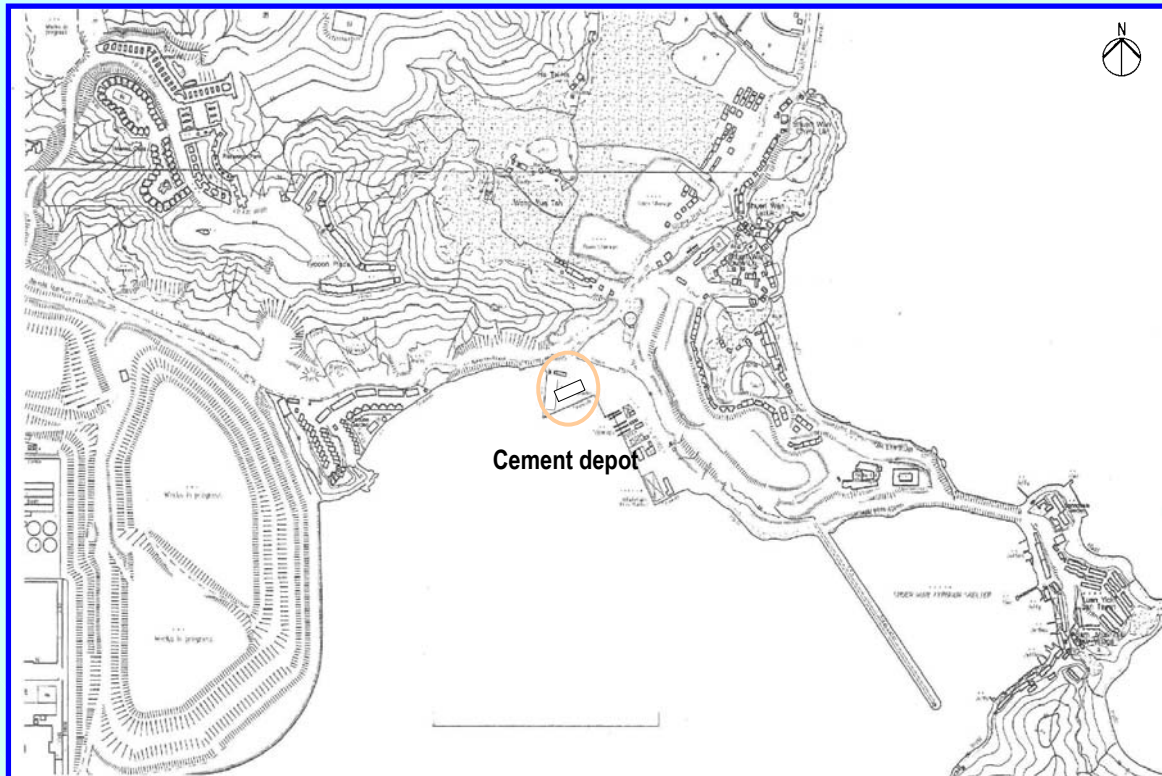




K. Wah Materials Limited

嘉華材料有限公司



**Environmental Impact Assessment Study
for Cement Silos Addition Work in
Tai Po Depot**

大埔水泥站之附加水泥庫
環境影響評估研究

Executive Summary

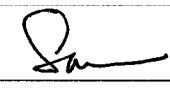
行政摘要

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1 INTRODUCTION

This executive summary outlines the findings and recommendations of the Environmental Impact Assessment (EIA) Study for the proposed expansion of cement depot in Tai Po. The executive summary is structured as follows:

- Project Background
- Project Description
- Scope of the Study
- Potential Environmental Impacts and Mitigation Measures
- Summary of Environmental Outcomes
- Environmental Monitoring and Audit Requirements
- Conclusions

2 PROJECT BACKGROUND

The existing Tai Po cement depot is operated by K. Wah Materials Ltd. (hereafter refer to as the Project Proponent). It covers approximately 5,900 m² and consists of 6 cement silos with a total capacity of 8,500 MT (Fig.1a). Cement is delivered to the depot through cement barges. Existing cement silo capacity is not capable of storing all the cement from one single shipment load. Current practice is to unload the cement from the silos by cement tanker for immediately delivery to clients, thus free up the silos for further storage. As a result, the barge is required to berth alongside the shore for a longer period and uploading of cement can only be operated in batch mode.

