASING TABLE

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND



SUMMARY

The Campus will be built in multiple phases. Initially, only the essential number of camps and associated feeding pens will be constructed and only the infrastructure required to support these camps will be built. The livestock pasture associated amenities will also be a priority to support the cheetah camps.

To minimize wadi crossing Phase 1 will be contained to the east side of the major wadi running through the site. Implementation of Phase 2 will require construction of significant fortified crossings for crossing the wadis in rainy season.

Future Campus work will be determined based on a reevaluation of needs after Phases 1 and 2 are complete. There is substantial space for expansion in Base 1 and Base 2, if required.

A majority of the work resides within the Centre Compound, including Phase 1, Phase 2, and Future work. See next page for the Centre Compound's respective phasing.

CENTRE COMPOUND
Phase 1, 2 and Future items.
See Compound phasing on next page.

LEGEND

- East Campus Perimeter Fencing
- West Campus Perimeter Fencing
- Reserve (Base 2) Perimeter Fencing
- Phase 1 Items
- Phase 2 Items
- Future

north

0m 200 400 800

CAMPUS IMPLEMENTATION PLAN
DO NOT SCALE

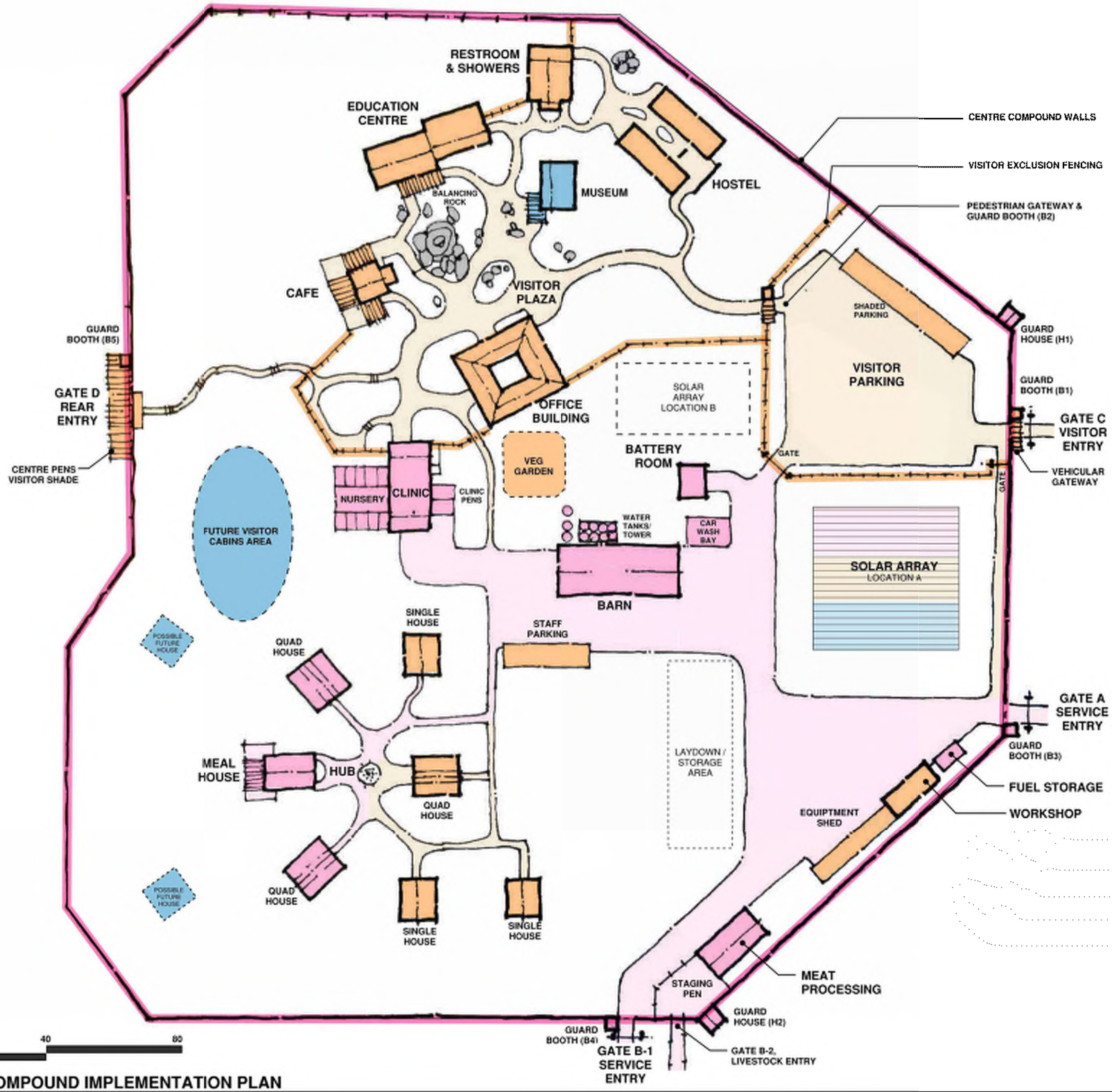
ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
IMPLEMENTATION
CAMPUS (BASE 1)

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND



SUMMARY

The Centre Compound will be implemented over multiple phases. Phase 1 includes amenities required for initial operations of the Campus. Some animal enclosures, some staff housing, essential animal welfare/husbandry amenities and required infrastructure. Phase 2 includes more amenities for realizing the full goals of the CCF mission in Somaliland including more housing and significant amenities devoted to education and CRCC visitors.

Future Phase is not fully defined. It is more an acknowledgement that as the Campus evolves additional amenities will be needed. A few items have already been identified as potential work.

CENTRE COMPOUND IMPLEMENTATION PLAN
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
IMPLEMENTATION
CENTRE COMPOUND

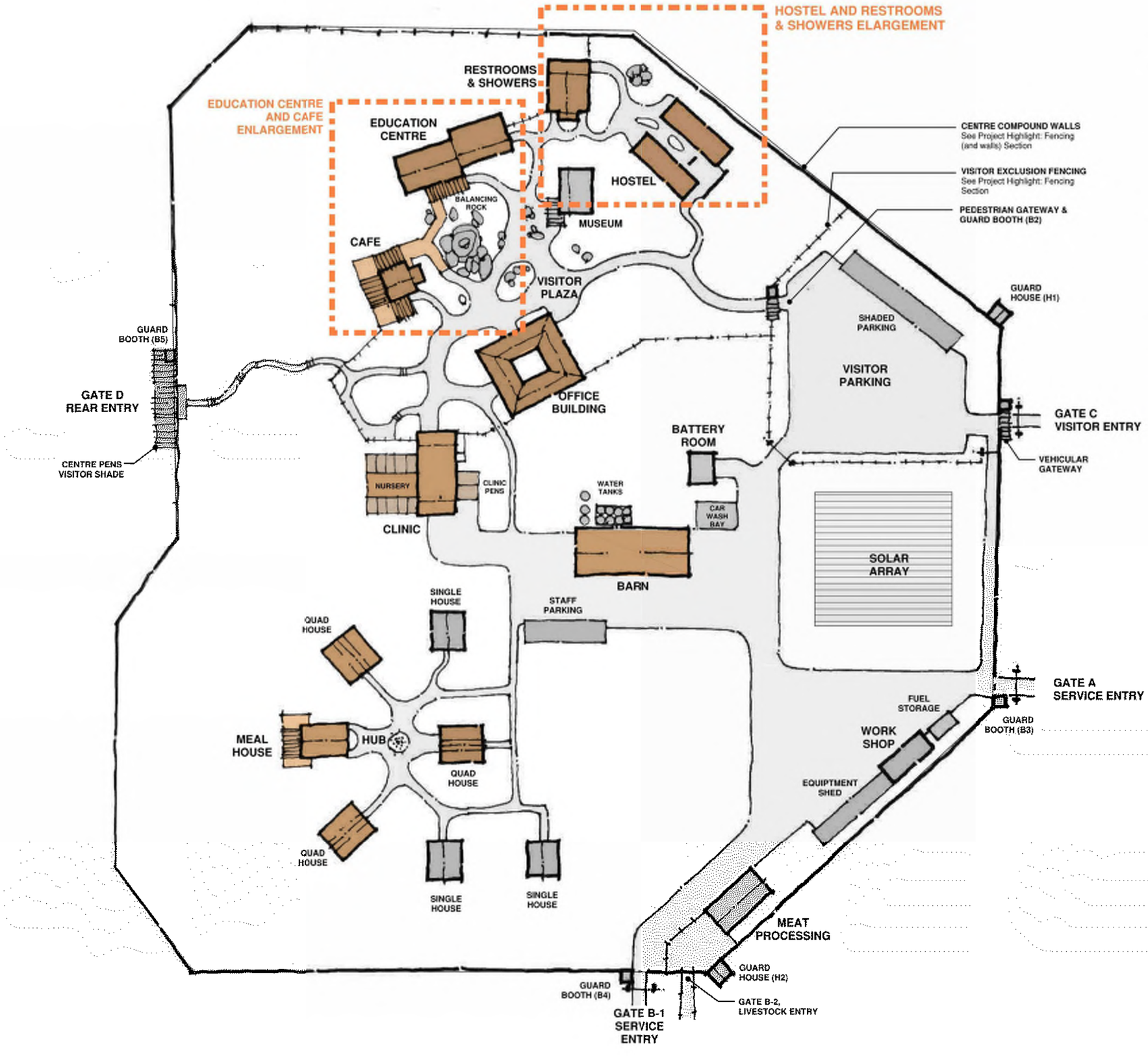
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PROJECT HIGHLIGHT:

BUILDINGS

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021



BUILDINGS HIGHLIGHTS KEY PLAN
DO NOT SCALE

BUILDING HIGHLIGHTS SUMMARY

The Cheetah Rescue & Conservation Centre requires a variety of structures to support the CCF mission directly (animal husbandry/welfare, conservation, and education) as well as indirectly via housing, infrastructure, and other amenities.

A few select buildings are highlighted in this section. They were chosen to highlight some of their unique characteristics. Other structures outlined in this report may follow precedent already utilized at the CCF Namibia facilities or the CCF Safe Houses in Hargeisa.

SECTION CONTENTS

LEGEND

Highlighted:
building with project highlight, see table above for page number.

Not Highlighted:
structures not highlighted in this report

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

CLINIC CONCEPT

The CRCC will have major needs for animal veterinary services. A quality veterinary clinic is required to provide quality animal care. The Clinic will include a workup room and theatre for animal treatment, a centrally located office with lockable medicine cabinet, conference room, laboratories, and x-ray room. A cheetah cub nursery will be attached to the side of the clinic to accommodate confiscated cubs that are too young to be kept in large camps and require close monitoring by the CRCC staff. A couple of the nursery spaces will be brick and mortar rooms for protection from harsh weather conditions.

Some of the Clinic rooms will host veterinary activities that require clean and sterile environments. Workspaces (countertops, backsplashes, tabletops, cabinet surfaces) will need to be highly, cleanable surfaces. Ideally these surfaces are free of grout joints that harbor bacteria. See photo PB-a for a precedent photo. The Clinic will be located close enough to the visitor zone of the Centre Compound so that CRCC visitors can observe clinic activities. Corridor windows into the workup room and theatre should be included to allow for outside observation.

The Clinic should be connected to the campus water reuse networks. See gray water and rainwater harvesting concepts in the Project Highlight: Infrastructure section.

LEGEND

- Circulation or Exterior Space
- Office Space & Night Room
- Medical/Clean Space
- Storage / Closet
- Toilet
- Holding Pen (exterior: fencing; interior: brick and mortar)
- Vestibule (secondary containment space) (exterior: fencing; interior: brick and mortar)
- Door
- Window, see note 8

CLINIC SUMMARY

LEVELS	one + roof access: future vertical expansion possible
CONSTRUCTION TYPE	concrete brick with reinforced concrete columns/beams
ROOF SYSTEM	concrete, flat: note rainwater harvesting goals
WINDOWS	aluminum frames
DOORS	exterior: alum interior: alum
GENERAL EXTERIOR FINISHES	painted stucco
GENERAL INTERIOR FINISHES	by room, see program
ELECTRIC NEEDS	overhead lighting, porch light, specailized task lighting, 6-8 outlets per room (+ high amp outlets for special equiptment)
WATER NEEDS	sinks, floor drains, equiptment hookups, hosebibs for animal pens and verandas
CONDITIONED SPACES	yes
ACCESSIBILIY	flush access at front and rear door
FIXED FURNITURE	see program
SPECIAL ANIMAL NEEDS	animal caging/enclosures, veterinary and medical specialties

NOTES:
1. Sizes are approximate and do not account for wall widths.
2. Countertops, backsplashes and other medical working surfaces to be smooth and cleanable.
3. Interior surfaces shall be painted unless finish requirements note otherwise.
4. Xray Room requires appropriate fittings/finishes for x-ray safety needs.
5. Glass curtain wall between the Workup Room and Theatre.
6. Stepping of nursery on multiple levels may be required depending on the slope of the site.
7. Corrugated tin may be attached to fencing as wind and sight lines buffers in nursery rooms.
8. Windows shown are not exhaustive, more windows could be required and/or at higher/lower level than the plan is cut. See section/elevations for additional information.

1:125

0m 1 2 4 8

CLINIC CONCEPT PLAN
DO NOT SCALE

CLINIC PROGRAM

FOOTPRINT AREA: **236 M²** (excludes nursery and clinic pens)

ROOM	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Front & Rear Verandas	see plan	counter, sink, hosebib	tile floor	
Corridor	see plan	counter, cabinets, sink	tile floor	
WorkUp Room & Theatre	4.5 x 5m	counter, cabinets, sink	tile floor, tile walls	see note 3 & 5
Laundry	2 x 3.3m	counter, sink	tile floor	
Toilet/Bathroom	3 x 3.3m	toilet, sink, shower	tile floor	
Laboratory A	3 x 4.5m	counter, cabinets, sink	tile floor, tile walls	
Laboratory B	3 x 4.5m	counter, cabinets, sink	tile floor, tile walls	
Vet Office	3 x 4m	medicine cabinet	tile floor	
Store Room	2 x 3m	shelfing	tile floor	
Xray Room	3 x 3.3m	counter, sink	tile floor, tile walls	see note 4
Night Room	2.5 x 3m		tile floor	staff overnight room for cub-sitting
Conference Room	4.5 x 6m		tile floor	

CLINIC PENS PROGRAM

FOOTPRINT AREA: **27 M²**

ROOM	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS	REMARKS
Clinic Pens	3 x 3.5m	feed chute	sealed concrete floors, galv diamond mesh	
Vestibule	1.5m wide	hosebib	sealed concrete floors, galv diamond mesh	

NURSERY PROGRAM

FOOTPRINT AREA: **270 M²**

ROOM	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS	REMARKS
Nursery Rooms 1 & 10	3 x 3m	feed chute	sealed concrete floor, tile walls	electric outlets
Nursery Rooms 2,3,4,5,6,7,8,9	3 x 3m	feed chute	sealed concrete floor, see note 7	reuse of Hargeisa Safe house fencing
Nursery Pens 1 - 10	3 x 5m		sand floor	reuse of Hargeisa Safe house fencing
Vestibule/Corridor	2m wide	hosebibs	sand floor	reuse of Hargeisa Safe house fencing

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
CLINIC -01

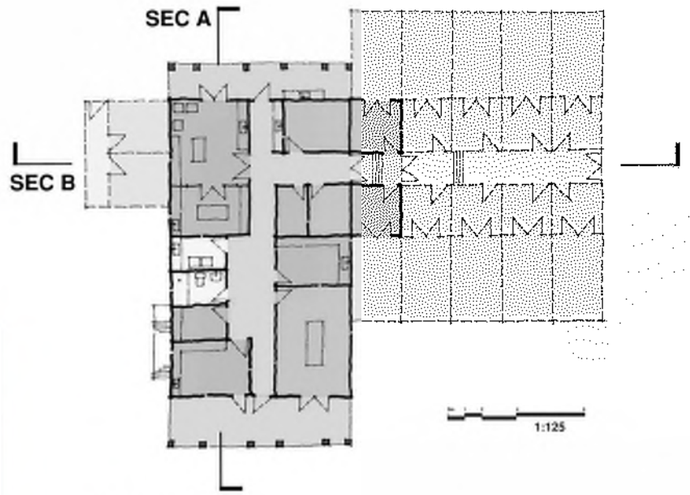
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

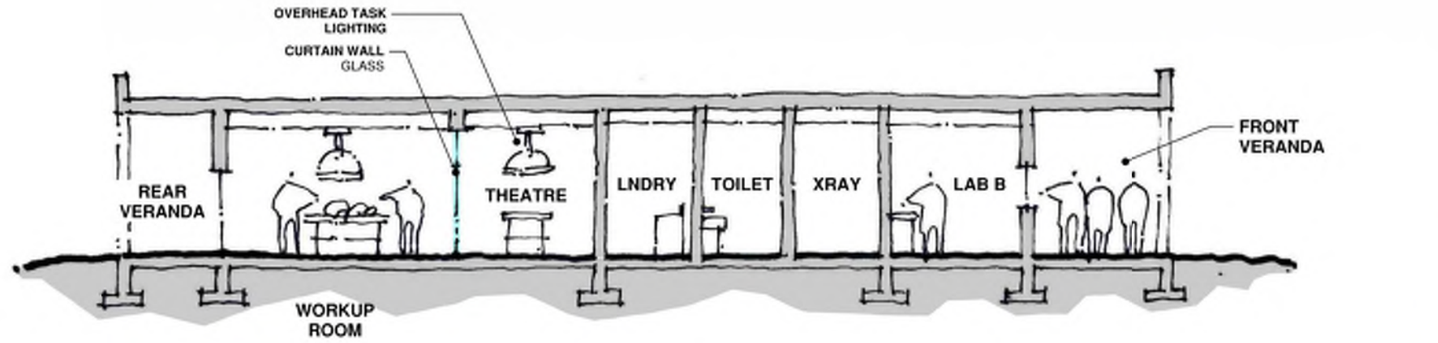
PB-a: laboratory room at CCF Namibia

PB-b: clinic pens at CCF Namibia clinic building

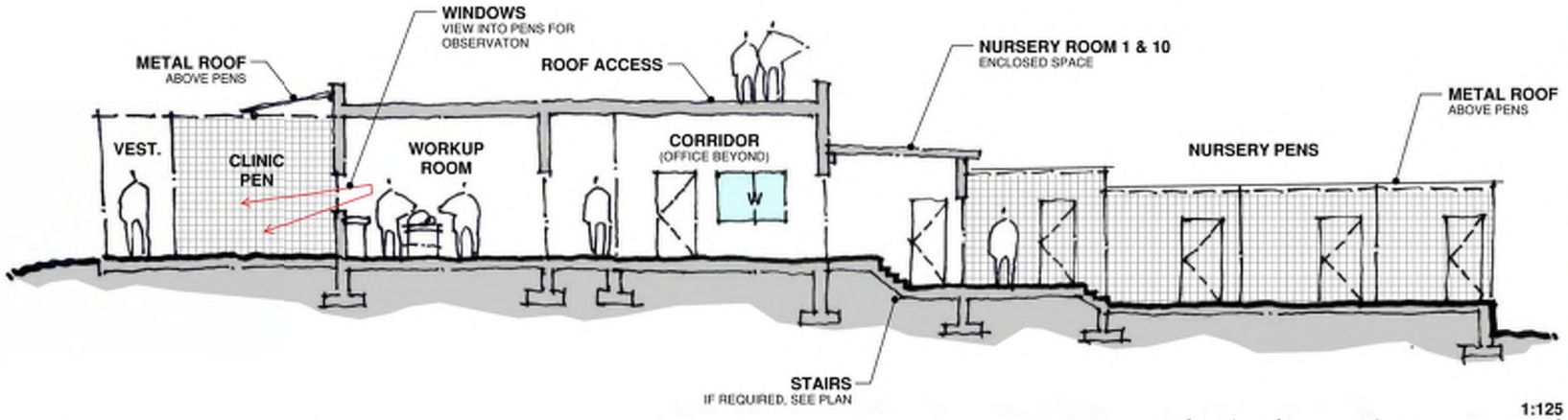
PB-c: clinic workup room and theatre in CCF Namibia clinic building



KEY PLAN
DO NOT SCALE



CLINIC CONCEPT SECTION A
DO NOT SCALE



CLINIC CONCEPT SECTION B
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
CLINIC - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

QUAD HOUSE CONCEPT

The Quad House is a housing unit for the CRCC staff. The building is comprised of four studio units with en suite bathrooms and a small kitchenette. A central outdoor community space connects the four units. The openness of the community space lends itself for good air circulation and affords good views.

Note a similar structure is used at CCF Namibia. See next page for photos.

The Quad House should be connected to the campus water reuse networks. See gray water and rainwater harvesting concepts in the Project Highlights Infrastructure section.

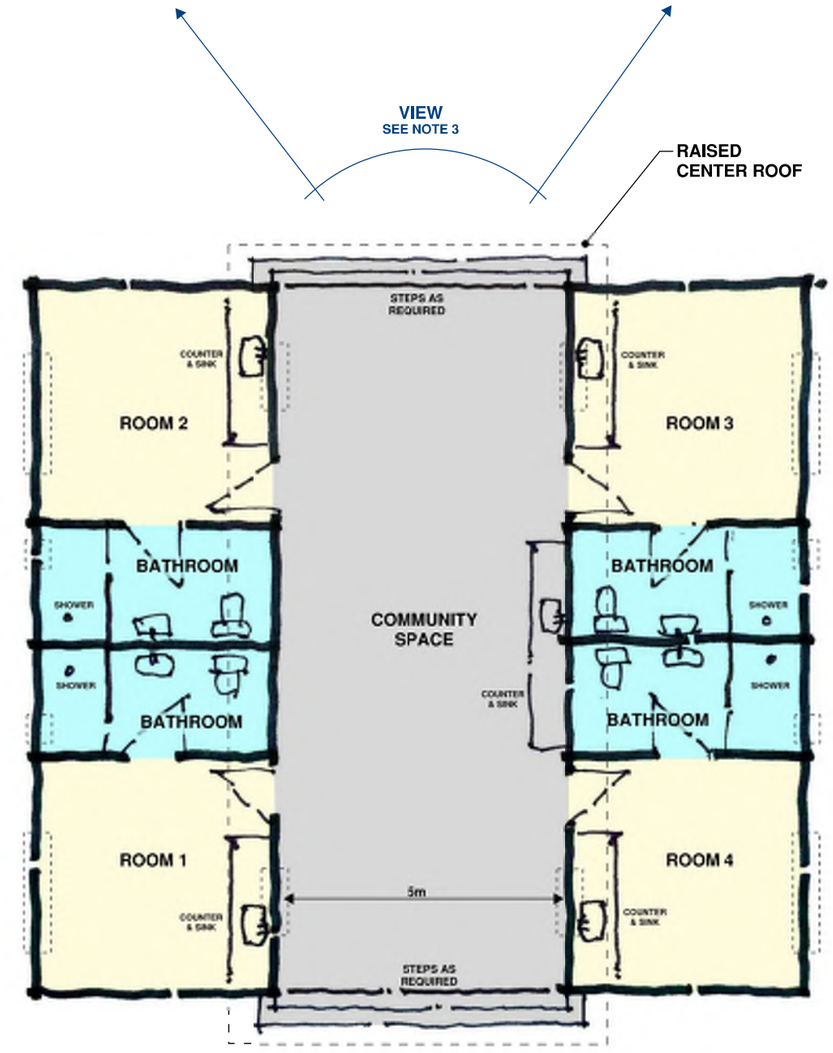
QUAD HOUSE SUMMARY

LEVELS	one: no vertical expansion
CONSTRUCTION TYPE	concrete brick with reinforced concrete columns/beams
ROOF SYSTEM	corrugated tin or cement board with drop ceiling note rainwater harvesting goals
WINDOWS	aluminum frames
DOORS	exterior: metal interior: wood
GENERAL EXTERIOR FINISHES	painted stucco
GENERAL INTERIOR FINISHES	by room, see program
ELECTRIC NEEDS	overhead lighting, 4 outlets per room
WATER NEEDS	sinks, hosebibs
CONDITIONED SPACES	none
ACCESSIBILIY	elevated finished floor
FIXED FURNITURE	see program
SPECIAL ANIMAL NEEDS	none

QUAD HOUSE PROGRAM

FOOTPRINT AREA	144 M²			
ROOM	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Community Space	5 x 16m	counter, sink	seal concrete floor	open air
Room 1	4 x 4m	counter, sink, cabinets	tile floor	
Room 2	4 x 4m	counter, sink, cabinets	tile floor	
Room 3	4 x 4m	counter, sink, cabinets	tile floor	
Room 4	4 x 4m	counter, sink, cabinets	tile floor	
Bathroom 1	2x 4m	toilet, sink, shower	tile floor, tile walls	
Bathroom 2	2x 4m	toilet, sink, shower	tile floor, tile walls	
Bathroom 3	2x 4m	toilet, sink, shower	tile floor, tile walls	
Bathroom 4	2x 4m	toilet, sink, shower	tile floor, tile walls	

NOTES:
1. Sizes are approximate and do not account for wall widths.
2. Interior surfaces shall be painted unless finish requirements note otherwise.
3. Building to be oriented for views.
4. Windows shown are not exhaustive, more windows could be required and/or at higher/lower level than the plan is cut. See section/elevations for additional information.



LEGEND

- Community Space (exterior)
- Studio
- Bathroom
- Door
- Window, see note 4

1:100

0m 1 2 4

QUAD HOUSE CONCEPT PLAN

DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

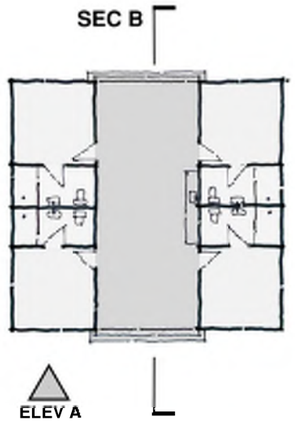
FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
QUAD HOUSE - 01

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

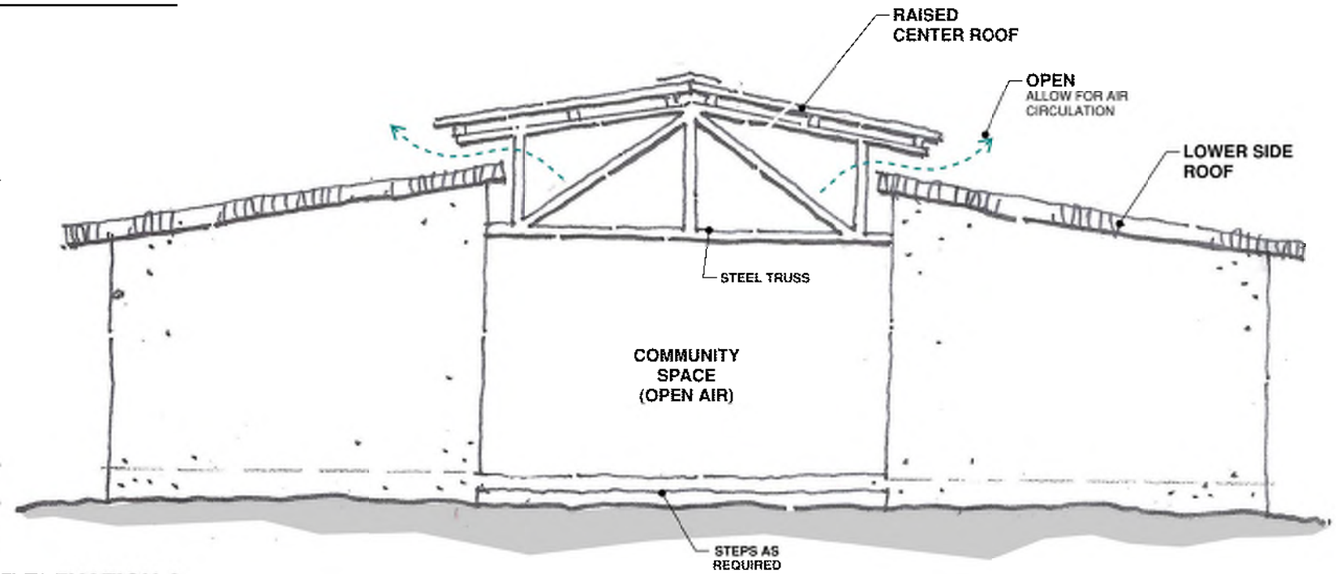
PB-d: quad house in Namibia, community space

PB-e: quad house in Namibia, side view

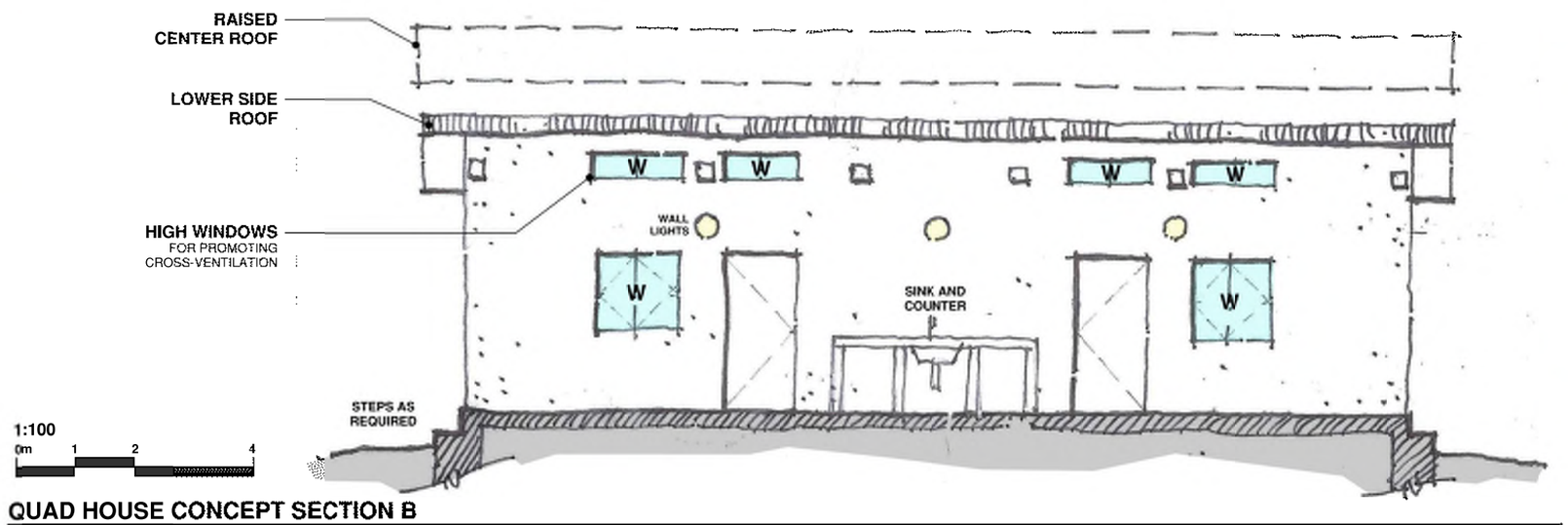
PB-f: quad house in Namibia, rear view



KEY PLAN
DO NOT SCALE



QUAD HOUSE CONCEPT ELEVATION A
DO NOT SCALE



QUAD HOUSE CONCEPT SECTION B
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
QUAD HOUSE - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

MEAL HOUSE CONCEPT

The Meal House is a communal eating space modeled after CCF Namibia's "Hotspot". A central kitchen and serving area will service outdoor eating space with large tables for group dinning. The dining deck will be oriented westward to views across the Campus. The structure will also include a laundry room for staff use. Lockable storage space will act as a stock room for food items.

