JOINT COUNCIL FOR DEVELOPMENT FOR MANAGEMENT IN SERVICES, PLANING & SOLID WASTE JERICHO & JRRV

INITIAL ENVIRONMENTAL EVALUATION FOR THE EXTENTION OF JERICHO LANDFILL SITE AND CONSTRUCTION OF MATERIALS RECOVERY FACILITY WITH TRANSFER SYSTEM

FINAL REPORT

Submitted to:

Ministry of Environment Affairs

December 2012

Executive Summary

This report details the outcome of the Initial Environmental Evaluation (IEE) study that was carried out by the Joint Council for Services, Planning, and Development for Solid Waste Management in Jericho and Jordan River Rift Valley (JCspd), for the expansion of Jericho landfill site, and the construction of materials recovery facility with transfer system project in Jericho City. The IEE aimed to assess the environmental impact that could be resulted from the implementation of this project, and to identify the mitigation measures both during the construction and operation phases.

This IEE was prepared in accordance with the Palestinian Environmental Assessment Policy, and the Palestinian Environmental Law. The IEE report summarizes the results of the impact assessment of the above mentioned project. It includes an overview of the most important environmental impacts associated with the construction and operation of the landfill site and the material recovery facility with the transfer system. It also recommends measures which address adverse environmental impacts resulting from the project implementation.

The report was completed based on literature being collected, field observations, and direct discussions with stakeholders including the farmers especially those in or within the areas where landfill and material recovery facility is planted.

The report has indicated a number of negative as well as positive impacts associated with this project, but all negative impacts can be avoided if the listed mitigation measures are considered.

It is concluded that providing the proposed and recommended mitigation measures and the environmental, health and safety management of the constructed landfill and the materials recovery facility are incorporated and addressed in the ways described within

this report. Consequently, associated environmental and health impacts can be maintained within acceptable levels.

The IEE has investigated and assessed the significance of the predicted positive and negative impacts associated with the proposed project. These impacts, along with the wider environmental issues, will need to be considered by the JCspd. No negative impacts of high significance were identified, provided that all mitigation measures are applied effectively.

The proponent of the project, JCspd, is committed to the standards and requirements for the protection of the environment and to the application of all the required mitigation measures addressed in this IEE. JCspd has expressed its commitment towards this IEE.

With this it is our recommendation to approve this IEE and to proceed with the project without any further environmental reporting.

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1. Introduction

Jericho sanitary landfill is serving 5 residential communities; it receives solid waste from Jericho city, Dyuk, Nwa'meh, and the tow refugee camps Aqbit Jaber and Ein Al Sultan. Jericho landfill is operated and managed by the Joint Council for Services, Planning and Development for SWM in Jericho and JRRV (JCspd JJRRV) and was subject to development and technical cooperation programme of the Japan International Cooperation Agency (JICA) in the year 2007. Photo 1 shows Jericho landfill and operating vehicles at the site.

Photo 1: Jericho existing landfill site and the existing operation equipments

The expansion of Jericho landfill site, and construction of material recovery facility with transfer system, was launched as a part of the grant aid project funded by the Japanese government through the Japan International Cooperation Agency (JICA), to enhance the solid waste management in Palestine. This part of the project aims to improve the living conditions of the Palestinian people in Jericho governorate in general and the inhabitants of Jericho city and the nearby communities in particular through proper landfilling of the solid waste.

Jericho landfill site was first rehabilitated to be controlled landfill site in the year 2007 on tow phases, through the technical cooperation project on capacity development on SWM in Jericho and Jordan River Rift Valley; funded by the Japanese government through JICA. This was a temporary solution until the construction of the central landfill site in the middle area of west bank. The virtual life of this landfill was 4 years and was extended to be 5 years. Now and since the construction of the central landfill site still facing some difficulties, and the virtual life of the current landfill is almost reached to its end, the expansion of the landfill site became a must.

Jericho landfill site expansion and construction of the material recover facility project proposes to serve the following objectives (see annex 1 for the primary design):

- Protect the environment.
- Minimize pollution of air by preventing burning of waste.
- Minimize pollution of water resources by lining layers of the land to be used for waste dumping.
- Improve the health and hygiene conditions for Jericho citizens.
- Provide some jobs to those working in picking of waste.
- Improve the economic prosperity and quality of life in Jericho.

JCspd had agreed with the Ministry of Environment Affairs to conduct an Initial Environmental Evaluation (IEE) study to assess the environmental impact of expansion of Jericho landfill site and construction of the materials recovery facility with transfer system, and to identify the mitigation measures both during construction and operation phases. This IEE study provides recommendations on mitigation measures and proposes an environmental management and monitoring plan. Annex 2 shows the terms of reference for this study.

The purpose of this IEE study is to identify the direct and indirect impacts that the project implementation will have on the natural resources and ecosystems. This is to respond to one of the main goals of the Palestinian Environmental strategy which is to promote sustainable environmental development and the environmental protection in Palestine.

The JCspd believes in the above goals and vision, and had adopted the strategy and had decided to apply the policy measures and recommendations on all developmental projects including landfill expansion and the materials recovery facility with transfer system. In doing so, the JCspd aims at reaching sustainable development through the implementation of all possible procedures and guidelines as well as adopting policies based on a vision outlining its future status.

2. IEE Methodology

Following is the IEE methodology that was considered for the landfill expansion and the materials recovery facility with transfer system project:

a. Review and Data Collection

During this phase, all available relevant documents and materials provided were reviewed. Thereafter, site visits, field surveys and interviews and consultations were carried out. This phase enabled the study team to describe the existing conditions along with a depiction of the project activities. Other available reports and maps about the hydrogeology, hydrology, natural resources, agriculture and soil conditions, land use and archaeology of the area were collected and reviewed.

b. Initial Environmental Evaluation (IEE)

IEE study was conducted based on the data collected. The study includes baseline assessment, prediction of the potential environmental impacts, proposing mitigation measures and the design of an environmental monitoring plan.

c. Report Writing

Upon the completion of the analysis, a draft report was prepared.

3. Stakeholders and public consultations

As the project stakeholders are of various interests and relation with the project, number of small meetings and consultations took place with the representatives of the different stakeholders starting with the Municipality of Jericho, Ministry of Local Government, the Donor, Ministry of Health, Ministry of Agriculture, Palestinian Water Authority, and other related stakeholders.

Each meeting has its own reasons, objectives and expected outcomes. They all share some of the reasons including introducing the project, listen to instructions (wherever possible like when meeting the municipality or Ministries), recording their worries as well as recording suggestions). With the Municipality and the Ministries, collection of data and information was included in the meetings objectives. With this, different consultative meetings and interviews took place during the course of preparing the IEE study. Following is summary of the meetings outcomes.

Mr. Hasan Saleh, mayor of Jericho, expressed his strong support to implement this project, since Jericho is main stakeholder which will directly benefit from the expansion of Jericho landfill site.

Dr. Mohammad Al Qotob, the president of the board of directors of the Arab Development Society, the owner of the land, said that; the society agreed to rent the land to be used as a landfill site, because the society give much care for protecting the environment, and their approval to rent this land arise from their social responsibility.

Mr. Mahmood Othman and Theaf-Allah Sweedat form ministry of health said that this project is important, and ministry of health is supporting this project which aims to protect the health and environment in Jericho. They request an official letter in order to issue their approval and license for the construction of the landfill site. Annex 3 shows the letter of initial approval of MoH.

Mr. Suliman Abu Mfareh from MoLG expressed his support to this project, and said that proper landfilling is one of the major ministry concerns.

Miss Majeda Alawani from Palestinian Water Authority (PWA) asked for the proper lining of

the landfill ground in order to prevent the pollution of the surface and underground water resources. She also asked about any problem that had been occurred form the current landfill site. PWA said that after reviewing the location of the extension of the dumping site of Jericho, we find that it is located in the downstream of Jericho aquifer, and we think that there is no effect on the water resources, so you can continue.

Engineer Tha'er Al Rabi from ministry of agriculture (MoA) expressed his support to the project; he said that this project is good. Separation and recycling of waste must be taken into consideration. Engineer Ahamad Fares, the general director of the Jericho agriculture directorate, is also supporting this project, since it will protect the environment of Jericho.

Mr. Amjad Jaber, the general director of the Ministry of Labor (MoL) directorate in Jericho governorate said that this project will give the opportunity to enhance the economic situation by creation of jobs, and will reserve the environment. He gives much attention to proceed in the implementation of the project.

During the course of this IEE preparation, the above issues were considered by the JCspd. The response to the above issues can be summarized in the following:

To ensure that the environmental consequences of the proposed Jericho landfill expansion and material recovery facility with transfer system are identified and considered, and that appropriate environmental safeguards are adopted, JCspd had studied the reasonably foreseeable significant effects, both beneficial and adverse, of the proposed project.

Environmental compliance involves conducting an Initial Environmental Evaluation (IEE), which JCspd has prepared and is presented in this report. This IEE report is subject to the review and approval by several local agencies, such as the Ministry of Environment Affairs (MEnA) in order to ensure environmental compliance prior to project commencement and during project implementation.

4. Initial Assessment

Based on the scoping on environmental and social impacts, negative impacts are estimated to be minor during construction works and system operation. However, impact mitigation measures shall be required for the following issues anticipated during construction phase:

- Nuisance to people in surrounding of site due to dust /noise /smoke generated by the movement of vehicles/machinery.
- Pollution due to wastewater and waste from the contractor's camp.
- Health and safety of workers.
- Accidental hazards on the public people.

During the operational phase, the potential environment impacts will more likely be related to be:

- Odour, littering, and groundwater pollution by leachate.
- potential accident at the landfill site or health problems to operating staff and workers as well as proper isolation of landfill premises and control of landfill boarders in order to avoid uncontrolled penetration to the landfill.

5. Project Description

The expansion of Jericho landfill site and construction of materials recovery facility project consists of tow parts:

1. The expansion of Jericho landfill site.
2. The construction of the material recovery facility with transfer system.

5.1 The Expansion of the Landfill Site

The expansion of the Jericho landfill site will be toward the eastern direction from the current landfill site as shown in photo 2 bellow. The area is considered area A as of Oslo agreement, and is about 12000 m^2 (240 m length * 50 m width). The area is an agricultural area owned by the Arab Development Society, and was released by Jericho municipality to be used as a landfill site.

The semi aerobic method (Fukuka method) will be used to develop the expansion area, which is the same method used in the current landfill site.

Figure 1 shows the detailed design of the landfill site.

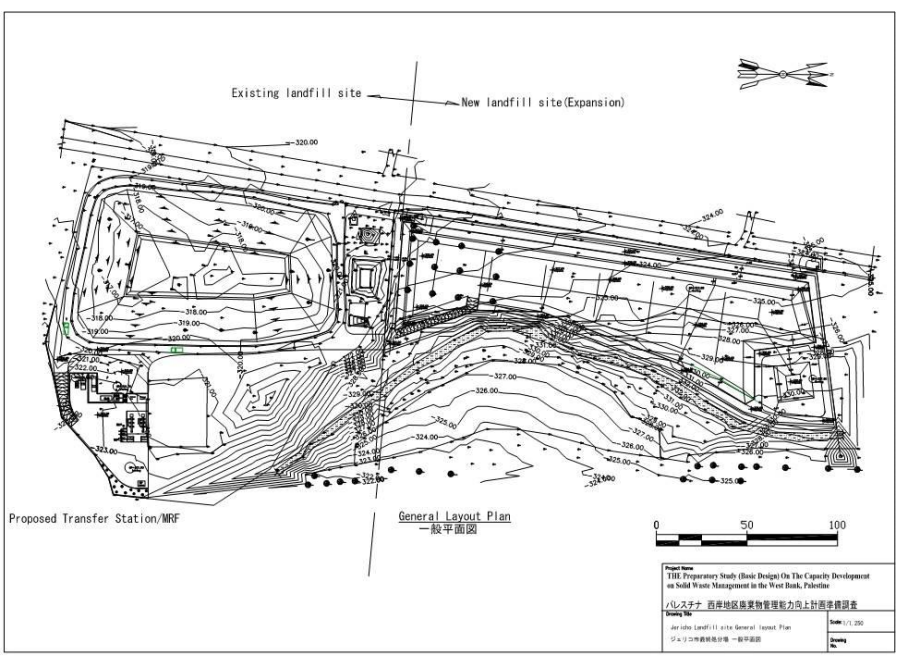


Figure 1: Landfill site layout (existing and new)

5.1.1 Capacity of the landfill site:

The expected capacity of the expansion area is about 60000 m^3 of waste. The total average waste collected daily amount is 33 tons, taking this into consideration; the expected virtual life is five years.

5.1.2 Landfill Components:

The design in its final stage will include the following components:

1. The landfill cell itself.
2. The base sealing system (2 layer of clay, 1 layer of HDPE).
3. The leachate collection system.
4. The gas removal pipes.
5. The leachate pond.
6. Internal access roads.
7. Fence, retention wall, and gate.
8. Storm water drainage system.

5.1.3 Layout of the Site

The landfill expansion will include one cell for five year operation. The site is around 324 m bellow the sea level. The site is located at the boundaries of area A in the eastern part of Jericho between Al Maghtas Street and Al Qult wade (annex 1).

5.1.4 Base Sealing System:

The base of the landfill site will be sealed so the leachate generated inside the landfill collected for safe disposal. An integrated base lining system using a geo membrane will be installed. Tow layers of 50 cm clay layer will be used with one 1.5 mm HDPE layer in between (photo 2).

Photo 2: Base sealing system

5.1.5 Leachate collection System

Leachate is generated due to decomposition of organic waste, the water content of the waste and the rain water during operation needs to be collected and treated. HDPE perforated pipes will be used for leachate collection. A main leachate collecting pipe will be located in the centre of the landfill site with branches in both directions as shown in annex 1. The slop of the leachate collection pipes will be 1% to the direction of the main pipe and leachate pond (photo 3).

Photo 3: Base sealing system

5.1.6 Gas Removal Pipes

Gas removal pipes will be installed vertically along with leachate collection system. PVC thermal protection pipes will be used for this purpose (photo 4).

Photo 4: Gas removal pipes

5.1.7 Leachate pond

The leachate pond will be constructed at the lowest point of the landfill, it will be lined with enforced concrete to prevent pollution of the under ground water. Treatment of the leachate will be by direct evaporation due to high temperatures in Jericho area. In case of any overflow of leachate occurred leachate will be evacuated by septic tank and sprayed again at the landfill site.

5.1.8 Internal Access Roads

The internal access roads will be constructed around the cell; the main construction material is paved pescors. The width of the road will be 4 m.

5.1.9 Fence, Retention Wall, and Gate

Fence will be constructed around the site to prevent any informal access to the site, and to catch low weight waste material from flying out side the site.

As the site is located nearby al qult wadi, retention wall will be constructed to prevent collapsing of the landfill towards the wadi area.

A gate will also be constructed to contort the entrance to landfill site.

5.1.10 Strom Water Collection System

As part of the landfill components storm water collection system will be constructed to direct rain water away from the landfill site to the wadi.

5.1.11 Waste Filling

The delivered waste by collection vehicles should be unloaded at a distance of about 10 m from the working area. The waste will be filled into the landfill cell using a tractor loader or a landfill compactor. The waste will be compacted into a layer not exceeding 50 cm in thickness. After compaction; a layer of 15 cm of soil will be used to cover the compacted waste.

5.1.12 Medical Waste

Medical waste generated by the main medical hospitals and centres in Jericho city will continue to be dumped at the medical waste cell at the current landfill site. In the future if there still a need for the medical waste dumping, a new cell will be constructed adjacent to the new landfill site, but will not be part of this project at the current time.

5.2 The construction of the material recovery facility with transfer system

The materials recovery facility and the transfer system will be constructed in the area of the current landfill site as shown in photo 5 and 6 bellow. Only the civil construction works will be considered for the materials recovery facility in this project without the provision of the equipments, JCspd will be responsible for securing of the separation conveyers and equipments.

Photo 5: Jericho expansion landfill site area

Photo 6: Materials recovery facility area

The materials recovery facility project includes:

1. Earth works (excavation, filling and leveling).
2. Construction of the retention wall 30m length.
3. Truss construction (12m *17m), including corrugate sheets, steel pipes anchor and bolts.
4. Concrete foundation 200 m^2 area, 50 cm thick.
5. Electricity network construction (inside the site).
6. Water network construction (inside the site).
7. Separation area 12m*12.5m.
8. Temporary stock area, 2 units, each unit 3m*4m.
9. Final stock area, 2 units, each unit 6m*5m.
10. Water-closet 3m*2m.
11. Guards room 3m*3.5m.

For the transfer system, the project will include:

1. Hydraulic compaction unit 3m*3m.
2. 2 Containers 32 m^3.
3. Transfer vehicle.
4. Road rehabilitation inside the landfill site to the site of the separation and transfer station.

Figure 2 shows the detail design of the materials recovery facility and the transfer system.

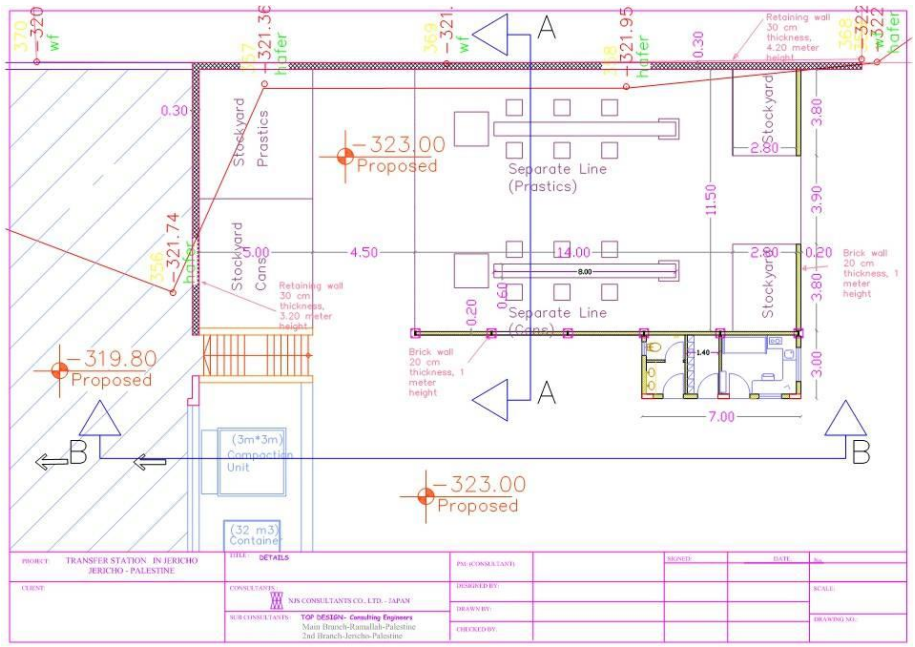


Figure 2: Materials recovery facility with the transfer system

6. Current state on environmental and social conditions

6.1 Location and Topography

The topography of the city of Jericho shows continuous decrease in elevation from about 150 m below sea level in the east to 300 m below sea level in the west. There are no considerably deep wadis (valleys) or hills within the city of Jericho other than wadi Al-Qilt flowing adjacent to the sanitary landfill from the south; the aerial photo below shows an almost a flat area (Figure 3). The proposed project area for the expansion of the Jericho sanitary landfill is adjacent to the currently operating Jericho landfill that is located about 4 km form Jericho city centre and about 1 km from the build up area at the eastern municipal boundary of Jericho city.

