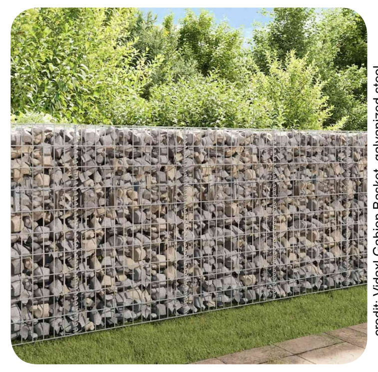
MATERIALITY:

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.

LIST OF MATERIALS:

A. GABION STONE SYSTEM is a construction method using **wire mesh cages** filled with **fieldstones** for a flexible, permeable, and durable structure. This system is used in the project as the basis of structural systems at the following:
- Foundation system at the berms
- Wall system of the Support Buildings/ Shelters

The Support Buildings / Shelters can be constructed to a higher safety standard in construction to withstand the wind forces in a storm event.

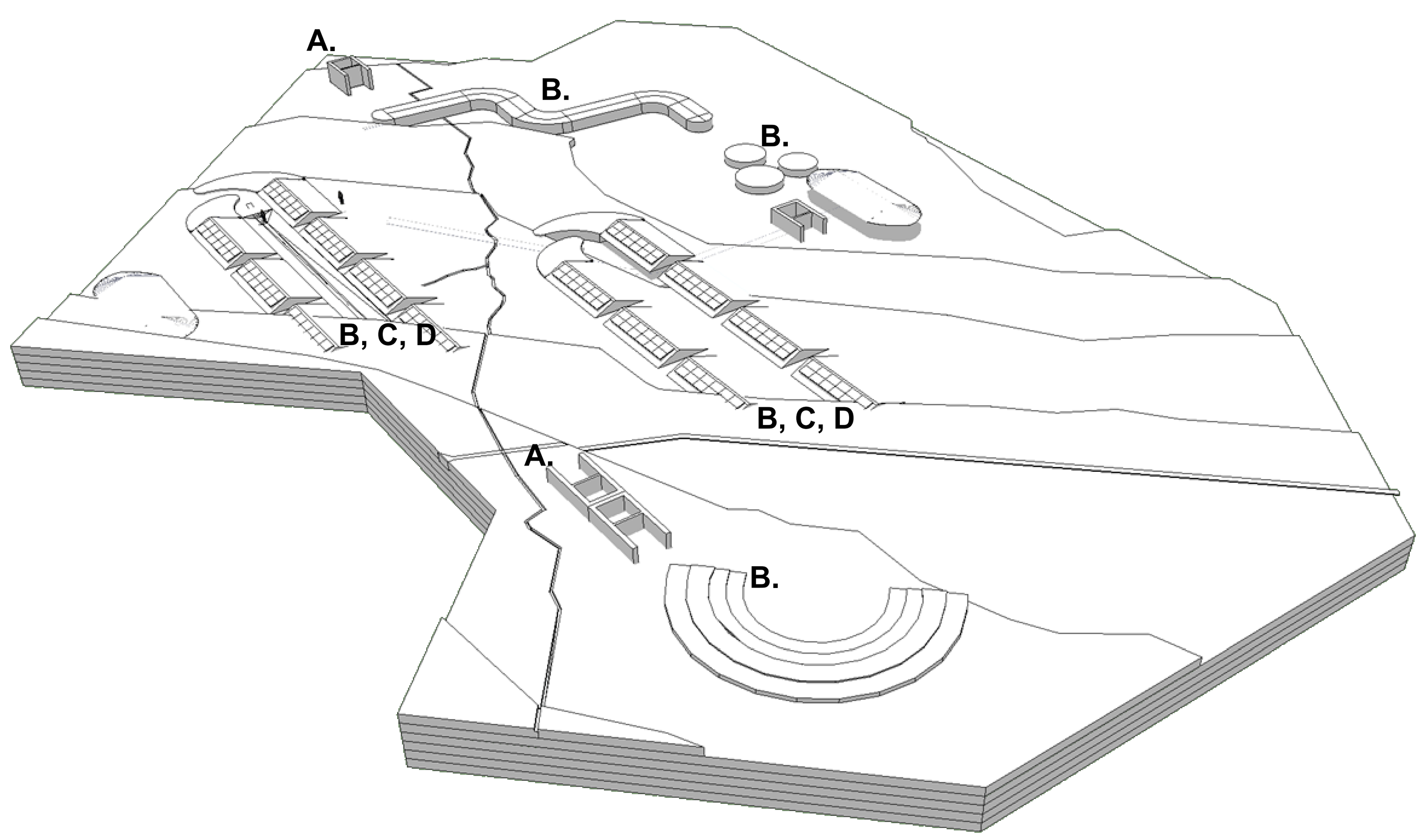


B. BERM CONSTRUCTION of the raised architectural landscape is the layering of compacted soil on a substrate with topsoil as the top layer for planting and landscape. This berms are used through out the project as part of infrastructure systems and recreational areas.

C. PHOTOVOLTAIC PANEL (PV) SUPPORT SYSTEM is a steel or aluminum frame on posts and mounted to a foundation such as concrete or ballast blocks. Many manufacturers provide these systems. The selection and finish of the steel or aluminum will need to consider the coastal environment along with wind loads and uplift resistance.

D. STORMWATER DETENTION TANK is underground unit that is connected and fed by stormwater piping. It is proposed to be cast-in-place concrete constructed in the field with wood formwork.

E. SHADING STRUCTURE is proposed to be a fabric shade on wood vertical support poles as a lightweight, flexible shading system. This can be demountable in strong weather for durability and re-use.



SITE PLAN with materials

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:

- Mitigating site standing water and the on-site creek overflow.
- Capturing water for use during the dry season.
- 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.

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

Implementing a prototype and pilot model will refine this project design. It will confirm materiality and clarify construction details to evaluate for durability and maintenance. The process will be carried out in close collaboration with Marou Village residents for their feedback on items such as available local materials, for constructionability and ease of operation. The process aims for cultural resonance with the community.

The 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 to 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. It may 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.

