ENVIRONMENTAL STATEMENT CHAPTER 12: ASSESSMENT OF CUMULATIVE EFFECTS

Land South of Rover Way, Cardiff CF24 5PH

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BASIS OF REPORT

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DOCUMENT REFERENCES

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12.1.0 Introduction

12.1.1 Schedule 4, Paragraph 5 of The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (the EIA Regulations) states that an (ES) should provide *"A description of the likely significant effects of the development on the environment resulting from, inter alia –*

…

(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

…

The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, ***cumulative****, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development…"* (emphasis added).

12.1.2 In assessing cumulative impacts, it should be highlighted that the Part 5 Regulation 17 (4) of the EIA Regulations requires an ES to *"include information* ***reasonably required*** *for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment"* (emphasis added).

12.1.3 This chapter of the ES draws together a summary of the potential cumulative effects of the proposed development together with other committed development identified within the vicinity of the application site. Further detailed information pertaining to the methodology of each technical assessment and the inclusion of likely cumulative impacts is provided within the relevant chapters of the ES and, where appropriate, within the associated technical appendices and supporting statement submitted as part of the planning application.

12.1.4 As detailed within EIA guidance, cumulative effects can be considered as either:

- The combined effect of individual effects arising as a result of the proposed development: i.e. a single receptor experiencing multiple effects as a result of noise, air quality, transport etc.; and
- The cumulative effect of the proposed development in combination with other development schemes in the locality: i.e. effects which on an individual basis are insignificant but in combination with other development schemes would lead to a significant effect.

The methodology for assessing the combined and cumulative effects used in this ES has followed guidance in DMRB Volume 11, Section 2, Part 5, 'Environmental Impact Assessment: A guide to good practice and procedures, A Consultation Paper' and 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions' prepared by the European Commission, EC DGZ1 Environment, Nuclear Safety and Civil Protection.

12.1.5 The undertaking of the assessment of combined and cumulative effects has also been informed by the Scoping Opinion adopted by Cardiff Council (Appendix 5-4). As with any assessment of combined and cumulative impacts, a level of professional judgement has been utilised.

12.1.6 This Chapter has been revised and re-issued in November 2019 following feedback from Natural resources Wales and Cardiff Council. Further information regarding this correspondence is provided within Chapter 5: Scoping and Consultation.

12.2.0 Assessment of Combined Effects

12.2.1 The technical assessments undertaken in support of the ES have defined a number of potential effects, temporary or permanent, adverse or beneficial, associated with the proposed development. Whilst some of these effects have been considered to be insignificant, these can interact or combine to produce an overall combined significant effect on a particular receptor.

12.2.2 Given the above, the following section has sought to detail the effects on particular receptors or receptor groups to examine the potential for interaction or combination of such effects. Effects of negligible or neutral significance can be excluded from this exercise given that they are highly unlikely to contribute to a more significant combined effect overall. Notwithstanding, effects of negligible or neutral significance have been referenced for clarity within the Table below (Table 12-1).

12.2.3 Furthermore, for particular technical assessments contained within this ES, there are effects where no interactions with other effects can take place. As such, these independent effects will not result in combined effects but are referenced for clarity where appropriate.

12.2.4 In accordance with the findings of the various technical assessments undertaken in support of this ES, the receptor groups to be considered for combined effects are as follows:

- Application Site;
- Adjoining Occupiers – i.e. Commercial Receptors;
- Construction Personnel;
- Future Occupants and Users;
- Water Resources; and
- Designated Habitats – i.e. Severn Estuary (SSSI, SPA, SAC, Ramsar);

Combined Effects Table

12.2.5 The table below seeks to detail the post mitigation residual effects of the proposed development during both ‘construction’ and ‘operational’ phases. The table also details whether these are likely to be temporary or permanent effects, as well as identifying the potential for combined effects during these phases.

12.2.6 Within the table below, a shaded box would indicate that there is a potential combined impact present for a particular receptor or receptor group.

