

Appendix 6.1 - Construction Phase Assessment Method

6.1.1 The criteria developed by the Institute of Air Quality Management for the assessment of air quality impacts arising from construction activities was used as the basis for the assessment methodology discussed in the following sections. The assessment is comprised of five steps as discussed below.

Step 1: Identify the need for a detailed assessment

6.1.2 An assessment would normally be required where there is:

- A human receptor within 250 metres of the proposed scheme; and/or within 50 metres of the access route(s) used by the construction vehicles on the public highway up to 500 metres from the study area site entrance(s); and / or
- An ecological receptor within 50 metres of the proposed scheme and/or within 50 metres of the access route(s) used by construction vehicles on the public highway up to 500 metres from the site entrance(s).

6.1.3 A human receptor refers to any location where a person or property may experience the adverse effects of airborne dust or dust-soiling, or exposure to particulate matter (PM₁₀) over a period relevant to the ambient air quality objectives.

6.1.4 An ecological receptor refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a National Nature Reserve (NNR), Ramsar site, Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) or Special Protection Areas (SPA), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate, such as a Site of Importance for Nature Conservation (SINC).

6.1.5 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible' and any effects would be 'not significant'.

Step 2: Assess the risk of dust impacts

6.1.6 A site is allocated a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the allocation of mitigation measures. Risks are described as low, medium or high for each of the four separate activities (demolition, construction, earthworks and trackout). Site-specific mitigation is required, proportionate to the level of risk.

Step 2A: Define the potential dust emission magnitude

6.1.7 The potential dust emission magnitude is based on the scale of the anticipated works and should be classified as small, medium or large. **Table 6.1** presents the dust emission criteria outlined for each construction activity.

Table 6.1: Potential dust emission magnitude criteria

Construction activity	Large	Medium	Small
Demolition	Total building volume >75,000 m ³ , potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >12 m above ground level.	Total building volume 12,000 m ³ – 75,000 m ³ , potentially dusty construction material, demolition activities 6-12 m above ground level.	Total building volume <12,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months.
Earthworks	Total site area >110,000 m ² , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.	Total site area 18,000 m ² – 110,000 m ² , moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height.	Total site area <18,000 m ² , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height.
Construction	Total building volume >75,000 m ³ , on site concrete batching, sandblasting.	Total building volume 12,000 m ³ – 75,000 m ³ , potentially dusty construction material (e.g. concrete), on site concrete batching.	Total building volume <12,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber).
Trackout	>50 HDV (>3.5 t) outward movements ^a in any one day ^b , potentially dusty surface material (e.g. high clay content), unpaved road length >100 m.	20-50 HDV (>3.5 t) outward movements ^a in any one day ^b , moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m.	<20 HDV (>3.5 t) outward movements ^a in any one day ^b , surface material with low potential for dust release, unpaved road length <50 m.

A vehicle movement is a one way journey. i.e. from A to B and excludes the return journey.

HDV movements during a construction project vary over its lifetime, and the number of movements is the maximum not the average.

Step 2B: Define the sensitivity of the area

6.1.8 The sensitivity of the area is described as low, medium or high. It takes into account a number of factors:

- The specific sensitivities of the receptors in the area;
- The proximity and number of those receptors;
- The local background PM₁₀ concentrations; and
- Site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

6.1.9 **Table 6.2** presents indicative examples of classification groups for the varying sensitivities of people to dust soiling effects and to the health effects of PM₁₀; and the

sensitivities of receptors to ecological effects. A judgement is made at the site-specific level where sensitivities may be higher or lower, for example a soft fruit business may be more sensitive to soiling than an alternative industry in the same location. Box 6, Box 7 and Box 8 within the IAQM guidance outlines more detailed information on defining sensitivity.

Table 6.2: Indicative examples of the sensitivity of different types of receptors

Sensitivity of receptor	Sensitivities of people and ecological receptors		
	Dust soiling effects ^a	Health effects of PM ₁₀ ^b	Ecological effects ^c
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.	Residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling (e.g. SAC/SPA/Ramsar). Locations where there is a community of a species particularly sensitive to dust such as vascular species included in the Red Data list for Great Britain.
Medium	Parks, places of work.	Office and shop workers not occupationally exposed to PM ₁₀ .	Locations where there is a particularly important plant species, where dust sensitivity is uncertain or unknown. Locations with a national designation where the features may be affected by dust deposition (e.g. SSSIs).
Low	Playing fields, farmland, footpaths, short-term car parks and roads.	Public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition (e.g. Local Nature Reserves).

People's expectations would vary depending on the existing dust deposition in the area.

This follows the Department for Environment, Food and Rural Affairs (Defra, 2022) guidance as set out in Local Air Quality Management Technical Guidance (LAQM.TG (22)). Notwithstanding the fact that the ambient air quality objectives and limit values do not apply to people in the workplace, such people can be affected to exposure of PM₁₀. However, they are considered to be less sensitive than the general public as a whole because those most sensitive to the effects of air pollution, such as young children are not normally workers. For this reason workers have been included in the medium sensitivity category.

Only if there are habitats that might be sensitive to dust. A Habitat Regulation Assessment of the site may be required as part of the planning process if the site lies close to an internationally designated site i.e. Special Conservation Areas (SACs), Special Protection Areas (SPAs) designated under the Habitats Directive (92/43/EEC) and Ramsar sites.

6.1.10 The IAQM guidance advises consideration of the risk associated with the nearest receptors to construction activities.

6.1.11 Where there are multiple receptors in a single location, a worst-case representative receptor location is considered and the highest risk applicable is allocated.

6.1.12 The receptor sensitivity and distance are then used to determine the potential dust risk for each dust effect for each construction activity as shown in **Table 6.3**, **Table 6.4** and **Table 6.5**. It is noted that distances are to the dust source and so a different area may be affected by trackout than by on-site works.

Table 6.3: Sensitivity of the area to dust soiling effects on people and property

Receptor sensitivity	Number of Receptors ^b	Distance from the Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Low	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

a. Estimate the total number of receptors within the stated distance. Only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20 metres of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 metres is 102. The sensitivity of the area in this case would be high.

b. Estimate the number of receptors within each distance band. For example, a residential unit is one receptor. For receptors which are not dwellings, professional judgement should be used to determine the number of human receptors. For example, a school or hospital is likely to be within the >100 receptor category.

Table 6.4: Sensitivity of the area to human health impacts^{a b c}

Receptor sensitivity	Annual Mean PM ₁₀ Concentrations	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m ³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m ³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m ³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m ³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m ³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m ³	>10	Medium	Low	Low	Low	Low

Receptor sensitivity	Annual Mean PM ₁₀ Concentrations	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
	24-28 µg/m ³	1-10	Low	Low	Low	Low	Low
		>10	Low	Low	Low	Low	Low
	<24 µg/m ³	1-10	Low	Low	Low	Low	Low
		>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

Estimate the total within the stated distance (e.g. the total within 350 metres and not the number between 200 and 350 m), noting that only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors <20 metres of the source and 95 high sensitivity receptors between 20 and 50 m, then the total of number of receptors <50 metres is 102. If the annual mean PM₁₀ concentration is 29 µg/m³, the sensitivity of the area would be high.

Annual mean PM₁₀ concentrations are most straightforwardly taken from the national background maps but should also take account of local sources. The values are based on 32 µg/m³ being the annual mean concentration at which an exceedance of the 24-hour objective is likely in England, Wales and Northern Ireland.

In the case of high sensitivity receptors with high occupancy (such as schools or hospitals) approximate the number of people likely to be present. In the case of residential dwellings, simply include the number of properties.

Table 6.5: Sensitivity of the area to ecological impacts

Receptor Sensitivity	Distance from the Source (m) ^a	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Only the highest level of area sensitivity from the table needs to be considered.

Step 2C: Define the risk of impacts

6.1.13 The dust emission magnitude is then combined with the sensitivity of the area to determine the overall risk of impacts with no mitigation measures applied. The matrices below (**Table 6.6**) provide a method of assigning the level of risk for each activity. These can then be used to determine the level of mitigation that is required.

Table 6.6: Risks of dust impacts

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

Receptor Sensitivity	Dust Emission Magnitude		
	Large	Medium	Small
Construction			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible
Trackout			
High	High risk	Medium risk	Low risk
Medium	Medium risk	Low risk	Negligible
Low	Low risk	Low risk	Negligible

Step 3: Site-specific mitigation

6.1.14 Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low-, medium- or high-risk site. The highest risk category of a site (of all activities being undertaken) is recommended when considering appropriate mitigation measures for the site. Where risk is assigned as 'negligible', no mitigation measures beyond those required by legislation are required. However, additional mitigation measures may be applied as good practice.

6.1.15 A selection of these measures is specified as suitable to mitigate dust emissions from activities, based on professional judgement.

Appendix 6.2 – Detailed Dispersion Modelling Assessment Method (Industrial Sources)

6.1.16 The predicted concentrations (PCs) from the roads and industrial modelling were added together. Background pollutant concentrations were added to generate total predicted pollutant concentrations.

6.1.17 Dispersion modelling was used to quantify emissions. Dispersion models account for information relating to the sources; receptors where impacts should be assessed; and information representing how the pathway between them may be impacted.

6.1.18 The following subsections detail the method which was used to undertake dispersion modelling and to estimate predicted pollutant concentrations.

Industrial Sources

6.1.19 Emissions generated from industrial sources included in the 'Without Development' Scenarios (S2 and S4) and Operational 'With Development' Scenario (S5) are respectively presented in **Figure 6.1, Figure 6.2, Figure 6.3, Figure 6.4 and Figure 6.5, in Appendix 6.8.**

6.1.20 Details on the physical and emissions parameters have been provided by the Applicant.

6.1.21 Emissions were derived from the year 2023 for all determinants. Table 6.7: **Emissions for calendar year as submitted to NRW's Pollution Inventory (tonnes)** below shows the variation in the emissions generated at the Tata Steelworks site between 2015 and 2023, as submitted annually for compilation as part of the Pollution Inventory. The emissions recorded in 2023 represent a robust assessment approach, because this represents the Established Baseline in the final calendar operation year before the heavy end started to close.

Table 6.7: Emissions for calendar year as submitted to NRW's Pollution Inventory (tonnes)

Pollutant Name	2015	2016	2017	2018	2019	2020	2021	2022	2023
Carbon monoxide (CO)	123983	110001	123000	112000	112000	114000	103000	60900	68700
Chromium and compounds (as Cr)	0.249	0.412	0.421	0.399	0.381	0.4	0.403	0.334	0.269
Dioxins And Furans- as I-TEQ	1.8*10-05	1.4*10-05	1.4*10-05	1.4*10-05	1.4*10-05	1.3*10-05	2.6*10-06	2.4*10-06	4*10-06
Lead and compounds (as Pb)	8.729	7.969	8.28	8.17	8.02	7.8	18.3	18.8	15
Mercury and compounds (as Hg)	0.061	0.094	0.098	0.098	0.095	0.093	0.105	0.087	0.0641
Nitrogen oxides (NOx/NO ₂)	5063.66	4639.8	4970	5030	4830	5140	5050	4340	3810

Particulate matter (PM ₁₀)	2076.66	1298.72	1620	1540	1480	1810	1710	1380	1400
Particulate matter – PM _{2.5}	1825	1201.41	No data	No data	No data	No data	1400	1170	1320
Particulate Matter - Total	2455.45	1650.1	No data	No data	No data	No data	2260	1700	1730
Sulphur oxides (SO _x /SO ₂)	5607.57	6093.94	7190	7060	7090	6610	4960	4780	4250

6.1.22 Details of identified sources of emissions to air are provided in **Table 6.8** to **Table 6.12** below.

6.1.23 All sources have been modelled as operating continuously throughout the year. This is likely to represent a worst-case assessment, considering sources may be switched off at different times to each other throughout the year, during which emissions to air would not be generated.

6.1.24 Data from the cumulative developments were sourced from information available in the public domain.

Table 6.8: Physical and Emissions Parameters of Sources Included in the Dispersion Modelling Assessment (Table 1)

Parameter	A1 Sinter strand	A2 Sinter dedust	A3 Sinter mix drum	A4 BF4 top	A5 BF5 top	A6 BF4 stoves	A7 BF5 stoves	A8A BF4 N filter	A8B BF4 S filter
Scenarios modelled in#	EB	EB	EB	EB	EB	EB	EB	EB	EB
Stack location (XY)	276499 188017	276647 188037	276757 188026	277101 188109	277077 187952	277090 188164	277057 187886	277051 188222	277037 188129
Main building used*	None	Sinter Plant main bld	Sinter Plant main bld	None	None	None	None	No. 4 BF Casthouses	No. 4 BF Casthouses
Exhaust stack release height (m)	133	55	20	88	83	74	74	32	32
Exhaust stack diameter (m)	6.3	4.5	2.5	1	0.6	3.81	3.5	4	4
Exhaust temperature (°C)	120	61	30	200	200	242	200	50	50
Efflux velocity (m/s)	17	15	1	2	2	6	9	18	13
Exhaust normal volumetric flow rate (Nm ³ /h)	1352913	715031	19461	977	977	124615	174535	693741	508135
Exhaust actual volumetric flow rate (m ³ /h)	1947600	874800	21600	1692	1692	235080	302400	820800	601200
PM ₁₀ emission (mg/m ³) at normal discharge conditions	26.2000	0.7280	29.3000	772.0000	747.0000	1.5300	1.8000	0.5880	0.6290
PM ₁₀ exhaust emissions rate (g/s)	14.2000	0.1770	0.1760	0.3630	0.3510	0.0998	0.1510	0.1340	0.1050
PM _{2.5} emission (mg/m ³) at normal discharge conditions	21.8000	0.7040	25.5000	772.0000	747.0000	1.5300	1.8000	0.5880	0.6290
PM _{2.5} exhaust emissions rate (g/s)	11.8000	0.1710	0.1530	0.3630	0.3510	0.0998	0.1510	0.1340	0.1050
NO _x emission (mg/m ³) at normal discharge conditions	76.2000	-	-	-	-	33.5000	18.2000	-	-

Parameter	A1 Sinter strand	A2 Sinter dedust	A3 Sinter mix drum	A4 BF4 top	A5 BF5 top	A6 BF4 stoves	A7 BF5 stoves	A8A BF4 N filter	A8B BF4 S filter
NO _x exhaust emissions rate (g/s)	41.20	-	-	-	-	2.19	1.53	-	-
SO ₂ emission (mg/m ³) at normal discharge conditions	1.30E+02	-	-	-	-	2.01E+01	6.80E+00	-	-
SO ₂ exhaust emissions rate (g/s)	7.03E+01	-	-	-	-	1.31E+00	5.71*10-01	-	-
CO emission (mg/m ³) at normal discharge conditions	1.59E+03	-	-	1.60E+05	1.54E+05	1.06E+03	1.02E+03	-	-
CO exhaust emissions rate (g/s)	8.61E+02	-	-	7.50E+01	7.26E+01	6.90E+01	8.54E+01	-	-
Dioxins and furans emission (mg/m ³) at normal discharge conditions	2.31*10-07	-	-	-	-	-	-	-	-
Dioxins and furans exhaust emissions rate (g/s)	1.25*10-07	-	-	-	-	-	-	-	-
Benzo(a)Pyrene emission (mg/m ³) at normal discharge conditions	3.11*10-04	-	-	-	-	-	-	-	-
Benzo(a)Pyrene exhaust emissions rate (g/s)	1.68*10-04	-	-	-	-	-	-	-	-
Chromium emission (mg/m ³) at normal discharge conditions	2.51*10-03	-	-	-	-	-	-	-	-
Chromium exhaust emissions rate (g/s)	1.36*10-03	-	-	-	-	-	-	-	-
Lead emission (mg/m ³) at normal discharge conditions	8.24*10-01	-	-	-	-	-	-	-	-

Parameter	A1 Sinter strand	A2 Sinter dedust	A3 Sinter mix drum	A4 BF4 top	A5 BF5 top	A6 BF4 stoves	A7 BF5 stoves	A8A BF4 N filter	A8B BF4 S filter
Lead exhaust emissions rate (g/s)	4.46*10-01	-	-	-	-	-	-	-	-
Mercury emission (mg/m ³) at normal discharge conditions	3.64*10-03	-	-	-	-	-	-	-	-
Mercury exhaust emissions rate (g/s)	1.97*10-03	-	-	-	-	-	-	-	-
Notes: *Main building defined in Section D.2.8 below. # EB (Established Baseline): Without Development Scenarios (S2 and S4); IB (Interim Baseline): Interim Without Development Scenarios (S2a, S3, S4a); EAF: Operational With Development Scenario (S5). For the pollutants where no data are provided, these parameters were not modelled.									

Table 6.8: Physical and Emissions Parameters of Sources Included in the Dispersion Modelling Assessment (Table 2)

Parameter	A9 BF5 filter	A10 Hot metal pour1	A10A Hot metal pour2	A11 Lime plant fume	A12 BOS flare 1	A13 BOS flare 2	A14 BOS 2ndry North	A15 BOS 2ndry Centre	A16 BOS 2ndry South
Scenarios modelled in	EB	EB	EB	EB	EB	EB	EB	EB	EB
Stack location (XY)	277222 187904	277075 187041	277064 187069	277361 186974	276988 186928	277026 186840	277068 186738	277072 186728	277076 186718
Main building used*	No. 5 BF Casthouses	BOS Plant (Automatic)	BOS Plant (Automatic)	Lime plant	BOS Plant (Automatic)	BOS Plant (Automatic)	BOS Plant (Automatic)	BOS Plant (Automatic)	BOS Plant (Automatic)
Exhaust stack release height (m)	40	29	41	15	70	70	20	20	20
Exhaust stack diameter (m)	7	3	2.8	1	2.85	2.85	6.9	6.9	7
Exhaust temperature (°C)	50	40	50	40	15	15	50	50	50
Efflux velocity (m/s)	11	18	8	11	2	2	11	11	11

Parameter	A9 BF5 filter	A10 Hot metal pour1	A10A Hot metal pour2	A11 Lime plant fume	A12 BOS flare 1	A13 BOS flare 2	A14 BOS 2ndry North	A15 BOS 2ndry Centre	A16 BOS 2ndry South
Exhaust normal volumetric flow rate (Nm ³ /h)	1253602	442731	158830	26375	51188	51188	1277944	1277944	1277944
Exhaust actual volumetric flow rate (m ³ /h)	1483200	507600	187920	30240	54000	54000	1512000	1512000	1512000
PM ₁₀ emission (mg/m ³) at normal discharge conditions	1.9300	1.0100	0.9870	7.3600	4.1900	4.6900	1.5600	0.1790	0.8570
PM ₁₀ exhaust emissions rate (g/s)	0.7960	0.1430	0.0515	0.0618	0.0629	0.0703	0.6550	0.0752	0.3600
PM _{2.5} emission (mg/m ³) at normal discharge conditions	1.9300	1.0100	0.9870	7.3600	4.1900	4.6900	1.5600	0.1790	0.8570
PM _{2.5} exhaust emissions rate (g/s)	0.7960	0.1430	0.0515	0.0618	0.0629	0.0703	0.6550	0.0752	0.3600
NOx emission (mg/m ³) at normal discharge conditions	-	-	-	-	7.8000	8.7300	-	-	-
NOx exhaust emissions rate (g/s)	-	-	-	-	0.12	0.13	-	-	-
Notes: *Main building defined in Section D.2.8 below. # EB (Established Baseline): Without Development Scenarios (S2 and S4); IB (Interim Baseline): Interim Without Development Scenarios (S2a, S3, S4a); EAF: Operational With Development Scenario (S5). For the pollutants where no data are provided, these parameters were not modelled.									

Table 6.9: Physical and Emissions Parameters of Sources Included in the Dispersion Modelling Assessment (Table 3)

Parameter	A34A N Reheat furnace	A34B S Reheat furnace	A37 Fluid bed 1	A38 Fluid bed 2	A39 Fluid bed 3	A46 CAPL furnace	A50 Service boilers	A51 Margam A boiler 5	A52A/B Margam C
Scenarios modelled in	EB	EB	EB	EB	EB	EB, IB	EB	EB	EB
Stack location (XY)	277987 187039	277997 187010	277006 187857	277006 187857	277006 187862	278303 186068	277845 186609	277040 188525	277148 188451
Main building used*	None	None	GCI Plant	GCI Plant	GCI Plant	Cold Mill	Hot Mill	Margam A Power Plant	Margam C Power Plant
Exhaust stack release height (m)	120	120	27	27	27	57	68	32	121
Exhaust stack diameter (m)	3.3	3.3	1.8	1.8	1.3	2	2	2.4	3.9
Exhaust temperature (°C)	265	265	80	80	80	200	200	180	220
Efflux velocity (m/s)	7	7	9	9	11	14	11	7	18
Exhaust normal volumetric flow rate (Nm ³ /h)	116730	116730	64314	64314	38978	89969	104306	70944	420630
Exhaust actual volumetric flow rate (m ³ /h)	230040	230040	83160	83160	50400	155880	180720	117720	759600
PM ₁₀ emission (mg/m ³) at normal discharge conditions	4.0700	4.0700	25.6000	9.2200	94.3000	-	0.9760	0.6570	0.6260
PM ₁₀ exhaust emissions rate (g/s)	0.2600	0.2600	0.5910	0.2130	1.3200	-	0.0490	0.0215	0.1320
PM _{2.5} emission (mg/m ³) at normal discharge conditions	4.0700	4.0700	25.6000	9.2200	94.3000	-	0.9760	0.6570	0.6260
PM _{2.5} exhaust emissions rate (g/s)	0.2600	0.2600	0.5910	0.2130	1.3200	-	0.0490	0.0215	0.1320

Parameter	A34A N Reheat furnace	A34B S Reheat furnace	A37 Fluid bed 1	A38 Fluid bed 2	A39 Fluid bed 3	A46 CAPL furnace	A50 Service boilers	A51 Margam A boiler 5	A52A/B Margam C
NO _x emission (mg/m ³) at normal discharge conditions	78.1000	78.1000	-	-	2.6100	10.7000	23.5000	20.7000	29.9000
NO _x exhaust emissions rate (g/s)	4.99	4.99	-	-	0.04	0.46	1.18	0.68	6.30
SO ₂ emission (mg/m ³) at normal discharge conditions	1.24E+01	1.24E+01	-	-	4.68*10-01	-	6.51E+01	1.46E+01	3.92E+01
SO ₂ exhaust emissions rate (g/s)	7.91*10-01	7.91*10-01	-	-	6.55*10-03	-	3.27E+00	4.79*10-01	8.28E+00
CO emission (mg/m ³) at normal discharge conditions	1.74E+00	1.74E+00	-	-	1.56E+02	-	-	-	-
CO exhaust emissions rate (g/s)	1.11*10-01	1.11*10-01	-	-	2.18E+00	-	-	-	-
Notes: *Main building defined in Section D.2.8 below. # EB (Established Baseline): Without Development Scenarios (S2 and S4); IB (Interim Baseline): Interim Without Development Scenarios (S2a, S3, S4a); EAF: Operational With Development Scenario (S5). For the pollutants where no data are provided, these parameters were not modelled.									

Table 6.10: Physical and Emissions Parameters of Sources Included in the Dispersion Modelling Assessment (Table 4)

Parameter	A53 Margam B Mitchell	A55 Morfa underfiring	A56 Minister Stein	A57 NH ₃ Incinerator	A59 COG flare stacks	A60B Coke quench	A62 No. 3 boiler	BF4 casthouse roof	BF5 casthouse roof
Scenarios modelled in	EB	EB	EB	EB	EB	EB	EB	EB	EB
Stack location (XY)	277091 188192	277062 185795	277157 185697	277005 185802	277103 185337	277046 185983	276986 188478	277121 188093	277099 187960

Parameter	A53 Margam B Mitchell	A55 Morfa underfiring	A56 Minister Stein	A57 NH ₃ Incinerator	A59 COG flare stacks	A60B Coke quench	A62 No. 3 boiler	BF4 casthouse roof	BF5 casthouse roof
Main building used*	Margam C Power Plant	None	None	None	None	New quench tower	Margam A Power Plant	No. 4 BF Casthouses	No. 5 BF Casthouses
Exhaust stack release height (m)	37	127	20	50	65	42.1	33	25	26
Exhaust stack diameter (m)	2.7	4.5	1.4	1.8	3	13.4	2.8	5	5
Exhaust temperature (°C)	200	190	40	357	500	80	200	45	45
Efflux velocity (m/s)	12	6	8	11	4	1	16	0	0
Exhaust normal volumetric flow rate (Nm ³ /h)	139628	210994	37679	44616	31658	317392	204040	9272	9272
Exhaust actual volumetric flow rate (m ³ /h)	241920	357840	43200	102960	89640	410400	353520	10800	10800
PM ₁₀ emission (mg/m ³) at normal discharge conditions	1.0700	25.8000	75.5000	-	-	0.1540	0.8860	630.0000	630.0000
PM ₁₀ exhaust emissions rate (g/s)	0.0720	2.5600	0.9060	-	-	0.0175	0.0870	1.8900	1.8900
PM _{2.5} emission (mg/m ³) at normal discharge conditions	1.0700	25.8000	75.5000	-	-	0.1540	0.8860	630.0000	630.0000
PM _{2.5} exhaust emissions rate (g/s)	0.0720	2.5600	0.9060	-	-	0.0175	0.0870	1.8900	1.8900

Parameter	A53 Margam B Mitchell	A55 Morfa underfiring	A56 Minister Stein	A57 NH ₃ Incinerator	A59 COG flare stacks	A60B Coke quench	A62 No. 3 boiler	BF4 casthouse roof	BF5 casthouse roof
NO _x emission (mg/m ³) at normal discharge conditions	20.4000	494.0000	-	61.9000	12.2000	-	19.0000	-	-
NO _x exhaust emissions rate (g/s)	1.37	49.10	-	1.77	0.31	-	1.87	-	-
SO ₂ emission (mg/m ³) at normal discharge conditions	1.45E+01	1.27E+02	-	8.36E+02	7.19E+01	-	1.18E+01	1.31E+03	1.31E+03
SO ₂ exhaust emissions rate (g/s)	9.73*10-01	1.26E+01	-	2.39E+01	1.79E+00	-	1.16E+00	3.94E+00	3.94E+00
CO emission (mg/m ³) at normal discharge conditions	-	3.08E+03	-	3.78*10-01	-	1.34E+02	-	-	-
CO exhaust emissions rate (g/s)	-	3.06E+02	-	1.08*10-02	-	1.53E+01	-	-	-
Dioxins and furans emission (mg/m ³) at normal discharge conditions	-	1.45*10-08	-	-	-	-	-	-	-
Dioxins and furans exhaust emissions rate (g/s)	-	1.44*10-09	-	-	-	-	-	-	-
Benzo(a)Pyrene emission (mg/m ³) at normal discharge conditions	-	7.06*10-05	-	-	-	-	-	-	-
Benzo(a)Pyrene exhaust emissions rate (g/s)	-	7.02*10-06	-	-	-	-	-	-	-

Parameter	A53 Margam B Mitchell	A55 Morfa underfiring	A56 Minister Stein	A57 NH ₃ Incinerator	A59 COG flare stacks	A60B Coke quench	A62 No. 3 boiler	BF4 casthouse roof	BF5 casthouse roof
Notes: *Main building defined in Section D.2.8 below. # EB (Established Baseline): Without Development Scenarios (S2 and S4); IB (Interim Baseline): Interim Without Development Scenarios (S2a, S3, S4a); EAF: Operational With Development Scenario (S5). For the pollutants where no data are provided, these parameters were not modelled.									

