



## Non-Technical Summary

**Sunt Mhux Tekniku tad-Dikjarazzjoni Dwar l-Impatt Ambjentali**

**Master Plan for the Maghtab Environmental Complex  
Naxxar (GF00121/06)**

**Masterplan għall-iżvilupp tal-Kumplex Ambjentali tal-  
Magħtab, in-Naxxar (GF00121/06)**

## Quality Assurance

Rev	Date	Details	Report authored by:	Checked by:	Approved by:
00	September 2011	Submission to client	Krista Farrugia Consultant	Rachel Xuereb Director	Rachel Xuereb Director



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adi  
ASSOCIATES  
ENVIRONMENTAL  
CONSULTANTS

Kappara Business Centre

113 Triq Birkirkara

San Gwann SGN 4197

Tel. / Fax: 21378172 - 77

Email: [info@adi-associates.com](mailto:info@adi-associates.com)

Web: [www.adi-associates.com](http://www.adi-associates.com)



# Non-Technical Summary

## INTRODUCTION

This Environmental Impact Statement Update (EIS) was commissioned by WasteServ Malta Ltd (WSM), to support its Masterplan for the development of the Maghtab Environmental Complex at Naxxar.

A full development application (PA 02342/06) was submitted to MEPA in April 2006. This application covers the entire Waste Management Complex at Maghtab as described below.

MEPA determined that the Application required an update to the EIS that was prepared in respect of PA 04834/04 on the basis of Schedule 1B of the Environmental Impact Assessment Regulations, 2007 (Legal Notice 114 of 2007).

Hereafter, in this EIS Update, the proposed development is referred to as 'the Scheme'. A full description of the Scheme is provided in Chapter 4 of the EIS.

## BACKGROUND TO THE SCHEME

In 2004, WSM applied for the development of a controlled landfill and ancillary facilities (PA 04834/04) at Ghallis. This development permit required the formulation of an Environmental Impact Statement that was prepared by AIS Environmental Ltd and SLR of the UK. Full development permission was granted in 2006. According to the EIS, PA 4834/04 comprised the following elements:


- A controlled landfill for non hazardous, non inert waste of 1.7Mm<sup>3</sup> capacity;
- A controlled landfill for certain hazardous wastes of 100,000m<sup>3</sup> capacity;
- A facility for the interim storage, pre-treatment, and transfer/export of hazardous wastes; and
- An area for the potential future expansion of the non hazardous landfill.

In March 2010 WSM submitted a Project Description Statement (PDS) that included a number of changes to the original master plan as approved in PA 04834/04 and included the installation of a Mechanical Biological Treatment Plant. The proposed development comprises the following elements as described in the PDS:

- Extension of Zwejra Cell 1;
- Extension of Zwejra Cell 3;
- Closure plan for Ta' Zwejra;
- Construction of a service road along western perimeter;

- Sanctioning of the extension of the temporary Ghallis Site office;
- Extension of the northern bund and the Ghallis engineered landfill;
- Setting up of a fence;
- Re-orientation of hazardous cell;
- Introduction of photo voltaics and micro wind turbines;
- Introduction of a bulky storage refuse area (non-hazardous waste storage);
- Introduction of an engineered separator between Maghtab and Ghallis;
- Re-location of wheel wash;
- Embellishment scheme;
- Introduction of a bridle path for equestrian activities;
- The establishment of a pre-landfilling Mechanical Treatment Plant (MTP); and
- The establishment of a Biological Treatment Plant (AD).

The proposed works will be undertaken within the site boundary as shown in **Figure 1**.



*A full description of the Masterplan is provided in Chapter 4 of the EIS.*

### EIA APPROACH

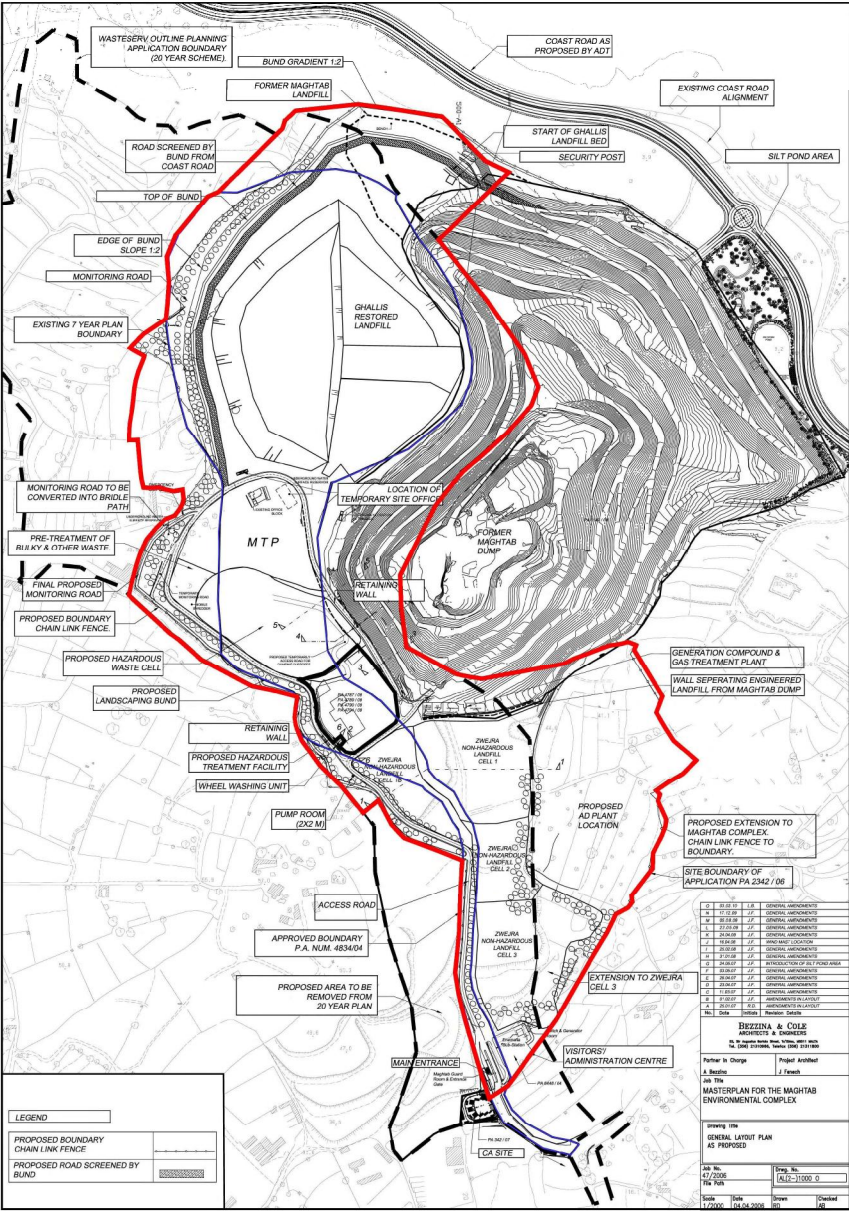
Good practice advises that EIA should be treated as an iterative process, rather than a one-off, post-design environmental appraisal. In this way, the findings from the EIA can be fed into the design process, leading to the production of a more environmentally sensitive project. This approach was adopted for this EIA.

Baseline surveys for the specialist EIA topics were undertaken by the Consultants, based on the Area of Influence agreed with MEPA for each topic area as relevant.

A detailed assessment of the Scheme's impact on the features present on site was undertaken and any potential environmental benefits of the Scheme identified.



Figure 1: Master Plan for the Maghtab Environmental Complex



## SIGNIFICANCE OF IMPACTS

Environmental significance involves assessing the amount of change to the environment perceived to be acceptable to the community.

The following criteria have been used to assess the significance of an impact:

- Type of impact (adverse/beneficial);
- Extent and magnitude of impact;
- Duration of impact (short term/long term);
- Reversibility of impact;
- Sensitivity of receptor; and
- Comparison with legal requirements, policies and standards.

Using these criteria, the significance of the impacts arising from the Scheme has been categorised throughout the EIS Update, as follows:

- Not significant;
- Minor significance; and
- Major significance.

Definitions of the meaning of the 'significance categories' in relation to each topic area are included in the individual topic chapters. However, in general terms, if an impact is not significant it is environmentally acceptable; minor significance reflects the fact that the impact is manageable; and major significance relates to the fact that the impact is environmentally damaging and requires redesign or mitigation measures to minimise the impact.

The EIS Update contains an assessment of the significance of predicted impacts and, following the proposed mitigation measures, the significance of any residual impacts. A residual impact is any remaining impact that would exist following proposed mitigation measures.

Specialists in the subject area have assessed the following topics:

- Geo-environment;
- Landscape and visual amenity;
- Agriculture;
- Cultural heritage;
- Noise and vibration;
- Emissions to air;
- Social study; and
- Risk assessment.

## POLICY CONSIDERATIONS

The Structure Plan for the Maltese Islands, Space for Waste: The Waste Management Subject Plan, the Central Malta Local Plan, and the Policy & Design Guidance 2007 are the key planning policy documents affecting the Application Site.

A detailed description of planning and waste management policy is provided in Chapter 5 of the EIS.

## DESCRIPTION OF SITE AND SURROUNDINGS

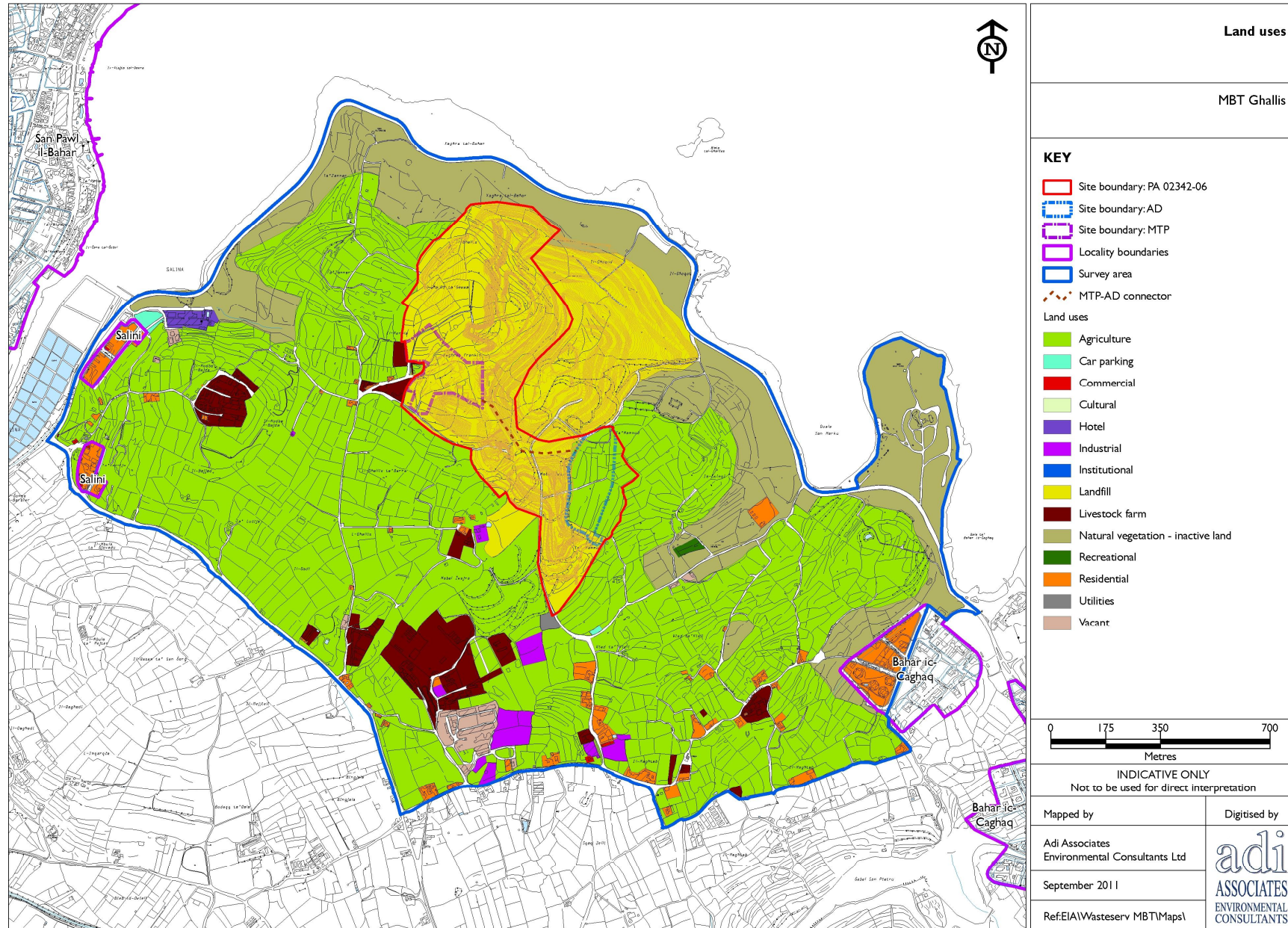
Figure 2 identifies the site location and illustrates the land uses in the area. Main uses within the Area of Influence as shown in Figure 2 include:

- Waste management (within the site itself);
- Agriculture (most of the surrounding area) ;
- Residential (including Bahar ic-Caghaq , Maghtab, and Is-Salini areas);
- Industrial .





