ATTACHMENT 11

SUMMARY ON IMPROVEMENT OF B-RUNWAY OF OSAKA INTERNATIONAL AIRPORT

IMPROVEMENT OF B-RUNWAY

OF

OSAKA INTERNATIONAL AIRPORT

NOVEMBER 1989

B runway was constructed from 1965 to 1970 with length of 3000 m and width of 60 m.
Design aircraft was DC-8 and design weight was 200t.

Improvement of the runway will be made at night time, and the runway will open in the morning.

1. History of runway improvement

After completion of the runway in 1970, heavier aircraft has begun to operate at this airport, and it damaged pavement.

To cope with operations of B747 and other large aircraft, first overlay of asphalt concrete was made in 1979.

Recently, rutting and other deformation at entrance of taxiway, touchdown zone and high-speed exit taxiway are becoming significant, and second asphalt overlay has been made in 1988 and 1989.

2. Summary of improvement work

1) Work duration
From 17 October 1989 to 13 March 1990

2) Contractor
Joint venture of TAISEI DORO and TOKYO HOSOU KOGYO.

3) Amount of cost
331,660,000 YEN (2,300,000 US$)

4) Area to be improved

Runway:	86,000 m^2	(Average thickness of overlay 10 cm)
Shoulders:	19,000 m^2	
Transitional area:	26,000 m^2	

3. Construction material and site conditions

1) Asphalt mixture: 29,200 t

2) Asphalt plants:
Two plants will provide asphalt ture.

	Distance from the airport	Transportation Time
No.1	27 km	45 minutes
No.2	4 km	15 minutes

3) Construction equipment and staff
Number of equipment: about 30 (See page 4)
Number of staff: about 40

Equipment has low noise level, and noise-proof nets will be installed toward houses.

Lighting equipment will be also provided.

4. Operation of asphalt plants

Materials will be transported to plants at day time, and mixing will be made at night time under anti-noise-and-vibration regulation.

Asphalt plants are installed far from houses as practicable.

5. Transportation of asphalt mixture

Nati l road will be used.

6. Design conditions of pavement

1) Design load: LA-1

Design aircraft	B747-200B
Total weight	353.2 t
Wheel load	82.5 t
Gear type	Double dual tandem

2) Design coverage: 20,000

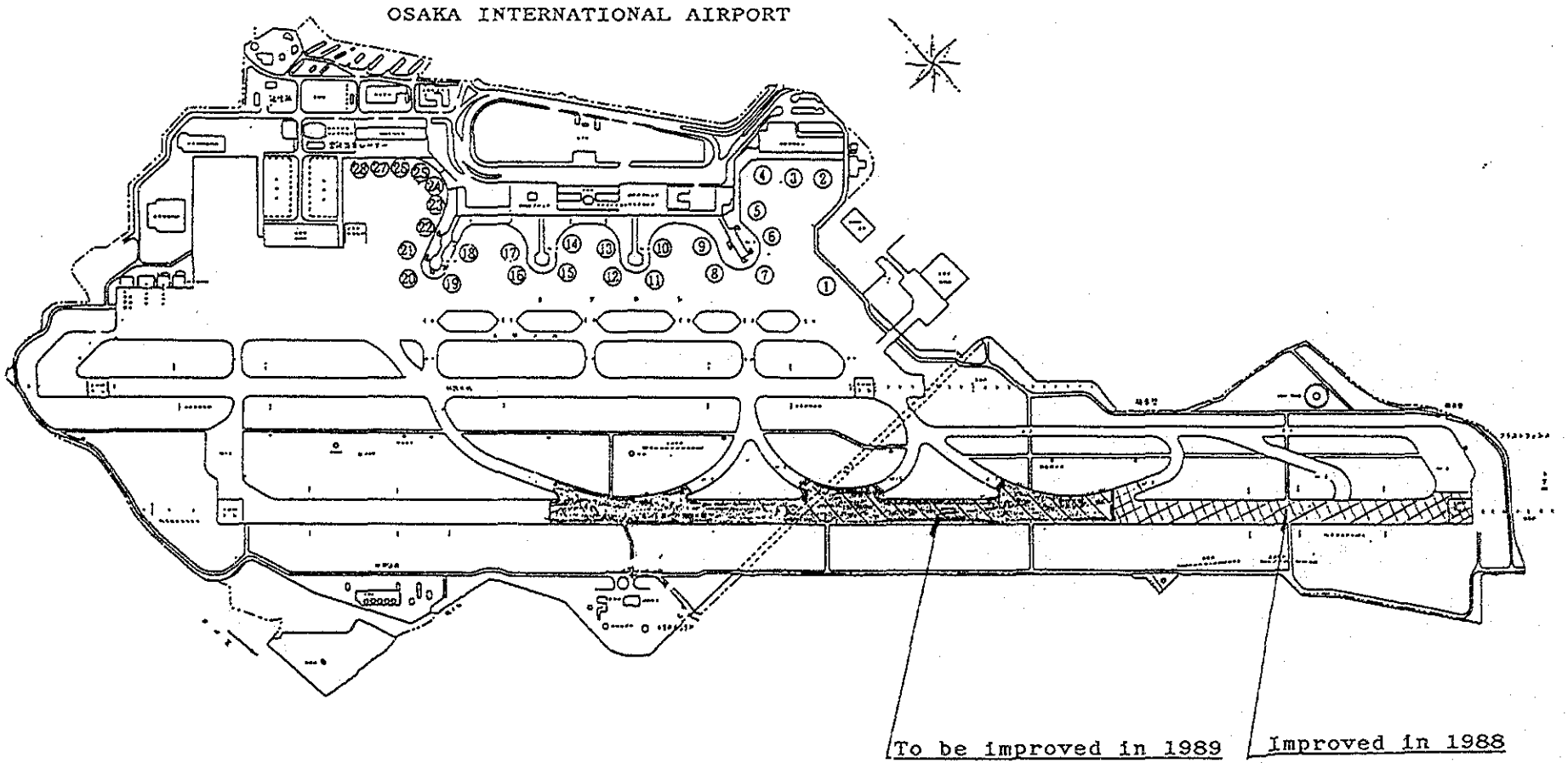
7. Materials

Name	Specification	Quantity	Supplier	Quality check
Asphalt concrete (Fine-grained)	AC100	10,300 t	TAISEI DORO and TOA DORO	Design mix report
Asphalt concrete (Fine-grained)	-	3,966 t	- ditto -	- ditto -
Asphalt concrete (Coarse-grained)	-	14,923 t	- ditto -	- ditto -
Asphalt treated base	-	2,864 t	- ditto -	- ditto -
Asphalt emulsion	PK-4	63,730 l	TOA DORO	Test report
Paint	JISK-5665	1,510 l	NIPPON PAINT	Test report

8. Major equipment

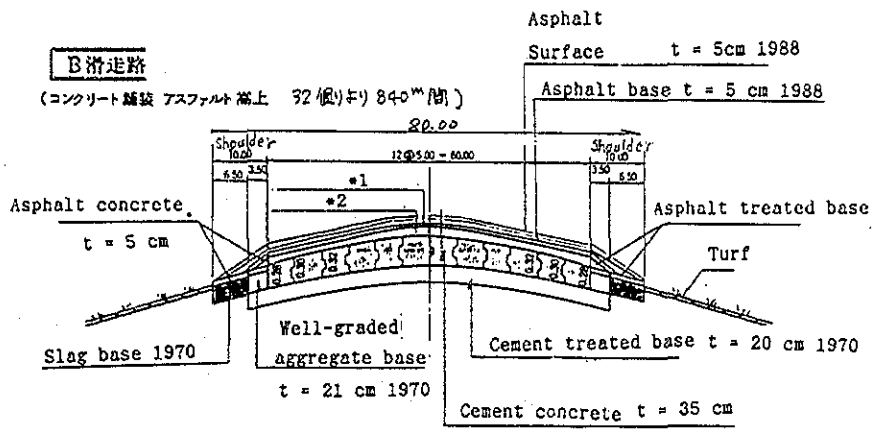
Name of Equipment	Type	Specification	Number	Note
Lighting vehicle	NT-6	Noise-proof	2	
Teraster	NTS-4	- ditto -	2	
Cutter	NP-2000	Normal temperature	1	
Tire shovel	CAT 910		1	
Sweeper	SW-2ZS	Large	1	
Asphalt finisher	S-2000	W = 3 ~ 12 m	2	
- ditto -	HA45W-V	W = 3 ~ 4.5 m	1	
Macadam roller	R-1	11 ~ 15 t	2	
Tire roller	WR-20	15 t	4	Tire pressure 6.0kg/cm^2
Tandem roller	WTXC-19	13 ~ 19 t	1	
Distributer	DS-30DT	4 t	1	
Sweeper	SW-2ZS	Large	1	
Combined roller	WV-4000	4 t	1	Transition work
Compact Sweeper	---	---	1	
Line marker	TS-1	4.3 l/min	1	

9. Site Location



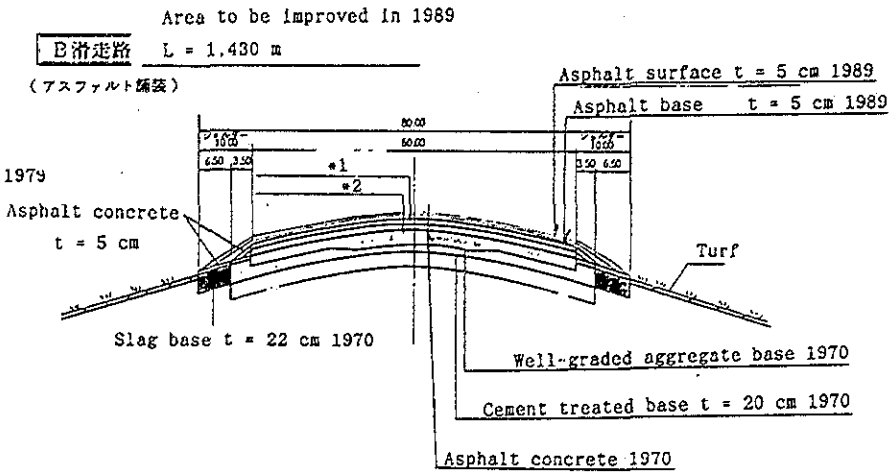
Typical cross section of B-RWY

Asphalt overlay on cement concrete



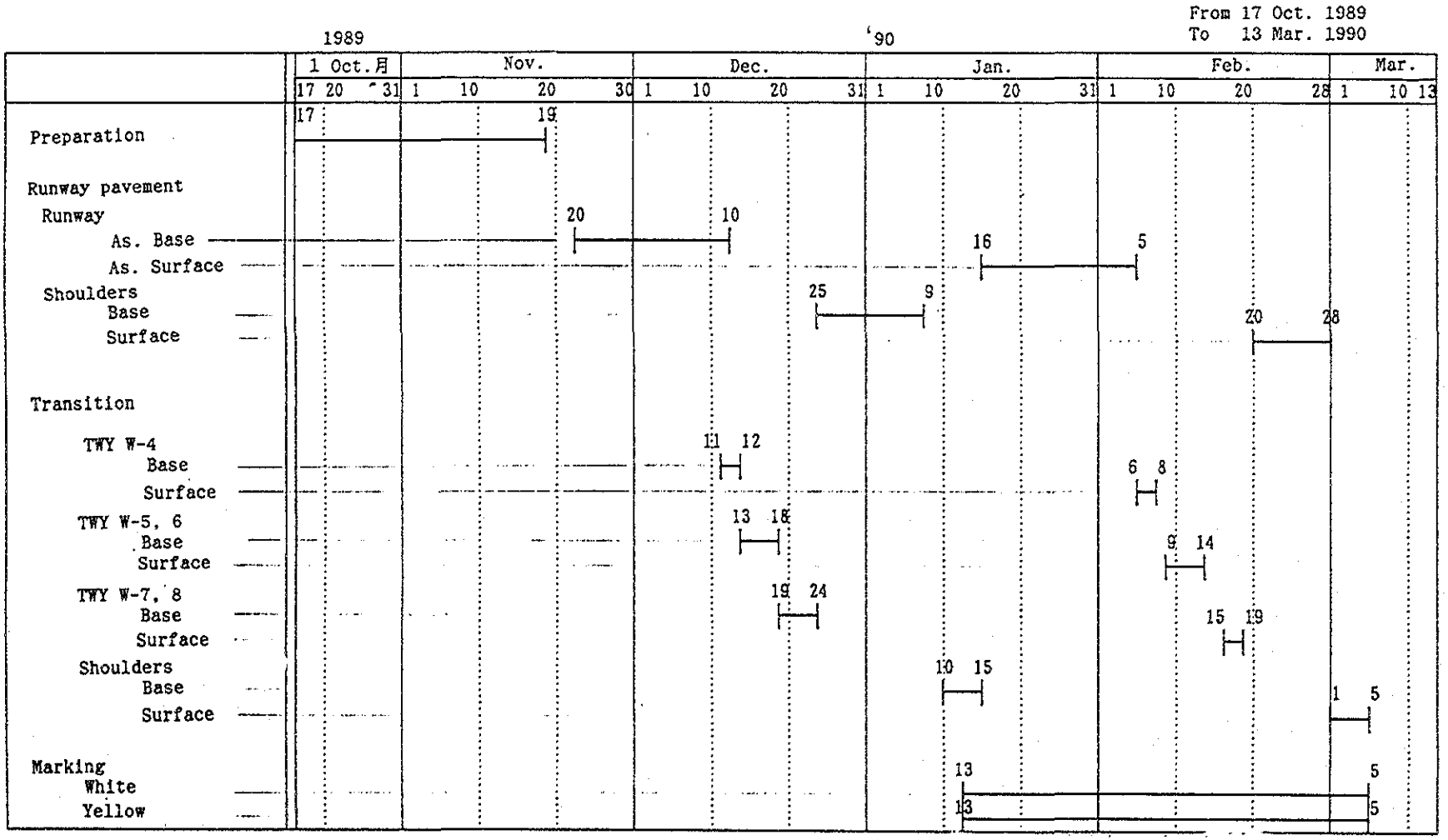
*1 Asphalt concrete t = 5 cm 1979
(surface course)
*2 Asphalt concrete t = 11 cm 1979
(Base course)

Asphalt overlay on asphalt concrete

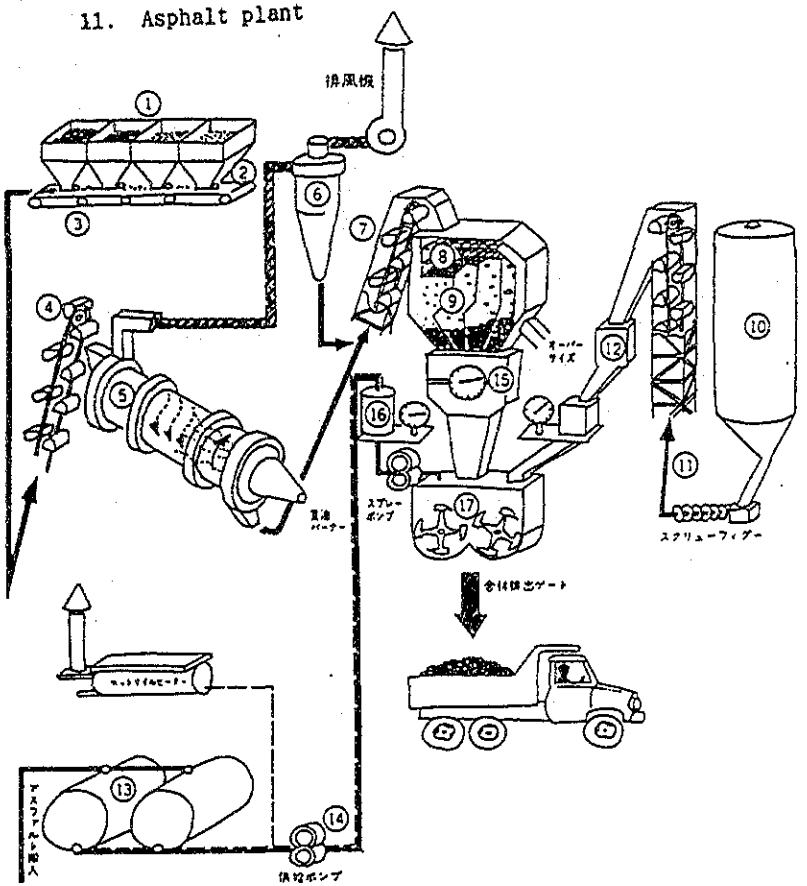


*1 Asphalt concrete t = 5 cm 1979
(surface)
*2 Asphalt concrete t = 7 cm 1979

10. Schedule


From 17 Oct. 1989
To 13 Mar. 1990
1989
'90
1 Oct.月
Nov.
Dec.
Jan.
Feb.
Mar.
17 20 31 1 10 20 30 1 10 20 31 1 10 20 31 1 10 20 28 1 10 13
Preparation
17
19
Runway pavement
Runway
As. Base
20
10
As. Surface
16
5
Shoulders
Base
25
9
Surface
20
28
Transition
TWY W-4
Base
11
12
Surface
6
8
TWY W-5, 6
Base
13
18
Surface
9
14
TWY W-7, 8
Base
19
24
Surface
15
19
Shoulders
Base
10
15
Surface
1
5
Marking
White
13
5
Yellow
13
5

