

First Addendum to the Environment Impact Assessment for Koodoo Domestic Airport Extension and Development of Airport Hotel at Koodoo island, G.A. atoll

Prepared for
Keong Hong Construction Pvt. Ltd.



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Declaration of the Consultant:

I certify that the statements made in this Environmental Impact Assessment are true, complete and correct to the best of my knowledge and available information at the time of writing this report.

Dr. Mahmood Riyaz (EIA03/07)
25th December 2014

Proponent's Declaration and Commitment

26th December 2014

Mr. Ibrahim Naeem,
Director General ,
Environmental Protection Agency,
Ministry of Environment and Energy,
Male',
Republic of Maldives.

Dear Sir,

Subject: 1st Addendum to the EIA Report for Kooddoo Domestic Airport Extension and Development of an Airport Hotel at Kooddoo, Ga. Atoll

As the proponent of the proposed project, we guarantee that we have read the report and to the best of our knowledge all the information provided here are accurate and complete. Also, we hereby confirm our commitment to finance and implement all mitigation measures and the monitoring program as specified in the report.

Mohamed Ali Janah
Representative,
Keong Hong Construction Pvt Ltd

2 EXECUTIVE SUMMARY

This is the first addendum to the EIA report for Kooddoo Domestic airport extension and development of an Airport Hotel at Ga Kooddoo, GA Atoll. This addendum is prepared to address the changes brought to the concept plan of the Airport Hotel and the alternative sand borrow sites recommended in the EIA report. Major changes to the airport hotel concept include the change in number of water villas from 25 to 43, re arrangement of water villas from semi-circular shape to arc-shape with double rows of water villas on the southern arm of the arc. With this change the total number of the rooms in Kooddoo Airport Hotel will increase to 68 rooms. In addition to this the size of the VIP lounge is increased and owner's villa is added at the southern end of the Hotel. With the above changes the total built up area of Kooddoo airport hotel will be increased from 13.41% to 15.43%.

The alternative sand borrow site recommended in the EIA report, which was located as on the eastern lagoon of the island, was changed to two sites on southern and northern end of Kooddoo Island, adjacent to the proposed reclamation area respectively. The main reason for changing the alternative borrow area is because of the shallow lagoon depth and swell conditions on the eastern side of the island, which would require cutting an entrance channel for operation of the dredger. Cutting an entrance channel on the eastern side would have irreversible impact to the reef and island and logistical difficulties for the proponent.

Baseline data collected during the initial survey were seen to be sufficient for the purpose of the addendum, thus no additional data was collected for this report. Impact assessment due to the changes were also observed to be more or less similar, but the impact footprint of the development will be changed to include the dredging area on the northern end of the island. However, with proper implementation of the mitigation measures, anticipated impact of dredging could be limited and contained in the work area without widespread dispersion of suspended sediment plume. Therefore the proposed changes will not alter the over-all aspect of the project.

3 INTRODUCTION

This is the First Addendum to the EIA report for Kooddoo Domestic airport extension and development of an Airport Hotel at Ga Kooddoo, GA Atoll, which was approved by EPA on 26th January 2014 (203-FINHUM/PRIV/2014/34). Since then the developer has brought some minor changes to the original concept of the Airport Hotel which was approved by the Ministry of Tourism on 23rd October 2014. Also due to some logistical difficulties faced during the Kooddoo airport extension construction work the developer has proposed to change the location of the of alternative sand borrow site, which was located as recommended in the EIA report on the eastern lagoon of the island, to two sites on southern and northern end of Kooddoo Island, adjacent to the proposed island reclamation. This Addendum is prepared to address the changes to the development concept plan of both Airport hotel and the change of alternative sand borrow site for airport extension work.

3.1 RATIONAL FOR CONCEPT PLAN CHANGE

The changes to Kooddoo Airport Hotel concept plan was made to increase the number of over water villas and addition of owner's villa at the southern end of the island. The reason for bringing this change is to optimize the luxury accommodation to maximize the hotel profits. The general layout of the over water villa arrangement has changed from half-circular shape to an open-arc shape. The reason for changing the alternative sand borrow site is because the company has decided to use cutter suction dredged to pump the sand to the reclamation areas on both northern and southern ends of the island. Existing water depth and sea roughness on the eastern side would not allow smooth operation of the dredger on the eastern side of the island. Also the operation of the dredger to the eastern side would require cutting an entrance channel from the eastern reef, which would have irreversible impact to the reef and island. The Proposed two locations to borrow sand to reclaim the airport extension is the closest area where the dredger can operate without much difficulty and would not cause further logistical difficulties for the developer.

4 STUDY AREA

Kooddoo Island is located on the north eastern rim of Gaafu Alif (Ga) Atoll (Figure 1). The island is separated from Villingili to the north and Maamendhoo to the south by deep narrow channels. The island is somewhat rectangular in shape, with its length oriented in north-south direction. The island is 1.48 km long, and roughly 0.5 – 0.3 km wide, at the southern end the island protrudes out roughly 0.2 km eastward towards the ocean. Land area of the island is 73.4 hectares (734 km²).

Kooddoo is surrounded by a shallow lagoon (depth varying between 1 – 0.5 m) that terminates at the ocean and atoll-ward reef edge. Width of the lagoon area varies: average width of the lagoon on the eastern side of the island ranges between 0.45 – 0.3 km from the shoreline to the reef edge. To the north the lagoon width is roughly 0.38 km. The lagoon is widest to the west measuring 0.68 km from the shoreline.

The island was officially allocated to MIFCO in early 1992 and the works on fish collection and storage facility started in 1983. Kooddoo fish collection and storage facility was officially opened in 1996.

