c. Control Facilities and Approach Road

Following facilities will be planned to operate at the disposal site. Layout plan of the control facilities is shown on Figure 9-19.

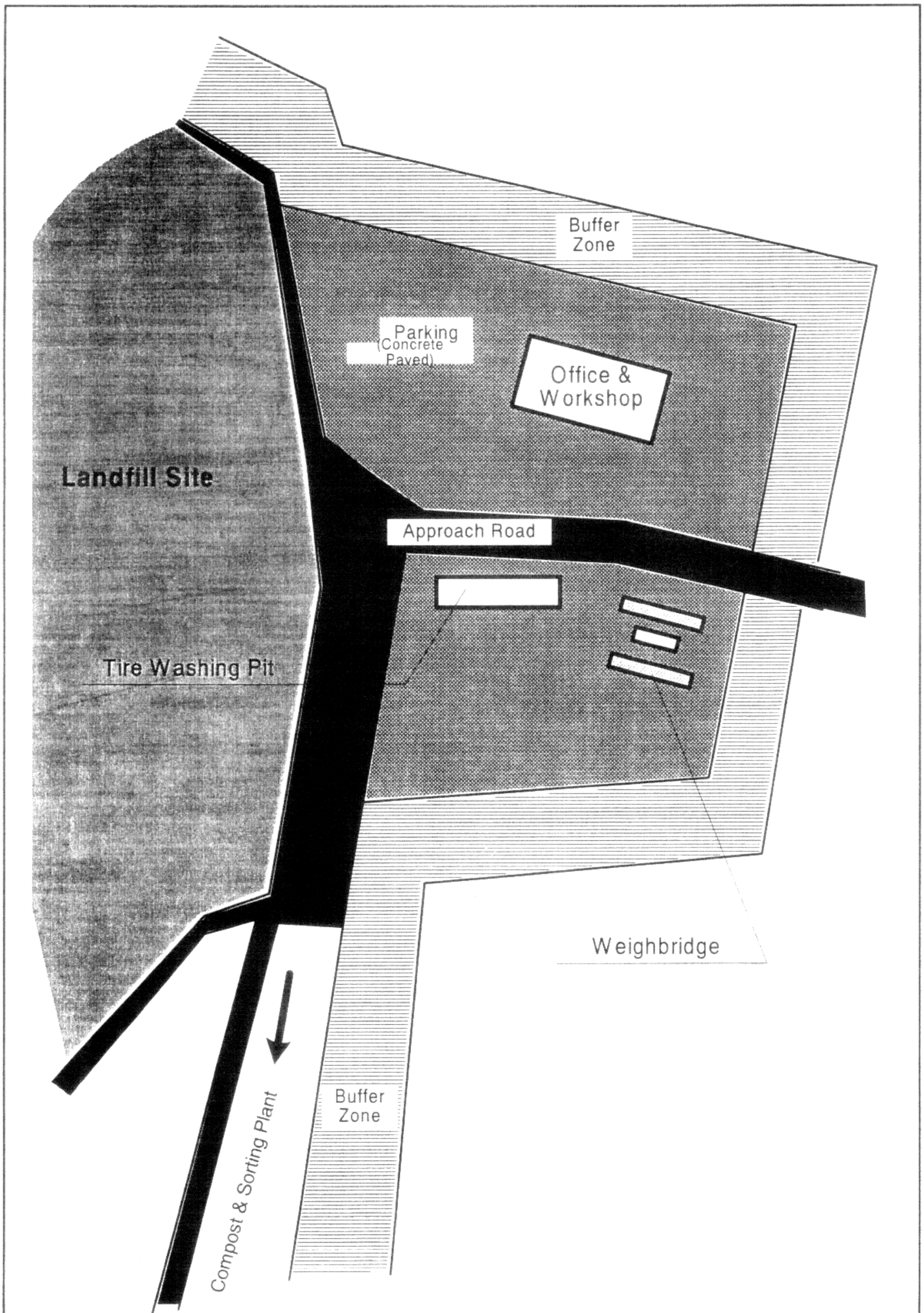


Figure 9-19: Control Facilities and Approach Road in Cimsa

c.1 Entrance Area (Asphalt paved)

Entrance area starts from approach road to the site office and has 1,000m^2 and is paved with asphalt.

c.2 Site Office

The site office (approximately 300m^2) shall have a control room and facilities for staff and management.

The control room shall be constructed and equipped with facilities, that enable easy control and registration of incoming vehicles. The computerised weighbridge system enables detailed registration, this is indispensable for appropriate SWM.

