

## **Brief Report on PA 02342/06**

November 2012

# Contents

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## **1. Introduction**

- 1.1 Project Background
  - 1.1.1 Current Situation in Malta
  - 1.1.2 Project Summary – explanation of nature of opportunities and problems being addressed
  - 1.1.3 Policy Context
- 1.2 PDS Content
- 1.3 Details of Developer
  - 1.3.1 Background

## **2. The Project**

- 2.1 Summary
- 2.2 Relevant permits related to areas/uses located in the vicinity
- 2.3 The Need and Objectives of the Project
- 2.4 Key Legislative Requirements
- 2.5 General Design Principles
- 2.6 Environmental Monitoring
- 2.7 Proposed Timing and Phasing
- 2.8 Project Viability

## **3. The Site**

- 3.1 Site Evaluation / Physical Characteristics/Land Uses
- 3.2 Areas required to carry out the proposed amendments subject to the current application
- 3.3 Surrounding Land Uses
- 3.4 General Land Use
- 3.5 Site Services

## **4. Implementation Process**

- 4.1 Materials to be used for Closure of the Landfill
- 4.2 Access Arrangements
- 4.3 Mitigation of Negative Effects

## **5. Conclusion**

**Appendix A Project Description Statement Guidelines**

**Appendix B Drawings, Figures and Photos**

**Appendix C Drawings submitted in separate application ‘Construction of an Underground Reservoir and Associated Culvert and Overlying Car-park’ – TRK00149794**

**Appendix D Summary of Closure Plan for Ta’ Zwejra Landfill**

## Introduction

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### 1.1 Project Background

#### 1.1.1 Current Situation in Malta

Malta, a 316 km<sup>2</sup> area of land situated in the middle of the Mediterranean, lies 93km south of Sicily and 288km north of Africa. The Maltese archipelago consists of the islands of Malta, Gozo and Comino together with a number of small uninhabited islets. These islands are inhabited by a population of approximately 407,810<sup>1</sup>. With a population density of 1,290 inhabitants per square kilometre, the country is considered as being one of the most densely populated countries in the world.

The means and location of the disposal of waste generated by the inhabitants of the islands are of vital importance since such waste can be the cause of the spread of communicable diseases and also pollution of the surface, ground and coastal waters. The two latter mentioned issues are inter-dependable to the extent that a polluted body of water is a potential source of infection, particularly in hot climates [such as is the case in Malta]. However, there is now an increasing awareness that pollution and contamination of the environment is undesirable not only by environmentalists but also by the general public. Furthermore, when Malta joined the European Union in 2004, the government was obliged to meet a number of EU requirements and adhere to the common regulations.

The solid waste disposal site at Magtab was developed at a time when the full environmental impacts of such operations were not known. As a result, the Maltese Islands were left with a legacy of landfill sites that had no systems in place for the proper control of landfill leachate or gas and the presence of fires was common.

The Solid Waste Management Strategy of the Maltese Island, October 2001 was created with the aim of providing a policy and decision-making framework for the future management of wastes and the respective implementation plans for remediation, restoration and return to beneficial use of former and existing dump sites. An update of this Strategy was issued for public consultation in January 2009 and is currently awaiting the outcome of the Strategic Environmental Assessment (SEA).

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<sup>1</sup> National Statistics Office (2006) Demographic Review 2006.

Until some time ago, the waste of the islands [i.e. Malta and Gozo] was being deposited in an uncontrolled manner at the Maghtab landfill. In 2004, the landfills of Maghtab in Malta and Qortin in Gozo which had been operating for 24 and 33 years respectively were closed down. Currently, building and construction waste is being deposited in a number of approved quarries while the organic [municipal] waste of both islands is being deposited at the Ghallis engineered landfill. The Wied Fulija landfill in Zurrieq [which functioned between 1979 and 1996] was up to sometime ago used as the storage site for maturing compost produced from the Sant' Antnin compost facility. This facility has recently been upgraded.

#### The Maghtab Landfill

Prior 2004, this was the only landfill authorised to take non-inert waste on the island of Malta. Located on the north coast of the island 1.5 km east of Bugibba and 3 km north of Naxxar, it has been in operation since 1977. After closure of Wied Fulija in 1996, Maghtab became the main landfill to take most of Malta's waste. No detailed records exist of the quantities and type of waste deposited prior 1997. Since then, a weighbridge has been installed and records are taken of all wastes entering the landfills of Zwejra and Ghallis.