In order to reduce potential nuisance of the barge operation, the best way is to increase the depot storage capacity. The Project Proponent plans to construct three additional cement silos of total capacity at 7,500 MT. With the three additional silos, the total capacity of the depot will be increased to 16,000MT.

As the depot capacity involving cement works will be greater than 10,000MT, it is thus classified as a Designated Project under item K.5 of Part I of Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). An Environmental Permit is therefore required for the construction and operation of the cement depot. The Project Proponent has commissioned Ove Arup & Partners Hong Kong Ltd (Arup) to provide the environmental consultancy services for this application. A study brief (ESB-084/2001) was issued by EPD on 30 October 2001 outlining the requirements of the EIA Study and an EIA report has been prepared accordingly.

3 PROJECT DESCRIPTION

Due to the limited capacity of existing silos, 3 additional silos of total capacity at 7,500MT are proposed to be constructed within the existing cement depot (Fig. 1b). Each silo will be fitted with a dust collector and connected to the existing loading points for unloading to the cement tankers. Therefore, there will be no increase in the number of cement tanker loading points.

Additional cement silos are purely for storage purpose only. It shortens the duration for cement unloading from the ocean going vessel and cement uploading from the barge. Moreover, it allows more efficient planning of cement tanker delivery. Therefore, the duration of any noise nuisance and marine traffic impact from the barge and vessel operations will be greatly reduced.

The construction of the additional cement silos will consist of three stages, including ground excavation, setting of foundation and the silo erection works. The tentative construction programme for the addition of 3 silos will start from February 2003 to November 2003 and their operation will start immediately afterwards.

4 SCOPE OF THE STUDY

The EIA study has addressed the likely potential noise, dust, water quality, waste management and visual impacts of the project during construction and operational phases of the cement works, with and without mitigation measures. As the proposed project site is within the existing industrial premises, there will not be any impacts on local ecology, landscaping, site of cultural importance or listed buildings.

5 SUMMARY OF POTENTIAL IMPACTS

An EIA report has been prepared to provide information on the nature of environmental impacts likely to arise from the construction and operation of the proposed expansion of the existing cement depot. The EIA has also assessed the acceptability of the identified environmental impacts on representative sensitive receivers following the implementation of the proposed mitigation measures.

The assessment methodologies adopted for the study follow the guidelines as outlined in the Technical Memorandum on EIAO Process. Quantitative assessments have been carried out with the use of computer models and standard theoretical principles, which are accepted by EPD.

5.1 Air Quality Impacts

5.1.1 Construction Phase

K.Wah Concrete Ltd. agreed that the West Wing Concrete Batching Plant will not be operated during the construction period. Other than watering the ground by an automated watering system at an interval of every 30 minutes, those measures specified under the Air Pollution Control Regulation (Construction Dust) for dust control have to be strictly followed. The predicted cumulative 1-hr and 24-hr TSP concentrations at all the air sensitive receivers will comply with the Air Quality Objectives.

5.1.2 Operational Phase

Other than watering the ground by an automated watering system at an interval of every 30 minutes, those measures specified under the Guidance Note on the Best Practicable Means Requirement for Cement Works (Cement Depot) BPM 3/1 have to be strictly followed. The predicted 24-hr TSP and 24-hr RSP at all sensitive receivers will comply with the AQO limits.

A revised licence for the Specified Process (cement works) for the operator of the cement works will be required. The licensing conditions should be strictly followed to ensure that there is no environmental impact on the nearby sensitive receivers.

5.2 Noise Impact

5.2.1 Construction Noise

Taking into account the noise level generated from the operation of the existing cement works and the adjacent concrete batching plant, the predicted cumulative noise levels of the construction of the project at the noise sensitive receivers of Casa Marina III, will exceed the respective construction noise limits for the “Do-nothing” scenario. A combination of mitigation measures have been evaluated to reduce the identified impacts, including:

- the use of silenced Powered Mechanical Equipment for excavation;
- the use of portable barriers for Drilling Rig; and
- the implementation of good site practices.

With the implementation of the recommended mitigation measures, the predicted noise levels during the construction of the proposed expansion of the cement depot at the nearby domestic premises will comply with the daytime construction noise criterion.

