

Anexo 2

Cantidades de Residuos por Fuentes de Generación

Anexo 2 Cantidades de Residuos por Fuentes de Generación

		Unit	1994	1997	2000	2006	Remarks
Generation unit	Household	g/person/day	961	990	1,020	1,083	
	Shop	g/shop/day	3,186	3,283	3,382	3,590	
	Restaurant	g/shop/day	31,958	32,926	33,924	36,011	
	Market	g/shop/day	5,961	6,142	6,328	6,717	
	Institutional	g/employee/day	78	80	83	88	
	Street(A)	g/km/day	254,700	254,700	254,700	254,700	
	Street(Other)	g/km/day	39,950	39,950	39,950	39,950	
	Hospital	g/bed/day	4,000	4,041	4,246	4,507	
	Bulky Waste	g/person/day	0.6	0.6	0.6	0.7	
Population	Asuncion	person	510,497	522,847	535,496	561,720	
	F.Mora	person	99,201	105,273	111,717	125,811	
	Lambare	person	108,149	121,653	136,843	173,150	
	San Lorenzo	person	147,079	170,262	197,100	264,133	
	Capiata	person	94,268	112,274	133,721	189,685	
	Luque	person	99,010	124,724	157,116	239,801	
	M.R.Alonso	person	45,982	57,924	72,967	115,790	
	Villa Elisa	person	34,896	43,959	55,376	87,875	
	Nemby	person	30,600	36,445	43,407	61,573	
	J.A.Saldivar	person	2,265	2,698	3,213	4,558	
	Ita	person	15,440	17,368	19,536	24,720	
	Aregua	person	6,591	6,994	7,422	8,359	
	Limpio	person	29,102	33,689	38,999	52,262	
	Villa Hayes	person	12,809	14,409	16,208	20,508	
	Benjamin Aceval	person	6,709	7,547	8,489	10,742	
	Total	person	1,242,598	1,378,067	1,537,611	1,940,687	
Shop	Asuncion	shop	17,206	17,518	17,833	18,485	
	F.Mora	shop	2,533	2,692	2,849	3,208	
	Lambare	shop	1,672	1,888	2,105	2,664	
	San Lorenzo	shop	3,174	3,696	4,221	5,657	
	Capiata	shop	1,684	2,023	2,362	3,351	
	Luque	shop	2,413	3,082	3,753	5,956	
	M.R.Alonso	shop	882	1,128	1,371	2,176	
	Villa Elisa	shop	503	644	782	1,240	
	Nemby	shop	1,130	1,358	1,585	2,248	
	J.A.Saldivar	shop	62	74	87	124	
	Ita	shop	485	548	611	773	
	Aregua	shop	328	349	369	415	
	Limpio	shop	1,418	1,652	1,886	2,527	
	Villa Hayes	shop	126	141	159	201	
	Benjamin Aceval	shop	176	200	221	280	
	Total	shop	33,792	36,993	40,194	49,305	

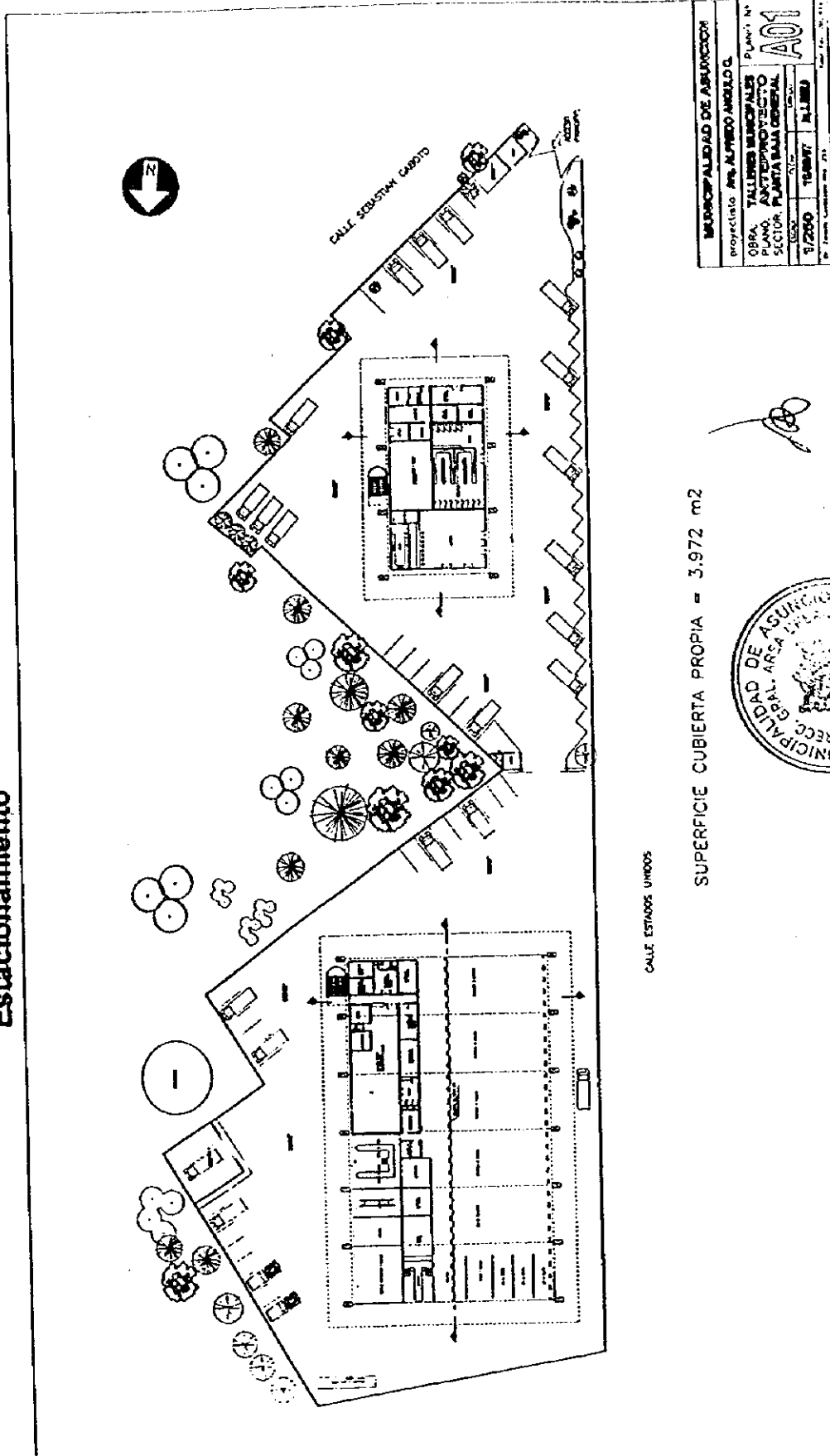
		Unit	1994	1997	2000	2006	Remarks
Public Officer	Asuncion	person	20,096	20,462	20,828	21,589	
	F.Mora	person	1,778	1,889	2,000	2,252	
	Lambare	person	1,909	2,155	2,404	3,042	
	San Lorenzo	person	2,537	2,954	3,374	4,522	
	Capiata	person	1,582	1,900	2,219	3,148	
	Luque	person	2,341	2,992	3,640	5,776	
	M.R.Alonso	person	793	1,012	1,234	1,958	
	Villa Elisa	person	602	770	936	1,485	
	Nemby	person	759	912	1,065	1,510	
	J.A.Saldivar	person	375	450	526	747	
	Ita	person	632	713	796	1,007	
	Aregua	person	434	461	488	550	
	Limpio	person	686	800	912	1,222	
	Villa Hayes	person	500	566	629	796	
	Benjamin Aceval	person	211	238	266	336	
		Total	person	35,235	38,274	41,317	49,940
Street sweeping	Asuncion	km	264	264	300	300	
	F.Mora	km	2	2	20	40	
	Lambare	km	6	6	17	25	
	San Lorenzo	km	6	6	21	32	
	Capiata	km	0	0	6	12	
	Luque	km	28	28	40	60	
	M.R.Alonso	km	0	0	6	10	
	Villa Elisa	km	0	0	9	20	
	Nemby	km	0	0	3	12	
	J.A.Saldivar	km	0	0	1	2	
	Ita	km	6	6	10	15	
	Aregua	km	2	2	5	10	
	Limpio	km	1	1	3	8	
	Villa Hayes	km	0	0	5	9	
	Benjamin Aceval	km	0	0	6	11	
	Hospital beds	Asuncion	bed	3,330	3,411	3,472	3,599

	Unit	1994	1997	2000	2006	Remarks
Restaurant	Asuncion	shop	457	466	473	491
	F.Mora	shop	183	195	206	232
	Lambare	shop	61	79	94	151
	San Lorenzo	shop	83	113	145	261
	Capiata	shop	55	79	105	212
	Luque	shop	61	100	141	342
	M.R.Alonso	shop	28	46	66	165
	Villa Elisa	shop	22	37	50	125
	Nemby	shop	18	27	34	69
	J.A.Saldivar	shop	1	1	3	5
	Ita	shop	9	12	13	22
	Aregua	shop	3	3	4	6
	Limpio	shop	17	23	29	52
	Villa Hayes	shop	7	10	11	18
	Benjamin Aceval	shop	3	3	6	9
	Total	shop	1,008	1,194	1,380	2,160
	Market	Asuncion	shop	4,705	4,792	4,876
F.Mora		shop	0	0	0	0
Lambare		shop	0	0	0	0
San Lorenzo		shop	741	864	985	1,320
Capiata		shop	0	0	0	0
Luque		shop	0	0	0	0
M.R.Alonso		shop	0	0	0	0
Villa Elisa		shop	0	0	0	0
Nemby		shop	0	0	0	0
J.A.Saldivar		shop	0	0	0	0
Ita		shop	157	178	197	250
Aregua		shop	0	0	0	0
Limpio		shop	63	72	84	113
Villa Hayes		shop	0	0	0	0
Benjamin Aceval		shop	0	0	0	0
Total		shop	5,666	5,906	6,142	6,737