The site was originally made up of areas of garigue and some agricultural land. The natural topography was that of a valley lying between two ridges, sloping towards the sea. Today, the valley is entirely buried and the ridges form part of the land surfaces at the base of the western [L-Ghallis ta' Gewwa] and eastern [Ta' Hammud] sides of the landfill.

Since July 2003, no further inert, construction and demolition wastes have been deposited at Maghtab Environmental Complex.

An ongoing project was started some years ago to create the new Engineered Landfill and ancillary facilities at 'Il-Ghallis ta' Gewwa', Naxxar as per PA 04834/04.

In addition, care has been taken for the slope stabilisation of the former Maghtab landfill. To render this place safe for future use by the public, a project covered by permit PA06136/03 for the extraction and treatment of any trapped hazardous gases was developed and is currently in operation. The former landfill is also currently being restored in line with the details submitted in a separate approved permit application namely PA 6149/08.

The next major step of this development includes the excavation and construction of the Ghallis engineered landfill, which is also currently in progress.

The extension of the boundary wall to enclose and stabilise Zwejra Cells 1 and 3 by introducing an additional area for the use of waste related activities is covered in

PA02342/06, subject of this report. This application also includes an area for temporary storage of inert material, the re-routing of the access road and the delineation of the development boundary, around the Zwejra Area.

#### 1.1.2 Project Summary – explanation of the nature of opportunities and problems being addressed

The present report seeks to present a project description statement for the proposed amendments to the approved development of a controlled engineered landfill at Ta' Zwejra, within The Maghtab Environmental Complex, Naxxar.

This report should be read in conjunction with the application drawings and other information presented with the application PA 2342/06 'Sanctioning of Zwejra Cell 1, Cell extension and closure plan for Zwejra.

The extension of the current project includes the creation of a new cell in an area along Zwejra Cell 1 to attain stabilisation of this first cell. At the same time this extension of Zwejra facility provided space for the deposit of non-hazardous waste until the first phase of the Ghallis landfill was completed and ready for used. A similar extension was created alongside Zwejra Cell 3 for the same reasons stated above, for Cell 1. Therefore sanctioning of these two areas at the Ta' Zwejra Landfill is being solicited. Furthermore a closure plan for the Ta' Zwejra Engineered Landfill is being proposed.

#### Policy Context

Existing national policies relating directly to waste management and landfills include:

- *Structure Plan [1990-2010] for the Maltese Islands* published in 1992 by the Planning Authority [PA].
- *Waste Management Policy for the Maltese Islands* published and subsequently adopted in 1998 by the Ministry of foreign Affairs and the Environment.
- *Space for Waste: The Waste Management Subject Plan* published by the Planning Authority in October 2001.
- *A Solid Waste Management Strategy for the Maltese Islands* published by the Ministry for the Environment and approved by Government in October 2001.
- *Revised Waste Management Strategy dated December 2010*

## Waste Management Policy for the Maltese Islands

This policy was first published for public consultation in 1997 and subsequently adopted by the Consultative Board for the Environment of the former Ministry of Foreign Affairs and the Environment in 1998. This document gives a general overview of the waste management situation at the time and also provides the key principles that should form the basis of a well planned waste management strategy for the future. Reference is made to the legislative and regulatory framework of the European Union which has been of significant influence in the development of the actual waste management plans.

## Solid Waste Management Strategy for the Maltese Islands

The Solid Waste Management Strategy for the Maltese Islands was issued following the adoption of the Waste Management Policy by the Ministry for the Environment as a consultation draft in January 2000. The main objectives were to identify possible strategies and systems for the waste management with the utilisation of the latest technologies according to the EU framework. A revision of this Strategy was issued for public consultation in December 2010. The revised document proposes to strengthen Malta's solid waste management infrastructure through the establishment of a number of facilities intended to reduce dependency on landfilling including the establishment of Mechanical Biological Treatment (MBT) Plants in the North of Malta and in Gozo.

### 1.2 Brief Description Project Statement Content

The table below gives an overview of the contents of this PDS, with cross-reference to the relevant PDS Guidelines issued by MEPA [Refer to Appendix A].

