CONTRACT NO. HY/99/02
WIDENING OF FO TAN ROAD AND RELATED IMPROVEMENT MEASURES IN FO TAN

ENVIRONMENTAL MONITORING AND AUDIT REPORT NO. 32
(for the month of September 2002)

OCTOBER 2002

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Issue & Revision Record

Rev.	Date	Originator	Checked By	Approved	Description
A	October 2002	Danny Ng	Anne Watker-Zeris (Environmental Team Leader)	K W Lee (Engineer)	Monthly Progress Report
Signature					

Project Title:

Contract No.: HY/99/02
Widening of Fo Tan Road and
Related Improvement Measures in Fo Tan

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Contract No. HY/99/02
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CONTENTS

1. EXECUTIVE SUMMARY

Background

1.1 Highways Department Contract HY/99/02, "Widening of Fo Tan Road and Related Improvement Measures in Fo Tan", has been awarded to Shun Yuen Construction/CNCEC Joint Venture, and work commenced on 1st Dec 1999. Physical works, as stated in Part B of the Variation of Environmental Permit, EP No.: VEP-015/2000/B/EP-030, commenced in Feb 2000 for completion by end of 2002.

Air Quality Monitoring

1.2 Air quality impact monitoring was carried out at one monitoring station (Rooftop of House No. 76 in Fo Tan Village) as shown in Figure 5.1 in September 2002. The results are summarized in Table 1.1.

Table 1.1 Summary of Air Quality Monitoring Results

Parameter	Range of Results	No. of Exceedances	
		Action Levels	Limit Levels
1-hr TSP	15 $\mu g/m^3$ – 173 $\mu g/m^3$	0	0
24-hr TSP	35 $\mu g/m^3$ – 57 $\mu g/m^3$	0	0

Noise Level Monitoring

1.3 The results for noise level impact monitoring at locations CN3, CN6, CN8, CN11, CN12 and CN13 as shown in Figure 6.2 during the Unrestricted Period in September 2002 are summarized as Table 1.2.

Table 1.2 Summary of Noise Level Monitoring Results

Parameter	Location	Range of Results	No. of date of exceedance	
			Action Levels	Limit Levels
Unrestricted Period L_{eq} (30min)	CN3	All below baseline	0	0
	CN6	59.4 dB(A) – 70.4 dB(A)	0	0
	CN8	All below baseline	0	0
	CN11	All below baseline	0	0
	CN12	66.7 dB(A) – 69.1 dB(A)	0	0
	CN13	63.6 dB(A) – 65.1 dB(A)	0	0

Water Quality Monitoring

1.4 No water samples were taken from Sedimentation Pond Nos. 1, 2, 3, 4 and 5 in this reporting month, as there was no generation of wastewater from construction activities (i.e. no pre-bored H-piling works were carried out for the month of September 2002).

Observations

1.5 No site inspection was conducted by EPD, LCO in the month of September 2002.

1.6 The wind data monitoring equipment recorded data at 5-minute intervals for the month of September 2002. The wind data recorded in the reporting month are contained in Appendix F.

Complaints

1.7 No complaints were received during September 2002.

1.8 A total of three (3) complaints have been received since the start of the Contract.

2. INTRODUCTION

Scope of Works

2.1 Fo Tan Road is the only road providing access to the Fo Tan Industrial Area and the residential area of Sui Wo. According to the findings in the Working Paper 13 (September 94) of the Shatin and Ma On Shan (STMOS) District Traffic Study commissioned by Transport Department (TD), the critical junctions along Fo Tan Road were overloaded by between 10 % and 30 % in the morning peak hours and by between 10 % and 20% in the evening peak hours in 1994. The study predicted that upon full development of the Fo Tan area, the Fo Tan Road will be operating beyond its design capacity, and recommended that the existing Fo Tan Road was widened as a measure to improve the traffic congestion problems in Fo Tan, Shatin.

2.2 The proposed Sui Wo Road extension from Fo Tan Road to Kwei Tei Street also provides an additional access from Fo Tan Road to the eastern part of the industrial area. The additional entry route would help spread the traffic loading amongst the two critical junctions at Fo Tan Road/Tsung Tau Ha Road and Fo Tan Road/Min Fong Street which are currently overloaded by 10% during the morning peak hour.

2.3 At present, traffic accessing the south-eastern part of the Fo Tan industrial area have to use the two junctions at Fo Tan Road/Tsung Tau Ha Road and Fo Tan Road/Min Fong Street for ingress and egress. These two junctions are currently overloaded by 10% during the morning peak hour. The proposed new road linking Tsung Tau Ha Road and Min Fong Street will provide an additional route connecting the north-eastern part and the south-eastern part of the industrial area, thus alleviating the traffic congestion problem currently being experienced at these junctions.

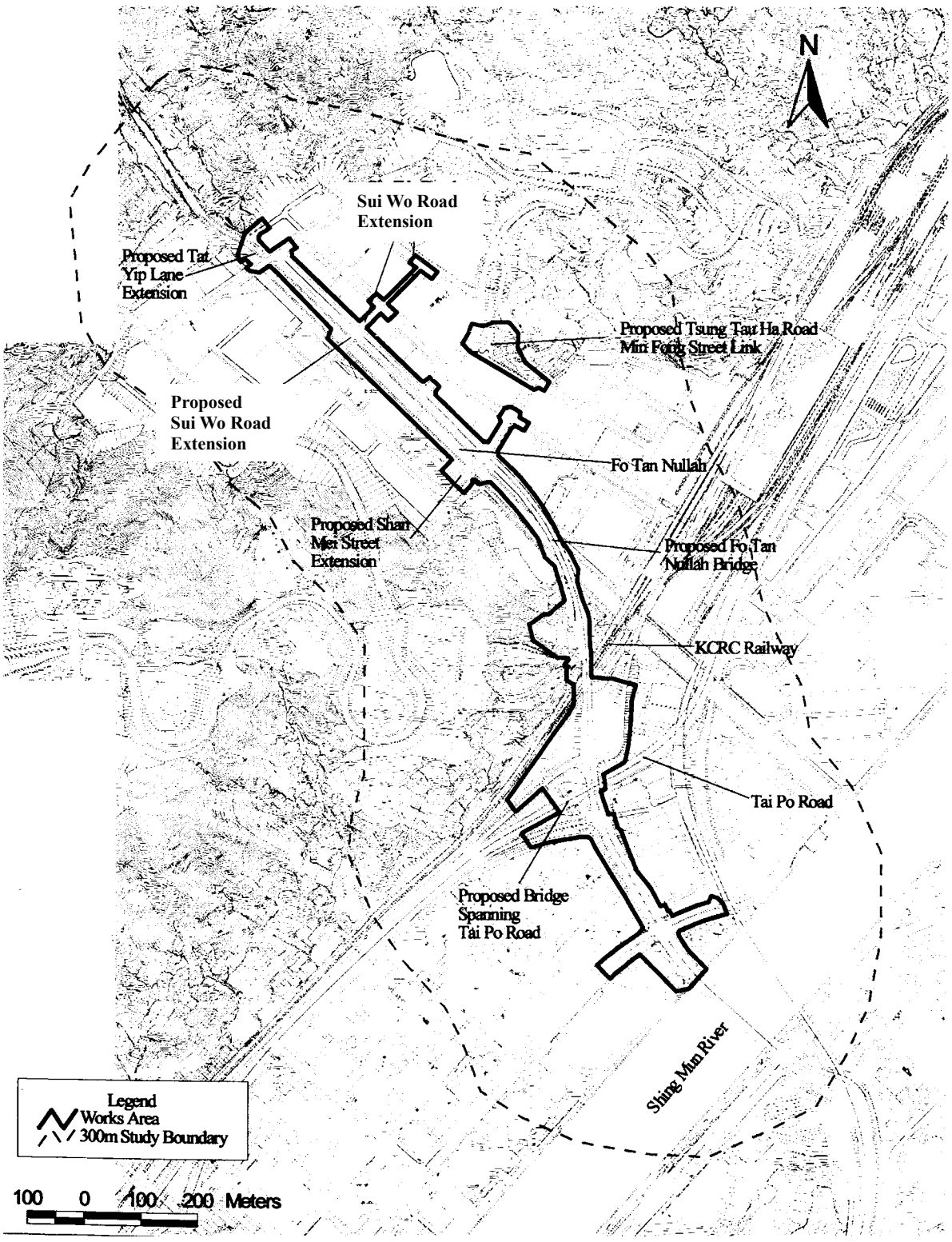
2.4 The existing Tat Yip Lane comprises two cul-de-sac. Heavy goods vehicles, in particular container trucks, often experience difficulties when reversing in the cul-de-sac and cause obstructions to other vehicles entering and leaving the adjacent industrial buildings. The proposed extension of Tat Yip Lane to Kwei Tei Street will remove the cul-de-sac on the western half thus alleviating the traffic problems resulting from the reversing of heavy goods vehicles.

2.5 In May 1995, TD proposed implementation of the above improvement works to include the Project in the 1996 CWRF RAE for completion within the following five years (2 years for planning and design works plus another 3 years for construction). The tentative scheduling for the construction period is between 1999 and 2002.

2.6 The works area of the Contract: HY/99/02 is shown in Figure 2.1

2.7 The key environmental issues of this project include air quality, water quality and construction noise. Air and water quality monitoring has been performed by the Contractor, under the supervision of Engineer's Representative (ER). Noise level monitoring is carried out by the Resident Site Staff (RSS) using equipment and qualified assistants provided by the Contractor.

2.8 According to section 1.4 of the revised EM&A Manual (Revision C), the ET will report directly to the Engineer. Hence, all EM&A reports, including the subject report, are prepared on behalf of the Engineer.



