

# **The Pilot Study on** *Improvement of Al-Bassa Disposal Site*

## **Weekly Report**

*Week 3 ...*

*June 23<sup>rd</sup> – 29<sup>th</sup>, 2001*

# Week 3

*June 23<sup>rd</sup> – 29<sup>th</sup>, 2001*

## Introduction

Following are still the major activities during this week:

- ❖ Re-arrangement of existing accumulated waste.
- ❖ Construction of embankments.
- ❖ Installation of control facilities.

## 1. Re-arrangement of existing accumulated waste:

Same as operated in the last two weeks, since the start of the Pilot Project; the bulldozer - for the purpose of implementation of the cores of embankments - is rearranging the existing accumulated waste.

Pushing-up the waste being re-arranged has shown high efficiency in creating well-compacted core of embankments.

*Early in this week, the re-arranged waste was targeted to be use in the core of embankment 2 as 15% of it was completed in week 2. Then later it was used for the core of embankment 3.*

## 2. Construction of embankments:

### *Embankment 1:*

At the beginning of this week, dump truck continued to discharge the construction debris to be used to cover the top of the embankment as already described in weekly report 2 (figure 3.2).

At the end of this week, embankment 1 is 100 % completed and covered with construction debris (figure 3.3).

### *Embankment 2:*

As mentioned in item 1 of this report, at the beginning of this week, the re-arranged waste is used for the core of the embankment (figure 3.4).

Later, the core is completed and cover-soil started to be applied to the embankment (figure 3.5).

Finally, almost 80 % embankment was covered with the sand, but still the construction debris is not applied (figure 3.6).

### *Embankment 3:*

When the embankment 2 has been finished, bulldozer started to re-arrange the accumulated waste to be use as core of embankment 3 (figure 3.7)

*During this week, the entire embankment 1 has been completed.  
80 % of embankment 2 is completed, still no construction debris applied to it.  
About 10% of embankment 3 is completed.*

### **3. Control Facilities:**

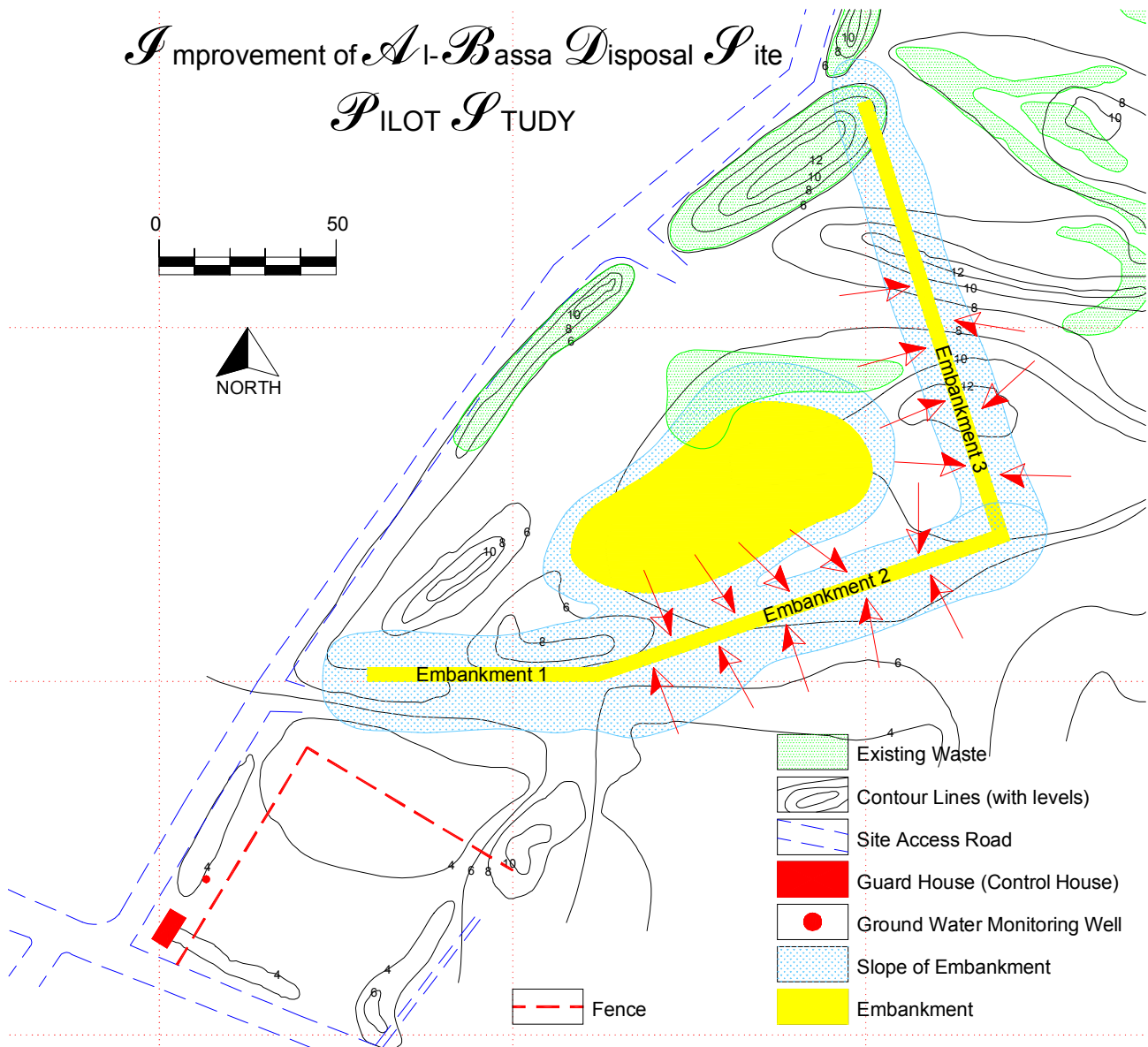
#### ***1. Control House:***

Still the wooden shuttering of the roof is not removed (figure 3.8), it takes for the reinforced concrete approximately 10 days to dry up; therefore, the shuttering would be removed next week.

#### ***2. Fence:***

At the start of this week, excavations are made to install the iron-supports for the two parts of the fence (figures 3.1 & 3.9), and later the supports of the first part are installed (figures 3.10 & 3.1).