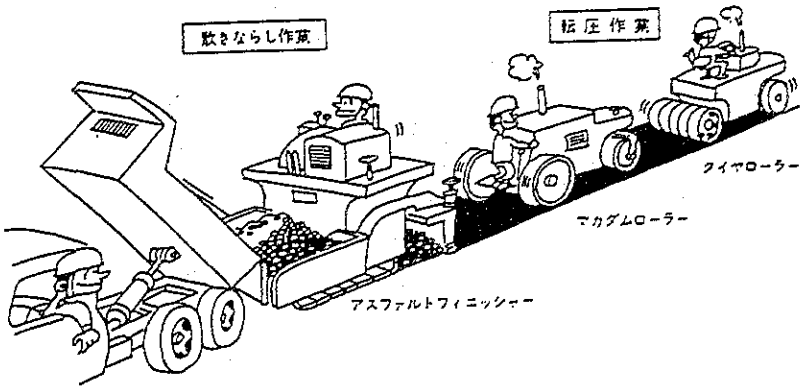
11. Asphalt plant



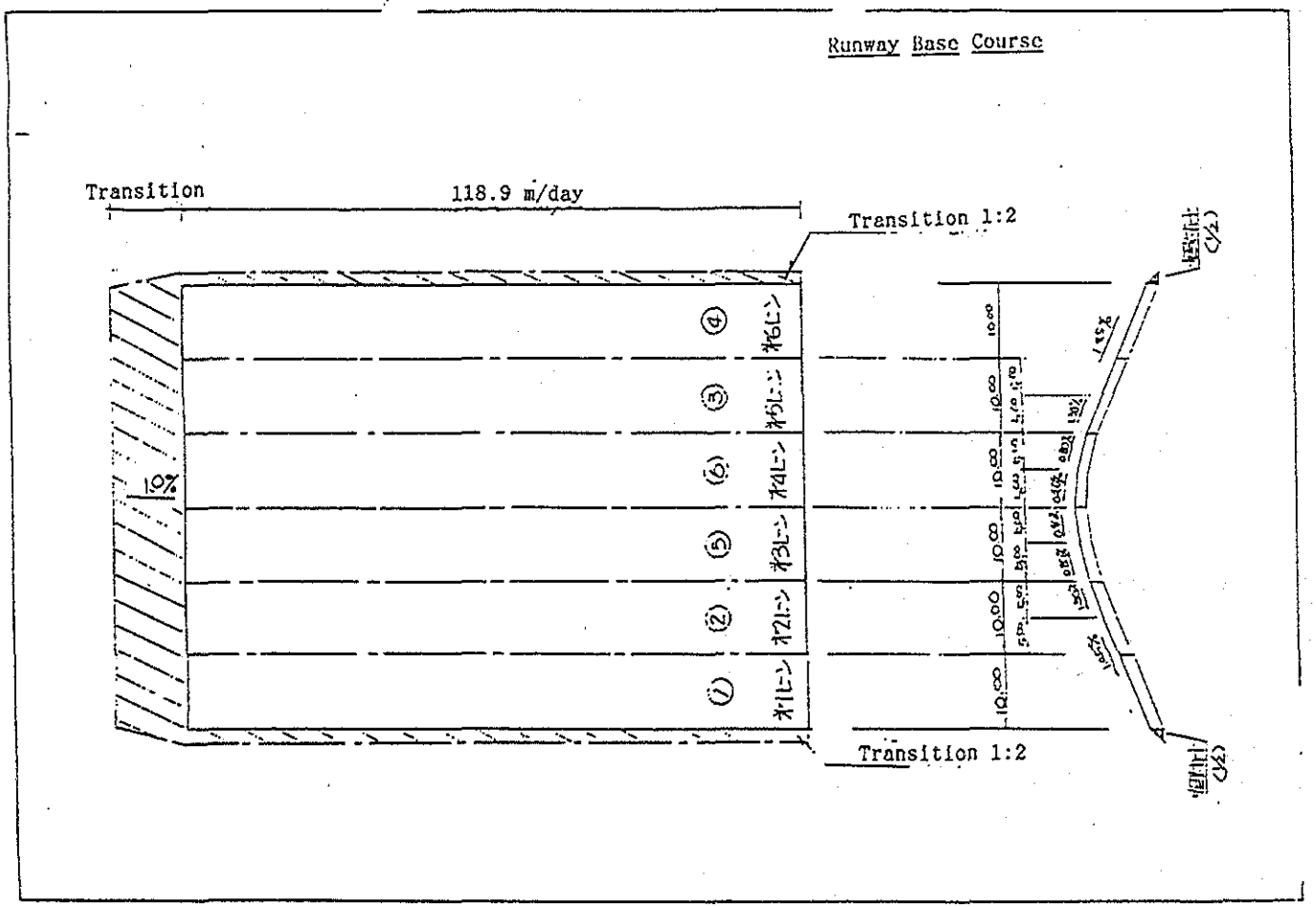
① 骨材貯蔵装置（コールドビン）
② 骨材供給装置（コールドフィダー）
③ 集積コンベアー
④ コールドエレベーター
⑤ ドライヤー
⑥ 集じん装置（ダストコレクター）
⑦ ホットエレベーター
⑧ ふるい分け装置（ホットスクリーン）
⑨ ホットビン
⑩ 石粉貯蔵装置（石粉サイロ）
⑪ 石粉供給装置
⑫ 石粉ビン
⑬ アスファルト貯蔵装置
⑭ アスファルト供給装置
⑮ 骨材および石粉計量装置
⑯ アスファルト計量装置
⑰ 混合装置（ミキサー）

アスファルトプラントの概要（バッチ式）

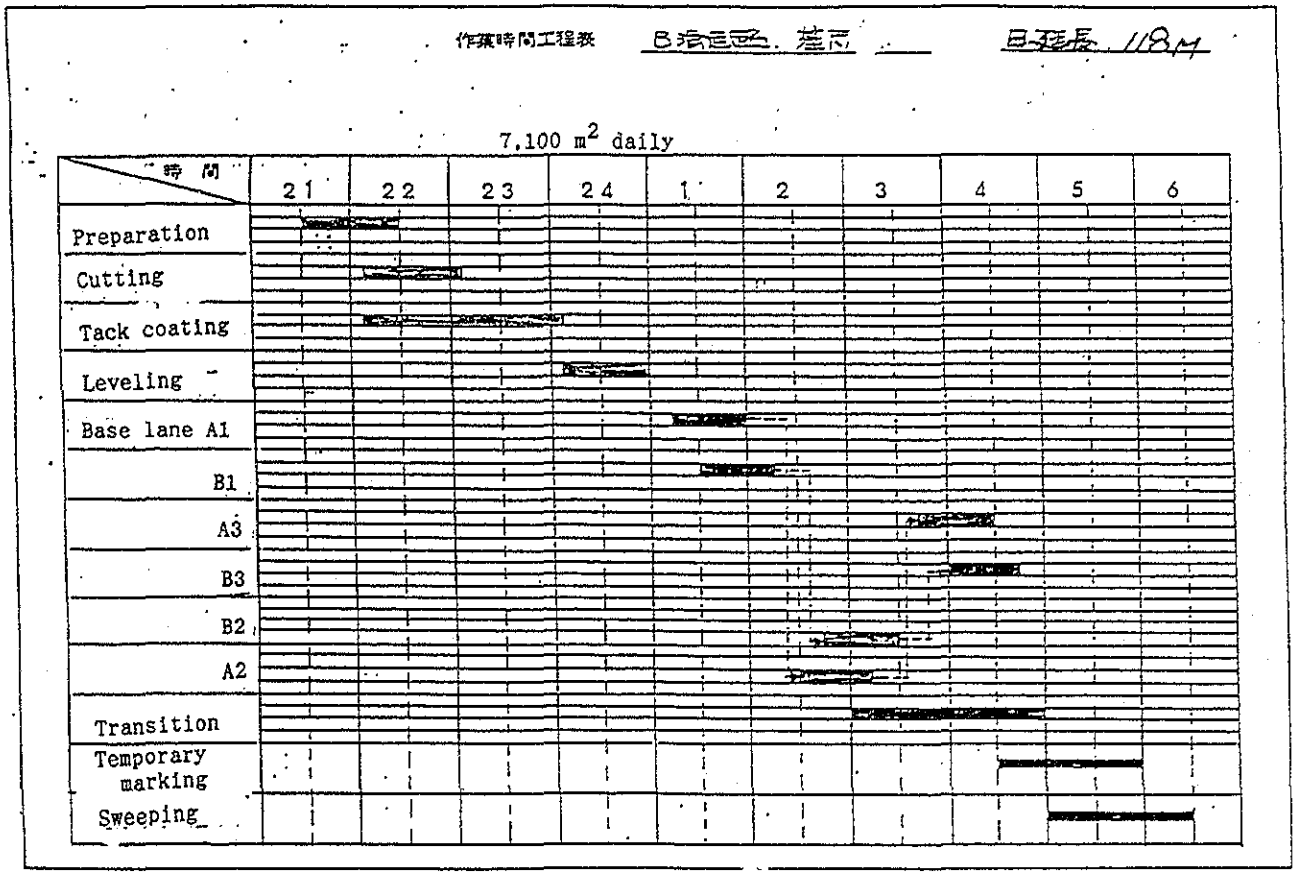
12. Asphalt paving



13. Daily work area of Asphalt paving



14. Daily work schedule



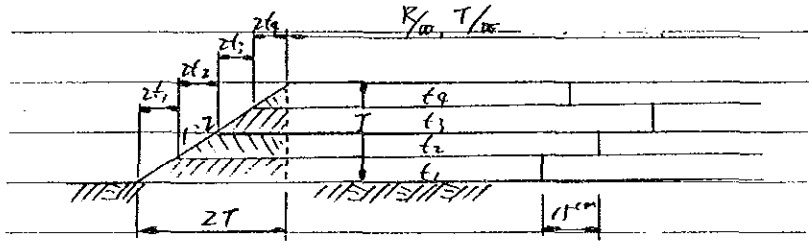
A, B: Finisher 10 m

ATTACHMENT 12

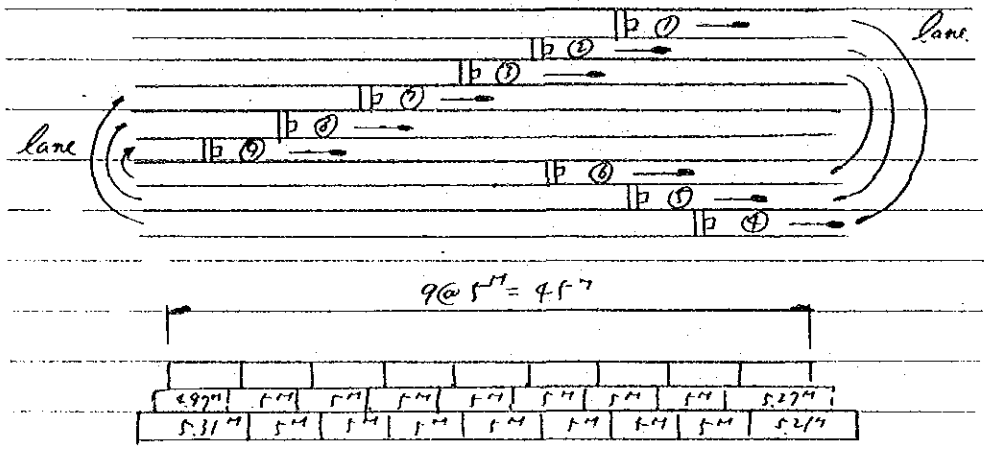
SUPPLEMENTARY INFORMATION OF PAVEMENT WORK

Sequence of asphalt overlay work per day

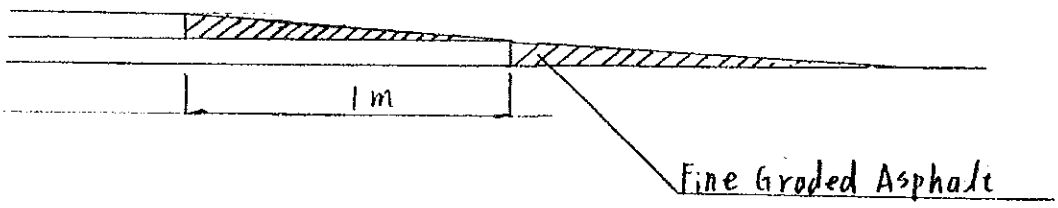
1 Wiping out of marking
2 Removal of longitudinal transition asphalt
3 Clearing
4 Tack coating
5 Setting of asphalt finishers
(After curing of tack coat)
6 Asphalt paving
7 Breakdown rolling by macadam roller
8 Second rolling by tire roller
9 Finish rolling by tandem roller
10 Transversal transition paving and rolling



11 Repeat of steps 6 10

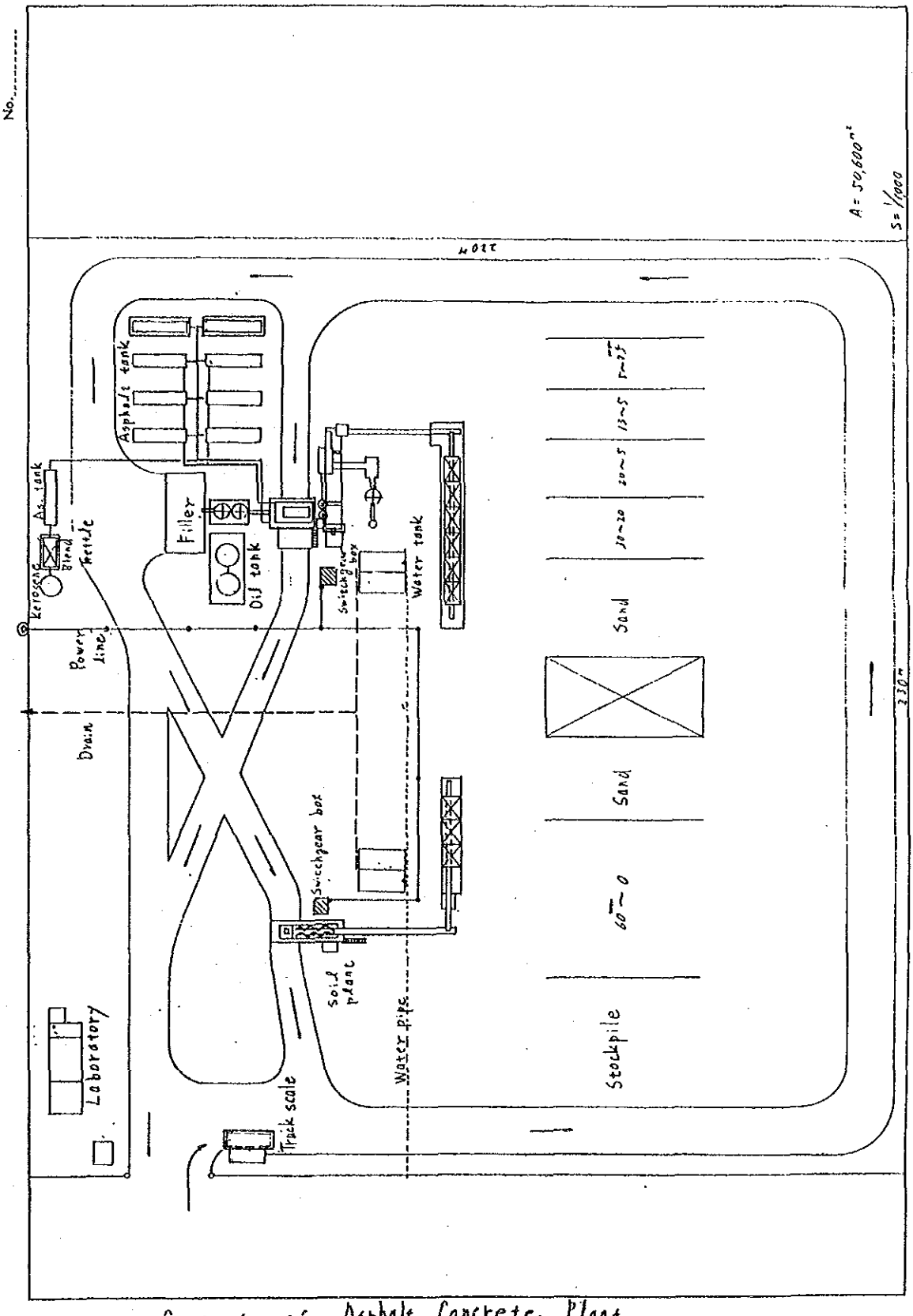


12 Longitudinal trasition paving and rolling

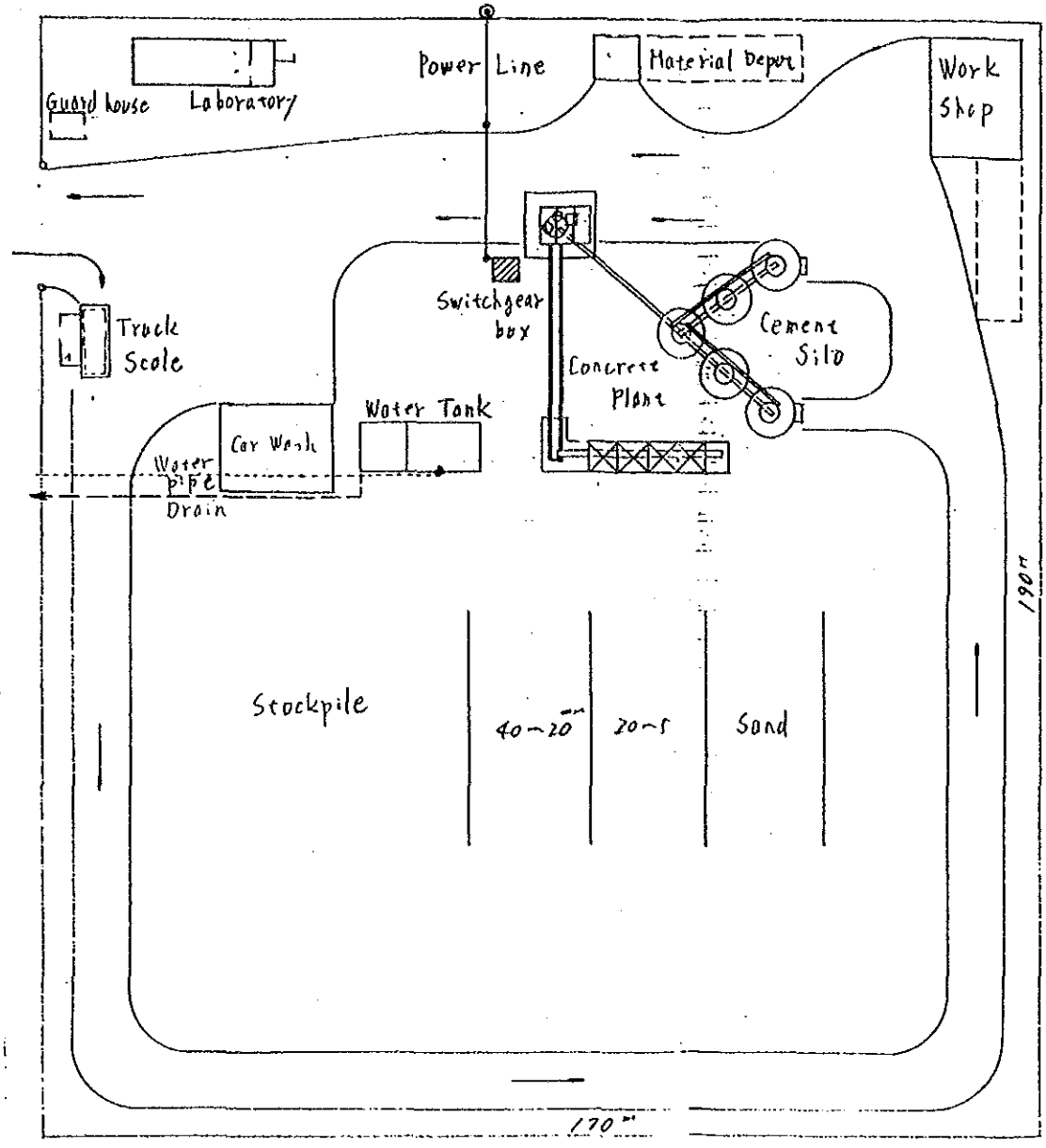


13 Clearing

14 Temporary marking



Concept of Asphalt Concrete Plant



Concept of Cement Concrete plant

S = 1/1,000

ATTACHMENT 13

BREAKDOWN OF COSTS AND BENEFITS

I. Investment Cost for Financial Analysis

II. Investment Cost for Economic Analysis

III. Calculation of Airport Tariff Revenues

IV. Number of Tourist

I. Investment Cost for Financial Analysis
II. Investment Cost for Economic Analysis

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
Grade 1																											
① A. Airfield	5,570	28,110	33,680	1,550	6,080	800	100	6,980	8,530	2,490	9,590	1,040	120	10,750	13,240	1,290	5,840	620	80	6,540	7,830	240	2,940	810	90	3,840	4,080
② B. Terminal area	1,887	2,182	4,069	551	101	57	39	197	748	470	288	90	40	418	888	718	196	100	85	381	1,099	148	625	285	276	1,186	1,334
③ C. Nav. Aids	17,433	2,596	20,029	4,973	569	88	89	746	5,719	8,108	368	302	348	1,018	9,126	2,808	42	31	15	88	2,896	1,544	188	228	328	744	2,288
④ Sub total ①+②+③	24,890	32,888	57,778	7,074	6,750	945	228	7,923	14,997	11,068	10,246	1,432	508	12,186	23,254	4,816	6,078	751	180	7,009	11,825	1,932	3,753	1,323	694	5,770	7,702
⑤ Engineering ④×5%	1,245	1,645	2,890	354	338	47	11	396	750	553	512	72	25	609	1,162	241	304	38	9	351	592	97	188	66	35	289	386
⑥ Total ④+⑤	26,135	34,533	60,668	7,428	7,088	992	239	8,319	15,747	11,621	10,758	1,504	533	12,795	24,416	5,057	6,382	789	189	7,360	12,417	2,029	3,941	1,389	729	6,059	8,088
⑦ Contingency ⑥×10%	2,614	3,453	6,067	743	709	99	24	832	1,575	1,162	1,076	150	53	1,279	2,441	506	638	79	19	736	1,242	203	394	139	73	606	809
⑧ Financial cost ⑥+⑦	28,749	37,986	66,735	8,171	7,797	1,091	263	9,151	17,322	12,783	11,834	1,654	586	14,074	26,857	5,563	7,020	868	208	8,096	13,659	2,232	4,335	1,528	802	6,665	8,897
⑨ SWR skilled						0.727						0.727						0.727						0.727			
⑩ SWR unskilled							0.566						0.566						0.566						0.566		
⑪ SCF Local				1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727		
⑫ Economic Price ④×⑨×⑩×⑪	24,890	22,518	47,408	7,074	4,907	499	94	5,500	12,574	11,068	7,449	757	209	8,415	19,483	4,816	4,419	397	74	4,890	9,706	1,932	2,728	699	286	3,713	5,645
⑬ Engineering ⑫×5%	1,245	1,125	2,370	354	245	25	5	275	629	553	372	38	10	420	973	241	221	20	4	245	486	97	136	35	14	185	282
⑭ Economic cost ⑫+⑬	26,135	23,643	49,778	7,428	5,152	524	99	5,775	13,203	11,621	7,821	795	219	8,835	20,456	5,057	4,640	417	78	5,135	10,192	2,029	2,864	734	300	3,898	5,927

