

Greywater Plumbing Systems: separate plumbing lines for "black" (toilet) and "grey" (shower, sink, lavatory, laundry) lines create reduced load on existing sewer systems and save water for use in irrigation. Greywater would be directed towards plantings to passively irrigate landscaping, rather than discharge to the reservoir that serves the main irrigation system.

Retention pond at bottom of both parcels to collect surface runoff and roof drainage for irrigation; solar pumps to direct this water to large underground concrete cisterns above both parcels for irrigation. This pond would be sized to cover as much of the summer irrigation demand as possible, once exactly determined. Pond size would be optimized to minimize standing water and alleviate vector issues (i.e. mosquitoes).

Passive Solar: buildings are situated to make the most of opportunities for passive heating and cooling; south end openings and overhangs are configured to be shaded in the hot summer months, while allowing the sun in for daytime heating in the winter months when the sun is lower in the sky.

Natural Ventilation: buildings have operable fenestration (windows or sliding glass doors) at both ends, allowing natural (i.e. inexpensive and green) cooling.

Electric Cooking and Heating: by avoiding installation of gas lines, reducing demand through passive solar solar thermal, and generating electricity through photovoltaics, the project avoids the necessity of environmentally undesirable natural gas use.

Audubon Society Visitor Center and Birdwatching Shelter: in lieu of a market, as specified in the program brief, we believe this would be a more appropriate ancillary function, given this site. Such a building, ideally located near the wetland on land owned by the Marin Audubon Society, would do the following:

- encourage seniors to get out of their houses, walking and stimulating their health
- allow an opportunity to educate area citizens of all ages on the natural beauty and complex wetlands ecosystem of the Petaluma River
- generate income from sales of books, cards, and edible products generated in the project's gardens
- encourage interaction between inhabitants of new dwellings and existing neighborhood residents

Construction: The project proposes to use conventional wood frame construction and simple, readily available and inexpensive materials as follows:

Concrete slabs-on-grade as finish flooring, with (solar powered) radiant heating coils
 2x8 wood frame walls and 14" TJI joists of FSC-certified engineered lumber (sized for green roof)
 "Hardie Board" cement fiber board siding as a durable, low maintenance, cost-effective cladding
 5/8" gypsum wall board for interior walls
 Double glazed, thermally broken clear anodized aluminum windows and sliding glass doors
 High end appliances, budget allowing, for durability and energy efficiency
 Photovoltaic panels and green roofs as outlined above

Unit Breakdown: The project includes 19 main dwelling units ("small, medium, and large") and 6 small accessory units, for 26 units total, broken down as follows:

Size	Type	Square Footage	# at Bahia	# at Misty
Large	2 BR, 2 BA	1293 SF	6	2
Medium	1 BR, 1-1/2 BA	1041 SF	0	2
Small	Studio	621 SF	7	2
Accessory	Studio	621 SF	5	2
TOTAL		21,711	18	8

Budget: Based on the total building square footage above, and a \$300 per square foot building cost, we anticipate the total building hard costs at approximately \$6,500,000



- 1 Permeable Asphalt** (as currently being used for new roads in Seattle, Portland, and San Francisco) for the new extension of Misty Road; a strategy to be used where feasible (pending detailed soils analysis), this reduces surface runoff and encourages the recharge of the existing underground aquifer.
- 2 Vegetated Bioswale** to collect surface runoff (including roof drainage) and direct it to retention pond. The bioswale also filters stormwater and reduces pollutants.
- 3 Carports** in lieu of enclosed garages reduce building footprint and encourage alternative, outdoor uses of space normally dedicated solely to automobile storage.
- 4 Photovoltaic Panels and Green Roofs** at all rooftops. PV panels create energy for use in buildings and will be sized to zero out each unit's anticipated electrical usage. Through net metering, excess energy (when available) is fed back into the existing energy grid. Green roofs reduce heat island effect and reduce surface runoff.
- 5 Gabion Retaining Walls**, which sponsor multiple design elements:
 - new buildings which "grow out of" the gabion walls, integrating the building with the site
 - gradual pathways of maximum 1:20 slope between units, which mitigate the site's steep slopes, enabling and encouraging seniors to walk to visit neighbors and the nearby wetlands and creating an area for social interaction
 - "mini-swales" to channel surface runoff to the more substantial street-side bioswales
 - concentration of water runoff to planting strips that also act as buffers between units
- 6 Edible Gardens:** Plantings are to include grapevines, figs, olives, guava hedges, lemons, oranges, and limes. All plantings requiring irrigation will be watered passively with greywater and harvested rainwater.