5.2.2 Operational Noise

Three types of operational noise source are identified in the EIA report, including:

- Off-site noise from the ocean-going vessel;
- On-site cement works and the associated facilities; and
- Off-site traffic noise.

Off-site Ocean Going Vessel

There is no nighttime work (0700 – 2300) for the ocean going vessel. The predicted noise impacts generated from ocean going vessel at the sensitive receivers along the coast of Ma On Shan and Planned whitehead development will comply with both the day and evening time noise criteria provided that the vessel is anchored at a proper location as determined in the EIA report.

On-site Cement Work and the Associated Facilities

The predicted cumulative noise impacts generated by on-site activities on Casa Marina III will be higher than the operation noise limits. A combination of mitigation measures has been evaluated to reduce the identified impacts and they are summarized in Table 1.

- Adopt screw conveyor barge instead of pumping barge
- Erect acoustic barriers for the Cement Unloading Bay
- Restrict the operation time of the cement depot from 0700 to 2300

With the implementation of the suggested mitigation measures, the predicted noise impacts generated from the cement depot operation on the sensitive receivers (incl. Casa Marina III) will be insignificant (<1dB(A)).

Off-site Traffic Noise

Noise generated from off site activities is mainly from the vehicular traffic flow. It is predicted that the overall traffic noise at Casa Marina III will exceed the noise limit in 2018. However, the major contribution of the traffic noise level is from the vehicles on existing road. Noise impact from the cement tankers will be insignificant (< 1dB(A)). Mitigation measures on the cement tankers are therefore not necessary.

5.3 Water Quality Impact

5.3.1 Construction Phase

During the excavation works, soil surfaces would be exposed and suspended particles will be present in the surface runoff. As the construction site is located near Tolo Harbour, the coastal waters could be potentially impacted by sediment laden and polluted runoff if the construction runoff is not properly controlled. Pollution sources will include the excavated material with rain wash and wash water from dust suppression sprays. Uncontrolled discharge of debris and rubbish, such as packaging and used construction materials, could result in floating refuse affecting the aesthetic quality of the coastal waters.

Mitigation measures will be implemented to control construction site runoff, and to minimise the chances of introducing sediment and other pollutants into the nearby coastal waters. Good practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be followed.

Domestic sewage would be generated from the site workforce during the construction phase. Properly maintained portable chemical toilets are adopted on-site. No water quality impact is anticipated.

5.3.2 Operational Phase

During operational phase, there is no effluent discharge to the adjacent water body and adverse water quality impact is therefore not anticipated. The surface run-off will be collected by on-site drainage channel and re-used after treatment by sedimentation. Regular environmental audit shall be conducted to check the environmental performance of daily operation to ensure that no effluents will be discharged into Tolo Harbour.

5.4 Visual impact

The positioning of additional silos in adjacency of the existing silos is considered the best location within the site boundary. By making use of the screening effect of existing silos, the proposed location helps to reduce the visual impact.

Slight or moderate adverse visual impact will be induced by the project at all sensitive receivers. Mitigation measures on the design details of the silos are recommended to reduce the visual impact on these receivers. In order to increase the compatibility with the existing environment, the height and shape of the additional silos will be similar to that of the existing silos. The barrier under the silos will be painted deep green, while the surface of the silo is left in non-reflective grey white colour. Fig.2c shows the photomontage for this option.

With these mitigation measures, visual impact will be reduced to slight and negligible at all locations. The overall evaluation of visual impact is acceptable with mitigation measures.

5.5 Waste Management

Waste to be generated during the construction phase of the proposed development will comprise excavated material, construction material and general refuse. The volume of excavated material is estimated to be approximately 1000m³. Due to the inert nature of the excavated material, the material can be considered for re-use on site or dispose of at public filling area.

During the operational phase, all cement is expected to be delivered to the clients through the cement tankers on the same day as barge uploading. In addition, maintenance of the tankers is not allowed in the Depot. There is also no diesel fuel stored in the Depot.

Good waste management practices including avoiding, minimizing, reusing and recycling will be adopted to reduce waste generation during construction phase. Scrap metals or abandoned equipment will be recycled if practical.

General refuse generated from the construction and operation of the project will be collected from lidded bins and delivered to a central collection point where they will be stored in containers to prevent, windblown litter, vermin, water pollution and visual impact.

6 SUMMARY OF MITIGATION MEASURES

The proposed project site is within the existing cement depot. There will not be any impacts on local ecology, landscaping, site of cultural importance or listed buildings.