Grade-2

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
Grade 2																											
① A. Airfield	5,330	23,820	29,150	1,550	6,080	800	100	6,980	8,530	2,490	9,590	1,040	120	10,750	13,240	1,290	5,470	550	70	6,090	7,380	—	—	—	—	—	—
② B. Terminal area	1,887	2,182	4,069	551	101	57	39	197	748	470	288	90	40	418	888	718	196	100	85	381	1,099	148	625	285	276	1,186	1,334
③ C. Nav. Aids	15,349	2,252	17,601	4,973	569	88	89	746	5,719	8,108	368	302	348	1,018	9,126	2,058	42	31	15	88	2,146	210	80	112	208	400	610
④ Sub total (①)+(②)+(③)	22,566	28,254	50,820	7,074	6,750	945	228	7,923	14,997	11,068	10,246	1,432	508	12,186	23,254	4,066	5,708	681	170	6,559	10,625	358	705	397	484	1,586	1,944
⑤ Engineering ④×5%	1,128	1,412	2,540	354	338	47	11	396	750	553	512	72	26	609	1,162	203	285	34	9	328	531	18	35	20	24	79	97
⑥ Total ④+⑤	23,694	29,666	53,360	7,428	7,088	992	239	8,319	15,747	11,621	10,758	1,504	533	12,795	24,416	4,269	5,993	715	179	6,887	11,156	376	740	417	508	1,665	2,041
⑦ Contingency ⑥×10%	2,370	2,967	5,337	743	709	99	24	832	1,575	1,162	1,076	150	53	1,279	2,441	427	599	72	18	689	1,116	38	74	42	51	167	205
⑧ Financial cost ⑥+⑦	26,064	32,633	58,697	8,171	7,797	1,091	263	9,151	17,322	12,783	11,834	1,654	586	14,074	26,857	4,696	6,592	787	197	7,576	12,272	414	814	459	559	1,832	2,246
⑨ SWR of skilled						0.727						0.727						0.727						0.727			
⑩ SWR unskilled							0.566						0.566						0.566						0.566		
⑪ SCF Local cost				1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727		
⑫ Shadow Price ④×⑨×⑩×⑪	22,566	19,417	41,983	7,074	4,907	499	94	5,500	12,574	11,068	7,449	757	209	8,415	19,483	4,066	4,150	360	70	4,580	8,646	358	513	210	199	922	1,280
⑬ Engineering ⑫×5%	1,128	972	2,100	354	245	25	5	275	629	553	372	38	10	420	973	203	208	18	4	230	433	18	26	11	10	47	65
⑭ Economic cost ⑫+⑬	23,694	20,389	44,083	7,428	5,152	524	99	5,775	13,203	11,621	7,821	795	219	8,835	20,456	4,269	4,358	378	74	4,810	9,079	376	539	221	209	969	1,345

Grade-3

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Unskilled	Sub total			Goods	Skilled	Unskilled	Sub total			Goods	Skilled	Unskilled	Sub total			Goods	Skilled	Unskilled	Sub total	
Grade 3																											
① A. Airfield	4,390	20,990	25,380	1,410	5,710	760	90	6,560	7,970	2,490	9,590	1,040	120	10,750	13,240	490	3,300	330	50	3,680	4,170	—	—	—	—	—	—
② B. Terminal area	1,887	2,182	4,069	551	101	57	39	197	748	470	288	90	40	418	888	718	196	100	85	381	1099	148	625	285	276	1,186	1,334
③ C. Nav. Aids	11,872	1,864	13,736	4,672	479	70	76	625	5,297	5,600	264	255	320	839	6,439	1,390	0	0	0	0	1,390	210	80	112	208	400	610
④ Sub total (1)+(2)+(3)	18,149	25,036	43,185	6,633	6,290	887	205	7,382	14,015	8,560	10,142	1,385	480	12,007	20,567	2,598	3,496	430	135	4,061	6,659	358	705	397	484	1,586	1,944
⑤ Engineering ④×5%	908	1,252	2,160	332	315	44	10	369	701	428	507	69	24	600	1,028	130	175	22	7	204	334	18	35	20	24	79	97
⑥ Total ④+⑤	19,057	26,288	45,345	6,965	6,605	931	215	7,751	14,716	8,988	10,649	1,454	504	12,607	21,595	2,728	3,671	452	142	4,265	6,993	376	740	417	508	1,665	2,041
⑦ Contingency ⑥×10%	1,907	2,629	4,536	697	661	93	22	776	1,473	899	1,065	145	50	1,260	2,159	273	367	45	14	426	699	38	74	42	51	167	205
⑧ Financial cost ⑥+⑦	20,964	28,917	49,881	7,662	7,266	1,024	237	8,527	16,189	9,887	11,714	1,599	554	13,867	23,754	3,001	4,038	497	156	4,691	7,692	414	814	459	559	1,832	2,246
⑨ SWR of skilled						0.727						0.727						0.727						0.727			
⑩ SWR unskilled							0.566						0.566						0.566						0.566		
⑪ SCF Local cost				1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727			1.0	0.727	0.727	0.727		
⑫ Shadow Price ④×⑨×⑩×⑪	18,149	17,176	35,325	6,633	4,573	469	84	5,126	11,759	8,560	7,373	732	198	8,303	16,863	2,598	2,542	227	56	2,825	5,423	358	513	210	199	922	1,280
⑬ Engineering ⑫×5%	908	860	1,768	332	229	23	4	256	588	428	369	37	10	416	844	130	127	11	3	141	271	18	26	11	10	47	65
⑭ Economic cost ⑫+⑬	19,057	18,036	37,093	6,965	4,802	492	88	5,382	12,347	8,988	7,742	769	208	8,719	17,707	2,728	2,669	238	59	2,966	5,694	376	539	221	209	969	1,345

A. Airfield Facilities

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
RWY 06/24	2,190	6,560	8,750	660	1,650	290	30	1,970	2,630	1,530	4,130	410	50	4,590	6,120						—						—
TWY-A	330	1,280	1,610	330	1,130	130	20	1,280	1,610						—						—						—
TWY-B	480	1,890	2,370	—	—	—	—	—	—	480	1,660	210	20	1,890	2,370						—						—
TWY-C2	120	630	750	120	570	50	10	630	750						—						—						—
TWY-D	190	710	900	10	50	10	0	60	70						—	180	580	60	10	650	830						—
New apron earth work	0	300	300	0	150	140	10	300	300																		
New apron pavement	400	3,310	3,710	290	2,160	140	20	2,320	2,610	110	890	90	10	990	1,100						—						—
S-3	180	1,660	1,840						—						—	180	1,490	150	20	1,660	1,840						—
S-4, 5, 6	370	3,280	3,650						—	370	2,910	330	40	3,280	3,650						—						—
S-5	130	1,120	1,250						—						—	130	1,010	100	10	1,120	1,250						—
Perimeter road	0	250	250													—	220	20	10	250	250						
Total Grade-3	4,390	20,990	25,380	1,410	5,710	760	90	6,560	7,970	2,490	9,590	1,040	120	10,750	13,240	490	3,300	330	50	3,680	4,170						
RWY 01/09 Reinforcement	940	2,830	3,770	140	370	40	10	420	560						—	800	2,170	220	20	2,410	3,210						
															—												
Total Grade-2	5,330	23,820	29,150	1,550	6,080	800	100	6,980	8,530	2,490	9,590	1,040	120	10,750	13,240	1,290	5,470	550	70	6,090	7,380	—	—	—	—	—	—
RWY 01/19 Extension	240	4,260	4,500													0	370	70	10	450	450	240	2,920	800	90	3,810	4,050
Perimeter road	0	30	30																			0	20	10	0	30	30
Total Grade-1	5,570	28,110	33,680	1,550	6,080	800	100	6,980	8,530	2,490	9,590	1,040	120	10,750	13,240	1,290	5,840	620	80	6,540	7,830	240	2,940	810	90	3,840	4,080

Note * Cost for runway extension.

B. Terminal Area Facilities

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
1. Passenger terminal																											
1) X-ray	291	6	297	291	—	—	6	6	297																		
2) Metal detector	36	3	39	36	—	—	3	3	39																		
3) Electric supply	0	9	9	0	7	2	—	9	9																		
4) Interior modification	0	7	7	0	5	1	1	7	7																		
5) Departure concourse	0	97	97							0	3	2	2	7	7	0	49	28	13	90	90						
6) Baggage claim area	0	32	32							0	3	2	1	6	6	—	—	—	—	—	—	0	14	8	4	26	26
7) Baggage claim	90	2	92							9	—	—	—	0	9	81	—	—	2	2	83						
Sub total	417	156	573	327	12	3	10	25	352	9	6	4	3	13	22	81	49	28	15	92	173	0	14	8	4	26	26
2. Cargo terminal																											
1) Ware house	0	56	56	0	46	4	6	56	56																		
2) GSE handling area	0	99	99	0	6	28	3	37	37	0	52	9	1	62	62												
3) Work station	196	20	216													148	7	1	12	20	168	48	—	—	—	0	48
4) Rack system	0	84	84													0	20	6	6	32	32	0	46	6	0	52	52
5) Cold storage	100	28	128													0	11	1	2	14	14	100	11	1	2	14	114
Sub tatal	296	287	583	0	52	32	9	93	93	0	52	9	1	62	62	148	38	8	20	66	214	148	57	7	2	66	214
3. GSE Maintenance shop	0	1,216	1,216													0	62	30	30	122	122	0	554	270	270	1,094	1,094

(Thousand US $)

	Total project cost			1991						1992						1993						1994					
					Local						Local						Local						Local				
	Foreign	Local	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total
4. Utility																											
1) Water supply	680	210	890	34	6	3	2	11	45	340	62	34	17	113	453	306	47	26	13	86	392						
2) Sewage	67	141	208	7	9	3	2	14	21	60	84	29	14	127	187												
3) Rescue & F/F	0	29	29	0	1	1	1	3	3	0	18	5	3	26	26												
4) Garbage	366	66	432	183	21	15	15	51	234	0	0	0	0	0	0	183	0	8	7	15	198						
Sub total	1,113	446	1,559	224	37	22	20	79	303	400	164	68	34	266	666	489	47	34	20	101	590						
5. Car park																											
1) Pavement	21	62	83							21	56	5	1	62	83												
2) Lighting	40	15	55							40	10	4	1	15	55												
Sub total	61	77	138							61	66	9	2	77	138												
Total	1,887	2,182	4,069	551	101	57	39	197	748	470	288	90	40	418	888	718	196	100	85	381	1,099	148	625	285	276	1,186	1,334

C. Navigation Aids

(Thousand US $)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
1. Radio Nav.																											
1) RWY 24 ILS	950	162	1,112	750	—	—	—	0	750	200	18	49	95	162	362												
2) T-VOR/DME	600	161	761	540	—	—	—	0	540	60	26	49	86	161	221												
3) VOR/DME -1	690	188	878													600	—	—	—	0	600	90	42	52	94	188	278
4) VOR/DME -2	690	188	878													600	—	—	—	0	600	90	42	52	94	188	278
5) NDB	220	24	244													190	—	—	—	0	190	30	10	5	9	24	54
* 6) RWY 19 ILS	950	162	1,112													750	—	—	—	0	750	200	18	49	95	162	362
Subtotal Grade-1	4,100	885	4,985	1,290	—	—	—	0	1,290	260	44	98	181	323	583	2,140				0	2,140	410	112	158	292	592	972
Grade-2 Grade 3	(3,150)	(723)	(3,873)	1,290	—	—	—	—	1,290	260	44	98	181	323	583	1,390	—	—	—	—	1,390	210	80	112	208	400	610

Note * Grade-1 only.

(Thousand US $)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
2. Air traffic control																											
1) VFR	400	43	443	300				0	300	100	22	7	14	43	143												
2) VHF	250	49	299	200				0	200	50	26	8	15	49	99												
3) Tape recorder	146	0	146	141				0	141	5				0	5												
2. Sub total	796	92	888	641	0	0	0	0	641	155	48	15	29	92	247												
3. Communication																											
1) ATS	63	2	65	59				0	59	4	1	1	0	2	6												
2) RX	200	50	250	120				0	120	80	25	8	17	50	130												
3) TX	220	60	280	150				0	150	70	31	10	19	60	130												
3. Sub total	483	112	595	329	0	0	0	0	329	154	57	19	36	112	266												
4. MET	546	13	559	493	0	0	0	0	493	53	5	3	5	13	66												
Total(1+2+3+4)																											
Grade-1	5,925	1,102	7,027	2,753	0	0	0	0	2,753	622	154	135	251	540	1,162	2,140	0	0	0	0	2,140	410	112	158	292	562	972
Grade-2 Grade-3	4,975	940	5,915	2,753	0	0	0	0	2,753	622	154	135	251	540	1,162	1,390	0	0	0	0	1,390	210	80	112	208	400	610

C. Navigation Aids

5-1 Visual Aids (Grade-1)

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
5. Visual Aids(Grade-1)																											
1) RWY06/24 ALS	599	89	688							599	35	36	18	89	688												
SFL	676	85	761							676	19	44	22	85	761												
SALS	100	21	121							100	13	5	3	21	121		—	—	—								
PAPI	127	16	143	64	2	4	2	8	72	63	2	4	2	8	71		—	—	—								
RWYL	433	54	487	109	7	5	2	14	123	324	19	14	7	40	364		—	—	—								
RWTL-24	146	21	167	146	10	7	4	21	167								—	—	—								
" -06	58	8	66	58	4	3	1	8	66																		
RWCL	491	56	547	124	5	6	3	14	138	367	17	17	8	42	409												
TDZ	392	53	445	52	2	3	2	7	59	340	16	20	0	6	386												
1) Sub total	3,022	403	3,425	553	30	28	14	72	625	2,469	121	140	70	331	2,800												

Note * Grade-1 only.

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
					Local						Local						Local						Local				
	Foreign	Local	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total
2) RWY01/19																											
SALS	108	17	125													108	10	5	2	17	125						
REIL-01	43	5	48													43	2	2	1	5	48						
PAPI	126	16	142													126	5	7	4	16	142						
RWYL	330	39	369	75	4	3	2	9	84							255	15	10	5	30	285						
RWTL-19	136	20	156													136	10	7	3	20	156						
〃 -01	50	9	59	50	5	3	1	9	59																		
(Sub-total)	793	106	899	125	9	6	3	18	143							668	42	31	15	88	756						
ALS 19	298	52	350																			298	25	18	9	52	350
SFL-19	670	89	759																			670	24	43	22	89	759
SALS-01	86	18	104																			86	10	5	3	18	104
PAPI	5	3	8																			5	3	—	—	3	8
RWYL	65	11	76																			65	5	4	2	11	76
RWYTL-19	10	9	19																			10	9	—	—	9	19
*(Sub-total)	1,134	182	1,316																			1,134	76	70	36	182	1,316
2) Sub-total	1,927	288	2,215	125	9	6	3	18	143							668	42	31	15	88	756	1,134	76	70	36	182	1,316
3) TWYL, TGL	578	80	658	578	37	31	12	80	658							—	—	—	—	—	—						
4) ABN	120	15	135	120	3	8	4	15	135																		
5) FLO	458	198	656	458	148	10	40	198	656																		
6) Duct, Manhole	579	184	763	386	121	1	1	123	509	193	59	1	1	61	254												

(Thousand US $)

	Total project cost			1991						1992						1993						1994					
					Local						Local						Local						Local				
	Foreign	Local	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total
7) Electric Power supply																											
Equipment	4,824	86	4,910							4,824	34	26	26	86	4,910												
Station	0	240	240	0	221	4	15	240	240																		
7) Sub-total	4,824	326	5,150	0	221	4	15	240	240	4,824	34	26	26	86	4,910												
Visual Aids total Grade 1	11,508	1,494	13,002	2,220	569	88	89	746	2,966	7,486	214	167	97	478	7,964	668	42	31	15	88	756	1,131	76	70	36	182	1,316
Nav. Aids																											
Total Grade 1	17,433	2,596	20,029	4,973	569	88	89	746	5,719	8,108	368	302	348	1,018	9,126	2,808	42	31	15	88	2,896	1,544	188	228	328	744	2,288

C. Navigation Aids

5-2 Visual Aids (Grade-2)

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
5. Visual Aids(Grade-2)																											
1) RWY06/24 ALS	599	89	688							599	35	36	18	89	688												
SFL	676	85	761							676	19	44	22	85	761												
SALS	100	21	121							100	13	5	3	21	121		—	—	—								
PAPI	127	16	143	64	2	4	2	8	72	63	2	4	2	8	71		—	—	—								
RWYL	433	54	487	109	7	5	2	14	123	324	19	14	7	40	364		—	—	—								
RWTL-24	146	21	167	146	10	7	4	21	167								—	—	—								
〃 -06	58	8	66	58	4	3	1	8	66																		
RWCL	491	56	547	124	5	6	3	14	138	367	17	17	8	42	409		—	—	—	—							
TDZ	392	53	445	52	2	3	2	7	59	340	16	20	0	6	386												
1) Sub total	3,022	403	3,425	553	30	28	14	72	625	2,469	121	140	70	331	2,800												

(Thousand US $)

	Total project cost			1991						1992						1993						1994					
					Local						Local						Local						Local				
	Foreign	Local	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total
2) RWY01/19																											
SALS	108	17	125													108	10	5	2	17	125						
REIL-01	43	5	48													43	2	2	1	5	48						
PAPI	126	16	142													126	5	7	4	16	142						
RWYL	330	39	369	75	4	3	2	9	84							255	15	10	5	30	285						
RWTL-19	136	20	156													136	10	7	3	20	156						
〃 -01	50	9	59	50	5	3	1	9	59																		
2) Sub-total	793	106	899	125	9	6	3	18	143							668	42	31	15	88	756						
3) TWYL, TGL	578	80	658	578	37	31	12	80	658																		
4) ABN	120	15	135	120	3	8	4	15	135																		
5) FLO	458	198	656	458	148	10	40	198	656																		
6) Duct, Manhole	579	184	763	386	121	1	1	123	509	193	59	1	1	61	254												

(Thousand US $)

	Total project cost			1991						1992						1993						1994					
					Local						Local						Local						Local				
	Foreign	Local	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total	Foreign	Goods	Skilled	Un skilled	Sub total	Total
7) Electric Power supply																											
Equipment	4,824	86	4,910							4,824	34	26	26	86	4,910												
Station	0	240	240	0	221	4	15	240	240																		
7) Sub-total	4,824	326	5,150	0	221	4	15	240	240	4,824	34	26	26	86	4,910												
Visual Aids total Grade-2	10,374	1,312	11,686	2,220	569	88	89	746	2,966	7,486	214	167	97	478	7,964	668	42	31	15	88	756						
Nav. Aids																											
Total Grade-2	15,349	2,252	17,601	4,973	569	88	89	746	5,719	8,108	368	302	348	1,018	9,126	2,058	42	31	15	88	2,146	210	80	112	208	400	610

