



William Bow

Civil Engineer

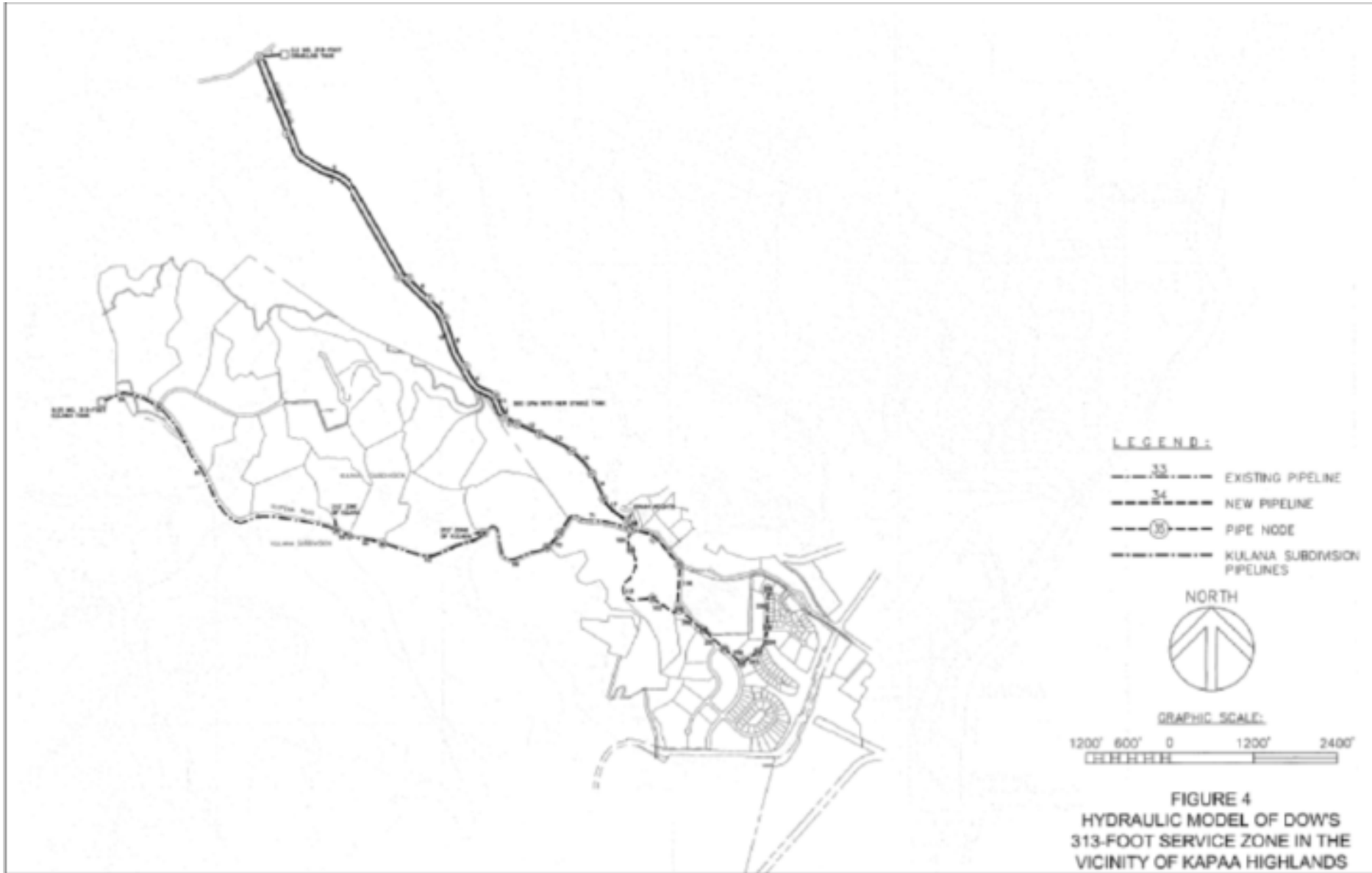
Introduction to William Bow

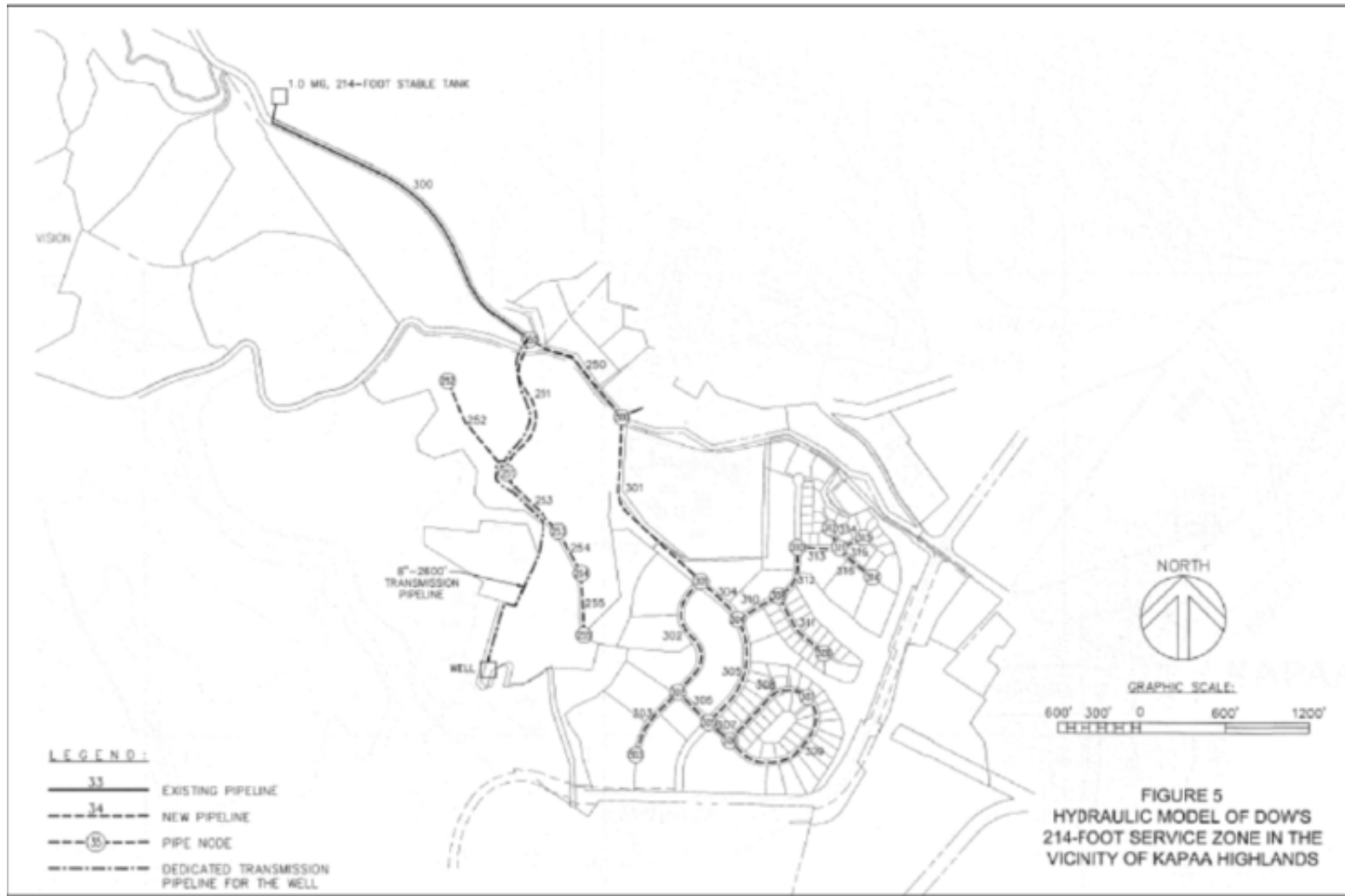
- ▶ CEO and Principal Engineer, Bow Engineering & Development, Inc.
- ▶ 44 years of civil engineering experience with planning, design, and construction administration
- ▶ Bow has extensive knowledge in hydraulic design, hydrologic analysis, utility system design, subdivision site development, trenchless construction techniques, highway and roadway planning, master planning, and drainage/water/sewer system design