Section	Description	Reference to PDS Guidelines
1	Introduction	
1.1	Project Background	
1.1.1	Current Situation	g
1.1.2	Project Summary	b
1.1.3	Policy Context	
1.2	PDS Contents	
1.3	Details of Developer	a
1.3.1	Background	
2.	The Project	
2.1	Summary	b
2.2	Relevant Permits to immediately adjacent areas	
2.3	The Need and Objectives of the Project	e, f, h, m
2.4	Key Legislative Requirements	
2.5	Design Principles	k, l

2.6	Environmental Monitoring	
2.7	Proposed Timing and Phasing	c
2.8	Project Viability	
3.	The Site	
3.1	Site Evaluation / Physical Characteristics	e, f
3.2	Quantification of areas required to carry out the proposed amendments to the approved permit PA04834/04	f
3.3	Surrounding Land Uses	h
3.4	General Land Use	g, h
3.5	Site Services	i, l
3.6	Advantages	
4.	Implementation Process	
4.1	Raw Materials and Their Treatment	k
4.2	Access Arrangements	l
4.3	Mitigation of Negative Effects	m
5.	Conclusion	
6.	Appendices	d, f, g, h

### 1.3 Details of Developer

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MALTA

#### 1.3.1 Background

WasteServ Malta Ltd [WSM Ltd] was established in 2002 as a private company in accordance with the Companies Act 1995 wholly owned by the Government of Malta through Malta Government Investments Limited and Malta Investment Management Company Limited.

WasteServ Malta is responsible for the waste management of all Malta and Gozo. Its main objectives include:

- The organisation, management and operation of integrated systems for waste

management, including integrated systems for minimisation, collection, transport, sorting, reuse, utilisation, recycling, treatment and disposal of solid waste and hazardous waste; organise, manage and operate integrated systems for export of waste to destinations outside the Maltese Islands.

- The organisation, management and operation of integrated systems for waste management in accordance with the Laws of Malta and the waste management policy and plan of the Government of Malta while observing internationally recognised waste management principles.
- The organisation, management and operation of integrated systems for waste management for other types of waste as may be decided by the Government of Malta or the Ministry responsible for the infrastructure relating to the management of waste.
- The assistance and supervision of the implementation of waste management policies as developed from time to time by the Government of Malta.



## **2. The Project**

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### **2.1 Summary**

This project includes:

- The extension of an area along Zwejra Cell 1, which is to be referred to as Zwejra Cell 1B to attain slope stabilisation of the western area..
- The extension of Zwejra Cell 3 for stability and void space necessitated by the longer period required to permit the development of the first phase of the Ghallis engineered Landfill
- Closure plan for the Ta' Zwejra Engineered Landfill
- The construction of a service road along the western perimeter of the site.

### **2.2 Relevant Permits related to areas / uses located in the vicinity of the site under consideration**

List of permits:

Approved:

PA 6136/03 - Control of air emissions by means of the installation of steel wells and / or horizontal abstraction pipes, conducting gases to high temperature flares – detailed project description attached.

PA 4834/04 – Development of controlled landfill and ancillary facilities.

PA 6448/04 – Proposed excavation in preparation for a landfill facility and construction of amenity building

PA 342/07 – To sanction alteration from permit PA7307/04 to replace weathered masonry finish on elevation to pre-cast rubble-finish concrete blocks.

PA 6149/08 – Proposed rehabilitation of former Magtab Landfill.

PA 4787/09-Construction of a Hazardous Waste Storage Facility, Fire Reservoir, Water Storage Reservoir, Workshop, Administration Building, Guard / Security Offices, Sub Station RO Plant, Parking Area and container Storage Area

PA 4789/09 – Construction of a Spent Solvent Storage Area, drum washing and crushing area, bunded tanks and mixing bay.

Applications currently being processed:

PA 4790/09 – Construction of a neutralization plant.

PA 4791/09 – Construction of a low-level radioactive storage facility and preparation area.

PA 964/11 – Amendments to PA 4834/04 including sanctioning of variations.

## 2.3 The Need and Objectives of the Project

### i. Areas along Zwejra Cell 1 and Cell 3 Engineered Landfill

- The primary requirement for development on these areas is to achieve the required slope angles to ensure stability of Cells 1 and 3 of the Zwejra Engineered Landfill respectively. This is achieved by a reduction in the slope gradients of Zwejra as proposed in drawing SA(2\_)03. This development is carried out on already disturbed land adjacent to the existing Zwejra engineered cells.
- Lowering the angles of the slopes which in turn would extend the area to provide additional capacity for waste disposal which was required in the interim period during which construction works on the first phase of the Ghallis engineered landfill were being completed. In this manner, engineering works at Ghallis site, approved in the development permit for the Ghallis landfill which was issued only early in 2007, could be completed without the need for WasteServ to find alternative waste disposal areas remote from the permitted Zwejra landfill.
- Additional waste disposal within these areas will also increase the amount of potential useful gas that might be generated within the Zwejra Engineered landfill. This gas will be used in the project to generate electricity which will be fed back into the national grid system.

