
3 SITE ENVIRONMENTAL CHARACTERISTICS

3.1 SITE CHARACTERISTICS

The Location, Site Plan, Survey Plan are respectively enclosed at Annex 1B and Annex 1C at the end of Section 1 and Annex 3A at the end of Section 3.

The hotel site, of area 67,780m² possesses a beach frontage of white sand all along its western boundary over a distance of 700metres.

As can be deduced from spot levels of the Survey Plan enclosed at Annex 3A at the end of Section 3, the site is fairly flat with a slight falling gradient when nearing the beach.

These site characteristics have been duly taken into consideration by the Project Engineer when choosing the location of the rejection borehole.

3.2 LAND COMPLEX

The Land Complex within which the hotel site of extent of 67,780m² lies is generally classified as Sand Beaches and Dunes. The soil can be described as regosols, dark brown sand or loamy sand on light grey to very pale brown coral sand.

The St. Regis Mauritius Resort is situated on the coastal dunar belt.

3.3 LAND UNIT MAPPING SYMBOL

According to a plan and report prepared by the Food and Agriculture Organisation of the United Nations and the Mauritius Industry Research Institute in May 1973, the Land Mapping Unit of the area encompassing the site is classified as 13.1. It forms part of sand beaches and dunes, within the coastal beaches and adjoining inland dunes.

3.4 LANDFORM AND ALTITUDE RANGE

The landform can be described as almost flat to gently undulating, with slopes being mostly below 2%, except for some dune slopes which can have a slope of up to 8%.

The altitude ranges of Le Morne region vary between 0 to 5 metres, with some raised beaches reaching altitudes of 15 metres AMSL.

The site of area 67,780m², bordering the seafront over a distance of about 700metres, varies in altitude between 0.5 to 3.0 metres.

3.5 ADJACENT CENTRES OF POPULATION

The hotel premises being situated within the Le Morne touristic area, it is essentially bordered by other hotels and touristic undertakings. The St. Regis Mauritius Resort is

bordered to the north by a public beach which is about 80-metre wide and to the south by another public beach of about 450metres long.

3.6 SITES OF INTEREST

The existing hotel has been in operation since 1992 and is presently under renovation; it comprises of all the standard amenities such as reception, bedroom blocks, restaurants, swimming pool, maintenance area within a scarce landscaped environment consisting of coconut trees and filaos.

The renovation works also include the re-landscaping of the hotel gardens and the hotel premises with appropriate appealing and embellishing ornamental plants and flowers.

A list of proposed flowers and trees to be included in the new landscaping are:

- Bougainvillea
- Hibiscus
- Ravenals
- Carissa green carpet
- Bambous
- Iris
- Cordyline species
- Delonix regia
- Cocus nucifera
- Caladium species
- Maranta species
- Scaevola
- Allamanda cathartica

An interesting local amenity is Le Morne public beach planted with filaos trees which borders the southern end of the project site.

3.7 ENVIRONMENTAL SENSITIVITY

The St. Regis Mauritius Resort reaching nearly the end of its extension and renovation the flora and fauna is of no direct relevance.

3.8 AMENITY AND RECREATIONAL VALUE

With the extension and renovation works, the hotel complex will provide enhanced amenity and recreational potential for the tourists and mauritians alike.

The extension components such as Spa and Kid's club will inevitably upgrade the amenity and recreational value of the hotel to meet international standards.

3.9 HYDROLOGICAL CHARACTERISTICS

There is no river or other watercourse running through the site.

3.10 CLIMATOLOGICAL CHARACTERISTICS

Rainfall

The south-western region of Mauritius, of which Le Morne area forms part benefits from an average precipitation of 900 - 1100 millimetres. In the mauritian context, this level of annual rainfall is considered to be low when compared with that of the Central Plateau which can be as high as four times those values of precipitation.

The climate of the region can be generally described as subhumid megathermal.

Temperature

The mean monthly temperature varies between 20°C in the winter months and 26°C in the summer months.

Relative Humidity

The region is subject to a moisture deficit for about 10 months of the year.

Wind Regime

Essentially, two prevalent wind regimes influence Le Morne area and the south-western belt:

The South East Trade Winds which blow normally over Mauritius for about ten months of the year, and which constitute the main component of the wind regime. These winds blow from the South East, rise over the higher lands of the island, known as the Central Plateau, and reach the western and south-western parts of the island

Le Morne area, especially the coastal zones, being situated within proximity of the sea is also affected to some extent by the sea-breeze and land-breeze natural phenomenon, which constitutes to a lesser degree, the second wind regime influencing the area

3.11 GEOLOGICAL CHARACTERISTICS

As indicated at sub-section 3.3, the Land Complex within which the site lies is classified as sand beaches and dunes, excessively drained.

It is reasonable to expect consistent sand layers along a vertical excavation profile, with possibility of encountering a basalt layer at bigger depths.

3.11.1 Geotechnical Survey

The above description was confirmed by a geotechnical survey comprising of 8 trial pits with excavation depths varying between 2metres to 3.2metres from existing ground level; the trial pits were dug as shown on the Geotechnical Survey Plan enclosed at Annex 3B at the end of Section 3. The Geotechnical Report is also enclosed at Annex 3B at the end of Section 3.

The results of the survey were as follows:

- The ground condition was found to be uniform across the site with sand all over.
- Water table was found at an average depth of 2.0 to 3.2metres
- The site is not marshy land

Since the topography is generally flat to undulating, there is no risk of landslide or other similar geotechnical occurrences.

3.12 LAGOON WATER QUALITY TESTS

Two samples of the lagoonal water were collected in March 2011 and submitted to the accredited laboratory SGS (Mauritius) Ltd for the purpose of carrying out laboratory tests to determine the relevant physical and chemical of the sea water earmarked for use as feed water for the desalination process.

The 2 No samples were taken in the sea at the locations shown on the plan enclosed at Annex 3C at the end of section 3.

The tests carried out by using the relevant standard tests methods are given in the Test Reports No MU1152-0180_03 and MU1152-0180_02 which are enclosed at Annex 3D.

The tests carried out are:

Physical Tests	Chemical Tests
• pH • Salinity • Total Dissolved Solids • Total Suspended Solids • Turbidity	• Bicarbonate Alkalinity HCO_3 as CaCO_3 • Free Carbonate Dioxide as free CO_2 • Chloride as Cl • Silica as SiO_2 • Sulphate • Boron • Calcium • Magnesium • Potassium • Sodium • Nitrate

All the tests results (see test results at Annex 3D) were indicative of a lagoonal water of good quality.

The salinity of the two samples is 36,000 ppm; consequently a salinity of 36,000 ppm has been adopted in the design of the desalination process.

3.13 LAGOONAL FAUNA AND FLORA SURVEY

A lagoonal biota survey was carried out during the EIA study along the shoreline in front of the St. Regis Mauritius Resorts. It is observed from the survey that the diversity of the different species across the surveyed area is quite low. The salient features of the report are reproduced below:

- The area surveyed has a reasonable stand and diversity of algae cover – rich enough to support considerable fish population.
- Low fish abundance was observed, though diverse – many species were observed.
- A small population of benthic organisms were observed.
- The area surveyed showed a low diversity of coral species.

A copy of the Lagoonal Fauna and Flora Survey Report is enclosed at Annex 3E at the end of Section 3.