

HOLIDAY INN AIRPORT HOTEL Plaine Magnien

ENVIRONMENTAL IMPACT ASSESSMENT

Chapter 3: Natural Environment of Site

3.1 Introduction

This Chapter reviews the natural environment of the Project Site but is not limited to its immediate vicinity. Disturbances to the environment can be described at the extreme in terms of extinction of species or populations; but broader consequences of human-induced impacts occur at the level of ecological systems and processes. Hence these impacts will be described whenever available, with measured baseline data, otherwise with reported data. In preparing this outline, information has been drawn freely from various studies carried out in the vicinity of the Site; these key sources of information are noted in footnotes to the report whenever appropriate.

A description is given hereunder, of:

- The climatic data on Site
- The ambient noise level
- The proximate and distal natural floral and faunal environment

3.2 Climate

Mauritius, in virtue of its situation at latitude 20° S and its modest dimensions (60 Km NS x 45 Km EW), is submitted to a tropical ocean climate characterized by two alternating main seasons:

- A hot, rainy season from November to May (southern hemisphere summer)
- A mild, dry season from June to October (southern hemisphere winter)

This climatic regime is heavily biased by the wind regimes and orography, which clearly sets out two sharply-differentiated zones:

- The windward zone, to South and South East, well exposed to trade winds
- The leeward zone to West, relatively well sheltered from the trade winds

Mauritius enjoys a mild tropical maritime climate throughout the year. The country has two seasons: a warm humid summer extending from November to April and a relatively cool dry winter from June to September. The month of October and May are commonly known as the transition months.

Mean summer temperature is 24.7 degrees Celsius and mean winter temperature is 20.4°C. The temperature difference between the seasons is only 4.3°C.

The warmest months are January and February with average day maximum temperature reaching 29.2°C and the coolest months are July and August when average night minimum temperatures drops down to 16.4°C.

Long term mean annual rainfall (1904-2007) over the Island is 2100 mm. The wettest months are February and March. The driest month is October.

Mean summer rainfall (1904-2007) is 1409 mm, which is 67% of the annual amount over the Island. Mean winter rainfall (1904-2007) is 695 mm. Although there is no marked rainy season, most of the rainfall occurs in summer months.

The Island receives 6.5 to above 8 hours of bright sunshine daily. In summer months around 6.0 hours of bright sunshine are received over the high grounds, whereas the coastal regions are exposed to 7.5 to over 8.0 hours of bright sunshine. In winter months, the Central Plateau receives around 5.0 hours of bright sunshine whereas the coast receives above 7.5 hours of bright sunshine.

Of particular interest to the Project, not only from the hotel operation point of view, but also from the designer's point of view, data pertaining to climatic conditions prevailing on the site will include:

- Daily rainfall
- Wind velocity and direction
- Daily temperature
- Sun line

3.2.1 Rainfall

Plaisance Meteorological Station is the closest weather station close to Site. It is located at 57m amsl and 0.3km.

The long term mean monthly for the period 1971-2000 are given in Table 3.2.1.1¹⁷.

Table 3.2.1.1: Long term Monthly Rainfall at Plaisance (1971 - 2000)

Month	Long Term Mean (LTM)	No of Day with rainfall	
		>1mm	>5mm
January	236.6	16	8
February	266.6	16	10
March	203.1	17	8
April	211.5	17	8
May	153.4	14	6
June	95.2	14	5
July	100.2	16	5
August	87.9	15	5
September	59.6	10	3
October	60.1	9	3
November	76.9	10	4
December	171.8	12	6

The Probable Maximum Daily Precipitation¹⁸ for various return periods is as follows:

¹⁷ Mauritius Meteorological Services (www.metservice.intnet.mu)

¹⁸ B. M. PADYA: Climate of Mauritius. 1984.

Table 3.2.1.2: Extreme Rainfall Intensities

Return Period (years)	Savannah SE (mm/d)
50	435
100	488
200	540
500	607
1 000	663

The above rainfall data must be completed by extreme or cyclonic rainfall data¹⁹ which allow an assessment of maximum rainfall intensity expectable on the Island.

Table 3.2.1.3: Extreme Cyclonic Rainfall Intensities

Period of Record	Precipitation Height (mm)
5 min	15
15 min	30
35 min	61
01 hr	82
02 hr	115
03 hr	150
04 hr	180
12 hr	250
24 hr	490

3.2.2 Air Temperature

The Daily temperature measurements²⁰ made at Plaisance are summarised in Table 3.2.2.1. The monthly average maximas and minimas together with the absolute maximas and minimas are given.

Table 3.2.2.1: Temperature Régime at Plaisance

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Maximum	29.8	29.5	29.1	28.2	26.8	25.2	24.2	24.2	25.1	26.4	28.0	29.2
Highest Maximum	33.8	33.8	33.3	32.4	30.1	29.5	27.4	27.6	29.1	29.9	32.6	33.8
Mean Minimum	23.0	23.1	22.7	21.8	20.2	18.7	18.1	17.8	18	19.2	20.4	21.9
Lowest Minimum	19.0	18.3	17.4	16.5	14.4	13.4	11.9	12.0	12.6	13.4	13.4	16.1

3.2.3 Free Surface Evaporation

Daily USWB Class A-Pan measurements are made at Plaisance. The monthly average evaporation is given in Table 3.2.3.1 hereunder²¹.

¹⁹ B. M. PADYA: Climate of Mauritius. 1984.

²⁰ <http://metservice.intnet.mu/wclim.htm>

²¹ SIGMA Ove Arup & Partners. Western Coast Irrigation Project.

Table 3.2.3.1: Average Monthly Class A-Pan Evaporation at Plaisance (1960-1990)**USWB Class A-Pan EVAPORATION at Plaisance**

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
MEAN E ₀	161	149	162	141	136	111	101	98	104	114	114	130	1 521

3.2.4 Wind**3.2.4.1 Surface wind data**

Wind data measured at Plaisance Airport Meteorological Station are given as wind roses in Appendix F.