Table 6.11: Physical and Emission Parameters of Sources Included in the Dispersion Modelling Assessment (Table 5)

Parameter	BOS roof	Morfa coke ovens	A34A (Interim)	A34B (Interim)	Package Boiler 1	Package Boiler 2	Package Boiler 3	EAF extraction	A34A (EAF)
Scenarios modelled in	EB	EB	IB	IB	IB, EAF	IB, EAF	IB, EAF	EAF	EAF
Stack location (XY)	277195 186800	277118 185803	277987 187039	277997 187010	277878 186563	277883 186564	277888 186565	276872 186604	277987 187039
Main building used*	BOS convertor bay	None	None	None	Hot Mill	Hot Mill	Hot Mill	BOS Plant (Automatic)	None
Exhaust stack release height (m)	68	15	120	120	8	8	8	62	120
Exhaust stack diameter (m)	10	10	3	3.3	0.801	0.801	0.801	8.5	3.3
Exhaust temperature (°C)	45	85	265	265	300	300	300	105	265
Efflux velocity (m/s)	0	0	5	5	16	16	16	15	7
Exhaust normal volumetric flow rate (Nm ³ /h)	9272	0	77820	77820	13550	13550	13550	2158000	116730
Exhaust actual volumetric flow rate (m ³ /h)	10800	0	153360	153360	28440	28440	28440	2988000	230040

Parameter	BOS roof	Morfa coke ovens	A34A (Interim)	A34B (Interim)	Package Boiler 1	Package Boiler 2	Package Boiler 3	EAF extraction	A34A (EAF)
PM ₁₀ emission (mg/m ³) at normal discharge conditions	1750.0000	-	4.0800	4.0800	-	-	-	2.9600	4.3500
PM ₁₀ exhaust emissions rate (g/s)	5.2500	0.4060	0.1740	0.1740	-	-	-	2.4600	0.2780
PM _{2.5} emission (mg/m ³) at normal discharge conditions	1750.0000	-	4.0800	4.0800	-	-	-	2.9600	4.3500
PM _{2.5} exhaust emissions rate (g/s)	5.2500	0.4060	0.1740	0.1740	-	-	-	2.4600	0.2780
NO _x emission (mg/m ³) at normal discharge conditions	380.0000	-	78.2000	78.2000	40.0000	40.0000	40.0000	14.8000	83.3000
NO _x exhaust emissions rate (g/s)	1.14	-	3.33	3.33	0.32	0.32	0.32	12.30	5.32
SO ₂ emission (mg/m ³) at normal discharge conditions	-	-	-	-	-	-	-	5.94E+01	-
SO ₂ exhaust emissions rate (g/s)	-	-	-	-	-	-	-	4.93E+01	-
CO emission (mg/m ³) at normal discharge conditions	2.29E+05	-	1.74E+00	1.74E+00	-	-	-	1.78E+02	1.86E+00
CO exhaust emissions rate (g/s)	6.87E+02	-	7.41*10-02	7.41*10-02	-	-	-	1.48E+02	1.19*10-01
Dioxins and furans emission (mg/m ³) at normal discharge conditions	-	-	-	-	-	-	-	5.94*10-08	-

Parameter	BOS roof	Morfa coke ovens	A34A (Interim)	A34B (Interim)	Package Boiler 1	Package Boiler 2	Package Boiler 3	EAF extraction	A34A (EAF)
Dioxins and furans exhaust emissions rate (g/s)	-	3.13*10-10	-	-	-	-	-	4.93*10-08	-
Benzo(a)Pyrene emission (mg/m³) at normal discharge conditions	-	-	-	-	-	-	-	2.08*10-03	-
Benzo(a)Pyrene exhaust emissions rate (g/s)	-	8.42*10-04	-	-	-	-	-	1.73*10-03	-
Chromium emission (mg/m³) at normal discharge conditions	6.37*10-01	-	-	-	-	-	-	1.19*10-03	-
Chromium exhaust emissions rate (g/s)	1.91*10-03	5.25*10-03	-	-	-	-	-	9.85*10-04	-
Lead emission (mg/m³) at normal discharge conditions	6.37E+00	-	-	-	-	-	-	1.19*10-02	-
Lead exhaust emissions rate (g/s)	1.91*10-02	8.86*10-03	-	-	-	-	-	9.85*10-03	-
Mercury emission (mg/m³) at normal discharge conditions	-	-	-	-	-	-	-	2.96*10-03	-
Mercury exhaust emissions rate (g/s)	-	6.11*10-05	-	-	-	-	-	2.46*10-03	-
Notes: *Main building defined in Section D.2.8 below. # EB (Established Baseline): Without Development Scenarios (S2 and S4); IB (Interim Baseline): Interim Without Development Scenarios (S2a, S3, S4a); EAF: Operational With Development Scenario (S5). For the pollutants where no data are provided, these parameters were not modelled.									

Table 6.12: Physical and Emissions Parameters of Sources Included in the Dispersion Modelling Assessment (Table 6)

Parameter	A34B (EAF)	Powder Process	Classification	Sandvik Scrubber	SAF Boiler
Scenarios modelled in	EAF	EB, IB, EAF	EB, IB, EAF	IB, EAF	IB, EAF
Stack location (XY)	277997 187010	13 flues (see Appendix 6.8)	14 flues (see Appendix 6.8)	279183 186156	276509 188530
Main building used*	None	Sandvik Main Building	Sandvik Main Building	Sandvik Main Building	SAF Boiler House
Exhaust stack release height (m)	120	17	-	17	46
Exhaust stack diameter (m)	3	0.45	-	0	1.0
Exhaust temperature (°C)	265	93	-	27	130
Efflux velocity (m/s)	7	28	-	6	15
Exhaust normal volumetric flow rate (Nm ³ /h)	116730	12001	-	933	24766
Exhaust actual volumetric flow rate (m ³ /h)	230040	16089	-	1025	36559
PM ₁₀ emission (mg/m ³) at normal discharge conditions	4.3500	2.4600	-	3.5100	4.3
PM ₁₀ exhaust emissions rate (g/s)	0.2780	0.0110	-	0.0010	0.044
PM _{2.5} emission (mg/m ³) at normal discharge conditions	4.3500	2.4600	-	3.5100	4.3
PM _{2.5} exhaust emissions rate (g/s)	0.2780	0.0110	-	0.0010	0.044
NO _x emission (mg/m ³) at normal discharge conditions	83.3000	-	-	-	81

Parameter	A34B (EAF)	Powder Process	Classification	Sandvik Scrubber	SAF Boiler
NOx exhaust emissions rate (g/s)	5.32	-	-	-	0.82
CO emission (mg/m³) at normal discharge conditions	1.86E+00	-	-	-	54
CO exhaust emissions rate (g/s)	1.19*10-01	-	-	-	0.55
Chromium emission (mg/m³) at normal discharge conditions	-	4.48*10-01	-	1.02*10-02	-
Chromium exhaust emissions rate (g/s)	-	2.00*10-03	-	2.90*10-06	-
Lead emission (mg/m³) at normal discharge conditions	-	2.24*10-02	-	1.02*10-02	-
Lead exhaust emissions rate (g/s)	-	1.00*10-04	-	2.90*10-06	-
Notes: *Main building defined in Section D.2.8 below. # EB (Established Baseline): Without Development Scenarios (S2 and S4); IB (Interim Baseline): Interim Without Development Scenarios (S2a, S3, S4a); EAF: Operational With Development Scenario (S5). For the pollutants where no data are provided, these parameters were not modelled.					

Buildings

6.1.25 Building downwash leads to higher ground-level pollutant concentrations near the building than if the building was not present. **Table 6.13** outlines the buildings which were modelled. These are also presented graphically in **Appendix 6.8**.

Table 6.13: Building Parameters

Building name	Scenarios included in	Coordinates		Height (m)	Length / Diameter (m)	Width (m)	Angle (°)
BOS convertor bay	All	277195	186800	67	116	44	161
BOS/Concast 1		277183	186827	43	313	51	161
BOS/Concast 2		277211	186863	33	425	29	161
BOS/Concast 3		277294	186839	48	155	113	161
BOS/Concast 4		277334	186752	48	93	39	71
Lime plant		277349	186967	27	32	13	161
Hot Mill		277960	186710	20	980	110	162
Cold Mill		278224	186461	23	754	177	162
SinterPlant main bld		276672	187996	38	96	27	99
SinterPlant west end		276615	188013	49	42	21	9
SP ESPs & fan house		276559	188022	30	68	48	9
No. 4 BF Casthouses		277121	188093	24	72	44	99
No. 5 BF Casthouses		277099	187960	25	65	46	99
BF Stockhouses		276980	188049	34	262	20	9
GCI Plant		277019	187857	28	32	12	2
Margam A Power Plant		277050	188484	25	79	35	9
Margam B Power Plant		277124	188200	20	47	27	7
Margam C Power Plant		277103	188459	29	58	44	99
New quench tower		277046	185983	42	18	13	155
Sandvik Main Building	All except S1	279211	186206	16.5	135.1	60.3	174
Sandvik 2 nd Building		279311	186179	16.5	60	134.3	174
SAF Boiler House		276518	188530	23.0	30	16	108

Meteorological data

6.1.26 Dispersion models require meteorological data to predict the concentrations of pollutants in ambient air from point source emissions under particular weather conditions local to the study area.

6.1.27 It is noted that the nearest meteorological station to the Proposed Development, Mumbles Head, is located approximately 13km west of the site. However, this station does not record cloud cover data and is therefore not optimal for use in conjunction with dispersion modelling, as this an important parameter to be accounted for.

6.1.28 Data has been generated by deriving from weather forecasting models as a proxy dataset (Numerical Weather Prediction, or NWP), which includes all the data required for dispersion modelling. Therefore, NWP data has been used for this assessment. The NWP data for the grid square centred at 277277, 187009 has been

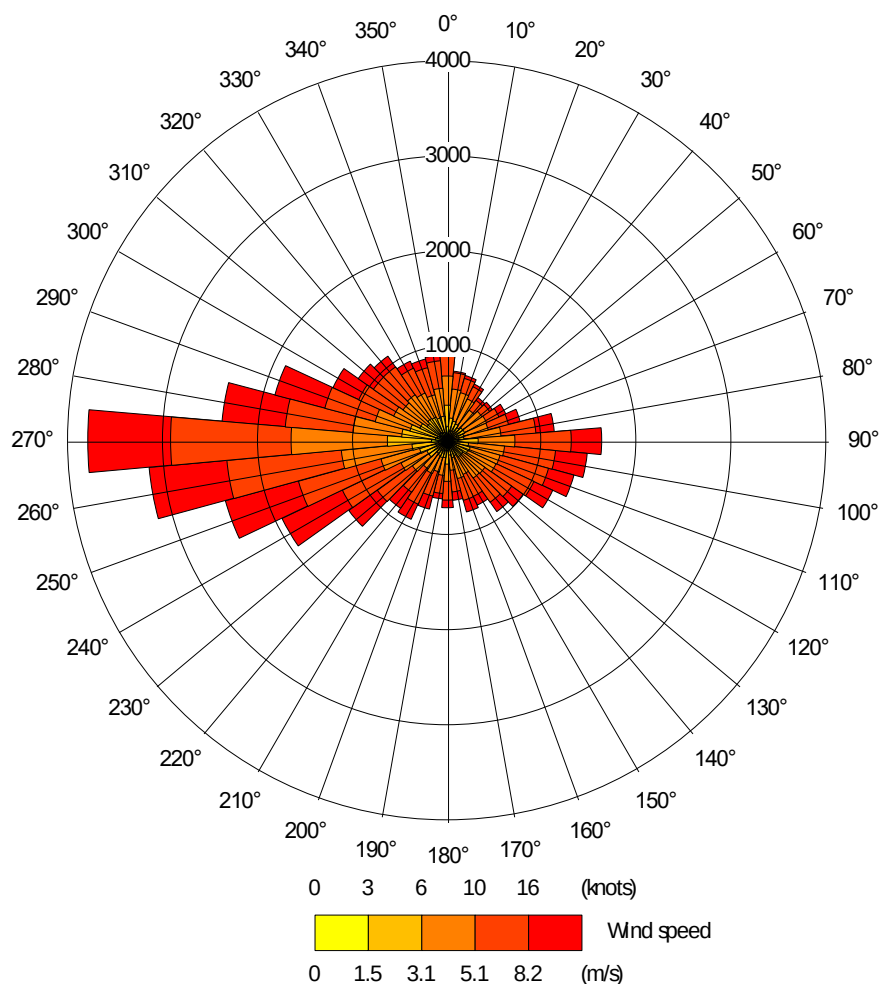
used to represent the Site. They are based on NMM (Nonhydrostatic Meso-Scale Modelling). Its spatial resolution is ~4 km for the location used.

6.1.29 To account for the potential impact on pollutant concentrations from variation in year-to-year meteorological conditions, five years have been run and the maximum predicted pollutant concentration from any one receptor has been presented (2019 – 2023). This approach is considered robust and in line with TG22.

6.1.30 The exception to this is the roads modelling undertaken to enable model verification for a 2022 base year. This accords with the approach taken in TG22, which favours consistency in the year adopted for model verification. Nonetheless, comparison was undertaken across the five years.

6.1.31 The windrose accommodating these five assessment years is shown in **Image 6.1** below.

Image 6.1: Windrose for NWP meteorological data during 2019-2023



6.1.32 To provide a sensitivity analysis for road source traffic, the annual mean pollutant concentrations predicted in Scenario 1 (S1, the Established Baseline scenario used for model verification and adjustment) was undertaken.

6.1.33 An average of five years (2012 – 2016) of meteorological data were considered. This sensitivity test was undertaken for the established baseline scenario, and involved a comparison of the NO_x, PM₁₀, PM_{2.5} and NH₃ concentrations for the NWP data (the maximum value across the five meteorological years, 2019-2023) and the St Athan meteorological data (2012-2016) at roadside traffic locations. The St Athan meteorological monitoring station is located approximately 30km to the south-east of the Site, at Saint Athan Airport, and is the closest monitoring station with available data for use in ADMS modelling. The results showed that there was a maximum percentage difference of 12.28%, 12.65%, 12.41%, and 12.06% for the NO_x, PM₁₀, PM_{2.5} and NH₃ concentrations respectively. As most of the receptor points showed a percentage difference below 10%, and based on professional judgement, it was considered that the NWP data used in the modelled scenarios for 2019-2023 was within an acceptable range when compared to the St Athan meteorological station. The results of this sensitivity analysis are included in **Table 6.14** below.

6.1.34 One year of data (2012) from the St Athan meteorological monitoring Site has also been used to sensitivity test the industrial emissions data (**Table 6.15**). The results of this test showed that in some cases, the results for St Athan data are within the range of the five years' NWP data and in others they are a bit higher or a bit lower.

6.1.35 **Figure 6.2** below presents the wind rose for the St Athan meteorological data.

6.1.36 Attempts were made to consult with NPT to obtain meteorological data from the Port Talbot AURN monitoring station. However, the data provided by NPT at the time of writing did not contain solar radiation data. Solar radiation data is required to determine the surface albedo, which is a parameter utilised in the model process. It was also noted that the AURN dataset provided contained data from 27th October 2022 to 30th May 2024, but contained significant gaps. The longest period over which data were available were 322 days (88% of the year). Whilst the use of these data in dispersion modelling would not be recommended, sensitivity testing also shows broadly similar concentrations (**Table 6.15**).

6.1.37 A further sensitivity test was undertaken for the industrial emissions data using meteorological data with a 1.5km resolution, obtained from the Met Office, for the year 2023. The results of this test, undertaken in regard to PM₁₀ at human receptor locations and NO_x at designated ecological sites, are shown in **Table 6.16** below. **Table 6.16** shows relatively small absolute differences in PM₁₀ and annual mean NO_x concentrations, and their relative difference to the air quality objective (AQO). Whilst the 1.5km resolution NWP meteorological data tends to result in higher pollutant concentrations regarding the two considered pollutants, this generally shows the benefit of the EAF to be greater against the Established Baseline than using 4km meteorological data. Therefore, using 4KM resolution NWP data for this assessment is more appropriate as it represents a worse case.

Table 6.14: Meteorological data sensitivity test results for the max NWP results (2019-2023 data) and St Athan (2012-2016 data); showing comparisons between NOx, PM₁₀ and PM_{2.5} for all human receptor locations

Receptor ID	St Athan	NWP	Difference in NOx between NWP & St Athan		St Athan	NWP	Difference in PM ₁₀ between NWP & St Athan		St Athan	NWP	Difference in PM _{2.5} between NWP & St Athan		St Athan	NWP	Difference in NH ₃ between NWP & St Athan	
	Max NOx		Actual	%	Max PM ₁₀		Actual	%	Max PM _{2.5}		Actual	%	Max NH ₃		Actual	%
PT2	1.36	1.24	-0.12	8.82	0.19	0.17	-0.02	9.42	0.11	0.10	-0.01	9.53	0.16	0.15	-0.01	8.64
PS2	1.20	1.12	-0.08	6.67	0.16	0.15	-0.01	7.93	0.09	0.08	-0.01	7.59	0.14	0.13	-0.01	7.14
TW1	2.78	2.60	-0.18	6.47	0.42	0.39	-0.03	7.09	0.23	0.22	-0.02	6.93	0.34	0.32	-0.02	6.41
DS1	1.79	1.64	-0.15	8.38	0.20	0.18	-0.02	9.14	0.12	0.11	-0.01	8.70	0.20	0.19	-0.02	8.82
LW1	0.27	0.25	-0.02	6.32	0.03	0.03	0.00	7.65	0.02	0.02	0.00	6.99	0.03	0.03	0.00	6.49
R1	1.37	1.25	-0.12	8.76	0.19	0.17	-0.02	9.38	0.11	0.10	-0.01	9.06	0.16	0.15	-0.01	8.59
R2	1.20	1.11	-0.09	7.50	0.16	0.15	-0.01	7.93	0.09	0.08	-0.01	7.91	0.14	0.13	-0.01	7.14
R3	2.82	2.64	-0.18	6.38	0.43	0.40	-0.03	7.19	0.24	0.22	-0.02	6.81	0.35	0.33	-0.02	6.59
R4	2.27	2.08	-0.19	8.37	0.24	0.22	-0.02	9.21	0.14	0.13	-0.01	9.15	0.26	0.23	-0.02	8.59
R5	0.27	0.25	-0.02	6.32	0.03	0.03	0.00	7.65	0.02	0.02	0.00	6.99	0.03	0.03	0.00	6.49
R6	2.21	2.13	-0.08	3.62	0.32	0.31	-0.01	3.11	0.17	0.17	-0.01	3.47	0.24	0.23	-0.01	3.39
R7	2.94	2.77	-0.17	5.78	0.48	0.45	-0.03	5.66	0.26	0.24	-0.02	5.84	0.37	0.35	-0.02	5.72
R8	2.07	1.92	-0.15	7.25	0.23	0.21	-0.02	7.46	0.13	0.12	-0.01	6.77	0.24	0.22	-0.02	7.23
R9	5.19	4.64	-0.55	10.60	0.89	0.79	-0.10	10.69	0.47	0.42	-0.05	10.76	0.66	0.59	-0.07	10.52
R10	2.10	2.03	-0.07	3.33	0.25	0.24	-0.01	4.03	0.14	0.14	0.00	3.52	0.24	0.23	-0.01	3.36
R11	0.97	0.91	-0.05	5.39	0.12	0.12	-0.01	6.50	0.07	0.07	0.00	6.05	0.11	0.11	-0.01	6.19
R12	1.02	0.99	-0.03	3.24	0.15	0.15	0.00	2.68	0.08	0.08	0.00	3.04	0.13	0.12	0.00	3.20
R13	1.71	1.50	-0.21	12.28	0.25	0.22	-0.03	12.65	0.14	0.12	-0.02	12.41	0.20	0.18	-0.02	12.06
R14	1.93	1.78	-0.15	7.77	0.24	0.22	-0.02	8.68	0.14	0.13	-0.01	8.76	0.22	0.20	-0.02	7.80
R15	6.20	5.69	-0.51	8.23	0.80	0.74	-0.06	6.91	0.44	0.41	-0.03	7.31	0.62	0.57	-0.05	7.63
R16	4.79	4.23	-0.56	11.69	0.60	0.53	-0.07	11.85	0.33	0.29	-0.04	11.78	0.48	0.42	-0.06	12.13
R17	3.15	2.93	-0.22	6.98	0.40	0.37	-0.03	7.32	0.22	0.21	-0.02	7.24	0.34	0.32	-0.02	6.73
R18	4.25	4.12	-0.13	3.06	0.52	0.51	-0.02	3.24	0.29	0.28	-0.01	3.41	0.45	0.44	-0.02	3.76
R19	3.50	3.45	-0.05	1.43	0.54	0.54	-0.01	1.47	0.29	0.29	0.00	1.37	0.42	0.41	-0.01	2.15
R20	7.61	7.51	-0.10	1.31	0.83	0.81	-0.02	2.06	0.48	0.47	-0.01	1.87	0.83	0.82	-0.01	1.09
R21	8.92	8.66	-0.26	2.91	0.94	0.91	-0.02	2.57	0.55	0.54	-0.02	2.90	0.98	0.95	-0.03	3.06
R22	6.52	6.14	-0.38	5.83	0.69	0.65	-0.04	5.25	0.41	0.38	-0.02	5.43	0.72	0.68	-0.04	5.80
R23	2.06	1.96	-0.10	4.85	0.24	0.23	-0.01	4.56	0.14	0.13	-0.01	5.04	0.24	0.22	-0.01	5.08
R24	1.66	1.53	-0.13	7.83	0.19	0.17	-0.02	8.56	0.11	0.10	-0.01	8.53	0.19	0.17	-0.02	8.42
P1	0.39	0.38	-0.02	4.08	0.04	0.04	0.00	3.13	0.03	0.03	0.00	3.46	0.04	0.04	0.00	4.04
P2	1.65	1.53	-0.12	7.27	0.19	0.17	-0.01	7.57	0.11	0.10	-0.01	7.69	0.19	0.17	-0.02	7.94
P3	1.38	1.30	-0.08	5.80	0.20	0.18	-0.01	6.63	0.11	0.10	-0.01	7.34	0.17	0.16	-0.01	6.59
P4	4.24	3.84	-0.40	9.43	0.51	0.46	-0.05	9.55	0.29	0.27	-0.03	9.56	0.49	0.44	-0.05	9.82
P5	2.05	1.91	-0.14	6.83	0.28	0.26	-0.02	7.80	0.16	0.15	-0.01	7.64	0.25	0.23	-0.02	6.91
P6	0.83	0.73	-0.10	11.57	0.10	0.09	-0.01	11.48	0.06	0.05	-0.01	11.51	0.09	0.08	-0.01	11.39
P7	0.38	0.36	-0.02	3.98	0.04	0.04	0.00	3.22	0.03	0.02	0.00	3.19	0.04	0.04	0.00	3.96
P8	2.81	2.58	-0.23	8.19	0.45	0.41	-0.04	8.48	0.24	0.22	-0.02	8.26	0.35	0.32	-0.03	8.29
P9	1.09	1.02	-0.07	6.42	0.15	0.14	-0.01	6.12	0.08	0.08	-0.01	6.33	0.13	0.12	-0.01	5.43
P10	4.31	3.95	-0.36	8.35	0.48	0.44	-0.04	7.74	0.28	0.26	-0.02	7.89	0.49	0.44	-0.04	8.45
P11	2.72	2.54	-0.18	6.62	0.41	0.38	-0.03	7.30	0.23	0.21	-0.02	7.11	0.34	0.31	-0.02	6.87
P12	6.91	6.19	-0.72	10.42	0.92	0.83	-0.10	10.33	0.50	0.45	-0.05	10.20	0.68	0.61	-0.07	10.64

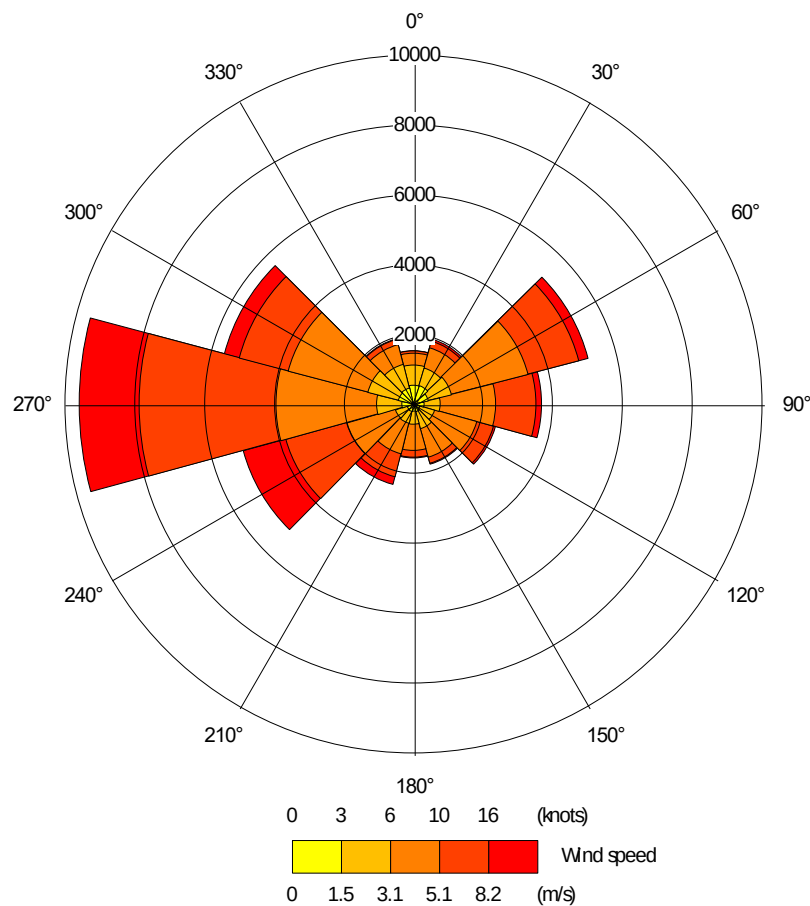
Table 6.15: Maximum predicted pollutant concentration at human receptor locations for the NWP results (2019-2023 data) and St Athan (2012-2016 data); showing comparisons between NOx and PM₁₀

Year modelled	PM ₁₀						Total NOx		
	Annual Average (µg/m³)			90.4 th percentile of 24-hour means (µg/m³)			Annual Average (µg/m³)		
	Baseline	Interim	EAF Operational	Baseline	Interim	EAF Operational	Baseline	Interim	EAF Operational
2019 (NWP)	2.92	0.01	0.05	7.81	0.03	0.17	1.91	0.45	0.64
2020 (NWP)	3.35	0.01	0.07	8.91	0.03	0.25	2.10	0.44	0.69
2021 (NWP)	3.24	0.01	0.05	8.86	0.05	0.16	1.79	0.46	0.65
2022 (NWP)	3.24	0.01	0.05	8.33	0.04	0.17	1.95	0.44	0.65
2023 (NWP)	3.48	0.01	0.06	9.13	0.03	0.20	1.94	0.46	0.65
St Athan	3.37	0.01	0.06	8.67	0.04	0.19	2.33	0.53	0.72
AURN	2.93	0.01	0.04	7.17	0.04	0.13	1.46	0.55	0.62

Table 6.16: Maximum predicted pollutant concentration at human receptor locations for the NWP results using data at a 4km spatial resolution (2019-2023 data) and a 1.5km spatial resolution (2023 data); showing comparisons between NOx and PM₁₀

Scenario and year modelled	PM ₁₀ at Human Receptor Locations						NOx at Ecological Receptor Locations					
	Annual Average (µg/m³)			90.4 th percentile of 24-hour means (µg/m³)			Annual Average (µg/m³)			Maximum Daily Average (µg/m³)		
	Baseline	Interim	EAF Operational	Baseline	Interim	EAF Operational	Baseline	Interim	EAF Operational	Baseline	Interim	EAF Operational
4km NWP (2023)	3.48	0.01	0.06	9.13	0.03	0.20	1.73	6.27	6.61	16.96	120.60	120.73
1.5km NWP (2023)	4.33	0.01	0.06	11.09	0.04	0.21	1.95	3.92	4.05	19.99	156.08	156.67
Absolute Difference	0.85	0.00	0.00	1.96	0.01	0.01	0.23	-2.35	-2.56	3.03	35.48	35.94
Difference as % of AQO	2.12	0.00	0.00	3.92	0.02	0.01	0.76	-7.85	-8.54	1.52	17.74	17.97

Image 6.2: Wind rose for St Athan meteorological data during 2012 - 2016



Receptor Locations

6.1.38 Sensitive existing receptors were selected at a range of locations (including at locations where road traffic and sources of combustion were considered to have the greatest impact) at numerous existing receptor locations. The existing receptors included are shown in **Table 6.17** below and are presented in **Appendix 6.8**.