### Drawing of the progress in week 3



(Figure 3.1) Map shows the Pilot Study progress in **week 3: June 23<sup>rd</sup> – 29<sup>th</sup>, 2001**

**Some photos of the operations in week 3: June 23<sup>rd</sup> – 29<sup>th</sup>, 2001**



*(Figure 3.2)* Dump truck is discharging the construction debris on embankment 1



*(Figure 3.3)* Completed embankment 1, as seen near the control house



*(Figure 3.4)* Re-arranging the accumulated waste as core of embankment 2



*(Figure 3.5)* Applying the cover-soil to embankment 2



*(Figure 3.6)* Embankment 2 at the end of week 3



*(Figure 3.7)* Start of the cored re-arranged waste of embankment 3



**Some photos of the operations in week 3: June 23<sup>rd</sup> – 29<sup>th</sup>, 2001**



*(Figure 3.8)* Control house during week 3



*(Figure 3.9)* Preparation excavations for the fence



*(Figure 3.10)* Installation of the iron-supports of the fence



*(Figure 3.11)* Iron-support of the fence

# **The Pilot Study on** *Improvement of Al-Bassa Disposal Site*

## **Weekly Report**

*Week 4 ...*

*June 30<sup>th</sup> – July 06<sup>th</sup>, 2001*

# Week 4

*June 30<sup>th</sup> – July 06<sup>th</sup>, 2001*

## Introduction

Scheduled tasks in this week are the same as both weeks 2 & 3:

- ❖ Re-arrangement of existing accumulated waste.
- ❖ Construction of embankments.
- ❖ Installation of control facilities.

### 1. Re-arrangement of existing accumulated waste:

For the completion of the core of embankment 3, re-arranging of the accumulated waste has been carried out.

*The core of embankment 3 has been completed this week*

### 2. Construction of embankments:

#### *Embankment 1:*

Already completed last week.

#### *Embankment 2:*

During this week, cover-soil applying for embankment 2 has been completed (figure 4.2)

#### *Embankment 3:*

The core of this embankment has been 90% completed using the re-arranged waste, (figure 4.3), and cover-soil is applied to about 40 % of the embankment (figures 4.4 & 4.5)

### 3. Control Facilities:

#### **1. Control House:**

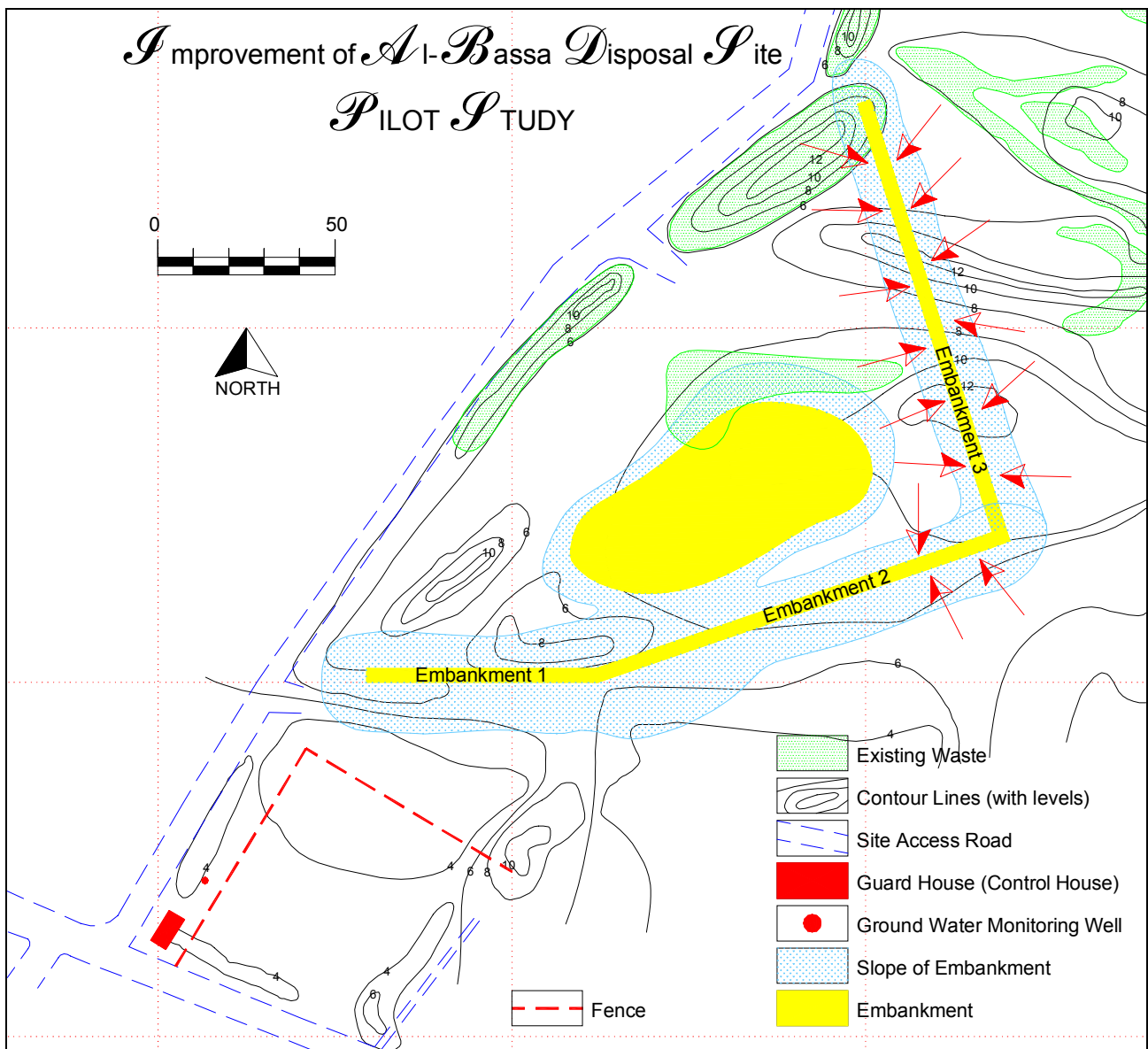
The wooden shuttering has been removed this week.

#### **2. Fence:**

Installation of the iron-support of the second part of the fence is also completed this week, but still the steel-net is not installed yet (figure 4.6).



