1. BASIC PROJECT INFORMATION

1.1	**Name of Project**	**:**	Golf Course Project
	Location	:	Barangay Pinatagan, Mati City, Davao Oriental
	Total Lot Area	:	23.9171 hectares
1.2	Proponent	:	SECDEA MANAGEMENT & DEVELOPMENT CORPORATION
	Address of the Proponent	:	Aviation Hangar, Old Airport, Brgy. Sasa, Davao City
	Contact Information	:	Samuel G. Afdal - President
	Email Address	:	martcmisa@yahoo.com
	Mobile Number	:	09052329558
1.3	EIA Preparer	:	Engr. Aldreck Madelo 09159438901

2. PROJECT DESCRIPTION

2.1 Type and Purpose of the Project

The project, **Golf Course Project**, is for the development of an nine-hole recreational but challenging golf link with appropriate support facilities like a clubhouse equipped with amenities for rest and relaxation after a few rounds of golf. This is in response to the ever-growing tourism industry in Davao Oriental.

Mindanao is the second largest island in the Philippines and is one of the three geographical divisions in the Philippines located in the southern part of the country. The area is also called as the “Land of the Promise” because of the area’s great biodiversity.

This region is also known as the food basket of the Philippines. 8 out of 10 agri-commodities exported outside the Philippines came from this region. Whereas the region is

also home to the largest Pineapple plantations, these plantations are major contributors to the region's economy and to the Philippines.

Situation like this affects local economy and therefore hinder efforts of the local government to achieve economic progress and stability. Therefore, the decision to invest in the proposed business is to get a share of the tourism pie with expectations that the venture will become a steady source of profit for the proponents while catalyzing the economy of the city.

The development of the area as a first-class tourist facility will definitely be of benefit to the city and the province. It will boost the city's flagging revenues and will at the same time improve the local economic dynamics of the surrounding communities as the venture can serve as a beacon for other types of businesses relevant to the tourism industry to come into the picture.

Learn new cultures and taste Mindanao's world class Pineapples and export quality products, while relaxing and playing golf in the newest Golf Course in the Mindanao area.

Figure 1-3. Aerial Photo of the proposed Golf Course

2.2 Project Location and Site Description

The project will be located in Mati City, the city with the largest land area in Davao Oriental. The process of development includes promoting the potential of the area for major investments from the tourism industry. What it has to offer to potential investors is a climate favourable to such tourism ventures as resorts and hotels with its vast, untapped land resources for development, friendly and peaceful community and a municipal development program that intends to improve its basic services for a better and progressive City.

The project area is a **23.9171** hectares lot in the barangay Bitanagan now Brgy Dahican, Mati City.

