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Neath Port Talbot County Borough Council
Planning Division
The Quays
Brunel Way, Baglan Energy Park
Neath
SA11 2GG

Date: 8th January 2021
Subject: Investigation of Land Around Proposed 200t Bunker

Ground Investigations

Please find attached the factual report prepared by APEX Drilling Services. The report was designed to provide data for the geotechnical suitability of the site to feed into the piling design and to provide analysis should any arisings need to be disposed of.

The ground investigations included a total of 3 boreholes were installed to 30 mbgl, two close to the bunker itself and one near the end of the conveyor. In each borehole, two samples were taken in the top four metres and one groundwater sample was taken to ensure that any concrete would not be attacked by the conditions in the area. The results of this analysis can be found in Appendix B of the report.

It should be noted that the samples were not taken for a determination of whether the site would pose a risk to human health from a contaminated land perspective. However, the majority of the analysis is identical to a contaminated land assessment. Informal discussions with planning officers at the Council confirmed our intention to use the results of the survey for this purpose.

Site Context

As the Council is aware, Tata has undertaken extensive and intrusive investigations of ground contamination and groundwater in support of development proposals at both the Power Plant and De-Dust 2020 projects on the site. The outcome of these investigations and the implications for the agreed piling method are telling.

Through modelling of contaminants in both the power plant project and on the sinter plant secondary de-dust system, Tata Steel found there is no significant risk to controlled waters from contaminants currently in the soil. The power plant site is located at relatively heavily contaminated area of the steelworks, being the location of the former coke ovens by-products plant. The sinter de-dust location had lower risk of becoming contaminated contamination and, therefore, a lower risk to ground water.

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After analysis and discussion with Officers at NPTCBC in relation to both projects, it was agreed that a driven piling method was the most appropriate to mitigate the risk of contamination and to groundwater.

Following assessment of all potential methods, the piling contractor has prepared a piling design document highlighting that steel piles will be required. This method will meet the safe working bearing loads of 435 kN compression, 180 kN tension and 30 kN shear. This design document shows that, due to the relatively small size of the piling rig, the noise output is low for this type of machinery. According to the risk assessment the machine normally operates at 1750rpm generating a 75 dBA sound pressure at 7metres. It is over 600 metres to the nearest residential property and the sound of the piling rig will not be audible over the general industrial noise emanating from the site.

Accordingly, tubular steel piles have been chosen to ensure geotechnical suitability and drastically reduce the risk of potentially carrying contamination to deeper geologies.

The 200t Bunker

As discussed with the local planning authority, it is considered that there is no requirement for a full site investigation based on the fact that it would not provide information that was not apparent from other site investigation in close proximity to the area. Moreover, the agreed selection of driven piles on the basis of the worst case scenario at the power plant and at the sinter de-dust project indicates this is an appropriate means of addressing the likely risks at the steelworks site.

The area in which the new bunker will be constructed has only be used for storage of ores and other similar materials and does not have the potential to contain the same organic contaminants that were found in other areas. Tata Steel believes this area is low risk and does not present a risk to the future users of the site or to the underlying groundwater. The area is further away (than both de-dust and the power plant) from nearest residential receptors.

In order to provide additional assurance we have provided a breakdown of the contaminants and the levels present in the soil to show there are no significant risks.

Asbestos

All samples tested negative for the presence of asbestos and other non-asbestos fibres. This is to be expected as there are no buildings or furnaces in the area of construction.

Heavy Metals

Due to the storage of ores, fluxes and other input materials in this area it would be expected that there would be elevated levels of heavy metals. The table below shows the minimum and maximums for the shallow samples:

Element	Units	Max	Min	GAC
Arsenic	mg/kg	15.8	5.71	640
Cadmium	mg/kg	0.36	0.0974	190
Chromium	mg/kg	28.2	4.42	8,600
Copper	mg/kg	28.6	1.75	68,000
Lead	mg/kg	20.7	4.68	2,300

Mercury	mg/kg	<1.4	<0.14	58
Nickel	mg/kg	26.4	4.88	980
Selenium	mg/kg	<10	<1	12,000
Zinc	mg/kg	103	16.3	730,000

The metals have been compared to Generic assessment criteria for use in a commercial end-use. All the measured contaminants are significantly less than the criteria presented.

Organic contaminants

There are no buildings or stores in the area that would contribute to organic contamination in the sub-soil. Therefore it would be unexpected to find any significant organic contamination in the area except for minor drips from parked vehicles etc. Analysis of the samples shows very low levels of PAH's, TPH and BTEX as expected and all results are far below the associated GAC's for a commercial development.

Compound	Units	Max	Min	GAC
PAH (EPA16)	mg/kg	0.234	<0.118	3.6*
TPH C5-C44	mg/kg	90.6	<10	3,385
BTEX	mg/kg	<0.40	<0.040	28.13**

*- note Dibenzo(a,h)anthracene was used as it has the lowest threshold of any of the PAH compounds

** - note Benzene was used as it has the lowest threshold of the BTEX compounds.

Conclusion and Recommendation

As can be seen from the results above, the levels of contamination present in the soil are far below commercial Generic Assessment Criteria. Tata Steel believe there is no risk to employees working on the project or to future users of the site. We also the proposed construction does not pose a risk to controlled waters. This is particularly given the poor quality of the groundwater across the site,

It is recommended that:

- The ground and groundwater analysis carried out is sufficient.
- Tubular Steel driven piles for the bunker project on the basis that a similar method was agreed to mitigate the worst case risk scenario at the power plant.
- It is appropriate for the bunker project as planning for the worst case scenario in a location where the likely risks of contamination, to groundwater and noise are lower is robust.
- If agreed, there is no need for any further analysis to support the planning application for the bunker project. Any contamination and groundwater risks are sufficient low.

As discussed with the local authority in relation to development elsewhere on the steelworks, the low levels of contaminants in the shallow soils do not present a risk. However, Tata has designed the piling regime to prevent significant carry over of soils to depth. We welcome confirmation from the Council that this approach is acceptable.

Robert Naylor
Waste and Land Quality Specialist