## Drawing of the progress in week 4



(Figure 4.1) Map shows the Pilot Study progress in **week 4: June 30<sup>th</sup> – July 06<sup>th</sup>, 2001**

**Some photos of the operations in week 4: June 30<sup>th</sup> – July 06<sup>th</sup>, 2001**



*(Figure 4.2)* Cover-soil is applied to the entire of embankment 2



*(Figure 4.3)* Completing the core of embankment 3



*(Figure 4.4)* Applying cover-soil to the cored waste of embankment 3



*(Figure 4.5)* Pushing the cover-soil from bottom to up leads the good compaction of the cored waste, as well as leveling by the backhoe



*(Figure 4.6)* Installation of the iron-support on both parts of the fence is completed.

# **The Pilot Study on** *Improvement of Al-Bassa Disposal Site*

## **Weekly Report**

*Week 5 ...*

*July 07<sup>th</sup> – 13<sup>th</sup>, 2001*

# Week 5

*July 07<sup>th</sup> – 13<sup>th</sup>, 2001*

## **Introduction**

Scheduled tasks in this week are:

- ❖ Construction of site operation road.
- ❖ Installation of control facilities.

But as the construction of the embankments 2 & 3 are not completed yet, following tasks are carried out during this week:

- ❖ Construction of embankments.

## **2. Construction of embankments:**

### *Embankment 1:*

Already completed on week 3.

### *Embankment 2:*

Construction debris is applied to the entire of this embankment (figure 5.2)

### *Embankment 3:*

Cover-soil is applied to the entire of this embankment, but still the construction debris is covering approximately 10 % of it (figure 5.3).

## **3. Control Facilities:**

### ***1. Control House:***

First layer of the plaster is applied to the walls  
Water pipes as well as electricity tubing works has started this week.

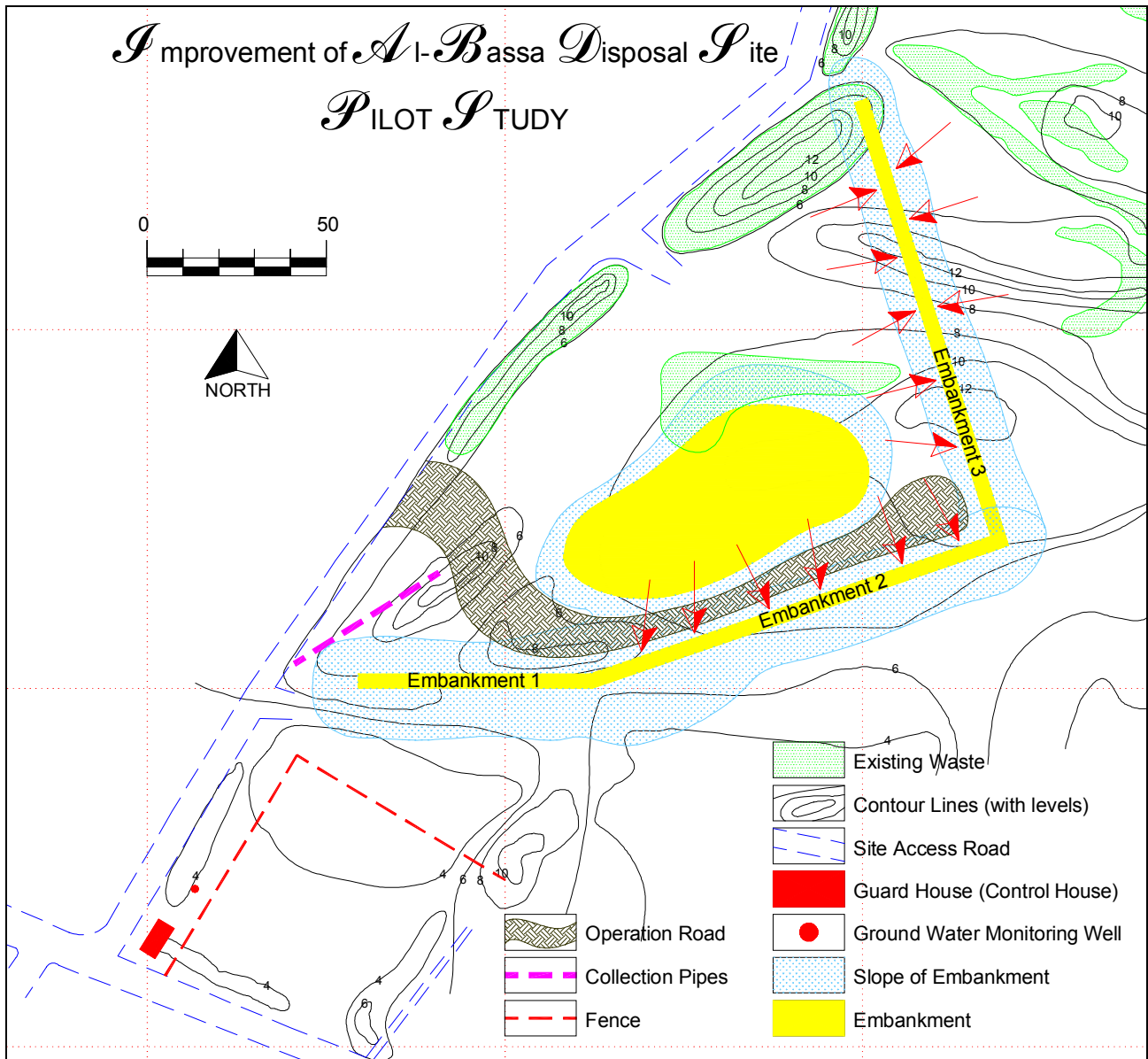
### ***2. Construction of Operation Road:***

Construction of operation road near the embankments 1 & 2 is completed this week. For this purpose, re-arranged accumulated waste is used as it is quite dry and can bear the collection vehicles that are proposed to start discharging the waste as from next week (figure 5.2).

### 3. Leachate Collection Pipes:

Excavations are made in the Pilot Study area in order to install the leachate collection pips later (figure 5.1).

#### Drawing of the progress in week 5



(Figure 5.1) Map shows the Pilot Study progress in **week 5: July 07<sup>th</sup> – 13<sup>th</sup>, 2001**

**Some photos of the operations in week 5: July 07<sup>th</sup> – 13<sup>th</sup>, 2001**



*(Figure 5.2)* Construction debris covering the top of the entire embankment 2.  
Construction of operation road



*(Figure 5.3)* Cover-soil applied to the entire embankment 3, and construction debris on 10 % of it



# **The Pilot Study on** *Improvement of Al-Bassa Disposal Site*

## **Weekly Report**

*Week 6 ...*

*July 14<sup>th</sup> – 20<sup>th</sup>, 2001*

# Week 6

July 14<sup>th</sup> – 20<sup>th</sup>, 2001

## Introduction

Starting from July 14<sup>th</sup> is the receiving of daily incoming waste exactly as scheduled.