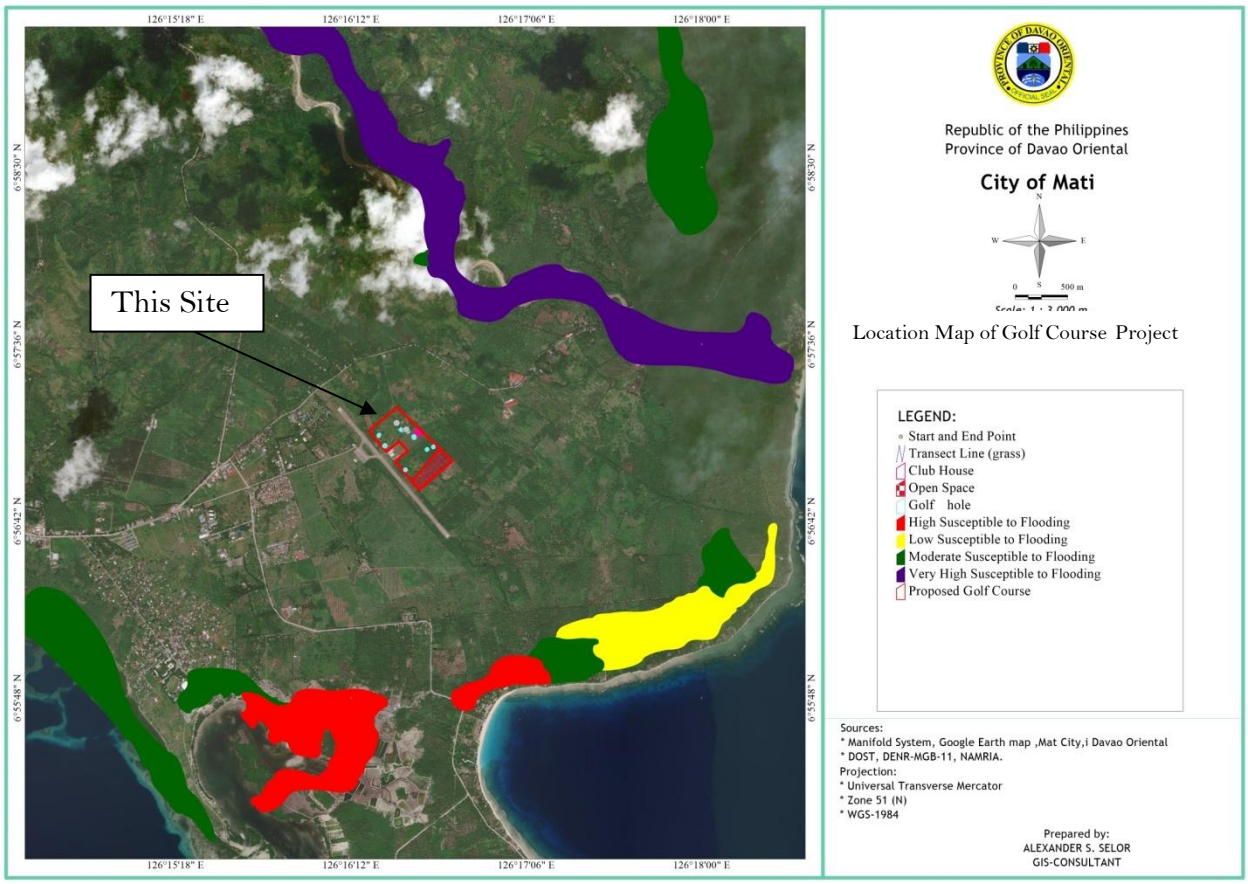

Figure 2. Location of the Project Site

2.3 Project Objectives

The primary objective of the company is to provide additional leisure and sports to local and international Golf enthusiasts and become part of the Golf Hub within the Mindanao Region.

The project aims to achieve the following objectives:

- To become and active partner in the fulfilment of the countries tourism potential;
- To provide a venue for national and international events in Golf activities; and
- Provide employment to the local people of Mati City

2.4 Project Alternatives

The Golf Course project has an increasing demand in the Davao Oriental area being one of the tourism destinations of Mindanao. Though there are a number of golf club which are located in Davao Del Sur only, the proposed Golf course will surely attract players and enthusiasts looking for a different field and location and a world class golf course design. The Golf Course will also support the developing tourism industry in Mati City and Davao Oriental.

The following factors were considered by the proponent in choosing the area for the development:

- The property is privately owned by the proponent;
- The City and Provincial Government is amenable for the development of the golf course
- The site is located far from the populated areas of the City;
- The site is accessible to any land vehicle for different provinces in Mindanao; and
- The project will support existing tourism sites in Davao Oriental

Results of the Perception Survey that was conducted for the project, almost all of the respondents are already aware that there will be a Golf Course development in the area. The respondents believed that the development will boost the economic activity in the area as well as create employment and livelihood.

Technology Selection/Operation Processes

The major maintenance activity of the Golf Course is the consumption of large quantity of water for maintaining green areas as well as the application of pesticides to mitigate infestation of insects and pests. The management will see to it that water conservation measures will be implemented and the use of environment friendly pesticides will be used.

As there will be guests on the site, solid wastes and wastewater are the major wastes of the project. Pollution Control Devices will be put in place such as Waste Water Treatment Facility (WTF), Material Recovery Facility (MRF) and Cistern.

