

TAI PO DEVELOPMENT:
FORMATION & SERVICING OF AREA 12 (PART) & 39

Environmental
Impact Assessment

Executive Summary
(Final)

JUNE 1996



CONSULTANTS IN
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SCIENCES (ASIA) LTD

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TERRITORY DEVELOPMENT DEPARTMENT

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 C O N S U L T A N T S I N
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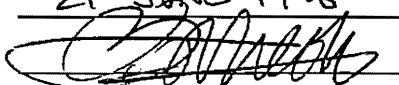
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TAI PO DEVELOPMENT
FORMATION AND SERVICING OF AREA 12 (PART) & 39

ENVIRONMENTAL IMPACT ASSESSMENT EXECUTIVE SUMMARY (FINAL)

1. This Environmental Impact Assessment (EIA) Executive Summary Report summarises the findings of the EIA study of the Tai Po Development - Formation and Servicing of Areas 12 (Part) and 39. The project proponent is the Territory Development Department (TDD). The study has been undertaken by Consultants in Environmental Sciences (Asia) Limited (CES (Asia) Ltd) as subconsultants to Maunsell Consultants Asia Limited. Additional specialist inputs to the EIA study were provided by Ecosystems Ltd and Designscape International Ltd. This report has been produced together with an EIA Report and a Phase I Environmental Monitoring and Audit Manual.
2. The Tai Po Development Project aims to complete the site formation and servicing of Area 39 and provide the infrastructure to accommodate the demand for expansion of the villages Cheung Shue Tan and Tai Po Mei, and improve the existing environment of the two villages. The Tai Po Development site is located in the North East New Territories in Tai Po Areas 12 (Part) and 39, between Shatin and Tai Po. The majority of the site is currently bounded by the Chinese University, the recently dis-used Kowloon-Canton Railway (KCR) embankment and the Tolo Highway. A new KCR track was recently constructed alongside the Tolo Highway. The development site of Area 12 (part) is restricted to two villages, Cheung Shue Tan and Tai Po Mei. Area 39 is approximately 25 hectares of flat low-lying reclaimed land which was formed under the Tolo Highway Project. The location of the project site is given in Figure ES1.
3. The context of the development is shown in Figure ES2. Various other developments are in progress, or are planned, in the vicinity of the site, including:
 - Pak Shek Kok Reclamation (Public Dump), which is the preferred site for a Science Park;
 - widening of Tolo Highway;
 - the Christopher's Home site redevelopment, presently under construction; and
 - construction of a Japanese International School.
4. The engineering works for the Tai Po Development Project are divided into Phases I and II. Phase I will develop the northern half of Area 39 which will ultimately be used as a Hong Kong Institute of Education sports ground. The duration of Phase I works is expected to be from April 1997 until December 1998 and include the following activities:
 - site formation of the northern part of Area 39 (by adding fill to raise the ground level and providing associated drains). All fill will need to be imported.
 - providing an access road for the site by widening the existing Yau King Lane and construction of a road (Road L39/1 - north) to link Area 39 to Tai Po Road. Part of Road L39/1 will be constructed on the recently dis-used KCR embankment and track.

The construction impacts of Phase I and the operational impacts of Phases I & II have been assessed in the EIA, and the findings are summarised below. The location of sensitive receivers local to the Development are shown in Figure ES3.

Construction Impacts (Phase I)