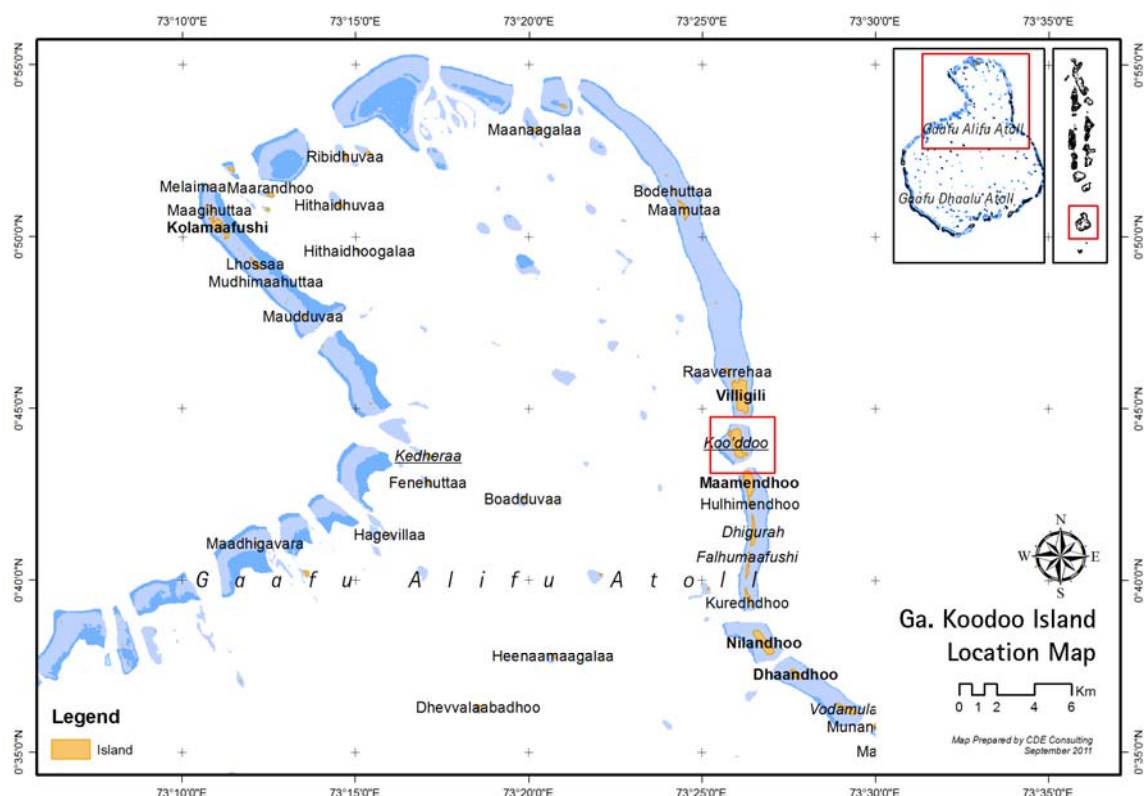


Figure 1: Location of map of Kooddoo Island on the eastern border of the Gaafu Alifu Atoll

5 DESCRIPTION OF THE PROPOSED CHANGES

This addendum to the EIA is prepared to address the changes brought to the concept plan of the Airport Hotel and the alternative sand borrow sites recommended in the EIA report. Following the approval of the Airport Hotel concept change by the Ministry of Tourism, EPA was briefed about the approved changes and a scoping exercise was held at EPA on 29th October 2014 with personnel from EPA, representatives from the proponent and EIA consultant. Similarly as per the discussion and in accordance with the Regulation on Reclamation and Dredging (Regulation 2013/R-15) submission of a separate application was requested to change the alternative sand borrow area. Based on the discussions at the meeting, both the draft ToR and the dredging and reclamation application for the Addendum was formulated and submitted for EPA's approval on 2nd November 2014. The draft ToR was finalized and approved by EPA on 14th December 2014 (Annex -1). Conditional dredging permit subjected to preparation of an addendum was received on 17th December 2014 (Annex 2)

Maldives Energy and Environmental Company Pvt Ltd have been engaged by the representative of Keong Hong Construction Pvt Ltd to prepare the addendum to the EIA and to provide assistance in other environment related activities. This addendum to the EIA is prepared in accordance with the Environmental Impact Assessment Regulations 2012 and the ToR issued by the EPA on the specifics of the addendum document.

5.1 DEVELOPMENT ACTIVITY UNDER SCOPE CHANGE

Initially Kooddoo Airport Hotel was planned to be developed as a 3-4 star 50 bed Hotel on the south western side of Kooddoo Island. The Airport Hotel project involves construction of land villas, water villas, service facilities, support facilities and dredging of a harbour basin and cutting entrance on the western side of the island to cater for the hotel and the airport. Dredged material from harbour and entrance channel will be used to reclaim the land on southern and northern sides of the island for airport extension. Extra sand needed for reclamation of the airport extension are recommended to borrow by dredging the eastern side of the island.

5.2 PROPOSED CHANGES TO THE AIRPORT HOTEL CONCEPT PLAN

The proposed changes to initial concept of Kooddoo Airport Hotel are shown in *Table I*. *Figure 2* and *Figure 3* are presented to illustrate the changes to the concept plan. The revised changes to the proposed concept plan of the Airport Hotel includes the following:

5.2.1 Change in the water villa arrangements

Water villas were previously arranged in a single side of a semicircular shape over hanging walkway on the western lagoon of Kooddoo Island. The new arrangement of the water villas take the shape of an arc and positioned almost on the same location of the semicircular walkway designed in the earlier concept plan. Water villas are arranged on both sides of the southern part of the arc-shape over hanging walkway. With this change a single row of water villas be arranged in northern arm of the arc while a double row on southern arm of the arc shape over hanging walkway in the lagoon.

Table 1: Area schedule of Kooddoo Airport Hotel proposed changes to the initial concept plan

AREA SCHEDULE- KOODDOO AIRPORT HOTEL

No.	Building/ Facility	No. of Units		Area/ unit (m ²)		Total Area (m ²)	
		R0	R1	R0	R1	R0	R1
1	Reception, Office & Library	1	1	349.00	349.00	349.00	349.00
2	Security Post	1	1	22.00	22.00	22.00	22.00
3	VIP Lounge	1	1	34.70	105.75	34.70	105.75
4	Boutique	1	1	40.00	40.00	40.00	40.00
5	Spa	1	1	137.50	137.50	137.50	137.50
6	Fitness Center	1	1	160.70	160.70	160.70	160.70
7	Garden Villa	25	25	39.20	39.20	980.00	980.00
8	Water Villa	25	43	39.20	39.20	980.00	1685.60
9	Restaurant & Kitchen	1	1	713.00	713.00	713.00	713.00
10	Pool	1	1	-	-	-	-
11	Pool Bar	1	1	80.36	80.36	80.36	80.36
12	Sunset Bar	1	1	182.37	182.37	182.37	182.37
13	Dive Center	1	1	126.80	126.80	126.80	126.80
14	Maid Room	5	5	17.00	17.00	85.00	85.00
15	Tennis & Badminton Courts	1	1	-	-	-	-
16	Senior Staff Accommodation	1	1	151.20	151.20	151.20	151.20
(a)	Senior Staff Executive Accommodation	2	2	151.20	151.20	302.40	302.40
17	Junior Staff Accommodation	1	1	277.00	277.00	277.00	277.00
18	Laundry & Housekeeping	1	1	194.00	194.00	194.00	194.00
19	General Stores	1	1	217.60	217.60	217.60	217.60
20	RO Plant, Powerhouse & Workshop	1	1	227.48	227.48	227.48	227.48
21	HR, Finance, Marketing & Community	1	1	379.70	379.70	379.70	379.70
22	Buggy Shed & Maintenance	1	1	81.84	81.84	81.84	81.84
23	Water Tank	1	1	47.78	47.78	47.78	47.78
24	Fuel Tank with bund wall	1	1	47.78	47.78	47.78	47.78
25	Waste Management	1	1	95.30	95.30	95.30	95.30
26	STP	1	1	25.52	25.52	25.52	25.52
27	Staff Kitchen & Mess	1	1	325.67	325.67	325.67	325.67
28	Water Sports Center	1	1	97.20	97.20	97.20	97.20
29	Prayer Room	1	1	76.30	76.30	76.30	76.30
30	Owner's Villa	-	1	-	190.00	-	190.00
Total						6438.20	7404.85