3.2.4.1.1 Under Normal Climatic Conditions

The trade winds range typically between 4 to 16 knots, from the SE, with occasional peaks at 21 knots reached around 12h00, particularly during the winter season. The wind speeds fall considerably between 18h00 and 22h00 and remain low during the night, gaining strength again at about 08h00.

3.2.4.1.2 Cyclonic Conditions

The South-western Indian Ocean is one of the regions of the Globe, which is hit by tropical cyclones. Extremely high wind velocities are associated with these cyclones. Extremely high wind velocities are associated with cyclones. Cyclones usually occur during the period December to April and percentage occurrences of observed cyclones affecting Mauritius by month are given hereunder: (Note that this is not the likelihood of a cyclone occurring)

Table 3.24.1.2.1: Monthly Percentage Occurrences of observed Cyclones (1960-1983)

MONTH	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
%	18.1	20.8	30.6	18.1	9.7	2.8	100

Average values may reach 140 km/h (75 knots). The Return Period for *hourly winds* and *peak gusts* have also been worked out from the cyclone data available from the National Meteorological Services:

Table 3.2.4.1.2.2: Statistical Distribution of Wind Velocities for Cyclones observed at Pamplémousses (1960-1983)

Return Period (yrs)	100	50	15	5
Hourly Wind (km/h)	125	112	90	72
Peak Gusts (km/h)	250	200	160	130

The actual direction of the cyclonic winds will of course depend upon the paths of the cyclone. No wind rose can be developed for cyclonic events and it must be assumed that cyclonic winds could affect the site from any direction.

The current trend for the design of structures and cladding elements to buildings is to design for a maximum wind speed of 280 km/hr.

3.2.4.2 Site Exposure to Winds

The Site will be exposed to SE Trade Winds, and care should be taken in the orientation and siting of any development. This will play an important role in the site planning and land use.

3.2.5 Relative Humidity

Mean Relative humidity measured at Plaisance Meteorological Station is given in Table 3.2.5.1 below.

Table 3.2.5.1: Monthly Average Relative Humidity at Plaisance

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
%	81	83	83	83	81	78	77	78	77	78	78	80

Humans are sensitive to humid air because the human body uses evaporative cooling as the primary mechanism to regulate temperature. Under humid conditions the rate that perspiration evaporates from the skin is lower than it would be under arid conditions. Because humans perceive the rate of heat transfer from the body rather than temperature itself we feel warmer when the relative humidity is high than when it is low.

3.2.6 Sunshine Hours

Mauritius enjoys on average around 6-7 hours of sunshine daily all year round. The observed monthly sunshine hours at Plaisance²² is given in Table 3.2.6.1 below.

Table 3.2.6.1: Monthly Average Daily Hours of Sunshine at Plaisance

MONTH	SUNSHINE	
	Daily Hrs per day	Mean Monthly
January	7.7	239.7
February	7.1	198.7
March	6.9	212.9
April	6.5	194.1
May	6.6	203.2
June	6.1	182.1
July	5.5	170.9
August	5.9	181.4
September	6.7	200.8
October	7.6	236.3
November	8.8	265.4
December	8.4	259.7

3.3 Local Air Quality

No data exist for the ambient local air quality on Site.

Local air quality could be influenced, due to its proximity with the Airport, by gaseous emissions from aircraft. However, the Site being located on the windward side of the Airport, the reach of the emissions from the airport is most unlikely.

²² Source: www.metsat.intnet.mu

The only other significant source of atmospheric pollution is the sugar cluster at La Baraque located at 5.7km , south west of the Project Site. The sugar cluster includes a Power station of 87MW operating on bagasse/coal all year round (see later). However the prevailing wind direction suggests that gaseous emissions from the Power Plant will have no or insignificant impact on the air quality of the Project Site.

3.4 Site Acoustic Environment

The Site is a naturally calm Site with no noise intensive activities in the vicinity except the presence of the SSR International Airport, with its Runway 14-32 for commercial aircrafts landing and take-off, located at some 1.5km from Site.

Traffic noise along the Mon Desert Road (B85) will also influence the Site acoustic environment of the Site.

A noise survey has been carried out on Site on 11th June 2012 to establish the baseline data for the Site. The Noise survey report for the Site is given in Appendix G.

Continuous ambient noise were recorded over a period of 30minutes using a TES-1353 Integrating Sound Level meter. Readings were taken at 1.50metre from ground level with the sound meter directed towards the noise sound. The sampling time was set at 10seconds for both the day and night monitoring.

Monitoring stations were defined and are shown in the report (see, Figure 2, Appendix G). The main features of the Monitoring stations are summarised below:

- ST1: Located 5m inside the front boundary of the property and 33m from B85 road.
- ST2: Located on the east part of Site from B85Road.
- ST3: Located in the middle of site and location of future Porte Cochere of the Hotel
- ST4: Located on the west side of the Site and future location of the conference and Banquet facilities

During the survey the main noise contributors at each Station have been identified and summarised below.

Station	Period	Traffic on B85 Road	Airplanes/helicopter	Animal Noise
ST1	Day	Yes	Yes	Yes (birds)
	Night	Yes	Yes	No
ST2	Day	Yes	Yes	Yes (birds)
	Night	Yes	No	No
ST3	Day	Yes	Yes	Yes (birds)
	Night	Yes	Yes	No
ST4	Day	Yes	Yes	Yes (birds)
	Night	Yes	Yes	Yes (bats, hedgehog)

The baseline noise survey carried at four monitoring locations on the proposed site of the hotel during day and night showed that under prevailing conditions, the noise levels during day and night were within the prescribed noise exposure limits even though the noise from aircraft movements especially at night was audible but lasted for a few minutes only.