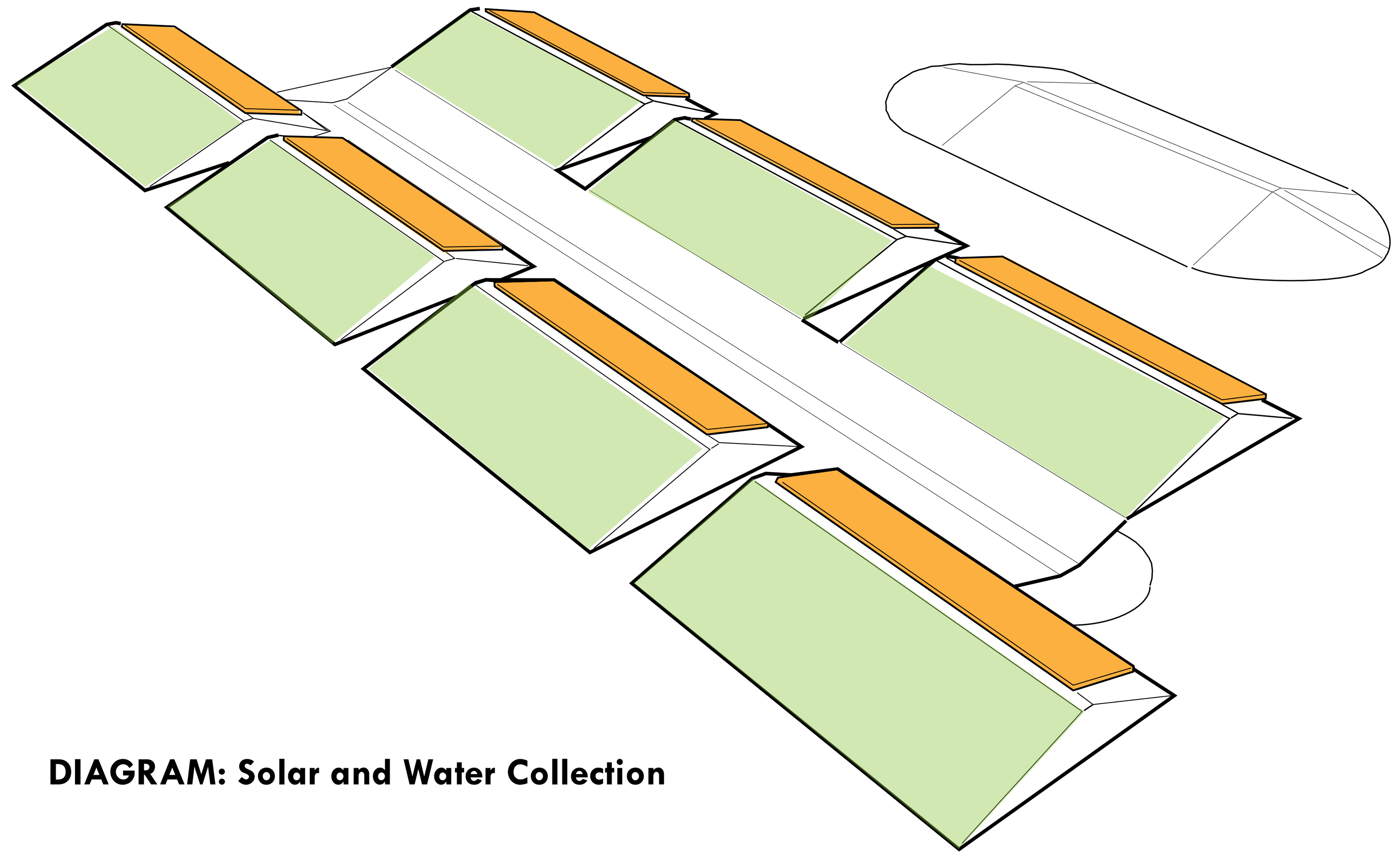


DIAGRAM: Solar and Water Collection

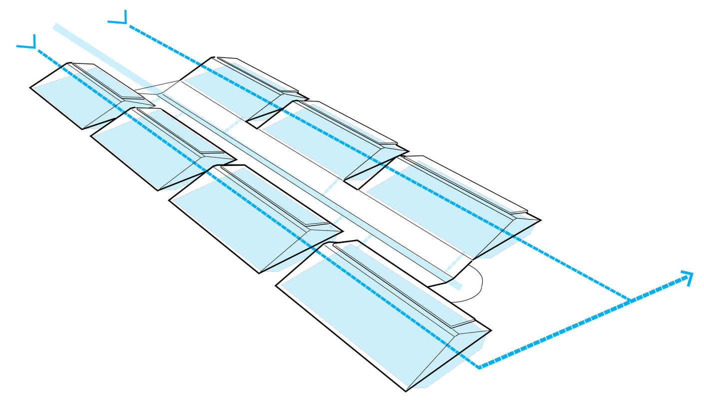


DIAGRAM: Water Collection with Tanks

Underground piping from stormwater channel to capture overflow water and routed to mounds for collection in basins

Captured overflow water to pumphouse with solar-powered pump and aerator for Village use as potable water

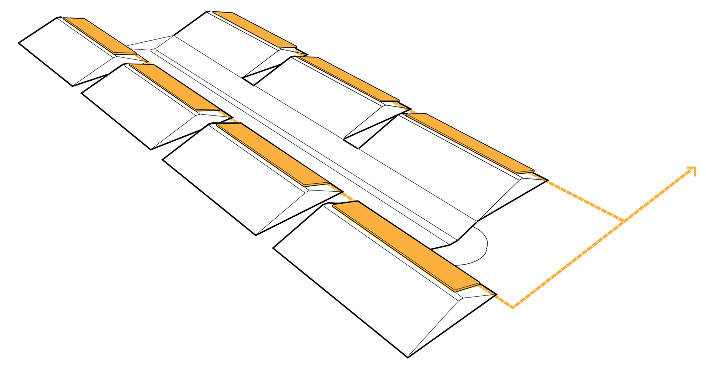


DIAGRAM: Solar Collection

Photovoltaic (PV) panels on north side of architectural berm mounted in steel support

Undergrade conduit is routed from solar array to Support Building for storage.