	R0	R1
Land Area	48000	48000 m ²
Total Built Up Area	6438.20	7404.85 m ²
Land Utilization Percentage	13.41	15.43 %

Note:

R0- submitted to MoT on 25th March 2014

R1- submitted to MoT on 16th October 2014

Difference between the first & second submission



Ref: 98-DS/PA/14/1944
23/10/14

5.2.2 Change in the number of water villas

Initially it was proposed to have 25 garden villas and 25 water villas at the Kooddoo Airport Hotel. With the revision brought to the concept 18 water villas were added and the number of villas increased from 25-43. With this change the total number of the rooms in Kooddoo Airport Hotel will increase to 68 rooms.

5.2.3 VIP lounge size change

The size of the VIP lounge has been changed from 34.4-105m² due to the importance of the lounge and to make more space and precious.

5.2.4 Addition of Owner’s Villa

Additional accommodation room will be developed specially for the owner of the hotel. The room is located on the southern end of the island next to the sunset bar. Total area allocated the owners villa is 190m²

5.2.5 Total built-up area change

With the above changes the total built up area of Kooddoo airport hotel will be increased from 13.41% to 15.43%. Despite these changes airport hotel built up area has not reached to the limits allowed by the Ministry of Tourism.

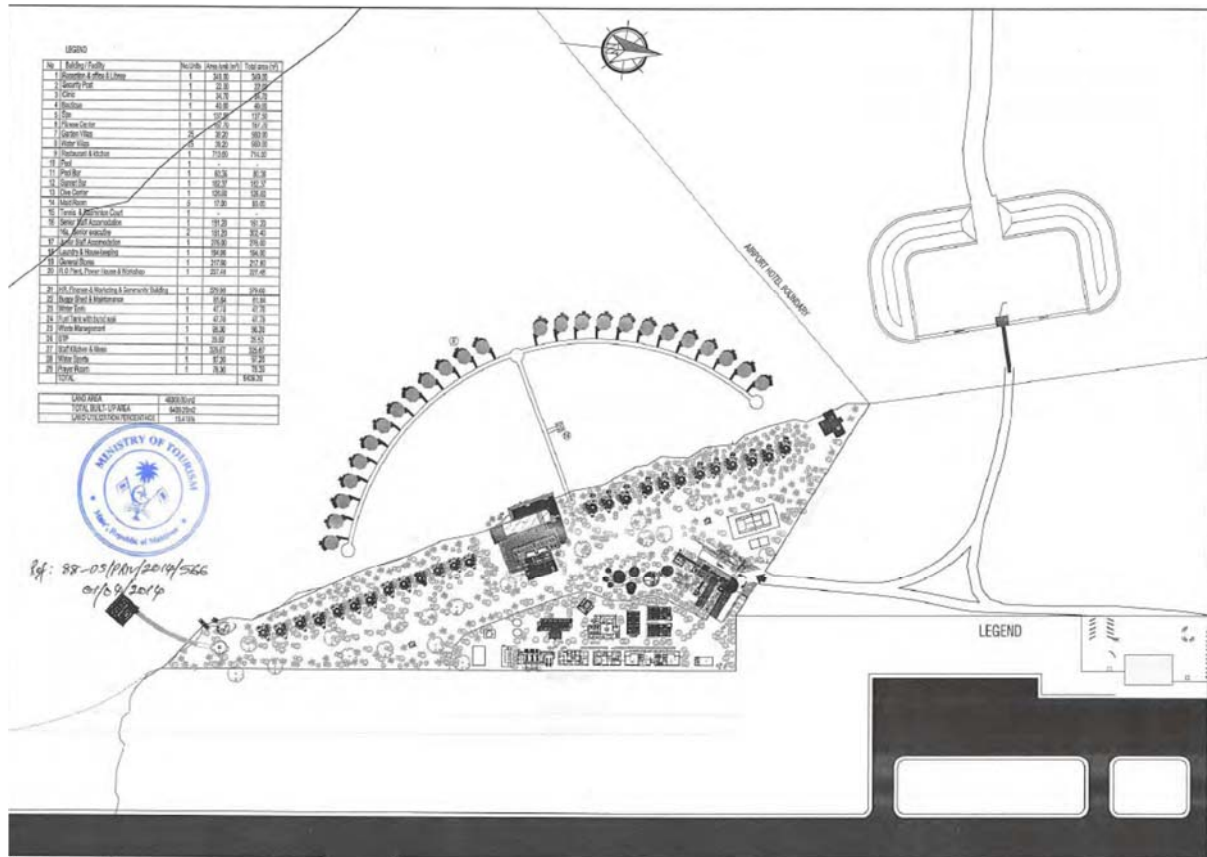


Figure 2: Kooddoo Airport Hotel the first concept plan approved Ministry of Tourism