Mott Connell 萬宜	Title: **Fo Tan Road Study Area**	Mott Connell Limited
		Contract No.: HY/99/02
		Drawing No.: Figure 2.1

Project Organization

2.9 The project organization of the Contract is shown as follows:

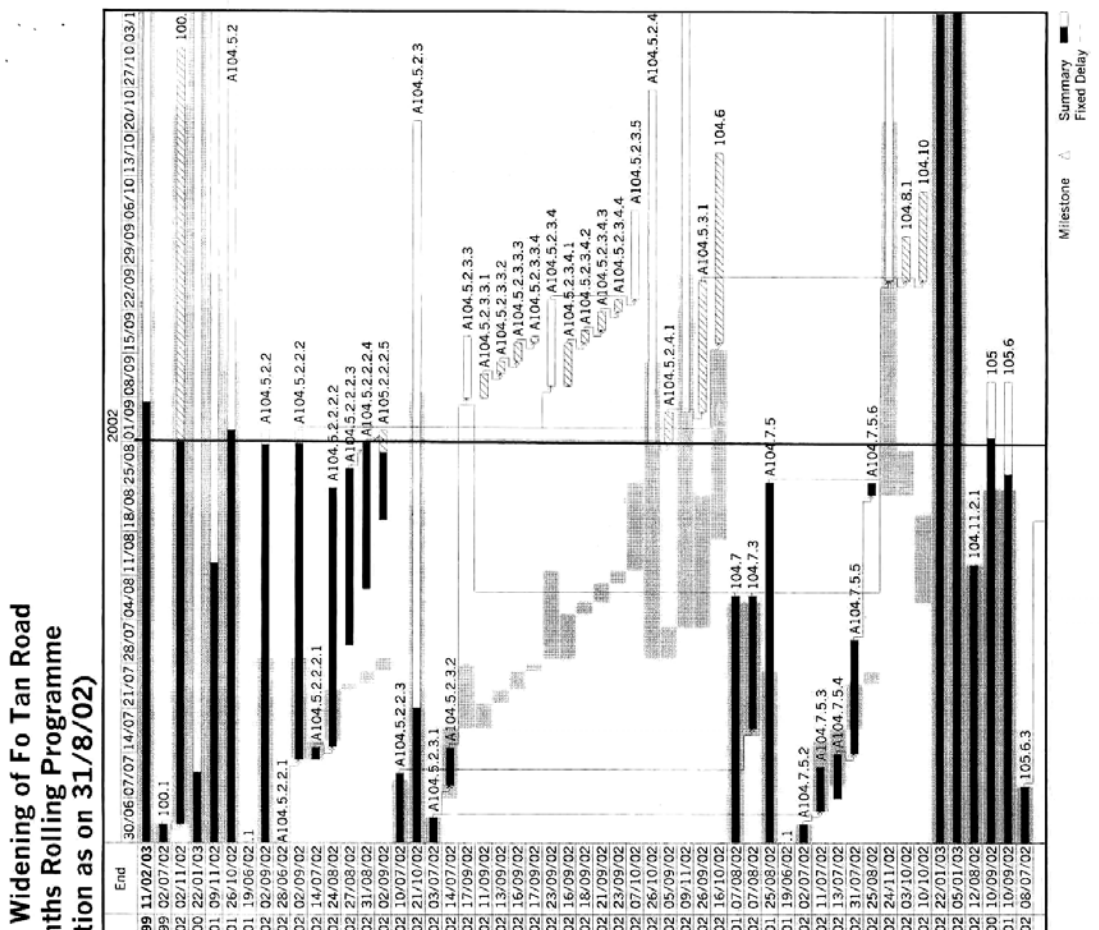
THE CLIENT (HyD/NT, Government of HKSAR)		
Contact Person:	Mr Greg Leung	(Tel.: 2762 3518) (Fax.:2715 3573)

THE ENGINEER (Mott Connell Limited – MCL)			
Director:	Mr K W Lee	(Tel.: 2828 5757) (Fax.: 2827 1823)	
Head Office		Resident Site Staff	
Project Engineer: Dr H T Cheng	(Tel.: 2828 5898)	Senior Resident Engineer: Mr Bill Reynolds	(Tel.: 21454909)
Environmental Team Leader: Dr Anne Watker-Zeris	(Tel.: 2828 5793)		

Contractor: Shun Yuen Construction & CNCEC JV		
Site Agent:	Mr K. O. Sheng	(Tel.: 2690 1293) (Fax.:2690 1639)

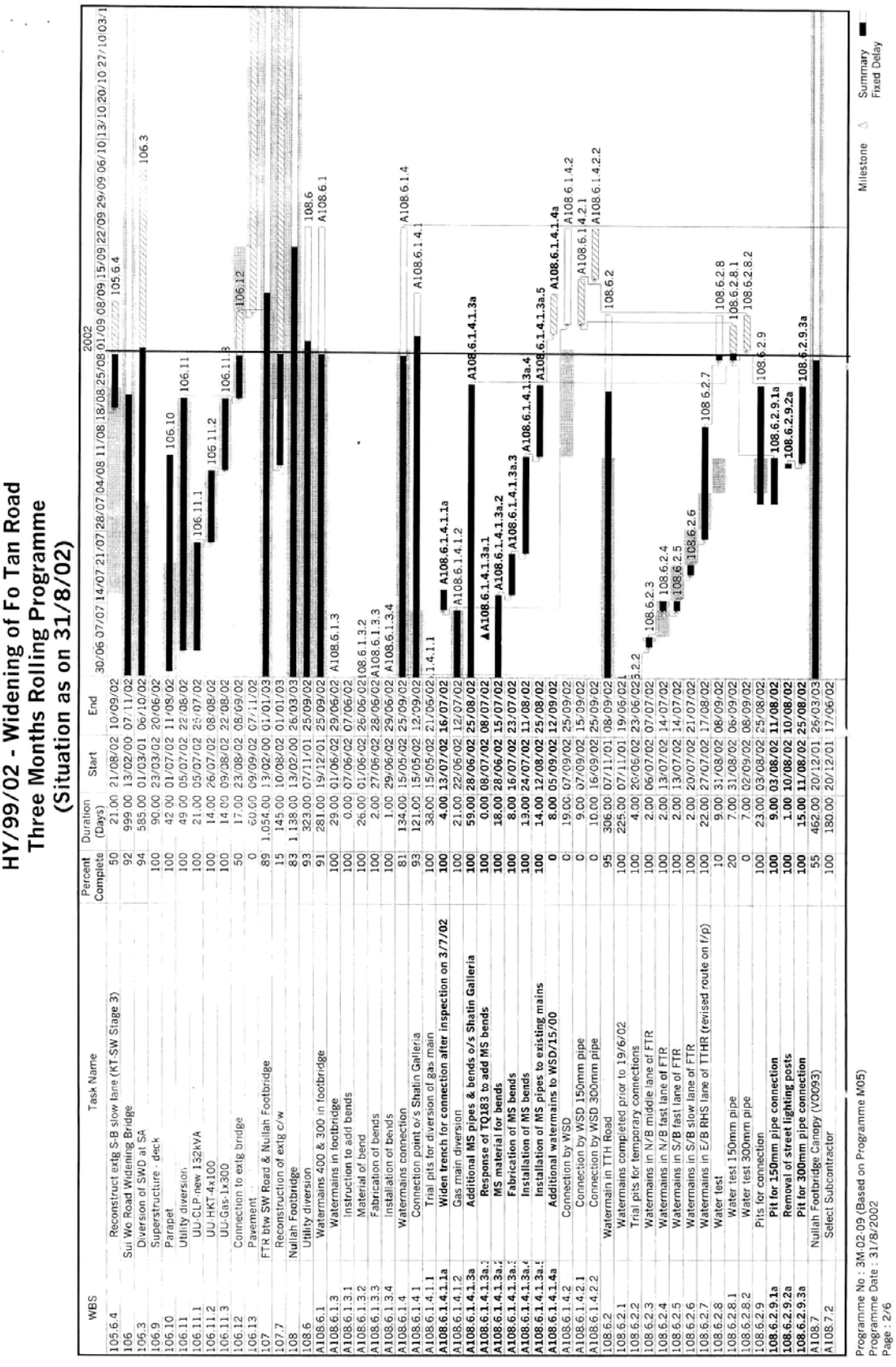
Programme

2.10 The most up-to-date Master Programme which has been submitted by the contractor is attached as Figure 2.2.



WBS	Task Name	Percent Complete	Duration (Days)	Start	End
100	**Contract Period of Section 1**	**85**	**1,168.98**	**01/12/99**	**11/02/03**
100.1	Contract Period of Section 1	100	945.00	01/12/99	02/07/02
100.2	EOT gained up to 30/6/2002	49	122.49	03/07/02	02/11/02
104	Tat Yip Lane Extension	81	1,075.00	13/02/00	22/01/03
104.5	Waterwork (Chainages A, B & C)	84	556.00	03/05/01	09/11/02
A104.5.2	Water pipes laying	83	318.00	13/12/01	26/10/02
A104.5.2.1	Water pipes completed prior to 19/6/02	100	189.00	13/12/01	19/06/02
A104.5.2.2	Water pipes of Chainages A&B	97	75.00	20/06/02	02/09/02
A104.5.2.2.1	Water pipes ifo garages	100	9.00	20/06/02	28/06/02
A104.5.2.2.2	Water pipes at j/o KTS & TYL	96	52.00	13/07/02	02/09/02
A104.5.2.2.2.1	traffic diversion (incl trail run)	100	2.00	13/07/02	14/07/02
A104.5.2.2.2.2	excavation in rock	100	41.00	15/07/02	24/08/02
A104.5.2.2.2.3	pipe laying	100	28.00	31/07/02	27/08/02
A104.5.2.2.2.4	backfill	100	23.00	09/08/02	31/08/02
A105.2.2.2.5	permanent pavement reinstatement	75	14.00	20/08/02	02/09/02
A104.5.2.2.3	Water pipes at west end	100	21.00	20/06/02	10/07/02
A104.5.2.3	Water pipes of Chainage C	22	119.00	25/06/02	21/10/02
A104.5.2.3.1	Water pipe near j/o SMS - middle lane	100	9.00	25/06/02	03/07/02
A104.5.2.3.2	Water pipe near j/o SMS - E/B lane	100	6.00	09/07/02	14/07/02
A104.5.2.3.3	Waterpipe ifo public toilet	0	10.00	08/09/02	17/09/02
A104.5.2.3.3.1	excavation	0	4.00	08/09/02	11/09/02
A104.5.2.3.3.2	pipe laying	0	2.00	12/09/02	13/09/02
A104.5.2.3.3.3	backfill	0	3.00	14/09/02	16/09/02
A104.5.2.3.3.4	temporary pavement reinstatement	0	1.00	17/09/02	17/09/02
A104.5.2.3.4	Waterpipe at j/o APWS - E/B lane	0	14.00	10/09/02	23/09/02
A104.5.2.3.4.1	excavation	0	7.00	10/09/02	16/09/02
A104.5.2.3.4.2	pipe laying	0	2.00	17/09/02	18/09/02
A104.5.2.3.4.3	backfill	0	3.00	19/09/02	21/09/02
A104.5.2.3.4.4	permanent reinstatement	0	2.00	22/09/02	23/09/02
A104.5.2.3.5	Waterpipe at j/o APWS - middle lane	0	14.00	24/09/02	07/10/02
A104.5.2.4	Pipe water test	0	56.00	01/09/02	26/10/02
A104.5.2.4.1	water test (Chainages A&B)	0	5.00	01/09/02	05/09/02
A104.5.3	Water pipes connection by WSD	0	65.00	06/09/02	09/11/02
A104.5.3.1	Water pipes connections of Chainages A & B	0	21.00	06/09/02	26/09/02
104.6	Access ramp to Nullah	0	30.00	17/09/02	16/10/02
104.7	Utility diversion	100	462.00	03/05/01	07/08/02
104.7.3	UU-CLP 2x11kVA	100	21.00	18/07/02	07/08/02
A104.7.5	Additional sewer diversion (VO79)	100	299.00	31/10/01	25/08/02
A104.7.5.1	Sewer completed prior to 19/6/02	100	232.00	31/10/01	19/06/02
A104.7.5.2	Sewer across KTS - middle lane	100	9.00	24/06/02	02/07/02
A104.7.5.3	Sewer across KTS - E/B lane	100	7.00	05/07/02	11/07/02
A104.7.5.4	Sewer in f/p to extg MH	100	7.00	07/07/02	13/07/02
A104.7.5.5	Pipe test	100	18.00	14/07/02	31/07/02
A104.7.5.6	Connection to extg MH	100	2.00	24/08/02	25/08/02
104.8	Piling to Southern Portion	0	59.00	27/09/02	24/11/02
104.8.1	PH piling plant setup W side	0	7.00	27/09/02	03/10/02
104.10	Demolition of extg footpath structure	0	14.00	27/09/02	10/10/02
104.11	Road & drain	70	253.00	15/05/02	22/01/03
104.11.2	Utility reinstatement north TYL Ext	92	236.00	15/05/02	05/01/03
104.11.2.1	UU-CLP-new 2x132kVA	100	90.00	15/05/02	12/08/02
105	FTR btw KT Street & SW Road	99	941.00	13/02/00	10/09/02
105.6	Reconstruction of extg c/w	96	366.00	10/09/01	10/09/02
105.6.3	Reconstruct extg fast lanes (KT-SW Stage 2)	100	65.00	05/05/02	08/07/02