The Meal House should be connected to the campus water reuse networks. See gray water and rainwater harvesting concepts in the Project Highlight: Infrastructure section.

MEAL HOUSE SUMMARY

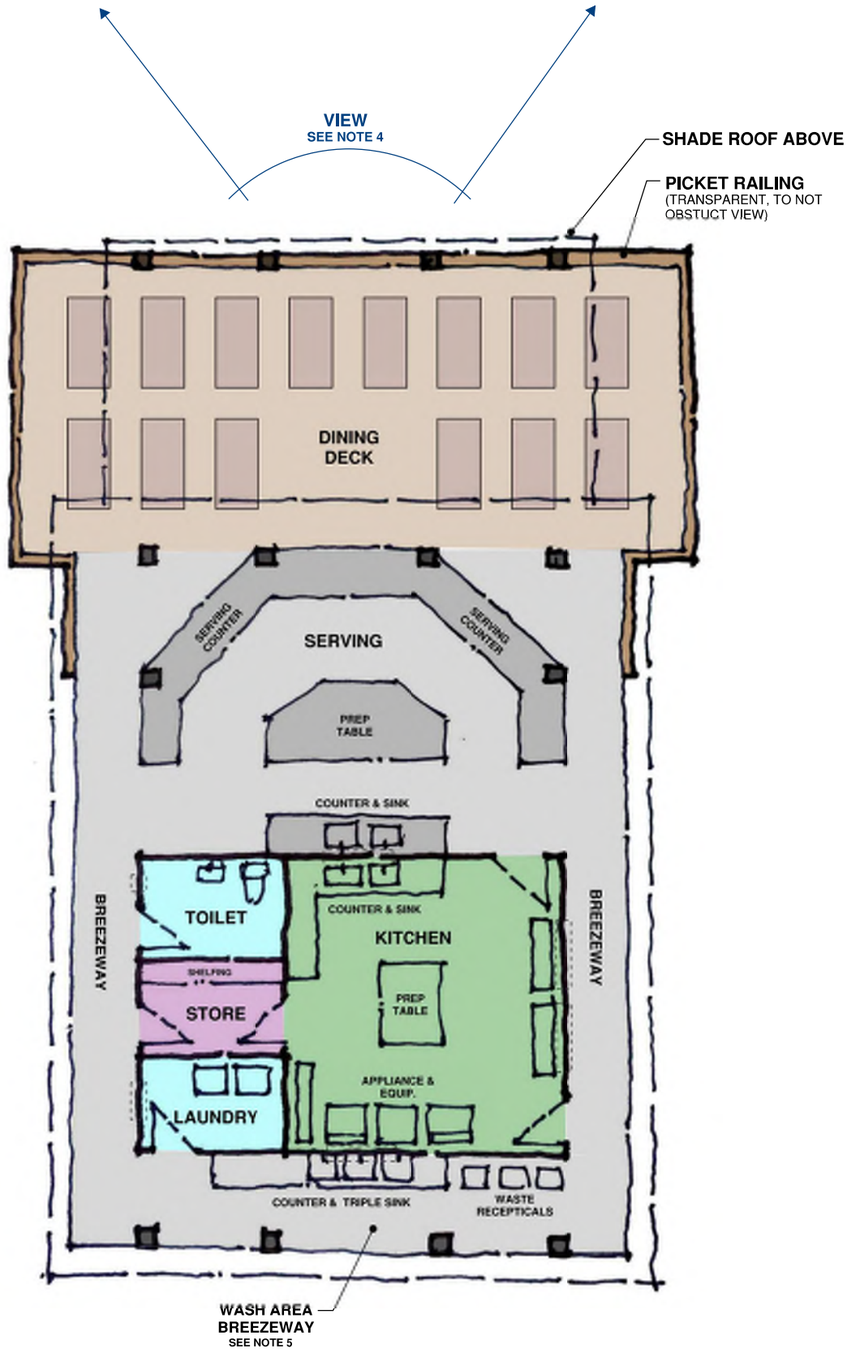
LEVELS	one: no vertical expansion
CONSTRUCTION TYPE	concrete brick with reinforced concrete columns/beams, concrete deck
ROOF SYSTEM	corrugated tin or cement board with drop ceiling note rainwater harvesting goals
WINDOWS	aluminum frames
DOORS	exterior: metal interior: wood
GENERAL EXTERIOR FINISHES	painted stucco
GENERAL INTERIOR FINISHES	by room, see program
ELECTRIC NEEDS	overhead lighting, outlets per equiptment requirements
WATER NEEDS	sinks, toilets, equiptment hookups, exterior hosebibs
CONDITIONED SPACES	none
ACCESSIBILIY	flush finished floor
FIXED FURNITURE	see program
SPECIAL ANIMAL NEEDS	none

MEAL HOUSE PROGRAM

FOOTPRINT AREA — **BUILDING: 103 m²** (includes exterior circulation)
ELEVATED DECK: 55 m²

SPACE	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Kitchen	4 x 4.5m	counter, cabinets, sink	tile floor, tile walls	see note 3
Store	1.5 x 2.5m	shelfing	tile floor	
Toilet	1.5 x 2.5m	toilet, sink	tile floor, tile walls	
Laundry	1.5 x 2.5m		tile floor	
Serving	±30 sm	counter, cabinets, sink	tile floor	see note 3
Wash and Exterior Cirrculation (Breezeways)	±40 sm	counter, cabinets, sink	tile floor	see note 5
Dining Deck	5 x 11m	railing	tile floor	open air, elevated

NOTES:
1. Sizes are approximate and do not account for wall widths.
2. Interior surfaces shall be painted unless finish requirements note otherwise.
3. Countertops, backsplashes and other kitchen/prep working surfaces to be smooth and cleanable.
4. Building to be oriented for views.
5. Wash area to be modeled after CCF Namibia "Hotspot" (triple sink and waste).
6. Windows shown are not exhaustive, more windows could be required and/or at higher/lower level than the plan is cut. See section/elevations for additional information.



LEGEND

- Circulation/Serving (exterior)
- Kitchen
- Storage
- Toilet/Laundry
- Dining Deck (elevated deck)
- Door
- Window, see note 6
- Potential Furniture movable table (1.5m length)

1:100

0m 1 2 4

MEAL HOUSE CONCEPT PLAN

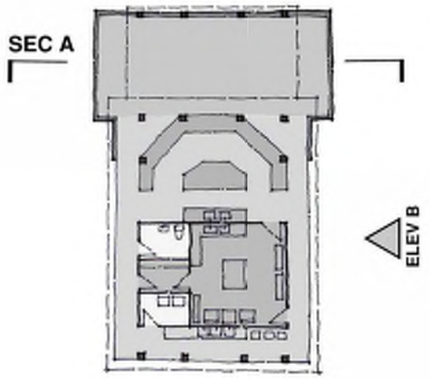
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
MEAL HOUSE - 01

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

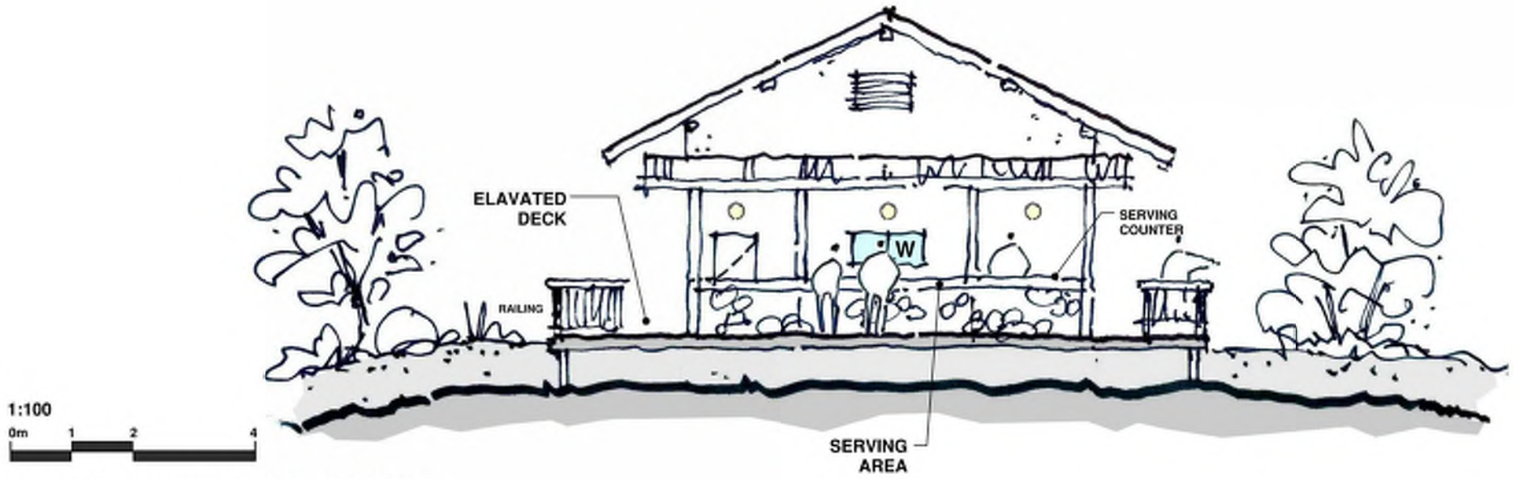
Cheetah CONSERVATION FUND



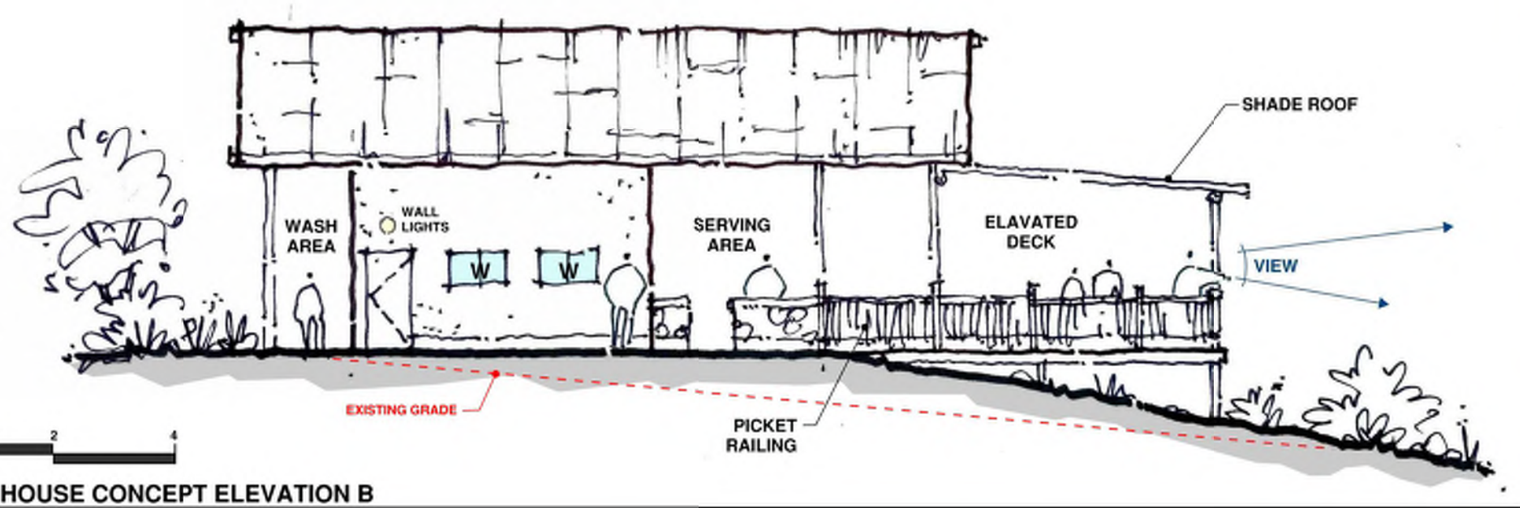
KEY PLAN
DO NOT SCALE

PB-g: meal house in Namibia (lightfoot camp), serving and prep area

PB-h: meal house in Namibia (hotspot), group dining tables and self-washing station



MEAL HOUSE CONCEPT SECTION A
DO NOT SCALE



MEAL HOUSE CONCEPT ELEVATION B
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
MEAL HOUSE - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

OFFICE BUILDING SUMMARY

The Office Building will be a multi-use office structure, serving as workspace for ecologists, administration/operations personnel, and visitor service staff. The building will have multiple offices and two conferences rooms. The building will have exterior circulation space, inwardly focused, around a central garden/courtyard. Offices to be fitted with windows that promotes cross-ventilated spaces.

The Office Building should be connected to the campus water reuse networks. See gray water and rainwater harvesting concepts in the Project Highlight: Infrastructure section.

OFFICE BUILDING SUMMARY

LEVELS	one: no vertical expansion
CONSTRUCTION TYPE	concrete brick with reinforced concrete columns/beams
ROOF SYSTEM	corrugated tin or cement board with drop ceiling note rainwater harvesting goals
WINDOWS	aluminum frames
DOORS	exterior: metal interior: wood
GENERAL EXTERIOR FINISHES	painted stucco
GENERAL INTERIOR FINISHES	by room, see program
ELECTRIC NEEDS	overhead lighting, 4 outlets per room
WATER NEEDS	sinks, toilets, exterior and courtyard hosebibs
CONDITIONED SPACES	none
ACCESSIBILIY	elevated finished floor
FIXED FURNITURE	see program
SPECIAL ANIMAL NEEDS	none

OFFICE BUILDING PROGRAM

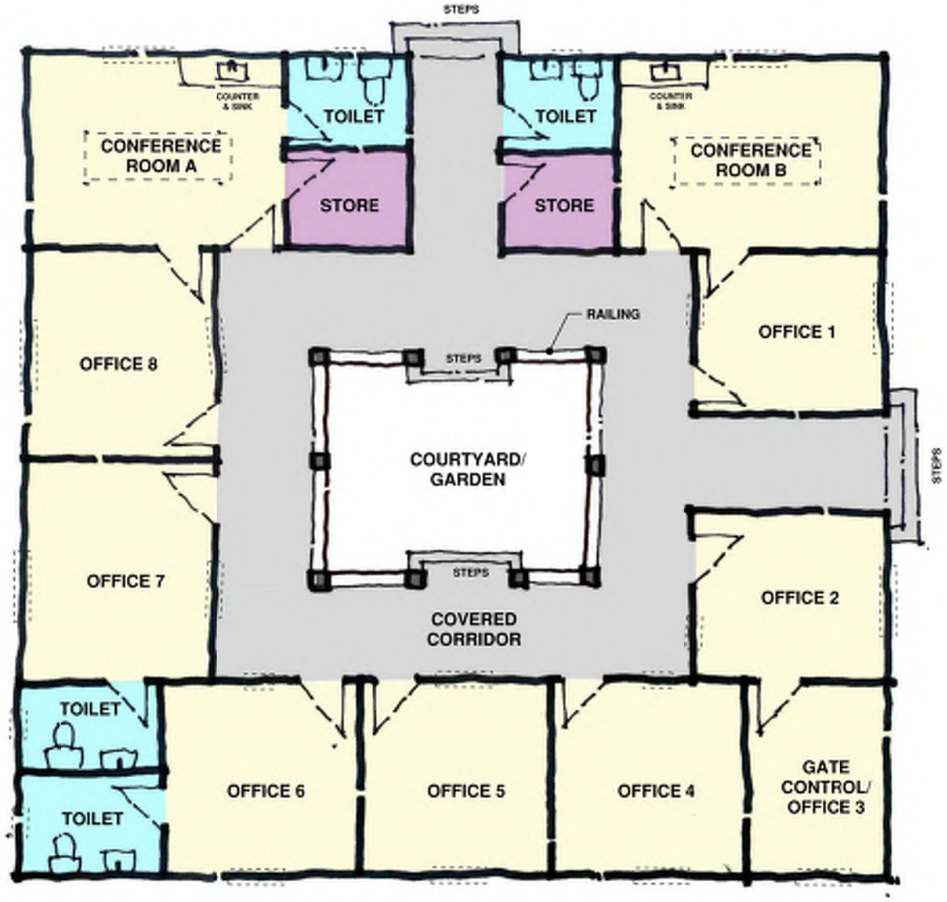
FOOTPRINT AREA 306 M² (includes courtyard)

ROOM	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Covered Corridor / Veranda	2m wide	railing	tile floor	open air
Couryard / Garden	4.3 x 5.5m	hosebib	soil	trees/plants in garden
Conference A	4 x 5.5m	counter, cabinets, sink	tile floor	
Conference B	4 x 5.5m	counter, cabinets, sink	tile floor	
Office 1	3.5 x 4m		tile floor	
Office 2	3.5 x 4m		tile floor	
Office 3	2.7 x 4m		tile floor	
Office 4	4 x 4m		tile floor	
Office 5	4 x 4m		tile floor	
Office 6	4 x 4m		tile floor	
Office 7	4 x 4.5m		tile floor	
Office 8	4 x 4.5m		tile floor	
Toilet - Corridor	2 x 2.5m	toilet, sink	tile floor, tile walls	
Toilet - Conference A	2 x 2.5m	toilet, sink	tile floor, tile walls	
Toilet - Office 6	2 x 3m	toilet, sink	tile floor, tile walls	
Toilet - Office 7	2 x 3m	toilet, sink	tile floor, tile walls	
Store - Corridor	2 x 2.5m		tile floor	
Store - Conference A	2 x 2.5m		tile floor	

NOTES:
1. Sizes are approximate and do not account for wall widths.
2. Interior surfaces shall be painted unless finish requirements note otherwise.
3. Windows shown are not exhaustive, more windows could be required and/or at higher/lower level than the plan is cut. See section/elevations for additional information.

LEGEND

- Circulation (exterior)
- Office Space
- Storage / Closet
- Toilet
- Door
- Window, see note 3, windows for fostering cross-ventilation



1:125

0m 1 2 4 8

OFFICE BUILDING CONCEPT PLAN
DO NOT SCALE

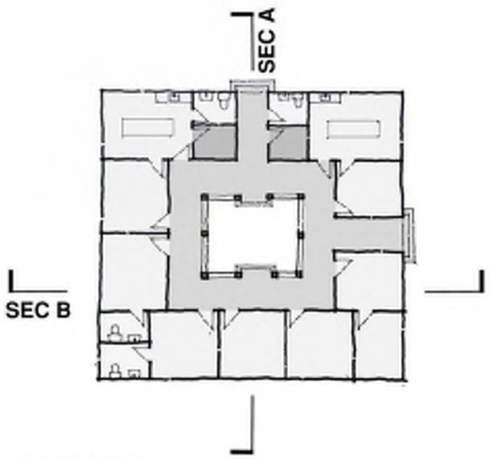
ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
OFFICE BUILDING - 01

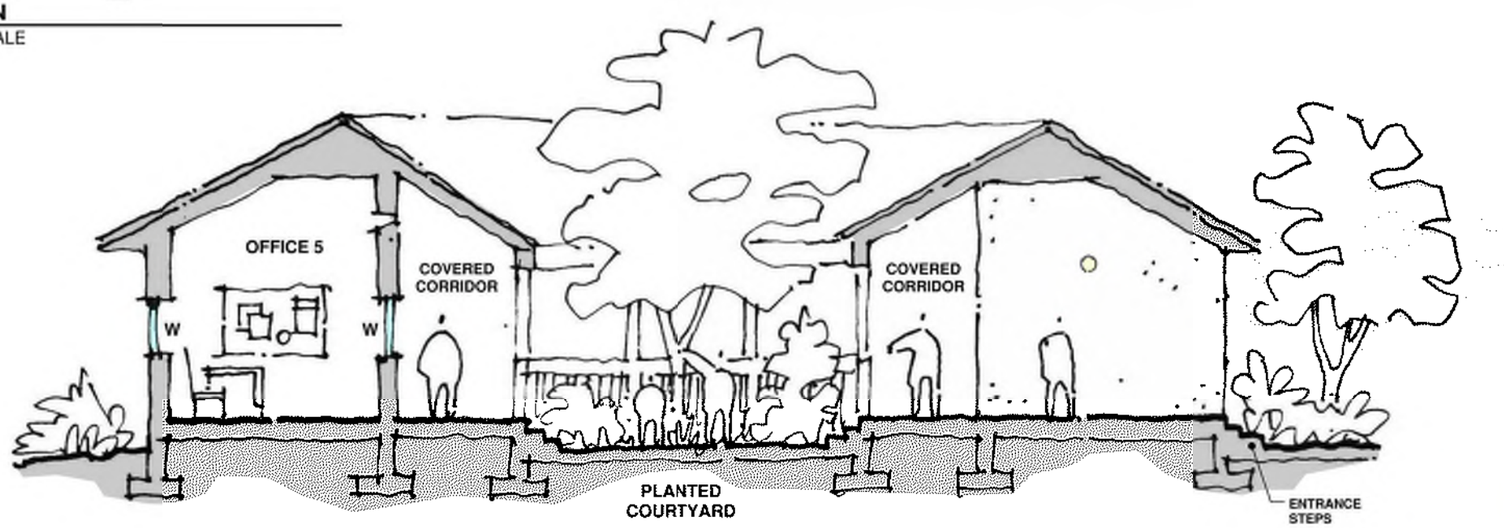
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PB-i: courtyard office, Ministry of Environment and Rural Development

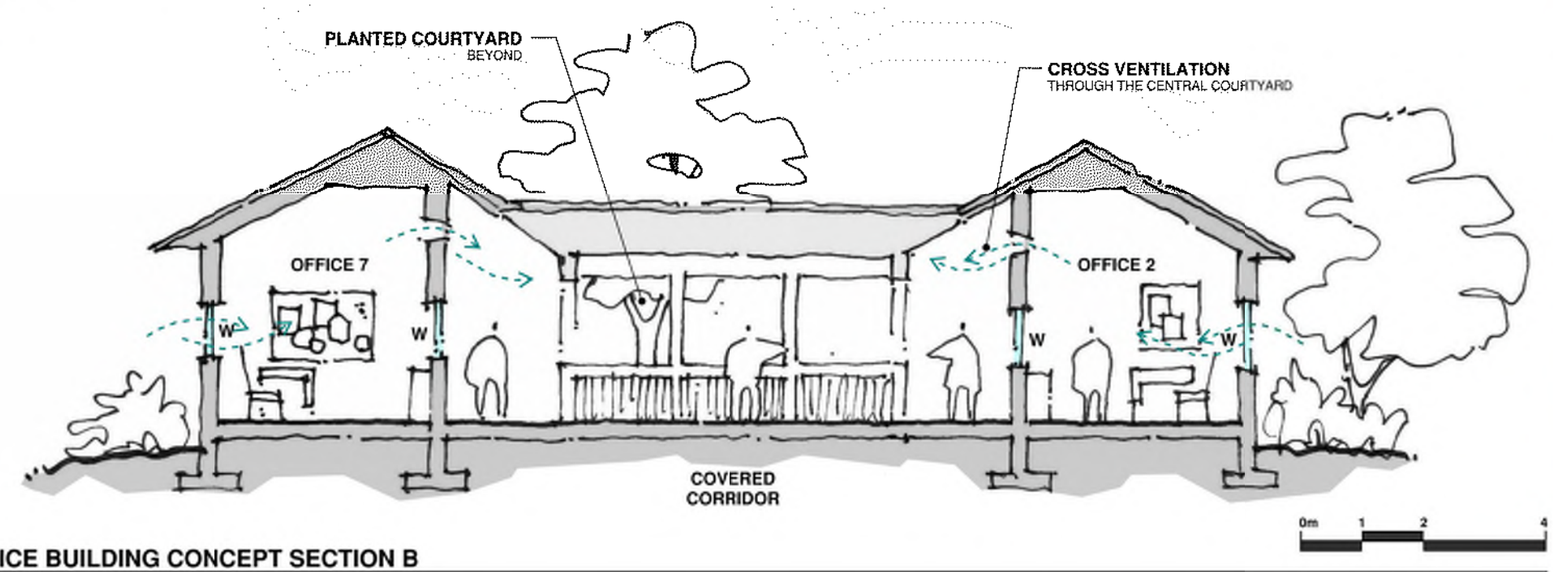
PB-j: courtyard office, Ministry of Environment and Rural Development



KEY PLAN
DO NOT SCALE



OFFICE BUILDING CONCEPT SECTION A
DO NOT SCALE



OFFICE BUILDING CONCEPT SECTION B
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
OFFICE BUILDING - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

BARN CONCEPT

A flexible use barn structure is imperative to the variety of activities required for CRCC Campus. The functions include vehicle, agricultural, and construction storage, miscellaneous lockable rooms, and water/pump room. The barn's function will evolve/change over time. Initially the barn will provide space for activities that in later phases will have spaces devoted specifically to them. For example, vehicle storage and the workshop will initially need to use the barn but will be relocated to the workshop in phase 2.

The barn should be connected to the campus water reuse networks. The barn's larger roof and proximity to the battery room also makes it an excellent location for solar panels. See Project Highlight: Infrastructure section for more information.

WATER TANKS

The water towers (potable and reuse) will be located next to the barn and within proximity to the pump room.The vegetable garden and car wash bay should be located close to here for proximity to the reuse tower. A water reservoir consisting of several large tanks should be constructed to serve as a backup water source in the case of a water emergency. See water section in the Project Highlight: Infrastructure section for more information.

BARN SUMMARY

LEVELS	one: no vertical expansion
CONSTRUCTION TYPE	steel structure with infill: - concrete brick with reinforced concrete columns/beams (see photos below) - diamond mesh
ROOF SYSTEM	corrugated tin note rainwater harvesting goals
WINDOWS	if required: painted steel frame
DOORS	exterior: diamond mesh gates interior: metal
GENERAL EXTERIOR FINISHES	painted stucco
GENERAL INTERIOR FINISHES	by room, see program
ELECTRIC NEEDS	overhead lighting, 2 outlets per room, + pump room needs
WATER NEEDS	pump room, large sink, exterior hosebib
CONDITIONED SPACES	none
ACCESSIBILIY	flush finished floor
FIXED FURNITURE	see program
SPECIAL ANIMAL NEEDS	hay storage

BARN PROGRAM

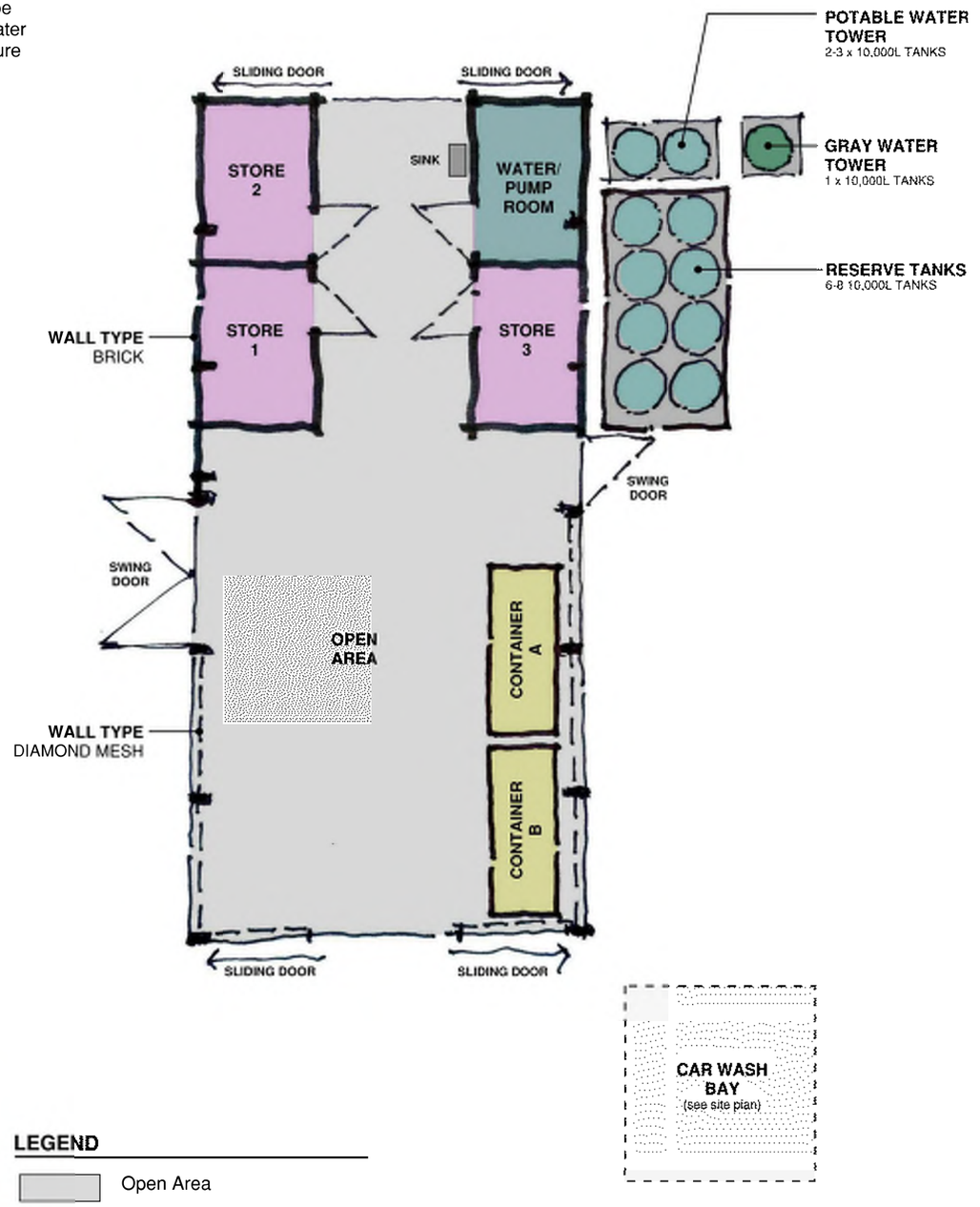
FOOTPRINT AREA: **420 M²** (14 X 30m, 5m bays)

SPACE	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Open Area		large sink	sealed concrete floor	see note 3 and 4
Store 1	4 x 6m		sealed concrete floor	
Store 2	4 x 6m		sealed concrete floor	
Store 3	4 x 6m		sealed concrete floor	
Water/ Pump Room	4 x 6m		sealed concrete floor	
Shipping Containers x 2	TBD		paint	see note 3 and 5

NOTES:
1. Sizes are approximate and do not account for wall widths.
2. Interior surfaces shall be painted unless finish requirements note otherwise.
3. Include reinforced thickened floor slabs to support heavy vehicles/equipment.
4. Include large gates/doors (height and width) for large vehicle/equipment access.
5. Shipping containers can be utilized as secure lockable storage space in barn, quantity dependent on availability.