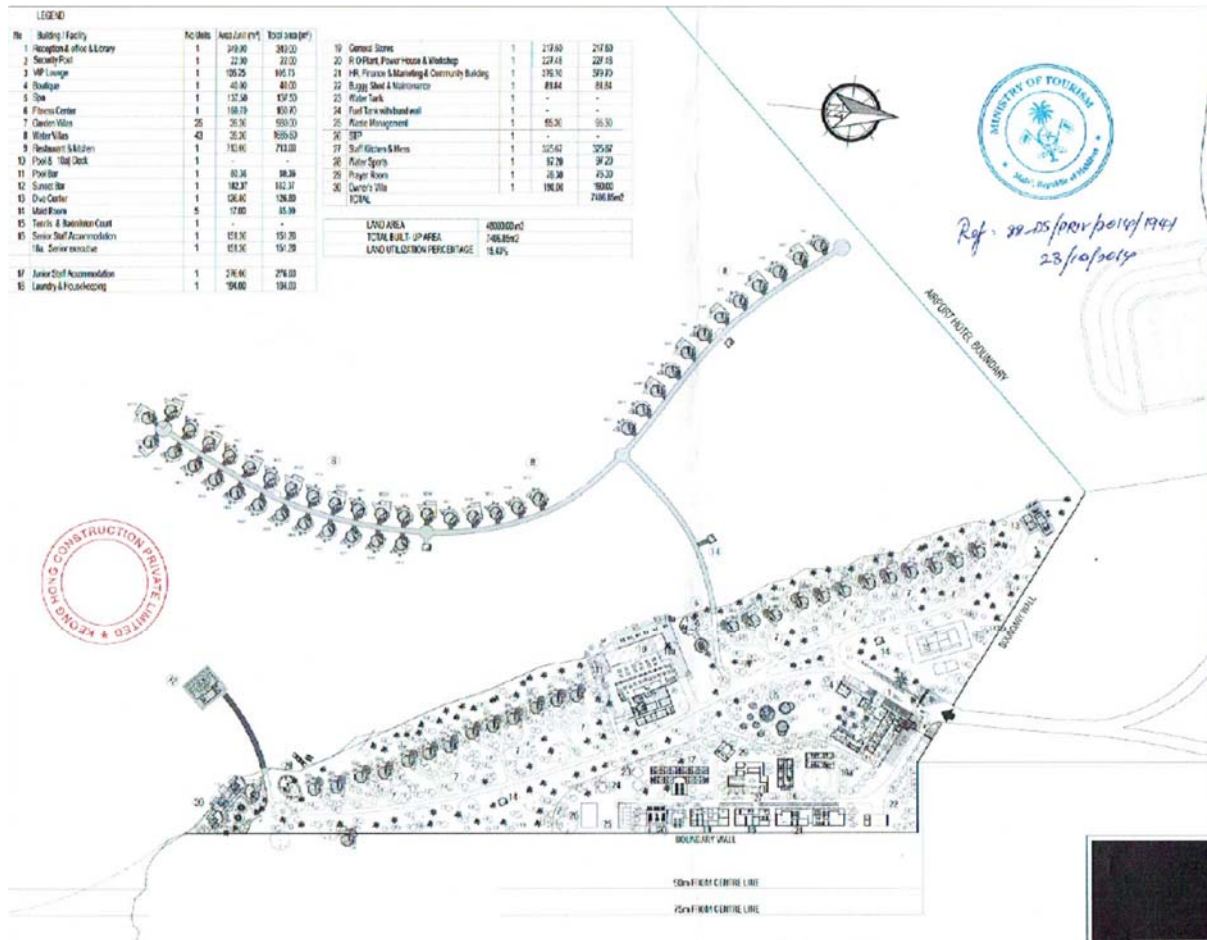


Figure 3: Revised concept plan of Kooddoo Airport Hotel approved by Ministry of Tourism

5.3 CHANGE OF ALTERNATIVE BORROW AREA FOR KOODDO AIRPORT EXTENSION PROJECT

Volume of sand required to reclaim the land to extend the Kooddoo airport from both northern and southern side of the island has been estimated in the EIA report prepared for Kooddoo Domestic airport extension and development of an Airport Hotel at Ga Kooddoo, GA Atoll. As per the report the total of 120,000m³ sand is required to reclaim the Kooddoo airport extension. Estimated volume of sand that can be obtained from entrance and harbour dredging is 70,000 m³. Potential alternative location that can be used to borrow sand for Kooddoo airport land reclamation has been identified on the eastern side of the island (Figure 4). At the time of EIA report preparation the proponent was thinking to use an excavator to extract sand from the lagoon. But due to the tight schedule of the project it will not be possible to complete the project on time if excavator is used for dredging to extract the sand form the lagoon for land reclamation. Therefore to fast-track and due to the large amount of dredging involved in the project the proponent has decided to use a cutter suction dredger for the dredging instead of excavator.

The main reason for changing the alternative borrow area is because of the shallow lagoon depth and swell conditions on the eastern side of the island would not allow smooth operation of the dredger. Also the operation of the dredger to the eastern side would require cutting an entrance channel from the eastern reef, which would have irreversible impact to the reef and

island and logistical difficulties for the proponent. Therefore two locations from the south and north western end of the island has been identified as alternative borrow areas for the land reclamation component of the airport extension project (*Figure 4*). These two borrow areas area adjacent to the proposed land reclamation areas which will make easy to pump sand from the dredger to the reclamation area (*Figure 5*). Details of the alternative borrow areas and the volume of sand borrowed from each site is given below:

- 1- Borrow area on the north western end
Size: 6,578m²
Dredging depth: 4m
Estimated volume of sand: 26,312m³
- 2- Borrow are on the south western end
Size: 5,180m²
Dredging depth 4m
Estimated volume of sand 25,900m³



Figure 4: Sand borrow areas and alternatives recommended in the EIA report



Figure 5: Alternative borrow area recommended in the EIA report and the proposed two new borrow sites

6 EXISTING ENVIRONMENTAL CONDITIONS

A very comprehensive and exhaustive description of the environmental conditions of Kooddoo airport extension project and Airport Hotel development area was provided in the EIA report submitted in December 2013 and therefore will not be repeated. Thus, assessments of both baseline marine and terrestrial assessments are covered in the original EIA report. No additional environmental data was collected for the report as agreed in the scoping meeting. Necessary relevant information required for this report will be delivered from the EIA report prepared for the Kooddoo airport extension project and Airport Hotel development.

Major activities of the proposed developmental changes of Kooddoo airport hotel and the sand borrow areas for the airport extension project is taking place on the western lagoon of Kooddoo Island. Therefore the relevant baseline marine environmental conditions of Kooddoo are presented below.

Baseline bathymetry of the southern and northern ends of the island is in *Figure 6*. Bathymetry of the proposed borrow site and reclamation area is in *Figure 7*. The figures show that the lagoon depth of the area proposed for water villa development is within the range of -0.5 to -0.9m. Lagoon depth of the borrow sites are within the range of 0-5-1.5m.