C. Navigation Aids

5-3 Visual Aids (Grade-3)

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
5. Visual Aids(Grade-3)																											
1) RWY06/24 ALS	599	89	688							599	35	36	18	89	688												
SFL	676	85	761							676	19	44	22	85	761												
SALS	100	21	121							100	13	5	3	21	121		—	—	—								
PAPI	127	16	143	64	2	4	2	8	72	63	2	4	2	8	71		—	—	—								
RWYL	433	54	487	109	7	5	2	14	123	324	19	14	7	40	364		—	—	—								
RWTL-24	146	21	167	146	10	7	4	21	167								—	—	—								
〃 -06	58	8	66	58	4	3	1	8	66																		
1) Sub total	2,139	294	2,433	377	23	19	9	51	428	1,762	88	103	52	243	2,005												

(Thousand US$)

	Total project cost			1991						1992						1993						1994					
				Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total	Foreign	Local				Total
	Foreign	Local	Total		Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total			Goods	Skilled	Un skilled	Sub total	
3) TWYL. TGL	578	80	658	578	37	31	12	80	658																		
4) ABN	120	15	135	120	3	8	4	15	135																		
5) FLO	458	198	656	458	148	10	40	198	656																		
6) Duct. Manhole	386	123	509	386	121	1	1	123	509																		
7) Electric Power supply Equipment	3,216	56	3,272							3,216	22	17	17	56	3,272												
Station	0	158	158	0	147	1	10	158	158																		
7) Sub-total	3,126	214	3,430	0	147	1	10	158	158	3,216	22	17	17	56	3,272												
Visual Aids total Grade-3	6,897	924	7,821	1,919	479	70	76	625	2,544	4,978	110	120	69	290	5,277												
Nav. Aids																											
Total Grade-3	11,872	1,864	13,736	4,672	479	70	76	625	5,297	5,600	264	255	320	839	6,439	1,390	0	0	0	0	1,390	210	80	112	208	400	610

III Calculation of Airport Tariff Revenues

1. Air NAV Charge

Year	Total Revenue ('000 US$ in 1989)		Benefits accruing from the Project ('000 US$ in 1989)	
1988	Actual	1,861		
1989	Forecast[1)]	1,913		1) Annual growth rate (2.8%) from 1989 to 2000
1990		1,967		
*1991		2,022		
1992		2,078		
1993		2,136		
1994		2,196		
1995		2,258	236	
1996		2,321	299	
1997		2,386	364	
1998		2,453	431	
1999		2,521	499	
2000		2,590	568	
2001			568	
2002			568	
2003			568	
2004			568	
2005			568	
2006			568	
2007			568	
2008			568	
2009			568	
2010			568	
2011			568	
2012			568	
2013			568	
2014			568	
Total			10,349	

*Physical capacity limit of existing Carrasco International Airport

2. Landing Charge

Year	Total Revenue ('000 US$ in 1989)	Benefits accruing from the Project ('000 US$ in 1989)	
1988	Actual 790		
1989	Forecast[1] 803		1) Annual growth rate (1.6%) from 1989 to 1994.
1990	815		
*1991	828		
1992	841		
1993	855		
1994	868		
1995	Forecast[2] 1,172	344	2) See Table-A
1996	1,243	415	
1997	1,314	486	
1998	1,385	557	
1999	1,456	628	
2000	Forecast[3] 1,525	697	3) See Table-B
2001		697	
2002		697	
2003		697	
2004		697	
2005		697	
2006		697	
2007		697	
2008		697	
2009		697	
2010		697	
2011		697	
2012		697	
2013		697	
2014		697	
Total		12,885	

*Physical capacity limit of existing Carrasco International Airport

Table-A Landing Charges (1995)

	Nationality	Aircraft Type	Number of Annual Flight	Charges (US$)			Revenues
			A (Landing)	d Basic	e Add	B = d + e Total	C = A x B (US$)
International	Foreign	B747	1,049	394	-	394	413,306
		DC10	839	394	-	394	330,566
		B707(58)	122	289	-	289	35,258
		B767	629	289	-	289	181,781
		B727	210	289	-	289	60,690
		B737(41)	2,018	205	-	205	413,690
	Uruguayan	B737(59)	2,905	24.11	-	24.11	70,040
		B707(42)	88	40.16	-	40.16	3,534
	Total		7,860				1,508,865
Domestic	Uruguayan						
		F27	667	12.33	-	12.33	8,224
		CS12	333	8.05	-	8.05	2,681
		C95	667	8.05	-	8.05	5,369
	Total		1,667				16,274
Grand Total			9,527				1,525,139

Table-B Landing Charges (2000)

	Nationality	Aircraft Type	Number of Annual Flight	Charges (US$)			Revenues
			A (Landing)	d Basic	e Add	B = d + e Total	C = A x B (US$)
International	Foreign	B747	1,049	394	-	394	413,306
		DC10	839	394	-	394	330,566
		B707(58)	122	289	-	289	35,258
		B767	629	289	-	289	181,781
		B727	210	289	-	289	60,690
		B737(41)	2,018	205	-	205	413,690
	Uruguayan	B737(59)	2,905	24.11	-	24.11	70,040
		B707(42)	88	40.16	-	40.16	3,534
	Total		7,860				1,508,865
Domestic	Uruguayan						
		F27	667	12.33	-	12.33	8,224
		CS12	333	8.05	-	8.05	2,681
		C95	667	8.05	-	8.05	5,369
	Total		1,667				16,274
Grand Total			9,527				1,525,139

3. Parking Charge

Year	Total Revenue ('000 US$ in 1989)		Benefits accruing from the Project ('000 US$ in 1989)	
1988	Actual	49		
1989		51		Annual growth rate (5.0%)
1990		53		from 1989 to 1995.
*1991		55		
1992		58		
1993		61		
1994		64		
1995	Forecast[1)]	69	14	1)
1996		72	17	Int'l (6,392 x 12.3%) x $83
1997		75	20	Dom. (1,600 x 11.5%) x $23
1998		78	23	
1999		81	26	
2000	Forecast[2)]	85	30	2)
2001			30	Int'l (7,860 x 12.3%) x $83
2002			30	Dom. (1,667 x 11.5%) x $23
2003			30	
2004			35	
2005			30	
2006			30	
2007			30	
2008			30	
2009			30	
2010			30	
2011			30	
2012			30	
2013			30	
2014			30	
Total			550	

*Physical capacity limit of existing Carrasco International Airport

4. Airport Tax (Passenger service charge)

Year	Total Revenue ('000 US$ in 1989)		Benefits accruing from the Project ('000 US$ in 1989)	
1988	Actual	716		
1989	Forecast[1)]	743		1) Annual growh rate (3.7%) from 1989 to 1994.
1990		770		
*1991		798		
1992		828		
1993		859		
1994		890		
1995	Forecast[2)]	1,630	832	2) Puente Aereo (Pax249,000 x Unit P 2.5) Other Int'l (Pax224,000 x Unit P 4.5)
1996		1,719	921	
1997		1,808	1,010	
1998		1,897	1,099	
1999		1,986	1,188	
2000	Forecast[3)]	2,074	1,276	3) Puente Aereo (Pax286,000 x Unit P 2.5) Other Int'l (Pax302,000 x Unit P 4.5)
2001			1,276	
2002			1,276	
2003			1,276	
2004			1,276	
2005			1,276	
2006			1,276	
2007			1,276	
2008			1,276	
2009			1,276	
2010			1,276	
2011			1,276	
2012			1,276	
2013			1,276	
2014			1,276	
Total			24,190	

*Physical capacity limit of existing Carrasco International Airport

5. Cargo Terminal Service Charge

Year	Total Revenue ('000 US$ in 1989)	Benefits accruing from the Project ('000 US$ in 1989)	
1988	Actual 961		
1989	Forecast [1] 976		1) Annual growth rate (1.5%)
1990	991		from 1989 to 1994.
*1991	1,005		
1992	1,021		
1993	1,036		
1994	1,052		
1995	1,965	960	2) (10,683 x Unit P 180)
1996		1,127	
1997		1,294	
1998		1,461	
1999		1,628	
2000	Forecast[3] 2,800	1,795	3) (15,219 x Unit P 180)
2001		1,795	
2002		1,795	
2003		1,795	
2004		1,795	
2005		1,795	
2006		1,795	
2007		1,795	
2008		1,795	
2009		1,795	
2010		1,795	
2011		1,795	
2012		1,795	
2013		1,795	
2014		1,795	
Total		33,395	

*Physical capacity limit of existing Carrasco International Airport

Ⅳ. Number of Tourist (Non－Uruguayan)

('000)

Year	Rogional 1)	Other South America	North America	Europe	Others	Total
1995	34	1	1	2	9	47
1996	42	2	1	3	11	59
1997	50	3	2	4	13	72
1998	58	4	2	5	15	84
1999	66	5	2	5	18	96
2000	74	7	3	6	20	110
2001	74	7	3	6	20	110
2002	74	7	3	6	20	110
2003	74	7	3	6	20	110
2004	74	7	3	6	20	110
2005	74	7	3	6	20	110
2006	74	7	3	6	20	110
2007	74	7	3	6	20	110
2008	74	7	3	6	20	110
2009	74	7	3	6	20	110
2010	74	7	3	6	20	110
2011	74	7	3	6	20	110
2012	74	7	3	6	20	110
2013	74	7	3	6	20	110
2014	74	7	3	6	20	110
Total	1,360	120	53	109	366	2,008

1) Argentina, Paraguay, Brazil

ATTACHMENT 14

LOCATION OF THE AIRPORT FIRE STATION

Location of the Airport Fire Station

The location of the airport fire station is a primary factor in ensuring that recommended response times can be achieved; that is, two minutes and not more than three to the end of each runway.

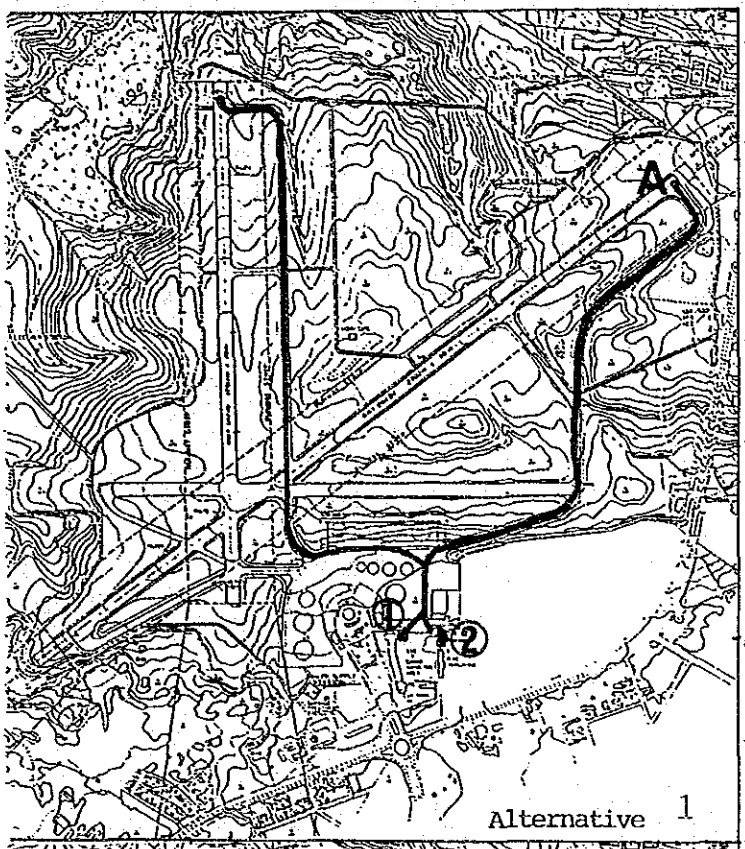
Response time is the time between the initial call to the rescue and fire fighting service and the first effective intervention at the accident scene by a rescue and fire fighting vehicle.

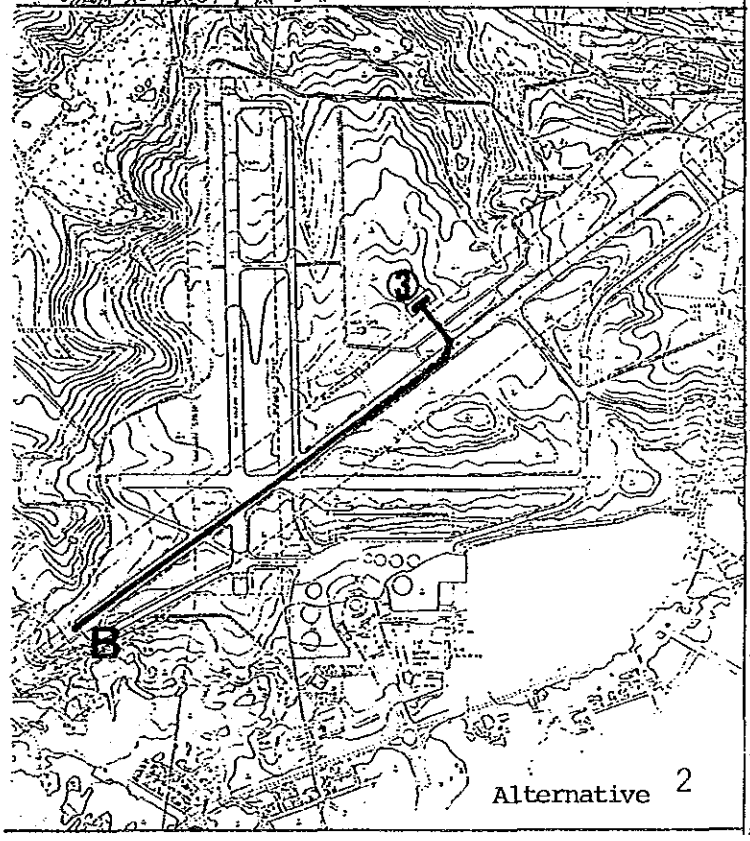
Based on the following conditions, response time for existing and other two alternative locations of airport fire station have been calculated.

- fire fighting vehicle : R.I.V. (Rapid Intervention Vehicle)
- acceleration,0-105 km/h: 38 sec
- max. speed : 130 km/h

The other conditions and result of response time calculation are shown in the attached figure.

Alternative 2 is recommended as a result of this calculation.



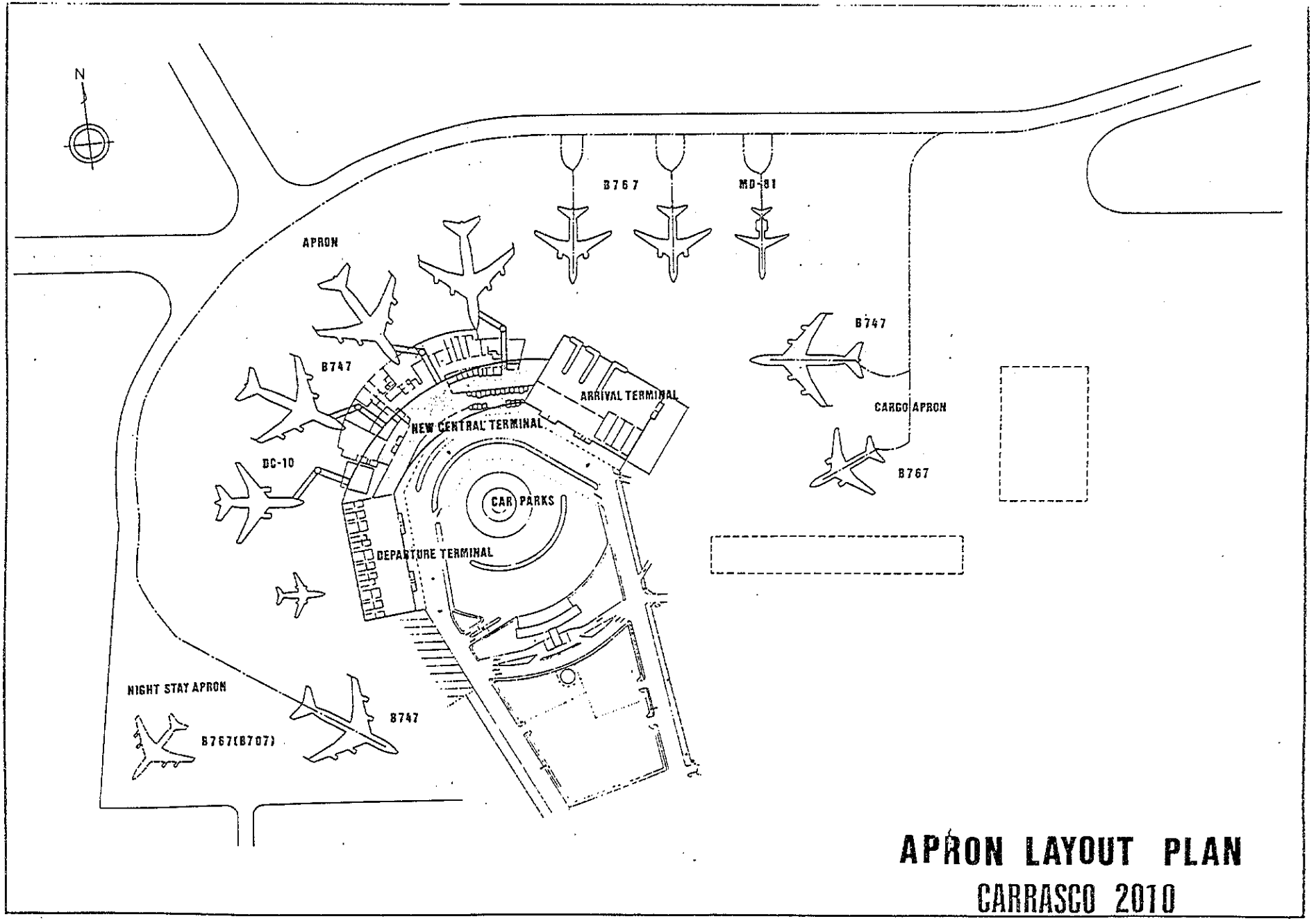


Alternative location for Fire Station
① Existing fire station ② New fire station located along the east boundary in terminal area
Critical distance between fire station and runway end
① Existing fire station and point A: approx. 2,200 m ② New fire station and point A: approx. 2,200 m
Response time
① Approx. 3'10"(R.I.V.), 4'(Major) ② Approx. 3'10"(R.I.V.), 4'(Major)

Alternative location for Fire Station
Approx. RWY 06/24 No.17
Critical distance between fire station and runway end
③ Fire station and point B: approx. 1,850 m
Response time
Approx. 2'30"(R.I.V.), 3'(Major)