2.5 Project Development Plan and Schedule

Countdown for the implementation of the project started with the conceptualization of the idea into a more concrete proposition, the conduct of feasibility assessment and the evaluation of the target host City. Preference for Mati City as the host local government unit was by no means a product of random speculation or unsubstantiated selection as the company has already had several business dealings with the particular LGU and found them cooperative and quite supportive, aside from the fact that the investment/business climate prevailing is very good for incoming investors.

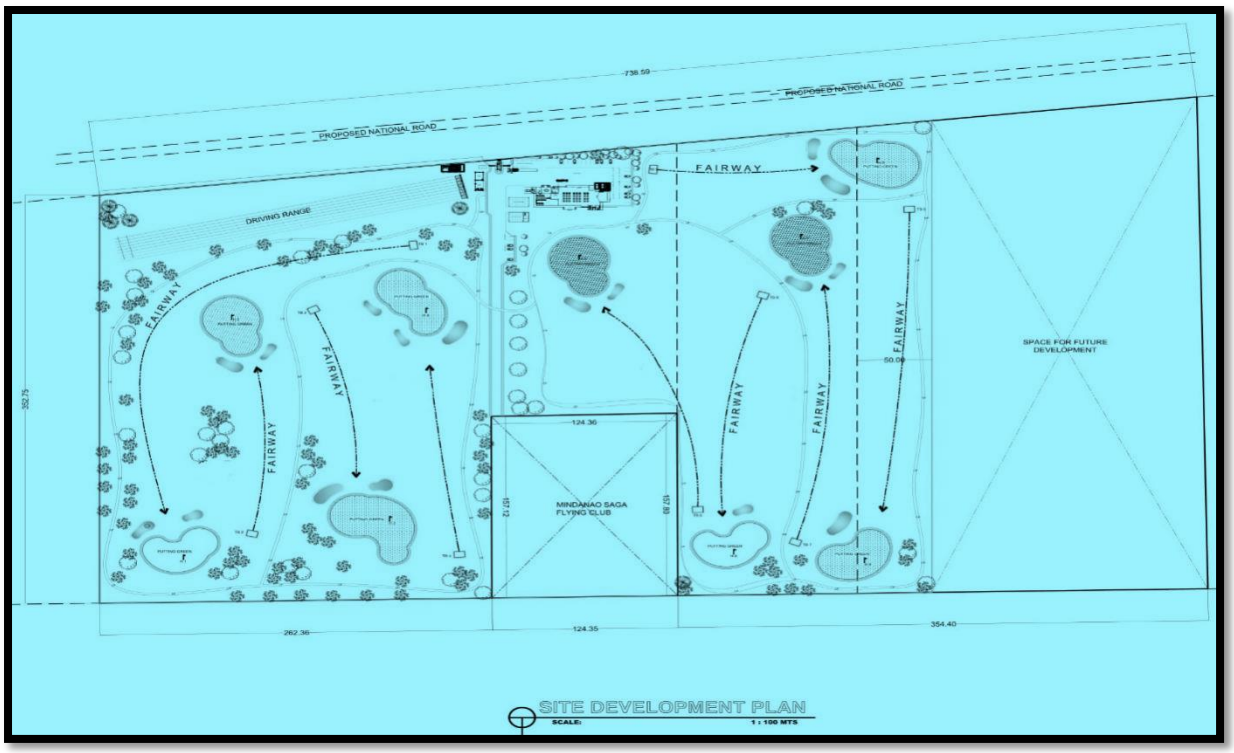

Figure 3. Site Development Plan of the Golf Course Project

2.6 Total Surface Development Block

The total surface block to be developed by the project proponent is the entire area of 23.9 hectares, a set of lots purchased from individual lot owners and consolidated to form a unified lot for development into a golf links complete with service facilities and utilities that extends into portion adjacent to the SAGA Flying School. The whole area to be developed is secured from unauthorized entry by the construction of perimeter fencing all throughout.

2.7 Discussion on the Nature of Project Phases and Development Activities

Project implementation is programmed into four major phases, namely: the pre-construction phase, the construction phase, the operational phase and the possible abandonment phase of the project. These four major phases are achieved through a series of activities with every aspect of the activity studied and analyzed for its impact on the receiving environment. Mitigations are proposed accordingly to address environmental situations that may pose as problems detrimental to the municipality, to the community, to the area's ecology and to the project itself.