6.1.39 An Isopleth (contour) plot was also prepared to demonstrate how nutrient nitrogen deposition varied across the Junction 38 SINC, using gridded receptors elevated to ground level.

Table 6.17: List of receptors modelled in all scenarios

Receptor ID	Receptor Type	Description	X	Y	Z
PT2	Air quality monitors (where background can be removed)	Port Talbot Margam Fire Station AURN	277406	188719	2.5
PS2		Prince Street	277688	188230	1.8
TW1		Twll-yn-y Wal Park	278206	187888	1.8
DS1		Dyffryn School	278700	187387	1.8
LW1		Little Talbot Warren	275313	188879	2.5
R1	Existing residential façade	Margam Fire Station	277406	188719	1.5

Receptor ID	Receptor Type	Description	X	Y	Z
R2	Existing residential façade	Prince Street	277690	188227	1.5
R3	Existing residential façade	Twll-yn-y-Wal Park	278205	187890	1.5
R4	Existing residential façade	Dyffryn School	278742	187405	1.5
R5	Existing residential façade	Little Warren	275313	188879	1.5
R6	Existing residential façade	Port Talbot Docks	276368	189443	1.5
R7	Existing residential façade	Talbot Road	276846	189570	1.5
R8	Existing residential façade	Theodore Road	277340	189387	1.5
R9	Existing residential façade	Old Fire Station	276140	189929	1.5
R10	Existing residential façade	Abbots Close	278981	186879	1.5
R11	Existing residential façade	Abbots Mews	278577	187028	1.5
R12	Existing residential façade	Byass Street	278255	187114	1.5
R13	Existing residential façade	Lower West End	277147	188900	1.5
R14	Existing residential façade	Longland Ln	279324	186111	1.5
R15	Existing residential façade	Old Post Office on A48	279684	186124	1.5
R16	Existing residential façade	House on A48 Slip Road	279692	186160	1.5
R17	Existing residential façade	Abbots Close	278901	187038	1.5
R18	Existing residential façade	Tygroes Drive	278911	187104	1.5
R19	Existing residential façade	Castle Street	276236	190099	1.5
R20	Existing residential façade	Springfield Terrace	276410	190410	1.5
R21	Existing residential façade	Tanygroes Street	277378	189565	1.5
R22	Existing residential façade	Tanygroes Street	277449	189595	1.5
R23	Existing residential façade	College Green	278793	187234	1.5
R24	Existing educational facility	Ysgol Cwm Brombil School	278685	187370	1.5
P1	Parks & Gardens	Vivian Memorial Park	275001	190048	1.5
P2	Parks & Gardens	Talbot Memorial Park	277364	189246	1.5
P3	Parks & Gardens	Tollgate Park	278441	187300	1.5
P4	Parks & Gardens	Pen Y Cae Gardens	277491	189620	1.5
P5	Parks & Gardens	Twll-yn-y-Wal Garden	278221	187899	1.5
P6	Parks & Gardens	Margam Country Park	280122	186058	1.5
P7	Parks & Gardens	Vivian Memorial Park	275077	189934	1.5
P8	Parks & Gardens	Talbot Memorial Park	277315	188985	1.5
P9	Parks & Gardens	Tollgate Park	278384	187303	1.5
P10	Parks & Gardens	Pen Y Cae Gardens	277486	189599	1.5
P11	Parks & Gardens	Twll-yn-y-Wal Garden	278205	187893	1.5
P12	Parks & Gardens	Margam Country Park	279706	186124	1.5
E1	Designated ecological site	Margam Moors	278509	185287	0
E2	Designated ecological site	Margam Moors	277997	185011	0
E3	Designated ecological site	Margam Moors	277571	184676	0
E4	Designated ecological site	Eglwys Nunydd	279360	185703	0
E5	Designated ecological site	Eglwys Nunydd	278971	185332	0
E6	Designated ecological site	Eglwys Nunydd	279152	184601	0
E7	Designated ecological site	Eglwys Nunydd	279347	184181	0
E8	Designated ecological site	Kenfig/Cynffig	278911	183412	0
E9	Designated ecological site	Kenfig/Cynffig	278578	183294	0
E10	Designated ecological site	Kenfig/Cynffig	277947	183429	0

Receptor ID	Receptor Type	Description	X	Y	Z
E11	Designated ecological site	Kenfig/Cynffig	277366	183205	0
E12	Designated ecological site	Kenfig/Cynffig	280023	182746	0
E13	Designated ecological site	Kenfig/Cynffig	280246	182907	0
E14	Designated ecological site	Junction 38 Wetland Complex	279049	186481	0
E15	Designated ecological site	Junction 38 Wetland Complex	278474	186441	0
E16	Designated ecological site	Junction 38 Wetland Complex	278507	186263	0
E17	Designated ecological site	Junction 38 Wetland Complex	278578	186056	0
E18	Designated ecological site	Kenfig/Cynffig	283734	177209	0
E19	Designated ecological site	Kenfig/Cynffig	284363	177536	0
E20	Designated ecological site	Cefn Cribwr Grasslands	284078	182005	0
E21	Designated ecological site	Cefn Cribwr Grasslands	285458	181900	0
E22	Designated ecological site	Crymlyn Bog	272000	194540	0
E23	Designated ecological site	Crymlyn Bog	271205	193885	0
E24	Designated ecological site	Crymlyn Bog	271148	193847	0
E25	Designated ecological site	Crymlyn Bog	270537	193669	0
E26	Designated ecological site	Crymlyn Bog	268207	193203	0
E27	Designated ecological site	Unnamed Ancient Woodland	278654	186618	0
E28	Designated ecological site	Unnamed Ancient Woodland	278959	186629	0
E29	Designated ecological site	Unnamed Ancient Woodland	279486	186354	0
E30	Designated ecological site	Unnamed Ancient Woodland	279716	186123	0
E31	Designated ecological site	Unnamed Ancient Woodland	280228	185547	0
E32	Designated ecological site	Unnamed Ancient Woodland	280266	185669	0
E33	Designated ecological site	Unnamed Ancient Woodland	279353	186567	0
E34	Designated ecological site	Unnamed Ancient Woodland	279215	186696	0
E35	Designated ecological site	Unnamed Ancient Woodland	279167	186779	0
E36	Designated ecological site	Unnamed Ancient Woodland	279171	186813	0
E37	Designated ecological site	Unnamed Ancient Woodland	279073	186908	0
E38	Designated ecological site	Unnamed Ancient Woodland	278973	187505	0
E39	Designated ecological site	Unnamed Ancient Woodland	278982	187276	0
E40	Designated ecological site	Unnamed Ancient Woodland	278958	187625	0
E41	Designated ecological site	Unnamed Ancient Woodland	277867	188475	0
E42	Designated ecological site	Unnamed Ancient Woodland	277958	188412	0
E43	Designated ecological site	Eglwys Nunydd	279181	185826	0
E44	Designated ecological site	Eglwys Nunydd	278929	185677	0
E45	Designated ecological site	Eglwys Nunydd	278768	185405	0
E46	Designated ecological site	Eglwys Nunydd	279236	184084	0
E47	Designated ecological site	Margam Country Park	280113	185600	0
E48	Designated ecological site	Margam Country Park	280381	185503	0
E49	Designated ecological site	Margam Country Park	281283	184909	0
E50	Designated ecological site	Margam Country Park	281594	184546	0
E51	Designated ecological site	Unnamed Ancient Woodland	279743	186141	0
E52	Designated ecological site	Unnamed Ancient Woodland	279683	186182	0
E53	Designated ecological site	Unnamed Ancient Woodland	279837	186331	0
E54	Designated ecological site	Unnamed Ancient Woodland	278952	187363	0

Receptor ID	Receptor Type	Description	X	Y	Z
E55	Designated ecological site	NPT Watercourse	274727	188533	0

Surface Characteristics

6.1.40 Dispersion of pollutants can be affected by the characteristics of the surface that the wind blows across, both upwind and downwind of the emission sources. The most important parameter is the surface roughness, which is determined by the mean height of obstacles in the area of interest. Noting the Site's proximity to the coastline, a spatially varying surface roughness file has been included in the assessment.

6.1.41 A minimum Monin-Obukhov length of 30 metres (which is representative of mixed urban and industrial areas) was used across the dispersion modelling study area. The latitude of Port Talbot is 51.6°N and the ADMS default values will be used for surface albedo (default value = 0.23) and the Priestley-Taylor parameter (default value = 1).

Terrain

6.1.42 Since slopes exceeding a 10% gradient are situated within a few kilometres of the Port Talbot Steelworks, the ADMS complex terrain module has been used. A digital terrain file covering all the receptors (64 grid points in each direction, with a spacing of 300 metres) was created from Ordnance Survey data using the "Create terrain file" utility within the ADMS model.

Coastline

6.1.43 ADMS includes a coastline module which allows for the modelling of a convective boundary layer to represent a scenario where there is a stable boundary layer over the sea and the land is warmer than the sea. However, the ADMS coastline module has not been included within the modelling exercise, as it cannot be combined with either the complex terrain module or the buildings module, with terrain and buildings considered to have a greater impact on pollutant concentrations than the coastline module. The coastline module was nonetheless used as part of the sensitivity tests, which is further explained in paragraphs **6.1.52 to 6.1.58** and **Table 6.19**.

6.1.44 Additionally, the hourly sequential data on sea temperature are required for the module, which are not available for this area. Limited data on water temperature is available for Swansea Bay although this would not capture hourly variation.

Background Concentrations

6.1.45 The total concentration of a pollutant comprises those from the modelled local emission sources and background pollutant concentrations, which are transported into an area by the wind from further away.

6.1.46 In relation to NO₂, PM₁₀ and PM_{2.5}, the Defra UK-AIR concentration applicable to the assessed year and 1km² grid within which each receptor is located has been applied. The concentrations adopted at each assessed receptor are presented in **Table 6.18** below.

Table 6.18: Background annual mean NO₂, PM₁₀ and PM_{2.5} concentrations applied at each of the modelled receptor locations (µg/m³)

Grid Square		2022 (µg/m ³)			2025 (µg/m ³)			2027 (µg/m ³)		
X	Y	NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}	NO ₂	PM ₁₀	PM _{2.5}
277500	188500	11.45	12.91	7.86	10.31	12.55	7.57	9.77	12.55	7.57
278500	187500	14.94	14.03	8.85	13.65	13.66	8.55	13.06	13.66	8.54
275500	188500	8.26	10.73	6.64	7.70	10.38	6.36	7.47	10.37	6.35
276500	189500	13.79	12.84	7.71	12.92	12.50	7.44	12.56	12.52	7.46
277500	189500	12.29	13.07	8.28	10.91	12.71	7.99	10.26	12.70	7.99
278500	186500	25.76	16.36	10.16	25.01	15.97	9.83	24.76	15.95	9.82
279500	186500	15.11	12.93	7.95	13.66	12.56	7.65	12.97	12.56	7.64
276500	190500	12.57	13.18	8.29	11.28	12.82	8.00	10.68	12.81	7.99
275500	190500	11.40	12.67	7.99	10.22	12.31	7.70	9.67	12.30	7.70
280500	186500	8.30	10.64	6.73	7.60	10.30	6.45	7.31	10.29	6.45
275500	189500	8.80	11.65	7.45	8.07	11.30	7.17	7.76	11.29	7.16
278500	185500	9.55	11.75	7.00	8.98	11.41	6.72	8.77	11.40	6.71
277500	185500	7.26	11.54	6.89	6.77	11.20	6.61	6.59	11.20	6.61
277500	184500	5.90	9.90	6.25	5.45	9.56	5.97	5.30	9.56	5.97
279500	185500	10.85	11.93	7.23	9.55	11.58	6.94	8.93	11.57	6.94
279500	184500	8.64	10.68	6.65	7.73	10.34	6.37	7.32	10.33	6.36
278500	183500	5.39	10.21	6.23	4.94	9.87	5.96	4.78	9.86	5.95
277500	183500	5.10	9.50	6.05	4.69	9.16	5.78	4.55	9.15	5.78
280500	182500	9.75	11.33	7.01	8.47	10.99	6.72	7.84	10.98	6.72
283500	177500	6.32	10.54	6.73	5.65	10.20	6.45	5.38	10.19	6.45
284500	177500	5.17	10.37	6.47	4.66	10.03	6.19	4.47	10.02	6.18
284500	182500	7.20	10.86	6.92	6.44	10.49	6.62	6.12	10.48	6.61
285500	181500	10.63	12.14	7.37	9.17	11.78	7.07	8.45	11.77	7.06
272500	194500	11.41	12.66	7.72	9.77	12.30	7.43	8.95	12.29	7.42
271500	193500	7.85	10.55	6.70	6.96	10.19	6.41	6.55	10.19	6.41
270500	193500	7.42	10.30	6.56	6.66	9.95	6.28	6.33	9.94	6.27
268500	193500	9.92	10.89	6.97	9.01	10.53	6.68	8.59	10.52	6.68
280500	185500	7.40	10.45	6.54	6.67	10.11	6.26	6.37	10.10	6.25
281500	184500	6.69	10.78	6.59	6.02	10.44	6.31	5.74	10.43	6.30
274500	188500	6.71	9.83	6.31	6.22	9.49	6.03	6.03	9.48	6.03

6.1.47 Annual mean concentrations of NO_x and NH₃, as well as background deposition rates relating to nutrient nitrogen and acid deposition, have been obtained from the APIS website, applicable at the location where each receptor is located. This does not project annual concentrations into the future, such that the concentration is not adjusted depending on the scenario modelled. The concentrations for these pollutants are provided within each of the results tables containing results relating to nutrient nitrogen and acid deposition throughout the report.

6.1.48 Defra UK-AIR maps for the other modelled pollutants either do not exist or have not been updated since 2001. Consequently, the concentrations monitored at the Port Talbot AURN Site have been used for CO, benzo(a)pyrene, Cr, SO₂ and Pb during 2022 (the year for which roads model verification took place) have been applied. The use of concentrations from this Site is likely to be conservative, noting that it has monitored near the Tata Steel Site as it has operated in baseline conditions.

6.1.49 Monitoring for Hg is not currently undertaken near the Site. However, Hg has been monitored historically at three Welsh urban background Sites between 2010 and 2013. The maximum annual average concentration at the three urban background Sites was 1.86ng/m³, which aligns reasonably well with data from the Brown et al. (2015)¹ review of urban and industrial air quality monitoring across the United Kingdom (UK). This value is therefore used.

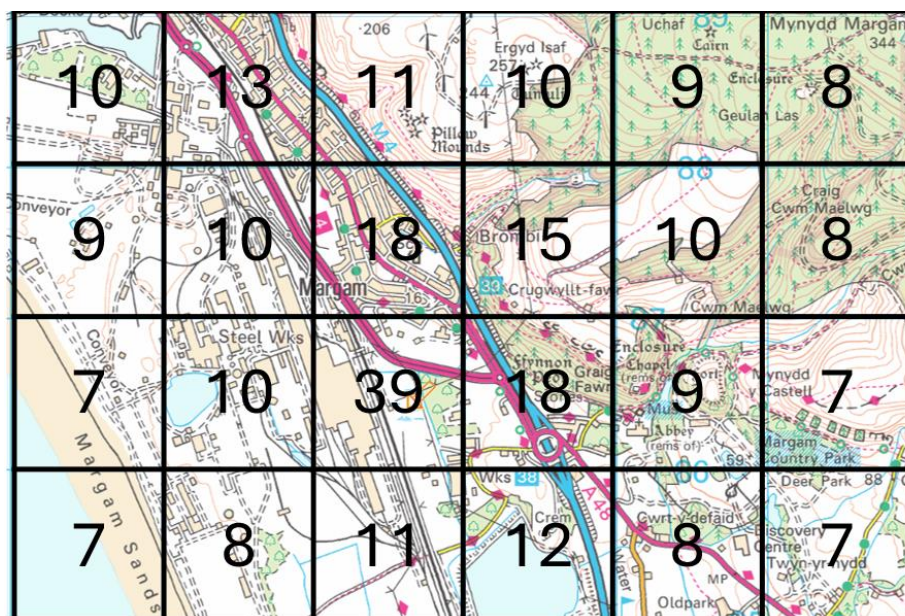
6.1.50 Monitoring for Dioxins and Furans has not historically been undertaken by Defra across the UK. However, soil sampling in the vicinity of Port Talbot undertaken by Tata (pers. Comm., 2024) did not find particularly elevated levels. It is thus assumed that these substances are emitted in trace quantities.

6.1.51 It is acknowledged that there may be inconsistency in the method used to derive background pollutant concentrations, with different NO_x concentrations being available from the UK-AIR website to the APIS website. It is noted that there is a significant discrepancy between the concentrations presented in the 1km² grid centring on 278500, 186500; and that of surrounding grid squares, as shown in **Image 6.3** below. The main contributor to annual NO_x concentrations for the 278500, 186500 grid square is derived from industrial sources within the grid square (21.3 µg/m³). The dispersion model predicted significantly lower concentrations from the Established Baseline from Tata within the grid square (2 µg/m³).

6.1.52 Background mapping may contain inaccuracies in the spatial resolution of data contained. Large industrial Sites tend to derive data from the Pollution Inventory. Within the Pollution Inventory, the Tata Steel Site is registered at its administrative address, the office block in the top left-hand corner of the map above (marked Tata Steel UK Ltd – Port Talbot). It is therefore possible that all Site-derived NO_x emissions are assumed to be emitted at the office block, rather than spread across Site.

¹ Brown, R.J.C., et al., (2013), 'Ten years of mercury measurement at urban and industrial air quality monitoring stations in the UK', Atmospheric Environment.

Image 6.3: Comparison of total NO_x concentrations embedded in the UK-AIR background maps for the year 2027, when the Site becomes fully operational



6.1.53 It is noted that NO_x monitoring was also undertaken to discharge a planning condition set in relation to the 40MW biomass power station located within the 278500, 186500 (planning reference: P2014/0705). Whilst acknowledging emissions from that Site itself may not be fully captured (due to dispersion of pollutants at height), the average NO_x concentration monitored at their (indicative gravimetric) analyser within their site boundary was 22µg/m³ when averaged from 2017 – 2022, with concentrations measuring 27µg/m³ from July 2017 – June 2018; and 21µg/m³ during 2019. This indicates that the APIS NO_x concentration modelled for the 1km² grid square centring on 278500, 186500 is likely to better represent pollutant concentrations at the Junction 38 SINC (in the same grid square) than that from the UK-AIR background map. For consistency with the approach adopted in other grid squares, it was considered appropriate to use the APIS background concentration of NO_x and NH₃ across all grid squares.

6.1.54 Despite that the Established Baseline should be accounted for in monitored pollutant concentrations, the modelled industrial concentration was added to the background in S2 or S4. This is because deduction of the modelled Established Baseline from the background applied sometimes resulted in negative background concentrations being applied. The assessment approach is thus conservative.

Sensitivity Test of the Impacts of Buildings, Hills and Coastline Modules on ADMS Outputs for Human and Ecological Receptors

6.1.55 ADMS has a number of optional modules that can be added into the model where particular effects are thought to significantly affect dispersion. For the industrial point source assessment, a building module was used as whilst some stacks are tall enough to escape any building wake effects, this is not the case for every source. The effects of the buildings on the wake of the emissions releases are the main cause for the NO_x hot spot at the J38 SINC, as addressed in **Paragraphs 6.1.51 to 6.1.53** and **Image 6.3** above.

6.1.56 A complex terrain module was also used in both the industrial and road traffic emissions models, which not only accounts for the hills to the east of the site, but also the difference in the surface roughness between the sea and the land. Although most of the receptors are in the flat strip before the hills, complex terrain effects can still make a difference to the results and were therefore included on this basis. The buildings module and the complex terrain module can be used together and was done so for the industrial models.

6.1.57 A third module (the coastline module) can be used to take into account the conditions where air that has passed over the cold sea then encounters warmer land and the atmosphere is unstable (convective). This module requires data on sea temperature, ideally on an hourly basis and is not readily available. Instead, the monthly average sea temperature was sourced, and using this, the same temperature for every hour in the month was assumed.

6.1.58 Unlike the previous two modules, the coastline module cannot be combined with either the buildings module or the complex terrain module. It is noted that the ADMS User Guide (section 9.19.1) states, in relation to the coastline module, “the module has not been validated against field data”. As such, due to building effects generally having a significant effect on the dispersion at Port Talbot, it was decided to prioritise buildings over coastline, given the two cannot be combined.

6.1.59 However, in order to understand the potential impact from the different modules on the industrial dispersion modelling results, five different combinations of modules have been run. These sensitivity test models only used one set of meteorological data (2023 NWP) and did not include cumulative effects from Sandvik or the SAF. The results of this sensitivity test are included in **Table 6.19** below.

