

BASIC INFORMATION

1. **Project Title**

PWP Item 4273DS - Port Shelter Sewerage, Stage 3 Phase 1- Tseng Lan Shue Sewerage

2. **Purpose and Nature of Project**

The Port Shelter Sewerage Master Plan (SMP) Study completed in March 1991 identified that a number of existing private sewage disposal facilities leading to Port Shelter had design or operation problems. In order to improve the water quality of Port Shelter, the SMP recommended replacing these facilities by public sewerage systems in four stages. The proposed sewerage works under this project is the Stage 3 Phase 1 of the Port Shelter Sewerage works packages. Currently, there is no public sewer in areas of Pik Uk Au, Pak Shek Wo San Tsuen, Pak Shek Toi, Tseng Lan Shue, Sam Long, Tan Shan and Pak Kung Au. The existing sewerage facilities in these areas are septic tanks. This sewerage project will provide a new sewerage system to convey sewage from households in these unsewered areas and some other small catchment areas alongside Clear Water Bay Road to the existing East Kowloon sewerage system.

3. **Name of Project Proponent**

Drainage Services Department (DSD) is the works department.

4. **Location and Scale of Project**

The sewerage works will be constructed along a section of Clear Water Bay Road and Shun Chi Street and in the areas of Pik Uk Au, Pak Shek Wo San Tsuen, Pak Shek Toi, Tseng Lan Shue, Sam Long, Tan Shan and Pak Kung Au and some other small catchment areas as shown on the general alignment drawing nos. DDN/132DS/14815A, 14816A, 14817A, 14818A, 14819A, 14820A and 14821A in Appendix I. The scope of this project includes the following works: -

App.I

Construction of village sewerage at Pik Uk Au, Pak Shek Wo San Tsuen, Pak Shek Toi, Tseng Lan Shue, Sam Long, Tan Shan and Pak Kung Au and some other small catchment areas. About 8,000m gravity sewers and 550m rising mains will be laid in trench by open trench method along village access roads, footways, alleys and open space.

Construction of about 2,600m gravity sewers and 240m rising mains along Clear Water Bay Road and about 250m gravity sewers along Shun Chi Street. The gravity sewers/rising mains will be laid in trenches excavated by open trench method. The works along Clear Water Bay Road will be carried out in stages with implementation of temporary traffic arrangement so as to minimize traffic impacts to Clear Water Bay Road. In this regard, a TIA report will be submitted to Transport Department and the Commissioner of Police for their comment/approval. Measures will be implemented to satisfy the requirements imposed by Transport Department and the Commissioner of Police.

Construction of four sewage pumping stations and the associated rising mains at Pak Shek Wo San Tsuen, Pak Shek Toi, Tseng Lan Shue and Tan Shan as shown on drawing no. DDN/132DS/14833 in Appendix I. Each pumping station will comprise an underground pump sump and a superstructure.

App.I

Upon completion of the works, operation and maintenance of the gravity sewers, pumping stations and rising mains will be undertaken by DSD. A detailed breakdown of the proposed sewerage works is given below: -

Village Sewerage

| Location | Approx. length of gravity sewers (m) | Dia. of gravity sewers (mm) | Approx. length of rising mains (m) | Dia. of rising mains (mm) |
|-----------------------|--------------------------------------|-----------------------------|------------------------------------|---------------------------|
| Pik Uk Au | 400 | 225 to 300 | - | - |
| Pak Shek Wo San Tsuen | 500 | 225 to 300 | 50 | 150 |
| Pak Shek Toi | 1,250 | 225 to 300 | 150 | 250 |
| Tseng Lan Shue | 2,200 | 225 to 300 | 150 | 300 |
| Sam Long | 800 | 225 to 300 | - | - |
| Tan Shan | 1,450 | 225 to 300 | 200 | 150 |
| Pak Kung Au | 1,400 | 225 to 300 | - | - |
| Total | 8,000 | | 550 | |

Table 1 - Village Sewerage

Gravity Sewers/Rising Mains on Rural Roads

| Location | Approx. length of gravity sewers (m) | Dia. of gravity sewers (mm) | Approx. length of rising mains (m) | Dia. of rising mains (mm) |
|----------------------|--------------------------------------|-----------------------------|------------------------------------|---------------------------|
| Clear Water Bay Road | 2,600 | 300 to 450 | 240 | 250 to 350 |
| Shun Chi Street | 250 | 450 to 600 | - | - |
| Total | 2,850 | | 240 | |

Table 2 - Gravity Sewers/Rising Mains on Rural Roads

Sewage Pumping Stations

| Pumping Station | Estimated Installed Capacity (m ³ /day) |
|---|--|
| Pak Shek Wo San Tsuen Road Sewage Pumping Station | 30 |
| Pak Shek Toi Road Sewage Pumping Station | 1,860 |
| Tseng Lan Shue Sewage Pumping Station | 2,930 |
| Tan Shan Sewage Pumping Station | 85 |

Table 3 - Sewage Pumping Stations

5. Number and Type of Designated Project to be covered by this Project Profile

Under Category F.3, Part I, Schedule 2 of the EIAO, a sewage pumping station shall be regarded as a Designated Project if its installed capacity (Average Dry Weather Flow, ADWF) is more than 2,000 cu.m/day and a boundary of which is less than 150m away from an existing or planned area/receiver type (i) to (x). Since the estimated installed capacity of Tseng Lan Shue Sewage Pumping Station is approximately 3,000 cu.m/day and the boundary of which is less than 150m away from nearby residential village houses, this pumping station is a

Designated Project and therefore an environmental permit is required for its construction and operation.

It should be noted that this project profile also covers other sewerage works such as gravity sewers, rising mains, and the other three smaller pumping stations which are not Designated Project under the EIAO.

6. **Name and Telephone Number of Contact Person**

Engineer, Sewerage Projects Division, Drainage Services Department

OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

7. The planning, design, preparation of contract documents, tendering and site supervision of this project will be undertaken by in-house staff of DSD while the construction works will be contracted out. Details of the tentative implementation programme are as follows: -

| | |
|-----------------------------------|-------------------|
| Planning and Design | 09/1994 - 10/2000 |
| Tender Stage | 11/2000 - 03/2001 |
| Construction and E&M Installation | 04/2001 - 10/2003 |

A copy of the tentative implementation programme is also attached in Appendix II.

App.II

POSSIBLE IMPACT ON THE ENVIRONMENT

Construction Stage

8. Having considered all possible impacts on the environment as listed in Annex I of the Technical Memorandum on EIA Process (EIAO TM), possible environmental impacts that may be caused during the construction stage of the proposed sewerage works are described as follows: -

Construction Stage - Village Sewerage

- (a) Approximately 8,000m gravity sewers and 550m rising mains will be laid in trench by open trench method. Pneumatic breaker, backhoe, vibrating plate, concreting plant and the likes will be employed for trench excavation, pipe laying, backfilling, compaction and concrete casting. In the case of pipe laying along narrow alleys, the trenches will be excavated by hand. It is anticipated that only minor dust and noise nuisances will be caused. Appropriate environmental protection measures to be included in the design are detailed in para. 13(a).
- (b) In narrow alleys, certain existing septic tanks may need to be decommissioned and demolished to make way for the proposed sewer pipeline. As such, odour problem may be caused during demolishing of septic tanks. Appropriate environmental protection measures to be included in the design are detailed in para. 13(b).
- (c) Traffic flow along certain village access roads will be affected by road opening for the construction of the proposed gravity sewers/rising mains. Appropriate environmental protection measures to be included in the design are detailed in para. 13(c).

Construction Stage - Gravity Sewers/Rising Mains on Rural Roads

- (d) Approximately 2,600m gravity sewers and 240m rising mains along Clear Water Bay Road and approximately 250m gravity sewers along Shun Chi Street will be laid in trench by open trench method. Pneumatic breaker, backhoe, vibrating plate, concreting plant and the likes will be employed for trench excavation, pipe laying, backfilling, compaction, concreting casting, etc. In the case where sheet piles are used as trench support, hydraulic vibrating hammer will be employed for installation of the sheet piles. It is anticipated that only minor dust and noise nuisances will be caused. Appropriate environmental protection measures to be included in the design are detailed in para. 13(a).
- (e) The construction of the proposed gravity sewers/rising mains along Clear Water Bay Road will involve road opening giving rise to potential impact to traffic flow. Appropriate environmental protection measures to be included in the design are detailed in para. 13(d).

Construction Stage – Sewage Pumping Stations

- (f) Four sewage pumping stations will be constructed under this project, namely Pak Shek Wo San Tsuen Road Sewage Pumping Station, Pak Shek Toi Road Sewage Pumping Station, Tseng Lan Shue Sewage Pumping Station and Tan Shan Sewage Pumping Station. Constructional plant including backhoe, excavator, vibrating hammer, concreting plant and the likes will be used for excavation, sheet piling, backfilling, concrete casting, etc. It is anticipated that minor dust and noise nuisances will be caused. Appropriate environmental protection measures to be included in the design are detailed in para. 13(a).
- (g) During construction, muddy underground water will be pumped away from the excavation pit into a silt removal facility before discharging into nearby stream-courses. If the underground water is found to be contaminated, appropriate environmental protection measures as detailed in para. 13(e) will be taken.

A summary of possible environmental impacts that may be caused during construction of the proposed sewerage works is given below: -

| Works | Possible Environmental Impacts | Standard/Specific Environmental Protection Measures |
|--|--|---|
| Village Sewerage | - minor dust, noise and odour nuisances - traffic impact on village access roads | See para. 13(a), (b) & (c) |
| Gravity Sewers/Rising Mains on Rural Roads | - minor dust and noise nuisances - traffic impact on rural roads | See para. 13(a) & 13(d) |
| Sewage Pumping Stations | - minor dust and noise nuisances - discharge of underground water into nearby stream-courses. | See para. 13(a) & (e) |

Table 4 - Possible Environmental Impacts may be caused during Construction Stage

Operational Stage

9. During the operational stage, sewage collected from Pik Uk Au and Pak Shek Toi will be gravitated to Pak Shek Toi Road Sewage Pumping Station. Sewage collected from Pak Shek Wo San Tsuen will also be conveyed to Pak Shek Toi Road Sewage Pumping Station via Pak Shek Wo San Tsuen Road Sewage Pumping Station. Sewage will then be pumped/gravitated to Tseng Lan Shue Sewage Pumping Station via underground rising mains/gravity sewers along Clear Water Bay Road. Together with sewage collected from Tseng Lan Shue and Sam Long areas, sewage will then be discharged from Tseng Lan Shue Sewage Pumping Station via underground rising mains to the downstream gravity sewers. Together with sewage collected from Pak Kung Au and those delivered by Tan Shan Sewage Pumping Station, all the sewage collected will be gravitated to the existing East Kowloon sewerage system via an existing manhole at Shun Chi Street. The proposed sewerage works under this project is shown on drawing no. DDN/132DS/14833 in Appendix I.

App.I

Having considered all possible impacts on the environment as listed in Annex I of the EIAO TM, possible environmental impacts that may be caused during the operational stage of the proposed sewerage works are described as follows: -

Operational Stage – Village Sewerage

- (a) Since the gravity sewers are buried underground and their basic function is to convey sewage instead of for storage or treatment, no environmental impact is envisaged during operation and hence no mitigation measure will be required.

Operational Stage – Gravity Sewers/Rising Mains on Rural Roads

- (b) Since the gravity sewers and rising mains are buried underground and their basic function is to convey sewage instead of for storage or treatment, no environmental impact is envisaged during operation and hence no mitigation measure will be required.

Operational Stage – Sewage Pumping Stations

- (c) Sewage enters a pumping station will first pass through a screening chamber where a screen will be installed to remove large objects in the sewage. The screened sewage will then enter into a wet well where the sewage will be pumped by centrifugal pumps out the pumping station to its designated location via a rising main. Noise generated from the sewage pumps, odour released from the sewage inside the wet well and visual impact of the superstructures could be possible impacts on the environment. Appropriate environmental protection measures to be included in the design are detailed in para. 13(g).

A summary of possible environmental impacts that may be caused during operation of the proposed sewerage works is given below: -

| Works | Possible Environmental Impacts | Standard/Specific Mitigation Measures for Environmental Protection |
|--|--------------------------------|--|
| Village Sewerage | No environmental impact | Not Required |
| Gravity Sewers/Rising Mains on Rural Roads | No environmental impact | Not Required |
| Sewage Pumping Stations | Noise, Odour & Visual impacts | See para. 13(g) |

Table 5 – Possible Environmental Impacts may be caused during Operational Stage

Maintenance Stage

10. Maintenance of gravity sewers and rising mains involves mainly CCTV inspection, clearance of blockage and repair of damaged or collapsed sewers/rising mains. Having considered all possible impacts on the environment as listed in Annex I of the EIAO TM, possible environmental impacts that may be caused during the maintenance stage of the proposed sewerage works are described as follows: -

Maintenance Stage – Village Sewerage

- (a) It is anticipated that only minor and short-term noise and odour nuisances may arise but the impact will be within established standards and guidelines. Due care will be taken by the Operations and Maintenance Teams of DSD during maintenance to further minimize these minor nuisances.

Maintenance Stage – Gravity Sewers/Rising Mains on Rural Roads

- (b) It is anticipated that only minor and short-term noise and odour nuisances may arise but the impact will be within established standards and guidelines. Due care will be taken by the Operations and Maintenance Teams of DSD during maintenance to further minimize these minor nuisances.

Maintenance Stage – Sewage Pumping Stations

- (c) Most E&M equipment will be installed inside the superstructure and therefore will be under an enclosed condition. As a result, maintenance of the pumping stations will not cause any detrimental impact on the environment. However, in the cases of power failure and failure of certain major E&M equipment such as sewage pumps, normal operation of the pumping station could be affected leading to emergency sewage bypass into nearby stream-courses. Appropriate environmental protection measures to be included in the design are detailed in para. 13(h). Proposed locations of the emergency overflow bypass outlets of these four pumping stations are shown on sketch nos. 1 to 4 in Appendix III.

App.III

A summary of possible environmental impacts that may be caused during maintenance of the proposed sewerage works is given below: -

| Works | Possible Environmental Impacts | Standard/Specific Mitigation Measures for Environmental Protection |
|--|--|--|
| Village Sewerage | Minor and short-term noise and odour nuisances | Not required |
| Gravity Sewers/Rising Mains on Rural Roads | Minor and short-term noise and odour nuisances | Not required |
| Sewage Pumping Stations | Emergency overflow bypass | See para. 13(h) |

Table 6 – Possible Environmental Impacts may be caused during Maintenance Stage

MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

Sensitive Receivers

11. Based on the Outline Zoning Plan no. S/SK-TLS/2 and site inspections, all major elements of the surrounding environment listed in Annex I of EIAO TM had been checked. Sensitive receivers which might be affected by this project are described as follows: -

Village Sewerage

- (a) The gravity sewers/rising mains will be laid in trench along village access roads, footways, alleys and open space. Sensitive receivers that might be affected are nearby village houses.

Gravity Sewers/Rising Mains on Rural Roads

- (b) The gravity sewers/rising mains will be laid in trench along Clear Water Bay Road and Shun Chi Street. Sensitive receivers that might be affected are nearby village houses/residents.