3.4.1 Aircraft Noise

Aircraft Noise is perceptible on Site at every take off, the tip of the airport runway being located at some 2.45km from the Site. As such at every take-off the aircraft passes at its

closest distance normal to the Site at some 1.5km due north. With reference to Figure 2 in Appendix G, noise measurements were made at the various stations on site and the maximum noise levels measured for various aircrafts are shown in Table 3.4.1.1

Table 3.4.1.1: Instantaneous Aircraft Noise Measurements from Stations on Hotel Site

Station	Time	Aircraft Departure	Contribution to baseline noise (dB(A)Leq
ST2	9h29	Boeing/Airbus	+0.2
	9h31	ATR	(no influence)
ST1	Above Site	Helicopter	+6.3
		Boeing/airbus	(no influence)
	21h40	ATR (arrival)	(no influence)
ST3	21h53	Airbus	+4.8
	8h32	Boeing/airbus	+0.5
	8h42	ATR (arrival)	(no influence)
	8h51	Airbus	(no influence)
	22h02	Boeing 777	+9.6
ST4	10h01	Helicopter	+0.5
	10h11	Boeing	(no influence)
	20h53	Boeing (taxing)	+1.9
	21h04	Boeing	+1.9

Aircraft noise is a recurrent occurrence which is not negligible the more so that the SSR International Airport features around 40 to 50 aircraft departures daily.

3.4.2 Local Noise Regulations

The EPA 1991 - Environment Protection (Environmental Standards for Noise) Regulations 1997 define the noise exposure limits for neighbourhood noise as follows:

<i>Neighbourhood Noise</i>	
07.00 -18.00 hrs	60 dB(A) L _{eq}
18.00 - 21.00 hrs	55 dB(A) L _{eq}
21.00 - 07.00 hrs	50 dB(A) L _{eq}

The “neighbourhood noise” being defined as being any noise other than industrial noise or noise made by an aircraft, an animal or traffic.

Moreover, the Act states that “Noise measurements shall, as far as practicable, be effected one metre from the nearest opening of any residential building facing the noise source and at 1.5 metres above the ground or floor level.”

3.5 General Geology

The Site is located in an area which is issued almost entirely from the Late Lavas flows of the Younger Series. The third volcanic activity phase giving rise to the Younger Series occurred during the Pleistocene, i.e., between -1.8 million to -10 000 years re present. The Late Lavas of the Younger Series followed the short erosion interval of the mildly vessiculated olivine basalts of the Early Lavas without a preceding phase of pyroclastic activity. Flow after flow, lava poured out from a series of shield volcanoes flooding almost the entire island and building up to a height of 670m near Curepipe.

The geological mapping of Figure 3.5.1 shows the Site superimposed onto the geological map of Mauritius. The cross sectional view of Figure 3.5.2 uses the information collected from the logs of numerous bore and coreholes sunk in the so-called Rose Belle Aquifer down to Les Mares and Plaisance.

Irregular piling of basaltic flows present cumulated thicknesses that can exceed 100m. Healthy flows alternate with flows transformed by weathering processes, a sign that emission of lavas have occurred intermittently rather than continuously.

It may be seen therein that the thickness of the late lavas (above the underlying compact and impervious older basalt) decreases constantly as the coastline is approached, which may explain the presence of springs near the coast at Les Mares some 1.9km East of Site and draining into the Bras de Mer du Chaland.

3.6 General Pedology

The general pedology of the region has been mapped according to both the "HAWAIIAN" classification and to the "ORSTOM" classification ; the Project Site has been overlaid to both pedological maps of the region as shown in Figure 3.6.1.

With reference to the "Hawaiian" classification, the soil type that can be identified within the project area is the Latosolic Red Prairie Soils P3 in its very rock phase of the Mon Choisy Family. These Red Prairie Latosolic soils are intra zonal soils developing on the Late Lavas, and onto the dryer areas compared to the Latosolic Brown Forest soils of the wetter areas. Soils belonging to the Mont-Choisy family are very shallow soils on slightly weathered Late Lavas devoid of surface drainage. They occur in the drier areas of the north, east and south east of the island with a mean annual rainfall of 1000mm to 2500mm. The soils are slightly acid to neutral and range from pH 6.0 to 6.9. Organic matter averages 7.7%. Nitrogen is high varying from 0.34 to 0.5% and Carbon to Nitrogen ratios vary from 9.2 to 12.0. The field texture of the soils is that of a silty clay to silty clay loam.

3.7 Geotechnical Investigation

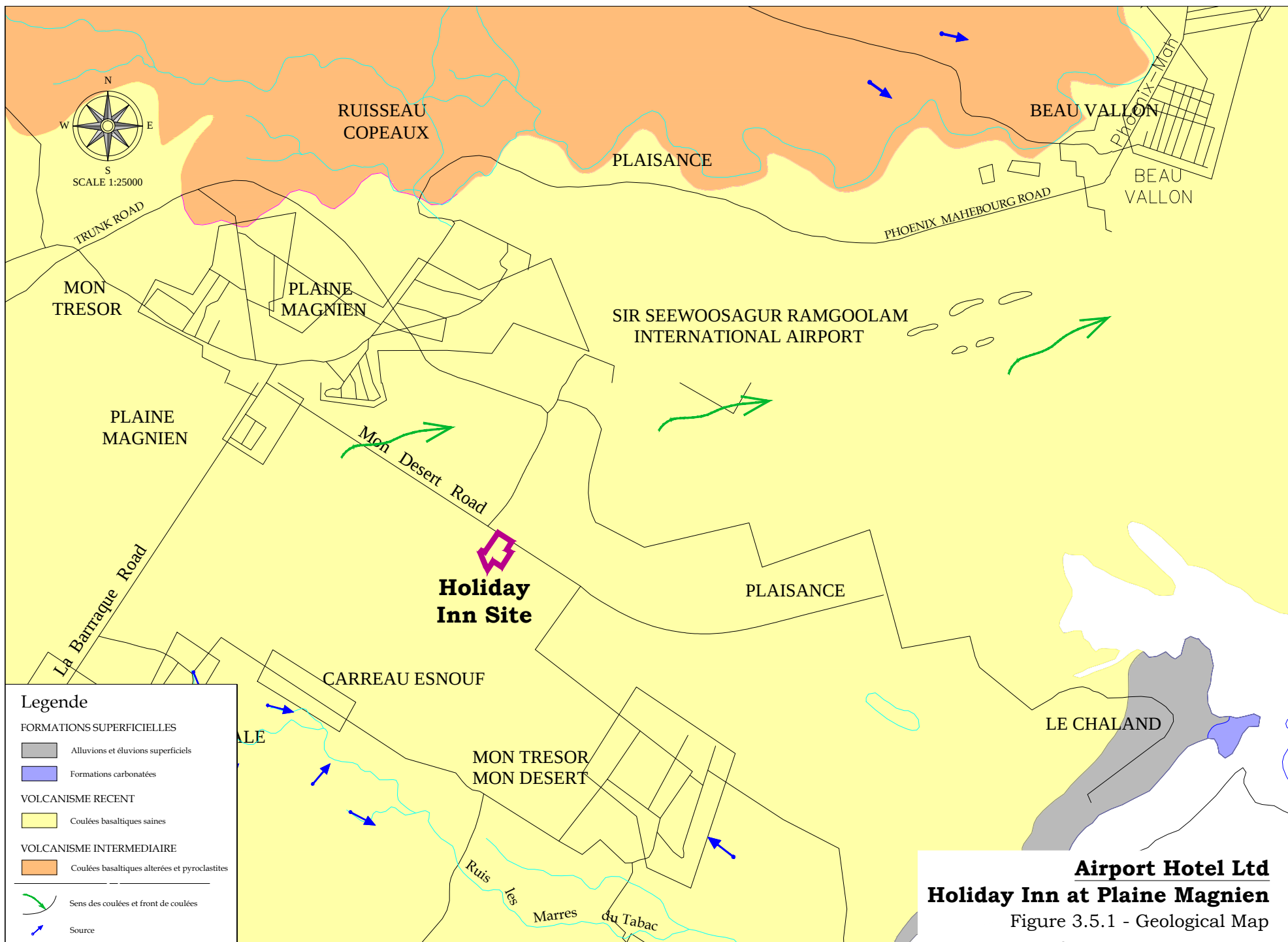
Geotechnical Investigation has been carried out on the Project Site and the report is attached in Appendix H.