The major mitigation measures during the construction and operational phases are summarized in Table 1.

Table 1: Summary of major mitigation measures

Environmental Issues		Mitigation Measures
Air Quality	Construction (Dust)	<ul style="list-style-type: none"> Complied with the Air Pollution Control Regulation (Construction Dust)
	Operation (Fugitive Dust Emission)	<ul style="list-style-type: none"> Complied with the Guidance Note on the Best Practicable Means for Cement Works (Cement Depot) Application with the new licence for Specified Process (Cement Works) and observed for the licence conditions
Noise	Construction	<ul style="list-style-type: none"> Use of Quiet Plant Use of Portable Noise Barrier Good Site Practices
	Operation	<ul style="list-style-type: none"> Adopt screw conveyor barge Erection of barriers and enclosures Restriction the operation hour of cement depot and ocean vessel
Water Quality	Construction (Surface run-off)	<ul style="list-style-type: none"> Complied with ProPECC PN 1/94 "Construction Site Drainage"
	Operation	Not required

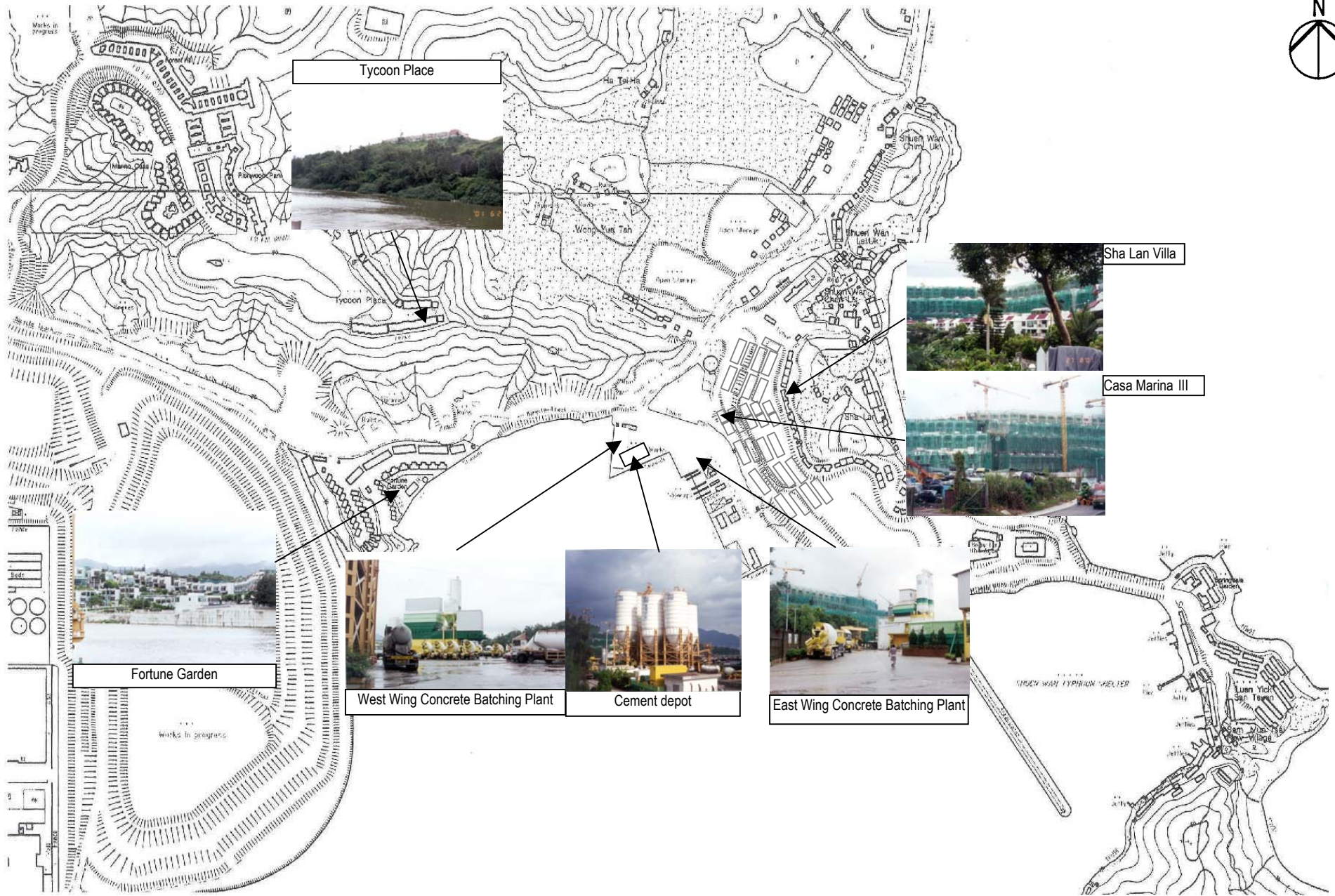
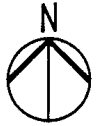
Environmental Issues		Mitigation Measures
Visual Impact	Construction	<ul style="list-style-type: none"> • Adoption of Hoarding
	Operation (Visual intrusion)	<ul style="list-style-type: none"> • Adopt similar height and shape as the existing silos for additional silos • Make use the screening effect of existing silos • Paint the barrier under the silos with deep green colour
Waste Management	Construction	<ul style="list-style-type: none"> • Good storage, collection and transport practices of Waste • Waste dispose at appropriate disposal areas
	Operation	Not required