Table 6.19: Sensitivity Test of the Impacts of Buildings, Hills and Coastline Modules on ADMS Pollutant Outputs for Human and Ecological Receptors (Established Baseline, Interim Baseline & EAF Operational)

Receptor	PM ₁₀						PM _{2.5}						
	Annual Average (µg/m³)			90.4th percentile of 24-hour means (µg/m³)			Annual Average (µg/m³)						
	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational				
Maximum Human Receptors													
No Modules	5.09	0.02	0.11	13.35	0.06	0.33	5.04	0.02	0.11				
Buildings	4.74	0.02	0.12	11.93	0.06	0.40	4.70	0.02	0.12				
Hills	3.57	0.01	0.05	9.69	0.03	0.17	3.56	0.01	0.05				
Buildings & Hills	3.48	0.01	0.06	9.13	0.03	0.20	3.47	0.01	0.06				
Coastline	5.02	0.02	0.11	13.23	0.06	0.33	4.97	0.02	0.11				
Maximum Ecological Receptors													
No Modules	2.74	0.02	0.11	7.52	0.06	0.38	2.69	0.02	0.11				
Buildings	2.56	0.02	0.12	6.93	0.06	0.41	2.51	0.02	0.12				
Hills	1.96	0.01	0.06	5.56	0.03	0.21	1.95	0.01	0.06				
Buildings & Hills	1.96	0.01	0.07	5.43	0.03	0.24	1.95	0.01	0.07				
Coastline	2.72	0.02	0.11	7.57	0.06	0.39	2.68	0.02	0.11				
Receptor	Total NOx						NO ₂ (=70% of Total NOx for annual average, 35% of Total NOx for 99.79th percentile)						
	Annual Average (µg/m³)			Maximum Daily Average (µg/m³)			Annual Average (µg/m³)			99.79th percentile of hourly means (µg/m³)			
	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	
Maximum Human Receptors													
No Modules	2.59	0.68	1.19	12.28	3.08	5.32	1.81	0.48	0.83	9.26	2.35	3.68	
Buildings	3.10	0.67	1.18	12.38	11.42	12.18	2.17	0.47	0.83	9.24	8.68	8.68	
Hills	1.61	0.47	0.64	13.05	3.63	5.92	1.13	0.33	0.45	13.40	3.88	4.70	
Buildings & Hills	1.94	0.46	0.65	13.05	4.26	6.22	1.36	0.32	0.45	13.40	4.71	4.94	
Coastline	2.55	0.67	1.18	13.14	3.33	6.79	1.79	0.47	0.83	11.14	2.28	4.30	
Maximum Ecological Receptors													
No Modules	2.88	0.94	1.46	16.94	4.86	8.40	2.01	0.66	1.02	9.41	2.74	3.48	
Buildings	2.90	6.60	7.16	16.89	120.76	121.78	2.03	4.62	5.01	9.40	156.38	157.79	
Hills	1.72	1.32	1.59	17.00	6.13	6.39	1.20	0.92	1.11	12.51	5.31	5.66	
Buildings & Hills	1.73	6.27	6.61	16.96	120.60	120.73	1.21	4.39	4.63	12.51	152.68	152.72	
Coastline	2.72	0.93	1.45	17.73	4.84	8.42	1.90	0.65	1.01	11.64	2.98	4.75	
Receptor	SO ₂												
	Annual Average (µg/m³)			99.9th percentile of 15-minute means (µg/m³)			99.73rd percentile of hourly means (µg/m³)			99.18th percentile of daily means (µg/m³)			
	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	
Maximum Human Receptors													
No Modules	9.08	0.00	1.98	58.88	0.00	25.04	46.75	0.00	22.62	35.54	0.00	14.91	
Buildings	8.64	0.00	2.42	74.52	0.00	33.42	51.99	0.00	28.23	33.40	0.00	18.33	
Hills	5.83	0.00	0.76	90.44	0.00	34.44	47.64	0.00	19.18	24.16	0.00	8.10	
Buildings & Hills	5.74	0.00	1.13	90.44	0.00	36.74	52.76	0.00	31.24	23.80	0.00	14.48	
Coastline	8.91	0.00	1.97	71.02	0.00	38.02	49.11	0.00	23.32	35.39	0.00	15.05	
Maximum Ecological Receptors													
No Modules	5.42	0.00	2.12	53.56	0.00	22.72	37.65	0.00	20.54	24.26	0.00	14.19	
Buildings	5.18	0.00	2.32	54.48	0.00	37.10	37.56	0.00	30.90	21.72	0.00	16.32	

Hills	3.89	0.00	1.11	67.27	0.00	40.51	38.67	0.00	21.01	21.58	0.00	10.84
Buildings & Hills	3.91	0.00	1.40	67.27	0.00	47.16	42.95	0.00	32.12	21.65	0.00	11.29
Coastline	5.36	0.00	2.20	62.59	0.00	39.55	40.53	0.00	27.35	24.11	0.00	14.32
Receptor	CO						Dioxins and Furans			Benzo(a)Pyrene		
	Maximum 8-hour running mean (mg/m³)			Maximum Hourly Average (mg/m³)			Annual Average (ng/m³)			Annual Average (ng/m³)		
	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational
Maximum Human Receptors												
No Modules	0.97	0.00	0.07	1.73	0.00	0.07	0.00	0.00	0.00	0.18	0.00	0.07
Buildings	1.09	0.00	0.08	1.93	0.00	0.10	0.00	0.00	0.00	0.18	0.00	0.08
Hills	1.04	0.00	0.06	5.66	0.00	0.23	0.00	0.00	0.00	0.12	0.00	0.03
Buildings & Hills	1.09	0.00	0.09	5.66	0.00	0.23	0.00	0.00	0.00	0.12	0.00	0.04
Coastline	1.13	0.00	0.07	2.13	0.00	0.14	0.00	0.00	0.00	0.20	0.00	0.07
Maximum Ecological Receptors												
No Modules	0.73	0.00	0.06	1.66	0.00	0.07	0.00	0.00	0.00	0.36	0.00	0.07
Buildings	1.04	0.00	0.08	2.06	0.00	0.15	0.00	0.00	0.00	0.36	0.00	0.08
Hills	1.05	0.00	0.06	3.52	0.00	0.24	0.00	0.00	0.00	0.56	0.00	0.04
Buildings & Hills	1.06	0.00	0.08	3.38	0.00	0.24	0.00	0.00	0.00	0.56	0.00	0.05
Coastline	0.78	0.00	0.07	1.59	0.00	0.13	0.00	0.00	0.00	0.41	0.00	0.08
Receptor	Chromium						Lead					
	Annual Average (ng/m³)			Maximum Daily Average (ng/m³)			Annual Average (ng/m³)					
	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational			
Maximum Human Receptors												
No Modules	1.20	0.00	0.04	9.67	0.00	0.34	9.69	0.00	0.40			
Buildings	1.20	0.00	0.05	9.68	0.00	0.38	9.70	0.00	0.48			
Hills	0.87	0.00	0.02	8.09	0.00	0.22	4.91	0.00	0.15			
Buildings & Hills	0.87	0.00	0.02	8.72	0.00	0.36	5.11	0.00	0.23			
Coastline	1.34	0.00	0.04	9.67	0.00	0.34	9.59	0.00	0.39			
Maximum Ecological Receptors												
No Modules	2.35	0.00	0.04	40.20	0.00	0.33	8.09	0.00	0.42			
Buildings	2.36	0.00	0.05	40.51	0.00	0.36	7.93	0.00	0.46			
Hills	3.52	0.00	0.02	51.22	0.00	0.30	7.47	0.00	0.22			
Buildings & Hills	3.53	0.00	0.03	51.36	0.00	0.30	7.57	0.00	0.28			
Coastline	2.63	0.00	0.04	40.20	0.00	0.33	8.11	0.00	0.44			
Receptor	Mercury											
	Annual Average (ng/m³)			Maximum Hourly Average (ng/m³)			Maximum Daily Average (ng/m³)					
	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational	Established Baseline	Interim Baseline	EAF operational			
Maximum Human Receptors												
No Modules	0.04	0.00	0.10	0.81	0.00	1.17	0.28	0.00	0.86			
Buildings	0.04	0.00	0.12	0.81	0.00	1.67	0.28	0.00	0.95			
Hills	0.02	0.00	0.04	1.72	0.00	3.76	0.24	0.00	0.54			
Buildings & Hills	0.02	0.00	0.06	1.72	0.00	3.76	0.24	0.00	0.89			
Coastline	0.04	0.00	0.10	1.46	0.00	2.33	0.29	0.00	0.86			
Maximum Ecological Receptors												

No Modules	0.03	0.00	0.11	1.30	0.00	1.20	0.47	0.00	0.84
Buildings	0.03	0.00	0.12	1.30	0.00	2.48	0.47	0.00	0.91
Hills	0.05	0.00	0.06	2.75	0.00	3.99	0.60	0.00	0.75
Buildings & Hills	0.05	0.00	0.07	2.75	0.00	3.99	0.60	0.00	0.75
Coastline	0.04	0.00	0.11	1.54	0.00	2.22	0.47	0.00	0.84

6.1.60 The results in **Table 6.19** show that for the coastline module results are within an acceptable range when compared to not using any of the optional modules at all, so there is no evidence that there are significant coastline effects that have been missed as a result of not including a coastline module within the assessment. When comparing the buildings module (whether by itself or when combined with complex terrain) to not using any module, there is a significant difference with regards to some pollutant concentrations, in particular NO_x at ecological receptors. In the absence of the building modules, the peak concentrations were much lower than when they are present in the models. When looking at the hills module, results tend to be lower at the worst-case receptors, although this is not true for every case. As stated in **Paragraph 346.1.56**, neither the human or ecological receptors are generally located in the hills. The presence of the hills does however mean that when the wind blows from the Site towards the receptors, the pathway for the wind in the model is different from how it would be if the hills weren't there.

6.1.61 Based on the analysis of the different ADMS modules, it is concluded that the decision to use a combined method including building and complex terrain modules, rather than the coastline module, is justified, as shown by the results of the sensitivity test in **Table 6.19** above.

Post-processing of modelled results

6.1.62 Regarding the assessment against the “short term” (24-hour, hourly and 15-minute) air quality thresholds, percentiles were used in the model to remove the hours contributing the greatest impact, in instances where a certain number of breaches are permissible per annum. For example, the 99.79th percentile of hourly mean NO₂ concentrations represents the highest hourly mean NO_x concentration but excluding the highest 18 hourly pollutant concentrations from a year (i.e. 0.21% of the hours within a year).

6.1.63 NO_x emitted to the atmosphere as a result of combustion will consist largely of nitric oxide (NO). Once released into the atmosphere, NO is oxidised to NO₂. The proportion of NO converted to NO₂ depends on a number of factors including wind speed, distance from the source, solar irradiation and the availability of oxidants, such as O₃. The dispersion modelling exercise predicts concentrations of NO_x which are subsequently used to estimate concentrations of NO₂ using the approach outlined below. These are the ‘worst case’ conversion criteria referenced by the Environment Agency in the Defra & Environment Agency 2024 guidance:

- Predicted NO₂ annual average concentration = 70% of the predicted annual average NO_x concentration plus annual average baseline NO₂ concentration;
- Predicted NO₂ 99.79th percentiles of hourly average concentrations = 35% of the predicted 99.79th percentiles of hourly average NO_x concentrations plus twice the annual average baseline NO₂ concentration.

6.1.64 For other pollutants for which background concentrations are available, Predicted Environmental Concentrations (PECs) have been calculated as:

- Annual averages: annual average process contribution (PC) plus annual average baseline; and
- Shorter timescales: PC at relevant averaging time plus twice the annual average baseline concentration.

6.1.65 The process contribution was taken as described in **Section 6.1.29**.

6.1.66 To calculate the nutrient nitrogen deposition, the annual mean nitrogen and NH₃ deposition concentration were converted from the annual mean NO_x and NH₃ PC using the method outlined in Environment Agency (2014) guidance (accounting for road and industrial contributions) and added together. The PCs from each pollutant were summed and compared to the nitrogen critical load. The critical loads applied were habitat-specific and obtained from the Air Pollution Information System (APIS) website.

6.1.67 To calculate the acid deposition, the annual mean nitrogen, sulphur and NH₃ deposition concentration were converted from the annual mean NO_x, SO₂ and NH₃ PC using the method outlined in Environment Agency (2014) guidance (accounting for road and industrial contributions). The PCs from nitrogen, sulphur and NH₃ were summed and compared to the critical load function.

Appendix 6.3 – Detailed Dispersion Modelling Assessment Method (Air Quality Vehicle Emissions)

Disparities with the Industrial Emissions Modelling

6.1.68 The vehicle emissions modelling has generally followed the same approach as the industrial dispersion modelling, except in relation to the pollutants assessed, the source emissions data used, and that the results required 'verification' to accord with TG22. Further explanation in relation to these parameters is provided below.

Traffic Data

6.1.69 The AADT, the percentage of HGVs (%HGVs) and vehicle speeds for the local roads of interest were obtained from the Traffic and Transport Team for most links.

6.1.70 For links outside of the traffic model but which were in the vicinity of Port Talbot, 2022 count data were downloaded from the Department for Transport (DFT) website. The same traffic flow was generally assumed on the M4 for its entire length. Flows on these links were uplifted using an appropriate Temprow growth factor.

6.1.71 Traffic on roundabouts was estimated by Temple, considering the traffic flows on links leading into it.

6.1.72 Vehicle speeds were based on the speed limits on each road link but adjusted with reference to the advice on modelling junctions and congestion provided within TG22, and professional judgement.

6.1.73 The data for roads does not account for the reduction in staff trips in the Interim, Construction and Operational Scenarios. The assessment approach adopted is therefore conservative.

6.1.74 **Table 6.20** summarises the information used within the assessment (AADT and %HGVs). The roads modelled are shown in **Figure 6.1** to **Figure 6.5** in **Appendix 6.8**.

Table 6.20: Traffic Data for all modelled scenarios

Link ID	Link Name	S1 and S4b Established Baseline 2022 / Verification 2022		S2		S2a		S3		S4		S4a and S5		Speed (kph)
		AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	
1	A48 Pentyla-Baglan Road	17,954	3.89	18,666	3.85	17977	3.48	18,803	3.33	18549	3.90	18455	3.41	48
2	B4286 Heilbronn Way	17,187	2.69	17,746	2.68	17624	2.70	17,793	2.67	17722	2.69	17722	2.69	48
3	Car Park Access (North)	15	0.00	15	0.00	15	0.00	15	0.00	15	0.00	15	0.00	24
4	A48 Heilbronn Way (North)	16,991	4.11	17,721	4.06	16911	3.70	17,904	3.49	17579	4.11	17486	3.60	48
5	Car Park Access (South)	1,155	30.64	1,189	30.64	1189	30.64	1,189	30.64	1189	30.64	1189	30.64	24
6	A48 Heilbronn Way (East)	10,002	4.03	10,333	4.02	10236	4.06	10,370	4.00	10313	4.02	10313	4.02	48
7	Water Street	14,420	4.06	14,852	4.06	14852	4.06	14,852	4.06	14852	4.06	14852	4.06	48
8	A4241 (North 1)	5,490	4.21	5,914	4.02	5007	2.88	6,135	2.35	5754	4.21	5660	2.62	48
9	Industrial Unit Access (East)	438	16.82	452	16.82	452	16.82	452	16.82	452	16.82	452	16.82	32
10	Industrial Unit Access (West)	21	0.00	21	0.00	21	0.00	21	0.00	21	0.00	21	0.00	32
11	Harbourside Road	634	0.00	653	0.00	653	0.00	653	0.00	653	0.00	653	0.00	48
12	A4241 (North 2)	5,362	4.67	5,783	4.46	4875	3.38	6,003	2.74	5622	4.67	5528	3.05	48
13	A4241 (West)	7,775	3.98	8,261	3.86	7873	4.05	8,411	3.79	8184	3.90	8184	3.90	48
14	North Bank Road	732	15.44	754	15.44	754	15.44	754	15.44	754	15.44	754	15.44	48
15	A4241 Harbour Way (West)	12,273	3.80	13,153	3.66	11858	3.27	13,523	2.86	12915	3.76	12822	3.05	48
16	Oakwood Road	762	2.58	785	2.58	785	2.58	785	2.58	785	2.58	785	2.58	48
17	Llewellyn's Road	949	9.33	977	9.33	977	9.33	977	9.33	977	9.33	977	9.33	48
18	A4241 Harbour Way (North)	11,609	4.19	12,469	4.02	11174	3.65	12,840	3.17	12232	4.13	12138	3.39	48
19	West Gate Site Access	3,072	8.48	3,727	13.64	3727	13.64	3,727	13.64	3331	8.47	3331	8.47	32
20	Access Road 1	49	20.00	51	20.00	51	20.00	51	20.00	51	20.00	51	20.00	32
21	A4241 Harbour Way (South 1)	10,641	5.36	11,361	7.28	10065	7.29	11,731	6.25	11202	5.33	11108	4.53	48

Link ID	Link Name	S1 and S4b Established Baseline 2022 / Verification 2022		S2		S2a		S3		S4		S4a and S5		Speed (kph)
		AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	
22	Access Road 2	152	0.00	157	0.00	157	0.00	157	0.00	157	0.00	157	0.00	32
23	Main Gate Site Access	4,286	7.80	4,414	7.80	2219	6.95	5,129	5.55	4414	7.80	4224	3.65	32
24	A4241 Harbour Way (South 2)	9,152	6.55	9,827	8.73	8927	8.53	10,172	8.77	9668	6.49	9572	5.55	48
25	Access Road 3	197	45.00	1,584	6.99	1584	6.99	1,584	6.99	1584	6.99	1584	6.99	32
26	A48 Margam Road (Norh)	7,299	4.18	7,984	4.39	7910	4.43	8,056	4.89	7969	3.94	7969	3.94	48
27	A48 Margam Road (South)	14,470	6.15	15,862	7.18	15036	6.94	16,135	7.00	15718	6.02	15622	5.44	48
28	M4 Southbound Off-slip	3,495	4.22	3,908	4.78	3908	4.78	3,929	5.28	3908	3.89	3908	3.89	48
29	A48 (East)	9,230	4.10	9,532	4.09	9434	4.13	9,570	4.07	9513	4.10	9513	4.10	48
30	M4 Southbound On-slip	3,406	9.81	3,842	11.39	3495	11.61	3,954	10.81	3780	9.50	3748	8.73	48
31	M4 Northbound Off-slip	4,345	8.71	4,765	10.17	4384	9.58	4,867	9.54	4702	8.60	4638	7.33	48
32	Heolcae'r-Bont	772	13.38	795	13.38	795	13.38	795	13.38	795	13.38	795	13.38	48
33a	M4 Motorway (84064)	64,750	8.02	66,356	8.02	66356	8.02	66,356	8.02	67392	8.02	67392	8.02	96
33	M4 Motorway (84064)	64,750	8.02	66,356	8.02	66356	8.02	66,356	8.02	67392	8.02	67392	8.02	96
34	A474 (50518)	25,739	2.53	26,377	2.53	66356	8.02	26,377	2.53	26789	2.53	26789	2.53	48
35	A48 (20523)	27,823	3.07	28,513	3.07	26377	2.53	28,513	3.07	28958	3.07	28958	3.07	48
36	A474 Neath Road (30588)	12,331	1.53	12,637	1.53	28513	3.07	12,637	1.53	12834	1.53	12834	1.53	48
37	A4146 (50590)	3,962	1.79	4,060	1.79	12637	1.53	4,060	1.79	4124	1.79	4124	1.79	48
38	A4107 (30655)	5,487	1.71	5,623	1.71	4060	1.79	5,623	1.71	5711	1.71	5711	1.71	48
	Roundabout_1	13,136	3.71	13,462	3.71	5623	1.71	13,462	3.71	13672	3.71	13672	3.71	24
	Roundabout_2	12,688	4.68	13,003	4.68	13462	3.71	13,003	4.68	13206	4.68	13206	4.68	24
	Roundabout_3	3,203	4.84	3,283	4.84	13003	4.68	3,283	4.84	3334	4.84	3334	4.84	24
	Roundabout_4	7,461	4.68	7,646	4.68	3283	4.84	7,646	4.68	7765	4.68	7765	4.68	24
	Roundabout_5	6,861	4.32	7,031	4.32	7646	4.68	7,031	4.32	7141	4.32	7141	4.32	24
	Roundabout_6	6,935	5.66	7,107	5.66	7031	4.32	7,107	5.66	7218	5.66	7218	5.66	24
	Roundabout_7	6,684	6.61	6,849	6.61	7107	5.66	6,849	6.61	6956	6.61	6956	6.61	24

Link ID	Link Name	S1 and S4b Established Baseline 2022 / Verification 2022		S2		S2a		S3		S4		S4a and S5		Speed (kph)
		AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	AADT	%HDV	
	Roundabout_8	8,696	6.16	8,912	6.16	6849	6.61	8,912	6.16	9051	6.16	9051	6.16	24
	Roundabout_9	9,833	6.59	10,077	6.59	8912	6.16	10,077	6.59	10234	6.59	10234	6.59	24
	Roundabout_10	8,650	4.10	8,865	4.10	10077	6.59	8,865	4.10	9003	4.10	9003	4.10	24
	Roundabout_11	21,847	3.00	22,389	3.00	8865	4.10	22,389	3.00	22738	3.00	22738	3.00	24
	Roundabout_12	17,864	2.28	18,307	2.28	22389	3.00	18,307	2.28	18592	2.28	18592	2.28	24
	Roundabout_13	4,725	1.74	4,842	1.74	18307	2.28	4,842	1.74	4918	1.74	4918	1.74	24

Vehicle Emissions Factors

6.1.75 The ADMS-Roads model assesses the volume of pollutants generated along each stretch of modelled road based on inputted 'emissions factors' (g/km/s). Defra's emissions factors toolkit (v12) was used to determine the emissions of NO_x, PM₁₀ and PM_{2.5} from operational traffic along the affected links.

6.1.76 Due to the potential effects of the Development on air quality, ammonia (NH₃) emissions were predicted using the Calculator for Road Emissions of Ammonia (CREAM) toolkit (version 1a, Air Quality Consultants, 2020).

Model verification

6.1.77 Model verification refers to checks that are carried out on model performance in relation to roads modelling at a local level. Modelled road concentrations are compared with the results of local monitoring and, where there is a disparity between modelled and monitored concentrations, an adjustment may be applied to the final model output.

6.1.78 Model verification for NO₂ was undertaken for this assessment using the 2022 data monitored at six roadside monitoring locations in the vicinity of the Site. The monitoring locations were chosen based on the availability of traffic data for those links.

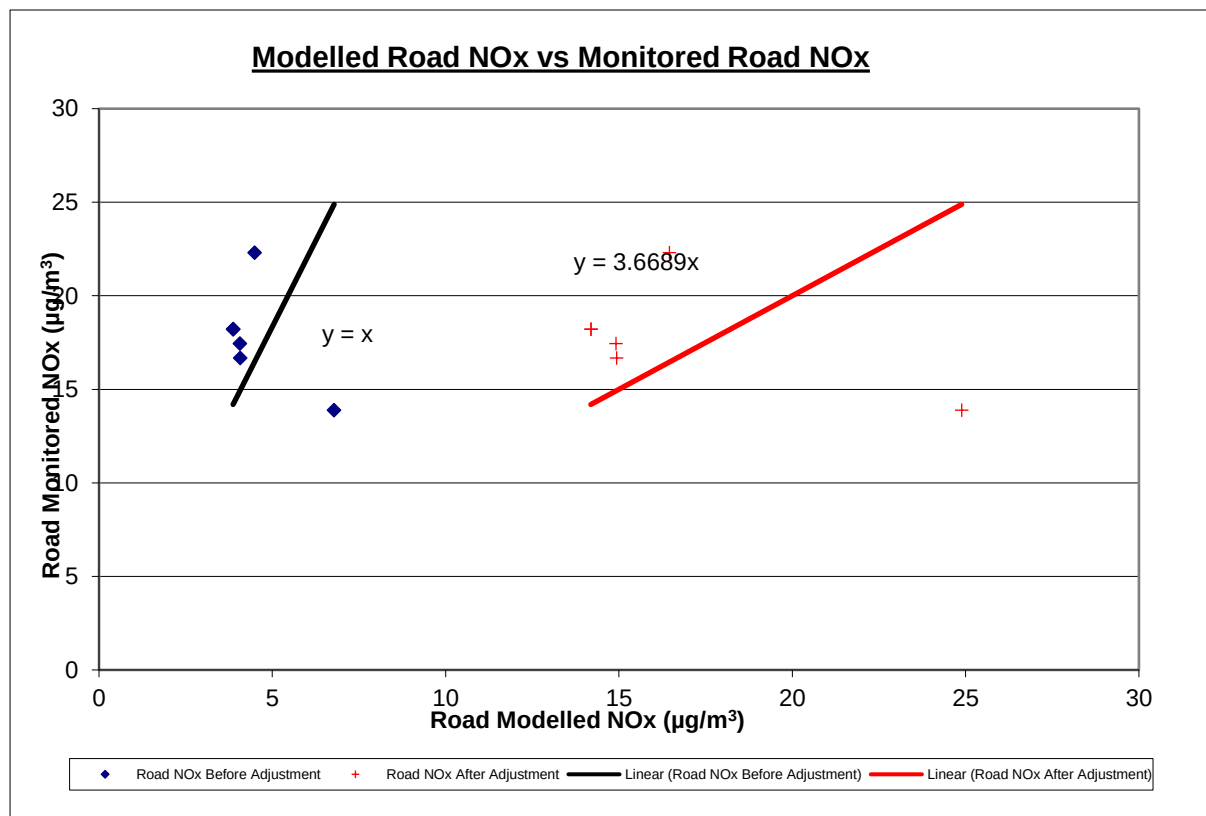
6.1.79 Model verification for PM₁₀ and PM_{2.5} was undertaken using the NO_x verification factor.

6.1.80 **Table 6.21** and Image 6.41 below show the comparison of monitored versus modelled NO_x concentrations at the diffusion tubes used for model verification and assessment purposes. The monitored road NO_x was calculated by converting roadside NO₂ (i.e. monitored NO₂ – background NO₂) to NO_x using the latest version of the NO_x to NO₂ calculator. The model was identified as underpredicting modelled pollutant concentrations by a factor of 3.67. This adjustment factor was applied to all modelled road concentrations before being combined with background concentrations.

Table 6.21: Verification Table for NO_x in the study area

Monitoring Site ID	Monitoring Result (µg/m ³)	Background NO ₂ (µg/m ³) as per UK-AIR	Modelled Roadside NO _x (µg/m ³)	Roadside monitored NO _x (µg/m ³)	Monitored NO _x / Modelled NO _x (Adjustment Factor)
7a7b7c	18.1	9.09	4.07	16.67	3.67
8	18.9	9.09	3.87	18.21	
9	21.0	9.09	4.49	22.3	
10	18.9	9.09	3.87	18.21	
11	18.5	9.09	4.06	17.44	
25	21.2	13.79	6.78	13.88	

Image 6.41: Comparison of modelled and monitored Road NOx before and after adjustment at model verification locations considered in this assessment



6.1.81 To determine whether the adjusted modelled NOx concentrations are suitable post-adjustment, the percentage difference between the total modelled NO₂ and total monitored NO₂ at each monitoring site is required to be within 25% or ideally within 10%.

6.1.82 **Table 6.22** below compares the percentage difference between the total monitored and modelled NO₂ concentrations, the latter calculated by inputting the modelled road NOx and background NO₂ into the NOx to NO₂ calculator. The average percentage difference and root mean square error (RMSE, which measures the average error or uncertainty in a model, with an ideal value of 0 $\mu\text{g}/\text{m}^3$) was 5.05% and 3.34 $\mu\text{g}/\text{m}^3$ respectively. This means that, on average, the model slightly overpredicted pollutant concentrations at receptor locations and is thus considered to perform acceptably.

6.1.83 It is noted that, following adjustment, the model overpredicted pollutant concentrations at one receptor location significantly. The model was checked in this location by examining the distance of the receptor from the road network and speed on the road links closest to the receptor. Following a rerun of the verification models this overprediction was brought down but was nonetheless significant. Due to its location and as the rest of the verification receptors were performing acceptably it was elected to keep this overpredicting receptor location (25) in the verification results as it was

considered to be performing appropriately, despite the overprediction, when included within the calculations.

Table 6.22: Comparison of the modelled and monitored annual mean NO₂ concentrations at the verification locations post-adjustment

Monitoring Location	Monitoring Result NO ₂	Background NO _x	Background NO ₂	Post-adjustment modelled road NO _x	Total modelled NO ₂	% difference in monitored vs modelled NO ₂
7a7b7c	18.10	11.82	9.09	14.93	18.76	3.66%
8	18.90	11.82	9.09	14.20	18.30	-3.16%
9	21.00	11.82	9.09	16.46	19.70	-6.18%
10	18.90	11.82	9.09	14.19	18.29	-3.21%
11	18.50	11.82	9.09	14.91	18.75	1.37%
25	21.20	18.88	13.79	24.89	29.22	37.82%

6.1.84 Model verification of NH₃ was not undertaken. This accords with the note in the 'Ammonia Emissions from Roads for Assessing Impacts on Nitrogen-sensitive Habitats' (Air Quality Consultants, 2020), which advises that *"it is expected that the ammonia emissions factors will often be used as inputs to the ADMS-Roads dispersion model but that users will not be able to carry out local model verification against robust measurements (since it is uncommon to carry out robust roadside ammonia measurements paired with robust background ammonia measurements)."* Ammonia is not measured at any of the monitoring Sites within NPTs jurisdiction; indeed, only two AURN affiliated monitoring sites in the UK (both in England) measures gaseous ammonia. Consequently, these concentrations were added directly to the ambient background concentration.

Post-processing of modelled results

6.1.85 At each receptor, the following method was used to estimate total annual mean pollutant concentrations in all modelled future scenarios (S2 – S5). These were considered 'baseline' concentrations, onto which the industrial contribution was added:

- Modelled road NO_x, PM₁₀ and PM_{2.5} concentrations were adjusted (as part of model verification) using the method set out below, as per TG22;
- The road source NO₂ at each receptor was estimated from the modelled NO_x concentration using version 8.1 of the NO_x to NO₂ calculator; and,
- Adjusted annual mean road NH₃, NO₂, PM₁₀ and PM_{2.5} concentrations were added to the applicable background contribution.