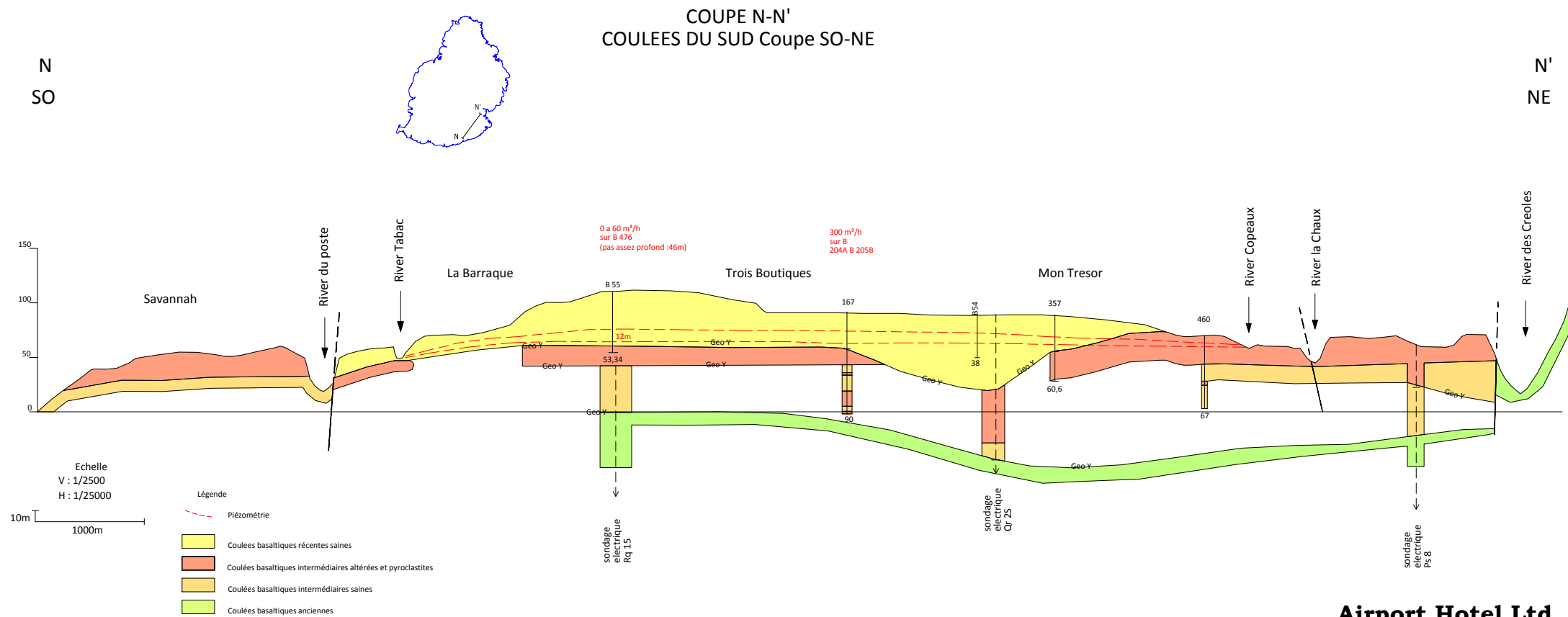
The geotechnical investigation works consisted of:

- Excavation of five trial pits of average depth of 3.0m. All trial pits were located within the proposed delineated area;
- Drilling of five rotary-cored boreholes located within the delineated area. The boreholes were drilled to a depth of about 7.0m;
- In situ percolation tests.