PB-k: steel construction in Hargeisa

PB-l: barn precedent at CCF Namibia main barn



LEGEND

- Open Area
- Pump Room / Water Amenity
- Storage
- Shipping Container (see note 5)
- Dining Deck (elevated deck)
- Door/Gates swing and sliders

1:200

0m 2 4 8

BARN & WATER TANK CONCEPT PLAN

DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
BARN & WATER TANKS

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

HOSTEL & RESTROOM CONCEPT

The CCF plans to host workshops at the CRCC Campus in the future. There will be a need for accommodations for workshop attendees. A modest hostel and restroom/shower facilities are proposed to accommodate the need. Existing Somaliland hostels have provided inspiration for simple open-air structures. The hostel is planned to accommodate +42 people with exterior community space and a self-service kitchen.
The restrooms can service both the hostel and the daily activities of the CCF campus.

The Hostel and Restroom should be connected to the campus water reuse networks. See gray water and rainwater harvesting concepts in the Project Highlight: Infrastructure section.

NOTES:
1. Sizes are approximate and do not account for wall widths.
2. Interior surfaces shall be painted unless finish requirements note otherwise.
3. See photos on next page for Somaliland Hostel precedent.

STRUCTURE SUMMARIES

	HOSTEL	RESTROOM
LEVELS	one: no vertical expansion	one: no vertical expansion
CONSTRUCTION TYPE	concrete brick and tin siding	concrete brick with reinforced concrete columns/beams
ROOF SYSTEM	corugated tin or cement board note rainwater harvesting goals	corugated tin or cement board note rainwater harvesting goals
WINDOWS	painted steel frames	painted steel frames
DOORS	exterior: metal interior: wood	exterior: metal interior: wood
GENERAL EXTERIOR FINISHES	tin or painted stucco	painted stucco
GENERAL INTERIOR FINISHES	by room, see program	by room, see program
ELECTRIC NEEDS	overhead lighting, 2 outlets per room	overhead lighting,
WATER NEEDS	sinks, exterior hosebibs	sinks, toilet, showers, hosebibs
CONDITIONED SPACES	none	none
ACCESSIBILIY	elevated finished floor	elevated finished floor
FIXED FURNITURE	see program	see program
SPECIAL ANIMAL NEEDS	none	none

HOSTEL PROGRAM

FOOTPRINT AREA 276 M² (EXCLUDES COMMUNITY SPACE)

SPACE	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Outdoor Coummunity Space	6 x 23m		gravel/pavers	size noted is only between structures, see note 3
Men's Room A & B	6 x 15m		tile floor	see note 3
Woman's Room 1 - 4	3 x 4.5m		tile floor	see note 3
Kitchen (outdoor)	2x 6m	sink, counter	tile floor, tile wall	
Storage 1 & 2	2x 3m		tile floor	

RESTROOM & SHOWERS PROGRAM

FOOTPRINT AREA 222 M²

SPACE	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Breezeways	2m wide		tile floor	breezeblock exterior walls
Men's Toilets 1 - 6	2 x 3m	toilet, sink	tile floor, tile walls	
Woman's Toilets 1 - 6	2 x 3m	toilet, sink	tile floor, tile walls	
2 x Storage (toilet and shower)	2 x 3m		tile floor	
Showers 1 - 5	2 x 3m	shower, sink	tile floor, tile walls	

RESTROOM & SHOWERS

LEGEND

- Exterior Space
- Interior Rooms
- Bathroom / Shower
- Storage
- Door (windows are not illustrated)
- Potential Furniture (bed, table)
- Concrete Paver Path
- Gravel Path

HOSTEL & RESTROOM CONCEPT PLAN
DO NOT SCALE

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

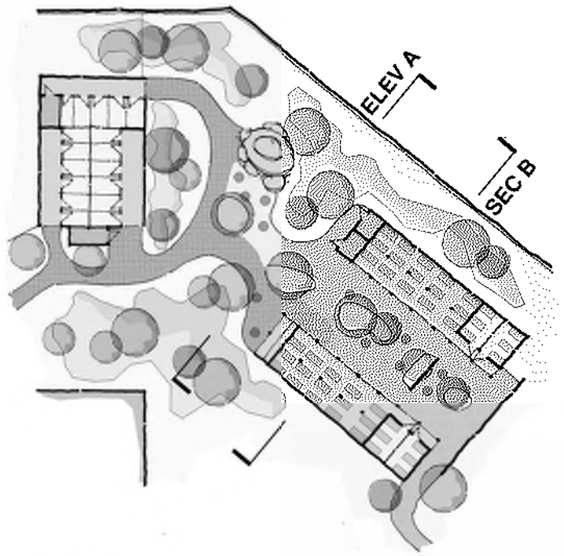
FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
HOSTEL & RESTROOMS - 01

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

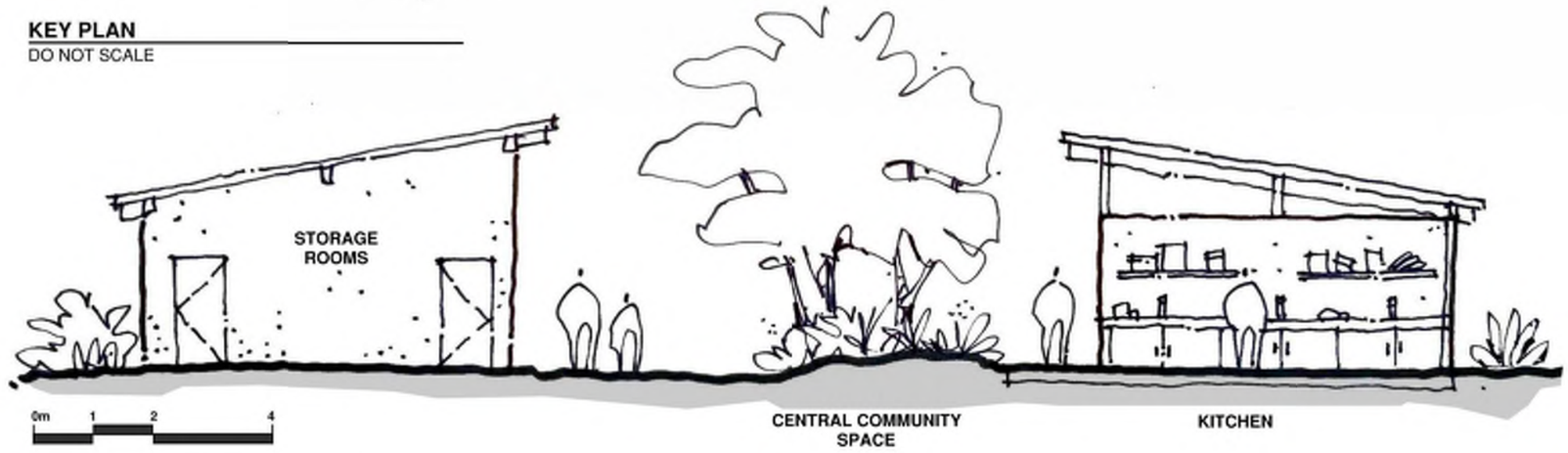
PB-m: outdoor hostel precedent from southern Somaliland, indoor women's room

PB-n: outdoor hostel precedent from southern Somaliland, outdoor men's area

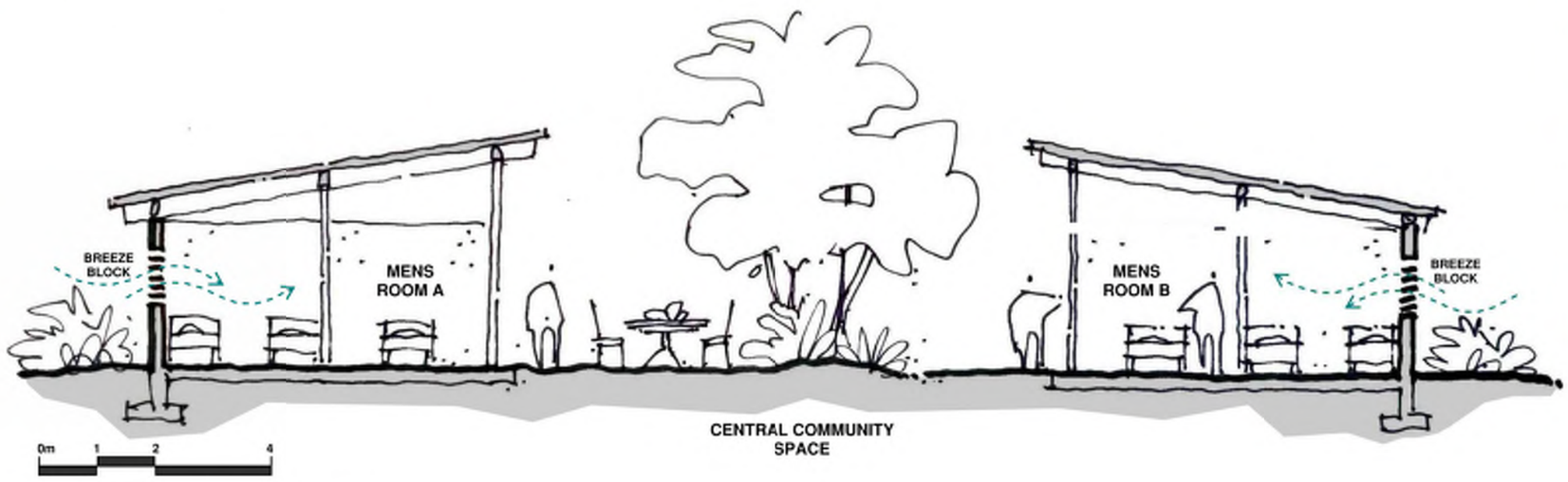
PB-o: outdoor hostel precedent from southern Somaliland, outdoor men's room



KEY PLAN
DO NOT SCALE



HOSTEL CONCEPT ELEVATION A
DO NOT SCALE



HOSTEL CONCEPT SECTION B
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

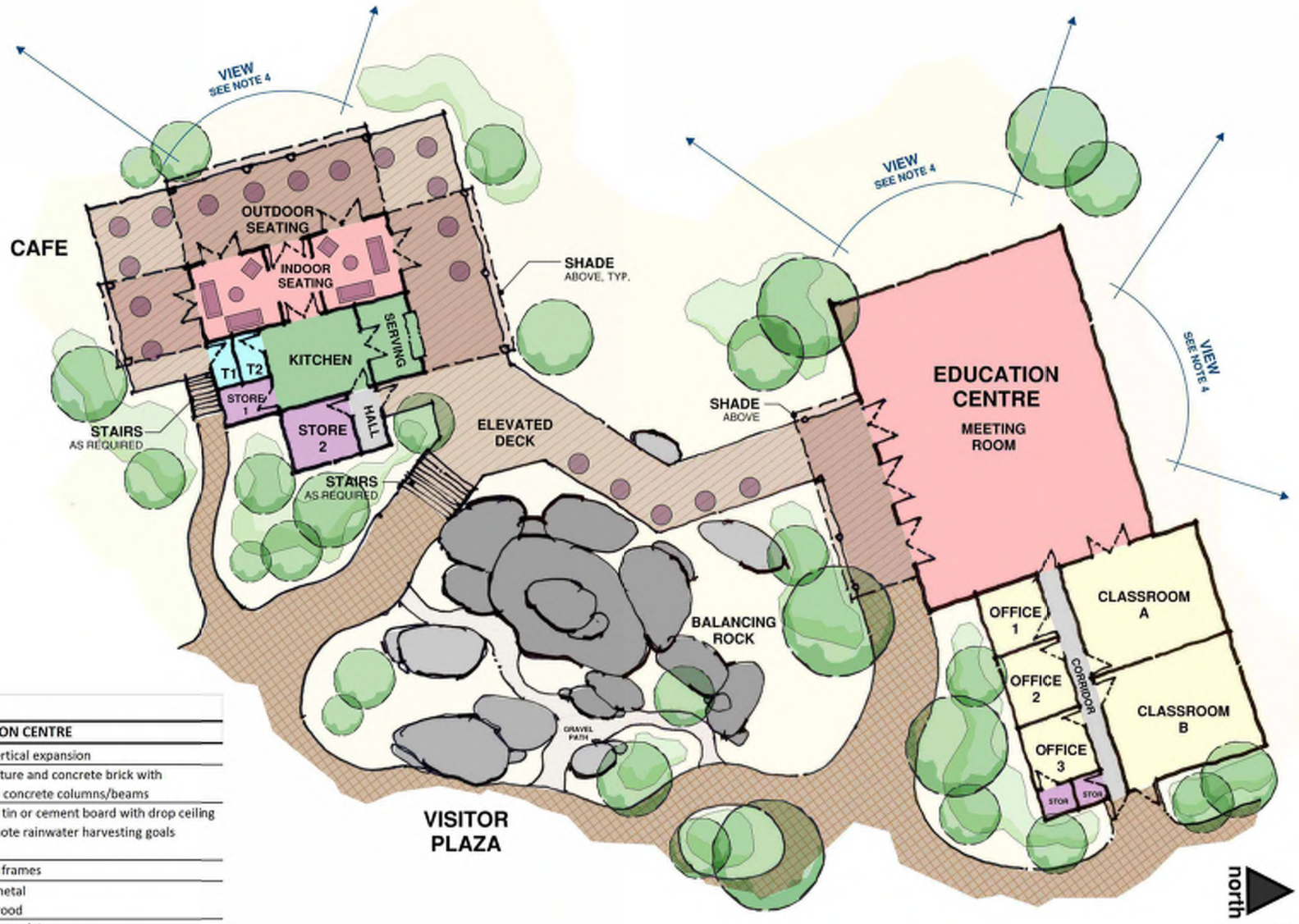
FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
HOSTEL & RESTROOMS - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

EDUCATION CENTRE & CAFE CONCEPT

The CRCC Education Centre is intended to support the local community and visitors (day and overnight) seeking environmental activities and/or education. The centre will have a large meeting space for lectures and large group activities, smaller classrooms for more intimate group teaching and several offices for education staff. The centre will be oriented west and northward to views across campus and toward the Radial Rock.

A modest café will accompany the Education Centre. The café will service the education centre event service needs. Additionally, the café will have a small indoor seating area and a larger outdoor deck for serving CRCC visitors and staff with views across the CRCC Campus.



EDUCATION CENTRE AND CAFE CONCEPT PLAN

DO NOT SCALE

LEGEND

- Circulation Space
- Specialized Visitor Space
- Classroom / Office
- Kitchen
- Toilet
- Storage (cold and dry)
- Elevated Deck
- Overhead Shade
- Door (windows are not illustrated)
- Potential Furniture (sofa, table)
- Concrete Paver Path
  Gravel Path

STRUCTURE SUMMARIES

	CAFE	EDUCATION CENTRE
LEVELS	one: no vertical expansion	one: no vertical expansion
CONSTRUCTION TYPE	concrete brick with reinforced concrete columns/beams	steel structure and concrete brick with reinforced concrete columns/beams
ROOF SYSTEM	corugated tin or cement board, note rainwater harvesting goals	corugated tin or cement board with drop ceiling (offices), note rainwater harvesting goals
WINDOWS	aluminum frames	aluminum frames
DOORS	exterior: metal interior: wood	exterior: metal interior: wood
GENERAL EXTERIOR FINISHES	painted stucco/ tin	painted stucco/ tin
GENERAL INTERIOR FINISHES	by room, see program	by room, see program
ELECTRIC NEEDS	overhead lighting, task lighting, equiptment needs	overhead lighting, 4 outlets per room
WATER NEEDS	sinks, toilets, equiptment hookups, hosebibs	none
CONDITIONED SPACES	walk-in cold storage to be determined	none
ACCESSIBILIY	elevated finished floor	elevated finished floor
FIXED FURNITURE	see program	see program
SPECIAL ANIMAL NEEDS	none	none

CAFE PROGRAM

FOOTPRINT AREA — BUILDING: 100 m²
DECK: OUTDOOR SEATING: 128 m² (excludes connection deck)

SPACE	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Indoor Seating	4m x 10m		TBD	
Kitchen	4 x 5m	TBD	TBD	see note 3
Serving	2.5 x 4m	TBD	TBD	outdoor service counter
Store 1	4 x 5m		TBD	
Store 2	3 x 3.5		TBD	or walk in refridgerator
Hall	1.5 x 3m		TBD	
Toilet 1	1.25 x 2m	sink, toilet	tile floor, tile wall	visitor toilet
Toilet 2	1.25 x 2m	sink, toilet	tile floor, tile wall	staff toilet

EDUCATION CENTRE PROGRAM

FOOTPRINT AREA — BUILDING: 336 m²
DECK: OUTDOOR SEATING: 50 m² (excludes connection deck)

SPACE	SIZE (see note 1)	FIXED FURNITURE	FINISH REQUIREMENTS (see note 2)	REMARKS
Corridor	1.5m wide		TBD	used to foster ventilation (see section)
Meeting Room	12 x 16m		TBD	open sides (see photo precedent, PB-15a)
Classroom A	6 x 7m		TBD	
Classroom B	6 x 7m		TBD	
Office 1	3.5 x 3.5m		TBD	
Office 2	3.5 x 3.5m		TBD	
Office 3	3.5 x 3.5m		TBD	
Storage Room 1	1.5 x 1.75m		TBD	
Storage Room 2	1.5 x 1.75m		TBD	

NOTES:
1. Size are approximate and do not account for wall widths.
2. Interior surfaces shall be painted unless finish requirements note otherwise.
3. Countertops, backsplashes and other kitchen/prep working surfaces to be smooth and cleanable.
4. Building to be oriented for views.

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

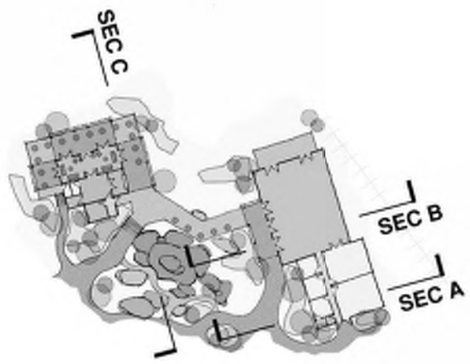
FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
EDUCATION CENTRE & CAFE - 01

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

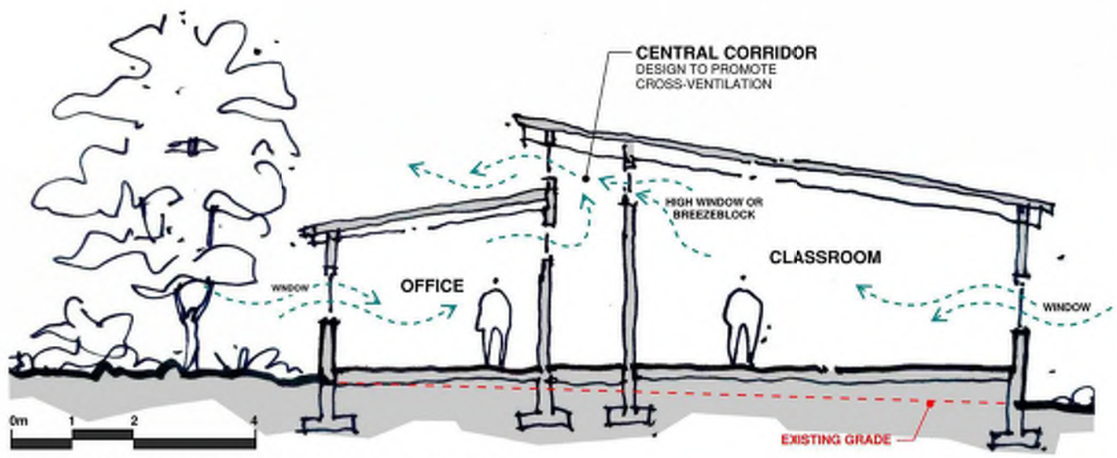
PB-p: Hargeisa Cultural Center, concept photo for meeting room

PB-q: outdoor/indoor dinning, concept photo for café outdoor/indoor dining

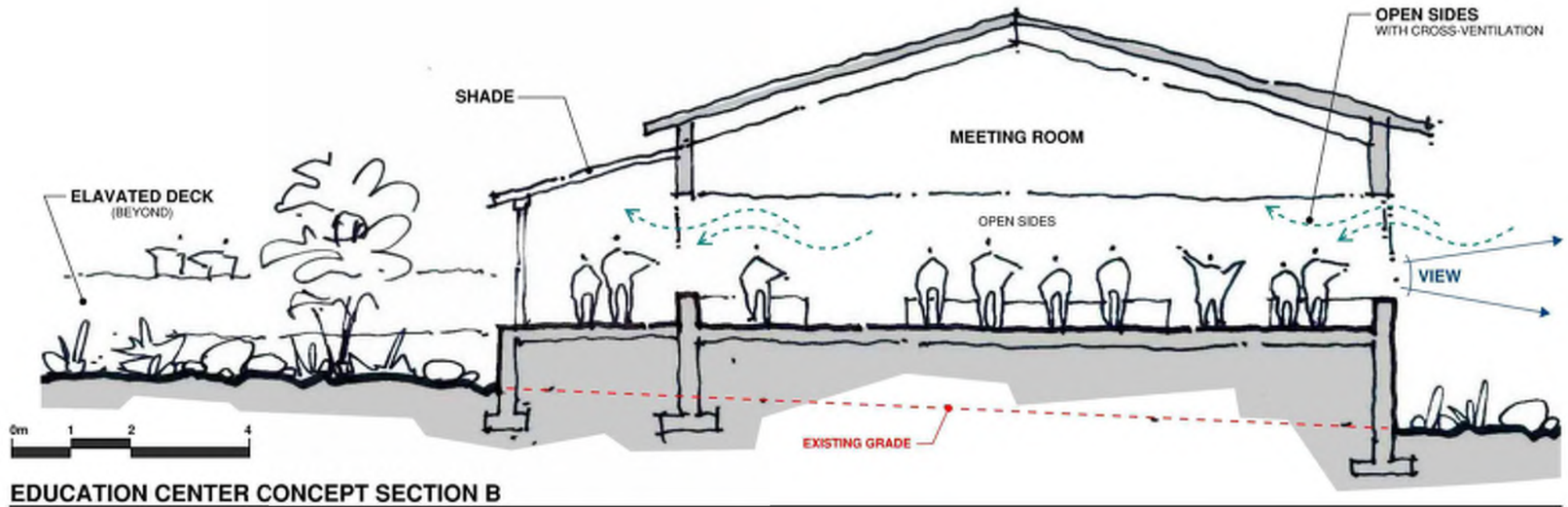
PB-r: outdoor/indoor dinning, concept photo for café outdoor/indoor dining



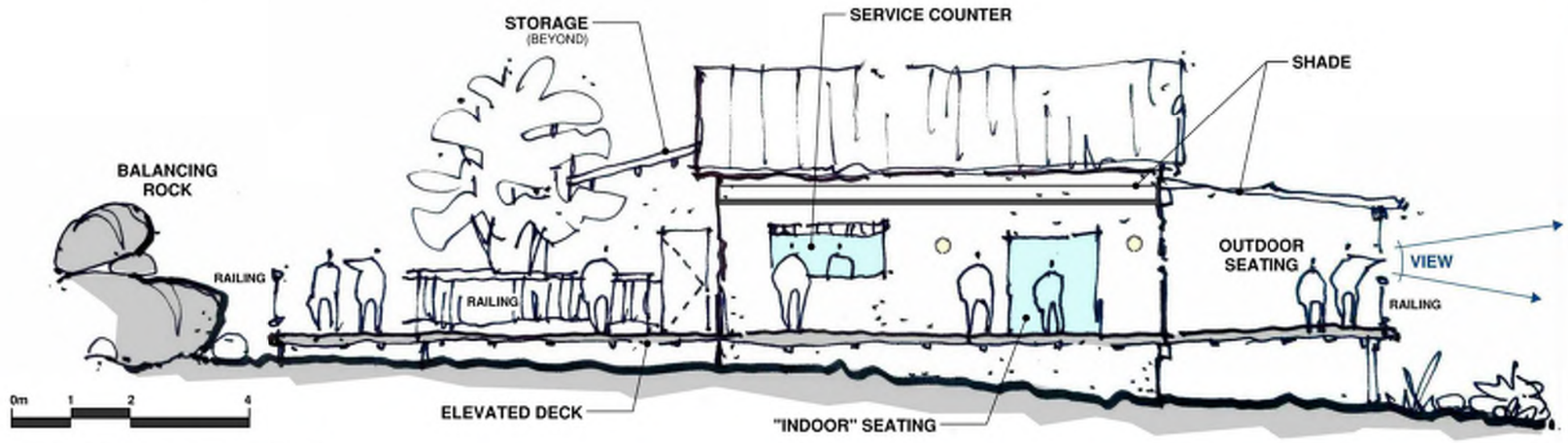
KEY PLAN
DO NOT SCALE



EDUCATION CENTER CONCEPT SECTION A
DO NOT SCALE



EDUCATION CENTER CONCEPT SECTION B
DO NOT SCALE



CAFE CONCEPT SECTION C
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: BUILDINGS
EDUCATION CENTRE & CAFE - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PROJECT HIGHLIGHT:

FENCING

AND SITE WALLS

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: FENCING

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

FENCING OVERVIEW

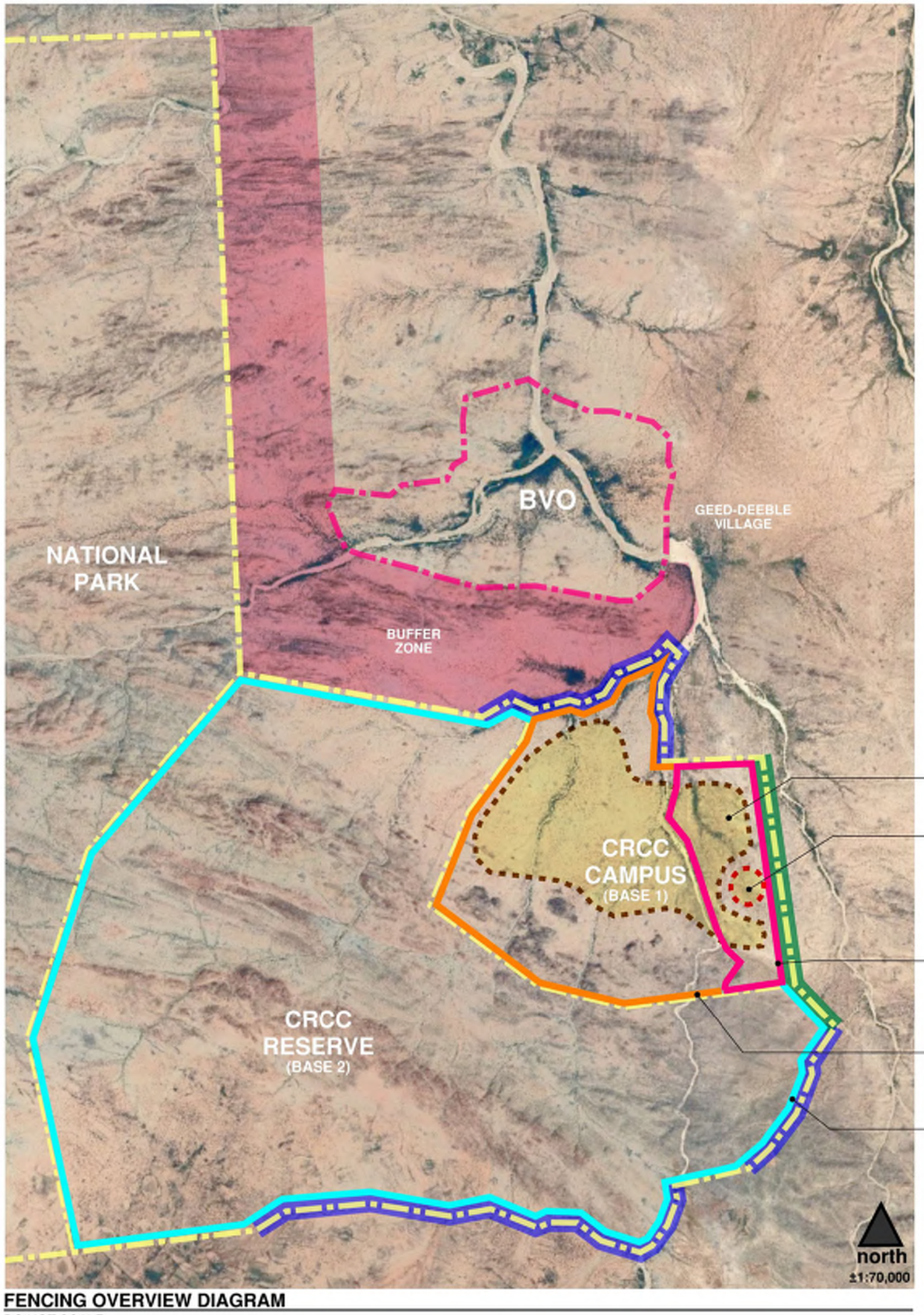
The CRCC will require a variety of fencing types (and walls) to satisfy a variety of functions across the Campus. These functions include but are not limited to property demarcation, campus security (also see PI-6), animal containment and animal exclusion. The Fencing Overview Diagram to the right outlines the fencing strategy for the CRCC Campus and CRCC Reserve areas.

