

EXHIBIT "E-6"

DRAINAGE CONCEPT
KIUC – Lawai Solar Farm

Client: AES Distributed Energy
Tax Map Key: (4) 2-6-03: por. 01
Date: August 2017

This work was prepared by
me or under my supervision
Expires: April 30, 2018

ESAKI SURVEYING & MAPPING, INC.
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The proposed project involves the construction of a solar farm. This includes, but are not limited to, solar panels & associated framing, equipment pads, substation site, unpaved access roads, and fence lines (see preliminary site layout, sheet 2).

The proposed project area is located in Lawai on a portion of Tax Map Key (4) 2-6-03: 01. It is to the southeast of Lawai Highland Estates, to the southwest of Koloa Road, and near the following reservoirs: Aepe, Aepealua, and Aepeokolu.

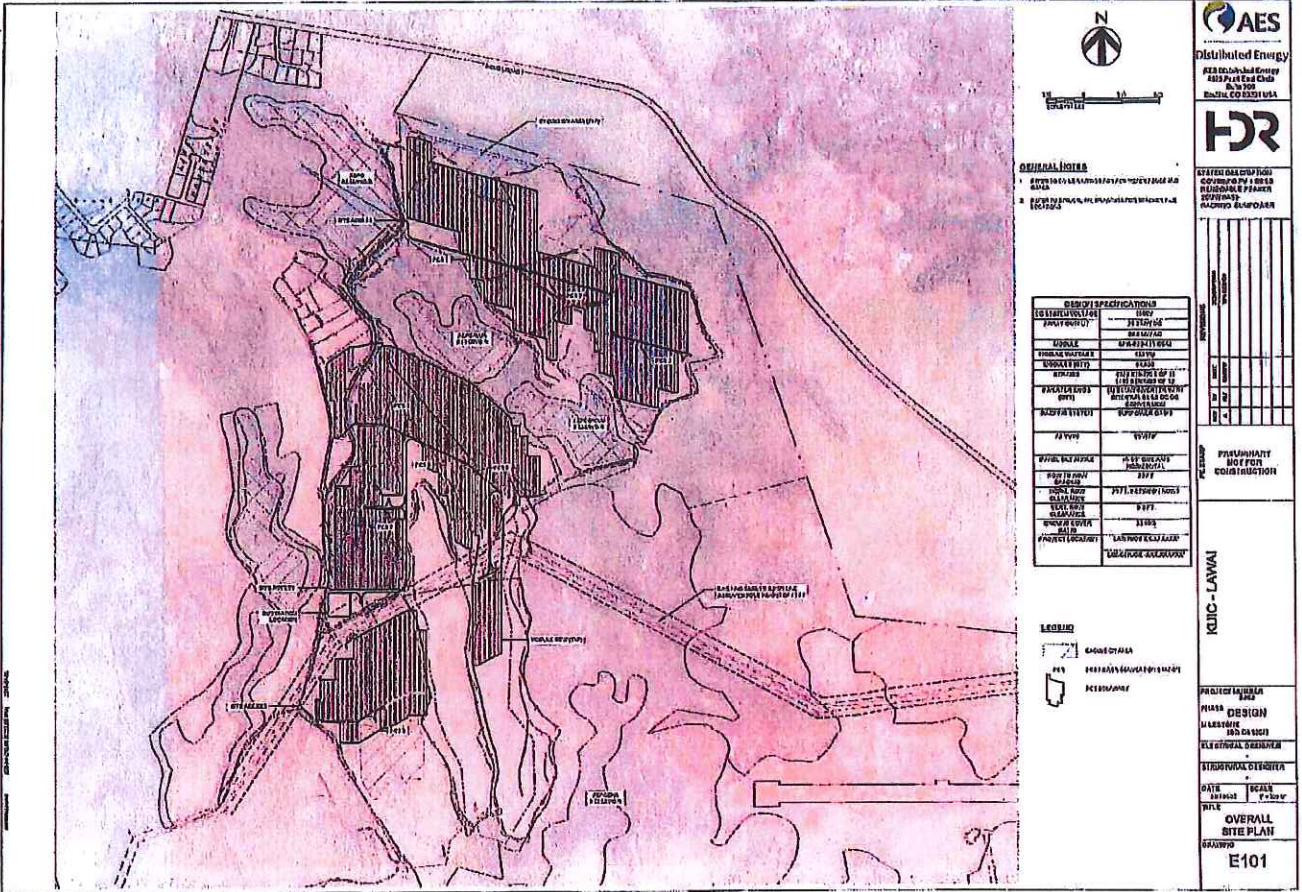
All solar panels shall be mounted on an automated mechanism that will rotate the panels and track the sun across the sky. Similar installations show grass growing under and around panels (see photos, sheets 3-6). This project shall use sheep on the solar farm for vegetation control. The drainage analysis shall use Grass (Medium Height) as ground cover for the Pre-developed Condition and Grass (Short Height) as ground cover for the Developed Condition. This change in ground cover will result in an increase in runoff. County of Kauai Storm Water Runoff System Manual states any development over 2 acres shall not increase runoff leaving the site. Typical methods used to reduce site runoff are as follows:


1. Detention Basins – These ponds collect site runoff and release the storm water over an extended period of time. See sheet 7 for a typical detention basin layout. These could be built in existing valleys on the project site.
2. Retention Ponds – These ponds collect and hold site runoff. Storm water leaves the ponds by evaporation and infiltration. See sheet 8 for a typical retention pond layout. These could be installed between rows of panels.
3. Increasing Time of Concentration – Runoff is calculated using a number of factors (soil type, ground cover, time of concentration, total area, and rainfall intensity). Soil type, total area, and rainfall intensity are all constant for a specific project area. Ground cover is determined by the proposed development. Time of concentration is the only factor left that could affect the runoff calculation. In this case, time of concentration is the time it takes runoff to travel along the hydraulically longest path within the project area. Calculated runoff is inversely affected by time of concentration, so time of concentration must be increased in order to achieve a decrease in runoff. Time of concentration could be increased by using swales/ditches to increase the travel path.

For any method used, a plan shall be designed by an Engineer and approved by County of Kauai Public Works.


Design Criteria/Considerations

1. Grading shall be kept to a minimum. The existing contours shall be maintained as much as practical.
2. Runoff leaving the project site shall be kept at or below pre-developed levels.
3. If detention basins are used, they shall be located at existing low points throughout the project. Cutoff ditches shall be designed following the existing ground contours and used to direct runoff to the detention basins.
4. The maximum depth of the detention basins shall be 6 feet.
5. Detention basins shall be subject to a maintenance plan. Silt buildup shall be checked annually and removed as necessary. Vegetation in and around the basin shall be kept at a minimum and maintained on a regular basis.






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FEET

GENERAL NOTES

1. VERIFY ALL DIMENSIONS AND LOCATIONS OF ALL UTILITIES.
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DESIGN SPECIFICATIONS	
DESIGN VOLTAGE	120V
DESIGN FREQUENCY	60 HZ
DESIGN CURRENT	15 AMP
DESIGN WIRE SIZE	14 AWG
DESIGN WIRE TYPE	THHN
DESIGN WIRE COLOR	BLACK
DESIGN WIRE LENGTH	100 FT
DESIGN WIRE WEIGHT	1.5 LBS
DESIGN WIRE AREA	0.05 SQ IN
DESIGN WIRE PERMITS	1000
DESIGN WIRE TYPE	THHN
DESIGN WIRE COLOR	BLACK
DESIGN WIRE LENGTH	100 FT
DESIGN WIRE WEIGHT	1.5 LBS
DESIGN WIRE AREA	0.05 SQ IN
DESIGN WIRE PERMITS	1000

LEGEND

- GROUND
- PROPOSED STRUCTURE
- EXISTING STRUCTURE

PROJECT INFORMATION

PROJECT NAME: KULIYOUKOU

PROJECT LOCATION: KULIYOUKOU, HAWAII

PROJECT NUMBER: 1000

DATE: 10/10/10

SCALE: 1" = 20' 0"