Table 12-1: Combined Effects Table

Receptor Group	Construction Phase Residual Effects (inc. decommissioning)	Construction Phase Potential for Combined Effects	Operational Phase Residual Effects	Operational Phase Potential for Combined Effects
Application Site	**Ground Conditions and Contamination** – Instability of Made Ground – Negligible effect **Ground Conditions and Contamination** – impact on structures and services – Negligible effect **Air Quality** – Construction dust – Negligible effect **Water Environment** – none – no residual effects **Ecology** – none - no residual effects	**Construction Phase** – all effects are negligible and are unlikely to combine to create a significant effect	**Ground Conditions and Contamination** – Gas Protection – Negligible effect **Air Quality** – Operational dust – Negligible effect **Water Environment** – none – no residual effects **Ecology** – ecology receptors at local level – minor positive effect	**Operational Phase** – all effects are negligible and are unlikely to combine to create a significant effect. There is also a minor positive effect for ecology receptors at a local level.
Adjoining Occupiers	**Ground Conditions and Contamination** – Dust – temporary Minor to Moderate adverse significance **Air Quality** – Construction dust – Negligible effect **Water Environment** – none – no residual effects **Ecology** – none - no residual effects	**Construction Phase** – whilst construction dust is a minor to moderate effect, all other effects are negligible and are unlikely to combine to create a significant effect	**Ground Conditions and Contamination** – none – no residual effect. **Air Quality** – Operational dust – Negligible effect (Residential Receptors) **Air Quality** – Operational dust – Negligible effect (Industrial and Commercial Receptors) **Water Environment** – none – no residual effects **Ecology** – none - no residual effects	**Operational Phase** – all effects are negligible and are unlikely to combine to create a significant effect
Construction Personnel	**Ground Conditions and Contamination** – H&S of Construction Personnel – temporary Minor to Moderate adverse significance **Air Quality** – none – no residual effects	**Construction Phase** – whilst H&S of construction personnel is a minor to moderate effect, there are no other residual effects which could combine to create a significant effect.	**N/A**	**Operational Phase** – there are no effects on construction personnel post construction.

Receptor Group	Construction Phase Residual Effects (inc. decommissioning)	Construction Phase Potential for Combined Effects	Operational Phase Residual Effects	Operational Phase Potential for Combined Effects
	Water Environment – none – no residual effects **Ecology** – none - no residual effects			
Future Occupants and Users	**Ground Conditions and Contamination** – H&S of construction workers (decommissioning phase) – Minor adverse significance **Air Quality** – none – no residual effects **Water Environment** – none – no residual effects **Ecology** – none - no residual effects	**Construction Phase** – whilst H&S of construction workers (decommissioning phase) is a minor adverse effect, there are no other residual effects which could combine to create a significant effect.	**Ground Conditions and Contamination** – Exposure to contaminated soils – Minor adverse significance **Air Quality** – none – no residual effects **Water Environment** – none – no residual effects **Ecology** – none - no residual effects	**Operational Phase** – all effects are either minor or none and are unlikely to combine to create a significant effect
Water Resources	**Ground Conditions and Contamination** – Piling – Negligible effect **Ground Conditions and Contamination** – Leaks and Spills of hazardous substances – Minor adverse effect **Ground Conditions and Contamination** – Leaching – Negligible effect **Ground Conditions and Contamination** – Leaks and Spills of hazardous substances (decommissioning phase) – Minor adverse effect **Air Quality** – Construction dust – Negligible effect **Water Environment** – none – no residual effects	**Construction Phase** – all effects are either minor or negligible and are unlikely to combine to create a significant effect	**Ground Conditions and Contamination** – Leaks and Spills of hazardous substances – Minor adverse effect **Air Quality** – Operational dust – Negligible effect **Air Quality** – Operational traffic – Negligible effect **Air Quality** – Stack emissions – Negligible effect **Water Environment** – none – no residual effects **Ecology** – none - no residual effects	**Operational Phase** – all effects are either minor or negligible and are unlikely to combine to create a significant effect

