CHAPTER 2

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

CAPITAL WORKS RESERVE FUND

GOVERNMENT SECRETARIAT

Works Bureau

GOVERNMENT DEPARTMENT

Territory Development Department

Construction of the West Kowloon Reclamation hinterland drainage improvement works, Package 1

Audit Commission
Hong Kong
29 February 2000

CONSTRUCTION OF THE WEST KOWLOON RECLAMATION HINTERLAND DRAINAGE IMPROVEMENT WORKS, PACKAGE 1

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CONSTRUCTION OF THE WEST KOWLOON RECLAMATION HINTERLAND DRAINAGE IMPROVEMENT WORKS, PACKAGE 1

Summary and key findings

A. **Introduction.** In order to build the new airport, extensive reclamation of land had to be carried out along the West Kowloon waterfront from Yau Ma Tei to Lai Chi Kok. Improvements to the hinterland drainage system in West Kowloon were necessary. The West Kowloon Reclamation (WKR) was one of the Airport Core Programme projects. In December 1991, the Territory Development Department (TDD) awarded a remeasurement contract (the Contract) for the construction of the WKR hinterland drainage improvement works to the lowest tenderer in the sum of $69.9 million. The works of this 22-month Contract commenced on 12 December 1991 and were scheduled for completion on 6 October 1993. In the event, the Contract was substantially completed on 23 October 1996. The last contract payment was made in 1998. The final contract sum, including an overall settlement of all outstanding claims, amounted to $149.8 million (paras. 1 to 4).

B. **Audit review.** Audit has recently carried out a review to ascertain why there were cost overrun and delay in the completion of the works of the Contract, whether there are lessons to be learnt and whether there is room for improvement in project planning, tender preparation and contract administration in future. The audit findings are summarised in paragraphs C to E below.

C. **Selection of the Contractor.** Good contract planning and management capabilities are pre-requisites for contractors undertaking works which require a high level of coordination and liaison, such as the works of this Contract. During the construction period, the TDD had assessed that the Contractor's performance was unsatisfactory. Audit noted that, prior to the tender exercise, the TDD had not carried out an exercise for the prequalification of tenderers for the Contract. In Audit's view, if an exercise to prequalify tenderers had been carried out, it would have enabled the TDD to select prospective tenderers who were technically and financially competent for the works. The prequalification of tenderers would have also provided the TDD an opportunity to inform the prospective tenderers of the salient features and other major constraints of the Contract (para. 18).

D. **Utility diversions.** Diversion of utilities affected the Contractor's progress of work. The problems mainly stemmed from inaccurate records in respect of the utilities of the West Kowloon area, which were installed many years ago. The Contractor had to agree with the utility operators to establish works programmes for utility diversions. Some of these diversion works could not be completed within a short period of time. In resolving the utility diversion problems, the TDD had relied on contract provisions which placed the onus of locating, identifying and diverting utilities on the Contractor. Audit considers that the TDD could have taken some proactive action and should not have relied solely on the contract provisions concerning the Contractor's obligations to resolve utility diversion problems (paras. 35 and 36).

E. **Temporary traffic arrangements (TTAs).** Preparation and implementation of the TTAs also affected the Contractor's progress of work. To enable the TDD to carry out the works more

efficiently, the Transport Department delegated to the TDD its authority to approve the TTAs submitted by the Contractor. The Contractor considered that the procedures for the approval and implementation of the TTAs were more complex than anticipated. The Contractor and the Engineer had different interpretations of the contract provisions concerning the scope of work for the detailed TTAs. During construction of the works, the Engineer required the Contractor to carry out traffic signal modification work which was normally carried out by the Transport Department. Audit considers that the scope of work and the procedures for the approval and the implementation of the TTAs should have been clearly specified in the Contract (para. 53).

F. **Audit recommendations.** Audit has made the following main recommendations:

— the Director of Territory Development should:

(a) in future, carry out a prequalification exercise for tenderers if the works involved are complex and require a high level of coordination and liaison with other parties (third inset of para. 19);

(b) for future road and drainage improvement works, critically assess the time required for utility diversion works and allow sufficient time and resources in contracts for such works (first inset of para. 38);

(c) specify clearly in the contracts the procedures to be adopted for dealing with unexpected utility diversion works, and the scope of work for the TTAs (second inset of para. 38 and first inset of para. 54);

(d) establish more efficient approval procedures for the implementation of the TTAs before the award of contract (second inset of para. 54); and

(e) prior to accepting any delegated authority from another government department, ascertain all the particular requirements of the delegator and take necessary planning action in order to facilitate the preparation of the TTAs by the contractors (third inset of para. 54); and

— the Secretary for Works should:

(f) consider, in collaboration with the utility operators, the feasibility of establishing a central record system of utilities (para. 39); and

(g) consider notifying in writing all works departments of the audit recommendations and take appropriate action to obviate the recurrence of similar cases in future (para. 55).

G. **Response from the Administration.** The Director of Territory Development and the Secretary for Works generally agree with the audit recommendations.

INTRODUCTION

1. In order to build the new airport, reclamation of 330 hectares of land had to be carried out along the West Kowloon waterfront from Yau Ma Tei to Lai Chi Kok under the West Kowloon Reclamation (WKR) which was one of the Airport Core Programme projects. The WKR involved extensive stormwater drainage works. The drainage works would provide for surface run-off from the reclamation itself, and would serve as the downstream extensions of the existing main drainage culverts and drainage system in the West Kowloon hinterland. The Territory Development Department (TDD), assisted by an engineering consultant (hereinafter referred to as the Consultant), was responsible for the design and supervision of the construction of the WKR, including the drainage improvement works in the hinterland.

2. ***Funding approvals.*** There were three funding approvals by the Finance Committee (FC) of the Legislative Council:

— in July 1991, the FC approved the upgrading of the "West Kowloon Reclamation — hinterland drainage package 1" to Category A (Note 1) at an estimated cost of $85 million at March 1991 prices. The TDD informed the FC that massive reclamation of the WKR would have a significant impact on the performance of the stormwater drainage system in the West Kowloon hinterland. Serious flooding in the West Kowloon area might occur if the existing drainage system was not improved;

— in July 1994, the FC approved an increase in the approved project estimate, from $85 million by $40 million to $125 million at money-of-the-day prices (Note 2). The TDD informed the FC that additional funds were required to meet the increased costs arising from price fluctuations, additional diversion and reinstatement works, and difficult site conditions which necessitated revision of the construction method and implementation of additional temporary traffic arrangements (TTAs); and

— in December 1997, the FC approved a further increase in the approved project estimate, from $125 million by $35 million to $160 million at money-of-the-day prices. The increase in the approved project estimate was to meet the additional cost due to adverse site and weather conditions, and to finalise the account of the Contract including an overall settlement of all outstanding claims.