Figure 2: Site location and surrounding land uses



## DESCRIPTION OF SCHEME

The Scheme involves:

- Closure of Ta' Zwejra landfill – this will involve re-contouring/terracing, capping, installation of a gas recovery system, restoration and after care/maintenance;
- Inclusion of a low level radioactive store within a secure compound; and
- Construction and operation of a Mechanical Biological Treatment plant (MBT) that will treat municipal and animal waste to include:
  - Access road and paved area on the site for heavy trucks and for storage of containers etc;
  - Reception including weighbridge and electronic registration system of in and out going loads;
  - Mechanical sorting plant for mixed waste including vibrating screen, ballistic separation, near infrared separator and magnetic separator techniques sorting the waste in three fractions, a biowaste, a RDF (refuse derived fuel) and a remaining fraction, which will go to landfill;
  - Wet mechanical treatment of biowaste - the fine organic fraction from the household waste line - for anaerobic processing;
  - Reception facility for liquid and solid manure from livestock farmers;
  - Digestion facility for biowaste;
  - Digestion facility for manure;
  - Storage of digestate for solid/liquid separation and after treatment;
  - Solid/liquid separation of the digestate from the two digestion lines;
  - After-treatment of the solid part from the solid/liquid separation in a closed composting system with full control of the airflows;
  - Storage of end products;
  - Water treatment comprising, water storage tank; second stage water treatment by reverse osmosis plant (RO) and vacuum evaporation unit;
  - Cooling and dehumidification for the biogas;
  - Gas booster station;
  - Biogas balancing to allow production of electricity;
  - Motor-generator unit for production of electricity from biogas;
  - Gas level and quality management system including gas flare;
  - Recovery system for surplus heat and storage for heat to be used in processing plant;
  - Electrical substation for supply and return feed of electricity;

- Treatment for odour of ventilation air, surplus air from composting and from treatment of liquid end products;
- A chimney for discharge of the treated air;
- Compaction/baling of RDF fraction of waste and loading into containers for transport for incineration or disposal to landfill;
- Control room;
- Laboratory;
- Staff facilities including washrooms and bathrooms, canteen, etc;
- Reservoirs for storage of run-off for the purpose of dust control, irrigation and for fire fighting purposes ; and
- Vehicle washing facilities.

Figure 3 - Figure 5 provide plans and process descriptions of the MBT.

*A detailed description of each of the proposed activities is provided in Chapter 4 of the EIS.*

*Chapter 13 of the EIS provides a detailed risk assessment.*



Figure 3: Location of mechanical and biological treatment facilities within the site

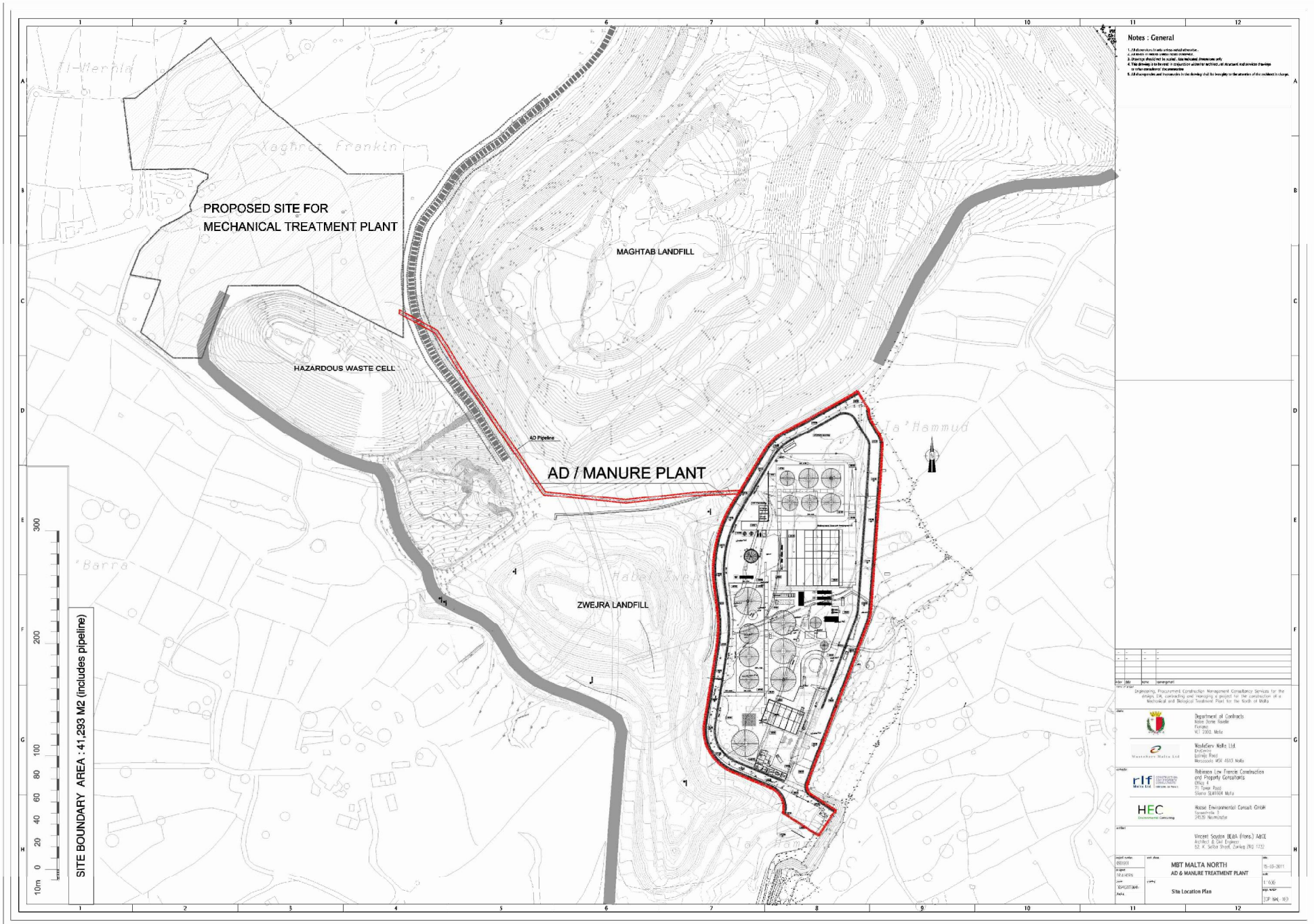




Figure 4: General layout plan of mechanical treatment plant

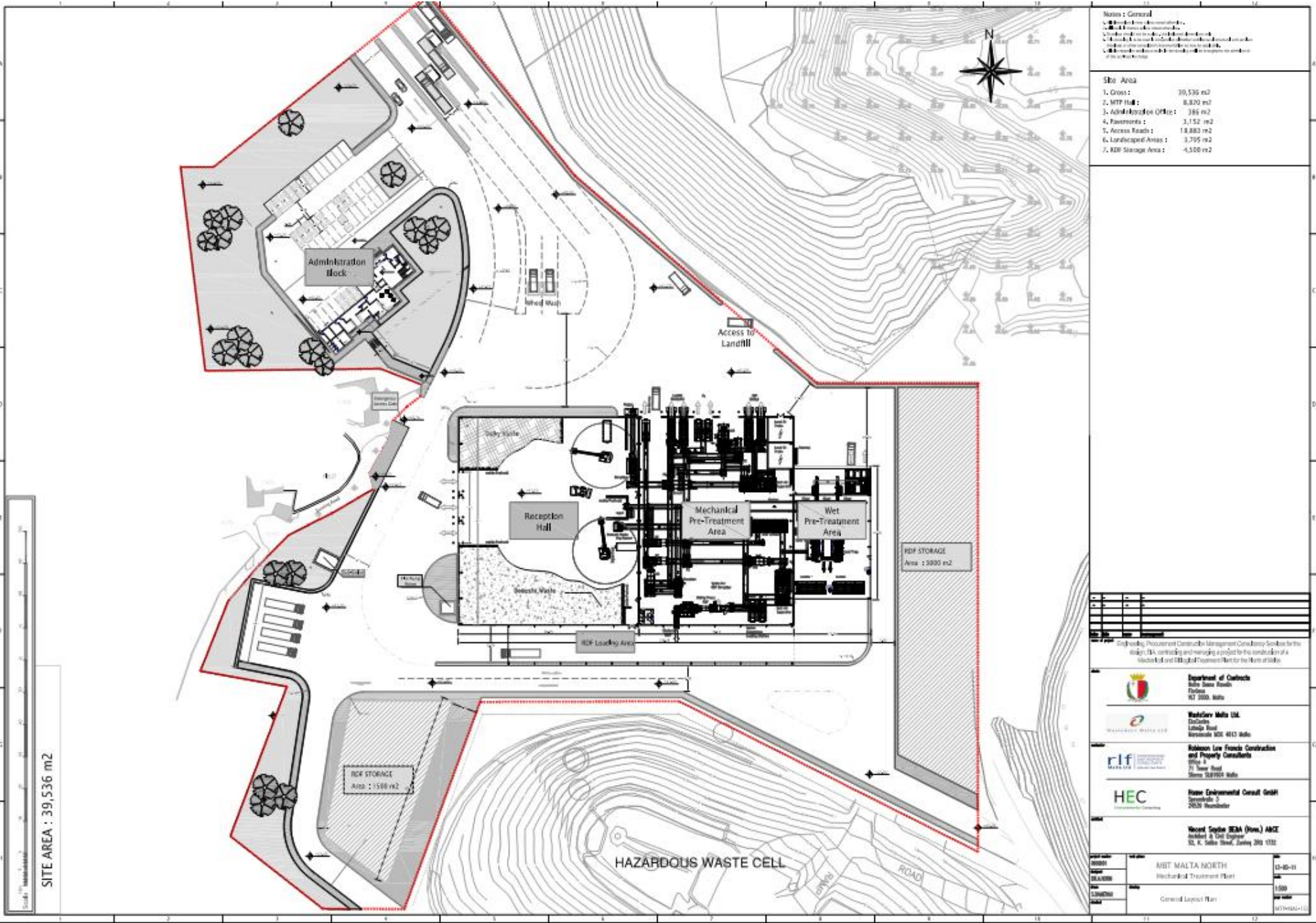
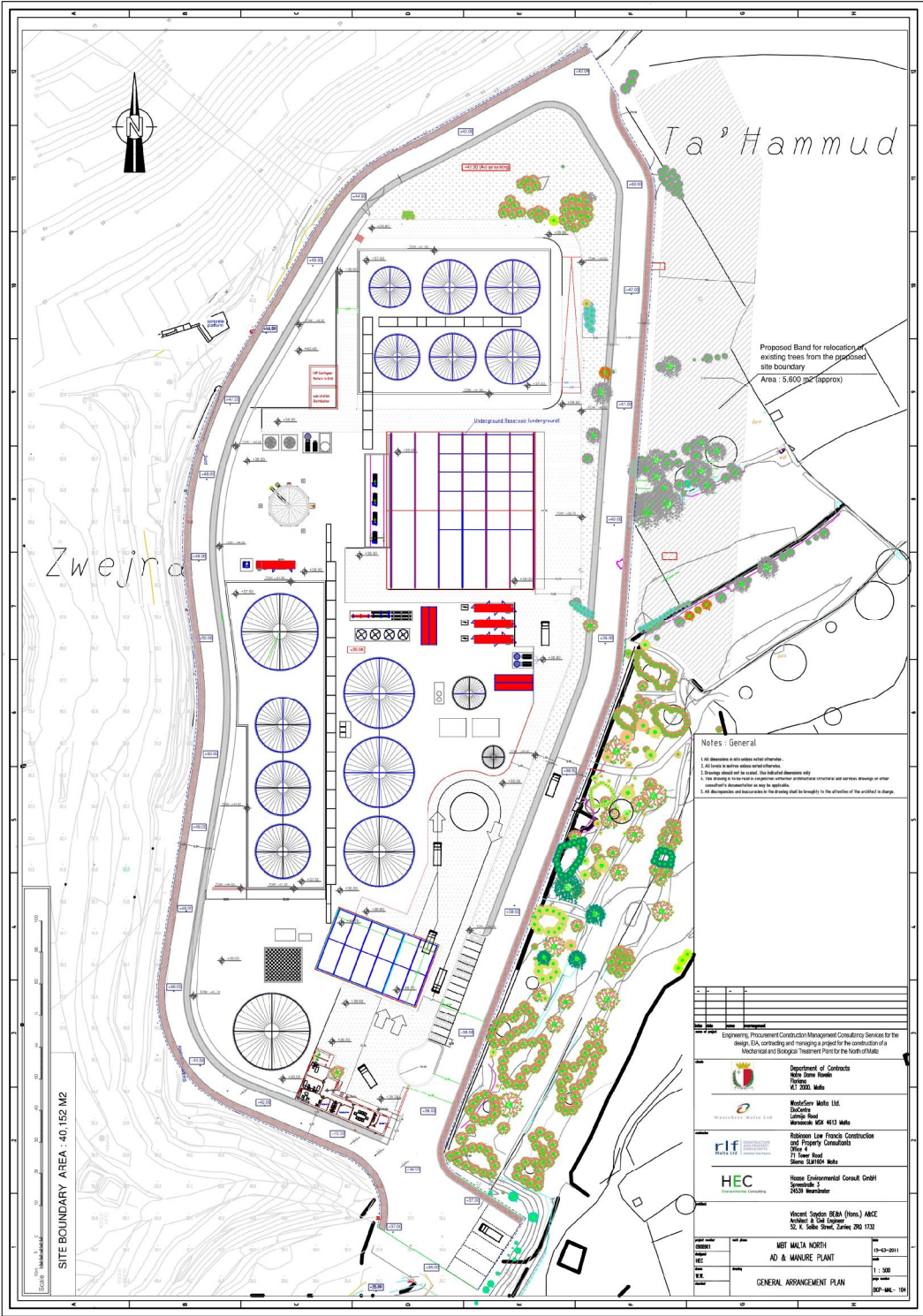