Anexo 3

Plan de Mejoramiento del Taller Municipal y Area de Estacionamiento

Anexo 3 Plan de Mejoramiento del Taller Municipal y Area de Estacionamiento



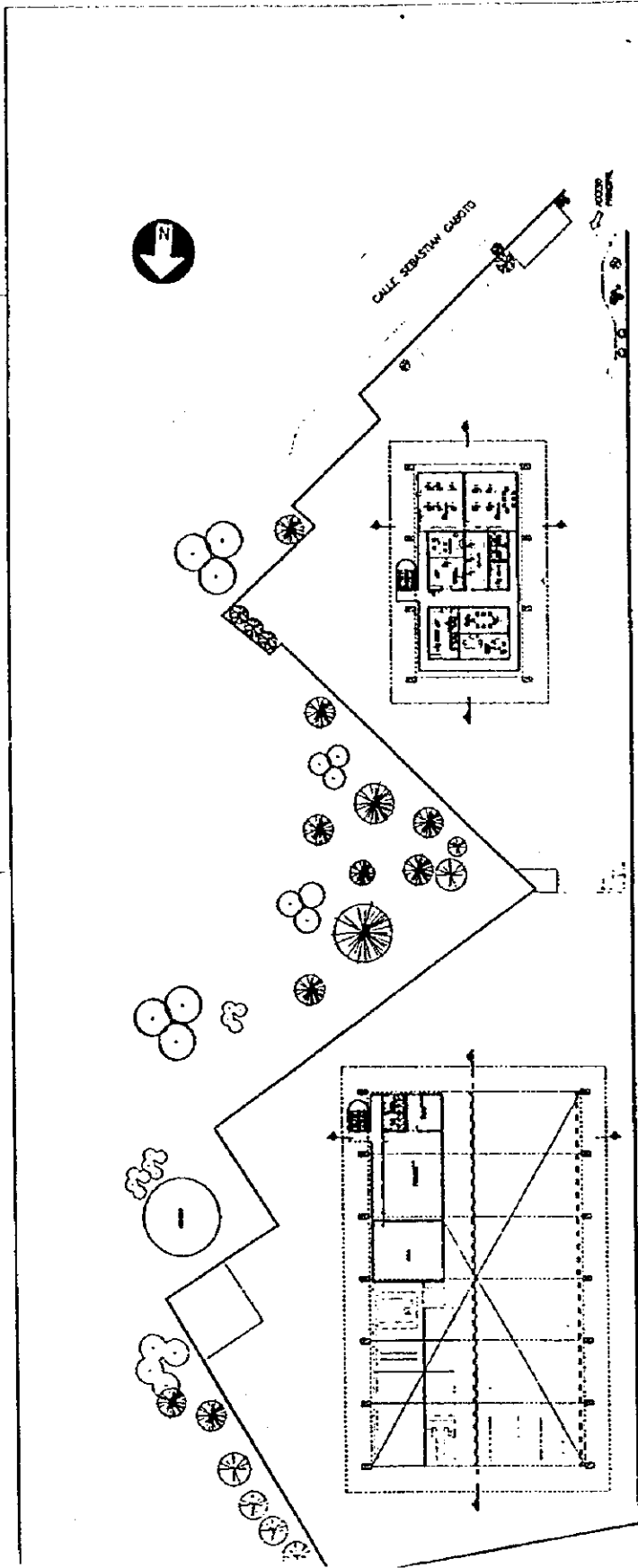
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SUPERFICIE CUBIERTA PROPIA = 3.972 m²

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OPERA: INGENIERO PROYECTISTA	SECTOR: PLANTA BAJA GENERAL	
ESCALA: 1/2000	TITULO: PLANO	
FECHA: 11/11/11		



UC. PEDRO P. MARECO ALBERT
Vice Director de Servicios

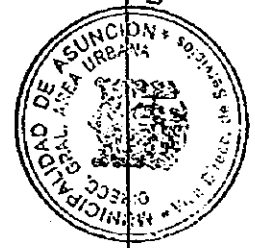


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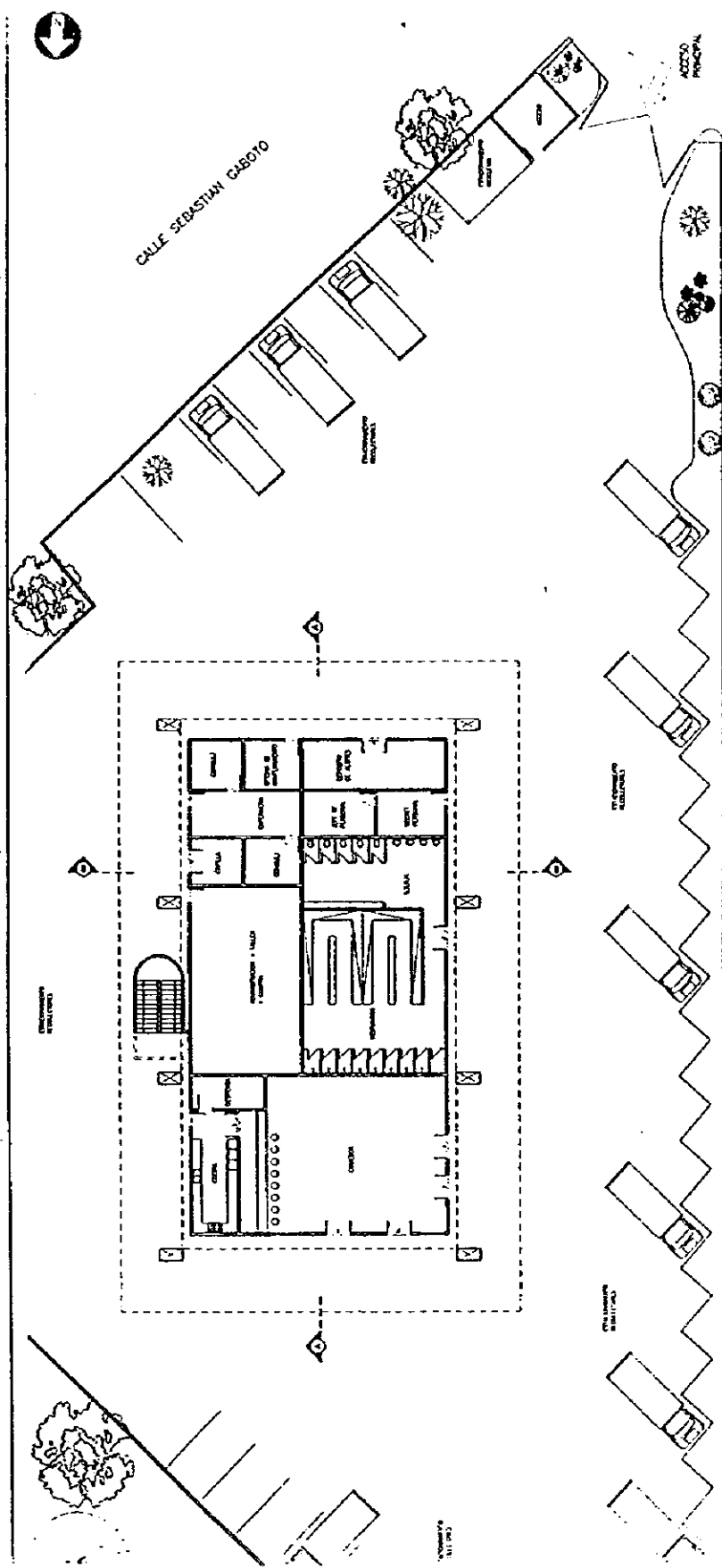
SUPERFICIE CUBIERTA PROPIA = 3.972 m2

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OBRA: TALLERES MUNICIPALES	A02
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SECTOR: PLANTA ALTA GENERAL	
ESCALA: 1/2000	FECHA: 1987
	INFORMACION

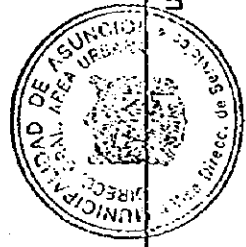
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Ing. PEDRO P. MARECO ALBERT
Vice Director de Servicios