The facilities are as follows;

- a control room furnished with a computer for the weighbridge.
- a changing room
- toilets and showers
- cooking facilities
- a storeroom

c.3 Weighbridge

A weighbridge shall be constructed on weighing cells in a concrete structure. The recorded weight of a full vehicle will be transmitted to the computer in the site office. Capacity of weighbridge shall be 60t and there shall be 2 nos. of Weighbridge installed to cover approximately 220 collection vehicles in a day at the year of 2005

c.4 Tire Washing Pit

The refuse collection vehicles should pass the tire washing pit before leaving the site to avoid carrying the dirt back into the city. The pit should be of a concrete structure.

c.5 Gate

A 8m wide gate should be installed at the entrance of the site.

c.6 Power Supply and Water Supply

Power supply should be installed at the entrance area, site office, weighbridge, compost pant, sorting plant and pumping station. Water supply should be installed at the site office, compost pant, sorting plant and tire washing pit.

c.7 Weighbridge and Washing Area

Weighbridge and washing area should be mainly for heavy equipment for the landfill operation. This area should also be available for the refuse collection vehicles to park.

c.8 Parking for Heavy Vehicle (garvel)

Parking for heavy vehicle area should be mainly for heavy equipment for the landfill operation. This area should also be available for the refuse collection vehicles to park.

d. Leachate Control Facility

d.1 Precipitation and Evaporation

The following table presents monthly values and annual values for average precipitation and evaporation in Mersin. At the sanitary landfill in Mersin the average annual precipitation is 670 mm/year. Evaporation from an area depends on the climatic conditions (temperature, wind and precipitation) and the type of surface.

Table 9-24: Average Precipitation and Evaporation at Mersin

Mersin GM	Month												
mm/month	1	2	3	4	5	6	7	8	9	10	11	12	Year
Average Precipitation	91	86	73	35	29	12	14	3	15	58	103	153	672
Average Potential Evaporation from land	88	94	110	122	133	141	155	165	177	169	117	82	1553
Average Evaporation from lake	46	54	86	114	148	168	200	192	163	119	71	49	1410

d.2 Leachate Quality

Leachate quality varies according to type of waste disposed of at the landfill, landfill structure (aerobic, anaerobic, semi-aerobic), and climatic conditions, e.g., ambient temperature. Determining leachate quality by referring to past examples is unrealistic. The proposed final disposal site is planned to be a semi-aerobic type, but the final disposal sites in MGM are not equipped with leachate control structures (e.g., impermeable liners to block leachate from permeating the ground), and, therefore, examples from Japan and other countries were used to determine leachate quality (refer to Table 9-25). Further, as a reference, Table 9-26 shows the results of the comparison between the leachate quality, obtained by the team during the study, from the MGM's landfill and the AGM's landfill.

Biochemical Oxygen Demand (BOD_5) and Suspended Solid (SS) are used to determine leachate quality.

Table 9-25 : Comparison of Leachate Quality

Constituent	Japan (combustible waste with a semi-aerobic structure)*1		USA(combustible waste with an an-aerobic structure)	Denmark (combustible waste with an an-aerobic structure)
	Waste (Garbage) (a semi-aerobic Structure)	Incinerated Ash (a semi-aerobic structure)		
BOD (mg/l)	1,200	250	2,000 to 30,000 (typical 10,000)	200 to 20,000
S S (mg/l)	300	300	200 to 2,000 (typical 500)	not available

Source *1: Study on the Leachate Treatment System Development for Landfills, 1979; Japan Waste Management Association

Table 9-26 : Comparison of the Leachate Quality from the Existing Landfill Sites

Parameters		Measurement results	
		MGM (23.05.1999)	AGM (24.05.1999)
Flow rate	L/sec	1.9	2
pH	-	7.85	7.86
TDS	ppm	6.9	6.8
COD	-	>35,000	>30,000
BOD	ppm	9,985	9,885
Total N	ppm	360.65	340.64
Total P	ppm	24.16	23
NH_4^+	ppm	346.38	335.15
Na^+	ppm	68.51	68.35
Cl^-	ppm	692.31	671.23
SO_4^-	ppm	121.5	128.3
Hg^{+2}	ppm	1.54	1.4
Cd^{+2}	ppm	<0.04	<0.035
Pb	ppm	-	0.06
As	-	-	<0.05
Total Coliform	cob/mL	7,250	7,100
E.Coli	cob/mL	500	360

As indicated in Table 9-25, leachate quality is considerably better in semi-aerobic landfill structures than in anaerobic landfills.

- This proposed Cimsa landfill site adopted the semi-aerobic structure for the disposal site in order to maintain a lower load to the leachate treatment facilities and to immediately stabilise the disposed waste in the landfill. Accordingly, the leachate quality for the proposed landfill site is designed with a BOD of BOD 2,500 mg/l, and SS 500 mg/l, based the Japanese values for leachate quality (BOD – 1,200mg/l; SS – 300mg/l) and, even though they are anaerobic structures, the leachate quality of the present landfills.

d.3 Effluent Standards

Table 9-27 shows the effluent standards for leachate generated from waste recycling plants and disposal areas.