2.7.1 Pre-Construction Phase

The pre-construction phase is spent on lot acquisition, procurement of documentary/regulatory requirements for development and design planning/development plan preparation.

Conceptualization of the idea to invest in a tourism-oriented development project with high potential for return was proposed and discussed in the corporate boardroom. Once agreed, management immediately organized a team to implement the idea. Primary consideration was focused on site selection anchored on the essential elements necessary for a successful business venture like accessibility, presence of competition, service facilities, proximity to prospective clientele and, most important, the prevailing business climate. All these essential elements were favourably found Davao Oriental with the municipal government fully supportive of the proposal.

All these pre-construction and development activities are programmed to be completed within a thirteen-month period to include the EIS study and issuance of the ECC which is expected to be secured on the ninth month and definitely prior to the implementation of any physical development in the area.

2.7.2 Construction Phase

The project is already operational.

2.7.3 Project Operations Phase

Putting the golf course on stream and making it operational is the fruition of the concept as visualized by the proponent. Operating a golf course mainly consists of greens and fairways maintenance. Of course, as in any business operation, activities like cleanliness and disposition of generated waste forms part of the operational management of the company. At present the golf course is operational.

2.7.3a Clubhouse Operation

The clubhouse will serve also as the operation center of management and will house the administration offices. It will also contain a restaurant that will cater to the food and refreshment needs of the members and invited guests; a sauna and bath; a reading and smoking room; a game and amusement room and such other amenities that could be introduced later depending on club members needs.

The clubhouse is expected to generate solid waste and wastewater whose volume depends on the number of members and guests aside from the regular staff and employees of the company.

Segregation of solid waste from food outlet of the project will be implemented. Biodegradable waste and materials will be composted and produced soil matter utilized in turf and greens maintenance. Non-biodegradable materials that are not recyclable or reusable will be disposed through the municipal garbage collection system.

Composting of solid wastes include preparing the refuse and facilitating decay and degradation using aerobic micro-organisms. Refuse is sorted to remove materials that have salvage value or cannot be composted and grinded to improve efficiency of the decomposition process. The refuse will be placed in long piles on the ground and degraded biologically to

humus with total nitrogen, phosphorous, and potassium content of 1 to 3 percent, depending on the matter composted. Compost produced will be applied to the golf course area as organic fertilizer. Composting of grass clippings is also done as it is an excellent growth medium that promotes fast germination and reduction in fertilizer use.

Re-use and recycling will be applied in the disposition of solid waste. Implementation of this waste management approach means the collection of non-biodegradable waste into a sorting and segregation area where items can be categorized into reusable and recyclable materials with those no longer reusable or recyclable hauled and transported to the nearest Material Recovery Facility (MRF) of the barangay or the municipality.

2.7.3b Greens and Fairways Maintenance

Golf is played on a tract of land designated as the course. The course consists of a series of holes. A hole means both the hole in the ground into which the ball is played, as well as the total distance from the tee (a predetermined area from where a ball is first hit) to the green (the area surrounding the actual hole in the ground).

The first stroke on each hole is done from the Tee, where the grass is well tended to make the tee shot easier. After teeing off, a player hits the ball again from the position at which it came to rest, either from the fairway (where the grass is cut so low that most balls can be easily played) or from the rough (grass cut much longer than fairway grass, or which may be left uncut) towards the putting green. From there, it is putt to the hole until the ball comes to rest into the hole.

Many holes include hazards, which may be of two types: water hazards (lakes, river, etc.) and bunkers. A ball in any type of hazard may be played as it lies without penalty. If it cannot be played from the hazard for any reason, it may be removed by hand and dropped outside the hazard within two club lengths and a penalty of one stroke. Bunkers or sand traps are hazards from which the ball is more difficult to play than from grass.

