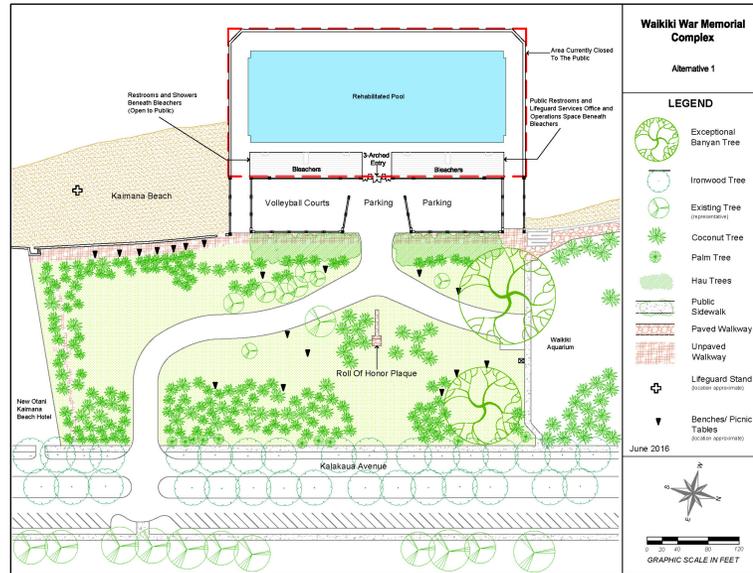
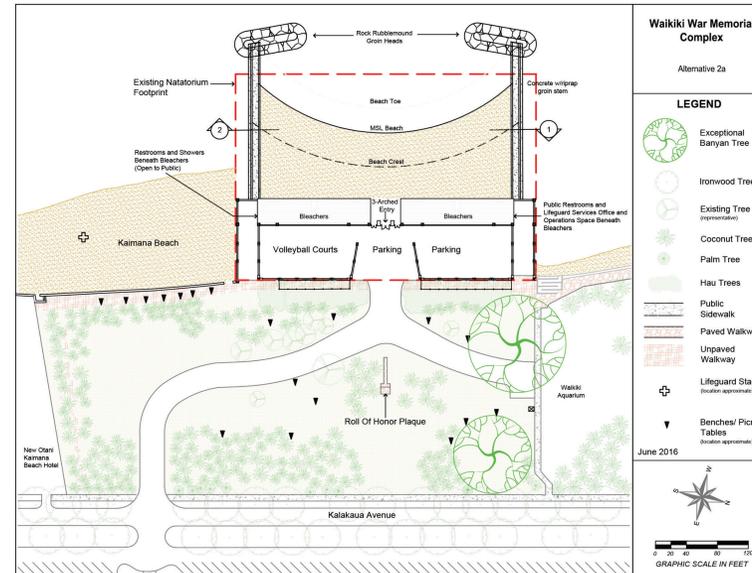


## ALTERNATIVE 1: Rehabilitation of the Natatorium, including the pool structure



- Reconstruction of the pool including pool deck, supporting piles, and portions of outer seawalls.
- Repair or reconstruction of the bleacher structure.

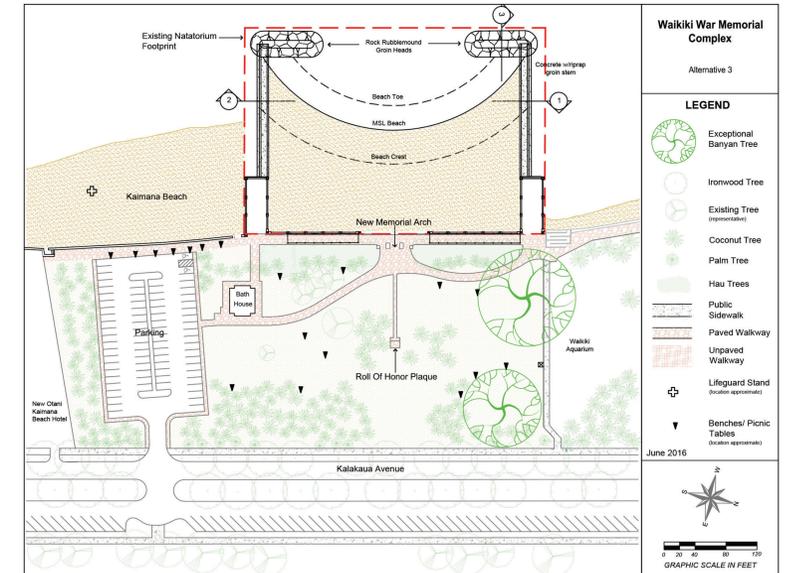
## ALTERNATIVE 2: Retention of Bleacher Structure with No Landside Modifications