Table 9-27: Effluent Standards

Parameters	unit mg/l	Composite Sample 2-hours	Composite Sample 24-hours
BOD_5		100	50
COD	mg/l	160	100
SS	mg/l	200	100
Oil & Grease	mg/l	20	10
PO_4-P	mg/l	2	1
Total Cr	mg/l	2	1
Cr^{+6}	mg/l	0.5	0.5
Pb	mg/l	2	1
CN^-	mg/l	1	0.5
Cd	mg/l	0.1	
Fe	mg/l	10	
F^-	mg/l	15	
Cu	mg/l	3	
Zn	mg/l	5	
Fish Bioassay	-	10	
pH	-	6 - 9	6 - 9

Source: Water pollution control regulation, Office Gazette No. 19919 on 4.9.1988

d.4 Leachate Treatment Method

This chapter describes the following methods of treating the leachate.

- Recirculation of leachate and evaporation of leachate
- Treatment in a leachate treatment plant constructed at the landfill.

d.4.1 Regulation Pond (Buffer reservoir)

The described treatment methods all require a regulation pond (buffer reservoir) that facilitates the storage of leachate during winter, when the generation of leachate is high and the lower temperatures reduce the biological activity of microbes.

To keep peak loads on the leachate treatment plant to a minimum, and hence the required investment, the regulation pond is designed considering the following issues:

- The varying quantity of leachate generated during the year.
- The varying treatment capacity of the leachate treatment plant caused by the lower microbial activity during winter.

d.4.2 Recirculation and Evaporation of Leachate

The method involves:

- Storage of leachate in the regulation pond during winter.
- Recirculation of leachate through old waste to clean some of the leachate.
- Evaporation of leachate by sprinkling/irrigation during summer.

d.4.3 Recirculation of Leachate

The recirculation of leachate is based on the concept of old waste working as a biological filter that can purify leachate generated from new waste. The principles for recirculation of leachate are presented in the following figure.

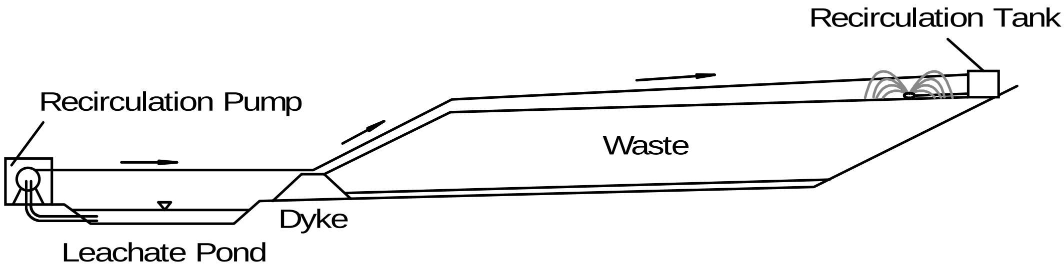


Figure 9-20: Recirculation of Leachate in Cimsa

d.4.4 Evaporation of Leachate

During summer a reduction of the leachate quantity may be achieved by evaporating leachate that is sprinkled on top of old landfill section. The old landfill section is preferably furnished with final coverage and vegetation in order for the evaporation to become as efficient as possible.

d.4.5 Treatment of Leachate in a Plant at the Landfill

For the treatment of leachate, the biological contact aeration process, the rotating biological contact process, and the waste stabilisation ponds are used. In Japan the first two cases are more common, because of the lack of land and the strict effluent standards. However, the two processes rely heavily on machinery, require the use of chemicals, which complicates operation, making them highly capital intensive. Therefore, if a large area can be secured it would be effective to use the waste stabilisation ponds , the more economical and easily operated method.

d.4.6 Selection of the Leachate Treatment Method

If a large plot of land, like the proposed landfill site, can be secured, it is technologically and economically desirable to use recirculation or evaporation methods, where leachate does not leave the disposal site. Because the proposed disposal site will be constructed at a new location, there would be no old landfill sections to introduce recirculation at the beginning of operation, therefore this method cannot be used during this period. Further, at the proposed site the climatic conditions are such that during winter, when there is less sunlight, there is a large amount of rainfall; it would be difficult to evaporate all the leachate within the site boundaries.

Therefore during operation in the initial period (phase 1) there is a need to treat the leachate by methods other than evaporation and recirculation. For the proposed leachate treatment facility, the waste stabilisation pond, with a relatively cheap construction fee, was selected.
Waste stabilisation ponds are mainly aerobic, anaerobic, or facultative ponds aimed at decreasing the BOD_5 and SS loading. The design criteria for each type are shown in Table 9-28.

