

Further information:

## Edenvale Young Associates

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### Project Contact:

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### Project Description number:

EVY0292

### Project Type

Flood Risk/Consequence Assessment

Flood Forecasting

Detailed Design

Calibration & Optimisation

Marine & Coastal

Flood Map Challenges

Scour & Geomorphology

Water Framework Directive

Environmental Impact Assessment

Training

### Key Words:

Flood Risk Assessment

Hydraulic Modelling (ISIS-TUFLOW)

Water Quality Modelling (Delft3D)

Beach Sustainability

### Client and stakeholders:

Freedom Bay Development Company

## Freedom Bay, St Lucia FRA

Edenvale Young were commissioned to investigate flood risk, beach sustainability and water quality for a proposed development in St Lucia.



*Illustration 1: Beach to the west of the proposed development*

### Project Details

The objectives of the study were:

- To assess the impact of hurricane wave conditions on the development and propose mitigation solutions,
- To evaluate beach sustainability and explore re-nourishment options,
- To assess flood risk to the resort using ISIS-TUFLOW and investigate mitigation options,
- To investigate the impacts of a reverse osmosis plant on water quality in relation to marine reserves in Freedom Bay.

Hurricanes and storm surges resulted in some risk to the proposed properties.

Relocating and elevating properties were suggested mitigation options.

The steep seabed, increased sediment supply and occasional destructive waves meant that while beach re-nourishment would provide amenity value, material may be lost due to coastal processes.

It was recommended that the proposed properties close to watercourses were relocated to preserve stream characteristics and prevent inappropriate erosion and sedimentation.

The Delft3D modelling showed that the reverse osmosis plant had a negligible effect on water quality.