So starting from this week, we have reached the targeted stage II of the implementation schedule mentioned in the outline of the weekly reports. Stage II of the Pilot Study includes the following activities:

- ❖ Control of daily landfill operation.
- ❖ Control of incoming vehicles.
- ❖ Control of scavenging activities.
- ❖ Installation of control facilities.

## 1. Incoming Vehicles:

The Pilot Study area is divided into two operating spaces, which from now on are referred to as Working-Phases 1 & 2 (refer to the attached drawing “figure 6.2”).

Discharging of the new incoming waste started in the **working-phase 1** (figures 6.2, 6.5 & 6.6). The vehicles are coming from the cities of Lattakia, Al-Qurdaha, Baniyas, and some of the villages surrounding Lattakia city.

JICA Study Team had provided **Registration sheets** for the daily incoming vehicles, contents of which included: shifts, incoming/leaving times, vehicle’s registration No., driver name, vehicle’s type, source of the waste (referred to as contractor’s name), type of the waste and some clarifying notes.

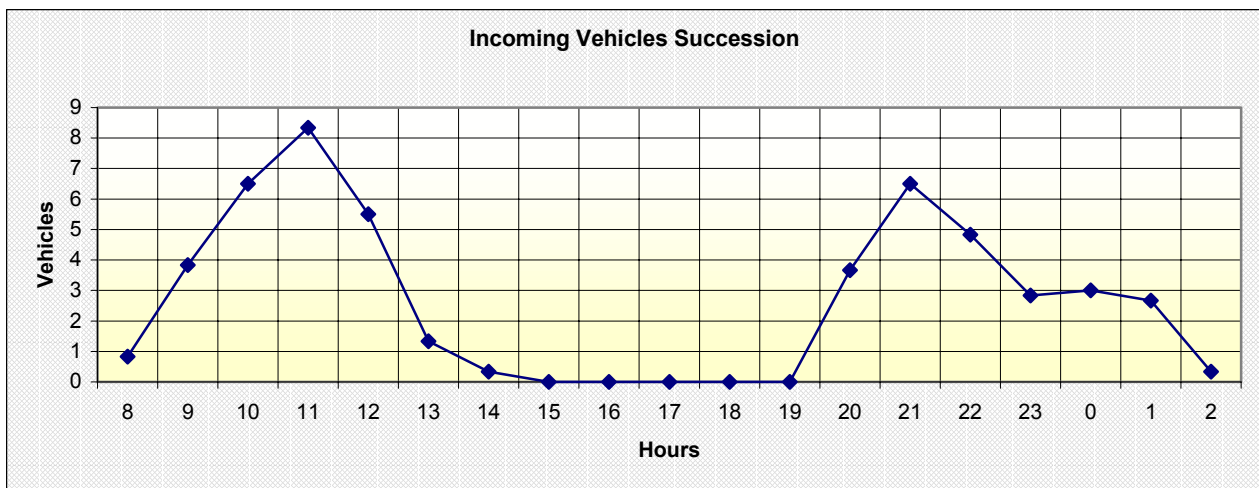
Daily Registration Sheets started to be filled out from July 15<sup>th</sup>, by observers (one for day-shift and one for night-shift) appointed by the municipality especially for this purpose.

*Refer to the attachment No. I: Daily Registration Sheets & Weekly Analysis.*

*Peak-hour for the incoming vehicle for the day-shift is between 10:00 to 12:00 (figure 6.1.)*

*Peak-hour for the incoming vehicles for the night-shift is between 20:00 to 22:00 (figure 6.1).*

*About 80% of the incoming vehicles are from Lattakia City.*



(Figure 6.1) Average of the daily incoming vehicles during Week 6

## 2. Landfill Operations:

At the start of this week, the bulldozer was still re-arranging the existing accumulated waste in the working-phase 2 (figure 6.3), while the incoming vehicles started to discharge the waste in the working-phase 1 (figures 6.5 & 6.6).

The bulldozer had been instructed by *JICA Study Team* to push the newly discharged waste in the working-phase 1, towards the embankment No.3 (shown on the attached drawing “figure 6.2”) in order to make the compacted waste cell with the slope of about (1:4) from the waste, which may lead the easy operations (figures 6.7 & 6.8).

Dump truck is discharging the sand to be used as cover-soil; this sand is being taken – with the cooperation of the excavator) from the hill already existing in the Pilot Study Area (figure 6.2 & 6.9).

*Week No.6 started on July 14<sup>th</sup>, 2001 while the Daily Registration Sheets started to be filled on July 15<sup>th</sup>, 2001. So for this week the collection depend on the average of 6 days, as following:*

*The approximate amount of waste received during this week is about 1925 ton (as the average of the daily incoming vehicles in this week is 50 vehicle / day => 350 vehicle / week, considering the average of the waste: 5.5 ton / vehicle (including different types: compactor, dump truck, tractor & other...))*

*Considering the bulk density of 0.9 ton/ m<sup>3</sup> at the disposal site, means approximately 2140 m<sup>3</sup> of waste. (i.e. an area of “27 X 27” m<sup>2</sup> with 3 m height).*

## 3. Scavenging Activities:

At the beginning of this week, the waste-pickers were few, not exceeding 15 (some others were watching what is going on), and later of this week they became more than 30 waste-pickers.

The waste-pickers were picking the recyclable materials from the waste when just being discharged from the incoming vehicle (figure 6.6), or when pushed by the bulldozer. They never worked far from the landfill equipments; therefore, endangering themselves and possibly cause various accidents.

#### 4. Control Facilities:

##### 1. Fence:

Still the steel net and upper wires are not installed yet. But the ground holes of the columns are filled with concrete, with a depth of 70 cm and diameter of 80 cm.

##### 2. Leachate Collection Pipes:

Leachate collection pipes have been installed in two parts (figures 6.2 & 6.10): the first is 35 m long inside working-phase 1 of the Pilot Study Area; the second is 15 m long near the access road.

For this purpose, concrete pipes (1 m long each piece, 5 cm thickness, 30 cm internal diameter & 40 cm external diameter, with holes of 2 cm diameter each 20 cm) is used. Covered with a 10-20 cm layer of gravels (diameters of which are 5-15 cm).