Figure 2.2 – Sheet 1 of 6



WBS	Task Name	Percent Complete	Duration (Days)	Start	End
105.6.4	Reconstruct extg S/B slow lane (KT-SW Stage 3)	50	21.00	21/08/02	10/09/02
106	Sui Wo Road Widening Bridge	92	999.00	13/02/00	07/11/02
106.3	Diversion of SWD at SA	94	585.00	01/03/01	06/10/02
106.9	Superstructure - deck	100	90.00	23/03/02	20/06/02
106.10	Parapet	100	42.00	01/07/02	11/08/02
106.11	Utility diversion	100	49.00	05/07/02	22/08/02
106.11.1	UU:CLP new 132kVA	100	21.00	05/07/02	25/07/02
106.11.2	UU:HKT-4x100	100	14.00	26/07/02	08/08/02
106.11.3	UU:Gas-1x300	100	14.00	09/08/02	22/08/02
106.12	Connection to extg bridge	50	17.00	23/08/02	08/09/02
106.13	Pavement	0	60.00	09/09/02	07/11/02
107	FTR btw SW Road & Nullah Footbridge	89	1,054.00	13/02/00	01/01/03
107.7	Reconstruction of extg c/w	15	145.00	10/08/02	01/01/03
108	Nullah Footbridge	83	1,138.00	13/02/00	26/03/03
108.6	Utility diversion	93	323.00	07/11/01	25/09/02
A108.6.1	Watermains 400 & 300 in footbridge	91	281.00	19/12/01	25/09/02
A108.6.1.3	Watermains in footbridge	100	29.00	01/06/02	29/06/02
A108.6.1.3.1	Instruction to add bends	100	0.00	07/06/02	07/06/02
A108.6.1.3.2	Material of bend	100	26.00	01/06/02	26/06/02
A108.6.1.3.3	Fabrication of bends	100	2.00	27/06/02	28/06/02
A108.6.1.3.4	Installation of bends	100	1.00	29/06/02	29/06/02
A108.6.1.4	Watermains connection	81	134.00	15/05/02	25/09/02
A108.6.1.4.1	Connection point o/s Shatin Galleria	93	121.00	15/05/02	12/09/02
A108.6.1.4.1.1	Trial pits for diversion of gas main	100	38.00	15/05/02	21/06/02
A108.6.1.4.1.1a	**Widen trench for connection after inspection on 3/7/02**	**100**	**4.00**	**13/07/02**	**16/07/02**
A108.6.1.4.1.2	Gas main diversion	100	21.00	22/06/02	12/07/02
A108.6.1.4.1.3a	**Additional MS pipes & bends o/s Shatin Galleria**	**100**	**59.00**	**28/06/02**	**25/08/02**
A108.6.1.4.1.3a.1	**Response of TQ183 to add MS bends**	**100**	**0.00**	**08/07/02**	**08/07/02**
A108.6.1.4.1.3a.2	**MS material for bends**	**100**	**18.00**	**28/06/02**	**15/07/02**
A108.6.1.4.1.3a.3	**Fabrication of MS bends**	**100**	**8.00**	**16/07/02**	**23/07/02**
A108.6.1.4.1.3a.4	**Installation of MS bends**	**100**	**13.00**	**24/07/02**	**11/08/02**
A108.6.1.4.1.3a.5	**Installation of MS pipes to existing mains**	**100**	**14.00**	**12/08/02**	**25/08/02**
A108.6.1.4.1.4a	**Additional watermains to WSD/15/00**	**0**	**8.00**	**05/09/02**	**12/09/02**
A108.6.1.4.2	Connection by WSD	0	19.00	07/09/02	25/09/02
A108.6.1.4.2.1	Connection by WSD 150mm pipe	0	9.00	07/09/02	15/09/02
A108.6.1.4.2.2	Connection by WSD 300mm pipe	0	10.00	16/09/02	25/09/02
108.6.2	Watermain in TTH Road	95	306.00	07/11/01	08/09/02
108.6.2.1	Watermains completed prior to 19/6/02	100	225.00	07/11/01	19/06/02
108.6.2.2	Trial pits for temporary connections	100	4.00	20/06/02	23/06/02
108.6.2.3	Watermains in N/B middle lane of FTR	100	2.00	06/07/02	07/07/02
108.6.2.4	Watermains in N/B fast lane of FTR	100	2.00	13/07/02	14/07/02
108.6.2.5	Watermains in S/B fast lane of FTR	100	2.00	13/07/02	14/07/02
108.6.2.6	Watermains in S/B slow lane of FTR	100	2.00	20/07/02	21/07/02
108.6.2.7	Watermains in E/B RHS lane of TTHR (revised route on f/p)	100	22.00	27/07/02	17/08/02
108.6.2.8	Water test	10	9.00	31/08/02	08/09/02
108.6.2.8.1	Water test 150mm pipe	20	7.00	31/08/02	06/09/02
108.6.2.8.2	Water test 300mm pipe	0	7.00	02/09/02	08/09/02
108.6.2.9	Pits for connection	100	23.00	03/08/02	25/08/02
108.6.2.9.1a	**Pit for 150mm pipe connection**	**100**	**9.00**	**03/08/02**	**11/08/02**
108.6.2.9.2a	**Removal of street lighting posts**	**100**	**1.00**	**10/08/02**	**10/08/02**
108.6.2.9.3a	**Pit for 300mm pipe connection**	**100**	**15.00**	**11/08/02**	**25/08/02**
A108.7	Nullah Footbridge Canopy (V0093)	55	462.00	20/12/01	26/03/03
A108.7.2	Select Subcontractor	100	180.00	20/12/01	17/06/02