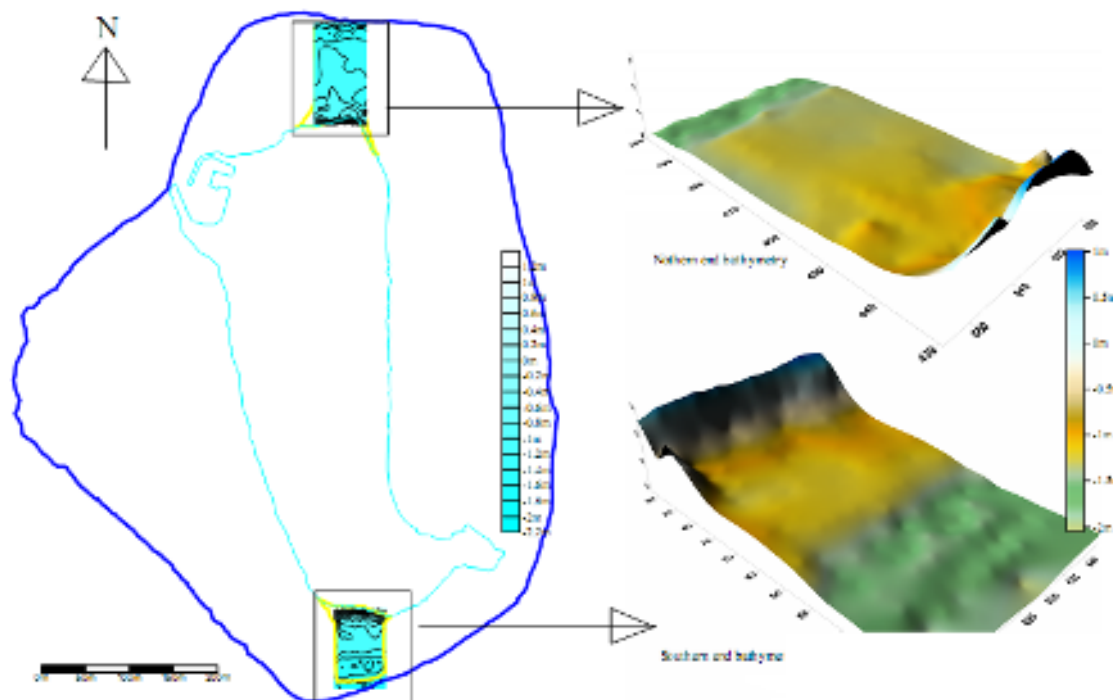


Figure 6: Bathymetry of the dredging areas



Figure 7: Bathymetry of airport hotel development and dredging areas take place

6.1 SURFACE CURRENTS

Current flow through the country is defined by the two-monsoon season winds. Westward flowing currents are dominant from January to March with the change in current flow pattern taking place in April and December. In April the westward currents become weak while the eastward currents start to take over. In December the eastward currents are weak with the westward currents becoming more prominent. Surface current measurements taken around Kooddoo Island are presented in the table below.

Table 2: Current speed and Direction Measures on Kooddoo Island

Site	Speed (m/s)	Direction	GPS co-ordinate
C1	0.6	North west	X 73.4366, Y 0.7338
C2	0.1	North east	X 73.4292, Y 0.7328
C3	0.5	West	X 73.4350, Y 0.7255
C4	0.3	West	X 73.4329, Y 0.7410

7 MARINE ENVIRONMENT

Baseline marine surveys conducted for the EIA report preparation are provided for easy referencing (Figure 8). Site #1 and Site #4 of the EIA report presents the marine environmental condition of the proposed borrow areas on northern and southern ends of Kooddoo Island respectively. Proposed water villa development area is covered with seagrass.

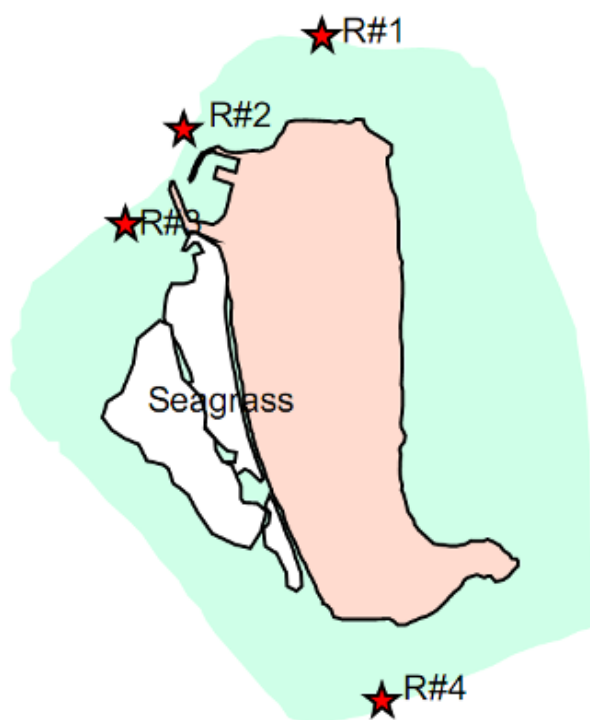


Figure 8: Baseline reef survey locations and seagrass extent on the western side in Kooddoo

7.1 SUBSTRATE COVER

Site #1 – Northern End: Reef on the northern end is healthy. Large areas of the finger and table corals were visible on the shallow slope leading to the reef flat. Fish, typical of healthy reefs (butterfly, angle fishes) were present. Coral cover was estimated around 40-50% on the shallow reef slope. The cover declines on the reef flat and further declining close to the shore. Coral are more boulder type and most of the dead and covered with algae (Figure 9).



Figure 9: Typical substrate cover of northern end of the island Site #1

Site #4 – Southern End: The area was murky and wind and wave action at the time of survey. Fairly good live coral cover mostly large table corals were observed on the reef flat (*Figure 10*). The lagoon area is covered with seagrass.



Figure 10: Typical substrate cover of northern end of the island Site #4

7.2 FISH CENSUS

A total of 15 fish families were recorded at from all the sites. Most number of fish families was recorded at site 1 and least from site 5. *Figure 11* shows the number of fish families and corresponding fish species that were recorded at each site during the fish census.

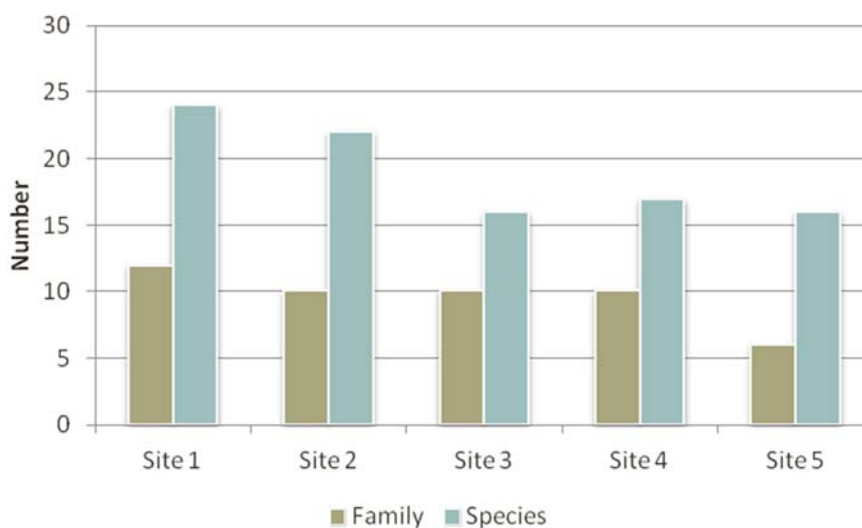


Figure 11: Number of fish families and corresponding fish species recorded at each site

Most number of fishes was recorded from families Acanthuridae, Pomacentridae and Chaetodontidae. *Figure 12* shows summary results of the frequency of fish families recorded from all five sites. Most number of fishes was recorded from genus from Acanthurus, Chaetodon and Scarus.