Appendix 6.4 – Construction Phase Dust Mitigation Measures

6.1.86 The measures below are expected to be implemented to address fugitive dust generated by construction related activities. The measures should be implemented for as long as potentially dusty activities take place. Some of the measures may only be necessary during specific phases of work, or during activities with a high potential to produce dust, and the list should be refined and expanded upon in liaison with the construction contractor when producing the DMP or CEMP. The DMP or CEMP can be produced to discharge a planning condition. Measures which do not directly apply to the activities being undertaken will also be discounted.

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real- time PM₁₀ continuous monitoring and/or visual inspections.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

- Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel- or petrol- powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid bonfires and burning of waste materials.
- Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes (principally those in the vicinity of the public road network) and any subsequent action in a site log book.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Appendix 6.5 – Assessment of Effects at Human Receptors (Established Baseline)

6.1.87 The section below details the results of the comparisons between the following scenarios:

- Scenario 4 (S4) – Future Operational Without Development (2027);
- Scenario 5 (S5) – Future Operational With Development (2027);

6.1.88 Results of the short-term SO₂, CO, Hg, B[a]P, Pb, Cr, Dioxins and Furans concentrations for Scenario 4 (Future Operational Without Development) and Scenario 5 (Future Operational With Development) at human receptors are located in **Table 6.23** to **Table 6.28**.

6.1.89 **Table 6.29** to **Table 6.31** shows the breakdown of what ratio of background, road traffic and point source emissions are attributable to the annual mean concentrations of NO_x, NO₂, and PM₁₀ for Scenario 4 (Future Operational Without Development) and Scenario 5 (Future Operational With Development) at human receptors.

Table 6.23: Comparison of short-term SO₂ concentrations between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Hourly mean SO ₂ concentration by scenario (µg/m ³)				
	S4	S5	Actual Change	% of AQAL	EPUK-IAQM Impact descriptor
R1	56.44	16.51	-39.93	-11.41	Small beneficial
R2	57.12	18.57	-38.54	-11.01	Small beneficial
R3	48.59	29.45	-19.14	-5.47	Negligible
R4	44.19	24.30	-19.90	-5.69	Negligible
R5	33.73	15.31	-18.42	-5.26	Negligible
R6	49.91	16.64	-33.28	-9.51	Negligible
R7	53.35	16.51	-36.85	-10.53	Negligible
R8	44.02	15.06	-28.96	-8.27	Negligible
R9	43.05	15.67	-27.38	-7.82	Negligible
R10	43.44	23.39	-20.05	-5.73	Negligible
R11	46.03	26.41	-19.62	-5.60	Negligible
R12	48.74	35.57	-13.17	-3.76	Negligible
R13	56.13	16.51	-39.61	-11.32	Small beneficial
R14	39.33	25.02	-14.32	-4.09	Negligible
R15	35.95	23.62	-12.33	-3.52	Negligible
R16	34.28	23.61	-10.66	-3.05	Negligible
R17	43.02	21.67	-21.35	-6.10	Negligible
R18	41.97	21.66	-20.32	-5.80	Negligible
R19	43.87	15.15	-28.73	-8.21	Negligible

R20	44.35	15.10	-29.24	-8.36	Negligible
R21	41.31	14.27	-27.03	-7.72	Negligible
R22	37.65	14.32	-23.33	-6.66	Negligible
R23	43.00	23.44	-19.56	-5.59	Negligible
R24	44.74	25.43	-19.31	-5.52	Negligible
P1	28.78	12.56	-16.23	-4.64	Negligible
P2	45.06	15.06	-30.00	-8.57	Negligible
P3	50.15	31.34	-18.81	-5.37	Negligible
P4	36.30	13.99	-22.31	-6.38	Negligible
P5	48.05	29.01	-19.04	-5.44	Negligible
P6	32.88	21.56	-11.32	-3.23	Negligible
P7	28.80	12.42	-16.38	-4.68	Negligible
P8	47.75	15.44	-32.31	-9.23	Negligible
P9	50.02	32.81	-17.21	-4.92	Negligible
P10	37.80	14.01	-23.79	-6.80	Negligible
P11	48.76	29.37	-19.39	-5.54	Negligible
P12	35.80	23.62	-12.18	-3.48	Negligible
Receptor ID	15-minute mean SO ₂ concentration by scenario (µg/m ³)		Actual Change	% of AQAL	EPUK-IAQM Impact descriptor
	S4	S5			
R1	78.58	29.11	-49.48	-18.60	Small beneficial
R2	91.69	27.70	-63.98	-24.05	Medium beneficial
R3	94.05	34.09	-59.96	-22.54	Medium beneficial
R4	65.77	34.70	-31.06	-11.68	Small beneficial
R5	50.87	22.20	-28.67	-10.78	Negligible
R6	69.01	27.00	-42.02	-15.80	Small beneficial
R7	74.20	27.61	-46.59	-17.52	Small beneficial
R8	70.75	26.14	-44.62	-16.77	Small beneficial
R9	65.73	25.42	-40.30	-15.15	Small beneficial
R10	66.34	41.46	-24.88	-9.35	Negligible
R11	65.25	39.71	-25.54	-9.60	Negligible
R12	75.26	40.59	-34.67	-13.03	Small beneficial
R13	82.31	30.04	-52.27	-19.65	Small beneficial
R14	59.14	39.25	-19.89	-7.48	Negligible
R15	55.42	35.79	-19.62	-7.38	Negligible
R16	54.80	35.89	-18.91	-7.11	Negligible
R17	69.91	38.46	-31.45	-11.82	Small beneficial
R18	69.44	36.29	-33.14	-12.46	Small beneficial
R19	69.18	25.16	-44.02	-16.55	Small beneficial
R20	72.00	25.52	-46.48	-17.47	Small beneficial

R21	70.35	25.55	-44.79	-16.84	Small beneficial
R22	64.06	26.03	-38.03	-14.30	Small beneficial
R23	67.74	35.68	-32.06	-12.05	Small beneficial
R24	64.65	36.52	-28.13	-10.57	Small beneficial
P1	49.14	19.36	-29.78	-11.20	Small beneficial
P2	73.36	28.11	-45.25	-17.01	Small beneficial
P3	76.25	36.10	-40.15	-15.09	Small beneficial
P4	63.58	26.02	-37.56	-14.12	Small beneficial
P5	91.73	33.67	-58.06	-21.83	Medium beneficial
P6	49.17	33.00	-16.17	-6.08	Negligible
P7	46.53	19.22	-27.31	-10.27	Negligible
P8	76.53	27.10	-49.43	-18.58	Small beneficial
P9	76.18	38.15	-38.03	-14.30	Small beneficial
P10	63.01	26.18	-36.83	-13.85	Small beneficial
P11	93.99	34.01	-59.97	-22.55	Medium beneficial
P12	54.88	35.48	-19.40	-7.29	Small beneficial
Receptor ID	24-hour mean SO ₂ concentration by scenario (µg/m ³)		Actual Change	% of AQAL	EPUK-IAQM Impact descriptor
	S4	S5			
R1	23.33	6.79	-16.54	-13.23	Small beneficial
R2	29.38	7.03	-22.35	-17.88	Small beneficial
R3	22.36	11.02	-11.34	-9.07	Negligible
R4	14.76	13.82	-0.93	-0.75	Negligible
R5	15.95	7.02	-8.93	-7.15	Negligible
R6	16.14	6.71	-9.43	-7.55	Negligible
R7	15.30	5.97	-9.32	-7.46	Negligible
R8	15.76	6.10	-9.66	-7.73	Negligible
R9	13.67	6.30	-7.36	-5.89	Negligible
R10	15.54	11.72	-3.82	-3.06	Negligible
R11	15.92	16.29	0.38	0.30	Negligible
R12	18.56	18.23	-0.33	-0.27	Negligible
R13	24.05	6.44	-17.61	-14.09	Small beneficial
R14	16.40	10.59	-5.82	-4.65	Negligible
R15	14.84	10.14	-4.69	-3.75	Negligible
R16	14.82	10.40	-4.42	-3.54	Negligible
R17	14.82	13.18	-1.64	-1.31	Negligible
R18	13.95	13.54	-0.41	-0.33	Negligible
R19	12.51	6.31	-6.21	-4.97	Negligible
R20	12.62	5.92	-6.70	-5.36	Negligible
R21	14.20	5.99	-8.21	-6.57	Negligible

R22	12.62	6.07	-6.54	-5.23	Negligible
R23	15.00	13.31	-1.69	-1.35	Negligible
R24	15.45	14.55	-0.90	-0.72	Negligible
P1	13.33	6.53	-6.80	-5.44	Negligible
P2	15.96	6.28	-9.68	-7.74	Negligible
P3	17.07	16.86	-0.21	-0.16	Negligible
P4	12.13	6.09	-6.03	-4.83	Negligible
P5	22.35	10.88	-11.46	-9.17	Negligible
P6	13.69	9.23	-4.46	-3.56	Negligible
P7	13.53	6.68	-6.85	-5.48	Negligible
P8	19.04	6.37	-12.67	-10.14	Negligible
P9	16.68	18.23	1.55	1.24	Negligible
P10	12.27	6.10	-6.18	-4.94	Negligible
P11	22.39	11.00	-11.38	-9.11	Negligible
P12	14.70	10.13	-4.58	-3.66	Negligible

Table 6.24: Comparison of short-term CO concentrations between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Maximum Rolling 8-hour CO concentration					Maximum Hourly CO concentration				
	S4 (mg/m ³)	S5 (mg/m ³)	Actual Change (mg/m ³)	% of AQAL	EPUK-IAQM Impact descriptor	S4 (mg/m ³)	S5 (mg/m ³)	Actual Change (mg/m ³)	% of AQAL	EPUK-IAQM Impact descriptor
R1	1.59	0.44	-1.15	-11.51	Small beneficial	6.07	0.51	-5.56	-18.52	Small beneficial
R2	1.37	0.45	-0.93	-9.29	Negligible	4.50	0.60	-3.90	-12.99	Small beneficial
R3	1.39	0.48	-0.91	-9.12	Negligible	3.89	0.60	-3.29	-10.97	Negligible
R4	1.33	0.47	-0.86	-8.64	Negligible	3.40	0.64	-2.76	-9.19	Negligible
R5	0.94	0.43	-0.51	-5.06	Negligible	1.79	0.49	-1.30	-4.34	Negligible
R6	1.35	0.43	-0.92	-9.20	Negligible	2.58	0.51	-2.07	-6.91	Negligible
R7	1.59	0.44	-1.15	-11.51	Small beneficial	3.27	0.52	-2.75	-9.16	Negligible
R8	1.41	0.44	-0.98	-9.78	Negligible	2.73	0.51	-2.22	-7.41	Negligible
R9	1.20	0.43	-0.77	-7.66	Negligible	2.32	0.50	-1.83	-6.09	Negligible
R10	1.23	0.46	-0.76	-7.65	Negligible	3.28	0.57	-2.72	-9.06	Negligible
R11	1.42	0.47	-0.95	-9.47	Negligible	3.10	0.58	-2.52	-8.39	Negligible
R12	1.49	0.50	-0.99	-9.91	Negligible	3.95	0.61	-3.34	-11.13	Small beneficial
R13	1.70	0.44	-1.26	-12.63	Small beneficial	3.57	0.51	-3.06	-10.21	Negligible
R14	1.17	0.45	-0.72	-7.22	Negligible	2.20	0.54	-1.66	-5.55	Negligible
R15	1.08	0.45	-0.63	-6.31	Negligible	1.97	0.51	-1.45	-4.85	Negligible
R16	1.08	0.45	-0.63	-6.30	Negligible	1.97	0.52	-1.45	-4.84	Negligible
R17	1.23	0.45	-0.78	-7.76	Negligible	2.96	0.62	-2.35	-7.82	Negligible
R18	1.19	0.46	-0.74	-7.39	Negligible	3.14	0.64	-2.50	-8.34	Negligible
R19	1.28	0.43	-0.85	-8.50	Negligible	2.46	0.50	-1.97	-6.55	Negligible
R20	1.20	0.43	-0.77	-7.69	Negligible	2.45	0.49	-1.96	-6.54	Negligible

Receptor ID	Maximum Rolling 8-hour CO concentration					Maximum Hourly CO concentration				
	S4 (mg/m³)	S5 (mg/m³)	Actual Change (mg/m³)	% of AQAL	EPUK-IAQM Impact descriptor	S4 (mg/m³)	S5 (mg/m³)	Actual Change (mg/m³)	% of AQAL	EPUK-IAQM Impact descriptor
R21	1.35	0.44	-0.91	-9.13	Negligible	2.45	0.51	-1.94	-6.47	Negligible
R22	1.29	0.44	-0.85	-8.53	Negligible	2.78	0.50	-2.28	-7.59	Negligible
R23	1.16	0.46	-0.70	-7.02	Negligible	3.54	0.60	-2.94	-9.81	Negligible
R24	1.32	0.47	-0.85	-8.47	Negligible	3.56	0.63	-2.93	-9.76	Negligible
P1	0.88	0.43	-0.45	-4.49	Negligible	1.61	0.48	-1.13	-3.77	Negligible
P2	1.42	0.44	-0.98	-9.82	Negligible	3.08	0.50	-2.57	-8.58	Negligible
P3	1.32	0.49	-0.83	-8.32	Negligible	4.65	0.60	-4.05	-13.50	Small beneficial
P4	1.25	0.44	-0.81	-8.15	Negligible	2.86	0.50	-2.36	-7.86	Negligible
P5	1.35	0.47	-0.87	-8.71	Negligible	3.79	0.60	-3.19	-10.62	Negligible
P6	0.99	0.45	-0.54	-5.44	Negligible	1.75	0.51	-1.24	-4.13	Negligible
P7	0.89	0.43	-0.46	-4.63	Negligible	1.64	0.48	-1.16	-3.87	Negligible
P8	1.52	0.44	-1.09	-10.88	Negligible	3.55	0.51	-3.04	-10.13	Negligible
P9	1.36	0.49	-0.87	-8.71	Negligible	4.86	0.60	-4.26	-14.20	Small beneficial
P10	1.26	0.44	-0.82	-8.21	Negligible	2.89	0.50	-2.38	-7.94	Negligible
P11	1.38	0.48	-0.91	-9.08	Negligible	3.88	0.60	-3.28	-10.93	Negligible
P12	1.08	0.45	-0.63	-6.26	Negligible	1.95	0.51	-1.44	-4.79	Negligible

Table 6.25: Comparison of short-term Hg concentrations between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	1-hour mean mercury concentration					24-hour mean mercury concentration				
	S4 (mg/m ³)	S5 (mg/m ³)	Actual Change (mg/m ³)	% of AQAL	EPUK-IAQM Impact descriptor	S4 (mg/m ³)	S5 (mg/m ³)	Actual Change (mg/m ³)	% of AQAL	EPUK-IAQM Impact descriptor
R1	5.32	5.50	0.17	0.03	Negligible	3.83	3.95	0.13	0.21	Negligible
R2	5.44	6.99	1.55	0.26	Negligible	3.92	4.01	0.09	0.15	Negligible
R3	5.42	7.00	1.58	0.26	Negligible	3.96	4.19	0.23	0.38	Negligible
R4	4.93	7.68	2.75	0.46	Negligible	3.99	4.31	0.32	0.54	Negligible
R5	4.91	5.15	0.25	0.04	Negligible	3.97	3.96	-0.01	-0.02	Negligible
R6	4.75	5.38	0.63	0.10	Negligible	3.83	3.92	0.09	0.14	Negligible
R7	5.09	5.66	0.57	0.10	Negligible	3.86	3.91	0.05	0.09	Negligible
R8	5.11	5.45	0.34	0.06	Negligible	3.85	3.90	0.04	0.07	Negligible
R9	4.88	5.21	0.33	0.06	Negligible	3.85	3.89	0.03	0.06	Negligible
R10	4.82	6.42	1.60	0.27	Negligible	3.94	4.23	0.29	0.49	Negligible
R11	4.75	6.67	1.91	0.32	Negligible	3.95	4.44	0.49	0.82	Negligible
R12	4.77	7.06	2.29	0.38	Negligible	3.93	4.77	0.85	1.41	Negligible
R13	4.93	5.41	0.48	0.08	Negligible	3.84	3.90	0.06	0.11	Negligible
R14	4.57	5.92	1.35	0.22	Negligible	3.92	4.20	0.28	0.47	Negligible
R15	4.52	5.53	1.01	0.17	Negligible	3.86	4.11	0.25	0.41	Negligible
R16	4.54	5.63	1.09	0.18	Negligible	3.86	4.11	0.26	0.43	Negligible
R17	4.97	7.25	2.28	0.38	Negligible	3.97	4.27	0.30	0.50	Negligible
R18	4.96	7.59	2.63	0.44	Negligible	3.98	4.27	0.29	0.48	Negligible
R19	4.91	5.26	0.34	0.06	Negligible	3.83	3.88	0.04	0.07	Negligible
R20	4.89	5.09	0.20	0.03	Negligible	3.86	3.88	0.02	0.03	Negligible

Receptor ID	1-hour mean mercury concentration					24-hour mean mercury concentration				
	S4 (mg/m ³)	S5 (mg/m ³)	Actual Change (mg/m ³)	% of AQAL	EPUK-IAQM Impact descriptor	S4 (mg/m ³)	S5 (mg/m ³)	Actual Change (mg/m ³)	% of AQAL	EPUK-IAQM Impact descriptor
R21	5.23	5.45	0.22	0.04	Negligible	3.85	3.89	0.05	0.08	Negligible
R22	5.14	5.36	0.21	0.04	Negligible	3.85	3.89	0.04	0.07	Negligible
R23	5.02	6.95	1.94	0.32	Negligible	3.99	4.36	0.37	0.62	Negligible
R24	5.00	7.55	2.55	0.42	Negligible	4.00	4.35	0.36	0.59	Negligible
P1	4.82	4.94	0.13	0.02	Negligible	3.88	3.90	0.02	0.04	Negligible
P2	4.96	5.38	0.42	0.07	Negligible	3.86	3.90	0.04	0.07	Negligible
P3	5.04	6.98	1.94	0.32	Negligible	4.00	4.56	0.57	0.94	Negligible
P4	5.09	5.36	0.27	0.05	Negligible	3.85	3.89	0.04	0.06	Negligible
P5	5.41	7.04	1.63	0.27	Negligible	3.95	4.18	0.23	0.38	Negligible
P6	4.53	5.44	0.91	0.15	Negligible	3.85	4.06	0.21	0.34	Negligible
P7	4.85	4.98	0.12	0.02	Negligible	3.89	3.91	0.02	0.04	Negligible
P8	5.01	5.42	0.41	0.07	Negligible	3.84	3.90	0.06	0.10	Negligible
P9	5.02	7.01	1.98	0.33	Negligible	3.99	4.66	0.66	1.11	Negligible
P10	5.08	5.36	0.28	0.05	Negligible	3.85	3.89	0.04	0.06	Negligible
P11	5.42	7.00	1.58	0.26	Negligible	3.96	4.19	0.23	0.38	Negligible
P12	4.52	5.54	1.02	0.17	Negligible	3.86	4.11	0.25	0.41	Negligible

Table 6.26: Comparison of short-term B[a]P and Pb concentrations between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Annual mean B[a]P concentration						Annual mean lead concentration					
	S4 (ng/m ³)	S5 (ng/m ³)	Actual Change (ng/m ³)	Change as % of AQAL	Max. Conc. as % of AQAL	EPUK-IAQM Impact descriptor	S4 (ng/m ³)	S5 (ng/m ³)	Actual Change (ng/m ³)	Change as % of AQAL	Max. Conc. as % of AQAL	EPUK-IAQM Impact descriptor
R1	0.70	0.63	-0.07	-7	70	Slight Beneficial	9.574	7.961	-1.61	-0.65	≤75% of AQT	Negligible
R2	0.69	0.63	-0.06	-6	69	Slight Beneficial	10.509	7.996	-2.51	-1.01	≤75% of AQT	Negligible
R3	0.66	0.64	-0.02	-2	66	Negligible	11.287	8.064	-3.22	-1.29	≤75% of AQT	Negligible
R4	0.65	0.66	0.00	0	66	Negligible	12.029	8.244	-3.78	-1.51	≤75% of AQT	Negligible
R5	0.67	0.63	-0.03	-3	67	Negligible	11.056	7.959	-3.10	-1.24	≤75% of AQT	Negligible
R6	0.69	0.63	-0.06	-6	69	Slight Beneficial	9.357	7.932	-1.42	-0.57	≤75% of AQT	Negligible
R7	0.71	0.63	-0.08	-8	71	Slight Beneficial	9.554	7.929	-1.63	-0.65	≤75% of AQT	Negligible
R8	0.68	0.63	-0.05	-5	68	Negligible	9.169	7.936	-1.23	-0.49	≤75% of AQT	Negligible
R9	0.68	0.63	-0.05	-5	68	Negligible	9.524	7.921	-1.60	-0.64	≤75% of AQT	Negligible
R10	0.69	0.66	-0.04	-4	69	Negligible	12.674	8.608	-4.07	-1.63	≤75% of AQT	Negligible

Receptor ID	Annual mean B[a]P concentration						Annual mean lead concentration					
	S4 (ng/m³)	S5 (ng/m³)	Actual Change (ng/m³)	Change as % of AQUAL	Max. Conc. as % of AQUAL	EPUK-IAQM Impact descriptor	S4 (ng/m³)	S5 (ng/m³)	Actual Change (ng/m³)	Change as % of AQUAL	Max. Conc. as % of AQUAL	EPUK-IAQM Impact descriptor
R11	0.68	0.66	-0.02	-2	≤75% of AQT	Negligible	12.890	8.479	-4.41	-1.76	≤75% of AQT	Negligible
R12	0.69	0.68	-0.01	-1	≤75% of AQT	Negligible	13.154	8.410	-4.74	-1.90	≤75% of AQT	Negligible
R13	0.71	0.63	-0.08	-8	≤75% of AQT	Slight Beneficial	9.463	7.947	-1.52	-0.61	≤75% of AQT	Negligible
R14	0.75	0.66	-0.09	-9	≤75% of AQT	Slight Beneficial	11.897	23.982	12.08	4.83	≤75% of AQT	Negligible
R15	0.72	0.65	-0.07	-7	≤75% of AQT	Slight Beneficial	11.624	11.260	-0.36	-0.15	≤75% of AQT	Negligible
R16	0.72	0.65	-0.07	-7	≤75% of AQT	Slight Beneficial	11.669	11.061	-0.61	-0.24	≤75% of AQT	Negligible
R17	0.67	0.66	-0.02	-2	≤75% of AQT	Negligible	12.404	8.436	-3.97	-1.59	≤75% of AQT	Negligible
R18	0.67	0.66	-0.01	-1	≤75% of AQT	Negligible	12.257	8.353	-3.90	-1.56	≤75% of AQT	Negligible
R19	0.68	0.63	-0.05	-5	≤75% of AQT	Negligible	9.438	7.917	-1.52	-0.61	≤75% of AQT	Negligible
R20	0.68	0.63	-0.06	-6	≤75% of AQT	Slight Beneficial	9.308	7.909	-1.40	-0.56	≤75% of AQT	Negligible
R21	0.67	0.63	-0.04	-4	≤75% of AQT	Negligible	9.111	7.930	-1.18	-0.47	≤75% of AQT	Negligible
R22	0.66	0.63	-0.03	-3	≤75% of AQT	Negligible	9.073	7.927	-1.15	-0.46	≤75% of AQT	Negligible

Receptor ID	Annual mean B[a]P concentration						Annual mean lead concentration					
	S4 (ng/m³)	S5 (ng/m³)	Actual Change (ng/m³)	Change as % of AQUAL	Max. Conc. as % of AQUAL	EPUK-IAQM Impact descriptor	S4 (ng/m³)	S5 (ng/m³)	Actual Change (ng/m³)	Change as % of AQUAL	Max. Conc. as % of AQUAL	EPUK-IAQM Impact descriptor
R23	0.66	0.66	0.00	0	≤75% of AQT	Negligible	12.060	8.305	-3.76	-1.50	≤75% of AQT	Negligible
R24	0.66	0.66	0.00	0	≤75% of AQT	Negligible	12.001	8.271	-3.73	-1.49	≤75% of AQT	Negligible

Table 6.27: Comparison of Chromium concentrations between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	24-hour mean chromium concentration (µg/m³)					
	S4 (ng/m³)	S5 (ng/m³)	Sandvik Contribution (approx.)	Actual Change	% of AQUAL	EPUK-IAQM Impact descriptor
R1	7.77	7.76	0.02	-0.0089	-0.0004	Negligible
R2	7.77	7.76	0.02	-0.0109	-0.0005	Negligible
R3	7.76	7.76	0.03	-0.0060	-0.0003	Negligible
R4	7.76	7.76	0.06	-0.0041	-0.0002	Negligible
R5	7.76	7.76	0.01	-0.0041	-0.0002	Negligible
R6	7.76	7.76	0.01	-0.0058	-0.0003	Negligible
R7	7.77	7.76	0.01	-0.0086	-0.0004	Negligible
R8	7.76	7.76	0.01	-0.0053	-0.0003	Negligible
R9	7.76	7.76	0.01	-0.0047	-0.0002	Negligible
R10	7.77	7.76	0.11	-0.0096	-0.0005	Negligible
R11	7.76	7.76	0.08	-0.0063	-0.0003	Negligible
R12	7.77	7.76	0.07	-0.0079	-0.0004	Negligible
R13	7.77	7.76	0.01	-0.0101	-0.0005	Negligible
R14	7.76	7.76	0.87	-0.0072	-0.0004	Negligible
R15	7.76	7.76	0.25	-0.0066	-0.0003	Negligible

Receptor ID	24-hour mean chromium concentration (µg/m³)					
	S4 (ng/m³)	S5 (ng/m³)	Sandvik Contribution (approx.)	Actual Change	% of AQAL	EPUK-IAQM Impact descriptor
R16	7.76	7.76	0.24	-0.0072	-0.0004	Negligible
R17	7.76	7.76	0.09	-0.0062	-0.0003	Negligible
R18	7.76	7.76	0.08	-0.0047	-0.0002	Negligible
R19	7.76	7.76	0.01	-0.0059	-0.0003	Negligible
R20	7.76	7.76	0.01	-0.0065	-0.0003	Negligible
R21	7.76	7.76	0.01	-0.0042	-0.0002	Negligible
R22	7.76	7.76	0.01	-0.0041	-0.0002	Negligible
R23	7.76	7.76	0.07	-0.0043	-0.0002	Negligible
R24	7.76	7.76	0.06	-0.0044	-0.0002	Negligible
P1	7.76	7.76	0.01	-0.0025	-0.0001	Negligible
P2	7.76	7.76	0.01	-0.0056	-0.0003	Negligible
P3	7.76	7.76	0.05	-0.0053	-0.0003	Negligible
P4	7.76	7.76	0.01	-0.0041	-0.0002	Negligible
P5	7.76	7.76	0.03	-0.0059	-0.0003	Negligible
P6	7.76	7.76	0.12	-0.0067	-0.0003	Negligible
P7	7.76	7.76	0.01	-0.0026	-0.0001	Negligible
P8	7.77	7.76	0.01	-0.0084	-0.0004	Negligible
P9	7.76	7.76	0.05	-0.0054	-0.0003	Negligible
P10	7.76	7.76	0.01	-0.0042	-0.0002	Negligible
P11	7.76	7.76	0.03	-0.0059	-0.0003	Negligible
P12	7.76	7.76	0.23	-0.0066	-0.0003	Negligible