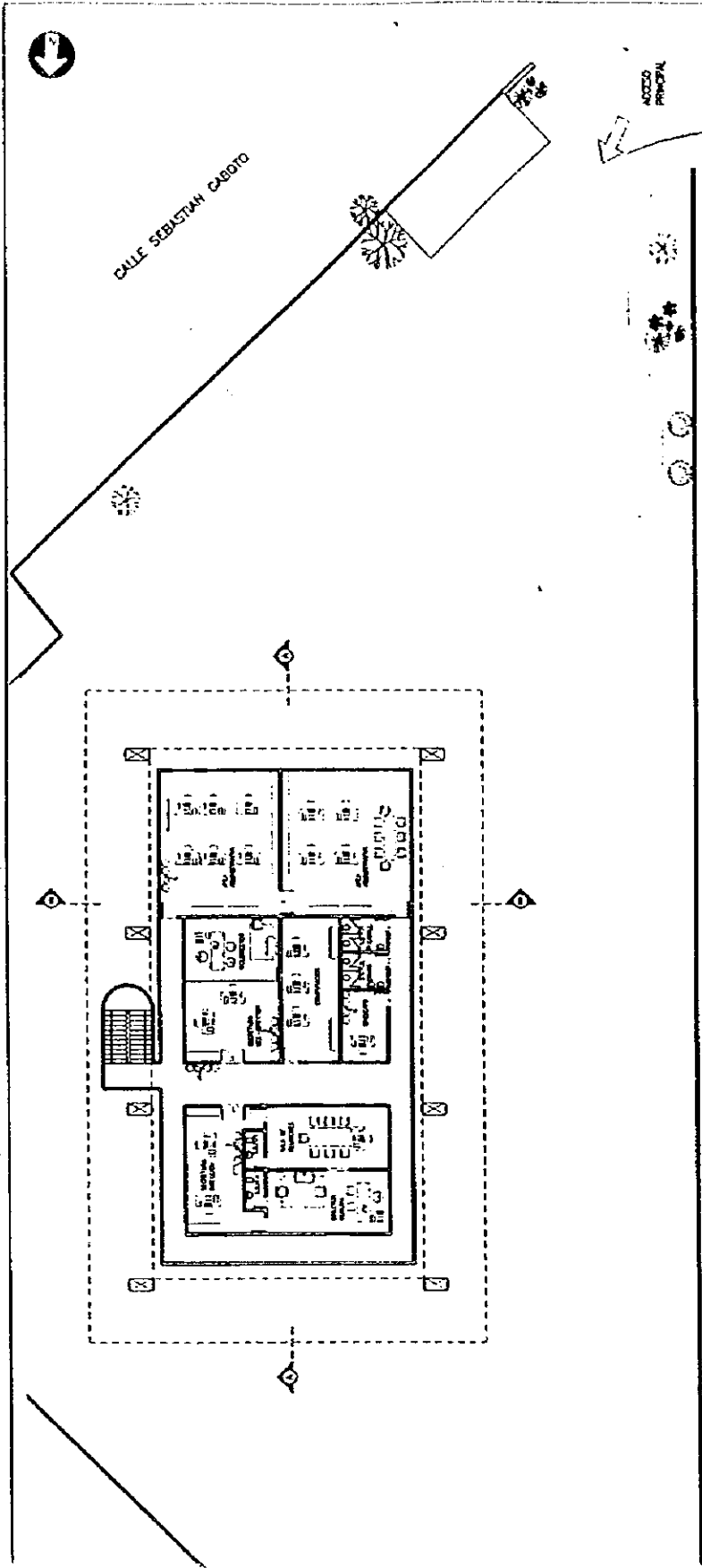


MUNICIPALIDAD DE ASUNCION	
Proyectista: Arq. ALFREDO ANGULO O.	PLANO No.
UBICACION: VALLERON MUNICIPAL	A03
CARRERA: ANTERIOR AEROPUERTO	
SECTOR: REGLAMENTO DE PLANEACION	
ESCALA: 1/100	FECHA: 1987
	ELABORADO: ALBERT



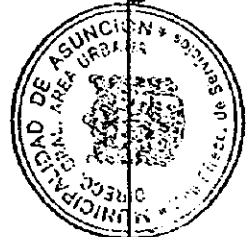
U.C. PEDRO P. MARECO ALBERT
 Vice Director de Servicios

CALLE ESTADOS UNIDOS

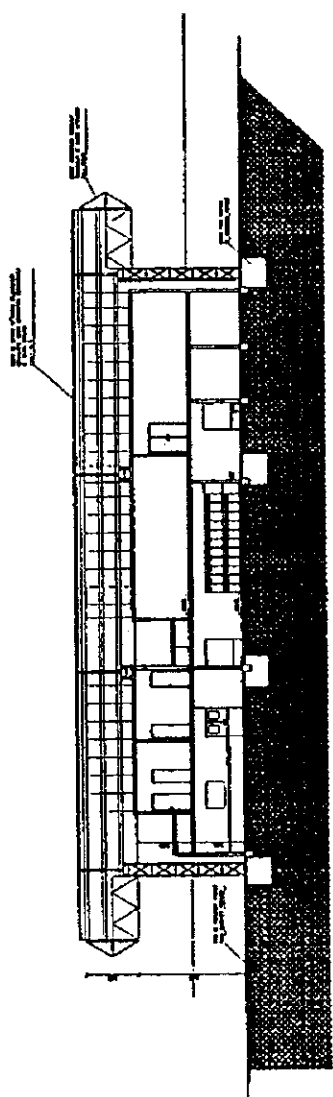


MUNICIPALIDAD DE AGUINCION	
proyecto: Av. ALBERTO ARELLANO	
OBRA: TALLERES MUNICIPALES	PLAN: A-64
PLANO: APT. PROYECTO	SECTOR: URBANIZACION
ESCALA: 1/1000	FECHA: 1987
DISEÑADO POR: M. L. M.	

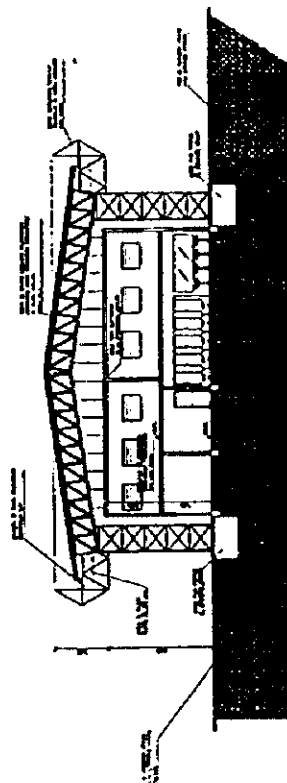
CALLE ESTADOS UNIDOS



L. C. M. ALBERTO P. MARQUEZ ALBERTI
Vice Director de Servicios



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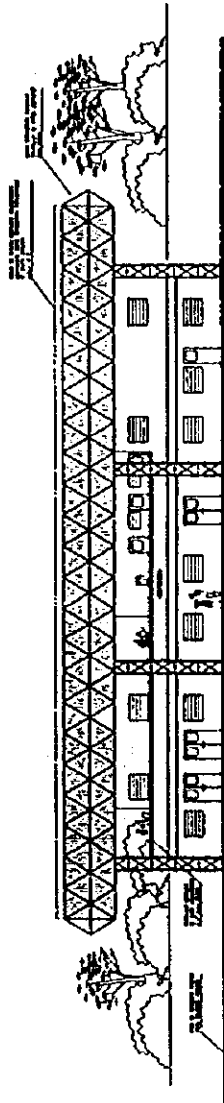


CORTE TRANSVERSAL B-B
1/100
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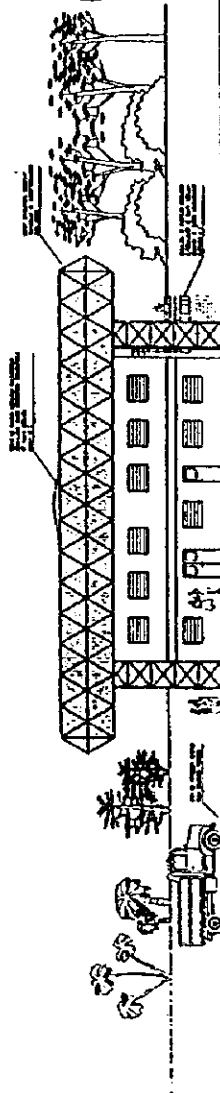


PEDRO P. MARCO ALBERTI
Vice Director de Servicios

MUNICIPALIDAD DE ASUNCION	
Proyectista: Arq. ALFREDO ANGELO G.	
OBRA: TALLERES MUNICIPALES	PLANO Nº: A05
PLANO: ADITIVO Nº 1	
SECTOR: OBRAS DE SERVICIOS	
ESCALA: 1/100	FECHA: 11/11/57
DISEÑADO: M. J. M.	