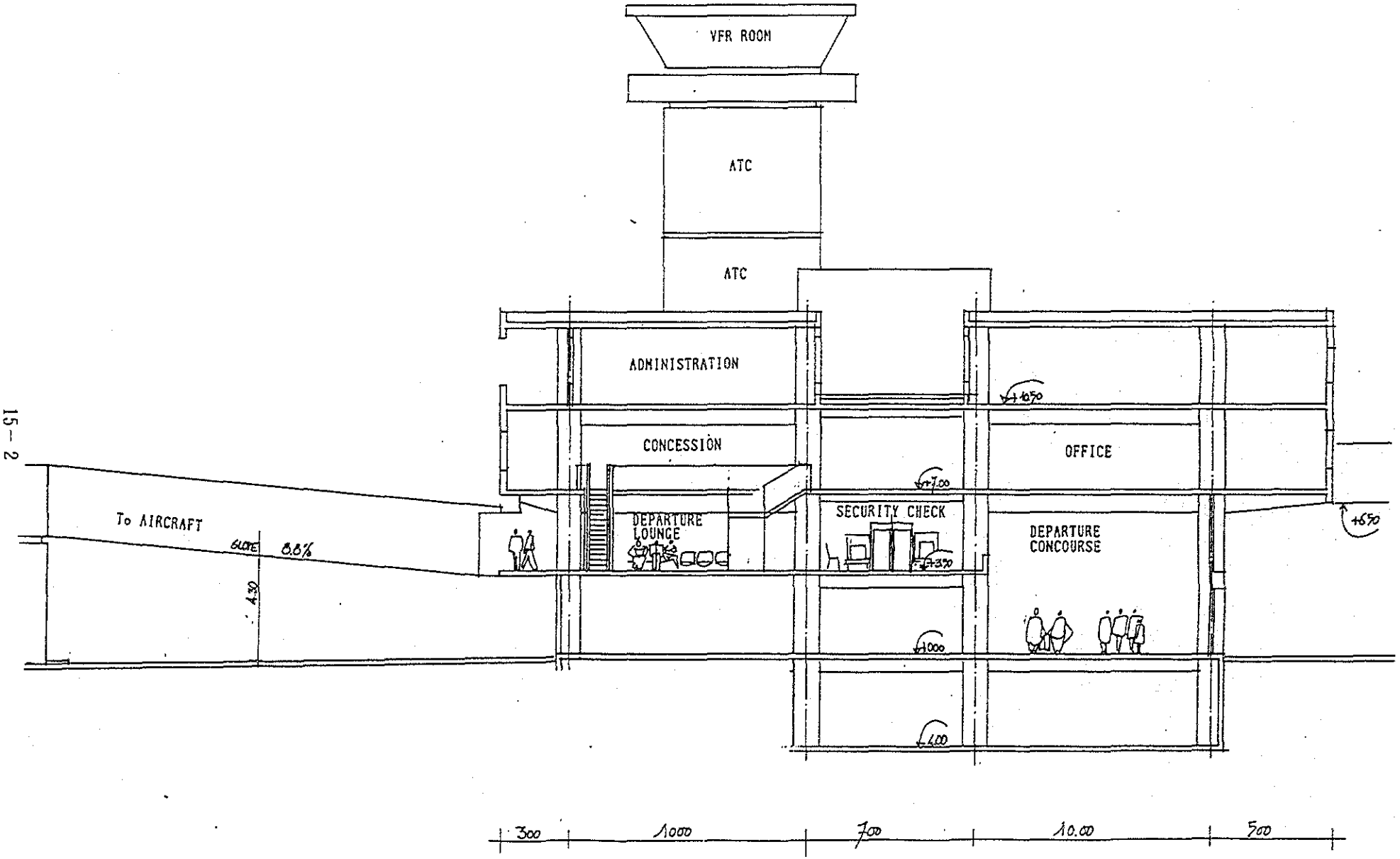
ATTACHMENT 15

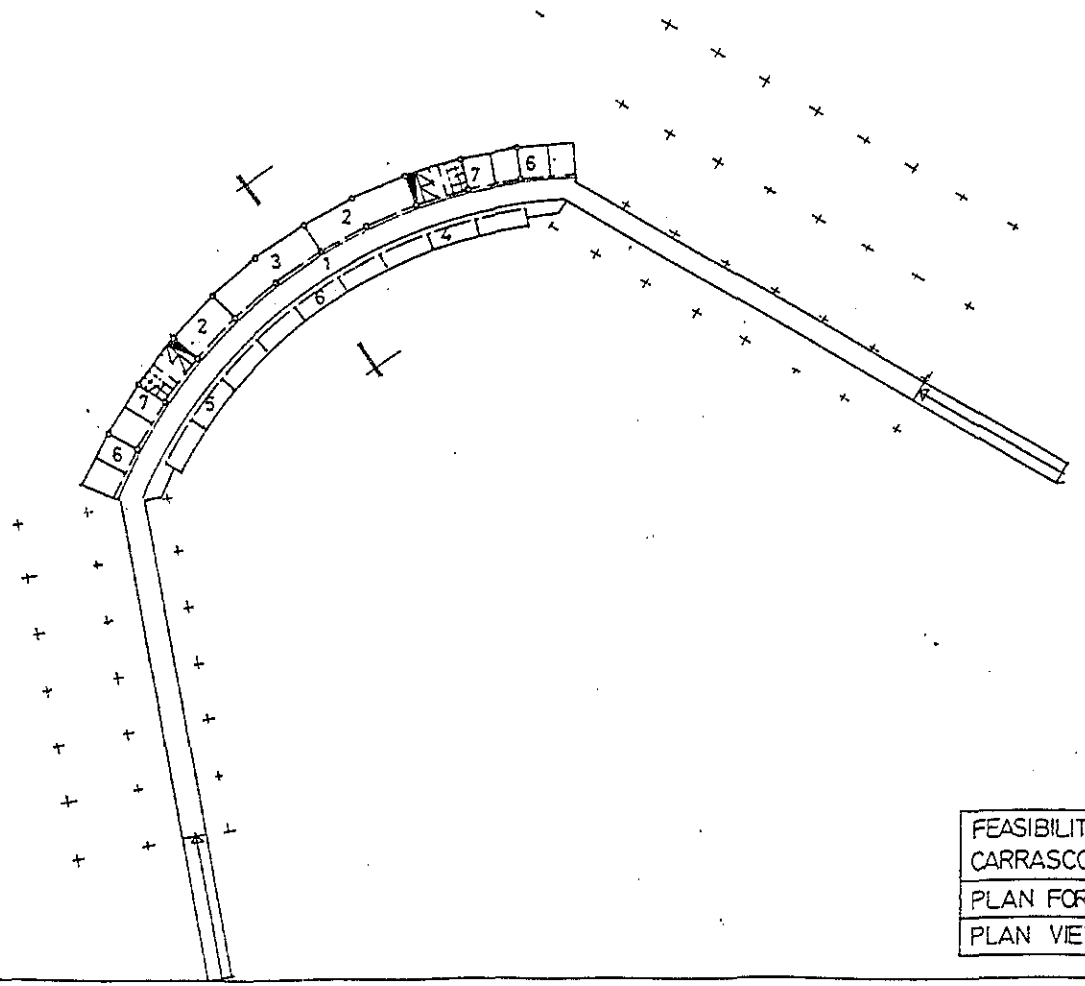
LAYOUT PLAN OF APRON AND PASSENGER TERMINAL BUILDING FOR LONG-TERM DEVELOPMENT



APRON LAYOUT PLAN

CARRASCO 2010


VFR ROOM
ATC
ATC
ADMINISTRATION
CONCESSION
OFFICE
To AIRCRAFT
GLOBE
8.6%
4.30
DEPARTURE LOUNGE
SECURITY CHECK
DEPARTURE CONCOURSE
+4.50
+7.00
+3.50
+10.00
+1.00
+6.50
3.00
10.00
7.00
10.00
5.00

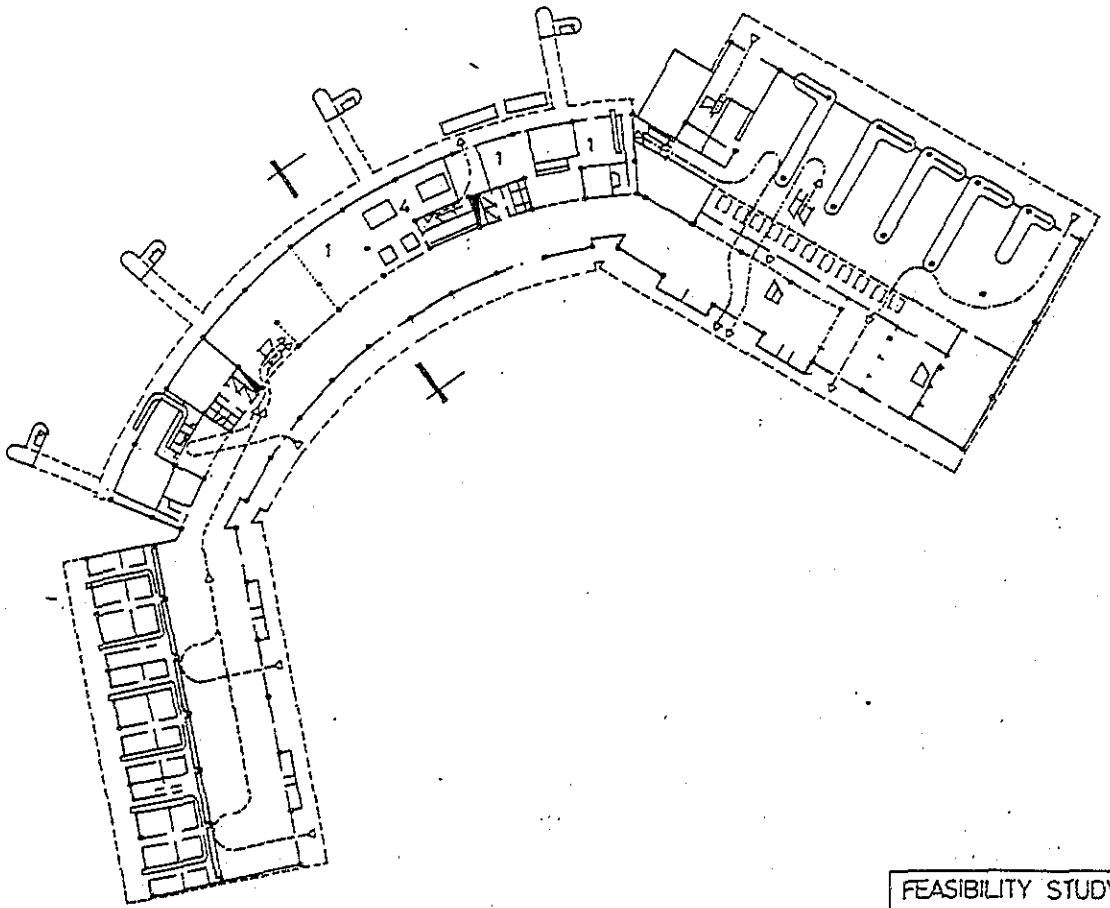


FEASIBILITY STUDY OF
CARRASCO INTERNATIONAL AIRPORT

PLAN FOR TARGET YEAR 2010

PLAN VIEW | BASEMENT

SCALE 1/1000
DATE 08/89

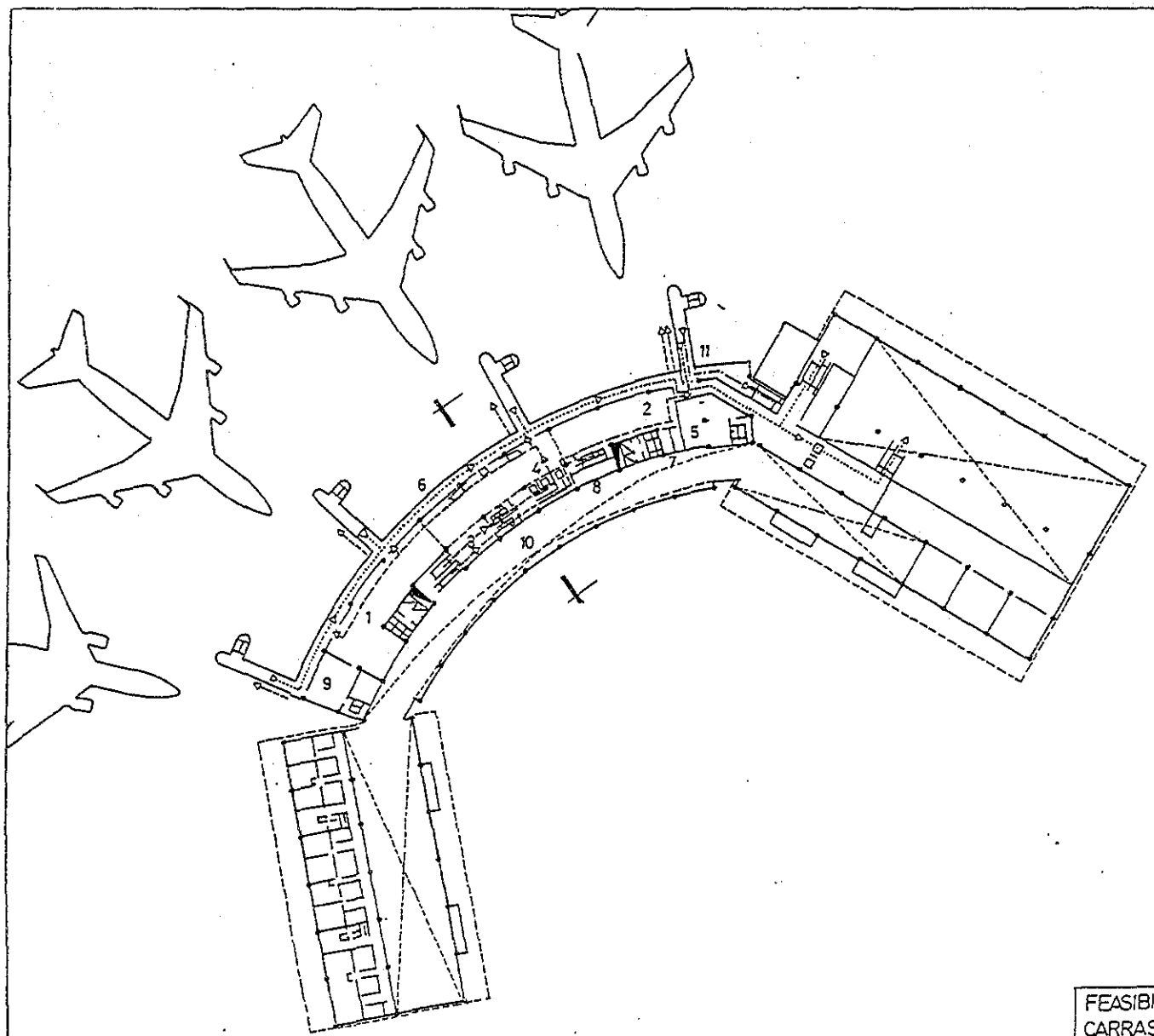


LEGEND
1. DEPARTURE CONCOURSE
2. SHUTTLE CHECK-IN COUNTERS
3. DOMESTIC CHECK-IN COUNTERS
4. SHOPS, SERVICES RENTAL CARS.
5. RESTAURANT
6. KITCHEN
7. PLUNA'S OFFICES
8. LIFTS, STAIRS AND DUCTS
9. TOILETS.
10. ACCES TO VIP LOUNGE
11. DOMESTIC WAITING LOUNGE
12. DOMESTIC ARRIVAL
13. OFFICES
14. BAGGAGES CLAIM AREA
15. ARRIVAL CONCOURSE
16. INT'L CHECK-IN CONCOURSE

FLEW OF PASSENGERS

- INT'L ORIGINATING PAX
- SHUTTLE ORIGINATING PAX
- INT'L TERMINATING PAX.
- SHUTTLE TERMINATING PAX

FEASIBILITY STUDY OF CARRASCO INTERNATIONAL AIRPORT		
PLAN FOR TARGET YEAR 2010		
PLAN VIEW	1rst FLOOR	SCALE 1/1000 DATE 08/89



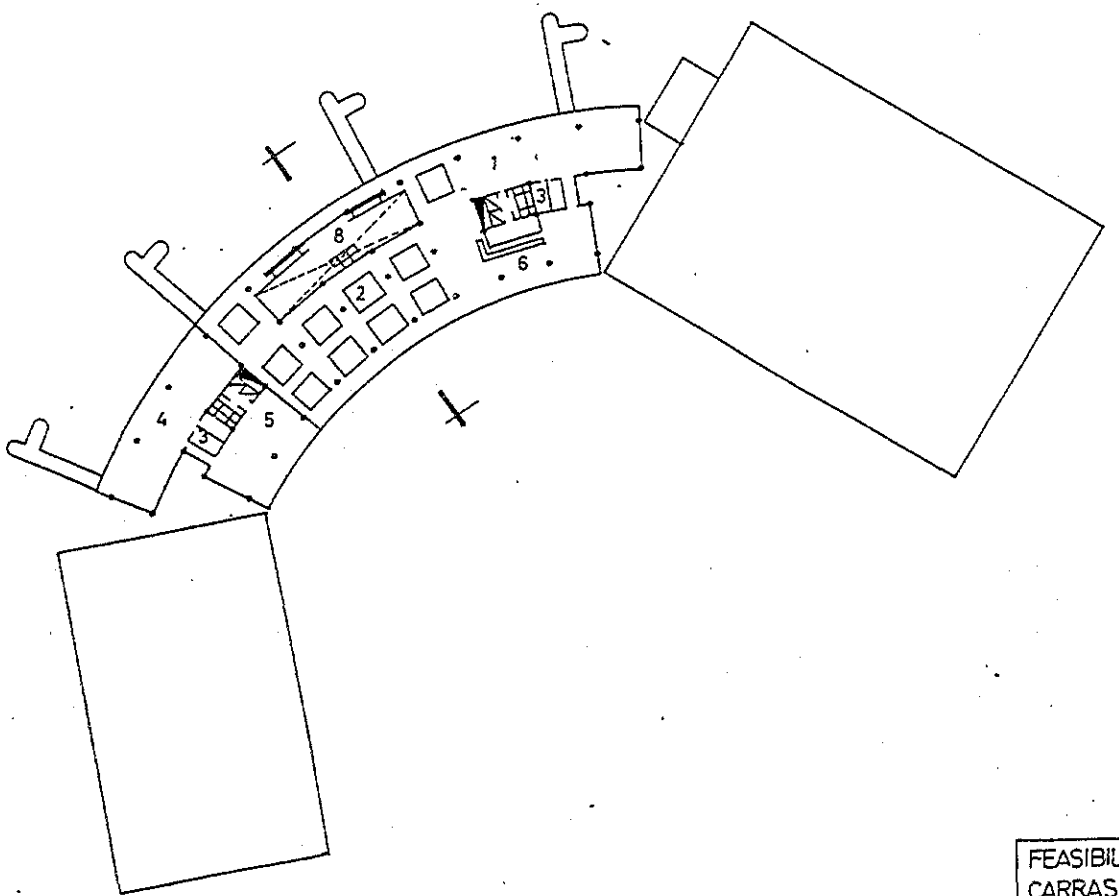
LEGEND

1. INTERNATIONAL WAITING LOUNGE
2. SHUTTLE WAITING LOUNGE
3. SECURITY CHECK.
4. IMMIGRATION CONTROL
5. VIP LOUNGE (DGIA)
6. CORRIDOR
7. TOILETS
8. POLICE OFFICES
9. VIP LOUNGE (AIRLINES)
10. VACUUM
11. SWITCHING GATE