The grass of the putting green is cut very short so that a ball can roll easily over distances of several yards. Operational maintenance of the putting greens is essential as the direction of growth of individual blades of grass often affects the roll of a golf ball. The slope of the green can also affect the roll of the ball. The cup is always found within the green. Its position on the green is not static and may be changed from day to day. The cup usually has a flag on a pole positioned in it so that it may be seen from some distance, but not necessarily from the tee.

Putting greens are not of all the same quality but shall be maintained at its best condition so that a ball well roll smoothly over the closely mowed grass. The borders of the course are at the same time marked as such and beyond them is out of bounds or it is a ground from which a ball must not be played.

Aside from the course, a driving range shall be maintained and located near the service complex for easy access. It will contain a practice greens and bunks.

The maintenance and upkeep of a golf course demands significant expense. Unlike a soccer field or an open basketball court, a golf course cannot be left to the elements. Moreover, unlike a basketball or tennis court, grass continues to grow, as do weeds, trees, etc., which must be constantly and regularly trimmed and kept in order to maintain a clean course.

The sheer size of a golf course demands no small amount of crew and equipment. But, not just any crew or any equipment – specialized groundskeepers and specialized equipment must be used to maintain a stimulating and beautiful tee, fairway, green, as well as bunkers, water hazards, etc. Quality grasses, soils, flora and a high degree of ever-changing technology require that a golf club can't really go cheap and expect to remain profitable.

2.7.3c Wastewater Treatment Facility

Sewage treatment is a multi-stage process to renovate water before it re-enters a body of water for reuse. The purpose of the treatment is to reduce or remove organic matters, solids, nutrients, disease-causing organisms and other pollutants from wastewater.

The process flow of treatment starts with the disposal systems removing wastewater from the facilities of the golf complex, separation of contaminants from the wastewater in a multi-chambered septic tanks, and the release of treated effluents into the impounding lakes that doubles as reservoir for reusable wastewater.

The multi-chambered septic tank design will be installed within the complex. It is designed to receive 20,000 liters of wastewater at any one time during the peak of golfing season. At this particular period, the complex is expected to host at least 200 golfers with each individual assumed to generate a hundred liters of wastewater per day from water used for baths, showers, toilets to include water consumption in the cleaning of rooms, utensils and other activities that involved the use of water.

The digestive chamber as designed will have a total capacity of 10 cubic meters and periodic removal of sludge will be undertaken to maintain digestive efficiency. The liquid outflow from this chamber will be transferred by gravitational flow into the succeeding 7 treatment chambers of decreasing holding capacity and the treated water released into the receiving body of water ready for re-use as irrigation water for the fairways and greens.

For water coming from the roofs, driveway, parking lots during rain events and in the doing of laundry, baths and showers, a separate drain system will be established to run parallel with the septic system. This is to prevent septic system failure.

2.7.3d Rainwater Harvesting

As a major source for irrigation water, rainwater harvesting is a must to support the various water needs of the project. The strategy at the same time is expected to reduce the

volume of water runoff at the project site, thereby minimizing erosion and potential flow of pollutants into the open sea, the river and possibly the groundwater.

The emplacement of four (4) artificial lakes or lagoons with a total holding capacity of 30,000 cubic meters of water is projected to be more than adequate to receive the amount of rainfall PAGASA has projected annually. The golf course thus will be designed to function as a catchments for rainwater with underground culverts serving as diversion channels for runoffs to flow into the lake system. At the same time, all the roof areas of the facilities, driveways and parking areas will serve as the secondary catchments surface for rainwater that will be diverted into the lakes.

2.5.4 Projected Impacts

Projected impacts that can be encountered during project development is presented in the matrix below:

Project Component/Impact Sources	**Environmental Issues**				
	Air Q	**Water Q**	**Land Pr**	**Noise**	**Vegetation**
Pre-Operation Phase					
Planning and design prep.					
Site clearing/preparation	None	None	None	None	None
Const. equipment mobilization	Ins	Ins	M	M	M