Figure 5: Biological treatment plant layout





## Summary of Findings

### GEO-ENVIRONMENTAL RESOURCES

- Loss of **mineral resource** as a result of excavation resulting in a major negative impact.
- Risk of **change in quality of aquifer and recharge**, particularly during construction. If not correctly managed, a minor to major negative impact could occur depending on the scale of incident. Implementation of mitigation measures should reduce residual impact to minor or insignificant.
- Similarly, there is a risk of **change in the quality of runoff water**, however, given that there are no surface water bodies to be affected, during construction the impact would be minor. During operation, depending on the scale of an accident, the impact could be minor to major. With implementation of mitigation measures, the residual impact on surface water quality is minor to not significant.

### LANDSCAPE & VISUAL AMENITY

- The **landscape assessment** identifies that certain landscape areas would be negatively affected by the Scheme. The former Maghtab landfill, will be negatively impacted with an impact of minor to major significance given the introduction of industrial plant to the area. The Scheme will result in a major negative impact on the agricultural land adjacent to Maghtab.
- 14 viewpoints (VP) were assessed in the **visual amenity assessment** with the following results:
  - No impact is observed at VP1 and VP9
  - Not significant to minor impacts were identified at VP 2, VP3, and VP14
  - A minor impact is observed at VP 10
  - Minor to major impact at VP13 (see **Figure 6**)
  - Major impact at VP 8 and VP 12 (see **Figure 7**)
  - The Scheme is not visible from VP4, VP5, VP6, VP7, and VP11.

Figure 6: View from Triq John Adye, T'Alla u Ommu

PROPOSED VIEW

Date - Time of Photo: 05-May-2011 - 1456



1. Photo shot using a digital equivalent of a 35mm camera with a 50mm lens.  
2. An interpretation of monocular perspective could be obtained by viewing from a distance of 500mm.  
3. Photomontage and perspective modelling by Virtual Reality Studios Ltd. ([www.vrstudios.com](http://www.vrstudios.com))  
4. 3D modelling of terrain is subject to the accuracy or otherwise of height data information used.

OS reference: 49560, 76028  
Height of camera above MSL: 86.18m  
Date: 03rd August 2011  
Verified Photomontages by Virtual Reality Studios: 4 Woodland Avenue,  
Nantwich, Cheshire CW5 6JE, UK / 1, Veduta Apartments, Luigi Ellul Street,  
Attard ATD 3023, Malta

**VIEWPOINT VP-13**

VERIFIED PHOTOMONTAGES FOR  
PROPOSED DEVELOPMENT AT GHALLIS



Figure 7: View from View from Triq Ghaxqet I-Ghajn, l/o Gharghur





## Summary of Findings

### AGRICULTURE

- The Scheme will result in some loss of agricultural land resulting in a minor to major negative impact.
- A number of protected trees will be lost resulting in a major negative impact, however, transplantation of protected trees will reduce the residual impact to minor or not significant depending on the success of transplantation.
- The fields in the area were noted to be of low productivity and there was evidence that most of the fields are abandoned or being used for alternative purposes. The impact on the farmers would vary depending on their attachment to the fields.

### CULTURAL HERITAGE

- A number of features of varying cultural heritage importance will be lost as a result of the Scheme resulting in a minor to major impact depending on the features lost. Where possible, features will be relocated and all features will be recorded in situ.
- Potential damage to features to be retained may occur as a result of the Scheme resulting in a minor to major impact depending on the degree of damage and the feature itself. Relocation and recording of features as well as use of sensitive construction methods are among the proposed mitigation measures.
- Change in the context and cultural landscape will result in a major impact on landscape as described in the landscape section.



## Summary of Findings

### NOISE AND VIBRATION

- The **noise impact during construction on sensitive receptors** will be major to not significant depending on the location of the sensitive receptor relative to the Scheme. Implementation of the Environmental Management Construction Site Regulations, 2007 will go some way in reducing negative effects, however, a major to not significant residual impact is likely to remain depending on the location of the sensitive receptor. It should be considered, however, that construction impacts are of a temporary nature.
- The potential **impact of operational traffic noise on sensitive receptors** will be insignificant.
- The potential **noise impact as a result of Scheme operation** will be insignificant.
- The **potential impact of vibrations on the structural integrity of surrounding buildings** will be insignificant.

### EMISSIONS TO AIR

- The potential impact of emissions from road traffic during both construction and operation will be insignificant.
- **Dust emissions** during construction will be minor and temporary.
- The potential impact of emissions from the gas engines will be insignificant.
- **Odour emissions from the Scheme building during operation** will not cause annoyance.
- **Odour emissions from the biofilters** will be insignificant.



## Summary of Findings

### SOCIAL ASSESSMENT

- Ensuring implementation of a **monitoring programme for operations and effective public involvement** will result in a minor beneficial impact as this should ensure improved management of the waste management facility relative to past performance.
- Implementation of a **health and safety plan** as part of site operations should reduce risk. Refer to risk assessment, residual risks range from minor to major.
- Changes to the current **traffic access routes** will result in a minor to major beneficial impact to residents and farmers or Magtab.
- **Dust emissions** are not expected to result in significant impacts overall given the temporary nature of the Scheme and the fact that most sensitive receptors will not be affected.
- Performance with respect to **environmental degradation** is expected to improve as a result of the Scheme given the improvement in waste management and a minor beneficial impact in respect of the general environs is therefore expected relative to previous performance of the waste management facility.
- **Visual impact**, described earlier, ranges from not significant to major, depending on the viewpoint.
- Given the predicted impacts on **cultural heritage** in the area, a minor to major negative impact could be experienced by certain users of the area, in particular, recreational users.
- As shown in the section above, noise is not expected to be an issue in the long term operation of the facility, and therefore, general peacefulness will not be affected.
- The Scheme is not expected to affect business activity (in particular, tourism) within the social Area of Influence.



## Summary of Findings

### RISK ASSESSMENT

- Findings are presented in **Chapter 13** of the main document (EIS)
- **Impacts on groundwater** during construction and operation will be mitigated through a number of measures such as containment of fuels and chemicals, regular inspection, installation of monitoring equipment, leakage detection systems, etc
- Risks from the **operation of the low level radioactive store** are minimised through the installation of monitors and proper containment
- Risks from the operation of the MBT are minimised through proper working practices, regular maintenance, checks and inspections, etc





## Mitigation measures

### Mitigation measures during construction

- The implementation of the Environmental Management Construction Site Regulations, 2007.
- Formulation of an Construction Management Plan and an Environmental Management Plan for the construction phase.
- All fuels will be required to be kept in bunded tanks designed to contain 110% of the tanks content. Fuel gauges and refuelling pipes will be within the bunded area. All chemicals and lubricants used in the construction period will be stored in a secure facility and either stored on drip trays or containers to minimise spillage.
- Transplantation of the protected tree species, if possible.
- Removal of the soil still existing on the Application Site when dry, in order not to negatively affect its structure.
- Reuse of the soil in the Landscaping Scheme.
- Relocation of significant cultural heritage features off-site, either to locations in the surrounding area of Maghtab or to any other suitable location, and with the agreement of and under the supervision of the Superintendence of Cultural Heritage.
- Supervision of works generally by the Superintendence of Cultural Heritage to ensure that, in the eventuality that uncharted artefacts are encountered, works are halted and the situation assessed.

### Mitigation measures during operation

#### *General measures*

- The MBT will be served by complete separate foul and surface water drainage systems. Process areas, including areas used for the reception of wastes will be designed such that process effluent cannot enter the surface water drainage system. The facilities will be designed and constructed such that any process effluent or leachate arising from operations including site emergencies is not released without appropriate treatment to required minimum standards.
- All areas of the MBT-plant, in which there is malodorous process air, will be under negative air pressure and the air treated.

#### *AD plant*

- Increase the height of the gas engine stacks from 10 metres to 20 metres.
- All tanks and reaction vessels at the AD plant will be constructed on an impermeable foundation within a bund wall, with the design capacity of the bund equal to 110% of the largest tank or vessel. Where tanks are linked by pipework, the capacity of the bund will be 110% of the combined capacity.



## Mitigation measures

- Anaerobic digestion vessels will be equipped with a measuring system for monitoring the level and alarms and safety cut-offs fitted to prevent over-filling. Pressure monitors will be fitted and each digester fitted with an over and under pressure safety valve to minimise the potential for rupture. A programme of inspection will be implemented to identify corrosion of tanks or digestion vessels.
- All pipe work, valves and fittings will be made to withstand pressures in excess of the maximum pressure they will attain in service, including any surge pressure. Pipe-work shall be arranged in a manner designed to ease the dismantling and removal of pumps or major items of Plant. All pipe-work will be adequately supported with purpose made fixings. When passing through walls, pipe-work shall incorporate a puddle flange. All pipework carrying potentially contaminating fluids will be located above ground (with the exclusion of the foul drainage system), which will aid in inspection, minimising the potential for undetected leakage.
- The installation of pipework above ground will aid in inspection and reduce the potential for unidentified leaks of polluting liquids; hence the potential impact to ground and surface water.
- The provision of volume and pressure monitoring equipment and overflow alarms to vessels will reduce the risk of spillage.
- The provision of pressure relief valves to the digesters and the inspection regime will reduce the risk of loss of containment. The provision of above ground tanks will provide the potential for inspection and minimise the risk of unidentified leaks of polluting liquids. This, combined with their construction within a bund wall, will reduce the potential for pollution as a result of unplanned release arising from loss of containment.
- The most significant area where odour is released is the Reception Hall. The entrance to the Reception Hall will be by automatic doors protected by air curtains to minimise the release of odours and dust from the waste reception area.
- Exhaust air collected from the Reception Hall and source segregated air from the mechanical pre-treatment items will pass a dust filter system. Afterwards the air is treated in an acid scrubber and a biofilter. Waste air from the machines within the wet pre-treatment hall is directly collected by negative pressure and treated in a scrubber.
- Emission monitoring shall be made by the analysis of a discrete sample from the measuring point at the biofilter. Specific samples will be measured and tested within the agreed protocols.



## Mitigation measures

### Radioactive store

- The design of the low level radioactive store incorporates a membrane at the base and a flammable gas monitor. Risks will be minimised by avoiding the accumulation of combustible materials and provision of fire fighting equipment. Secondary containment will also be provided.