Note 1: *Public works projects are classified into several categories under the Public Works Programme. Category A projects are projects which are ready in all respects for tenders to be invited and for construction works to proceed, and which have approved project estimates.*

Note 2: *Money-of-the-day prices show the estimated cost of a project after allowing for forecasted inflationary increases in construction prices during the period of construction.*

3. ***Award of contract.*** In December 1991, the TDD awarded a remeasurement contract for the construction of the WKR hinterland drainage improvement works (hereinafter referred to as the Contract) to the lowest tenderer in the sum of $69.9 million. The Consultant was also the engineer for the Contract (hereinafter referred to as the Engineer). The works of the Contract included the construction of new stormwater drains, the replacement of foul sewers and pipelines, and the reinstatement of related roads. The works of the Contract were divided into four sections. Figure 1 at the centre pages shows the locations of the drainage improvement works of the Contract.

4. The works of this 22-month Contract commenced on 12 December 1991 and were scheduled for completion on 6 October 1993. **In the event, the Contract was substantially completed on 23 October 1996, i.e. more than three years after the originally scheduled completion date.** During construction, the Contractor encountered difficulties in utility diversions and in the implementation of TTAs. As a result, the Contractor submitted claims for extension of time (EOT) and additional costs. Although the Engineer had granted EOT for some of the claims, a dispute arose because the Engineer rejected many of the Contractor's claims and the EOT granted was not adequate to cover the delays. Appendix A shows the EOT claimed by the Contractor and the EOT assessed by the Engineer. Subsequently, the dispute over the claims between the Contractor and the Engineer was resolved by extra-contractual negotiations. In October 1997, the TDD and the Contractor signed a supplementary agreement to settle the dispute and other outstanding matters (Note 3). The account of the Contract was finalised in the sum of $149.8 million. In January 1998, the TDD made the last payment to the Contractor.

AUDIT REVIEW

5. Audit has recently carried out a review to ascertain:

— why there were cost overrun and delay in the completion of the works of the Contract; and

— whether there are lessons to be learnt and whether there is room for improvement in project planning, tender preparation and contract administration in future.

Note 3: *The supplementary agreement settled all outstanding disputes, claims for EOT and additional costs, variations or alleged variations of works, final contract sum and all financial issues.*

PERFORMANCE MONITORING
AND SELECTION OF THE CONTRACTOR

Tender selection criteria

6. The Government's procurement policy for public works contracts is to seek competitive tenders and to select the offer representing the best value for money. The tender selected must comply with the Government's technical requirements. In addition, the past performance, claims history and financial capability of the tenderers are also considered. According to then prevailing Lands and Works Branch Technical Circular (LWBTC) No. 9/85 of February 1985 (Note 4), for works contracts having a very high sensitivity rating (Note 5), the selected tenderer should have a proven track record of high quality workmanship, ability to complete the works on time, technical ability to deal with the types of works within the respective works category and managerial ability to deal with complex situations.

Prequalification of tenderers

7. Consideration of the need to prequalify tenderers is a standard procedure for the tendering of public works contracts. The objective of the prequalification of tenderers is to select tenderers who are financially and technically capable of undertaking a project. **According to Works Bureau Technical Circular (WBTC) No. 12/90 of May 1990 (Note 6), the works departments should consider the necessity for the prequalification of tenderers if the works require a high level of coordination, technical expertise or unusual technology.** The prior approval of the Secretary for the Treasury, who is the Chairman of the Central Tender Board, is required for the prequalification of tenderers.

8. In September 1990, based on the requirements of WBTC No. 12/90, the Consultant recommended that an exercise for the prequalification of tenderers for the Contract should be carried out because the Contract involved considerable stormwater drainage works in the heavily congested areas of West Kowloon. The works also required a high level of coordination and liaison with utility operators, the Hong Kong Police Force, the Transport Department and public transport providers.

Note 4: *LWBTC No. 9/85 of February 1985 on the use of contractors' performance reports in tender recommendations has been replaced by WBTC No. 24/98 of November 1998, which is currently in force.*

Note 5: *A works contract is considered having a very high sensitivity rating if it has considerable social and economic impact on Hong Kong or segments of the population (e.g. the risk of late completion cannot be accepted).*

Note 6: *WBTC No. 12/90 of May 1990 on the prequalification of tenderers has been replaced by WBTC No. 15/94 of August 1994, which is currently in force.*

9. However, in October 1990, the TDD advised the Consultant that the prequalification of tenderers for the Contract was not necessary because:

— the anticipated contract sum was comparatively low;

— the works of the Contract should be well within the capabilities of Group C contractors (Note 7); and

— the TDD would check the tenderers' previous works performance and financial capability as part of the normal tender selection process. The workload information provided by the tenderers would indicate the tenderers' experience in undertaking projects of a similar nature in Hong Kong.

Tender evaluation

10. ***Financial vetting of the lowest tenderer.*** In September 1991, the TDD invited tenders for the Contract. The tender closing date was 11 October 1991. In assessing the financial position of the three lowest tenderers, the Works Bureau noted that the second and the third lowest tenderers' tender sums were more than 10% higher than the lowest tenderer's tender sum. It cautioned the TDD that, unless the tender was within the TDD's estimated cost, it was possible that the lowest tenderer would suffer a loss on the Contract.

11. ***Preliminary evaluation of the three lowest tenderers.*** In October 1991, prior to the detailed evaluation of the tenders, the Consultant informed the TDD that most of the Bill of Quantities rates tendered by the lowest tenderer were far below the rates of the pre-tender estimate. The Consultant also said that the lowest tenderer had not visited his office to study the preliminary TTAs prepared by his traffic engineer (see paragraph 42 below). The TDD considered that it was apparent that the lowest tenderer did not fully understand the complexity and difficulty involved in the Contract. In November 1991, the TDD said that if the Consultant found the tender price for the lowest tender to be unrealistic by reference to the rates for similar works, he should consider the second and the third lowest tenderers' offers.

12. ***Consultant's tender evaluation and recommendation.*** In the tender evaluation report of November 1991, the Consultant considered that the Contract had a high sensitivity rating as it was important to complete the works on time. After evaluating the past performance, experience and claims history of the three lowest tenderers and the sensitivity of the project, the Consultant

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Note 7: *Contractors in Hong Kong are grouped according to the value of contracts for which they are eligible to tender. Group C contractors are eligible to tender for contracts of any value.*

recommended that the TDD should accept the third lowest tenderer's offer. The reasons given by the Consultant for not recommending the acceptance of the lowest and the second lowest tenderers' offers were as follows:

— the lowest tenderer had a poor appreciation of the complex nature of the works, and the tight programming and scheduling requirements of the Contract. The tender sum of $69.9 million was 16.1% lower than the pre-tender estimate. The lowest tenderer might suffer a loss on the Contract and this could result in unsatisfactory performance in his works. The lowest tenderer also had a record of receiving a relatively large number of adverse performance reports. This indicated that his workmanship and organisation ability were poor; and

— the second lowest tenderer had submitted a non-compliant tender and had received a relatively large number of adverse performance reports.

13. ***TDD's tender evaluation and recommendation.*** However, the TDD did not support the Consultant's recommendation of accepting the third lowest tender. Instead, the TDD recommended that the Central Tender Board should accept the lowest tender. The TDD's reasons were as follows:

— the lowest tenderer could satisfactorily complete the works in accordance with the contract conditions by adopting comprehensive contract planning and management techniques, and by implementing additional supervisory controls;

— the rates tendered for the major items were reasonable. For three other WKR contracts let at that time, the prices of the successful tenders were all below (ranging from 8% to 21%) the pre-tender estimate. This might be due to the keen competition; and

— the Works Bureau had confirmed that the lowest tenderer met the financial requirement.