The irregular land formations present on the site will create challenges for installing and maintaining fencing. Wadi and ravines will need to be traversed often. Cheetah enclosures fence lines will require extra care to create enclosures that remain secure. See photos below for example site conditions.

Fencing and wall types highlighted in this section are not exhaustive, other types and functions may be required.

PF-a: wadi crossing example

PF-b: ravine example



FENCING OVERVIEW DIAGRAM
DO NOT SCALE

LEGEND

BOUNDARY LINES AND BUFFERS ZONES

- National Park Boundary and CRCC Base 1 & 2 Boundaries
- Approximate BVO Boundary (Barwaago Voluntary Organization)
- Buffer Zone: 1 km buffer between BVO and CRCC/National Park lands

BOUNDARY DEMARCATIONS

- Boundary Follows Pipeline Road: offset perimeter fence ±15m from the pipeline road
- Boundary Follows Wadi Course: offset perimeter fence 15-30m from wadi depending on the topography

CAMPUS FENCING

ANIMAL FENCING
cheetah camps, feed pens, livestock fencing and leopard enclosures
see page PF-41 for more information

COMPOUND WALLS AND FENCING
perimeter walls and exclusion fencing.
see page PF-42 for information

PERIMETER FENCING

EAST CAMPUS PERIMETER FENCE
TYPE: perimeter fence, see page PF-43
USE: Set back 15m from pipeline road and offset east bank of wadi, for excluding livestock and people.
QUANTITY: ± 7.11 km of perimeter

WEST CAMPUS PERIMETER FENCE
TYPE: livestock fence, see page PF-43
USE: Set back 15m from pipeline road and offset east bank of wadi.
QUANTITY: ± 10.1 km of perimeter

BASE 2 PERIMETER FENCE
TYPE: livestock fence, see page PF-43
USE: follows Base 2 perimeter for excluding livestock from Base 2.
QUANTITY: ± 23 km of perimeter (excludes Base 1-2 border)

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

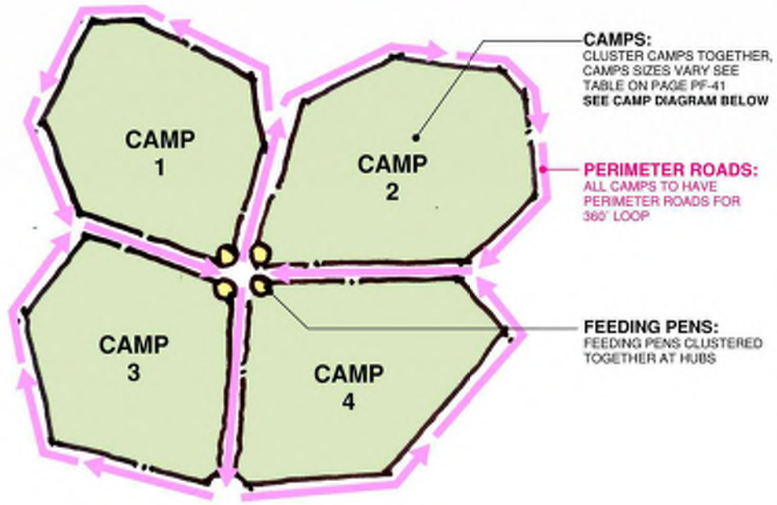
CHEETAH CAMP AND FEEDING PENS CONCEPTS

Cheetah enclosures will be clustered in groups. Clustering permits feed pens to be grouped together at service hubs, enabling efficient husbandry practices to occur. In the future utilities like electric and/or water could be brought to these central hubs if desired.

Camps should be located on the site to allow for a perimeter 4x4 track around each camp. This track will be used for fence line inspections and cheetah exercise/enrichment.

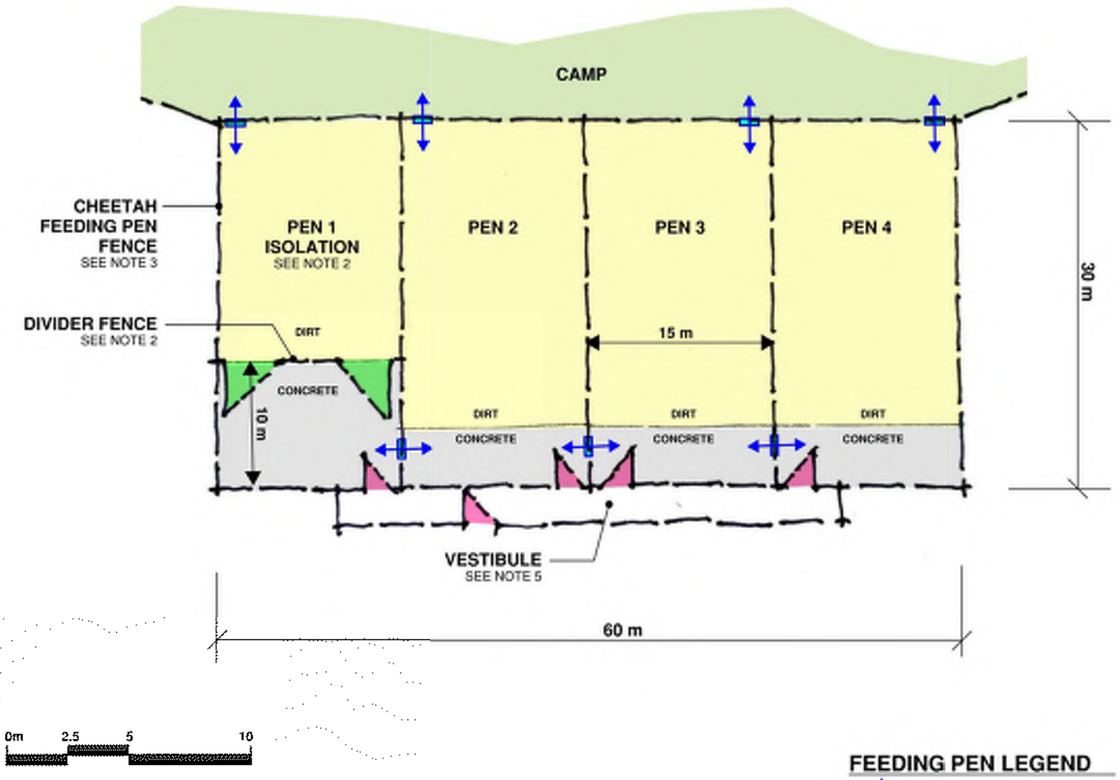
Camps of larger sizes can be hard to manage if cheetahs need to be monitored closely because of injury or illness. Therefore, smaller areas within the camp should be created with a divider fence to use when required. Feed pens should also be built with flexibility. One isolation pen should be included at each feed pen unit to allow for isolation of injured/ill cats.

See Camp Organization Diagram and Camp Diagram to the right that illustrate the cheetah camp concepts. See Feed Pens Diagram below that illustrates the cheetah feed pens concepts.



CAMP ORGANIZATION NOTES:
1. Quantity of camps per cluster vary, see plan.
2. See Camp Diagram below for individual camp layout information.

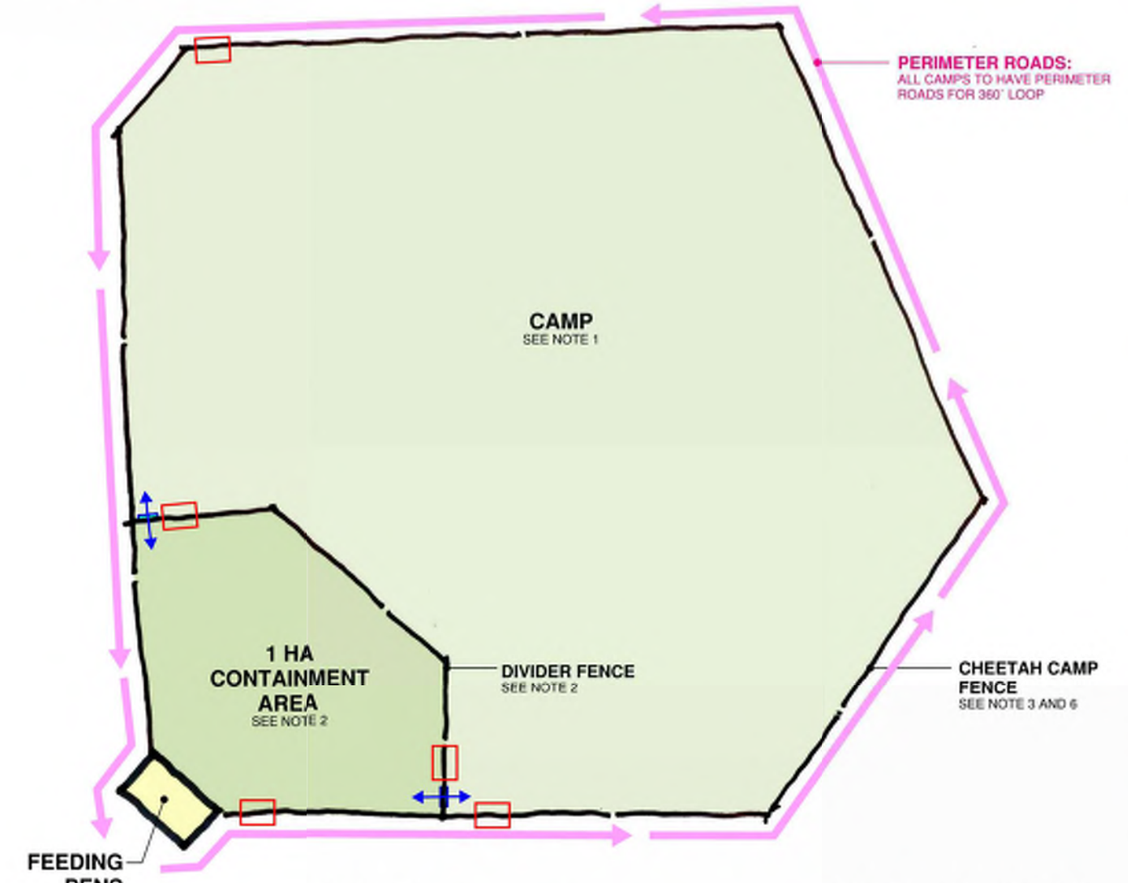
CAMP ORGANIZATION DIAGRAM
DO NOT SCALE



FEEDING PEN NOTES:
1. See page PF-41 for feeding pen locations.
2. One feeding pen per camp shall be an isolation pen fitted with 1/3 concrete slab and a divider fence with 2 gates.
3. See page PF-44 for cheetah fence types.
4. All swing gate to swing into animal space.
5. All daily used gates shall have vestibules (secondary containment space).

FEEDING PEN LEGEND
- Animal Transfer Gate (vertical or horizontal slider)
- Man Gate (swing gate), see note 4
- Divider Gate (swing)

FEEDING PENS DIAGRAM
DO NOT SCALE



CAMP NOTES:
1. See page PF-41 for camp sizes and locations
2. Camps over 2 ha to have divider fence separating 1 ha area of camp
3. See page PF-44 for fencing types
4. All swing gate to swing into animal space.
5. All daily used gates shall have vestibules (secondary containment space)
6. Geometry of this camp in this Camp Diagram is diagrammatic. Camp fence layout/geometry is subject to the topography of the site.

CAMP DIAGRAM LEGEND
- Animal Transfer Gate (vertical or horizontal slider)
- Vehicular Gate (swing gate)

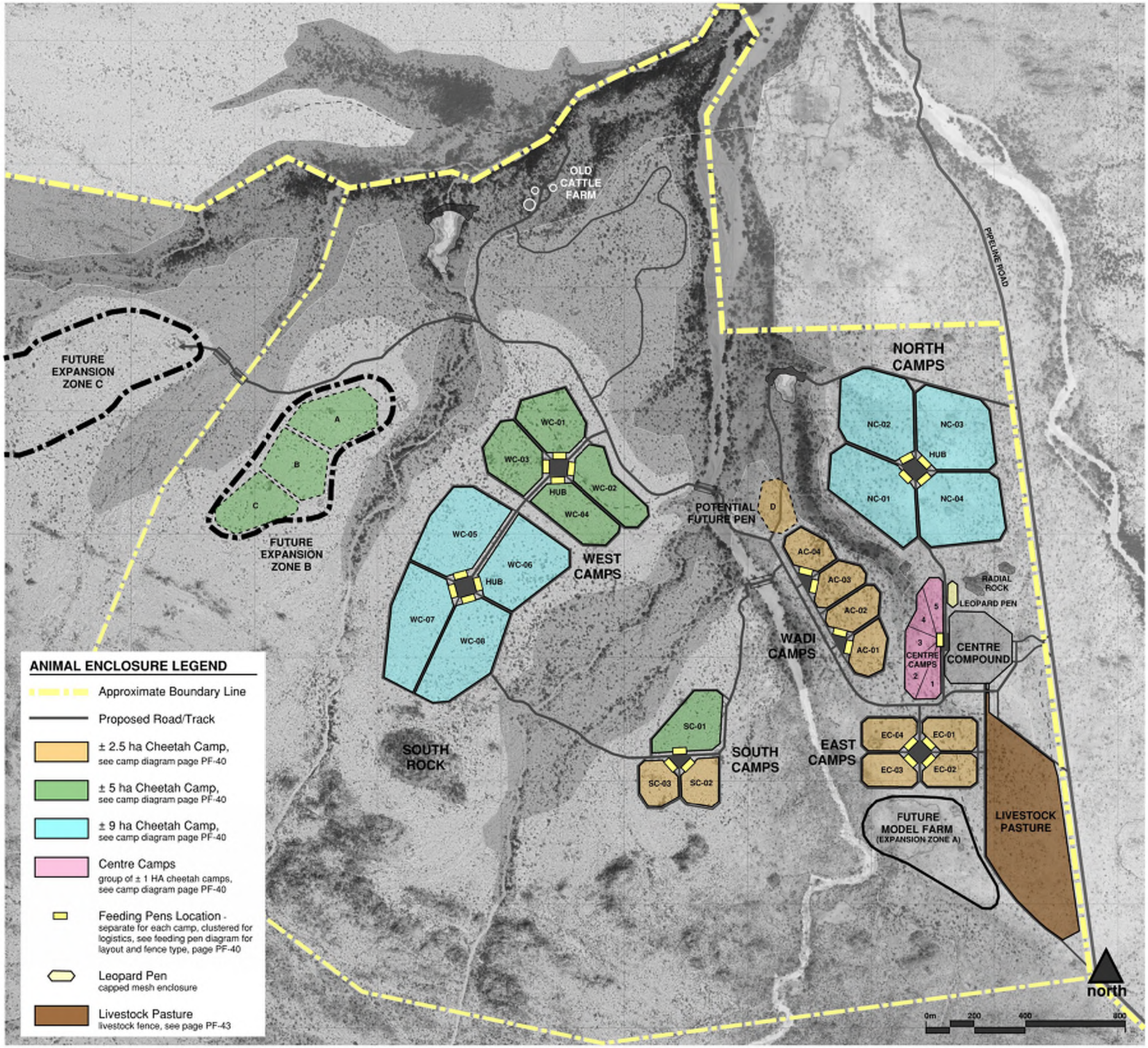
CAMP DIAGRAM (ANY SIZE)
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: FENCING
CHEETAH CAMP & FEEDING PENS CONCEPTS

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND



ANIMAL ENCLOSURE LEGEND

- Approximate Boundary Line
- Proposed Road/Track
- ± 2.5 ha Cheetah Camp, see camp diagram page PF-40
- ± 5 ha Cheetah Camp, see camp diagram page PF-40
- ± 9 ha Cheetah Camp, see camp diagram page PF-40
- Centre Camps — group of ± 1 HA cheetah camps, see camp diagram page PF-40
- Feeding Pens Location - separate for each camp, clustered for logistics, see feeding pen diagram for layout and fence type, page PF-40
- Leopard Pen — capped mesh enclosure
- Livestock Pasture — livestock fence, see page PF-43

ANIMAL ENCLOSURE OVERVIEW

The CRCC Campus will be home to multiple types of animals including cheetahs, leopards, and livestock. The enclosures for these animals have different functions and criteria. Note the enclosures serve both to contain certain animals and exclude other animals. See the Campus Animal Fencing Diagram to the left that outlines the animal enclosure types and locations.

ANIMAL ENCLOSURE PROGRAM

CENTRE CAMPS	±AREA	±PERIMETER
CC-01	1 ha	
CC-02	1 ha	
CC-03	1 ha	TOTAL ↓
CC-04	1 ha	
CC-05	1 ha	1,750 m

WADI CAMPS	±AREA	±PERIMETER
AC-01	2.5 ha	560 m
AC-02	2.5 ha	580 m
AC-03	2.5 ha	580 m
AC-04	2.5 ha	530 m

NORTH CAMPS	±AREA	±PERIMETER
NC-01	9 ha	1,150 m
NC-02	9 ha	1,075 m
NC-03	9 ha	1,100 m
NC-04	9 ha	1,100 m

EAST CAMPS	±AREA	±PERIMETER
EC-01	2.5 ha	575 m
EC-02	2.5 ha	575 m
EC-03	2.5 ha	575 m
EC-04	2.5 ha	575 m

SOUTH CAMPS	±AREA	±PERIMETER
SC-01	5 HA	850 m
SC-02	2.5 ha	550 m
SC-03	2.5 ha	515 m

WEST CAMPS	±AREA	±PERIMETER
WC-01	5 ha	800 m
WC-02	5 ha	910 m
WC-03	5 ha	790 m
WC-04	5 ha	870 m
WC-05	9 ha	1,100 m
WC-06	9 ha	1,070 m
WC-07	9 ha	1,220 m
WC-08	9 ha	1,180 m

LEOPARD ENCLOSURE	±AREA	±PERIMETER
Capped mesh structure	3,800 m2	

LIVESTOCK PASTURE	±AREA	±PERIMETER
Livestock Pasture	22 ha	2,385 m

FUTURE EXPANSION AREAS

Wadi Camps
Space for additional 2.5 ha camp (D).

Zone A:
Model farm will require fencing, scope and types to be determined.

Zone B:
Space for additional cheetah camps, 3 x 5 ha camps.

Zone C (Base 2):
If required, enclosure could expand into the Reserve (Base 2) in the future.

CAMPUS ANIMAL FENCING DIAGRAM

DO NOT SCALE

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: FENCING CAMPUS FENCING (BASE 1)

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

CENTRE COMPOUND WALLS

SITE WALLS

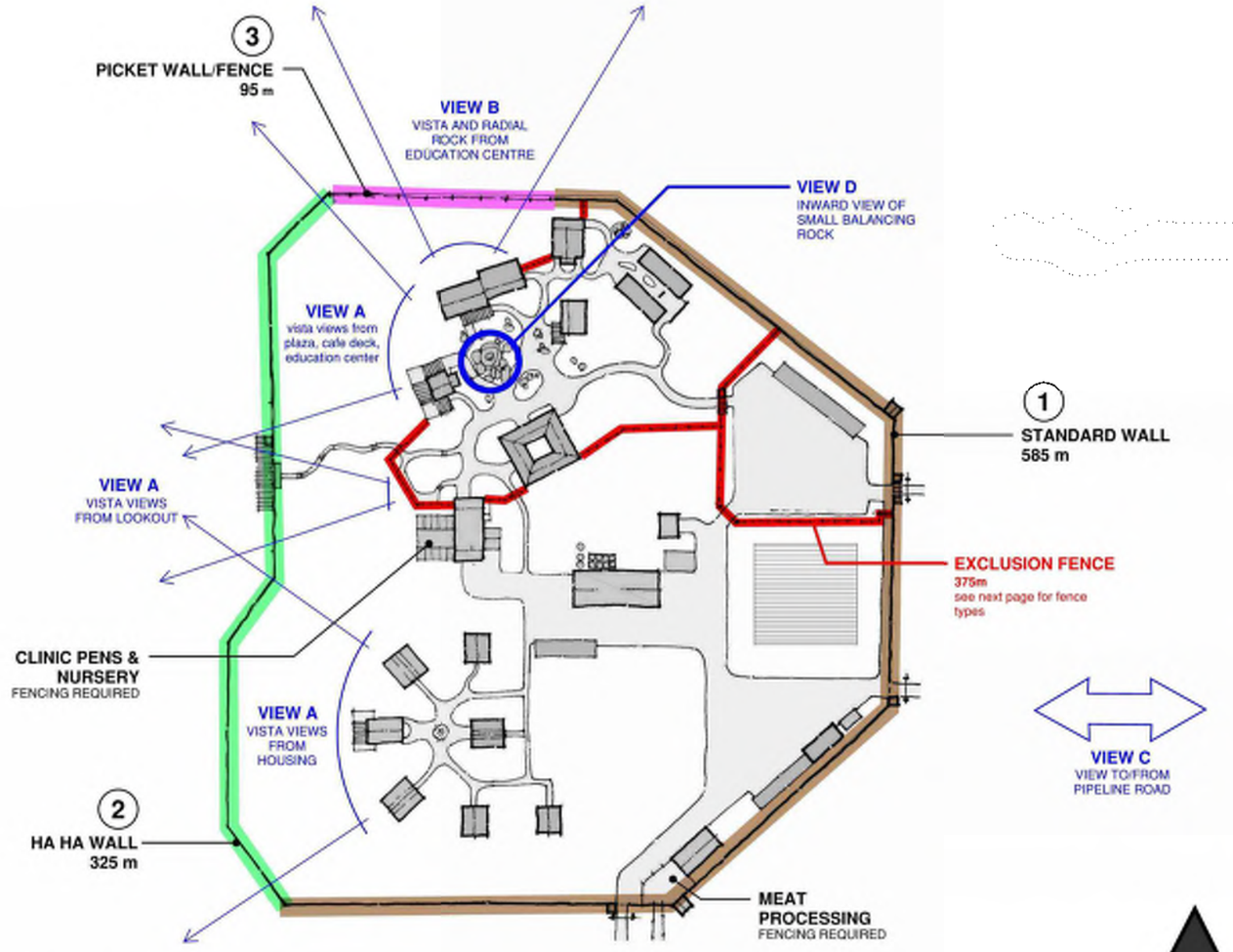
The CRCC Centre Compound requires a perimeter wall for security (see PH: Infrastructure - Security for more information), but also aspires to take advantage of the scenic views provided by the stunning landscape. To achieve both constraints multiple wall types will be used. The wall types are used based on their ability to block views, view over them, or view through them. The compound is located at a highpoint in the landscape which affords dramatic view across the landscape to the west and a prominent view of the Radial Rock to the north. Both views should be showcased from the compound. However, to the east privacy is desired to screen the compound (views in and out) from the traffic along Pipeline Road. See Centre Compound Views and Wall Diagram to the left that highlights the views and the wall types desired to see or screen them.

FENCING

The CRCC Centre Compound will have needs for fencing animal and non-animal alike. For animal fencing related to the clinic see the clinic highlight (see PH: Buildings - Clinic). The meat process chute and staging area will require some fencing for livestock containment as well. For separation of visitor and non-visitor areas exclusion fence shall be used.

PF-c: VIEW A
view west, across campus, see Inventory & Analysis for more site photos

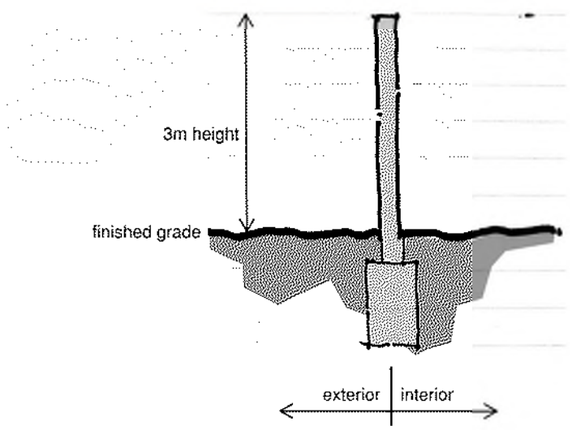
PF-d: View B
view north, towards radial rock, see Inventory & Analysis for more site photos



CENTRE COMPOUND VIEWS, WALLS AND FENCING DIAGRAM
DO NOT SCALE

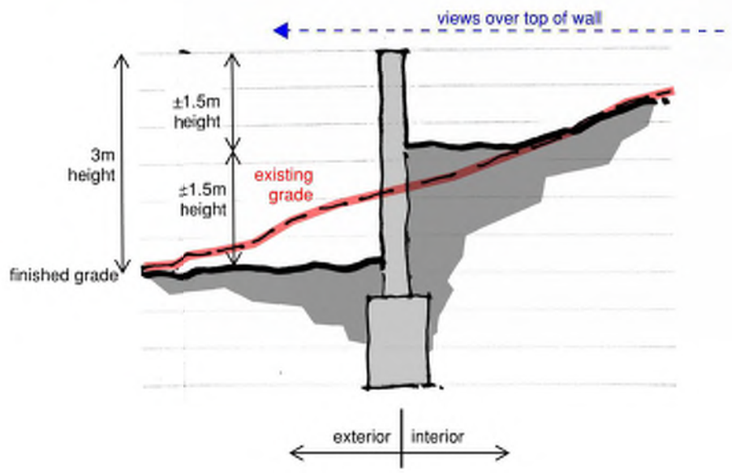
1 STANDARD WALL

Standard brick and mortar wall per typical local construction.



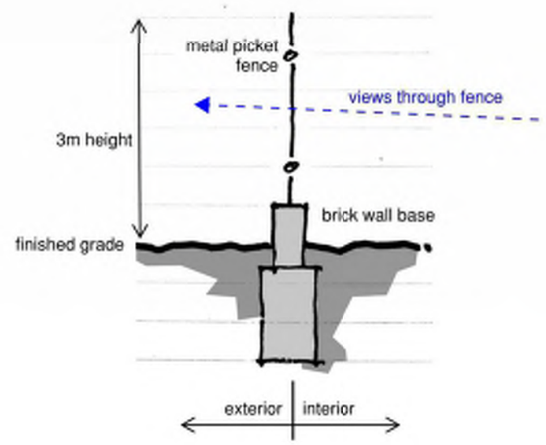
2 HA HA WALL

Brick and mortar wall per typical local construction. Ground surface modified at wall to create a 3m barrier from the exterior and a ±1.5m wall from the interior.



3 PICKET WALL/FENCE

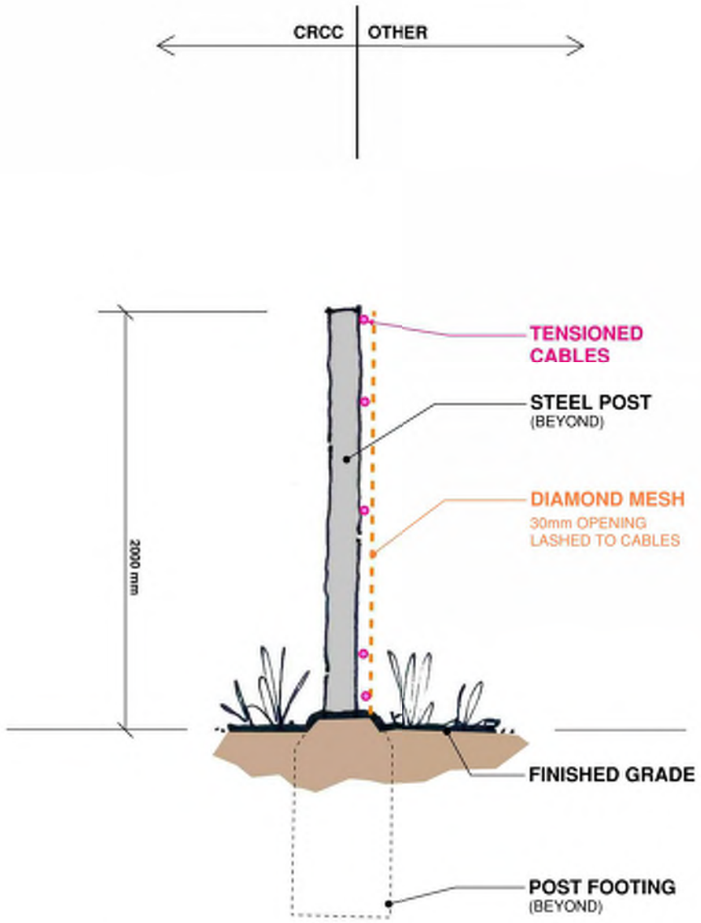
2.5m tall metal picket fence on top of half meter tall brick and mortar wall per typical local construction.