Figure 2.2 – Sheet 2 of 6

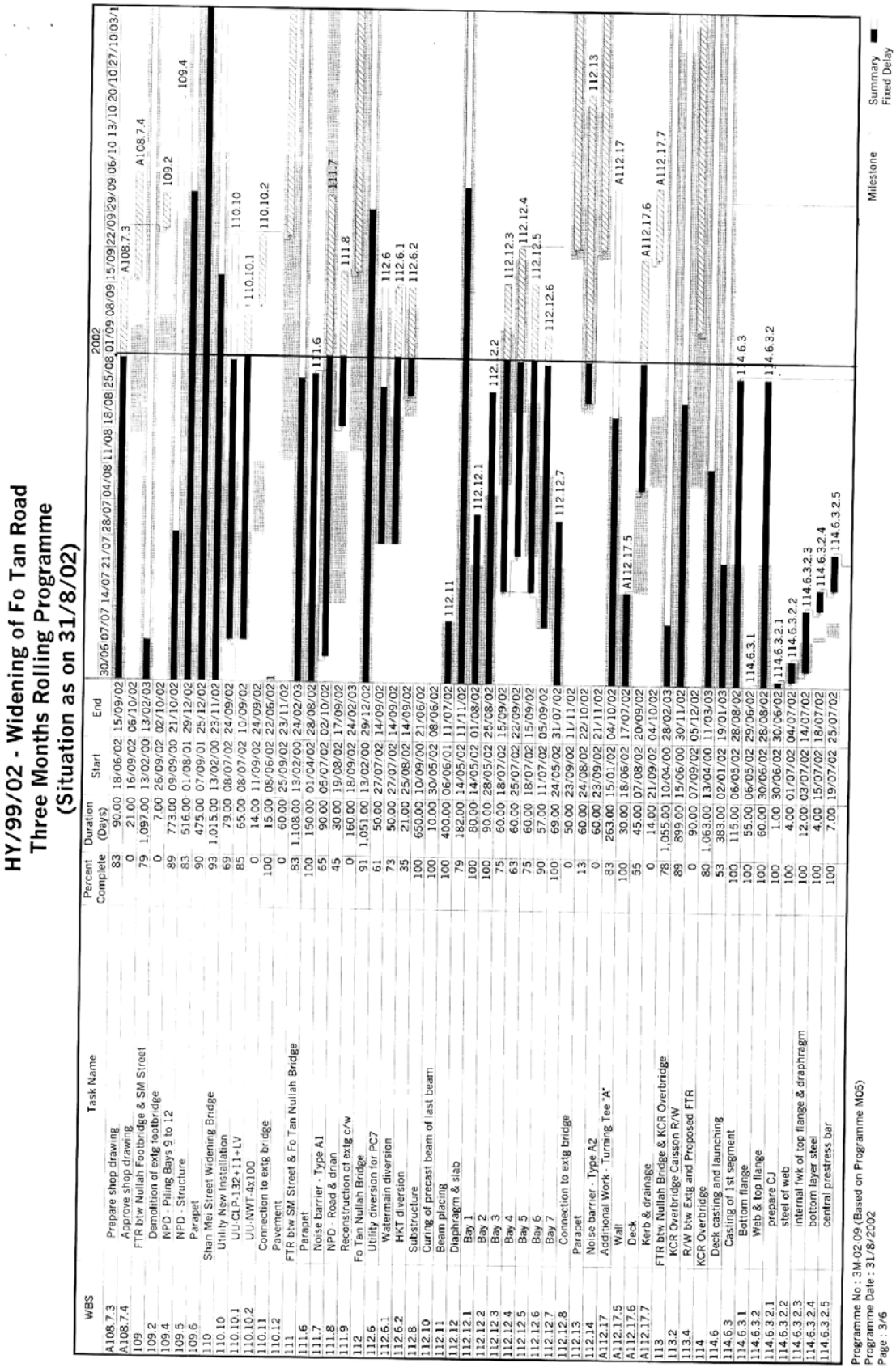
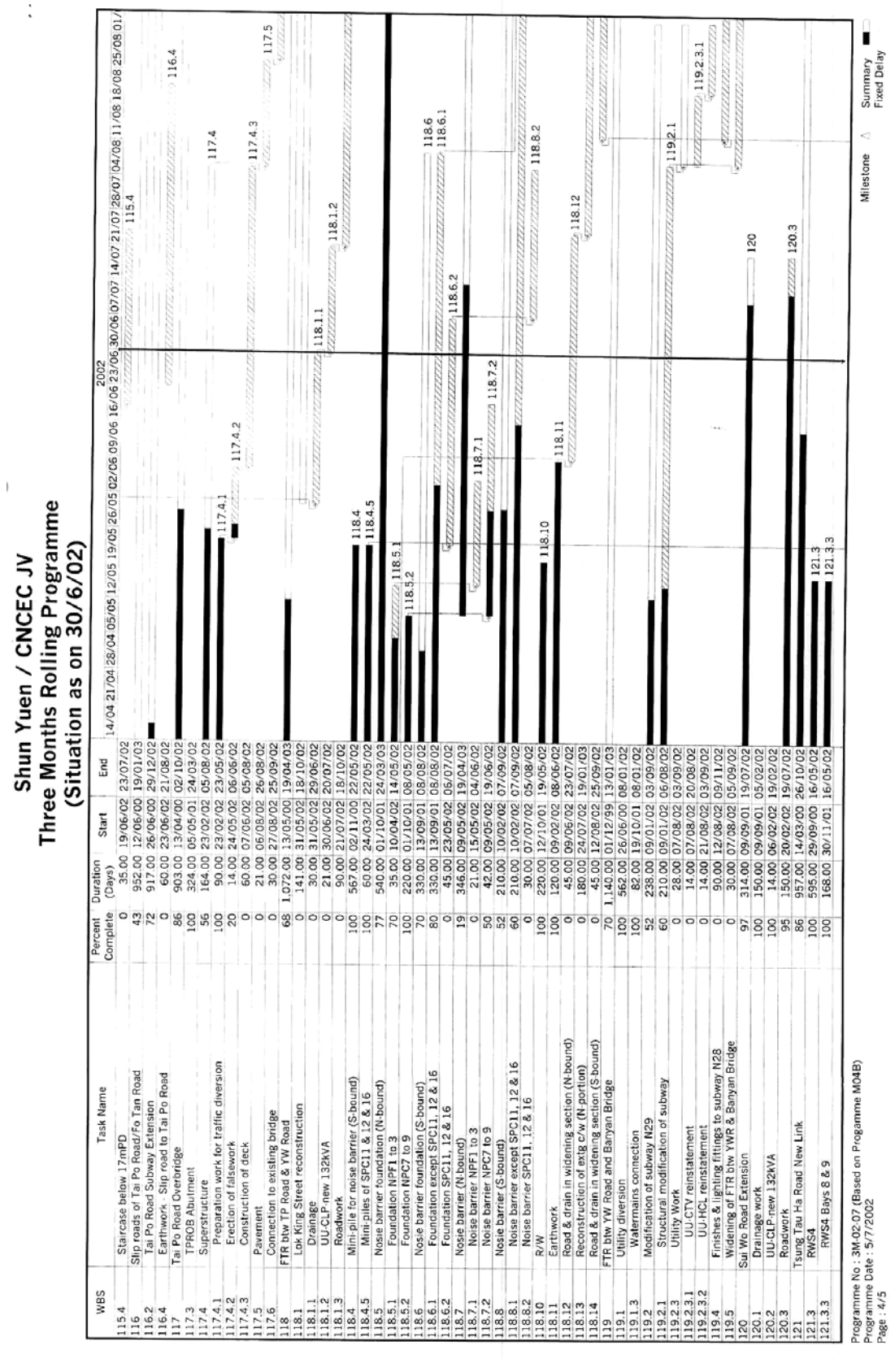
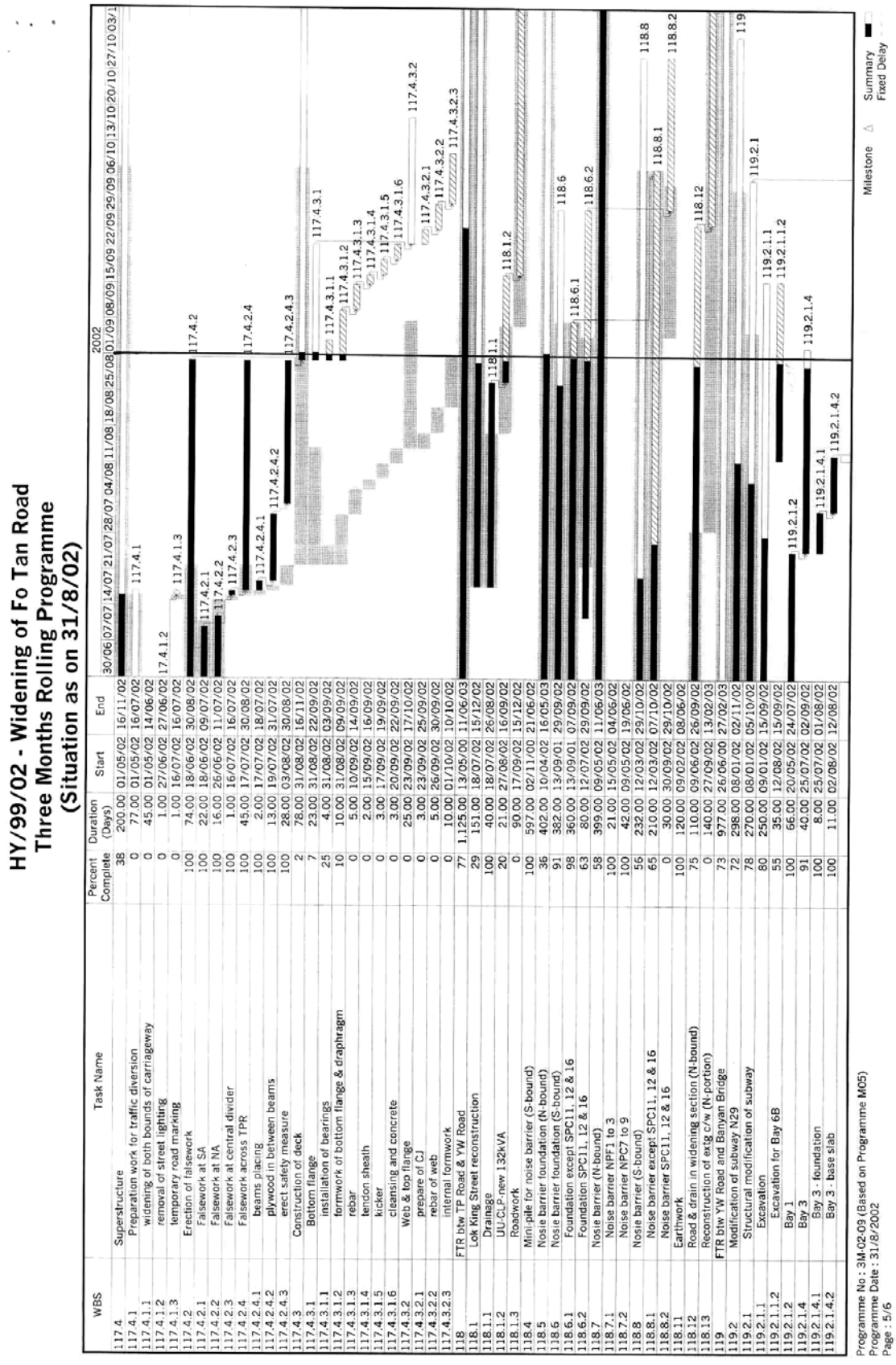


Figure 2.2 – Sheet 3 of 6



WBS	Task Name	Percent Complete	Duration (Days)	Start	End
115.4	Staircase below 17mPD	0	35.00	19/06/02	23/07/02
116	Slip roads of Tai Po Road/Fo Tan Road	43	952.00	12/06/00	19/01/03
116.2	Tai Po Road Subway Extension	72	917.00	26/06/00	29/12/02
116.4	Earthwork - Slip road to Tai Po Road	0	60.00	23/06/02	21/08/02
117	Tai Po Road Overbridge	86	903.00	13/04/00	02/10/02
117.3	TPROB Abutment	100	324.00	05/05/01	24/03/02
117.4	Superstructure	56	164.00	23/02/02	05/08/02
117.4.1	Preparation work for traffic diversion	100	90.00	23/02/02	23/05/02
117.4.2	Erection of falsework	20	14.00	24/05/02	06/06/02
117.4.3	Construction of deck	0	60.00	07/06/02	05/08/02
117.5	Pavement	0	21.00	06/08/02	26/08/02
117.6	Connection to existing bridge	0	30.00	27/08/02	25/09/02
118	FTR btw TP Road & YW Road	68	1,072.00	13/05/00	19/04/03
118.1	Lok King Street reconstruction	0	141.00	31/05/02	18/10/02
118.1.1	Drainage	0	30.00	31/05/02	29/06/02
118.1.2	UU-CLP new 132kVA	0	21.00	30/06/02	20/07/02
118.1.3	Roadwork	0	90.00	21/07/02	18/10/02
118.4	Mini-pile for noise barrier (S-bound)	100	567.00	02/11/00	22/05/02
118.4.5	Mini-piles of SPC11 & 12 & 16	100	60.00	24/03/02	22/05/02
118.5	Noise barrier foundation (N-bound)	77	540.00	01/10/01	24/03/03
118.5.1	Foundation NPF1 to 3	70	35.00	10/04/02	14/05/02
118.5.2	Foundation NPC7 to 9	100	220.00	01/10/01	08/05/02
118.6	Noise barrier foundation (S-bound)	70	330.00	13/09/01	08/08/02
118.6.1	Foundation except SPC11, 12 & 16	80	330.00	13/09/01	08/08/02
118.6.2	Foundation SPC11, 12 & 16	0	45.00	23/05/02	06/07/02
118.7	Noise barrier (N-bound)	19	346.00	09/05/02	19/04/03
118.7.1	Noise barrier NPF1 to 3	0	21.00	15/05/02	04/06/02
118.7.2	Noise barrier NPC7 to 9	50	42.00	09/05/02	19/06/02
118.8	Noise barrier (S-bound)	52	210.00	10/02/02	07/09/02
118.8.1	Noise barrier except SPC11, 12 & 16	60	210.00	10/02/02	07/09/02
118.8.2	Noise barrier SPC11, 12 & 16	0	30.00	07/07/02	05/08/02
118.10	R/W	100	220.00	12/10/01	19/05/02
118.11	Earthwork	100	120.00	09/02/02	08/06/02
118.12	Road & drain in widening section (N-bound)	0	45.00	09/06/02	23/07/02
118.13	Reconstruction of extg c/w (N portion)	0	180.00	24/07/02	19/01/03
118.14	Road & drain in widening section (S-bound)	0	45.00	12/08/02	25/09/02
119	FTR btw YW Road and Banyan Bridge	70	1,140.00	01/12/99	13/01/03
119.1	Utility diversion	100	562.00	26/06/00	08/01/02
119.1.3	Watermains connection	100	82.00	19/10/01	08/01/02
119.2	Modification of subway N29	52	238.00	09/01/02	03/09/02
119.2.1	Structural modification of subway	60	210.00	09/01/02	06/08/02
119.2.3	Utility Work	0	28.00	07/08/02	03/09/02
119.2.3.1	UU-CTV reinstatement	0	14.00	07/08/02	20/08/02
119.2.3.2	UU-HCL reinstatement	0	14.00	21/08/02	03/09/02
119.4	Finishes & lighting fittings to subway N28	0	90.00	12/08/02	09/11/02
119.5	Widening of FTR btw YWR & Banyan Bridge	0	30.00	07/08/02	05/09/02
120	Sui Wo Road Extension	97	314.00	09/09/01	19/07/02
120.1	Drainage work	100	150.00	09/09/01	05/02/02
120.2	UU-CLP new 132kVA	100	14.00	06/02/02	19/02/02
120.3	Roadwork	95	150.00	20/02/02	19/07/02
121	Tsung Tau Ha Road New Link	86	957.00	14/03/00	26/10/02
121.3	RWS4	100	595.00	29/09/00	16/05/02
121.3.3	RWS4 Bays 8 & 9	100	168.00	30/11/01	16/05/02