Receptor Group	Construction Phase Residual Effects (inc. decommissioning)	Construction Phase Potential for Combined Effects	Operational Phase Residual Effects	Operational Phase Potential for Combined Effects
	Ecology – none - no residual effects			
Designated Habitats	**Ground Conditions and Contamination** – leaching to River Severn Estuary – Minor adverse significance **Ground Conditions and Contamination** – Leaks and Spills on Designated Ecosystems (decommissioning phase) – Minor adverse significance **Air Quality** – Construction dust – Negligible effect **Water Environment** – none – no residual effects **Ecology** – Severn Estuary Natura 2000 sites - no residual effects	**Construction Phase** – all effects are either minor or negligible and are unlikely to combine to create a significant effect	**Ground Conditions and Contamination** – Leaks and Spills on Designated Ecosystems – Minor adverse significance **Air Quality** – Operational dust – Negligible effect **Air Quality** – Operational traffic – Negligible effect **Air Quality** – Stack emissions – Negligible effect **Water Environment** – none – no residual effects **Ecology** – Severn Estuary Natura 2000 sites & SAC - Negligible Adverse but Significant	**Operational Phase** – all effects are either minor or negligible and are unlikely to combine to create a significant effect. Whilst the anticipated Ecology impact on the Severn Estuary Natura 2000 site is negligible adverse, this is a significant impact given its Very High Sensitivity (an international designated site). Nevertheless, this effect is unlikely to combine with other effects to increase its level beyond that already identified.

Summary of Combined Effects

12.2.7 As identified by Table 12-1 there is no potential for interaction of residual effects to create a combined effect which would be considered significant.

12.2.8 As can be noted, the majority of the adverse effects identified above are either minor or negligible, whilst Ground Conditions and Contamination is the only topic which has minor to moderate adverse effects for human health (construction dust and construction personnel). There are also a range of residual effects which have been reduced to none following mitigation.

12.2.9 In addition, as outlined above, there is also a potential beneficial effect for ecological receptors at a local level through the potential implementation of mitigation. This is unlikely to interact with other effects to create a significant adverse effect.

12.2.10 As such, it is considered that the potential for truly significant levels of adverse impact from combined effect is limited as the interaction of these residual effects are unlikely to culminate in more than a moderate adverse impact.

12.3.0 Assessment of Cumulative Effects

12.3.1 The technical assessments contained within the ES consider the potential for cumulative effects of the proposed development in relation to the committed developments of SIMS Metal UK (application ref. 18/02065/MJR) and Land at Rover Way, Pengam (application ref. 17/02130/MJR and 19/00224/MJR). The EIA has been updated following comments from NRW and Cardiff Council to include additional consideration of cumulative effects associated with stack emissions (NO_x) and traffic associated with land allocated for Employment Use within the Cardiff Local Development Plan. Further information regarding the committed developments is provided within Chapter 7: Description of Committed Developments.

Ground Conditions and Contamination

12.3.2 It is understood that further industrial developments are proposed in the vicinity of the study Site. It is therefore considered that the cumulative generation of dust could result in an increase in the effects to site workers and off site human receptors. This cumulative effect is therefore judged to have a **moderate adverse significance** if unmitigated.

12.3.3 A summary of the cumulative effects are presented in Table 12-2:

Table 12-2: Significance of Cumulative Effects Assessment

Aspect	Identified Risk	Receptor Sensitivity	Magnitude of Change	Significance of Effect
Human Health	H&S of construction workers	Medium	Medium	Moderate adverse significance
	Dust generated by several construction sites and inhalation by off site human receptors	Medium	Medium	Moderate adverse significance

Air Quality

12.3.5 The proposed development has the potential to contribute to cumulative effects with other proposed or planned developments in the study area.