Sewage Pumping Stations

- (c) For Pak Shek Wo San Tsuen Road Sewage Pumping Station, it will fall in a green belt zone. Sensitive receivers of this pumping station are nearby village houses and stream-courses as shown on sketch no. 1 in Appendix IV. App.IV
- (d) For Pak Shek Toi Road Sewage Pumping Station, it will fall in a green belt zone. Sensitive receivers of this pumping station are nearby village houses and stream-courses as shown on sketch no. 2 in Appendix IV. App.IV
- (e) For Tseng Lan Shue Sewage Pumping Station, it will fall in a village type development zone. Sensitive receivers of this pumping station are nearby village houses and stream-courses as shown on sketch no. 3 in Appendix IV. App.IV
- (f) For Tan Shan Sewage Pumping Station, it will fall in a residential (group D) zone. Sensitive receivers of this pumping station are nearby village houses and stream-courses as shown on sketch no. 4 in Appendix IV. App.IV

Sensitive Part of Natural Environment

12. Based on the Outline Zoning Plan no. S/SK-TLS/2 and repeated site inspections, the proposed sewerage works under this project will not lie within any Country Parks, Special Areas, Marine Reserves, Marine Parks, Ramsar Site, Sites of Special Scientific Interest, ecologically significant area or Sites of cultural heritage set out under Category Q.1, Part 1, Schedule 2 of the EIAO. However, AMO/HAB expressed its concern that disturbances to four historic buildings at Tseng Lan Shue should be avoided and requested DSD to provide mitigation measures for protecting these buildings. In this regard, proposed contractual provisions to minimize the risks of disturbing the historic buildings were forwarded to AMO/HAB for comment. AMO/HAB confirmed that the proposed contractual provisions were acceptable. Confirmations from relevant authorities including DPO, AMO/HAB, A&FD are attached in Appendix V.

App.V

A copy of sketch no. 1 showing the zoning information extracted from the Outline Zoning Plan no. S/SK-TLS/2 is attached in Appendix VI.

App.VI

A summary of sensitive receivers and sensitive parts of the natural environment that might be affected by the project is given below: -

| Proposed Sewerage Work | Sensitive Receiver | Sensitive Part of Natural Environment |
|--|--|--|
| Village Sewerage | Nearby village houses | Nil |
| Gravity Sewers/Rising Mains on Rural Roads | Nearby village houses | Nil |
| Sewage Pumping Stations | Nearby village houses & stream-courses | Nil |

Table 7 – Sensitive Part of Natural Environment might be affected by the Proposed Sewerage Works

STANDARD / SPECIFIC ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN

13. Having considered the possible environmental impacts identified in para. 8, 9 and 10 above and possible environmental protection measures listed in Annex 1 of the EIAO TM, the standard/specific environmental protection measures to be incorporated in the design are described as follows: -

Construction Stage

- (a) Referring to the possible minor noise and dust impacts mentioned in para. 8(a), 8(d) and 8(f) above, relevant clauses stated in the "Recommended Pollution Control Causes for Construction Contracts" & "Practice Note for Professional Persons (ProPECC Notes PN1/94) Construction Site Drainage" published by EPD will be incorporated into the construction contract for implementation so as to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers.
- (b) Referring to the possible odour impact mentioned in para. 8(b) above, the contractor will be required to demolish septic tanks in accordance with the following sequence of working sequence: Pumping out sewage/sludge from the septic tank, diversion of sewage from the house, breaking up the septic tank, laying of sewer and backfilling.

Since all sewage/sludge will be pumped out from the septic tank, odour problem during the subsequent demolition of the septic tank will not be adverse.

- (c) Referring to the possible traffic impact on village access roads mentioned in para. 8(c) above, certain village access roads may need to be temporarily closed for a few hours during daytime to facilitate the laying of gravity sewers/rising mains. However, a thoroughfare of 3.5m wide shall always be maintained for emergency vehicular access (EVA) during the construction stage. It was proposed that if certain village access roads are too narrow that this minimum thoroughfare cannot be achieved, the opened trenches will be decked over immediately or alternatively filled up with sand bags immediately for the emergency passage of fire appliance when it is necessary. Sufficient stockpile of steel plates and/or sand bags will be kept adjacent to the opened trenches.
- (d) Referring to the possible traffic impact on rural roads mentioned in para. 8(e) above, the proposed gravity sewers/rising mains will be laid in trenches excavated by open trench method. The construction of sewers along Clear Water Bay Road and Shun Chi Street will be carried out in stages with implementation of temporary traffic arrangement so as to minimize traffic impacts. In addition, since Clear Water Bay Road has been regarded as a traffic sensitive route, a TIA report will be submitted by the Sewerage Projects Division, DSD, to Transport Department and the Commissioner of Police for approval/comment. Under close supervision by DSD, the contractor will be responsible for the temporary traffic management on site and obtaining necessary approvals from relevant authorities.
- (e) Referring to the possible water quality impact mentioned in para. 8(g) above, the contractor will be required to provide, where necessary, a silt removal facility on site so as to remove the silt before discharging into nearby stream-courses. Such a silt removal facility will be provided by the contractor on site before commencement of excavation. If the underground water is found to be contaminated, the contractor will be required under appropriate contractual provisions to dispose of the contaminated underground water at an approved site.

Operational Stage

- (f) Referring to para. 9(a) and 9(b) above, no environmental impact is envisaged during the operation of the village sewerage, gravity sewers and rising mains. Therefore, no specific environmental measure is required.
- (g) Referring to the possible noise, odour and visual impacts of the sewage pumping stations mentioned in para. 9(c) above, environmental protection measures to be included in the design of the pumping stations are as follows: -

Noise - The proposed pumping stations will be designed and operated by DSD to meet the noise criteria stipulated in Hong Kong Planning Standards and Guidelines (HKPSG) such that the expected noise level measured at the nearest sensitive receiver will not exceed the acceptable noise levels stipulated in the "Technical Memorandum for the Assessment of Noise from Places Other than Domestic Premises, Public Places or Construction Sites". In order to reduce noise from the moving parts of the E&M equipment that is considered the major sources of noise, submersible pumps, where appropriate, will be used. In addition, most of the E&M equipment including the pumps, mechanical screen and lifting crane will be housed within a superstructure. Furthermore, use of acoustic louvres as

standard ventilation louvres will be provided at the superstructure as appropriate. Besides, locations of ventilation exhausts will be kept away from the sensitive receiver as far as practicable. As such, potential noise nuisance to nearby village houses can be reduced to an acceptable level.

Odour - The wet well, inlet chamber and screening chamber will be enclosed by the superstructure of the pumping station. The estimated odour level in terms of H₂S concentration in the wet well of the pumping station will normally less than 10 ppm. In order to remove odour from the air, a deodorizer will be provided, operated and maintained by DSD in each of the pumping stations such that the odour level measured at the nearest receiver will not exceed 5 odour units. The deodorizers may be placed inside or outside the superstructures of the pumping stations depending on availability of space inside the pumping stations. Care will be taken by the Operations and Maintenance Team of DSD during removal of screening to avoid causing odour nuisance.

Visual Impact - Visual impact of superstructures of the pumping stations is minimized by an approach that structures above ground level will be coherent with the surrounding environment. Colour schemes, types of external finishing and layout of the pumping stations will be carefully designed taking into account the surrounding land features and buildings.

Maintenance Stage

- (h) Referring to the possible water quality impact by the emergency overflow bypass mentioned in para. 10(c) above, each of the pumping stations will have an emergency verflow pipe such that sewage overflow bypass can be discharged into nearby stream-courses in emergency only. In order to reduce substantially the chance of emergency overflow bypass, the following environmental protection measures will be incorporated by DSD in the design of the pumping stations:
- Standby pump and standby screen will be provided in each of the pumping stations to facilitate routine maintenance and repairing of equipment.
 - For small pumping stations (1xADWF not more than 1,500 cu.m/day) including Pak Shek Wo San Tsuen Road and Tan Shan Sewage Pumping Stations, a two-hour storage capacity for incoming sewage at 1xADWF will be incorporated in the design volume of the wet well to account for emergency such as prolonged power failure.
 - For Pak Shek Toi Road and Tseng Lan Shue Sewage Pumping Stations (1xADWF more than 1,500 cu.m/day), a two-hour storage capacity for incoming sewage at 1xADWF will be incorporated for maintenance purposes. In addition, dual electricity supply in the form of ring circuit will be supplied to these pumping stations.
 - A telemetry system will be provided for sending all fault signals from the pumping stations to the existing Sai Kung Sewage Treatment Works such that necessary actions could be taken promptly.

With these environmental protection measures incorporated in the design, emergency overflow bypass will occur only in very extreme cases such as prolonged power failure. Nonetheless, in order to minimize further the impact on the environment when emergency overflow bypass does occur, the following additional measures will also be incorporated in the design :

- A bar screen will be installed in each pumping station to prevent the discharge of large floating solids into the stream-courses.
- The discharge point of overflow bypass will be kept below the low water mark level as appropriate.
- The discharge point of overflow will be kept 150m away from sensitive receivers including gazetted beaches, mariculture zones, seawater intakes, stream with water for human consumption and typhoon shelter.

OTHER ENVIRONMENTAL EFFECT

App.III

14. Upon completion of the works, sewage from the currently unsewered areas of Pik Uk Au, Pak Shek Wo San Tsuen, Pak Shek Toi, Tseng Lan Shue, Sam Long, Tan Shan and Pak Kung Au will be collected and conveyed to the new sewerage system leading to the existing East Kowloon sewerage system. As a result, water quality of Port Shelter can be improved.

PUBLIC CONSULTATION

15. The general layout drawings of this project had been circulated to relevant Government Departments and utility undertakings for comments. A copy of the relevant correspondence ref. (13) & (14) in SP/8/4132DS/S3P1 dated 21.1.1998 showing the Government Departments and the utility undertakers to whom the drawings had been circulated is attached in Appendix VII. App.VII A meeting among village representatives, DO, EPD and DSD was held on 5.3.98 for answering inquiries from the village representatives.
16. Public consultation with the Provisional District Board will also be carried out before upgrading the project to Category A.

SCHEDULE OF RECOMMENDED MITIGATION MEASURES

17. All the above-mentioned environmental protection measures for activities in the construction stage, the operational stage and the maintenance stage will be in place before actual commencement of the corresponding activities.

Village Sewerage, Gravity Sewers/Rising Mains on Rural Roads

- (a) Based on the above assessment, no significant long-term environmental impacts would be caused during the construction stage, the operational stage, and the maintenance stage of the proposed village sewerage, and gravity sewers/rising mains on rural roads. As regards short-term environmental impacts that may be caused, DSD/DSD's contractor will implement standard/appropriate environmental pollution measures to control the noise, dust, and site runoff to within established guidelines and standards. As such, no environmental permit condition is required for the construction, operation and maintenance of these sewerage works.

**Pak Shek Wo San Tsuen Road Sewage Pumping Station,
Pak Shek Toi Road Sewage Pumping Station &
Tan Shan Sewage Pumping Station**

- (b) The installed capacities of these three sewage pumping stations are less than 2,000 cu.m/day. Based on the above assessment, no significant long-term environmental impact would be caused during the construction stage, the operational stage, and the maintenance stage of these three small pumping stations. As regards short-term environmental impacts that may be caused, DSD/DSD's contractor will implement standard/appropriate environmental pollution measures to control the noise, dust, and site runoff within established guidelines and standards. Therefore, no environmental permit condition is required for the construction, operation and maintenance of these sewerage works.

Tseng Lan Shue Sewage Pumping Station

- (c) Short-term environmental impact during construction stage - DSD will implement standard/appropriate environmental pollution measures to control the noise, dust, and site runoff within established guidelines and standards.
- (d) Long-term environmental impact during operation and maintenance stages - The installed capacity of Tseng Lan Shue Sewage Pumping Station is approximately 3,000 cu.m/day and the boundary of which is less than 150m away from existing receivers. A schedule of the recommended mitigation measures (MM) to control the long-term environmental impacts of this pumping stations is given as follow: -

Environmental Impact - Noise

| | |
|--|--|
| Recommended Mitigation Measures (MM) | <ul style="list-style-type: none"> - The pumping station will be enclosed by a superstructure. - The screening chamber and wet well of the pumping station will be underground. - Acoustic louvres will be used as standard ventilation louvres inside the superstructure as appropriate. - Locations of ventilation exhausts will be kept away from sensitive receivers as far as practicable. - E&M equipment including mechanical screen, lifting crane, etc. will be housed inside the superstructure and the sewage pumps will be installed inside the underground wet well. |
| Requirements to be achieved by MM | Noise criteria stipulated in Hong Kong Planning Standards and Guidelines and Noise Control Ordinance - Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites. |
| Where MM to be installed | At the location of Tseng Lan Shue Sewage Pumping Station. |
| When MM to be implemented | Before commissioning of Tseng Lan Shue Sewage Pumping Station. |
| Parties Responsible for implementation of MM | DSD/DSD's Contractor. |

Environmental Impact - Odour

| | |
|--|---|
| Recommended Mitigation Measures (MM) | <ul style="list-style-type: none"> - The pumping station will be enclosed by a superstructure. - The inlet chamber, screening chamber and wet well of the pumping station will be underground. - A deodourizer will be installed to remove odour from the air. |
| Requirements to be achieved by MM | Odour level measured at the nearest receiver of the pumping station shall not exceed 5 odour units. |
| Where MM to be installed | Deodourizer shall be installed inside or outside the superstructure of the pumping station depending on availability of space. |
| When MM to be implemented | Before commissioning of Tseng Lan Shue Sewage Pumping Station. |
| Parties Responsible for implementation of MM | DSD/DSD's Contractor. |

Environmental Impact - Visual Impact

| | |
|--|---|
| Recommended Mitigation Measures (MM) | Colour scheme, types of external finishing and layout of the pumping stations will be carefully designed taking into account the surrounding land features and buildings. |
| Requirements to be achieved by MM | The pumping station will be coherent with the surrounding environment or screened off the sensitive receivers. |
| Where MM to be installed | At the location of Tseng Lan Shue Sewage Pumping Station. |
| When MM to be implemented | Before commissioning of Tseng Lan Shue Sewage Pumping Station. |
| Parties Responsible for implementation of MM | DSD/DSD's Contractor. |