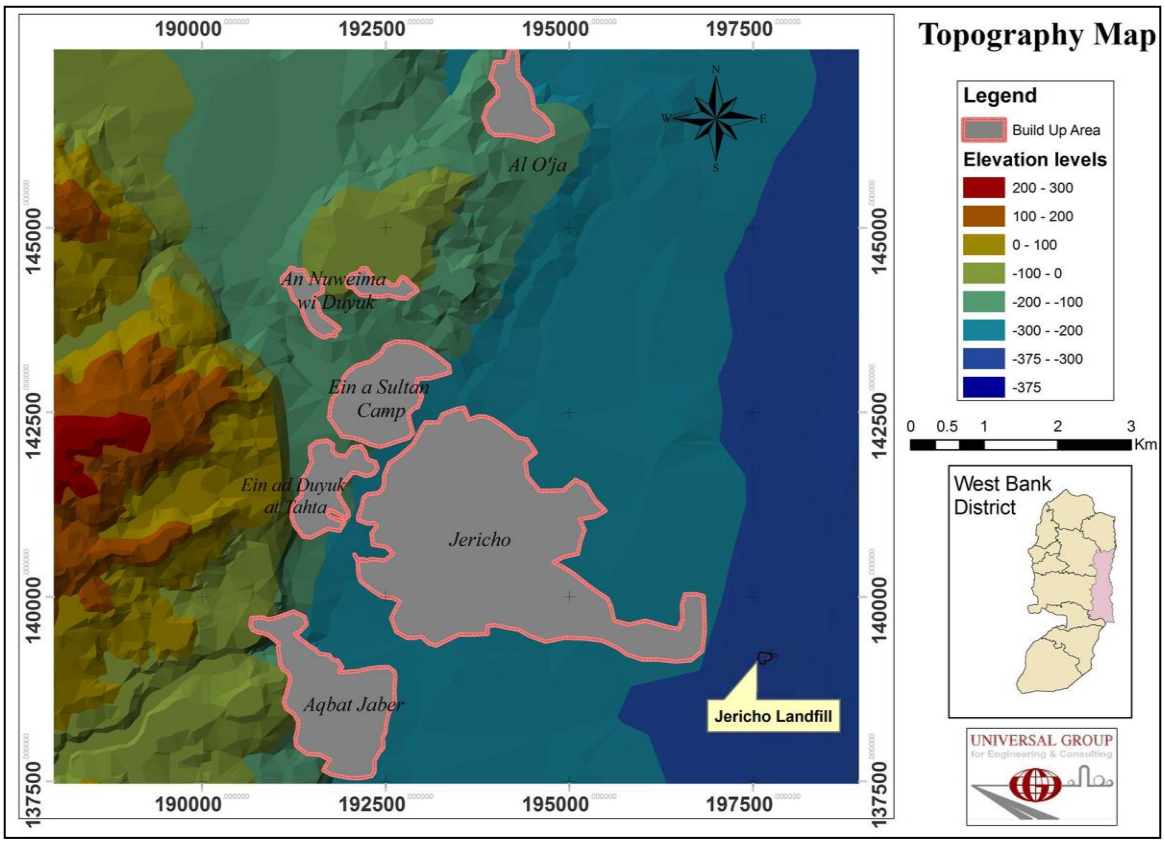
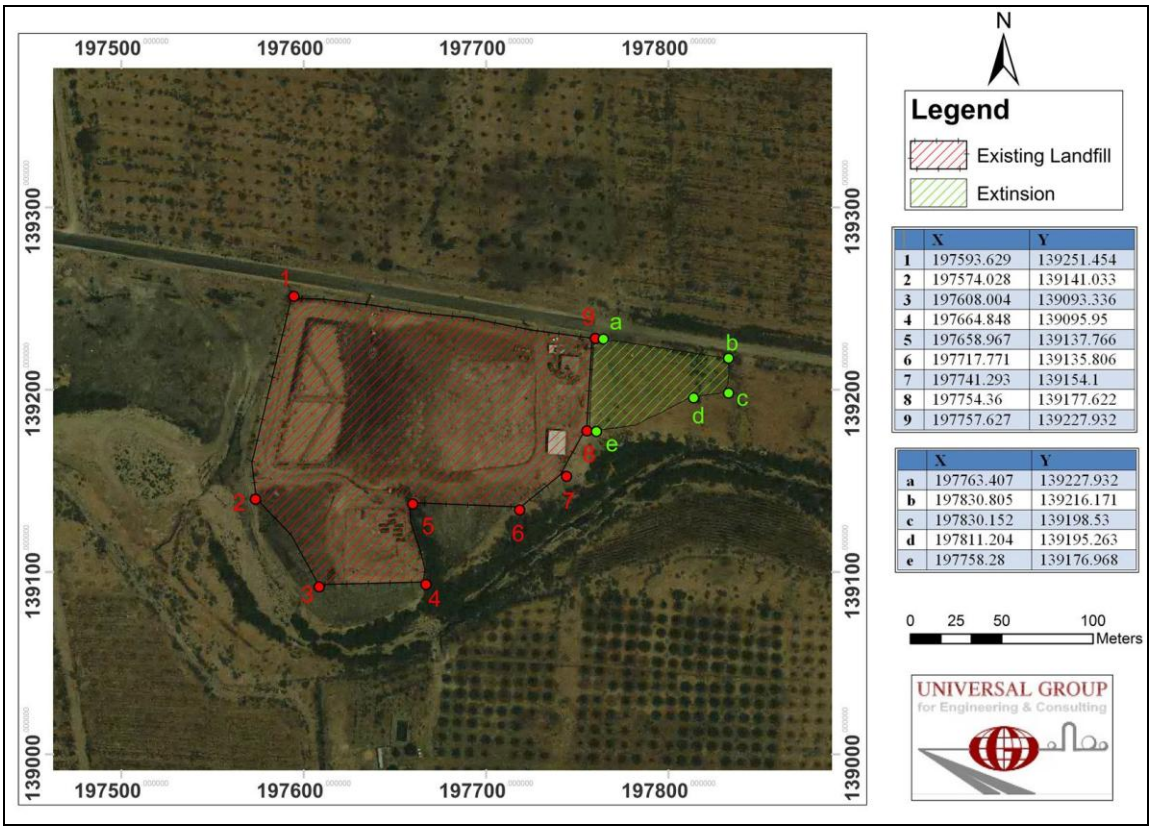


Figure 3: The Location and topography of Jericho Landfill Site

The access road to the existing landfill site is a paved straight road that is serving mainly the landfill and extends from the city center. Figure 4 shows the boundary of the landfill and the

existing road that leads to the landfill at its northern edge. The road needs to be expanded and rehabilitated to serve the expansion.



	X	Y
1	197593.629	139251.454
2	197574.028	139141.033
3	197608.004	139093.336
4	197664.848	139095.95
5	197658.967	139137.766
6	197717.771	139135.806
7	197741.293	139154.1
8	197754.36	139177.622
9	197757.627	139227.932

	X	Y
a	197763.407	139227.932
b	197830.805	139216.171
c	197830.152	139198.53
d	197811.204	139195.263
e	197758.28	139176.968

Figure 4: The boundary of the Jericho landfill and proposed expansion

6.2 Geopolitical Aspects

Oslo agreement has classified the lands of the Palestinian Territories as A, B, or C. The Palestinian Authority (PA) has civil and security control only over area A and area C is totally under the control of the Israeli authorities. The civil affairs in area B, which extends outside the Palestinian cities and villages, are managed by the PA, while the security is kept in hands of Israel.

According to Article 12 for Environmental Protection of the Oslo II Agreement, powers and responsibilities in Area C in relation to environmental aspects including: sewage, solid waste, pesticides and hazardous substances, planning and zoning, air pollution, mining and quarrying and landscape preservation will be transferred gradually to Palestinian jurisdictions that will cover West Bank and Gaza Strip and that both sides shall ensure that a

comprehensive Environmental Impact Assessment (EIA) shall be conducted for major development programs.

Up till today responsibilities over Area C have not been handed to the Palestinian Authority in the West Bank; and EIA reviews and approvals in Area C are still under the Israeli Civil Administration control. Experience has proven that such approvals for infrastructure project are very difficult to obtain and are not likely to improve in the near future.

Jericho city is classified as Area A, but is surrounded from all sides by areas classified as Area C. This is adds to the complications faced by Jericho municipality, since most infrastructure facilities cross the municipal boundary .The solid waste landfill and the proposed expansion site are within Jericho boundary in Area A and therefore would not fall into licensing complications (Figure 5).

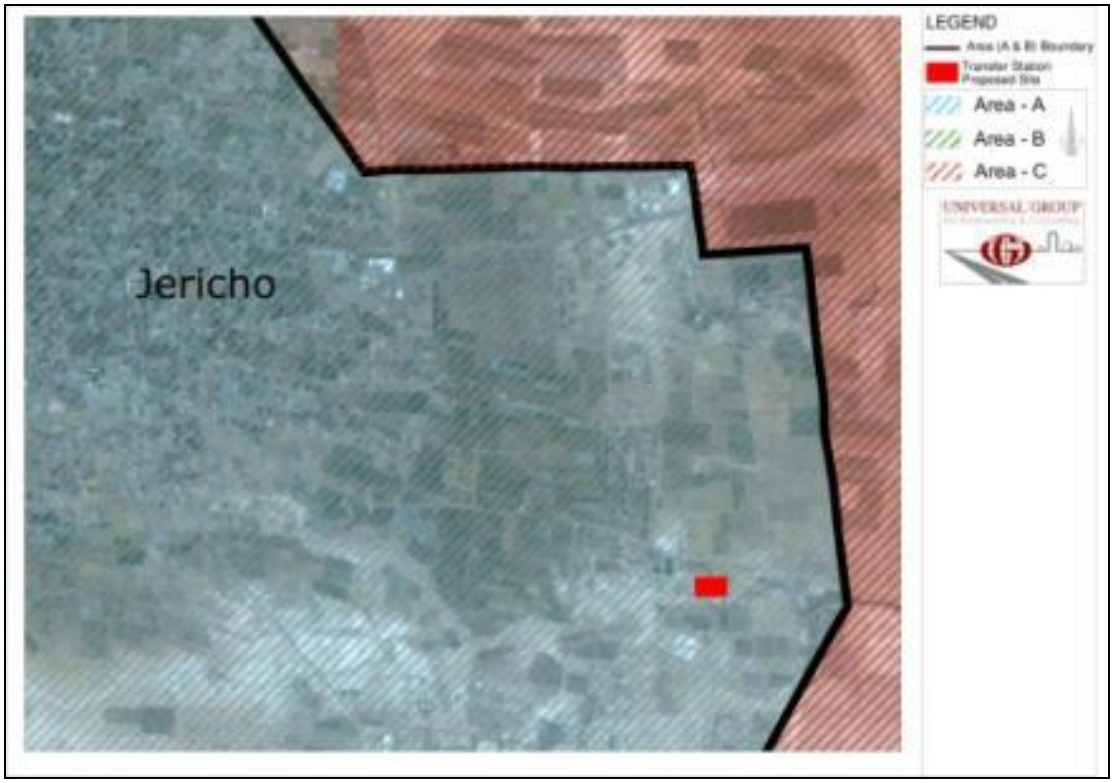


Figure 5: Location of the Jericho landfill site within Area A

The expansion site location is adjacen to the line that separates between area A and area C. The separation line extends 240 m from the eastern fence of the exsiting landfill site, which

makes the avilable land parcel for the expansion project 240 m by 80 m, that is about 19 donums in surface area.

6.3 Demography and Population

Compared to other regions in the West Bank, the Jericho region has a relatively low population density. This is due to large designated and closed Israeli military areas, military bases, nature reserves and adjacent Israeli settlements. The present population of the Jericho district is estimated at 46,717 Palestinians. These are divided between the city of Jericho, the four villages (Al-Auja, An-Nuwe'ma, Dyouk Al-Tahta and Dyouk Al-Fouqa) and the two refugee camps (Ein Al-Sultan and Aqbat Jaber) and other small localities (PCBS, 2007).

Table (1) lists the population numbers in Jericho Governorate according to the PCBS census in 2007 and those estimated for 2011 at an average annual growth rate of 2.85%. The average capita per household is between 5.4 and 11.4 with an average of 6.0.

The population of the city of Jericho is 18110 (PCBS 2007) distributed evenly (about 50% each) between males and females. The population of Jericho is considered young, as 58% of the populations are in the age group of 0-19 and 24% of the population is in the age group of 20-30.

Employment and income are indicators of the economy and standard of living. For Palestine, all available figures are generic and unspecified by region or district Unemployment rate in the West Bank reached approximately 14.5% according to the latest sanction in the second quarter of 2010 (ILO, 2010), divided between 22.4% for males and 25% for females. The average net daily wage of employees working in Palestine is $17.10 for males and $16.30 for females (PCBS, 2007).

Table (1): Households and Population in Jericho Governorate (PCBS 2007)

No.	Name	Population (2007)	Population (2011)
1.	Jericho (Ariha)	18,110	20,253
2.	Marj Na'ja	706	789
3.	Az Zubeidat	1,403	1,569
4.	Marj al Ghazal	200	224
5.	Al Jiftlik	3,666	4,100
6.	Fasayil	1,064	1,190
7.	Al 'Auja	4,067	4,548
8.	An Nuwei'ma	1,229	1,374
9.	Ein ad Duyuk al Fauqa	810	906
10.	Ein as Sultan Camp	3,119	3,488
11.	Aqbat Jaber Camp	7,084	7,922
12.	An Nabi Musa	305	341
13.	Other Localities	12	13
Total Jericho Governorate		41,775	46,717

6.4 Climate

The climate of Jericho is classified as arid, that is characterized by hot summer and warm winter with very rare frost incidents. January is the coldest month and August is the warmest month. The average annual temperature is 23.5^{o}C. The highest average annual temperature is 30.5 degrees, whilst the lowest average annual temperature is 17°C. The annual humidity is 52% in average and the average daily wind speed in the district is around 3.27 m/sec throughout the year. The main trend of wind direction in Jericho is from North and North West, minor trends of southern winds occur in early mornings.

Figure 6 shows the wind directions and wind speed in Jericho as to the Ministry of Transportation, and confirms that the wind direction will not carry any odours or possible emissions from the landfill site to the direction of residential areas. The wind travels to the

south eastern side which is where the date palms farm will act as a suitable buffer for odours.

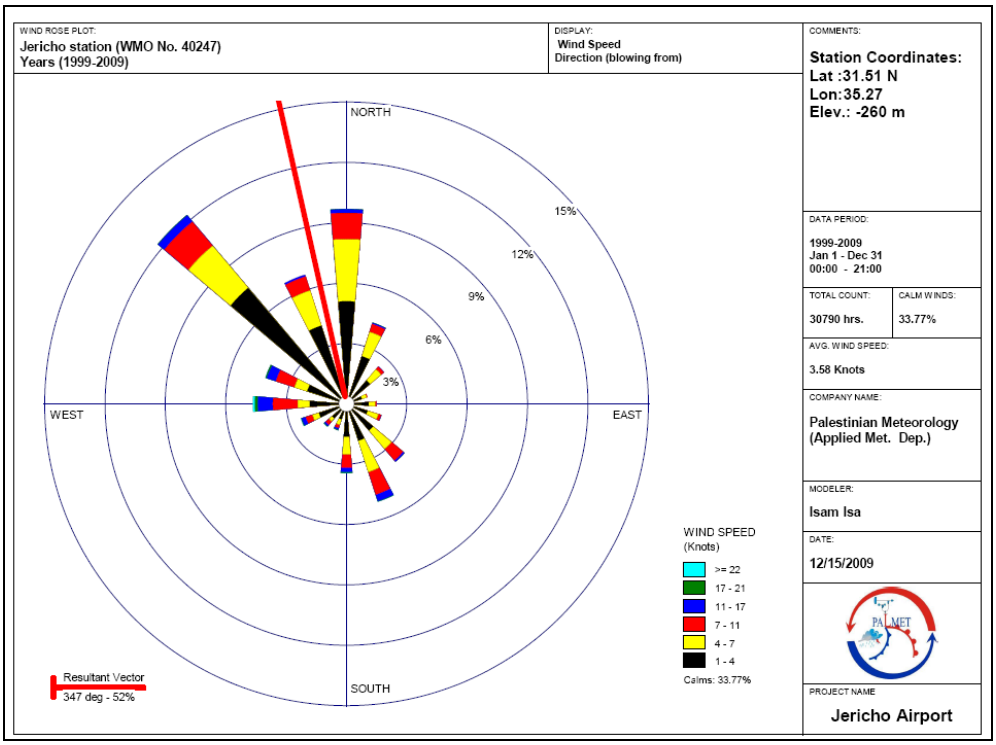


Figure 6: Wind Rose in Jericho

The amount of rainfall in the Jericho area is less than that of the surrounding mountains and the coastal regions, with an average annual amount of 150 mm. Therefore, Jericho area relies entirely on subterranean wells and springs for drinking and irrigation, mainly the Ein Al-Sultan spring as described further in the Water Resources section below.

For the assessment of environmental impacts, however, the data of wind and evaporation may be the most relevant parameters that directly trigger the impacts from solid waste transfer station such as odour emissions. In this respect, only the winds coming from easterly directions are of major importance, since they will in general shift emissions towards the westerly-situated populated areas.

Table (2) gives the monthly climatic data for Jericho as reported by the office of meteorological data of the Ministry of Transport.

Table 2: Average Monthly Climatic Data for Jericho (2006-2010)

Month	Max. Temp. (^oC)	Min. Temp. (^oC)	Relative Humidity (%)	Rainfall (mm)	Daily Sunshine (hrs)	Pan Evap. (mm/day)	Wind speed (m/s)	Pressure (mbar)
January	20.2	9.3	60.5	30.56	6.0	2.3	2.07	1044.8
February	22.2	10.8	60.5	38.14	6.3	2.7	1.67	1043.0
March	26.0	13.3	53.0	8.26	7.6	4.4	1.76	1040.7
April	30.1	16.7	44.7	15.76	8.8	6.4	2.16	1037.9
May	34.6	20.2	41.2	0.24	10.2	7.8	2.31	1036.1
June	38.6	23.7	42.0	0	11.8	10.1	2.31	1032.9
July	39.4	25.0	42.7	0	11.7	10.1	2.26	1030.3
August	38.6	26.3	45.2	0	11.2	9.3	1.84	1030.4
September	37.0	24.8	49.0	0.05	9.7	7.7	1.67	1034.8
October	34.0	22.0	48.0	5.58	8.0	5.6	1.30	1040.0
November	29.5	15.3	51.3	15.05	7.6	3.5	0.94	1043.9
December	22.8	11.3	56.6	16.75	6.0	2.6	1.15	1045.3
Average Total	**31.1**	**18.2**	**49.6**	**130**	**8.7**	**6.04**	**1.79**	**1038.3**

Evaporation is also a basic climatologically parameter for the generation of olfactory active chemical substances as gases and triggers the emissions of these mixed gases into the atmosphere, where they are perceivable as odors.

6.5 Land Use

The land use map of the City of Jericho is shown below in Figure 5, which shows that Jericho is an agricultural built up area in the middle of a rough grazing and irrigated farming. There are numerous illegal buildings in Jericho, despite the existence of a city master plan since 2004. The construction of illegal buildings is continuous whereas the ability to control and take action is limited.