Table 9-28: Design Criteria for Alternative Leachate Treatment

Design Parameters	Aerobic pond (BOD5<1000)	Anaerobic pond (BOD5>10000)	Facultative pond (1000<BOD5<10000)
Area requirement	High	Low	Medium
Retention period	10 - 40 days	20- 50 days	5 - 30 days
Pond depth	1 - 1.3	2.6 - 5.3	1.3 - 2.6
Operation	Series or Parallel	Series	Series or Parallel
BOD$_5$ conversion (assumed)	80 - 95 %	50 - 85 %	80 - 95 %
Temperature range	0 ^{o}C -30 ^{o}C	6 ^{o}C -50 ^{o}C	0 ^{o}C -50 ^{o}C
pH range	6.5 - 10.5	6.5 - 7.2	6.5 - 8.5

The waste stabilisation pond either has a single pond installed, or several arranged in series or in parallel. At the proposed leachate treatment facility, in order to meet the BOD level (2,500 mg/l) and the effluent standards, the aerated facultative pond, with forced aeration functions, is planned. As the aeration is unaffected by environmental conditions, it is effective in achieving a stable operation.

Further this treatment facility, as compared in a different chapter, will use regulation ponds from Phase 2, and no leachate will leave the disposal site. The waste stabilisation ponds process may be used in the future, but, although, in this case the scale of the facility must be 2.5 times the design leachate amount, there will be no need for recirclulation tanks, pump, and drainage. In evaluating the construction fees a leachate treatment facility that has the capacity to treat all the leachate generated would be more expensive. Further, the operation costs would increase, for an aerator is required for the pond, and the high running cost would be another disadvantage. Therefore, considering that leachate would not leave the disposal site, and operation and maintenance would be easier, it would be advantageous to incorporate leachate circulation in the future.

d.5 Proposed Leachate Treatment Process

The flow of the proposed leachate treatment process is shown in Figure 9-21.

- Anaerobic pond : When the leachate slowly passes the pond, most of the SS (suspended solids) settles. Organic substances undergo anaerobic decomposition. This pond can also function as a regulation pond.
- Aerated facultative ponds : Organic substances undergo anaerobic decomposition. Oxygen is replenished by an aerator attached to the pond.
- Maturation ponds : The pond reduces pathogens remaining in the leachate that was treated in the aerated facultative ponds.
- Polishing pond : The pond removes the finer SS (suspended solid) by precipitation.

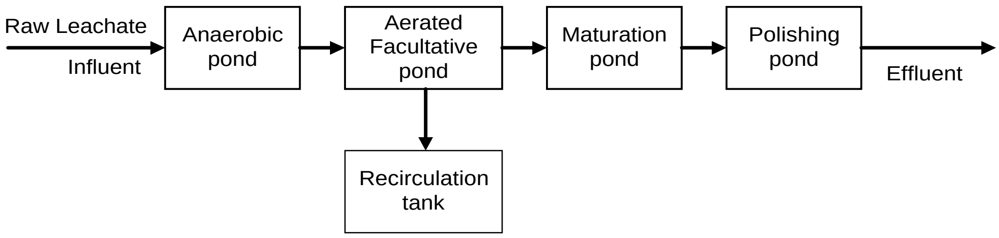


Figure 9-21: Proposed Waste Stabilisation Ponds Process in Cimsa

d.6 Engineering Calculation

d.6.1 Selection of a Treatment Method During the Landfill Operations

The proposed landfill is planned to be operated as follows.

Table 9-29: Forecast for the Size and Type of Surface Cover of the Landfill Sections in Cimsa

Year		Type of Surface Cover	Landfill Section			Total ha
			Phase 1 ha	Phase 2 ha	Phase 3 ha	
2002	Jan	Open	4.4	---	---	4.4
2003	Sep	Final	0	---	---	
2003	Oct	Open	0	3.7	---	3.7
2005	Feb	Final	4.4	0	---	4.4
2005	Mar	Open	0	0	4.1	4.1
2005	Dec	Final	4.4	3.7	0	8.1
2006	Jan	Open	0	0	0	0
		Final	4.4	3.7	4.1	12.2

- Phase 1：Leachate from the landfill site is generated from water trapped in the MSW layers and rainwater. For the rainwater from the Phase 2 landfill section, under construction, a rainwater drainage system – separate from the leachate drainage – will expel the rain from the disposal site.
- Phase 2：Landfill operations from Phase 1 would have been complete, and a final cover applied. During this period leachate will be generated from the completed area (with the final cover) and the landfill areas in operation in Phase 2. Because landfill sections for Phase 3 will be under construction in 2004, there will be no leachate from this section.
- Phase 3：Leachate will be generated from the two completed sections with a final cover (from Phases 1 & 2) and the landfill section in use during Phase 3.