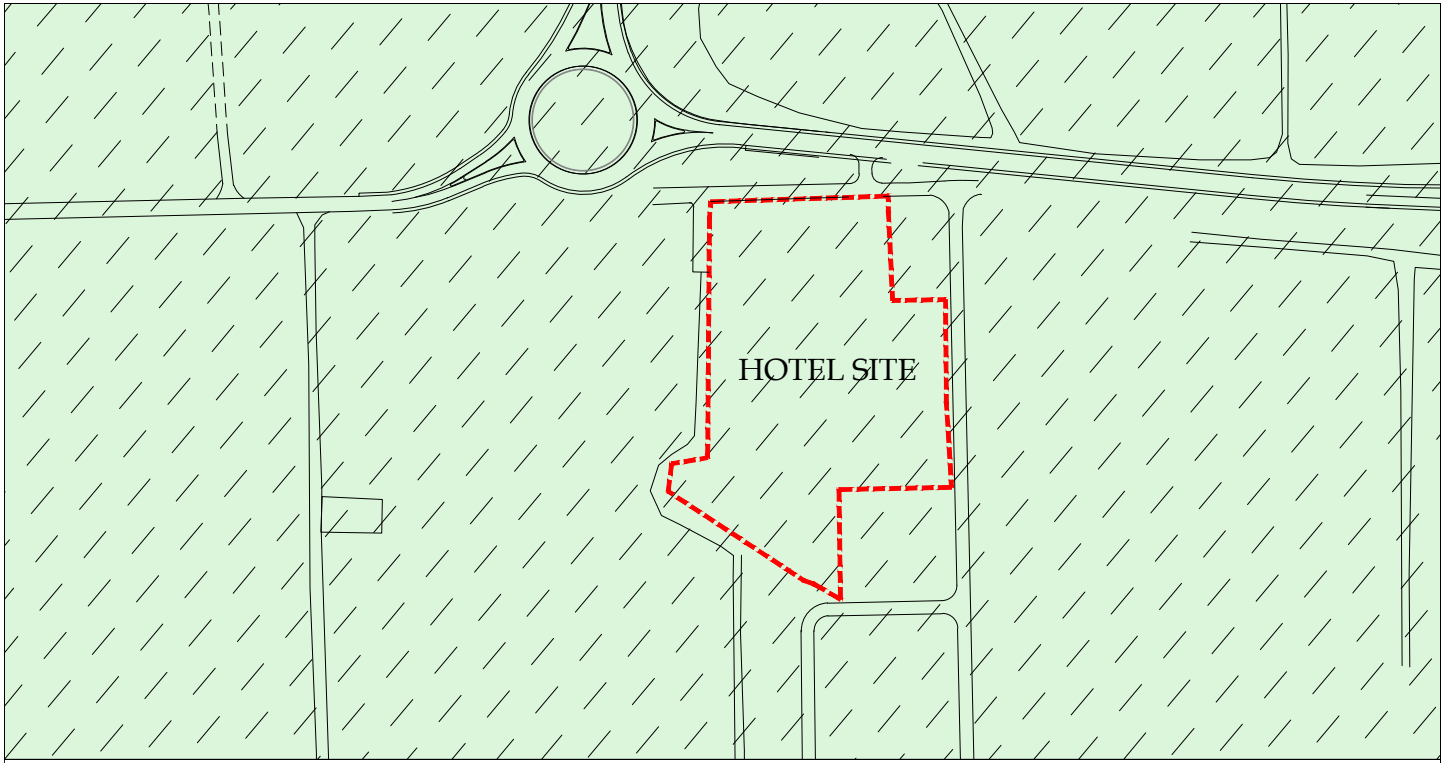
3.7.1 Ground conditions

The ground conditions observed are summarized below.





Airport Hotel Ltd
Holiday Inn at Plaine Magnien
Figure 3.5.2 - Geological Section



Soil Groups

 Latosolic Red Prairie Soils

Special Phases

 Shallow and Gravelly

HAWAIIAN CLASSIFICATION



 Sol caillouteux (taux de pierrosité >60%) sur 50cm en moyenne, pierre et bloc en profondeur - éléments grossiers superficiellement altérés

 Sol caillouteux (taux de pierrosité >60%) sur 50cm en moyenne, pierre et bloc en profondeur

ORSTOM CLASSIFICATION

Airport Hotel Ltd
Holiday Inn at Plaine Magnien

Figure 3.6.1 - Soil Maps

Trial Pit	Top/made soil (m)	Highly weathered Basalt (m)	Highly to moderately weathered Basalt (m)	Moderately to slightly weathered Basalt (m)
BH1	0-0.5	-	0.50-2.60	2.60-7.00
BH2	0-0.40	-	0.40-6.65	6.65-7.00
BH3	0-0.25	0.25-4.20 (void between 3.35-3.83)	-	4.20-7.15
BH4	0-0.50	0.50-1.00 5.90-7.00	1.00-5.65 (void between 5.65-5.90)	-
BH5	0-0.30	0.30-3.00	-	3.00-7.00

3.7.2 Percolations Tests

Percolation tests were carried out on two of the trail pits namely TP1 and TP5. The depth of the test pit below ground level was about 3.3m in total. The test procedure is given in the main report (Appendix H). The percolation rates are summarised in Table 3.7.2.1.

Table 3.7.2.1: Percolation rates

Trial Pit No	Test No	Avg rate of stabilisation (mm/min)	V_p values (s/mm)
TP1	1	10	2.5
	2	3	6.17
	3	2	10.04
TP5	1	30	1.63
	2	14	2.48
	3	10	3.28

Percolation tests were not carried out in TP2, TP3 and TP4 due to the rocky nature of the strata.

3.7.3 Ground water level

No ground water was observed in any of the five (5) boreholes drilled on the Site. The average depth of the boreholes was 7.0m.

3.8 Surface Hydrology and Hydrogeology

No drainage paths or wet areas exist on Site as is confirmed from existing cadastral maps and observations made on Site.

3.8.1 Regional Surface Hydrology

The Site does not lie within the catchment area of any particular river. Actually the south-eastern part of the island from River Tabac (9km due SW) to Mahébourg does not feature any perennial surface watercourses or drainage paths.

The zone does not belong to a well-defined catchment area, and is in fact some 1.8 km south of the nearest watercourse, Rivière La Chaux which flows past Mahébourg and 1.1km north of a non-perennial Ruisseau Les Mares du Tabac.

At a distance of approximately 1.9km east of the Site, marshy lands are to be found with fresh water flow reported to exit into the Bras de Mer du Chaland, some 3km east of the Site. This flow path, however, is dry and crosses the Le Chaland Road where no culvert is provided. It may be inferred that the fresh water observed at the Bras de Mer du Chaland flows underground.