Labor mobilization	Ins	Ins	None	M	None
Building construction	Ins	Ins	None	Ins	None
Solid waste generation	Ins	Ins	M	M	None
Golf course development	Ins	Ins	Ins	None	None
	Ins	Ins	M	Ins	M
Operation Phase					
Club house operation					
Greens/Fairways maintenance	Ins	M	None	None	None
Wastewater treatment operation	None	Ins	None	None	None
Solid waste management	None	Ins	None	None	None
Rainwater harvesting	Ins	Ins	None	None	None
	None	Ins	None	None	None
Post-operation/Abandonment Phase					
Decommissioning the golf	None	None	None	M	None
course	Ins	None	M	M	None
Conversion to other uses					

Project Phase / Environmental Aspect (Project Activity Which Will Likely Impact the Environmental Component)	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Responsible Entity	Cost	Guarantee / Financial Arrangements
I. PRE-CONSTRUCTION PHASE	**(include only applicable modules)**	Not applicable				
II. CONSTRUCTION PHASE	**(include only applicable modules)**	Not applicable				
III. OPERATION PHASE	**(include only applicable modules)**					
Maintenance of Golf Course (Landscape Maintenance, Application of Fertilizer and Pesticides)	Land and Water	Solid waste generation	• Implementation of the Solid Waste Management Plan • Segregation of solid waste according to recyclable and non-recyclables • Management and operation of materials recovery facility • Implement Composting of Organic Wastes • Collection and disposal of segregated solid waste	Environmental Unit/ PCO	Part of the Operation Costs	ECC, Solid Waste Management Plan, EMP
		Change in Soil Quality/Fertility	The Fertilizer used should be approved by the Fertilizer and Pesticide Authority of the Department of Agriculture	Environmental Unit/ PCO	Part of the Operation Cost	ECC conditions, Fertilizer and Maintenance Plan
		Contamination of Soil and Water	The Fertilizer used should be approved by the Fertilizer and Pesticide Authority of the Department of Agriculture. Water	Environmental Unit/ PCO	Part of the Operation Cost	ECC conditions, Fertilizer and Maintenance Plan

Project Phase / Environmental Aspect (Project Activity Which Will Likely Impact the Environmental Component)	**Environmental Component Likely to be Affected**	**Potential Impact**	**Options for Prevention or Mitigation* or Enhancement**	**Responsible Entity**	**Cost**	**Guarantee / Financial Arrangements**
			sampling, monitoring and analysis to check of possible contamination			
			Ensure proper handling, storage, and management of fertilizer and pesticides	Environmental Unit/ PCO	Part of the Operation Cost	ECC conditions, Fertilizer and Maintenance Plan
	Water	Change in drainage pattern/occurrence of flooding	Drainage lines and canals shall be regularly checked for optimum efficiency	Environmental Unit/ PCO	Part of the Operation Cost	ECC conditions, Fertilizer and Maintenance Plan
	Water	Depletion of Water Sources/Competition of water use	The company has deep well of its own to supply water needs of the golf course and make sure to secure permit from NWRB	Golf Course Manager/Maintenance Personnel	Part of the Operation Cost	NWRB Permit, ECC condition
			Personnel assigned to the water supply should frequently monitor water supply system for leakage and improper use.	Maintenance Personnel	Part of the Operation Cost	Maintenance and Operational Plan
			Implement recycling of runoff water and rainwater for domestic use and watering of green areas	Maintenance Personnel	Part of the Operation Cost	Maintenance and Operational Plan
Clubhouse Operation and Driving Range	Land	Generation of Solid Waste	Provide appropriate garbage bins in the facility	Clubhouse Manager	Part of the Operation Cost	ECC conditions
			Construction of MRF for segregation of wastes	Clubhouse Manager	Part of the Operation Cost	ECC conditions
	Water	Generation of Wastewater and sewage	Provision of efficient sewage treatment plant	Clubhouse Manager	Part of the Operation Cost	ECC conditions, Discharge Permit
	Air	Generation of emissions from generator set and vehicles	Provide appropriate and efficient Air Pollution Control Device and apply for Permit to Operate	PCO	Part of the Operation Cost	ECC conditions, Permit to Operate