In accordance with the disposal plan, the following is a basic method adopted for the proposed leachate treatment facility.

- Because there is no old landfill section to introduce recirculation of leachate during landfill operations in Phase 1, leachate will be treated at the leachate treatment facility. In the next two phases, leachate recirculation in the completed section, i.e., landfill section from Phase 1, will be introduced.

Further, the various ponds of the leachate treatment facility will be used as evaporation ponds during the summer, and regulation pond in the winter.

d.6.2 Treatment Capacity

To determine the scale of the leachate treatment facility, the daily leachate generation figures are required to calculate the design leachate amount. There are two ways to calculate design leachate amount: 1) based on rational formula, 2)based on empirical data. For the design of the proposed leachate treatment facility, the rational formula was used. The following is the mathematical formula used to calculate design leachate amount.

$$Qj=1/1000 \times Ij \times (C_1A_1+C_2A_2) \qquad \text{(Formula1)}$$

Qj：Design leachate generation amount (m^3/day) for day (j) in a given year.

Ij ：Rainfall amount (mm/day)for day (j) in a given year.

C1：Leachate generation coefficient from area of current landfill operation

C2：Leachate generation coefficient from landfilled area

A1：Area of current landfill operation(m^2)

A2：Landfilled area (m^2)

d.6.3 Leachate Generation Coefficient

MGM did not have the daily meteorological data that is required to calculate the leachate generation coefficient, for this reason the figure used was the coefficient used in Japanese, that would give a degree of safety at an average annual precipitation of 1,600 mm.

C1=0.5

C2=0.3

In future there is a need to calculate an accurate generation coefficient, based on the observed leachate generation amount from the pilot project.

d.6.4 Design Leachate Generation Amount

The daily leachate treatment amount generated from the proposed Cimsa landfill site of MGM was calculated under the following conditions.

- All the rainwater outside the landfill site is expelled, and none enters the disposal section.
- Daily precipitation (I) is taken as 4.94 mm/day, based on December’s monthly precipitation which is the highest throughout the year. Average daily precipitation calculated based on monthly average precipitation in Table 9-24 is shown in Table 9-30 .

Table 9-30: Average Daily Precipitation in Mersin

mm/day	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Year
Average Precipitation	2.94	3.07	2.35	1.17	0.94	0.40	0.45	0.10	0.50	1.87	3.43	4.94	1.84

- The operation plan includes the separation of the landfill sections with small dikes during Phase 1. Assuming that the leachate amount would increase during the latter part of Phase 1, the total area of the landfill section (4.4 ha) will be divided in to two sections: one completed section with an inter-mediate cover (2.2 ha) and one section under use.
- The daily leachate treatment amount is calculated.

The daily leachate treatment amount is calculated by the following formula.

$$Q=1/1000 \times 4.94 \times (0.5\times 22{,}000 + 0.3\times 22{,}000)=86.9 m^3/day$$

Where: I = 4.94 mm/day

C1=0.5

C2=0.3

A1=22,000 m^2

A2=22,000 m^2

Based on this result the proposed leachate treatment facility's design leachate generation amount is 90m^3/day.

d.6.5 Treatment Ponds Capacity

In order to calculate the capacity of each pond, the retention time for each pond is set as follows:

- anaerobic pond : 5 days
- aerated facultative pond : 38 days
- maturation pond : 4 days
- polishing pond : 2 days

The volume of each leachate treatment facility pond was calculated and shown in Table 9-31. The aerated facultative pond will have two lines aligned in parallel, for in the summer, when there is little rain, only the first line will operate, and in the winter both will operate. Therefore the electricity consumption of the aerator, which oxygenates the facultative ponds, can be reduced in the summer.

Table 9-31: Each Pond Volume

ponds	lines	Volume
1. Anaerobic pond	1	470 m^3
2. Aerated Facultative pond	2	890 m^3x4 (Total 3,560 m^3)
3. Maturation pond	1	420 m^3
4. Polishing pond	1	380 m^3

d.6.6 Layout of the Proposed Leachate Treatment Facility

The layout of the proposed leachate treatment facility is presented in

Figure 9-22. The figure also shows the completed sections of Phase 1, and the recirculation pit to be used during Phase 2.