Figure 2.2 – Sheet 4 of 6



WBS	Task Name	Percent Complete	Duration (Days)	Start	End
117.4	Superstructure	38	200.00	01/05/02	16/11/02
117.4.1	Preparation work for traffic diversion	0	77.00	01/05/02	16/07/02
117.4.1.1	widening of both bounds of carriageway	0	45.00	01/05/02	14/06/02
117.4.1.2	removal of street lighting	0	1.00	27/06/02	27/06/02
117.4.1.3	temporary road marking	0	1.00	16/07/02	16/07/02
117.4.2	Erection of falsework	100	74.00	18/06/02	30/08/02
117.4.2.1	Falsework at SA	100	22.00	18/06/02	09/07/02
117.4.2.2	Falsework at NA	100	16.00	26/06/02	11/07/02
117.4.2.3	Falsework at central divider	100	1.00	16/07/02	16/07/02
117.4.2.4	Falsework across TPR	100	45.00	17/07/02	30/08/02
117.4.2.4.1	beams placing	100	2.00	17/07/02	18/07/02
117.4.2.4.2	plywood in between beams	100	13.00	19/07/02	31/07/02
117.4.2.4.3	erect safety measure	100	28.00	03/08/02	30/08/02
117.4.3	Construction of deck	2	78.00	31/08/02	16/11/02
117.4.3.1	Bottom flange	7	23.00	31/08/02	22/09/02
117.4.3.1.1	installation of bearings	25	4.00	31/08/02	03/09/02
117.4.3.1.2	formwork of bottom flange & draphragm	10	10.00	31/08/02	09/09/02
117.4.3.1.3	rebar	0	5.00	10/09/02	14/09/02
117.4.3.1.4	tendon sheath	0	2.00	15/09/02	16/09/02
117.4.3.1.5	kicker	0	3.00	17/09/02	19/09/02
117.4.3.1.6	cleansing and concrete	0	3.00	20/09/02	22/09/02
117.4.3.2	Web & top flange	0	25.00	23/09/02	17/10/02
117.4.3.2.1	prepare of CJ	0	3.00	23/09/02	25/09/02
117.4.3.2.2	rebar of web	0	5.00	26/09/02	30/09/02
117.4.3.2.3	internal formwork	0	10.00	01/10/02	10/10/02
118	FTR btw TP Road & YW Road	77	1,125.00	13/05/00	11/06/03
118.1	Lok King Street reconstruction	29	151.00	18/07/02	15/12/02
118.1.1	Drainage	100	40.00	18/07/02	26/08/02
118.1.2	UU-CLP-new 132kVA	20	21.00	27/08/02	16/09/02
118.1.3	Roadwork	0	90.00	17/09/02	15/12/02
118.4	Mini-pile for noise barrier (S-bound)	100	597.00	02/11/00	21/06/02
118.5	Nosie barrier foundation (N-bound)	36	402.00	10/04/02	16/05/03
118.6	Nosie barrier foundation (S-bound)	91	382.00	13/09/01	29/09/02
118.6.1	Foundation except SPC11, 12 & 16	98	360.00	13/09/01	07/09/02
118.6.2	Foundation SPC11, 12 & 16	63	80.00	12/07/02	29/09/02
118.7	Nosie barrier (N-bound)	58	399.00	09/05/02	11/06/03
118.7.1	Noise barrier NPF1 to 3	100	21.00	15/05/02	04/06/02
118.7.2	Noise barrier NPC7 to 9	100	42.00	09/05/02	19/06/02
118.8	Nosie barrier (S-bound)	56	232.00	12/03/02	29/10/02
118.8.1	Noise barrier except SPC11, 12 & 16	65	210.00	12/03/02	07/10/02
118.8.2	Noise barrier SPC11, 12 & 16	0	30.00	30/09/02	29/10/02
118.11	Earthwork	100	120.00	09/02/02	08/06/02
118.12	Road & drain in widening section (N-bound)	75	110.00	09/06/02	26/09/02
118.13	Reconstruction of extg c/w (N-portion)	0	140.00	27/09/02	13/02/03
119	FTR btw YW Road and Banyan Bridge	73	977.00	26/06/00	27/02/03
119.2	Modification of subway N29	72	298.00	08/01/02	02/11/02
119.2.1	Structural modification of subway	78	270.00	08/01/02	05/10/02
119.2.1.1	Excavation	80	250.00	09/01/02	15/09/02
119.2.1.1.2	Excavation for Bay 6B	55	35.00	12/08/02	15/09/02
119.2.1.2	Bay 1	100	66.00	20/05/02	24/07/02
119.2.1.4	Bay 3	91	40.00	25/07/02	02/09/02
119.2.1.4.1	Bay 3 - foundation	100	8.00	25/07/02	01/08/02
119.2.1.4.2	Bay 3 - base slab	100	11.00	02/08/02	12/08/02

Figure 2.2 – Sheet 5 of 6

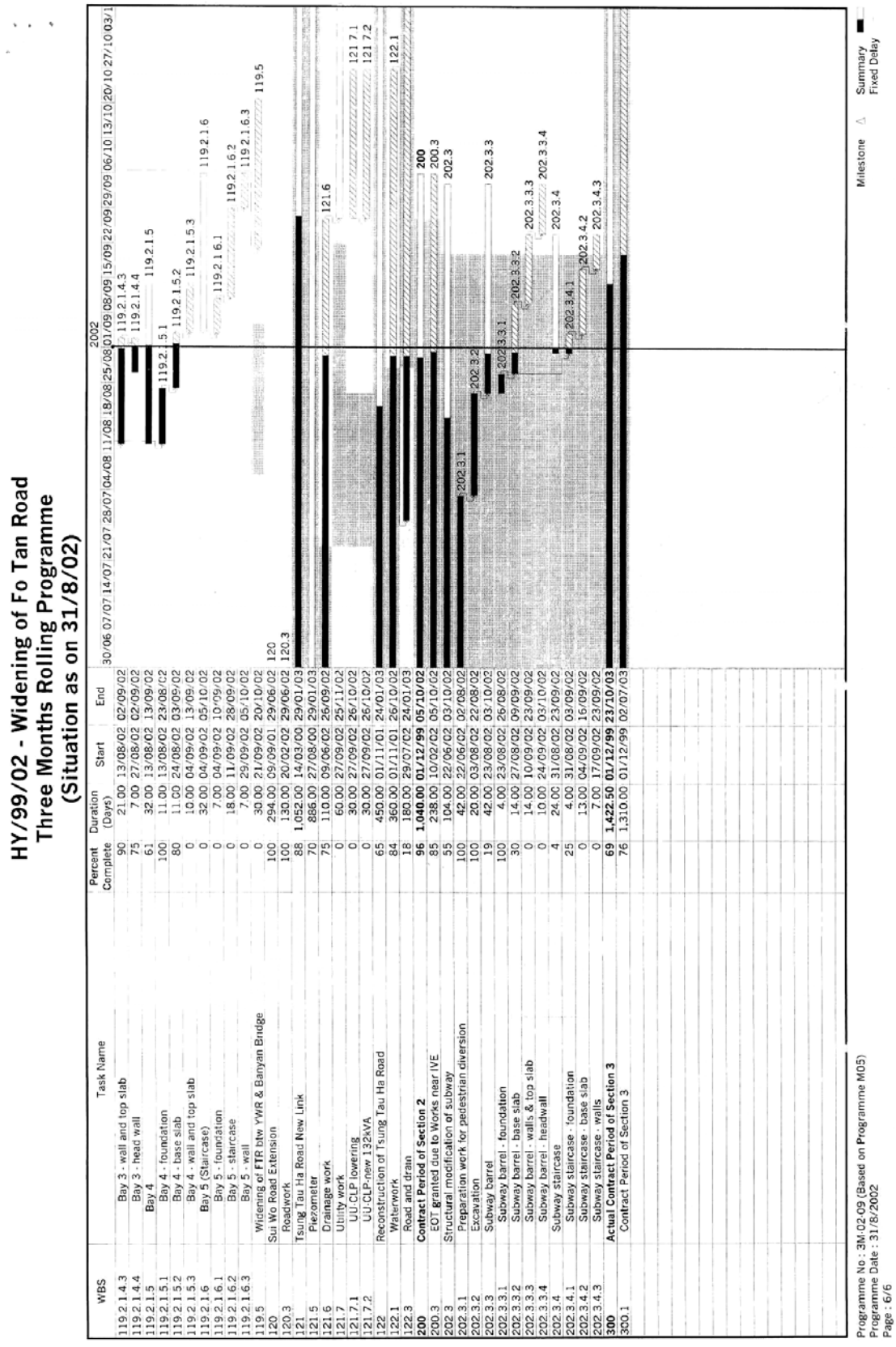
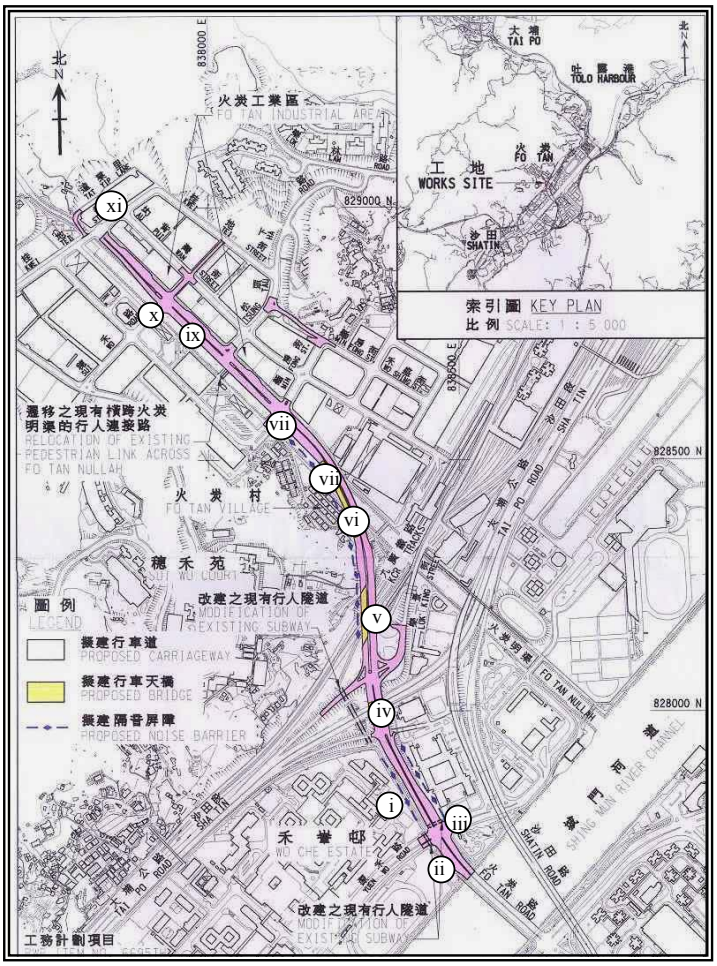