FACHADA FRONTAL EDIFICIO ADMINISTRATIVO
E.S.C. 1/100



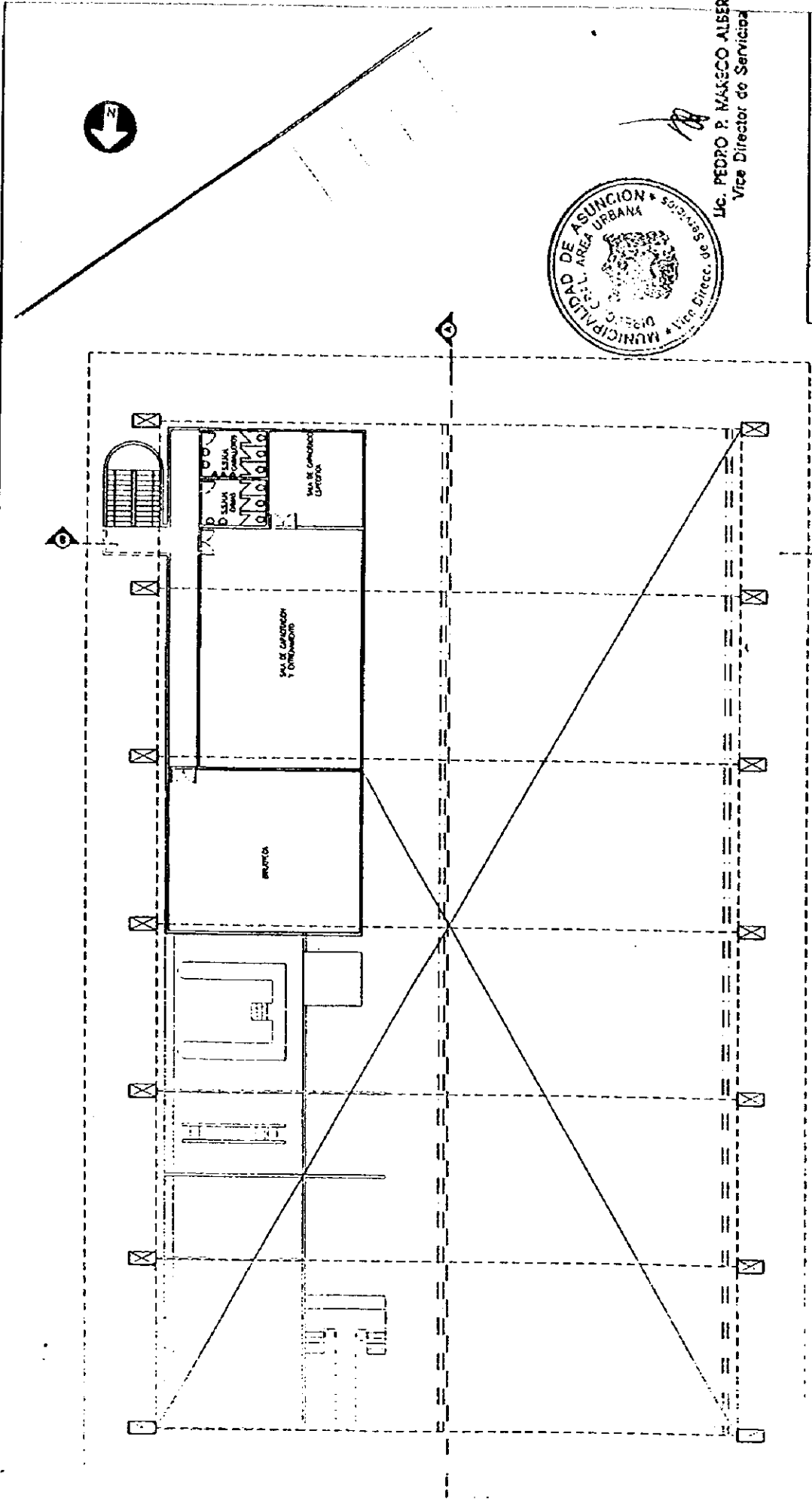
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E.S.C. 1/100



PEDRO P. MARECO ALBEI
Vice Director de Servicios

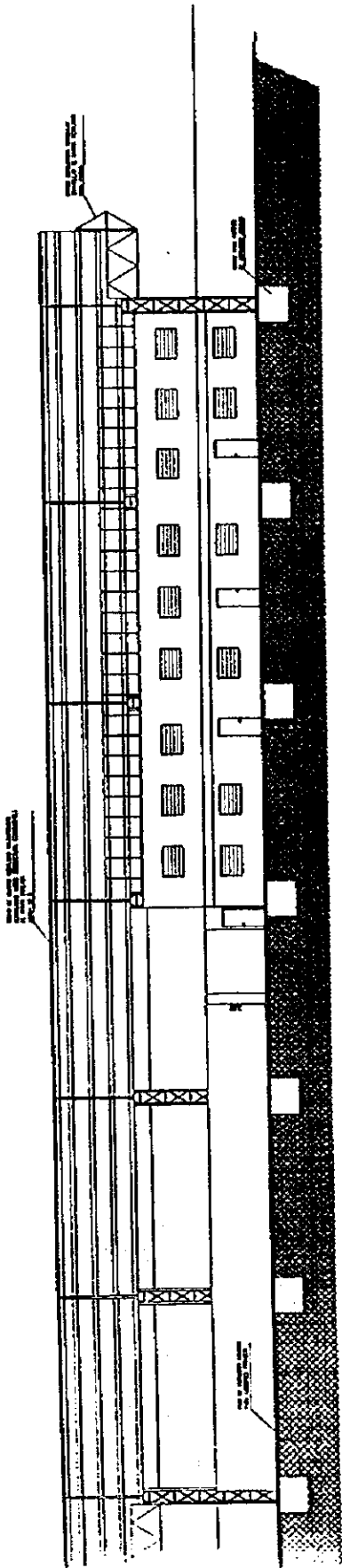
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proyectista: ANTONIO ANIBALDO	
CORRE	TALLER MUNICIPAL
PLANO	ANTERPROYECTO
SECTOR	MOBILIDAD URBANA
FECHA	1987
1/100	10/04/87
Dr. Joaquín Castellanos, No. 391	
Teléfono: 207.241	

PLANO No
A06

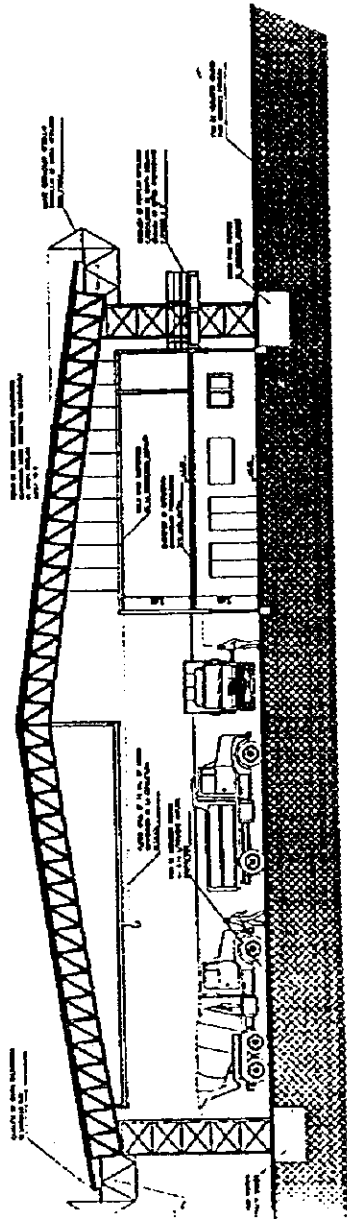


Lc. PEDRO P. MASECO ALBER
Vice Director de Servicios

MUNICIPALIDAD DE ASUNCIÓN	
proyectista: Ar. ALFONSO ANGULO G.	
OBRA: TALLERES MUNICIPALES	PLANO N°
PLANO: ANTEPROYECTO	A08
SECTOR: FAMILIA-BRODTALLES	
ESCALA: 1/1000	FECHA: 1989/7
	ELABORADO: M. L. BELLO



CORTE LONGITUDINAL A-A
1/100
ESC.



CORTE TRANSVERSAL B-B
1/100
ESC.

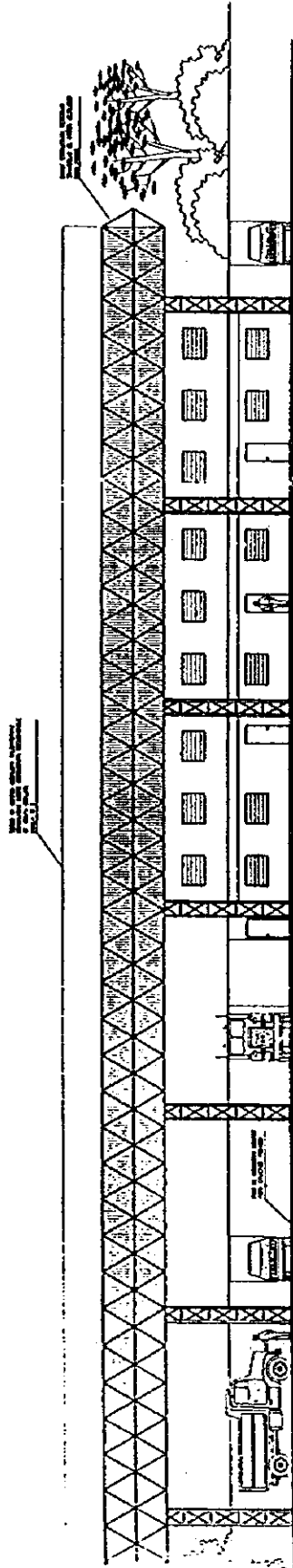


U.C. PEDRO P. MARECO ALBERTI
Vice Director de Servicios

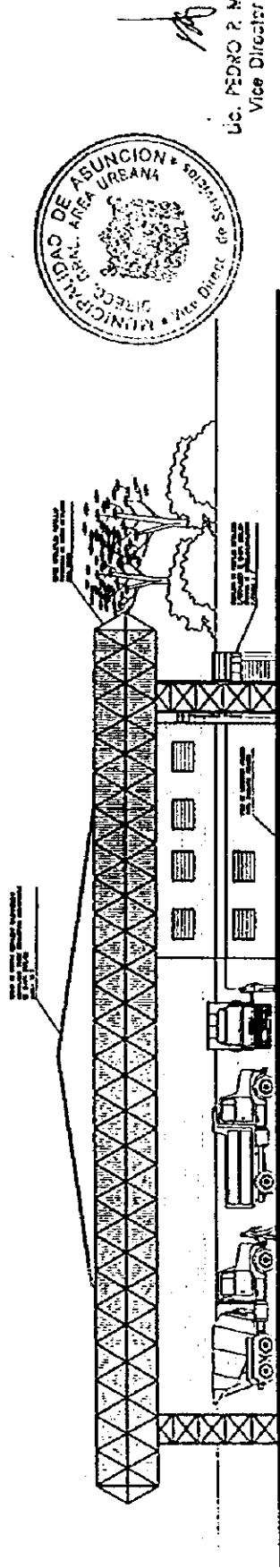
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OBRA: TALLERES MUNICIPALES	10097
PLANO: ANTI-PROYECTO	1/100
SECTOR: CORTE-BARRIO TALLERES	1/100
ESCALA:	1/100
FECHA:	1/100