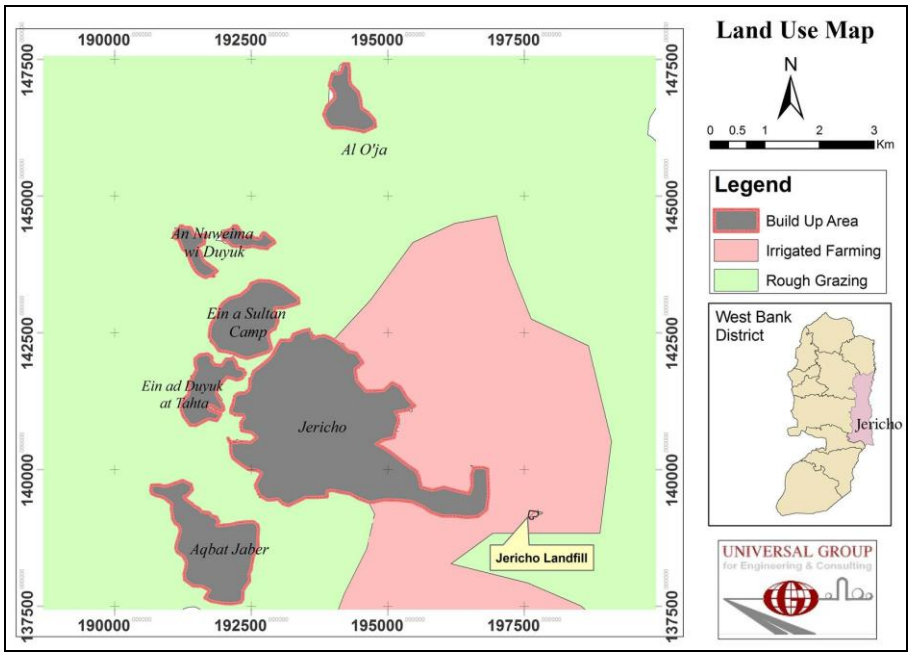


Figure 7: Jericho City Land Use Map

The sanitary landfill site is in the middle of the irrigated farming and so is the proposed expansion area of the landfill. The proposed land parcel for the expansion is privately owned by the Arab Construction Project (ACP) and is planted with young seedlings of date palm by a native resident. A lease agreement has been drafted between JCspd and the ACP to rent the land to be used as a landfill, which gives the rights of use to JCspd. Photo 4, is a photo of the proposed site for the expansion of the landfill showing the planted palm trees.

Photo 7: The proposed site for landfill expansion planted with palm trees

6.6 Geology and rock formation

The geology of the city of Jericho is characterized by the Jordan rift valley deposits which are mainly composed of Marl and Pleistocene Alluvial formation. This type of formation is favourable for groundwater protection, and the formation is covered structurally by minor faults. The geology formation of Jericho and the site where the landfill and its proposed expansion are located is shown in Figure 8.

The landfill and its expansion is at the boundary with the landslides and fans formation, which require further attention as to ensure the protection of the groundwater, whereas the clayish soil of this formation provides further protection of the groundwater aquifer.

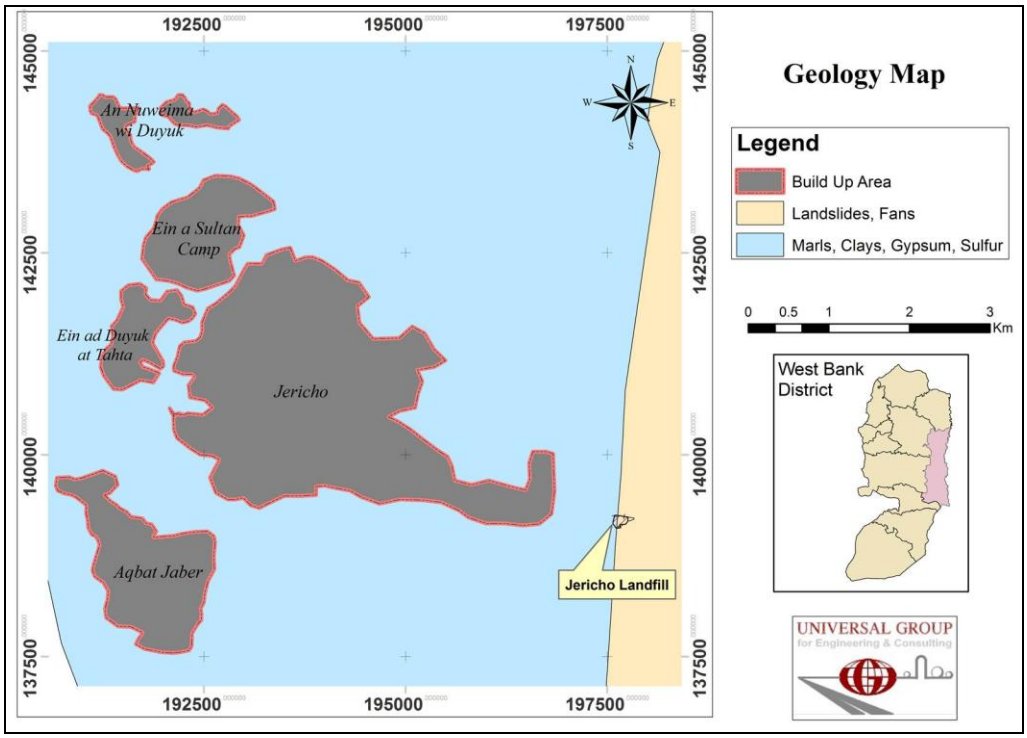


Figure 8: Geology map of Jericho and the landfill site

6.7 Soil

Figure 9 indicates that Jericho falls mainly over the Loessial Serozem soil type and that the existing solid waste landfill and its proposed expansion site within Regosols soil. A description of this soil type and other soils found in Jericho area are described below:

- ***Regosol***

This soil is found as bad-lands along the terrace escarpments in the Jordan Valley. The soils are quite variable in texture and colour. The soil parent materials are sand, clay and loess. The dominant vegetation types found in this region are Anabasis articulate, Salsola vermiculata and Salsola tetrandra. The area is used for grazing.

- ***Brown Lithosols and Loessial Arid Brown Soils***

Rock outcrops in such soils range between 50-60%. They are pale brown to yellowish brown or brown, loamy and calcareous. Brown lithosols are found in the pockets among the rocks. Loessial arid brown soils are found on flat hilltops, plateaus and foot-slopes. The parent rocks of this soil association are chalk, marl, limestone and conglomerates. The deeper layers consist of either brown clay or yellowish brown loam. Field crops are planted in areas where the top soil is deep enough and sloping is moderate. However, in shallow and steep areas, grazing is the common activity.

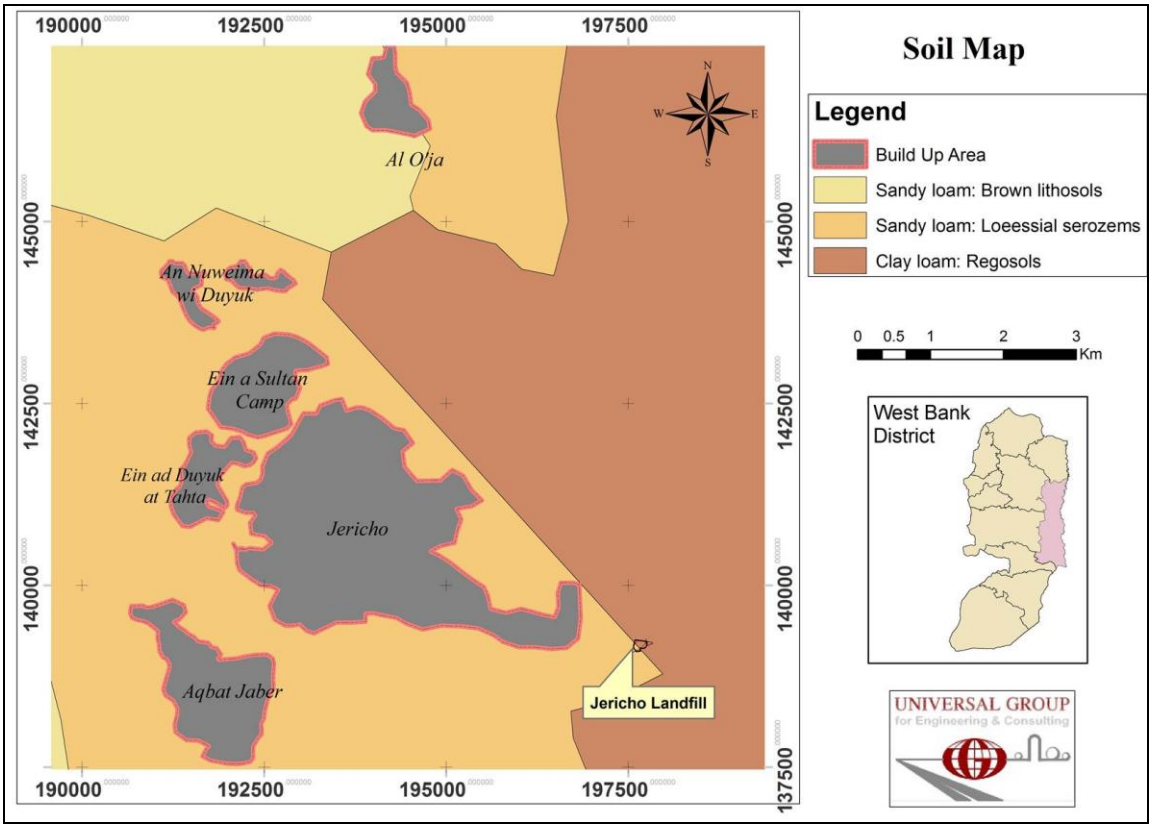


Figure 9: Soil Description of the Jericho City

- ***Brown Lithosols and Loessial Serozems***

Lithosols are typical of the steep hill slopes. Brown lithosols are found also on small plateaus. Inclusions of loessial Serozems are found in broad valleys, terraces, and on large plateaus. The soils are originally formed from limestone, chalk, dolomite and flint. The structure of this horizon is subangular blocky or prismatic, with many lime nodules. The transition to the rocks is mostly sharp. Many rock outcrops are found, usually at the surface; the soil is restricted to the pockets among these rocks. Major vegetation types found in these regions are Anavasetea articulatae and Zygophyllum. Such soils suffer from extensive erosions due to runoff, especially in steep slopes. The soil association is also suffering from salt accumulation due to limited salt leaching capabilities. The current land use is restricted to winter crops that are grown by Bedouins in some wadis.

- ***Regisoils and Coarse Desert Alluvium***

It is found in plains and dissected low plateaus and characterized by large valleys and alluvial fans. Its parent materials are of mainly unconsolidated mixed stone and deposits. At greater depths there are stones and weathered rocks. Gypsum crystals or petrogypsic horizons are found in the deeper soil layer. The vegetation is restricted in few areas to rivulets. In most areas, dwarf shrubs such as anabasis articulate and Reaumuria are dominant. The area is of almost no agricultural value with the native vegetation able to supply only very poor grazing for camels, goats and sheep.

6.8 Aquifer Systems

There are several aquifer systems in the Jericho region, mainly:

- Lower Cenomanian Aquifer System
- Upper Cenomanian-Turonian Aquifer System
- Quaternary Aquifer System

The Lower Cenomanian Aquifer System is composed of the Lower Beit Kahil, Upper Beit Kahil and the Yatta Geological Formations. The Lower Beit Kahil Formation and Upper Beit Kahil Formation and sometimes the lower part of the Yatta Formation comprise the

Lower Aquifer, which is deeply confined across most of the West Bank. It is an excellent regional source of drinking water, the high water bearing capacity and productivity reflects the thickness of dolomitic limestone and limestone. Water quality is generally good, though slightly salinity has been encountered towards the Jordan Valley.

Turonian (Jerusalem) aquifer formation consists of massive limestone (sometimes thinly bedded limestone), and dolomitic limestone with well-developed karst features. It is part of the Upper Aquifer, but it is isolated from the main part of the Upper Aquifer in the south and parts of the eastern West Bank wherever the underlying Bethlehem Formation becomes a weakly permeable aquitard. It forms a good aquifer especially where the saturation thickness is in tens of meters. Water quality is generally good but in some areas there is evidence of deterioration because of pollution by sewage and agrochemicals.

The Upper Cenomanian aquifer consists of the Bethlehem and Hebron Formations which are mainly bedded dolomite and chalky limestone. In the southern and eastern part of the West Bank, the Bethlehem Formation is considered an aquitard, while to the north and west it has aquiferous characteristics. The Lower Part of Yatta formation represents a fair aquifer. The Lower Yatta Formation hydraulically separates the two regional aquifers (Upper and Lower Aquifers) across most of the West Bank, although to the north, the presence of limestone gives rise to minor springs and seepage. Water levels (heads) in the Upper Aquifer are generally higher than in the Lower Aquifer.

The Quaternary Aquifer System is composed of three formations: Lisan, Alluvial and Gravel fans. The Lisan Formation (Pleistocene Aquifer), a marl, gypsum and silt unit, is an aquiclude to a weak aquifer. The Alluvial and gravel fans (Holocene) are distributed in the Jordan Valley. These Alluvial fans are still accumulating after large floods and consist of debris from neighbouring lithologies. The alluvium is mainly formed of laminated marls with occasional sands. Gravel fans are widely distributed in the Jordan Valley and have the capability of transferring groundwater from the limestone aquifers. The Palestinian wells in the Jericho region tap the Upper Cenomanian-Turonian aquifer system and the Neogene and Pleistocene shallow aquifer systems.

6.9 Water Resources

Groundwater

Groundwater is the main source of water supply for Palestinians in the Jericho city either by wells or springs. Water of wells is taken from the quaternary aquifers. The aquifers are recharged from seasonal rainfall through the outcropping mountainous areas in the West Bank. The eastern basin is considered the main source of water for shallow wells through direct infiltrations from the surface runoff or by lateral flow from the mountain aquifers.

Water allocation from wells and springs in the Jericho is 95% for agriculture and the remaining 5% is for human consumption. The working agricultural wells are 28 out of 93 wells. The remaining wells are non-pumping and abandoned wells. The main source for domestic water in Jericho city is Ein Al Sultan which provides a steady output throughout the year of about 680 m^3/hr, and the salinity of 600 fractions per one million, whereas the Jericho area using the spring has quite high water use efficiency.

Several water wells, mainly agricultural, exist in Jericho area. The nearest well to Jericho landfill is within 0.5 km. Figure 10 shows the wells that are within 3 km from the landfill. The circles in the plate give readings of quality parameters of these wells. The impact on the water resources and the nearby wells and wadi should be tackled. Annex B lists further information about wells and their water quality parameters in the project area.

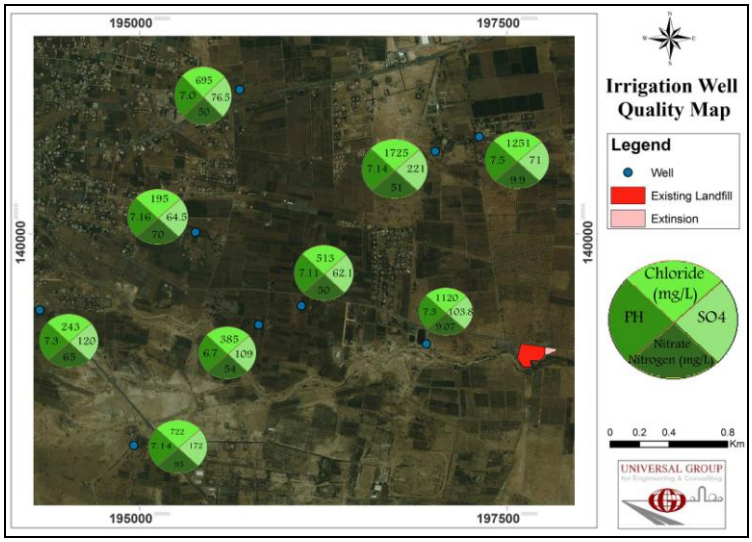


Figure 10: Water wells nearest to the landfill site

The chemical data in Annex B are the major anions and cations showing increase from west to east as you get nearer to the landfill site. Mg, K, Na and Br show good linear correlations with the calculated TDS values, while Ca, Sr, B, SO_4 and HCO_3 show relatively low correlations and nitrate indicates very poor correlation; only scattered nitrate values being documented. These measure have been reported by a PhD thesis titled "Hydrochemistry and Isotope Hydrogeology in the Jericho Area/Palestine" prepared by S. K. Khayat, 2006 at University of Karlsruhe, Germany.

The groundwater from wells surrounding the landfill site shows the highest salinity in the Jericho area, with a chloride content of more than 1,800 mg/l for well 19-14/067 and a TDS value of 3,664 mg/l. This relatively high saline water is of the Na–Mg–Cl and Mg–Ca–Cl type. The SO_4 concentration is 320 mg/l. The groundwater from these wells is highly saturated with dolomite and relatively saturated with calcite, while the saturation indices for gypsum and anhydrite are higher than the rest of the wells but still under saturated. The carbonate concentration of 440 mg/l is relatively high. The groundwater from these wells shows the lowest tritium units which were below the detection limit of <0.6 TU for well 19-14/067.

Surface water

The sanitary landfill and the expansion site are located at the discharge of Wadi Qilt surface water catchment (Figure 11). The plate shows that three main surface water catchments flow through Jericho. These catchments drain the eastern mountains of the West Bank and cause flooding of the relatively flat areas of Jericho during heavy rainy winter.

Wadi Al-Qilt course is bounding the landfill from the south and is currently used for dumping the septage by the vacuum tankers emptying the cesspits. Photo 5 is a photo of wadi Al-Qilt near the landfill site where septage from wastewater cess pits is dumped by vacuum tankers. Its worth to say that the project for the construction of the sewage system in Jericho has already started, and is expected to be ready for the operation by the year 2014. This source of pollution is expected to disappear.

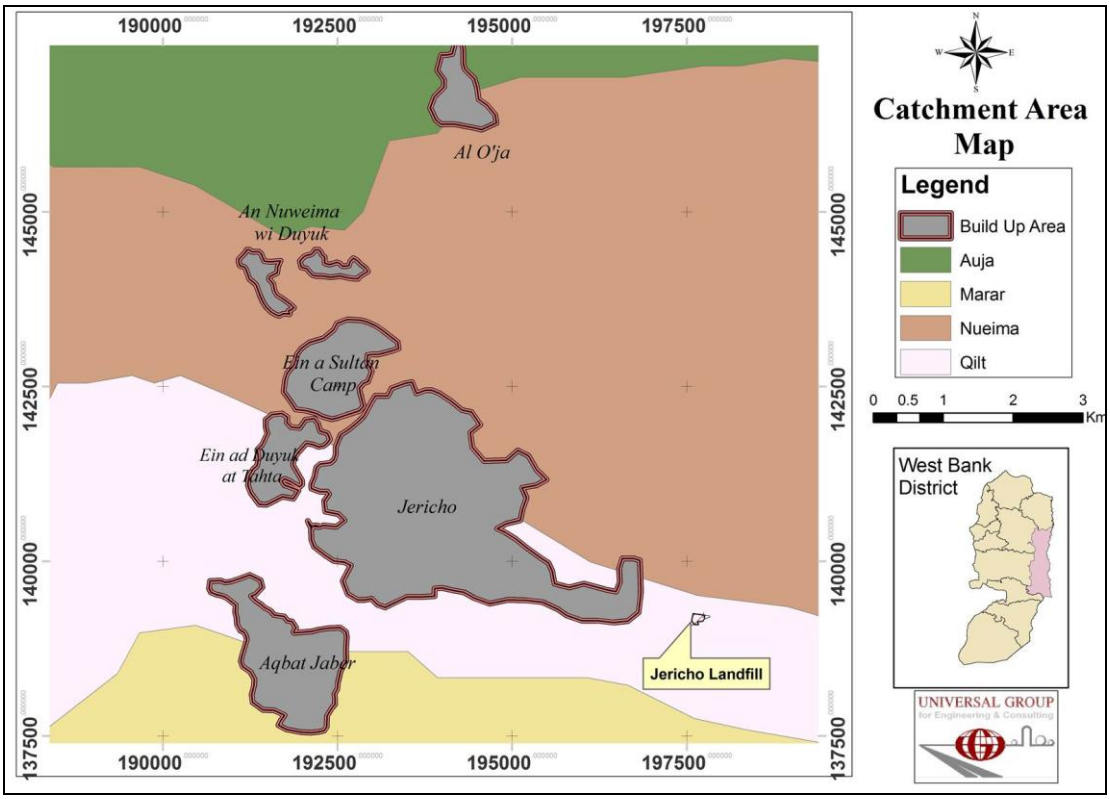


Figure 11: Jericho surface water catchment area map

Photo 8**:** Raw wastewater dumped by vacuum tankers at wadi Qilt

6.10 Solid Waste Management Service

The JCspd serves 17 communities including the entire Jericho governorate, 6 areas from Nablus and 3 from Tubas. The landfill of Jericho however serves 4 areas only, namely the two refugee camps, Jericho city, and Al Dyouk and Al New'meh (Figure 12).