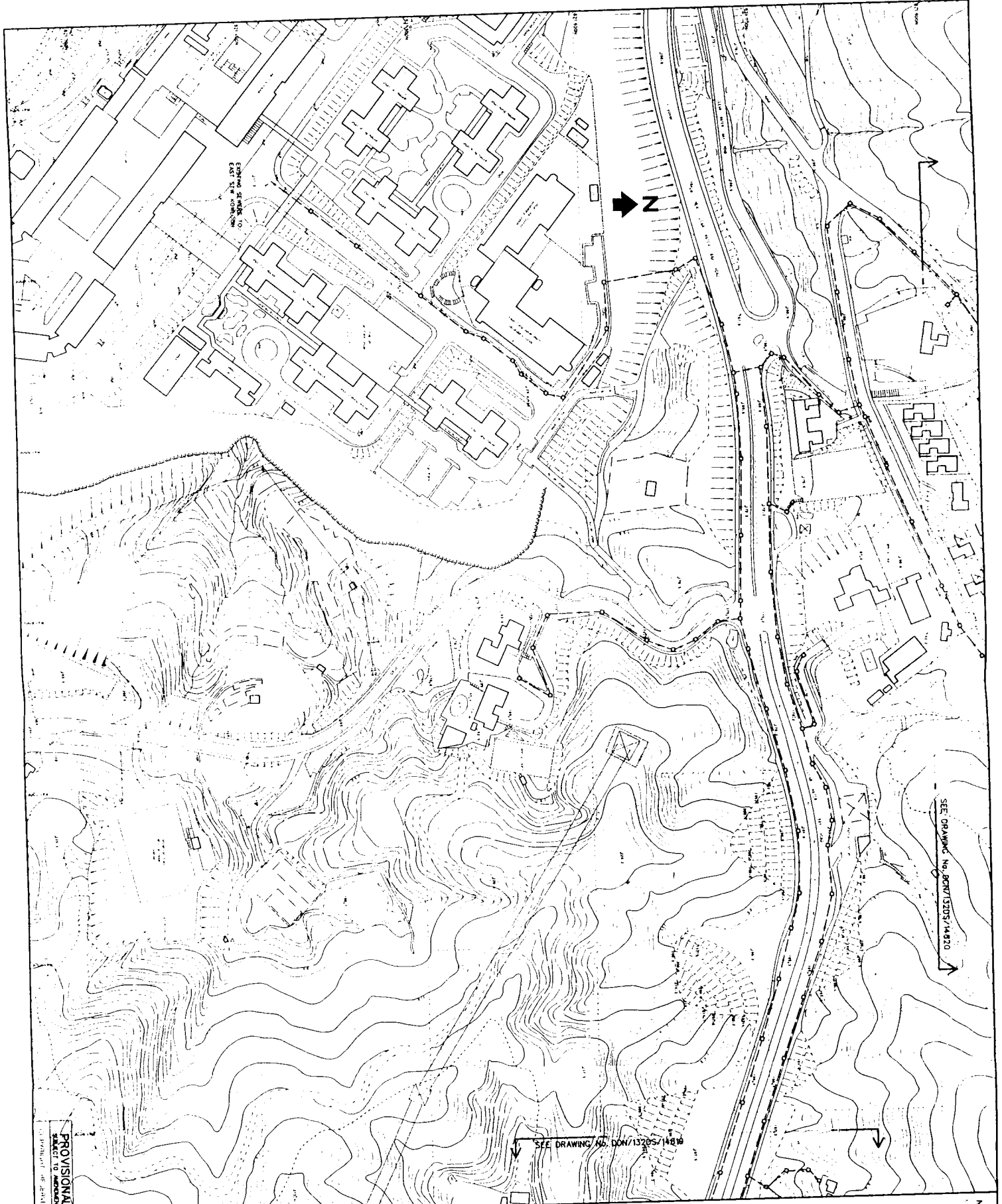
Environmental Impact - Emergency Overflow Bypass

| | |
|--------------------------------------|--|
| Recommended Mitigation Measures (MM) | <ul style="list-style-type: none"> - A standby pump and a standby screen will be provided to facilitate maintenance. - A two-hour storage capacity for incoming sewage at 1xADWF will be incorporated. - Dual electricity supply in the form of ring circuit will be provided to the pumping station. - A telemetry system will be provided for sending all fault signals from the pumping station to the existing Sai Kung Sewage Treatment Works. - A bar screen will be installed to prevent the discharge of large floating solids into the stream-course. - The discharge point of overflow bypass will be kept below the low water mark level as appropriate. - The discharge point of overflow will be kept 150m away from sensitive receivers including gazetted beaches, mariculture zones, seawater intakes, stream with water for human consumption and typhoon shelter. |
|--------------------------------------|--|

| | |
|--|--|
| Requirements to be achieved by MM | To minimize the chance of emergency overflow bypass as far as practicable. |
| Where MM to be installed | At the location of Tseng Lan Shue Sewage Pumping Station. |
| When MM to be implemented | Before commissioning of Tseng Lan Shue Sewage Pumping Station. |
| Parties Responsible for implementation of MM | DSD/DSD's Contractor. |

*** End ***

Appendix I



NOTES:
 1. FOR NOTES AND LEGEND REFER TO DRAWING NO. DDN/13205/14820

| NO. | DATE | REVISION |
|-----|------------|-------------------|
| 1 | 13/08/2005 | ISSUE FOR TENDERS |
| 2 | 13/08/2005 | ISSUE FOR TENDERS |
| 3 | 13/08/2005 | ISSUE FOR TENDERS |
| 4 | 13/08/2005 | ISSUE FOR TENDERS |
| 5 | 13/08/2005 | ISSUE FOR TENDERS |
| 6 | 13/08/2005 | ISSUE FOR TENDERS |
| 7 | 13/08/2005 | ISSUE FOR TENDERS |
| 8 | 13/08/2005 | ISSUE FOR TENDERS |
| 9 | 13/08/2005 | ISSUE FOR TENDERS |
| 10 | 13/08/2005 | ISSUE FOR TENDERS |

PROJECT NO: SP/8/13205/S3P1
 CONTRACT NO: 13205
 DATE: 13/08/2005

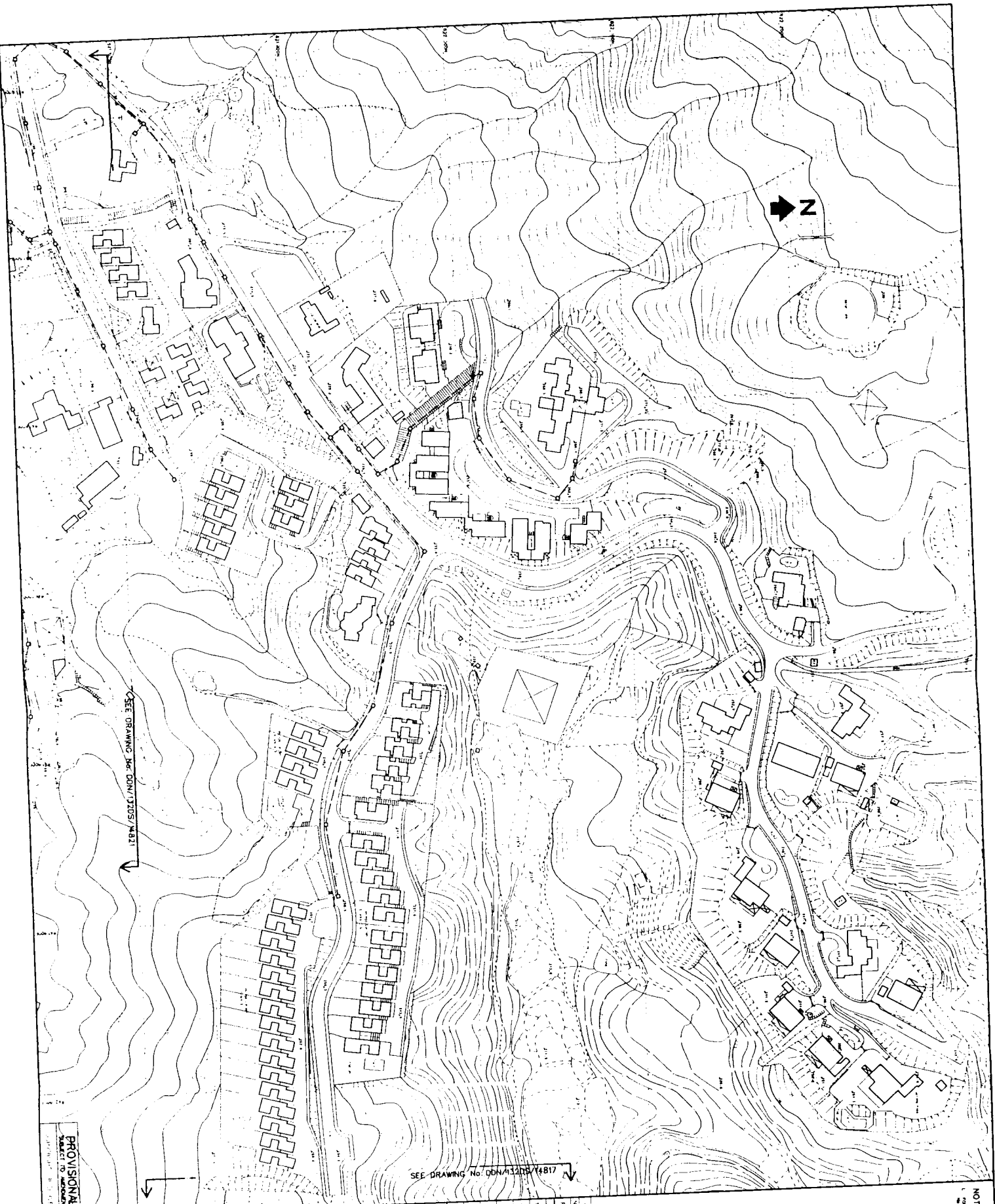
PROJECT TITLE: PORT SHELTER SEWERAGE, STAGE 3
 - TENSING LAN SHUE SEWERAGE
 GENERAL LAYOUT

DDN/13205/14821A 1 : 1000

PROVISIONAL
 SUBJECT TO APPROVAL
 DEPARTMENT OF WATER
 HOHOA POND



DEPARTMENT OF WATER
 HOHOA POND



SEE DRAWING No. DDM/1305/14821

SEE DRAWING No. DDM/1320S/14817

NOTES:
1. FOR DETAILS AND DIMENSIONS REFER TO DRAWING No. DDM/1320S/14817

| NO. | DATE | REVISION | BY | CHECKED | APPROVED |
|-----|------|-------------------|----|---------|----------|
| 1 | | ISSUED FOR TENDER | | | |
| 2 | | REVISED | | | |

| NO. | DATE | REVISION | BY | CHECKED | APPROVED |
|-----|------|-------------------|----|---------|----------|
| 1 | | ISSUED FOR TENDER | | | |
| 2 | | REVISED | | | |

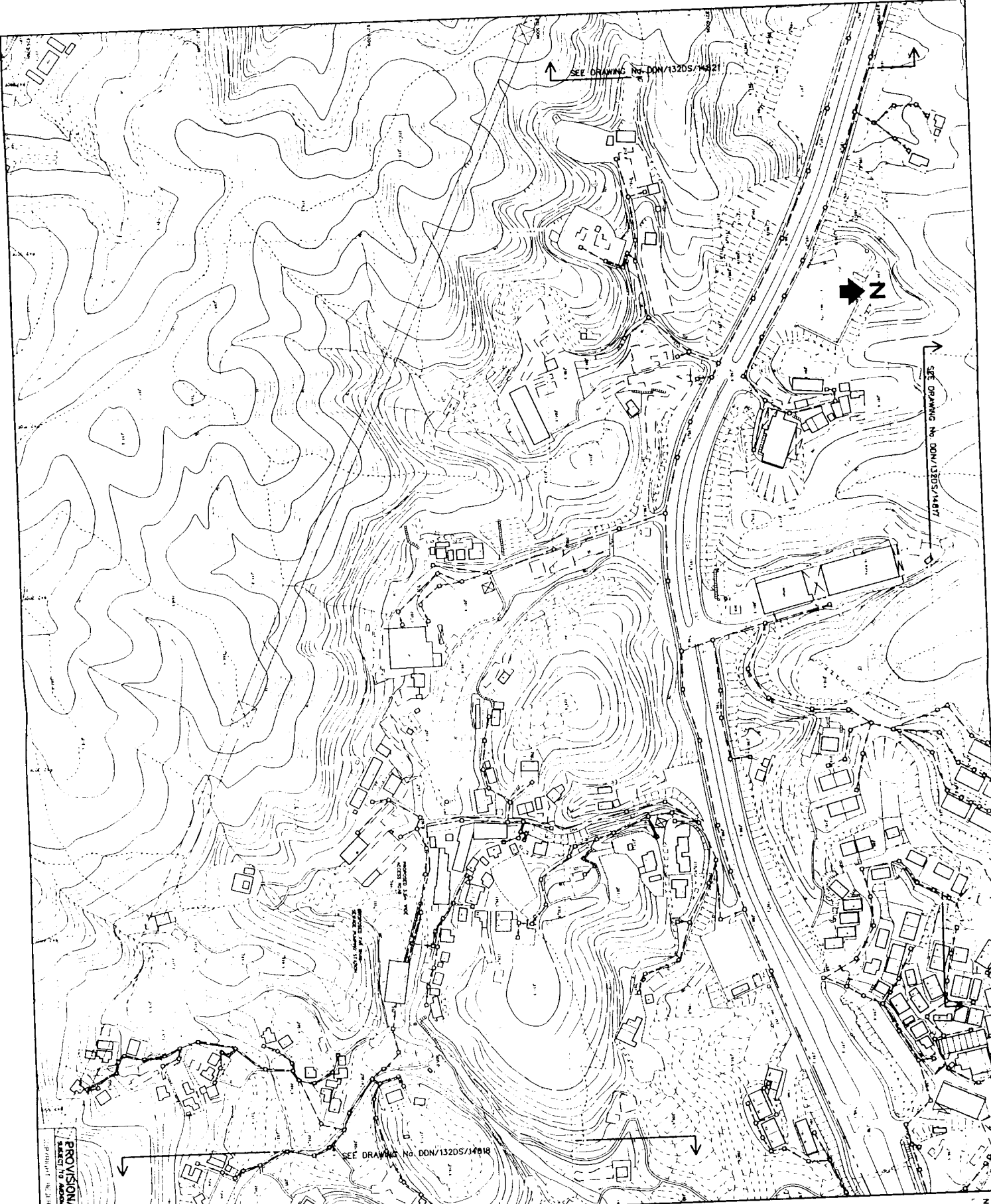
PROJECT NO. SP/8/1320S/S3P1
SHEET NO. 1320S

PROJECT TITLE: POINT SHELTER SEWERAGE, STAGE 3 - TSENG LAN SHUE SEWERAGE
GENERAL LAYOUT
SHEET 6 OF 7

DON/1320S/14820A 1:1,000



SEWERAGE ENGINEERING DIVISION
DRAINAGE SERVICES DEPARTMENT
HONG KONG



NOTES:
 1. FOR NOTES AND LEGEND REFER TO DRAWING No. DDM/1320S/14818

| NO. | DATE | REVISION | BY | CHECKED | SCALE |
|-----|------|-------------------|----|---------|--------|
| 1 | 1988 | ISSUED FOR TENDER | | | 1:1000 |
| 2 | 1988 | REVISED | | | 1:1000 |

| | | |
|----------|-------------|---------------|
| DESIGNED | S. H. CHAN | NO. 1, 98 |
| DRAWN | N. F. YEUNG | NO. 20, 1, 98 |
| CHECKED | C. WONG | NO. 20, 1, 98 |
| APPROVED | | |