### ii. Condition 7.10.3 of the Integrated Pollution Prevention and Control (IPPC) Permit (IP 0001/05) for the operation of the Ta' Zwejra facility requires the submission of separate full development planning application for the final rehabilitation of the landfill. The final levels respect the permitted heights given in IPPC 0001/05. The void space available is estimated to be 30,000 cubic metres. The introduction of waste separation, manually and also mechanically are producing non-organic waste fractions which has high calorific value. It is advantageous to have this

'product' stored in the void space available at Ta' Zwejra to be in a position to have this 'fuel' mined when there will be a facility to extract energy from this material known as Refuse Derived Fuel.

- iii. The Service road, screening bund and peripheral access route along the western perimeter of the Zwejra landfill.
  - The first section along Zwejra Cell 1 is required to re-route the original service and access road along the new landfill cell. As a result of the proposed stabilisation of the Zwejra cells 1 and 3, the service road, screening bund along the western perimeter necessitated the re-routing of the original service and access road along the new stretch of Cell 1
  - The construction of the shifted service road will incorporate the main services, such as water, electricity and sprinklers. The primary surface water drainage channels can be constructed such that these can be readily accessible and serviceable without creating interference to the operation of the developments within the Ghallis site. In particular this aspect is important during the construction phasing of the project. By establishing a main service spine in the early stages of the development, it shall be possible to construct the other developments in series or in parallel with enhanced flexibility and speed by eliminating the need to provide temporary provision or re-routing of primary services.
- iv. Fencing along the perimeter of the western boundary along the Zwejra site, which forms part of the land owned by government for waste related activities, shall be required for security. The area on the western side of the Zwejra engineered landfill shall be integrated with the landscaping proposed on this side of the latter landfill.
- v. Enabling works consisting of the re-profiling, re-contouring and the formation of benches to achieve a final land form as indicated in Appendix D
- vi. Closure of the Zwejra Landfill by capping with an impervious system as indicated in Drawings AL(2-)1020 and AL(2-)1021
- v. Embellishment Scheme
  - The creation of a *Green-ring* landscaping [currently referred to as the bund; the larger part of which had already been included in the original

application] surrounding a large part of the Maghtab complex will provide immediate visual interest by screening the works. This ring will be created round the perimeter of the complex will also extend along the South West of the Zwejra site.

It is intended that the proposed development will be designed to a high specification in accordance with national and international policies on waste management and good practice. This development would provide the Maltese Islands with a long-term, modern and environmentally sound method of receiving, sorting and processing Municipal Solid wastes. The proposed development forms part of the specific measures foreseen in the Solid Waste Management Strategy for the Maltese Islands, adopted by the Government of Malta in October 2001 as updated by the Consultation document dated January 2009 and revised in 2010. This document aims to establish a number of key waste management principles for the Maltese Islands, namely:

- Sustainable development
- Proximity principle and self sufficiency
- Precautionary principle
- Polluter pays principle
- Waste hierarchy
- Best Practicable Environmental Option (BPEO)
- Producer responsibility

The *Solid Waste Management Strategy for the Maltese Islands*, emphasises the following considerations in this respect:

- The need for an integrated strategy comprising promotion of minimisation, recycling and composting initiatives, together with the provision of final disposal facilities, is considered necessary to secure the long term sustainable management of the municipal waste generated in the Maltese Islands
- The need for new waste management facilities as the best practical environmental option forming part of an integrated waste management strategy for the Maltese Islands; and
- The need to locate the proposed development at an environmentally acceptable site.

## 2.4 Key Legislative Requirements

A number of European Union Directives are relevant to this project, some of which have already been incorporated into Maltese regulations.