Figure 2.2 – Sheet 6 of 6

3. WORK UNDERTAKEN DURING THIS MONTH

3.1 Major works carried out in Contract HY/99/02 Contractor in this reporting period included:

(i) Construction of noise barriers adjacent to Wo Che Estate and IVE(ST) – anticipated to be completed by 28/5/03.
(ii) Construction of Subway NS29 adjacent to Sha Tin Sports Ground – anticipated to be completed by 1/12/02.
(iii) Construction of Subway NS28 adjacent to IVE(ST) – anticipated to be completed by 6/12/02.
(iv) Construction of bridge deck of Tai Po Road Overbridge – anticipated to be completed by 7/10/02.
(v) Construction of bridge segments and north abutment of Railway Overbridge – anticipated to be completed by 7/12/02 and 27/10/02 respectively.
(vi) Construction of diaphragm and slab of Fo Tan Nullah Bridge – anticipated to be completed by 9/11/02.
(vii) Construction of deck of Turning Tee "A" at Fo Tan Village – anticipated to be completed by 20/10/02.
(viii) Construction of pavement of Shan Mei Street Widening Bridge – anticipated to be completed by 10/10/02.
(ix) Re-construction of existing carriageway at Nullah Partial Decking – anticipated to be completed by 20/1/03.
(x) Connection to existing bridge at Sui Wo Road Widening Bridge – anticipated to be completed by 21/9/02.
(xi) Waterworks at Tat Yip Lane Extension – anticipated to be completed by 8/12/02.



4. BRIEF SUMMARY OF EM&A REQUIREMENTS

Air Quality Monitoring

4.1 The following air quality parameters are required:

(a) 24 - hr TSP; and
(b) 1 - hr TSP.

4.2 Environmental quality performance limits (Action and Limit levels)

Table 4.1 Action and Limit Levels for Air Quality

Parameters	Action	Limit
24 Hour TSP Level in $\mu g/m^3$	For baseline level <108 $\mu g/m^3$, Action level = average of baseline level plus 30% and Limit level For baseline level >108 $\mu g/m^3$, and baseline level < 154 $\mu g/m^3$, Action Level = 200 $\mu g/m^3$ For baseline level >154 $\mu g/m^3$, Action level = 130% of baseline level	260
1 Hour TSP Level in $\mu g/m^3$	For baseline level <154 $\mu g/m^3$, Action level = average of baseline level plus 30% and Limit level For baseline level >154 $\mu g/m^3$, and baseline level < 269 $\mu g/m^3$, Action Level = 350 $\mu g/m^3$ For baseline level >269 $\mu g/m^3$, Action level = 130% of baseline level	500

4.3 Event-Action Plans

Table 4.2 Action Plan for Air Quality

Event	Response		
	ET	Engineer	Contractor
ACTION LEVEL			
1 Exceedance for one sample	1 Identify source 2 Inform Engineer 3 Repeat measurement to confirm finding 4 Increase monitoring frequency to daily	1 Notify Contractor 2 Check monitoring data and Contractor's working methods	1 Rectify any unacceptable practice 2 Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	1 Identify source 2 Inform Engineer 3 Repeat measurements to confirm findings 4 Increase monitoring frequency to daily 5 Discuss with Engineer for remedial actions required 6 If exceedance continues, arrange meeting with Engineer 7 If exceedance stops, cease additional monitoring	1 Confirm receipt of notification of failure in writing 2 Notify Contractor 3 Check monitoring data and Contractor's working methods 4 Discuss with Environmental Supervisor and Contractor on potential remedial actions 5 Ensure remedial actions properly implemented	1 Submit proposals for remedial actions to Engineer within 3 working days of notification 2 Implement the agreed proposals 3 Amend proposal if appropriate

Event	Response		
	ET	**Engineer**	**Contractor**
LIMIT LEVEL			
1. Exceedance for one sample	1 Identify source 2 Inform Engineer 3 Repeat measurement to confirm finding 4 Increase monitoring frequency to daily 5 Assess effectiveness of Contractor's remedial actions and keep the Engineer informed of the results	1 Confirm receipt of notification of failure in writing 2 Notify Contractor 3 Check monitoring data and Contractor's 4 Discuss with Environmental Team Leader and Contractor potential remedial actions 5 Ensure remedial actions properly implemented	1 Take immediate action and avoid further exceedance 2 Submit proposals for remedial actions to Engineer within 3 working days of notification 3 Implement the agreed proposals 4 Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	1 Identify source 2 Inform Engineer of the causes and actions taken for the exceedance 3 Repeat measurement to confirm findings 4 Increase monitoring frequency to daily 5 Investigate the causes of exceedance 6 Arrange meeting with the Engineer to discuss the remedial actions to be taken 7 Assess effectiveness of Contractor's remedial actions and keep the Engineer informed of the results 8 If exceedance stops, cease additional monitoring	1 Confirm receipt of notification of failure in writing 2 Notify Contractor 3 Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 4 Discuss amongst Environmental Team Leader and the Contractor potential remedial actions 5 Review Contractor's remedial actions whenever necessary to assure their effectiveness 6 If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2 Submit proposals for remedial actions to Engineer within 3 working days of notification 3 Implement the agreed proposals 4 Resubmit proposals if problem still not under control 5 Stop the relevant portion of works as determined by the Engineer until the exceedance is abated

4.4 Environmental mitigation measures

The EIA report has recommended construction air pollution control and mitigation measures. The Contractor shall be responsible for the design and implementation of dust suppression measures such as:

- use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads. Up to 75% reduction in dust emission can be achieved by watering once every 1.5 hours with complete coverage;

- use of frequent watering for particularly dusty static construction areas and areas where construction operations are taking place;

- side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;

- tarpaulin covering of all dusty vehicle loads transported to, from and between site locations;

- imposition of speed controls for vehicles on unpaved site roads. The recommended limit is 20 kmh^{-1};

- establishment and use of vehicle wheel and body washing stations at the exit points of the site, combined with cleaning of public roads where necessary; and

- instigation of a dust monitoring and audit plan in order to enforce controls and modify methods of work if dusty conditions arise.

If the above measures are not sufficient to restore the air quality to acceptable levels the ET Leader, will advise the Contractor on alternative mitigation measures.

Noise Level Monitoring

4.5 The following noise level monitoring parameters are required:

a) L_{eq}(30 min),
b) L_{10}(30 min),
c) L_{90}(30 min).

Note: 1) All construction noise level shall be measured in terms of the A-weighted level.
2) Measuring Time: 0700 – 1900 (normal weekdays)

4.6 Environmental quality performance limits (Action and Limit levels)

Table 4.3 Action and Limit Levels for Noise Level Monitoring

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		60/65/70** dB(A)
2300-0700 hrs on all days		45/50/55** dB(A)

* reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.
* to be selected based on Area Sensitivity Rating.

4.7 Event-Action Plans

Table 4.4 Action Plan for Noise Level Monitoring

Event	Action	
	ET Leader or Engineer	**Contractor**
Action Level	1 Notify Contractor 2 Analyse investigation 3 Require Contractor to propose measures for the analysed noise problem 4 Increase monitoring frequency to check mitigation effectiveness	1 Submit noise mitigation proposals to Environmental Team Leader/Engineer's Representative 2 Implement noise mitigation proposals
Limit Level	1 Notify Contractor 2 Require contractor to implement mitigation measures. Increase monitoring frequency to check mitigation effectiveness	1 Implement mitigation measures 2 Prove to Environmental Team Leader and the Engineer effectiveness of measures applied

4.8 Environmental mitigation measures

The EIA report has recommended construction noise control and mitigation measures. The Contractor shall be responsible for the design and implementation of measures recommended in the EIA, such as:

- A rigorous EM&A programme should be undertaken, and should focus on those Noise Sensitive Receivers (NSRs) of particular concern, in order to identify and rectify any problems at the earliest possible stage;

- conditions from EPD's Recommended Pollution Control Clauses should be incorporated into future contract documents and implemented;

- the appointed contractor should liaise with those that are affected by noise to identify areas of particular concern. For example, in practice it may be the case that only certain items of PME cause the most annoyance to residents;

- construction activities should be programmed so that parallel operation of several sets of equipment close to a given receiver is avoided unless essential;

- noisy equipment and activities should be sited by the contractor as far from sensitive receivers as is practical. Also, temporary site office etc. should be located, as far as is possible, such that sensitive receivers are screened from the line of sight of the construction areas;

- noisy plant or processes should be replaced by quieter alternatives where possible. For example, pneumatic concrete breakers can be silenced with mufflers and bit dampers. Silenced diesel and gasoline generators and power units, as well as silenced and super-silenced air compressors, can be readily obtained. The power units of non-electric stationary plant and earth-moving plant can be quieted by vibration isolation and partial or full acoustic enclosures for individual noise-generating components;

- intermittent noisy activities should be scheduled to minimise exposure of nearby NSRs to high levels of construction noise. For example, noisy activities can be scheduled at times coinciding with periods when dwellings are unoccupied. Prolonged operation of noisy equipment close to dwellings should be avoided;

- idle equipment should be turned off or throttled down. Noisy equipment should be properly maintained and used no more than is necessary; and

- construction plant should be properly maintained and operated. Construction equipment often has silencing measures built in or added on, eg bulldozer silencers, compressor panels, and mufflers. Silencing measures should be properly maintained and utilized.

If the above measures are not sufficient to restore the construction noise level to an acceptable level the ET Leader will advise the Contractor on other mitigation measures.

Water Quality Monitoring

4.9 The following water quality parameters are required:

(a) pH (pH units);
(b) Suspended Solids, SS (mg/l);
(c) Oil & Grease (mg/l);
(d) Dissolved Oxygen, DO (mg/l);
(e) Turbidity (NTU); and
(f) Temperature (^{o}C).

4.10 Event and Action Plan for Surface Water Quality

All effluent subject to control by the TM is required to be licensed. Therefore, the discharges shall be required to comply with the effluent standard of effluent discharged into Tolo Harbour Coastal Waters and is shown in Table 4.5.