There is another controlled dumpsite in the area operated by the JCspd, this dumpsite receives 32-35 tons daily. Al 'Auja area serving Al 'Auja and Fasayel and receives nearly 5-6 tons a week; the middle and northern areas of the Jordan valley area, including waste from Nablus and Tubas is moved to a transfer station in Tamoun and later to Zahrat Al Finjan upon agreement with the JSC in Jenin.

The JScpd earns 108,000 NIS as a lump sum from the Jericho Municipality for solid waste handling services. In return the municipality collects fees from citizens depending on size of the dwelling and the number of rooms it consists (24 JD for 2-3 rooms' households and 32 JD for houses of 5 rooms and above).

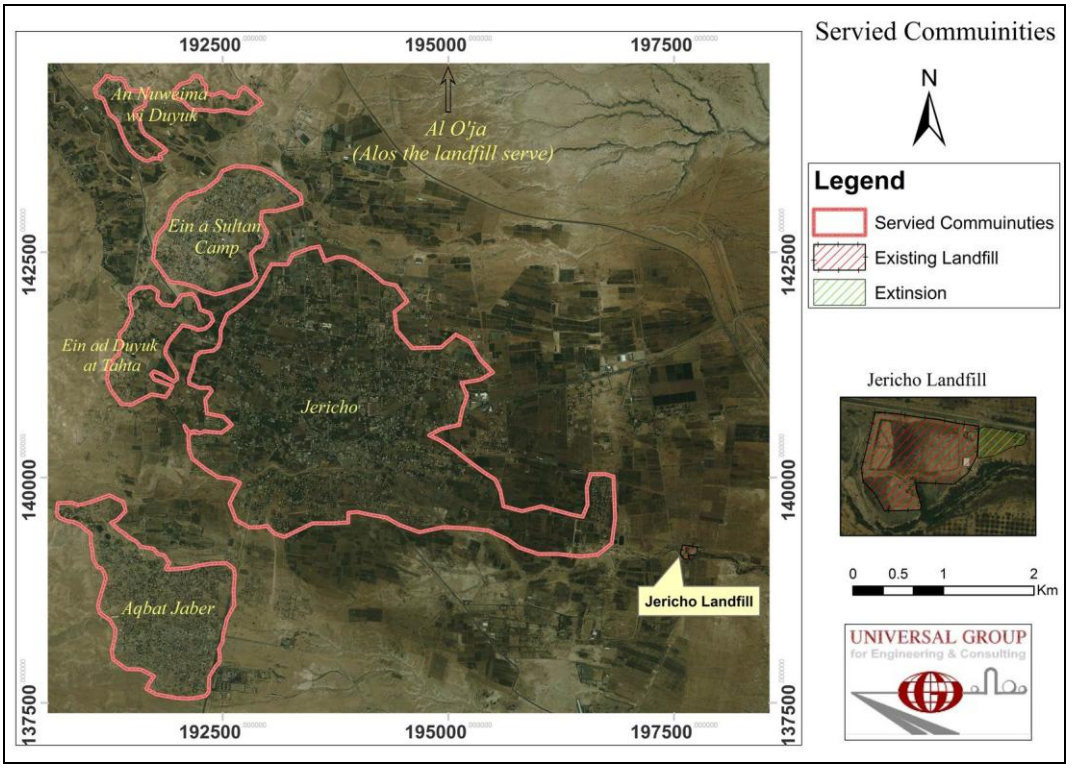


Figure 12: The areas around Jericho served by the sanitary landfill

In areas such as New'meh and Dyuok, the fees paid depending on size of household using a single kitchen (18NIS/month for a single family, 30 NIS/month for a multifarious family). As for refugee camps, fees is collected by municipality from the UNRWA and is included in the lump sum amount that the JCspd receives.

6.11 Historical and Archaeological Resources

Jericho is an attraction for foreign visitors and Palestinians alike because of its long history, rich array of cultural artifacts, and sights in which desert and oasis converge.

Jericho city was inhabited during Mesolithic Period. The Herodion Jericho was restored by the Romans on the rift of Wadi Al-Qilt. During the period 306 to 337 AD, Jericho became the center of Christianity, continuing to be an important city through the Byzantine Period (527-565 AD). In the seventh century, Muslims took control of Jericho, whose development of irrigated agriculture there earned it the description of the "City of Palms". There are several historical sites in Jericho, mostly located in the western parts of the city. Among these are:

The Mount of Temptation (Deir Qruntul): The Monastery perched on the side of the mount of temptation. (Photo 9)

Photo 9: The Mount of Temptation in Jericho

The Fortress: Iron Age II fortification lies near the southern entrance to Jericho

Herodian Palace (Kypros): located on a nearby conic-shaped hill, 3 km southwest of Jericho city.

Tell Es-Sultan (Ancient Jericho) located northwest. The site records going back to prehistoric Natufian culture of the 11th – 9th century BC, making Jericho arguably the oldest continually inhabited site on earth.

Hisham's Palace (Khirbet al-Mafjar): Hisham palace was one of the most impressive country residences of the Omayyad period; archaeologists call it "the Versailles of the Middle East." It was built at the beginning of the eighth century by Omayyad Caliph Hisham Ibn Abd al-Malik (724-743), only to be partially destroyed 20 years later in an earthquake (Photo 10).

Ein al-Sultan (Spring of Elisha); Wadi Al-Qilt; St. George Monastery; Khirbet Mugheifir; and Khirbet Es-Samara.

None of these are located east of Jericho city where the sanitary landfill is and where the proposed expansion is located. Therefore the expansion of the existing landfill is not to impact any of these archaeological sites.

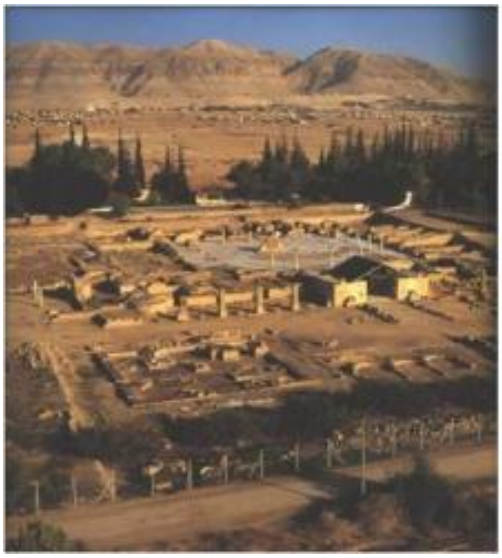


Photo 10: Hisham's Palace

6.12 Flora and Fauna

The ecosystems in the West Bank, a composite of African, European, and Asian flora and fauna, have a diverse range of species and habitats. The Ministry of Planning studied ecologically significant and sensitive areas to identify and evaluate their "value, importance, sensitivity, and vulnerability." Using these studies, they have designated fifty areas for protection from development.

The site of the sanitary landfill in Jericho is not one of these areas and is located within the municipal boundaries. This means that the proposed site for expansion of the landfill is located within the physical plan of the city subject to urbanization and development. Therefore there is no biological value for the proposed site other than it is used for agriculture. The land owner has approved the allocation of the site for the expansion of the Jericho landfill.

The Jericho is characterized by the Jordan Valley ecosystem, where unique and rich biological diversity exists, including plants that tolerate high temperatures and salinity such as *Tamarix jordanica* (Jordanian Tamarisk); *Atriplex halimus* (shrubby saltbush); *Phragmites australis*, (common reed); *Ziziphus Lotus*, (lotus tree); and others. There are also a number of animal species that favour this area as habitat, including Erinaceus europaeus (hedgehog); Crocidura russula (shrew); Rousettus aegyptiacus (Egyptian bat); Herpestes ichneumon (Egyptian mongoose); Sus scorfa (wild boar); and Vipera Palestine (Palestinian viper). The area receives migratory birds particularly in winter period as a low-lying area.

The Jericho landfill which is going to be expanded is located within the municipal boundaries of the city that is subject to urbanization and development. Therefore, there is no biological value for the proposed site other than grazing and other agricultural activities on the hill opposite the landfill.

6.13 Agricultural activities

Almost 50,000 dunums in Jericho and Al-Aghwar are cultivated lands that form 2.9% of the total cultivated area of the West Bank. All the agricultural area is irrigated and forms 33.2% of total irrigated lands. Of the total cultivated area, 75 % is cultivated with vegetable crops, 14 % with fruit trees, and 11 % with field crops and forage. Date palm plantation has been expanded rapidly in the past ten years in Jericho district. According to the Ministry of Agriculture, the total area in Jericho city planted with palm is about 60,000 dunums; about 50% of this area was cultivated during the last two years (Figure 13).

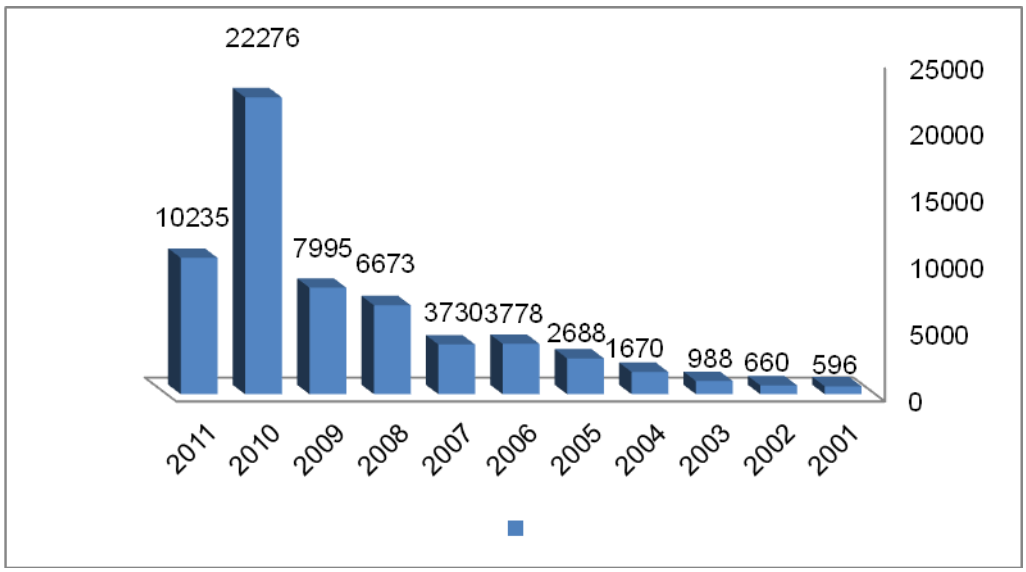


Figure 13: Cultivated area with date palm in dunums in Jericho from 2001-2011

Photo 11 is a photo taken from the existing solid waste landfill site showing the date palm plantation across the proposed expansion site, where they are separated by a shallow valley. The wadi is known as the extended Wadi Al-Qilt that drains the rainwater flowing during heavy storms form the West Bank Mountains.

Photo 11: The existing solid waste landfill site close to date palm plantation

6.14 Industrial Activities

There are three major industrial groups in Jericho city:

- First group includes: stone-cutting, brick and tiles, and ready-mix concrete. These form the basic part of construction and building material.
- Second group includes: food industry, vegetable oil, slaughterhouses and meat processing.
- Third group consists of steel workshops, chemicals, pharmaceuticals cosmetics industries, in addition to miscellaneous economic activities.

It is estimated that 62% of industrial facilities of the entire West Bank do not undertake separation of solid waste, which imposes difficulty on the management and treatment of waste. Only 1.7% of industrial facilities undertake solid waste treatment whilst most of the industries in the West Bank (62%) burn waste in open air, a practice most commonly found Middle and Southern West Bank governorates.

The nearest industrial establishment to the proposed expansion site is about 600 m to the south of the site, which is a newly established dairy (cows) farm for Aljunidei Company (Photo 12).

Photo 12: The Dairy farm south of the existing landfill site

6.15 Roads and Traffic

The main road to the landfill is Al Maghtass Street, which extends from the intersection with Road 449 and Road 90 at Jericho City Centre. Figure 14 is the road map of Jericho city showing Al Maghtass road that leads to the landfill and the proposed expansion site.

In August 2008, a traffic survey was conducted for improving of internal roads in Jericho. The project was funded by JICA. The measured morning peak hour was between 11:15 to 12:15, while the evening peak hour was between 8:00 and 9:00 pm (Table 3).

The ADT was calculated by using the 16-hour to 24-hours driven from the 24-hour counts on Ein Sultan and factored the 16-hour counts for Jafa Street, Hisham Palace Road, Palestine Road, Al Maghtass Street, Steel Company Street. The 3-hours factors were driven from Ein Sultan 24-hour counts and used to drive the ADT for Al Estiraha Street, Kitf Al Wad Street, and Al Kedawi Street.

Table 3: Sum of Traffic Counts and ADT factored from traffic counts

Name of Street	Period of Counts	Pedestrian	Bicycle/ Motorcycle	Pickup	Passenger car	Mini Bus	Large Bus	Light Truck	Heavy Truck Trailer	Total Vehicles
	24-hour Counts									
Jerusalem	24-hour count	125	152	264	7407	59	47	335	183	8447
	16-hour count	101	131	199	5964	42	45	294	170	6845
Ein Sultan	24-hour counts	626	442	221	4218	26	19	204	77	5207
	16-hour count	523	382	183	3731	25	19	190	72	4602
	16-hour Counts									
Amman	16-hour count	104	157	204	5255	51	53	135	74	5929
	24-hour ADT*	129	182	237	6526	72	55	154	80	7317
Palestine	16-Hour Counts	438	541	109	1135	13	4	63	2	1867
	24-hour ADT*	524	626	132	1283	14	4	68	2	2112
Hisham Palace	16-Hour Counts	331	412	82	1382	13	3	85	30	2007
	24-hour ADT*	396	477	99	1562	14	3	91	32	2271
Steel Company	16-Hour Counts	44	19	13	140	0	1	29	116	318
	24-hour ADT*	53	22	16	158	0	1	31	124	360
Al Maghtass	16-Hour Counts	101	95	115	544	4	2	114	26	900
	24-hour ADT*	121	110	139	615	4	2	122	28	1018
Jaffa	16-Hour Counts	354	241	12	568	6	7	43	14	891
	24-hour ADT*	424	279	14	642	6	7	46	15	1008
	3-hour Counts									
Estiraha	3-Hour Counts	17	10	2	50	0	0	10	0	72
	24-hour ADT**	180	67	14	311	0	0	49	0	451
AlKedawi	3-Hour Counts	62	51	102	101	0	0	11	0	265
	24-hour ADT**	192	256	751	504	0	0	86	0	1370
Kitf Alwad	3-Hour Counts	103	22	10	41	0	0	5	2	80
	24-hour ADT**	319	111	74	205	0	0	39	9	414

Source: Traffic Survey Report for the Improving of Internal Roads Project in Jericho, Diyar Consultants Co. For JICA, 2008

9. ADT: Average Daily Traffic factored from traffic counts by using the percentage factor of 16-hour count to 24-hour ADT

** ADT: Average Daily Traffic factored from traffic counts by using the percentage factors of 3-hour count to 24-hour ADT

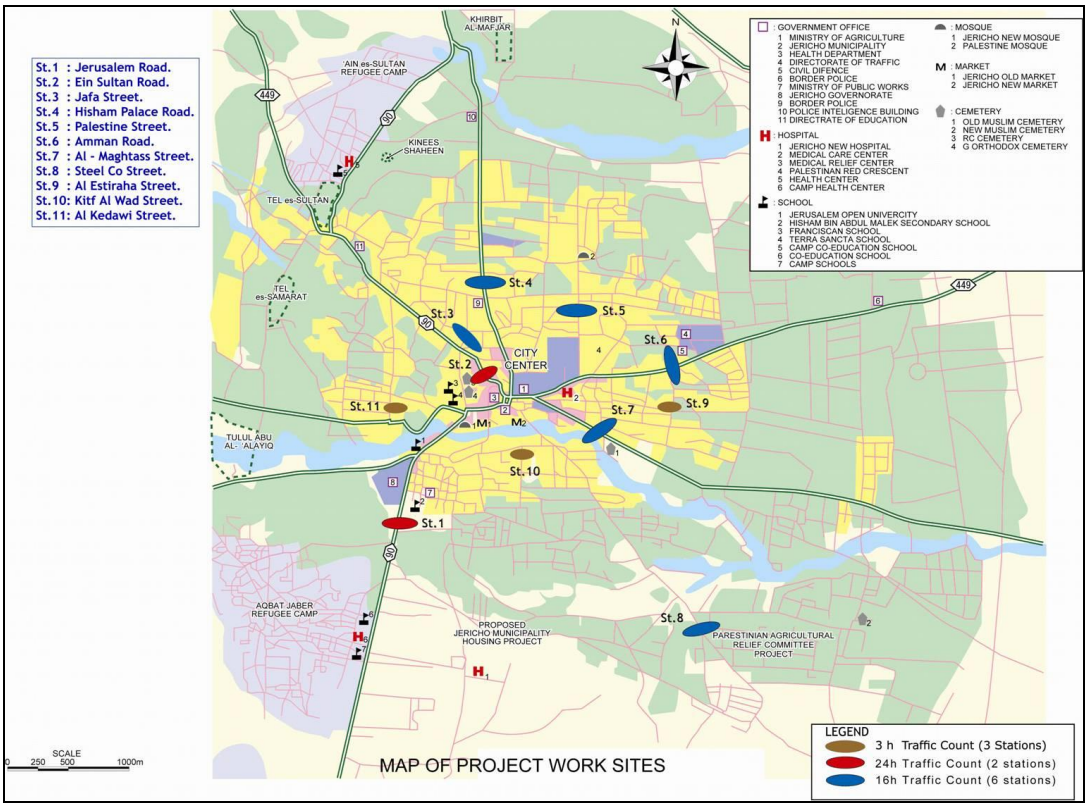


Figure 14: The road map of Jericho city

From the Table it is clear that the heavy trucks and trailer using Al Maghtass Street is less that 3% of the average daily traffic passing the street at about 100 vehicles. In 2008, Jericho landfill was in operation, therefore the expansion of the landfill will not add much traffic load on the street. The expansion of Jericho landfill is to serve the same areas and inhabitants as currently done and in fact it will be the final landfill site for Jericho. The current landfill is to be closed and a reuse project is to be integrated at that site.

Photo 13 shows Al Maghtass Street at its paved end near Jericho landfill facing Jericho city. The width of Al Maghtass Street is 12 m and is paved at about 8 m along most of its length towards the landfill and at 6 m for the last 1 km near the landfill. The current condition of the street is fair, but will require rehabilitation and pavement to include the portion of the street leading to the expansion site.

Photo 13: The road leading to the landfill and the expansion site

6.16 Seismology

The Rift Valley in Palestine, is part of the regional Rift Valley which extends from the Gulf of Aden in the Red Sea to Al ‘Aqaba Gulf and continues in Wadi Arabah, Dead Sea, in the Jordan Valley, Tiberius Lake and the Finger of Galilee up to Antakya in Turkey.

Palestine is located moderately active seismic zone with a Peak Ground Acceleration factor (PGA) of Z = 0.075 to Z = 0.3 on rocks Figure 15 shows the four different seismic zones that characterize Palestine ranging from a relatively weak Zone I in the south west, to a relatively strong zone of 6.5-7 on Richter scale in the east (Zone 3). Several earthquakes have been registered in Palestine during the 20th Century. The most significant earthquakes were in 1900, 1903, 1923, 1927, 1954 and 1995.

As for Jericho district, it is located within Zone 3, which has a PGA factor of 0.30 according to the Uniform Building Code (UBC). It is considered the highest in the area, therefore, it is recommended to consider the seismic loads in the design and construction of any facilities in area.