### Extension of the Zwejra landfill

- The potential for release of leachate from the flanks of the Zwejra landfill will be reduced by trial wells to identify saturated wastes, although the probability of encountering such bodies is somewhat unlikely given the rainfall pattern in Malta. The availability of portable pumps and bowzers to collect leachate or the ability to drill a well for the collection and proper treatment of leachate would reduce the impact.
- The release of landfill gas and associated odours during re-profiling can be mitigated by operational control of the area of waste exposed and by covering at the end of the working day. Programming the installation of the cap to follow as soon as possible following re-profiling will reduce the potential for longer term release of landfill gas/odours.
- The ingress of air to the landfill and the potential to cause or exacerbate fires in the waste body can also be minimised by operational control of the size of excavation and covering as soon as possible on reaching the target profile.

- Fugitive emissions of landfill gas from gas wells and associated collection pipework can be controlled by design and construction quality assurance.



## Recommendations by stakeholders

In addition to the mitigation measures recommended by the EIA Coordinators a number of recommendations were provided by the stakeholders who were interviewed during the compilation of the EIS Update. These recommendations are summarised hereunder:

- The authorities should appoint stakeholders representatives to act as “watchdogs”. These representatives should also be involved in the decision-making process;
- Stakeholders should be informed and educated on the various projects being planned or going on at the site and the linkages between projects;
- An educational programme is set up by Wasteserv to educate the public on waste management and recycling in particular;
- The site operators should have corporate economic liability towards the ancillary operations of the Scheme. Heavy vehicles that are not up to standard should not be allowed to enter the facility and should be fined;
- The operator should be required to employ a warden (or pay the Local Council to be able to employ a warden) to enforce the law, such as heavy vehicles not passing from residential roads and the compulsory use of the wheel wash;
- The wheel wash should be built in such a way that the whole truck is washed not just the wheels when leaving the waste management site;
- The entrance gate that is currently used (from Triq ir-Ramla) should be closed even before the construction phase. The perimeter road from the Coast Road should be the first step in the construction phase, together with any screening measures, so that the construction machinery etc, will not be visible;
- New refuse brought to the site should be treated as it arrives and not left for a whole day or more before it is moved;
- Screening measures including planting of trees should ensure that both the construction equipment and the plant itself are less visible;
- If the project goes through, MEPA should impose a planning gain that goes directly towards the improvement of the locality and the residents of the area. This is not, for example, the resurfacing of the road, which is in the competence of Central Government, but other socio-environmental issues such as cleaning and refurbishing the area (such as planting trees along roads) and monitoring the environmental situation;
- As part of the mitigation strategy and the planning gain mentioned above including Wasteserv’s corporate responsibility, it is suggested that Wasteserv, together with the Residents’ Associations and the Local Councils team up and apply for EU funds for a project that would improve the image of the locale and involve the residents of the locality, to improve community values. The project should involve the community from planning to execution of the project;



## Recommendations by stakeholders

- On monitoring the environmental situation, it is suggested that the facilities should have an online monitoring system that can be scrutinised by the public. Air monitoring should be done frequently and from various distances, especially in the residential parts of the localities closest to the site and the results published quarterly online;
- SMEs should be involved and encouraged to get involved in small, targeted recycling operations, to reduce the burden on one recycling operator for the whole of Malta; and
- To decrease the amount of traffic carrying waste to the site, waste could be brought in by barge.

## INTRODUZZJONI

Din id-Dikjarazzjoni dwar l-Impatt Ambjentali (DIA) tqabbadna nagħmluha minn WasteServ Malta Ltd (WSM) b'appoġġ għall-Masterplan tagħhom għall-iżvilupp tal-Kumpless Ambjentali tal-Magħtab, in-Naxxar.

Applikazzjoni sħiħa ta' żvilupp (PA 02342/06) kienet sottomessa lill-MEPA f'April tal-2006. Din l-applikazzjoni tkopri l-Kumpless għall-Immaniġġjar tal-Iskart kollu kemm hu fil-Magħtab, kif deskritt hawn taħt.

Il-MEPA ddeċidiet li l-Applikazzjoni kienet teħtieġ aġġornament tad-DIA li kienet tnejniet għall-applikazzjoni PA 04834/04 skont l-iSkeda IB tar-Regolamenti dwar l-iStudju dwar l-Impatt Ambjentali, 2007 (Avviz Legali 114 tal-2007).

Minn hawn 'il quddiem, f'dan l-Aġġornament tad-DIA, l-iżvilupp propost qed jissejjaħ 'l-iSkema'. Deskrizzjoni sħiħa tal-iSkema qed tingħata f'**Kapitlu 4** tad-DIA.

## SFOND TAL-ISKEMA

Fl-2004, WSM applikaw għall-iżvilupp ta' *landfill* ikkontrollata u faċilitajiet anċillari (PA 04834/04) fl-Għallis. Dan il-permess ta' żvilupp kien jeħtieġ il-formulazzjoni ta' Dikjarazzjoni dwar l-Impatt Ambjentali li kienet imħejjija minn AIS Environmental Ltd u SLR tal-Ingilterra.

Permess sħiħ ta' żvilupp ingħata fl-2006. Skont id-DIA, PA 4834/04 kienet tiġbor fiha dawn l-elementi:

- *Landfill* ikkontrollata b'kapaċità ta' 1.7Mm<sup>3</sup> għal skart mhux inert u mhux ta' periklu;
- *Landfill* ikkontrollata b'kapaċità ta' 100,000m<sup>3</sup> għal ċertu skart perikoluż;
- Faċilità għall-ħażna temporanja, pre-trattament u trasferiment/ esportazzjoni ta' skart perikoluż; u
- Medda art għal espansjoni possibbli fil-futur tal-*landfill* għal skart mhux perikoluż.

F'Marzu 2010 WSM issottomettew Dikjarazzjoni Deskrittiva tal-Proġett (DDP) li kienet tinkludi għadd ta' tibdiliet fil-*master plan* oriġinali kif approvat f'PA 04834/04 u kienet tinkludi l-istallazzjoni ta' Impjant Mekkaniku għal Trattament Bijoloġiku. L-iżvilupp propost fih dawn l-elementi kif deskritti fid-DDP:

- Estensjoni ta' Żwejra Cell 1;
- Estensjoni ta' Żwejra Cell 3;
- Pjan għall-għeluq għal Ta' Żwejra;
- Bini ta' triq għal servizzi matul il-perimetru tal-punent;



- Sanzjonar tal-estensjoni tal-uffiċċju temporanju fis-Sit tal-Għallis;
- Estensjoni tal-ilqugħ issiġġillat tat-tramuntana u l-engineered landfill tal-Għallis;
- Bini ta' lqugħ;
- Ri-orjentazzjoni taċ-ċellula għal skart perikoluż;
- Introduzzjoni ta' ċelluli fotovoltajċi u turbini żgħar (mikro) tar-riġ;
- Introduzzjoni ta' medda art fejn jinħażen skart goff (inħażna ta' skart mhux perikoluż)
- Introduzzjoni ta' *engineered separator* bejn il-Magħtab u l-Għallis;
- Rilokazzjoni tal-post fejn jinħaslu r-roti;
- Skema ta' tisbiħ;
- Introduzzjoni ta' passaġġ apposta għal attivitajiet ekwestri;
- Twaqqif ta' Impjant għal Trattament Mekkaniku (MTP) qabel il-landfilling; u
- Twaqqif ta' Impjant għal Trattament Bijoloġiku (AD).

Ix-xogħlijiet proposti jsiru fil-konfini tas-sit kif jidhru f'Fig. 1.

### *Deskrizzjoni sħiħa tal-Masterplan qed tingħata f'Kapitlu 4 tad-DIA.*

#### KIF SAR L-ISIA

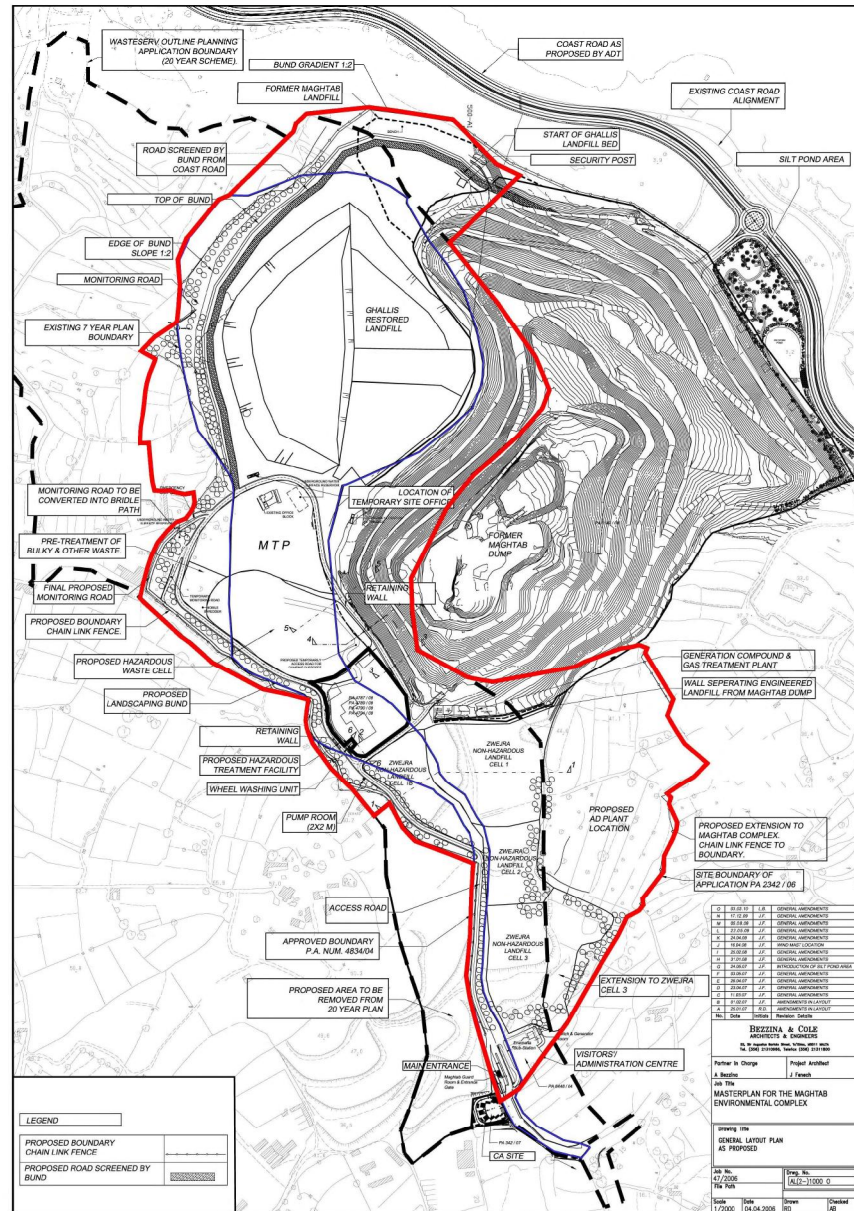
Il-prattika tajba tgħallimna li l-iSIA għandu jitqies bħala proċess iterattiv, aktar milli stima ambjentali ta' darba, magħmula wara d-disinn. B'dan il-mod, ir-rizultati tal-iSIA jistgħu jiddaħħlu fil-proċess tad-disinn u jwasslu biex isir proġett iktar sensittiv għall-ambjent. Għal dan l-iSIA, din kienet it-triq li kienet.

Il-Konsulenti għamlu sħarriġ bażiku (*baseline surveys*) fid-diversi oqsma ta' speċjalizzazzjoni li jidhru fl-iSIA, ibbażati fuq l-Area ta' Influenza miftehma mal-MEPA għal kull qasam rilevanti.

Sar studju ddettaljat tal-impatt li l-iSkema jkollha fuq il-karatteristiċi preżenti fis-sit u ġie identifikat kull benefiċċju ambjentali possibbli tal-iSkema.



Fig 1: Master Plan għall-Kumpless  
Ambjentali tal-Magħtab





## IMPORTANZA TAL-IMPATTI

L-importanza ambjentali tfisser li tistudja u tiżen l-ammont ta' tibdil ambjentali meqjus aċċettabbli għall-komunità.