- Directive 79/442/EEC on waste as transposed by legal notice 337 of 2001 Waste Management (Permit and Control) Regulations;
- Directive 99/31/EC relating to the landfilling of waste as transposed by legal notice 168 of 2002 Waste Management (Landfill) Regulations;
- Directive 96/61/EC concerning integrated pollution prevention and control as amended as transposed by legal notice 234 of 2002 Integrated Pollution Prevention and Control Regulations as amended.
- Environmental Impact Assessment Regulations 2007 (LN 114/2007)
- EU Landfill Directive 1999/31/EC

## 2.5 General Design Principles

The main factors, which dictate the potential environmental impacts from waste treatment facilities are the waste types, quantities and the processes to which the waste is subject. The main potential environmental impacts are odour, noise, dust and aesthetics. Design principles to be applied to the planning and design of the project, include:

- The improvement of environmental performance in the short and long term;
- Care for significant hazards in particular those relating to health and safety;
- Utilising proven and readily available technologies;
- Minimising the disturbance of waste by careful siting of access routes;
- Constructing the works in a phased manner to ensure efficiency and minimisation of interruption;
- Stabilising steep slopes in the Zwejra Cells 1 & 3,
- Ensuring the works will integrate with the long-term rehabilitation options selected for each area.
- Waste shall not be received at the Site unless measures are taken to control and minimise the emission of dusts, fibres and particulates, odours and noise. Such measures shall prevent releases in such quantities or concentrations that are likely to cause pollution of the environment or harm to human health or serious

detriment to the amenity of the locality.

- These measures shall be approved and determined by the Malta Environment Planning Authority (MEPA) in the Waste Management Permit Conditions. Once approved, these measures shall be implemented throughout the operational life of the Site.
- To ensure that periodic measurements of quality and concentrations are taken, monitoring of gases, vapours, aerosols and surface water quality shall be carried out in the vicinity of the Site in specific locations throughout the operational life of the Site. Records of the monitoring and sampling results in accordance with specified standards shall be made and submitted to the MEPA.
- To implement a closure (Capping) plan in accordance with EU directive and / or regulations.

## 2.6 Environmental Monitoring

Environmental monitoring of the area is already being conducted on a long term plan. This monitoring includes:

- Aerial emissions associated with the operation of the emissions control system;
- Monitoring of changes in groundwater quality as the emissions control system is implemented.

## 2.7 Proposed Timing and Phasing

It is envisaged that all of the above mentioned sections of the project are finished by 2014. Naturally this depends on the date of issuance of the planning permit. Each section when complete can be operated in isolation and independent of the other phases.

- Construction of peripheral access route, bund and fencing
- Landscaping project
- Stabilisation and closure of Zwejra Landfill – To be concluded by end of 2014. This date also being dependant on the date of issuance of the planning permit.

## 2.8 Project viability

As already stated, the project is an essential part of the waste management plan of the Maltese Islands. Apart from meeting the local and international obligations in the

management of waste and avoiding the contamination of the environment, this project, will be a step in the right direction in mitigating the visual impact from various vantage points around Malta.

Furthermore this project forms part of the strategy which caters for the waste disposal and awareness campaign promoted by WasteServ Malta Ltd.

- The proposed amendments to the originally approved scheme will enable the Ghallis facilities to be developed completely. This is possible by the provision of an additional waste storage capacity (alongside Zwejra Cells 1 and 3) to satisfy the need required in the interim period until development of Ghallis Landfill enabled the disposal of non-hazardous waste.
- The proposed amendments to the original approved scheme shall also improve the overall operation of the original scheme by allowing for:
  - A relocation of the main services within the site, to an area which allows easy access without interference to the general operation of the Ghallis developments. The main service culverts will be located along the side of the main service road in such a way that maintenance works can be carried out without hindering the management of the landfill complex.
  - Better utilisation of the existing site without adverse environmental effects.
  - Rationalisation of the access routes within the site.
- As already noted, the Project is an essential component of a wider strategy and system for the long-term management of wastes generated on the Maltese Islands.

### 3. The Site

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#### 3.1 Site Evaluation / Physical Characteristics / Land uses .

The engineered landfill on the Zwejra site is the first of its kind to be constructed in Malta following the closure of Maghtab uncontrolled waste dump. The selected sites and access configurations have been identified for the following reasons:

- The areas involved allow adequate capacity and space to achieve their intended purpose
- The only possible direction of expansion for stabilizing Zwejra Cell 1 is westwards and Cell 3 eastwards. It is not an alternative as it will precede the Ghallis engineered landfill and thus its function is to cater for the management of the waste generated in the time frame between the filling of Zwejra Engineered Facility and the completion of the first phase of the Ghallis landfill.
- The proposed service road will also act as a buffer zone between the existing site and rural areas.