A09

Anexo 3 Plan de Mejoramiento del Taller Municipal y Area de Estacionamiento



**FACHADA FRONTAL EDIFICIO TALLERES
ESG. 1/100**

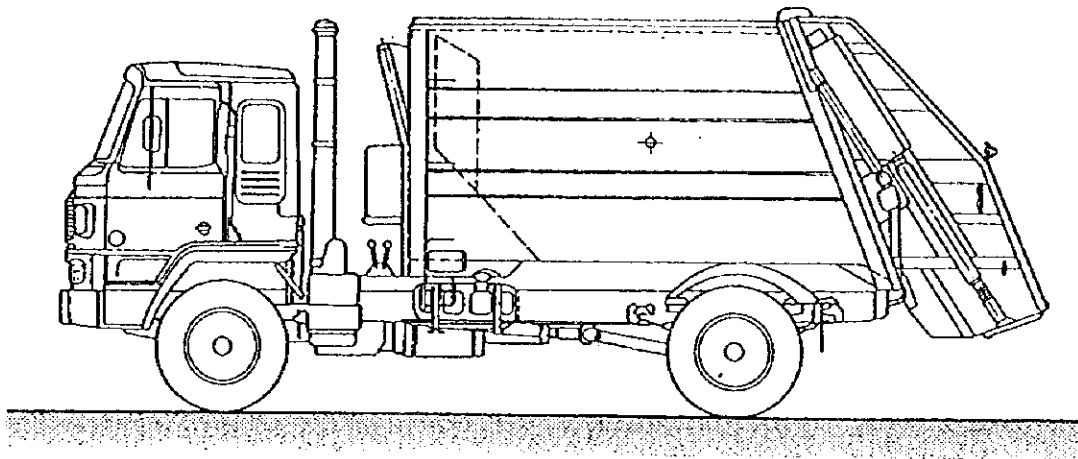


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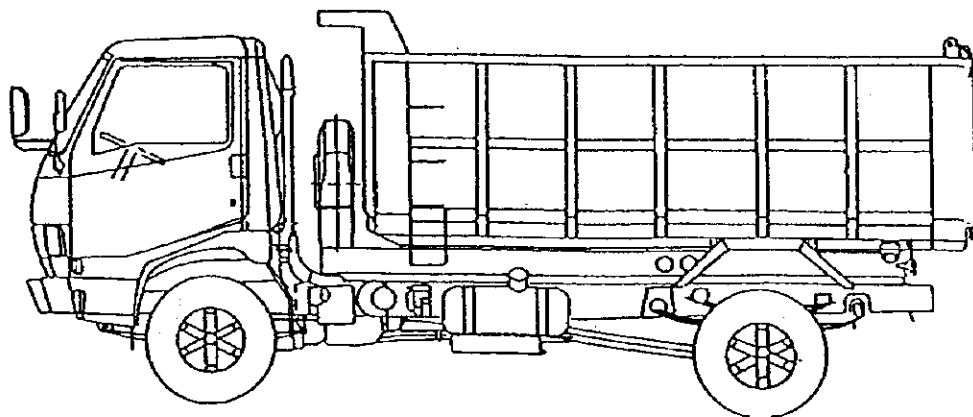


Uc. PEDRO R. MARECO ALBERT
Vice Director de Servicios

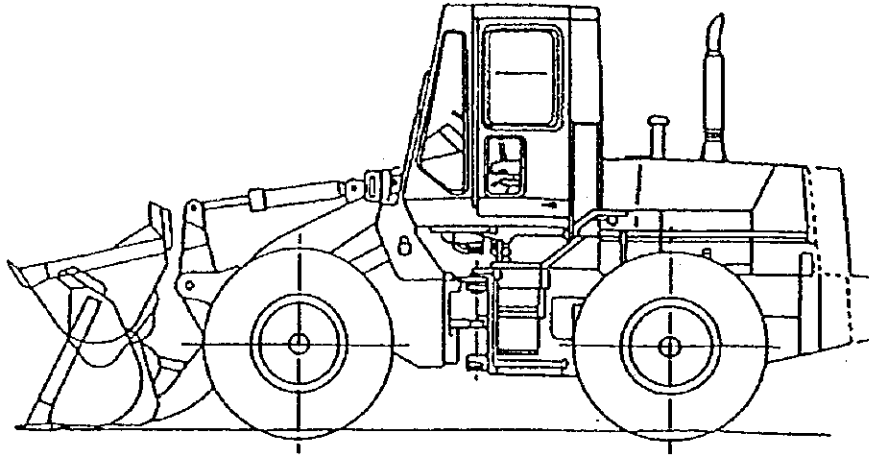
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OBRA: TALLERES MUNICIPALES	PLANO N° A10
SECTOR: ANTIPROYECTO	
SECTOR: FACHADA-EDIFICIO TALLERES	
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DISEÑO	ELABORADO
	M. J. J. J.



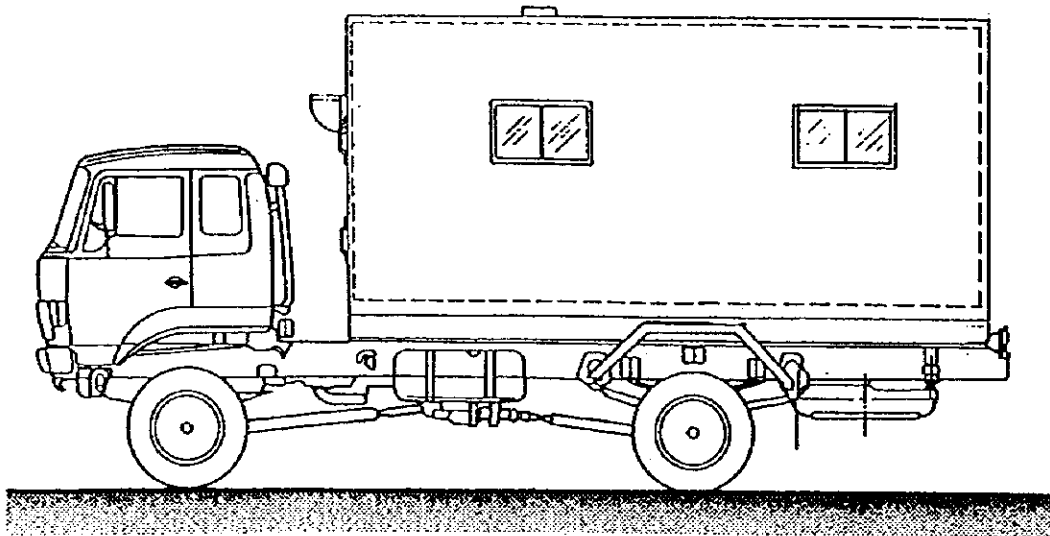
Camión compactador



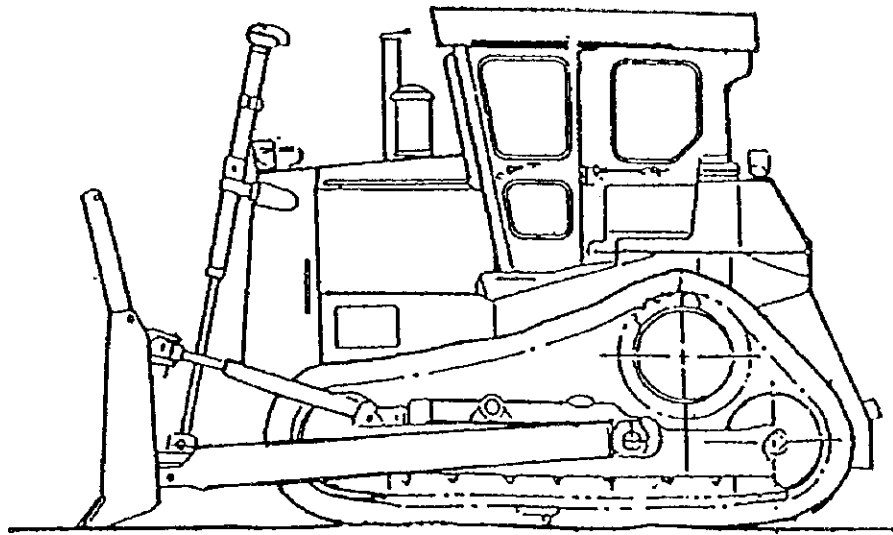
Camión volquete para transporte de residuos