14. ***Contract awarded to the lowest tenderer.*** In November 1991, on the recommendation of the Central Tender Board, the Secretary for the Treasury gave approval to the TDD for accepting the lowest tender in the sum of $69.9 million. In giving the approval, the Secretary for the Treasury requested the TDD to note the Central Tender Board's comments, as follows:

— prior to the award of the Contract, the TDD should draw the attention of the Contractor to the Consultant's reservations about the Contractor's planning and management capability of discharging the Contract;

— the TDD should ensure that there would be adequate supervisory control over the Contractor's works; and

— the TDD should conduct an exercise for the prequalification of tenderers in similar situations in future if it considered that not all contractors on the approved lists were suitable.

15. In December 1991, the TDD informed the Contractor that his tender was accepted and drew his attention to the importance of the timely completion of the works. The TDD also informed the Contractor that comprehensive contract planning and management techniques would be required because of the tight time schedule and the difficult traffic constraints in the densely populated West Kowloon area.

Performance of the Contractor

16. ***Monitoring contractors' performance.*** The Works Bureau has issued technical circulars concerning the procedures for reporting on the performance of works contractors and for using the performance records to regulate the contractors' participation in public works. According to LWBTC No. 5/88 of March 1988 (Note 8) then in force, the works departments should take regulatory actions when they had rated the performance of a contractor as "Adverse". Appendix B shows the Contractor's performance from 12 December 1991 to 23 October 1996. As can be seen from the Appendix, the Contractor received nine adverse performance reports out of a total of 25 performance reports.

Audit observations on performance monitoring and selection of the Contractor

17. ***Performance of the Contractor.*** According to LWBTC No. 5/88, upon the issue of the second consecutive adverse performance report by the Engineer, the TDD should introduce procedures to monitor and report on the performance of the Contractor at six-week intervals. However, the TDD did not do this when the second consecutive adverse performance report for the period 1 March 1993 to 31 May 1993 was issued. As far as could be ascertained, the TDD did not document the justification for not doing so, contrary to the requirement of LWBTC No. 5/88. In September 1995, the TDD only introduced the six-weekly reporting procedures after the issue of the sixth adverse performance report. In July 1996, in response to the TDD's request, the

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Note 8: *In December 1996, LWBTC No. 5/88 of March 1988 has been replaced by WBTC No. 13/96, which is currently in force. WBTC No. 13/96 states that similar regulatory actions against works contractors with unsatisfactory performance as those required by LWBTC No. 5/88 should be taken.*

Contractor agreed to suspend voluntarily from tendering for public works contracts (Note 9) with effect from 22 July 1996. Audit noted that, throughout the construction period, the Contractor showed some signs of improvement after he had received an adverse performance report. However, in spite of his less than satisfactory performance, the Contractor was allowed to carry on with the works. **Audit considers that the TDD should have taken regulatory actions more promptly against the Contractor in accordance with the relevant technical circular.**

18. ***Selection of the Contractor.*** Good contract planning and management capabilities are pre-requisites for contractors undertaking works which require a high level of coordination and liaison, such as the works of this Contract. Audit noted the TDD's reasons for not carrying out an exercise for the prequalification of tenderers for the Contract (see paragraph 9 above). Audit also noted the TDD's justifications for recommending the award of the Contract to the lowest tenderer (see paragraph 13 above) notwithstanding the Consultant's reservations (see paragraph 12 above). As it transpired, from the outset, the TDD assessed that the Contractor's performance was unsatisfactory. In Audit's view, if a prequalification exercise for the Contract had been carried out, it would have enabled the TDD to select prospective tenderers who were technically and financially competent for the works. The prequalification of tenderers would have also provided the TDD an opportunity to inform the prospective tenderers of the salient features and other major constraints of the Contract, such as the need for a high level of coordination and liaison with various parties involved.

Audit recommendations on performance monitoring and selection of the Contractor

19. **Audit has *recommended* that the Director of Territory Development should:**

- **strictly follow the laid-down procedures for monitoring the performance of contractors;**

- **immediately tighten up control by taking more stringent regulatory action if the performance of contractors is found to be unsatisfactory;**

Note 9: *According to LWBTC No. 5/88 of March 1988, upon the issue of the third consecutive adverse report, the contractor should be interviewed with the aim of seeking his agreement to refrain from tendering for public works contracts. In June 1996, in view of the erratic behaviour of the Contractor, the TDD obtained the Contractor's agreement to suspend voluntarily from tendering. The voluntary suspension was uplifted in June 1997.*

— **in future, carry out a prequalification exercise for tenderers if the works involved are complex and require a high level of coordination and liaison with other parties; and**

— **in assessing tender submissions, pay particular attention to vetting more thoroughly tenderers' abilities in planning and carrying out their works, and in resolving problems, such as those relating to the TTAs (see also paragraph 52 below).**

UTILITY DIVERSIONS

20. The drainage improvement works of the Contract included the construction of underground box culverts, stormwater drains and foul sewer pipes in the West Kowloon area. Some existing utilities, such as water mains, sewer pipes, electricity cables, telephone cables and gas mains had to be diverted for the construction to proceed. If utility diversions were necessary, the utility operators were required to undertake the works at their own expense (Note 10). Photograph 1 at the centre pages shows a box culvert under construction in Yen Chow Street. Photograph 2 at the centre pages shows the utilities exposed during the construction of a box culvert in Nam Cheong Street. As mentioned in paragraph 4 above, during construction, the Contractor had submitted claims for EOT (see Appendix A) and additional costs relating to utility diversions. Audit examined some of the major claims and found that there is room for improvement in handling utility diversion works. The problems encountered by the Contractor in relation to the diversion of utilities and polluted flow are described in paragraphs 23 to 34 below.

Contractual requirement for location of utilities

21. The West Kowloon hinterland is a densely populated old district. The utilities were installed many years ago when the standards of engineering were not as high as those adopted presently. There were inadequate records and, in a number of instances, the Contractor could not ascertain the exact location of the existing utilities until he carried out full-scale excavations.

22. For the drainage improvement works under the Contract, the details and extent of the existing utilities, which were based on information provided by the utility operators, were shown in the tender drawings. The Particular Specification of the Contract required the Contractor to accurately locate, at the commencement of the works, all existing utilities by way of trial pits, trenches or other approved methods, and to advise the Engineer of any utilities which were in conflict with the works. The Contract also required the Contractor to arrange for all necessary diversions.

Note 10: *Utility operators have an obligation under the respective utilities Ordinances or under their Block Permits for occupation of unleased Government Land to divert the utilities when required by the Government.*

Problems encountered relating to charted utilities

23. During the trial pit excavation, the Contractor found that some gas mains, telephone lines, water mains and electricity supply lines, which were shown in the tender drawings, were in conflict with the construction works. The Contractor held liaison meetings with the utility operators to establish works programmes for their diversion. The coordination of these meetings was time-consuming as it required cooperation of the utility operators and the authorising parties. As a result, the works were delayed and the Contractor lodged claims for EOT and additional costs.