Start level of the first part of the leachate collection pipe is 5.79 m from the sea (-0.5 m from the ground level), end level of which is - 1.5 m from the ground level, and end level of the second part is 4.8 m from the sea (-1.94 m from the ground level).

#### 5. Other Activities: (Bus Tour to Al-Bassa Disposal Site on July 19<sup>th</sup>, 2001)

On July 19<sup>th</sup> 2001, *JICA Study Team* in cooperation with the Local Consultant Team, have organized a bus tour to both Compost Plant and the Pilot Project of Al-Bassa Disposal Site in order to increase (or even create) public awareness of what is going on in Al-Bassa...(figures 6.11 & 6.12).

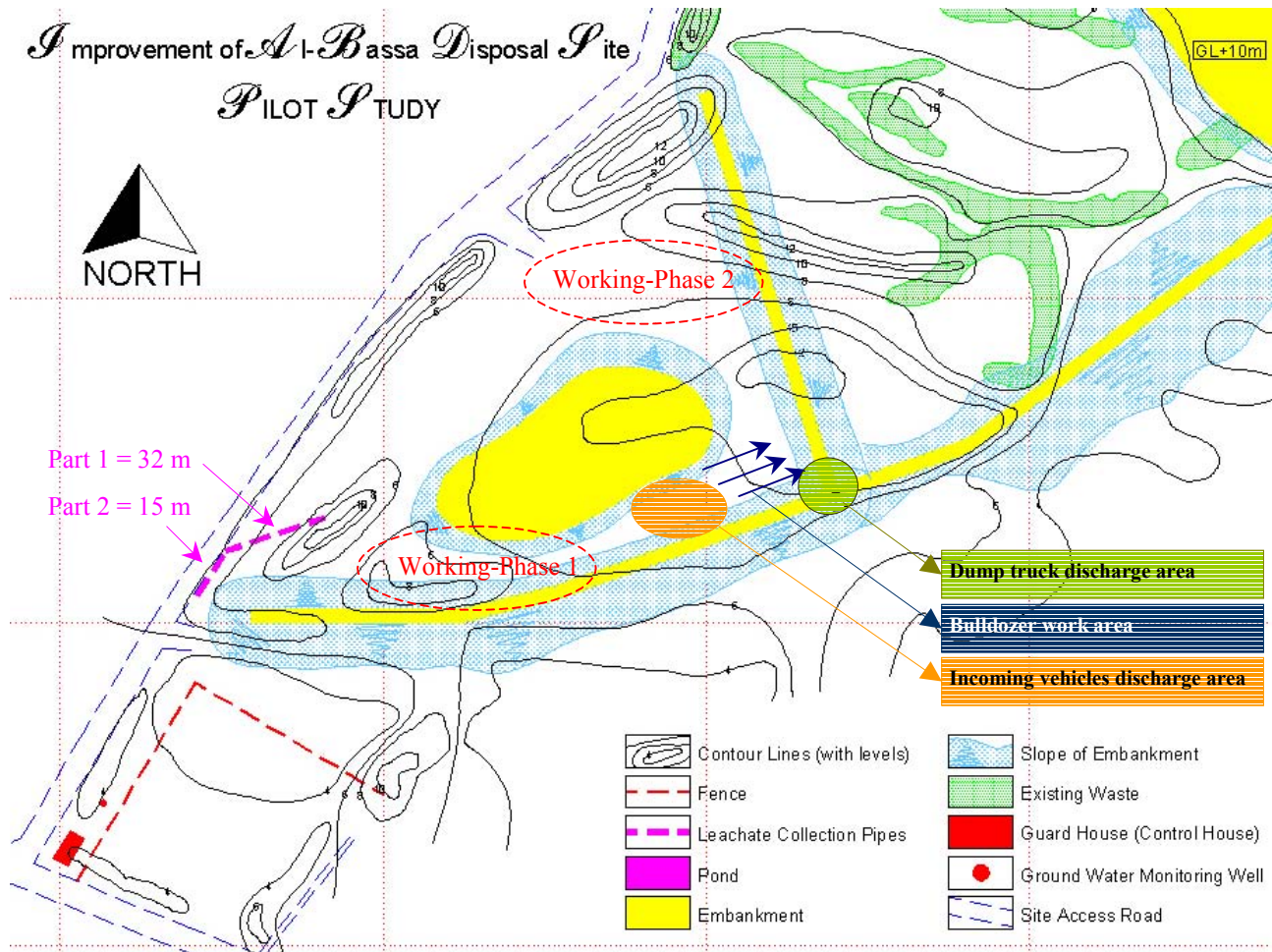
The parties contributed in this tour are:

- Housewives of the source separation area (about 60 participants).
- Members of the Women's Union
- Local Consultant Team
- Counterpart Team
- *JICA Study Team*
- In addition to Radio & TV Center in Lattakia and some journalists.

*JICA Study Team* have presented a comprehensive description about:

- The current situation of Al-Bassa Disposal Site (environmental impacts on the surrounding suburbs, damage caused to the tourist area, pollutants, waste self-burning, offensive odor, birth / growth of the flies and other insects...etc)
- How to rehabilitate/improve Al-Bassa Disposal Site, from open dumping into controlled landfill, (the Pilot Project).
- The process of landfill operations, purposes, and durations.

## Drawing of the progress in week 6



(Figure 6.2) Map shows the Pilot Study progress in **week 6: June 14<sup>th</sup> – 20<sup>th</sup>, 2001**



**Some photos of the operations in week 6: July 14<sup>th</sup> – 20<sup>th</sup>, 2001**



*(Figure 6.3)* Re-arrangement of existing accumulated waste by bulldozer (Working-phase 2)



*(Figure 6.4)* Working-phase 1 before receiving the daily incoming waste



*(Figure 6.5)* Start of discharging the new incoming waste in the working-phase 1



*(Figure 6.6)* Discharging of new incoming waste in working-phase 1, as well as scavenging activities



*(Figure 6.7)* Pushing the new incoming waste by bulldozer towards embankment No.3



*(Figure 6.8)* The pushed waste after few days...