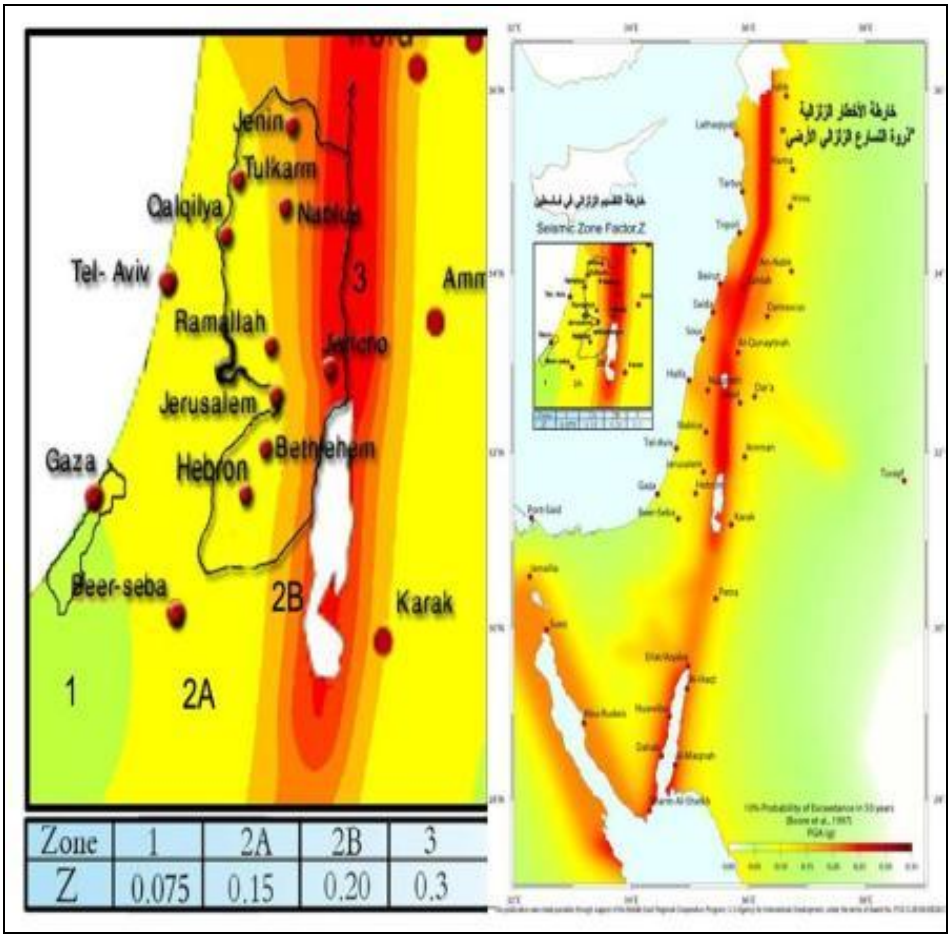


Figure 15: Seismic hazard map and seismic zone factor for building codes in Palestine

7. Potential Environmental Impacts and Environmental Management

Potential environmental impacts which are likely to occur during the construction phase of the expansion of Jericho landfill site are:

(i) Nuisance to people in surrounding of site due to dust /noise /smoke generated by the movement of vehicles/machinery.
(ii) Pollution due to wastewater and waste from the contractor's camp.
(iii) Air pollution due to dust resulted from excavation and movement of vehicles.
(iv) Health and safety of workers.
(v) Accidental hazards on the public people.

During the operational phase, the potential environment impacts will more likely be related to:

(i) Odour, littering, and groundwater pollution by leachate.
(ii) Potential accident at the landfill site or health problems to operating staff and workers as well as proper isolation of landfill premises and control of landfill boarders in order to avoid uncontrolled penetration to the landfill.

7.1 Mitigation Measures

In order to eliminate or reduce potential negative environmental impacts, mitigation measures are typically recommended to prevent the impacts associated with the construction and operation of the landfill expansion and the materials recovery facility with the transfer system alongside the cumulative impact of the already existing landfill. Mitigation measures are highly dependent on the significance of the predicted impact, the nature of the impact or the phase of the project (construction versus operation).

A. During construction:

As mentioned above, 5 potential impacts are expected:

1. Nuisance to people in surrounding of site due to dust /noise /smoke generated by the movement of vehicles/machinery.

This will be mitigated by using vehicles of appropriate conditions and regular noise and smoke testing in order to set appropriate control measures.

2. Pollution due to wastewater and waste from the contractor's camp.

This will be mitigated by providing adequate arrangements for the safe disposal of wastewater and waste.

3. Air pollution due to dust resulted from excavation and movement of vehicles.

This will be mitigated by providing adequate arrangements which includes;

a. Filling the landfill in small, well-defined cells.
b. Compaction of the deposited waste and application of cover material.
c. Use of temporary wind breaks in the active waste deposition area.
d. Use of baffles and vegetative screen wherever possible.
e. Ensuring that there is no burning of waste on site.

With judicious application of these measures the quantity of dust emissions can be kept to minimum.

At the materials recovery facility with the transfer station, after construction is completed, minor dust may occur and will be only few meters around the station, and though any impact will be local.

Affecting air quality by vehicles Emissions could be mitigated by Implementation of preventive maintenance program for vehicles working in the project and promptly repair vehicles with visibly high exhaust.

4. Health and safety of workers.

This will be mitigated by proper training of contractor's crew about First Aid and Health & Safety procedures.

5. Accidental hazards on the public people.

This will be mitigated by regulating procurement of material and adopting highest standards in engineering methods and mechanisms.

B. During operation

As mentioned above, 2 potential impacts are expected:

1. Odour, littering, and groundwater pollution by leachate.

To prevent the contamination of the surrounding area by the light fraction of waste (paper and plastic bags) transported by winds, the unloading area should be designed as a depression pit, and all storage and receiving areas should be closed, which will also reduce the dispersion of odours. Furthermore, appropriate fencing (3m * 25mm net) around the facility area will catch any transported waste. Also 15 cm soil layer will be used to cover the waste every day; this will significantly reduce the odour during operation of landfill, as will as the pollution of the air.

Lining system will prevent the pollution of the underground water that could be resulted from the leachate at the landfill site.

All the facility, especially the storage and receiving areas will be paved with an impermeable floor structure. Furthermore, an effective drainage system will be established for leachate and storm water collection and management. Storm water and runoff w be diverted to avoid any contact with the waste or the compost in case encountered.

For the materials recovery facility, odour could be reduced by proper cleaning of the facility everyday, in addition to proper storage of the separated materials, and transferring the unrecovered materials daily to the landfill site.

2. Potential accident at the landfill site or health problems to operating staff and workers as well as proper isolation of landfill premises and control of landfill boarders in order to avoid uncontrolled penetration to the landfill.

To mitigate this impact, the landfill workers and staff will be trained on the handling operations.

Annexes 4 and 5 show the potential environmental and social impacts and there expected effect.

Table 4 lists the potential impacts and the recommended environmental management measures.

Table 4: Possible Impacts during Construction and Operation

Significant	Cause	Impact
CONSTRUCTION PHASE		
Short term	Resulting from construction activities and truck traffic	Noise and dust
Short term	Resulting from construction activities, land reclamation	Construction waste
Long term	Biodiversity land reclamation and construction activities leading to the destruction of the natural ecosystem at the expansion site	the natural ecosystem at the landfill site and habitat destruction
Long Term	Soil compaction, erosion and destruction of vegetation	Altered a biotic/site factors
OPERATION PHASE		
Long term	Light fraction of waste carried by winds	Litter
Long term	Waste trucks coming and leaving the facility thus generating foul odours and noise.	Odour and noise
Long term	potential leachate generated, uncontrolled drainage, and improper storage and receiving areas	Natural resources and soil Contamination

7.2 Environmental Management Plan

Environmental management is necessary both during construction and operation of the landfill site and the separation station with the transfer system. Table 5 summarizes the potential impacts and the recommended mitigation measures that should be taken in order to protect the environment.

Table 5: Environmental Management during Construction and Operation

Potential Impact	Recommended Mitigation Measures
Impact of Excavated Soil	Allocate adequate areas for spoil storage in the final design. Ensure that the spoil generated during construction will not cause un-favoured changes to surface water drainage.
Affecting Air Quality by Air Emissions of Construction Works	Should plantation is found not feasible to apply as wind breaks at the borders of landfill expansion site, other means as wind breaks shall be constituted such as proper fencing. Spoil of soil to be reused should be appropriately covered and stored. Rehabilitation and pavement of access road. Washing of trucks wheels before leaving the site both during construction and operational phase. Continuous and regular maintenance of vehicles and machinery working on site in the landfill in a timely frame.
Noise Impact	Noisy equipment should be supplied with adequate matter. Use acoustic barriers as necessary if complaints from neighbours were received. Should plantation of wind breaks appear unfeasible, other sorts of sound barriers can be adopted such as proper fencing of landfill boarders. Optimize the use of noisy machines. Working hours with noisy machinery is restricted between 6:00 pm and 8:00 am. Construction and operations of the landfill expansion should be stopped during night time.
Odour Impact	Apply waste filling plan in the project design and promptly apply 15 cm soil cover on fresh waste. Provide additional waste containers at the site to ensure smooth operation and reduce vehicles waiting time. Provision of a roof is recommended to avoid dispersion of odour.

	Implement the designed unloading procedures of the expansion through a waste hopper.
Impacts of Leachate and Surface Water	Include the leachate collection system in the design and tender documents. The design should include maintenance schedule for the system. Implement preventive maintenance schedule. Coordinate with the WWTP about the amounts of Leachate and sludge that could be discharged to the plant. In case the monitoring wells indicated high pollution loads that could be related to leak of Leachate, this leak should be identified and adequately handled.
Risks of Hazardous Wastes	Flammable and explosive waste should be prevented from admission. Prepare an emergency response plan for spills and fires. Coordinate with planning authorities and the donor community to initiate a project for hazardous waste management. Provide hazardous waste training to staff working in the project. In case that the landfill will operate without parallel hazardous waste facility a special cell should be constructed. Prepare an emergency response plan for spill or fires.
Risks on Public Health	Apply pesticide as needed through an application plan that would give preference to biological pesticides. Provide hygiene training for staff working in the project and provide suitable showers, washing and cleansing facilities. Prevention of unauthorized admission to the landfill. Effective application of the waste filling plan and daily cover.
Visual Impact	Active waste area to be surrounded by a screen fence to prevent littering dispersion.
Affecting Air Quality by Vehicles Emissions	Implement preventive maintenance program for vehicles working in the project and promptly repair vehicles with visibly high exhaust.
Impacts of Construction and Operation Waste other than Excavated Soil	Sewage and wheels washing water should be collected and properly disposed and treated (septic tank). Hazardous waste should be segregated and sent to a hazardous waste facility, if existing, or to a special facility Other non hazardous waste to be collected and transferred.

Risks of unforeseen exceeding of the landfill expansion capacity	Continuous monitoring and assessment of the landfill capacity shall be maintained. Should this reveal rapid overloading, early modification and planning for operations and expansion should be initiated.
Risks of Damaging Chance-find Antiquities	Excavation shall be immediately stopped in case historical or archaeological artefacts or sites are revealed. The Ministry of Tourism and Antiquities (MoTA) shall be informed for appropriate instructions.
Biodiversity	The facility should not destroy any sensitive habitat or species. However, if detected, sensitive species or habitats should be conserved. Furthermore, the facility and surrounding area should be kept clean, and the landscape plan properly implemented.
Impact of Landfill Gas	Include a degassing system in the design. The design should include maintenance schedule of the degassing system. Ensure the lining system is adequately placed and tested. Ensure the waste filling schedule is followed, the gas vents are progressively placed, and the final cover and the degassing system are adequately maintained.
Traffic Impact	Rehabilitation, pavement and extension of Al Maghtass Street that leads to the landfill. Strict monitoring to the road accidents as part of the monitoring plan. Arrange the times for transporting waste to and from the site to avoid traffic rush hours. Conduct monitoring survey to get the feedback from the roads users and address the community concerns

7.3 Environmental Monitoring Plan

Environmental monitoring is necessary to guarantee that environmental management is kept at acceptable level during all construction and operation processes. Table 6 summarizes the environmental mentoring plan.

Table 6: Environmental Monitoring Plan

Proposed Mitigation Measure	Parameter to Be Monitored	Location	Measurements	Frequency of Measurement	Responsibility	cost
Construction Phase						
Construction practices	Dust	Landfill site and MRF	Visual inspection	Daily	Site operator	Included in the overall cost
Operational Phase						
Landfill design	Leachate level	Landfill site	Depth	Upon needs	Site operator	Included in the operational cost
Landfill design	Leachate analysis	Landfill site	Quality and composition	Once a year	Site operator	Included in the operational cost
Landfill site operation	Inspection of roads, fence, etc.	Landfill site	Visual inspection	Weekly	Site operator	Included in the operational cost
Landfill site	Inspection of	Landfill		daily	Site operator	Included in the

operation	filling , covering, and compaction	site				operational cost
MRF with transfer system	Cleaning of site and sending remaining waste to LFS	MRF	Visual inspection	Daily	Site operator	Included in the operational cost
Closure and Aftercare Phase						
Landfill design	Leachate leakage	Landfill site	Visual inspection	Once / 6 months	Site operator	Included in the operational cost

8. Landfill Closure

After the landfill site is totally filled with waste after about 5 years from the start date of operation, the landfill site will be closed. The closure process will include:

1. A top layer of soil, 50 cm thickness.

2. Forest trees plantation.

Monitoring of the landfill will continue as mentioned in the environmental monitoring plan. Methane gas will not be monitored; since the method of landfilling used allows it to go into the air directly through the gas pipes.

9. Conclusion

The Jericho landfill site expansion and construction of materials recovery facility with transfer system project is implemented a cording to the need assessment identified by JCspd. The IEE report summarizes the results of the impact assessment of this project. It includes an overview of the key environmental impacts associated with the construction and operation of the landfill site expansion and construction of the material recovery facility with transfer system under consideration. It recommends measures which address adverse environmental impacts resulting from the project implementation.

It is concluded that providing the proposed and recommended mitigation measures and the environmental, health and safety management of the constructed site and facilities are incorporated and addressed in the ways described within this report. Consequently,
associated environmental and health impacts can be maintained within acceptable levels.

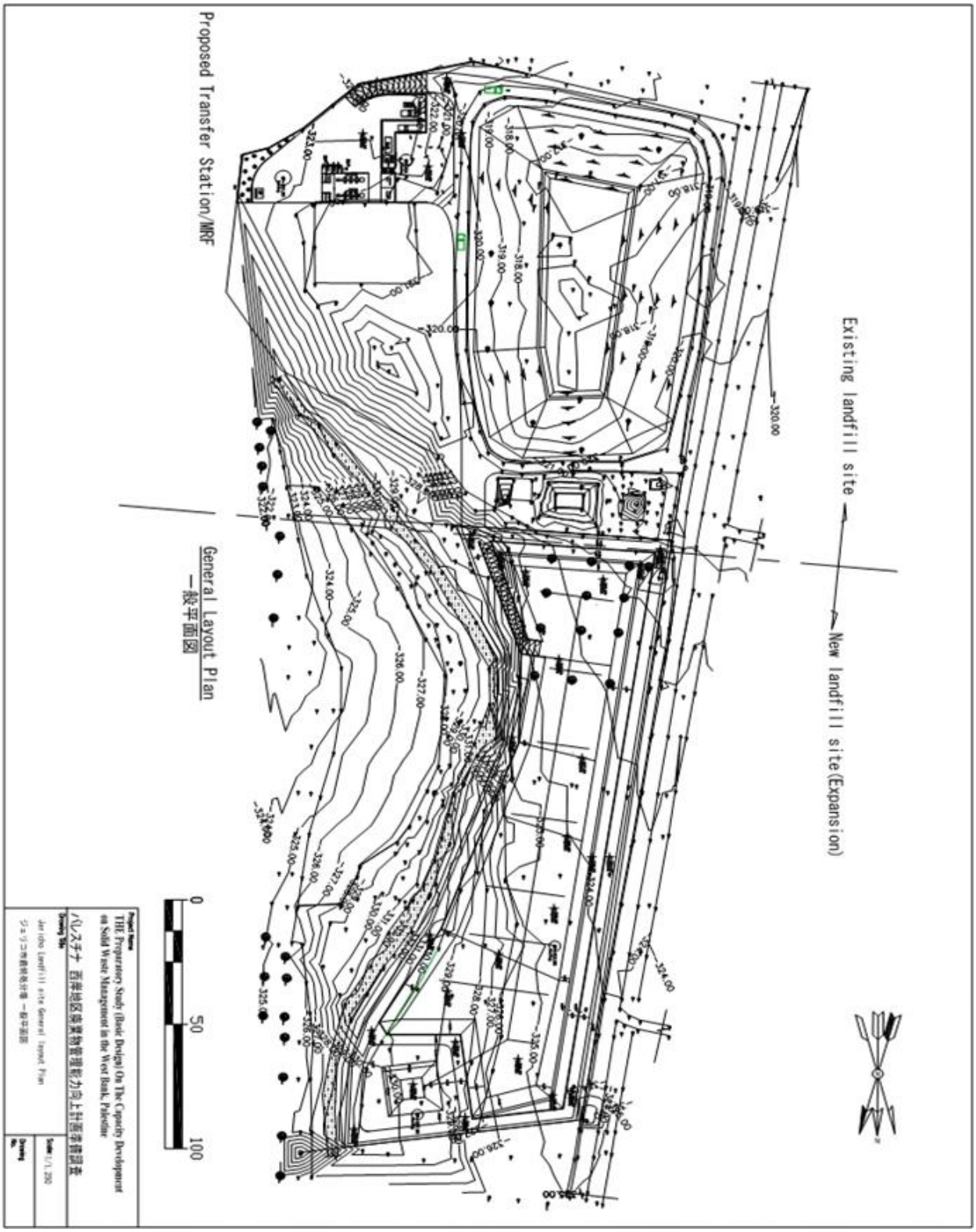
The IEE has investigated and assessed the significance of the predicted positive and negative impacts associated with the proposed project. These impacts, along with the wider environmental issues, will need to be considered by the JCspd. No negative impacts of high significance were identified, provided that all mitigation measures are applied effectively.

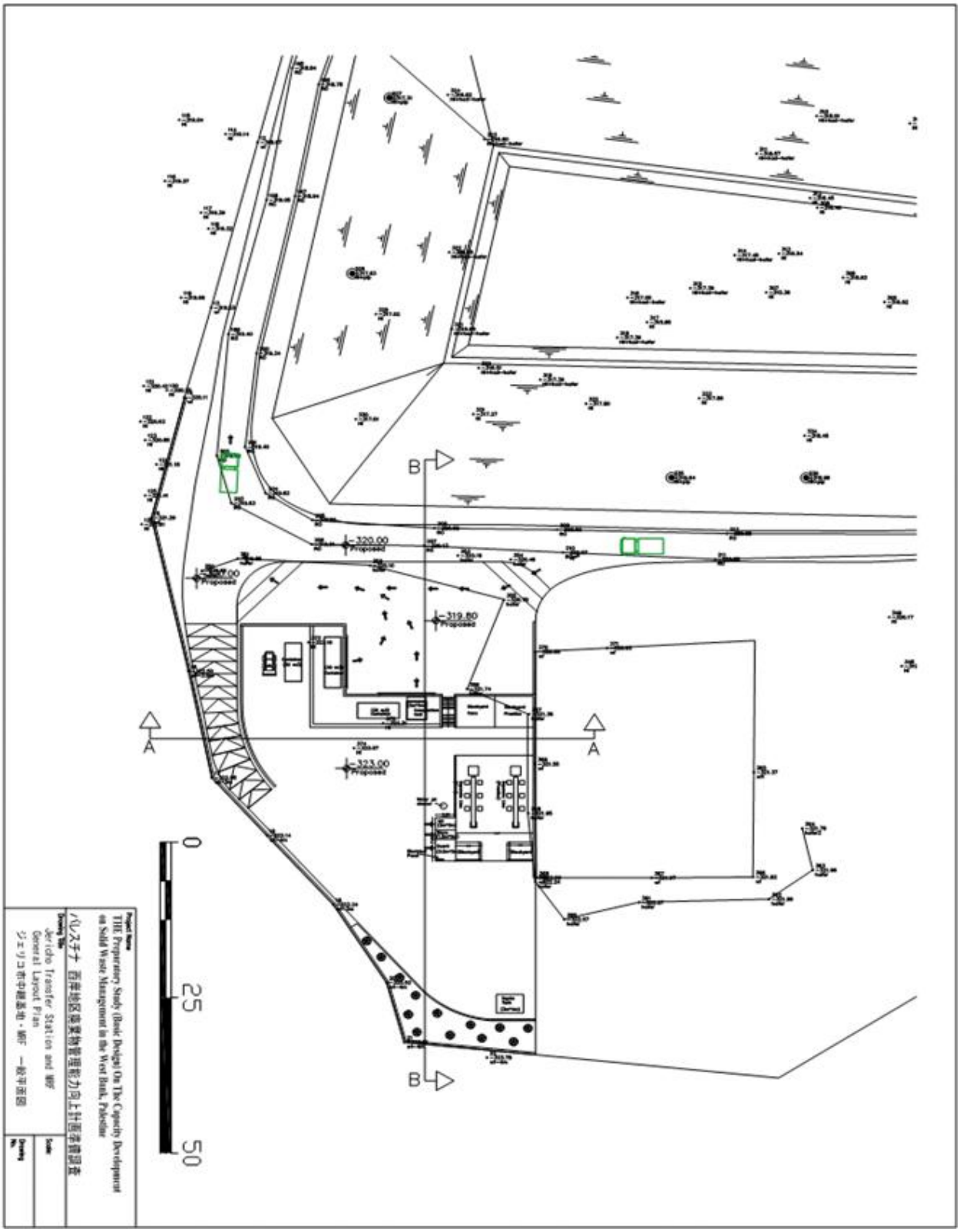
The proponent of the project, JCspd, is committed to the standards and requirements for the protection of the environment and to the application of all the required mitigation measures addressed in this IEE. JCspd has expressed its commitment towards this IEE.