12.3.6 Construction impacts are assessed up to 350m from dust generating activities. However, the relatively modest scale of the construction requirements for the Site implies that significant risks are limited to a band within 50m of the boundary, in line with the distance buffers in the IAQM construction dust guidance . Committed developments at the Cardiff Motocross Centre MX and the SIMS Metal Recovery site are considered relevant as they are adjacent to the Site boundary. Construction impacts are temporary in nature and dependent on activities on any given day, the likelihood of activities coinciding at a single location is limited, considering the surrounding land uses and the lack of highly sensitive receptors. Any cumulative impacts that may exist are limited to prolonged exposure to risk of effects rather than heightened risk on any given day. In addition, it is anticipated that appropriate mitigation measures will be employed during the construction phases for both developments, further reducing the risk to exposure to construction impacts.

12.3.7 Operational impacts from stack emissions of PM_{10} from the proposed development have been screened out, following the EA guidance. The only committed development with direct emissions to air (including PM_{10}) is the proposed biomass power plant at the Cardiff Motocross Centre MX. Considering the location of the sensitive human receptors in the study area and the outcome of detailed modelling[1] of emission of PM_{10} from the proposed plant, it is unlikely that any cumulative effects will result in significant impacts on air quality. Regarding the Severn Estuary, as discussed previously, ecological receptors are not considered sensitive to emissions of PM_{10} and there is no PM_{10} AQO for the protection of ecosystems.

12.3.8 Cumulative effects from operational dust, odour and traffic emissions as a result of the SIMS Metal Recovery site are unlikely considering the development is limited to the construction of a new building.

12.3.9 There is the potential for cumulative effects to arise as a result of traffic emissions. The Cardiff Motocross Centre MX proposed biomass plant presents an example of this. A review of the air quality assessment submitted for planning concluded that the traffic generated by the proposed biomass plant (AADT of 310 LDVs and 50 HDVs) does not exceed the EPUK and IAQM criteria for individual road links (i.e. <500 LDVs and <100 HDVs AADT). The combined increase in traffic for the proposed biomass plant and the proposed development is an AADT of 330 LDVs and 138 HDVs. Therefore, exceeding the EPUK and IAQM criteria and triggering the need for a detailed assessment of air quality impacts on human receptors.

12.3.10 With regards to cumulative impacts on the Severn Estuary from traffic and stack emissions, detailed dispersion modelling was undertaken and it is presented in Section 9.4.0 of Chapter 9: Air Quality. The impacts from the cumulative assessment indicate that there are limited exceedences of the annual mean NO_x objective over an area 1,327 m^2 of the Atlantic Salt Meadow designation of the Severn Estuary. The assessment is considered conservative as it has assumed that all traffic from the proposed development and committed development travels on Rover Way (north). In addition, a single model verification factor was applied across the modelled grid and transects, irrespective of their distance from the road. Although the extent of the exceedance is very limited (<0.01% of the area of Atlantic Salt Meadow habitat), annual mean NO_x concentrations from traffic and stack emissions generated by the propose scheme will result in further exceedance of the threshold breached by the committed development (however negligibly). The impact of this is considered further in Chapter 11 (Ecology).

12.3.11 Cumulative effects due to operational dust and odour are unlikely considering the nature of activities at the proposed biomass plant. Cumulative effects on the Severn Estuary are presented in full within Appendix 9-6.

Water Environment

12.3.12 A description of committed development in the vicinity of the proposed Asphalt Plant is provided in Chapter 7. These developments have been considered in the content of any potential cumulative effects on the Water Environment, and specifically on the key receptor described in Section 10.3, i.e.:

- Flood risk – Low sensitivity

[1] Air Quality Consultants (2017). Air Quality Assessment Rover Way Biomass Power Plant, Cardiff

- Groundwater – Medium sensitivity
- Severn Estuary – Medium sensitivity

Land at Rover Way, Pengam (The Cardiff Motocross Centre MX)

12.3.13 Land at Rover Way, Pengam extends to a site area of approximately 16.6 Ha (41 acres) and is located immediately to the east of the planning application site, predominantly consisting of the Cardiff Motocross Centre MX and adjoining land.