**. Some photos of the operations in week 6: July 14<sup>th</sup> – 20<sup>th</sup>, 2001**



*(Figure 6.9)* Dump truck is discharging the soil to be used later as cover soil



*(Figure 6.10)* Implementation of Leachate collection pipes (part 1)



*(Figure 6.11)* Bus tour to Al-Bassa Disposal Site for JICA Study Team & some families



*(Figure 6.12)* First public look on the Pilot Study Project in Al-Bassa Disposal Site

## The Pilot Study on Improvement of Al-Bassa Disposal Site

### Weekly Analysis

Week No.6 July 14th - July 20th

Total Incoming:	303	50.5
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Shifts	TTL	AVG
Morning	162	27
Night	141	23.5

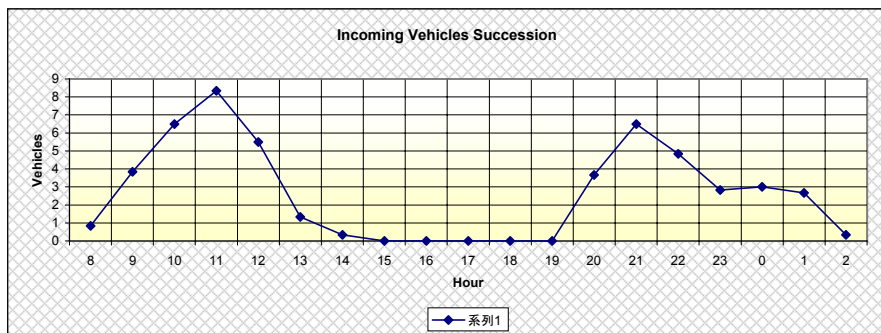
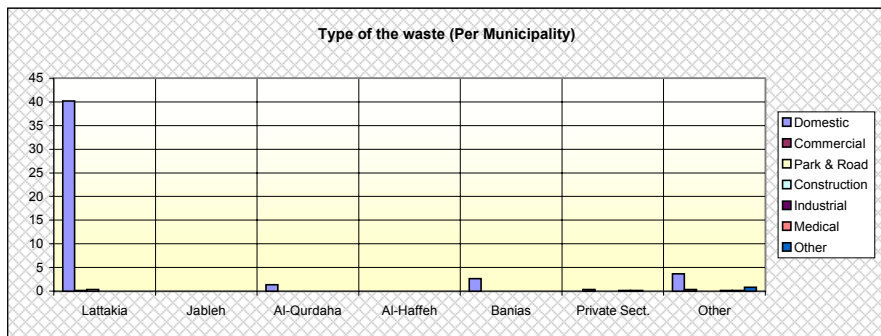
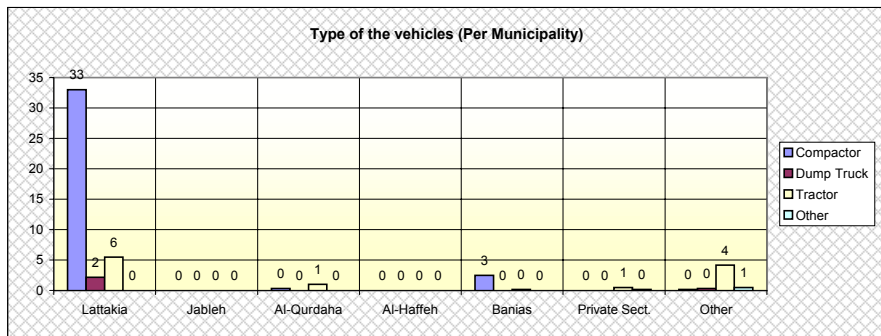
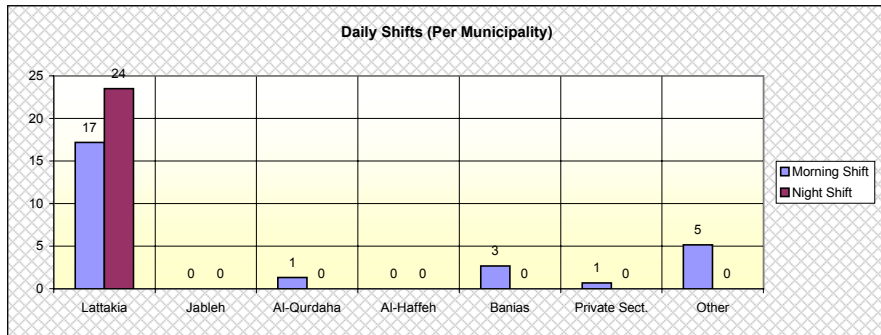
Vehicles	TTL	AVG
Compactor	216	36
Dump Truck	15	2.5
Tractor	68	11.3
Other	4	0.67

Mun.	TTL	AVG
Lattakia	244	40.7
Jableh	0	0
Al-Qurdaha	8	1.33
Al-Haffeh	0	0
Banias	16	2.67
Private Sect.	4	0.67
Other	31	5.17

Waste Type	TTL	AVG
Domestic	287	47.8
Commercial	5	0.83
Park & Road	2	0.33
Construction	0	0
Industrial	2	0.33
Medical	2	0.33
Other	5	0.83

Hours	TTL	AVG
8	5	1
9	23	4
10	39	7
11	50	8
12	33	6
13	8	1
14	2	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	22	4
21	39	7
22	29	5
23	17	3
0	18	3
1	16	3
2	2	0

(Average)		Lattakia	Jableh	Al-Qurdaha	Al-Haffeh	Banias	Private Sect.	Other
Shift	Morning	17	0	1	0	3	1	5
	Night	24	0	0	0	0	0	0
Vehicle Type	Compactor	33	0	0	0	3	0	0
	Dump Truck	2	0	0	0	0	0	0
	Tractor	6	0	1	0	0	1	4
	Other	0	0	0	0	0	0	1
Waste Type	Domestic	40	0	1	0	3	0	4
	Commercial	0	0	0	0	0	0	0
	Park & Road	0	0	0	0	0	0	0
	Construction	0	0	0	0	0	0	0
	Industrial	0	0	0	0	0	0	0
	Medical	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	1



# **The Pilot Study on** *Improvement of Al-Bassa Disposal Site*

## **Weekly Report**

*Week 7 ...*

*July 21<sup>st</sup> – 27<sup>th</sup>, 2001*

# Week 7

July 21<sup>st</sup> – 27<sup>th</sup>, 2001

## Introduction

Continuation from the last week, the following activities:

- ❖ Control of daily landfill operation.
- ❖ Control of incoming vehicles.
- ❖ Control of scavenging activities.
- ❖ Installation of control facilities.

## 1. Incoming Vehicles:

During this week, 276 vehicles have discharged the waste (164 vehicles for the day-shift and 112 for the night-shift) i.e. 9% decrease of week 6 (as 303 vehicles came in week 6). Most of the day & night-shifts are from Lattakia Municipality (the daily average is 18 vehicles for the day-shift, and 16 vehicles for the night-shift).