5. A noise assessment for the Phase I construction works was undertaken and indicates that, with the exception of the Villa Castell residential estate, noise levels at sensitive receivers will comply with the guidelines (ie a non-statutory daytime limit of 75 dB(A)) and are therefore acceptable. The study showed that with implementation of recommended mitigation measures, the noise impacts at Villa Castell can be reduced to within established guideline levels. Therefore it is recommended that the following mitigation measures be implemented and adhered to at Villa Castell:
 - Noise levels arising from road improvement earthworks be reduced to acceptable levels by ensuring that the hand held breaker is acoustically screened at source.
 - Noise levels arising from remaining road improvement works be reduced to acceptable levels by ensuring that all activities involving Powered Mechanical Equipment are effectively screened at source from the line of sight of the Villa Castell. Since the Villa Castell directly overlooks the proposed site for these construction activities, it will be necessary to schedule works in such a way that areas of activity are at all times screened from the line of sight by an effective acoustic barrier (4m high)
 - Noise levels arising from retaining wall installation be reduced to acceptable levels by ensuring that vibratory pokers are effectively screened from the line of sight by means of an effective acoustic barrier (4 m high).
6. The construction dust levels for Phase I construction works were assessed and show that dust levels are predicted to comply with air quality standards for dust (ie there will be no exceedances of the 1-hour air quality guideline level or the 24-hour Air Quality Objective for Total Suspended Particulates) at various representative air sensitive receivers given that the proposed good site practice procedures are adopted during construction.
7. The ecological assessment shows that since 80% of the study area is already disturbed by human activity, the overall ecological impacts of the proposed Phase I works on the existing environment are predicted to be small. No faunal species of conservation significance were recorded. One protected plant species was found which can be transplanted. There is also a small area of woodland habitat which will be lost. The ecological impacts identified for stream areas in Phase I will include loss of aquatic habitat due to culverting. However, due to the present low ecological value of the stream areas, the impacts are not considered to be ecologically significant. Mitigation for the loss of woodland habitat from Phase I is considered necessary due to the value of this type of habitat to wildlife. The areas available for revegetation on-site are slightly larger than those to be lost. It is recommended that revegetation be carried out using native plant species, with species selection based on communities to be lost and the commercial

availability of seedlings. Exotic species can be utilised for rapid establishment and as nurse plants for the native species. It is also recommended that individuals of the protected species *Pavetta hongkongensis* found in the woodland be transplanted.

8. Water quality impacts during the Phase I construction will be centred on the potential contamination of the runoff catchment. Impacts may arise due to sediment or waste materials entering the watercourse and thus the marine environment. In view of the potential impacts, prevention and control measures have been recommended to reduce the impacts of construction activities to within established guideline levels.
9. The EIA study has recommended that guidelines on good site construction practices are included as contractual controls (included in Appendix D of the EIA Report) to cover the following:
 - dust emissions from construction activities;
 - control of water runoff from the construction sites, including sedimentation basins;
 - reduction of noise generated from construction activities;
 - correct handling and disposal of solid waste.
10. The study has also recommended that an Environmental Monitoring and Audit Programme is undertaken to monitor compliance of emissions and discharges from the construction activities with environmental standards and objectives. In the event of non-compliance this will enable an immediate response to review practices and mitigation measures and provide further mitigation if required. A separate Phase I Environmental Monitoring and Audit Manual has been prepared as part of the EIA giving recommendations on the basis for contracting and implementing an independent Environmental Monitoring and Audit Programme.

Operational Impacts (Phase I & II)

11. An assessment of noise impacts arising solely from the Phase I Development was undertaken and shows that although noise levels would be dominated by the contribution from traffic on Yau King Lane, these would comply with Hong Kong noise standards (HKPSG criteria). The noise assessment of the Phase I & II Development identified that road traffic noise standards (under HKPSG criteria) were exceeded at the majority of representative sensitive receivers. The assessment predicted that with no mitigation, a maximum of approximately 39 properties at Villa Castell would be eligible for indirect technical remedies. In these areas, noise levels are dominated by the noise contribution from Yau King Lane and from traffic generated by the development. Elsewhere, sensitive receivers were largely adjacent to the Phase II Development area, and predominantly affected by existing noise from the Tolo Highway. The study recommendation is that 4m noise barriers will be required at Villa Castell (indicated on Figure ES4) during and following Phase II to mitigate these effects, and reduce noise impacts to comply with the established standards (ie to within HKPSG criteria).
12. Noise impacts were also assessed from the proposed transport terminus (in Phase II) and the planned development zones adjacent to the Phase II Development area. To protect