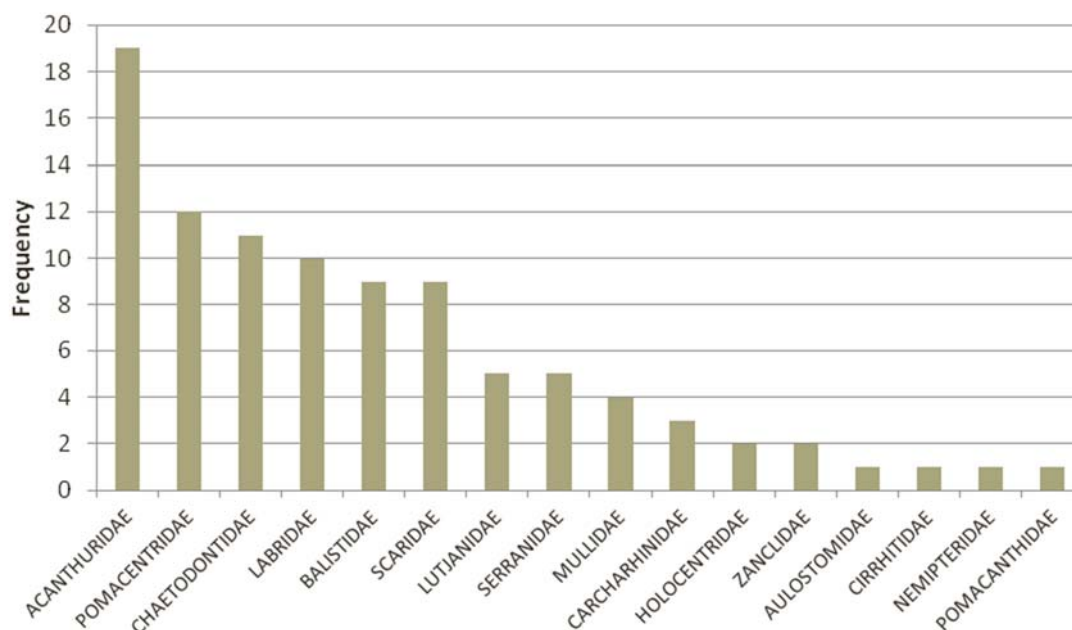


Figure 12: Summary of fish census, 4 sites combined showing the frequency of families recorded.

7.3 SEAGRASS

The seagrass bed on the western side of Kooddoo is shallow; at high tide is about 0.3 – 0.5 m and at low tide. The proposed water villa development falls into the seagrass covered area. With the airport hotel development in Kooddoo seagrass will have little use rather it will be considered as a nuisance for guests in the hotel as they create aesthetically unpleasant view and has a bad odour, also broken leaves of seagrass will be major source of beach litter.

Seagrass elsewhere are considered to be important ecological habitats. They offer food, shelter, and essential nursery areas to commercial and recreational fishery species, and to the countless invertebrates that are produced within, or migrate to seagrass. Juvenile stages of many fish species spend their early days in the relative safety and protection of seagrass. Seagrass meadows also help dampen the effects of strong currents, providing protection to fish and invertebrates, while also preventing the scouring of bottom areas.

8 POTENTIAL IMPACTS AND MITIGATION MEASURES

The changes to the concept plan involves rearrangement and addition of 18 water villas to Kooddoo Airport Hotel. Environmental impacts of the proposed additional work of 18 over-water units will not be new. Those impacts have already been identified and mitigation measures proposed in the EIA report.

Major impact of the proposed change of alternative dredging site will be have general impacts associated with dredging and reclamation in coral reef environment. Those impacts are already covered in the EIA report. With the proposed borrow area on northern and southern ends of the island overall footprint of the impact will be slightly changed to cover the northern end of the island north of Kooddoo Fisheries harbour (*Figure 13*). Some of the significant impacts associated with dredging are reiterated and brought to focus below:

8.1 DREDGING, AND SUBSEQUENT SEDIMENTATION

Given below are relevant impacts that should be considered:

1. Physical damage on live coral and loss of live coral: The effect of this would be in the immediate to medium term with the loss of substrate and its fauna.
2. Disturbance to the area during dredging activity: Normal procedure for dredging using excavator involves creating temporary causeway or beds to move the excavator to the required site. This involves shifting of material to several places to transfer the material. Release of sediments and potential loss of the faunal composition underneath sediment material will undoubtedly occur.
3. Dredging and reclamation will change in the flow patterns. Tidal flows can be quite significant on the shallow reef flats and deeper areas will dampen the flow. The unexpected outcome may be erosion or accretion of the island or coastal areas.
4. Alteration of reef flat and lagoon substrate habitat and infauna approximately 11,758 m² will be altered from the dredging activity on both northern and southern side of the island.

Mitigation Measures: In order to minimize the impact from sediment, dredging should be completed in shortest time possible. Dredging ought to take place during low tides or slack tides to minimize the release of sediment to the area.

As a mitigation measure it is recommended to relocate the live corals on both dredging and reclamation area to the shallow reef flat on the south western side near the proposed water villa development areas prior to starting dredging and reclamation activities.

8.2 SEDIMENTATION

Coral reef-flat on the western side will be impacted mainly from the dredging activities while reef-flat on eastern side will be impacted from reclamation activities. Direct impacts related to sedimentation will be limited to Kooddoo reef however nearby reefs in Villingili and Maamendhoo reefs might be impacted with sedimentation. Impacts of excessive sedimentation on corals include:

- Direct Physical smothering of corals and benthic organisms
- Reduced light penetration and subsequent reduction in photosynthesis productivity of coral reef growth, calcification and reproduction
- Shifting unstable sediments will form a false bottom
- Increased amount of sediment will cause eutrophication which will increase the amount of nutrients and lead to algal blooms
- Formation of anoxic black bottom beneath the fine sediment
- Suspended sediment in the sediment plume may trap pollutants which are absorbed into the sediments.
- Short term turbidity increase in lagoon water column during dredging and reclamation will result in decrease in fish and other pelagic populations.