3.8.2 Hydrogeology

The entire region lies on top of the Nouvelle France - Rose Belle - Plaisance Aquifer. For a more precise account, reference is made to the "Carte Géologique et Schéma Hydrogéologique" drawn in July 1999 and reproduced in Figure 3.8.2.1.

The coastal reservoir near Plaisance is very productive near Mare-Tabac. MTMD for irrigation purposes and the CWA, for domestic water production, exploit the aquifer as shown in Figure 3.8.2.1 hereunder.

The locations of various boreholes in the vicinity of the proposed hotel site are shown in Figure 3.8.2.1.

3.9 Flora and Fauna

3.9.1 Site Flora

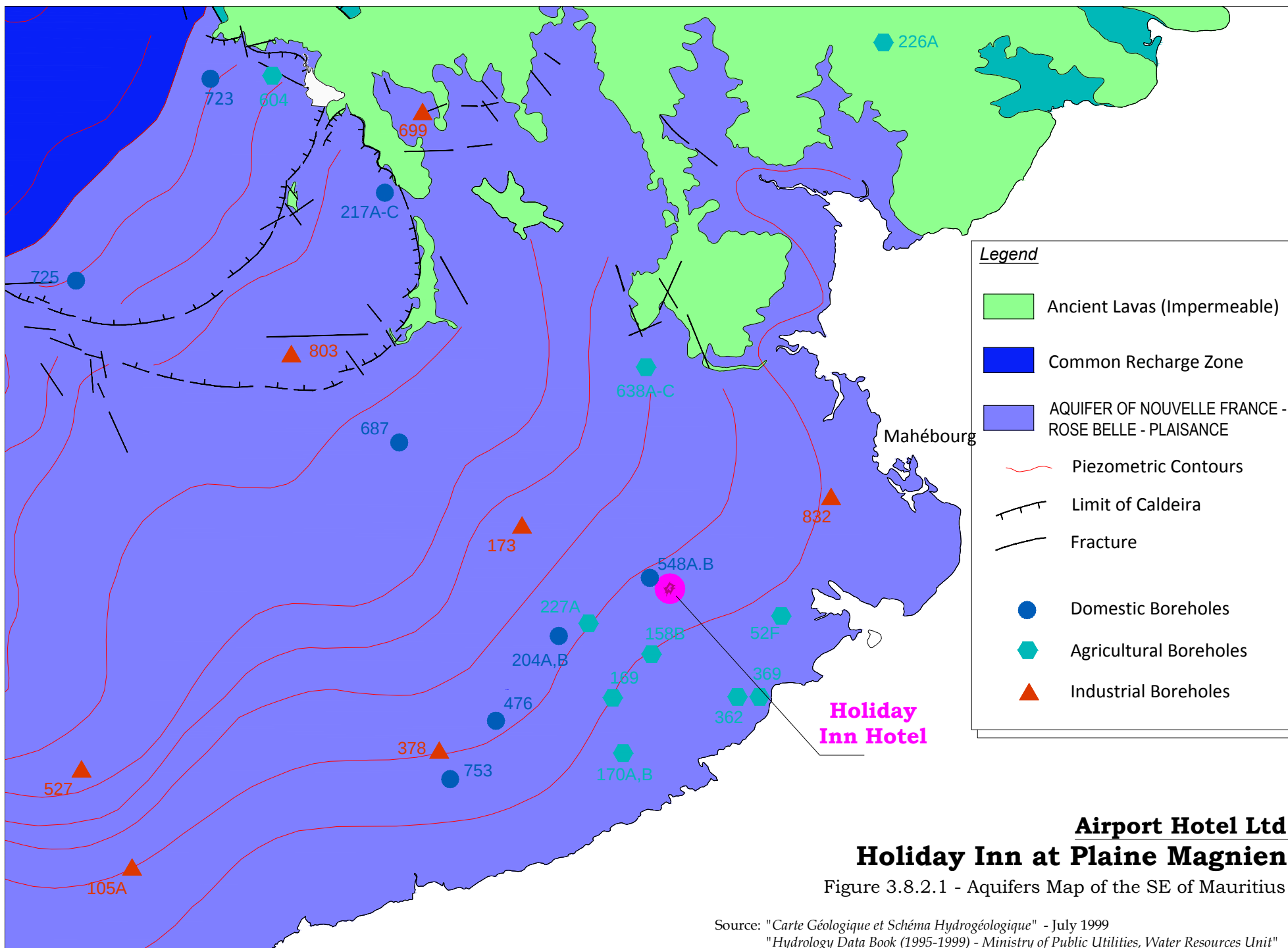
A general site flora survey on the Project Site is shown in Figure 3.9.1. Most of the plants and trees have been introduced over the years when the residence was occupied. The specimens include principally:

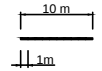
Araucaria, Avocatier, Bottle brush, Badamier, Caoutchoutier,, Coconut trees, Datier, Goyavier, Flamboyant, Fruit a pain, Jacquier, Latanier, Letchis, Longanier, Manguier, Massonier, Mourouk, Multipliant, Palmier, Palmiste bouteille, Palmiste royale, Ravenal, Tamarinier, Teckoma, Vacoas, Veloutier.

A detailed survey was carried on 22 June 2012 by MSIRI within and in the near vicinity of the proposed footprint of the proposed hotel development, the report is attached in Appendix I.