FLOW OF PASSENGERS

- INTERNATIONAL ORIGINATING PAX.
- SHUTTLE ORIGINATING PAX.
- INTERNATIONAL TERMINATING PAX
- SHUTTLE TERMINATING PAX

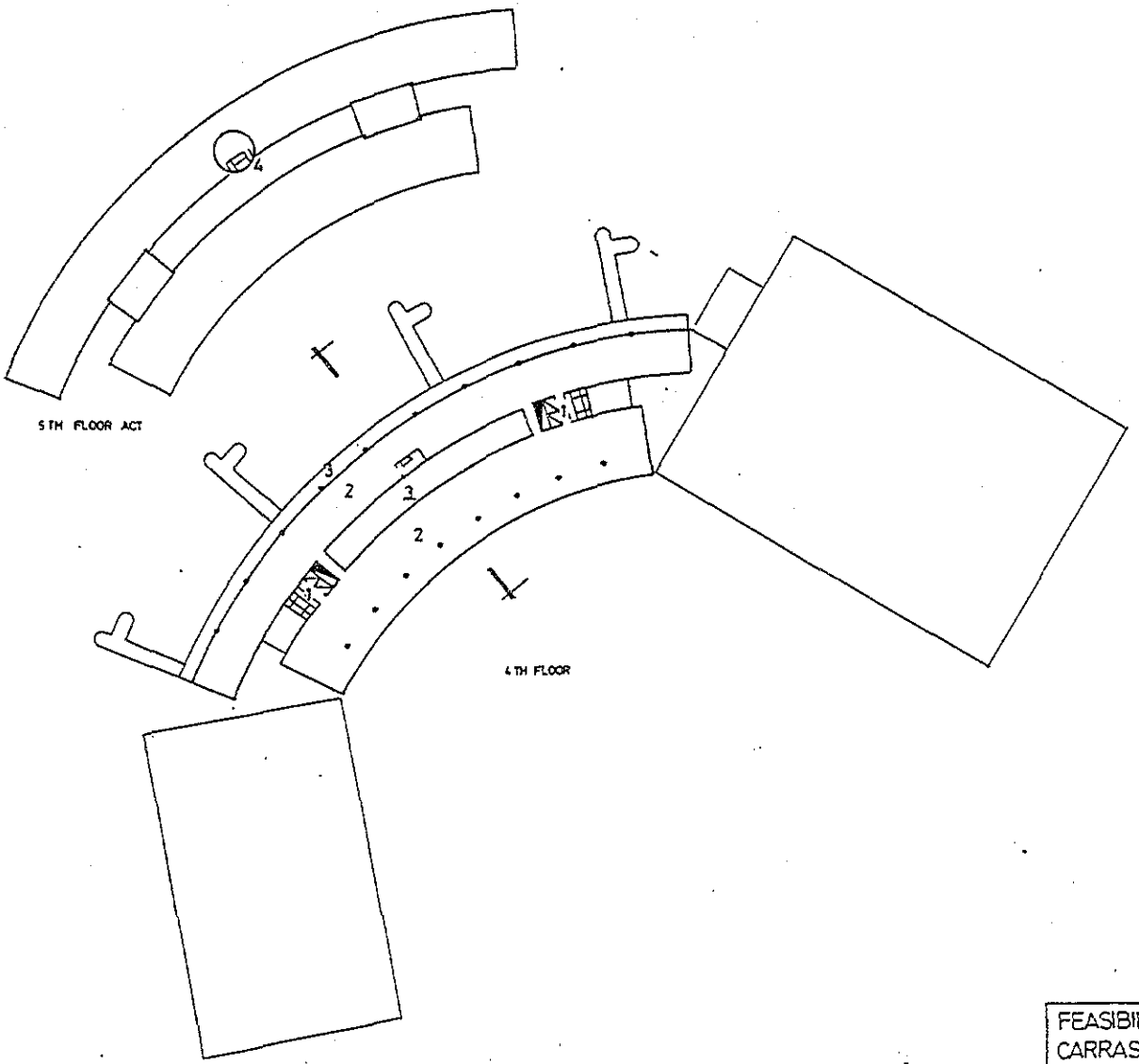
FEASIBILITY STUDY OF CARRASCO INTERNATIONAL AIRPORT		
PLAN FOR TARGET YEAR 2010		
PLAN VIEW	2nd FLOOR	SCALE 1/1000 DATE 06/89



LEGEND

1. TRANSIT LOUNGE
2. SHOP AREA
3. TOILETS
4. RESTAURANT
5. KITCHEN
6. SNACK-BAR
7. STAIRCASES LIFTS AND DUCTS
8. VACUUM

FEASIBILITY STUDY OF CARRASCO INTERNATIONAL AIRPORT		
PLAN FOR TARGET YEAR 2010		
PLAN VIEW	3rd FLOOR	SCALE 1/1000 DATE 08/69



FEASIBILITY STUDY OF CARRASCO INTERNATIONAL AIRPORT		
PLAN FOR TARGET YEAR 2010		
PLAN VIEW	4 & 5 TH FLOORS	SCALE 1/1000 DATE 05/89

ATTACHMENT 16

MINUTES OF MEETINGS

資料－2　インセプション・レポート協議議事録

MINUTES OF MEETING

ON

INCEPTION REPORT

FOR

THE STUDY ON THE DEVELOPMENT PLAN

OF

THE INTERNATIONAL AIRPORT OF CARRASCO

IN

THE ORIENTAL REPUBLIC OF URUGUAY

AGREED UPON

BETWEEN

GENERAL DIRECTION OF AERONAUTICAL INFRAESTRUCTURE

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

MONTEVIDEO, April 10, 1989.

Cnel.(Av.) WALTER DOPAZO
General Director
D.G.I.A.

Arq. SHIGERU SHIBATA
Leader Study Team
JICA

After JICA Study Team has arrived at Montevideo, and prior to the commencement of the First Field Survey of Feasibility Study for International Airport of Carrasco Development Projet, DGIA Study Team discussed the Inception Report prepared by JICA Study Team at a meeting held on April 6th and 7th.

The Uruguayan Counterpart has agreed in principle to this Report.

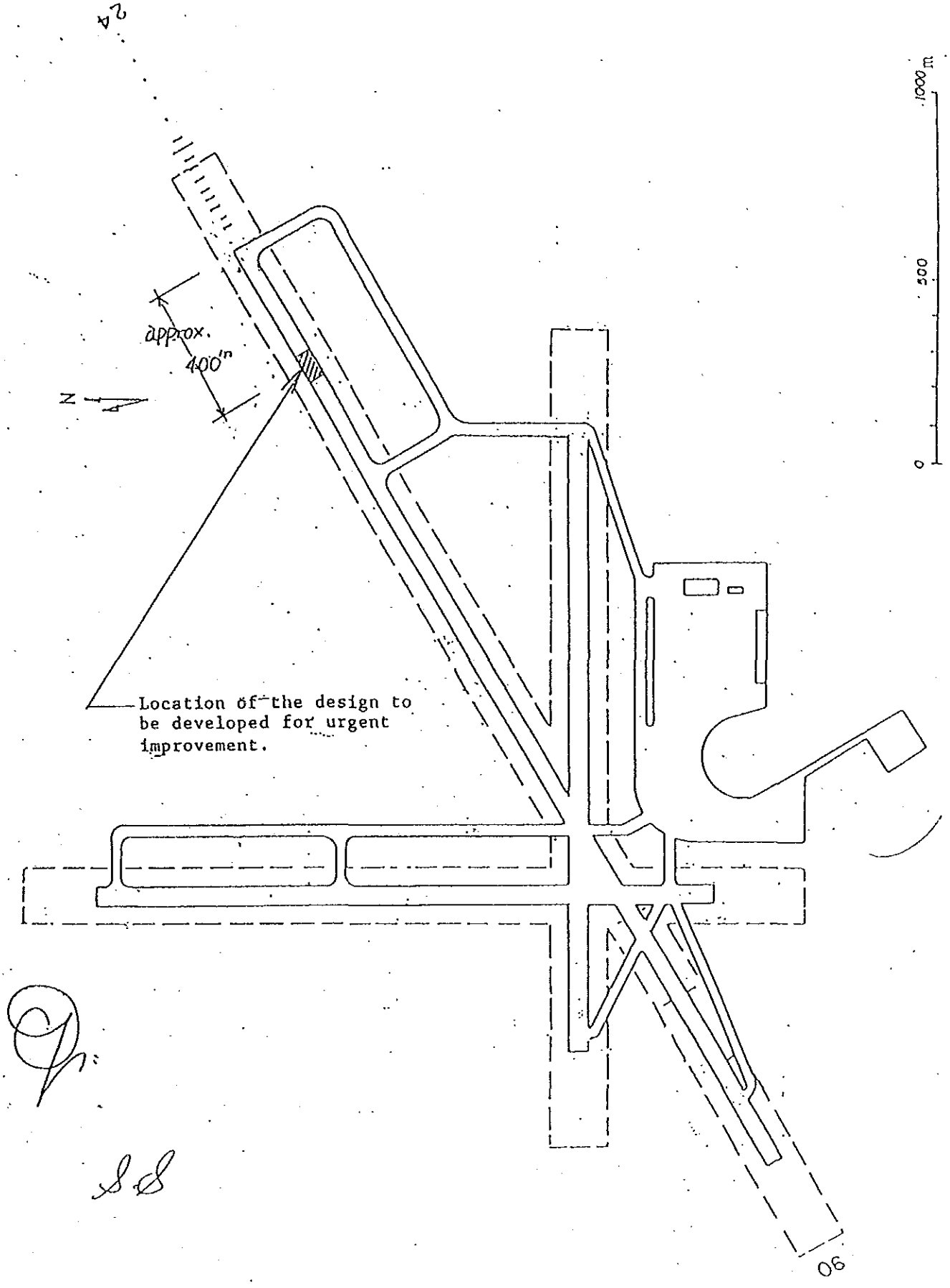
It was agreed however that the report should be revised as follows:

-In order to cope with urgent improvement of main runway, specialy for the location designated shown on figure, JICA Study Team will develope the design and submit the report including drawings on Second Field Survey.

-JICA Study Team will prepare and submit the Draft Final Report and Final Report to Uruguayan Government in English and Spanish.

-It has been agreed that, as one of the alternative plans, the study on extension and overlay for the Runway 01-19 will be included in the Short Term Development Plan.

-DGIA will constitute Uruguayan Counterpart in accordance with indications made by JICA Mission.


24
approx.
400'n
N
Location of the design to
be developed for urgent
improvement.
1000 m
500
0
06

LIST OF ATTENDANTS (1)

Date: April 6, 1989

Pl e: Meeting room at DGIA

uguayan side

AME	POSITION
Cnel. Walter Dopazo	Director Gral. de Infraest. Aeronáutica
Cnel. (Av.) Roberto Abadie	Dir. de la Dirección de Infraestruc., DGIA
Cnel. (Av.) Esaú P. Prada	Dir. de la Dirección Electrónica, DGIA
Cnel. Shandelaio Gonzalez	Director Administración y Finanzas
Cnel. Ramón Suares	Director en Aeropuertos
Sr. Victor Garín	Director del Aerop. Intnal. de Carrasco, DGIA
Cnel. Jorge Méndez	Director de la Dir. de Circulac. Aérea, DGIA

Japanese side

Commitie members of JICA

Mr. Yasuo Ibaraki	Leader of Commitie member
M. Hiroyoshi Kagami	Commitie Member
Miss. Rika Inada	Coordinator

JICA Study Team

Mr. Shigeru Shibata	Leader of Study Team
Mr. Hidetoshi Mitsuzuka	Sub-Leader
Mr. Toru Kikuchi	Team Member
Mr. Teruo Hanada	Team Member
Mr. Iwao Ogawa	Team Member
Mr. Hisahide Ishioka	Interpreter

LIST OF ATTENDANTS (2)

Date: April 7, 1989

Place: Meeting room at DGIA

Uruguayan side

NAME	POSITION
Cnel. Walter Dopazo	Director Gral. de Infraest. Aeronáutica
Cnel. (Av.) Roberto Abadie	Dir. de la Dirección de Infraestruc., DGIA
Cnel. (Av.) Esaú P. Prada	Dir. de la Dirección Electrónica, DGIA
Cnel. Ramón Suares	Director en Aeropuertos
Sr. Víctor Garín	Director del Aerop. Intnal. de Carrasco, DGIA

Japanese side

Commitie members of JICA

Mr. Yasuo Ibaraki	Leader of Commitie member
Mr. Hiroyoshi Kagami	Commitie Member
Miss. Rika Inada	Coordinator

JICA Study Team

Mr. Shigeru Shibata	Leader of Study Team
Mr. Hidetoshi Mitsuzuka	Sub-Leader
Mr. Toru Kikuchi	Team Member
Mr. Teruo Hanada	Team Member
Mr. Iwao Osawa	Team Member
Mr. Hisahide Ishioka	Interpreter

LIST OF ATTENDANTS (3)

Date: April 10, 1989

Place: Director General's Office

Uruguayan side

NAME	POSITION
Cnel. Walter Dopazo	Director Gral. de Infraest. Aeronáutica
Cnel. (Av.) Roberto Abadie	Dir. de la Dirección de Infraestruc., DGIA

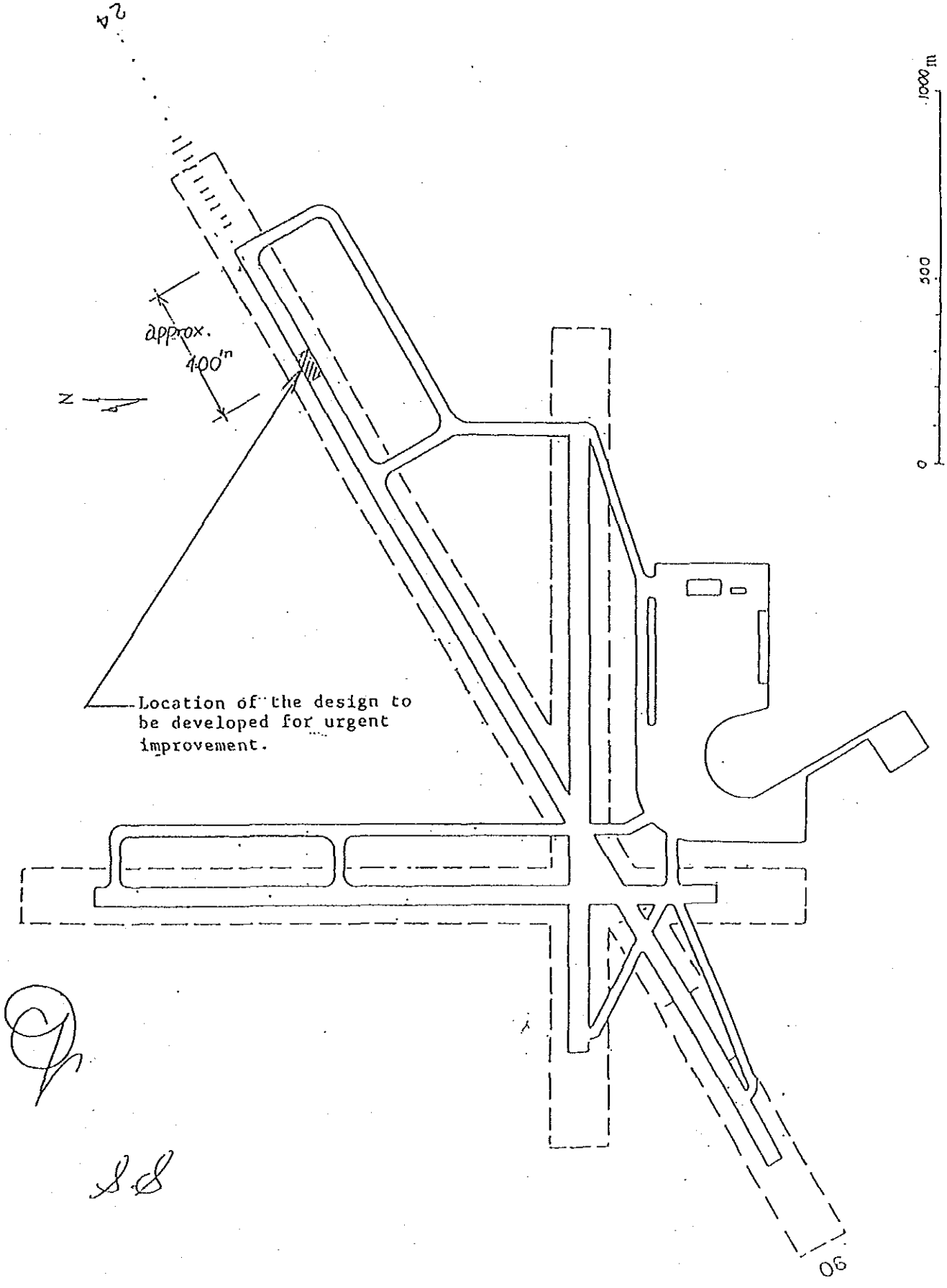
Japanese side

Committie members of JICA

Mr. Yasuo Ibaraki	Leader of Committie member
Mr. Hiroyoshi Kagami	Committie Member
Miss. Rika Inada	Coordinator

JICA Study Team

Mr. Shigeru Shibata	Leader of Study Team
Mr. Hidetoshi Mitsuzuka	Sub-Leader
Mr. Toru Kikuchi	Team Member
Mr. Teruo Hanada	Team Member
Mr. Iwao Osawa	Team Member
Mr. Hisahide Ishioka	Interpreter


24
approx.
400'm
N
Location of the design to be developed for urgent improvement.
1000 m
500
0
06

資料－3　プログレス・レポート協議議事録

MINUTES OF MEETING
ON
PROGRESS REPORT
FOR
THE STUDY ON THE DEVELOPMENT PLAN
OF
THE INTERNATIONAL AIRPORT OF CARRASCO
IN
THE ORIENTAL REPUBLIC OF URUGUAY
AGREED UPON
BETWEEN
GENERAL DIRECTION OF AERONAUTICAL INFRAESTRUCTURE
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

MONTEVIDEO, MAY 26, 1989.

Cnel. (Av.) Ramón Suárez
Director de Aeropuertos
D.G.I.A.

Arq. SHIGERU SHIBATA
Leader Study Team
JICA

According to the agreed "Minutes of Meeting" on the Inception Report dated April 10th, JICA Study Team has performed the First Field Survey, in cooperation on the part of D.G.I.A. counterpart, as scheduled.

As a result of this survey, JICA Study Team has submitted Progress Report on May 23rd., and both parties have discussed on May 24th and 25th.

Both parties have agreed in principle to Progress Report.

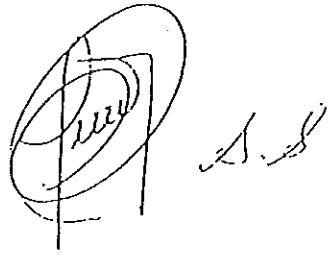
It was agreed however that the Study Team will consider the following points in the next step of study in Japan.

1) In case that the night time civil works are possible without interrupting operations of RWY 06/24, improvement works to same will be studied as a first priority within the short-term development plan, and otherwise, improvement works to RWY 10/28 such as extension and reinforcement will be considered as one of the alternatives to be studied under the same development plan.

2) Limitations or discontinuity of RWY 01/19 will be studied in relation to the item above.

3) The growth rate of Argentine GDP will be taken into account as a supplementary study to demand forecast.

4) Attached figure shows possible expansion area in the future for the long-term development, related with items 1) and 2) above.



LIST OF ATTENDANTS (1)

Date: May 25, 1989
Place: Meeting room at D.G.I.A.

Uruguayan side

NAME	POSITION
1. Cnel. Súarez	Director de Aeropuertos
2. Cnel. Abadie	Dir. de la Dirección de Infraestructura, DGIA
3. Cnel.. Prada	Dir. de la Dirección de Electrónica , DGIA
4. Tte. Cnel Solano	Jefe de Oficina de Planeamiento
5. Sr. Victor Garín	Director de Aeropuerto Int'l de Carrasco
6. Ing. Teresa Romano	Directora de División Ingeniería
7. Arq. Fernando Cheda	Director de División Arquitectura
8. Sra. Judith Peirayo	Directora de División de Tránsito Aéreo
9. Ing. Jorge Grgich	Ingeniero de División Ingeniería
10. Sr. Gualberto Castilla	Jefe de Terminal de Carga Aérea
11. May. Jorge H. Díaz	Segundo Jefe de Oficina Planeamiento
12. Sr. Luis Otegui	Controlador de Tránsito Aéreo (Circ. Aérea)
13. Sr. Luis Ceiter	Ayudante de Ingeniero, División Ingeniería

Japanese side

Mr. Shigeru Shibata	Leader of Study Team
Mr. Hidetoshi Mitsuzuka	Sub-Leader
Mr. Toru Kikuchi	Team Member
Mr.Iwo Hanada	Team Member
Mr.Hisahide Ishioka	Interpreter

LIST OF ATTENDANTS (2)

Date: May 26, 1989.