Mitigation measures: To reduce the impact of sedimentation dredging work will be carried during low tide and calm water condition to minimize effects on the reef. Construction of turbidity screen at the outer boundary of the dredging area will reduce the sedimentation.

8.3 MARINE HABITAT AND COASTAL ENVIRONMENT

Direct impact to Koodoo marine and coastal environment associated with the proposed project will mainly be from dredging and reclamation work. This includes:

- Loss of habitat in reef slope reef flat and lagoon area
- Physical damage to live corals and loss of live corals
- Change of near shore hydrodynamic and longshore current pattern
- Degradation of sea water quality due to turbidity
- Sedimentation and associated impacts
- Physical disturbance of the lagoon substrate will result in loss of habited for some lagoon infauna such as polychaete amphipods, worms, seagrass and mollusks etc.

Mitigation Measure: to relocate the live corals on proposed dredging area to the shallow reef flat on the south western side near the proposed water villa development areas prior to starting dredging and reclamation activities

Depending on the order of developmental activities environmental impacts associated with the dredging and reclamation could be minimized. Therefore to minimize the impacts it is recommended to transport and transplant the corals in the proposed dredging area to the lagoon on the western side of the island, prior to starting the work. It is recommended to undertake the dredging work in the following order:

- 1- Translocation and transplantation of corals on the southern and northern end at the dredging area to the western side of the Island.
- 2- Construction of turbidity screen at the outer boundary of the dredging area prior to dredging activities.



Figure 13: Kooddoo impact footprint associated with the proposed changes

9 DEVELOPMENT OF A MONITORING PLAN

No additional monitoring is required as a result of the proposed changes to Kooddoo Airport Hotel and borrow areas for the Kooddoo airport extension project. As described in the original EIA, monitoring work during the operational phase will be carried out according to the Environmental Management Plan (EMP) and the Terms of Reference. Cost for the monitoring (data collection) activities will be covered by the proponent and commitment for this was provided in the EIA report.

10 CONCLUSIONS

This Addendum is required for the scope change of Kooddoo airport hotel and change of sand borrow areas for Kooddoo airport extension project. Changes include addition of 18 water villas and rearrangement of units built on the shallow lagoon covered with seagrass on the western side of the island and some minor changes to building sizes in addition to Owner's villa on the southern end of the Airport Hotel. The most significant activity that has the potential to cause negative environmental impact is the dredging activity to borrow sand to fill the reclamation site for Kooddoo airport extension work on both northern and southern end of the island. Given the size of dredging involved, proximity of dredging sites to atoll channels and the time involved in dredging no more than 2- 3 weeks, the impacts associated due to sediment re-suspension will be of short duration and extensive. However, with proper implementation of the mitigation measures, anticipated impact of dredging could be limited and contained in the work area without widespread dispersion of suspended sediment plume. Therefore the proposed changes will not alter the over-all aspect of the project.

11 REFERENCES

- Adam, MS and CDE (2011a). Environmental Impact Assessment for the Development of Domestic Airport on Kooddoo, Ga. Atoll – Report #1, Land Clearance and Mobilization Work, Report prepared for Bonavista (Maldives) Pvt Ltd. 52 pages + Appendices
- Adam, MS and CDE (2011b). Environmental Impact Assessment for the Development of Domestic Airport on Kooddoo, Ga. Atoll – Final Report, Prepared for Bonavista (Maldives) Pvt Ltd. 78 pages + Appendices

12 ANNEXES

Annex 1: Approved Terms of Reference (ToR) for the addendum

Annex 2: Dredging permit from EPA

Annex 3: Approved revised master plan of the Airport Hotel from Ministry of Tourism

EPA/ToR/2014/153

Terms of Reference for the Addendum to the Environmental Impact Assessment for the Airport Extension and City Hotel Development Project at Kooddoo, Gaaf Alif Atoll

The following is a terms of Reference as addendum to the, existing EIA of Ga. Kooddoo airport extension and city hotel development project, the proposed changes to the Kooddoo City Hotel concept. This ToR is therefore formed on the basis of the scoping meeting held at EPA on 29th October 2014 in consultation with representatives from the proponent consultant and EPA.

As part of the revised development concept for the development Airport Hotel at Ga. Kooddoo the existing number of water villas will be increased from 25 to 43 and the overall shape of the arrangement of water Villas will be changed from semicircular to arc shape. The revised changes to the proposed concept plan are;

- Water villa arrangements changed from semicircular to arc shape
- Number of water Villas are increased from 25 to 43
- Area of the VIP Lounge is increased from 37.7m² to 105.7m²
- Addition of one owner's Villa (190m²)
- Total buildup area change from 13.41-15.43%.

Study Area- Submit a minimum A4-sized plan with indications of all the proposed infrastructures. Specify the agreed boundaries of the study area for the environmental impact assessment highlighting the proposed development location and size. The study area should include adjacent or remote areas, such as relevant developments and nearby environmentally sensitive sites (e.g. coral reef, sea grass, mangroves, marine protected areas, special birds site, sensitive species nursery and feeding grounds). Relevant development s in the areas must also be addressed including residential areas, all economic ventures and cultural sites.

Scope of Work - Identify and number tasks of the project including preparation, construction and decommissioning phases:

Task 1. Description of the proposed changes to the Project: Provide a full description of the proposed changes to the initial project concept with need and justifications. Provide a full description of the relevant parts of the changes in the project, using maps at appropriate scales where necessary.

h



Environmental Protection Agency	ދިވެހިރާއްޖޭގެ ޖުމްހޫރިއްޔާ ގުޅިގެން
Green Building, 3 rd Floor HanduvareelHingun	މިނިސްޓްރީ އޮފް އެންވައިރަންމަންޓް ޕްރޮޓެކްޝަން ސަރުކާރުގެ ދާއިރާތަކުން
Male', Rep. of Maldives, 20392	މާލެ، ރިޕަބްލިކް އޮފް މާލްދީބު، 20392
Tel: [+960] 333 5949	ފޯން: 333 5949
[+960] 333 5951	ފޯން: 333 5951
Fax: [+960] 333 5953	ފެކްސް: 333 5953
Email: secretariat@epa.gov.mv	އިމެއިލް: secretariat@epa.gov.mv
Website: www.epa.gov.mv	ވެބްސައިޓް: www.epa.gov.mv



Task 2. Description of the environment—Describe the expected changes to the existing environment in the context of the proposed changes to the concept giving due consideration to the baseline data collected in the original EIA. If any development takes place at a footprint which was not studied in the original EIA report, baseline assessment of such areas must be provided.