With this it is our recommendation to approve this IEE and to proceed with the project with no further environmental reporting.

Annexes

Annex1: Primary design of landfill site and Material Recovery Facility with Transfer System

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THE Preparatory Study (Basic Design) On The Capacity Development on Solid Waste Management in the West Bank, Palestine
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General Layout Plan
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Drawing No.
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A
B
B
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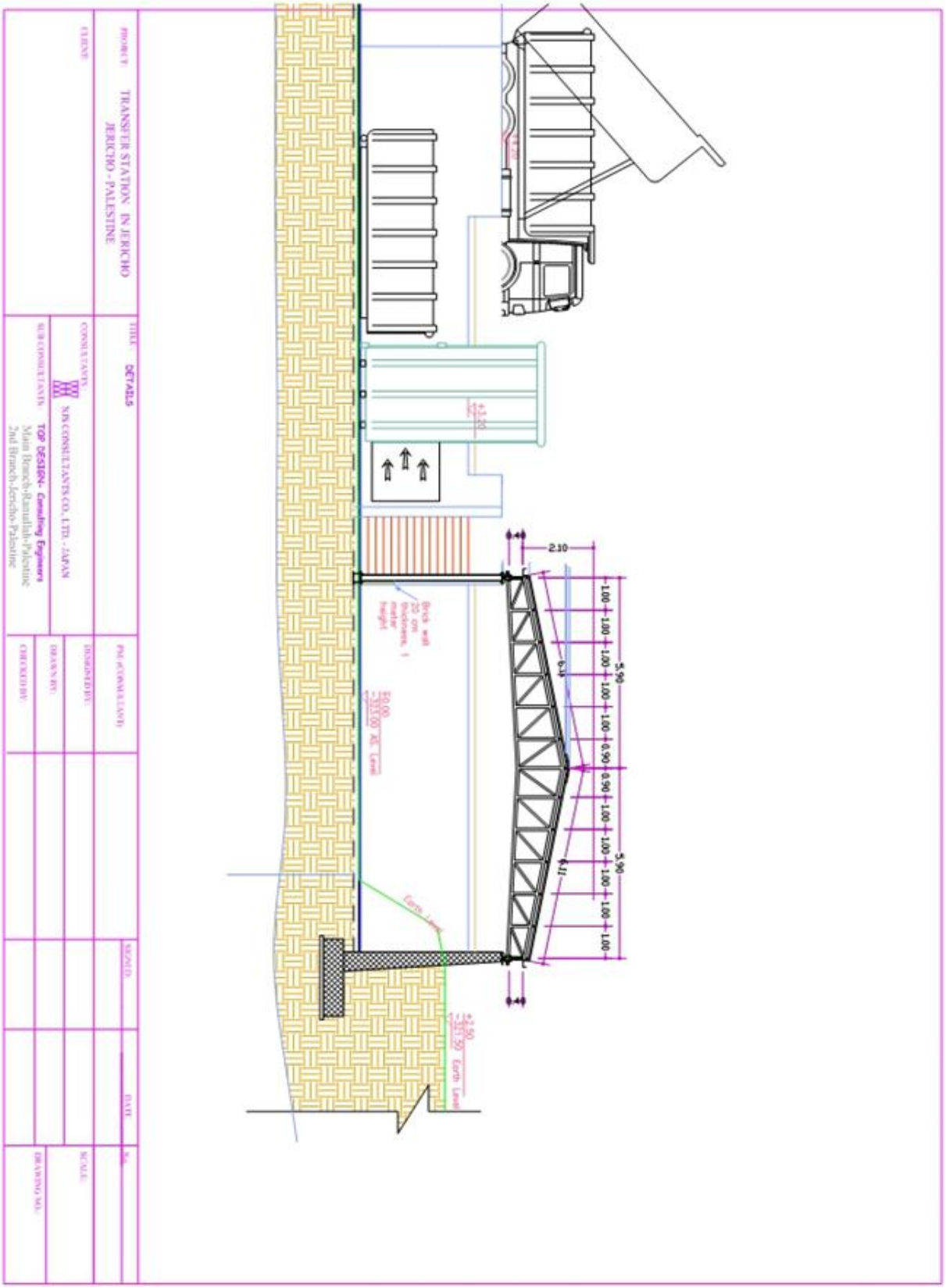
319.80
323.00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JERICHO - PALESTINE
CLIENT
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DETAILS
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NJS CONSULTANTS CO., LTD. - JAPAN
SUB CONSULTANTS
TGP DESIGN - Consulting Engineers
Main Branch-Ramallah-Palestine
2nd Branch-Jericho-Palestine
PM (CONSULTANT)
DESIGNED BY
DRAWN BY
CHECKED BY
SIGNED
DATE
SCALE
DRAWING NO.
Brick wall 20 cm thickness, 1 meter height
50.00
AIC Level
Earth Level
+3.50
Earth Level
2.10
5.90
5.90
0.40
0.40
1.00
1.00
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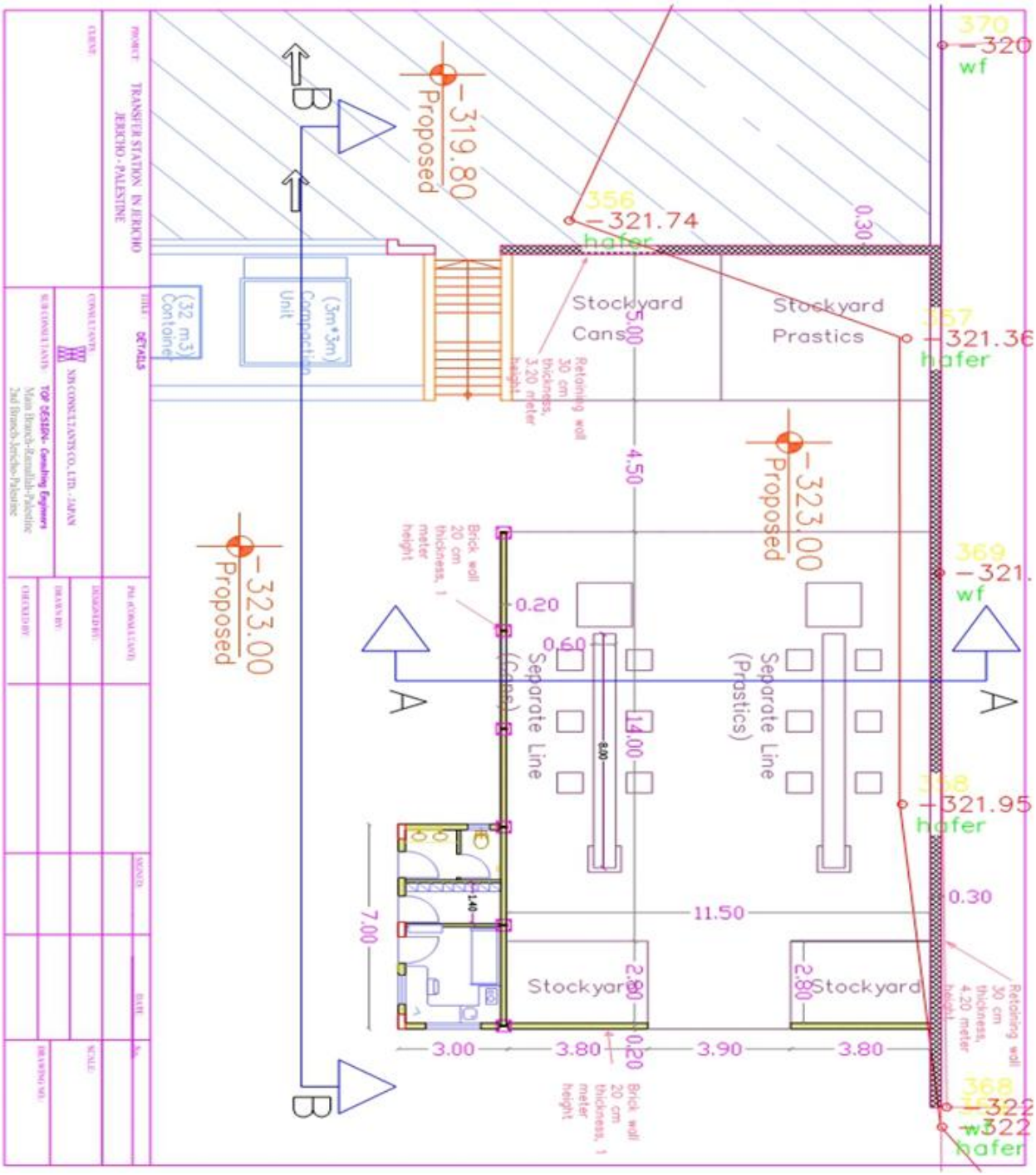
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Prastics
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hafer
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Retaining wall
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thickness,
3.20 meter
height
(3m*3m)
Compaction
Unit
(32 m3)
Container
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Proposed
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wf
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meter
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(Cans)
Separate Line
(Prastics)
14.00
0.60
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7.00
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2.80
Stockyard
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4.20 meter
height
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0.20
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thickness, 1
meter
height
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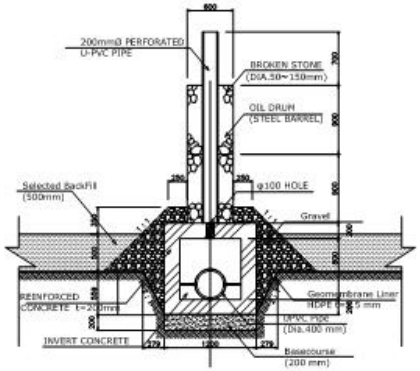
B
B
TRANSFER STATION IN JERICHO
JERICHO - PALESTINE
DETAILS
TOP DESIGN- Consulting Engineers



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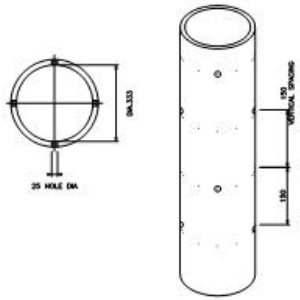
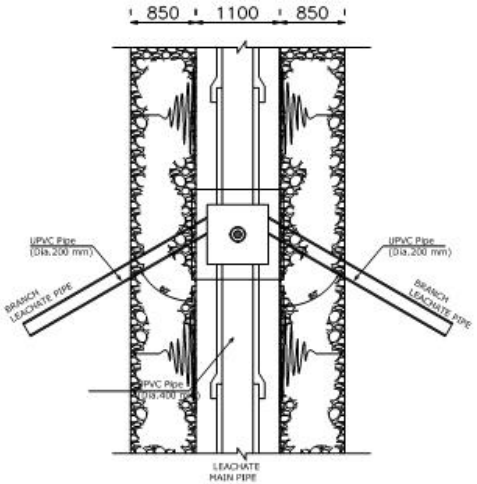
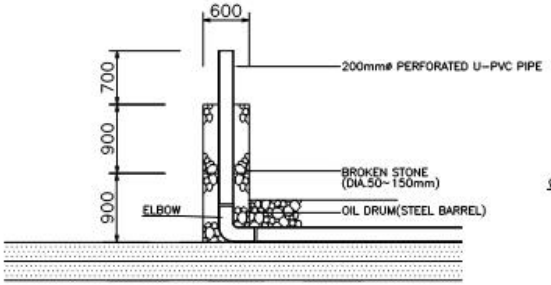


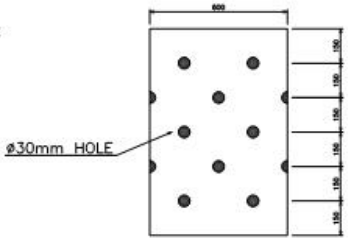
GAS VENT PIPE S=1:10



GAS VENT/ LEACHATE MAIN PIPE S=1:50



GAS VENT PIPE (BRANCH) S=1:50



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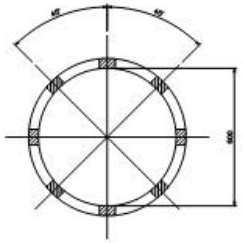

Project Name
THE Preparatory Study (Basic Design) On The Capacity Development on Solid Waste Management in the West Bank, Palestine

パレスチナ 西岸地区廃棄物管理能力向上計画準備調査

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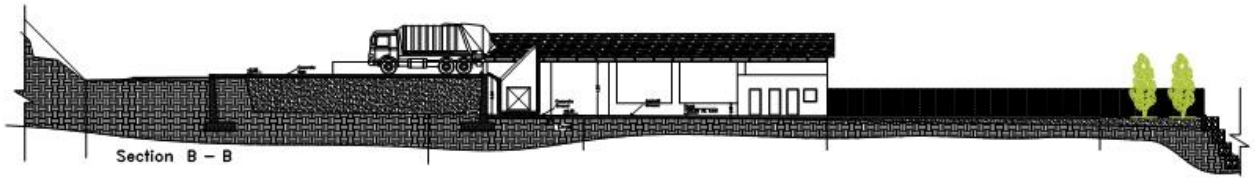
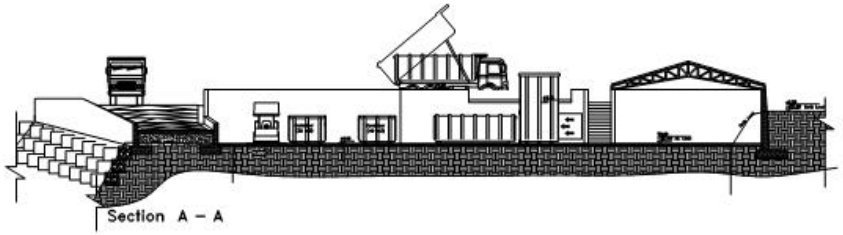
Scale: 1/XX

Drawing No.





Project Name
THE Preparatory Study (Basic Design) On The Capacity Development on Solid Waste Management in the West Bank, Palestine

パレスチナ 西岸地区廃棄物管理能力向上計画準備調査

Drawing Title
Jericho Landfill site Details ( )

ジェリコ市最終処分場 詳細図 ( )

Scale:

Drawing No.

Annex 2: IEE Terms of Reference

وزارة شؤون البيئة
الشروط المرجعية للتقييم البيئي الأولي

المشروع : مكب نفايات أريحا

اسم المشروع:توسعة مكب نفايات أريحا وإنشاء محطتي فرز وترحيل للنفايات

مقدم المشروع : مجلس الخدمات المشترك لإدارة النفايات الصلبة لمحافظة أريحا والأغوار

اسم الجهة المتقدمة،العنوان : مجلس الخدمات المشترك لإدارة النفايات الصلبة – أريحا والأغوار
أريحا – شارع المغطس – عمارة الفتياني " منطقة الضاحية "

رقم الهاتف:تلفاكس : 022320118

الاتصال "بالجهة المشرفة " : مجلس الخدمات المشترك – المدير التنفيذي
عبد الجبار أبو حلاوة
رقم تلفكس : 022320118 , جوال رقم : 0599313408

رقم المشروع : EAB / 167 / 7012

تاريخ تقديم الطلب :15/7/2012

تاريخ شروط المرجعية : 23/7/2012

1. المتطلبات العامة:

هذه الشروط المرجعية الخاصة بالتقييم البيئي الأولي تنطبق على المشروع المذكور أعلاه كما هو موصوف في طلب مقدم المشروع للحصول على الموافقة ا لبيئية (نموذج طلب الموافقة البيئية)، وأن أي تغييرات مهمة قد تطرأ على المشروع كما هو موضح في الطلب ربما تتطلب تقديم شروط مرجعية جديدة والحصول على موافقة وزارة شؤون البيئة قبل أن يتم النظر في الطلب.

وسيتم تنفيذ التقييم البيئي الأولي بما ينسجم مع المتطلبات التي تحددها سياسة التقييم البيئي الفلسطيني وكذلك مع الإرشادات العامة لعملية التقييم البيئي الصادرة عن وزارة شؤون البيئة (الوزارة).

وسيكون التقييم البيئي الأولي تقيماً عاماً واستكشافياً للآثار البيئية التي قد تنجم عن المشروع ويجب أن تتم خلال دراسات الجدوى الاقتصادية الأولية. وللتقييم البيئي الأولي غرضان رئيسيان هما:

1- مساعدة الجهة المتقدمة للمشروع على التخطيط للمشروع.
2- تزويد وزارة شئون البيئة بالمعلومات التي تحتاج إليها للنظر في المشروع ومنح الموافقة عليه من الناحية البيئية.

وسيركز التقييم البيئي الأولي على التعرف على الآثار البيئية المحتملة وتقييم درجة خطورتها وتوضيح تلك الآثار الهامة.

وكذلك توضيح الفرص الكفيلة بتقليل الآثار البيئية السلبية،وتعزيز المنافع البيئية المحتملة وبشكل مناسب سيقدم التقييم البيئي الأولي المقترحات الخاصة بالإشراف والمراقبة والتحكم في الآثار المحتملة لاسيما تلك التي تؤثر على السكان المحليين.
كذلك يجب أن يشتمل التقييم على خطة للإدارة البيئية.

ويجب أن يكون تقرير التقييم البيئي الأولي وافياً بحيث يقدم للوزارة المعلومات اللازمة من أجل:

أ) منح الموافقة البيئية بشروط أو بدون شروط.

ب) تحديد التغيرات الواجب إجرائها على المشروع وكذلك الحاجة لتقييم بيئي أولي جديد أو تقييم الآثار البيئية بشكل أكثر تفصيلاً وذلك قبل النظر في مسألة منح الموافقة البيئية.

2. آفاق التقييم

سيركز التقييم البيئي الأولي على معالجة القضايا الرئيسية الهامة و ذلك من أجل:

أ) تحسين تخطيط و تصميم المشروع.

ب) المجتمع المحلي.

ت) الوزارة عند النظر في الموافقة البيئية.

ث) الجهات التي تمنح التراخيص وذلك عند النظر في إصدار هذه التراخيص المطلوبة لبدء المشروع.

يجب اعتبار العناصر البيئية الهامة عند عمل التقييم البيئي ويتم التأشير عليها بعلامة (√) في الملحق "أ" و سيتم مناقشة وتوضيح العناصر البيئية الهامة والقضايا الأخرى المتعلقة بها وذلك في الملحق "ب".

