For information **PWSCI(2001-02)26**

NOTE FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Supplementary Information on
410CL – Reclamation works for district open space and government/ institution/community facilities in north Tsing Yi

INTRODUCTION

When considering PWSC(2001-02)54 on **410CL** at the Public Works Subcommittee meeting held on 20 June 2001, Members requested the Administration to provide supplementary information on –

(a) the type and extent of contamination identified in the project area;

(b) the risk of causing adverse environmental impact during the decontamination works and reclamation works;

(c) details of other relevant precautionary and monitoring measures; and

(d) possible impact on residents living in the vicinity.

THE ADMINISTRATION'S RESPONSE

Type and extent of contamination identified in the project area

2. The contaminants identified at the work site are mainly hydrocarbons[1] and heavy metals[2]. We estimate that these contaminants spread over

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[1] Hydrocarbons include total petroleum hydrocarbons, polyaromatic hydrocarbons and traces of polychlorinated biphenyls.

[2] Heavy metals include lead, copper, zinc, chromium, nickel, tin and cadmium.

most of the existing ground area within the site down to three metres deep in some areas. About 75 000 cubic metres (m^3) of soil is contaminated with hydrocarbons, of which about one-third, i.e. 25 000m^3, also contains heavy metals. That said, an earlier investigation confirmed that contaminants in the groundwater were within the internationally-acceptable levels. The risk of contaminants leaching out into the sea is therefore rather minimal.

Risk of causing adverse environmental impact during the decontamination works and reclamation works

Decontamination works

3. We will employ the biopile method to remove hydrocarbons in the contaminated soil. For soil which contains heavy metals exceeding the respective acceptable levels, we will carry out a further solidification/stabilization process.

4. During the course of the biopile operation, we will stockpile the contaminated soil and cover it with an impermeable liner to minimise dust emissions and runoff. The biopile operation involves extraction of air within the stockpile to establish a negative pressure field within each biopile, which will then instigate the induction of air into the biopile. The induced air will maintain aerobic conditions in the soil pores and encourage biodegradation of the hydrocarbons by micro-organisms within the soil. The hydrocarbon contaminants will then be degraded and transformed into harmless elements like water, carbon dioxide, etc.. The exhaust air will carry the vapour via the extraction pipes embedded within the stockpiled soil to the activated carbon filter for removing any residual volatile contaminants prior to discharging into the atmosphere. In other words, emissions generated from the biopile operation will not contain any harmful or toxic elements.

5. In the solidification/stabilization process, we will add cement and water to the contaminated soil to form a homogeneous mixture. After the wet mixture is set and hardened to become solid mass, the heavy metals within the contaminated soils will then be bound and fixed within the mass, and therefore their mobility or leachability will be eliminated. The solid mass will be used as public fill material.

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6. We will carry out the above decontamination processes on paved land within bunded containment areas. Any surface water within these areas will be collected by a sump pit to prevent contaminated soil being washed out. Therefore, the risk of leaking contaminants into the surrounding area during decontamination works is minimal.

Reclamation works

7. We will, as far as possible, use marine plant including barges and tug boats to transport public fill materials to the reclamation area. This will help minimise adverse impacts on the local road traffic. Filling operations will be carried out directly from the barges when there is sufficient draft; otherwise, fill materials will be unloaded from barges and deposited in place by dump trucks.

8. Marine mud will be dredged by grab dredger within a silt curtain. We will strictly control the volume of dredging to limit the dispersion of suspended solids into the water. A containment curtain with a surface boom will also be used to contain all floating debris which will be cleared daily. With the implementation of these mitigation measures, the risk of causing adverse environmental impacts on the water quality when we carry out reclamation works is minimal.

Details of the relevant precautionary and monitoring measures

9. Apart from the mitigation measures mentioned in paragraphs 3 - 8 above to minimize contamination risk and control the negative impact on water quality, we will also take precautionary measures to maintain the noise level within the Environmental Protection Department (EPD)'s established guidelines of 75dB(A)L_{eq} (30 min) for dwellings, 70 and 65 dB(A)L_{eq} (30min) for schools during lessons and during examinations respectively and 70dB(A)L10(1 hour) for road traffic noise brought about by construction traffic. These measures include the use of silenced equipment, programming activities to cover appropriate time schedules and locations to alleviate noise impact, and using mufflers, silencers, or acoustic enclosures to reduce noise transmission.

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10. In respect of air quality, we will water exposed surfaces and haul roads to suppress dust generated from the construction works. Other measures include construction of a wheel washing facility and regular cleaning of the access road by flushing. We will also closely monitor the exhaust air from the filter system for odour and volatile organic compounds during the biopile operation.

11. We will set up monitoring stations for marine water, noise and air at locations recommended in the Environmental Impact Assessment (EIA) Report. We will commission independent consultants to check and review the environmental monitoring results and findings, and audit the monitoring procedures and mitigation measures. The independent consultants will also be required to check the Environmental Monitoring and Audit reports for submission to EPD for vetting.

Possible impact on residents living in the vicinity

12. With the implementation of the mitigation measures set out in paragraphs 7 - 10 above, we believe that any adverse environmental impact of the proposed project on residents living in the vicinity of the site area would be kept to a minimum. Nonetheless, we will closely monitor the situation and implement other measures if necessary.

Planning and Lands Bureau
July 2001

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