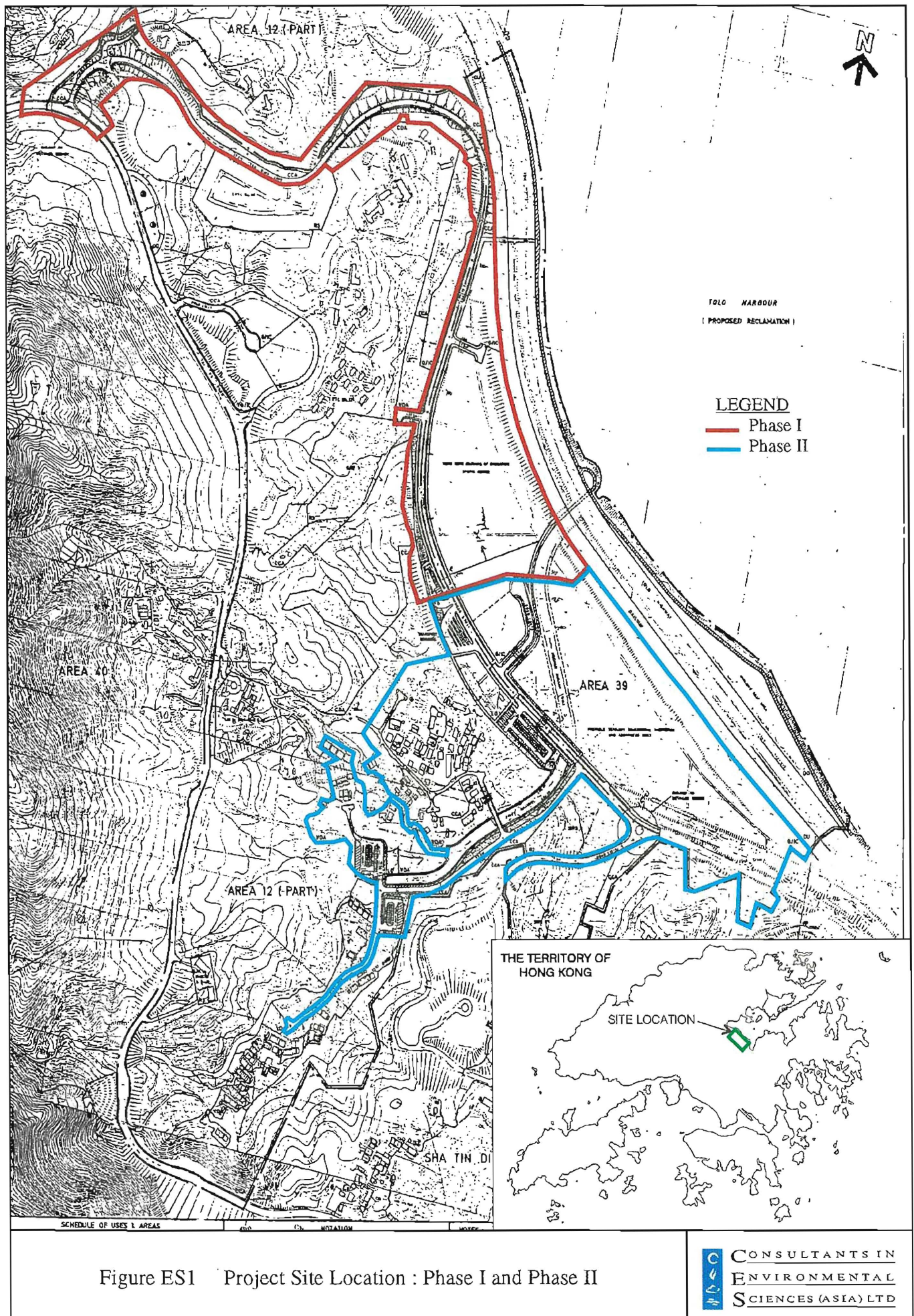
planned development adjacent to the terminus, a precautionary approach has been taken and a 3m high earth bund recommended as a mitigation measure to reduce future noise impacts (see Figure ES5). At other planned development areas, the noise levels were predominately influenced by Tolo Highway, and traffic generated by the Phase I & II Development did not represent a constraint to other planned development areas.