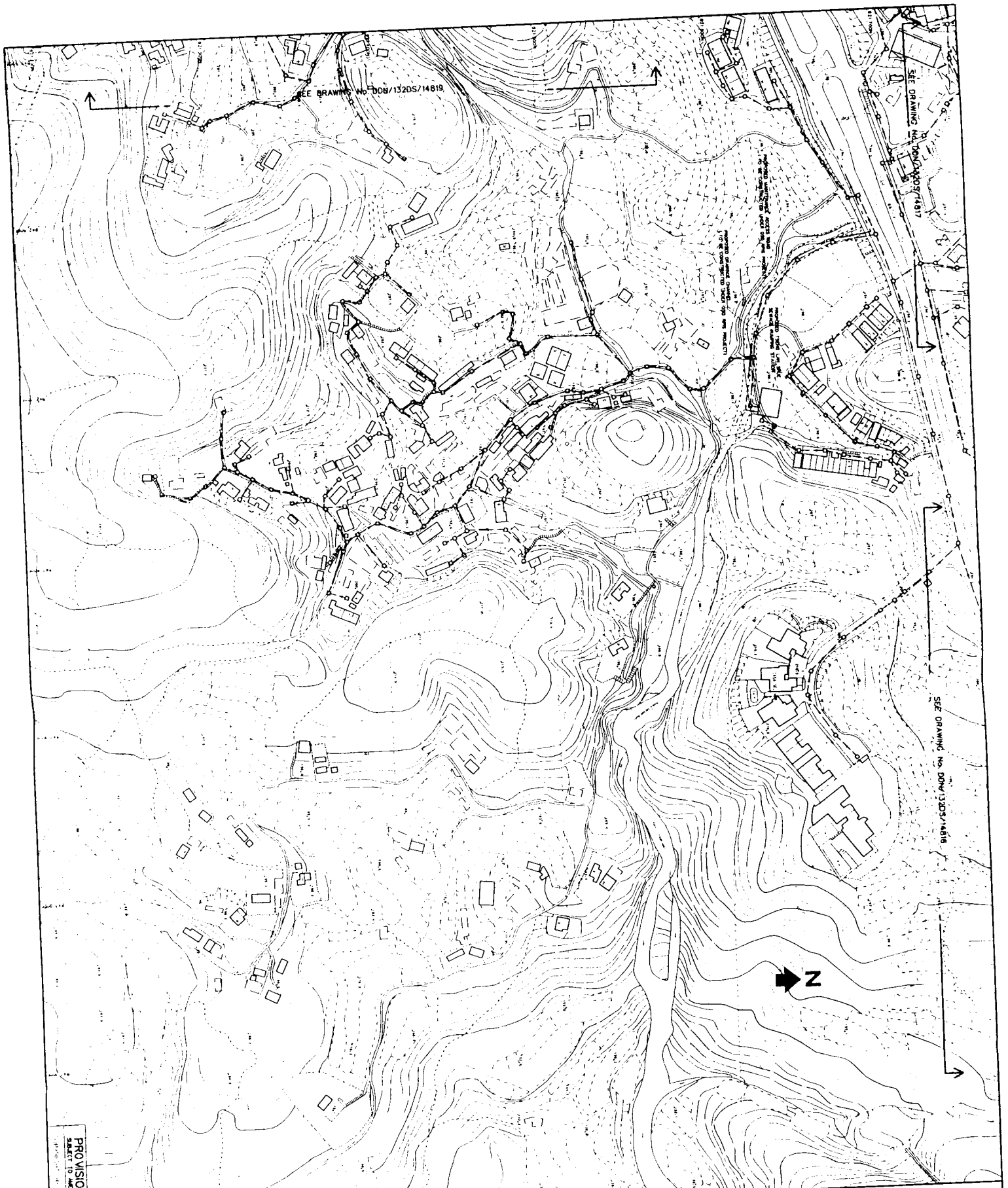
PROJECT NO. SP/8/41320S/SP1
 PROJECT NO. 1320S

GENERAL LAYOUT
 PORT SHELTER SEWERAGE, STAGE 3
 TSENG LAN SHUE SEWERAGE

DDM/1320S/14819A 1 : 1000

SEWERAGE AND DRAINAGE DIVISION
 DRAINAGE SERVICES DEPARTMENT
 HONG KONG

PROVISIONAL
 SUBJECT TO APPROVAL
 BY THE AUTHORITIES CONCERNED



NOTES:
 1. SEE NOTE AND DRAWING WITH THIS SHEET
 2. SEE DDN/1320S/14818

| NO. | DATE | REVISION |
|-----|----------|-------------------------|
| 1 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 2 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 3 | 10/10/00 | ISSUED FOR CONSTRUCTION |

| NO. | DATE | REVISION |
|-----|----------|-------------------------|
| 1 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 2 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 3 | 10/10/00 | ISSUED FOR CONSTRUCTION |

| NO. | DATE | REVISION |
|-----|----------|-------------------------|
| 1 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 2 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 3 | 10/10/00 | ISSUED FOR CONSTRUCTION |

| NO. | DATE | REVISION |
|-----|----------|-------------------------|
| 1 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 2 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 3 | 10/10/00 | ISSUED FOR CONSTRUCTION |

| NO. | DATE | REVISION |
|-----|----------|-------------------------|
| 1 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 2 | 10/10/00 | ISSUED FOR CONSTRUCTION |
| 3 | 10/10/00 | ISSUED FOR CONSTRUCTION |

PROVISIONAL
 SUBJECT TO APPROVAL

DDN/1320S/14818A 1 : 1000

GENERAL LAYOUT

PORT SHELTER SEWERAGE, STAGE 3
 - TENG LAN SHUE SEWERAGE

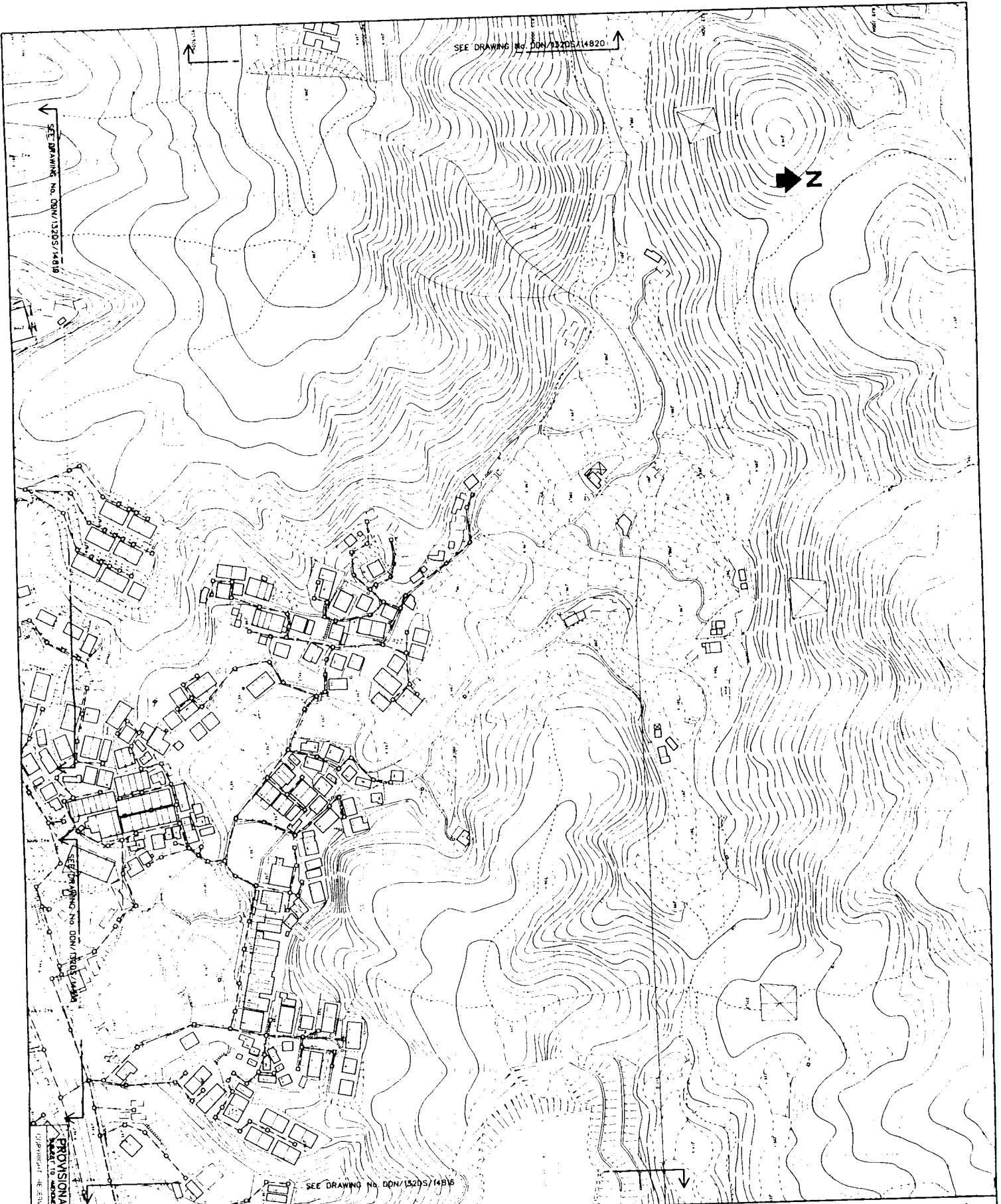
CHIEF ENGINEER

SP/8/41320S/53P1

1320S

SEWERAGE AND WATER DIVISION

DRAINAGE SERVICE 3
 DEPARTMENT
 HONG KONG



NOTES:
 1. ALL DIMENSIONS ARE IN METERS
 2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED

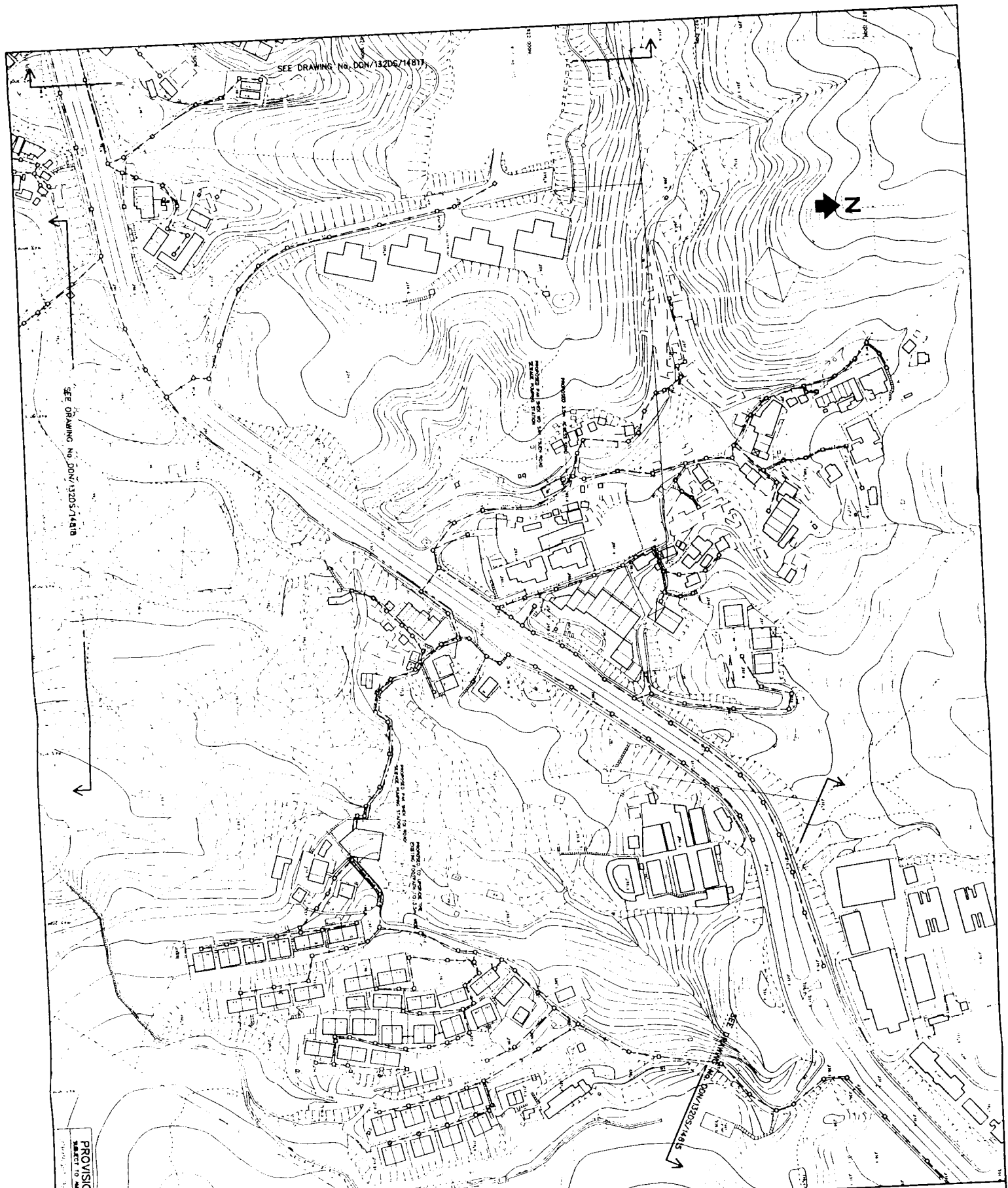
| NO. | DATE | REVISION | BY | CHECKED |
|-----|------|-------------------------|----|---------|
| 1 | | ISSUED FOR CONSTRUCTION | | |
| 2 | | REVISED | | |
| 3 | | REVISED | | |
| 4 | | REVISED | | |
| 5 | | REVISED | | |
| 6 | | REVISED | | |
| 7 | | REVISED | | |
| 8 | | REVISED | | |
| 9 | | REVISED | | |
| 10 | | REVISED | | |

PROJECT TITLE: PORT SHELTER SEWERAGE STAGE 3
 TSENG LAN SHUE SEWERAGE
 GENERAL LAYOUT
 SHEET 1 OF 1

DATE: 13/08/2010
 PROJECT NO: 13205
 DRAWN BY: [Name]
 CHECKED BY: [Name]