Potable Water Demand

- ▶ Kauai Average Daily Demand: single family 500 gal/unit multi-family 350 gal/unit
- ▶ Fire Protection: 2000 GPM 2 HR Duration
- ▶ HoKua Place is expected to use an average of approximately 0.4 MGD of potable water at full build-out.
- ▶ Proposed well to service Hokuia Place
- ▶ 2 water reservoirs at 313 foot and 214 foot elevation, 700,000 Gal total capacity required for HoKua Place

Service Zone	Ave Demand GPD	Max Demand GPD
313-Foot Zone	121,476	182,214
214-Foot Zone	285,446	428,169
Project Total	406,922	610,383





Wastewater Disposal

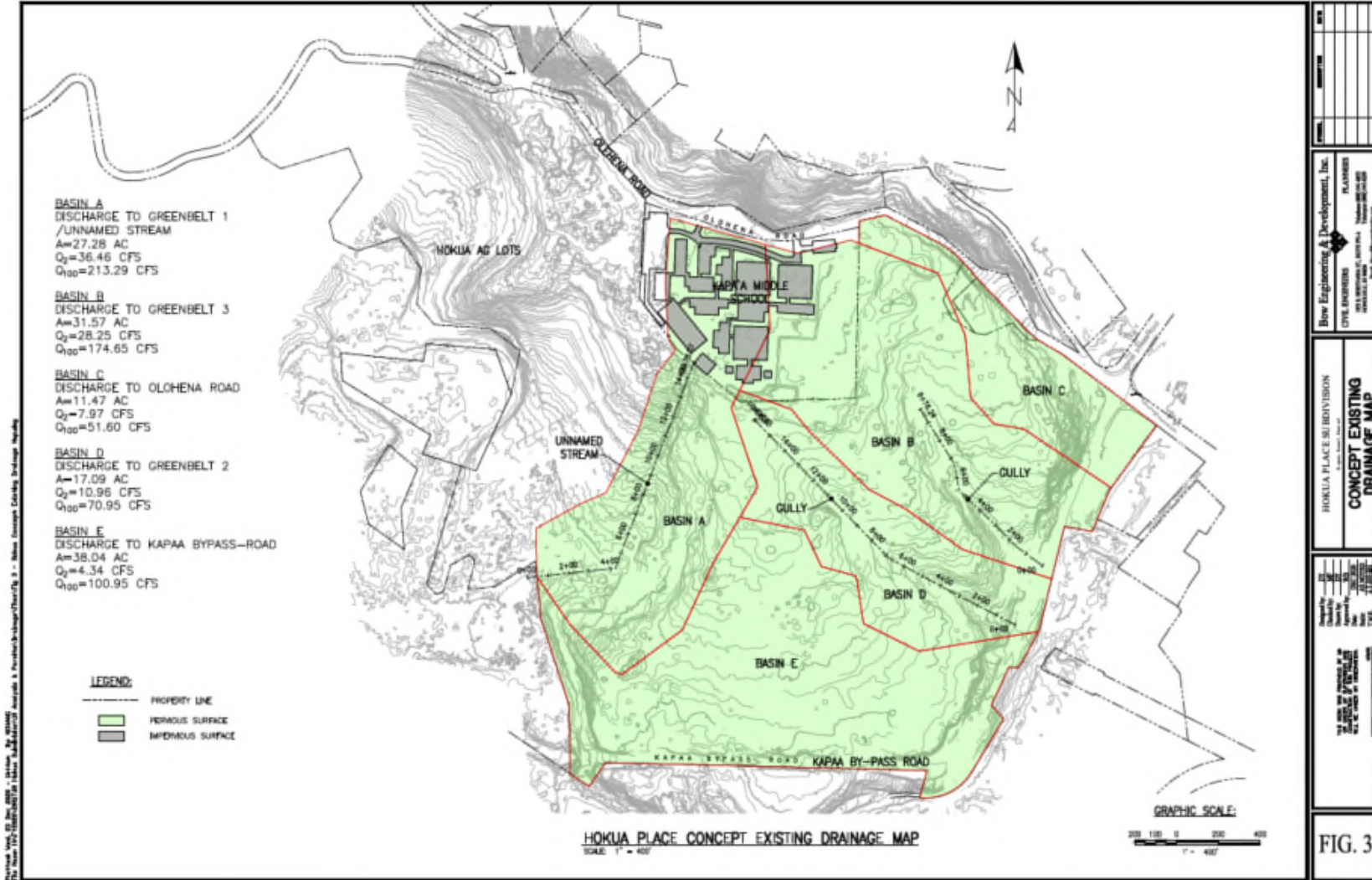
- ▶ Average daily flow rate of wastewater 0.21 MGD
- ▶ Maximum daily flow 1.06 MGD, peak daily flow 1.31 MGD at full build out
- ▶ HoKua Place will build 18-inch sewer line to connect to County wastewater system