The findings of the survey were:

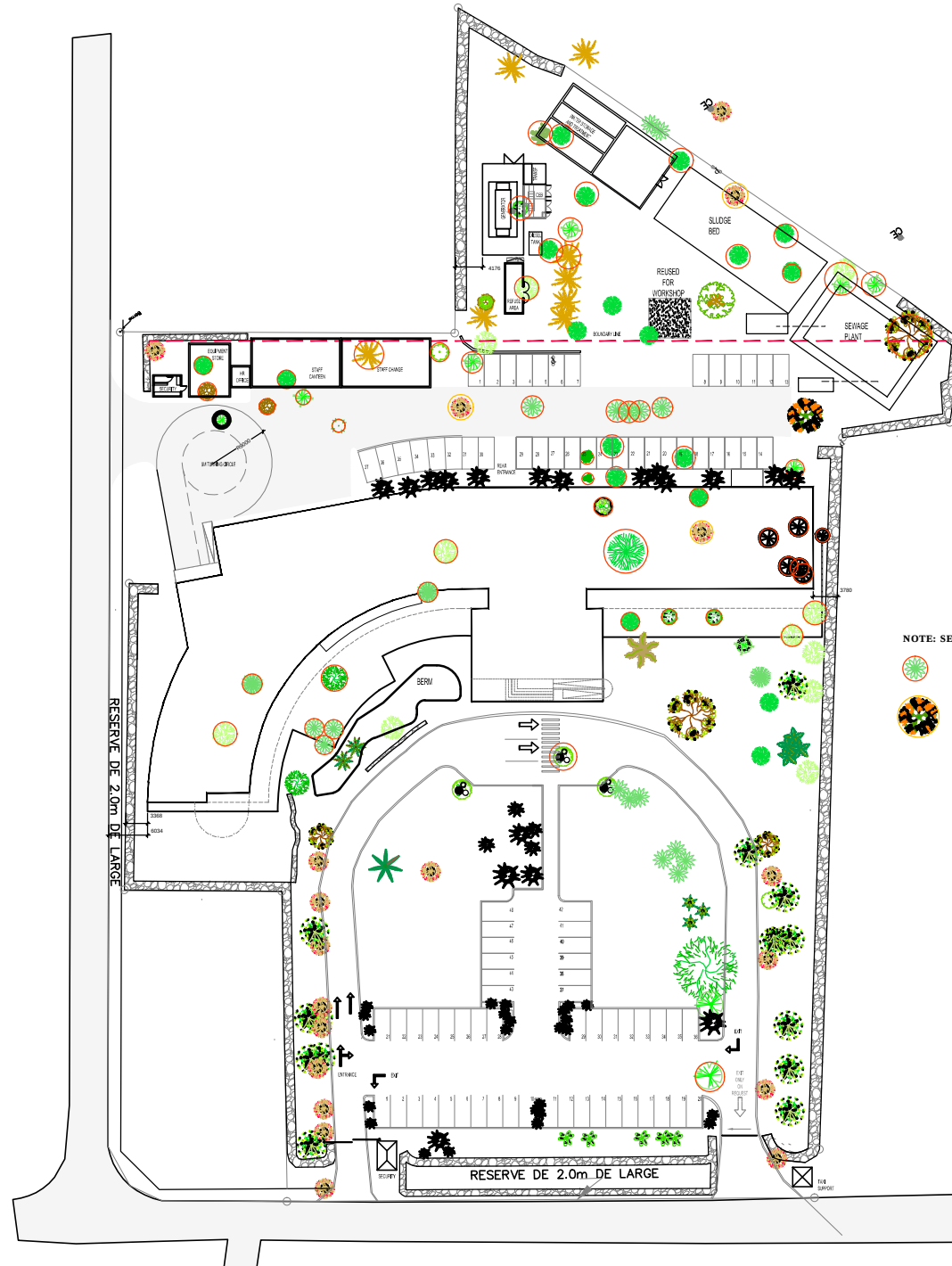
- Number of trees that will be removed : 32
- Number of exotic species identified (trees to be felled) : 27
- Number of native (endemic) species identified (trees to be removed) : 5
- There were no endangered species observed as the native species (4 Nos *Pandanus utilis* and 1No *Dracaena concinna*) were both planted and not naturally occurring on site.





Airport Hotel Ltd Holiday Inn at Plaine Magnien

Figure 3.9.1 - Site Flora



NOTE: SELECTION T.B.C. BY LOCAL LANDSCAPER!

FELLED VEGETATION

TRANSPLANTED VEGETATION

NOTE:

Chemin asphalté	
Chemin non asphalté	
Clôture en fil métallique	
Dalle	
Pavage	
Mur en pierre	
Tôle	
Colonne électrique	C.E.
Portail	P
Trou d'homme	T.H.

Arbres:

	Arbre non-identifié
	Araucaria
	Avocatier
	Badamier
	Bottle brush
	Caoutchoutier
	Cocotier
	Datier
	Flamboyant
	Frangipanier
	Fruit à pain
	Goyavier
	Jacquier
	Latanier
	Letchis
	Longanier
	Manguier
	Massonier
	Mourouk
	Multipiant
	Palmier
	Palmiste
	Bouteille
	Palmiste royale
	Ravenal
	Tamarinier
	Tecoma
	Vaccas
	Veloutier

1. NOT TO SCALE
2. ALL VEGETATION IS TO BE PLANTED BY THE CONTRACTOR
3. ALL VEGETATION IS TO BE PLANTED BY THE CONTRACTOR
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NO.	DATE	GENERAL REVISION	BY
1	2011.04.20	GENERAL REVISION	BY
REVISIONS			
FOR INFORMATION			
ARCHITECTS			
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EIA - VEGETATION IMPACT			
201134 02A 800			

3.9.2 Site Fauna

The fauna observed on Site is essentially ornithological. The species that have been identified are terrestrial species.

The various terrestrial birds observed during the Site visit are listed in Table 3.9.2.1 below. The list is by no means exhaustive, as other specimens, like *bengalis*, *petits serins du pays* (relatively rare), *serins du cap* (weaver birds), *pic-pic* (*oiseau manioc*) may also transit on Site.

Table 3.9.2.1: List of birds actually observed on Site

SCIENTIFIC NAME	VERNACULAR	ORIGIN	STATUS
<i>Passer domesticus</i>	House sparrow, moineau	Exotic, introduced	Common
<i>Geopelia striata</i>	Striped ground dove, petite tourterelle	Exotic, introduced	Common
<i>Acridotheres tristis</i>	Mynah, martin triste	Exotic, introduced	Common
<i>Pycnonothus jocosus</i>	Red whiskered bulbul, condé	Exotic, introduced	Common
<i>Foudia Madagascariensis</i>	Malagasy fody, cardinal	Exotic, introduced	Common

3.10 Environmentally Sensitive Areas (ESA)

Environmentally Sensitive Areas close to the Project Site are shown in Figure 3.10.1.