13. An assessment of the impact of vehicle emissions was undertaken, based on predictions made for the year 2011 (including the activities of both Phase I and II Development). This predicted that there would be no impacts from traffic generated by the development and that emissions levels from this source would comply with Hong Kong air quality standards. This assessment also considered the effect of potential secondary impacts arising from noise barriers. Therefore there are no predicted constraints for the Development from this source.
14. There are, however, predicted to be air quality constraints for the Development arising from traffic emissions from Tolo Highway. Similarly, the Development itself will place constraints on the Tolo Highway widening scheme. For planned air sensitive uses located within the future Development site, predicted air quality levels indicated that a minimum buffer distance of 50m (at 1.5m above ground) in the year 2000, and 40 metres in the year 2011, would be required from the Tolo Highway in order to meet air quality standards (the Hong Kong Air Quality Objectives). This will also be a constraint on the future alignment for the Tolo Highway Widening project. The study recommends that no air sensitive uses are located within this buffer area.
15. The ecological assessment of Phases I and II shows resultant losses of 1.61 ha of woodland, 0.36 ha of shrubland, 0.22 ha of grassland, 3.7 ha of agriculture/orchard, and 23.3 ha of various disturbed areas. With the exception of a two small areas of woodland, none of the habitats surveyed were of particular conservation or ecological significance based on floral composition. Some of the habitats to be lost (woodland and agriculture/orchard) were found to be of use to local wildlife as foraging and nesting habitat. These would be mitigated by the planting of woodland recommended for Phase I. The ecological impacts identified for stream areas will include loss of the lower reaches of Tai Po Mei Stream to channelling during Phase II. Mitigation of these impacts is not possible while retaining the planned flood control function of the modified stream channels. Due to the present low ecological value of these areas, the impacts are not of considered to be of ecological significance.
16. The assessment of visual impacts from Phase I Development identified that, with the exception of some accommodation blocks of the Chinese University and localised impacts on villages, the vast majority of sensitive receivers will be the thousands of travellers on the KCR and the Tolo Highway. These receivers will be subjected to a very specific form of visual impact; being of quite a high level yet very temporary and thereby less intrusive. With suitable landscape provision, the intended use of the proposed land would lead to an acceptable level of visual impact. Of more specific concern is the Yau King Lane access road which will give rise to high levels of visual impact, but which can be

mitigated by suitable design and landscape treatment. The visual assessment of Phase II identified a concern with the proposals for works within the valley to the south-west of the site, between Wong Nai Fai and Po Min village. These are considered to give rise to high levels of visual impact, though some mitigation would be possible in the detailed design of these schemes.

Conclusions

17. Following consideration and assessment of the Phase I construction works and the operational characteristics of the Phase I & II Development, the EIA assessment has identified adverse impacts in relation to the following.
 - Construction noise impacts arising at the Villa Castell. If the recommended mitigation measures of a 4m high noise barrier are implemented, then it is predicted that noise levels can be reduced to within established guideline levels, and there will be no significant residual impacts.
 - Operational noise impacts arising at the Villa Castell from Phase I & II Development. If the recommended mitigation measures of a 4m high noise barrier are implemented, then it is predicted that noise levels can be reduced to within established guideline levels, and there will be no significant residual impacts.
 - Operational noise impacts arising at the Transport Terminus on adjacent planned development zones. If the recommended mitigation measure of a 3m high earth noise bund is implemented, then it is expected that there will be no significant residual impacts.
 - Operational air quality impacts arising at from Tolo Highway on the planned Development. If the recommended mitigation measure of a 50m buffer zone from the Highway to air sensitive uses (for the year 2000) is implemented, then it is expected that there will be no significant residual impacts.
 - Ecological impacts arising during Phase I Development. If the recommended mitigation measures of transplanting and woodland planting are implemented, then it is expected that there will be no significant residual impacts.
 - Some residual visual impacts remain associated with the stream works between Wong Nai Fai and Po Min villages. Options for further mitigation remain available at the detailed design stage.
18. With the implementation of the mitigation measures as recommended above, the study concludes that the construction works of the Phase I construction, and operational characteristics of the Phase I & II Development are within established guideline levels.