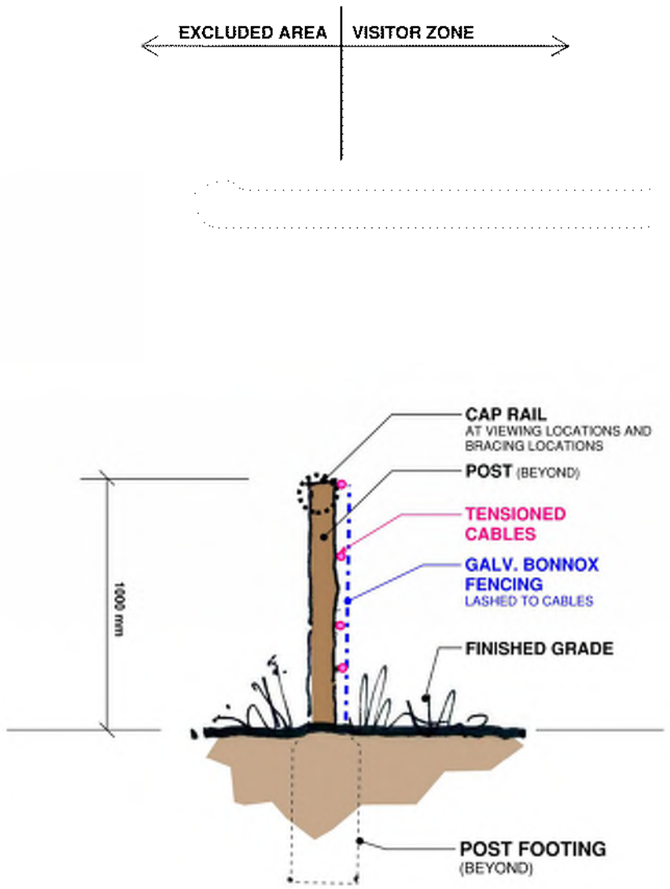
ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: FENCING
CENTRE COMPOUND WALLS & FENCING

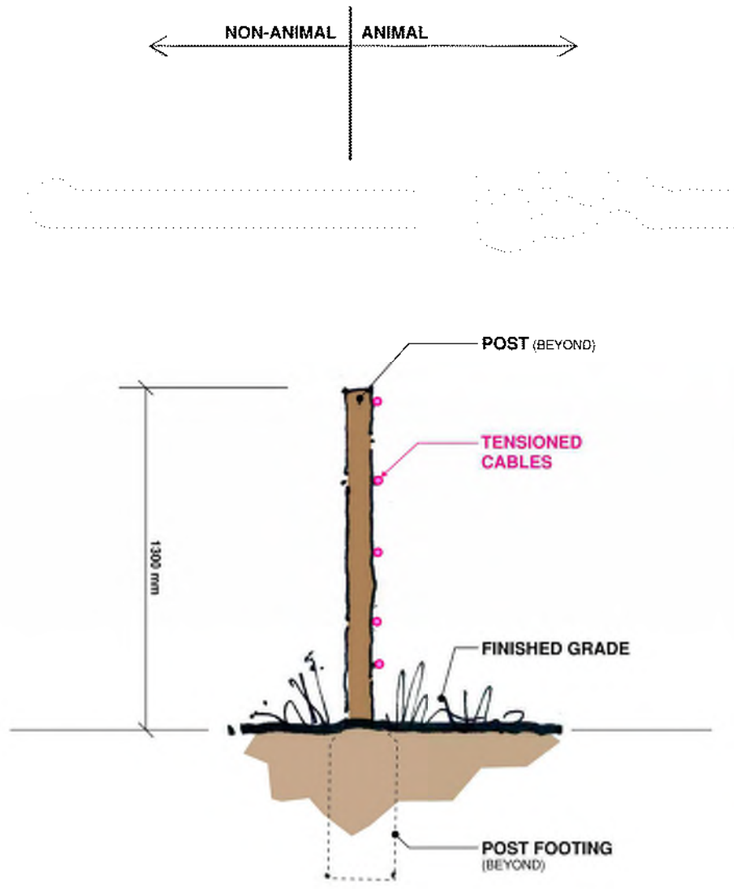
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE



Campus Perimeter Fence Concept Section
DO NOT SCALE



Exclusion Fence Concept Section
DO NOT SCALE

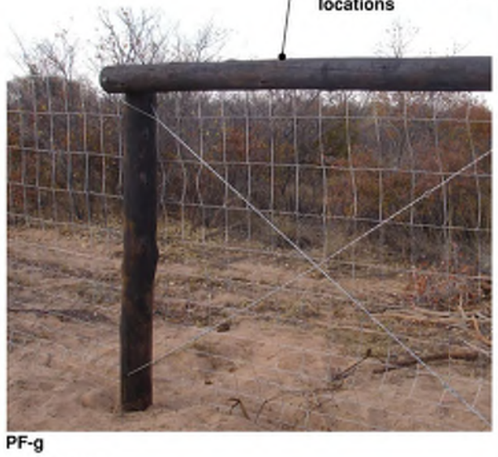


Livestock Fence Concept Section
DO NOT SCALE

PF-e

Diamond Mesh Precedent Photo

PF-f



PF-g

1000mm Bonox Fence Precedent:
use cap rail at viewing/leaning locations and at ends for bracing

PF-h

PF-i

Livestock Fence Precedent Photos:
cattle fence at CCF Namibia, fence to exclude camels

CAMPUS PERIMETER FENCE
DO NOT SCALE

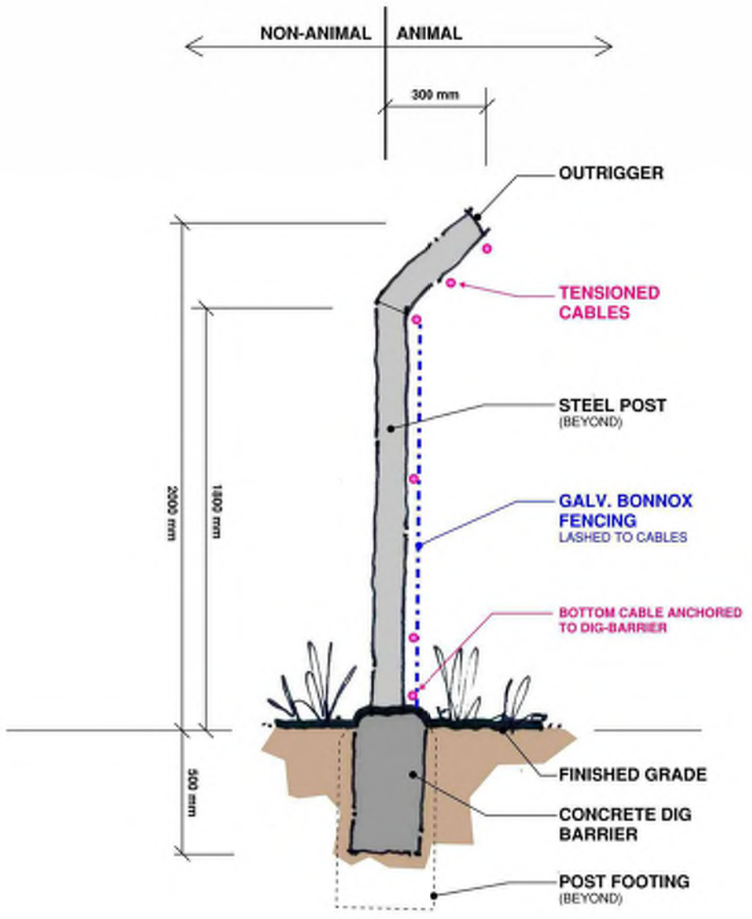
EXCLUSION FENCE
DO NOT SCALE

LIVESTOCK FENCE
DO NOT SCALE

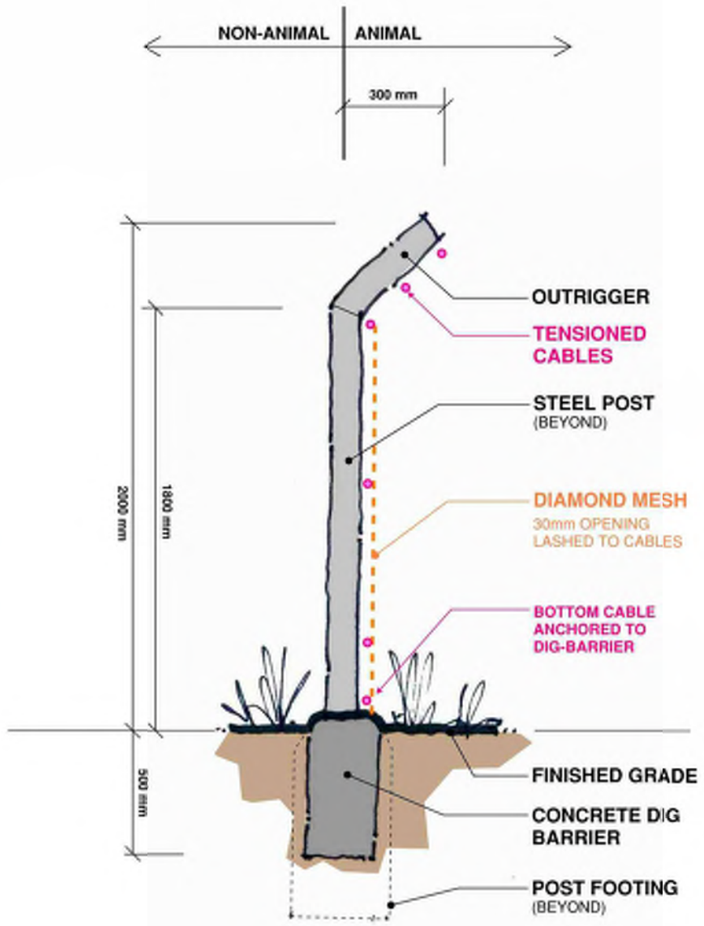
ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: FENCING
FENCING TYPES - 01

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE



Cheetah Camp Fence Concept Section
DO NOT SCALE



Cheetah Feeding Pens Fence Concept Section
DO NOT SCALE

PF-j

PF-k

Cheetah Camp Fence Precedent Photos:
cheetah camp fence at CCF Namibia

CHEETAH CAMP FENCE
DO NOT SCALE

PF-l

PF-m

Cheetah Feed Pens Fence Precedent Photos:
cheetah fence at CCF Namibia

CHEETAH FEEDING PENS FENCE
DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: FENCING
FENCING TYPES - 02

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

PROJECT HIGHLIGHT:

INFRASTRUCTURE

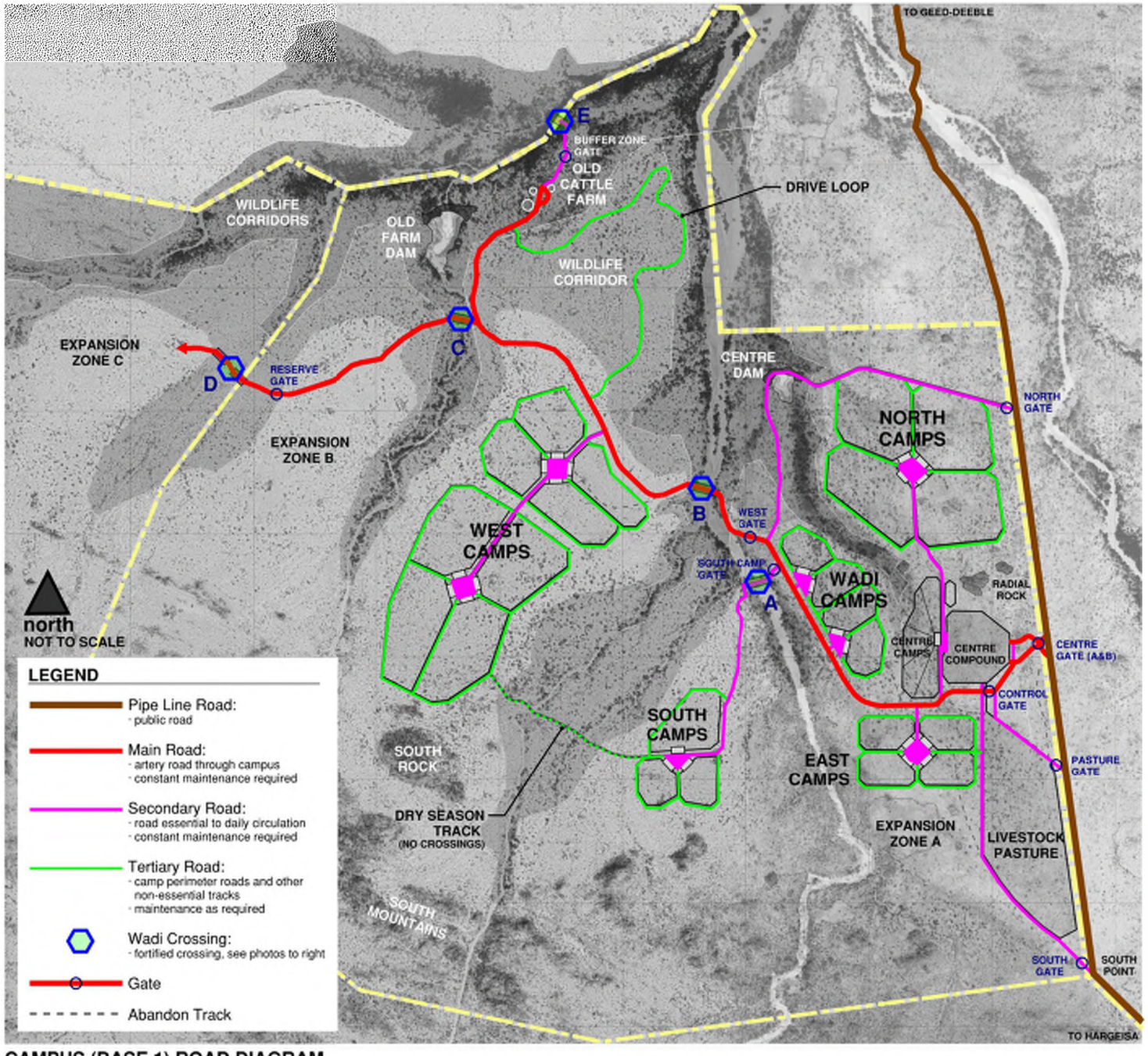
ROADS
ELECTRIC
POTABLE WATER
WATER REUSE
SECURITY
WASTE DISPOSAL

CAMPUS ROAD CONCEPT

The CRCC Campus will require constant access both to/from Hargeisa and within the Campus to access all functions. Currently access to the proposed campus is limited due to rough terrain and primitive roads (tracks). The Campus is accessible via the Pipeline Road which runs north from Hargeisa to the village of Geed-Deeble along the eastern edge of Base 1. Rainy season can make the road and site impassable due to sloppy road conditions and high-water levels at wadi crossings. Wadi crossings are currently being built as part of public works projects in the area, hopefully completed later this year (2021/2022). Access within the Campus is limited to 4x4 tracks (sand/dirt vehicle paths). These tracks have their own restricted wadi crossings. Off-track driving is limited as well due to many deep ravine cuts not traversable by 4x4, even in the dry seasons.

Moving forward, the planned Reserve will reuse existing track paths as well as create new pathways. See Campus Road Diagram below that highlights new and reused roads (main, secondary, tertiary) for the campus.

Wadi crossings within the campus project site will need to be fortified. See photos below. General road fortification and water diversion will need to be addressed at erosion susceptible locations on main, secondary, and tertiary roads. Access to the Campus will be gated. Majority of traffic shall move through the Centre Compound Gate and the Control Gates; other gates are for service/maintenance access.



CAMPUS (BASE 1) ROAD DIAGRAM
DO NOT SCALE

PI-a: Wadi Crossing – Pipe Culvert
large pipe culvert along pipeline road

PI-b: Small Pipe Culvert
concrete pipe culvert with stone reinforced channel for small wadi/ravines

PI-c: Channel
concrete water channel for water diversion

PI-d: Small Box Culvert
concrete box culvert for crossing small wadi/ravines, note removable blocks for cleaning

PI-e: Wadi Crossing – Fortified Slab
concrete reinforced wadi crossing

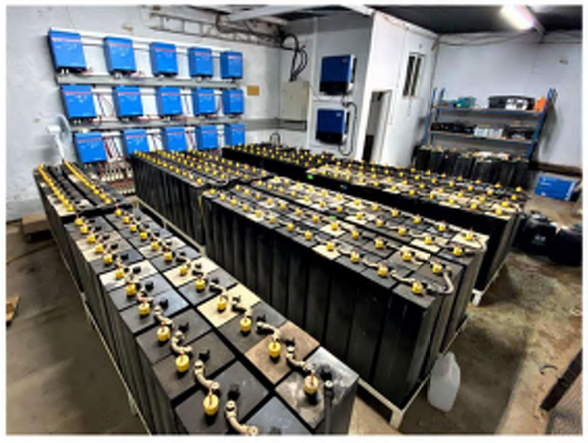
ELECTRIC CONCEPT

The CRCC Campus will require a consistent and reliable electric source to execute its daily activities and provide hospitable living/working conditions for its staff.

The Campus's closest electric on-grid service would come from the village of Geed-Deeble to the northeast which currently has electric service. Short-term electric may be needed from the grid, but CCF's goal is to have all electric needs fulfilled sustainably and off-grid. A considerable sized solar electric system including, a solar panel field, inverters, and backup batteries will be required to satisfy the campus power needs. A backup generator is likely needed for insurance. See Centre Compound Electric Diagram and Concept Plan below that outlines the electric system and distribution strategy for the campus.

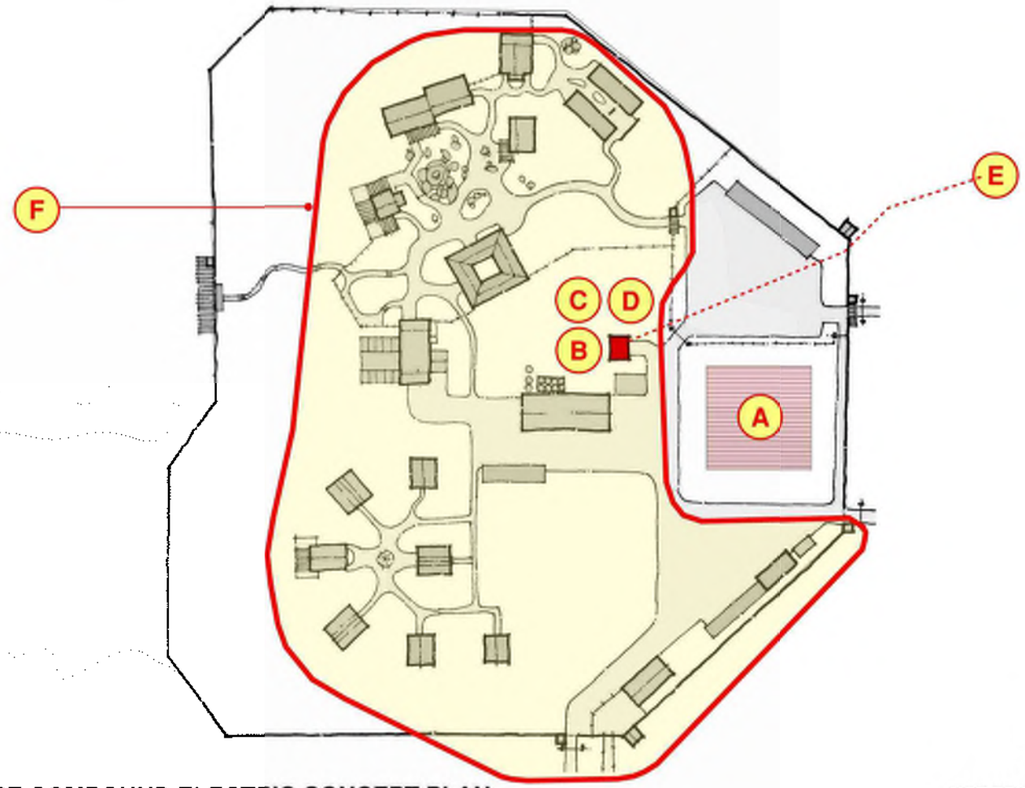
Solar technologies will be utilized as part of the CCF efforts to reduce energy loads. These include solar hot water heaters (geysers). See photo PI-f below.

PI-f: Example Solar Hot Water Heater
Solar Geyser at CCF Namibia.



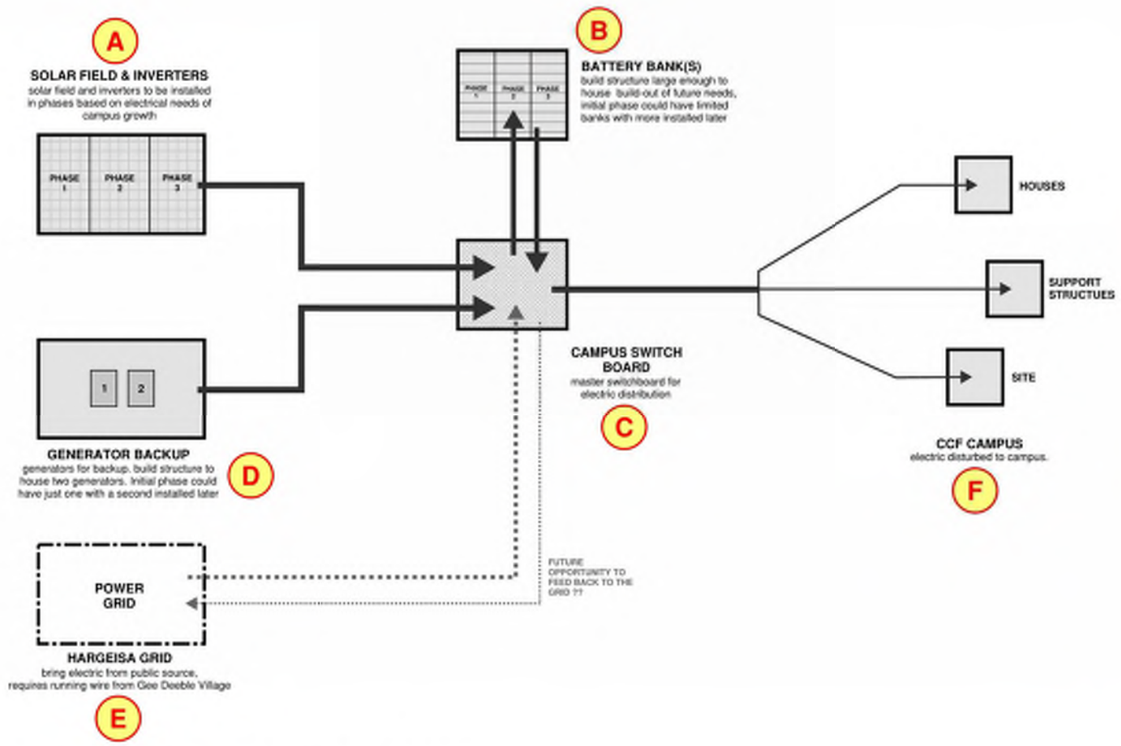
PI-g: Example Battery Room
CCF Namibia battery room. Multiple battery banks and inverters supply electric to the center campus. Main switch board for campus is located in the rear of the room.

PI-h: Example Solar Panel Array
CCF Namibia rooftop solar array. A large area(s) will be required for keeping the solar panels required for power production.



CENTRE COMPOUND ELECTRIC CONCEPT PLAN
DO NOT SCALE

NOT TO SCALE



CENTRE COMPOUND ELECTRIC DIAGRAM
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: INFRASTRUCTURE
ELECTRIC

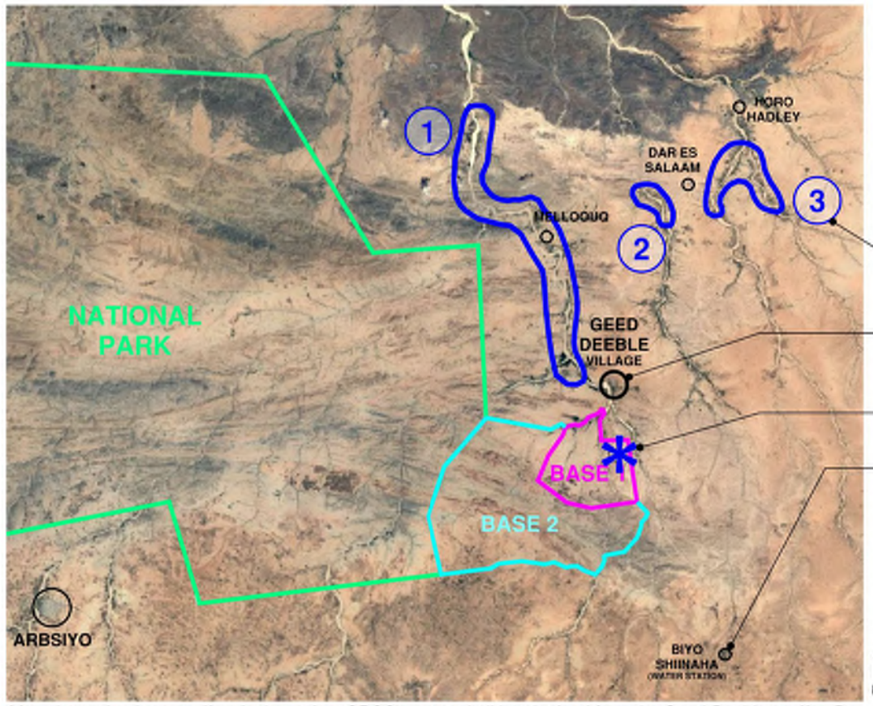
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

POTABLE WATER CONCEPT

The CRCC campus will require substantial and sustainable clean, fresh water to execute its daily activities and provide hospitable living/working conditions for its staff. CCF is working with local stakeholders including the Ministry of Environment and Rural Development to have access to water from a regional aquifer(s). See Water Source Map below. Borehole(s) and several kilometers of pipeline will be required to service the Centre Compound.

Once potable water reaches the Centre Compound infrastructure will need to be implemented to support the many facets of the campus's structures. See Centre Compound Potable Water Diagram and Concept Plan to the right that outline the water storage and distribution strategy for the Centre. Initially potable water will be limited to the Centre Compound. Other areas of the Campus will need water transported to them on an as-needed basis.

In time, CCF will look to implement environmentally conscious practices including graywater reuse and rainwater harvesting. See the next page for additional information.

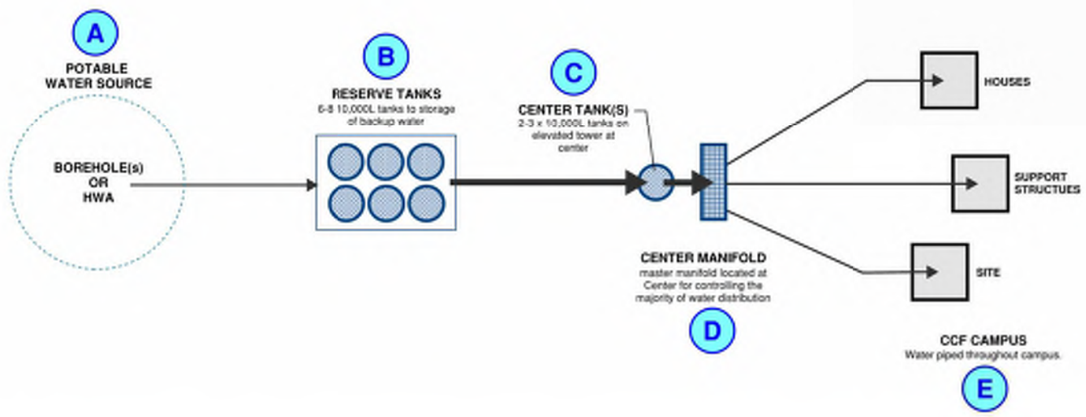


Map shows the three aquifers in the region. CRCC's water shall be obtained from the Geed-Deeble aquifer. By borehole or via pipeline from Hargeisa Water Authority (HWA) base in the village of Geed-Deeble. See Appendix for more information.

WATER SOURCE MAP
DO NOT SCALE

PI-i: Example Storage Tanks
reserve water tanks at CCF Namibia facilities, several 10,000-liter reserve water tanks will ensure there is not a water shortage for multiple days' activities.

CENTRE COMPOUND WATER CONCEPT PLAN
DO NOT SCALE



CENTRE COMPOUND POTABLE WATER DIAGRAM
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: INFRASTRUCTURE
POTABLE WATER

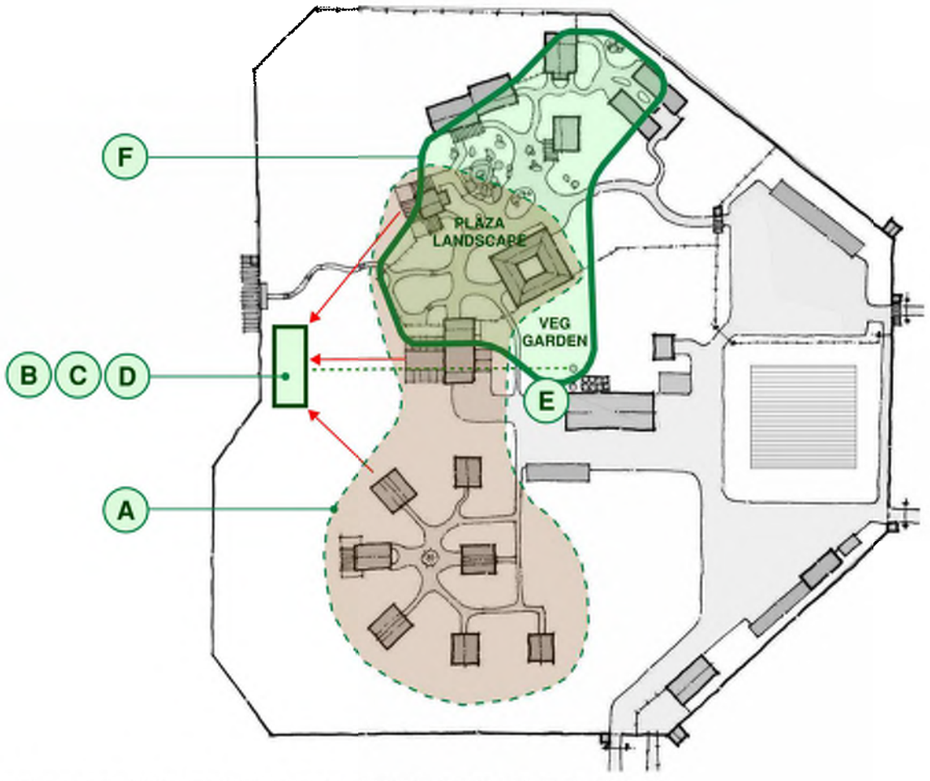
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

GRAY WATER CONCEPT

In time, the CRCC will look to implement gray water reuse technologies to minimizes its water-use footprint. Gray water could be reused for irrigation and other non-portable water needs. With proper processing gray water could be used for more sensitive practices as well.

