Attachment-7-1-3-3-1-Receiving Environmental Reports-Surface Water

The proposed development site is located within the surface water catchment of the Tolka River.The river Tolka rises in County Meath, in an area 12km northwest of Dunboyne at an elevation of 140m above mean sea level. It flows in a south easterly direction , along with a number of tributaries through agricultural land until it reaches the Fingal County Council boundary at Clonee. From Clonee it flows east south-east through Mulhuddart and Blanchardstown into Finglas.

The proposed development site is located within the surface water catchment of the Tolka River (a very minor tributary of the Tolka River is located outside the western boundary of the site).This tributary flows west before turning south and joining Pinkeen River,which discharges to the Tolka River approximately 1.5km downstream. The Tolka river subsequently flows southeast through the urbanised areas of Dublin before discharging to the Tolka estuary at Fairview. In total, this hydrological connection is approximately 16km in length. Under normal weather condition the width of the Tolka varies between 4m and 8m in the Fingal County Council area. The total length of the River Tolka is 33km.

European Sites

The proposed Development site is not within the boundaries of any European sites. The closest European site to the proposed development site is 11km to the southwest, associated with the Rye Water tributary of the River Liffey. There is no hydrological connectivity between the proposed development site and this Special Area of Conservation SAC. Given the absence of a feasible impact pathway between the proposed development site and this SAC there is no potential for operational activities of the Flexgen development to directly impact upon this European Site.The remainder of the European sites are associated with the coastal and interidal habitats of Dublin Bay and Malahide estuary.

Protected Areas

According to the EPA online map viewer, there are no protected sites with a 1 km radius of the proposed development .The nearest SAC (Special Area of Conservation) (site Code: 000206) is the North Dublin Bay approximately 12.7 km south-east of the site, while the nearest SPA (Special Protection Area) (site Code: 004006) is the South Dublin Bay and River Tolka estuary approximately 10 km south-east of the proposed development.

Water Quality Status

The water quality of the Pinkeen river and the river Tolka is monitored by the EPA and this information is available on the EPA online mapping database. The Pinkeen River is shown to be of poor- moderate quality with a biological Q rating of Q2-3 up to 2019 and Q3 in 2020. The quality has increased over time with the 2016 Q values 2-3. This water quality status is taken upstream at station bridge SE of Powerstown House. There is no downstream station

on the Pinkeen river, however there is a monitoring station downstream on the River Tolka at Mulhuddart Bridge. The river quality at this location poor Biological Q rating of Q1-2.

Surface Water Emissions

The proposed development uses Sustainability Drainage Systems (SuDs) in the surface drainage network. The SuDS techniques proposed in the design will ensure that the natural drainage patterns are replicated where possible on site and no negative impacts result from the development works in terms of water quality discharged in the construction or operational stage.

As per SuDS BMPs, the prevention of runoff generation was first considered for the proposed areas. Accordingly, the extent of impermeable area on the development was minimised and the proposed permeable area will remain finished in 50 mm single size clean compound stone. This permeable compound stone provides a means of attenuation of runoff and will allow rainwater to infiltrate to ground as it would on a Greenfield site. Sustainable drainage systems SuDs aim to store or re-using surface water at source, by decreasing flow rates to watercourses and by improving water quality.

Surface water generated on impermeable surfaces will be collected in an underground pipe network and conveyed via swales to an attenuation storage system prior to discharging at a rate not exceeding the current Greenfield runoff rate to the nearby surface watercourse. The surface water treatment measures proposed for the development include swales, filter strips, and oil separators to ensure the highest quality of surface water discharge to the watercourse adjacent to the west of the site.

Surface water generated on the stoned access road shall be drained to roadside land drains before being conveyed to the attenuation system. Surface water generated in the proposed impermeable transformer and fuel bunds shall discharge via an oil sensitive bund dewatering system to a Class 1 Full Retention Oil Separator. In order to provide for treatment of surface water generated in the bunds, it is proposed to install a Class 1 ‘Entexol SCS001’ or equivalent approved oil sensitive bund dewatering system with a 1 litre per second low shear vortex pump with oil separation detection within each bund. The station transformer bund will include an ‘Entexol SCS002’ Integrated Class 1 Full Retention Oil Separator. This system will ensure only non-contaminated water enters the site drainage network. The bund dewatering system will be fitted with a high oil level alarm and will be connected back to the plant control panel which is connected to a manned control centre via the plant’s Supervisory Control and Data Acquisition (SCADA) telecom relay system.