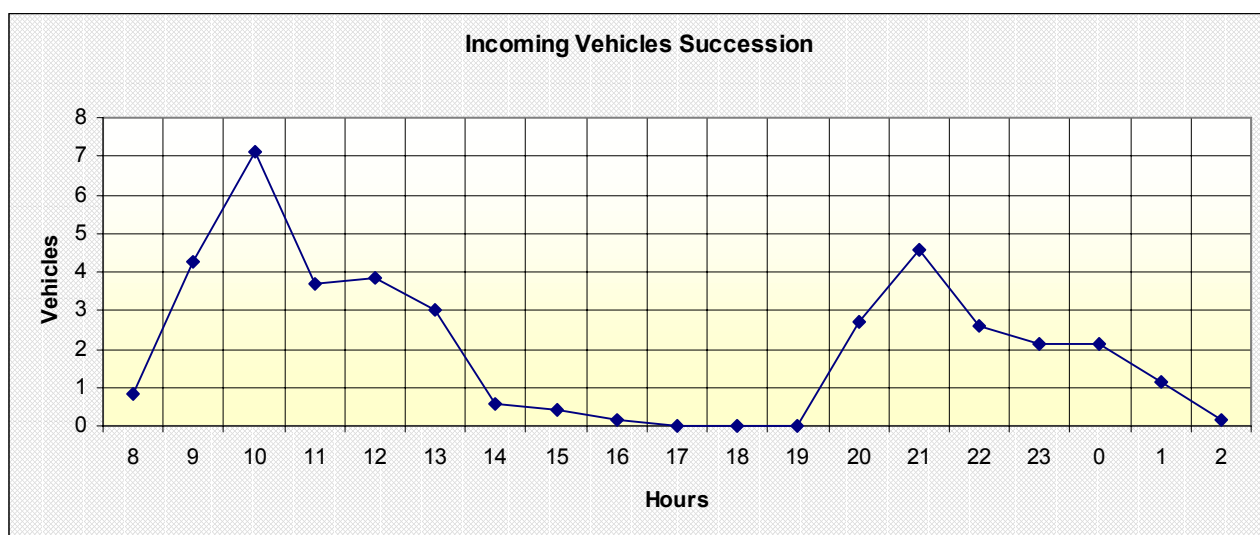
*For more details refer to the attachment No. I: Daily Registration Sheets & Weekly Analysis*

Total vehicles are: 202 compactor, 62 tractor and 12 dump truck.

The succession average of the daily incoming vehicles is shown in figure 7.1

*Peak hour for the day-shift this week is 10:00 (it was 11:00 in week 6).*

*Peak hour for the night-shift is 21:00 (same as week 6).*



(Figure 7.1) Average of the daily incoming vehicles during Week 7

Incoming vehicles are discharging the waste in the working-phase 1, but discharging area has slightly moved to the west along embankment 2 (figure 7.2).

## 2. Landfill Operation:

Some sand that was discharged on the cross of embankments 1 and 2 was pushed by the bulldozer to cover the cell of the compacted waste discharged in week 6.

*JICA Study Team* have noticed that the bulldozer is pushing the new waste opposite to the direction of embankment 3 (figure 7.3), and as this would not help in good compaction of the waste, as well as complicating forming the 1:4 slope from the waste. Therefore, the driver has been instructed to push & compact the waste from bottom to up, towards embankment 3 (figure 7.4).

In pushing the waste, the bulldozer had left a clearance between the waste and the existing hill (figure 7.5), so *JICA Study Team* instructed the driver not to leave any clearances anywhere.

The dump truck is discharging the sand to be used as cover-soil at the corner between embankment 2 and 3 (figure 7.6). While it is driving on the access to the top of embankment 1, some sand is falling due to not closing the back-door firmly (figure 7.7), and that is causing some difficulties to other cars (i.e. inspection vehicles) to go up on the embankments. So *JICA Study Team* instructed the driver to either firmly close the back-door of the dump truck, or drive backwards to the location of discharge, so that way no sand is falling. (It was chosen to drive backwards...).

*The approximate amount of the waste discharged this week is about 1520 ton i.e. about 1690 m<sup>3</sup>, which is an area of "23 X 23" m<sup>2</sup> with 3 m height. (These calculations based on: the average weight of the waste is 5.5 ton / vehicle, the bulk density of the waste at the disposal site after compression is 0.9 ton/m<sup>3</sup>).*

## 3. Scavenging Activities:

Scavenging activities have increased this week than week 6, the number of waste-pickers became around 50. They are causing delay of landfill work by bulldozer as well as discharging the waste by the collection vehicles. They are so close to the vehicles when the waste discharged as well as the bulldozer to push the waste, i.e. they are picking waste just when being discharged or pushed by the bulldozer, and it may cause a great danger (figure 7.8).

In general, approximately 70 % of the waste-pickers are picking the waste just when discharged by the vehicle, while 20% are scavenging the waste when pushed by the bulldozer, and the remaining 10 % are scattered in the landfill area.

There is no definite time to finish the scavenging activities for one discharged pile of waste; as long as there are no vehicles coming, most of the waste-pickers are on the last pile of waste, but if new waste is discharged they rush to it. And always there are some of them picking the waste where pushed by the bulldozer.

## 4. Control Facilities:

### 1. Control House:

During this week, the outer plaster works have completed, and the wooden doors are being painted and prepared for installation (figure 7.9).