3.10.1 The Blue Bay Marine Park

Blue Bay Marine Park has been officially nominated as the second RAMSAR site for Mauritius in 2008. The marine park covers an area of 353 hectares. The listing of the Blue Bay Marine Park under the RAMSAR Convention is based on established criteria as the site supports habitats for vulnerable species, threatened ecological communities and high biodiversity of fish. The first proclaimed RAMSAR Site for Mauritius was the Rivulet Terre Rouge Estuary Bird Sanctuary.

The Park includes the lagoon and extends one kilometre seaward from the reef crest. It harbours mangroves, algae, sea grasses, corals, fish and other marine organisms. Presently, 38 species of corals and 72 species of fish have been identified in the Park.

The RAMSAR Convention's mission is the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world.

The Convention adopted in the Iranian city of Ramsar in 1971 and which came into force in 1975 is the only global environmental treaty that deals with a particular ecosystem. The Convention uses a broad definition of the types of wetlands covered in its mission, including swamps and marshes, lakes and rivers, wet grasslands and peat lands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves, coral reefs, and also human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

The legal protection framework to the Blue Bay Marine Park is provided by the Fisheries and Marine Resources Act of 1998.

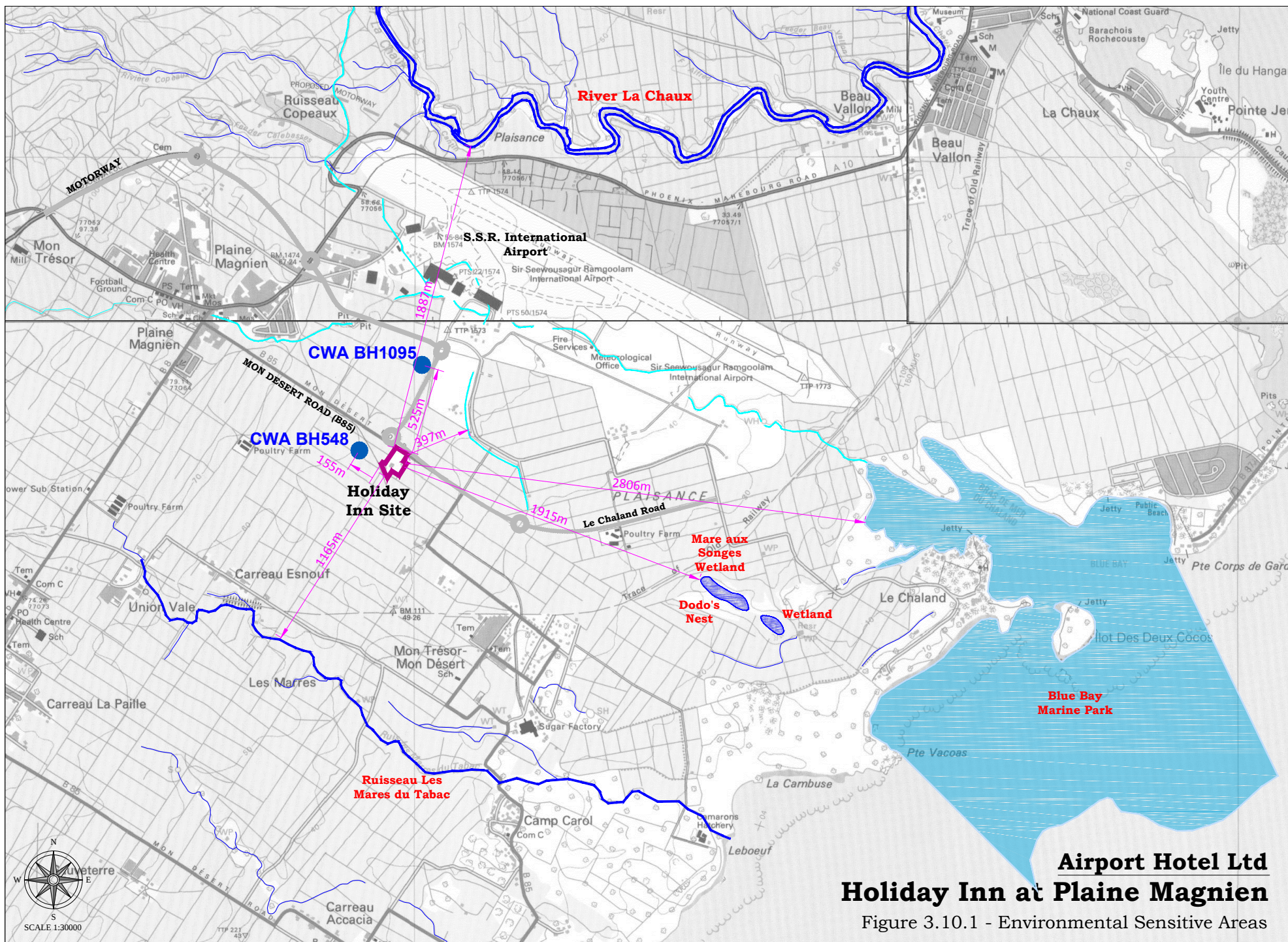


Figure 3.10.1 - Environmental Sensitive Areas

3.10.2 Mare aux Songes Archeological Site

The Mare-aux-Songes sites where remnants of the Mauritian Icon Bird "dronte" Dodo have been found is located some 1.9km due east of the project Site.

Recent archaeological exploration works undertaken by a team of Dutch, Mauritian and British scientists at Mare-aux-Songes, made it possible to find in-situ elements preserved in limestone. Fossils and bones of dodo and tortoises, dating more than 4000 years, were found for the first time at the archeological site of Mare-aux-Songes. Other discoveries include bat, lizards and other birds. Excavation works were carried out with the authorization of the National Heritage Trust Fund, and were carried out by the National Museum of Natural History, Naturalis Deltares and the National History Museum of London.

3.10.3 Borehole 548

Borehole 548 supply potable water to the SSR International Airport. Part of the Project Site is located within the 200m borehole protection zone.