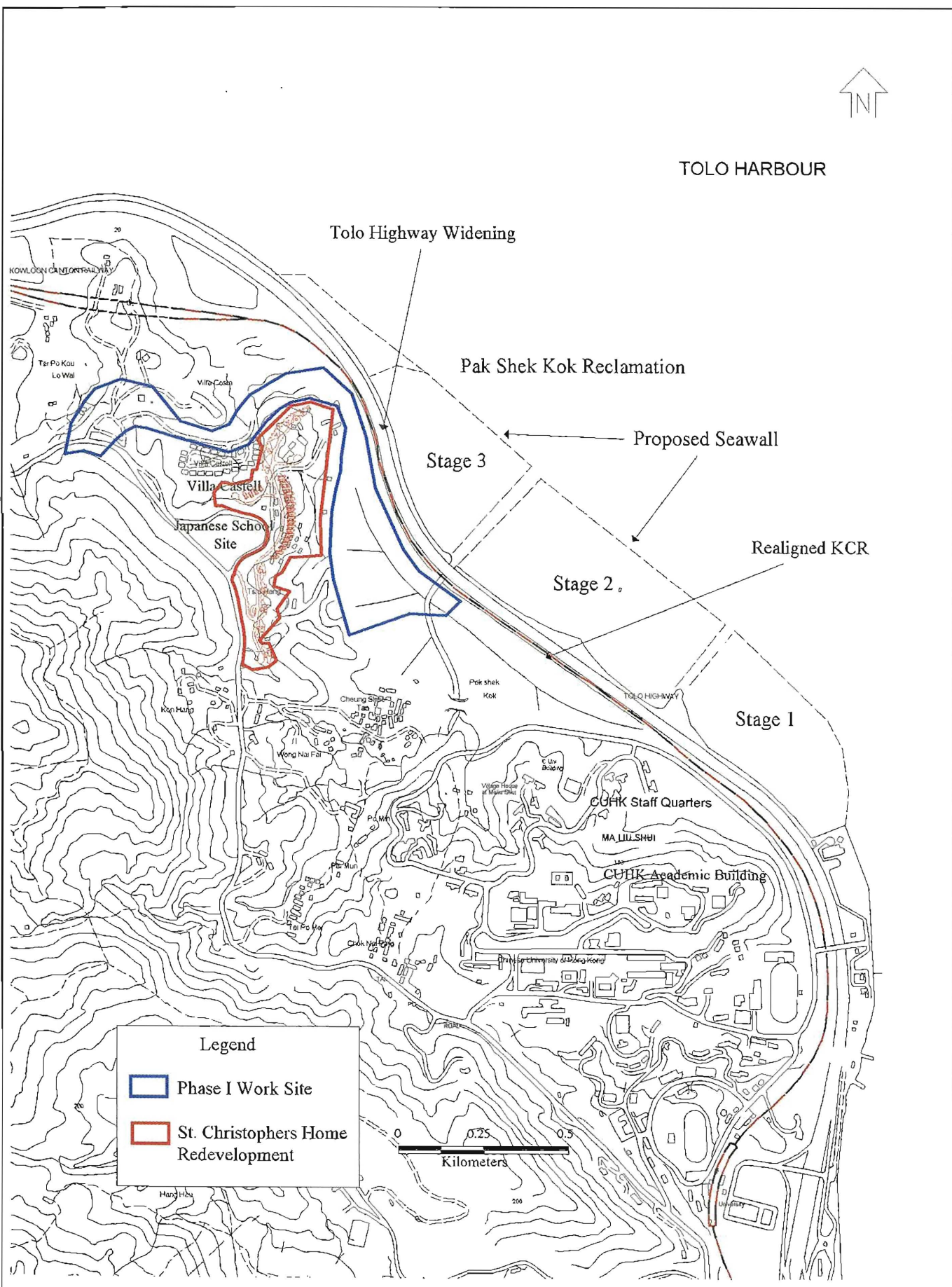


Figure ES2 Development Schemes in Local Area

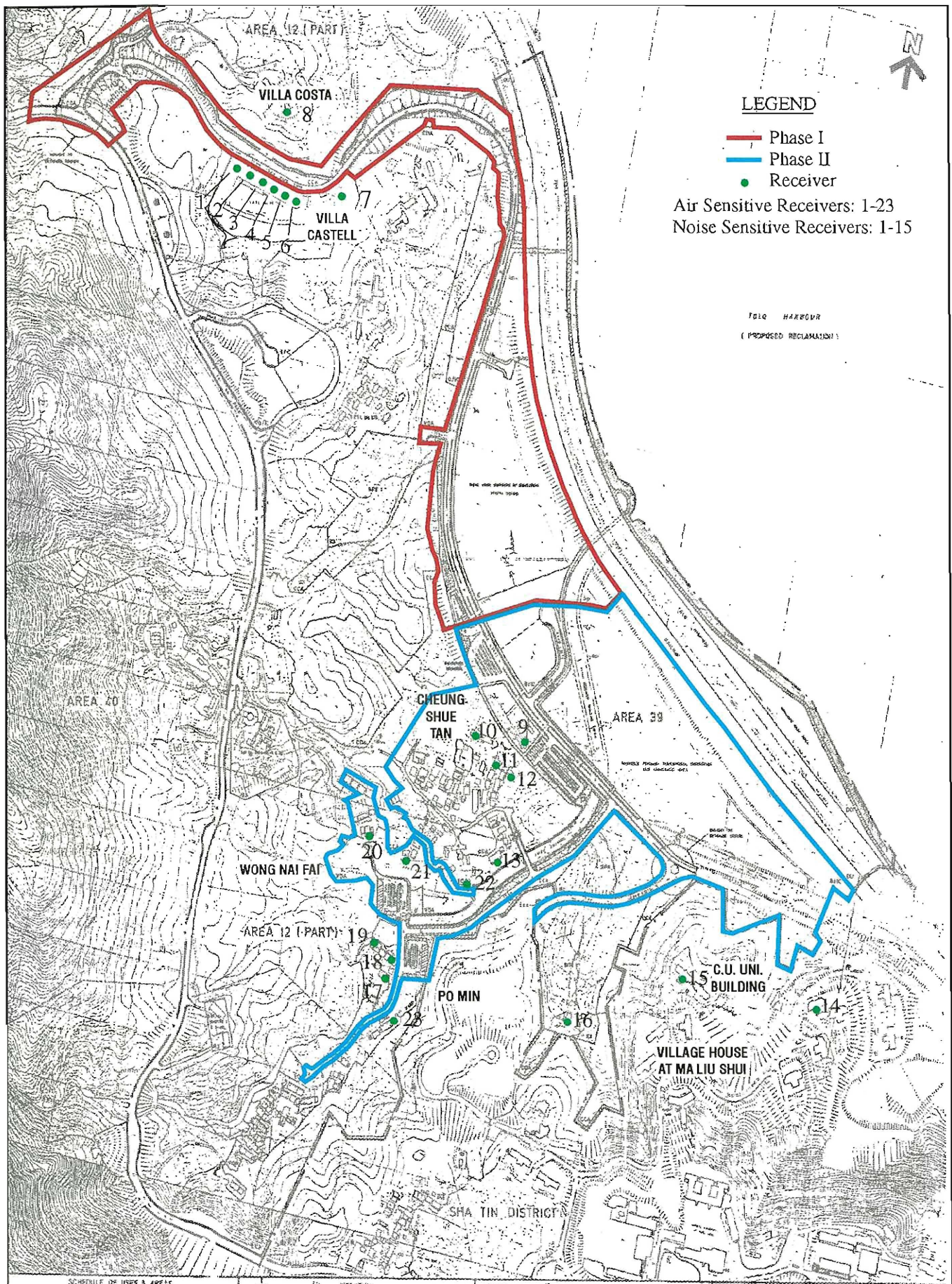