سيعمل التقييم البيئي الأولي على تقييم مدى انسجام المشروع مع السياسات والبرامج والخطط المتعلقة والخاصة باستخدامات الأراضي على المستوى المحلي والإقليمي والوطني وأية معايير قانونية ذات علاقة بها.

سيتم وضع الحدود المكانية والزمانية للتقييم البيئي من أجل معالجة جميع الآثار المباشرة وغير المباشرة والمتراكمة وإذا لزم الأمر معالجة الآثار الممتدة عبر الحدود و المؤثرة على عناصر البيئة الهامة ، وكما هو مطلوب للتوضيح سيتم تقديم التعليمات أو التوجيهات الخاصة بالحدود المكانية والإطار الزماني للتقييم البيئي وذلك في الملحق "ب".

3. التخطيط البيئي

تتوقع الوزارة أن يساهم التقييم البيئي الأولي بشكل إيجابي وهام باتجاه تخطيط وتصميم المشروع، وسيوثق تقرير التقييم البيئي الأولي كيفية دمج العوامل البيئية في عملية تخطيط المشروع وتصميمه، وكذلك النتائج المترتبة عن ذلك. وصف متطلبات دراسة التقييم البيئي الأولي والتقرير الخاص بها حول التخطيط البيئي يمكن الرجوع إليها في الدليل الإرشادي Guidelines، ويجب على صاحب المشروع أن يولي اهتماماً خاصاً إلى ما يلزم من أجل:

أ – الأخذ بالاعتبار البدائل عند تخطيط المشروع وتصميمه.

ب – تطوير ووضع خطة للإدارة البيئية.

للمزيد من التوضيح سيتم في الملحق "ب" عرض مزيد من التعليمات الخاصة بدراسة البدائل وتطوير خطة للإدارة والمراقبة البيئية.

4. استشارة الجهات المشاركة

عند إجراء دراسة التقييم البيئي الأولي ، يتوجب على مقدم المشروع أن يستشير السلطات المحلية والإقليمية والوطنية الحكومية ذات الصلة لضمان تحقيق اهتماماتهم ومتطلباتهم القانونية بشكل كاف في إستراتيجية وتقرير التقييم البيئي الأولي. وهناك توجيهات عامة حول استشارة الجهة المشاركة في الدليل الإرشادي Guidelines، وتتم مناقشة المتطلبات المحددة للاستشارات لهذا المشروع وذلك في الملحق "ب".

5. الحـــد الأدنى لمتطلبات تقرير التقييم البيئي الأولي

سيتم تقديم توجيهات مفصلة حول طريقة سير التقييم البيئي الأولي وعملية إعداد التقارير الخاصة بالتقييم البيئي وذلك في الدليل الإرشادي Guidelines.

وعلى الأقل يجب أن يتضمن تقرير التقييم البيئي الآتي:

أ – ملخص تنفيذي غير فني.

ب– تمهيد للمشروع وصاحب المشروع وإستراتيجية التقييم البيئي الأولي.

ت– موجز عن استشارات الجهات المشاركة حول المشروع.

ث– وصف للتخطيط البيئي للمشروع لا سيما البدائل التي تم مناقشتها أو دراستها.

ج– وصف للمشروع بما فيه تقديم التصميم والتكنولوجيا المستخدمة ومظاهر الوقاية البيئية.

ح– تقديم خرائط مناسبة تبين موقع المشروع والطرق المؤدية إليه والبدائل الأخرى وتوفير الخدمات في إطار الموقع أو الطريق الأفضل.

خ– تقييم الآثار المحتملة والهامة للمشروع وإجراءات التخفيف.

د– وضع خطة للمراقبة والإدارة البيئية.

ذ– تحديد أسماء ومسؤوليات الأشخاص الذين قاموا بإعداد التقييم البيئي الأولي.

يتوجب أن يشير تقرير التقييم البيئي الأولي أو الرسالة المرفقة عند التقديم بوضوح إلى أي مدى تكون الجهة المتقدمة للمشروع:

أ – متوافقة مع محتويات التقرير.

ب – ملتزمة بتطبيق التخطيط البيئي، والتصميم، والتخفيف من الأضرار، والتعويض وإجراءات الإدارة الواردة في التقرير.

يجب على الجهة المتقدمة بالمشروع العلم أن تقرير التقييم البيئي الأولي سيتم مراجعته من قبل الوزارة ومؤسسات أخرى تابعة للسلطة الوطنية الفلسطينية مستخدمة المعايير القياسية الواردة في الدليل الإرشادي Guidelines، هذه المعايير للمراجعة التفصيلية المستخدمة في هذه الإجراءات تمثل معايير الجودة التي تتوقع السلطة من الجهة المقدمة للمشروع أن تستوفيها في تقريرها للتقييم البيئي.

كذلك على الجهة المتقدمة بالمشروع العلم أنه في حالة فشل مسودة تقرير التقييم البيئي الأولي في أن تستوفي الحد الأدنى من المتطلبات المحددة أعلاه فلن يُقبل للمراجعة من قبل الوزارة.

6. تقديم وفحـــص تقرير التقييم البيئي الأولي

يجب على الجهة المتقدمة بالمشروع أن تقدم ثلاث (3) نسخ من مسودة تقرير التقييم البيئي الأولي إلى مدير مكتب وزارة شؤون البيئة في بيت لحم أو إلى مدير دائرة التقييم البيئي في مكاتب الوزارة في رام الله، وعند اقتناع الوزارة أن مسودة التقرير تستوفي الحد الأدنى من متطلبات التقرير، فعلى صاحب المشروع أن يقدم (13) ثلاث عشرة نسخة عن التقرير ليتم عمل المراجعة الفنية التفصيلية من قبل لجنة التقييم البيئي وفق الأسس الواردة في سياسة التقييم البيئي الفلسطينية.

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الملحق (أ)

العناصر البيئية المُقيَّمة

الصنف		العنصر البيئي
1. العناصر البيوفيزيائية والمصادر واستخدامات الأراضي	√	المناخ وجودة الهواء
	√	هندسة المياه السطحية والجودة
	√	هندسة المياه الجوفية والجودة
	√	الأخطار الطبيعية و التضاريس
	√	التربة والنبات الطبيعي
	√	موارد الحياة البرية واستخدامها
	√	الموارد المائية واستخدامها
	√	الموارد الترفيه و السياحة واستخدامها
	√	موارد الغابات واستخدامها
	√	الموارد الزراعية واستخدامها
	√	الموارد المعدنية واستخدامها
2. العناصر الاقتصادية	√	التشغيل أو العمالة المباشرة والدخل
	√	العمالة غير المباشرة والدخل
	√	شروط سوق العمل
	√	مصادر الإمدادات والمواد والخدمات
	√	متطلبات النقل
	√	متطلبات وتكلفة تطوير البنية التحتية
	√	إيرادات ومصاريف حكومية
	√	فرص مباشرة وغير مستحقة للتنمية الاقتصادية
3. العناصر الثقافية والتراثية	√	مواقع أثرية
	√	مواقع للاستخدام التراثي
	√	مواقع تاريخية وسمات المناظر الطبيعية
4. العناصر الاجتماعية	√	ملامح الوضع الاجتماعي والسكاني
	√	السكان
	√	الإسكان والمأوى
	√	استخدام الأرض والماء
	√	النقل والمواصلات
	√	خدمة توصيل الخدمات والمنح للمجتمع
	√	إيرادات ومصاريف الحكم المحلي
	√	خدمات الدعم الاجتماعي
	√	استقرار المجتمع والترابط الاجتماعي
	√	المساواة بين الجنسين
5. العناصر الصحية	√	تقديم الخدمات والتسهيلات الصحية
	√	توصيل المياه للسكان وتجميع مياه الأمطار وخلافه
	√	معالجة النفايات والتخلص منها
	√	جودة الهواء والماء المحيطة بالمشروع
	√	أخطار على الصحة العامة
	√	صحة و وقاية العامل
	√	الضوضاء
	√	صحة المجتمع المحلي

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الملحق (ب)

متطلبات محددة للتقييم البيئي

أولاً: العناصر البيئية الهامة والمسائل المثيرة للاهتمام

على تقرير التقييم البيئي الأولي دراسة المسائل المثيرة للاهتمام المرتبطة بالعناصر البيئية الهامة التي تم تحديدها في الملحق (أ) وذلك كما يلي:

1. **جودة الهواء**
   - تحديد ملوثات الهواء الناتجة عن كافة نشاطات المشروع.
   - تأثير الرياح وحدود المكان المتأثر بهذه الملوثات.
   - كيفية التقليل والتخفيف من آثار هذه الملوثات من خلال اعتماد إجراءات تخفيف في موقع المشروع.
   - إجراءات الرقابة الدائمة المقترحة.
2. **المياه الجوفية**
   - وصف جيولوجيا وهيدرلوجيا المنطقة بما في ذلك التنوعات، ومعدلات التسرب ونوع المياه الجوفية ومستوى عمقها.
   - المصادر المحتملة لتلويث المياه الجوفية.
   - الآثار السلبية على المياه الجوفية وتدابير التخفيف الخاصة بها.
   - نظام المراقبة البيئية المقترح.
3. **المياه السطحية ونوعيتها**
   - معدل مياه الأمطار السنوي.
   - كيفية تصريف المياه السطحية الطبيعي في الموقع.
   - الإجراءات التخفيفية لمنع تلوث المياه السطحية والمحافظة على تصريفها الطبيعي.
4. **التربة والغطاء النباتي**
   - دراسة العينات النباتية في الموقع والمناطق المجاورة.
   - دراسة إمكانية وجود نباتات معرضة للانقراض في الموقع.
   - إجراءات الحفاظ على التربة في منطقة المشروع وإعادة استخدامها.
   - كيفية إعادة المنطقة إلى سابق عهدها وإعادة تأهيلها واستصلاحها والخطة الخاصة بذلك.
5. **الترفيه والسياحة**
   - تحديد ووصف آثار المشروع على الأنشطة الترفيهية والسياحية في المنطقة.
   - دور المشروع في الحفاظ على موارد لمثل هذه الأنشطة والتدابير اللازمة لتعزيزها.
6. **المواقع الأثرية والتاريخية**
   - في حال وجود أية مواقع أثرية وتاريخية أومعالم طبيعة في المنطقة، ينبغي اقتراح خطة للحفاظ على هذه المواقع.
   - ينبغي للخطة أن تشير أيضا إلى تناغم المشروع مع هذه المواقع والآثار الاجتماعية والاقتصادية المتوقعة.

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7. **الزراعة**

- وصف الأنشطة الزراعية في المنطقة.
- تأثير المشروع على استخدامات الأراضي الزراعية والأنشطة الزراعية.
- تدابير التخفيف الممكنة.

8. **مصادر المياه واستخداماتها**

- مصادر مياه المشروع وطاقتها، واستهلاك المشروع.
- وسائل الحفاظ على مصادر المياه والتخفيض من الاستهلاك.
- اثر استهلاك المياه على البيئة المحيطة والإجراءات التخفيفية لهذه الآثار.

9. **الحياة البرية**

- طبيعة الحياة البرية في المنطقة.
- تأثير المشروع على الحياة البرية وأماكن عيشها.
- إجراءات التخفيف للتقليل من الآثار على الحياة البرية.

10. **المواصلات**

- حجم ونوعية حركة النقل – الناتجة عن المشروع – على الطرق.
- الآثار البيئية المتوقعة لهذه الحركة على الطرق.
- وصف مع مخططات تبين الطرق المستخدمة للمشروع المعبدة وغير المعبدة.
- إجراءات التخفيف لآثار حركة النقل ومنع الحوادث.

11. **البنية التحتية**

- البنية التحتية المقترحة للمشروع وتكلفتها.
- المظاهر البيئية للمشروع.
- قدرة هذه البنية لخدمة المشروع.
- الآثار البيئية وإجراءات التخفيف.

12. **سمات المنظر الطبيعي**

- أثر المشروع على التناغم الطبيعي للموقع مع المنطقة المحيطة وجمالها.
- إجراءات التخفيف لدمج المشروع ضمن هذا التناغم الطبيعي.

13. **خدمة العمال**

- عدد الأيدي العاملة المتوقع والخدمات المقدمة لهم.
- إجراءات السلامة العامة والمهنية الخاصة بالعمال والحفاظ على سلامتهم.

14. **الصحة العامة والخدمات والمرافق الصحية**

- الآثار الصحية المحتملة لأنشطة المشروع على العمال والمستفيدين والمجتمعات المحلية المحيطة بها
- تقييم المخاطر الصحية ومخاطر الحوادث
- إجراءات الوقاية في الموقع

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- إجراءات الحماية الصحية
- المرافق والخدمات الصحية لخدمة كل من المشروع والمجتمعات المجاورة
- خطة المراقبة الصحية
- تخفيف التدابير الأخرى لتجنب المخاطر الصحية والحوادث.

15. الضجيج

- مصادر الضجيج في الموقع ومستوياتها
- الآثار البيئية المتوقعة للضجيج
- إجراءات التخفيف المتبعة في الموقع

16. الوضع الديمغرافي والسكان والمساكن

الخريطة السكانية لمنطقة الدراسة

التغييرات المتوقعة في الخريطة الديموغرافية نتيجة للمشروع

التأثيرات الاجتماعية والاقتصادية للمشروع

17. مياه الصرف الصحي

- المياه الصناعية ومياه الصرف الصحي وأنظمة جمعها ومعالجتها والتقنيات المستخدمة
- الذين سيتم خدمتهم من قبل هذه الأنظمة
- إعادة استخدام المياه العادمة المعالجة
- الآثار المحتملة لجمع المياه المستعملة ومعالجتها وإعادة استخدامها أو التخلص منها وتدابير التخفيف المقترحة.

18. النفايات الصلبة والخطرة

- أنظمة إدارة النفايات الصلبة والخطرة التي سيتم اقتراحها واعتمادها للمشروع، بما في ذلك تدابير إدارة / معالجة النفايات الخطرة التي تدخل في نطاق المشروع
- تدابير إغلاق وإعادة تأهيل المكبات العشوائية القائمة (إن وجدت)
- تقييم الاحتياجات من المعدات والمرافق
- تدابير الحد من وتقليل إنتاج النفايات عند المصدر
- الآثار البيئية المحتملة للمعالجة والتخلص من هذه النفايات، وتدابير التخفيف.

19. إجراءات خاصة بالمشروع

- إجراءات التبطين ومنع التسرب وحماية المياه الجوفية والبيئة المحيطة.
- العصارة (**Leachate**)

أ) تقدير كميات العصارة الناتجة

ب) إجراءات تقليل كمية العصارة الناتجة

ت) وصف نظام جمع ومعالجة العصارة

ث) إجراءات التخفيف والحماية

ج) خطة المراقبة

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- **نظام جمع الغاز**

أ) تحديد الغازات التي تنتج في المكب

ب) تقدير كميات الغازات الناتجة

ت) تعريف ووصف لنظام جمع الغاز، إن وجد

ث) أنظمة معالجة الغاز واستعمالاته، إن وجدت

ج) خطة المراقبة

- **إجراءات إغلاق المكب**

يتوقع أن يتناول التقرير تحديد ووصف التدابير المقترحة لإغلاق المكب عند إنتهاء العمر الزمني المقدر له، بما في ذلك تدابير إعادة التأهيل وخيارات الاستخدام النهائي.

كذلك:

- يجب إعداد مخططات للموقع توضح عليها مكونات ومرافق المشروع المختلفة وكافة النشاطات والبنية التحتية البيئية للمشروع بما في ذلك المنشآت والمناطق الخضراء والطرق واستخدامات الأراضي المحيطة وأماكن معالجة والتخلص من النفايات، والجدران وغير ذلك من إجراءات سيتم تطبيقها.
- على معد الدراسة معالجة أية آثار بيئية يتم التعرف عليها أثناء إعداد الدراسة بحيث يتم دراستها وتضمينها في التقرير، خاصة خلال دراسة المجال أو تلك التي تثيرها الجهات المشاركة.
- كما يجب إرفاق الدراسة بالخرائط والمخططات اللازمة بما في ذلك مخطط للمساحة، ومخطط للموقع تظهر عليه الطرق المؤدية إلى الموقع ومداخل المشروع ومخارجه والطرق الداخلية ومواقع مرافق المشروع المختلفة.

ثانياً: الحدود المكانية والزمانية للدراسة

وكما هو مناسب لتطويق الآثار المتوقعة على كل عنصر أو مجموعة من العناصر البيئية الهامة:

أ – التعريف بواسطة الخرائط لمواقع الدراسة مشتملة على البدائل التي يجب أخذها بالاعتبار.

ب – تحديد إطار زمني للدراسة لمرحلة الإنشاء، ومرحلة التشغيل ومرحلة ما بعد التشغيل.

ثالثاً: البدائل الواجب اعتبارها

- تحديد المعايير المعتمدة في تحديد الممرات أو الطرق البديلة سواء عبر المناطق السكنية المجاورة أو ضمن منطقة المشروع.
- دراسة معايير اختيار الموقع والتحديد الفعلي لأي من البدائل المكانية وكذلك معايير تحديد مواقع كل نشاط مقترح داخل الموقع المقترح.

كما يجب دراسة البدائل من حيث:

أ – اختيار التكنولوجيا و العمليات المناسبة.

ب – تزويد المشروع بالمواد الخام والسلع والخدمات لاسيما في حالة وجود مزودين محليين.

ت – توفير العمالة ووضع جدول للإنشاءات.

ج – إدارة النفايات.

ح – وأخيراً توفير الموارد المائية.

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رابعا: الحد الأدنى لمتطلبات خطة المراقبة و الإدارة البيئية

* من أجل مراقبة كل مرحلة من مراحل المشروع:

أ – يجب مراقبة ورصد المتغيرات البيئية ودرجة تكرارها.

ب– تقديم التقارير للسلطات المختصة.

* المسائل أو الاهتمامات التي ستكون موضوع خطة الإدارة البيئية ومتطلبات التقرير يجب أن تقدم إلى الوزارة.

خامسا: متطلبات استشارة الجهات المشاركة

ينبغي استشارة الجهات المشاركة خلال المراحل الأولى من إعداد التقرير. أهداف الاستشارة هي:

1. إطلاع الجمهور على جميع القضايا والاهتمامات المتعلقة بالمشروع
2. تحديد اهتمامات العامة (الجمهور).
3. تحديد معايير أداء المشروع التي ينبغي أن تتحقق
4. جمع البيانات والمعلومات أو المعارف المحلية
5. تجنب النزاعات المستقبلية مع الجهات المعنية أوالمتضررة
6. أن تؤخذ المخاوف البيئية للعامة بعين الاعتبار وأن تقترح الإجراءات المناسبة لتخفيفها

وعلى الاستشاري معد التقرير أن يبحث في أفضل الوسائل والسبل المناسبة للوصول إلى والحصول على ردود فعل من الجمهور.

وينبغي أن تدرج الاستشارات والملاحظات التي تمت في هذا الإطار في التقرير.

من حيث المبدأ، وعلى سبيل المثال لا الحصر، فيما يلي قائمة بالجهات المشاركة التي ينبغي استشارتها:

1. أصحاب الأراضي المجاورة للموقع
2. البلديات والهيئات المحلية المشاركة
3. المؤسسات العامة في المنطقة
4. وزارات:

• الزراعة	• الصحة	• السياحة والآثار
• التخطيط	• الحكم المحلي	• سلطة المياه
• النقل والمواصلات	• الإسكان والأشغال العامة	
• العمل	• الاقتصاد الوطني	

5. الجامعات والمنظمات غير الحكومية في المنطقة
6. أية جهات أخرى يرى الاستشاري معد الدراسة أنها قد تتأثر بالمشروع

وينبغي النظر في أية اهتمامات أخرى برزت وتم تحديدها خلال استشارة الجهات المشاركة وأخذها بالاعتبار عند إعداد التقرير.

وينبغي النظر في أهمية كل القضايا والاهتمامات المذكورة في هذه الشروط المرجعية أو تلك التي تبرز خلال استشارة الجهات المشاركة على أساس معايير بيئية واضحة.