In the unlikely event that any oil would be present following discharge from the Class 1 Oil Separators, discharge will be routed through the attenuation system. Further treatment will take place here through the exposure of surface water to direct sunlight,

breaking down any remaining hydrocarbons. It should be noted that an oil leak from an electrical transformer or fuel tank is an extremely rare occurrence. Such a leak would result in an alert /fault alarm, which would will be notified to the power plant operator and trained operatives would attend site immediately to address the issue. In addition to this regular inspections and ongoing maintenance will ensure compliance with the stations Environmental Management system. Bund tests will be conducted as per the Industrial Emission Licences requirements.

Surface water will be conveyed to an attenuation system prior to final discharge from the site. Discharge from the site shall be limited through the use of a vortex flow control unit and surface water will be attenuated within an attenuation tank located at the north-western corner of the site. It is proposed to limit discharge from the proposed development to Greenfield runoff rates. The Greenfield runoff rate from the site has been estimated using equations in the Flood Studies Report for the estimation of the mean annual flood, more commonly known as the $Q_{BARrural}$ calculation. The attenuation volume has been calculated assuming a 100% runoff rate from the roof area, 60% from the access roads and a 50% runoff rate from stoned areas. The attenuation volume has been sized to provide storage for all storms with a 1 in 100 year rainfall return period. The rainfall data for the site, obtained from Met Éireann, has been factored up by 20% to allow for climate change in accordance with best practice and guidelines. The storage volume required is 854 m_3 within the attenuation storage system. A final discharge of flow of 18.6L/sec has been calculated for the site.

One surface water emission point for the purposes of monitoring is proposed at the final discharge point at the site. It is proposed to monitor flow and to conduct both visual inspections and conduct regular monitoring of surface water for hydrocarbons.

Process Water

Process water is required during operation of the FlexGen development in the water treatment plant, which demineralises potable water for use in the gas turbine as the turbine uses aero derivative gas turbine technology to reduce Nitrogen Oxide (NOx) emissions in a Wet Low Emissions combustor in which demineralised water is injected into the combustor to reduce the formation of NOx.

Foul Drains

The foul drainage proposals caters for the wastewater generated in the welfare facilities of the proposed development as well for the effluent from the site demineralised water treatment plant. The welfare facilities include for a toilet (WC) and wash hand basin (WHB). One proposed emission point SE2 is proposed for the discharge from the welfare facilities. The foul water discharge generated by the proposed development will connect to an existing foul sewer on the local road to the east of the site. The foul discharges from site will be treated offsite at an Irish Water waste water treatment facility.

Attachment-7-1-3-3-1-Receiving Environmental Reports-Surface Water

A demineralised water treatment system is required to purify water for use in the process. The waste streams that occur from demineralised water treatment system will be discharged through the site foul sewer network and into a public foul sewer system. A proposed discharge SE1 is related to the discharges from the demineralised water treatment plant on site. The demineralised water treatment system on site will be based on reverse osmosis and electro-deionisation technology. The configuration of the demineralised watertreatment system will be finalised during detailed design, but a typical RO and EDI demineralisation system. This is further discussed in Attachment -7-1-3-3-2-Receving Environmental Reports- Foul Water.

Impact on Receiving Water

Operation of the plant will be according to BAT (Best Available Technology) principles and in compliance with the IED licence for the site to ensure that releases to, and subsequent contamination of, soil and water environments does not occur during normal and/or emergency conditions (material spillage or fire event situations).

The surface water drainage system will be monitored in accordance with the IED Licence requirements.

The risk of any impact is considered to be negligible for the following reasons:

- The nearest River (River Tolka) is at a distance of over 2.5 km from the proposed development site boundary
- Sustainable Drainage System SuDS will be implemented on site to ensure the highest quality and minimal volume of water is discharged from the site.
- There will be no direct discharges of contaminated water to the surface water during the operational phase;
- Use of Class 1 alarmed interceptors on site
- Environmental Procedures and measures are in place to alert operators of any accidental leaks.
- Surface water drainage is restricted using suitably sized attenuation systems restricted to the equivalent of greenfield run-off rates and therefore there will be no potential impact from increased surface water run-off from the site.
- There is no assigned drinking water rivers within 10 km radius of the proposed development site.