Table 6.28: Comparison of Dioxins and Furans between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Annual mean dioxin concentration (µg/m³)		Change in absolute concentration (ng/m³)
	S4 (ng/m³)	S5 (ng/m³)	
R1	0.00000019	0.00000015	-4.06*10-08
R2	0.00000041	0.00000019	-2.18*10-07

Receptor ID	Annual mean dioxin concentration (µg/m³)		Change in absolute concentration (ng/m³)
	S4 (ng/m³)	S5 (ng/m³)	
R3	0.00000074	0.00000043	-3.04*10-07
R4	0.00000080	0.00000097	1.62*10-07
R5	0.00000069	0.00000030	-3.87*10-07
R6	0.00000021	0.00000019	-1.23*10-08
R7	0.00000019	0.00000014	-4.55*10-08
R8	0.00000019	0.00000014	-4.99*10-08
R9	0.00000030	0.00000017	-1.26*10-07
R10	0.00000072	0.00000097	2.50*10-07
R11	0.00000068	0.00000116	4.86*10-07
R12	0.00000062	0.00000148	8.54*10-07
R13	0.00000014	0.00000015	2.37*10-09
R14	0.00000057	0.00000089	3.20*10-07
R15	0.00000059	0.00000083	2.42*10-07
R16	0.00000060	0.00000084	2.42*10-07
R17	0.00000074	0.00000093	1.98*10-07
R18	0.00000076	0.00000091	1.55*10-07
R19	0.00000027	0.00000016	-1.16*10-07
R20	0.00000024	0.00000013	-1.10*10-07
R21	0.00000019	0.00000013	-5.99*10-08
R22	0.00000020	0.00000013	-6.89*10-08
R23	0.00000076	0.00000094	1.84*10-07
R24	0.00000077	0.00000101	2.37*10-07
P1	0.00000054	0.00000021	-3.34*10-07
P2	0.00000019	0.00000014	-4.98*10-08
P3	0.00000070	0.00000128	5.83*10-07
P4	0.00000021	0.00000013	-7.55*10-08
P5	0.00000074	0.00000043	-3.10*10-07
P6	0.00000057	0.00000074	1.67*10-07

Receptor ID	Annual mean dioxin concentration (µg/m³)		Change in absolute concentration (ng/m³)
	S4 (ng/m³)	S5 (ng/m³)	
P7	0.00000055	0.00000021	-3.39*10-07
P8	0.00000018	0.00000014	-3.55*10-08
P9	0.00000068	0.00000135	6.67*10-07
P10	0.00000021	0.00000013	-7.43*10-08
P11	0.00000074	0.00000043	-3.06*10-07
P12	0.00000059	0.00000083	2.37*10-07

Table 6.29: Source apportionment of NO₂ concentrations based on their origin (background, road traffic and point source emissions)

Receptor ID	S4 – Future Operational Without Development (µg/m³)				S5 – Future Operational With Development (2027) (µg/m³)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total
R1	9.77	1.98	1.23	12.99	9.77	1.93	0.32	12.03
R2	9.77	1.77	1.58	13.13	9.77	1.71	0.28	11.76
R3	13.06	4.09	1.00	18.15	13.06	4.05	0.24	17.34
R4	13.06	3.22	0.87	17.14	13.06	3.21	0.32	16.59
R5	7.47	0.41	0.76	8.64	7.47	0.40	0.22	8.09
R6	12.56	3.35	0.62	16.53	12.56	3.14	0.19	15.89
R7	12.56	4.30	0.55	17.41	12.56	4.25	0.17	16.98
R8	10.26	3.02	0.54	13.82	10.26	3.01	0.17	13.44
R9	12.56	7.11	0.51	20.18	12.56	7.08	0.14	19.78
R10	24.76	3.02	1.01	28.79	24.76	3.00	0.51	28.27
R11	13.06	1.44	0.95	15.44	13.06	1.41	0.51	14.97
R12	13.06	1.56	0.89	15.51	13.06	1.48	0.50	15.04
R13	9.77	2.39	0.87	13.03	9.77	2.27	0.30	12.35
R14	12.97	2.80	1.20	16.97	12.97	2.77	0.47	16.21
R15	12.97	8.68	1.19	22.84	12.97	8.62	0.41	22.00

Receptor ID	S4 – Future Operational Without Development (µg/m³)				S5 – Future Operational With Development (2027) (µg/m³)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total
R16	12.97	6.51	1.18	20.66	12.97	6.46	0.41	19.84
R17	13.06	4.55	0.95	18.56	13.06	4.53	0.45	18.04
R18	13.06	6.33	0.93	20.31	13.06	6.31	0.42	19.78
R19	10.68	5.38	0.46	16.52	10.68	5.21	0.13	16.02
R20	10.68	11.37	0.38	22.43	10.68	11.26	0.11	22.04
R21	10.26	13.05	0.47	23.78	10.26	13.04	0.15	23.45
R22	10.26	9.40	0.46	20.12	10.26	9.40	0.14	19.80
R23	13.06	3.05	0.89	16.99	13.06	3.03	0.37	16.45
R24	13.06	2.38	0.87	16.31	13.06	2.37	0.34	15.76
P1	9.67	0.60	0.61	10.88	9.67	0.59	0.15	10.41
P2	10.26	2.40	0.61	13.26	10.26	2.39	0.19	12.84
P3	13.06	2.03	0.88	15.97	13.06	2.00	0.40	15.46
P4	10.26	5.98	0.45	16.69	10.26	5.97	0.14	16.36
P5	13.06	2.97	1.00	17.03	13.06	2.95	0.23	16.24
P6	7.31	1.18	1.14	9.62	7.31	1.17	0.36	8.83
P7	7.76	0.58	0.63	8.98	7.76	0.58	0.16	8.50
P8	9.77	4.04	0.79	14.60	9.77	3.99	0.25	14.02
P9	13.06	1.61	0.88	15.55	13.06	1.58	0.41	15.05
P10	10.26	6.15	0.46	16.86	10.26	6.14	0.14	16.54
P11	13.06	3.94	1.00	18.00	13.06	3.90	0.23	17.19
P12	12.97	9.40	1.18	23.55	12.97	9.33	0.40	22.70
Notes: There is a reduction in traffic due to the reduction in HGVs on some links. The total volume of emissions to air has also reduced. This comparison therefore makes sense.								

Table 6.30: Source apportionment of NO_x concentrations based on their origin (background, road traffic and point source emissions)

Receptor ID	S4 – Future Operational Without Development (µg/m ³)				S5 – Future Operational With Development (2027) (µg/m ³)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total
R1	12.82	3.64	1.76	18.22	12.82	3.54	0.46	16.82
R2	12.82	3.25	2.26	18.34	12.82	3.14	0.40	16.36
R3	17.74	7.68	1.43	26.85	17.74	7.61	0.34	25.69
R4	17.74	6.03	1.24	25.01	17.74	6.00	0.46	24.21
R5	9.62	0.73	1.09	11.44	9.62	0.72	0.31	10.65
R6	17.04	6.25	0.89	24.18	17.04	5.87	0.27	23.18
R7	17.04	8.06	0.79	25.90	17.04	7.96	0.24	25.25
R8	13.49	5.58	0.78	19.85	13.49	5.56	0.25	19.29
R9	17.04	13.50	0.72	31.27	17.04	13.43	0.21	30.69
R10	39.43	5.95	1.44	46.82	39.43	5.90	0.72	46.06
R11	17.74	2.67	1.36	21.76	17.74	2.62	0.73	21.08
R12	17.74	2.90	1.27	21.91	17.74	2.74	0.72	21.20
R13	12.82	4.39	1.24	18.45	12.82	4.17	0.43	17.43
R14	17.56	5.22	1.72	24.51	17.56	5.16	0.67	23.39
R15	17.56	16.62	1.69	35.88	17.56	16.49	0.58	34.63
R16	17.56	12.35	1.68	31.59	17.56	12.25	0.59	30.40
R17	17.74	8.56	1.36	27.65	17.74	8.51	0.64	26.90
R18	17.74	12.00	1.32	31.07	17.74	11.95	0.60	30.29
R19	14.11	10.06	0.66	24.83	14.11	9.72	0.19	24.03
R20	14.11	21.80	0.55	36.46	14.11	21.59	0.15	35.86
R21	13.49	25.19	0.68	39.36	13.49	25.17	0.22	38.87
R22	13.49	17.85	0.66	32.00	13.49	17.83	0.20	31.53
R23	17.74	5.69	1.27	24.70	17.74	5.66	0.52	23.92
R24	17.74	4.44	1.24	23.42	17.74	4.41	0.48	22.63
P1	12.66	1.09	0.87	14.63	12.66	1.08	0.22	13.96
P2	13.49	4.43	0.86	18.78	13.49	4.40	0.27	18.16

Receptor ID	S4 – Future Operational Without Development ($\mu\text{g}/\text{m}^3$)				S5 – Future Operational With Development (2027) ($\mu\text{g}/\text{m}^3$)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total
P3	17.74	3.78	1.26	22.78	17.74	3.72	0.57	22.04
P4	13.49	11.19	0.65	25.33	13.49	11.17	0.20	24.86
P5	17.74	5.55	1.43	24.72	17.74	5.50	0.33	23.58
P6	9.37	2.14	1.62	13.14	9.37	2.12	0.51	12.00
P7	10.00	1.05	0.90	11.96	10.00	1.04	0.23	11.27
P8	12.82	7.48	1.13	21.43	12.82	7.39	0.36	20.57
P9	17.74	2.99	1.26	21.99	17.74	2.93	0.59	21.26
P10	13.49	11.51	0.66	25.65	13.49	11.49	0.20	25.18
P11	17.74	7.39	1.43	26.56	17.74	7.32	0.34	25.39
P12	17.56	18.06	1.69	37.31	17.56	17.91	0.58	36.04

Notes: There is a reduction in traffic due to the reduction in HGVs on some links. The total volume of emissions to air has also reduced. This comparison therefore makes sense.

Table 6.31: Source apportionment of PM_{10} concentrations based on their origin (background, road traffic and point source emissions)

Receptor ID	S4 – Future Operational Without Development ($\mu\text{g}/\text{m}^3$)				S5 – Future Operational With Development (2027) ($\mu\text{g}/\text{m}^3$)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total ¹
R1	12.55	0.65	1.69	14.89	12.55	0.63	0.03	13.21
R2	12.55	0.56	3.48	16.60	12.55	0.54	0.03	13.12
R3	13.66	1.49	2.57	17.71	13.66	1.47	0.04	15.17
R4	13.66	0.81	1.69	16.15	13.66	0.80	0.07	14.53
R5	10.37	0.11	0.99	11.47	10.37	0.11	0.03	10.52
R6	12.52	1.17	0.84	14.53	12.52	1.10	0.02	13.64
R7	12.52	1.67	0.83	15.02	12.52	1.65	0.02	14.19
R8	12.70	0.79	0.81	14.31	12.70	0.78	0.02	13.51
R9	12.52	2.95	0.59	16.06	12.52	2.93	0.02	15.47

Receptor ID	S4 – Future Operational Without Development (µg/m³)				S5 – Future Operational With Development (2027) (µg/m³)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total¹
R10	15.95	0.89	1.60	18.44	15.95	0.88	0.10	16.94
R11	13.66	0.43	2.13	16.22	13.66	0.42	0.10	14.17
R12	13.66	0.55	2.58	16.78	13.66	0.51	0.10	14.27
R13	12.55	0.83	1.41	14.79	12.55	0.78	0.03	13.36
R14	12.56	0.83	1.22	14.61	12.56	0.82	1.25	14.63
R15	12.56	2.77	1.02	16.34	12.56	2.74	0.33	15.63
R16	12.56	1.97	1.02	15.55	12.56	1.95	0.32	14.83
R17	13.66	1.37	1.62	16.64	13.66	1.36	0.09	15.10
R18	13.66	1.89	1.56	17.10	13.66	1.88	0.08	15.62
R19	12.81	1.99	0.53	15.33	12.81	1.92	0.02	14.75
R20	12.81	3.01	0.41	16.23	12.81	2.97	0.02	15.80
R21	12.70	3.40	0.67	16.78	12.70	3.40	0.02	16.12
R22	12.70	2.42	0.63	15.76	12.70	2.42	0.02	15.14
R23	13.66	0.86	1.65	16.17	13.66	0.85	0.08	14.58
R24	13.66	0.64	1.78	16.07	13.66	0.63	0.08	14.36
P1	12.30	0.16	0.60	13.06	12.30	0.16	0.02	12.48
P2	12.70	0.64	0.91	14.26	12.70	0.63	0.02	13.36
P3	13.66	0.68	2.18	16.52	13.66	0.67	0.09	14.41
P4	12.70	1.73	0.61	15.05	12.70	1.73	0.02	14.45
P5	13.66	0.97	2.49	17.11	13.66	0.96	0.04	14.65
P6	10.29	0.32	0.82	11.44	10.29	0.32	0.16	10.77
P7	11.29	0.16	0.64	12.08	11.29	0.15	0.02	11.47
P8	12.55	1.52	1.22	15.29	12.55	1.50	0.03	14.08
P9	13.66	0.51	2.27	16.44	13.66	0.50	0.09	14.25
P10	12.70	1.65	0.62	14.97	12.70	1.64	0.02	14.37
P11	13.66	1.42	2.56	17.63	13.66	1.40	0.04	15.10
P12	12.56	3.07	1.01	16.64	12.56	3.04	0.32	15.92

Receptor ID	S4 – Future Operational Without Development (µg/m³)				S5 – Future Operational With Development (2027) (µg/m³)			
	Background	Road source contribution	Point source contribution	Total	Background	Road source contribution	Point source contribution	Total ¹
Notes: ¹ The S5 excludes the contribution from the Sandvik Osprey scheme, as is presented in ES Chapter 6 .								

Appendix 6.6 – Assessment of Effects at Ecological Receptors (Established Baseline)

6.1.90 The section below details the results of the comparisons between the following scenarios:

- Scenario 2 (S2) – Future Construction Without Development (2025);
- Scenario 3 (S3) – Future Construction With Development (2025);
- Scenario 4 (S4) – Future Operational Without Development (2027); and
- Scenario 5 (S5) – Future Operational With Development (2027);

6.1.91 The results of the annual mean and daily mean NO_x, annual mean SO₂, annual mean NH₃, nutrient nitrogen deposition and acid deposition for S2 (Future Construction Without Development) and S3 (Future Construction With Development) at ecological receptors are located in **Table 6.32** to **Table 6.37**, below.

6.1.92 The results of the annual mean and daily mean NO_x, annual mean SO₂, annual mean NH₃, nutrient nitrogen deposition and acid deposition for S4 (Future Operational Without Development) and S5 (Future Operational With Development) at ecological receptors are located in **Table 6.38** to **Table 6.43** below.

Table 6.32: Comparison of annual mean NOx between S2 – Future Construction Without Development (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	9.90	15.11	14.18	30	-3.08
E2	E2 Margam Moors	277997	185011	0	7.95	11.84	11.23	30	-2.04
E3	E3 Margam Moors	277571	184676	0	6.96	10.40	9.70	30	-2.31
E4	E4 Eglwys Nunydd	279360	185703	0	12.81	27.77	26.34	30	-4.77
E5	E5 Eglwys Nunydd	278971	185332	0	9.90	17.33	16.14	30	-3.94
E6	E6 Eglwys Nunydd	279152	184601	0	10.20	16.01	15.22	30	-2.64
E7	E7 Eglwys Nunydd	279347	184181	0	10.20	16.00	15.28	30	-2.38
E8	E8 Kenfig/Cynffig	278911	183412	0	6.82	11.14	10.51	30	-2.12
E9	E9 Kenfig/Cynffig	278578	183294	0	6.82	10.40	9.79	30	-2.05
E10	E10 Kenfig/Cynffig	277947	183429	0	6.30	9.32	8.72	30	-1.99
E11	E11 Kenfig/Cynffig	277366	183205	0	6.30	8.97	8.39	30	-1.92
E12	E12 Kenfig/Cynffig	280023	182746	0	11.54	21.48	20.91	30	-1.92
E13	E13 Kenfig/Cynffig	280246	182907	0	11.54	34.60	34.03	30	-1.91
E14	E14 Junction 38 Wetland Comple	279049	186481	0	17.34	40.02	38.83	30	-3.96
E15	E15 Junction 38 Wetland Comple	278474	186441	0	24.33	32.79	37.56	30	15.90
E16	E16 Junction 38 Wetland Comple	278507	186263	0	24.33	31.89	34.08	30	7.28
E17	E17 Junction 38 Wetland Comple	278578	186056	0	24.33	31.61	30.75	30	-2.88
E18	E18 Kenfig/Cynffig	283734	177209	0	8.27	9.32	8.99	30	-1.10

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E19	E19 Kenfig/Cynffig	284363	177536	0	6.73	7.77	7.43	30	-1.12
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	9.66	12.12	11.70	30	-1.39
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	13.19	14.99	14.59	30	-1.33
E22	E22 Crymlyn Bog	272000	194540	0	13.95	15.66	15.38	30	-0.93
E23	E23 Crymlyn Bog	271205	193885	0	10.19	12.12	11.78	30	-1.12
E24	E24 Crymlyn Bog	271148	193847	0	10.19	12.11	11.77	30	-1.13
E25	E25 Crymlyn Bog	270537	193669	0	9.73	11.46	11.10	30	-1.19
E26	E26 Crymlyn Bog	268207	193203	0	12.81	14.14	13.77	30	-1.21
E27	E27 Unnamed Ancient Woodland	278654	186618	0	24.33	44.59	43.56	30	-3.43
E28	E28 Unnamed Ancient Woodland	278959	186629	0	24.33	50.07	48.81	30	-4.19
E29	E29 Unnamed Ancient Woodland	279486	186354	0	17.34	130.63	129.50	30	-3.79
E30	E30 Unnamed Ancient Woodland	279716	186123	0	17.34	81.66	80.09	30	-5.24
E31	E31 Unnamed Ancient Woodland	280228	185547	0	9.35	31.19	29.82	30	-4.56
E32	E32 Unnamed Ancient Woodland	280266	185669	0	9.35	22.44	21.09	30	-4.53
E33	E33 Unnamed Ancient Woodland	279353	186567	0	17.34	168.20	167.08	30	-3.74
E34	E34 Unnamed Ancient Woodland	279215	186696	0	17.34	123.81	122.98	30	-2.76
E35	E35 Unnamed Ancient Woodland	279167	186779	0	17.34	122.66	121.79	30	-2.92
E36	E36 Unnamed Ancient Woodland	279171	186813	0	17.34	228.30	227.35	30	-3.16

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E37	E37 Unnamed Ancient Woodland	279073	186908	0	17.34	103.78	102.94	30	-2.79
E38	E38 Unnamed Ancient Woodland	278973	187505	0	17.47	46.29	45.25	30	-3.46
E39	E39 Unnamed Ancient Woodland	278982	187276	0	17.47	118.40	117.42	30	-3.27
E40	E40 Unnamed Ancient Woodland	278958	187625	0	17.47	38.88	37.79	30	-3.63
E41	E41 Unnamed Ancient Woodland	277867	188475	0	14.75	48.53	47.02	30	-5.04
E42	E42 Unnamed Ancient Woodland	277958	188412	0	14.75	56.91	55.45	30	-4.88
E43	E43 Eglwys Nunydd	279181	185826	0	12.81	33.17	31.82	30	-4.52
E44	E44 Eglwys Nunydd	278929	185677	0	9.90	18.29	16.90	30	-4.62
E45	E45 Eglwys Nunydd	278768	185405	0	9.90	16.86	15.67	30	-3.95
E46	E46 Eglwys Nunydd	279236	184084	0	10.20	15.39	14.69	30	-2.34
E47	E47 Margam Country Park	280113	185600	0	9.35	55.74	54.20	30	-5.13
E48	E48 Margam Country Park	280381	185503	0	9.35	31.63	30.27	30	-4.51
E49	E49 Margam Country Park	281283	184909	0	8.64	38.19	37.10	30	-3.64
E50	E50 Margam Country Park	281594	184546	0	8.64	40.17	39.19	30	-3.24
E51	E51 Unnamed Ancient Woodland	279743	186141	0	17.34	54.46	53.04	30	-4.76
E52	E52 Unnamed Ancient Woodland	279683	186182	0	17.34	69.54	68.09	30	-4.83
E53	E53 Unnamed Ancient Woodland	279837	186331	0	17.34	32.05	30.73	30	-4.39
E54	E54 Unnamed Ancient Woodland	278952	187363	0	17.47	97.85	96.86	30	-3.31

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E55	E55 NPT Watercourse	274727	188533	0	8.58	12.26	11.40	30	-2.88

Table 6.33: Comparison of daily mean NOx between S2 – Future Construction Without Development (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m3)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	19.80	46.33	30.99	200	-7.7
E2	E2 Margam Moors	277997	185011	0	15.90	30.53	24.66	200	-2.9
E3	E3 Margam Moors	277571	184676	0	13.92	36.13	21.19	200	-7.5
E4	E4 Eglwys Nunydd	279360	185703	0	25.62	65.67	54.28	200	-5.7
E5	E5 Eglwys Nunydd	278971	185332	0	19.80	50.75	34.63	200	-8.1
E6	E6 Eglwys Nunydd	279152	184601	0	20.40	41.56	32.19	200	-4.7
E7	E7 Eglwys Nunydd	279347	184181	0	20.40	38.93	32.05	200	-3.4
E8	E8 Kenfig/Cynffig	278911	183412	0	13.64	30.05	22.38	200	-3.8
E9	E9 Kenfig/Cynffig	278578	183294	0	13.64	28.33	20.94	200	-3.7
E10	E10 Kenfig/Cynffig	277947	183429	0	12.60	28.95	18.57	200	-5.2
E11	E11 Kenfig/Cynffig	277366	183205	0	12.60	28.63	17.81	200	-5.4
E12	E12 Kenfig/Cynffig	280023	182746	0	23.08	49.38	42.84	200	-3.3
E13	E13 Kenfig/Cynffig	280246	182907	0	23.08	75.10	69.25	200	-2.9

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m3)	PC as % of Critical Level (EAF only)
E14	E14 Junction 38 Wetland Comple	279049	186481	0	34.68	88.65	80.45	200	-4.1
E15	E15 Junction 38 Wetland Comple	278474	186441	0	48.66	74.12	215.44	200	70.7
E16	E16 Junction 38 Wetland Comple	278507	186263	0	48.66	73.64	221.53	200	73.9
E17	E17 Junction 38 Wetland Comple	278578	186056	0	48.66	75.42	71.12	200	-2.1
E18	E18 Kenfig/Cynffig	283734	177209	0	16.54	22.72	18.61	200	-2.1
E19	E19 Kenfig/Cynffig	284363	177536	0	13.46	19.30	15.52	200	-1.9
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	19.32	27.49	23.98	200	-1.8
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	26.38	33.69	29.71	200	-2.0
E22	E22 Crymlyn Bog	272000	194540	0	27.90	35.06	31.29	200	-1.9
E23	E23 Crymlyn Bog	271205	193885	0	20.38	29.08	24.22	200	-2.4
E24	E24 Crymlyn Bog	271148	193847	0	20.38	29.10	24.20	200	-2.5
E25	E25 Crymlyn Bog	270537	193669	0	19.46	27.52	22.91	200	-2.3
E26	E26 Crymlyn Bog	268207	193203	0	25.62	31.79	28.16	200	-1.8
E27	E27 Unnamed Ancient Woodland	278654	186618	0	48.66	97.14	90.06	200	-3.5
E28	E28 Unnamed Ancient Woodland	278959	186629	0	48.66	108.26	100.26	200	-4.0
E29	E29 Unnamed Ancient Woodland	279486	186354	0	34.68	269.64	262.22	200	-3.7

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m3)	PC as % of Critical Level (EAF only)
E30	E30 Unnamed Ancient Woodland	279716	186123	0	34.68	171.90	163.18	200	-4.4
E31	E31 Unnamed Ancient Woodland	280228	185547	0	18.70	73.53	61.57	200	-6.0
E32	E32 Unnamed Ancient Woodland	280266	185669	0	18.70	55.47	44.43	200	-5.5
E33	E33 Unnamed Ancient Woodland	279353	186567	0	34.68	345.00	337.27	200	-3.9
E34	E34 Unnamed Ancient Woodland	279215	186696	0	34.68	256.20	248.82	200	-3.7
E35	E35 Unnamed Ancient Woodland	279167	186779	0	34.68	253.87	246.29	200	-3.8
E36	E36 Unnamed Ancient Woodland	279171	186813	0	34.68	465.13	457.46	200	-3.8
E37	E37 Unnamed Ancient Woodland	279073	186908	0	34.68	216.19	208.62	200	-3.8
E38	E38 Unnamed Ancient Woodland	278973	187505	0	34.94	101.44	92.42	200	-4.5
E39	E39 Unnamed Ancient Woodland	278982	187276	0	34.94	245.14	237.54	200	-3.8
E40	E40 Unnamed Ancient Woodland	278958	187625	0	34.94	86.52	77.64	200	-4.4
E41	E41 Unnamed Ancient Woodland	277867	188475	0	29.50	103.26	95.55	200	-3.9
E42	E42 Unnamed Ancient Woodland	277958	188412	0	29.50	121.57	112.86	200	-4.4
E43	E43 Eglwys Nunydd	279181	185826	0	25.62	77.03	65.40	200	-5.8

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2 (µg/m3)	S3 (µg/m3)	Critical Level (µg/m3)	PC as % of Critical Level (EAF only)
E44	E44 Eglwys Nunydd	278929	185677	0	19.80	47.59	36.15	200	-5.7
E45	E45 Eglwys Nunydd	278768	185405	0	19.80	49.50	33.71	200	-7.9
E46	E46 Eglwys Nunydd	279236	184084	0	20.40	38.28	30.66	200	-3.8
E47	E47 Margam Country Park	280113	185600	0	18.70	122.37	110.39	200	-6.0
E48	E48 Margam Country Park	280381	185503	0	18.70	74.51	62.46	200	-6.0
E49	E49 Margam Country Park	281283	184909	0	17.28	88.21	75.39	200	-6.4
E50	E50 Margam Country Park	281594	184546	0	17.28	91.72	79.23	200	-6.2
E51	E51 Unnamed Ancient Woodland	279743	186141	0	34.68	117.56	109.10	200	-4.2
E52	E52 Unnamed Ancient Woodland	279683	186182	0	34.68	147.58	139.26	200	-4.2
E53	E53 Unnamed Ancient Woodland	279837	186331	0	34.68	72.75	64.49	200	-4.1
E54	E54 Unnamed Ancient Woodland	278952	187363	0	34.94	204.42	196.16	200	-4.1
E55	E55 NPT Watercourse	274727	188533	0	17.16	31.47	23.93	200	-3.8