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Annex 3: Ministry of Health Official Approval Letter

Palestinian National Authority
Ministry of Health

Primary Health Care Administration

Dept. of Environmental Health
Ramallah

Tel: 2976042
FAX :2955991

السلطة الوطنية الفلسطينية
وزارة الصحة
إدارة الرعاية الصحية الأولية
دائرة صحة البيئة
رام الله
تلفون : 2976042
فاكس:2955991

الرقـم : ٣٥ /١٠١٦
التاريخ : 2012/9/23

حضرة مدير صحة محافظة اريحا المحترم.
بواسطة مدير عام الرعاية الصحية الأولية والصحة العامة المحترم.

تحية وبعد ،،

الموضوع : مشروع مكب نفايات اريحا

اشارة الى كتاب السادة في مجلس الخدمات المشترك حول توسعة مكب النفايات الصلبة والزيارة التي تمت من قبل صحة البيئة ، ارسل لكم التقرير المعد من قبل رئيس قسم الصرف الصحي مع تبني التوصيات.

واقبلـــــوا الاحـــــترام ،، ،،

مدير دائـــرة صحـــة البيئة

م. ابراهيـــم عطيـــه

السلطة الوطنية الفلسطينية
وزارة الصحة
الادارة العامه للرعاية الصحية الأولية والصحة العامه
دائرة صحة البيئة

Palestinian National Authority
Ministry of Health
Primary Health Care Administration
ronmental of Envi .Dept Health

.Telefax : (02) 2955766

-السلطة الوطنية الفلسطينية
وزارة الصحة
إدارة الرعاية الصحية الأولية
دائرة صحة البيئة
تلفاكس : 2955766

التاريخ: 2012/9/19

حضرة مدير دائرة صحة البيئة المحترم
الموضوع: مشروع توسعة مكب نفايات اريحا – والاغوار

اشارة للكتاب الموجه من قبل المدير التنفيذي لمجلس الخدمات المشتركة والتخطيط والتطوير لادارة النفايات الصلبة منطقة اريحا والاغوار، لمدير عام صحة محافظة اريحا بتاريخ 2012/9/9 حول منح الموافقة الاولية وبشكل خطي على مشروع توسعة مكب نفايات اريحا.

تم بتاريخ 2012/9/6 عقد لقاء مع مدير مجلس الخدمات المشترك لادارة النفايات الصلبة / اريحا والاغوار بناء على طلبه وبحضور رئيس قسم صحة البيئة في مديرية صحة اريحا في مقر المديرية، حيث تم استعراض الدراسة الاولية للمشروع وحول متطلبات وزارة الصحة، وتم خلال اللقاء التركيز على النقاط التالية:

1- موقع المكب القديم سيتم تحويل جزء منه كمحطة تدوير للنفايات.
2- سيتم العمل في الموقع المستخدم الحالي حتى نهاية عام 2013 وبعد المباشرة باستخدام الموقع الجديد بداية عام 2014{ المحاذي للموقع القديم باتجاه الشرق} سيتم اغلاق المكب بطرق هندسية صحية وبيئية بحيث تحافظ على الصحة العامة.
3- سيتم فرز خلية خاصة بالنفايات الطبية في الموقع الجديد.
4- ضرورة التقدم لوزارة الصحة بطلب الحصول على ترخيص لموقع المكب.

التوصيات:

1- الموافقة المبدئية على توسعة مكب النفايات شريطة الالتزام بكافة شروط الصحة العامة والشروط اعلاه.
2- ضرورة الحصول على رخصة التشغيل من قبل وزارة الصحة قبل البدء في تشغيل المكب.
3- ضرورة اغلاق المكب القديم بطرق هندسية وبيئية مقبولة وضمن دراسة تقييم الاثر البيئي.

مع الاحترام،،،،،،،،،،،،،،،،،،

رئيس قسم الصرف الصحي
والتحلص من النفايات

م.محمود عثمان

السلطة الوطنية الفلسطينية
وزارة الصحة
الادارة العامه للرعاية الصحية الأولية والصحة العامة
دائرة صحة البيئة

Annex 4: Screening of Potential Social and Environmental Impacts by the Project

No	Items	Description	Evaluation	Remarks (Reasons)
I. Social Environment				
1	Resettlement	Transfer of rights of residence and land ownership	No	No residence on site.
2	Economic activities	Loss of production base and change of economic structure	No	Scavengers will be given the priority to work at the separation facility.
3	Traffic and Public facilities	Impacts on school, hospitals and present traffic conditions, such as an increase in traffic jams and accidents.	No	Traffic volume will be unchanged. Location is far away from residential areas, schools, …etc.
4	Splitting of communities	Separation of regional communities by disruption of regional traffic.	No	Regional traffic will not be disrupted.
5	Cultural property	Loss or decrease of the value of cultural assets and archaeological assets.	No	No significant cultural property within the area.
6	Water rights and Rights of common	Obstruction of fishing rights, water rights and rights of common.	No	No water use or commons.
7	Public health conditions	Worsening of health and sanitary conditions due to generation of garbage, and pathogenic insects.	No	Project is to improve current sanitary condition.
8	Waste	Generation of construction waste, debris, sludge and general waste.	No	Wastes, if generated during improvement work, will be dumped on site.
9	Hazards (Risk)	Increased risk of cave-ins, ground failure and accidents	No	Careful construction procedures will ensure safety.
II. Natural Environment				
10	Topography and Geology	Change of valuable topography and geology due to excavation or earth fill	No	Neither large excavation nor earth fill will be included in the Project.
11	Soil erosion	Topsoil erosion by rainfall after land reclamation and deforestation	No	Reclamation will ensure plantation over the top soil after closure of the site.
12	Groundwater	Exhaustion of groundwater caused by overdraft, and water pollution by leachate	No	No possibility of overdraft of groundwater, and water pollution by leachate will be properly mitigated.

13	Hydrological situation	Change in discharge or water quality due to reclamation and drainage	No	No change in discharge or water quality is expected since leachate is collected.
14	Fauna and Flora	Obstruction of breeding and extinction of species due to the change of habitat conditions	No	No endangered species is reported in the site.
15	Meteorology	Change of micro-climate such as temperature, wind etc., due to large scale reclamation and construction	No	No change in micro-climate (wind, temperature, etc)
16	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structure	No	Change in topography, vegetation is not expected.
III. Environmental Pollution				
17	Air pollution	Pollution caused by emission of toxic gases from vehicles and waste fill.	No	Wind and heavy duty machinery may be a source of dust, but far from residential area. Open burning will be prohibited.
18	Water pollution	Pollution caused by surface runoff and leachate	No	Leachate and sepatage effluent will be collected.
19	Soil contamination	Contamination by surface runoff and leachate	No	Leachate and surface run-off will be collected.
20	Noise and vibration	Noise and vibration generated from vehicle and heavy duty machinery	No	Far from residential area.
21	Land subsidence	Land deformation caused by the draw-down of the water table	No	No plan to use groundwater.
22	Offensive odor	Offensive odor generated from dumpsite.	No	Cover soil prevents odor emission from dumpsite considerably.
Overall evaluation: Either IEE or EIA is necessary for the Project implementation?			No	Further study is required to clarify items.

Annex 5: Potential Environmental and Social Impacts of the Project

No	Items	Description	Construction/Operation Activities	Evaluation		Reason and Mitigation measure
				Construction stage	Operation stage	
	I. Social Environment					
1	Resettlement	Transfer of rights of residence and land ownership	The site is present near the current landfill site and no residence. The site is already secured to be used for disposal site.	Negligible impact	Negligible impact	
2	Economic activities	Loss of production base and change of economic structure	The site is controlled during construction and operation stage. Scavenger's activity will be affected.	B (Some impact)	B (Some impact)	Explanation of the project to the scavengers. Registration of scavenger and allow to work in the separation facility.
3	Traffic and Public facilities	Impacts on school, hospitals and present traffic conditions, such as an increase in traffic jams and accidents.	Small traffic for transportation of construction material and solid waste. Traffic volume will be unchanged.	Negligible impact	Negligible impact	Excavated soil during construction is used on the site.
4	Splitting of communities	Separation of regional communities by disruption of regional traffic.	Small traffic for construction and solid waste disposal	Negligible impact	Negligible impact	Regional traffic will not be disrupted.
5	Cultural property	Loss or decrease of the value of cultural assets and archaeological assets.	No significant cultural property in the site.	Negligible impact	Negligible impact	
6	Water rights and Rights of common	Obstruction of fishing rights, water rights and rights of common.	No water use or rights of commons.	Negligible impact	Negligible impact	
7	Public health conditions	Worsening of health and sanitary conditions due to generation of garbage, and pathogenic insects.	Project is to improve current unsanitary waste disposal to sanitary condition.	Negligible impact	Negligible impact	Open burning will be stopped and waste is covered by soil.
8	Waste	Generation of construction waste, debris, sludge and general waste.	Wastes will be dumped on site during construction period. Waste will be disposed in	Negligible impact	Negligible impact	Excavated soil is stored and used for covering soil. Implementation of covering soil.

			sanitary manner during operation			
9	Hazards (Risk)	Increased risk of cave-ins, ground failure and accidents	Careful construction procedures will ensure safety.	Negligible impact	Negligible impact	Careful construction at the site Proper operation of solid waste disposal
	II. Natural Environment					
10	Topography and Geology	Change of valuable topography and geology due to excavation or earth fill	Neither large excavation nor earth fill will be included in the Project.	Negligible impact	Negligible impact	
11	Soil erosion	Topsoil erosion by rainfall after land reclamation and deforestation	Small rainfall area	Negligible impact	Negligible impact	Reclamation will ensure plantation over the top soil after closure of the site.
12	Groundwater	Exhaustion of groundwater caused by overdraft, and water pollution by leachate	Small use of water for construction and disposal of waste. Water pollution by leachate will be properly mitigated.	Negligible impact	B (Some impact)	Leachate collection and liner system will be installed to prevent seepage of leachate Monitoring of ground water
13	Hydrological situation	Change in discharge or water quality due to reclamation and drainage	No change in discharge or water quality is expected since leachate is collected.	Negligible impact	Negligible impact	No change in discharge or water quality is expected since leachate is collected and stored.
14	Fauna and Flora	Obstruction of breeding and extinction of species due to the change of habitat conditions	No endangered species is reported in the site.	Negligible impact	Negligible impact	
15	Meteorology	Change of micro-climate such as temperature, wind etc., due to large scale reclamation and construction	The project includes small scale construction and reclamation. No change in micro-climate (wind, temperature, etc)	Negligible impact	Negligible impact	
16	Landscape	Change of topography and vegetation due to reclamation. Deterioration of aesthetic harmony by structure	Small change of topography after disposal of solid waste	Negligible impact	Negligible impact	Planting around the site
	III. Environmental Pollution					
17	Air pollution	Pollution caused by emission of toxic gases from vehicles and waste fill.	Wind and heavy equipment may be a source of dust, but far from residential area. Open	Negligible impact	B (Some impact)	Make covering soil to prevent open burning during operation stage.

			burning of waste will be prohibited.			
18	Water pollution	Pollution caused by surface runoff and leachate	Leachate will be collected and stored. Sepatage effluent will be unchanged.	Negligible impact	B (Some impact)	Liner system, leachate collection system and leachate pond is provided. Monitoring of Leachate
19	Soil contamination	Contamination by surface runoff and leachate	Disposal site will be covered by soil and leachate will be collected.	Negligible impact	Negligible impact	Leachate will be collected and stored.
20	Noise and vibration	Noise and vibration generated from vehicle and heavy duty machinery	Operation of heavy equipment but site is far from residential area.	Negligible impact	Negligible impact	
21	Land subsidence	Land deformation caused by the draw-down of the water table	Limited use of waster for drinking and planting.	Negligible impact	Negligible impact	
22	Offensive odor	Offensive odor generated from dumpsite.	Solid waste disposal with covering soil	Negligible impact	B (Some impact)	Covered soil to prevent odor emission from dumpsite.

Annex 6: Poring Test Results

- **Visual Description:**

The ground is underlain by:

- CLAYEY SOIL
- WADI material

- **Moisture Content:**

- The moisture content of the CLAYEY soil ranges from 21.4% to 32.6%
- The moisture content of the WADI material ranges from 10.7% to 19.3%

- **Liquid Limit**

- The Liquid Limit for the CLAYEY soil ranges from 32.2 to 43.3
- The Liquid Limit for the WADI Material ranges from 35.7 to 44.9

- **Plastic Index**
- The Plastic Index for the CLAYEY soil ranges from 10.4 to 17.4
- The Plastic Index for the WADI material ranges from 9.7 to 15.2

- **Cohesion of soil**

- The cohesion of the CLAYEY soil ranges from 38 KN/m2 to 41 KN/m2.
- The cohesion of the WADI material ranges from 36 KN/m^2 to 39 KN/m^2.

- **Angle of friction**

- The angle of friction of the soil ranges from 14o to 16o
- The angle of friction of the WADI material ranges from 15o to 17o

- **The permeability**
- Permeability of the CLAYEY soil ranges from 3×10^{-7} m/s to 1×10^{-8} m/s
- Permeability of the WADI material ranges from 6×10^{-6} m/s to 3×10^{-7} m/s

Ground Water and Cavities

Groundwater was not encountered at any of the boreholes. No cavities were encountered in any of the boreholes.

CONCLUSIONS AND RECOMMENDATIONS FOR FOUNDATION SYSTEM.

According to field exploration, laboratory testing, subsurface conditions, and engineering analysis, it can be concluded that the existing ground at the site can support the expected building loads, provided that the following recommendations are strictly followed.

Foundation Ground, Depth & Type

Foundation Ground:

According to our findings and the encountered materials, the clayey soil and wadi material shall not be considered as a natural barrier for the control of leachate draining into groundwater. Thus, it is essential to design a geotexile barrier for the landfill.

Allowable Bearing Pressure

The allowable bearing capacity for the MARL is calculated using Terzaghi;s equation y. applying a factor of safety (F) to the unconfined compression strength of the intact samples as expressed:

$$q_{ult} = 1.3N_c c + qN_q + 0.4B\gamma N_\gamma$$

$$q_{net} = q_{ult} - q$$

$$q_{all} = q_{net}/FS$$

Where:

q_{utl} = Ultimate bearing Capacity; q_{net} = Net bearing Capacity ; q_{all} = Allowable bearing Capacity FS = Factor of Safety. c = cohesion of soil = q = γD_f = γ = unit weight of soil, D_f = Depth of bottom of footing from ground level B = width of footing, N_c, N_q, N_γ = bearing Capacity factors

Table 2: Bearing Capacity of soil

Soil Type	BH #	c	ϕ	q_{ult} (KN/m^2)	q_{net} (KN/m^2)	FS	q_{all} (Kg/cm^2)
	1	41	14	855	807	4	2.06
	2	41	14	855	807	4	2.06
Clayey	3	39	15	885	837	4	2.13
soil	4	40	14	839	791	4	2.02
	5	38	16	935	887	4	2.26
	6	39	15	885	837	4	2.13
	1	39	15	900	849	4	2.16
	2	36	17	991	940	4	2.40
Wadi	3	36	17	991	940	4	2.40
Material	4	38	15	883	832	4	2.12
	5	37	16	934	883	4	2.25
	6	39	15	900	849	4	2.16

Annex 7: PWA mail about the project

Windows Live™ Hotmail (3535) Messenger (1) SkyDrive | MSN Abd Al-jabbar abu

Hotmail

Inbox (3535)

Folders
Junk (2)
Drafts (29)
Sent
Deleted (26)
Search Results

Quick views
Documents (339)
Flagged (19)
Photos (652)

Messenger (1)

You're signed in to Messenger. To change your status, click your name in the upper right corner.

Search contacts
ali santrisi

Home
Contacts
Calendar

New | Reply Reply all Forward | Delete Junk Sweep ▾ Mark as ▾ Move to ▾ Categ

Fw: Re: Jericho waste Dumping site

Back to messages |

To see messages related to this one, group messages by conversation.

Majeda Alawneh Add to contacts 9/17/2012
To abd_sa@hotmail.com Reply

Dear Abdul Jabar

Sorry for the delay , Please find below the reply from the hydro logical Dept on the location and the sensitivity of the area.

Best Regards

--From: omar zayed <ozayed2001@yahoo.com>

Subject: Re: Jericho waste Dumping site
To: "Majeda Alawneh" <mag_alawneh@yahoo.com>
Date: Monday, September 17, 2012, 12:32 AM

Dear Mageda,
after revewing the location of the extension of the dumping site of Jericho, we find that it is located in the downstream of Jericho aquifer, and we think that there is no effect on the water resources, so you can continue the extension

Omar M. Zayed,
Director of Studies & Hydrological Monitoring Department,
General Directorate of Water Resources,
Palestinian Water Authority,
Tel. office: 0097222429022
Fax. office: 0097222429341

Annex 7: MoLG letter

Dec 08 2011 10:35AM HP LASERJET FAX p.1

بسم الله الرحمن الرحيم

Palestinian National Authority
Ministry of Local Government

السلطة الوطنية الفلسطينية
وزارة الحكم المحلي

Date: ٢٠١١/١٢/٨ التاريخ

No: ٥٨٦٥/٩١٨١٢ الرقم

الأخ / حسن صالح المحترم
رئيس مجلس الخدمات المشتركة لإدارة النفايات الصلبة / أريحا والأغوار

الموضوع: توسعة مكب نفايات أريحا.

تحية طيبة وبعد،

بالإشارة للموضوع أعلاه ورداً على كتابكم بتاريخ 2011/11/27 والمتعلق بتوسعة مكب النفايات لمنطقة أريحا، فإن الوزارة تدعم عملية التوسعة للمكب الصحي القائم على أن تتم وفق المتطلبات البيئية وذلك لفترة زمنية بحد أقصى خمسة سنوات ولحين استكمال إنشاء مكب النفايات الصحي في منطقة رمون.

وتفضلوا بقبول الاحترام،

م.م. وكيل وزارة

Dima

رام الله، فلسطين:
تلفون: 02-2401092، فاكس: 02-2401091
www.molg.pna.ps
P.O.BOX:731

Annex 8: Arab Development Society letter

23. Dec. 2011 5:57 A. D. S No. 4057 P. 1

Arab Development Society
AGRICULTURAL & INDUSTRIAL VOCATIONAL TRAINING

جمعية المشروع الانشائي العربي
التدريب المهني الزراعي الصناعي

جمعية المشروع الانشائي العربي
صادر
رقم صادر: ٢٤٢
تاريخ: ٢٧/١٢
Arab Development Society

الأخ حسن صالح المحترم
رئيس مجلس الخدمات المشترك

تحية طيبة وبعد،،،

إشارة إلى كتابكم بتاريخ 2011/10/26 والى المحادثات التي جرت بيننا مؤخرا بخصوص تخصيص قطعة ارض بغرض استخدامها كمكب للنفايات .

ومن منطلق التعاون فيما بيننا من جهة ، والمحافظة على البيئة وخدمة المجتمع من جهة أخرى .

نود إعلامكم بموافقة الجمعية على تأجيركم (مجلس الخدمات المشترك) أريحا قطعة ارض بمساحة 20 دونم وهي جزء من القطعة رقم 5 ، حوض رقم 33038 لاستخدامها كمكب للنفايات ، آملين منكم الحضور في أي وقت ترونه مناسبا لتحضير اتفاقية نهائية تحدد فيها التزامات الطرفين كتتمة لمسودة الاتفاقية التي تباحثتم فيها مع المشروع الإنشائي في وقت سابق .

مع الاحترام

د. محمد القطب
رئيس مجلس الإدارة

جمعية المشروع الانشائي العربي
Arab Development Society
27 -12- 2011
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أريحا تلفون: ٢٣٢١١٢٤، ٢٣٢٢٤٠١ (٠٢) فاكس: ٢٣٢١٠٢٨ (٠٢) ص ب ١٦
E.mail: arab_development@yahoo.com بريد الكتروني