SCALE: 1:1000
 PROJECT NO: DDM/13205/14817A

DRAINAGE DEPARTMENT
 HONG KONG
 GENERAL LAYOUT
 SHEET 1 OF 1



NOTES:
 1. FOR LISTS AND COPIES REFER TO DRAWING No. DDM/132D5/14818

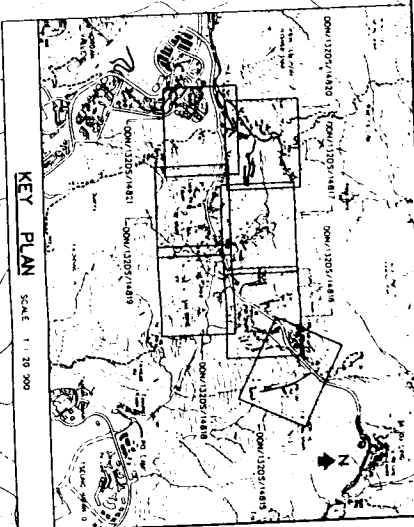
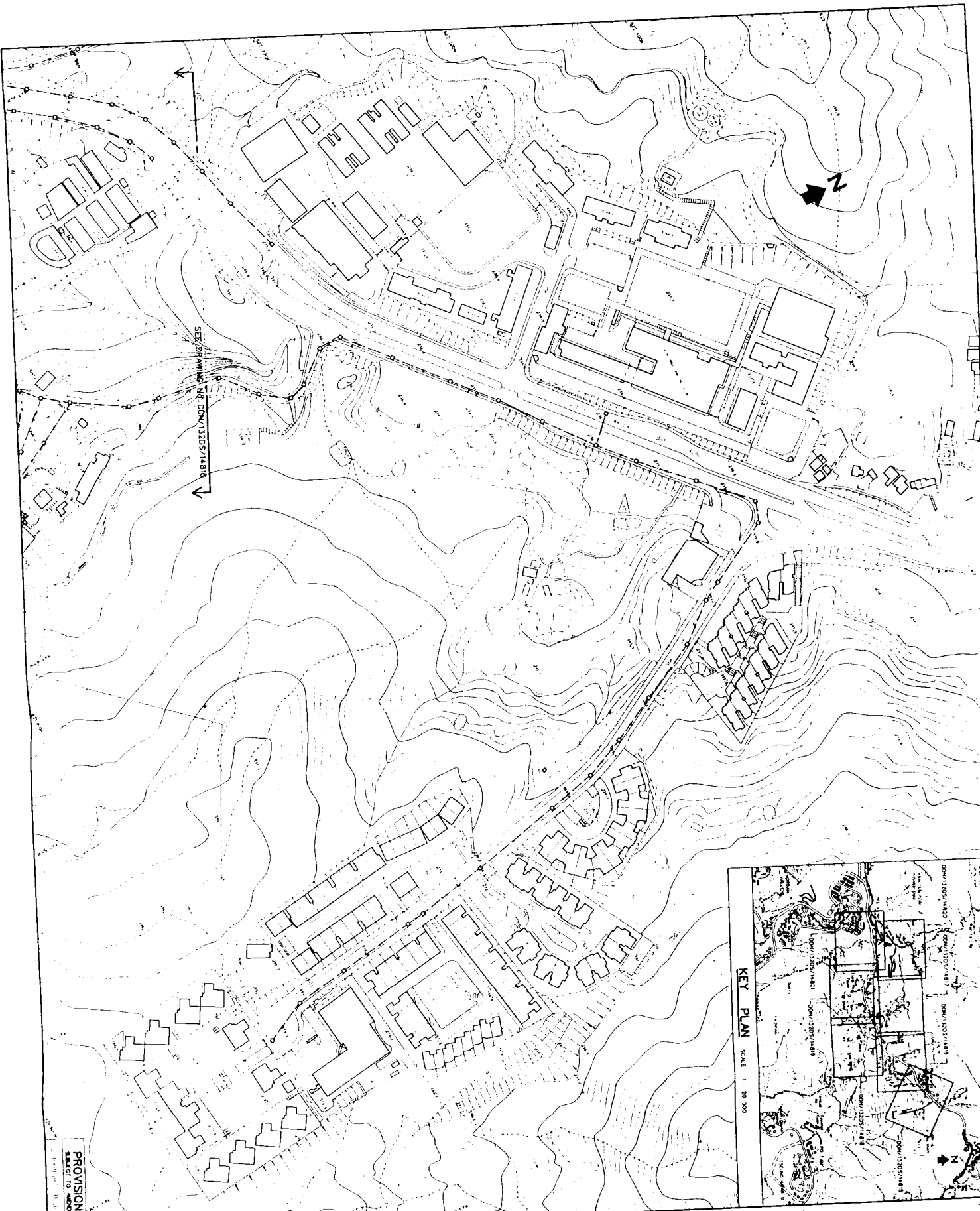
| NO. | DATE | BY | REVISION |
|-----|----------|--------|-------------------|
| 1 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 2 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 3 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 4 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 5 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 6 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 7 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 8 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 9 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |
| 10 | 13/08/08 | SP/8/4 | ISSUED FOR PERMIT |

PROJECT NO: SP/8/4/132D5/53P1
 SHEET NO: 132D5
 DATE: 13/08/08

PROJECT TITLE: PORT SHELTER SEWERAGE, STAGE 3
 - SEND LAY SHUE SEWERAGE
 GENERAL LAYOUT
 SHEET 1 OF 1
 DDN/132D5/14818A 1:1000

PROVISIONAL
 SUBJECT TO APPROVAL
 DRAWING No. DDN/132D5/14818

SEWERAGE SERVICES
 DEPARTMENT
 HONG KONG



KEY PLAN
SCALE 1:20,000

NOTES:
As indicated on sheet 1481A

LEGEND
 - - - - - PROPOSED SEWER
 - - - - - PROPOSED RAIN WATER
 - - - - - PROPOSED 3m WIDE ACCESS ROAD

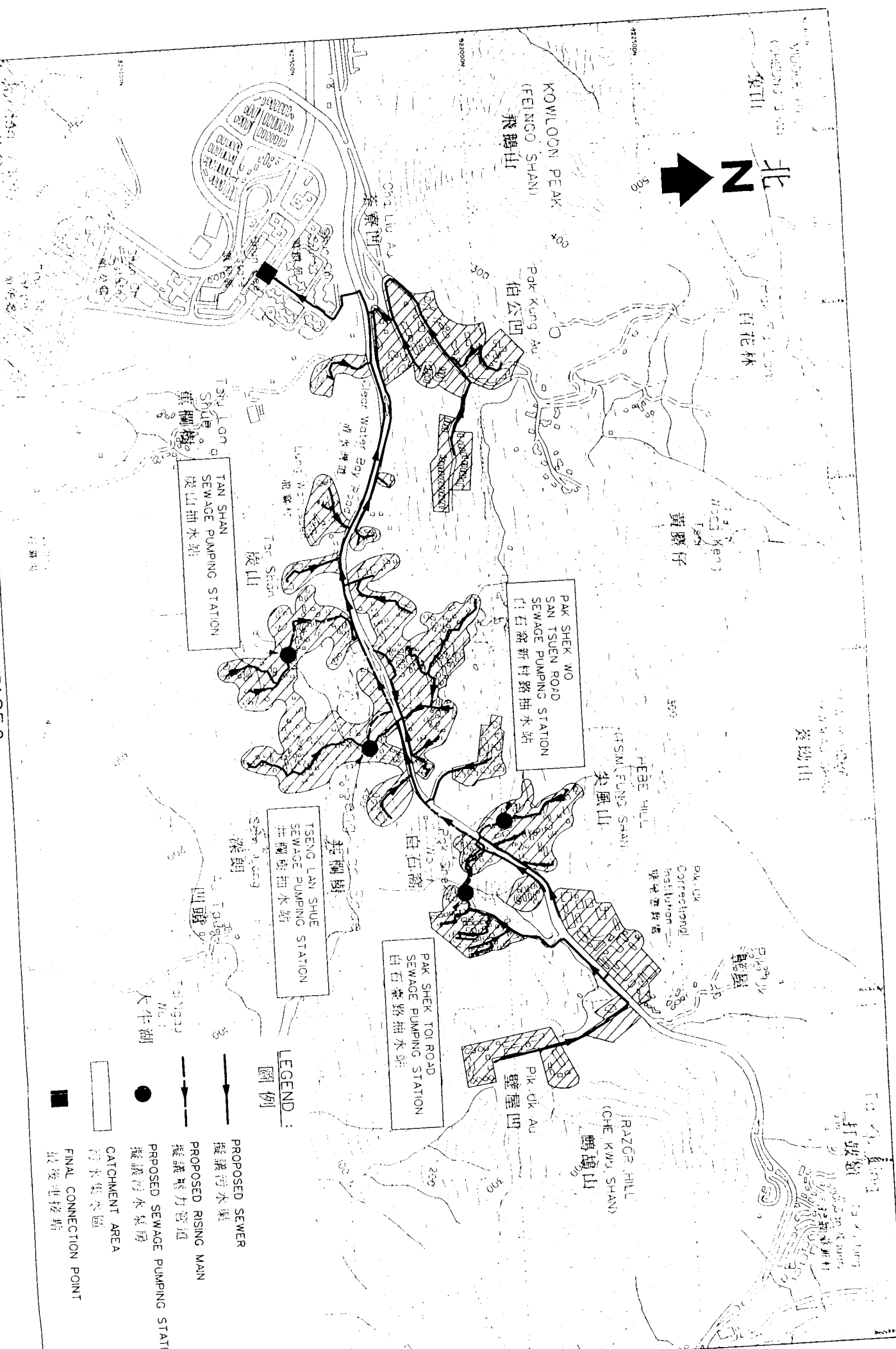
| NO. | DATE | REVISION |
|-----|----------|--------------------|
| 1 | 10/10/00 | ISSUED FOR TENDERS |
| 2 | 10/10/00 | ISSUED FOR TENDERS |
| 3 | 10/10/00 | ISSUED FOR TENDERS |
| 4 | 10/10/00 | ISSUED FOR TENDERS |
| 5 | 10/10/00 | ISSUED FOR TENDERS |
| 6 | 10/10/00 | ISSUED FOR TENDERS |
| 7 | 10/10/00 | ISSUED FOR TENDERS |
| 8 | 10/10/00 | ISSUED FOR TENDERS |
| 9 | 10/10/00 | ISSUED FOR TENDERS |
| 10 | 10/10/00 | ISSUED FOR TENDERS |
| 11 | 10/10/00 | ISSUED FOR TENDERS |
| 12 | 10/10/00 | ISSUED FOR TENDERS |
| 13 | 10/10/00 | ISSUED FOR TENDERS |
| 14 | 10/10/00 | ISSUED FOR TENDERS |
| 15 | 10/10/00 | ISSUED FOR TENDERS |
| 16 | 10/10/00 | ISSUED FOR TENDERS |
| 17 | 10/10/00 | ISSUED FOR TENDERS |
| 18 | 10/10/00 | ISSUED FOR TENDERS |
| 19 | 10/10/00 | ISSUED FOR TENDERS |
| 20 | 10/10/00 | ISSUED FOR TENDERS |
| 21 | 10/10/00 | ISSUED FOR TENDERS |
| 22 | 10/10/00 | ISSUED FOR TENDERS |
| 23 | 10/10/00 | ISSUED FOR TENDERS |
| 24 | 10/10/00 | ISSUED FOR TENDERS |
| 25 | 10/10/00 | ISSUED FOR TENDERS |
| 26 | 10/10/00 | ISSUED FOR TENDERS |
| 27 | 10/10/00 | ISSUED FOR TENDERS |
| 28 | 10/10/00 | ISSUED FOR TENDERS |
| 29 | 10/10/00 | ISSUED FOR TENDERS |
| 30 | 10/10/00 | ISSUED FOR TENDERS |
| 31 | 10/10/00 | ISSUED FOR TENDERS |
| 32 | 10/10/00 | ISSUED FOR TENDERS |
| 33 | 10/10/00 | ISSUED FOR TENDERS |
| 34 | 10/10/00 | ISSUED FOR TENDERS |
| 35 | 10/10/00 | ISSUED FOR TENDERS |
| 36 | 10/10/00 | ISSUED FOR TENDERS |
| 37 | 10/10/00 | ISSUED FOR TENDERS |
| 38 | 10/10/00 | ISSUED FOR TENDERS |
| 39 | 10/10/00 | ISSUED FOR TENDERS |
| 40 | 10/10/00 | ISSUED FOR TENDERS |
| 41 | 10/10/00 | ISSUED FOR TENDERS |
| 42 | 10/10/00 | ISSUED FOR TENDERS |
| 43 | 10/10/00 | ISSUED FOR TENDERS |
| 44 | 10/10/00 | ISSUED FOR TENDERS |
| 45 | 10/10/00 | ISSUED FOR TENDERS |
| 46 | 10/10/00 | ISSUED FOR TENDERS |
| 47 | 10/10/00 | ISSUED FOR TENDERS |
| 48 | 10/10/00 | ISSUED FOR TENDERS |
| 49 | 10/10/00 | ISSUED FOR TENDERS |
| 50 | 10/10/00 | ISSUED FOR TENDERS |
| 51 | 10/10/00 | ISSUED FOR TENDERS |
| 52 | 10/10/00 | ISSUED FOR TENDERS |
| 53 | 10/10/00 | ISSUED FOR TENDERS |
| 54 | 10/10/00 | ISSUED FOR TENDERS |
| 55 | 10/10/00 | ISSUED FOR TENDERS |
| 56 | 10/10/00 | ISSUED FOR TENDERS |
| 57 | 10/10/00 | ISSUED FOR TENDERS |
| 58 | 10/10/00 | ISSUED FOR TENDERS |
| 59 | 10/10/00 | ISSUED FOR TENDERS |
| 60 | 10/10/00 | ISSUED FOR TENDERS |
| 61 | 10/10/00 | ISSUED FOR TENDERS |
| 62 | 10/10/00 | ISSUED FOR TENDERS |
| 63 | 10/10/00 | ISSUED FOR TENDERS |
| 64 | 10/10/00 | ISSUED FOR TENDERS |
| 65 | 10/10/00 | ISSUED FOR TENDERS |
| 66 | 10/10/00 | ISSUED FOR TENDERS |
| 67 | 10/10/00 | ISSUED FOR TENDERS |
| 68 | 10/10/00 | ISSUED FOR TENDERS |
| 69 | 10/10/00 | ISSUED FOR TENDERS |
| 70 | 10/10/00 | ISSUED FOR TENDERS |
| 71 | 10/10/00 | ISSUED FOR TENDERS |
| 72 | 10/10/00 | ISSUED FOR TENDERS |
| 73 | 10/10/00 | ISSUED FOR TENDERS |
| 74 | 10/10/00 | ISSUED FOR TENDERS |
| 75 | 10/10/00 | ISSUED FOR TENDERS |
| 76 | 10/10/00 | ISSUED FOR TENDERS |
| 77 | 10/10/00 | ISSUED FOR TENDERS |
| 78 | 10/10/00 | ISSUED FOR TENDERS |
| 79 | 10/10/00 | ISSUED FOR TENDERS |
| 80 | 10/10/00 | ISSUED FOR TENDERS |
| 81 | 10/10/00 | ISSUED FOR TENDERS |
| 82 | 10/10/00 | ISSUED FOR TENDERS |
| 83 | 10/10/00 | ISSUED FOR TENDERS |
| 84 | 10/10/00 | ISSUED FOR TENDERS |
| 85 | 10/10/00 | ISSUED FOR TENDERS |
| 86 | 10/10/00 | ISSUED FOR TENDERS |
| 87 | 10/10/00 | ISSUED FOR TENDERS |
| 88 | 10/10/00 | ISSUED FOR TENDERS |
| 89 | 10/10/00 | ISSUED FOR TENDERS |
| 90 | 10/10/00 | ISSUED FOR TENDERS |
| 91 | 10/10/00 | ISSUED FOR TENDERS |
| 92 | 10/10/00 | ISSUED FOR TENDERS |
| 93 | 10/10/00 | ISSUED FOR TENDERS |
| 94 | 10/10/00 | ISSUED FOR TENDERS |
| 95 | 10/10/00 | ISSUED FOR TENDERS |
| 96 | 10/10/00 | ISSUED FOR TENDERS |
| 97 | 10/10/00 | ISSUED FOR TENDERS |
| 98 | 10/10/00 | ISSUED FOR TENDERS |
| 99 | 10/10/00 | ISSUED FOR TENDERS |
| 100 | 10/10/00 | ISSUED FOR TENDERS |