12.3.14 The FCA submitted with the application confirms that the site is not at risk of flooding and that surface water runoff is to be discharged to the Severn Estuary.

12.3.15 As the proposed biomass plant and industrial accommodation will not increase the risk of flooding elsewhere, there is no potential for any cumulative effect on flood risk.

12.3.16 No significant effect on the Severn Estuary arising from the Asphalt Plant has been identifed and therefore there is there is no potential for any cumulative effect on this key receptor.

SIMS Metal UK Metal Recovery Plant, Rover Way, Pengam

12.3.17 The Metal Recovery Plant is located within the Celsa Steel Works site, immediately to the north of the current application site.

12.3.18 It is understood that runoff from the roof of the facility is collected for reuse within the plant with excess runoff discharged to a soakaway into made ground which will be of similar composition to that underlying the proposed Asphalt Plant.

12.3.19 The facility lies with Flood Zone C2, however, the FCA submitted with the application confirms that the site is defended and concludes that there would be no loss of flood storage volume associated with a breach of the defences. As discussed above, surface water runoff is to be managed with a soakaway.

12.3.20 As neither the proposed Asphalt Plant, nor the Metal Recovery Plant will have an impact on the flood risk elsewhere, there is no significant cumulative effect on flood risk.

12.3.21 For the reasons set out in Section 10 and in the FCA at Appendix 10.1, the impact on the groundwater from Asphalt Plant, or the Metal Recovery Plant, is unlikely to be significant and therefore there is no significant cumulative effect on groundwater.

12.3.22 As for the Asphalt Plant, there is no direct hydraulic connection to the Severn Estuary from the Metal Recovery Plant and therefore neither facility will have a significant impact on this key receptor singly or in combination.

Ecology

12.3.23 The proposed development has the potential to contribute to cumulative effects with other proposed or planned developments in the study area.

12.3.24 Committed developments at the Cardiff Motocross Centre MX and the SIMS Metal Recovery site are considered relevant as they are adjacent to the Site boundary. Construction impacts are temporary

in nature and dependent on activities on any given day, the likelihood of activities coinciding at a single location is limited.

12.3.25 Any cumulative impacts that may exist are limited to prolonged exposure to risk of effects rather than heightened risk on any given day (e.g. two sites may break concrete at different times, increasing the duration of noise). In addition, it is anticipated that appropriate mitigation measures will be employed during the construction phases for both developments, further reducing the risk to exposure to construction impacts.

12.3.26 The completion of the Cardiff Motocross Centre development to the east of the application site would ultimately provide a significant baffle to any construction noise arising from the application site. In addition to the construction of a biomass plant and industrial units, the proposals incorporate the construction of a large bund to provide visual and acoustic screening for the development from the coast. Should the Motocross Centre development be completed first, any risk of construction noise from the application site having a significant negative impact on the Severn Estuary Natura 2000 sites would be significantly reduced.

12.3.27 The proposed development is considered to have a negligible risk of contributing significantly to significant cumulative effects on the identified important ecological features with respect to noise and acoustic impact.

12.3.28 The cumulative impacts of the site's vehicle movements and emissions when considered with nearby consented developments and local plan allocations, would add to an already exceeded threshold for NOx deposition onto an area of Atlantic salt-meadow that is a qualifying feature of the Severn Estuary SAC. The contribution of the proposed development to the nutrient loading impacts on the salt-meadow is considered to be very difficult to quantify, representing in effect a very small increase in nutrient input that may result in reduced species diversity over time. Whilst the magnitude of the impact is uncertain, it is considered highly likely to represent a negligible/unmeasurable fraction of the overall effect, which is likely to reduce in time with the introduction of higher proportions of electric vehicles.

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