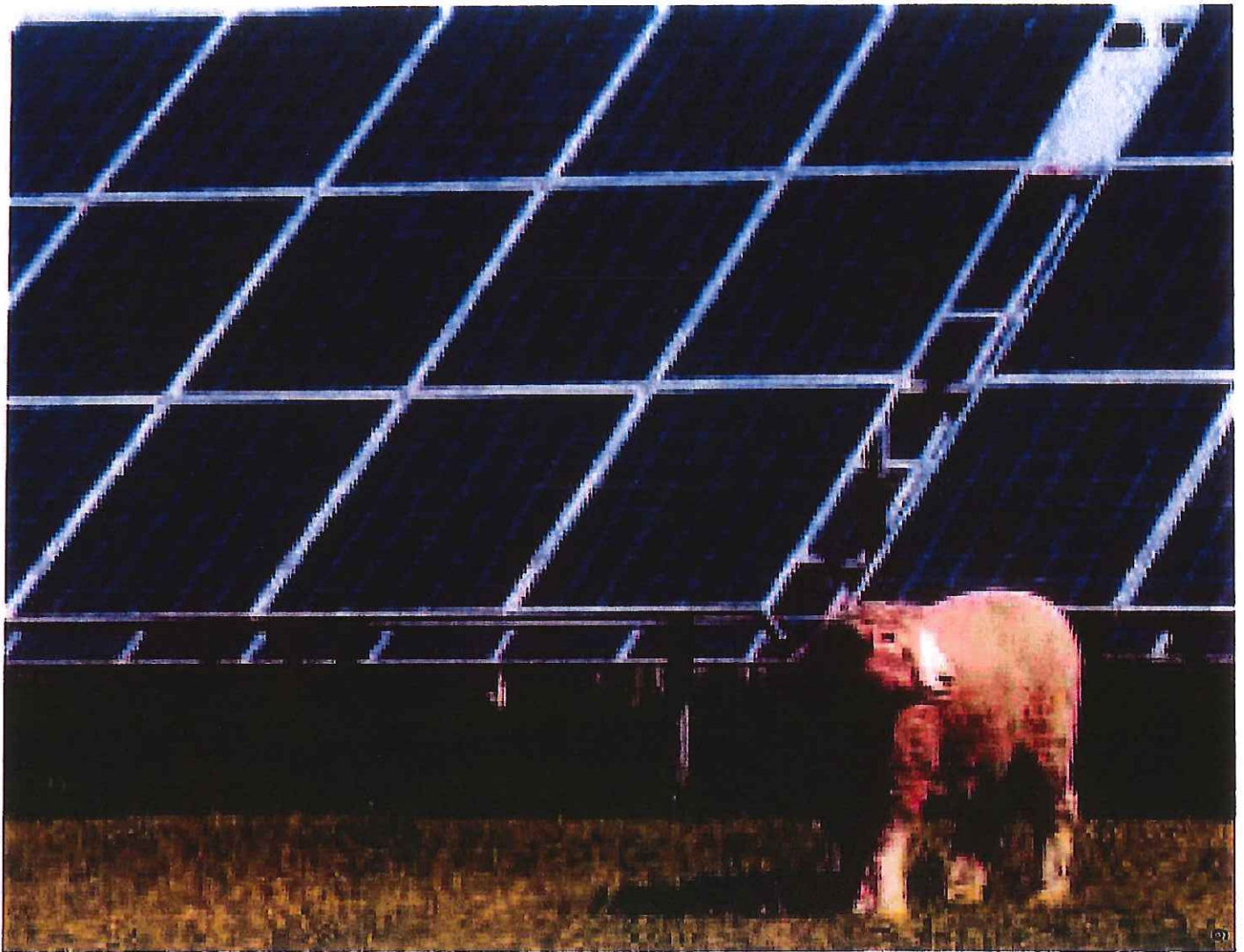
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