**LAGI 2025 Fiji Narrative**

 **Concept Narrative**

LAGI 2025 Fiji calls for the design of installations that will supply clean and reliable electricity and drinking water to the coastal village of Marou for 67 households. Inspired by the natural beauty and resilient spirit of the Village, this submission is titled *de la terre* - meaning *“of the land”* in French translation. The design concept embodies a deep connection to place and draws from the strong presence of nature and the local environment—the island’s topography, geology, and village culture.

The architectural response for *de la terre* embraces the island’s natural contours and scale. It is grounded upon it, sitting low to the earth to preserve the visual and ecological integrity of the site. This approach seeks harmony with its surroundings while addressing practical solutions: to provide resilient infrastructure and shelter to the community while minimizing potential uplift in the event of storms or cyclones. **The grounded form is a symbol and strategy reflecting resilience and strength in the face of climate change**.

**A Sense of Place**

A key element of *de la terre* is the topographic mounds or ‘berms’ that house the proposed infrastructure systems for electricity and drinking water. The berms are envisioned as functional, flexible and poetic forms, weaving together the built form and the cultural fabric of Marou Village community. They are aesthetically expressive and practically essential, blurring the boundaries between infrastructure and landscape. They offer a layered framework of topography and support infrastructure with community uses to provide a sense of place – a destination for gathering, learning, working and celebrating.

The berms support:

. Photovoltaic panels for renewable energy generation,

. Stormwater collection systems for clean water and sustainable water management, and

. Seating, gardening, and play zones for flexible community use.

The site is activated through a program of shared land uses that foster social, cultural, and ecological co-benefits. In addition to the infrastructure systems, the LAGI 2025 Design Guidelines request additional space for the community needs. Each element serves a primary function while offering co-benefits that enhance the visitor and community experience:

* PLAY. Recreation at **playgrounds and informal seating** under the existing shade trees for flexible community use. The co-benefits encourage informal gatherings and intergenerational connections.
* AGRICULTURE. **Gardens** on the berms support food security, environmental education, and biodiversity. The co-benefits include building community relationships, healthy eating and food security.
* EDUCATION**. Amphitheater** is a formal gathering space for teaching but also civic events, performances and leisurely sitting.
* SHELTER. **Support buildings** house equipment to support the electrical and water systems and are to be designed for emergency shelters during severe storm events.
* SHADE. **Tensile structures** provide relief from the heat. They are flexible and adaptable to be erected dependent on community needs.

**Technical Narrative**

This project integrates passive design strategies of renewable energy generation and decentralized stormwater collection, embedded within architectural land shaping. The aim is to preserve existing natural site features for long-term resilience. This project uses the following technologies:

* Harvesting Solar Energy
* Harvesting Storm- and Rainwater

**Solar Energy**: This project incorporates a photovoltaic (PV) panel system for solar energy capture and storage to serve community needs. PV arrays are integrated into architectural berms, with north-facing panels oriented along an east-west axis for optimized exposure.

* Array Configuration. The system provides a total of 388 m² of photovoltaic panel area, corresponding to a 75-kW capacity, which aligns with the requirements in the Design Guidelines. The design is modular and scalable, with capacity for future expansion. The arrays are organized into three (3) clusters, each with seven (7) mounts. The panels are supported by independent steel structures, allowing their tilt angle—shown as 19 degrees—to be adjusted in the field as needed, independent of berm slope.
* Conveyance and Storage. Electrical conduits are routed through utility trenches to a 24 m² battery storage room located in the east Support Building. Lithium iron phosphate (LFP) batteries are proposed for energy storage. Trench paths are to be carefully planned to avoid disturbance to significant root zones.

**Rainwater and Stormwater Collection**. The project design addresses concerns outlined in the Design Guidelines:

1. Mitigating site standing water and the on-site creek overflow.
2. Capturing water for use during the dry season.
3. Reduce water-related erosion near the Village’s existing buildings.

This is proposed to be accomplished by the following methods:

* Surface Water and Overflow Capture. The design includes underground stormwater piping and berm construction to intercept surface runoff and control flow. Berms help slow and direct water, reducing erosion and flooding. Captured water is stored within tanks embedded in the berms. Options include precast concrete tanks, bladder tanks, or cast-in-place concrete containers. Gravity-fed piping—requiring minimal excavation—is used to convey stormwater to the Pump Room within the east Support Building, where it will undergo filtration and treatment before distribution.
* Rainwater Capture. Rainwater will be harvested from the rooftops of the three Support Buildings, with a combined roof area of 120 m². Collected water is directed into cisterns for storage and proposed for use in agricultural irrigation, which does not require treatment.

Shading: The Support Buildings will be equipped with wood-post-supported shading devices using locally sourced, durable timber. A tensile fabric canopy provides flexible shading. The system is modular, easy to maintain, and demountable in extreme weather events.

**Materiality**: The material palette emphasizes the use of local resources such as fieldstone, bamboo, and earth. These materials are abundant, familiar to the local workforce, and reduce the embodied energy associated with transport and processing.

This technical strategy represents an environmentally sensitive approach to site development, preserving natural systems while integrating essential infrastructure. By balancing low-impact construction and regenerative technologies, this project strives for a model to harmonize with the natural landscape.