PROJECT NO. SP/8/13205/S/391
 DRAWING NO. 13205
 SHEET NO. 1 OF 1
 DATE: 10/10/00

GENERAL LAYOUT
 PORT SHELTER SEWERAGE STAGE 3
 FISHING LAN SHED SEWERAGE
 DDM/13205/1481A
 1:1000
 AS SHOWN

PROVISIONAL
 SUBJECT TO APPROVAL
 DRAWING NO. 13205/1481A

SEWERAGE SERVICES
 DEPARTMENT
 KOWLOON



圖例

- PROPOSED SEWER
- PROPOSED RISING MAIN
- PROPOSED SEWAGE PUMPING STATION
- ▨ CATCHMENT AREA
- FINAL CONNECTION POINT

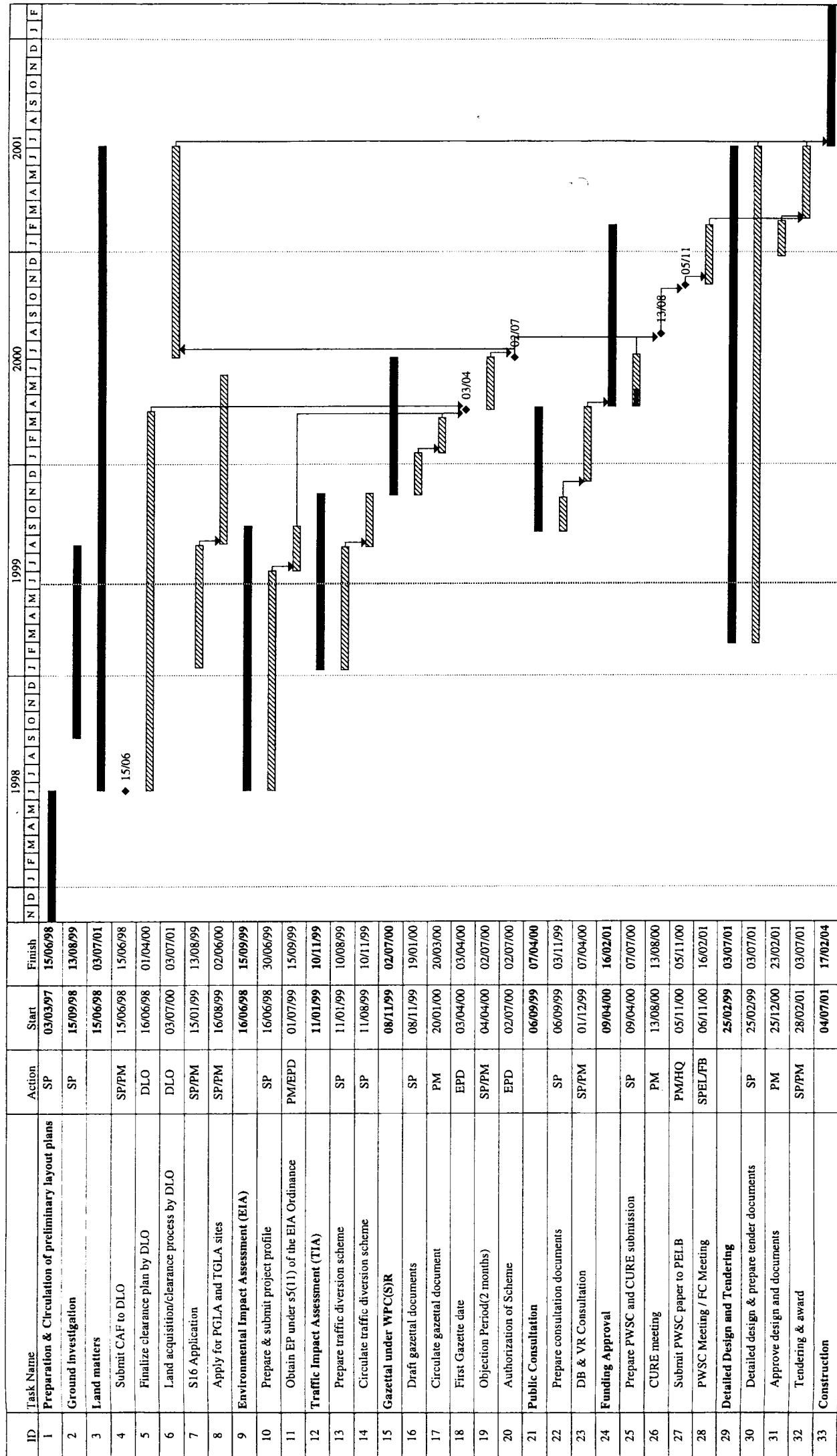
PORT SHELTER SEWERAGE - STAGE 3
PROPOSED SEWERAGE WORKS TSEUNG LAN SHUE SEWERAGE
牛尾海污水系統 第三階段
擬議在棠欄樹之污水工程

Drq. No. DDN/132DS/14833

Appendix II

4273DS - Port Shelter Sewerage, Stage 3 - Tseng Lan Shue Sewerage (Fast-tracked Programme with no objection)

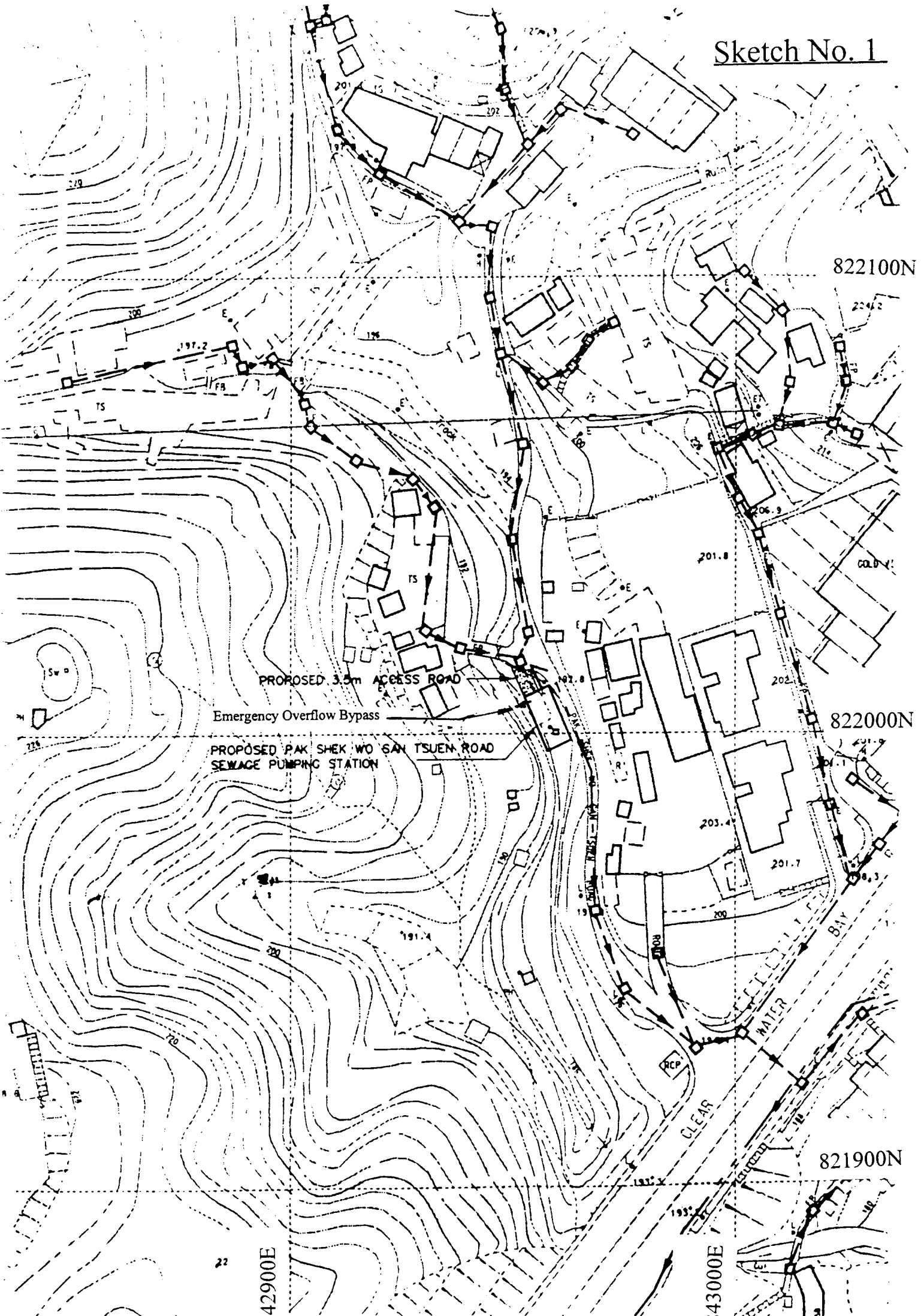
08/08/99



Note: (1) First gazette date delayed by 13 months to reflect DLO's time requirement for preparing land resumption plans. (2) Additional time allowed for resolving objections and land clearance by DLO. (3) Assumption no full EIA strictly is required.