Il-kriterji li ntużaw biex jiġi studjat kemm huwa importanti l-impatt huma dawn:

- Tip tal-impatt (negattiv / benefiku);
- Firxa u kobor tal-impatt;
- Kemm idum jinħass l-impatt (żmien qasir / żmien fit-tul);
- Kemm hu reversibbli l-impatt;
- Kemm hu sensittiv dak li jintlaqat minnu; u
- Tqabbil ma' dak li jitolbu l-liġi, il-*policies* u l-*standards*.

Meta ntużaw dawn il-kriterji, fid-Dikjarazzjoni dwar l-Ippjanar Ambjentali kollha kemm hi, l-importanza tal-impatti li jirriżultaw mill-iSkema tqiegħdet f'kategoriji kif ġej:

- Mhux importanti;
- Ta' importanza żgħira; u
- Ta' importanza kbira.

Definizzjonijiet tat-tifsira tal-'kategoriji ta' importanza' f'kull qasam ta' suġġett huma inklużi fil-kapitli tas-suġġetti individwali. Madankollu, f'termini ġenerali, jekk impatt mhux importanti huwa aċċettabbli mill-angolu ambjentali; importanza żgħira tirrifletti l-fatt li l-impatt jista' jkun ikkontrollat; u importanza kbira hija marbuta mal-fatt li l-impatt huwa ta' ħsara ambjentali u jeħtieġ disinn mill-ġdid jew miżuri mitigatorji biex l-impatt jitnaqqas kemm jista' jkun.

L-Aġġornament tad-DIA fih studju tal-importanza tal-impatti mbassrin u, wara l-miżuri mitigatorji proposti, l-importanza ta' xi impatti residwi. Impatt residwu huwa kull impatt li jibqa' jeżisti wara li jittieħdu l-miżuri mitigatorji proposti.

Speċjalisti fl-oqsma partikulari studjaw dawn is-suġġetti:

- Ġeo-ambjent;
- Pajsaġġ u sbuħija tad-dehra;
- Agrikultura;
- Wirt kulturali;
- Hsejjes u vibrazzjonijiet;
- Emissjonijiet fl-arja;
- Studju soċjali; u
- Studju tar-riskji.

## KONSIDERAZZJONIJIET TA' POLICY

Il-Pjan ta' Struttura għall-Gżejjer Maltin, Spazju għall-Iskart: Pjan għall-Immaniġġjar tal-Iskart, il-Pjan Lokali għaċ-Ċentru ta' Malta, u l-*Policy & Design Guidance 2007* huma d-dokumenti ewlenin tal-politika tal-ippjanar li jolqtu s-Sit tal-Applikazzjoni. Deskrizzjoni ddettaljata tal-politika tal-ippjanar u l-immaniġġjar tal-iskart qed tingħata f'**Kapitlu 5** tad-DIA.

## DESKRIZZJONI TAS-SIT U MADWARU

**Fig. 2** tidentifika l-post tas-sit u turi x'użu jsir mill-inħawi.

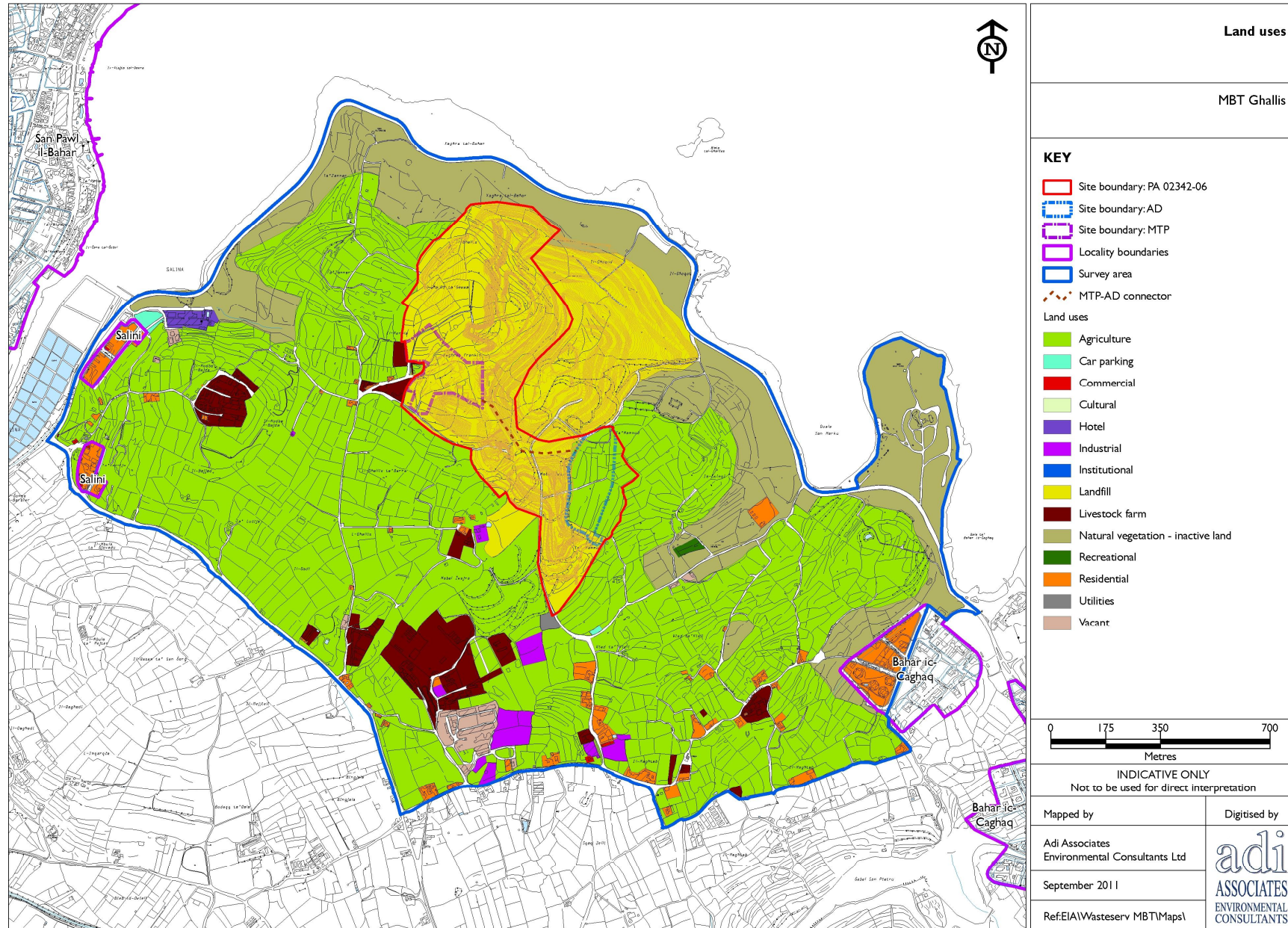
Użijiet ewlenin fl-Area ta' Influenza kif tidher f'**Fig. 2** jinkludu:

- Immaniġġjar tal-iskart (fis-sit innifsu);
- Agrikultura (il-biċċa l-kbira tal-inħawi madwar);
- Residenzjali (inklużi l-inħawi ta' Baħar iċ-Ċagħaq, il-Magħtab u s-Salini); u
- Industrijali.





Fig. 2: Post tas-sit u użu tal-art madwaru



## DESKRIZZJONI TAL-ISKEMA

L-iskema tinvolvi:

- L-Għeluq tal-*landfill* f'Ta' Żwejra – dan ikun jinvolvi tibdil f'kif iddur u tittarraġ l-art, tisqif (*capping*), stallazzjoni ta' sistema għall-irkupru tal-gass, restawr u kura u manutenzjoni wara;
- Inkluzjoni ta' maħżen għal materjal radjoattiv ta' livell baxx ġo għeluq bla periklu; u
- Bini u tħaddim ta' Impjant għal Trattament Mekkaniku u Bioloġiku (MBT) li jittratta skart muniċipali u tal-annimali u jkun jinkludi:
  - Triq ta' aċċess u art pavimentata fis-sit għat-trakkijiet tqal u l-ħażna tal-kontejners, eċċ.,
  - *Reception* inkluzi tagħmir li jżen it-trakkijiet mgħobbija (*weighbridge*) u sistema ta' registrazzjoni elettronika tat-tagħbijiet li jidhlu u joħroġu;
  - Impjant mekkaniku għall-għażla ta' skart imħallat, inkluzi tekniki ta' skrin li jvibra, separazzjoni ballistika, separatur qrib infra-aħmar u separatur manjetiku li jagħzlu l-iskart fi tlieta – bijo-skart, RDF (fjuwil derivat mill-iskart) u dak li jibqa' li mbagħad imur fil-*landfill*;
  - Trattament mekkaniku likwidu tal-bijoskart – il-frazzjoni organika fina tal-iskart tad-djar – għall-ipproċessar anaerobiku;
  - Post fejn jintlaqa' d-demel solidu u likwidu mingħand min irabbi l-bhejjem;
  - Ħażna u trattament minn qabel tad-demel għall-ipproċessar anaerobiku;
  - Faċilità għad-diġestjoni tal-bijoskart;
- Faċilità għad-diġestjoni tad-demel;
- Ħażna tad-diġestit għas-separazzjoni solidu/likwidu u trattament ta' wara;
- Separazzjoni f'solidu/likwidu tad-diġestit miż-żewġ linji ta' diġestjoni;
- Trattament ta' wara tal-parti solida mis-separazzjoni solidu/likwidu f'sistema magħluqa ta' kompost b'kontroll sħiħ fuq il-ħruġ tal-arja;
- Ħażna tal-prodotti finali;
- Trattament tal-ilma li jinkludi tank għall-ħażna tal-ilma; trattament tal-ilma fit-tieni stadju permezz ta' impjant tar-reverse osmosis (RO) u *vacuum evaporation unit*;
- Tkessiħ u deumidifikazzjoni għall-bijogass;
- *Gas booster station*;
- Ibbilanċjar tal-bijogass biex tkun possibbli l-produzzjoni ta' elettricità;
- Unit għal mutur-ġeneratur għall-produzzjoni tal-elettriku mill-bijogass;
- Sistema ta' kwalita għal immanijġjar tal-gassijiet inkluz *Gas flare* ;
- Sistema ta' rkupru ta' sħana żejda u ħażna għas-sħana biex tintuża fl-impjant tal-ipproċessar;
- Substation li jissupplixxi l-enerġija meħtieġa u jagħmilha possibbli li l-enerġija prodotta tinbiegħ lill-grid;
- Trattament għall-irwejjaħ tal-arja tal-ventilazzjoni, arja żejda mill-kompost u mit-trattament ta' prodotti finali likwidi;

- Ċumnija mnejn toħroġ l-arja ttrattata;
- Ippressar u mballar tal-frazzjoni ta' skart RDF u tagħbija f'kontejners għall-ġarr lejn impjanti ta' inċinerazzjoni jew rimi fil-*landfill*;
- Kamra tal-kontroll;
- Laboratorju;
- Faċilitajiet għall-istaff li jinkludu toilets, kmamar tal-banju, canteen, eċċ.;
- Gibjuni għall-ħażna tal-ħamla biex tintuża għall-kontroll tat-trab, tisqija u f'każ ta' nirien; u
- Faċilitajiet għall-ħasil tal-vetturi.

Fig. 3 - Fig. 5 jagħtu deskrizzjonijiet tal-pjanti u l-proċess tal-MBT.