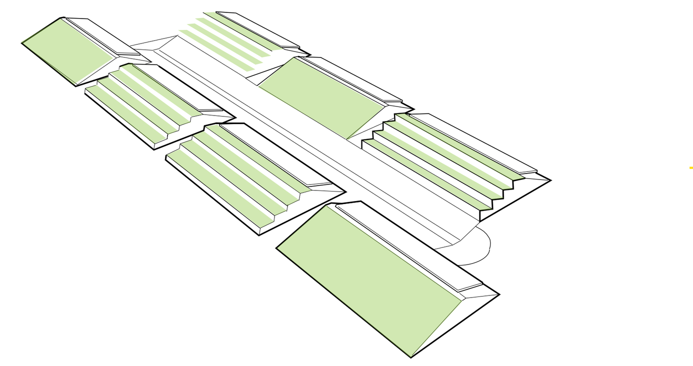
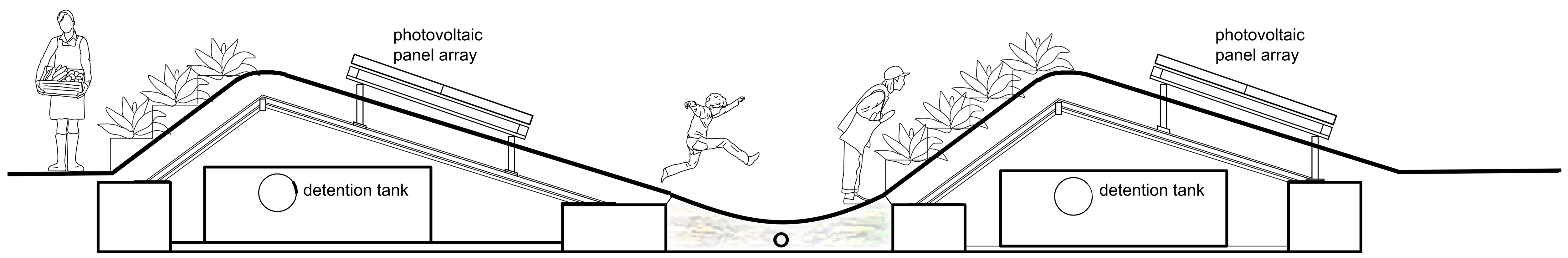


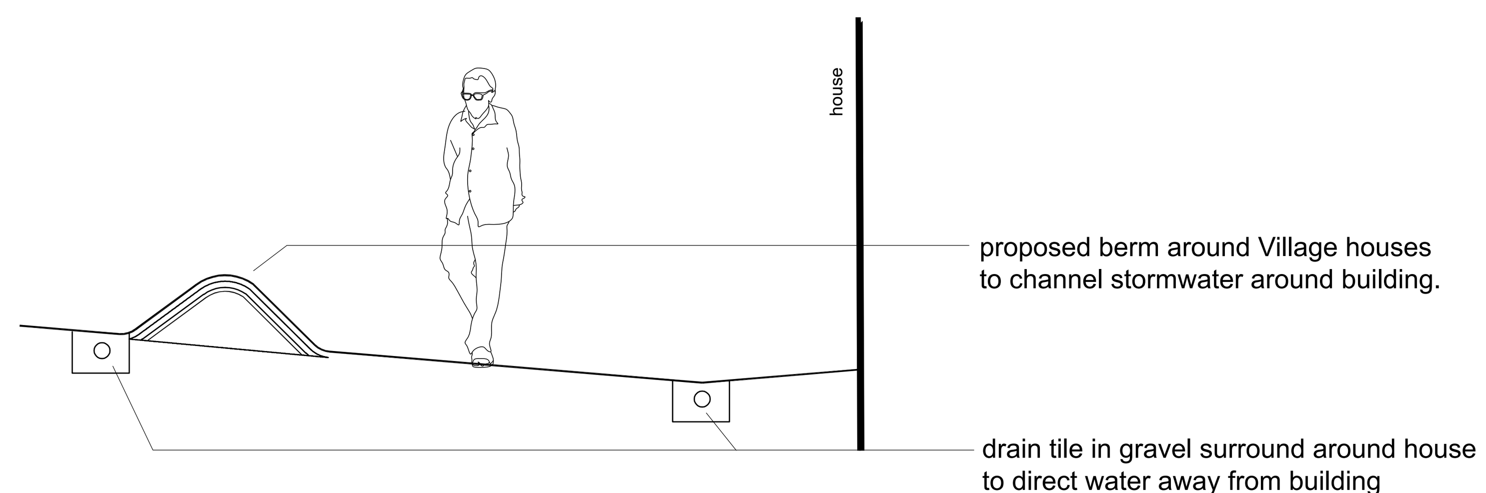
DIAGRAM: Agricultural Gardens

Terraced or sloped gardens on south side of architectural berm.

The sloped landscape surface may be considered for other activities such as leisure and recreation.



SECTION through architectural berms



SECTION through berm at Village Building