LEED Accreditation: project has been analyzed on a credit-by-credit basis for LEED certification. It is projected to qualify for Platinum certification per United States Green Building Council Rating System "NC 2.2" for New Construction.

Connective Landscape

CULTIVATING COMMUNITY IN NOVATO'S BAHIA NEIGHBORHOOD





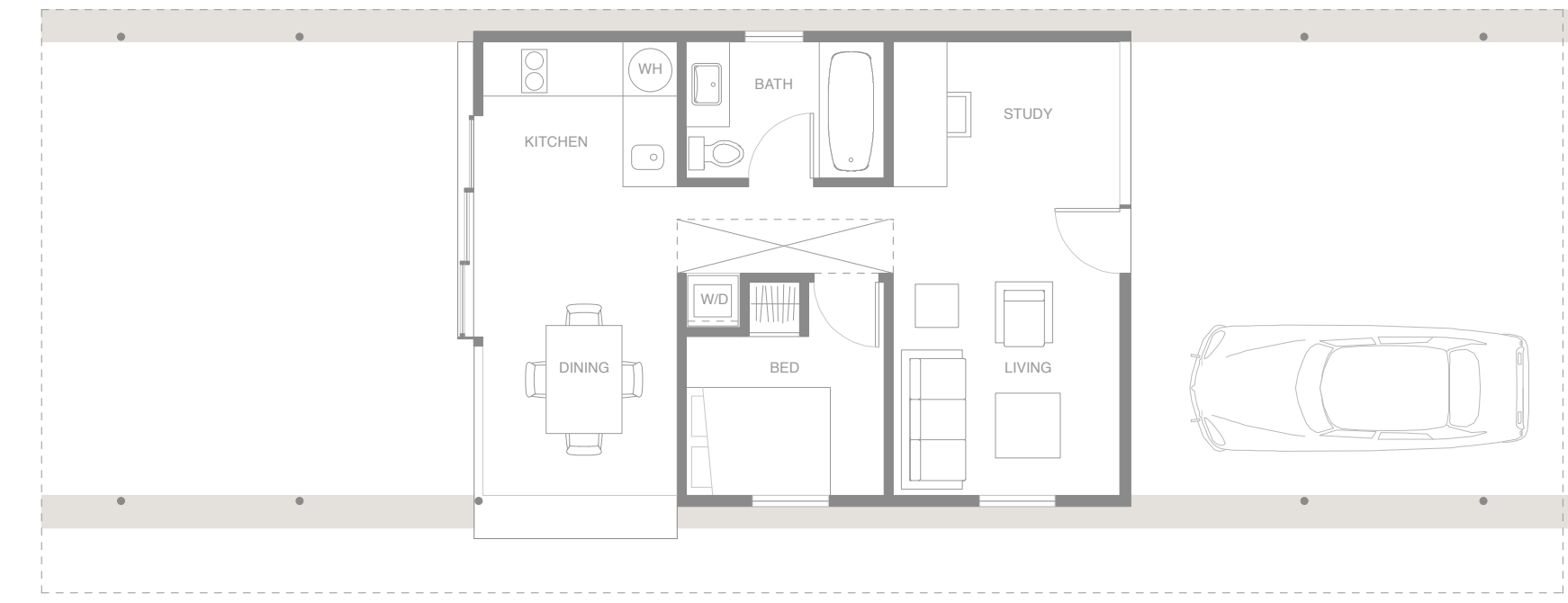
VIEW FROM LANDSCAPE TO HOUSING



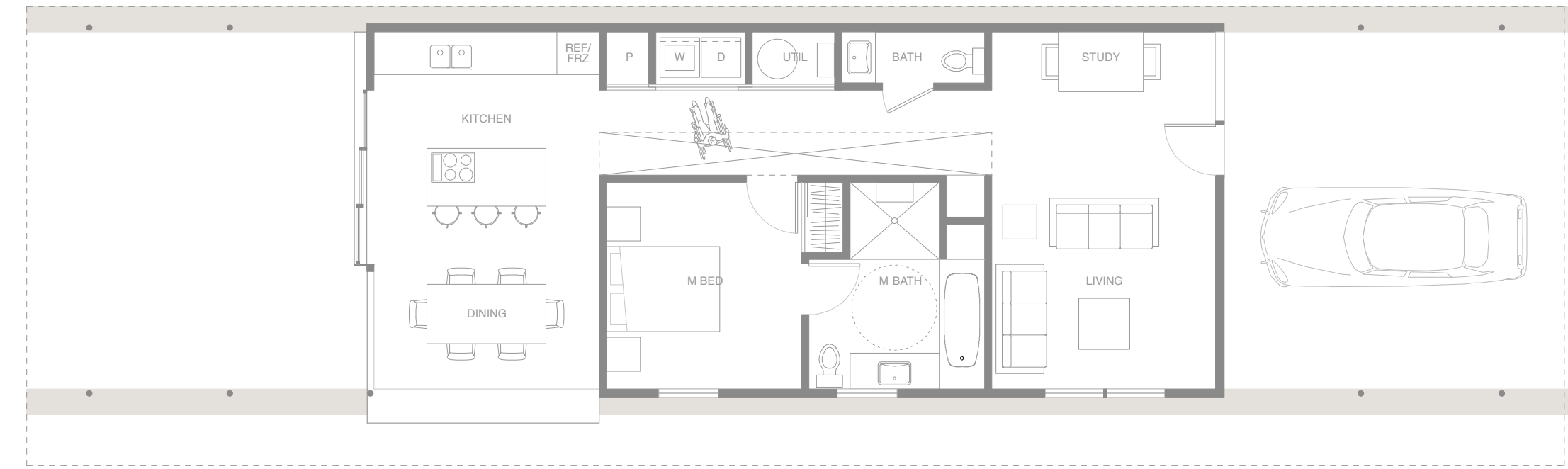
VIEW FROM STREET TO HOUSING



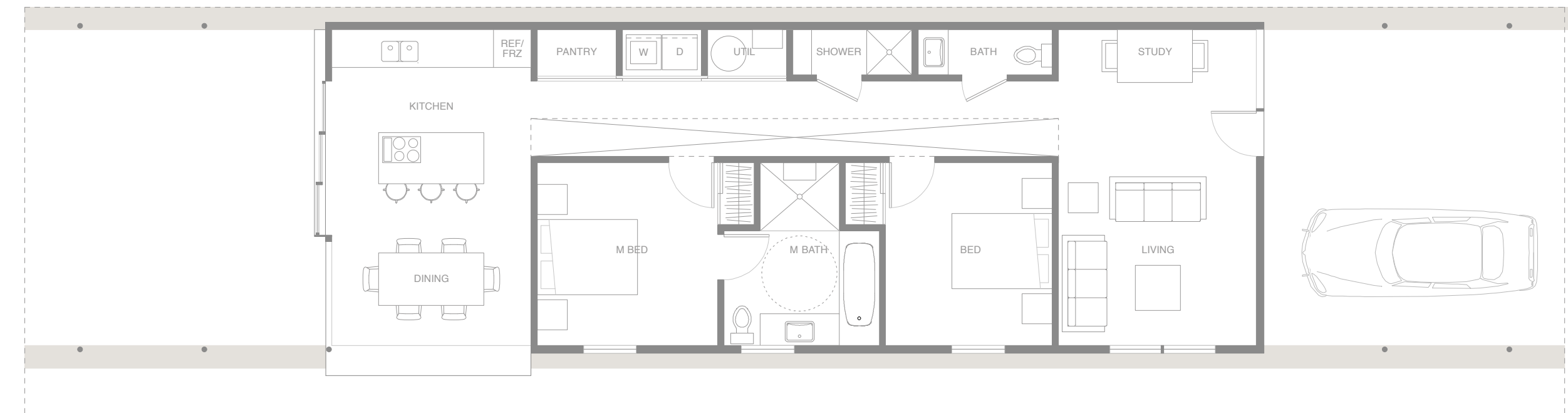
VIEW FROM KITCHEN TO PETALUMA RIVER ESTUARY