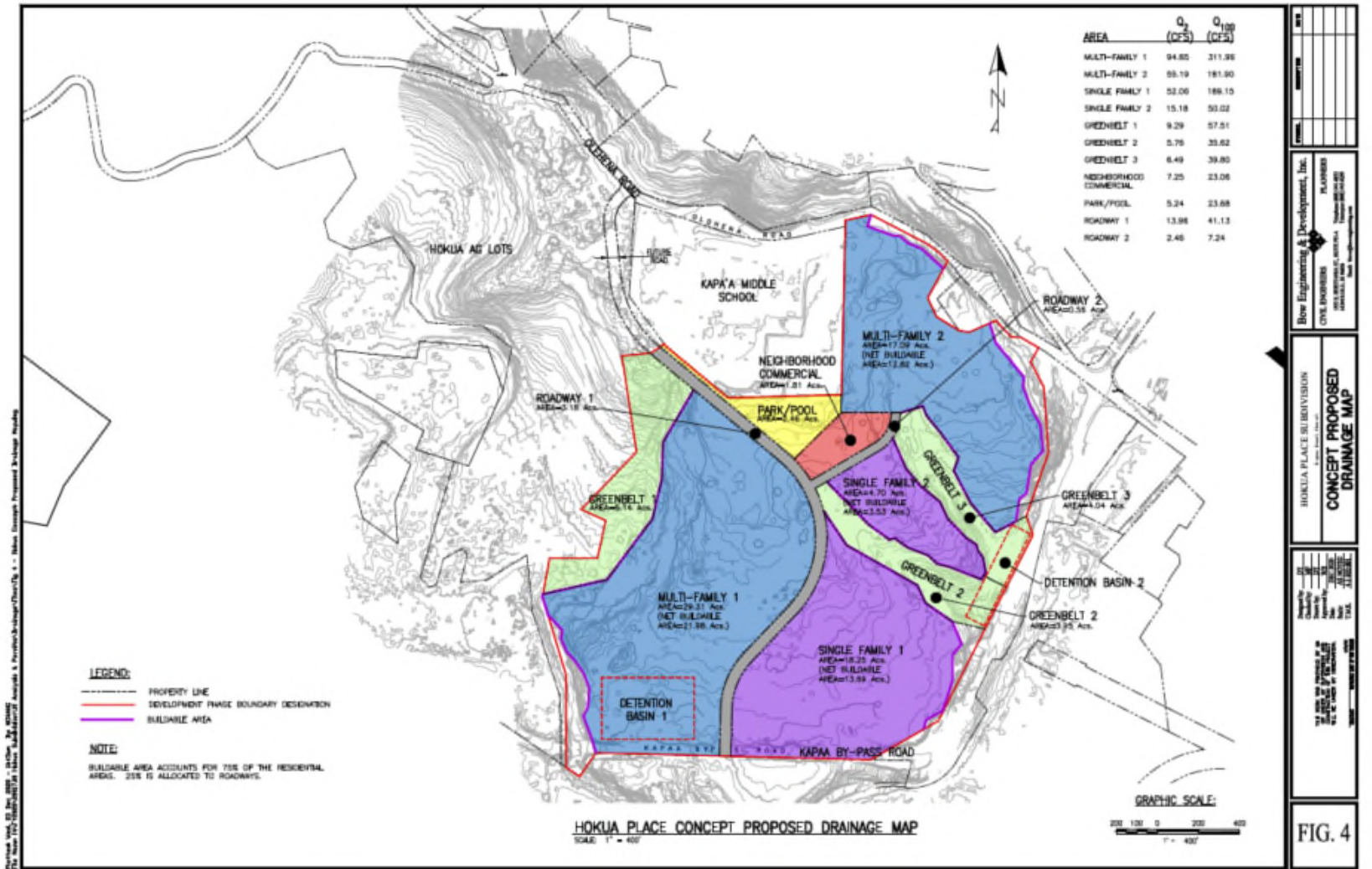
Kauai County Wastewater Treatment Facilities