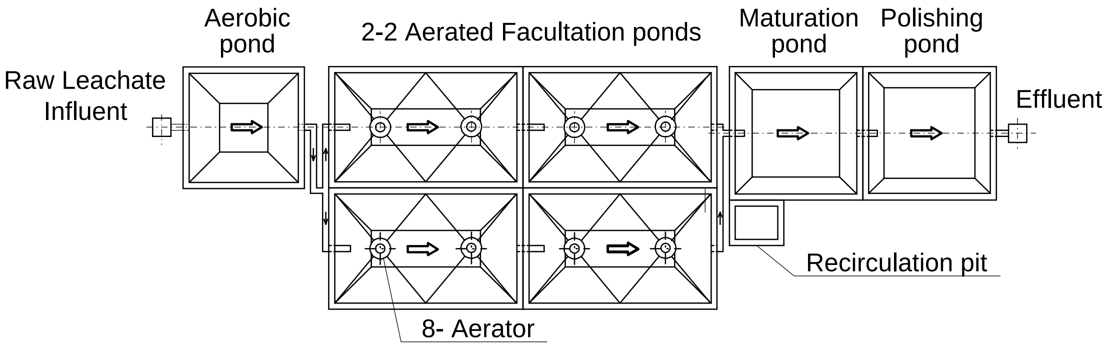


Figure 9-22: Layout of Proposed Leachate Treatment Facility in Cimsa

d.7 Leachate Recirculation

d.7.1 Design Leachate Generation Amount

The plan is to operate the leachate recirculation process at the time that Phase 2 is completed. For this reason the maximum leachate amount from landfill operations in Phase 3 was calculated as follows.

$$Q=1/1000 \times 4.94 \times (0.5 \times 41,000 + 0.3 \times 81,000)=221.3 m^3/day$$

Where: I = 4.94 mm/day
C1=0.5
C2=0.3
A1=41,000 m^2 (phase 1 and phase 2)
A2=81,000 m^2 (Phase 3)

d.7.2 Determining the Recirculation Pump Capacity

The calculation of the recirculation pump's capacity is based on the following conditions.

- The total capacity of the anaerobic pond and the aerated facultative pond (4,030m^3) is used as the capacity of the leachate recirculation process's regulation pond.
- The recirculation pump does not exceed the capacity of the regulation pond throughout the year.
- In order to determine the appropriate capacity of the recirculation pump, the amount of leachate to be generated from the disposal area throughout the year and the regulation pond capacity (Aj) were used in the calculation. The variables were altered to calculate the most appropriate size and capacity.

- In this case, fifty percent of the leachate that is circulated to the disposal site by the pump will evaporate, and the rest is assumed to return to the regulation pond from the disposal site as part of the design leachate generation amount.
- The amount of leachate that will flow into the regulation pond, ΣQj, is calculated as follows:

$$\Sigma Qj = Qj + (C_1 x R_{j-1})$$

Where Qj : Design leachate amount (m^3/d)on day (j) in a given year

C1 : Generation coefficient for the disposal area. (0.5)

Rj : Amount of leachate circulated (m^3/d) to the disposal area by the pump on day (j) in a given year.

The results of the calculations are shown in Table 9-32.

From the results the recirculation pump will have a capacity of more than 256m^3/day.

Table 9-32: Results of the Calculation in Cimsa

Capacity of Recirculation Pump (m^3/day)	Capacity of Regulation Pond (m^3)
240	4,970
250	4,370
255.8	4,022
260	3,770
270	3,201

d.7.3 Design of the Recirculation Pump

The following are specifications of the recirculation pump.

- Pump capacity = 0.43 m^3/min :

  calculation criteria: 1)the pump operates for 12 h per day; 2)the safely factor is 1.2
- Number of pumps : 2 units (1 unit – spare unit)
- Total pump head（actual pump head＋head loss）= 60m : Established based on the actual head from the leachate recirculation pit to the pump pit, upstream from the landfill site, and the head loss in the pipes.

e. Drain for Runoff Water

Drain for runoff water shall be provided for running off the rainfall water to outside landfill area.

e.1 Open Concrete Drain

Open concrete drain shall be provided along the inspection road for discharging rainfall water outside the landfill area.

e.2 Pipe Drain for Rainfall

Pipe drain for rainfall will be provided for discharging rainfall water in the landfill area.

f. Environmental Protection Facilities

Environmental protection facilities shall be provided for protecting surrounding environmental conditions from Landfill and preventing invader from outside the area.