24. In justifying his claims, the Contractor said that:

— he could not prepare the works programmes until after he had determined the location of the existing utilities and had discussed the matter with the utility operators. He also had to obtain approval for the TTAs before the commencement of the excavations;

— the utility operators could not carry out the diversion works until after he had obtained approval for the TTAs. The TTAs had to incorporate the utility operators' requirements. He should be entitled to EOT for any works affected in the event the utility operators could not carry out the diversion works on time; and

— the Particular Specification was not meant to imply full compliance where it was not practicable to do so.

25. The Engineer considered that no EOT should be granted for the Contractor's claims relating to the diversion of the charted utilities. The Engineer said that the Contract required the Contractor to locate the utilities which were in conflict with the construction works, and to arrange for the diversions with the respective utility operators. The Engineer considered that the Contractor had ample opportunity to locate the utilities and to arrange for their timely diversion.

Problems encountered relating to uncharted utilities

26. During the construction of the box culverts, the Contractor found uncharted utilities which affected the progress of the works. The Contractor lodged claims for EOT and additional costs. Paragraphs 27 to 30 below give two examples of the delay caused by uncharted water mains.

27. In April 1992, during a trench excavation in Man Cheong Street, the Contractor found an unexpected bend of a salt water main lying in the way of a sewer to be constructed. According to

the tender drawings (which tallied with the as-built record supplied by the Architectural Services Department —see Note 11), the salt water main should be running in a straight line parallel to the proposed sewer. The Architectural Services Department and the Water Supplies Department (WSD) considered that the salt water main could be diverted. However, the ordering and delivery of the pipes for the water main would take about eight months because the pipes were non-standard ones of which the WSD did not hold stock. In the event, the Engineer instructed the Contractor to resolve the matter by constructing additional manholes (Note 12) instead of diverting the water main. In May 1992, the Contractor lodged a claim for EOT because the existence of the uncharted salt water main disrupted the works.

28. In assessing the claim, the Engineer considered that the Particular Specification of the Contract should not be interpreted as to place an unlimited responsibility on the Contractor to expose, check and arrange the diversion of every utility on the alignment of the proposed box culverts and sewers. The Engineer considered that it was not the intention of the Contract to require the Contractor to excavate the full length of Man Cheong Street prior to the implementation of the TTAs in order to check the exact location of the water main. Hence, the Engineer considered that granting EOT was justified.

29. In November 1994, the Contractor found another uncharted salt water main at the junction of Nam Cheong Street and Yee Kuk Street. The salt water main, which was shown as a straight line main in the tender drawings, contained two unexpected bends with thrust blocks (Note 13) partly within the alignment of the box culvert. In December 1994, the WSD agreed in principle to the diversion of the salt water main, provided that the design of the thrust block was submitted to the WSD for endorsement. The WSD also estimated that it would take approximately six months (Note 14) to carry out the diversion works.

30. Thereafter, meetings were held to discuss the alignment and the construction method for the diversion works. In June 1996, the Contractor, the Engineer, the Drainage Services

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Note 11: *The salt water main was constructed by the Architectural Services Department and the WSD provided maintenance support on request.*

Note 12: *Manholes are provided at the intersections of stormwater drains, the junctions between different size/gradient of stormwater drains and the location where a stormwater drain changes direction. In this case, a manhole was constructed to contain the water main and to let sewage flow around the water main inside the manhole.*

Note 13: *A thrust block is a heavy concrete anchorage cast to prevent movement at a bend in a pipe.*

Note 14: *According to the WSD, a period of six months is the average lead time required to plan for water main diversion, to acquire pipe materials, to obtain road opening and TTA approvals, and to arrange for water suspension. If the diversion works cannot be phased in with the construction programme, the WSD will consider whether a fast-track approach can be adopted.*

Department (Note 15) and the WSD agreed to realign the bends outside the box culvert and to replace the straight section of the salt water main. In July 1996, the construction of the box culvert was completed after the Contractor had diverted the water main. Due to the additional works involved in the construction of the box culvert and the diversion of the salt water main, the Engineer granted 245 days of EOT (see Note 3 to Appendix A) to the Contractor.

EOT granted due to utility diversion works

31. In January 1994, the Engineer agreed that the delays resulting from the failure of any utility operators to commence or carry out their works in accordance with an agreed programme would form the basis for granting EOT. However, the Engineer maintained the view that until such time as the Contractor had uncovered the existing utilities to ascertain the extent of the diversion works, any delay was the Contractor's responsibility. In the event, the Engineer granted EOT to the affected works, i.e. 128 days for the Yen Chow Street section, 463 days for the Nam Cheong Street section, 302 days for the Public Square Street section, and 416 days for the Man Cheong Street/Saigon Street section (see Appendix A).

Problems encountered relating to polluted flow

32. The Contract included the demolition of existing stormwater drains so as to allow for the construction of new culverts along the same direction. During the construction of the works, the Contractor had to maintain the existing stormwater flow. This could be carried out by temporarily diverting the flow using water pumps or corrugated metal pipes. However, the Contractor's works were delayed because there was a high volume of heavily polluted flow in the stormwater drains even during extended periods of dry weather. The Contractor considered that the size of works areas allowed for each stage (Note 16) of the works was generally insufficient to accommodate the diversion of the polluted flow.

33. In December 1994, the Contractor advised the TDD that the stormwater drains, which contained polluted flow, could not have been described as "containing stormwater". The polluted flow was quite regular and not generated by storm. The Contractor further said that the polluted flow was so toxic that the working condition for the workers was hazardous. He could not construct some parts of the works as designed. In particular, the methods and sequencing of the

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Note 15: *The Drainage Services Department is responsible for the maintenance of the stormwater box culverts and pipes.*

Note 16: *Each section of the works was divided into stages. There were altogether 68 stages of works. The length of works areas for the stages of works ranged from 5 metres to 47 metres, and the width ranged from 6 metres to 16 metres.*

works for the construction of the box culverts in Nam Cheong Street and Man Cheong Street had to be changed or redesigned (Note 17).

34. The Contractor claimed that the sequencing of the works specified in the Contract had not adequately taken into account the need to deal with the high volume of polluted flow. In order to mitigate the resultant delay and additional costs, the Contractor had to implement measures to deal with the problem. The measures included an extension of the works areas beyond those allowed for in the Contract, a redesign of certain works and deployment of additional resources. The Engineer rejected the Contractor's claims for additional costs and EOT related to the polluted flow.