Table 6.34: Comparison of annual mean SO₂ between S2 – Future Construction Without Development (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	1.81	4.79	1.81	20	-14.9
E2	E2 Margam Moors	277997	185011	0	1.81	3.96	1.81	20	-10.8
E3	E3 Margam Moors	277571	184676	0	1.81	3.76	1.81	20	-9.8
E4	E4 Eglwys Nunydd	279360	185703	0	1.81	4.99	1.81	20	-15.9
E5	E5 Eglwys Nunydd	278971	185332	0	1.81	4.74	1.81	20	-14.7
E6	E6 Eglwys Nunydd	279152	184601	0	1.81	3.66	1.81	20	-9.3
E7	E7 Eglwys Nunydd	279347	184181	0	1.81	3.33	1.81	20	-7.6
E8	E8 Kenfig/Cynffig	278911	183412	0	1.81	3.04	1.81	10	-12.3
E9	E9 Kenfig/Cynffig	278578	183294	0	1.81	2.98	1.81	10	-11.8
E10	E10 Kenfig/Cynffig	277947	183429	0	1.81	3.07	1.81	10	-12.6
E11	E11 Kenfig/Cynffig	277366	183205	0	1.81	2.93	1.81	10	-11.3
E12	E12 Kenfig/Cynffig	280023	182746	0	1.81	2.85	1.81	10	-10.4
E13	E13 Kenfig/Cynffig	280246	182907	0	1.81	2.85	1.81	10	-10.4
E14	E14 Junction 38 Wetland Comple	279049	186481	0	1.81	4.82	1.81	10	-30.1
E15	E15 Junction 38 Wetland Comple	278474	186441	0	1.81	5.36	1.81	10	-35.6
E16	E16 Junction 38 Wetland Comple	278507	186263	0	1.81	5.45	1.81	10	-36.5
E17	E17 Junction 38 Wetland Comple	278578	186056	0	1.81	5.73	1.81	10	-39.3

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E18	E18 Kenfig/Cynffig	283734	177209	0	1.81	2.28	1.81	10	-4.7
E19	E19 Kenfig/Cynffig	284363	177536	0	1.81	2.27	1.81	10	-4.7
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.81	2.45	1.81	10	-6.5
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.81	2.40	1.81	10	-5.9
E22	E22 Crymlyn Bog	272000	194540	0	1.81	2.23	1.81	10	-4.2
E23	E23 Crymlyn Bog	271205	193885	0	1.81	2.31	1.81	10	-5.1
E24	E24 Crymlyn Bog	271148	193847	0	1.81	2.32	1.81	10	-5.1
E25	E25 Crymlyn Bog	270537	193669	0	1.81	2.35	1.81	10	-5.4
E26	E26 Crymlyn Bog	268207	193203	0	1.81	2.34	1.81	10	-5.4
E27	E27 Unnamed Ancient Woodland	278654	186618	0	1.81	5.16	1.81	10	-33.5
E28	E28 Unnamed Ancient Woodland	278959	186629	0	1.81	4.77	1.81	10	-29.7
E29	E29 Unnamed Ancient Woodland	279486	186354	0	1.81	4.45	1.81	10	-26.5
E30	E30 Unnamed Ancient Woodland	279716	186123	0	1.81	4.46	1.81	10	-26.5
E31	E31 Unnamed Ancient Woodland	280228	185547	0	1.81	4.14	1.81	10	-23.4
E32	E32 Unnamed Ancient Woodland	280266	185669	0	1.81	4.17	1.81	10	-23.7
E33	E33 Unnamed Ancient Woodland	279353	186567	0	1.81	4.38	1.81	10	-25.8

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E34	E34 Unnamed Ancient Woodland	279215	186696	0	1.81	4.40	1.81	10	-26.0
E35	E35 Unnamed Ancient Woodland	279167	186779	0	1.81	4.38	1.81	10	-25.7
E36	E36 Unnamed Ancient Woodland	279171	186813	0	1.81	4.35	1.81	10	-25.4
E37	E37 Unnamed Ancient Woodland	279073	186908	0	1.81	4.33	1.81	10	-25.2
E38	E38 Unnamed Ancient Woodland	278973	187505	0	1.81	4.12	1.81	10	-23.2
E39	E39 Unnamed Ancient Woodland	278982	187276	0	1.81	4.14	1.81	10	-23.4
E40	E40 Unnamed Ancient Woodland	278958	187625	0	1.81	4.18	1.81	10	-23.7
E41	E41 Unnamed Ancient Woodland	277867	188475	0	1.81	4.90	1.81	10	-31.0
E42	E42 Unnamed Ancient Woodland	277958	188412	0	1.81	4.88	1.81	10	-30.7
E43	E43 Eglwys Nunydd	279181	185826	0	1.81	5.23	1.81	20	-17.1
E44	E44 Eglwys Nunydd	278929	185677	0	1.81	5.44	1.81	20	-18.2
E45	E45 Eglwys Nunydd	278768	185405	0	1.81	4.99	1.81	20	-15.9
E46	E46 Eglwys Nunydd	279236	184084	0	1.81	3.29	1.81	20	-7.4
E47	E47 Margam Country Park	280113	185600	0	1.81	4.26	1.81	10	-24.5
E48	E48 Margam Country Park	280381	185503	0	1.81	4.03	1.81	10	-22.2
E49	E49 Margam Country Park	281283	184909	0	1.81	3.30	1.81	10	-14.9

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E50	E50 Margam Country Park	281594	184546	0	1.81	3.07	1.81	10	-12.6
E51	E51 Unnamed Ancient Woodland	279743	186141	0	1.81	4.42	1.81	10	-26.1
E52	E52 Unnamed Ancient Woodland	279683	186182	0	1.81	4.43	1.81	10	-26.2
E53	E53 Unnamed Ancient Woodland	279837	186331	0	1.81	4.22	1.81	10	-24.1
E54	E54 Unnamed Ancient Woodland	278952	187363	0	1.81	4.14	1.81	10	-23.3
E55	E55 NPT Watercourse	274727	188533	0	1.81	3.41	1.81	20	-8.0

Table 6.35: Comparison of annual mean NH₃ between S2 – Future Construction Without Development (2025) and S3 – Future Construction with Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	0.90	0.93	0.93	3	0.00
E2	E2 Margam Moors	277997	185011	0	0.89	0.92	0.92	3	0.00
E3	E3 Margam Moors	277571	184676	0	0.88	0.90	0.90	3	0.00
E4	E4 Eglwys Nunydd	279360	185703	0	0.89	1.00	1.00	3	-0.02
E5	E5 Eglwys Nunydd	278971	185332	0	0.90	0.95	0.95	3	-0.01
E6	E6 Eglwys Nunydd	279152	184601	0	0.91	0.95	0.95	3	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E7	E7 Eglwys Nunydd	279347	184181	0	0.91	0.95	0.95	3	0.00
E8	E8 Kenfig/Cynffig	278911	183412	0	0.90	0.93	0.93	1	-0.01
E9	E9 Kenfig/Cynffig	278578	183294	0	0.90	0.92	0.92	1	-0.01
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.02	0.02	1	-0.01
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.02	0.02	1	-0.01
E12	E12 Kenfig/Cynffig	280023	182746	0	0.98	1.06	1.06	1	-0.01
E13	E13 Kenfig/Cynffig	280246	182907	0	0.98	1.17	1.17	1	-0.01
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.82	1.00	1.00	1	-0.19
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.81	0.87	0.87	1	-0.06
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.81	0.86	0.86	1	-0.04
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.81	0.86	0.86	1	-0.03
E18	E18 Kenfig/Cynffig	283734	177209	0	0.89	0.90	0.90	1	0.00
E19	E19 Kenfig/Cynffig	284363	177536	0	0.93	0.94	0.94	1	0.00
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.24	1.26	1.26	1	0.00
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.22	1.23	1.23	1	0.00
E22	E22 Crymlyn Bog	272000	194540	0	0.89	0.90	0.90	1	0.00
E23	E23 Crymlyn Bog	271205	193885	0	0.88	0.89	0.89	1	0.00
E24	E24 Crymlyn Bog	271148	193847	0	0.88	0.89	0.89	1	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E25	E25 Crymlyn Bog	270537	193669	0	0.89	0.90	0.90	1	0.00
E26	E26 Crymlyn Bog	268207	193203	0	0.92	0.93	0.93	1	0.00
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.81	0.99	0.98	1	-0.33
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.81	1.03	1.02	1	-0.29
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.82	1.74	1.74	1	0.33
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.82	1.29	1.29	1	-0.18
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.89	1.06	1.06	1	-0.08
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.89	0.99	0.99	1	-0.04
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.82	2.06	2.06	1	0.07
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.82	1.72	1.72	1	0.34
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.82	1.70	1.71	1	0.27
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.82	2.57	2.57	1	0.26
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.82	1.55	1.55	1	0.28
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.71	0.94	0.94	1	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2 (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.71	1.54	1.54	1	0.07
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.71	0.88	0.88	1	0.00
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.57	0.84	0.84	1	-0.04
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.57	0.91	0.91	1	-0.01
E43	E43 Eglwys Nunydd	279181	185826	0	0.89	1.06	1.06	3	-0.01
E44	E44 Eglwys Nunydd	278929	185677	0	0.90	0.96	0.96	3	-0.01
E45	E45 Eglwys Nunydd	278768	185405	0	0.90	0.95	0.95	3	-0.01
E46	E46 Eglwys Nunydd	279236	184084	0	0.91	0.95	0.95	3	0.00
E47	E47 Margam Country Park	280113	185600	0	0.89	1.27	1.27	1	-0.19
E48	E48 Margam Country Park	280381	185503	0	0.89	1.07	1.07	1	-0.08
E49	E49 Margam Country Park	281283	184909	0	0.96	1.20	1.20	1	-0.13
E50	E50 Margam Country Park	281594	184546	0	0.96	1.22	1.22	1	-0.14
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.82	1.10	1.10	1	-0.08
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.82	1.20	1.20	1	-0.10
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.82	0.93	0.93	1	-0.03
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.71	1.37	1.37	1	0.05
E55	E55 NPT Watercourse	274727	188533	0	0.00	0.02	0.02	3	-0.01

Table 6.36: Comparison of nutrient nitrogen deposition between S2 – Future Construction Without Development (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2 (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E1	E1 Margam Moors	278509	185287	0	1.68	1.58	6	-1.56
E2	E2 Margam Moors	277997	185011	0	1.26	1.20	6	-1.01
E3	E3 Margam Moors	277571	184676	0	1.04	0.97	6	-1.15
E8	E8 Kenfig/Cynffig	278911	183412	0	1.02	0.96	5	-1.27
E9	E9 Kenfig/Cynffig	278578	183294	0	0.97	0.91	5	-1.23
E10	E10 Kenfig/Cynffig	277947	183429	0	0.90	0.84	5	-1.19
E11	E11 Kenfig/Cynffig	277366	183205	0	0.87	0.82	5	-1.15
E12	E12 Kenfig/Cynffig	280023	182746	0	1.89	1.83	5	-1.15
E13	E13 Kenfig/Cynffig	280246	182907	0	2.73	2.68	5	-1.15
E14	E14 Junction 38 Wetland Comple	279049	186481	0	6.57	6.36	10	-2.14
E15	E15 Junction 38 Wetland Comple	278474	186441	0	4.20	4.68	5	9.66
E16	E16 Junction 38 Wetland Comple	278507	186263	0	4.14	4.36	5	4.43
E17	E17 Junction 38 Wetland Comple	278578	186056	0	4.13	4.04	5	-1.72
E18	E18 Kenfig/Cynffig	283734	177209	0	0.89	0.86	5	-0.66
E19	E19 Kenfig/Cynffig	284363	177536	0	0.75	0.72	5	-0.67
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.10	1.06	5	-0.84
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.45	1.41	5	-0.80
E22	E22 Crymlyn Bog	272000	194540	0	1.53	1.50	5	-0.56

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2 (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E23	E23 Crymlyn Bog	271205	193885	0	1.14	1.11	5	-0.70
E24	E24 Crymlyn Bog	271148	193847	0	1.14	1.11	5	-0.68
E25	E25 Crymlyn Bog	270537	193669	0	1.09	1.05	5	-0.72
E26	E26 Crymlyn Bog	268207	193203	0	1.40	1.36	5	-0.73
E27	E27 Unnamed Ancient Woodland	278654	186618	0	9.62	9.45	10	-1.67
E28	E28 Unnamed Ancient Woodland	278959	186629	0	10.16	9.94	10	-2.19
E29	E29 Unnamed Ancient Woodland	279486	186354	0	15.88	15.67	10	-2.10
E30	E30 Unnamed Ancient Woodland	279716	186123	0	10.55	10.26	10	-2.85
E31	E31 Unnamed Ancient Woodland	280228	185547	0	4.45	4.18	10	-2.65
E32	E32 Unnamed Ancient Woodland	280266	185669	0	3.49	3.22	10	-2.69
E33	E33 Unnamed Ancient Woodland	279353	186567	0	19.73	19.52	10	-2.08
E34	E34 Unnamed Ancient Woodland	279215	186696	0	15.44	15.27	10	-1.70
E35	E35 Unnamed Ancient Woodland	279167	186779	0	15.29	15.11	10	-1.77
E36	E36 Unnamed Ancient Woodland	279171	186813	0	25.76	25.58	10	-1.84
E37	E37 Unnamed Ancient Woodland	279073	186908	0	13.35	13.17	10	-1.72

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2 (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E38	E38 Unnamed Ancient Woodland	278973	187505	0	7.13	6.93	10	-2.05
E39	E39 Unnamed Ancient Woodland	278982	187276	0	14.66	14.47	10	-1.92
E40	E40 Unnamed Ancient Woodland	278958	187625	0	6.35	6.13	10	-2.19
E41	E41 Unnamed Ancient Woodland	277867	188475	0	6.79	6.49	10	-2.98
E42	E42 Unnamed Ancient Woodland	277958	188412	0	7.66	7.38	10	-2.89
E51	E51 Unnamed Ancient Woodland	279743	186141	0	7.93	7.65	10	-2.74
E52	E52 Unnamed Ancient Woodland	279683	186182	0	9.35	9.08	10	-2.72
E53	E53 Unnamed Ancient Woodland	279837	186331	0	5.66	5.40	10	-2.59
E54	E54 Unnamed Ancient Woodland	278952	187363	0	12.54	12.34	10	-1.94
Note: Receptors where insufficient information was available to estimate a critical load, or the habitat was considered unlikely to be sensitive to nutrient nitrogen deposition have been excluded. Regardless, concentrations at excluded receptors decreased so would not have breached the critical load.								

Table 6.37: Comparison of acid deposition between S2 – Future Construction Without Development (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2 Nitrogen Deposition (keq/ha/yr)	S3 - S2 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E1	E1 Margam Moors	278509	185287	0	-0.01	-0.35	Yes
E2	E2 Margam Moors	277997	185011	0	0.00	-0.25	Yes
E3	E3 Margam Moors	277571	184676	0	0.00	-0.23	Yes
E4	E4 Eglwys Nunydd	279360	185703	0	-0.01	-0.38	Yes
E5	E5 Eglwys Nunydd	278971	185332	0	-0.01	-0.35	Yes
E6	E6 Eglwys Nunydd	279152	184601	0	-0.01	-0.22	Yes
E7	E7 Eglwys Nunydd	279347	184181	0	-0.01	-0.18	Yes
E8	E8 Kenfig/Cynffig	278911	183412	0	0.00	-0.15	Yes
E9	E9 Kenfig/Cynffig	278578	183294	0	0.00	-0.14	Yes
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	-0.15	Yes
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	-0.13	Yes
E12	E12 Kenfig/Cynffig	280023	182746	0	0.00	-0.12	Yes
E13	E13 Kenfig/Cynffig	280246	182907	0	0.00	-0.12	Yes
E14	E14 Junction 38 Wetland Comple	279049	186481	0	-0.02	-0.71	Yes
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.03	-0.42	Yes
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.02	-0.43	Yes
E17	E17 Junction 38 Wetland Comple	278578	186056	0	-0.01	-0.46	Yes
E18	E18 Kenfig/Cynffig	283734	177209	0	0.00	-0.06	Yes
E19	E19 Kenfig/Cynffig	284363	177536	0	0.00	-0.06	Yes

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2 Nitrogen Deposition (keq/ha/yr)	S3 - S2 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	0.00	-0.08	Yes
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	0.00	-0.07	Yes
E22	E22 Crymlyn Bog	272000	194540	0	0.00	-0.05	Yes
E23	E23 Crymlyn Bog	271205	193885	0	0.00	-0.06	Yes
E24	E24 Crymlyn Bog	271148	193847	0	0.00	-0.06	Yes
E25	E25 Crymlyn Bog	270537	193669	0	0.00	-0.06	Yes
E26	E26 Crymlyn Bog	268207	193203	0	0.00	-0.06	Yes
E27	E27 Unnamed Ancient Woodland	278654	186618	0	-0.01	-0.79	Yes
E28	E28 Unnamed Ancient Woodland	278959	186629	0	-0.02	-0.70	Yes
E29	E29 Unnamed Ancient Woodland	279486	186354	0	-0.02	-0.62	Yes
E30	E30 Unnamed Ancient Woodland	279716	186123	0	-0.02	-0.63	Yes
E31	E31 Unnamed Ancient Woodland	280228	185547	0	-0.02	-0.55	Yes
E32	E32 Unnamed Ancient Woodland	280266	185669	0	-0.02	-0.56	Yes
E33	E33 Unnamed Ancient Woodland	279353	186567	0	-0.01	-0.61	Yes
E34	E34 Unnamed Ancient Woodland	279215	186696	0	-0.01	-0.61	Yes
E35	E35 Unnamed Ancient Woodland	279167	186779	0	-0.01	-0.61	Yes

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2 Nitrogen Deposition (keq/ha/yr)	S3 - S2 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E36	E36 Unnamed Ancient Woodland	279171	186813	0	-0.01	-0.60	Yes
E37	E37 Unnamed Ancient Woodland	279073	186908	0	-0.01	-0.59	Yes
E38	E38 Unnamed Ancient Woodland	278973	187505	0	-0.01	-0.55	Yes
E39	E39 Unnamed Ancient Woodland	278982	187276	0	-0.01	-0.55	Yes
E40	E40 Unnamed Ancient Woodland	278958	187625	0	-0.02	-0.56	Yes
E41	E41 Unnamed Ancient Woodland	277867	188475	0	-0.02	-0.73	Yes
E42	E42 Unnamed Ancient Woodland	277958	188412	0	-0.02	-0.72	Yes
E43	E43 Eglwys Nunydd	279181	185826	0	-0.01	-0.40	Yes
E44	E44 Eglwys Nunydd	278929	185677	0	-0.01	-0.43	Yes
E45	E45 Eglwys Nunydd	278768	185405	0	-0.01	-0.38	Yes
E46	E46 Eglwys Nunydd	279236	184084	0	0.00	-0.18	Yes
E47	E47 Margam Country Park	280113	185600	0	-0.01	-0.29	Yes
E48	E48 Margam Country Park	280381	185503	0	-0.01	-0.26	Yes
E49	E49 Margam Country Park	281283	184909	0	-0.01	-0.18	Yes
E50	E50 Margam Country Park	281594	184546	0	-0.01	-0.15	Yes

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2 Nitrogen Deposition (keq/ha/yr)	S3 - S2 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E51	E51 Unnamed Ancient Woodland	279743	186141	0	-0.02	-0.62	Yes
E52	E52 Unnamed Ancient Woodland	279683	186182	0	-0.02	-0.62	Yes
E53	E53 Unnamed Ancient Woodland	279837	186331	0	-0.02	-0.57	Yes
E54	E54 Unnamed Ancient Woodland	278952	187363	0	-0.01	-0.55	Yes
E55	E55 NPT Watercourse	274727	188533	0	-0.01	-0.19	Yes

Table 6.38: Comparison of annual mean NO_x between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NO _x concentrations				
					Background (µg/m ³)	S4 µg/m ³)	S5 µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	9.90	11.94	11.14	30	-3
E2	E2 Margam Moors	277997	185011	0	7.95	9.38	8.89	30	-2
E3	E3 Margam Moors	277571	184676	0	6.96	8.32	7.73	30	-2
E4	E4 Eglwys Nunydd	279360	185703	0	12.81	17.36	16.12	30	-4
E5	E5 Eglwys Nunydd	278971	185332	0	9.90	12.63	11.59	30	-3
E6	E6 Eglwys Nunydd	279152	184601	0	10.20	12.19	11.50	30	-2
E7	E7 Eglwys Nunydd	279347	184181	0	10.20	12.10	11.47	30	-2

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4 µg/m³)	S5 µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E8	E8 Kenfig/Cynffig	278911	183412	0	6.82	8.31	7.74	30	-2
E9	E9 Kenfig/Cynffig	278578	183294	0	6.82	8.13	7.58	30	-2
E10	E10 Kenfig/Cynffig	277947	183429	0	6.30	7.47	6.94	30	-2
E11	E11 Kenfig/Cynffig	277366	183205	0	6.30	7.37	6.86	30	-2
E12	E12 Kenfig/Cynffig	280023	182746	0	11.54	14.16	13.65	30	-2
E13	E13 Kenfig/Cynffig	280246	182907	0	11.54	16.93	16.42	30	-2
E14	E14 Junction 38 Wetland Comple	279049	186481	0	17.34	23.24	22.40	30	-3
E15	E15 Junction 38 Wetland Comple	278474	186441	0	24.33	27.25	32.39	30	17
E16	E16 Junction 38 Wetland Comple	278507	186263	0	24.33	27.09	29.58	30	8
E17	E17 Junction 38 Wetland Comple	278578	186056	0	24.33	27.14	26.55	30	-2
E18	E18 Kenfig/Cynffig	283734	177209	0	8.27	8.79	8.50	30	-1
E19	E19 Kenfig/Cynffig	284363	177536	0	6.73	7.25	6.96	30	-1
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	9.66	10.55	10.19	30	-1
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	13.19	13.92	13.58	30	-1
E22	E22 Crymlyn Bog	272000	194540	0	13.95	14.56	14.32	30	-1
E23	E23 Crymlyn Bog	271205	193885	0	10.19	10.90	10.60	30	-1
E24	E24 Crymlyn Bog	271148	193847	0	10.19	10.90	10.60	30	-1
E25	E25 Crymlyn Bog	270537	193669	0	9.73	10.42	10.10	30	-1

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4 µg/m³)	S5 µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E26	E26 Crymlyn Bog	268207	193203	0	12.81	13.42	13.10	30	-1
E27	E27 Unnamed Ancient Woodland	278654	186618	0	24.33	29.61	29.04	30	-2
E28	E28 Unnamed Ancient Woodland	278959	186629	0	24.33	30.79	29.92	30	-3
E29	E29 Unnamed Ancient Woodland	279486	186354	0	17.34	42.28	41.22	30	-4
E30	E30 Unnamed Ancient Woodland	279716	186123	0	17.34	32.15	30.92	30	-4
E31	E31 Unnamed Ancient Woodland	280228	185547	0	9.35	15.13	13.97	30	-4
E32	E32 Unnamed Ancient Woodland	280266	185669	0	9.35	13.34	12.16	30	-4
E33	E33 Unnamed Ancient Woodland	279353	186567	0	17.34	50.21	49.31	30	-3
E34	E34 Unnamed Ancient Woodland	279215	186696	0	17.34	40.81	39.95	30	-3
E35	E35 Unnamed Ancient Woodland	279167	186779	0	17.34	40.59	39.76	30	-3
E36	E36 Unnamed Ancient Woodland	279171	186813	0	17.34	62.91	62.09	30	-3
E37	E37 Unnamed Ancient Woodland	279073	186908	0	17.34	36.59	35.78	30	-3
E38	E38 Unnamed Ancient Woodland	278973	187505	0	17.47	24.52	23.68	30	-3
E39	E39 Unnamed Ancient Woodland	278982	187276	0	17.47	39.69	38.90	30	-3

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4 µg/m³)	S5 µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E40	E40 Unnamed Ancient Woodland	278958	187625	0	17.47	22.98	22.10	30	-3
E41	E41 Unnamed Ancient Woodland	277867	188475	0	14.75	23.18	21.76	30	-5
E42	E42 Unnamed Ancient Woodland	277958	188412	0	14.75	24.90	23.51	30	-5
E43	E43 Eglwys Nunydd	279181	185826	0	12.81	18.50	17.32	30	-4
E44	E44 Eglwys Nunydd	278929	185677	0	9.90	13.09	11.89	30	-4
E45	E45 Eglwys Nunydd	278768	185405	0	9.90	12.55	11.50	30	-3
E46	E46 Eglwys Nunydd	279236	184084	0	10.20	11.95	11.34	30	-2
E47	E47 Margam Country Park	280113	185600	0	9.35	20.29	19.05	30	-4
E48	E48 Margam Country Park	280381	185503	0	9.35	15.19	14.05	30	-4
E49	E49 Margam Country Park	281283	184909	0	8.64	15.67	14.79	30	-3
E50	E50 Margam Country Park	281594	184546	0	8.64	15.97	15.20	30	-3
E51	E51 Unnamed Ancient Woodland	279743	186141	0	17.34	26.44	25.28	30	-4
E52	E52 Unnamed Ancient Woodland	279683	186182	0	17.34	29.60	28.44	30	-4
E53	E53 Unnamed Ancient Woodland	279837	186331	0	17.34	21.73	20.67	30	-4
E54	E54 Unnamed Ancient Woodland	278952	187363	0	17.47	35.34	34.54	30	-3
E55	E55 NPT Watercourse	274727	188533	0	8.58	10.16	9.44	30	-2