f.1 Fence

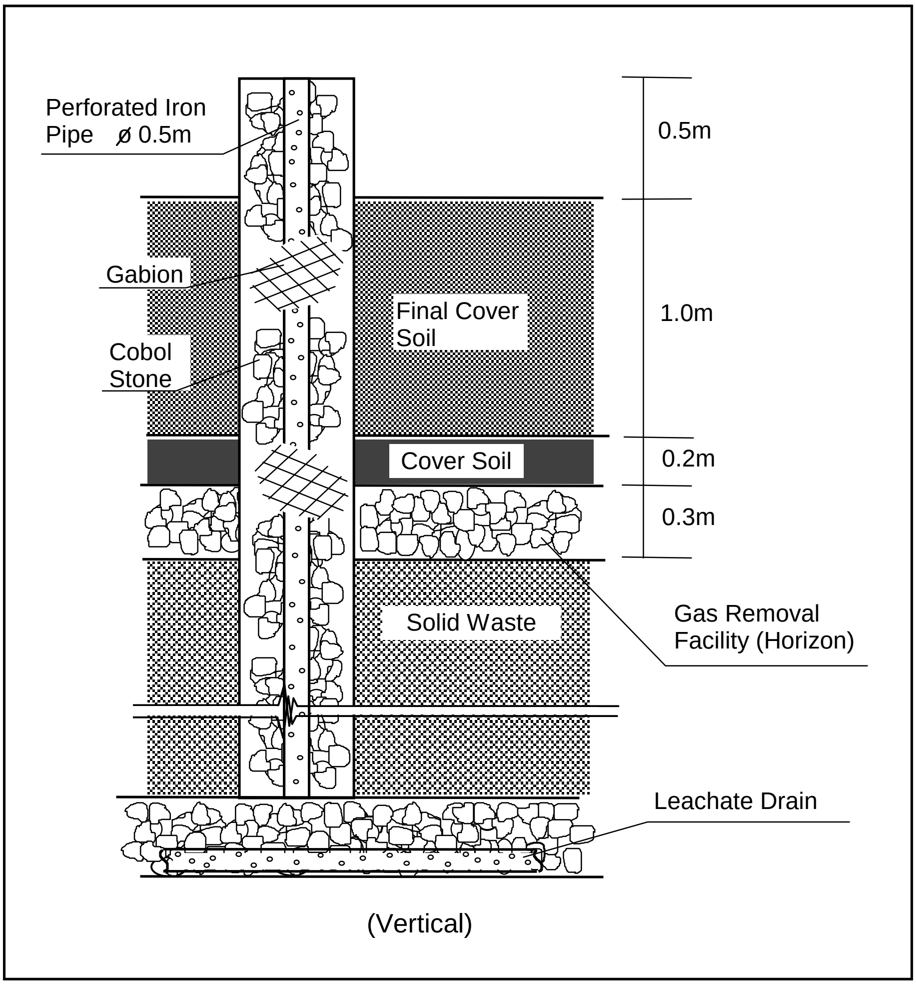
The fence will restrict the access of the scavengers and animals to the site. The fence installed around the site will be of mesh type and will have a height of 2m and a length of about 2,000m. Scattering of waste from the landfill site will be prevented by mobile fences near the active cells and by tall trees planted as buffer zone. Therefore, waste scattering beyond the buffer zone will be minimal. In addition to those measures, the fence around the project site will function as final barrier for flowing waste.

f.2 Buffer Zone

The planting of fast growing trees at the circumference of the landfill site, 30 meter wide, will also work to prevent the scattering of litter such as plastic bags and furthermore will function as a vegetation screen(visual shield) that will improve the aesthetic landscape view and avoid possible impact by offensive odour and noise.

f.3 Gas Removal Facility

To remove the landfill gases carefully from the landfill site, vertical chimneys will be installed with perforated iron pipes and Gabion, every 50m. Horizontal gas removal facilities made of gravel will be installed before final earth cover is laid. At its bottom, these will be connected to the leachate collection pipe and leachate pipe, in order to achieve better ventilation of the gases. Structures of the gas removal facilities are shown in Figure 9-23.



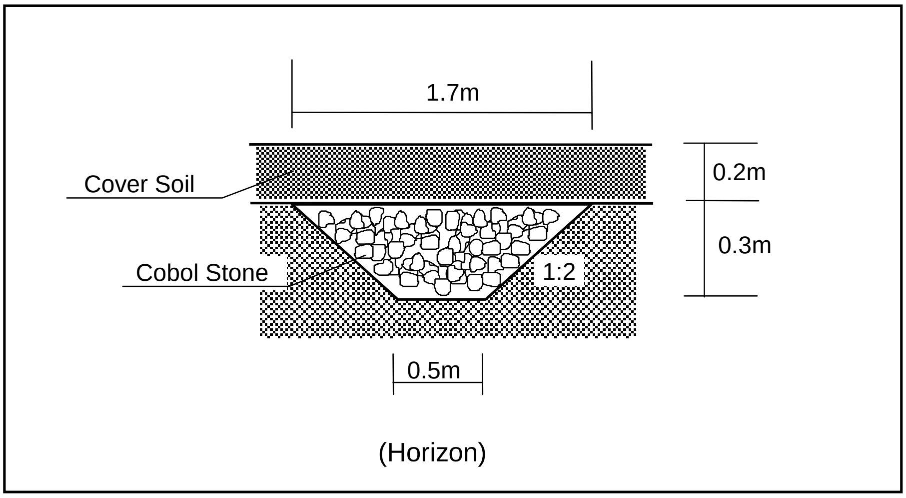


Figure 9-23: Gas Removal Facility in Cimsa

f.4 Monitoring Borehole

To confirm whether leachate has contaminated groundwater resources, monitoring wells 30m deep with a diameter of 100mm will be installed in the site

g. Personnel and Heavy Vehicle Plan

The following personnel and heavy vehicle are required to operate the sanitary landfill.

