MEMO

TO:	William Bartley
FROM:	Helen Jones
SUBJECT:	Mordialloc EES Post-Panel Questions
OUR REF:	PS101340-592-HAJ-MEM-1 Rev0
DATE:	**14 March 2019**

Further to my panel appearance where I presented evidence relating to the contaminated land and acid sulphate soils elements of the Environment Effects Statement (EES) please see below commentary relating to questions taken on notice from the Panel.

Questions 1: Do you know of Australian examples where a passive landfill gas system has been successfully installed.

To close out this questions, I have undertaken some research and can confirm that the following Australian project examples contain passive landfill gas management systems:

Sydney Airport – Passive ventilation system constructed beneath a staff car park for the management of landfill gas migrating from the former Tempe Tip. WSP currently conduct ongoing monitoring for this system which includes demonstrating stack emissions and the ongoing operational compliance of the system.

Ikea Tempe (high profile site within vicinity of Sydney airport) – The open air carpark has a sub pavement passive ventilation system with publicly visible passive venting stacks. WSP developed the design for this project which is impacted by the former Tempe Tip.

WestConnex St Peters – This road corridor "cuts" through a former landfill. I understand that the tunnel component of the project manages landfill gas via an active extraction system due to the confined space issues but that the above ground areas are managed through a passive landfill gas venting system similar to the one proposed as part of the Environment Effects Statement.

Question 2: Confirm the name of the drain directly to the north of Lot 1 Grange Road and identify if that drain contained PFAS contamination.

With regard to Question 2, I can confirm that the drain located immediately north of Lot 1 Grange Road is Dunlop Drain and that PFAS compounds were noted in both surface water and sediment samples recovered from that drain. The results were however below the investigation levels noted in the Environment Effects Statement.

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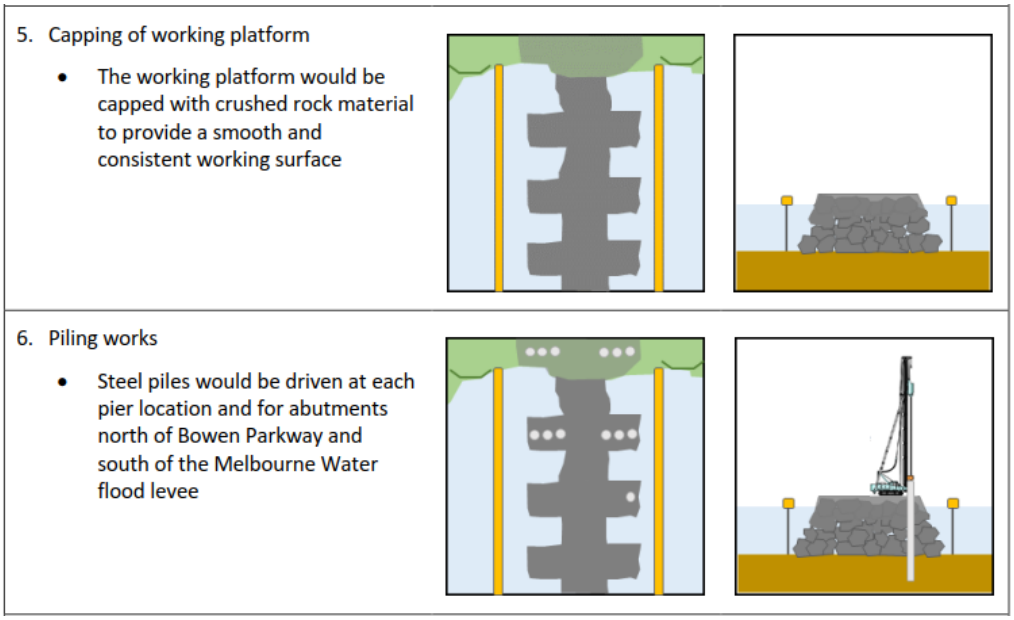
Clarification opinion: The construction of the bridge over the Waterways Wetlands could encounter Acid Sulfate Soils (ASS) that if exposed to air could oxidise and potentially impact water quality if not managed appropriately.

MRPV have provided two technical notes (Tabled Documents #54 and Technical Note 02 from the EES Hearing) showing how the bridge at the waterways wetland might be constructed. Tabled document #54 titled Predicted Construction Methodology and Estimated Construction Duration illustrates a driven piled solution to facilitate bridge construction. Technical Note 02 titled Construction Methodology for Management of Acid Sulfate Soils within the Waterways Wetlands, confirms this proposed methodology in relation to ASS management. The piling methodology presented would negate the requirement for soil removal (as the piles are driven) and as such potential oxidation of ASS is considered negligible due to the soils remaining in situ and under water.



The above extract is taken from the technical note and depicts the working platform and driven pile installation. The water in the wetlands remains present due to the porous nature (crushed rock) of the working platform. This would effectively maintain moisture content in the soils and inhibit oxidation. Water quality in terms of pH would only be impacted if soils were left to oxidise. This situation would be mitigated by the proposed approach.

If excavation of soils is required then the management measures to be employed for excavated soil will depend on the nature and location of the acid sulfate soils (to be determined through further assessment to include further classification and neutralising capacity of the soils).

The hierarchy for management that would be employed is:
1 Avoid disturbance
2 Minimise disturbance
3 Prevent oxidation
4 Treat to reduce or neutralise acidity
5 Offsite reuse or disposal

The current design employs a minimisation approach whereby disturbance will occur through piling but that this would be undertaken in a controlled environment (as noted above).

If soils are needed to be exhumed from beneath the water table, then these soils would need to be either directly removed from the area and either stored in an engineered management area prior to treatment with ag lime or removed directly to landfill. The containment would need to consider surface water interaction and mitigate overland flow from the area. pH impact on water could only occur if oxidised soil is permitted to interact with surface water (e.g. through runoff or direct exposure). Containment areas would therefore need to be designed to mitigate this and be placed at a suitable distance from the waterways.

As noted in the Environment Effects Statement and presented within my evidence, ASS will be managed using the project specific ASS Management Plan which will be developed in line with the Victorian Statutory Framework for management of ASS. Victorian EPA will also be a primary consultee to this document.

I trust the above provides sufficient clarification in relation to my panel evidence.

Helen Jones
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