Table 4.5 Selection of Effluent Standards Discharged into Coastal Waters of Tolo Water Control Zone

Measurement Parameter	Effluent Standard
pH	6-9 (pH units)
Suspended solids	30 (mg/l)
Oil & Grease	20 (mg/l)

Source: Technical Memorandum on Effluent Standards, Table 7

4.11 Event-Action Plans

Table 4.6 Action Plan for Water Quality Monitoring

Event	ET	Contractor	Engineer
Limit level being exceeded by one sampling day	1 Repeat in-situ measurement to confirm findings; 2 Identify source(s) of impact; 3 Inform contractor; 4 Check monitoring data, all plant, equipment and Contractor's working methods; 5 Discuss mitigation measures with Engineer and Contractor; 6 Ensure mitigation measures are implemented; and 7 Increase the monitoring frequency to daily until no exceedance of Limit level	1 Inform the Engineer and confirm notification of the non-compliance in writing; 2 Rectify unacceptable practice 3 Check all plant and equipment; 4 Consider changes of working methods; 5 Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer; 6 Implement the agreed mitigation measures.	1 Discuss with ET and Contractor on the proposed mitigation measures; 2 Repeat Contractor to critically review the working methods; 3 Make agreement on the mitigation measures to be implemented; and 4 Assess the effectiveness of the implemented mitigation measures
Limit level being exceeded by more than two consecutive sampling days	1 Repeat in-situ measurement to confirm findings; 2 Identify source(s) of impact; 3 Inform contractor; 4 Check monitoring data, all plant, equipment and Contractor's working methods; 5 Discuss mitigation measures with Engineer and Contractor; 6 Ensure mitigation measures are implemented; and 7 Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1 Inform the Engineer and confirm notification of the non-compliance in writing; 2 Rectify unacceptable practice 3 Check all plant and equipment; 4 Consider changes of working methods; 5 Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer; 6 Implement the agreed mitigation measures; and 7 As directed by the Engineer, to slow down or stop all or part of the construction activities.	1 Discuss with ET and Contractor on the proposed mitigation measures; 2 Repeat Contractor to critically review the working methods; 3 Make agreement on the mitigation measures to be implemented; and 4 Assess the effectiveness of the implemented mitigation measures; and 5 Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the work until no exceedance of Limit Level.

4.12 Environmental mitigation measures

The Practice Note for Professional Persons with regard to site drainage (ProPECC PN 1/94) advises that the following mitigation measures should be undertaken, where applicable, to minimize the impact on water quality during construction:

- Construction of the foundations for the deck above the nullah, and its related flow diversion works, should be carried out carefully to prevent contaminants from entering the nullah. Potential impact from activities that would not be protected by sheet piles should be reduced by a stringent programme and careful timing of the activities. It is recommended to shorten the duration of these activities as much as possible in order to mitigate the impacts;

- For site areas that are close to the nullah and are not enclosed by sheet piles, it is recommended to construct a silt fence along the boundary of the nullah to trap any silts/ sediments from accidentally entering into the waters of the nullah;

- Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains;

- Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains. It is recommended that the sand/silt removal facilities (silt traps, sediment basins) and oil interceptors should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site. It is also recommended that, where necessary, temporary catchpits, and perimeter channels be constructed in addition to the existing channel system within the site prior to the site formation works and earthworks;

- Wastewater generated from concreting, clearing of works and similar activities should not be discharged into the stormwater drains. All storm catch basins/inlets, if any, receiving stormwater runoff from construction areas should be covered with wire mesh filters, which have on their upper surface crushed stone, in order to prevent sediment from entering inlet structure and to reduce potential sediment loading to the receiving waters. It is recommended this wastewater should be discharged into foul sewers, after the removal of settleable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required;

- Grease traps should be provided with sufficient retention time for canteen effluent;

- Sand traps, oil interceptors and other pollution prevention installations should be properly cleaned and maintained;

- Open stockpiles should be covered with tarpaulin or similar materials to avoid weather erosion which may wash fines into stormwater during the wet season, and prevent dust arisings during the dry season;

- Any wash-water from the wheel washing basins located at each site exit should have sand and silt settled out before discharging into storm drains; and

- All fuels should be stored in bunded areas such that spillage can be easily collected.

With the above mitigation measures properly undertaken, the potential water quality impact of the scheme should be local and minimal.

5. AIR QUALITY MONITORING

Air Quality Parameters

5.1 Monitoring and audit of Total Suspended Particulates (TSP) levels was carried out by the ET to ensure that any deteriorating air quality could be readily detected and timely action taken to rectify the situation.

5.2 One-hour and 24-hour TSP levels were measured to indicate the impacts of construction dust on air quality. The 24-hour TSP levels were measured by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50). Upon approval of the Engineer, 1-hour TSP levels can be measured by direct reading methods which are capable of producing comparable results as that by the high volume sampling method, to indicate short event impacts.

Monitoring Equipment

5.3 One High Volume Sampler (HVS) in compliance with the following specifications was provided by the Contractor as mentioned in the Particular Specification of the Contract for carrying out the TSP monitoring:

(a) 0.6 -1.7 m^3 /min (20-60 SCFM) adjustable flow range;
(b) equipped with a timing/control device with ± 5 minutes accuracy for 24 hours operation;
(c) installed with elapsed-time meter with ± 2 minutes accuracy for 24 hours operation;
(d) capable of providing a minimum exposed area of 406 cm^2 (63 in^2);
(e) flow control accuracy: ± 2.5% deviation over 24-hour sampling period;
(f) equipped with a shelter to protect the filter and sampler;
(g) incorporated with an electronic mass flow rate controller or other equivalent devices;
(h) equipped with a flow recorder for continuous monitoring;
(i) provided with a peaked roof inlet;
(j) incorporated with a manometer;
(k) able to hold and seal the filter paper to the sampler housing at horizontal position;
(l) easy to change the filter; and
(m) capable of operating continuously for 24-hour period.

5.4 The HVS was equipped with an electronic mass flow controller and can be calibrated against a traceable standard at regular intervals. All the equipment, calibration kit, filter papers, etc. were clearly labelled.

5.5 Initial calibration of dust monitoring equipment had been conducted upon installation and thereafter at bimonthly intervals. The transfer standard shall be traceable to the internationally recognised primary standard and be calibrated annually. The calibration data shall be properly documented for future reference. All the data shall be converted into standard temperature, and pressure condition.

5.6 The flow-rate of the sampler before and after the sampling exercise with the filter in position shall be verified to be constant and be recorded in the data sheet.

5.7 If the ET leader proposes to use a direct reading dust meter to measure 1-hr TSP levels, he/she shall submit sufficient information to the Engineer to prove that the instrument is capable of achieving comparable results as the HVS and may be used for the 1-hr sampling. The instrument should also be calibrated regularly, and the 1-hr sampling shall be determined periodically by HVS to check the validity and accuracy of the results measured by direct reading method.

5.8 Wind data monitoring equipment shall also be provided and set up at conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. The equipment installation location shall be proposed by the ET Leader and agreed with the Engineer. For installation and operation of wind data monitoring equipment, the following points shall be observed:

- the wind sensors shall be installed on masts at an elevated level 10m above ground so that they are clear of obstructions or turbulence caused by any buildings;
- the wind data shall be captured by a data logger and to be downloaded for processing at least once a month;
- the wind data monitoring equipment shall be re-calibrated at least once every six months; and
- wind direction shall be divided into 16 sectors of 22.5 degrees each.

5.9 In exceptional situations, the ET leader may propose alternative methods to obtain representative wind data upon approval from the Engineer.

Laboratory Measurement/Analysis

5.10 A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments, to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.

5.11 If an independent site laboratory is set up or a non-HOKLAS accredited laboratory is appointed to carry out the laboratory analysis, the laboratory equipment shall be approved by the Engineer and the measurement procedures shall be witnessed by the Engineer. The ET Leader shall provide the Engineer with one copy of the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50).

5.12 Clean filter paper with no pin holes, of size 8" x 10" shall be labelled before sampling. Filter paper shall be conditioned in a humidity controlled chamber for 24-hours and pre-weighed prior to use in any sampler.

5.13 After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper should then be returned to the laboratory for reconditioning in a humidity controlled chamber followed by precision weighing using an electronic balance which, is capable of weighing down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.

5.14 All the collected samples shall be kept in a good condition for 6 months before disposal.

Monitoring Locations

5.15 The air quality sensitive receivers identified in the EIA study are shown in Figure 5.1 and the co-ordinates of monitoring station is shown in Table 5.1. As recommended in the revised EM&A Manual, a monitoring station (Rooftop of House No. 76 in Fo Tan Village) is used for dust monitoring.

Table 5.1 Co-ordinates of the Air Quality Monitoring Station

Station No.	Location	Northing	Easting
Fo Tan Village	Rooftop of House No. 76 in Fo Tan Village	828385.7	838257.2

5.16 If an alternative monitoring location is proposed in future, the following criteria should be followed:-

- at the site boundary or such location close to the major dust emission source;
- close to the sensitive receptors; and
- take into account the prevailing meteorological conditions.

5.17 During positioning the samplers, the following points shall be noted:

(a) a horizontal platform with appropriate support to secure the samplers against gusty wind should be provided;
(b) the distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
(c) a minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
(d) a minimum of 2 metres separation from any supporting structure, measured horizontally is required;
(e) no furnace or incinerator flue is nearby;
(f) airflow around the sampler is unrestricted;
(g) the sampler is more than 20 metres from any dripline;
(h) any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
(i) permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
(j) a secure supply of electricity is available.

Action and Limit Level

5.18 Table 5.2 indicates the format for calculating the Action and Limit Levels. The Action and Limit (AL) Level for Contract HY/99/02 are 178μg/m^3 and 260μg/m^3 (24-hr TSP), and 323μg/m^3 and 500μg/m^3 (1-hr TSP) respectively. The AL level obtains from baseline study which are being used as a reference which may be revised at a later stage if deemed necessary.

Table 5.2 Format for calculating Action and Limit Levels

Parameters	Action	Limit
24 Hour TSP (Level in μg/m^3)	178	260
1 Hour TSP (Level in μg/m^3)	323	500

Air Quality Impact Monitoring Results

5.19 Major works carried out in Contract HY/99/02 Contractor in this report period are shown in Section 3.

5.20 Impact monitoring shall be carried out throughout the construction period. As suggested by the revised EM&A approved by EPD, regular impact monitoring for 24-hr TSP have been taken at frequency of once in every six-days. 1-hr TSP are also monitored at frequency of three times in every six-days.

5.21 The specific time to start and stop the 24-hr TSP monitoring have be clearly defined and strictly followed by the ET for each location.

5.22 Air quality impact monitoring was carried out at one monitoring station (Rooftop of House No. 76 in Fo Tan Village) as shown in Figure 5.1 in September 2002. The results are summarized in Table 5.3.

Table 5.3 Summary of Air Quality Monitoring Results

Parameter	Range of Results	No. of Exceedances	
		Action Levels	Limit Levels
1-hr TSP	15 $\mu g/m^3$ – 173 $\mu g/m^3$	0	0
24-hr TSP	35 $\mu g/m^3$ – 57 $\mu g/m^3$	0	0

5.23 The 1-hr TSP levels ranged between 15 $\mu g/m^3$ and 173 $\mu g/m^3$. The 24-hr TSP levels ranged between 35 $\mu g/m^3$ and 57 $\mu g/m^3$.

5.24 Table 5.4 shows the total number of samples taken, the number of AL Levels being exceeded and their corresponding date of exceedance at designated station - Rooftop of House No. 76 in Fo Tan Village. In this reporting period, no exceedance was found in both 1-hr TSP and 24-hr TSP monitoring.