Appendix III

Sketch No. 1



PROPOSED 3.5m ACCESS ROAD

Emergency Overflow Bypass

PROPOSED PAK SHEK WO SAN TSUEN ROAD
SEWAGE PUMPING STATION

822100N

822000N

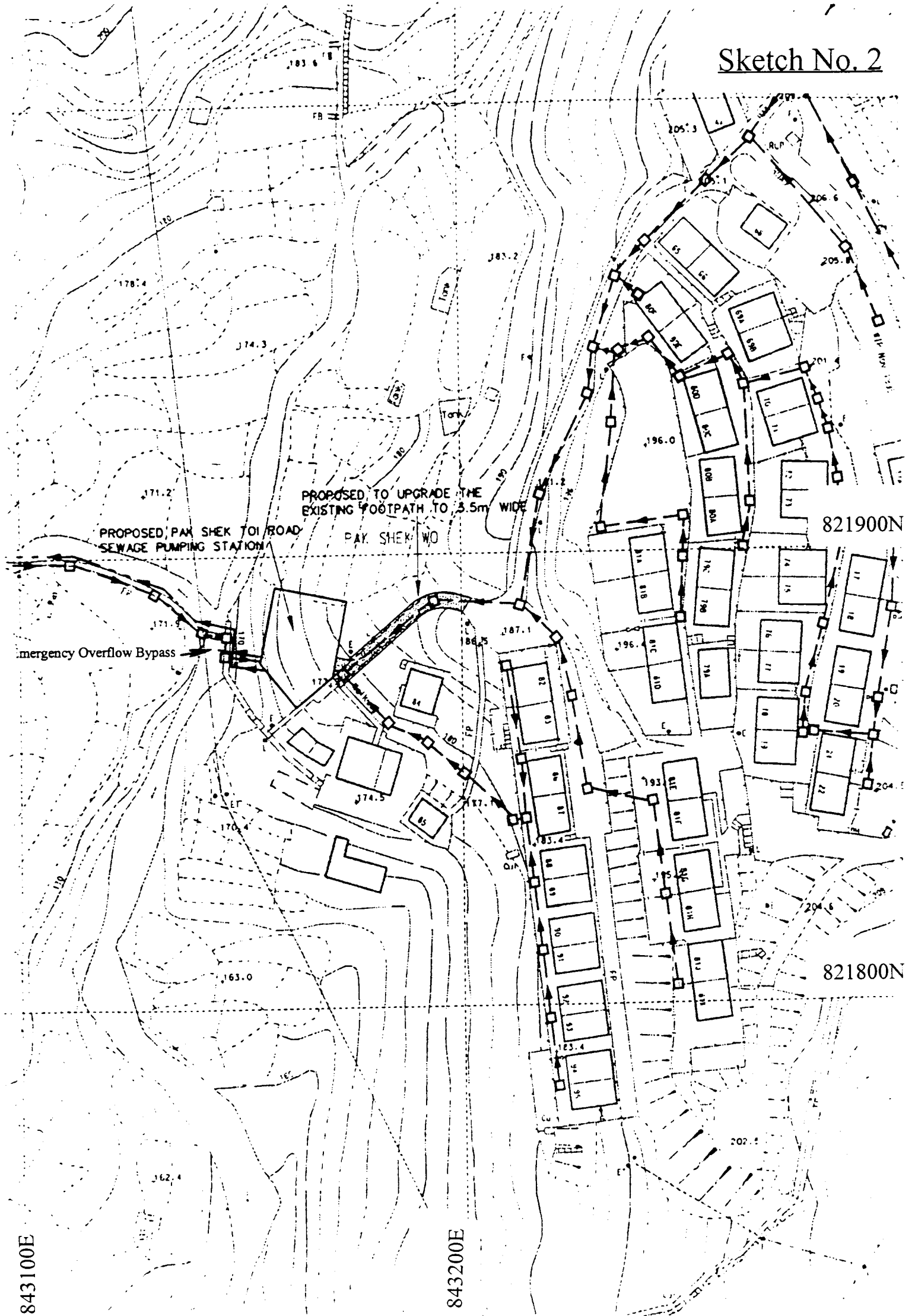
821900N

842900E

843000E

22

Sketch No. 2



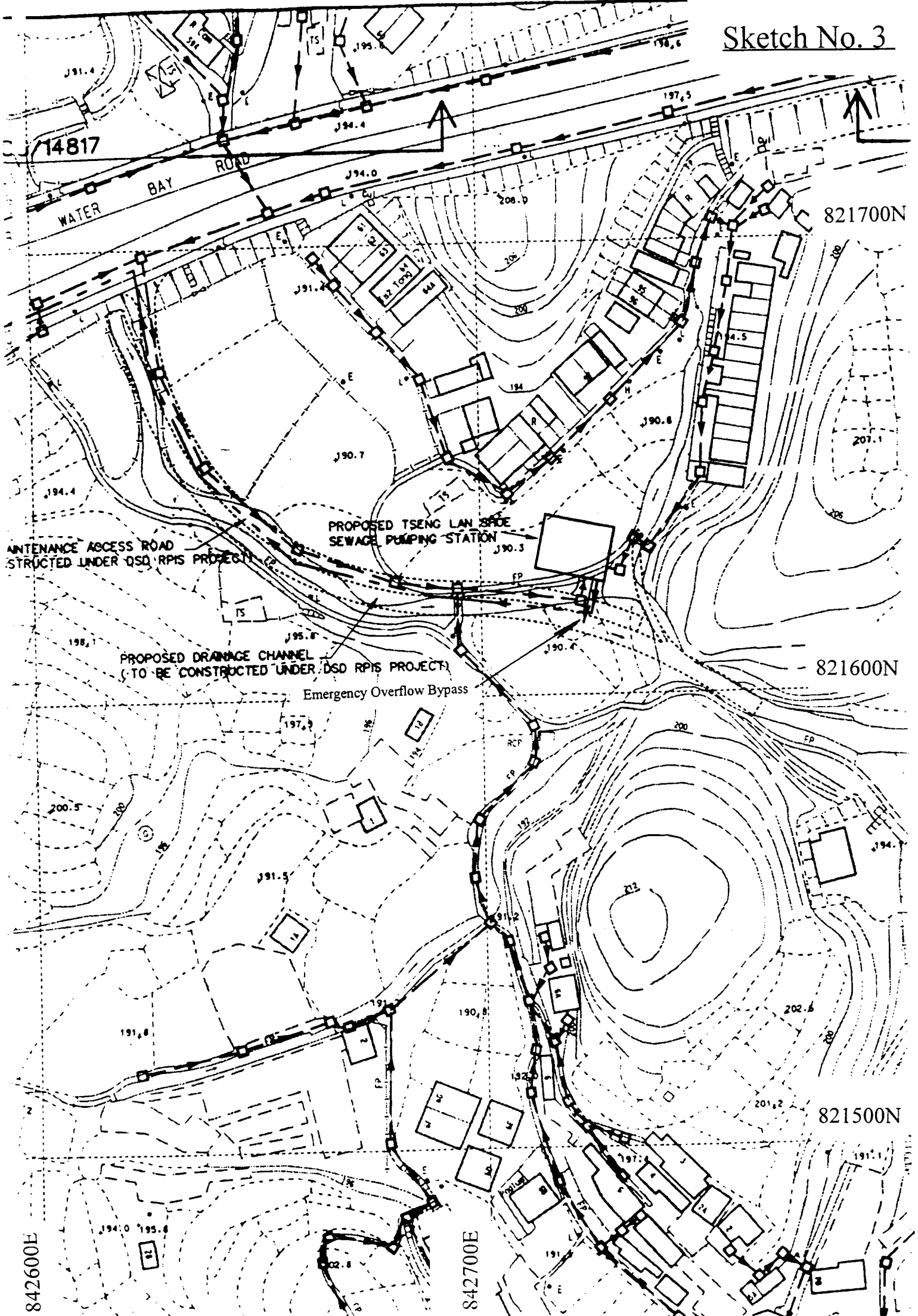
843100E

843200E

821900N

821800N

Sketch No. 3



821700N

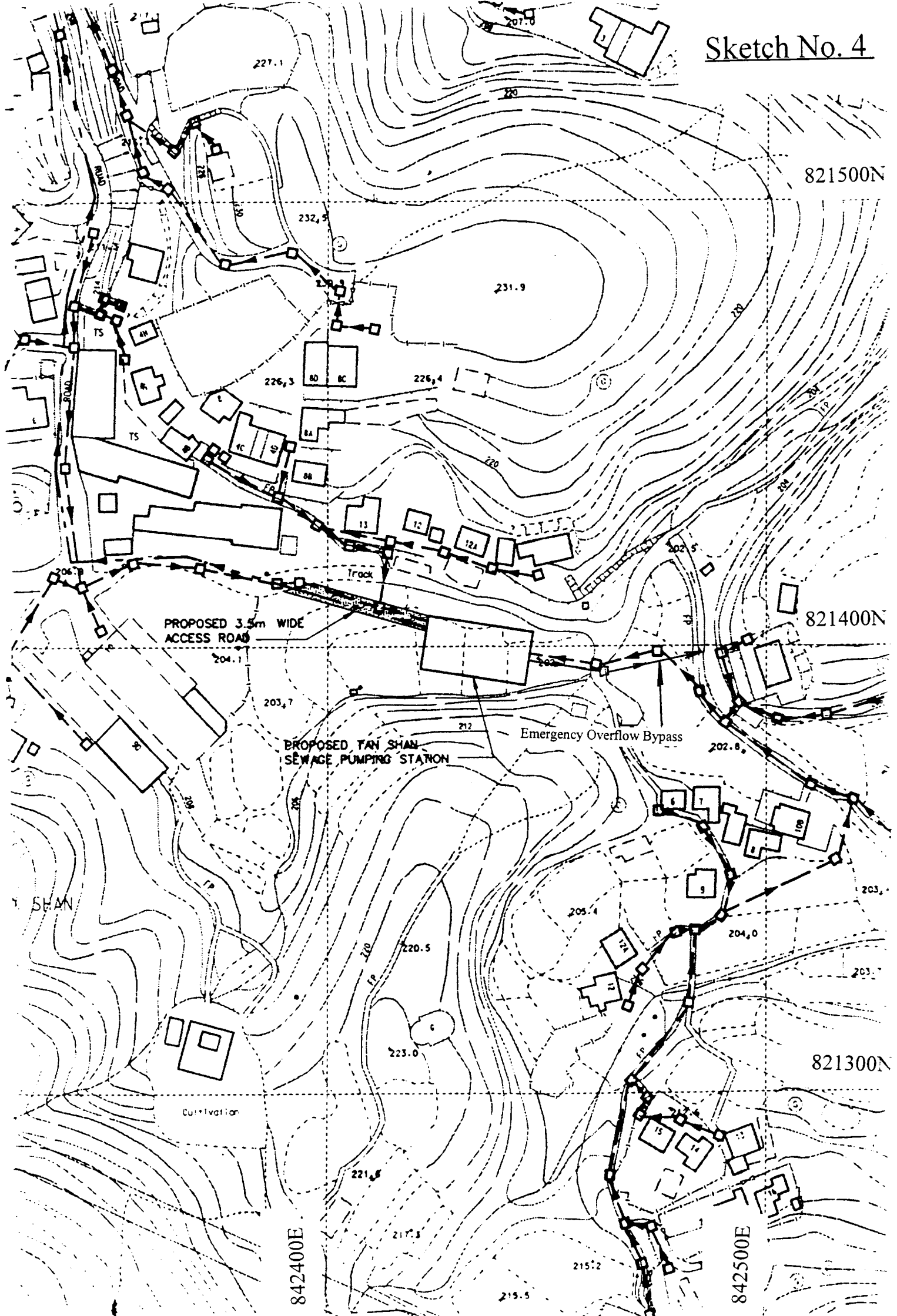
821600N

821500N

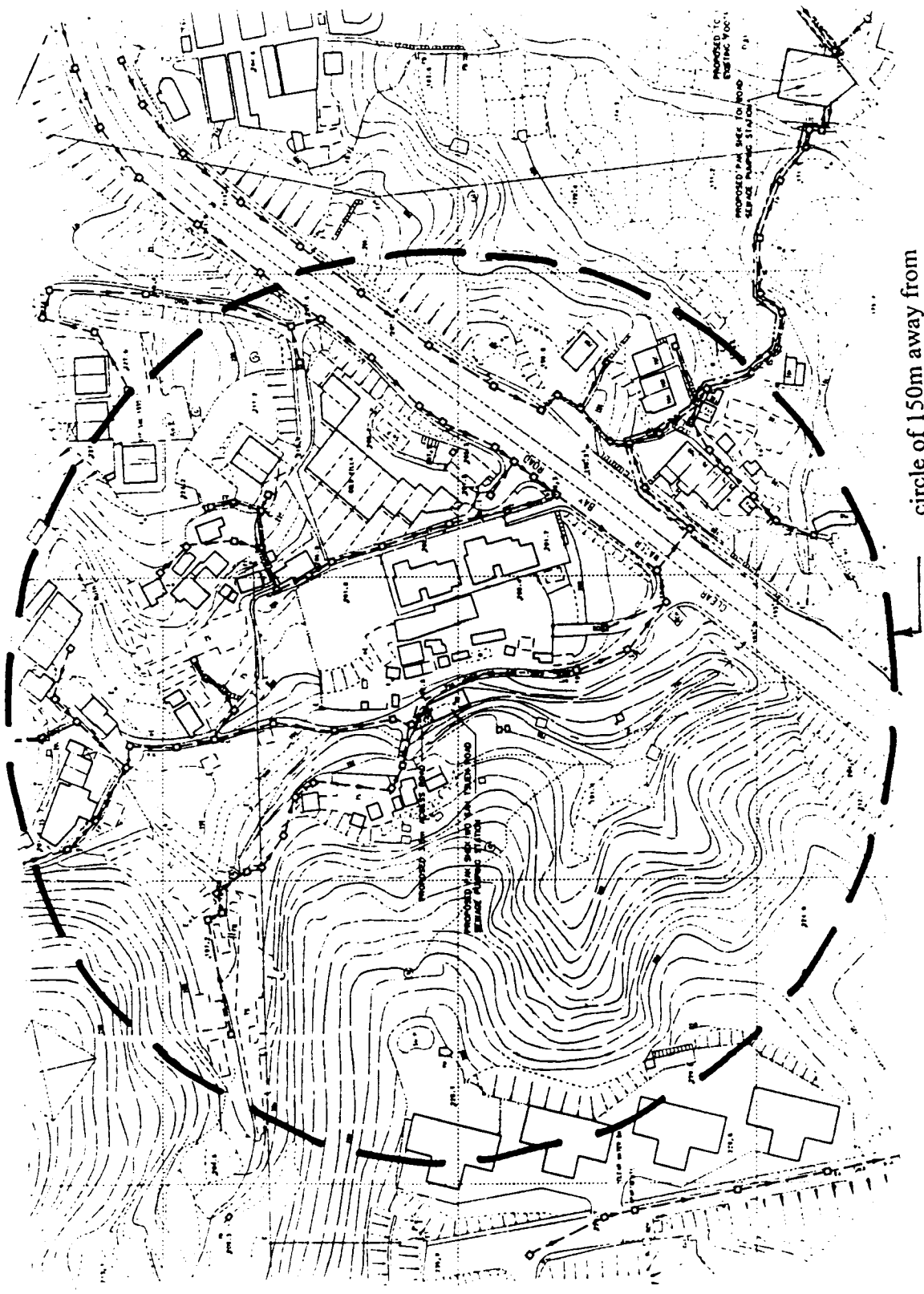
842600E

842700E

Sketch No. 4



Appendix IV



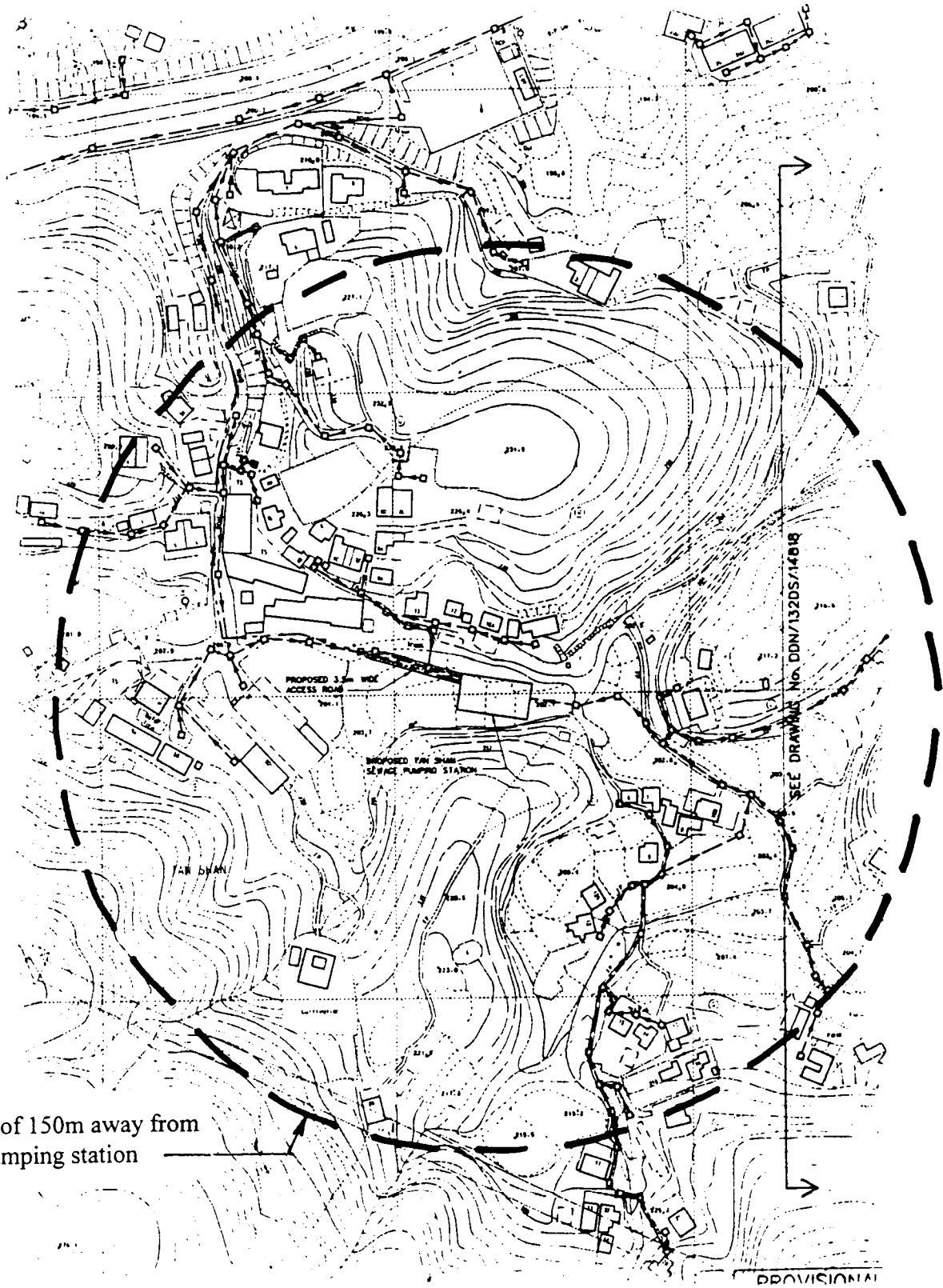
circle of 150m away from
the pumping station

Sketch No. 2

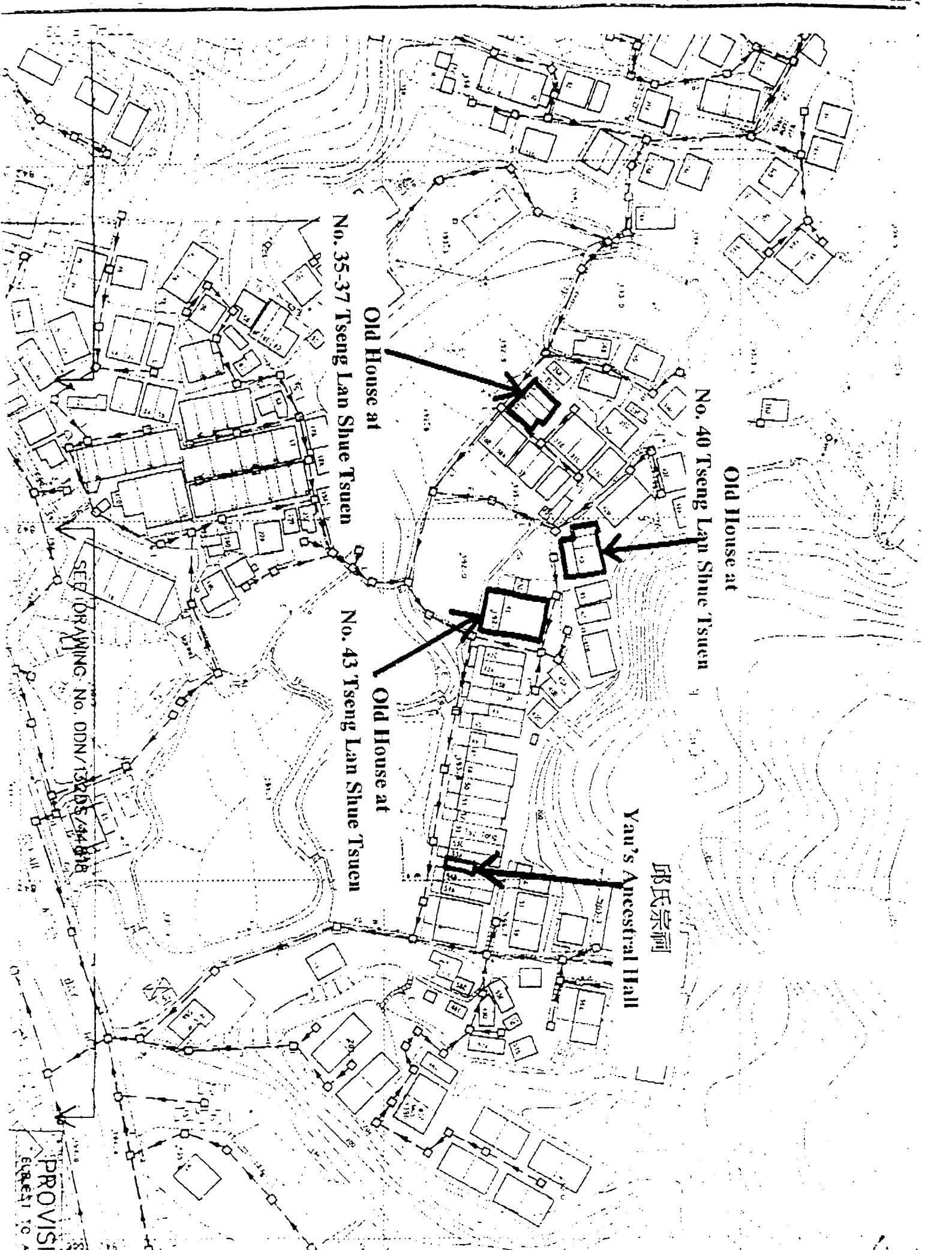


circle of 150m away from
the pumping station





Appendix V



No. 35-37 Tseng Lan Shue Tsuen

Old House at

No. 40 Tseng Lan Shue Tsuen

Old House at

No. 43 Tseng Lan Shue Tsuen

Old House at

Yau's Ancestral Hall

邱氏宗祠

SEE DRAWING NO. DDN/132DS/14B18

PROVISION,
CURRENT TO AGENCY

SEE DRAWING No. DDN/132DS/14B15

DATE: 1951-10-11

S.C.C. XX (1) When considered necessary by the Contractor or specified in the Contract or subsequently ordered by the Engineer, the design of any Temporary Works shall be checked and certified by an engineer independent of the Contractor and not associated with the design of the Temporary Works.