*Deskrizzjoni ddettaljata ta' kull waħda mill-attivitajiet proposti tingħata f'**Kapitlu 4** tad-DIA.*

***II-Kapitlu 13** tad-DIA jipprovdi studju ddettaljat tar-riskji.*



Fig. 3: Post tal-faċilitajiet tat-trattament mekkaniku u bijoloġiku fis-sit

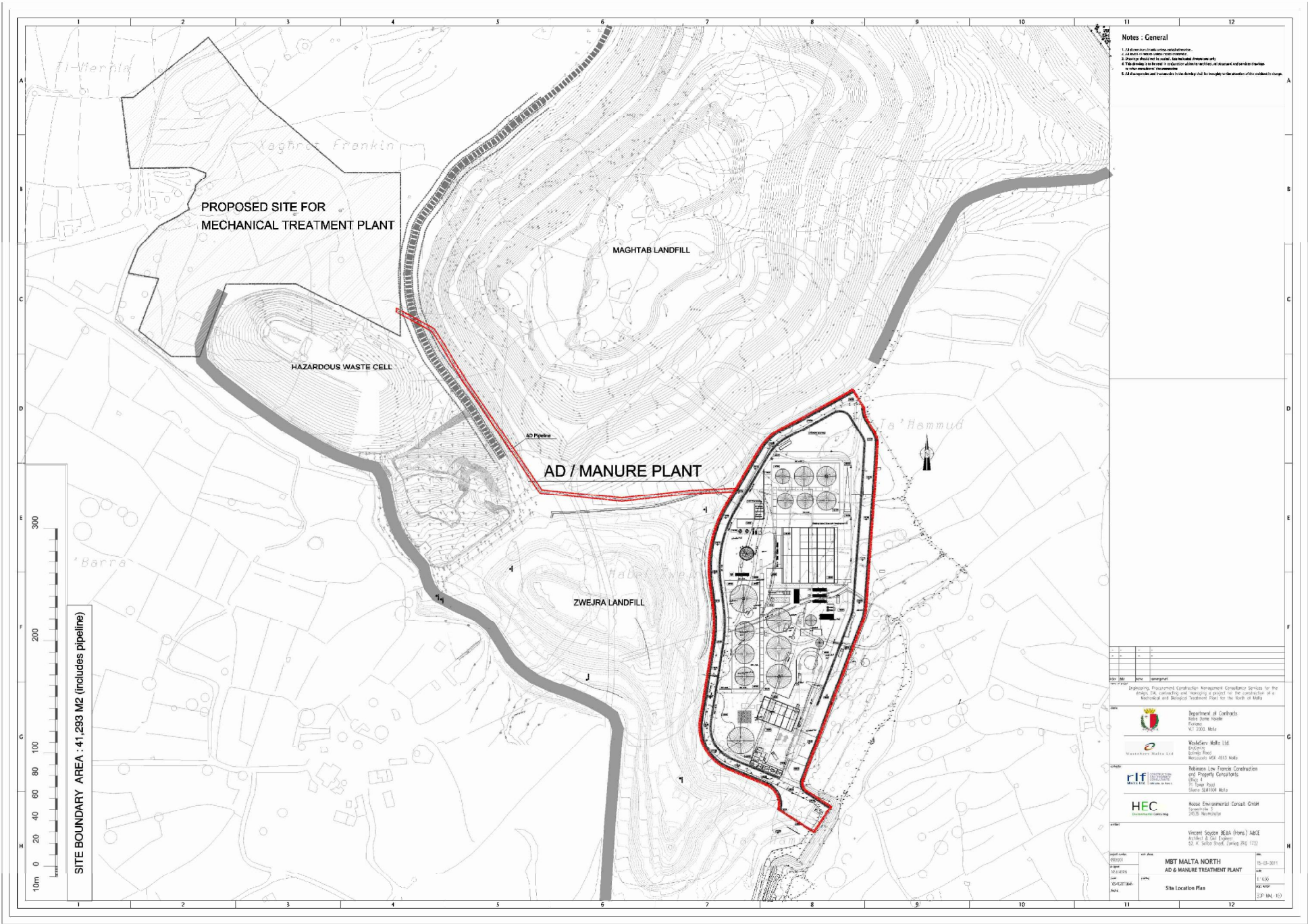




Fig. 4: Mappa tat-tqassim ġenerali tal-impjant għat-trattament mekkaniku

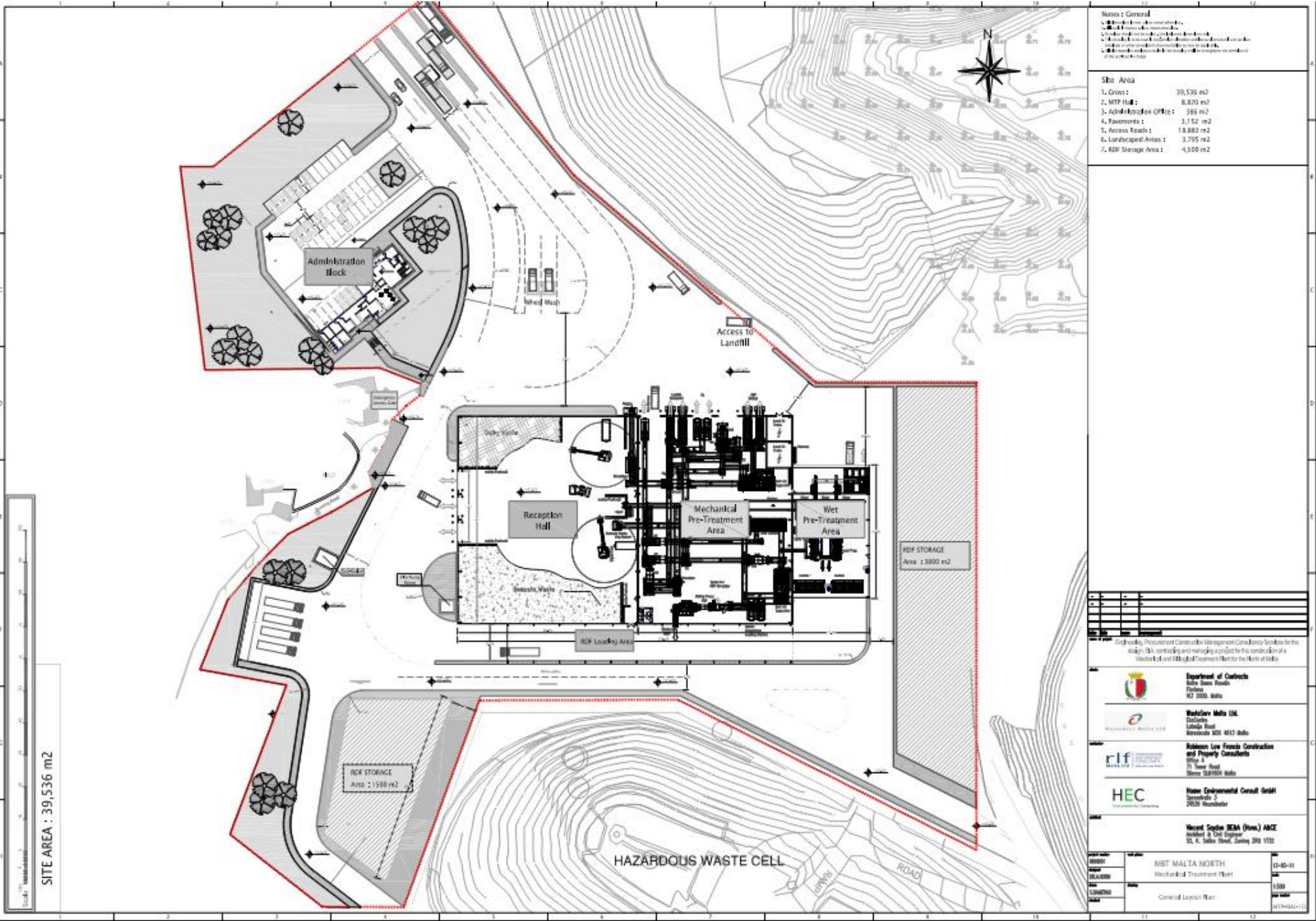
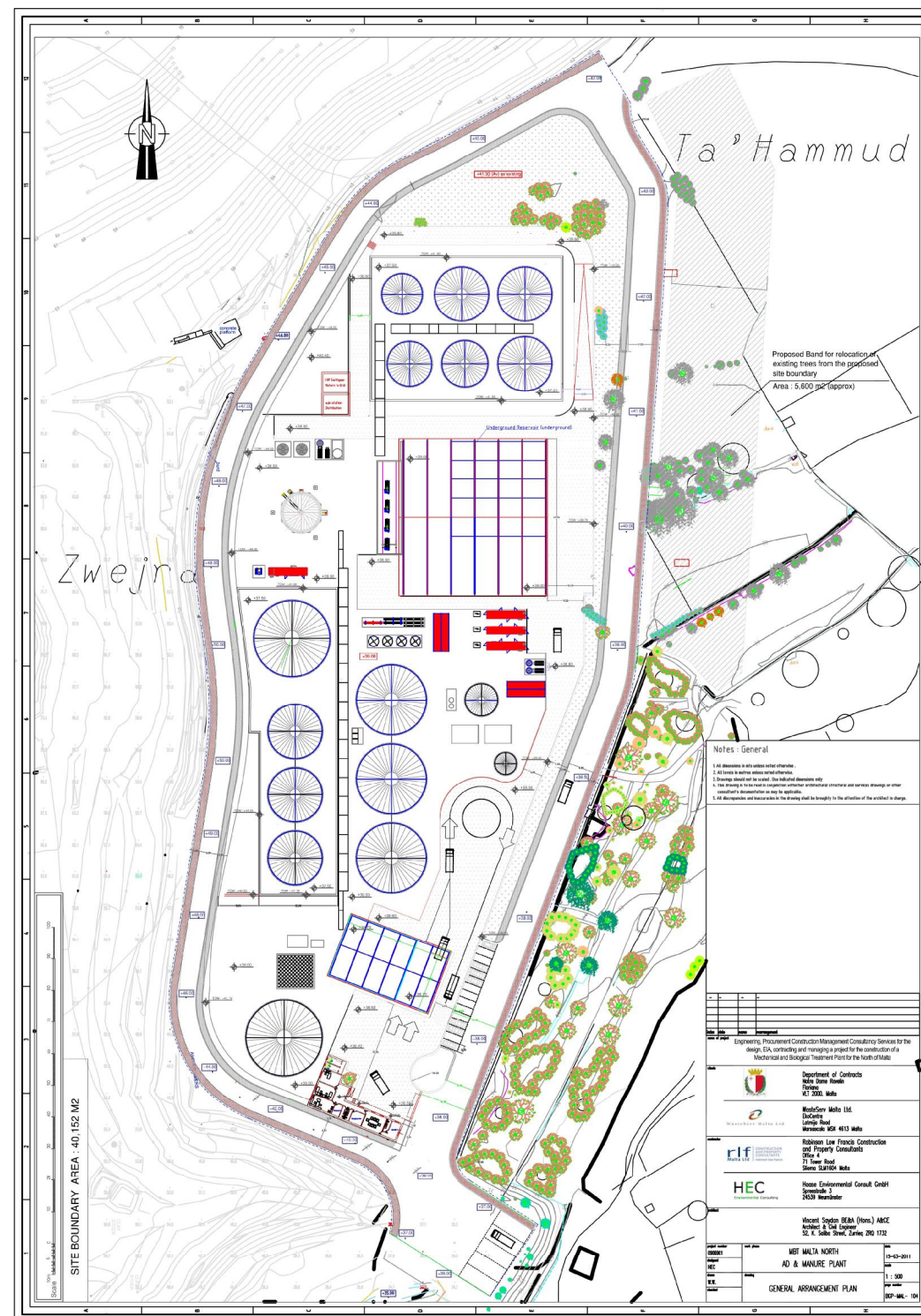


Fig. 5: Tqassim tal-impjant għat-trattament  
bijoloġiku





## Riżultati fil-qosor tal-istudji

### RIŻORSI ĠEO-AMBJENTALI

- Telf ta' riżorsa minerali bħala riżultat tat-tħaffir li jgħib miegħu impatt negattiv importanti.
- Riskju ta' **bidla fil-kwalità tal-ilma ta' taħt l-art u r-riforniment**, partikolarment waqt il-kostruzzjoni. Jekk ma jkunx hemm immaniġġjar b'mod korrett, jista' jkun hemm impatt negattiv minn żgħir sa kbir skont il-kobor tal-inċident. L-implimentazzjoni ta' miżuri mitigatorji għandha tnaqqas l-impatt residwu għal żgħir jew mhux importanti.
- Hekk ukoll, hemm riskju ta' **bidla fil-kwalità tal-ħamla**, madankollu, billi ma hemmx ilma tal-wiċċ x'jintlaqat, waqt il-kostruzzjoni l-impatt ikun żgħir. Waqt l-operazzjoni, skont kemm ikun kbir inċident, l-impatt jista' jkun minn żgħir sa kbir. Bl-implimentazzjoni ta' miżuri mitigatorji, l-impatt residwu fuq il-kwalità tal-ilma tal-wiċċ huwa żgħir jew mhux importanti.

