TP34/1	0.4	1100
TP35/1	0.5	710
TP37/1	0.1	1100
TP40/1	0.4	690
TP42/2	0.7	410
TP42/3	3.2	780
TP44/1	0.2	610
TP46/1	0.1	1600
TP48/1	0.1	380
C1	0.1	310
MID 1	2.0	2400

* TP(n) - refers to the Trial Pit reference number as shown on Figure 1.

6. CONCLUSIONS

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6.1 Phosphorus contamination was present in a larger proportion of the site than had previously been reported. (Figure 4).

6.2 Phosphorus was present very near the surface at selected locations, constituting an environmental hazard.

6.3 Phosphorus waste was mixed with other land fill materials (Figure 4).

6.4 High phosphorus levels were present (up to 4.0%) predominantly in the south western segment of the site (Figure 3).

6.5 At 12 trial pit locations fuming occured in the excavated material on exposure to atmosphere.

6.6 Excavation resulted in materials spontaneously igniting on exposure to atmosphere at one trial pit location.

6.7 There is evidence of further elevated levels of phosphorus (randomly distributed) at isolated locations across the site eg: within the proposed building boundary (Trial Pit 19).

6.8 There is no evidence to show a direct correlation between visual absence/presence and chemical absence/presence of phosphorus (Figures 2 and 4) eg: if the material fumed then phosphorus presence could be confirmed analytically

but if the material did not fume, the absence of phosphorus could not be assumed.

6.9 Perched groundwater was found to be contaminated with phosphorus to a maximum concentration of 640 mg/l.

6.10 There is no evidence of significant contamination with respect to the remaining test parameters.

6.11 Methane has not been detected to-date. This phase of the work is continuing.

6.12 No elevated levels of radioactivity were detected during the site investigation.

The following conclusions have been drawn based upon the preceeding information with specific reference to the proposed development:

6.13 Whilst the buildings of the proposed development appear to be sited on materials with low phosphorus levels, the car park areas are located on materials shown to contain very high levels of phosphorus.

6.14 In view of the observed random distribution of phosphorus-containing materials, the possibility of the presence of further, hot-spot locations cannot be eliminated.

6.15 A reduction in the water table could result in the development of further routeways for air ingress and thus increase the

risk of spontaneous combustion of phosphorus - containing materials.

6.16 Phosphine could be evolved under the alkaline conditions present during the setting of concrete.

6.17 Plant movement and excavation across the site may present a hazard due to the disturbance of potentially combustible materials in both defined and undefined locations.

6.18 Transport of phosphorus-containing materials around the site, is not considered practical, due to the inherent hazards (ie: potential spontaneous combustion, fume generation etc.)

6.19 Deposition of the phosphorus contaminated material into a pre-excavated pit is considered impractical due to:

i) necessity to deposit into clean material
ii) presence high water table
iii) necessity to inert cover each phase of the backfill operation
iv) the required pit dimensions to facilitate safe disposal.

6.20 Ground improvement techniques may introduce new routeways for air ingress into potentially spontaneous combustible materials