**Prototyping and Pilot Implementation Statement**

Implementing a prototype and pilot model will refine the project design. It will confirm materiality and develop construction details for evaluation such as durability and maintenance. The process will be delivered in close collaboration with Marou Village residents including their feedback on topics such as available local materials, simplicity of construction and ease of operation, and aims for cultural resonance with the community. This process transforms a design from paper to a physical reality.

Proposed areas of the design to protype are:

* A portion of the topographic berm, integrating photovoltaic panels and water collection, and gardens including testing accessibility and maintenance.
* A portion of the topographic berm at an existing Village building to address erosion
* A pilot implementation of recreational mounds for testing the Village’s’ preferences.

The first step in implementing a prototype is Data Gathering. The team will verify design assumptions and confirm an understanding of existing conditions to refine the design in phase. Such questions include:

* What is the best material to hold storm water as a ‘bladder’ or tank under the berms? Is it constructed in the field? How does this inform the design of the mound?
* What is the projected amount of site flooding in the future during large storm events? Does this inform its detention?

**Approach**

After this initial step, the team will look at the pilot:

* Test the functional performance of design elements including the multi-functional berms and construction of the gabion systems.
* Engage local residents with on-site verification, participation in decision-making, and design feedback.
* Refine construction techniques using local materials and construction methods.
* Define available materials prioritizing local and familiar materials stabilized earth, local stone, and timber.
* Measure environmental impact regarding stormwater flow, solar collection, shelter provisions.

**Scalability and Future Expansion**

The design is intentionally modular, adaptable, and easily replicable as it relies on simple construction methods and common, local materials.

The design can be scaled across the Village or adapted to other sites of similar conditions. The prototype will establish a replicable model, serving as a blueprint for future phases and broader implementation.

The pilot of *de la terre* bridges the gap between design and implementation. It is grounded in local engagement and designed for scalable, resilient growth. It ensures that the project not only starts strong, but evolves meaningfully, deeply rooted in the community.

**Operations and Maintenance Statement**

The Operations and Maintenance strategy focuses on maintaining system efficiency and ecological health with low intervention, emphasizing stewardship over control.

**Architectural Berm Maintenance:** Regular maintenance is recommended. Monitor the berm for signs of erosion and address any issues promptly.

**Stormwater System Maintenance.** The following is recommended for the maintenance of the stormwater system:

AT SITE DRAINS,Inspect site drains quarterly and after major storms. Manually remove all visible debris to maintain flow efficiency.

AT BIOSWALES AND INFILTRATION TRENCHES. Quarterly inspect for erosion, sediment build-up, and vegetation health. Annually remove sediment and replant as needed.

AT CISTERNS at support buildings capturing rainwater. Flush out and clean biannually.

**Photovoltaic (PV) System Maintenance.** The following is the recommended maintenance:

AT PV PANEL. Wash surface 2 times per year. Inspect after storm events for any damage.

FOR SYSTEM.Annually check inspect of wiring, inverters, and mounting hardware. In case of extreme weather, panels inspected for damage before reactivation. Regularly review the output of the PV panels for performance.

**Utility Access Maintenance** The following are the recommended maintenance:

**Access to Conduit and Storm Piping.** Map and flag location of underground utility for any digging or repairs.

In addition, it is recommended to maintain asite log and track inspections and repairs.

**Environmental Impact Assessment**

The project area of the Energy Design Site is 14,620 m² based on LAGI-provided drawings. There is approximately 27% of tree cover. To ‘lightly touch’ the existing site is the design intent of *de la terra*. It is to minimize the disturbance of the development area and preserve the natural and ecological features. This proposed development area is 20% of the site area.

To ‘lightly touch’ the site is the design approach of *de la terra*. It is to minimize the disturbance of the development area and preserve the natural and ecological features. The proposed design covers roughly 15% of the total site area.

The guiding principles include:

* **Preservation of Existing Trees:** The design intent is to retain the existing trees. The proposed site layout and building placement will work around existing major natural features.
* **Minimal Land Disturbance:** Development footprint is minimized to protect soil structure, flora, and fauna.
* **Use of Local Materials:** Maximize use of building materials that are readily available and locally sourced such as stone, timber, and soil. This will also help simplify the logistics and need for transportation off of the island.

Additional site strategies include:

* **Balanced Cut and Fill:** With the new berms, the grade will be raised to accommodate new infrastructure and amenities. The design intent is to balance the site with equal amounts of cut and fill. This strategy reduces additional off-site materials, the need for hauling, and minimizes emissions.
* **Low-impact Construction Techniques:** Minimized excavation and root-zone protection measures will be enforced.
* **Integration of Photovoltaic (PV) System:** The structural posts that support the photovoltaic solar array will be incorporated into berms to address uplift requirements but also to minimize site disturbance.
* **Integration of Stormwater Collection:** Slight elevation of the bermed areas will ensure proper drainage without major reshaping of the site and landscape. The collection areas may be a more naturalized system such as bioswales. If required such as the flooded site area, a site drain and gravel under may be required. At the new support buildings, rainwater harvesting cisterns will be placed for agricultural irrigation.
* **Utility and Drainage Routing:** Routing of conduits for the PV system and storm piping for the stormwater collection is proposed to be placed to minimize trenching and ecological disturbance.

This project aims to provide a sensitive, environmentally responsible approach. By preserving the existing trees and significant plantings, balancing site grading, and integrating sustainable systems, the development minimizes its ecological footprint and fosters long-term environmental health. This strategy can serve as a model for context-responsive, low-impact development.