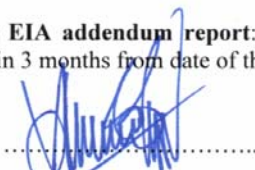
Task 3. Determine the potential Impact: Identify any impact associated with the change to the concept in terms of impact area and their magnitude. Impact during construction and operation phase, direct and indirect impacts and cumulative impacts needs to be analyzed.

Task 4. Mitigation and Management of negative impacts: Identify mitigation measures that are necessary as a result of the proposed changes and reflect this as additional information giving reference to the original EIA.

Task 5. Monitoring: Identify any additional monitoring that may be required as a result of proposed changes. Reference needs to be made to the monitoring programme of the original EIA.

Presentation - The addendum to the EIA report, must be presented in print and digital format, shall be concise and focus on significant environmental issues related to the proposed changes to the concept. It shall contain the findings, conclusions and recommended actions supported by summaries of the data collected and citations for any references used in interpreting those data. The addendum to the environmental impact assessment report shall be organized according to, but not necessarily limited by, the outline given in the Environmental Impact Assessment Report, 20 12.

Timeframe for submitting the EIA addendum report: The developer must submit the completed addendum report within 3 months from date of this Terms of Reference.



 14th December 2014



Environmental Protection Agency	ދިވެހިރާއްޖޭގެ ޖުމްހޫރިއްޔާ ގެ ބަނޑު ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުން
Green Building, 3 rd Floor	ދިވެހިރާއްޖޭގެ ޖުމްހޫރިއްޔާ ގެ ބަނޑު ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުން
Handuvareel/Hingun	ދިވެހިރާއްޖޭގެ ޖުމްހޫރިއްޔާ ގެ ބަނޑު ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުން
Male', Rep. of Maldives, 20392	ދިވެހިރާއްޖޭގެ ޖުމްހޫރިއްޔާ ގެ ބަނޑު ދިވެހިސަރުކާރުގެ ގެޒެޓް ގައި ބަޔާންކޮށްފައިވާ ގޮތުން
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Website: www.epa.gov.mv	ވެބްސައިޓް: www.epa.gov.mv



Annex 3: Approved revised master plan of the Airport Hotel from Ministry of Tourism



MINISTRY OF TOURISM
Republic of Maldives

Ref: 88-DS/PRIV/2014/1941

23rd October 2014

Mr. Mohamed Ali Janah
Representative,
Keong Hong Construction Pte Ltd
BLK 151, Bukit Batok ST 11,
#03-250, Singapore

Dear Mr. Janah,

We refer to your letter reference no: KHC/MOT-KAHP/01-2014 dated 19th October 2014 requesting to approve the revised development concept for the development of Airport Hotel at Kooddoo in Gaafu Alif Atoll.

Please note that, based on the construction permit granted by our letter reference no: 88-DS/PRIV/2014/566 dated 01st April 2014 the revised development is hereby approved based on the following condition;

- o Submission and approval of an addendum to the approved Environmental Impact Assessment Report for the above project,
- o Submission and approval of any changes to the approved detailed drawings if required to do so.

Please also note that this conditional approval will also be based on the rules and regulations and practices of this ministry and concerned government authorities.

Yours sincerely,



Aishath Ali
Director General

Ministry of Tourism, Velaanaage, Malé Republic of Maldives
Tel. (960) 3323224, (960) 3323226, Fax: (960) 3322512, E-mail: info@maldivestourism.gov.mv

AREA SCHEDULE- KOODDOO AIRPORT HOTEL

No.	Building/ Facility	No. of Units		Area/ unit (m ²)		Total Area (m ²)	
		R0	R1	R0	R1	R0	R1
1	Reception, Office & Library	1	1	349.00	349.00	349.00	349.00
2	Security Post	1	1	22.00	22.00	22.00	22.00
3	VIP Lounge	1	1	34.70	105.75	34.70	105.75
4	Boutique	1	1	40.00	40.00	40.00	40.00
5	Spa	1	1	137.50	137.50	137.50	137.50
6	Fitness Center	1	1	160.70	160.70	160.70	160.70
7	Garden Villa	25	25	39.20	39.20	980.00	980.00
8	Water Villa	25	43	39.20	39.20	980.00	1685.60
9	Restaurant & Kitchen	1	1	713.00	713.00	713.00	713.00
10	Pool	1	1	-	-	-	-
11	Pool Bar	1	1	80.36	80.36	80.36	80.36
12	Sunset Bar	1	1	182.37	182.37	182.37	182.37
13	Dive Center	1	1	126.80	126.80	126.80	126.80
14	Maid Room	5	5	17.00	17.00	85.00	85.00
15	Tennis & Badminton Courts	1	1	-	-	-	-
16	Senior Staff Accommodation	1	1	151.20	151.20	151.20	151.20
(a)	Senior Staff Executive Accommodation	2	2	151.20	151.20	302.40	302.40
17	Junior Staff Accommodation	1	1	277.00	277.00	277.00	277.00
18	Laundry & Housekeeping	1	1	194.00	194.00	194.00	194.00
19	General Stores	1	1	217.60	217.60	217.60	217.60
20	RO Plant, Powerhouse & Workshop	1	1	227.48	227.48	227.48	227.48
21	HR, Finance, Marketing & Community	1	1	379.70	379.70	379.70	379.70
22	Buggy Shed & Maintenance	1	1	81.84	81.84	81.84	81.84
23	Water Tank	1	1	47.78	47.78	47.78	47.78
24	Fuel Tank with bund wall	1	1	47.78	47.78	47.78	47.78
25	Waste Management	1	1	95.30	95.30	95.30	95.30
26	STP	1	1	25.52	25.52	25.52	25.52
27	Staff Kitchen & Mess	1	1	325.67	325.67	325.67	325.67
28	Water Sports Center	1	1	97.20	97.20	97.20	97.20
29	Prayer Room	1	1	76.30	76.30	76.30	76.30
30	Owner's Villa	-	1	-	190.00	-	190.00
Total						6438.20	7404.85

	R0	R1	
Land Area	48000	48000	m ²
Total Built Up Area	6438.20	7404.85	m ²
Land Utilization Percentage	13.41	15.43	%

Note:

R0- submitted to MoT on 25th March 2014

R1- submitted to MoT on 16th October 2014

Difference between the first & second submission



Ref: 88-05/PAIV/2014/144
23/10/14