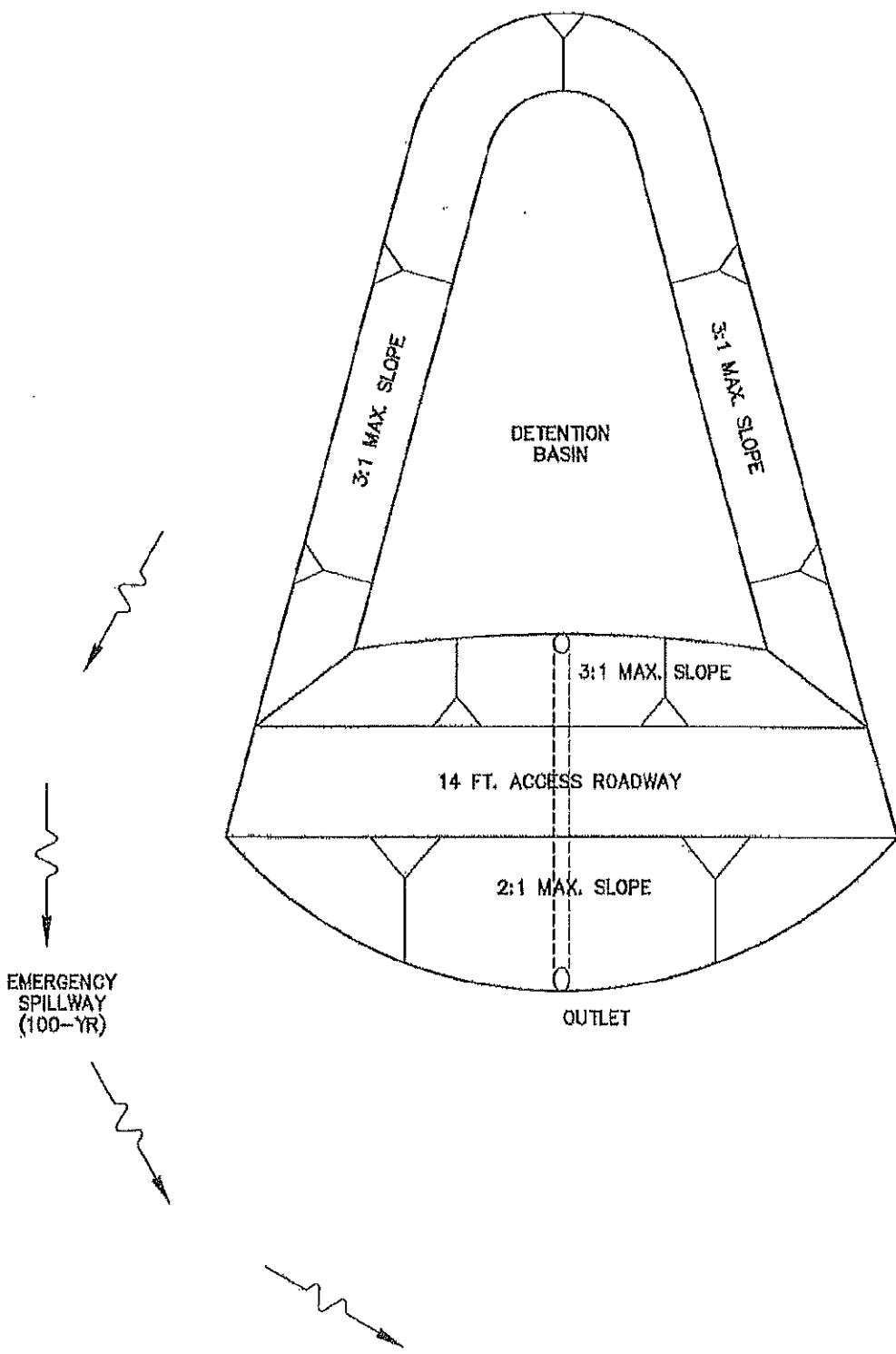
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