**Independent
Checking of
Temporary
Works**

(2) The design so certified shall be referred to as the certified design. The independent checking engineer shall be a professionally qualified engineer and a member of the Hong Kong Institution of Engineers or the Institution of Civil Engineers, UK or equivalent, whom the Contractor considers has suitable experience and be acceptable to the Engineer.

(3) The independent checking engineer before certifying the design of any Temporary Works in the checking certificate shall :

- (a) examine the Contractor's detailed design and method statements concerning the design, erection, use and removal of the Temporary Works, and
- (b) consider the ground conditions, the adequacy of foundations and support of the Temporary Works and any other factors which may affect the stability and safety of such Temporary Works during their erection, use and removal

so that he shall be able to certify that the Temporary Works are reasonably safe and fit for the purpose for which they are intended.

(4) Before commencing construction of any such Temporary Works identified as requiring independent certification, the Contractor shall submit to the Engineer in sufficient time for the Engineer to comply with sub clause (5) of this Special Condition of Contract :

- (a) design details and method statements concerning the design, erection, use and removal of the Temporary Works, and
- (b) the original checking certificate signed by both the independent checking engineer and by or on behalf of the Contractor.

(5) Further to the provisions of the General Conditions of Contract Clause 7, the Engineer shall examine the documentation referred to in sub clause (4) of this Special Condition of Contract and shall satisfy himself that it contains no obvious deficiency and that the independent checking engineer has carried out his duties set out in sub clause (3) of this Special Condition of Contract. Upon being so satisfied the Engineer shall issue his consent in writing for such work to commence, which shall be issued with due regard to the Contractor's programme and the Contractor's actions under sub clause (4) of this Special Condition of Contract.

(6) The Contractor shall ensure that such Temporary Works are erected, used and removed in accordance with the certified design and method statements. If the Contractor wishes to deviate from the certified design, the Contractor shall submit to the Engineer further certification that any change has been properly and safely designed and has been checked and found satisfactory by the independent checking engineer, in accordance with his duties set out in clause (3) of this Special Condition of Contract, prior to the commencement of construction of such Temporary Works in accordance with sub clause (4) of the Special Condition of Contract.

(7) In all cases where the loading of such Temporary Works is applied as a separate operation after completion of their construction, before such loading is applied, the Contractor shall submit to the Engineer a further certificate signed by or on behalf of the Contractor and by the independent checking engineer confirming that the same has been constructed in accordance with the certified design. In all cases where the loading is an integral part of the construction of such Temporary Works, the Contractor shall submit to the Engineer such a certificate as soon after the construction of the same as is reasonably possible.

(8) No checking certificate certified by the independent checking engineer, with or without amendment, shall absolve the Contractor from his liability under the Contract for the design, erection, use or removal of the Temporary Works.

(9) Where any Temporary Works are specified in the Contract or considered necessary by the Contractor to be independently checked, the Contractor shall bear the Cost of such independent checking. However, should the Engineer subsequently order any Temporary Works to be independently checked, then the Engineer shall ascertain the additional Cost incurred and shall certify such Cost in accordance with General Condition of Contract Clause 79.

(10) Where the Engineer requires, the Contractor shall provide a method statement for any Temporary Works not subject to an independent check and including but not limited to excavation and temporary access structures.

(11) If at any time and for any reason related to the work of the independent checking engineer, the Engineer is dissatisfied with the performance of the independent engineer, the Engineer shall notify the Contractor in writing giving reasons for such dissatisfaction. If the independent checking engineer does not remedy the situation within a reasonable time, the Engineer may, by a further notice in writing, require the Contractor to dismiss the independent checking engineer and the Contractor shall do so with immediate effect and not re-employing him again in connection with the Works and shall replace the independent checking engineer with a replacement selected in accordance with sub clause (2) of this Special Condition of Contract.

Appendix to S.C.C. XX

FORM I

INTERIM CHECK CERTIFICATE

Form of Certificate to be used by the Independent Checking Engineer for stage certification of the Contractor's Design.

1. We certify that reasonable professional skill and care has been used in the checking of the design of (Part of the Design) for (Name of structure or works), being part of the Contractor's Design for (Contract No.)
..... (Project Title), and are satisfied that: -

(a) It complies with the design criteria and Specification for the Works detailed in the Contract and the following additions agreed by the Employer:-

(i)

(ii)

(List any additions agreed and the Employer's reference)

(b) The Contractor's Design has been accurately translated into the working drawings which have been checked, having regard to good detailing practices. The numbers of the drawings, attached hereto as Certified Working Drawings, are:-

.....
.....
.....

(List drawing numbers and titles)

2. We further certify that we have checked and agreed with the Designer the global design of the Contractor's Design for(Name of structure or works), and are satisfied that the construction of that part of the Works of the Contractor's Design detailed in para. 1 above can be commenced without detriment to the remainder of Contractor's Design.

Signed
Independent Checking Engineer

Name of
.....
.....

(Name and address of Independent
Checking Engineer)

Date

Appendix to S.C.C. XX

FORM II

FINAL CHECK CERTIFICATE

Form of Certificate to be used by the Independent Checking Engineer where Interim Check Certificates have been issued.

1. We certify that reasonable professional skill and care has been used in the checking of the design of (Name of structure or works) being the Contractor's Design for (Contract No.) (Project Title).

2. We certify that the following interim Check Certificates have been issued:-
.....
.....
.....
(Certificate No. and date) (Description of the part of the works)

3.* We certify that the following amendments to the design and drawings have been checked and agreed by us after the issue of the interim Check Certificate(s):-
.....
.....
.....
(Certificate No. and date) (Drawing No. and description and date of amendment)

4.* We certify that the design has been accurately translated into the working drawings which have been checked, having regard to good detailing practices. The numbers of the drawings attached hereto as Certified Working Drawings are:-
.....
.....
.....
(Drawing Number) (Description or title)(List all drawings)

5. We further certify that we are satisfied that the checking of the Contractor's Design is completed.

Signed
Independent Checking Engineer

Name of
.....
.....

(Name and address of Independent
Checking Engineer)

Date

* delete as necessary

Appendix to S.C.C. XX

FORM III

CHECK CERTIFICATE

Form of Certificate to be used by the Independent Checking Engineer where stage certification is neither required nor proposed.

1. We certify that reasonable professional skill and care has been used in the checking of the design of (Name of structure or works), being the Contractor's Design for (Contract No.) (Project Title), and are satisfied that:-

(a) It complies with the design criteria and Specification for the Works detailed in the Contract and the following additions agreed by the Employer:-

(i)

(ii)

(List any additions agreed, and the Employer's reference)

(b) The Contractor's Design has been accurately translated into the working drawings which have been checked, having regard to good detailing practices. The numbers of the drawings, attached hereto as Certified Working Drawings, are:-

.....

.....

(Drawing numbers and titles to be listed here)

2. We are satisfied that the construction of (Name of structure or works) can commence.

3. We further certify that we are satisfied that the checking of the Contractor's Design is completed.

Signed
Independent Checking Engineer

Name of
.....

(Name and address of Independent
Checking Engineer)

Date

CONDITION SURVEY

Condition Survey

- (a) Prior to commencement of construction, the Contractor shall carry out condition survey to existing houses/structures alongside trench excavation.
- (b) The condition survey shall be carried out by an approved qualified surveyor who shall be Member of the Royal Institution of Chartered Surveyors in the Building Surveying Division or approved equivalent qualification and with suitable experience in the condition survey of existing buildings/structures. Three copies of the report shall be submitted to the Engineer within 30 days of the commencement of the Contract.
- (c) The report shall contain:
 - (i) a description of their various types of construction;
 - (ii) an appraisal, with photos, of the state of the existing houses/ structures;
 - (iii) the likely effect that the contractor's method of working would have on the existing houses/ structures; and
 - (iv) recommendation of monitoring the conditions of the existing buildings/ structures.
- (d) The Contractor shall fix approved tell tales to existing houses/ structures, and monitor them bi-weekly. Locations of monitoring shall include all locations where defects are found and critical positions for showing the conditions of the existing houses/ structures. Results of the monitoring, in a format to be agreed with the Engineer, shall be submitted to the Engineer within two days of each monitoring.

INDEPENDENT CHECKING ENGINEER

Independent
checking
engineer

(1) Pursuant to S.C.C. No. XX, the design of the following Temporary Works shall be certified by the independent checking engineer -

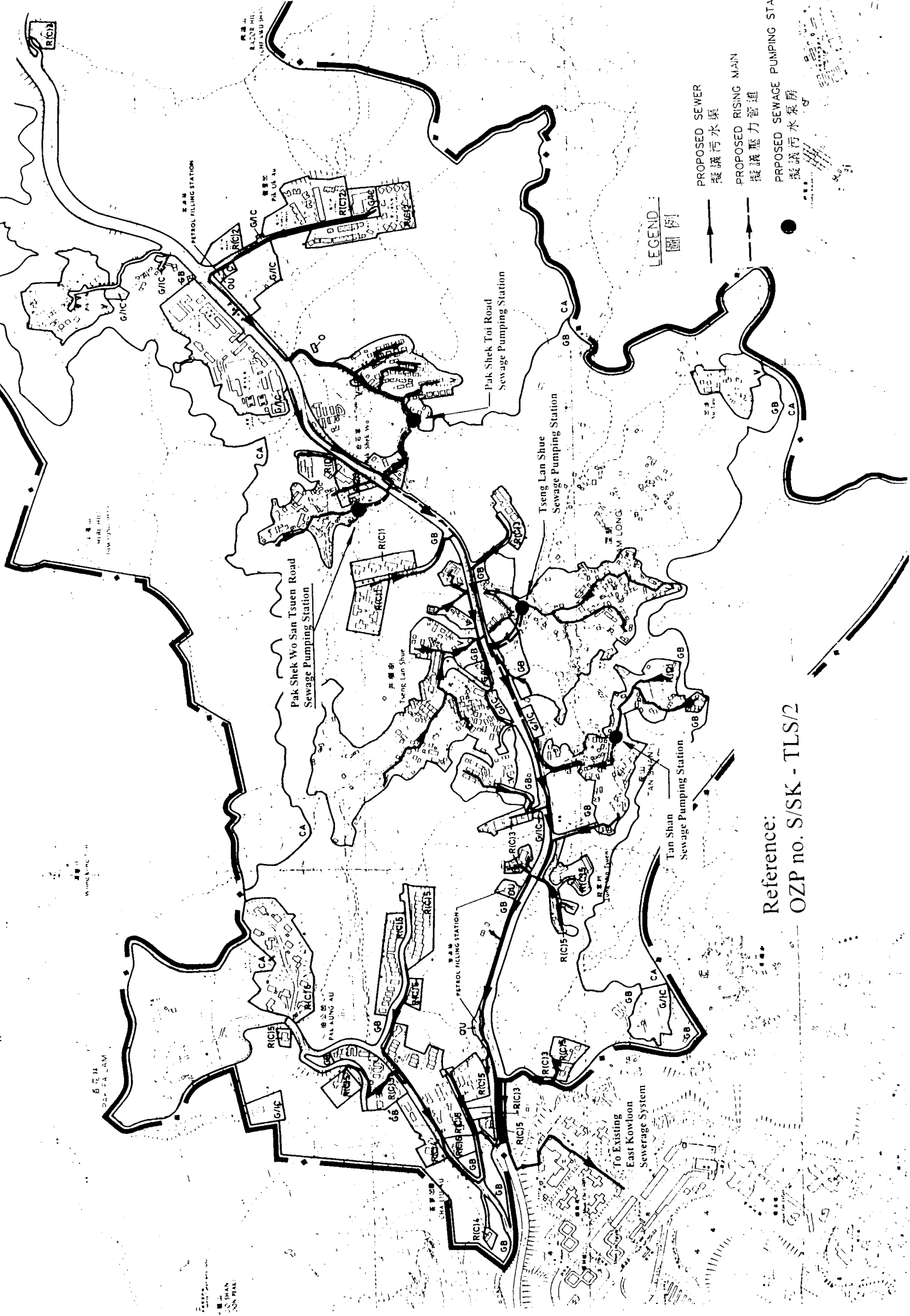
- (a) trench supporting systems;
- (b) propping to foundations of existing houses/ structures;
- (c) temporary works for the construction of footway and rising mains on slope;
- (d) temporary works for the construction of sub-structures and super-structures of six sewage pumping stations and the associated structures; and
- (e) temporary supports, remedial and protective works to slopes and retaining structures that could influence or be influenced by the Works.

(2) In addition, method statements certified by the independent checking engineer shall be provided for the erection, use and removal of the following Temporary Works -

- (a) trench supporting systems;
- (b) propping to foundations of existing houses/ structures;
- (c) temporary works for the construction of footway and rising mains on slope;
- (d) temporary works for the construction of sub-structures and super-structures of sewage pumping stations and the associated structures; and
- (e) temporary supports, remedial and protective works to slopes and retaining structures that could influence or be influenced by the Works.

(3) Any Temporary Works erected in close proximity to traffic shall be protected against impact from vehicles by suitably designed protective measures. The Contractor shall design such protective measures with regard to the conditions prevailing on the Site and the effect of any such impact. Such protective measures are to be designed as part of the Temporary Works and included in any requirement for independent checking.

Appendix VI



Reference:
OZP no. S/SK - TLS/2