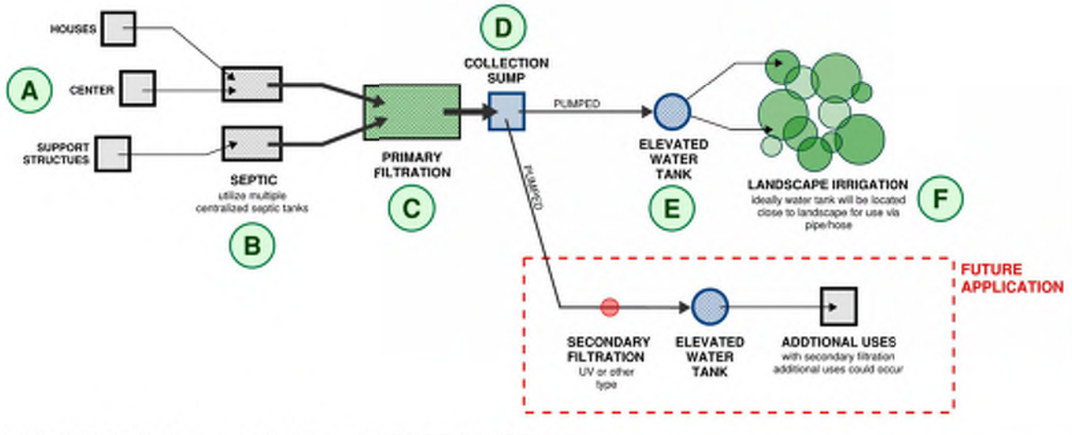
Initially CCF will look to implement gray water reuse for irrigation. Structures with larger outputs of gray water could be connected to a central gray water processing and storage network. Heavier irrigation areas like the visitor's plaza and vegetable gardens would benefit from the system.

See the Centre Compound Gray Water Reuse Diagram and Concept Plan below that outlines the gray water collection, storage, and distribution strategy for the Campus.



CENTRE COMPOUND GRAYWATER REUSE CONCEPT PLAN
DO NOT SCALE

NOT TO SCALE



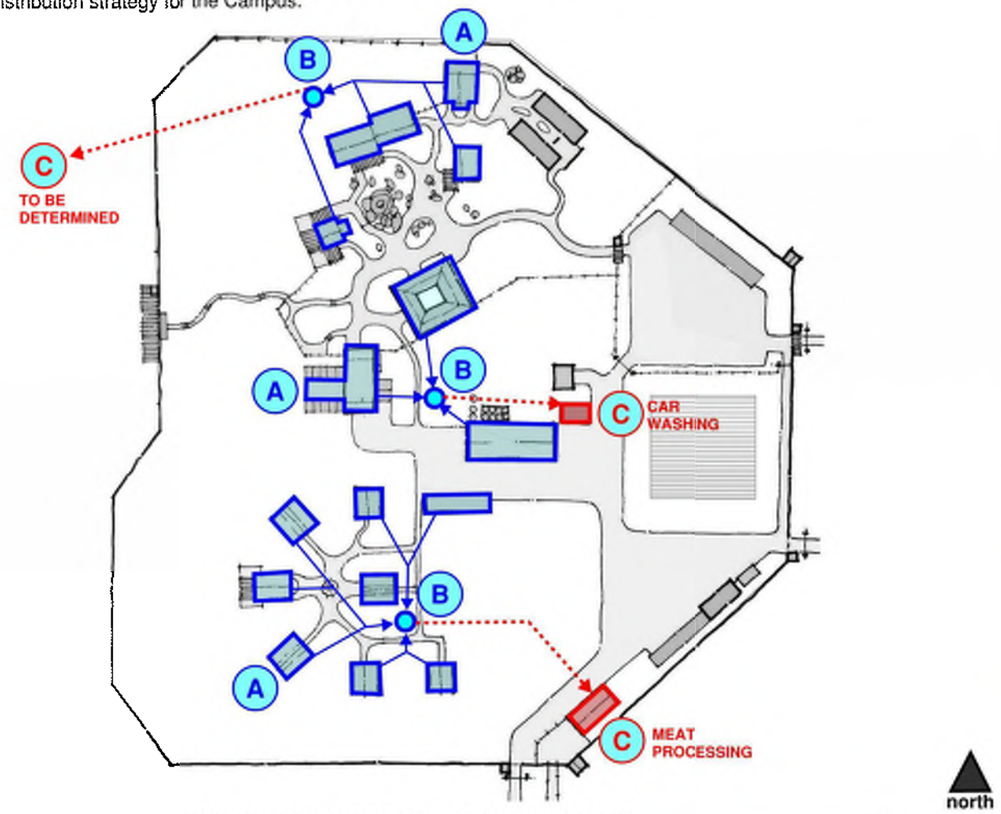
CENTRE COMPOUND GRAYWATER REUSE DIAGRAM
DO NOT SCALE

RAINWATER HARVEST CONCEPT

As the CRCC builds structures it will look to implement rainwater harvesting technologies to minimizes its water-use footprint. Harvested rainwater could be reused for irrigation and other non-portable water needs. With proper processing rainwater could be used for more sensitive practices as well.

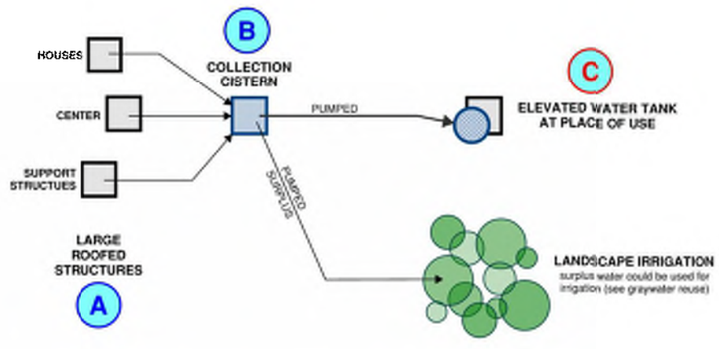
Structures with larger roofs could be connected to a campus rainwater harvesting network. Water collected in a central cistern(s) could be used for irrigation, car washing, meat room washing and other non-portable water needs. Small roofed structures could have small rain barrels or cisterns for localized use. Dam construction and other rain catchments methods for implementing rainwater collection and infiltration practices.

See the Centre Compound Rainwater Harvesting Diagram and Concept Plan below that outlines the rainwater collection, storage, and distribution strategy for the Campus.



CENTRE COMPOUND RAINWATER HARVESTING CONCEPT PLAN
DO NOT SCALE

NOT TO SCALE



CENTRE COMPOUND RAINWATER HARVESTING DIAGRAM
DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: INFRASTRUCTURE
WATER REUSE

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

FACILITY SECURITY CONCEPT

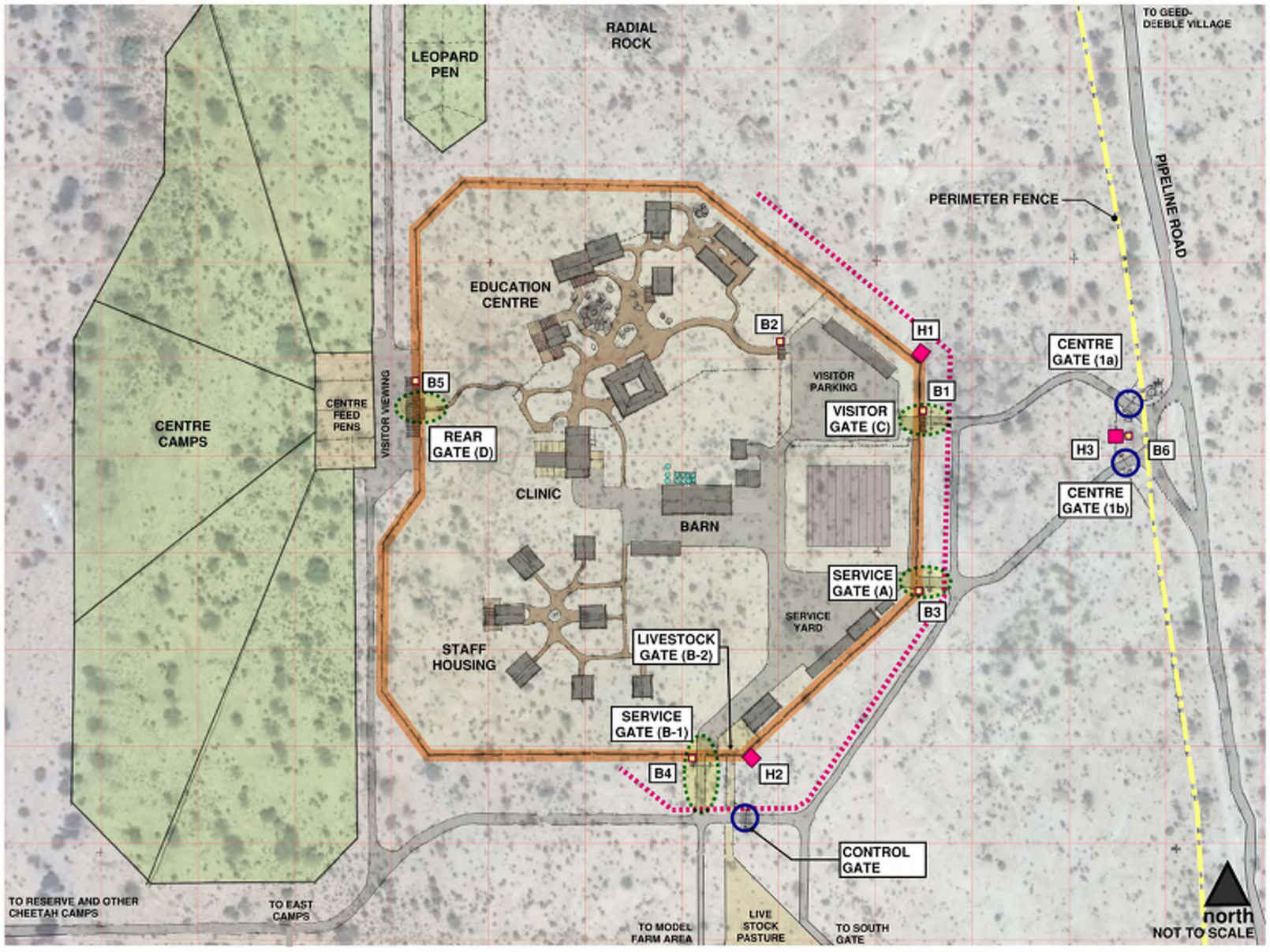
The CRCC Campus and Centre Compound will follow concepts implemented at other Somaliland compounds. Guard housing and guard work booths for security personnel shall be located in monitoring locations and fortifications including the walled compound and additional jersey barrier protection. See photos PI-j and PI-k below. Gates/entries into the compound should all be guardable, controllable and lockable.

See the Centre Compound Security Concept Plan below that outlines the potential security measures for the Compound . Note this diagram attempts to capture potential needs, the concept should be revisited as the project and needs evolve.

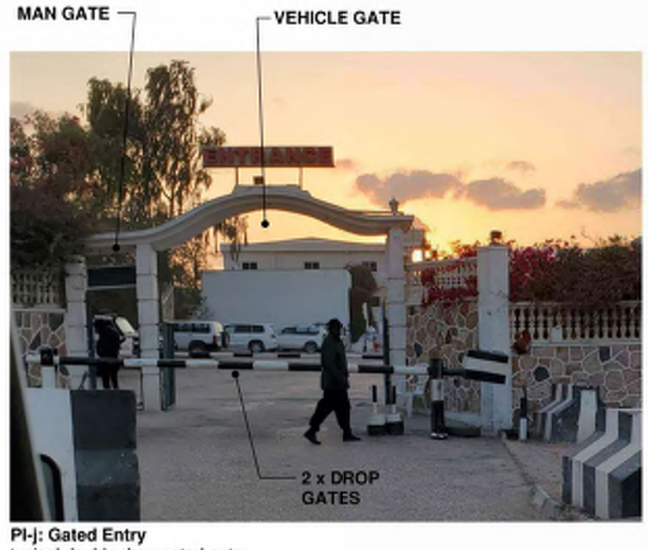
For additional campus gates and fencing see the Project Highlights: Fencing section.

LEGEND

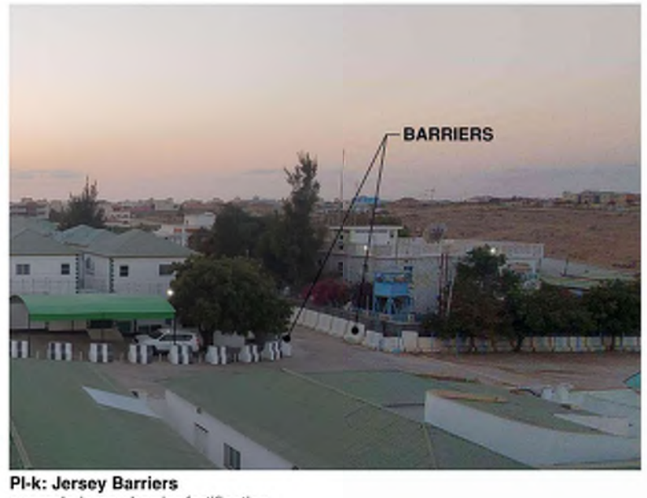
- **Site Perimeter Fence:** approximate CRCC Campus Boundary and perimeter fence. See Project Highlight: Fencing section.
- **Compound Wall:** see Project Highlight: Fencing for more information
- **Jersey Barriers:** if desired/required extra fortification, jersey barrier system per local standard (see photo to right)
- **Road Gate:** drop gate for property demarcation and livestock control and security, see Project Highlight: Roads section for additional locations
- **Compound Gate:** vehicle and man gate with double drop gates (see photo to right)
- **Guard Booth:** small structure to shield guards from the weather while on duty
- **Guard House:** Small house for guards stationed at CRCC



CENTRE COMPOUND SECURITY DIAGRAM
DO NOT SCALE



PI-j: Gated Entry
typical double drop gated entry



PI-k: Jersey Barriers
example jersey barrier fortification

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
PROJECT HIGHLIGHT: INFRASTRUCTURE SECURTIY

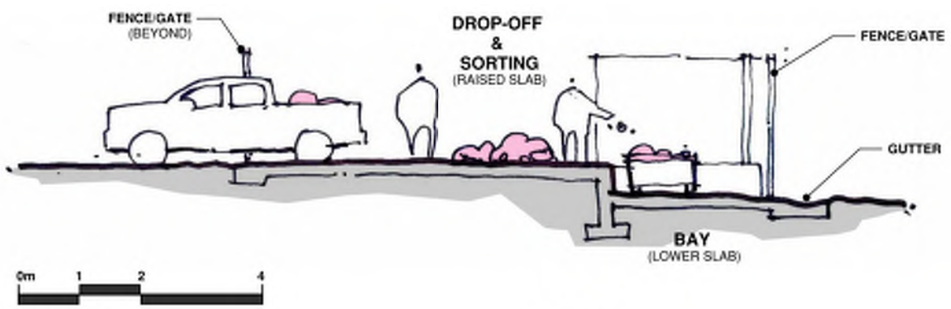
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

WASTE DISPOSAL CONCEPT

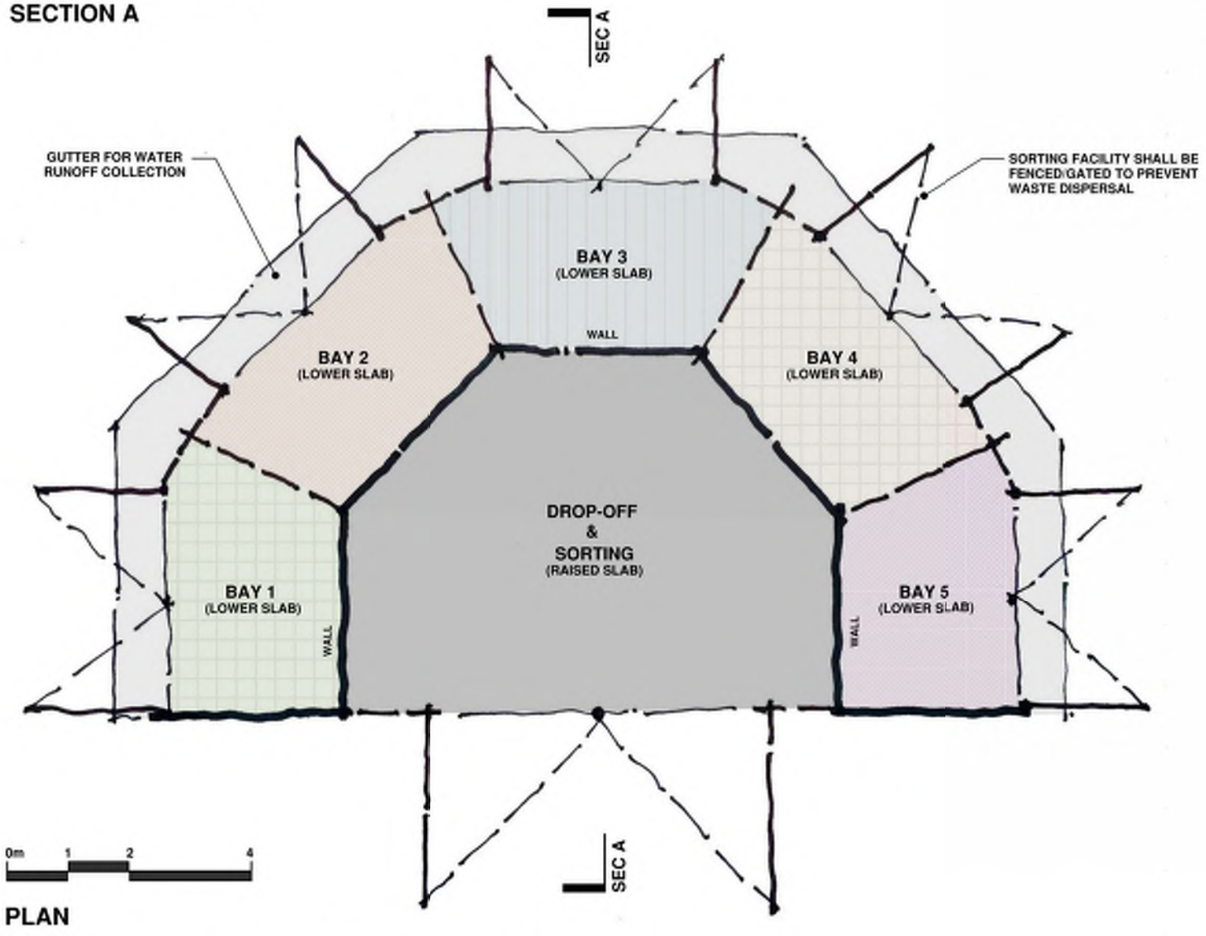
The CRCC Campus will produce significant waste to carry out its daily activities. The waste (garbage, construction materials, animal waste products and reusable/recyclable materials) should be disposed of in a responsible manner.

A waste sorting facility can be used for processing waste into reuse or disposable types: compostable, construction waste, landfill/garbage, and recyclable materials (plastic, metal, glass, etc.). See the concept plan and section and precedent photos below.

Separate landfills for construction materials (concrete, stone, brick, etc.) and other garbage to be created adjacent the sorting facility. Exact location shall be reviewed and confirmed on site. See the Test Waste Disposal Location Diagram to the right.

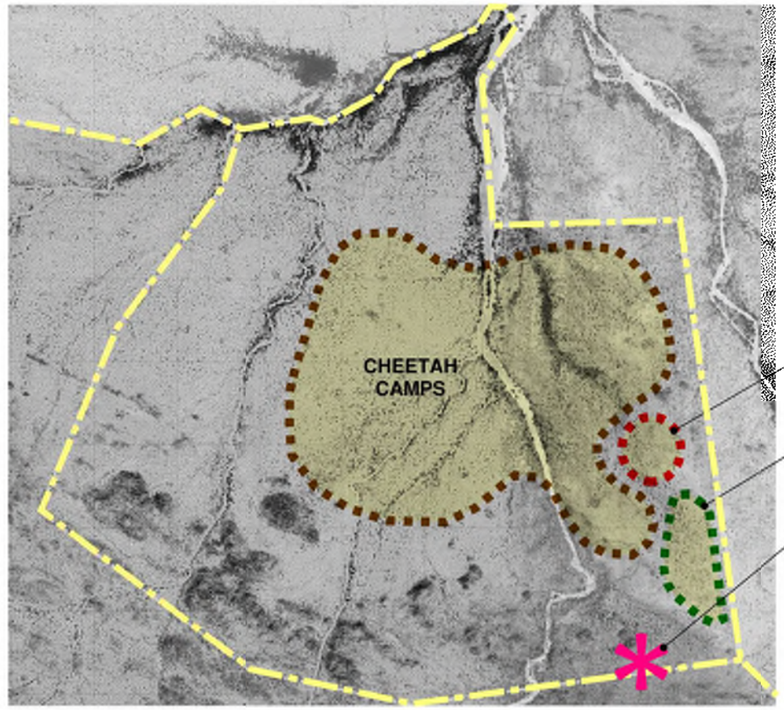


SECTION A



PLAN

WASTE SORTING FACILITY CONCEPT PLAN & SECTION
DO NOT SCALE



TEST WASTE DISPOSAL LOCATION DIAGRAM
DO NOT SCALE

PI-l: Example Waste Sorting Receptacle
waste sorting receptacles at CCF Namibia, waste is collected from receptacles and taken to waste sorting facility

PI-m: Example Waste Sorting Facility
waste sorting facility at CCF Namibia, all waste transported here to be sorted by staff

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

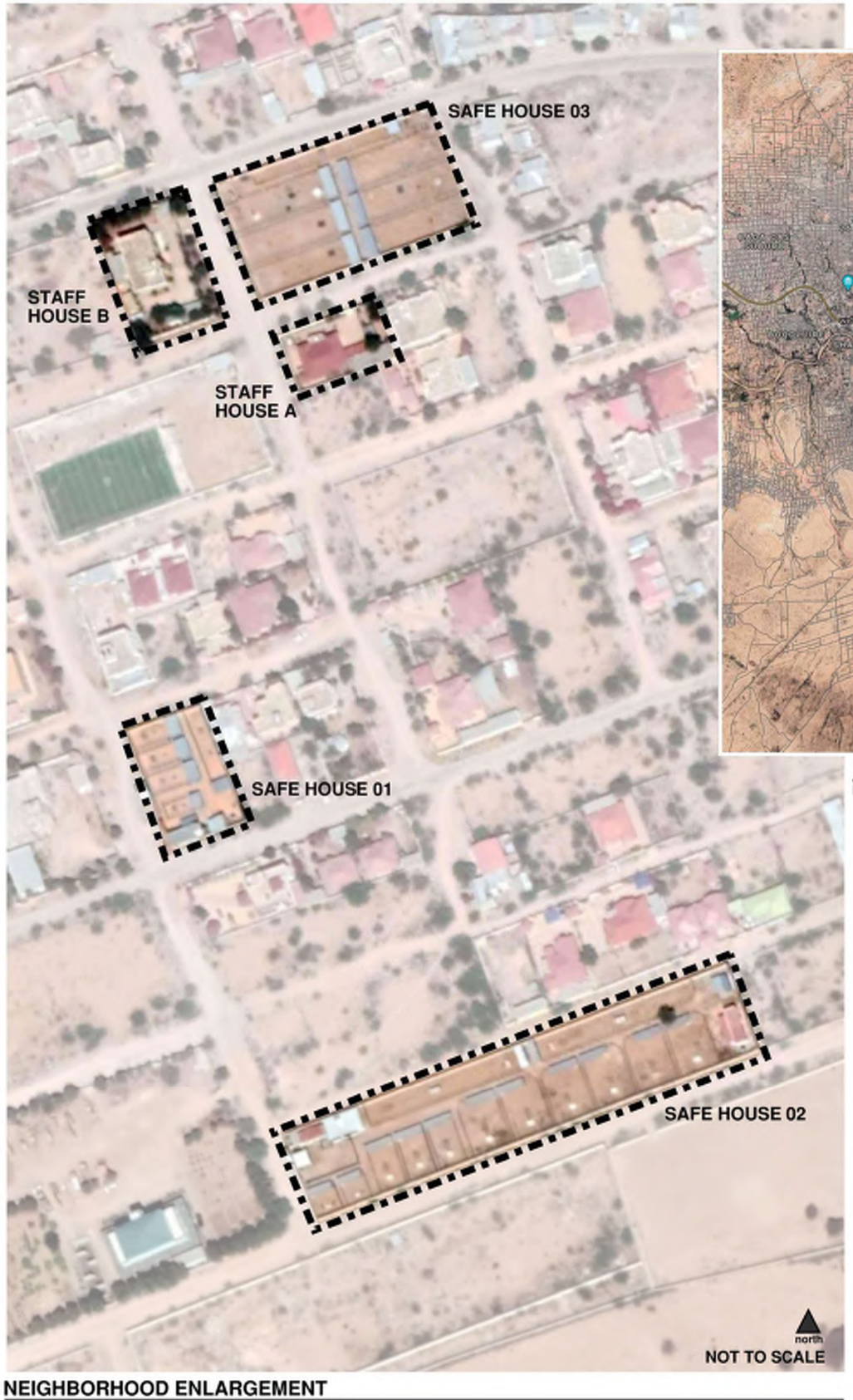
ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

INVENTORY & ANALYSIS



NEIGHBORHOOD ENLARGEMENT
DO NOT SCALE

LOCATION KEY PLAN
DO NOT SCALE

EXISTING FACILITIES SUMMARY

The CCF operates three safe houses to keep confiscated cheetah within city of Hargeisa in the neighborhood of Xaafadda Massalaha. To provide staff housing and other operational needs CCF rents two houses within close proximity to the safe houses.

INVENTORY

SAFE HOUSE 01
Cheetah Pens: 5
Clinic
Nursery

SAFE HOUSE 02
Cheetah Pens: 13
Leopard Pens: 1
2 Bedroom House
2 Bedroom House
Meat Processing (containers)

SAFE HOUSE 03
Cheetah Pens: 7

STAFF HOUSE A
No longer used

STAFF HOUSE B
2 floor + roof
X bedroom
X bathrooms

PHOTO D-01
Safe House 03 viewed from Staff House B roof

PHOTO D-02
Cheetah Pens at Sate House 03

PHOTO D-03
Cheetah Pens at Safe House 01

PHOTO D-04
Meat processing area

PHOTO D-05
Clinic

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
EXISTING HARGEISA FACILITIES

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

BOUNDARY STUDY SUMMARY

This study aims to map approximate coordinates of the corners of the National Park, Base 1 and Base 2 areas.

The Ministry of Environment and Rural Development and the Cheetah Conservation Fund have agreed to the below boundaries for CCF Base 1 and Base 2 areas.

The National Park boundary is an approximate size and exact location may depend on involvement of other parties and the park needs. This could include further expansion north and west.