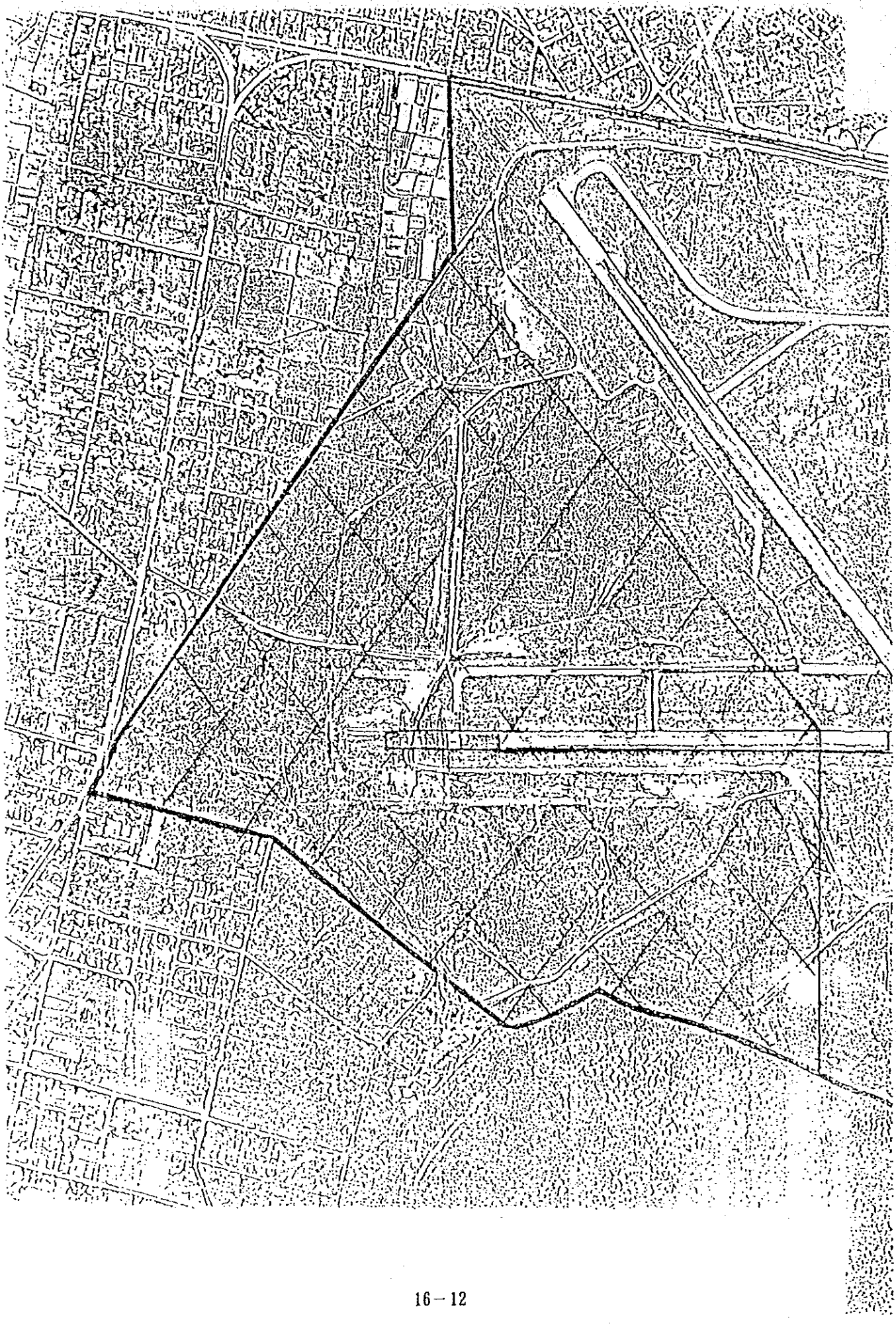
Place: Director General's Office at D.G.I.A.

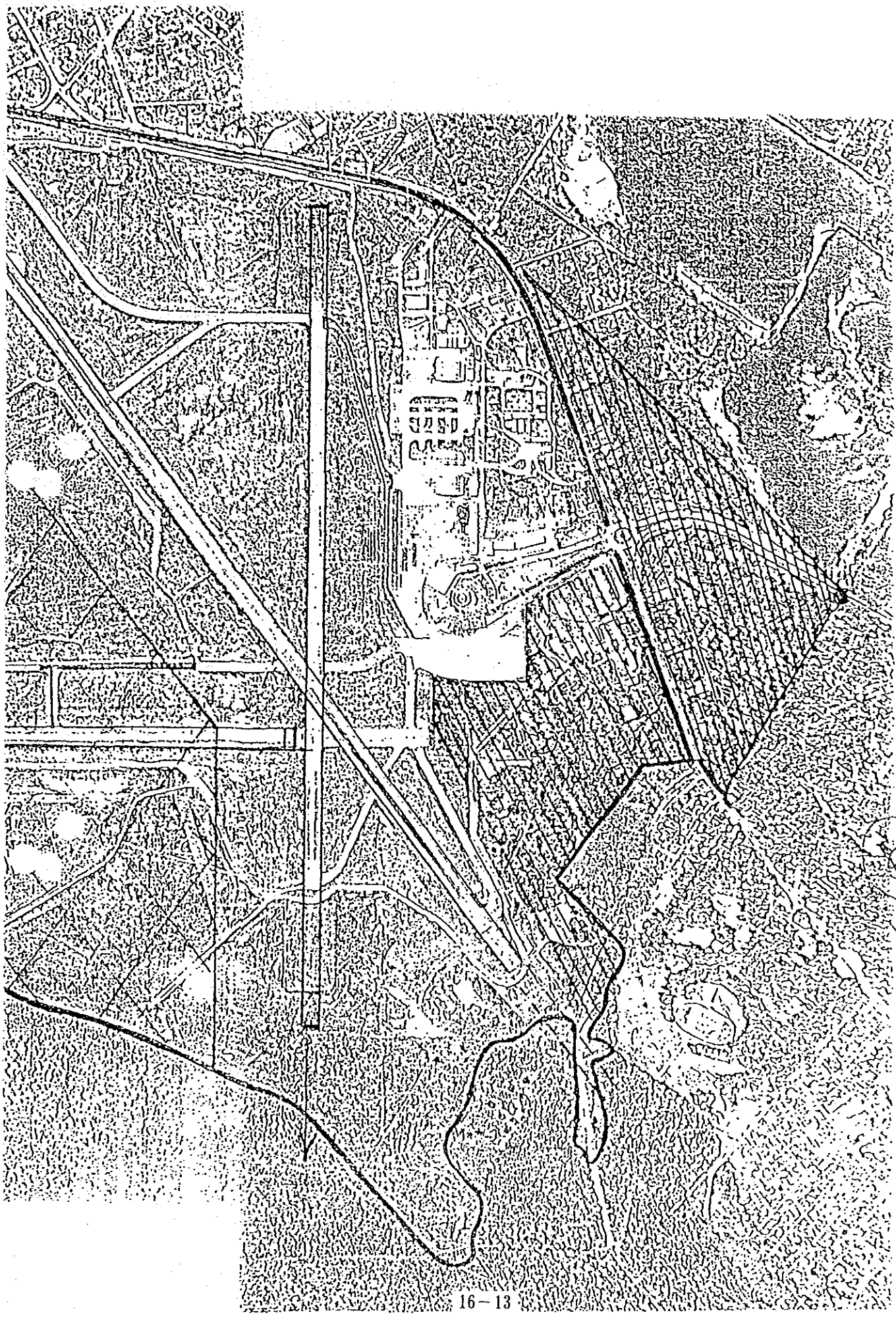
URUGUAYAN SIDE

NAME	POSITION
Cnel. Ramón Suárez	Director de Aeropuertos.
Cnel. Roberto Abadie	Director de la Direccion de Infraestructura, D.G.I.A.
Cnel. Shandelaio González	Director de la Dirección de Administración y Personal.

JAPANESE SIDE

Mr. Shigeru Shibata	Leader of Study Team
Mr. Hidetoshi Mitsuzuka	Sub-Leader.
Mr. Toru Kikuchi	Team Member.
Mr. Iwo Hanada	Team Member.
Mr. Hisahide Ishioka	Interpreter.





資料－5　インテリム・レポート協議議事録

MINUTES OF MEETING
ON
INTERIM REPORT
FOR
THE STUDY ON THE DEVELOPMENT PLAN
OF
THE INTERNATIONAL AIRPORT OF CARRASCO
IN
THE ORIENTAL REPUBLIC OF URUGUAY
AGREED UPON
BETWEEN
GENERAL DIRECTION OF AERONAUTICAL INFRAESTRUCTURE
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

MONTEVIDEO, SEPTEMBER 27TH, 1909.

Cnel.(Av.) WALTER DOPAZO
General Director
D.G.I.A.

Arq. SHIGERU SHIGATA
Leader Study Team
J.I.C.A.

According to the agreed "Minutes of Meeting" on the Inception Report dated April 10th, and Progress Report dated May 26th, JICA Study Team has performed the First Home Office Study as scheduled.

As a result of this study, JICA Study Team has submitted Interim Report to D.G.I.A. on September 19th, and both parties have discussed Sep. 20th through 26th.

1. Both parties have agreed in principle to the Interim Report, however the following items, originally contemplated in it, will be excepted according to the comments by D.G.I.A.:

   - Correction of longitudinal slope of runway: (RWY06/24).
   - Reconstruction of taxiway: (TWY-A)

   In addition, it was agreed that the finalized facility requirements in the each development should be revised as attached tables E-1, E-2 and E-3.

2. D.G.I.A. has requested to include following new requirements into the study:

   - Extension of RWY 01/19
   - Expansion of Apron.

Table E-1 Finalized Facility Requirements of Airfield Facilities

Facility	1995	2000	2010
1. Primary runway (RWY06/24)	1. Width of runway strip should be extended to 300 m. 2. Pavement should be reinforced to accommodate Short-term traffic with design life of 10 years. 3. Shoulders should be reconstructed.	---	1. Runway length should be extended to 3,100 m. 2. Pavement should be reinforced to accommodate future traffic.
2. TWY - A	1. Pavement should be reinforced to accommodate short term traffic with design life of 10 years.	---	1. Pavement should be reinforced to accommodate future traffic. 2. Part from RWY01 to RWY06 should be reconstructd as parallel taxiway.
3. TWY - B	1. Pavement should be reinforced to accommodate short term traffic with design life of 10 years.	---	1. Pavement should be reinforced to accommodate future traffic.

Facility	1995	2000	2010
TWY - D	1. Pavement should be reinforced to accommodate Short-term traffic with design life of 10 years.	---	1. Pavement should be reinforced to accommodate future traffic.
RWY01/19 and TWY - C	1. Pavement should be reinforced to accommodate B737 operations with design life of 10 years.	---	1. Pavement should be reinforced to accommodate future traffic.

Table I-7 Finalized Facility Requirements of Terminal Area Facilities

Facility	1995	2000	2010
1. Apron	1. Reconstruction of areas S-4, S-5 and S-6 should be made to accommodate Long-term traffic with design life of 20 years. 2. Repairs of areas S-1, S-2 and S-3 should be made to prevent further deterioration.	1. Reinforcement of area S-3 should be made to accommodate Long-term traffic with design life of 20 years.	1. Reinforcement of areas S-1 and S-2 should be made to accommodate future traffic. 2. New apron for cargo freighter will be constructed.
2. Passenger Terminal Central Terminal Departure Terminal Arrival Terminal	1. 300 m^2 for security check area with three (3) X-ray detectors, two for international and one for domestic;	Central Terminal will be modified to provide: 1. 300 m^2 for departure concourse and departure lounge; 2. 105 m^2 for domestic baggage claim area with one baggage claim device.	Central Terminal; Demolish the existing central terminal and newly construct departure concourse, departure lounge concession area and administrative area with new control tower and ATC facilities. Departure concourse 2,400 m^2 Departure lounge 1,760 m^2 Concessions 3,450 m^2 Administrative area 5,550 m^2 Total 13,160 m^2 Arrival Terminal; Existing arrival terminal will be expanded by 12 m(one span) x 45 m. Install three baggage claim devices.

Facility	1995	2000	2010
3. Cargo Terminal	1. Warehouse: As is, with "open shed" to be provided. 2. Cargo and G.S.E handling area will be provided.	1. Four(4) work stations will be installed at "open shed", whose area will be 360 m^2 2. Rack system will be provided inside of warehouse, covering area of 1080 m^2. 3. Modify existing warehouse for bulk cargo handling area. 4. Provide cold storage, (125 m^2 in area) inside the existing warehouse.	1. The "open shed" will be doubled in size, to 720 m^2 in area and eight(8) work stations. 2. Import storage area and office area will expand, expanded area will be 320 m^2 and 725 m^2 3. Expand cold storage, by 135 m^2 in area.
4. Car Parks	1. Add space for 100 cars including cargo trucks at the cargo terminal area.	-----	Add space for 200 cars.
5. Fuel	Major facilities: As is. Oil-water separaters will be required for ESSO and SHELL	Reconstruct to provide three 600-kl tanks, complete with supporting facilities.	Add one 600-kl tank (tank only)
6. Water Supply	Add one 600-m^3 tank	Add one 600-m^3 tank	---
7. Sewage	As is.	Add 15 m^3/hr plant.	---

Facility	1995	2000	2010
8. Rescue and Fire Fighting	1. Demolish the existing building and new building will be constructed. 2. Construct one 30 m³ elevated tank.		
9. Garbage disposal	Provide two 5-tons day incinerators.	Add one more 5-tons/day incinerator.	---
10. GSE maintenance shop and airline offices located near the hangar	1. Existing building will be demolished ,and new building (floor area:3,000m²) will be constructed along the east boundary of terminal area.	As is	

Table 8-3 Finalized Facility Requirements of Air Navigation Facilities

Design year / Facility	1995	2000	2010
1. Radio Navigational Aids	1. ILS equipment of RWY24 should be renewed. 2. Terminal VOR/DME should be renewed.	1. Two sets of VOR/DME and one set of NDB should be installed.	---
2. Air Traffic Control Facilities	1. VFR equipment should be renewed. 2. VHF Air-t- Ground communication equipment should be renewed. 3. Tape recorder should be renewed.	---	1. ASR/SSR should be renewed. 2. ACC facilities should be newly constructed. 3. New IFR equipment should be installed. 4. New VHF equipment should be installed.
3. Communications Facilities	1. Following equipment or facilities should be renewed: - ATS direct speech equipment - HF receiving station - HF transmitting station	---	1. Following equipment should be newly installed: - AFTN - ATS direct speech equipment - Telephone

MLS will be installed when its practicability and adaptability has been firmly confirmed.

Design year / Facility	1995	2000	2010
4. Meteorological equipment	1. Equipment should be renewed. 2. RVR system should be installed.	---	---
5. Electrical power supply	1. New station and equipment should be provided.	---	1. New substation and equipment should be provided.
6. Visual Aids	1. RWY06/24 1) Existing approach lights and sequenced flashing lights of RWY24 should be changed to meet ALS requirement. 2) Following lights should be installed. - SALS for RWY06 - Two sets of PAPI - Stopway lights 3) Following lights should be renewed: - RWY edge lights and End lights. - Wingbar lights for RWY24 - RWY threshold lights - Touch down zone lights. - RWY centerline lights.	1. RWY06/24 1) Additional approach lights should be installed to meet ICAO recommendation	

Design year / Facility	1995	2000	2010
	2. TWY-A, TWY-B and TWY-D 1)Taxiway-edge lights should be renewed. 2)Taxiing guidance lights should be installed.		
	3. RWY01/19 and TWY-C 1)Following lights should be installed: -SALS for RWY19 -Two sets of PAPI -TWY dege lights -Taxiing guidance light 2)Following lights should be renewed: -RWY edge lights -RWY threshold lights and End lights -REIL for RWY01		
	4. Aerodrome beacon should be renewed.		
	5. Apron flood-lights should be renewed.		

GENERAL MEETING

26th September 1989.

LIST OF ATTENDANTS

URUGUAYAN SIDE

Cnel.(Av.) Walter Dopazo	Director Gral. de la Dirección General de Infraestructura Aeronáutica.
Cnel.(Av.) Roberto Abadie	Director de la Dirección de Infraestructura
Cnel.(Elec.) Esaú Prada	Director de la Dirección de Electrónico
Ing. Teresa Romano	Directora de la División Ingeniería
Ing. Jorge Grgich	División Ingeniería
Ing. Arturo Forteza	División Ingeniería
Ayte. Ing. Luis Ceiter	División Ingeniería
Arq. Daniel Ruggiero	División Arquitectura
Sr. Victor Garín	Director Aeropuerto Intern. de Carrasco
Sra. Judith Figueroa	Dirección Aeropuerto Intern. de Carrasco
Cdor. Chaparro	Oficina de Planeamiento y Presupuesto de la Presidencia de la República.

JAPANESE SIDE

JICA Study Team

Mr. Shigeru Shibata	Leader of Study Team
Mr. Hidetoshi Mituzuka	Sub-Leader
Mr. Toru Kikuchi	Team Member
Mr. Teruo Hanada	Team Member
Mr. Hisahide Ishioka	Interpreter

Advisory Committee of JICA

Mr. Shinya Suzuki	Committee Member
Mr. Teruyasu Ikeda	Committee Member
Miss. Rika Inada	Coordinator

資料－6　ＤＧＩＡからＪＩＣＡミッションに提示されたレター

Nº 553002

FUERZA AEREA

DIRECCION GENERAL DE INFRAESTRUCTURA AERONAUTICA

Aeropuerto Internacional de Carrasco, 27 de setiembre de 1989

MISION DE JAPON INTERNATIONAL COOPERATION AGENCY

REFERENCIA:

Informe intermedio del Estudio Factibilidad Plan de Desarrollo del A.IC.

Por la presente la D.G.I.A. desea dejar establecido lo siguiente:

1) Que comparte la elección realizada por JICA de la pista 01-19 como pista secundaria.

2) Se plantea que se contemple dentro del alcance del estudio, la prolongación de la pista secundaria para que permita operaciones de aeronaves de fuselaje ancho (B-747-2008), atendiendo el tramo Montevideo-Río en vuelo directo, Quedando en la clasificación de Pista Categoria I, con sus correspondientes ayudas visuales y electrónica.

Este planteamiento tiene las siguientes motivaciones:
A) la necesidad de contar con una pista alternativa para operación de emergencia en cada caso de verse interrumpida las operaciones en la pista principal por causa de accidente de aeronaves, tareas de mantenimiento, u otras imposibles de preveer.
B) se destaca el hecho de que la pista 06-24 del A.I.C. es la única capaz de permitir la operación de vuelos comerciales internacionales y que su cancelación dejaría aislado el País por vía aérea.

3) Se proporcionen por parte de JICA los resultados de los estudios comparativos de la pista 01-19 y 10-28 como referencia para la elección de la pista secundaria, en el próximo informe.

4) La voluntad de D.G.I.A. de aumentar el área de plataforma de estacionamiento de aeronaves, lo que se deja como pri

//-

//_mera prioridad o paso previo a la incorporación de tractores para arrastre de aeronaves, dentro del Plan a Corto plazo para 1995 la Ampliación de Plataforma y la incorporación de tractores en forma parcial para el año 2000.

Esta ampliación de plataforma, debería contemplar dos (2) puestos de estacionamiento para aeronaves B-747-400 y dos (2) puestos de estacionamiento para aeronaves B-747.

Esta voluntad está motivada en lo siguiente:

A) Razones económicas, técnicas y gremiales, explicitadas en la reunión general del 26 de setiembre de 1989.

B) Ser el A.I.C. alternado del Aeropuerto de Ezeiza y Aeroparque.

C) La posibilidad de que aumente el número de vuelos charters, que ya existen, ocupando por prolongados períodos importantes áreas de plataforma.

5) Se deja constancia que los criterios señalados anteriormente son compartidos en su totalidad por el Sr. Representante de la Oficina de Planeamiento y Presupuesto de la Presidencia de la República, Cdor. Luis Chaparro.

Saluda a Ud. atentamente

El Director General de Infraestructura Aeronáutica

Coronel (Av.)