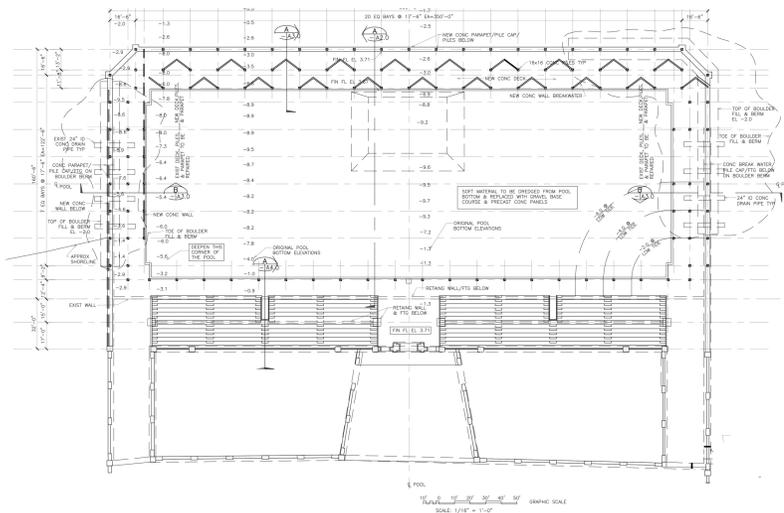
### 2a: Two equal-length groins extending outside the existing Natatorium footprint.

- L-head groins stabilize sand fill.
- Two pile-supported concrete with riprap groin stems and rubblemound groin heads constructed on the reef flat immediately seaward of the Natatorium's makai seawall.
- Extension of the groins outside the existing Natatorium footprint allows for a small stable beach.
- Approximately 13,000 cubic yards of sand fill; 34,000 square feet (1.03 acres) of beach area above msl.
- No land side changes.

## ALTERNATIVE 3: Beach Creation with Landside Modifications

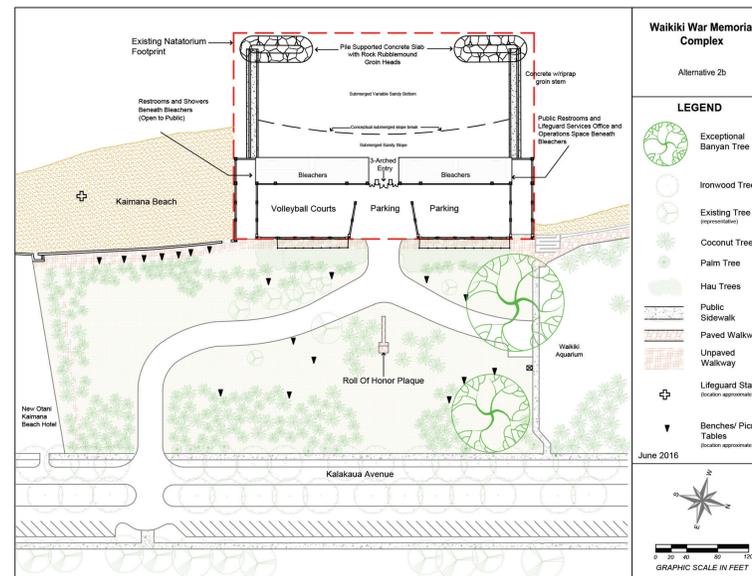


- Two equal-length groins within the existing Natatorium footprint
- L-head groins stabilize sand fill.
- Two pile-supported concrete with riprap groin stems and pile-supported groin heads.
- Due to soft sediments in the area, rubblemound groin heads would be constructed on pile-supported concrete platforms.
- In order to position the groins within the Natatorium footprint, groin heads have to extend into the swimming area.
- Approximately 10,500 cubic yards of sand fill; 50,000 square feet (1.1 acres) of beach area above msl.
- Replica memorial arch located inland from the existing Natatorium entrance, in alignment with the hau tree arbor.
- New bath house and consolidated parking lot.



### Open system pool option for rehabilitated Natatorium

- Replacement of the swim basin's makai seawall with individual chevron units topped with decking.
- Chevrons serve as a breakwater to prevent wave action against the bleacher, yet allows for water to circulate in the swim basin.
- Excess water pushed back into the ocean via openings on the Ewa and Diamond Head walls.
- Bottom would feature a course gravel base atop precast concrete panels.



### 2b: Two equal-length groins within the existing Natatorium footprint.

- Two pile-supported concrete with riprap groin stems and pile-supported groin heads.
- Due to soft sediments in the area, rubblemound groin heads would be constructed on pile-supported concrete platforms.
- In order to position the groins within the Natatorium footprint, groin heads have to extend into the swimming area.
- Waves would impact more than 175 feet of the bleacher face, producing wave reflection, scouring, flattening of the foreshore slope and a likely chronic erosion problem.
- Retaining the bleachers with this groin configuration is not conducive to producing or maintaining a stable beach.
- No beach creation - initial sand fill along the bleacher face would likely migrate offshore, resulting in a submerged sandy area with no dry beach.
- No land side changes.