#### 3.2 Areas required to carry out the proposed amendments subject to the current application

- Refer to Appendix B for a visual reference of the areas listed hereunder
  - Fencing along external side of monitoring road.
  - Area required for the stability of the Zwejra Cell 1 (Cell 1B) – circa 11,000 square metres – Approximate capacity of 185,100 tonnes of waste.
  - Area required for the stability of the Zwejra Cell 1 which lies outside the originally approved boundary as per PA04834/04 – circa 4,850 square metres
  - Area required for the stability of Zwejra Cell 3 which lies outside the originally approved boundary as per PA04834/04 – circa 8,840 square metres



### 3.3 Surrounding Land Uses

To the west of the site, the land is mainly active agricultural land and at a distance of around than 200 metres, there are two operational farms. Around 1.2km to the west lies the Coastline hotel, with further residential property beyond it to the west and south.

Out of a whole area of around 40 hectares of the Maghtab complex, the Zwejra landfill occupies circa 6.6 hectares. but government owned land covers more than 60 hectares. The main waste filling zone forms a complex shape with waste rising steeply from natural ground. Enabling works are necessary and the slopes of the existing Zwejra landfill will need to be re-profiled and stabilised by inert crushed construction waste to achieve the final landform indicated in Plans and Sections in the Appendices.

### 3.4 General Land Use

The entrance leading to the Zwejra landfill site is located to the south of the area. The main road which leads to the various areas within the complex passes directly adjacent to the South West of the Zwejra landfill, and is designed in the form of a ring road that feeds the different service areas. The bund along the boundary of the whole of the Maghtab Complex site will screen the ongoing activity inside the area. This bund which will be planted with vegetation will act as a sound and visual buffer zone.

### 3.5 Site Services

The main aim for the design of the peripheral access route which runs along the Zwejra landfill site is to provide a zone through which services could be constructed. Run off water from the landfills will be collected into a system of either surface open culverts and / or pipes embedded underneath the surface. This run off water will be diverted into a reservoir. Stored water will be used for the purpose of dust control, irrigation and for fire fighting purposes.

The extensions to Zwejra Cells 1 and 3 will be constructed to meet all the engineering conditions detailed in the IPPC Permit, issued for the same landfill and in accordance with EU directives / regulations..

The proposed closure and capping of the top surface of the landfill will result in a substantial increase in surface water run-off during rainfalls. Water run-off will be diverted to the mentioned water culvert as illustrated in Appendix C. As mentioned earlier, another culvert is proposed for the North Eastern part of the site. The water drainage system will include silt-traps in the culverts and reservoirs as necessary.

## 4. Implementation Process

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### 4.1 Materials to be used for Closure of the Landfill

Although the details of the proposed capping are not identical to those being adopted for the Maghtab site, the construction works, methods and procedures involved would be similar.

Implementation of Phase 1 of the Rehabilitation and Restoration of the Former Maghtab Landfill has demonstrated that the works involved in the closure, capping and planting of trees and vegetation of the landfill can be carried out safely and with minimal adverse temporary environmental effects.

Except for off-site manufactured items such as the Geosynthetic Clay Liner etc, most of the materials / soils to be used in the capping system will be procured from the Maghtab site itself. This will prevent the generation of additional vehicular trips outside of the site.

The closure of the site shall consist of 3 phases. 1 - Re-profiling works need to be carried out; 2 - a gas management system installed, 3 - finally capping is to be installed. The project will also include the construction of water culverts to the North-East and South-West of the sites. These will divert the water to a reservoir to the South of the site. The separate application for the South Western culvert entitled 'Construction of an underground reservoir and associated culvert and overlying car-park' has already been submitted to MEPA and issued with a tracking number (TRK 00149794).

In line with the EU landfill directive, the Capping system (from top to bottom) will consist of the following:

- Top soil cover, depth >1000mm
- Geotextile
- Drainage layer (compacted crushed limestone), depth >300mm ( $k > 1 \times 10^{-3}$  m/s)
- Geomembrane protection layer, depth >2.5mm
- Mineral sealing layer (clay), depth >500mm ( $k < 5 \times 10^{-9}$  m/s)
- Compacted inert material, depth 600mm

It is envisaged that the capping will further mitigate and control any adverse environmental conditions that have developed over the years. The capping will reduce the

infiltration of water and thus reduce to the bare minimum production of leachate. At the same time the gases will continue to be extracted. Refer to Drawings in Appendix D.

During the implementation and construction stage, a number of tests are to be carried out in order to test the materials used for permeability, grading, uniformity co-efficient and Los Angeles co-efficient.

#### 4.2 Access Arrangements

The design of the new internal ring road will be the main access route once the project is completed. The main flow of traffic will be directed through the new access as approved in application PA 6149/08.