## 5. Some issues:

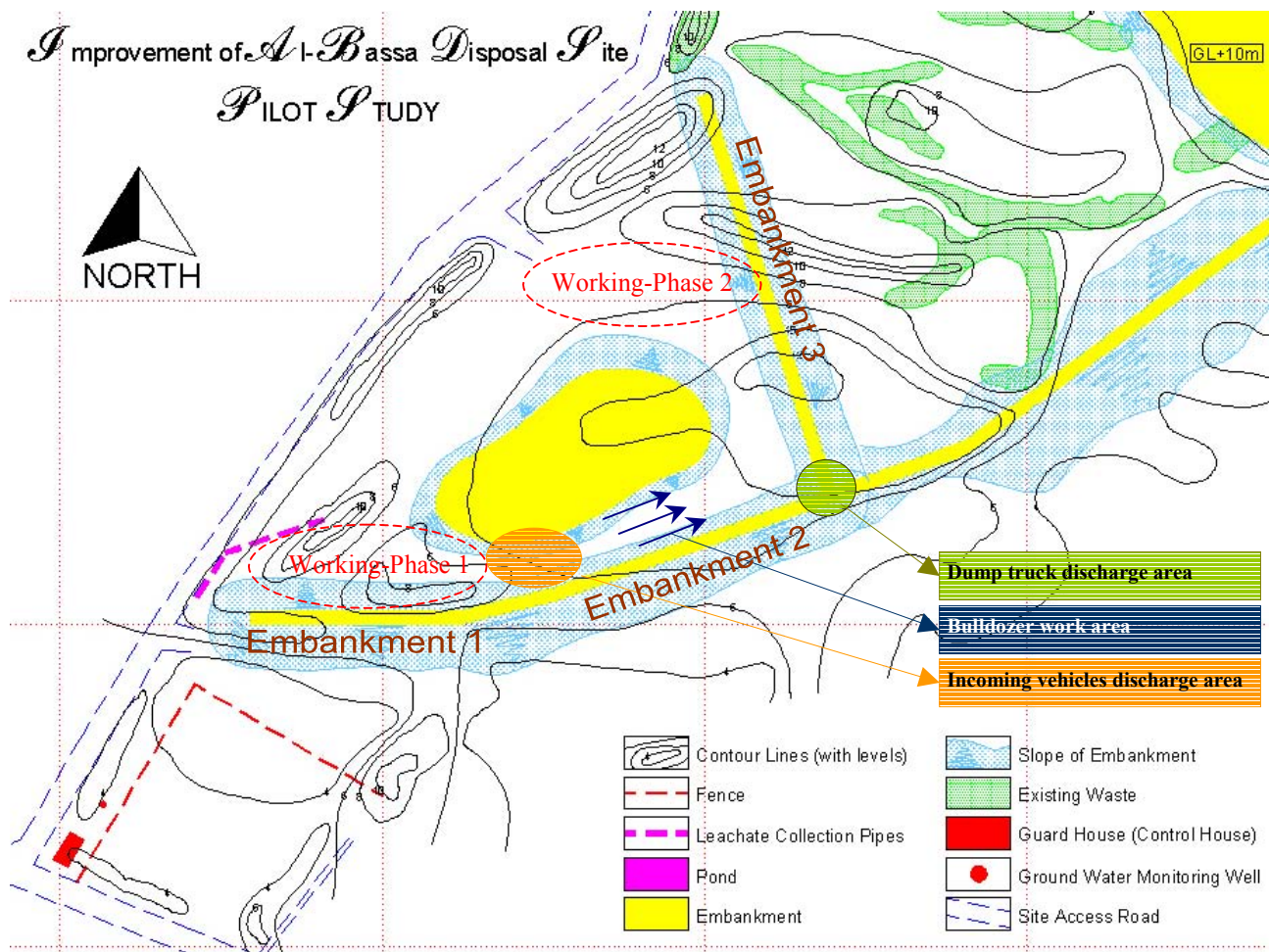
On Thursday July 26<sup>th</sup> 2001, two illegal dumping have occurred (i.e. two vehicles had discharged the waste outside the Pilot Study area) and the stopper made of soil to zone II & III was removed (which caused removal of the topographic survey bench mark). *JICA Study Team* found out the reason behind that action: the drivers of the collection vehicles want to sell the waste to the Bedouin people in order to:

- Enable them collect the recyclable materials.
- Let their cattle feed on the waste.

*Usually at night, the sheep cattle is feeding on the waste from 02:00 am (when the night shift ends) until 06:00 (when the drivers of the landfill equipment come).*



## Drawing of the progress in week 7



(Figure 7.2) Map shows the Pilot Study progress in **week 7: June 21st – 27th, 2001**

**Some photos of the operations in week 7: June 21<sup>st</sup> – 27<sup>th</sup>, 2001**



(Figure 7.3) The wrong method in pushing the waste (Working-phase 1)



(Figure 7.4) The correct way in pushing & compacting the waste



(Figure 7.5) The clearance area left to the compacted waste



(Figure 7.6) Discharging the sand to be used later as cover-soil



(Figure 7.7) Left: the sand is falling. Right: after instructions by JICA Study Team



**Some photos of the operations in week 7: June 21<sup>st</sup> – 27<sup>th</sup>, 2001**



*(Figure 7.8)* Top left & right: Waste-pickers are so close to the vehicles while they discharge.  
Bottom: and also to the bulldozer while pushing the waste



*(Figure 7.9)* Control House

## The Pilot Study on Improvement of Al-Bassa Disposal Site

### Weekly Analysis

Week No 7 July 21st - July 27th

Total Incoming:	276	39.4
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Shifts	TTL	AVG
Morning	164	23.4
Night	112	16

Vehicles	TTL	AVG
Compactor	202	28.9
Dump Truck	12	1.71
Tractor	62	8.86
Other	0	0

Mun.	TTL	AVG
Lattakia	235	33.6
Jableh	2	0.29
Al-Qurdaha	7	1
Al-Haffeh	0	0
Banias	11	1.57
Private Sect.	2	0.29
Other	19	2.71

Waste Type	TTL	AVG
Domestic	268	38.3
Commercial	2	0.29
Park & Road	1	0.14
Construction	1	0.14
Industrial	0	0
Medical	0	0
Other	4	0.57

Hours	TTL	AVG
8	6	1
9	30	4
10	50	7
11	26	4
12	27	4
13	21	3
14	4	1
15	3	0
16	1	0
17	0	0
18	0	0
19	0	0
20	19	3
21	32	5
22	18	3
23	15	2
0	15	2
1	8	1
2	1	0

(Average)		Lattakia	Jableh	Al-Qurdaha	Al-Haffeh	Banias	Private Sect.	Other
Shift	Morning	18	0	1	0	2	0	3
	Night	16	0	0	0	0	0	0
Vehicle Type	Compactor	27	0	0	0	2	0	0
	Dump Truck	1	0	0	0	0	0	1
	Tractor	6	0	1	0	0	0	2
	Other	0	0	0	0	0	0	0
Waste Type	Domestic	33	0	1	0	2	0	3
	Commercial	0	0	0	0	0	0	0
	Park & Road	0	0	0	0	0	0	0
	Construction	0	0	0	0	0	0	0
	Industrial	0	0	0	0	0	0	0
	Medical	0	0	0	0	0	0	0
	Other	1	0	0	0	0	0	0