### PAJSAĠĠ U SBUĦIJA TAD-DEHRA

- L-istudju tal-pajsaġġ juri li xi nħawi tal-pajsaġġ jintlaqtu b'mod negattiv mill-iSkema. Il- *landfill* l-antika tal-Magħtab tintlaqat b'mod negattiv b'impatt ta' importanza minn żgħira sa kbira meta titqies l-introduzzjoni ta' impjanti industrijali fl-inħawi. L-iSkema għib magħha impatt negattiv importanti fuq l-art agrikola maġenb il-Magħtab
- 14-il post ta' veduta (VP) kienu meqjusa fl-istudju dwar is-sbuħija tad-dehra b'dawn ir-riżultati:
  - Ebda impatt ma jidher minn VP1 u VP9;
  - Kienu identifikati impatti mhux importanti jew żgħar minn VP2, VP3, u VP14;
  - Impatt żgħir jidher minn VP 10;
  - Impatt minn żgħir sa kbir minn VP13 (ara Fig. 6);
  - Impatt ta' importanza kbira minn VP8 u VP12 (ara Fig. 7);
  - L-iSkema ma tidhirx minn VP4, VP5, VP6, VP7, u VP11.

Fig. 6: Dehra minn Triq John Adye, T'Alla u Ommu

PROPOSED VIEW

Date - Time of Photo: 05-May-2011 - 1456



1. Photo shot using a digital equivalent of a 35mm camera with a 50mm lens.  
2. An interpretation of monocular perspective could be obtained by viewing from a distance of 500mm.  
3. Photomontage and perspective modelling by Virtual Reality Studios Ltd. ([www.vrstudios.com](http://www.vrstudios.com))  
4. 3D modelling of terrain is subject to the accuracy or otherwise of height data information used.

OS reference: 49560, 76028  
Height of camera above MSL: 86.18m  
Date: 03rd August 2011  
Verified Photomontages by Virtual Reality Studios: 4 Woodland Avenue,  
Nantwich, Cheshire CW5 6JE, UK / 1, Veduta Apartments, Luigi Ellul Street,  
Attard ATD 3023, Malta

**VIEWPOINT VP-13**

VERIFIED PHOTOMONTAGES FOR  
PROPOSED DEVELOPMENT AT GĦALLIES

Fig.7: Dehra minn Triq Ghaxqet I-Ghajn, l/t Hal Gharghur

PROPOSED VIEW

Date - Time of Photo: 05-May-2011 - 1407



1. Photo shot using a digital equivalent of a 35mm camera with a 50mm lens.  
2. An interpretation of monocular perspective could be obtained by viewing from a distance of 50mm.  
3. Photomontage and perspective modelling by Virtual Reality Studios Ltd. ([www.vrsmalta.com](http://www.vrsmalta.com))  
4. 3D modelling of terrain is subject to the accuracy or otherwise of height data information used.

OS reference: 50755, 76692  
Height of camera above MSL: 110.44m  
Date: 03rd August 2011  
Verified Photomontages by: Virtual Reality Studios: 4 Woodland Avenue,  
Nantwich, Cheshire CW5 6JE, UK / 1, Veduta Apartments, Luigi Ellul Street,  
Altard ATD 3023, Malta

**VIEWPOINT VP-12**  
VERIFIED PHOTOMONTAGES FOR  
PROPOSED DEVELOPMENT AT GHALIS



## Riżultati fil-qosor tal-istudji

### AGRIKULTURA

- L-iSkema ġġib magħha xi telf ta' art agrikola li jirriżulta f'impatt negattiv minn żgħir sa kbir.
- Numru ta' **siġar protetti jintilfu** b'riżultat ta' impatt negattiv kbir, madankollu, it-tħawwil band'oħra tas-siġar protetti jirriduċi l-impatt residwu għal wieħed żgħir jew mhux importanti skont kemm jirnexxi t-tħawwil mill-ġdid.
- L-għelieqi tal-inħawi kienu meqjusin ta' produttività baxxa u kien hemm xhieda li l-biċċa l-kbira huma mitluqin jew qegħdin jintużaw għal skopijiet oħrajn. L-impatt fuq il-bdiewa jvarja skont kemm għandhom rabta mal-għelieqi.

### WIRT KULTURALI

- Għadd ta' **karatteristiċi ta' importanza kulturali varja jintilfu** bħala riżultat tal-iSkema u dan jirriżulta f'impatt minn żgħir sa kbir skont in-natura tal-karatteristiċi li jintilfu. Fejn ikun possibbli, il-karatteristiċi jkunu rilokati u l-karatteristiċi kollha jkunu rreġistrati *in situ*.
- Tista' ssir **ħsara lill-karatteristiċi** li jinżammu bħala riżultat tal-iSkema u dan iġib miegħu impatt minn żgħir sa kbir skont kemm issir ħsara u liema tkun il-karatteristika. Rilokazzjoni u reġistrazzjoni tal-karatteristiċi kif ukoll l-użu ta' metodi sensitivi ta' kostruzzjoni huma fost il-miżuri mitagatorji proposti.
- Ikun hemm **tibdil fil-kuntest u l-pajsaġġ kulturali** li jirriżulta f'impatt ta' importanza kbira fuq il-pajsaġġ kif deskritt fit-taqsimha dwar il-pajsaġġ.





## Riżultati fil-qosor tal-istudji

### ĦSEJJES U VIBRAZZJONI

- L-impatt mill-ħsejjes waqt il-kostruzzjoni fuq suġġetti sensittivi ikun minn kbir sa mhux importanti skont fejn ikun is-suġġett sensittiv f'relazzjoni mal-iSkema. L-implimentazzjoni tar-Regolamenti tal-2007 dwar l-Immaniġġjar Ambjentali tas-Siti ta' Kostruzzjoni tgħin xi ftit biex jonqsu l-effetti negattivi, iżda, aktarx jibqa' impatt residwu li jvarja minn kbir sa mhux importanti skont fejn jinsab is-suġġett sensittiv. Ta' min iqis, iżda, li l-impatti tal-kostruzzjoni huma ta' natura temporanja.
- L-impatt potenzjali tat-traffiku waqt l-operazzjoni fuq suġġetti sensittivi ma jkunx wieħed importanti.
- L-impatt potenzjali tal-ħsejjes li jirriżultaw mit-tħaddim tal-iSkema ma jkunx importanti.
- L-impatt potenzjali tal-vibrazzjonijiet fuq l-integrità strutturali tal-bini ta' madwar ma jkunx ta' importanza.

### EMISSIONIJET FL-ARJA

- L-impatt potenzjali ta' emissjonijiet mit-traffiku fit-toroq kemm waqt il-kostruzzjoni u kemm waqt l-operazzjoni ma jkunx ta' importanza.
- Ħruġ ta' trab waqt il-kostruzzjoni jkun ta' importanza żgħira u temporanju.
- L-impatt potenzjali ta' emissjonijiet mill-magni tal-gass ma jkunx importanti.
- Emissjonijiet ta' rwejjaħ mill-bini tal-iSkema waqt l-operazzjoni ma jkunx ta' dwejjaq.
- Emissjonijiet ta' rwejjaħ mill-filtri bijoloġiċi ma jkunx ta' importanza.

## Riżultati fil-qosor tal-istudji

### STUDJU SOĊJALI

- Assigurazzjoni dwar l-implimentazzjoni ta' **programm ta' monitoraġġ** tal-operazzjonijiet u involviment effettiv tal-pubbliku tirriżulta f'impatt benefiku żgħir billi tassigura mmaniġġjar aħjar tal-faċilità għall-immaniġġjar tal-iskart meta mqabbla ma' kif kienet taħdem qabel.
- L-implimentazzjoni ta' pjan ta' **saħħa u sigurtà** bħala parti mill-operazzjonijiet fis-sit għandha tnaqqas ir-riskju. Ara l-istudju tar-riskji, riskji residwi jvarjaw minn żgħar sa kbar.
- Tibdil fir-rotot ta' aċċess għat-traffiku jirriżulta f'impatt benefiku minn żgħir sa kbar għar-residenti u l-bdiewa tal-Magħtab.
- Emissjonijiet ta' **trab**, kollox ma' kollox, mhumex mistennija jgħibu impatti importanti meta wieħed iqis in-natura temporanja tal-iSkema u l-fatt li l-biċċa l-kbira tas-suġġetti sensitivi ma jintlaqtux.
- Mistenni jkun hemm inqas **degradazzjoni ambjentali** bħala riżultat tal-iSkema bis-saħħa ta' titjib fl-immaniġġjar tal-iskart u b'hekk mistenni jkun hemm impatt żgħir benefiku fuq l-inħawi inġenerali meta mqabbla ma' kif kienet taħdem il-faċilità tal-immaniġġjar tal-iskart ta' qabel.
- **L-impatt viżiv**, deskritt qabel, iwarja minn mhux importanti sa ta' importanza kbira, skont minn fejn tħares.
- Meta wieħed iqis l-impatti mbassrin fuq **il-wirt kulturali** fl-inħawi, jista' jkun hemm impatt negattiv minn żgħir sa kbar fuq xi wħud li jużaw l-inħawi, b'mod partikolari fuq min jużahom għar-rikreazzjoni.
- Kif intwera fit-taqsima iżjed 'il fuq, il-ħsejjes mhumex mistennijin joħolqu problema fl-operazzjoni għal żmien fit-tul tal-faċilità, u għal-hekk, il-paċi ġenerali ma tintlaqatx.
- L-iSkema mhix mistennija tolqot l-attività kummerċjali (partikolarment it-turiżmu) fl-Area ta' Influenza soċjali.



## Riżultati fil-qosor tal-istudji

### STUDJU TAR-RISKJI

- Ir-riżultati huma ppreżentati f'**Kapitlu 13** tad-dokument prinċipali (DIA).
- **L-impatti fuq l-ilma ta' taħt l-art** waqt il-kostruzzjoni u l-operazzjoni jkunu mitigati b'għadd ta' mizuri bħal konteniment ta' fjuwils u prodotti kimiċi, spezzjoni regolari, stallazzjoni ta' tagħmir ta' monitoraġġ, sistemi li jindunaw jekk xi ħaġa toqtor, eċċ.
- Ir-riskji mill-operazzjoni tal-**maħżen ta' materjal radjoattiv ta' livell baxx** huma minimizzati bl-istallazzjoni ta' *monitors* u konteniment xieraq.
- Ir-riskji mill-operazzjoni tal-MBT huma minimizzati bis-saħħa ta' prattika xierqa ta' xogħol, manutenzjoni regolari, iċ-ċekkjar u spezzjonijiet, eċċ.



## Mizuri mitigatorji

### Mizuri mitigatorji waqt il-kostruzzjoni

- L-implimentazzjoni tar-Regolamenti tal-2007 dwar l-Immaniġġjar Ambjentali ta' Siti ta' Kostruzzjoni;
- Formulazzjoni ta' Pjan ta' Immaniġġjar tal-Kostruzzjoni u Pjan ta' Immaniġġjar Ambjentali għall-fażi tal-kostruzzjoni;
- Il-fjuwils kollha jridu jinżammu f'tankijiet issiġillati imfasslin biex jesgħu il-110% tal-kontenut tat-tankijiet. Tagħmir li jkejjel il-fjuwil u pajpijiet għal mili tal-fjuwil ikunu fl-area ssiġillata. Il-prodotti kimiċi u l-lubrikanti kollha li jintużaw fil-perjodu tal-kostruzzjoni jinħażnu f'faċilità bla periklu u jew jinħażnu fuq tilari li jilqgħu l-qtar jew go kontenituri biex dak li jaqa' jkun mill-inqas possibbli;
- Thawwil band'oħra tas-siġar ta' speċi protetti, jekk possibbli;
- Tneħħija tal-ħamrija li jkun għad hemm fis-Sit tal-Applikazzjoni meta tkun xotta, biex ma jkunx hemm effett negattiv fuq l-istruttura tagħha;
- Użu mill-ġdid tal-ħamrija fl-iSkema tat-Tisbiħ Pajsaġġistiku;
- Tqegħid band'oħra, barra mis-sit, tal-karatteristiċi importanti tal-wirt kulturali, jew fi nħawi madwar il-Magħtab jew xi mkien ieħor xieraq, u bi qbil mas-Sovrintendenza tal-Wirt Kulturali u taħt is-supervizjoni tagħha; u
- Supervizjoni tax-xogħol b'mod ġenerali mis-Sovrintendenza tal-Wirt Kulturali biex ikun assigurat li, f'każ li jinstabu artefatti mhux irregistrati, ix-xogħol jitwaqqaf u tiġi eżaminata s-sitwazzjoni.