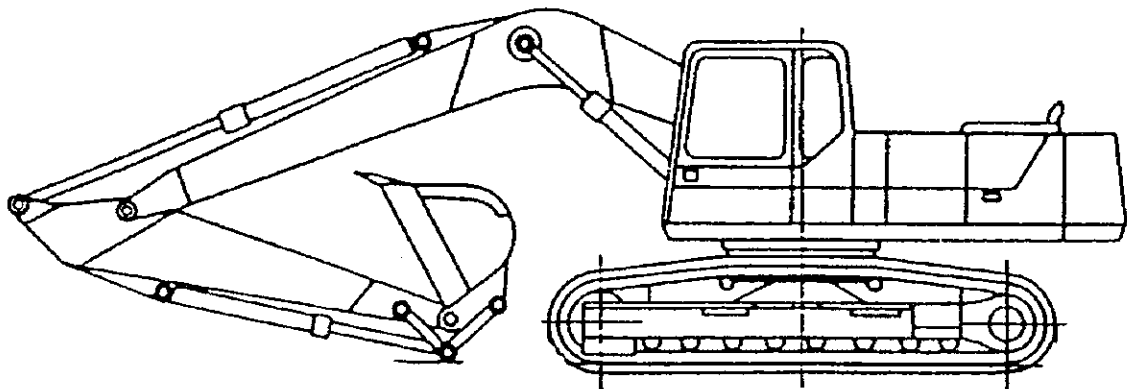
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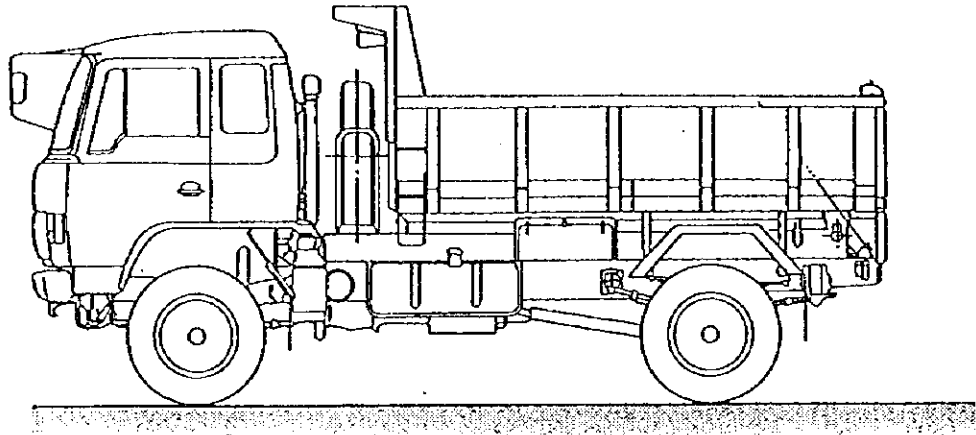
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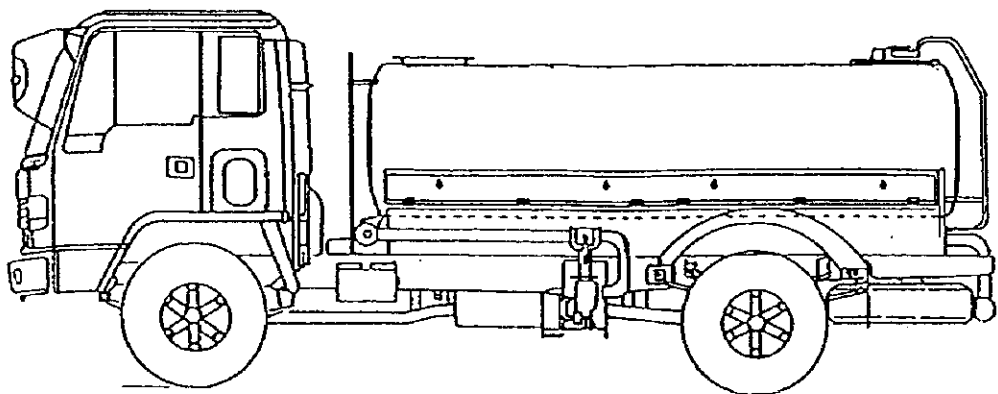
Topadora



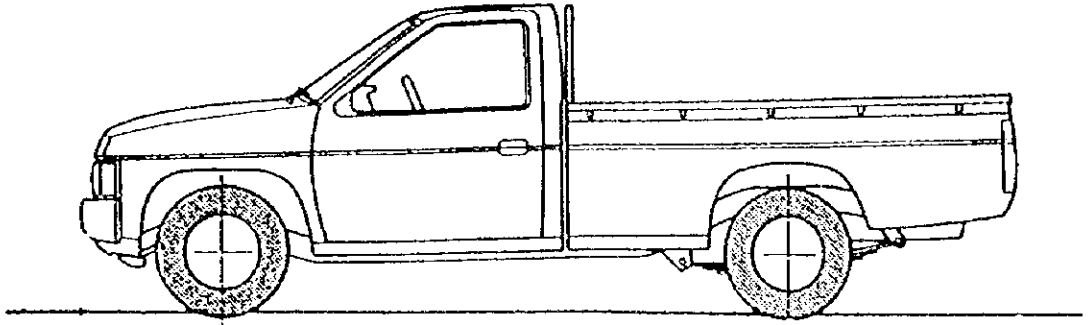
Excavadora



Camión volquete para transporte de tierra



Camión cisterna



Pick-up

Anexo 4

Resultados del Cuestionario dirigido a la Municipalidades

Anexo 4 Resultados del Cuestionario dirigido a las Municipalidades

Table A-1a Population, Growth Rate and Area by Municipality (1997)

Item	Unit	Asunción	Fernando de la Mora	Lambaré	San Lorenzo	Capiatá	Luque	Mariano R. Alonso	Villa Elisa
1 General									
Total Population	No.	500,938	150,000	121,378	260,000	100,000	183,000	62,307	42,000
Urban Area Population	No.	500,938	150,000	121,378	260,000	40,000	122,792	62,307	7,500
Growth Rate	%	1.0	3.6	4.4	4.8	4.3	6.1	11.0	8.5
Total Area	Km ²	117.0	21.3	27.0	40.0	83.0	203.0	54.0	17.5
Urban Area	Km ²	117.0	21.3	27.0	40.0	25.3	28.0	54.0	3.7
2 Current Service Population and Service Area									
Service Population	No.	435,816	135,000	84,965	239,200	30,000	24,000	4,000	20,000
Service Area	Km ²	101.8	19.2	20.3	36.8	0.75	8.4	17.0	1.41
3 Trend of the Land Use									
		Administration, Institutional, Commercial, residential	Housing and commercial areas along the city access road and city asphalt roads	Housing development and commercial areas in minor scale	Housing development and commercial establishments. 8% of the municipality land is used for horticulture and floriculture lands	Commercial areas along the main roads, housing development and industries	Single story housings, commercial establishments, and several precarious settlements	No data	Housing development, commercial establishments and industries such as PETROCAR, SHELL, etc.

Source : Asociación de Municipalidades del Área Metropolitana (AMUAM)

Table A-1b Population, Growth Rate and Area by Municipality (1997)

Item	Unit	Nemby	J. A. Saldívar	Itá	Areguá	Limpio	Villa Hayes	Benjamin Aceval	Itaguá
1									
General									
Total Population	No.	60,000	25,000		24,777		35,000	11,260	49,758
Urban Area Population	No.	60,000	7,000		6,374		20,000	?	13,910
Growth Rate	%	14.5	4.8		4.8		?	?	3.8
Total Area	Km ²	34.51	34.76		120.0		55,000 ?	?	2,465 km ² ?
Urban Area	Km ²	34.51	12.00		?		?	10.0	?
2									
Current Service Population and Service Area									
Service Population	No.	8,500	7,000		638		12,000	80% ?	6,399
Service Area	Km ²	13.80	12.00		?		600 km ² ?	80% ?	420 km ² ?
Trend of the Land Use		Housing development and commercial establishment	Urban area: residential Rural area: agricultural		Housing development, agriculture and industries		No data	Agricultural development	Housing development, commercial and industries
3									
Item	Unit	San Antonio	Ypacarai	Guarambaré	Ipané	Nueva Italia	Villeta	Nanawa	
1									
General									
Total Population	No.		14,495					6,249	
Urban Area Population	No.		7,160					4,100	
Growth Rate	%	5.0	1.9					3.1	
Total Area	Km ²	25,000 ?	130.0					4.26	
Urban Area	Km ²	18.50	?					?	
2									
Current Service Population and Service Area									
Service Population	No.	50%	804					None	
Service Area	Km ²	?	?					None	
Trend of the Land Use		Housing and industries	Housing, commercial, industrial, recreational					Agricultural land	

Source : Asociación de Municipalidades del Área Metropolitana (AMUJAM)

Table A-2 Institutional System of SWM

RO (Responsible Organization) EO (Executing Organization)

No	Municipality	Organization	Personnel	Specific Functions	
1	Asunción	RO	Bureau of Urban Area	The budget of Bureau of Urban Area is Gs. 51,099,961,522 for 1997	
		EO	Bureau of Environment Collection and Final Disposal Vice Direction of Urban Cleansing Municipal Market No.4 Green Areas Environmental Control Botanical Garden and Zoo Total	32 294 99 229 303 75 153 1,185	The Bureau of Environment is divided in the following operative departments: Vice Direction of Urban Cleansing (Urban Cleansing, Collection and Final Disposal), Department of Control of Environmental Pollution, Department of Project Management, etc. Budget of Bureau of Environment is Gs. 118,928,444,963 for 1997.
2	Fdo. de la Mora	RO	Department of Hygiene, Sanitation and Environment	1 director 1 subdirector 1 secretary 5 adm. staff	Control and implement legal and municipal dispositions on sanitation and environment
		EO	Private company	2 executive 2 administr. 6 driver 16 operator 10 fee collector	
3	Lambaré	RO	Department of Environment		
		EO	Section of Urban Cleansing Area	48 staff 10 substit. 3 controllers	
4	San Lorenzo	RO	Department of Sanitation and Hygiene	25 staff	Control, apply, and implement the ruling regulations
		EO	Division of Urban Cleansing and Waste collection	8 administr. 19 drivers 51 helpers 4 containers 30 sweepers 12 workers 4 landfill 4 mechanics	Cleansing and waste collection, treatment and final disposal and maintenance of the dumping site
5	Capiatá	RO	Department of Sanitation	1 chief	
		EO	Department of Sanitation	2 drivers 6 collectors	Household collection service
6	Luque	RO	Department of Environment		Collection service in markets, parks, cemetery and road sweeping Control
		EO	Private company (100%)	3 executive 5 administr. 5 drivers 12 operators 15 fee collector	Household collection Not effective service