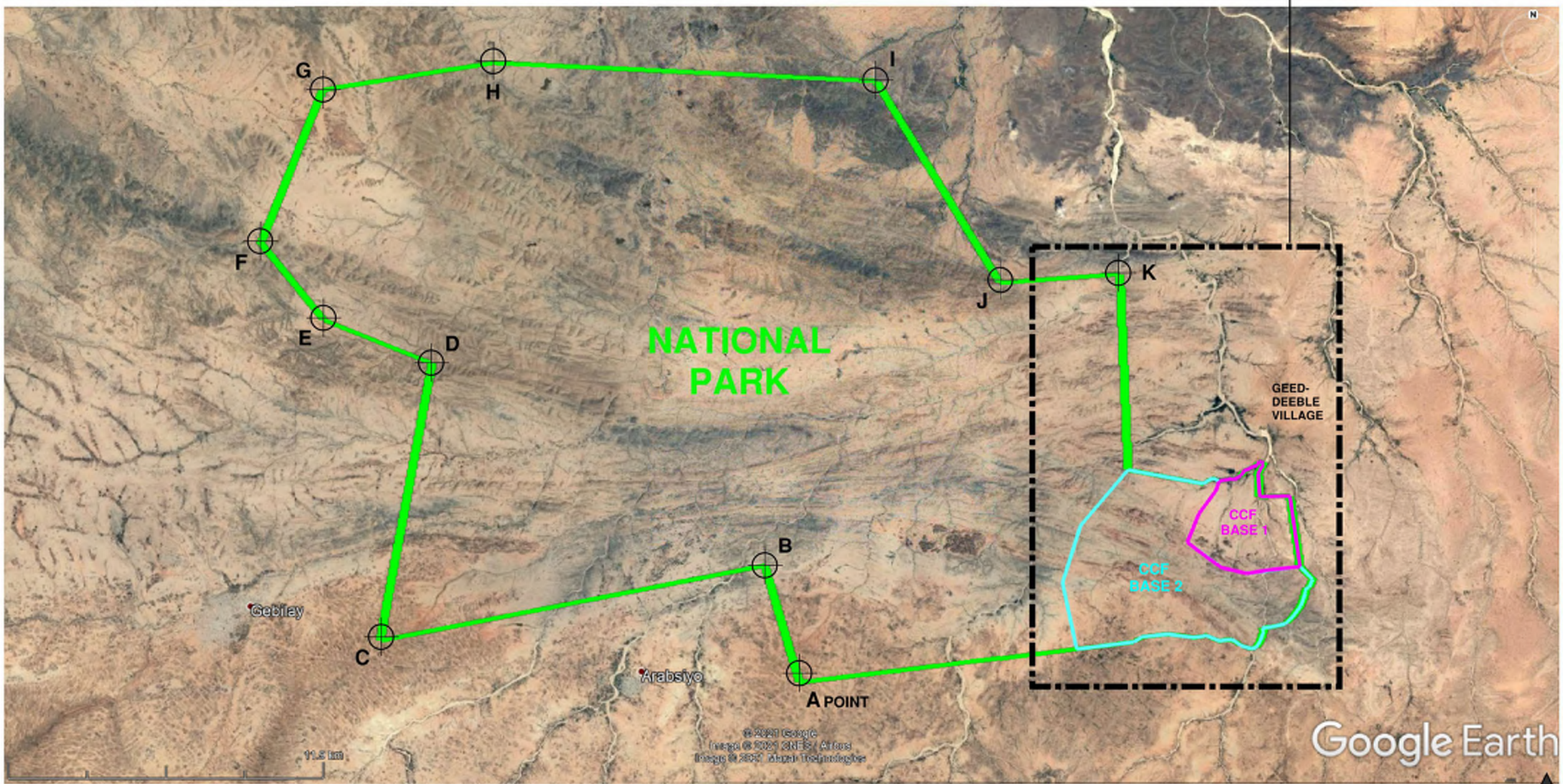
PRELIMINARY NATIONAL PARK BOUNDARY COORDINATE TABLE

See enlargement for CCF areas

POINT	NORTHING	EASTING
A	9°40'46.95"N	43°49'15.31"E
B	9°43'8.53"N	43°48'32.48"E
C	9°41'37.33"N	43°40'38.40"E
D	9°47'14.18"N	43°41'42.17"E
E	9°48'6.79"N	43°39'29.35"E
F	9°49'40.51"N	43°38'10.58"E
G	9°52'46.59"N	43°39'27.44"E
H	9°53'19.51"N	43°42'57.52"E
I	9°52'57.26"N	43°50'49.40"E
J	9°48'52.65"N	43°53'21.66"E
K	9°49'3.04"N	43°55'50.43"E

NOTE:
Coordinates obtained from Google Earth.

EAST EDGE ENLARGEMENT AND CCF BASE AREAS SEE NEXT PAGE



PRELIMINARY NATIONAL PARK BOUNDARY
See enlargement for CCF areas

PLAN NOT TO SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
BOUNDARY STUDY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

EAST EDGE BOUNDARY SUMMARY

This study aims to map approximate coordinates of corners of the east edges of Base 1 and Base 2 sites. The study also identifies where wadis and roads will serve as delineation for boundaries.

The boundary between CCF Base 1 and CCF Base 2 is a fluid boundary.

CCF BASE 1 & 2 BOUNDARY COORDINATE TABLE

CCF BASE 1 BOUNDARY

POINT	NORTHING	EASTING	REMARK
1	9°43'06.78 "N	43°59'32.28"E	south point
2	9°42'59.33 "N	43°58'26.08"E	
3	9°43'06.77 "N	43°57'55.24"E	
4	9°43'37.31 "N	43°57'12.96"E	
5	9°44'12.39"N	43°57'27.58"E	
6	9°44'51.42 "N	43°57'52.60"E	
7	9°45'14.23 "N	43°58'45.63"E	
8	9°44'33.56 "N	43°58'42.38"E	
9	9°44'33.56 "N	43°59'19.51"E	

CCF BASE 2 BOUNDARY

POINT	NORTHING	EASTING	REMARK
10	9°42'52.32 "N	43°59'47.45"E	
11	9°41'58.39 "N	43°59'13.82"E	
12	9°41'53.10 "N	43°58'45.71"E	
13	9°41'27.84 "N	43°58'32.17"E	
14	9°41'36.67 "N	43°56'07.93"E	
15	9°41'28.02 "N	43°54'57.47"E	
16	9°42'48.13 "N	43°54'39.18"E	
17	9°43'57.99 "N	43°55'01.74"E	
18	9°45'05.34 "N	43°56'00.05"E	
19	9°44'48.59 "N	43°57'32.33"E	

NOTE:
Coordinates obtained from Google Earth.

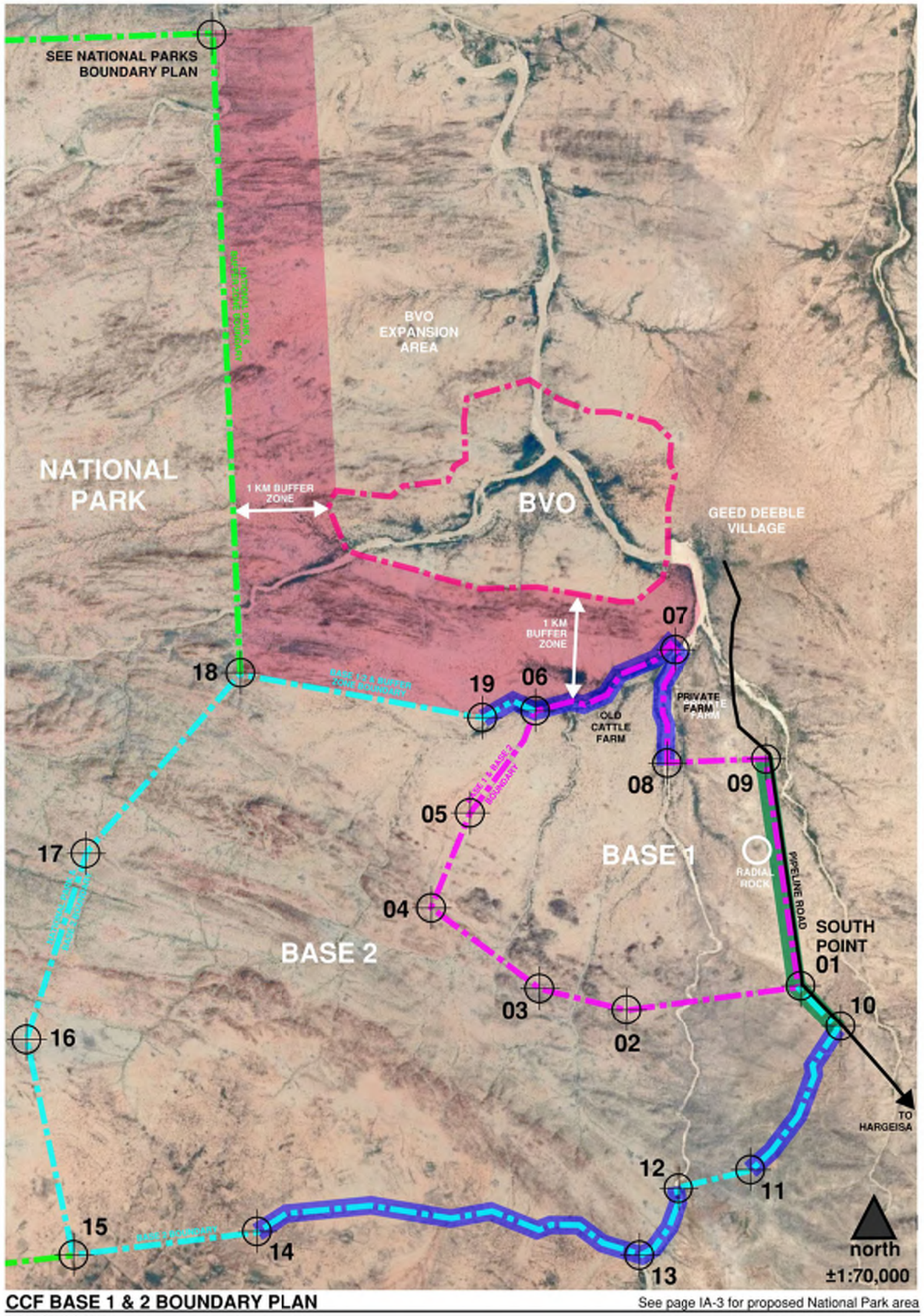
LEGEND

BOUNDARIES

- CCF Base 1 Boundary
- CCF Base 2 Boundary
- Preliminary National Park Boundary
- Approximate BVO Boundary (Barwaaqo Voluntary Organization)
- Buffer Zone: 1 km buffer between BVO and CCF/National Park lands

BOUNDARY DELINEATION

- Boundary Follows Pipeline Road
- Boundary Follows Water Course (wadi)



CCF BASE 1 & 2 BOUNDARY PLAN

See page IA-3 for proposed National Park area

DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
BOUNDARY STUDY: EAST EDGE

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND

LANDMARK & TRACK SUMMARY

This study aims to map used tracks and identify landmarks across the Base 1 site. The layering of the landmarks and tracks has helped to orient users and inform where established paths through the site are located.

Access to the Base 1 site is limited due to rough terrain and primitive roads (tracks). The Base 1 site is accessible via the Pipeline Road which runs north from Hargeisa to the village of Geed-Deeble along the eastern edge of Base 1. Rainy season can make the road and site impassable due to sloppy road conditions and high-water levels at wadi crossings. Wadi crossings are currently being built as part of public work projects in the area, hopefully completed later this year (2021/2022). Access within the Base 1 site is limited to 4x4 tracks (sand/dirt vehicle paths). These tracks have their own wadi crossings that restrict access. Off-track driving is limited as well due to many deep ravine cuts not traversable by 4x4, even in the dry seasons.

The Base 1 site is spotted with a few identifying features. These include some distinctive rock and mountain formations as well as non-permanent manmade bomas (livestock enclosures).

TRACK LEGEND

- Approximate Boundary Line
- Pipe Line Road: main access road from Hargeisa to Geed-Deeble
- Track: more heavily used/defined dirt/sand track
- Sub-Track: less used/defined dirt/sand track
- Wadi Track: dry wadi bed track, only accessible in dry seasons

NOTE:
1. Observations are generalizations observed in field and interpreted from Google Earth Maps

north

0m 200 400 800

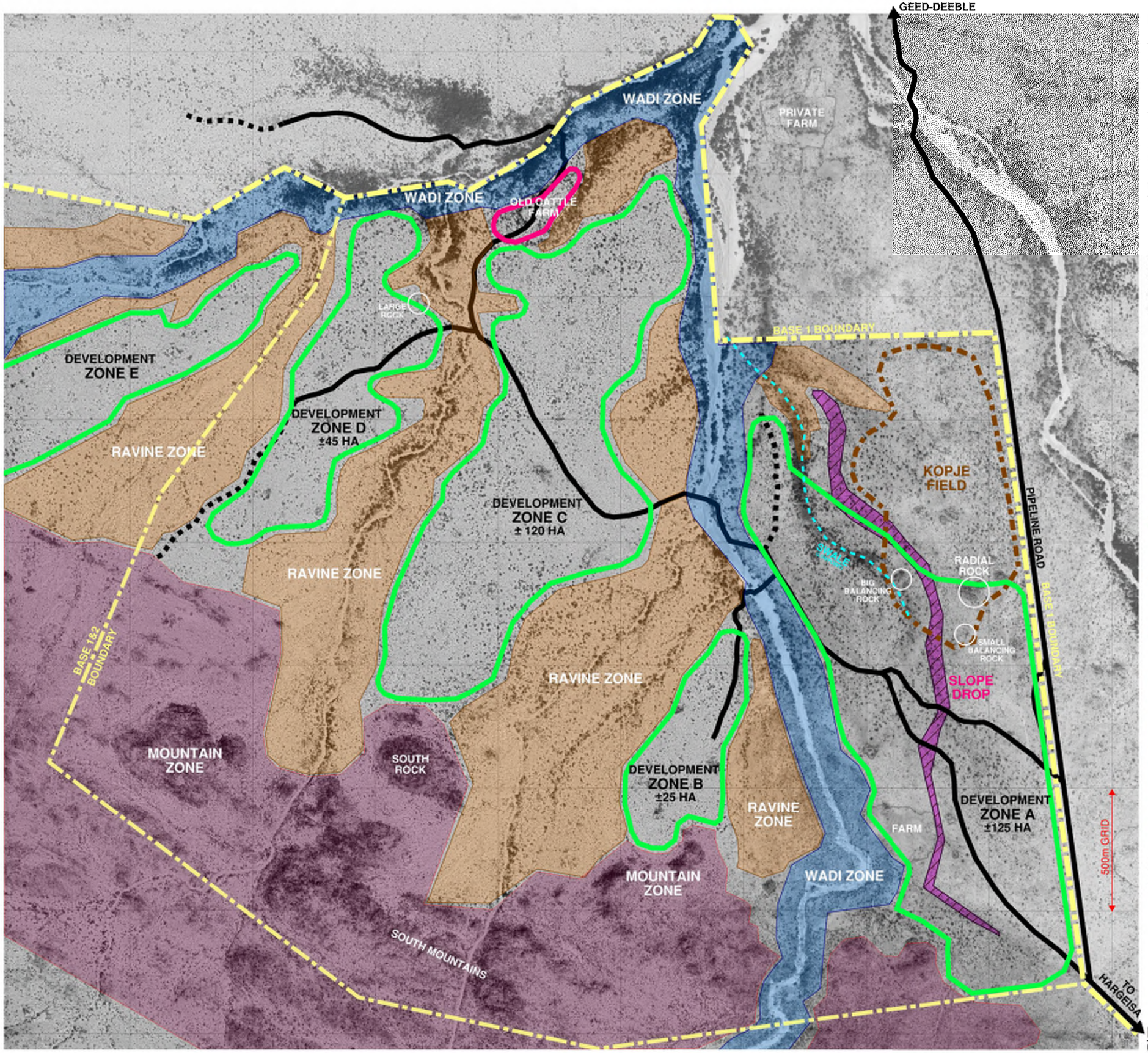
±1:15,000

LANDMARK & TRACK INVENTORY
DO NOT SCALE

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
LANDMARK & TRACK INVENTORY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE



LANDFORM STUDY SUMMARY

This study aims to map major landforms across the Base 1 site. The layering of the different landforms has helped to inform the better locations for development.

Taller bedrock outcrops (mountains) break the campus into a series of valleys. The valleys are divided by multiple wadis courses (streams that have water running on the surface only after main rainy events) that flow from the south to the north. The Base 1 site watershed converges just north of the Base 1 site and continues north.

The land has limited "flat" areas that could realistically support development. Ravine cuts and wadis occupy major portions of the site. These areas will also have limited access during the rainy seasons due to wadi crossings.

LEGEND

- Approximate Boundary Line
- Roads & Tracks: see Landmark and Track Study Inventory
- Development Zone: area more suitable for development because less ravines and mountains are in these zones
- Kopje Field: area filled with a lot of Kopjes (large rounded rock formations)
- Old Cattle Farm: existing abandoned buildings, not ideal for reuse
- Wadi Zone: large sandy wadi beds with elevated, ravine-cut banks on sides
- Ravine Zone: eroded terrain with deep ravine cuts
- Mountain Zone: tall rock exposed mountains
- Slope Drop (Bluff): drop in elevation creating an elevated view from the east to the west

NOTE:
1. Observations are generalizations observed in field and interpreted from Google Earth Maps
2.

north

0m 200 400 800

±1:15,000

LANDFORM STUDY
DO NOT SCALE

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
LANDFORM STUDY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

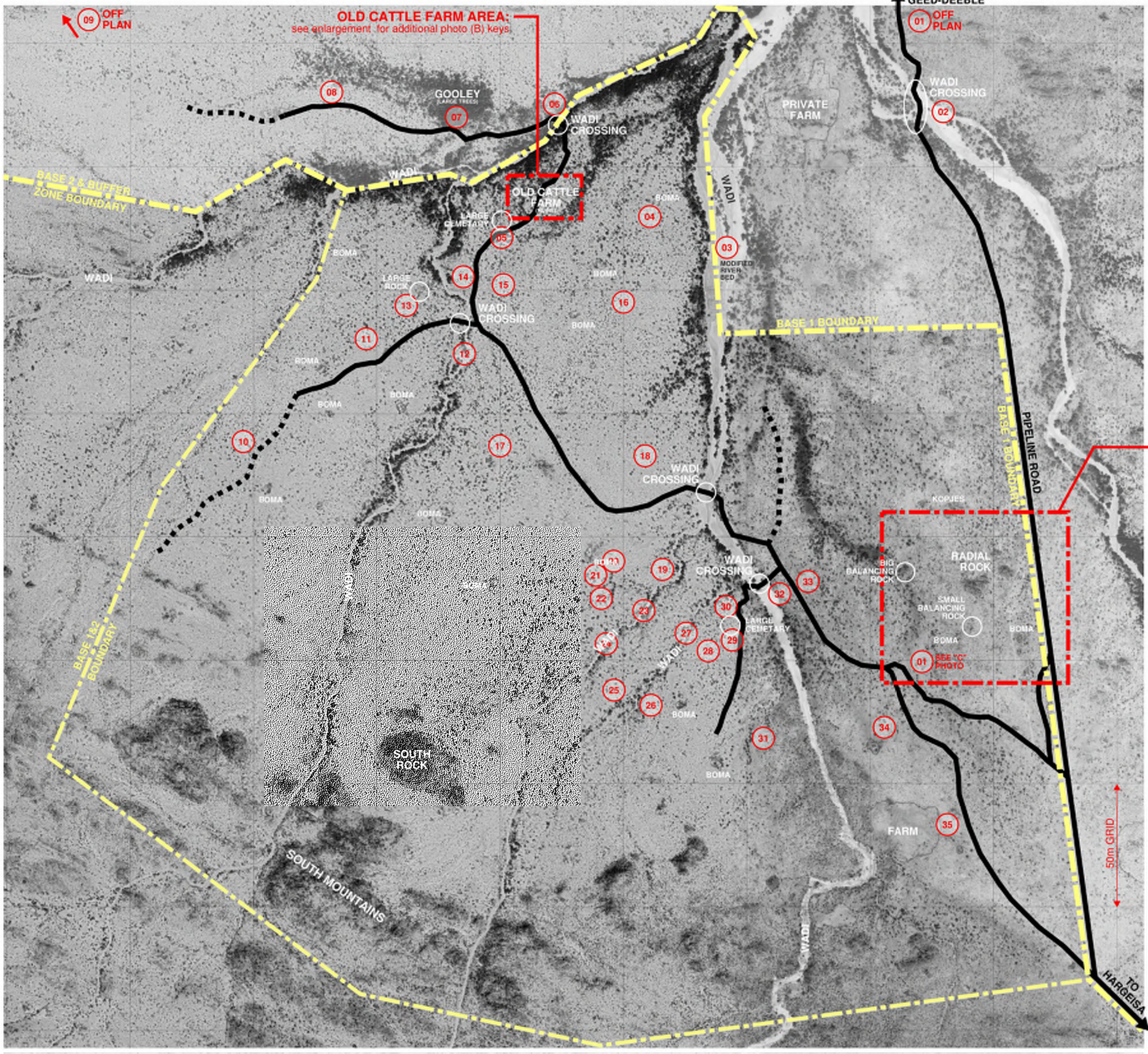


PHOTO STUDY A SUMMARY

Photo Study A is a collection of photos of the larger Base 1 site. These photos are just a small flavor of the site but are intended to give the reader of this report context.

LEGEND

- Approximate Boundary Line
- Track/Roads: More heavily used/defined dirt/sand track
- 00 Photo Key: approximate location of A photos, see pages IA-8 through IA-10 for A photos
- Enlargement Area: see other page for additional photo keys

NOTE:
1. Observations are generalizations observed in field and interpreted from Google Earth Maps

north

0m 200 400 800

±1:15,000

PHOTO A KEY PLAN
DO NOT SCALE

ISSUED: 13 - MAY - 2021
REVISION: 24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY A - BASE 1

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PHOTO A-01

Geed Deeble Village

PHOTO A-02

River crossing on pipeline road to Geed Deeble Village. View north.

PHOTO A-03

River. View south. Cleared river bed to create berm for farm water diversion.

PHOTO A-04a

Traditional boma homestead.

PHOTO A-04b

Traditional boma homestead dwelling (structure, no fabric covering)

PHOTO A-05

Old cattle farm cemetery.

PHOTO A-06

River crossing north of the cattle farm. Area is overgrown with vegetation. View north.

PHOTO A-07

"Gooley"- Large tree grove. View north.

PHOTO A-09a

View in north mountains. View north.

PHOTO A-08

Looking at north mountains. Inn Buffer Zone. View north.

PHOTO A-09b

View in north mountains. "Tuug ku Balantay" Mountain at horizon (Chief Point). View west.

PHOTO A-10

Views west. Landscape dense with ravines to west.

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY A - PHOTOS: PAGE 1 OF 3

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PHOTO A-11

View to north. North mountains on horizon.

PHOTO A-12

River crossing. View south.

PHOTO A-13

On top of large kopje (±6m height). View north. North mountains and Geed Deeble antenna on horizon.

PHOTO A-14

Termite mound on road to the old cattle farm. Way-finding landmark. View west.

PHOTO A-15

View from on large boulder (±3m height) towards "Tuug ku Balantay" Mountain.

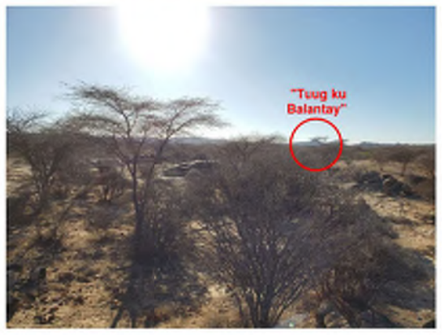


PHOTO A-16a

On top of tall boulder (±2m). View north. North mountains and Geed Deeble Village on horizon.

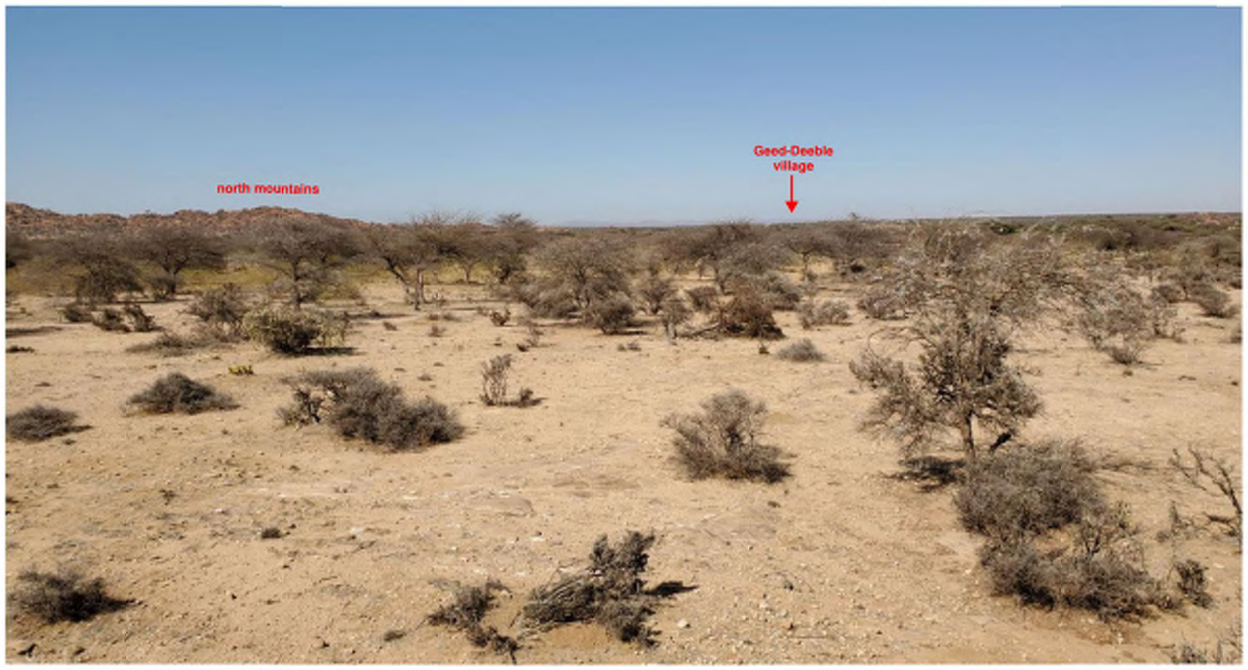


PHOTO A-16b

On top of tall boulder (±2m height). View south. South mountain on horizon.

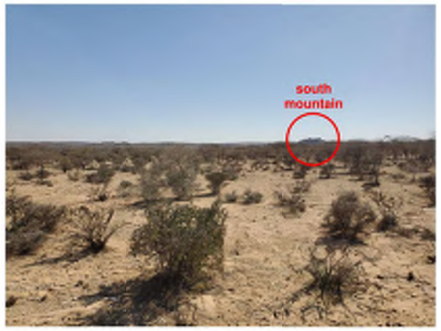


PHOTO A-17

View north-west. "Tuug ku Balantay" mountain (Chief Point) on horizon.

PHOTO A-18

View from on large boulder (±3m height) towards "Tuug ku Balantay" Mountain.

PHOTO A-19

View north. River/ravine to east.

PHOTO A-20

View north. Geed Deeble antenna on horizon.

PHOTO A-21

Ravine cut.

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY A - PHOTOS: PAGE 2 OF 3

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

PHOTO A-22

Ravine cut.

PHOTO A-23

Large stream.

PHOTO A-24

Rock cut in stream.

PHOTO A-25

High point. View north.

PHOTO A-26

Ravine.

PHOTO A-27

Small stream. View north-east.

PHOTO A-28

Start of ravine cuts.

PHOTO A-29

Cemetery. View to west.

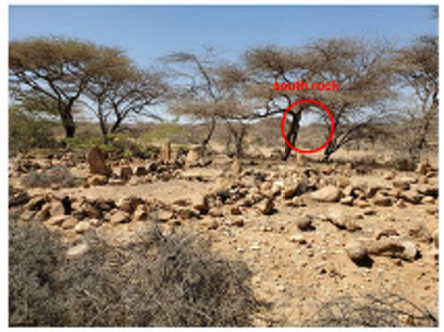


PHOTO A-30

View north. Ravine cut.

PHOTO A-31

View west toward south rock.

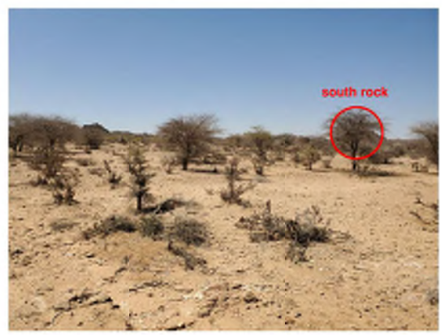


PHOTO A-32

River crossing. View east.

PHOTO A-33a

View east.

PHOTO A-33b

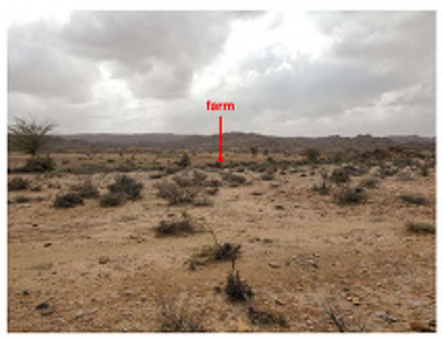
View west.

PHOTO A-34

View south-west. Towards a boma and river.

PHOTO A-35

High point. View south-west towards farm and river.



ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY A - PHOTOS: PAGE 3 OF 3

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND

PHOTO B KEY PLAN
DO NOT SCALE

±1:1000
0m 10 20 40
north

PHOTO STUDY B SUMMARY

Photo Study B is a collection of photos of the old cattle farm area. These photos are just a small flavor of the old cattle farm area but are intended to give the reader of this report context.

PHOTO B-01
View to north. Towards river and north mountains.