STUDIO
21'-0" X 29'-7" INTERIOR
621 SF

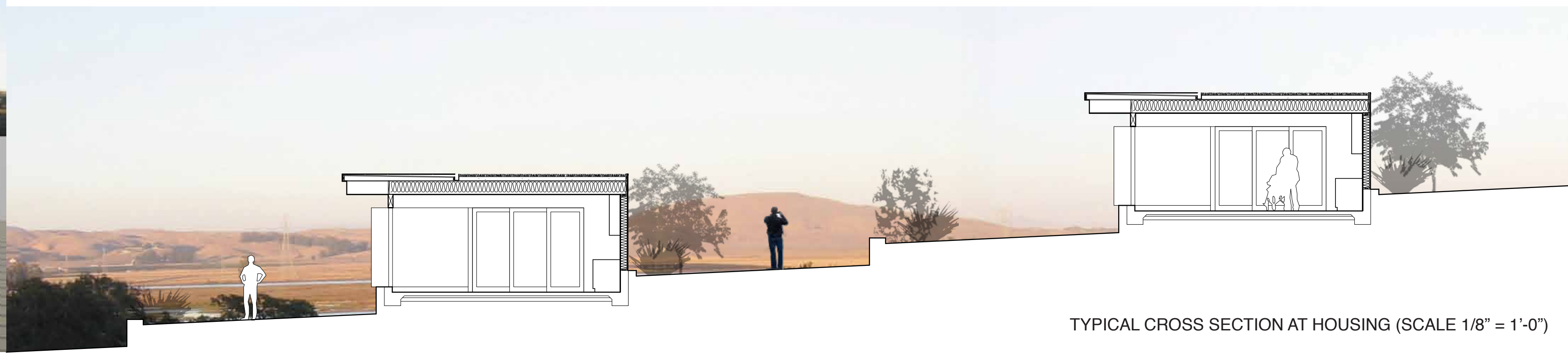


1 BR, 1-1/2 BATH
21'-0" X 49'-7" INTERIOR
1041 SF

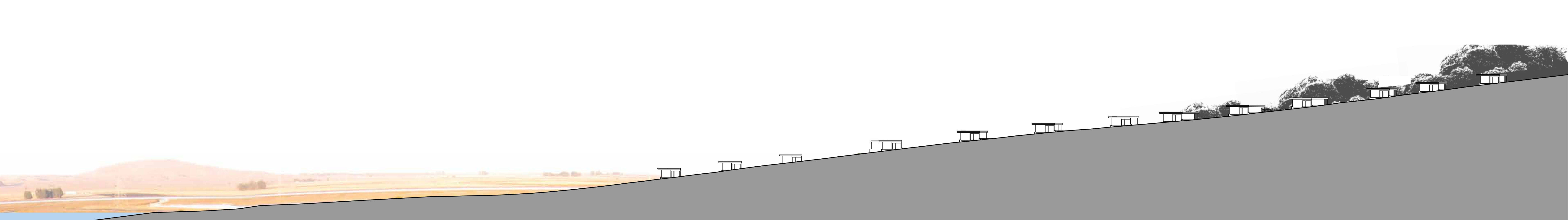


2 BR, 2 BATH
21'-0" X 61'-7" INTERIOR
1293 SF

TYPICAL HOUSING UNIT PLANS (SCALE 1/8" = 1'-0")



TYPICAL CROSS SECTION AT HOUSING (SCALE 1/8" = 1'-0")



SITE SECTION THROUGH BAHIA DRIVE (SCALE 1"=50'-0")