7	Mariano R. Alonso	RO	Municipality	16 administr.	
		EO	Department of Sanitation	3 drivers 9 collectors 6 sweepers	
8	Villa Elisa	RO	Department of Sanitation, Hygiene, and Environment	1 director 2 secret. 1 inspector	Planning of collection system (tariff, itinerary, schedule) and landfill control
		EO	Department of Sanitation, Hygiene, and Environment	1 driver 3 collectors	Household refuse collection, transport and discharge in the dumping site
9	Ñemby	RO	Municipality		
		EO	Private company	1 dump track 1 driver 2 collectors	The private company has his own disposal site
10	J. A. Saldivar	RO	Department of Sanitation	No data	No data
		EO	Division of refuse collection	No data	No data
11	Itá	RO		No data	No data
		EO		No data	No data
12	Areguá	RO	Department of Sanitation and Hygiene	1 secretary 3 staff	No data
		EO	Division of Environment	7 staff	Public areas cleansing and collection Household collection service
13	Limpio	RO		No data	No data
		EO		No data	No data
14	Villa Hayes	RO		No data	No data
		EO		No data	No data
15	Benjamin Aceval	RO	None		
		EO	None		
16	Itaguá	RO	Municipality	No data	No data
		EO	Private company	No data	No data
17	San Antonio	RO	Department of Sanitation		
		EO	Division of Urban Cleansing	12 staff	No data
18	Ypacarai			No data	No data
19	Guarambaré			No data	No data
20	Ipané			No data	No data
21	Nueva Italia			No data	No data
22	Villeta			No data	No data
23	Nanawa		None		

Table A-3 Municipal Budget and Budget Allocated to SWM

No.	Municipality	Municipal budget for the last 3 years (in Thousand Guaranes)			Municipal Budget Allocated to SWM (in Thousand Guaranes)						Remarks
		1996	1997	1998	1995	%	1996	%	1997	%	
1	Asunción	117,789,833	138,046,420	163,581,476	8,100,406	6.9	8,025,931	5.8	9,815,000	6.0	
2	Fdo. de la Mora	5,015,000	7,213,000	7,108,000	478,000	9.5	526,000	7.3	665,000	9.4	The municipality receive 5% of the amount collected by the private company
3	Lambaré	6,152,636	9,506,536	9,082,928	500,000	8.1	555,000	5.8	690,000	7.6	
4	San Lorenzo	6,911,654	7,857,173	8,690,356	150,000	2.2	161,000	2.1	303,000	3.5	
5	Capiatá	1,700,100	2,253,000	2,456,000	60,000	3.5	135,000	6.0	185,000	7.5	
6	Luque	4,189,717	5,279,720	5,883,708	174,000	4.2	270,000	5.1	406,000	6.9	
7	M. R. Alonso	2,787,000	3,425,725	3,796,420	45,000	1.6	64,000	1.9	106,000	2.8	
8	Villa Elisa	1,406,535	1,690,621	2,410,700	77,359	5.5	84,531	5.0	145,000	6.0	
9	Nemby	854,900	1,103,080	1,900,000	39,325	4.6	84,937	7.7	174,800	9.2	
10	J.A. Saldívar	172,610	326,950	348,210	17,261	10.0	39,234	12.0	41,785	12.0	Privatized from 1997
11	Itá										
12	Areguá	1,133,250	1,083,150	1,468,300	56,663	5.0	54,158	5.0	73,415	5.0	
13	Limpio										
14	Villa Hayes	2,291,543	3,452,750	3,408,801	None		None		None		Privatized
15	Benjamin Aceval	473,345	633,956	633,290							
Other											
Municipalities											
16	Itagüá	1,265,937	1,332,000	2,170,000	No data		No data		No data		
17	San Antonio	456,000	456,000	692,000	54,720	12.0	54,720	12.0	83,040	12.0	
18	Ypacaraí	516,800	685,261	922,357	24,806	4.8	37,004	5.4	66,410	7.2	
19	Guarambaré										
20	Ipané										
21	Nueva Italia										
22	Villeta										
23	Nanawa	119,000	119,200	119,000	None		None		None		

Table A-4 Refuse Collection System of Fee Tariff

Area	No	Municipality	Collection of Fee Tariff	Fee Tariff (monthly)		Used Criteria for Collection Fee	How the Fee Tariff is Collected ?		
				Category	Gs				
H. U. M.	1	Asunción	By the municipality	Annual minimum tax	19,470	Collection fee is established according fiscal value of the property.	Fee tariff is paid by the users in the Municipality or in banks, financial agencies and cooperatives.		
				Fiscal value of real property :					
				Less than 250,000,000	0.20%				
				250,000,001 to 500,000,000	0.40%				
				More than Gs.500,000,000	0.50%				
				Special collection service :					
				4 ton per trip	50,000				
				Collection by dump truck	75,000				
				By collection truck	100,000				
				Collection of dead animals					
				Big animal	50,000				
				Small animal	25,000				
				Household animal	20,000				
				Kiosk and household (200m2)	3,300			* Waste amount * Collection frequency (daily and 3 times a week by zones) * Cost of O/M, fuel, distance to the dumping site, contractor benefits, et.	Tariff collection is carried out house by house (monthly) by the private contractor using pay slips. These pay slips are previously controlled by the Municipality. (10% of IVA is to be added in the fee tariff)
				Shop on stone road	4,300				
				Single household					
				Household w/ shop	5,800				
Household on asphalt road	6,200								
Shop on asphalt road	7,300								
Household (400m2)	9,200								
Shop on avenue									
Carpentry and workshop									
Bar, restaurant, bakery,	15,000								
Small industry									
Bank, finance									
Dwelling (5 rooms)	42,000								
Dwelling (6 rooms)	168,000								
Market	200,000								
Motel, large industry									
2	Fdo. de la Mora	By a contracted company							

3	Lambaré	Yes Annual Fee	Household Commercial Small industry Gasoline station, bar, others Hotel, restaurant, supermarket Motel, hospital	48,000 60,000 120,000 180,000 240,000 360,000	No answer	The Municipality charges an annual fee for all the services together with other municipal fees (real estate tax) IVA is included in the fee tariff
4	San Lorenzo	Yes	Household Shop Worshop, carpentry, etc. Restaurant, hotel, etc. Market, factory, hospital, institution, etc.	6,000 9,000 30,000 60,000 90,000	* Category of user's * Amount and kind of waste generated * Estimated daily amount based on statistical data	Tariff fee is collected by municipal collectors or paid directly by the users in the Municipality.
5	Capiatá	Yes	Household Small shop Bar, canteen Small industry, factory Single household Household, institution	5,000 7,000 13,000 22,000 8,000 21,000 50,000	* Amount of waste * O/M cost of vehicles * Distance to the dumping site * Number of personnel	By 4 municipal collectors house by house.
6	Luque	By private company	Industry Household Commerce Industry	150,000 4,000 8,000 18,000	* Market price * Comparison with other municipalities * By relation cost/price	The private contractor charges the fees directly to the users through 15 collectors.
7	Mariano R. Alonso	Yes	Household (average) Household (high) and mixed household/shop Shop (average) Shop (large) Motel, factory, hospital, supermarket (average) Supermarket (large) Laboratory Gasoline station Gas establishment Petroleum	5,000 7,000 10,000 20,000 30,000 40,000 40,000 30,000 50,000 80,000	* Amount of waste generated * Category of users	By municipal collectors house by house
8	Villa Elisa					Fee tariff is collected by the municipal collectors house by house monthly.

U.
M.

L. U. M.	9	Nemby	By private company	Household (average), residential Commercial Workshop Storage, motel Private hospital Bar & restaurant Gasoline station Industry, bus terminal Supermarket (medium size) Supermarket (large size)	6,000 6,000 10,000 30,000 40,000 15,000 25,000 100,000 60,000 150,000		Fee tariff is collected by the private company. This company pay	
	10	J.A. Saldívar	By private co.				No data	
	11	Itá					No data	
	12	Areguá	By private company				The private contractor charges the fees directly to the users through private collectors.	
	13	Limpio						
	14	Villa Hayes	Yes			2,000 4,000 5,000 10,000	Fee tariff is collected by the municipal collectors house by house	
	15	Benjamin Aceval		Street sweeping			None	
	O. M.	Other Municipalities						
		16	Itaguá	By private company	Household, vacant lot, Educational institution Shop Small industry, bar, restaurant, bakery, hotel, store, bank, etc. Hospital, market, pharmacy, retailer shop Industry, factory, storage, supermarket	5,000 5,000 7,500 10,000 12,000 15,000		The private contractor charges the fees directly to the users through collectors house by house.
								* According to the municipal law
								* Classification based on the users category and activity: (household, commercial, industrial, sanitary, etc.) * Updating of tariff according municipal ordinance

17	San Antonio	Yes		6,000		Fee tariff is collected by municipal collectors house by house or paid directly by the users.
18	Ypacarai	Yes	Household (category 2) Household (category 1) Household/shop Supermarket	3,500 5,000 7,000 10,000	By category and waste amount	Fee tariff is collected by municipal collectors house by house or paid directly by the users.
19	Guarambaré					No data
20	Ipané					No data
21	Nueva Italia					No data
22	Villeta					No data
23	Nanava	None	None		None	None
O. M.						