PHOTO B-01

Office / house structure

PHOTO B-02

Milking House

PHOTO B-03

Cattle Barn - view west

PHOTO B-04

Cattle Barn - view east

PHOTO B-05

Cattle Barn - view east

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY B - OLD CATTLE FARM

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

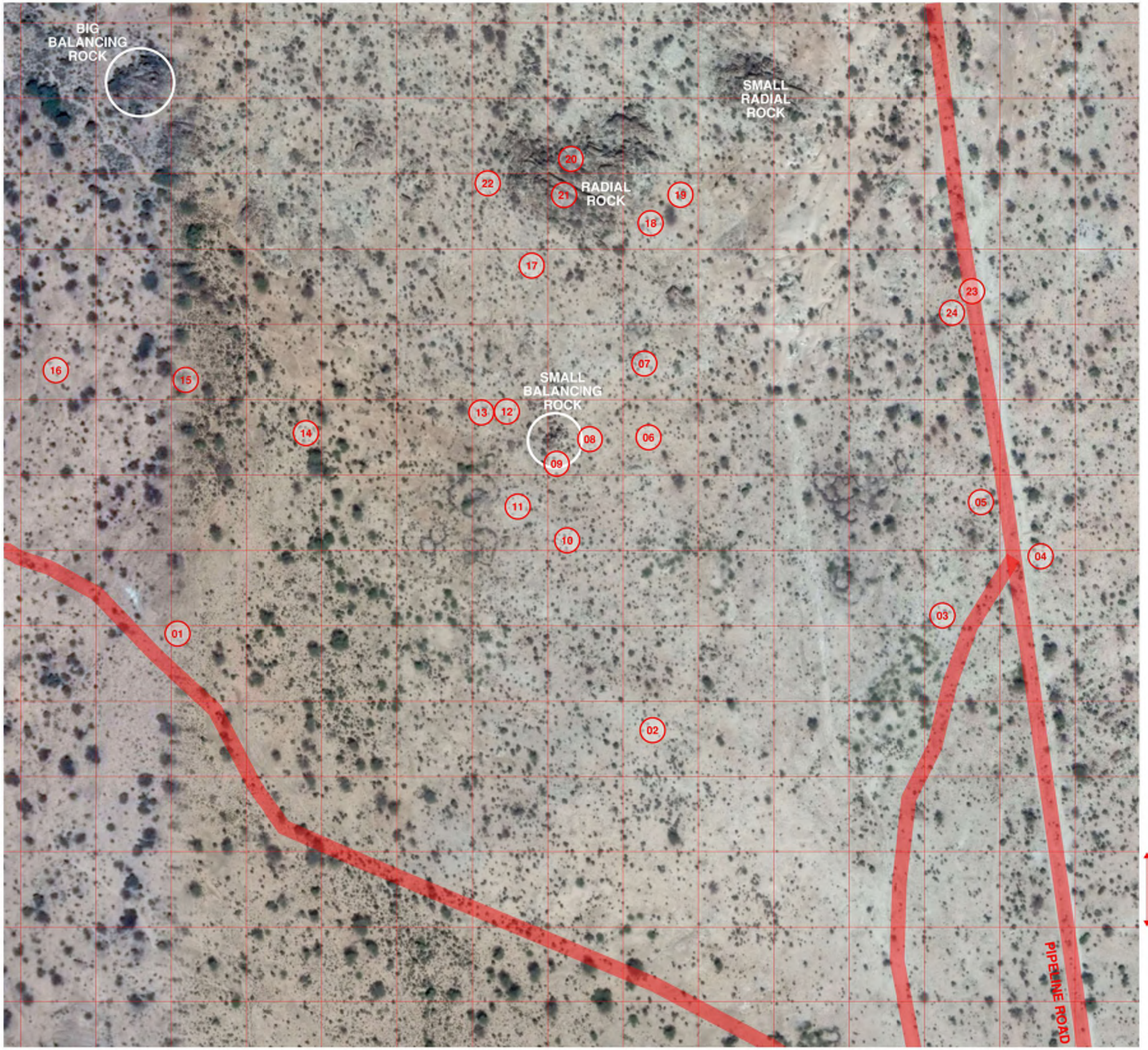


PHOTO STUDY C SUMMARY

Photo Study C is a collection of photos of the proposed center compound area. These photos are just a small flavor of the area but are intended to give the reader of this report context.

north

0m 25 50 100

±1:2500

PHOTO C KEY PLAN

DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY C - PROPOSED COMPOUND

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

Cheetah CONSERVATION FUND

PHOTO C-01

View north-east to "Radial" Rock.

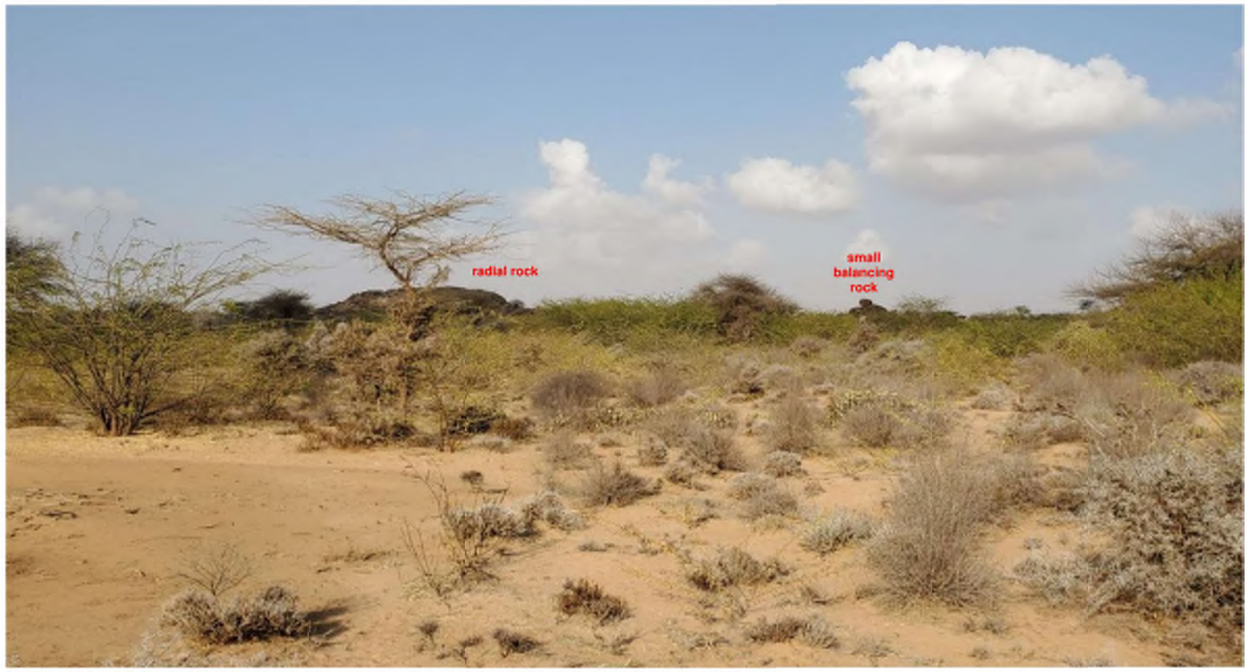


PHOTO C-02a

View north towards "Radial" rock.

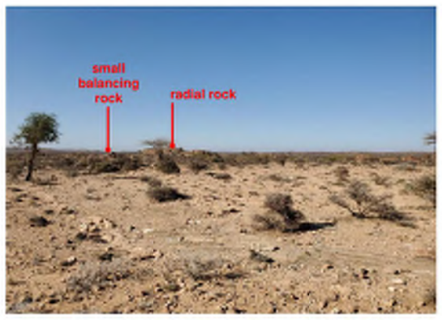


PHOTO C-02b

View west.

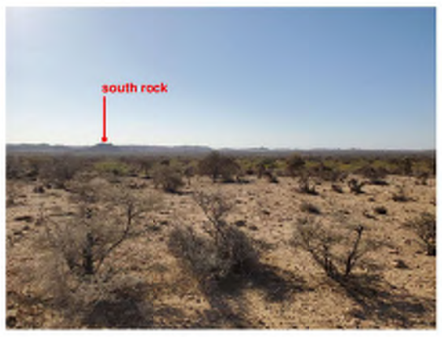


PHOTO C-02c

View south.

PHOTO C-02d

View to east towards pipeline road.

PHOTO C-03

View east from pipeline road toward "Radial" Rock.

PHOTO C-04

On pipeline (east side of pipeline road) View north.

PHOTO C-05

View north-west. Rocks along pipeline road.

PHOTO C-06

View east toward the small balancing rock and over the river.

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY C - PHOTOS: PAGE 1 OF 4

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

cheetah CONSERVATION FUND

PHOTO C-07

Looking south towards small balancing rock.

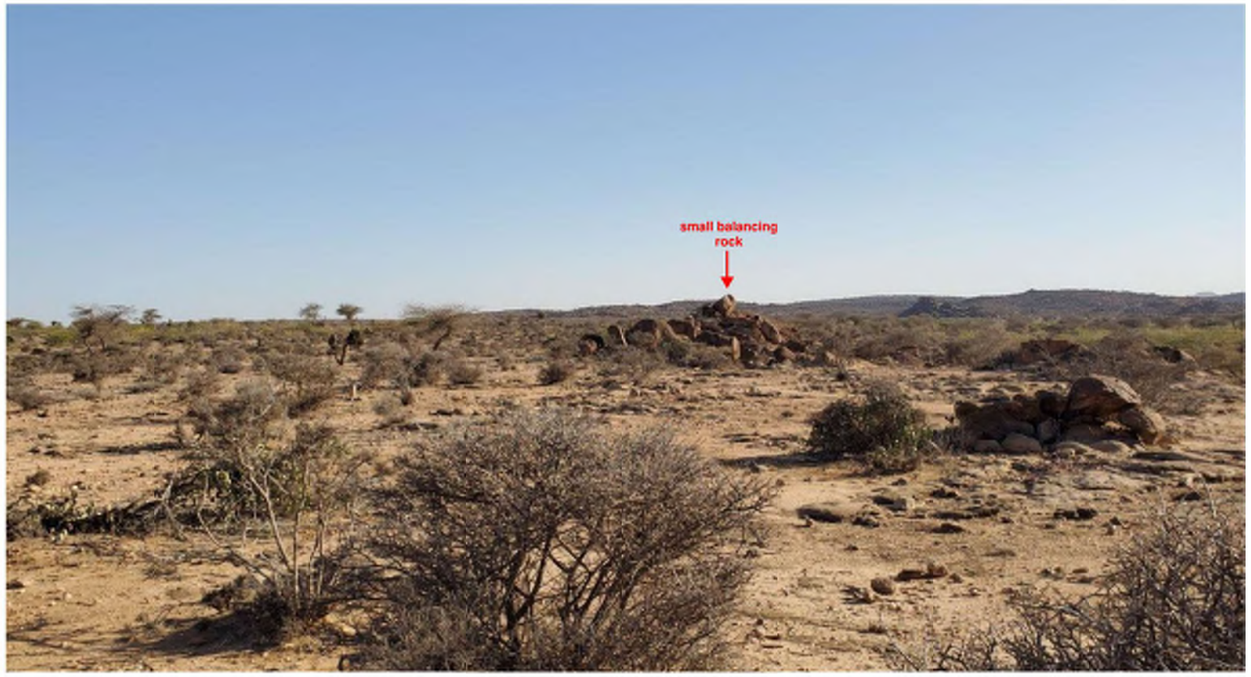


PHOTO C-08

Small balancing rock. View west.

PHOTO C-09

High point. View north.

PHOTO C-10

View to west.

PHOTO C-11

View north towards small balancing rock and "Radial" rock.

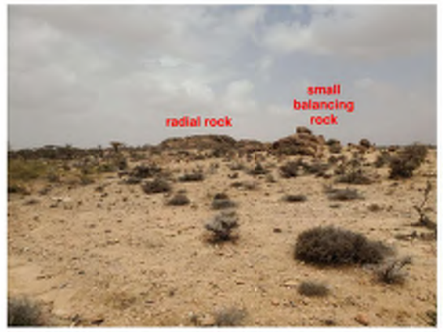


PHOTO C-12

View east towards small balancing rock.

PHOTO C-13

View west, down from small balancing rock.

PHOTO C-14

View west. Start of bigger trees in swale

PHOTO C-15

Low point at swale. View south (up-swale).

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY C - PHOTOS: PAGE 2 OF 4

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PHOTO C-16

View north towards the large balancing rock.

PHOTO C-17

View north towards "Radial" rock.

PHOTO C-18

View west towards "Radial" rock.

PHOTO C-19

View north towards small "Radial" rock.

PHOTO C-20

View to north form north side of "Radial" rock.

PHOTO C-21a

View west from top of "Radial" rock.

PHOTO C-21b

View south from top of "Radial" rock.

PHOTO C-21c

View east from top of "Radial" rock.

PHOTO C-21d

View north from top of "Radial" rock towards kopje field.

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY C - PHOTOS: PAGE 3 OF 4

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

PHOTO C-22

View west towards swale and big balancing.

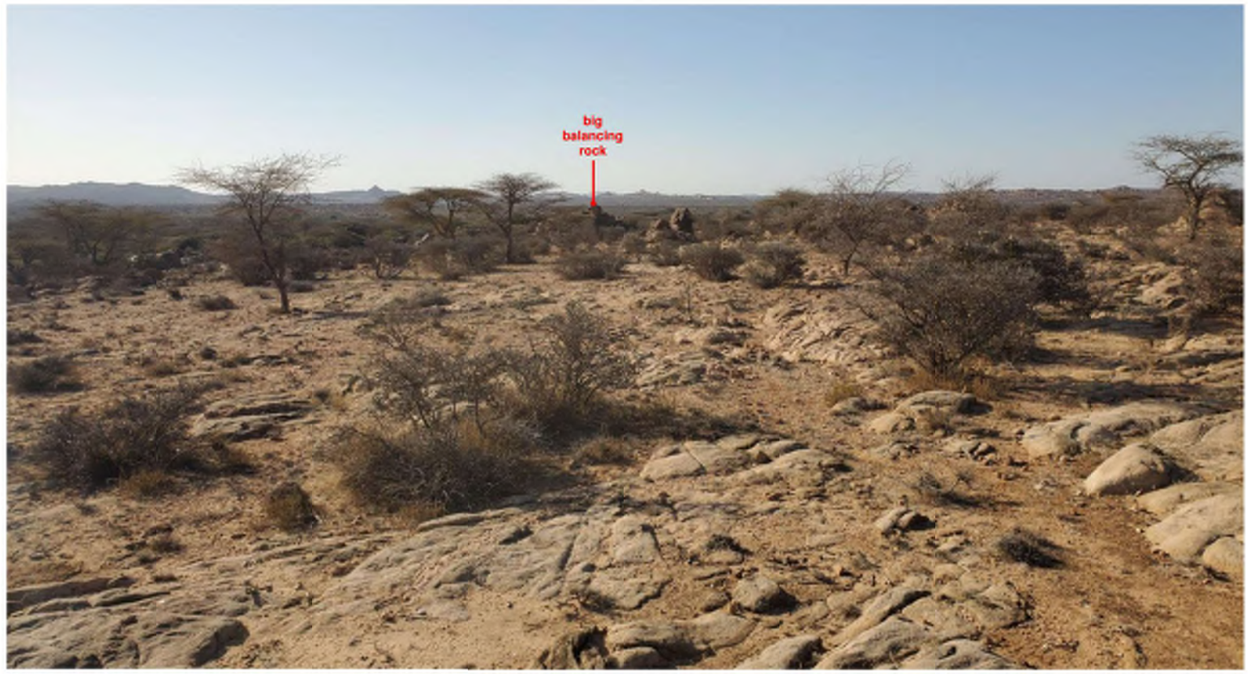


PHOTO C-23

View north towards "Radial" rock.

PHOTO C-24

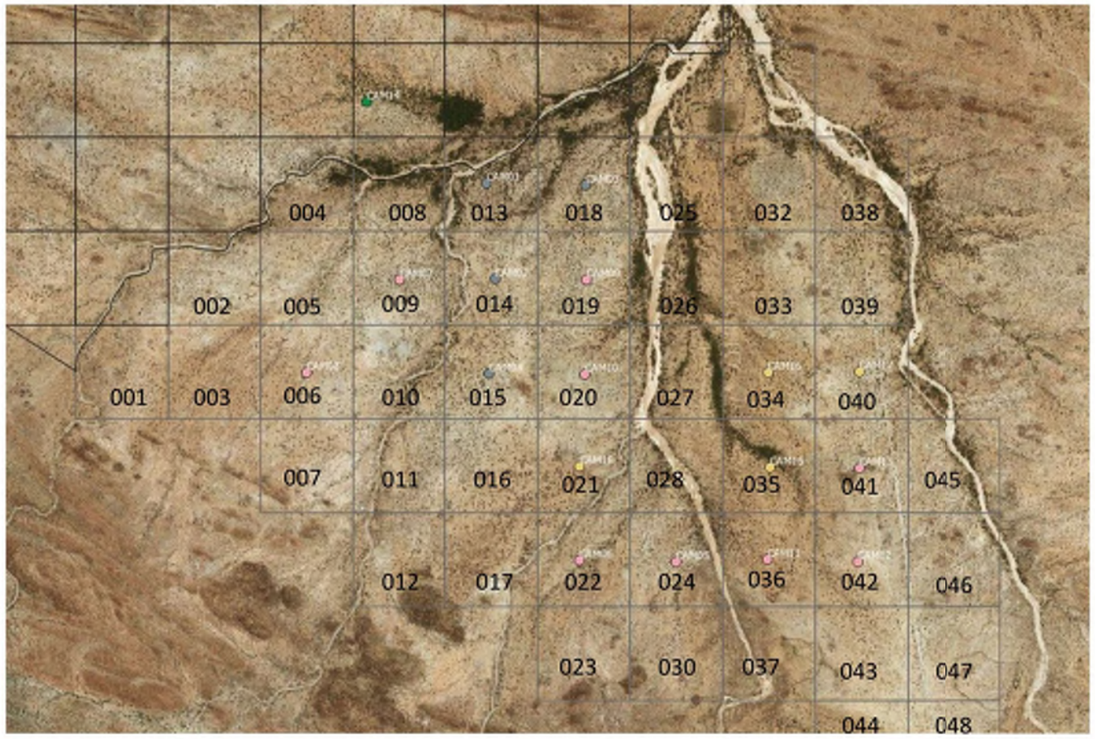
View west towards "Radial" rock from pipeline road.

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
PHOTO STUDY C - PHOTOS: PAGE 4 OF 4

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE



CAMERA ECOLOGY GRID STUDY
Soil photos recorded based on ecology grid.

500m GRID
DO NOT SCALE

SOIL SURFACE STUDY SUMMARY

This study is not all inclusive nor does each photo represent the soil/surface substrate for the entirety (or even majority) of the grid. This study merely attempts to capture some of the variety of soils/surface substrates present across the Base 1 site.

Photos were captured 2-3m above the surface within 30m of the center of the grid square.

GRID 06

GRID 09

GRID 13

GRID 14

GRID 15

GRID 18

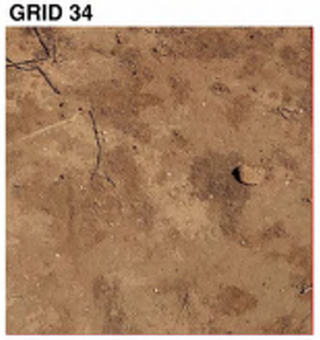
GRID 19

GRID 20

GRID 21

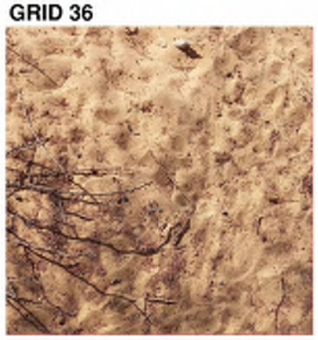
GRID 22

GRID 34



GRID 35

GRID 36



GRID 40

GRID 41

GRID 42

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
INVENTORY & ANALYSIS
SOIL SURFACE STUDY

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
APPENDIX

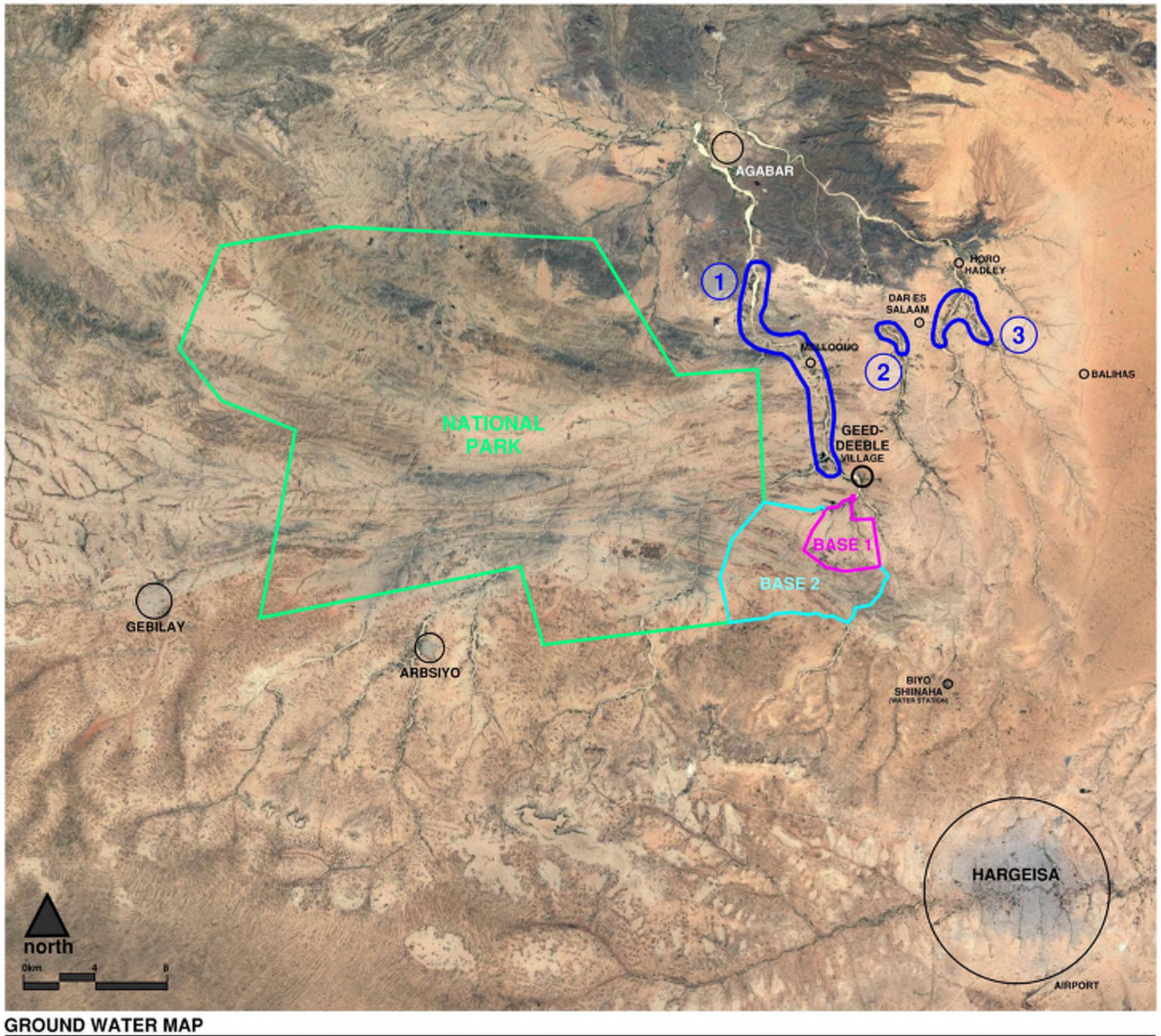
CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE

APPENDIX

OVERVIEW

Information on this page was provided by Terre Solidali and Mr. Bruno Petrucci. This is a high-level overview of the groundwater available in the region. Further detailed investigations are required for finding groundwater.

The water basin in the Base 1 and Base 2 regions are in the Geed-Deeble-Laas Dhurreh basins (GDB) north of the sites.



GROUND WATER MAP

DO NOT SCALE

SEE INTRODUCTION PAGE IN-3 FOR COUNTRY CONTEXT

In the GDB the distribution of the aquifers is complex and determined by the interaction between geology and morphology including the patterns of the main streams. All the courses can be defined as wadis, streams that have water running on the surface only after main rainy events. These flows generally endure only for few hours then dry up and leave water pools, but in that periods the recharge of the aquifers occurs. There are permanent aquifers that persist the whole year, just suffering a draw-down of the water levels, and others that dry almost completely.

Generally, the aquifers are supported by an almost impervious basement, made by crystalline rocks like granites and gneisses, and are constituted by mostly sandy alluvial deposits.

In the two areas mentioned there are perennial aquifers, for the most characterized by fresh water but contiguous to areas with brackish water. In these areas, following morphological patterns, there are some areas in which the aquifers reach depths up to 200 m bgl (below ground level) and have water tables up to 50 m deep, and others that are few meters thick and/or shallow water tables, even less than 5 m.

The GDB area hosts the wells field of Hargeisa made by 18 boreholes. The aquifer is naturally dammed downstream by a long granite outcrop that the stream erosion has been able to cut only up to few meters below ground level and there the water is very shallow, while at the head and in the middle sections of the basins, the water is deep. hallow, while at the head and in the middle sections of the basins, the water is deep.

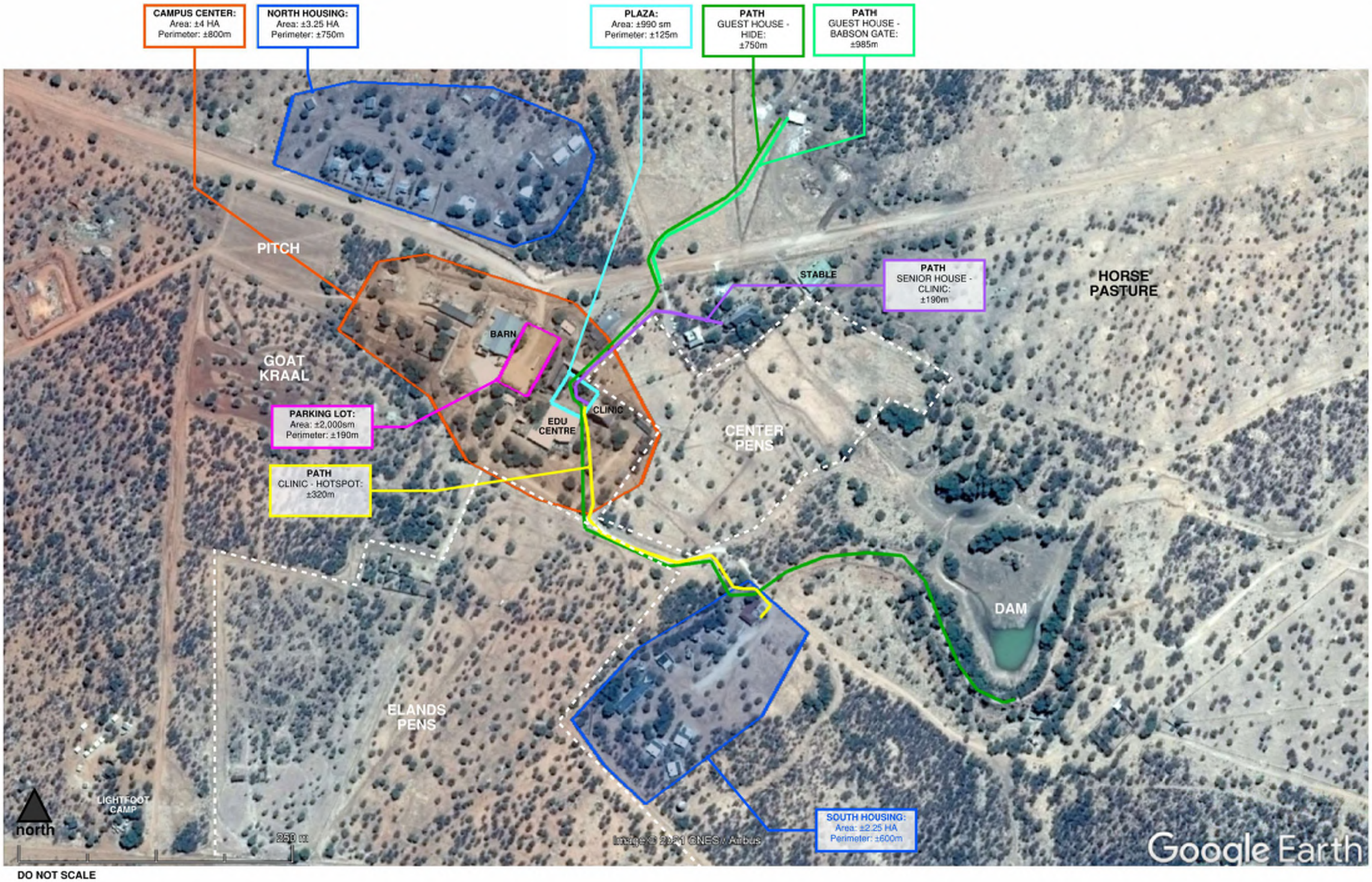
PLAN NOTES

1. The western area is coincident with the bed of the wadi Geed Deeble. Starting from the head (at southern edge) the course is excavated only few meters (up to 8-10 m) in the granites of the crystalline basement. Generally after main rainy events the water runs on the surface for several days/weeks, but even when it dries up, there is an underground flow, which is exploited downstream by shallow wells for rural use. The water has EC (electrical conductivity) values < 1,000 µS/cm (the limit of fresh water is generally set at 2,000 µS/cm).

2. The area 2 is located at the lower (northern) end of the wadi called Kalqoray upstream of the narrow cut in the granite edge. The water is fresh up to the narrow, inside and downstream of the narrow is brackish with values from 3,000 to 5,000 µS/cm. Also in this area there are farms and shallow wells.

3. The area 3 is located in proximity of the outlet of the wadi called Laas-Durreh where the basement is very shallow. Upstream of the area the water table deepens following the basement pattern, while to east and north is contaminated by salt tied to the basalt lava flows outcropping to the north or buried to the east.

ISSUED:
13 - MAY - 2021
REVISION:
24-JUN-2021



DO NOT SCALE

NOTES:

1. Numbers are approximate and to be used for size / scale comparison purposes.
2. Observations are generalizations interpreted from Google Earth.

CHEETAH CAMP SUMMARY - 2021

CENTER PENS
- 7 ha pen
- Flexible camps + feed pens
- Public viewing feeding pens
- Public viewing cheetah run

ELAND'S PENS
- 8 ha pen
- 2 camps + feed pens
- Public drive through

SPECIES SURVIVAL PENS
- 5 ha pen
- 2.5 camps + feed pens
- New quarantine enclosures adjacent
- Isolation pen adjacent

LEOPARD PENS
- 4 ha pen
- 2 camps + feed pens

LEOPARD PEN DOG PENS
- 9 ha pen
- 1 camps + feed pens

CCF NAMIBIA COMPARISON STUDY

DO NOT SCALE

ISSUED:
13 - MAY - 2021

REVISION:
24-JUN-2021

FACILITIES MASTERPLAN REPORT
APPENDIX
CCF NAMIBIA COMPARISONS

CHEETAH CONSERVATION FUND
SOMALILAND CHEETAH RESCUE & CONSERVATION CENTRE