Audit observations on utility diversions

35. Audit noted that there were problems encountered during both the planning and construction stages of the Contract. These stemmed from the inaccurate records in respect of the utilities of the West Kowloon area, which were installed many years ago. The exact location of the utilities could not be readily identified until the Contractor had carried out a full-scale excavation after the commencement of the works. For the utilities found to be in conflict with the works, the Contractor had to agree works programmes with the utility operators for the diversion works. Some of these diversion works could not be completed within a short period of time. As a result, the Contractor's works were disrupted, and EOT had to be granted to the Contractor. **Audit considers that the TDD should have provided sufficient time in the Contract for the Contractor to locate utilities at the early stage of the Contract.**

36. In resolving the utility diversion problems, the TDD had relied on the contract provisions which placed the onus of locating, identifying and diverting the utilities solely on the Contractor. The TDD disclaimed liability for the usefulness and accuracy of the information provided to the Contractor. **Audit noted that, under such circumstances, the TDD's sole reliance on the contract provisions concerning the Contractor's obligations was inadequate to resolve utility diversion problems promptly. Audit considers that more proactive action by the Employer and more clearly defined duties and obligations of the Contractor and the Employer in the Contract would have helped facilitate the utility diversion works.**

37. Another problem which affected the Contractor's progress of the utility diversion works was the presence of a high volume of polluted flow in the stormwater drainage systems. **Audit**

Note 17: *At the three main road junctions of Nam Cheong Street, the twin-cell box culvert had to be constructed on a cell-by-cell basis instead of constructing both cells simultaneously. For part of its length along Man Cheong Street, the single-cell box culvert had to be constructed using precast units.*

Figure 1

Locations of drainage improvement works of the Contract

Source: TDD's records

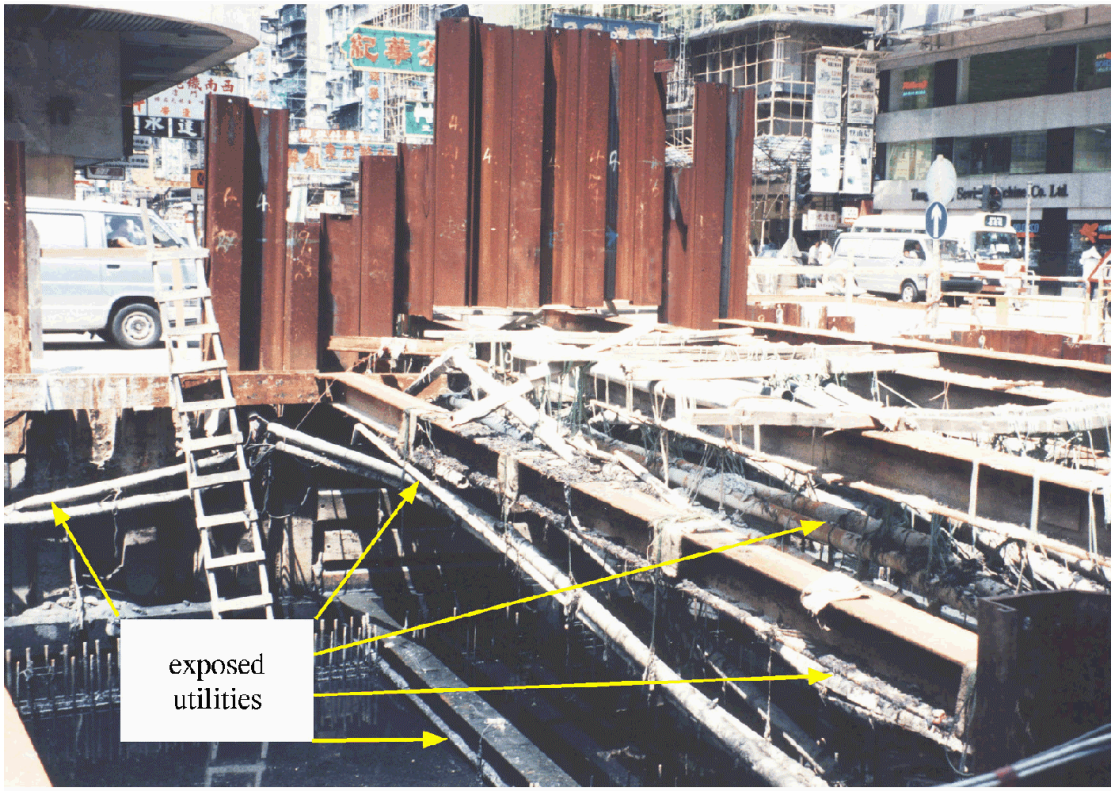
Photograph 1

A box culvert under construction in Yen Chow Street

Source: TDD's records

Photograph 2

Utilities exposed during the construction of a box culvert in Nam Cheong Street



Source: TDD's records

Photograph 3

Temporary traffic arrangement for drainage improvement works in Nam Cheong Street

Source: TDD's records

considers that in planning for the Contract, the TDD should have made due allowance, in terms of time and resources, for the Contractor to deal with the polluted flow.

Audit recommendations on utility diversions

38. **Audit has *recommended* that, for future road and drainage improvement works, especially in old districts where utilities were installed many years ago, the Director of Territory Development should:**

- **critically assess the time required for utility diversion works and allow sufficient time and resources in contracts for such works;**

- **specify clearly in the contracts the procedures to be adopted for dealing with unexpected utility diversion works, including an arrangement for sharing the costs of such works between the contractors and the Government; and**

- **at the design stage of the works, draw up a realistic programme for utility diversions and seek an in-principle agreement of the utility operators concerned on this programme.**

39. **Audit has also *recommended* that the Secretary for Works should consider, in collaboration with the utility operators, the feasibility of establishing a central record system of utilities so as to obtain an accurate and comprehensive record of utilities for operational purposes and for better planning of works affected by utilities.**

TEMPORARY TRAFFIC ARRANGEMENTS

40. A TTA entails closure of traffic lanes, banning of vehicles turning at road junctions, imposition of restriction zones and change in traffic flow direction. The purpose of a TTA is to minimise disruption to traffic due to construction works. A Particular Specification of the Contract stated that "relevant works shall not commence until the approved TTAs and controls have been implemented". Photograph 3 at the centre pages shows the implementation of a TTA for the drainage improvement works in Nam Cheong Street. As mentioned in paragraph 4 above, during construction, the Contractor had encountered problems in the implementation of the TTAs. As a result, the Contractor submitted claims for EOT and additional costs.

Preliminary TTAs for the Contract

41. In March 1991, prior to the award of the Contract, the Consultant prepared a draft traffic management proposal for the drainage improvement works in Yen Chow Street, Nam Cheong Street, Public Square Street, and at the junction of Man Cheong Street and Saigon Street. The Consultant forwarded the draft proposal to various government departments for comments. The Transport Department said that, to avoid a chaotic traffic situation, the traffic management measures should be designed to fit into the overall traffic management strategy for the Kowloon road network. The traffic arrangement measures had to be discussed and agreed before tender invitation.

42. In May 1991, the Consultant engaged a traffic engineer to develop the preliminary TTAs to facilitate the drainage improvement works. The Consultant informed the TDD that his obligations for the traffic management measures would be fully discharged upon the approval of the traffic management report prepared by his traffic engineer. The selected tenderer would then prepare the detailed TTAs. In June 1991, the Consultant submitted the traffic management report to the TDD. The report included preferred work arrangements and preliminary TTAs. In July 1991, the TDD, the Transport Department, the Highways Department, the Drainage Services Department, the Hong Kong Police Force, and the Sham Shui Po District Office agreed in principle with the report. The Consultant's traffic management report was included in the tender documents as information available for inspection by the tenderers.