Figure ES3 Location of Representative Noise and Air Sensitive Receivers

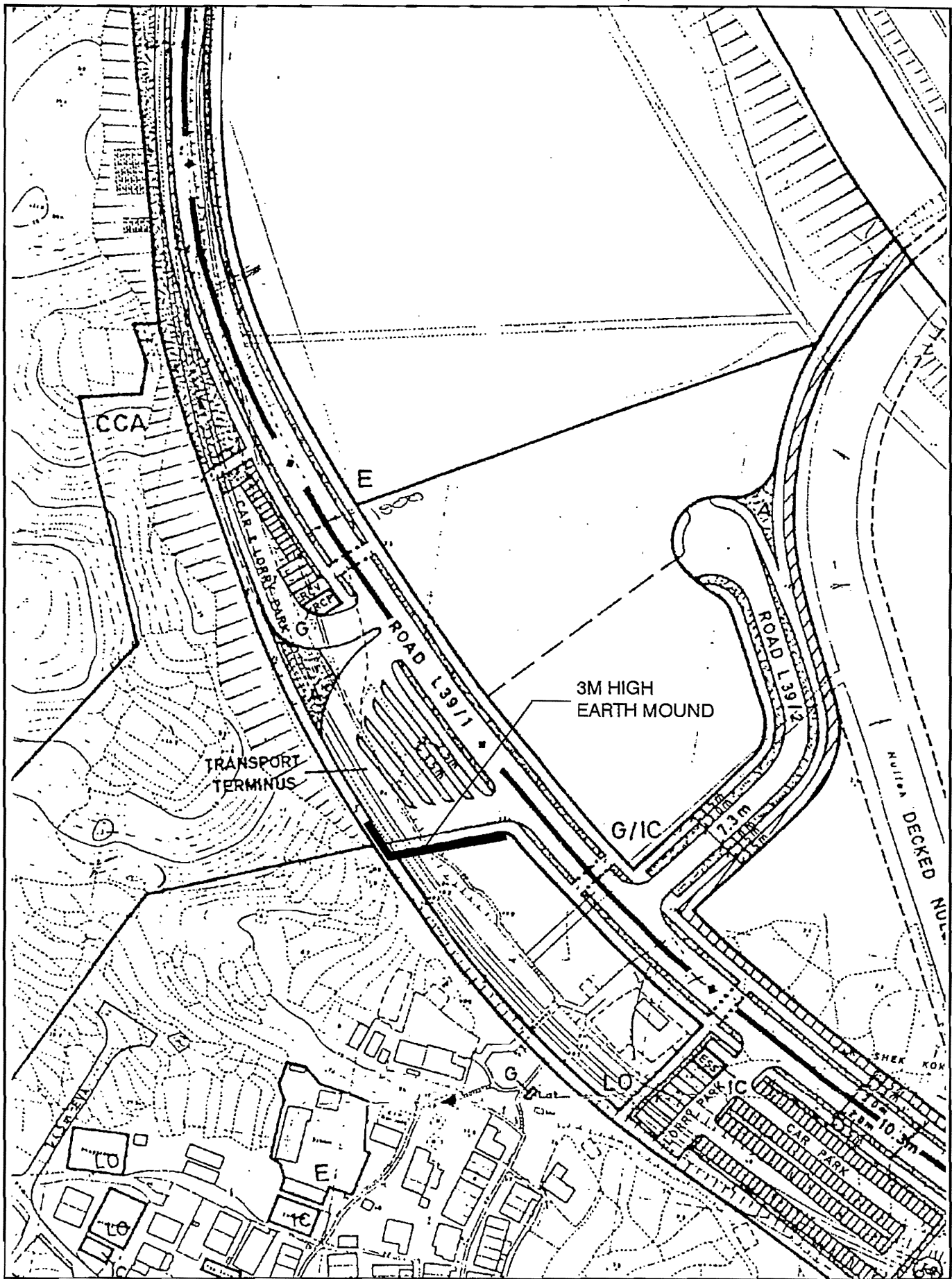


Figure ES5 Terminus Layout and Noise Bund

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