Table A-5 Dumping Fee

Area	No.	Municipality	Tipping Fee	Subsidy from the C. G.	Remarks
H. U. M.	1	Asunción	For private vehicles less than 5 ton are established the following fees (Gs/month): Household waste: free Industrial waste: 500,000 Expired food: 100,000 Wastes from other munic.: 2,000/ton	No	
	2	Fdo. de la Mora	Gs 5,000 per truck	No	Paid by private company to the Municipality of Villa Elisa
U. M.	3	Lambaré	Gs 22,000 (Jan. to July) Gs 32,500 (from August)	No	10% of I.V.A. is to be included
	4	San Lorenzo	There is no charge	No	
	5	Capiatá		No	
	6	Luque	The private company use a local dumping site and pay 1,000 Gs./ton	No	By a private company
	7	Mariano R. Alonso	G 4,000 per truck G 36,000 (monthly)	No	
	8	Villa Elisa	No	No	There is no tipping fee because it has his own disposal site
L. U. M.	9	Nemby	No	No	By a private company
	10	J. A. Saldivar	No	No	By a private company
	11	Itá			
	12	Areguá	No	No	By a private company
	13	Limpio			No data
	14	Villa Hayes			No data
	15	Benjamín Aceval	None	No	
O. M.	16	Itaguá	No	No	By a private company
	17	San Antonio	No	No	There is no tipping fee because it has his own disposal site
	18	Ypacaraí	No	No	
	19	Guarambaré			No data
	20	Ipané			No data
	21	Nueva Italia			No data
	22	Villeta			No data
	23	Nanawa	None	No	

Table A-6 Sanitary and Environmental Education Program

Area	No	Municipality	Education Program in Schools	Public Awareness on Sanitary and Environmental aspects	Actions taken by the Municipality to improve and promote public awareness and cooperation
H. U. M.	1	Asunción	Yes. Education programs are related to environmental preservation and specifically on SWM	Not enough public awareness. However children are starting to achieve awareness on sanitary and environmental aspects.	Recycling program in towns and schools, with private sector participation such as food establishments. Public campaign on environmental education through mass communication
	2	Fdo. de la Mora	There are subjects on sanitary education	Not enough public awareness	Promotion of public participation in cleansing activities, meetings, workshops, housewife training on SWM, etc.
U. M.	3	Lambaré	There is a plan to carried out an awareness campaign in schools	There is high awareness in the residents	To organize a community committee and to promote a cleansing campaign by towns
	4	San Lorenzo	Yes. Sanitary and environmental education are part of the National Education Program	Today, it is possible to affirm that there is more awareness due to the policy taken by the Municipality on sanitary and environment aspects	Inter-institutional organization including public and private institutions. Formation of vicinity committees, etc.
	5	Capiatá	Trough program of the Ministry of Education and Culture and Ministry of Public Health	No	Radial programs to aware the public on recycling activities and vicinity committee meetings.
	6	Luque	No	No. Self-disposal by open combustion is practiced.	The municipality have realized meetings on sanitary and environmental aspects. However, the people participation and action was of poor results.
	7	Mariano R. Alonso	Yes	Yes	Meetings, penalties, prohibitions, etc.
	8	Villa Elisa	Yes. In primary and middle schools	Not enough public awareness	Clean operations around vacant lands, streets, avenues and parks with the cooperation of vicinity committees

L. U. M.	9	Nemby	Yes	There is public awareness in the residents, but no in powerful industrial owners.	An environmental expert is working to promote public awareness and cooperation
	10	J. A. Saldivar	Yes	There is public awareness in the residents.	Actions are taken through meetings, conferences and seminars in cooperation with vicinity committees.
	11	Itá	No data	No data	No data
	12	Areguá	Yes	Yes	Actions are taken through meetings, distribution of pamphlets and bulletins, and vicinity committees activities.
	13	Limpio	No data	No data	No data
	14	Villa Hayes	No data	No data	No data
	15	Benjamin Aceval	Instructions is given in schools.	Yes	Public awareness and cooperation are promoted trough vicinity committees.
O. M.	16	Itaguá	No	Yes	Trough vicinity committees
	17	San Antonio	Yes	Yes	Trough courses, seminars, etc.
	18	Ypacaraí	No data	No data	No data
	19	Guarambaré	No data	No data	No data
	20	Ipané	No data	No data	No data
	21	Nueva Italia	No data	No data	No data
	22	Villeta	No data	No data	No data
	23	Nanawa	Yes	Yes	Actions are taken through meetings and seminar with the community in cooperation with the Ministry of Health to prevent diseases.

APENDICE 7 : Lista de Datos Recopilados

Dato	Título	Publicación	Fecha
Informe	Plan de Manejo de Residuos Sólidos en Asunción y Ciudades Vecinas.	Municipalidad de Asunción	Nov, 1997
Informe	Servicios de Recolección de Residuos Sólidos Domiciliarios, Barrido Manual y Mecanizado de Calles y Espacios Públicos, Conversión, Operación y Mantenimiento del Relleno Sanitario de Cateura y Limpieza del Mercado Municipal Número 5, para la Ciudad de Asunción * Licitación Pública Internacional * Contrato Proforma * Anexo I- Modelos	Municipalidad de Asunción	Oct. 1997
Informe	Trabajo Realizado en Cateura con Arrendamiento de Maquinarias Privadas	Municipalidad de Asunción	1997
Informe	Propuesta de Cierre del Vertedero de Cateura	Municipalidad de Asunción	Mayo 1996
Informe	Análisis Preliminar Cualitativo de la Expansión del Vertedero Cateura	Municipalidad de Asunción	Sept. 1997
Informe	Manejo de Residuos Sólidos Método de Tratamiento de Residuos Sólidos	Alter Vida (ONG) (Centro de Estudio y Formación para el Ecodesarrollo)	Año ?
Copia	<ul style="list-style-type: none"> ● Recolección Selectiva de Residuos - 1994 ● Recolección Selectiva de Residuos - 1995 ● Recolección Selectiva de Residuos - 1996 ● Resumen de Recolección Selectiva de Residuos - 1997 	Dirección de Medio Ambiente Municipalidad de Asunción	Año ?
Copia	Organigrama, Vice Dirección de Aseo Urbano	Vice Dirección de Servicios Municipalidad de Asunción	Año ?
Copia	Memorandum No. 032/97 Informe de Gastos de los Vehículos del Año 1997	Vice Dirección de Servicios Municipalidad de Asunción	Año ?
Copia	Plano Censal de la Ciudad de Asunción (Densidad de Población)	Vice Dirección de Servicios Municipalidad de Asunción	Año ?
Copia	Informe de Movimiento Diario de Recolectores	Vice Dirección de Servicios Municipalidad de Asunción	Año ?
Copia	Informe Estadístico de Vehículos y Contenedores a Cargo de la División de Servicios Varios	Vice Dirección de Aseo Urbano Municipalidad de Asunción	Nov. 1997

Dato	Título	Publicación	Fecha
Copia	Proyecto de Mejoramiento, Recolección de Basura Tercerización	Departamento de Obras Catastro y Urbanismo, Municipalidad de Mariano R. Alonso	Año ?
Copia	Municipalidad de Mariano Roque Alonso Ubicación del Vertedero	Departamento de Obras Catastro y Urbanismo, Municipalidad de Mariano R. Alonso	1997
Copia	Licitación Pública No.../97 Contratación de Servicios de Recolección de Residuos	Municipalidad de Lambaré	1997
Copia	<ul style="list-style-type: none"> ● Temperatura Máxima Media ● Día de la Máxima Insolación Mensual ● Frecuencia en % y Velocidad del Viento, Velocidad Media Mensual y Anual 	Dirección de Meteorología e Hidrología, Dirección Nacional de Aeronáutica Civil	Año ?
Copia	Alturas Caudales (Río Paraguay)	Administración Nacional de Navegación y Puertos	Año ?
Plano	Talleres Municipales, Anteproyecto (10 dibujos)	Dirección General del Area Urbana Municipalidad de Asunción	1997
Plano	Recolección y Transporte de Residuos Sólidos (Plan para licitación pública internacional)	Dirección General del Area Urbana Municipalidad de Asunción	Julio 1997
Plano	Puestos de Recolección de Basuras	Vice Dirección de Aseo Urbano Municipalidad de Asunción	1997
Mapa	Cartografía Nacional (Asunción, Caacupé, Paraguari, Villeta, Benjamín Aceval, Puerto la Victoria), Escala 1: 100.000, (6 láminas)	Dirección del Servicio Geográfico Militar	1983, 1984, 1997
Mapa	Asunción, Escala 1: 250.000 (1 lámina)	Dirección del Servicio Geográfico Militar	1995
Mapa	Asunción, Escala 1: 50.000 (6 láminas)	Dirección del Servicio Geográfico Militar	Reimpresión 1995
Mapa	Gran Asunción, Escala 1: 10.000 (2 láminas)	Dirección del Servicio Geográfico Militar	1994



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