Overall coordinator for works involving TTAs in the WKR

43. The Transport Department is responsible for the approval of TTAs submitted by contractors for works obstructing vehicular traffic or pedestrian flow. In July 1991, to facilitate the WKR works and the Port and Airport Development Strategy projects in the vicinity, the TDD assumed the role of the overall coordinator for traffic management in the WKR. This would enable the TDD to carry out its works more efficiently. In addition, the Transport Department delegated to the TDD its authority to approve the detailed TTAs submitted by contractors for the WKR works. Concerning the traffic and transport aspects of the WKR, the Transport Department would take a specialist role and would participate when it was absolutely necessary.

Contractual requirement for TTAs

44. Regarding the TTAs, the Contract stated that:

— the Contractor should prepare the detailed TTAs and obtain approvals from the relevant

authorities (Note 18) within 21 days from the commencement of the preparation of the TTAs (Note 19). The Contractor should also submit the details of the TTAs approved by the relevant authorities to the Engineer for approval at least one month before their implementation; and

— the Contractor should not commence a stage of works until he had completed the previous stage and reopened the carriageway to traffic.

Complex and time-consuming approval procedures for the implementation of TTAs

45. As mentioned in paragraph 43 above, the Transport Department delegated to the TDD the authority to approve the detailed TTAs. In January 1992, the TDD appointed the Consultant, with the assistance of a traffic engineer, to examine the detailed TTAs submitted by the Contractor and to recommend to the TDD for approval. The Contractor was informed of the above arrangement after the award of the Contract.

46. In late January 1992, the Contractor informed the Engineer that the implementation of the detailed TTAs was being delayed. He submitted a claim for EOT. Since then, a dispute between the Engineer and the Contractor arose over the Contractor's justifications for the claim for EOT. The views of the Contractor and the Engineer on the claim are summarised in paragraphs 47 and 48 below. The TDD and the Contractor subsequently resolved the dispute by extra-contractual negotiations (see paragraph 4 above).

47. ***Views of the Contractor.*** The Contractor considered that the procedures for the approval of the TTAs were complex. His justifications for the claim for EOT in respect of the TTAs are summarised below:

— the appointment of the Consultant's traffic engineer to examine the TTAs caused confusion. New lines of communication had to be established in order to obtain

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Note 18: *According to an appendix of the Particular Specification of the Contract, the relevant authorities included the TDD, the Transport Department, the Hong Kong Police Force, the Highways Department, the WSD, the Drainage Services Department, and the utility operators.*

Note 19: *According to the Contract, the Contractor had to start preparation work including the seeking of necessary approvals from relevant authorities for TTAs by Day 21 after the commencement of the Contract. No excavation or traffic diversion should commence until all approvals had been obtained. The Contractor indicated in the tender that he could start excavation works by Day 42. Hence, approval for TTAs had to be obtained within 21 days (i.e. Day 42 - Day 21) from the commencement of the preparation of the TTAs.*

approval for the TTAs. The new lines of communication and the exact roles of the parties involved were initially unclear;

— according to the Milestone Schedule of the Contract, the works had to commence within 21 days from the commencement of the preparation work. However, such a milestone was in conflict with a clause of the Particular Specification which required that the approved TTA for a stage of works had to be submitted to the Engineer at least one month before its implementation; and

— the procedures for the approval of the TTAs were more complex and time-consuming than anticipated. This was because the Transport Department had delegated the approval authority to the TDD. The TDD in turn appointed the Consultant, with the assistance of a traffic engineer, to examine the TTAs. This arrangement, which differed from the normal TTA approval procedures (i.e. the Transport Department is responsible for approving the detailed TTAs), should have been clearly stated in the Contract.

48. ***Views of the Engineer.*** The Engineer's views in respect of the Contractor's claim are summarised below:

— the Contract provisions stated that the Contractor should be responsible for making all arrangements with the relevant authorities and for obtaining the necessary approvals;

— the Particular Specification of the Contract stated that it was the Contractor's responsibility to design the detailed TTAs, to obtain approvals from relevant authorities (see Note 18 to paragraph 44 above) and to submit them to the Engineer for approval at least one month before implementation. The preparation work for the TTAs should have commenced earlier. In some instances, the requirement to submit the approved TTAs to the Engineer at least one month prior to their implementation was waived; and

— he acknowledged that the approval procedures were more complex than what the Contractor could have anticipated at the time of tendering.

Scope of work for TTAs

49. Soon after the commencement of the Contract in December 1991, the Contractor found that the scope of work relating to the detailed TTAs was far greater than that stated in the Contract because significant modifications to the preliminary TTAs had to be made. For the traffic lights at major road junctions, the Engineer also required the Contractor to carry out signal modification (retiming and/or rephasing) work, which was normally carried out by the Transport Department.

The Contractor considered that this was additional work and submitted claims for EOT and additional costs.

50. ***Views of the Contractor.*** The Contractor's reasons for the claims in respect of the scope of work for the TTAs are summarised below:

— the Particular Specification made it clear that the Contractor's obligation was to prepare the detailed TTAs based on the preliminary TTAs prepared by the Consultant's traffic engineer. Significant modifications to the preliminary TTAs which had already been agreed in principle were not anticipated;

— allowance for working space for the movement of plant and machinery and for utility diversion works had not been adequately provided for. The preliminary TTAs required substantial and significant amendments. The scope of work therefore exceeded the preparation of the detailed TTAs based on the preliminary TTAs;

— additional detailed TTAs prepared for some other works were not anticipated at the time of tendering; and

— the Contractor was not contractually required to carry out signal modification of existing traffic lights.

51. ***Views of the Engineer.*** The Engineer did not accept the Contractor's claims for EOT and additional costs. He said that:

— the preliminary TTAs were available for inspection and did not form part of the Contract. Such preliminary TTAs provided a basis for design only and they did not preclude other alternative methods;

— the preliminary TTAs were "agreed in principle" with the relevant authorities. Such agreement in principle did not constitute designs of the TTAs;

— the Particular Specification stated that the detailed TTAs should be designed by an experienced traffic engineer employed by the Contractor. Hence, the Contractor's detailed TTAs, which suited his construction methods, were his "design"; and

— the signal modification of existing traffic lights was part of the detailed TTAs as the Particular Specification stated that the TTAs should be designed by the Contractor's traffic engineer.

The TDD's view on the Contractor's claim

52. The TDD considered that the Contractor's interpretation of the contract provisions concerning the scope of work for the TTAs might not be entirely wrong. However, in August 1996, the TDD said that:

— the Contractor had not demonstrated his ability to plan his works properly. He did not carry out the works in a pragmatic way to resolve the site problems;

— the Contractor's failure to envisage the problems involved had resulted in substantial delays in the completion of the works; and

— the Contractor had used "TTA delay" as a major cause for the delay in the completion of the works.

In view of the above, the TDD instructed the Engineer to play a more proactive role in keeping the Contractor on the right track to proceed with the works diligently.