Project Phase / Environmental Aspect (Project Activity Which Will Likely Impact the Environmental Component)	**Environmental Component Likely to be Affected**	**Potential Impact**	**Options for Prevention or Mitigation* or Enhancement**	**Responsible Entity**	**Cost**	**Guarantee / Financial Arrangements**
	People	In migration due to project operation and employment	Priority giving employment to qualified people in the host barangay and City	HRD	Part of Operation Cost	Barangay Clearance, NSO
		Traffic congestion due to influx of visitors	Provide adequate parking space within the project area	Operations Manager	Part of Operation Cost	Traffic Management Plan
			Provide signages in strategic areas going to the project site	Operations Manager	Part of Operation Cost	Traffic Management Plan, Development Permits
		Increase demand in health services in the area	Provide emergency health response or clinic to cater immediate health problems of visitors, guests and employees	Operations Manager	Part of Operation Cost	Proponent EMP
			Hiring of medical personnel	Proponent	Part of Operation Cost	Proponent EMP
		Generate employment and livelihood opportunities	Provide employment to local community	Proponent	Incorporated in the SDP	Social Development Framework
		Increase revenue of the LGU	Prompt payment of taxes and permits	Proponent	Part of the Operation cost	Business Permit
IV. ABANDONMENT PHASE	**(include only applicable modules)**					
Stoppage of Operation	Land/Water	contamination of water	Water sampling and analysis. Water treatment if there is contamination.	Proponent	Part of the Abandonment Plan	Abandonment Plan
	Land/Water	Soil Contamination	Soil analysis and enrichment if needed. Removal of contaminated soil	Proponent		EGF
	People	Termination of Work	Provide separation fees and compensation to workers		Part of the Abandonment Plan	Abandonment Plan, SSS, DOLE guidelines

2.6 Abandonment Phase

Operating a golf course is a long-term investment. It is the vision of the proponent that it will continue to operate as a golf course for at least the next 50 years. However, with a lot of on-going development surrounding the area, its attraction as a golf course may lose value that will force the proponent to divest from the business and sell before that period. In this scenario, the golf course may continue to be operated as such or it could be converted to another type of operation thus the new owners have to secure a new ECC for the type of operation they have on mind.

It is also possible that the proponent itself will convert the business into another type of operation like converting the golf course into a housing development or an industrial complex. Whatsoever, it is expected that a new ECC will be required in each case. What is apparent is that a change in business may cause for the renovation of the golf complex to make it consistent with the new business in mind but abandonment of the area is never considered, it being a valuable piece of real estate.

2.7 Public Perception Survey

Public perception survey was conducted by staff and consultants with the Barangay, the City and Province including the Provincial Environment and Natural Resources Office of DENR regarding the project. However, the respondents agreed that the Perception Survey will be in a form of Focus Group Discussion (FGD) with EMB personnel. It was agreed that the activity will be simultaneously conducted during the scheduled Public Scoping that will be scheduled by EMB Office. The proponent shall coordinate with EMB Central Office for the schedule of the Public Scoping and Focus Group Discussion.

LIST OF INVITIES FOR SCOPING

1. Nestor Escasinas -Punong Barangay, Barangay Dahican, Mati City
   - Barangay Council and Constituents
2. ENP. Dolores D. Valdesco, MAURP- OIC ENRO Davao Oriental
3. Alberto N. Bandiola - OIC PENR Officer, DENR PENRO, Davao Oriental
4. Engr. Ariel C. Mosquera - City Planning and Development Officer, Mati City
5. Eddie P. Cobacha - City ENR Officer - CIENRO, Mati City
6. Operations Manager SAGA Flying School - Brgy. Dahican, Mati City
7. Zaldy L. Lumaan - Oic, CENR Officer, DENR-CENRO, Mati City
8. Office of the Governor, Davao Oriental
9. Office of the Mayor, Mati City
10. Other Stakeholders the LGU and other gov agencies may identify

Focus Group :

1. Saga Flying School (School Sector
2. Rufo Trocio - President Davao Oriental Chamber of Commerce and Industry (Business Sector)
3. Bishop Aguipo - Diocese of Mati (Religious sector)
4. Felix Arieglado -President FCM Homeowners (Community)
5. Jim Carrey Prudente - Konsumo Mati INc (Consumers Sector)