### Mizuri mitigatorji waqt l-operazzjoni

#### Mizuri ġenerali

- Il-MBT ikun imqabbad ma' sistemi kompletament separati ta' drenaġġ għall-ilma maħmuġ u l-ilma tal-wiċċ. Inħawi fejn isir l-ipproċessar, inkluzi dawk fejn jintlaqa' l-iskart, ikunu mfasslin hekk li l-ilma maħmuġ tal-ipproċessar ma jkunx jista' jidhrol fis-sistema tad-drenaġġ tal-ilma tal-wiċċ. Il-faċilitajiet ikunu ddisinjati u mibnjin hekk li kull ilma tal-ipproċessar jew *leachate* li jirrizulta mill-operazzjonijiet, inkluzi emerġenzi fis-sit, ma jithallix joħroġ bla ma jkun ittrattat sew sal-livelli minimi meħtieġa.
- L-inħawi kollha tal-impjant MBT, fejn ikun hemm arja tinten mill-ipproċessar, ikunu taħt pressjoni ta' arja negattiva u l-arja tkun ittrattata.

#### Impjant AD

- L-għoli taċ-ċmieni tal-magni li jaħdmu bil-gass jizdied minn 10 metri għal 20 metru;
- It-tankijiet u kontenituri għar-reazzjoni kimika kollha fl-impjant AD jinbnew fuq pedament impermeabbli imdawwar b'ħajt issiġġillat, imfassal biex jesa' 110% tal-akbar tank jew kontenitur. Fejn it-tankijiet ikunu mqabbdin ma' xulxin bil-pajpijiet, il-ħajt issiġġillat ikun jesa' 110% ta' kemm jesgħu t-tankijiet kollha flimkien.





## Mizuri mitigatorji

- Il-kontenituri tad-diġestjoni anaerobika ikollhom sistema ta' kejl għall-monitoraġġ tal-livell u jkunu mgħammra b'alarms u *safety cut-offs* biex ma jithallewx ifuru. Jintużaw *monitors* tal-pressjoni u kull diġestitur ikun mgħammar b'valv ta' sigurtà kontra pressjoni żejda jew nieqsa biex tiġi minimizzata l-possibbiltà ta' qsim. Programm ta' spezzjoni jkun implimentat biex jidentifika korrozzjoni fit-tankijiet jew kontenituri tad-diġestjoni.
- Kull xogħol ta' pajpijiet, valvijiet u tagħmir ieħor isir b'mod li jkun jiflaħ pressjonijiet ogħla mill-pressjoni massima li jilħqu meta jithaddmu, inkluża xi zieda f'daqqa fil-pressjoni. Is-sistema ta' pajpijiet titqiegħed b'mod li jiffaċilita l-iżmantellar u t-tneħħija ta' pompi jew partijiet kbar tal-impjant. Kull sistema ta' pajpijiet tkun tistrieħ b'mod adegwat fuq supporti magħmulin apposta. Meta jgħaddu mill-ħitan, il-pajpijiet irid ikollhom *puddle flange*. Kull xogħol ta' pajpijiet li minnhom jgħaddu fluwidi li jistgħu jniġġsu jitqiegħed 'il fuq mill-art (minbarra s-sistema ta' drenaġġ), li jkun ta' għajjnuna għall-ispezzjoni, u jnaqqas il-possibbiltà li jkun hemm fejn joqtor bla ma wieħed jinduna.
- L-istallazzjoni ta' sistemi ta' pajpijiet 'il fuq mill-art tgħin l-ispezzjoni u tnaqqas il-possibbiltà li wieħed ma jindunax li jkun ħiereġ likwidu li jniġġes; u b'hekk b'impatt potenzjali fuq l-ilma taħt l-art jew fil-wiċċ.
- Il-provvediment ta' tagħmir ta' monitoraġġ tal-volum u l-pressjoni fil-kontenituri u alarm jekk ifuru inaqas ir-riskju ta' tixrid.
- Il-provvediment ta' valvijiet li jserrġu l-pressjoni fid-diġestituri u r-reġim ta' spezzjoni inaqas ir-riskju li jintilef il-konteniment. Il-provvediment ta' tankijiet 'il fuq mill-art jagħmilha possibbli li ssir spezzjoni u jimminimizza r-riskju ta' ħruġ ta' likwidi li jniġġsu bla ma wieħed jinduna. Dan, flimkien mal-bini ta' ħajt issiġġillat madwarhom, inaqas il-possibbiltà ta' tniġġis bħala riżultat ta' ħruġ mhux ipplanat ta' likwidu kkawżat minn telf ta' konteniment.
- In-naħa l-izjed importanti fejn joħorġu rwejjaħ hija l-kamra fejn jidħol l-iskart (ir-*Reception Hall*). Id-dħul fiha jkun permezz ta' bibien awtomatiċi protetti b'*air curtains* biex jonqos kemm jista' jkun il-ħruġ ta' rwejjaħ u trab minn fejn jintlaqa' l-iskart mal-wasla.
- L-arja tal-exhaust miġbura mill-kamra fejn jidħol l-iskart u arja segregata skond is-sors mill-oġġetti fil-pre-trattament mekkaniku jgħaddu minn sistema li tiffiltra t-trab. Wara, l-arja tiġi ttrattata go *acid scrubber* u filtru bijoloġiku. Arja ħażina mill-magni fil-kamra tal-pre-trattament likwidu tinġabar direttament bi pressjoni negattiva u tkun ittrattata fi *scrubber*.
- Monitoraġġ tal-emissjonijiet isir bl-analizi ta' kampjun diskret mill-punt tat-tkejjil tal-filtru bijoloġiku. Kampjuni speċifiċi jitkejlu u jkunu eżaminati skont il-protokolli miftehma.



## Mizuri mitigatorji

### Maħżen għal materjal radjoattiv

- Id-disinn tal-maħżen għall-materjal ta' livell baxx ta' radjoattività jin-korpora membrana fil-qiegħ u monitor tal-gas li jista' jaqbad. Ir-riskji jkunu minimizzati billi tkun evitata l-akkumulazzjoni ta' materjali kombustibbli u billi jkun ipprovdut tagħmir għat-tifi tan-nar. Ikun ipprovdut ukoll konteniment sekondarju.

### Estensjoni tal-landfill ta' Żwejra

- Il-potenzjal għal ħruġ ta' *leachate* mill-ġnub tal-*landfill* Ta' Żwejra jit-naqqas bi bjar tal-prova li jitħaffru biex ikun identifikat skart saturat, għalkemm aktarx ma jkunx hemm il-probabbiltà li jinstab skart hekk meta wieħed iqis it-tqassim tax-xita f'Malta. Jekk ikun hemm pompi li jistgħu jittieħdu minnn naħa għal oħra u bowsers biex jiġbru l-*leachate* u l-possibbiltà ta' tħaffir ta' bir għall-ġbir u t-trattament xieraq tal-*leachate*, l-impatt jonqos.
- Il-ħruġ ta' gass mil-*landfill* u l-irwejjah li jġib miegħu waqt tibdil fil-profil tagħha jista' jkun mitigat b'kontroll operazzjonali tal-medda skart esposta u billi titgħatta fi tmiem il-ġurnata tax-xogħol. Jekk l-istallazzjoni tat-tisqif (*cap*) tkun ipprogrammata li ssir kemm jista' jkun malajr wara t-tibdil tal-profil, tonqos il-possibbiltà li mil-*landfill* jibqgħu ħerġin fit-tul gass u rwejjah.
- Id-dħul ta' arja fil-*landfill* u l-possibbiltà li tikkawża jew tħarrax nirien fil-massa ta' skart jista' jkun minimizzat ukoll b'kontroll operazzjonali tad-daqs tat-tħaffir u billi l-kisi jsir kemm jista' jkun malajr malli jintlaħaq il-profil ippjanat.

- Bl-assigurazzjoni ta' disinn u kostruzzjoni ta' kwalità jkun possibbli li jiġu kkontrollati emissjonijiet ta' gass tal-*landfill* li jaħarbu minn bjar tal-gass u sistemi ta' pajpijiet ta' ġbir assoċjati.

## Rakkomandazzjonijiet minn dawk interessati

Minbarra l-mizuri mitigatorji rrakkomandati mill-Konsulenti li ħejjew l-iSIA, persuni interessati għamlu numru ta' rakkomandazzjonijiet meta kienu intervistati matul it-tnejn tal-Agġornament tal-iSIA. Dawn ir-rakkomandazzjonijiet jidhru fil-qosor hawn taħt:

- L-awtoritajiet għandhom jaħtru rappreżentanti ta' dawk interessati biex jagħmluha ta' "watchdogs". Dawn ir-rappreżentanti għandhom ukoll ikunu mdaħħlin fil-proċess tat-teħid ta' deċiżjonijiet;
- Dawk interessati għandhom jiġu infurmati u edukati dwar id-diversi proġetti li qed ikunu ppjanati jew huma għaddejjin fis-sit u r-rabta li hemm bejn il-proġetti;
- Isir program ta' edukazzjoni mill-Wasteserv biex jeduka l-pubbliku partikolarment fuq immaniġġjar ta' skart u riċiklaġġ;
- L-operaturi tas-sit għandhom jitqiesu ekonomikament responsabbli korporativament għall-operazzjonijiet anċillari tal-iSkema. Vetturi tqal li mhumex tal-livell meħtieġ ma għandhomx jitħallew jidhru fil-faċilità u għandhom jeħlu multa;
- L-operatur għandu jintalab jimpjega warden (jew iħallas lill-Kunsill Lokali biex ikun jista' jimpjega warden) biex jinforza l-liġi, ngħidu aħna vetturi tqal ma jgħaddux minn toroq residenzjali u jkunu obbligati jaħslu r-roti;
- Il-faċilità għall-ħasil tar-roti għandha tinbena b'mod li t-trakk kollu jinħasel u mhux biss ir-roti meta jhalli s-sit għall-immaniġġjar tal-iskart;
- Ix-xatba tad-dħul uzata bħalissa (minn Triq ir-Ramla) għandha tingħalaq anke qabel il-fażi tal-kostruzzjoni. It-triq ta' mad-dawra mit-Triq tal-Kosta għandha tkun l-ewwel pass fil-fażi tal-kostruzzjoni, flimkien ma' xi mizuri li jaħbu s-sit, hekk li l-makkinarju tal-kostruzzjoni, eċċ., ma jkunx jidher;
- Skart ġdid li jitwassal fis-sit għandu jkun ittrattat malli jasal u mhux jitħalla għal jum sħiħ jew iżjed qabel jiċċaqraq;
- Mizuri li jaħbu s-sit, inkluż it-tħawwil ta' siġar, għandhom jassiguraw li s-sit tal-kostruzzjoni u iżjed 'il quddiem l-impjant, inaqqsu l-impatt viziv;
- Jekk il-proġett jgħaddi, il-MEPA għandha timponi kontribut tal-ippjanar (*planning gain*) li jmur direttament għal titjib b'risq il-lokalità u r-residenti tal-inħawi. Dan ma jfissirx, pereżempju, il-kisi mill-ġdid tat-triq, li huwa xogħol il-Gvern Ċentrali, iżda kwistjonijiet oħrajn soċjo-ambjentali bħal tindif u tisbiħ tal-inħawi (ngħidu aħna tħawwil ta' siġar matul it-toroq) u monitoraġġ tal-qagħda ambjentali;
- Bħala parti mill-istrategija mitigatorja u l-kontribut tal-ippjanar imsemmi hawn fuq inkluża r-responsabbiltà korporattiva ta' Wasteserv, huwa ssuġġerit li Wasteserv, flimkien mal-Għaqdiet tar-Residenti u l-Kunsilli Lokali jingħaqdu u japplikaw għal fondi tal-UE biex isir proġett li jtejjeb id-dehra tal-post u jinvolvi r-residenti tal-lokalità, ħalli jitjiebu l-valuri komunitarji. Il-proġett għandu jinvolvi lill-komunità mill-ippjanar sat-twettiq tiegħu;



## Rakkomandazzjonijiet minn dawk interessati

- Fejn jidhol il-monitoraġġ tal-qagħda ambjentali, huwa ssuġġerit li l-faċilitajiet ikollhom sistema ta' monitoraġġ online li tkun tista' tiġi eżaminata mill-pubbliku. Monitoraġġ tal-arja għandu jsir sikwit u minn distanzi diversi, speċjalment fil-partijiet residenzjali tal-lokalitajiet li huma l-eqreb lejn is-sit, u r-riżultati għandhom ikunu ppubblikati online kull tliet xhur;
- Intraprizi żgħira u medji għandhom ikunu involuti u inkuraġġiti jienhdu sehem f'operazzjonijiet ta' riċiklaġġ żgħira u mmirati, biex jonqos il-piż minn fuq operatur wieħed ta' riċiklaġġ għal Malta kollha; u
- Biex joqos l-ammont ta' traffiku li jgħorr l-iskart lejn is-sit, l-iskart jista' jinġieb fuq barkun.