- ▶ 21-inch main sewer line on Kukui Street maximum capacity 3.23 MGD, existing use 1.82 MGD
- ▶ Per correspondence with DPW Wastewater Management Division (1/28/2021), prior to the COVID-19 pandemic, the Wailua Wastewater Treatment Plant was treating approximately 0.6 MGD daily average flow. The plant's current treatment capacity is 1.0 MGD average daily flow.
- ▶ To accept the full flow of the HoKua development, the Wailua WWTP will need to undergo CIP projects to increase its design capacity. HG Kauai will schedule construction to coincide with CIP improvements.
- ▶ HoKua Place will contribute to cost of upgrading County wastewater system to accommodate HoKua Place

Storm Water Drainage and Detention

- ▶ Kauai DPW Drainage Standards require installation of detention basins or other drainage facilities to maintain 2-year and 100-year storm flows at or below predevelopment flow rates
- ▶ The existing and proposed conditions were divided in basin areas based on their offsite discharge points. Increases in runoff were estimated at discharge points from existing to proposed condition.
- ▶ Increase in storm water runoff due to the increase in impervious surface was used to determine the sizes needed for the proposed detention basins.
- ▶ Detention Basin 1 will serve Multi-family 1, Park/Pool, and Roadway 1. Detention Basin 2 will serve Multi-Family 2, Single Family1, Single Family 2, Neighborhood Commercial, and Roadway 2.





The map was prepared by the author using data provided by the client. The client is responsible for the accuracy of the data. The author is not responsible for the accuracy of the data.

HOKUA PLACE SUBDIVISION
CONCEPT PROPOSED DRAINAGE MAP
 Prepared by: [Name]
 Checked by: [Name]
 Date: [Date]
 Scale: 1" = 400'
 Project No.: [Number]
 Drawing No.: [Number]

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FIG. 4

Detention Basin Sizing

Detention Basin Sizing					
Existing Condition		Proposed Condition		Net (cfs)	Required Basin Size
Basin	Q ₁₀₀ (cfs)	Basin	Q ₁₀₀ (cfs)		
E	100.95	Detention Basin 1	353.57	252.62	300'x450'x5' Volume = 675,000 cu ft
B, D	245.60	Detention Basin 2	501.00	255.40	100'x500'x12.5' Volume = 625,000 cu ft
Total	346.55	Total	854.57	508.02	1,300,000 cu ft

Solid Waste Management

- ▶ Each household will generate an average of 18 pounds of solid waste per day
- ▶ Kauai County is updating Integrated Solid Waste Management Plan
- ▶ HoKua Place will comply with ISWMP mandates and encourage recycling of solid waste and green waste
- ▶ County provides single-family residences with solid waste collection on a weekly basis. A refuse transfer station is located in Kapa‘a town.
- ▶ Condo associations must contract for private solid waste disposal
- ▶ Central Kaua‘i Landfill in Kekaha has capacity to accommodate HoKua Place solid waste.