7 ENVIRONMENTAL MONITORING AND AUDIT (EM&A)

Due to the small number of Power Mechanical Equipment and small size of the construction site, it is considered that environmental monitoring and auditing are not required provided that all the proposed mitigation measures listed in the EIA report are implemented.

8 CONCLUSION

The EIA study has assessed the potential environmental impacts on air quality, noise, water quality, visual impacts and waste management aspects. Mitigation measures, where required, will be implemented during construction and operational phases for compliance with the environmental standards. No unacceptable residual impacts are expected.



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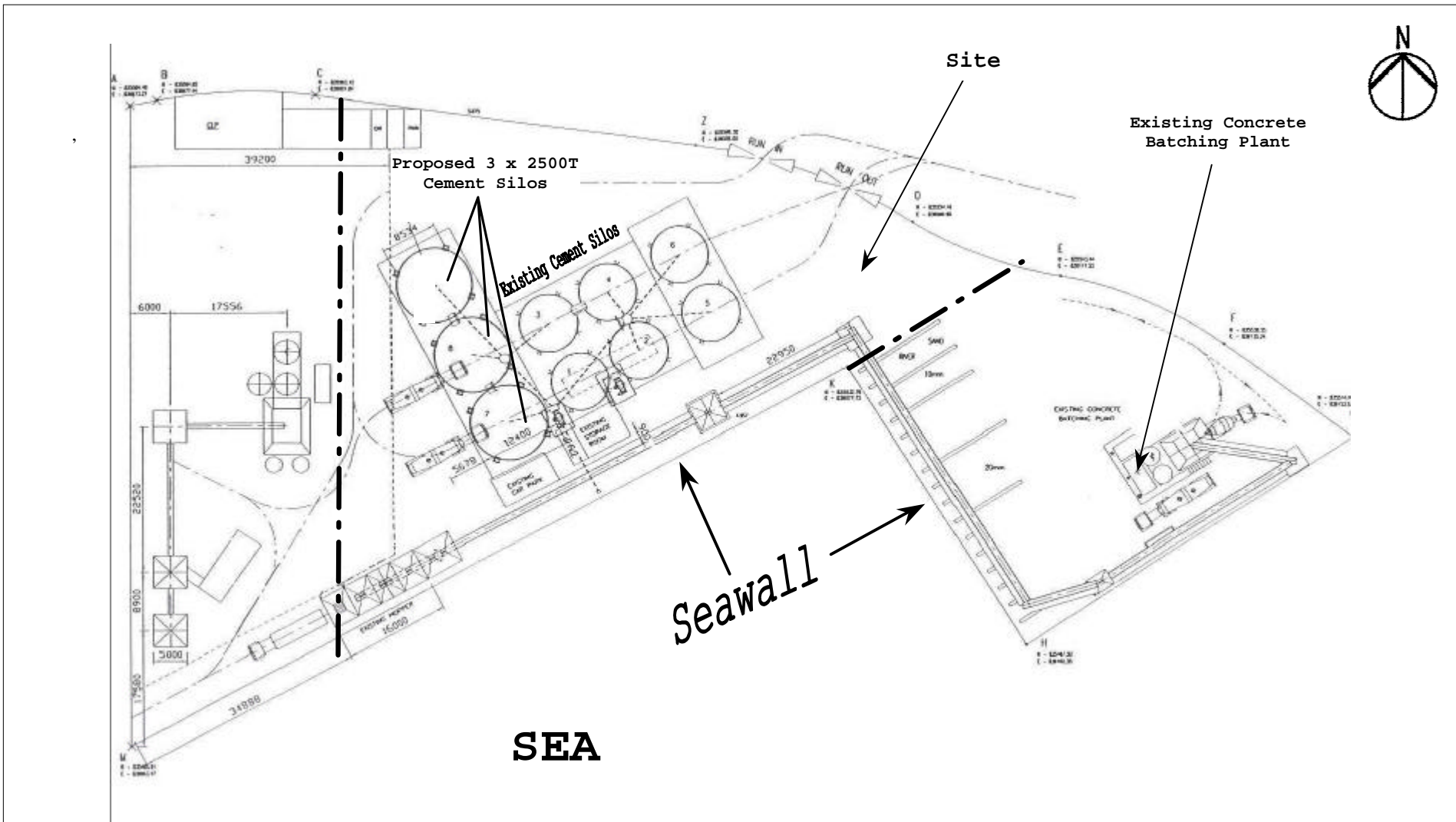
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Site Location Plan