Table 9-33: Personnel and Heavy Vehicle Plan for Disposal Site in Cimsa

Personnel and heavy vehicle	Number
Personnel	
Site Manager	1 person (2002-2005)
Waste controller	1 person (2002-2005)
Operator	4 person (2002-2005)
Driver	3 person (2002-2005)
Worker	2 person (2002-2005)
Security guard	2 person (2002-2005)
Total	13 (2002-2005)
heavy vehicle	
Bulldozer(230HP)	2Unit (2002-2005)
Excavator(99HP)	1Unit (2002-2005)
Dump truck(8m^3)	3Unit (2002-2005)
Water tanker	1Unit (2002-2005)
Total	7unit (2002-2005)

g.1 A Site Manager

who has overall financial responsibilities and management duties, i.e.,

- Management and supervision of landfill operation, maintenance of landfill equipment, and performance of control procedures, e.g., registration of incoming waste and control of the groundwater.
- Planning of the future extensions of the landfill, i.e., the construction of further landfill sections and preparation of new excavation areas for soil coverage.

g.2 Waste Controller

who undertakes the task of controlling the incoming waste by using the weighbridge system.

g.3 Heavy Vehicle Operator and Truck Drivers

For the operation of the sanitary landfill, one bulldozer for smoothing and compacting waste, one excavator for digging the daily cover soil, one or two tipper truck for transporting covering soil will be required. And one operator for a Bulldozer for medical waste shall operate water tanker also. Therefore, 3operaters and 1 or 2 drivers are required.

g.4 Worker

to generally perform auxiliary functions.

g.5 Security Guards

responsible for the security of the disposal site.

h. Ultimate Landuse Plan

After completion of phase 3 landfill, 1m thick final earth cover will be executed. Ultimate landuse for a completed landfill will be for a green park or a recreation area.

9.6 Design of a Medical Waste Disposal Site

a. Fundamental Issues

a.1 Target Wastes

Target waste to be disposed at medical waste Disposal site is defined as shown in Table 9-34, according to the regulation on control of medical wastes.

Table 9-34: Target Wastes to be Disposed at Medical Waste Disposal Site in Cimsa

Type	Target	Definition
medical	yes	pathological or nonpathological, infected, chemical and pharmaceutical wastes, laceration and piercing materials and compressed containers
infected	yes	all sorts of human tissues and organs, urine containers, blood or placenta contaminated waste bacteria cultures, infectious diseases ward and emergency ward wastes, bacteria and virus retaining air filters, feces and feces-contaminated articles corpses of biological research animals and wastes of quarantined patients of likely to be contaminated by disease agents(collection after sterilisation)
pathogenic	yes	waste bearing pathogenic factors(collection after sterilisation)
Pathological	yes	organs, parts of body, animal corpses, blood and other body fluid, pathogenic or bearing the risk of pathogenicy. Pathogenic waste is defined as waste bearing pathogenic factors.
Radio-active waste	no	Disposal in accordance with statue(2690.9.7.1982)
safe chemicals	no	irrecoverable waste(through municipal collection) liquid waste(by water pollution control regulation)
dangerous chemicals	no	(1)recoverable dangerous waste and expired medicines(individual collection with care to eliminate undesirable reactions. (2) Mercury (separate collection) (3)shock-sensitive substances and materials reacting or readily reactional with water(separately destroy with attention to noxious effects)
waste of domestic nature	no	uninfected kitchen waste garden waste, office package materials bottles and like

a.2 Location of the Medical Waste Landfill

As shown in Figure 9-24, a medical waste landfill will be constructed at the almost centre of the proposed site. The reasons are:

- The site needs to be isolated from the view of the population.
- The site is far from working area for municipal waste landfill.
- Availability of cover soil more than necessary
- The operation of the medical waste landfill shall be separately conducted from municipal waste disposal from now to the termination of the Cimsa final disposal site. This location makes it possible, for instance, in all phases of the landfill operation the access to the site can be possible.

The proposed location allows closed landfill operation, especially in terms of the leachate treatment.