The chain-link security fence [circa 2m high], forms part of the site security system with the aim of reducing the risk of violated access by humans or livestock. This is also being proposed to comply with the condition in the operations permit of these waste management facilities.

#### 4.3 Mitigation of Negative effects

Procedures will be adopted to eliminate nuisances from:

Negative Impacts	Source	Part of Project	Mitigation Measures
Vehicular Traffic	Preparation/Construction/ Operation	Stabilisation/closure of Zwejra Landfill/ Construction of service road	Screening from surroundings by means of the existing and proposed bund
Litter	Operation	Stabilisation/closure of Zwejra Landfill.	No relocation of waste on windy days Covering of 1 day old waste material
Odours	Operation	Stabilisation/closure of Zwejra Landfill	No relocation of waste on windy days Restriction of tipping area Malodorous waste buried immediately
Noise	Preparation/Construction/ Operation	Stabilisation/closure of Zwejra Landfill/	Buffering by means of the existing and proposed landscaped bund

Birds	Operation	Stabilisation/closure of Zwejra Landfill	Covering of 1-day old waste material  Capping of landfill once it is full
Vermin/Insects/Other pests	Operation	Stabilisation/closure of Zwejra Landfill	Prompt depositing, burial, compaction of all material containing putrescible wastes.  Covering of 1-day old waste material  Use of limited operational areas  Capping of landfill once it is full  Maintain the effective pest control service on site.
Fires/Smoke	Operation	Stabilisation/closure of Zwejra Landfill	Covering with crushed fine material present on site & damping down with water
Visual Impact	Construction/Operation	Stabilisation of Zwejra Landfill/	Construction of landscaped bund
Loss of Vegetation	Preparation/Construction	Stabilisation of Zwejra Landfill/	Construction of landscaped bund  Re-use of soil unearthed from the excavated areas

A bund which is to be constructed to the western side of the site as approved in permit PA 04834/04 will also serve the role of shielding the view from the surroundings. Another section of this bund will be constructed and vegetation will be planted in due course. This zone will also act as a noise barrier. Damping down of site access roads, using water sprays will mitigate the emission of dusts.

The design and construction of the short term remedial landfill and EU directives and legislation along Zwejra Cells 1 and 3 are carried out according to proper engineer landfill standards. These standards have already been adopted in the construction of the three cells located at Zwejra. No waste will be deposited until the engineered site is contained and the drainage system is constructed and completed. It is pertinent to note that vermin

control is carried on site on a regular basis in accordance to an established monitoring schedule. Regular site inspections will indicate the prevalence of pests which can be dealt with should a problem arise. Consistently effective measures will be carried out through good site management and proper covering of all exposed waste in an expedient moment.

Control checks and monitoring will continue to be conducted on a regular basis. Records will be kept of all checks and of all quantities and characteristics of waste reaching the plant as per approved Ta' Zwejra IPPC permit.

## 5. Conclusion

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This Brief Report gives a general description of one of a string of projects which are of paramount importance to the waste disposal strategy of the Maltese Islands at the moment. The project is indispensable if Malta [as is the case] is to continue establishing its infrastructure and waste management in compliance with the European Union policy on waste management as set out in the Community Strategy for Waste Management.

Every effort will be taken to ensure that negative impacts on the surrounding environment, workers and nearby residents are minimised and mitigated by this project. Experience gained by WasteServ in the past years in the operation of engineered landfills and now also capping projects, shall be put to use to ensure that the above mentioned is adhered to and implemented. In this regards amelioration to the standards and milestones already achieved is to be expected as already described in the project clearly.



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**Bezzina & Cole (Architects and Engineers)**

**7<sup>th</sup> November 2012**

## **APPENDIX A**

### Project Description Statement Guidelines

## **PROJECT DESCRIPTION STATEMENT GUIDELINES**

In order to set out the terms of reference for the EIA, a detailed project description statement is required. This should take the form of a mini report taking into consideration the following issues:

- a) Details of the person wishing to carry out the development;
- b) A brief description of the project and its general objectives;
- c) An indication of the proposed timing of the project and why this timing was preferred;
- d) The location of the proposed development with site boundaries clearly shown on a map;
- e) A concise but reasonably comprehensive indication of the alternative uses, alternative technologies and suitable alternative locations and sites for the proposed development and alternative arrangement of land uses, on the proposed site;
- f) A description of the physical characteristics including size, scale, design and phasing of the development using models, photographs, diagrams, plans and maps where appropriate;
- g) A description of present land uses and environmental characteristics of the site;
- h) A brief description of surrounding land uses, their nature, their extent and their environmental characteristics;
- i) A description of the services, water, foul water sewers, surface water drainage, including storm water drainage, and energy sources available on site;
- j) Estimates of the number of persons to be employed with estimates for each phase of the development;
- k) The nature and quantities of raw materials and energy to be used, and wastes generated during construction and operation; the proposed method of storage or handling of materials and wastes, and machinery needed during both the construction and the operational phases;
- l) Access arrangements, parking requirements and parking arrangements on and off the site, during both construction and operation; and
- m) List of the major environmental impacts likely to be generated by the project, including reference to cumulative impacts, proposals for mitigating the negative effects of the development.

Provided that the information contained in the project description statement is relevant to the given stage of the consent procedure and to the specific characteristics of the particular project or type of project and of environmental features likely to be effected.

To be read in conjunction with table of contents on page 7.



## **Appendix B**

Drawing, Figures and Photos

## List of Figures

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General Layout Plan – as proposed	AL(2_)1000
Approved Site Area	AL(2_)1000a
Area Required for Stability of Zwejra Cell 1	AL(2_)1000c
Area Required for Stability of Zwejra Cell 1 which lies Outside the Originally Approved Site Area	AL(2_) 1000d
Road Sections and Construction Details	SA(2_) 0003
Photo-Viewpoint Locations	AL(2_) 1017
Maghtab Profile – View 1	
Maghtab Profile – View 2	
Maghtab Profile – View 3	
Maghtab Profile – View 4	
Maghtab Profile – View 5	
Site Photographs	AL(2_) 1018
Site Survey dated 08/07/2012	
Site Survey dated 20/09/2012	
Superimposed site sections showing previous, current and proposed profiles.	AL(2-)1019



#### NOTES

1. This drawing is not to be scaled.
2. All levels are in metres unless otherwise stated.
3. All dimensions to be checked on site by contractor and are to be his responsibility.
4. This drawing is to be read in conjunction with all relevant information whether provided by Bezzina & Cole or others. The holder is to compare all such relevant information in advance of construction and report any inconsistencies to Bezzina & Cole. This is to be reported in writing to Bezzina & Cole, 7 days before the start of construction.
5. Any queries which may be raised by design shown on this drawing are to be notified in writing to Bezzina & Cole, 7 days after this drawing has been issued by Bezzina & Cole.
6. This drawing remains the property of Bezzina & Cole, and may not be used or reproduced in any way without their prior consent.

#### LEGEND

- |                                    |     |
|------------------------------------|-----|
| PROPOSED BOUNDARY CHAIN LINK FENCE | --- |
| PROPOSED ROAD SCREENED BY BUND     | --- |

No.	Date	Initials	Revision	Details
P	24.10.12	L.B.	AMENDMENTS TO BOUNDARY	
O	03.03.15	L.B.	GENERAL AMENDMENTS	
N	17.12.09	J.F.	GENERAL AMENDMENTS	
M	05.09.09	J.F.	GENERAL AMENDMENTS	
L	22.05.09	J.F.	GENERAL AMENDMENTS	
K	24.04.09	J.F.	GENERAL AMENDMENTS	
J	16.04.08	J.F.	WIND MAST LOCATION	
I	25.02.08	J.F.	GENERAL AMENDMENTS	
H	21.01.08	J.F.	GENERAL AMENDMENTS	
G	24.05.07	J.F.	INTRODUCTION OF SILT POND AREA	
F	03.05.07	J.F.	GENERAL AMENDMENTS	
E	29.04.07	J.F.	GENERAL AMENDMENTS	
D	27.04.07	J.F.	GENERAL AMENDMENTS	
C	11.03.07	J.F.	GENERAL AMENDMENTS	
B	01.02.07	J.F.	AMENDMENTS IN LAYOUT	
A	25.01.07	R.D.	AMENDMENTS IN LAYOUT	

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Partner in Charge: A. Bezzina  
Project Architect: J. Fenech

Job Title: MASTER PLAN FOR THE MAGTAB ENVIRONMENTAL COMPLEX

Drawing Title: GENERAL LAYOUT PLAN AS PROPOSED

Job No. 47/2006  
File Path: AL(2)-1000 P

Scale: 1/2000  
Date: 04.04.2006  
Drawn: RD  
Checked: AB