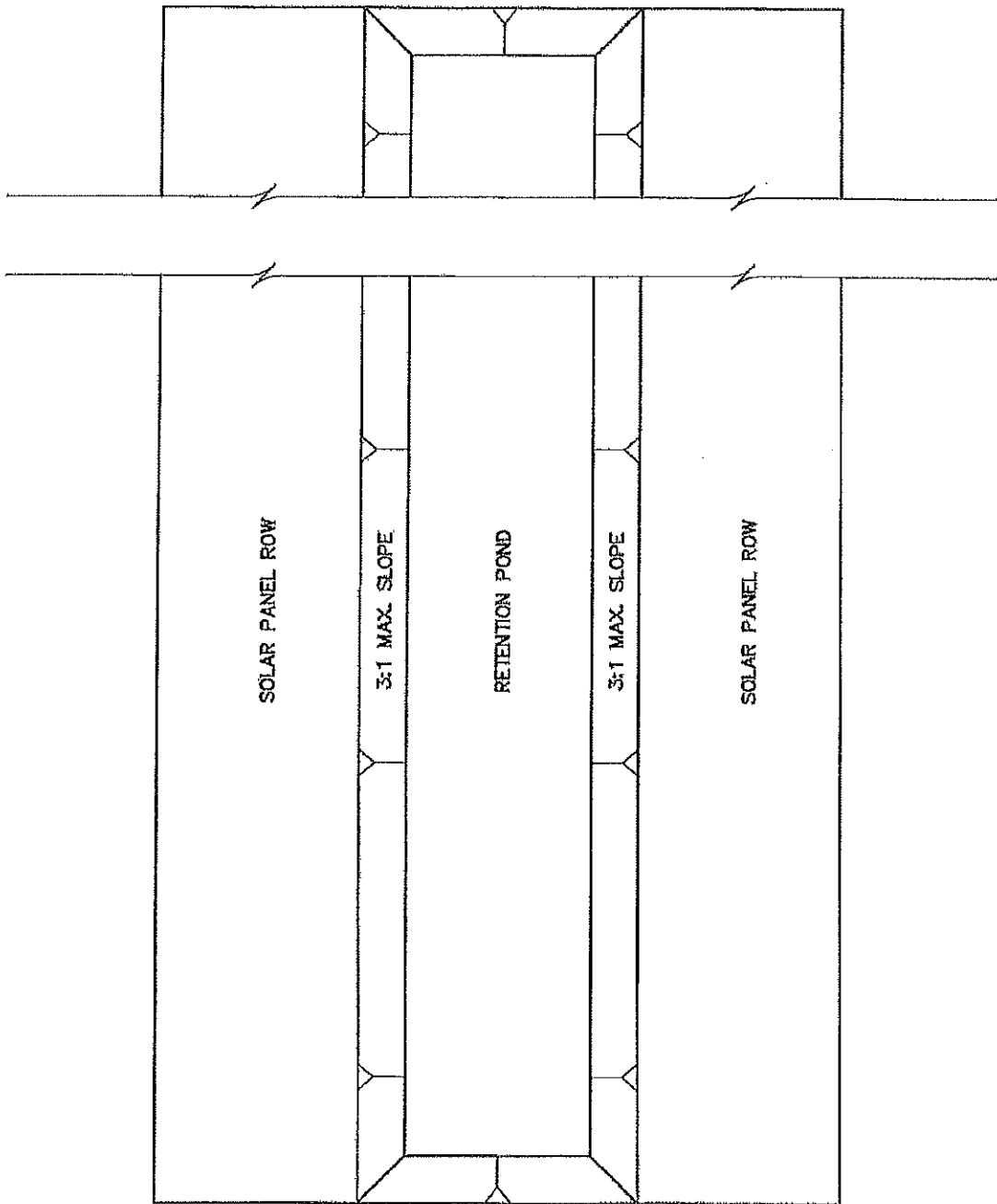






TYPICAL DETENTION BASIN

NOT TO SCALE



TYPICAL RETENTION POND

NOT TO SCALE