Audit observations on TTAs

53. Preparation and implementation of the TTAs affected the Contractor's progress of work. To enable the TDD to carry out the WKR works more efficiently, the Transport Department delegated to the TDD its authority to approve the detailed TTAs submitted by the Contractor. Audit noted that:

— the Contractor considered that the procedures for the approval and implementation of the TTAs were more complex than he had anticipated;

— the preliminary TTAs, which had been "agreed in principle" by the relevant authorities and made available for inspection by tenderers, required substantial revision. This gave rise to disputes between the Contractor and the Engineer because of their different interpretations of the contract provisions concerning the scope of work for the detailed TTAs. The TDD considered that the Contractor's interpretation of the contract provisions might not be entirely wrong; and

— during the construction of the works, the Engineer required the Contractor to carry out signal modification work for existing traffic lights which was normally carried out by the Transport Department.

Audit considers that the scope of work for the TTAs, and the procedures for the approval and the implementation of the TTAs should have been clearly specified in the Contract. The Contractor could then have made due allowance in pricing and planning his work at the time of tendering. In accepting the delegated authority from the Transport Department, the TDD should have ascertained all necessary requirements of the Transport Department regarding traffic diversions and traffic signal modifications, and should have included them appropriately in the Contract.

Audit recommendations on TTAs

54. **Audit has *recommended* that, for future road and drainage improvement works especially in old districts, which will involve a substantial number of TTAs, the Director of Territory Development should:**

— **specify clearly in the contracts the scope of work for the TTAs so as to avoid contractual claims arising from different interpretations;**

— **establish more efficient approval procedures for the implementation of the TTAs before the award of contract; and**

— **prior to accepting any delegated authority from another government department, ascertain all the particular requirements of the delegator (such as the Transport Department's requirements for traffic diversions and traffic signal modifications) and take necessary planning action in order to facilitate the preparation of the TTAs by the contractors.**

AUDIT RECOMMENDATION FOR OTHER WORKS DEPARTMENTS

55. Based on the lessons learnt from this case, other works departments may also benefit in improving their project planning and contract management for roads and drainage improvement works. **Audit has *recommended* that the Secretary for Works should consider notifying in writing all works departments of the audit recommendations mentioned in paragraphs 19, 38 and 54 above, and take appropriate action to obviate the recurrence of similar cases in future.**

RESPONSE FROM THE ADMINISTRATION

56. The **Director of Territory Development** generally agrees with the audit recommendations on performance monitoring and selection of the Contractor, the utility diversions, and the TTAs. He has said that:

General

(a) the drainage improvement works of this magnitude in the most congested urban area had never been implemented before. The extent of the problems relating to utility diversions and polluted flows was more than that normally expected in other similar contracts. The problems were further aggravated by the exceptionally inclement weather throughout the construction period. Additional works and changes of design to cope with unexpected utility diversions were required;

Performance monitoring and selection of the Contractor

(b) he agrees that an exercise for the prequalification of tenderers needs to be carried out where the works involved are complex and require a high level of coordination;

Utility diversions

(c) the TDD has learnt from the experience of the Contract and has nowadays allowed more time for major utility diversions in subsequent hinterland drainage contracts. The Contract was a pioneer contract involving very extensive drainage improvement works in highly congested urban areas. The insufficient space for works in old districts and the requirement of minimising disruption to traffic flow rendered the utility diversion works very complex and time-consuming;

(d) the audit recommendation that the procedures for dealing with unexpected utility works should be clearly specified in contracts is logical. However, the nature and extent of utility diversion works may differ from case to case. The existing contract provisions on the liability for bearing or sharing the costs of utility diversions have been used in the industry for years. The contractor would be granted EOT for unexpected delays due to utility diversions and no prolongation cost would be reimbursed by the Government;

(e) to obtain an in-principle agreement of a realistic programme from utility operators for utility diversion works is considered practical and feasible for contracts with utility

diversion works well identified at the design stage. With the advanced technology recently used in the construction industry, such as ground penetrating radar, it is now possible to locate underground utilities with greater precision. The identification of major possible utility conflicts at the pre-tender stage would certainly facilitate discussions with the utility operators regarding their diversion programmes;

TTAs

(f) he agrees with the audit recommendation that approval procedures for the implementation of the TTAs need to be established before awarding contracts. As a result of the experience learnt from the Contract, the TDD has outlined clearly in the form of a flow chart the requirements and procedures for TTA approval in subsequent hinterland drainage contract documents;

(g) he shares Audit's view that all the particular requirements of the approving authority have to be ascertained prior to accepting any delegated authority for approving the TTAs from another government department. The TDD had set up a traffic management liaison group to endorse the TTAs. This streamlined the TTA approval system. Contractors did not have to obtain approval and consent from the individual parties concerned because the traffic management liaison group comprised the parties concerned. The traffic management liaison group approach has also been adopted in subsequent contracts in the WKR area; and

(h) the audit recommendation that the scope of work for the TTAs should be specified clearly in the contract to avoid different interpretations and to minimise contractual claims is logical.

57. The **Secretary for Works** has said that:

— the Government and the utility operators recognise the need for reliable records. Most utility operators have been implementing computerised mapping/facility management systems in order to enhance the completeness of utility records. Although the records provide details of the utilities on plan, some of the problems can only be ascertained after a full trench has been excavated; and

— the Highways Department has recently completed a consultancy study with a view to exploring the feasibility of establishing an electronic system for the expeditious circulation of utility records. Five utility operators, the Drainage Services Department and the WSD partook in the study. The proposed system is intended to reduce the time

for acquiring utility records from several weeks to a few days. The recommendation of the consultancy study will be discussed in the Joint Utility Policy Group consisting of senior representatives of the utility operators for ascertaining the way forward.

He has noted the audit recommendation concerning the notification in writing to all works departments of the audit recommendations mentioned in paragraphs 19, 38 and 54 above.

58. The **Commissioner for Transport** supports the audit recommendations on the TTAs concerning the scope of work, the approval procedures and the particular requirements of the approving authority. He has said that:

— the TTAs for construction works depend very much on the method of construction and the sequence of works proposed by a contractor. The preliminary TTAs prepared before the award of a contract are a feasible solution and it is up to the contractor to use the preliminary TTAs or not;

— road conditions may change due to other construction works. In old districts, utility diversions and maintenance works carried out by utility operators are common; and

— some TTA proposals, such as the temporary suspension of parking spaces and the imposition of restricted zones, would be objected by local residents. Liaison with local residents is required before the TTAs can be implemented. Some TTAs would require trial runs before they can be approved. A traffic management liaison group has been set up to expedite the approval of the TTAs.

59. The **Director of Water Supplies** has said that the WSD always recommends that the roadwork parties should identify the affected water mains during the early design stage so that any diversion works can be planned and carried out in a well-coordinated manner. The record plan of water mains provided to other government departments during the planning and design stages of a project is for reference purpose. Although the record plan is accurate enough for the roadwork parties to locate the alignment of water mains, the engineer and the contractor should still ascertain the exact location of the water mains prior to full-scale excavation.