ARUP Ove Arup & Partners
Hong Kong Limited

JOB TITLE
EIA Study for Cement Works/Concrete Batching Plant - Executive Summary

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----- Site Boundary

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Site Layout Plan

ARUP Ove Arup & Partners
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JOB TITLE
EIA Study for Cement Works/Concrete Batching Plant - Executive Summary

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Figure 2a Photo showing view from Casa Marina III (VSR 1) towards the site (prior the project).



Figure 2b Photomontage showing view from Casa Marina III (VSR 1) towards the site (after the project without visual impact mitigation measures).



Figure 2c Photomontage showing view from Casa Marina III (VSR 1) towards the site (after the project with visual impact mitigation measures option A).

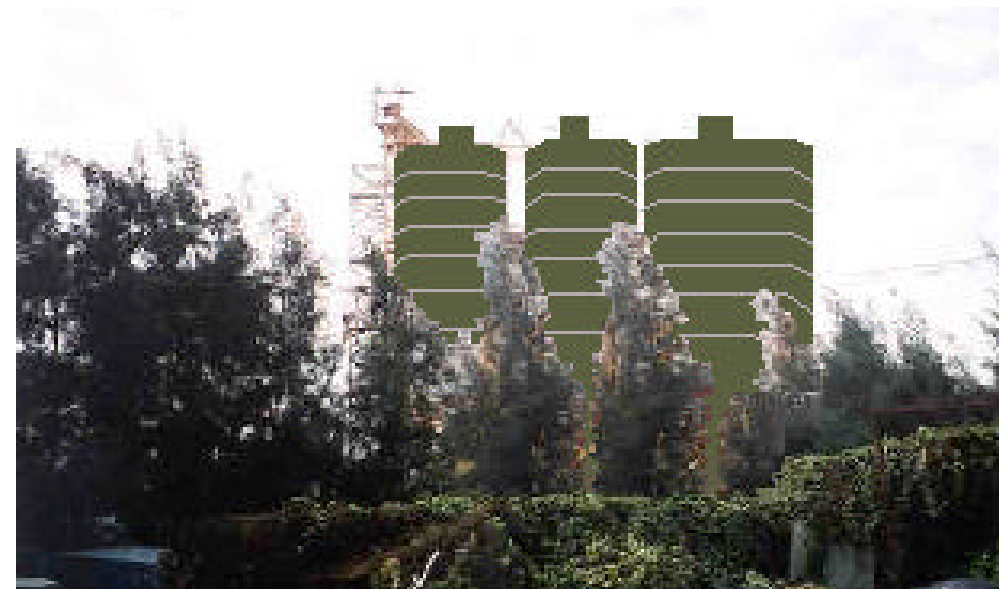


Figure 2d Photomontage showing view from Casa Marina III (VSR 1) towards the site (after the project with visual impact mitigation measures option B).

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Photomontage- Casa Marina III

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