WALTER DUPAZO

（参考訳文）

From：D. G. I. A
To　：JICAミッション

Ref　：　AIC整備計画 F/S 中間報告

本状を以ってDGIAは下記の点を明確にする。

1）RWY 01/09 を secondary runway とするJICA選択に意見を同じくする。

2）スタディ期間中に MVD-Rio の air route を direct flight する大型機（B-747-200B）が離発着できるように secondary runway の extension を含め、RWY は visual aids ILS 機器を装備した CAT－I RWY とする。
これらは以下の理由による。

A）航空機事故，メインテ業務、またはその他不測の事態を事由とし main Runway のoperations が中断されるような場合の緊急 operation 用代替滑走路を容易する必要性。
B）カラスコ国際空港 RWY 06/24 は国際商業航空便運航可能な唯一のものであり、またその運用中断は空路の上で当国を孤絶状態に置くという事実。

3）次期レポートにて secundary runway 選択の参考用とし 01/19，10/28の比較検討結果をJICAは提供する。

4）航空機駐機場のエリヤ拡張に係るDGIAの意志：本件はfirst prionty または航空機 toeing 用のトラクター導入の事前ステップとして設定し、short tera plan の中で1995年までにapronの拡張、2000年までにトラクターの部分的導入とする。

（A）このエプロン拡張は、B-747-400用 2 spot，B－707用 2 spotを見込むものとする。

この意志決定は以下の理由に基づく：
A）1989年9月26日の general meeting にて明示された経済的，技術的労務対策上の理由。
B）AICが Ezziza 及び Aero parque の代替空港たること。

C）既に乗入れを行っているチャーター便がエプロンの大半以上のareaを長期間占拠することが可能となるように。

5）これらD. G. I. Aの新しいクライテリアはOPP代表であるMr. Luis Chaparro によって確かめられている。

MINUTES OF MEETING

ON

DRAFT FINAL REPORT

FOR

THE STUDY ON THE DEVELOPMENT PLAN

OF

THE INTERNATIONAL AIRPORT OF CARRASCO

IN

THE ORIENTAL REPUBLIC OF URUGUAY

AGREED UPON

BETWEEN

DIRECTORATE GENERAL OF AERONAUTICAL INFRASTRUCTURE

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

MONTEVIDEO, JANUARY 30TH, 1990

Cnel.(Av.) WALTER DOPAZO
General Director
D.G.I.A.

Arq. SHIGERU SHIBATA
Leader Study Team
J.I.C.A.

According to the agreed " Minutes of Meeting " on the Interim Report dated September 27 th , 1989, JICA Study Team has performed the Second Home Office Study as scheduled.

As result of this study , JICA Study Team has submitted Draft Final Report to D.G.I.A. on January 22nd, and both parties have discussed through 23rd and 26th.

Both parties have agreed in principle to the Draft Final Report.

1. It was agreed however that the Study Team will consider the comments, attached herewith, in the Final Report, and

2. D.G.I.A. will provide JICA with its another comments, if any , in writing by Feb. 21st. 1990 , and

3. Draft Final Report is to be finalized taking into consideration the above mentioned comments and JICA will submit Final Report to D.G.I.A. by April 21st. , 1990 .

4. In order to maintain study technology , transfered during the Study , D.G.I.A. has requested to receive following equipment :

   - Personal computer
   - Software
   - Copy machine

FUERZA AEREA

DIRECCION GENERAL DE INFRAESTRUCTURA AERONAUTICA

Aeropuerto Internacional de Carrasco, 29 de Enero de 1990.

MISION DE JAPON INTERNATIONAL COOPERATION AGENCY

REFERENCIA:

Borrador del Informe Final del Estudio Factibilidad Plan de Desarrollo del A.I.C.

Por la presente la D.G.I.A. desea dejar establecido lo siguiente:

1) El informe presentado refleja que se han tomado en cuenta los requerimientos de la D.G.I.A. en términos generales.

2) En lo que se refiere al estudio comparativo para seleccionar la pista secundaria, se entiende que los elementos aportados, no son lo suficientemente completos como para que la D.G.I.A. pueda tomar decisión sobre la orientación más conveniente.

Por otra parte, al decidir realizar la Ampliación de Plataforma de Estacionamiento de aeronaves hacia al norte, en el concepto de operación autónoma, las aeronaves constituirían obstáculo para la pista 10-28. Ello implica definir por vía indirecta la elección de la pista 01-19 como secundaria.

Ante ello a fin de preservar la posibilidad de desarrollo de ambas pistas como secundarias; se propone cambiar la operación de plataforma al concepto Taxi-in/Push-on. Ello es concordante con la decisión de D.G.I.A. de incorporar en forma paulatina esa modalidad de parqueo, atendiendo al año 2000.

3) Dado los resultados del estudio financiero y la recomendación de la página 0-1 ítem 1-4 que para la implementación del proyecto de grado II se deben duplicar los ingresos aeroportuarios y que la finaciación de los aportes nacionales debe ser asumida por el Gobierno; nos obliga a pensar en una reducción del monto de inversión inicial. En ese sentido se propone a la Misión que se transfieran al proyecto de largo plazo, las obras previstas para la pista secundaria en el corto plazo; lo que al provocar una reducción aproximada a los 17: U$S, arrojaría un incremento importante en la TIR.

4) Las aspiraciones planteadas por la D.G.I.A. que corresponden al grado I de este proyecto, se mantienen al presente; pudiendo modificarse lo siguiente:

a) INCINERADORES DE BASURA

Se considera excesiva la inversión propuesta, un solo incinerador de menor capacidad para tratamiento de residuos de aeronaves (aproximado de 2 Ton. diarias) es suficiente.

b) Se podría mantener en su condición actual el taxiway C, tramo C1.

c) Se sugiere por otra parte la revisión de costos preliminares correspondientes a los equipos de Ayuda a la Navegación.

Resumiendo el informe final podría presentar 3 alternativas:

GRADO I: Con las modifiaciones propuestas y que contemplaría las aspiraciones de la D.G.I.A., manteniendo la interrogante sobre la selección de la pista secundaria.

GRADO II: Tal cual surge como resultado de los estudios del TEAM, al que sugiere se complemente con los incineradores referidos anteriormente, como asi mismo la consideración con respecto a la pista secundaria.

GRADO III: Contemplar las minimas obras a realizar en el corto plazo para mantenimiento de los servicios del A.I.C.

Saluda a UD. atentamente,

El Director General de Infraestructura Aeronautica

Cnel.(Av.) 

WALTER J. DOPAZO

参考訳文

DGIA

カラスコ国際空港　１９９０年１月２９日

カラスコ国際空港整備計画調査 最終報告書（案）について

本ミニッツにてD.G.I.A.は以下を確定したい。

1）　ＪＩＣＡレポートは全体としてD.G.I.A. の requirement が反映されている。

2）　Secondary RWY選択のための比較検討については、D.G.I.A. が最終決定を下すに足るだけの充分な材料が盛り込まれていない。

自走方式にて駐機エプロンを北方に拡張するなれば航空機は RWY 10/28 の障害となり、この事実は間接的に Secondary として RWY 01/19 の選択を決めることになる。

かかる事態が故に両滑走路を secondary として整備対象の可能性を残すため、駐機方式を Taxi-in, Push-out に変更することが提案されて来る。これは2000年までには漸次この駐機方式を採用するというD.G.I.A. の決定にも一致する。

3）　財務評価の結果、また Grade-ⅡでのProject実施には空港収入を倍増し尚かつ政府資金での finance が必要との page 0-1 item 1-4 recommendation を考えると、initial project cost の減額を配慮せざるを得ない。
この意味において、JICA Mission に対し、短期整備に含まれている secondary RWY の工事を長期計画に移行するよう提案する。約1700万ドルの減額は IRR を大幅に改善させることになろう。

4）　プロジェクト Grade－Ⅰ 該当のD.G.I.A. 希望は現在のままとするが次を除外する。

a）　ゴミ焼却炉

提案の投資コストは法外と見做され、航空機から発生するゴミ処理（一日約２トン）能力をもつ焼却炉一基で充分。

b）　TWY-C1 は現状のままでよかろう。

c） 他方、NAV-AIDS の見積もりコストの見直しを suggest する。
要するに final report として三つの選択肢が考えられ得る。

Grade Ⅰ：D.G.I.A. の要望・提案による修正案。しかし secondary RWY の選択は疑問のまま残る。

Grade Ⅱ：Mission の study 通りだが、計画の中に焼却炉を補充することを suggest する。

Grade Ⅲ：カラスコ空港の operation を維持するに足るだけの最低限の工事を短期計画で実施。

D.G.I.A. 局長　ウォルター・J・ドパソ

ASISTENTES A LA REUNION DEL DIA 23 DE ENERO DE1990

D.G.I.A.

Cnel. (Av.) Roberto Abadie	Director Dirección de Infraestructura
Ing. Teresa Romano	Director División Ing. y Arq. Area Ing.
Ing. Jorge Grgich	Asesor I Area Ing.
Arq. Daniel Ruggiero	Asesor III Area Arq.
Dr. Jaime Torrendel	Asesor II OPPE
Cra. Evelyn Batista	Asesor IV OPPE
May. Jorge Díaz	2º Jefe OPPE
Livia Marsiglia	Tec. Ayte. IV Area Ing.

J.A.C

Arq. Shibata

Arq. Mitsuzuka

Lic. Kikuchi

Ing. Hanada

Sr. Ishioka

EMBAJADA DE JAPON

Sr. Imazu

O.A.C.I.

Arq. Joseph Mendelssohn

Sr. Roch Laflamme

ASISTENTES A LA REUNION DEL DIA 22 DE ENERO DE 1990

D.G.I.A.

Cnel. (Av.) Roberto Abadie	Director Dirección de Infraestructura
Cnel. (Elec.) Esaú Prada	Director Dirección de Electrónica
Ing. Teresa Romano	Director División Ing. y Arq. Area Ing.
Ing. Jorge Grgich	Asesor I Area Ing.
Ing. Arturo Forteza	Director División Ing. y Arq. Area Ing.
Arq. Fernando Cheda	Director División Ing. y Arq. Area Arq.
Arq. Daniel Ruggiero	Asesor III Area Arq.
Arq. Carlos Galcerán	Sub-Director División Area Arq.
Cra. Evelyn Batista	Asesor IV OPPE
May. Jorge Díaz	2º Jefe OPPE
Sr. Víctor Garín	Director A.I.C.

J.A.C.

Arq. Shibata

Arq. Mitsuzuka

Lic. Kikuchi

Ing. Hanada

Sr. Ishioka

EMBAJADA DE JAPON

Sr. Imazu

FUERZA AEREA

DIRECCION GENERAL DE INFRAESTRUCTURA AERONAUTICA

Aeropuerto Internacional de Carrasco, 21 de febrero de 1990.-

MISION DE JAPON INTERNATIONAL COOPERATION AGENCY

REFERENCIA:

Borrador del Informe Final del Estudio de Factibilidad Plan de Desarrollo del A.I.C.

Por la presente la D.G.I.A. desea dejar establecida las siguientes observaciones:

1) Dado los resultados del estudio financiero y la recomendación de la página 0-1 item 1-4 que para la implementación del proyecto de grado II se deben duplicar los ingresos aeroportuarios y que la financiación de los aportes nacionales deben ser asumida por el Gobierno; nos obliga a pensar en una reducción del monto de inversión inicial. En ese sentido se propone a la misión que se transfieran al proyecto de largo plazo, las obras previstas para la pista secundaria en el corto plazo; lo que al provocar una reducción apróximada a los 17:U$S, arrojaría un incremento importante en la TIR.

2) Las aspiraciones planteadas por la D.G.I.A. que corresponden al grado I de este proyecto, se mantienen al presente; pudiendo modificarse lo siguiente:

a) INCINERADORES DE BASURA

Se considera excesiva la inversión propuesta, un solo incinerador de menor capacidad para tratamiento de /

residuos de aeronaves (aproximado 2 toneladas diarias) es suficiente.

b) Se podría mantener en su condición actual el taxiway C, tramo C1.

c) Se sugiere por otra parte la revisión de costos preliminares correspondientes a los equipos de Ayuda a la Navegación.

Resumiendo el informe final podría presentar 3 alternativas:

GRADO I: Con las modificaciones propuestas y que contemplarían las aspiraciones de la D.G.I.A., manteniendo la interrogante sobre la selección de la pista secundaria.

GRADO II: Tal cual surge como resultado de los estudios del TEAM, al que se sugiere se complemente con los incineradores referidos anteriormente, como así mismo la consideración con respecto a la pista secundaria.

GRADO III: Contempla las mínimas obras a realizar en el corto plazo para mantenimiento de los servicios del A.I.C. para lo que se sugiere se excluya del grado I lo siguiente:

a) Obras de Ingeniería Civil, Ayudas Visuales y a la navegación sobre la pista 01-19.

b) Reencarpetamiento del taxiway C, tramo C 1.

3) En lo que se refiere al estudio comparativo para seleccionar la pista secundaria, se entiende que los elementos aportados/

no son lo suficientemente completos como para que la // D.G.I.A. pueda tomar decisión sobre la orientación más conveniente.

Por otra parte, al decidir realizar la Ampliación de Plataforma de Estacionamiento de aeronaves hacia el norte, en el concepto de operación autónoma, las aeronaves constituirían obstaculo para la pista 10-28, si fuera hacia el norte y a la pista 01-19 si fuera hacia el W. La ampliación de plataforma quedaría condicionada a la definición de la pista secundaria.

Nuestra Asesoría OACI entiende al respecto:

" Mientras la extensión de una de las pistas secundarias es deseable, nosotros recomendamos que no debería tener la misma prioridad al momento, como otros componentes más críticos tales como: la pista principal y reparaciones relativas a taxiways, ayudas a la navegación y telecomunicaciones.

Sin embargo el Plan Maestro debe identificar la pista secundaria de forma de hacer posible un ordenado y eficiente desarrollo del Aeropuerto".

4) Una vez tomada decisión sobre las acciones a tomar sobre la pista secundaria se reevaluará la longitud propuesta de 2.050 mts. Por lo tanto esa longitud se toma a los / efectos del estudio preliminar de costos, que podra ser revisada en futuras etapas del proyecto.

5) Los espesores propuestos de refuerzos, se toman como vá-

lidos a efectos de estudios comparativos y de factibilidad.

6) La D.G.I.A. entiende necesario, incluir dentro del Plan a 1995 la solución a los actuales problemas de la Terminal de Carga; como ser: Depósito de materiales radiactivos, Cámara frigorífica, etc.

7) Que se proponga la localización de la Estación de Bomberos.

8) En el cronograma de la página 0-7 se superpone la parte final de la etapa de la preparación finaciera y la etapa de diseño. De la misma forma se superpone el diseño y la construcción.

9) Que se reestudie el programa de entrenamiento; definiendo sus objetivos, identificando necesidades de entrenamiento, estimando los costos del programa, etc., D.G.I.A. aspira a un mayor grado de entrenamiento.

10) Se realice una nueva opción Económica Financiera, considerando un incremento del PBI del 1,5 % anual.

11) En el Capítulo 11, Parágrafo II-2 (1).- Se entiende conveniente que relevamientos topográficos y de suelos sean de responsabilidad de la consultora a cargo del diseño.

12) Dado que en el Capítulo 7.- Administración y Operación del Aeropuerto, se realiza un estudio abreviado de las necesidades del número de funcionarios y Organización de la D.G.I.A.; se solicita la posibilidad de incluir en la Etapa de Diseño un estudio profundo de este tema.

13) Dado la necesidad de duplicar los ingresos del A.I.C. como resultado del Estudio de Factibilidad, se solicita también se incluya

en la Etapa de Diseno; un estudio de los aspectos comerciales del A.I.C, conducido para optimizar los ingresos en el corto y largo plazo.- Los costos de ambos estudios serán incluidos en el estimado global de costos del proyecto.

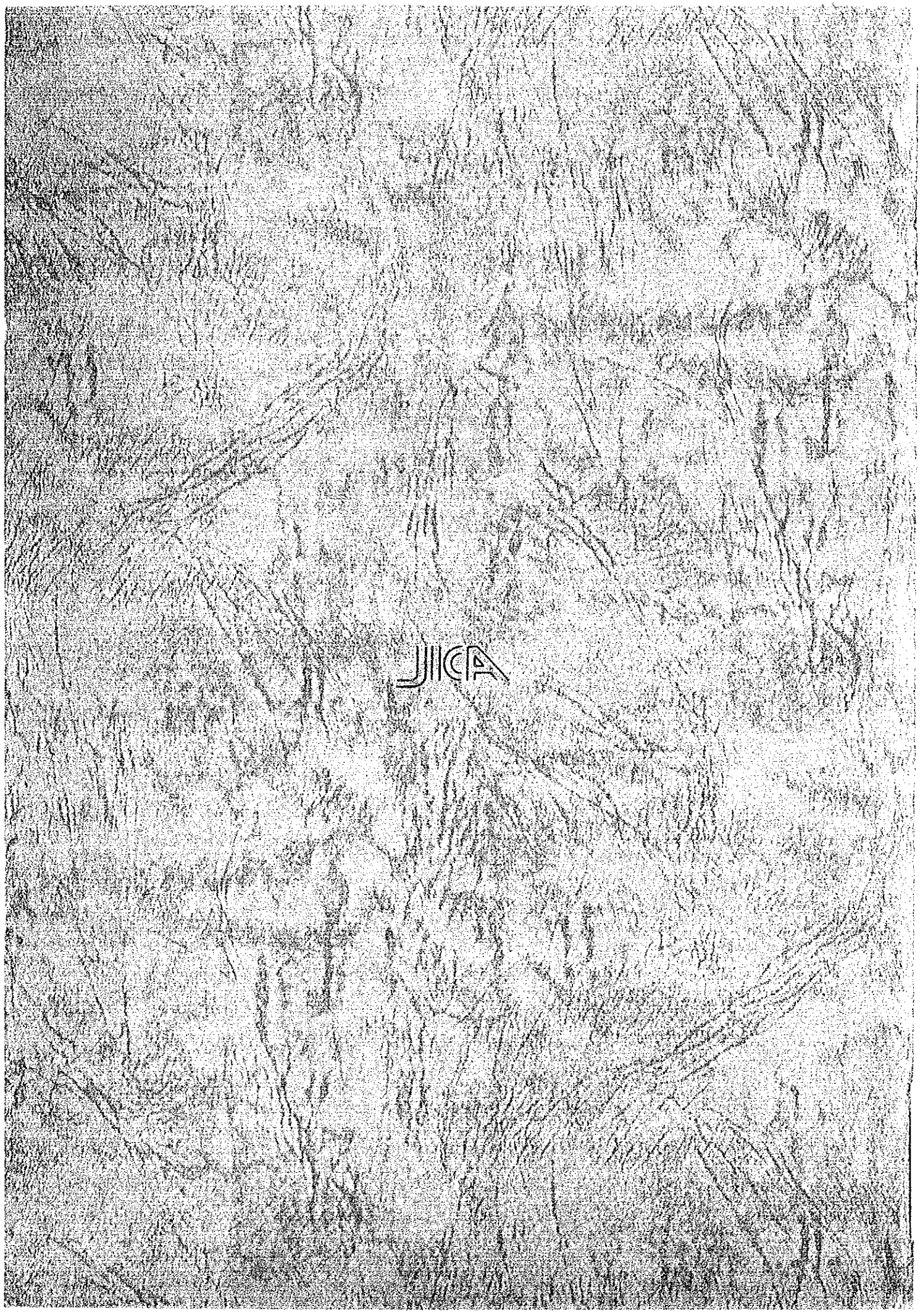
14) Se solicita que se tenga en cuenta en la Etapa de Diseño, el estudio de la óptima localización de las Sub- estaciones eléctricas.

15) En el Capítulo 8 paragrafo 8-2-1. (1) se otorgán con caracter general, prioridades de mejorsmiento. Se solicita que se le otorgue un orden de prioridad a la totalidad de las inversiones, las que pueden ser acompañadas de sus costos estimados teniendo en cuenta la inversión global.

Saluda a Ud. atentamente

P/ El Director General de Infraestructura Aeronáutica y P/S/O
El Director de Aeropuertos
Cnel.(Av.)

RAMON SUAREZ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