Appendix A
(paragraphs 4, 20, 30 and 31 refer)

EOT claims submitted by the Contractor

Section of works/ Type of claims		EOT claimed by the Contractor (Note 1) (number of days)	EOT assessed by the Engineer (number of days)	
Yen Chow Street				
Utility diversions		1,099	128	
TTAs		843	425	
Others		234	215	
	Total	**2,176**	**768**	(Note 2)
Nam Cheong Street				
Utility diversions		992	463	(Note 3)
TTAs		28	—	
Others		402	105	
	Total	**1,422**	**568**	(Note 2)
Public Square Street				
Utility diversions		326	302	
TTAs		24	42	
Others		3	33	
	Total	**353**	**377**	(Note 2)
Man Cheong Street/Saigon Street				
Utility diversions		253	416	
TTAs		21	13	
Others		18	9	
	Total	**292**	**438**	(Note 2)

Source: *Audit analysis of TDD's records*

Note 1: *Some of the EOT claimed might be less than the EOT assessed by the Engineer as the Contractor only provided initial claim submissions.*

Note 2: *For the following four sections of works, the extended completion dates (based on the Engineer's EOT assessment) were as follows:*

	Scheduled completion date	***Extended completion date approved by the Engineer***	***Actual completion date***
1. Yen Chow Street	*6 October 1993*	***13 November 1995***	*23 October 1996*
2. Nam Cheong Street	*6 October 1993*	***27 April 1995***	*18 July 1996*
3. Public Square Street	*24 April 1993*	***6 May 1994***	*2 September 1994*
4. Man Cheong Street/ Saigon Street	*24 April 1993*	***6 July 1994***	*22 September 1994*

As a result of the overall settlement by extra-contractual negotiations (see paragraph 4 above), no liquidated damages had been deducted from the Contractor for further delays from the extended completion date.

Note 3: *The 463 days of EOT included the 245 days of EOT granted for the salt water main diversion mentioned in paragraph 30 above.*

Appendix B
(paragraph 16 refers)

Performance of the Contractor for the period 12 December 1991 to 23 October 1996

	Rating of performance report		Compliance with LWBTC No. 5/88 upon issue of adverse performance reports	
Reporting period	**Adverse**	**Not adverse**	**To issue warning letter**	**To introduce six-weekly reporting**
12.12.1991 to 31.1.1992		√		
1.2.1992 to 30.4.1992	√		√	
1.5.1992 to 31.5.1992		√		
1.6.1992 to 31.7.1992	(Note 1)			
1.8.1992 to 31.10.1992		√		
1.11.1992 to 30.11.1992	(Note 1)			
1.12.1992 to 28.2.1993	√		√	
1.3.1993 to 31.5.1993	√		√	X (Note 2)
1.6.1993 to 31.8.1993		√		
1.9.1993 to 30.11.1993	√		√	
1.12.1993 to 28.2.1994		√		
1.3.1994 to 31.5.1994		√		
1.6.1994 to 31.8.1994	√		√	
1.9.1994 to 30.11.1994		√		
1.12.1994 to 28.2.1995		√		
1.3.1995 to 31.5.1995		√		
1.6.1995 to 31.8.1995	√		√	
1.9.1995 to 15.10.1995		√		
16.10.1995 to 30.11.1995		√		
1.12.1995 to 15.1.1996	√		√	
16.1.1996 to 29.2.1996	√		√	(Note 3)
1.3.1996 to 15.4.1996		√		
16.4.1996 to 31.5.1996		√		
1.6.1996 to 15.7.1996		√		
16.7.1996 to 31.8.1996	√		√	
1.9.1996 to 15.10.1996		√		
16.10.1996 to 23.10.1996		√		
Total	**9**	**16**		

Source: TDD's records

Note 1: As far as could be ascertained, the performance report for the reporting period was not available for audit inspection.

Note 2: The TDD did not document the justification for not following the requirement of LWBTC No. 5/88 (of introducing six-weekly reports upon the issue of the second consecutive adverse performance report).

Note 3: According to LWBTC No. 5/88, upon the issue of the third consecutive adverse performance report, the contractors should be asked to agree to suspend voluntarily from tendering for public works contracts. In this case, upon the issue of the second consecutive adverse performance report for the period 16 January 1996 to 29 February 1996, the Contractor agreed to suspend voluntarily from tendering for public works with effect from 22 July 1996. The voluntary suspension was uplifted in June 1997.

Chronology of key events

September 1990	The TDD did not accept the Consultant's recommendation to conduct an exercise for the prequalification of tenderers for the Contract.
June 1991	The Consultant submitted a traffic management report to the TDD. The report included preferred works arrangements and the preliminary TTAs.
July 1991	The TDD, the Transport Department, the Highways Department, the Drainage Services Department, the Hong Kong Police Force and the Sham Shui Po District Office agreed in principle with the Consultant's traffic management report.
July 1991	The FC approved the funding of a works contract, "West Kowloon Reclamation — hinterland drainage package 1", at an estimated cost of $85 million at March 1991 prices.
July 1991	The Transport Department delegated to the TDD its authority to approve the detailed TTAs submitted by contractors for the WKR works.
September 1991	The TDD invited tenders for the Contract and the tender closing date was 11 October 1991.
November 1991	The TDD did not support the Consultant's recommendation to accept the offer from the third lowest tenderer. It recommended the Central Tender Board to accept the lowest tenderer's offer.
December 1991	The TDD awarded the Contract to the lowest tenderer in the sum of $69.9 million. Construction of the drainage improvement works commenced.
January 1992	The TDD appointed the Consultant, with the assistance of a traffic engineer, to examine the detailed TTAs submitted by the Contractor.
May 1992	The Contractor lodged claim for EOT for an unexpected bend of a salt water main in Man Cheong Street, which was lying in the way of a sewer to be constructed.

June 1993	The Contractor received a second consecutive adverse performance report for period 1 March 1993 to 31 May 1993.
July 1994	The FC approved an increase in the approved estimate from $85 million at March 1991 prices by $40 million to $125 million at money-of-the-day prices.
November 1994	The Contractor found a salt water main at the junction of Nam Cheong Street and Yee Kuk Street. The water main contained two bends with thrust blocks lying partly within the alignment of the box culvert.
December 1994	The WSD agreed in principle with the diversion of the salt water main at the junction of Nam Cheong Street and Yee Kuk Street, provided that the thrust block design would be submitted.
June 1996	The Contractor, the Engineer, the Drainage Services Department and the WSD agreed to replace the straight section of the salt water main at the junction of Nam Cheong Street and Yee Kuk Street and to realign the bends outside the box culvert.
July 1996	The Contractor carried out the diversion of the water main. In the same month, the Contractor completed the construction of the culvert.
October 1996	The Contract was substantially completed.
October 1997	The TDD and the Contractor signed a supplementary agreement to settle all outstanding claims and to finalise the account of the Contract in the sum of $149.8 million.
December 1997	The FC approved a further increase in the approved project estimate from $125 million by $35 million to $160 million at money-of-the-day prices to settle contractual claims and to finalise the account of the Contract.
March 1998	The Engineer certified the final account of the Contract in the sum of $149.8 million.

Appendix D

Acronyms and abbreviations

EOT	Extension of time
FC	Finance Committee
LWBTC	Lands and Works Branch Technical Circular
TDD	Territory Development Department
TTA	Temporary traffic arrangement
WBTC	Works Bureau Technical Circular
WKR	West Kowloon Reclamation
WSD	Water Supplies Department