Table 5.4 Total no. of measurements and exceedances of the AL Levels for air quality monitoring

1-hr TSP Monitoring					24-hr TSP Monitoring				
No. of samples	No. and Date of Exceedances				No. of samples	No. and Date of Exceedances			
	Action		Limit			Action		Limit	
15	0	-	0	-	5	0	-	0	-

Note: Limit Level exceedence excludes Action Level.

5.25 Air quality impact monitoring data are presented in tabular and graphical format in Tables 5.5 and 5.6. The results indicate that no TSP exceedance was recorded in this reporting period and no measurements had to be cancelled due to adverse weather condition.

5.26 **Table 5.5 1-hr TSP Monitoring Results**

Date	Sampling time (Hours)	Average flow rate (m^3/min)	TSP ($\mu g/m^3$)	No. of exceedances	
				Action	Limit
4 September 2002	1	1.09	61	0	0
5 September 2002	1	1.06	173		
6 September 2002	1	1.09	153		
	Mean		129		
10 September 2002	1	1.06	142	0	0
11 September 2002	1	1.06	63		
12 September 2002	1	1.09	76		
	Mean		94		
16 September 2002	1	1.09	15	0	0
17 September 2002	1	1.11	120		
18 September 2002	1	1.11	75		
	Mean		70		
21 September 2002	1	1.09	107	0	0
23 September 2002	1	1.09	122		
24 September 2002	1	1.09	92		
	Mean		107		
27 September 2002	1	1.09	92	0	0
28 September 2002	1	1.09	63		
30 September 2002	1	1.09	138		
	Mean		98		
	Total no. of exceedances		0	0	0
	Maximum		173	-	-
	Minimum		15	-	-
	Mean		99	-	-

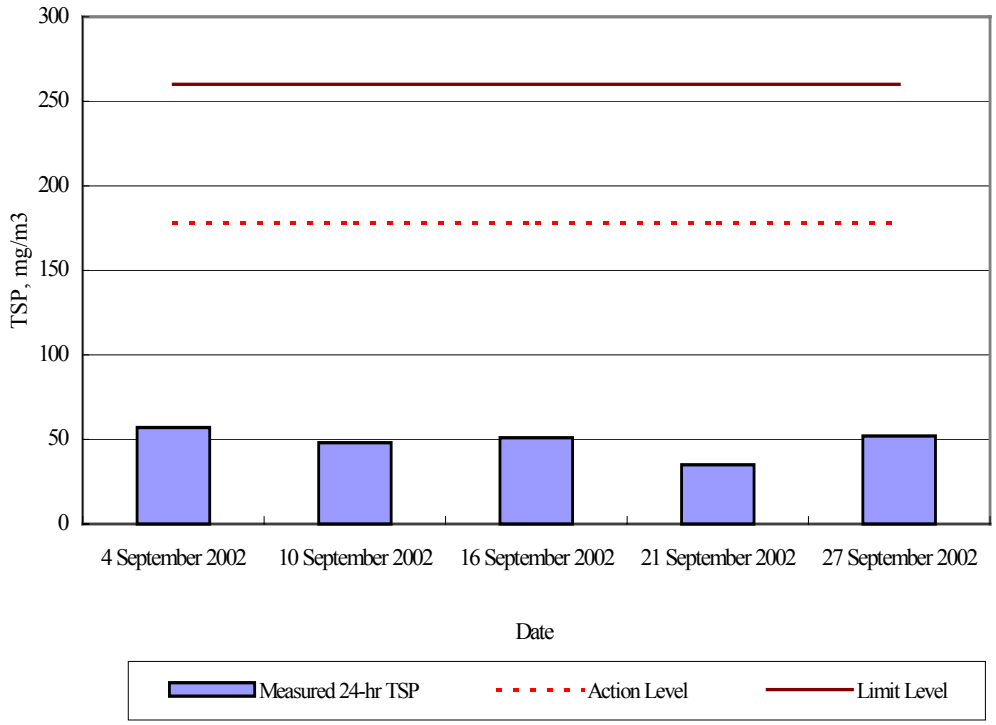
Table 5.6 24-hr TSP Monitoring Results

Date	Sampling time (Hours)	Average flow rate (m^3/min)	TSP ($\mu g/m^3$)	No. of exceedances	
				Action	Limit
4 September 2002	24	1.09	57	0	0
10 September 2002	24	1.06	48	0	0
16 September 2002	24	1.09	51	0	0
21 September 2002	24	1.09	35	0	0
27 September 2002	24	1.09	52	0	0
	Total no. of exceedances		0	0	0
	Maximum		57	-	-
	Minimum		35	-	-
	Mean		49	-	-

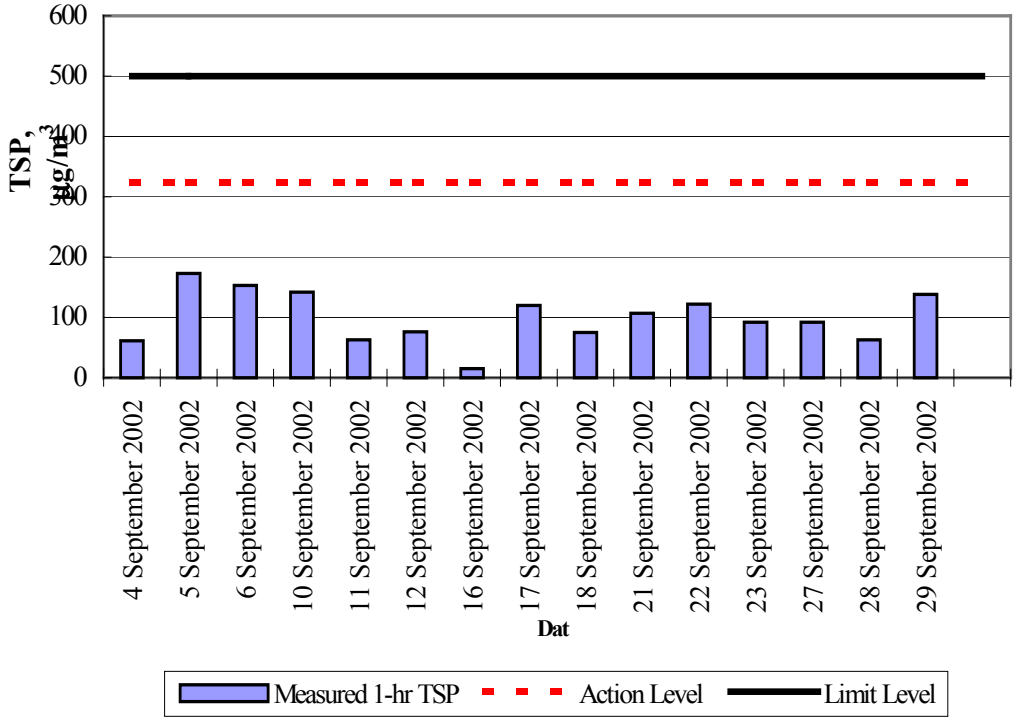
Note :

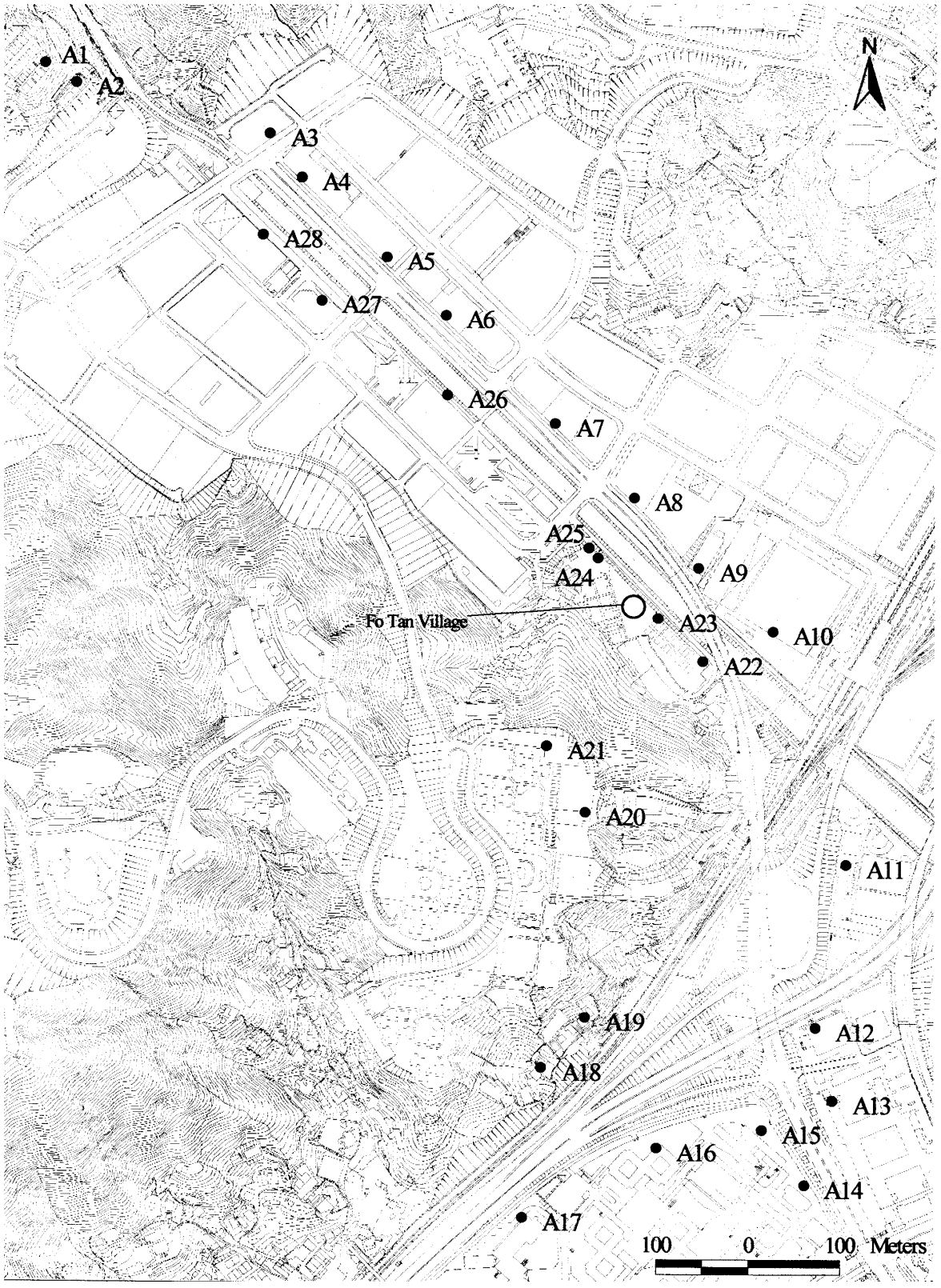
1- 4, 10, 16, 21 and 27 September 2002 were selected for 24-hour air quality sampling as the activities carried out on the above days potentially generate the highest dust nuisance to the residents.

24-hr TSP in Fo Tan Village



1-hr TSP in Fo Tan Village





Mott Connell 萬宜	Title: **Air Quality Sensitive Receivers with the Suggested Dust Monitoring Location for Air Quality Impact Monitoring**	Mott Connell Limited Contract No.: HY/99/02 Drawing No.: Figure 5.1