



April 5, 2021

Department of Public Works Engineering Division
101 Pauahi Street, Suite 7
Hilo, HI 96720

Ms. Robyn Matsumoto:

Re: 988.20 kW Solar Ground Mount System at South Point
Stormwater Runoff Due to Development
TMK: 9-3-004: 040

The proposed project aims to install a new chain link fence (1786-foot perimeter) to enclose approximately 3.77-acres of land, on which 2,196 new solar panels are proposed to be installed on ground mounted supports. Each of the 6-inch diameter steel support posts will be able to support 2 solar panels each (1,098 support posts). In addition the project will create concrete pads for 10-inverters (1.82 sq ft/ inverter) and a transformer pad (82 sq ft) to support the electrical generation. The project will utilize an existing unpaved access road to access the area.

All of the new proposed improvements above will create 500-sq ft of new impervious surfaces.

The developer anticipates the support posts will be driven into the ground, therefore minimizing both the amount of new impervious surfaces created and the amount of ground disturbance needed for construction. The development will therefore preserve the existing grade, soil percolation and runoff properties of the site.

A comparison of calculated runoff quantities in the existing and developed conditions, was completed to determine how much additional runoff is produced by the proposed development.

The study area used in the calculations consist of 36.50 acres and included the both the northern and southern boundaries nearest to the proposed development. Contouring was obtained from the 2017 USGS Kahuku Ranch, quadrangle map. Slopes of approximately 5.5% run from north to south in the study area.

The County's Storm Drainage Standards were used. The 10-year storm recurrence interval, 1-hour intensity (3in/hr based on location) and the Rational Method were used. The weighted runoff coefficient for unpaved areas was calculated to be 0.21. The development was found to increase the runoff by 0.03 cfs.

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It is our opinion that the increase in runoff is negligible. The very small 0.03 cfs increase in storm water runoff is offset by the fact that the overland flow length remains approximately 2,088-feet before exiting property's southern boundary. The long overland flow length provides ample time and area for the increased runoff to infiltrate naturally into the ground.

Neighboring properties down slope of the proposed system will not be affected by the negligible calculated increase in runoff and no new drainage structures are recommended at this time. Should any additional development be considered that adds additional impervious areas, or changes the properties of the ground, a new and separate drainage report, calculation and/or study should be conducted and evaluated to determine the potential impacts to neighboring parcels and the need for drainage mitigation improvements.

The following are attached to this letter in support of findings:

- Site Map with TMK boundaries and USGS contours
- Pre-Development Drain Data
- Post-Development Drain Data
- Summary of Drain Data
- G100 Site Plan

Sincerely Yours,

Imata & Associates, Inc.



David Imata

Date