Table 6.39: Comparison of daily mean NO_x between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NO _x concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	19.80	39.99	25.24	200	-7.4
E2	E2 Margam Moors	277997	185011	0	15.90	25.62	20.15	200	-2.7
E3	E3 Margam Moors	277571	184676	0	13.92	31.98	18.10	200	-6.9
E4	E4 Eglwys Nunydd	279360	185703	0	25.62	44.85	35.39	200	-4.7
E5	E5 Eglwys Nunydd	278971	185332	0	19.80	41.36	25.43	200	-8.0
E6	E6 Eglwys Nunydd	279152	184601	0	20.40	33.92	25.03	200	-4.4
E7	E7 Eglwys Nunydd	279347	184181	0	20.40	31.14	24.59	200	-3.3
E8	E8 Kenfig/Cynffig	278911	183412	0	13.64	24.39	16.97	200	-3.7
E9	E9 Kenfig/Cynffig	278578	183294	0	13.64	23.78	16.85	200	-3.5
E10	E10 Kenfig/Cynffig	277947	183429	0	12.60	25.25	15.67	200	-4.8
E11	E11 Kenfig/Cynffig	277366	183205	0	12.60	25.42	15.63	200	-4.9
E12	E12 Kenfig/Cynffig	280023	182746	0	23.08	34.73	28.63	200	-3.1
E13	E13 Kenfig/Cynffig	280246	182907	0	23.08	39.76	34.31	200	-2.7
E14	E14 Junction 38 Wetland Comple	279049	186481	0	34.68	55.08	49.82	200	-2.6
E15	E15 Junction 38 Wetland Comple	278474	186441	0	48.66	63.03	205.11	200	71.0
E16	E16 Junction 38 Wetland Comple	278507	186263	0	48.66	64.03	212.79	200	74.4
E17	E17 Junction 38 Wetland Comple	278578	186056	0	48.66	66.48	62.33	200	-2.1

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4 (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E18	E18 Kenfig/Cynffig	283734	177209	0	16.54	21.65	18.15	200	-1.8
E19	E19 Kenfig/Cynffig	284363	177536	0	13.46	18.26	14.93	200	-1.7
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	19.32	24.35	21.32	200	-1.5
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	26.38	31.56	28.13	200	-1.7
E22	E22 Crymlyn Bog	272000	194540	0	27.90	32.86	29.49	200	-1.7
E23	E23 Crymlyn Bog	271205	193885	0	20.38	26.64	22.39	200	-2.1
E24	E24 Crymlyn Bog	271148	193847	0	20.38	26.68	22.38	200	-2.1
E25	E25 Crymlyn Bog	270537	193669	0	19.46	25.43	21.22	200	-2.1
E26	E26 Crymlyn Bog	268207	193203	0	25.62	30.34	27.26	200	-1.5
E27	E27 Unnamed Ancient Woodland	278654	186618	0	48.66	67.20	62.30	200	-2.4
E28	E28 Unnamed Ancient Woodland	278959	186629	0	48.66	69.69	64.19	200	-2.8
E29	E29 Unnamed Ancient Woodland	279486	186354	0	34.68	92.93	88.03	200	-2.5
E30	E30 Unnamed Ancient Woodland	279716	186123	0	34.68	72.87	67.23	200	-2.8
E31	E31 Unnamed Ancient Woodland	280228	185547	0	18.70	41.41	31.70	200	-4.9
E32	E32 Unnamed Ancient Woodland	280266	185669	0	18.70	37.26	28.58	200	-4.3
E33	E33 Unnamed Ancient Woodland	279353	186567	0	34.68	109.02	103.69	200	-2.7

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4 (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E34	E34 Unnamed Ancient Woodland	279215	186696	0	34.68	90.20	84.51	200	-2.8
E35	E35 Unnamed Ancient Woodland	279167	186779	0	34.68	89.72	84.47	200	-2.6
E36	E36 Unnamed Ancient Woodland	279171	186813	0	34.68	134.36	129.18	200	-2.6
E37	E37 Unnamed Ancient Woodland	279073	186908	0	34.68	81.82	76.45	200	-2.7
E38	E38 Unnamed Ancient Woodland	278973	187505	0	34.94	57.91	50.48	200	-3.7
E39	E39 Unnamed Ancient Woodland	278982	187276	0	34.94	87.72	81.45	200	-3.1
E40	E40 Unnamed Ancient Woodland	278958	187625	0	34.94	54.72	47.25	200	-3.7
E41	E41 Unnamed Ancient Woodland	277867	188475	0	29.50	52.57	45.74	200	-3.4
E42	E42 Unnamed Ancient Woodland	277958	188412	0	29.50	57.54	49.73	200	-3.9
E43	E43 Eglwys Nunydd	279181	185826	0	25.62	47.68	38.05	200	-4.8
E44	E44 Eglwys Nunydd	278929	185677	0	19.80	37.20	26.42	200	-5.4
E45	E45 Eglwys Nunydd	278768	185405	0	19.80	40.89	25.33	200	-7.8
E46	E46 Eglwys Nunydd	279236	184084	0	20.40	31.40	24.22	200	-3.6
E47	E47 Margam Country Park	280113	185600	0	18.70	51.48	41.97	200	-4.8
E48	E48 Margam Country Park	280381	185503	0	18.70	41.63	31.81	200	-4.9
E49	E49 Margam Country Park	281283	184909	0	17.28	43.18	32.01	200	-5.6

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4 (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E50	E50 Margam Country Park	281594	184546	0	17.28	43.31	32.12	200	-5.6
E51	E51 Unnamed Ancient Woodland	279743	186141	0	34.68	61.51	55.95	200	-2.8
E52	E52 Unnamed Ancient Woodland	279683	186182	0	34.68	67.69	62.35	200	-2.7
E53	E53 Unnamed Ancient Woodland	279837	186331	0	34.68	52.12	46.41	200	-2.9
E54	E54 Unnamed Ancient Woodland	278952	187363	0	34.94	79.41	72.29	200	-3.6
E55	E55 NPT Watercourse	274727	188533	0	17.16	27.27	21.00	200	-3.1

Table 6.40: Comparison of annual mean SO₂ between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m³)	S4 (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	1.81	4.81	2.31	20	-12.5
E2	E2 Margam Moors	277997	185011	0	1.81	3.98	2.26	20	-8.6
E3	E3 Margam Moors	277571	184676	0	1.81	3.77	2.19	20	-7.9
E4	E4 Eglwys Nunydd	279360	185703	0	1.81	5.01	2.53	20	-12.4
E5	E5 Eglwys Nunydd	278971	185332	0	1.81	4.75	2.34	20	-12.1
E6	E6 Eglwys Nunydd	279152	184601	0	1.81	3.67	2.17	20	-7.5

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E7	E7 Eglwys Nunydd	279347	184181	0	1.81	3.34	2.13	20	-6.0
E8	E8 Kenfig/Cynffig	278911	183412	0	1.81	3.05	2.08	10	-9.7
E9	E9 Kenfig/Cynffig	278578	183294	0	1.81	2.99	2.07	10	-9.3
E10	E10 Kenfig/Cynffig	277947	183429	0	1.81	3.08	2.07	10	-10.1
E11	E11 Kenfig/Cynffig	277366	183205	0	1.81	2.94	2.04	10	-9.0
E12	E12 Kenfig/Cynffig	280023	182746	0	1.81	2.86	2.04	10	-8.2
E13	E13 Kenfig/Cynffig	280246	182907	0	1.81	2.86	2.04	10	-8.2
E14	E14 Junction 38 Wetland Comple	279049	186481	0	1.81	4.83	2.89	10	-19.4
E15	E15 Junction 38 Wetland Comple	278474	186441	0	1.81	5.39	3.22	10	-21.6
E16	E16 Junction 38 Wetland Comple	278507	186263	0	1.81	5.47	2.99	10	-24.9
E17	E17 Junction 38 Wetland Comple	278578	186056	0	1.81	5.76	2.82	10	-29.4
E18	E18 Kenfig/Cynffig	283734	177209	0	1.81	2.28	1.94	10	-3.4
E19	E19 Kenfig/Cynffig	284363	177536	0	1.81	2.28	1.95	10	-3.3
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.81	2.46	1.98	10	-4.8
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.81	2.40	1.97	10	-4.3
E22	E22 Crymlyn Bog	272000	194540	0	1.81	2.23	1.91	10	-3.2
E23	E23 Crymlyn Bog	271205	193885	0	1.81	2.32	1.93	10	-3.9
E24	E24 Crymlyn Bog	271148	193847	0	1.81	2.33	1.93	10	-4.0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E25	E25 Crymlyn Bog	270537	193669	0	1.81	2.36	1.94	10	-4.2
E26	E26 Crymlyn Bog	268207	193203	0	1.81	2.35	1.97	10	-3.7
E27	E27 Unnamed Ancient Woodland	278654	186618	0	1.81	5.18	3.08	10	-21.0
E28	E28 Unnamed Ancient Woodland	278959	186629	0	1.81	4.79	2.90	10	-18.9
E29	E29 Unnamed Ancient Woodland	279486	186354	0	1.81	4.47	2.74	10	-17.3
E30	E30 Unnamed Ancient Woodland	279716	186123	0	1.81	4.47	2.64	10	-18.3
E31	E31 Unnamed Ancient Woodland	280228	185547	0	1.81	4.15	2.39	10	-17.6
E32	E32 Unnamed Ancient Woodland	280266	185669	0	1.81	4.18	2.42	10	-17.7
E33	E33 Unnamed Ancient Woodland	279353	186567	0	1.81	4.40	2.76	10	-16.4
E34	E34 Unnamed Ancient Woodland	279215	186696	0	1.81	4.42	2.79	10	-16.3
E35	E35 Unnamed Ancient Woodland	279167	186779	0	1.81	4.39	2.78	10	-16.1
E36	E36 Unnamed Ancient Woodland	279171	186813	0	1.81	4.37	2.77	10	-15.9
E37	E37 Unnamed Ancient Woodland	279073	186908	0	1.81	4.35	2.76	10	-15.9
E38	E38 Unnamed Ancient Woodland	278973	187505	0	1.81	4.15	2.67	10	-14.7

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E39	E39 Unnamed Ancient Woodland	278982	187276	0	1.81	4.17	2.69	10	-14.8
E40	E40 Unnamed Ancient Woodland	278958	187625	0	1.81	4.20	2.66	10	-15.5
E41	E41 Unnamed Ancient Woodland	277867	188475	0	1.81	5.01	2.07	10	-29.3
E42	E42 Unnamed Ancient Woodland	277958	188412	0	1.81	4.97	2.08	10	-28.9
E43	E43 Eglwys Nunydd	279181	185826	0	1.81	5.25	2.60	20	-13.2
E44	E44 Eglwys Nunydd	278929	185677	0	1.81	5.46	2.54	20	-14.6
E45	E45 Eglwys Nunydd	278768	185405	0	1.81	5.01	2.37	20	-13.2
E46	E46 Eglwys Nunydd	279236	184084	0	1.81	3.30	2.12	20	-5.9
E47	E47 Margam Country Park	280113	185600	0	1.81	4.27	2.42	10	-18.5
E48	E48 Margam Country Park	280381	185503	0	1.81	4.04	2.37	10	-16.6
E49	E49 Margam Country Park	281283	184909	0	1.81	3.31	2.22	10	-10.9
E50	E50 Margam Country Park	281594	184546	0	1.81	3.07	2.15	10	-9.3
E51	E51 Unnamed Ancient Woodland	279743	186141	0	1.81	4.43	2.64	10	-17.8
E52	E52 Unnamed Ancient Woodland	279683	186182	0	1.81	4.44	2.67	10	-17.7
E53	E53 Unnamed Ancient Woodland	279837	186331	0	1.81	4.23	2.69	10	-15.4
E54	E54 Unnamed Ancient Woodland	278952	187363	0	1.81	4.16	2.69	10	-14.7
E55	E55 NPT Watercourse	274727	188533	0	1.81	3.43	2.27	20	-5.8

Table 6.41: Comparison of annual mean NH₃ between S4 – Future Operational Without Development (2027) and S5 – Future Operational with Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	0.90	0.936	0.935	3	-0.01
E2	E2 Margam Moors	277997	185011	0	0.89	0.918	0.917	3	-0.01
E3	E3 Margam Moors	277571	184676	0	0.88	0.903	0.903	3	-0.01
E4	E4 Eglwys Nunydd	279360	185703	0	0.89	1.006	1.005	3	-0.04
E5	E5 Eglwys Nunydd	278971	185332	0	0.90	0.953	0.952	3	-0.02
E6	E6 Eglwys Nunydd	279152	184601	0	0.91	0.953	0.953	3	-0.01
E7	E7 Eglwys Nunydd	279347	184181	0	0.91	0.954	0.953	3	-0.01
E8	E8 Kenfig/Cynffig	278911	183412	0	0.90	0.932	0.932	1	-0.01
E9	E9 Kenfig/Cynffig	278578	183294	0	0.90	0.926	0.925	1	-0.01
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.021	0.021	1	-0.02
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.018	0.018	1	-0.02
E12	E12 Kenfig/Cynffig	280023	182746	0	0.98	1.062	1.062	1	-0.01
E13	E13 Kenfig/Cynffig	280246	182907	0	0.98	1.179	1.179	1	-0.01
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.82	1.009	1.003	1	-0.67
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.81	0.873	0.871	1	-0.17
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.81	0.864	0.863	1	-0.11
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.81	0.860	0.859	1	-0.08

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E18	E18 Kenfig/Cynffig	283734	177209	0	0.89	0.896	0.896	1	0.00
E19	E19 Kenfig/Cynffig	284363	177536	0	0.93	0.936	0.936	1	0.00
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.24	1.258	1.258	1	-0.01
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.22	1.232	1.232	1	-0.01
E22	E22 Crymlyn Bog	272000	194540	0	0.89	0.903	0.903	1	-0.01
E23	E23 Crymlyn Bog	271205	193885	0	0.88	0.894	0.894	1	-0.01
E24	E24 Crymlyn Bog	271148	193847	0	0.88	0.894	0.894	1	-0.01
E25	E25 Crymlyn Bog	270537	193669	0	0.89	0.902	0.902	1	-0.01
E26	E26 Crymlyn Bog	268207	193203	0	0.92	0.928	0.928	1	0.00
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.81	0.984	0.973	1	-1.14
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.81	1.029	1.019	1	-1.01
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.82	1.786	1.781	1	-0.50
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.82	1.318	1.313	1	-0.41
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.89	1.070	1.069	1	-0.16
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.89	0.992	0.991	1	-0.09
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.82	2.136	2.133	1	-0.30

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.82	1.764	1.760	1	-0.36
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.82	1.753	1.750	1	-0.27
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.82	2.683	2.681	1	-0.17
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.82	1.585	1.583	1	-0.26
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.71	0.955	0.955	1	-0.06
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.71	1.593	1.593	1	-0.08
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.71	0.889	0.889	1	-0.05
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.57	0.857	0.856	1	-0.11
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.57	0.931	0.930	1	-0.09
E43	E43 Eglwys Nunydd	279181	185826	0	0.89	1.065	1.064	3	-0.04
E44	E44 Eglwys Nunydd	278929	185677	0	0.90	0.959	0.958	3	-0.02
E45	E45 Eglwys Nunydd	278768	185405	0	0.90	0.949	0.949	3	-0.01
E46	E46 Eglwys Nunydd	279236	184084	0	0.91	0.949	0.948	3	-0.01
E47	E47 Margam Country Park	280113	185600	0	0.89	1.290	1.286	1	-0.35
E48	E48 Margam Country Park	280381	185503	0	0.89	1.075	1.074	1	-0.16
E49	E49 Margam Country Park	281283	184909	0	0.96	1.215	1.213	1	-0.22

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4 (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E50	E50 Margam Country Park	281594	184546	0	0.96	1.235	1.232	1	-0.24
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.82	1.113	1.111	1	-0.24
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.82	1.223	1.220	1	-0.30
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.82	0.934	0.933	1	-0.10
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.71	1.411	1.411	1	-0.07
E55	E55 NPT Watercourse	274727	188533	0	0.00	0.024	0.024	3	-0.01

Table 6.42: Comparison of nutrient nitrogen deposition between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4 (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E1	E1 Margam Moors	278509	185287	0	0.90	0.936	0.935	1
E2	E2 Margam Moors	277997	185011	0	0.89	0.918	0.917	1
E3	E3 Margam Moors	277571	184676	0	0.88	0.903	0.903	1
E8	E8 Kenfig/Cynffig	278911	183412	0	0.99	0.93	5	-1.16
E9	E9 Kenfig/Cynffig	278578	183294	0	0.94	0.88	5	-1.11
E10	E10 Kenfig/Cynffig	277947	183429	0	0.87	0.82	5	-1.10
E11	E11 Kenfig/Cynffig	277366	183205	0	0.85	0.80	5	-1.03

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4 (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E12	E12 Kenfig/Cynffig	280023	182746	0	1.78	1.73	5	-1.03
E13	E13 Kenfig/Cynffig	280246	182907	0	2.60	2.55	5	-1.03
E14	E14 Junction 38 Wetland Comple	279049	186481	0	6.19	5.98	10	-2.16
E15	E15 Junction 38 Wetland Comple	278474	186441	0	4.14	4.65	5	10.20
E16	E16 Junction 38 Wetland Comple	278507	186263	0	4.09	4.33	5	4.92
E17	E17 Junction 38 Wetland Comple	278578	186056	0	4.08	4.01	5	-1.27
E18	E18 Kenfig/Cynffig	283734	177209	0	0.85	0.83	5	-0.58
E19	E19 Kenfig/Cynffig	284363	177536	0	0.72	0.69	5	-0.58
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.05	1.02	5	-0.73
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.35	1.31	5	-0.70
E22	E22 Crymlyn Bog	272000	194540	0	1.41	1.38	5	-0.49
E23	E23 Crymlyn Bog	271205	193885	0	1.08	1.05	5	-0.60
E24	E24 Crymlyn Bog	271148	193847	0	1.08	1.05	5	-0.60
E25	E25 Crymlyn Bog	270537	193669	0	1.03	1.00	5	-0.63
E26	E26 Crymlyn Bog	268207	193203	0	1.34	1.30	5	-0.63
E27	E27 Unnamed Ancient Woodland	278654	186618	0	9.34	9.15	10	-1.94
E28	E28 Unnamed Ancient Woodland	278959	186629	0	9.86	9.62	10	-2.40
E29	E29 Unnamed Ancient Woodland	279486	186354	0	15.04	14.80	10	-2.45

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4 (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E30	E30 Unnamed Ancient Woodland	279716	186123	0	9.94	9.67	10	-2.74
E31	E31 Unnamed Ancient Woodland	280228	185547	0	4.22	3.98	10	-2.44
E32	E32 Unnamed Ancient Woodland	280266	185669	0	3.32	3.08	10	-2.43
E33	E33 Unnamed Ancient Woodland	279353	186567	0	18.86	18.66	10	-1.99
E34	E34 Unnamed Ancient Woodland	279215	186696	0	14.66	14.46	10	-1.97
E35	E35 Unnamed Ancient Woodland	279167	186779	0	14.54	14.35	10	-1.85
E36	E36 Unnamed Ancient Woodland	279171	186813	0	24.79	24.62	10	-1.76
E37	E37 Unnamed Ancient Woodland	279073	186908	0	12.66	12.48	10	-1.81
E38	E38 Unnamed Ancient Woodland	278973	187505	0	6.81	6.64	10	-1.73
E39	E39 Unnamed Ancient Woodland	278982	187276	0	14.02	13.85	10	-1.66
E40	E40 Unnamed Ancient Woodland	278958	187625	0	6.06	5.88	10	-1.80
E41	E41 Unnamed Ancient Woodland	277867	188475	0	6.45	6.15	10	-2.97
E42	E42 Unnamed Ancient Woodland	277958	188412	0	7.28	6.99	10	-2.85

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4 (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E51	E51 Unnamed Ancient Woodland	279743	186141	0	7.49	7.24	10	-2.50
E52	E52 Unnamed Ancient Woodland	279683	186182	0	8.82	8.57	10	-2.53
E53	E53 Unnamed Ancient Woodland	279837	186331	0	5.38	5.16	10	-2.21
E54	E54 Unnamed Ancient Woodland	278952	187363	0	11.98	11.81	10	-1.68
Note: Receptors where insufficient information was available to estimate a critical load, or the habitat was considered unlikely to be sensitive to nutrient nitrogen deposition have been excluded. Regardless, concentrations at excluded receptors decreased so would not expect any adverse impacts.								

Table 6.43: Comparison of acid deposition between S4 – Future Operational Without Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4 Nitrogen Deposition (keq/ha/yr)	S5 – S4 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E1	E1 Margam Moors	278509	185287	0	-0.01	-2.92	Yes
E2	E2 Margam Moors	277997	185011	0	0.00	-2.10	Yes
E3	E3 Margam Moors	277571	184676	0	0.00	-1.91	Yes
E4	E4 Eglwys Nynydd	279360	185703	0	-0.01	-3.11	Yes
E5	E5 Eglwys Nynydd	278971	185332	0	-0.01	-2.87	Yes
E6	E6 Eglwys Nynydd	279152	184601	0	-0.01	-1.81	Yes

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4 Nitrogen Deposition (keq/ha/yr)	S5 – S4 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E7	E7 Eglwys Nunydd	279347	184181	0	0.00	-1.48	Yes
E8	E8 Kenfig/Cynffig	278911	183412	0	0.00	-1.20	Yes
E9	E9 Kenfig/Cynffig	278578	183294	0	0.00	-1.15	Yes
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	-1.23	Yes
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	-1.10	Yes
E12	E12 Kenfig/Cynffig	280023	182746	0	0.00	-1.01	Yes
E13	E13 Kenfig/Cynffig	280246	182907	0	0.00	-1.02	Yes
E14	E14 Junction 38 Wetland Comple	279049	186481	0	-0.02	-2.76	Yes
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.04	-3.39	Yes
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.02	-3.51	Yes
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.00	-3.81	Yes
E18	E18 Kenfig/Cynffig	283734	177209	0	0.00	-0.46	Yes
E19	E19 Kenfig/Cynffig	284363	177536	0	0.00	-0.45	Yes
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	0.00	-0.63	Yes
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	0.00	-0.57	Yes
E22	E22 Crymlyn Bog	272000	194540	0	0.00	-0.41	Yes
E23	E23 Crymlyn Bog	271205	193885	0	0.00	-0.50	Yes
E24	E24 Crymlyn Bog	271148	193847	0	0.00	-0.50	Yes
E25	E25 Crymlyn Bog	270537	193669	0	0.00	-0.53	Yes
E26	E26 Crymlyn Bog	268207	193203	0	0.00	-0.52	Yes
E27	E27 Unnamed Ancient Woodland	278654	186618	0	-0.01	-3.06	Yes

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4 Nitrogen Deposition (keq/ha/yr)	S5 – S4 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E28	E28 Unnamed Ancient Woodland	278959	186629	0	-0.02	-2.71	Yes
E29	E29 Unnamed Ancient Woodland	279486	186354	0	-0.02	-2.43	Yes
E30	E30 Unnamed Ancient Woodland	279716	186123	0	-0.02	-2.46	Yes
E31	E31 Unnamed Ancient Woodland	280228	185547	0	-0.02	-2.20	Yes
E32	E32 Unnamed Ancient Woodland	280266	185669	0	-0.02	-2.22	Yes
E33	E33 Unnamed Ancient Woodland	279353	186567	0	-0.01	-2.36	Yes
E34	E34 Unnamed Ancient Woodland	279215	186696	0	-0.01	-2.37	Yes
E35	E35 Unnamed Ancient Woodland	279167	186779	0	-0.01	-2.35	Yes
E36	E36 Unnamed Ancient Woodland	279171	186813	0	-0.01	-2.32	Yes
E37	E37 Unnamed Ancient Woodland	279073	186908	0	-0.01	-2.30	Yes
E38	E38 Unnamed Ancient Woodland	278973	187505	0	-0.01	-2.12	Yes
E39	E39 Unnamed Ancient Woodland	278982	187276	0	-0.01	-2.13	Yes
E40	E40 Unnamed Ancient Woodland	278958	187625	0	-0.01	-2.18	Yes

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4 Nitrogen Deposition (keq/ha/yr)	S5 – S4 Sulphur Deposition (keq/ha/yr)	Overall reduction with Development? (Y/N)
E41	E41 Unnamed Ancient Woodland	277867	188475	0	-0.02	-3.06	Yes
E42	E42 Unnamed Ancient Woodland	277958	188412	0	-0.02	-3.03	Yes
E43	E43 Eglwys Nunydd	279181	185826	0	-0.01	-3.33	Yes
E44	E44 Eglwys Nunydd	278929	185677	0	-0.01	-3.55	Yes
E45	E45 Eglwys Nunydd	278768	185405	0	-0.01	-3.12	Yes
E46	E46 Eglwys Nunydd	279236	184084	0	0.00	-1.45	Yes
E47	E47 Margam Country Park	280113	185600	0	-0.01	-2.38	Yes
E48	E48 Margam Country Park	280381	185503	0	-0.01	-2.15	Yes
E49	E49 Margam Country Park	281283	184909	0	-0.01	-1.45	Yes
E50	E50 Margam Country Park	281594	184546	0	-0.01	-1.22	Yes
E51	E51 Unnamed Ancient Woodland	279743	186141	0	-0.02	-2.42	Yes
E52	E52 Unnamed Ancient Woodland	279683	186182	0	-0.02	-2.42	Yes
E53	E53 Unnamed Ancient Woodland	279837	186331	0	-0.02	-2.21	Yes
E54	E54 Unnamed Ancient Woodland	278952	187363	0	-0.01	-2.13	Yes
E55	E55 NPT Watercourse	274727	188533	0	-0.01	-1.55	Yes

Appendix 6.7 – Interim Scenarios Results

6.1.93 The section below details the results of the comparisons between the following scenarios:

- Scenario 2a (S2a) – Bespoke Interim Baseline for Construction (2025);
- Scenario 3 (S3) – Future Construction With Development (2025);
- Scenario 4a (S4a) – Bespoke Interim Baseline for Operational (2027);
- Scenario 4b (S4b) – Bespoke Interim Baseline for Operation Without Cumulative Development (2027); and
- Scenario 5 (S5) – Future Operational With Development (2027);

6.1.94 Results showing comparisons of the annual and hourly mean NO₂; annual and daily mean PM₁₀; annual mean PM_{2.5}; hourly, 15-minute and 24-hour mean SO₂; maximum rolling 8-hour and maximum hourly CO; annual mean B[a]P; annual mean Pb; 1-hour mean and 24-hour mean Hg; 24-hour Cr; and annual mean dioxin and furans for Scenario 2a (Bespoke Interim Baseline for Construction), Scenario 3 (Future Construction With Development) Scenario 4a (Bespoke Interim Baseline for Operational) against Scenario 5 (Future Operational With Development) at human receptors are located in **Table 6.44** to **Table 6.55**.

6.1.95 Concentrations of NO₂, PM₁₀ and PM_{2.5} increase between S2a and S3; and S4a and S5. As expected, concentrations of the pollutants generated from road traffic (NO₂, PM₁₀ and PM_{2.5}) were greater in S3 than S2a. Indeed, at any of the assessed human receptors, annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} increased by a maximum of 2.2%, 0.6% and 0.7% relative to the AQT respectively. Greater increases (of up to 17%) were expected due to increases in hourly mean NO₂ concentrations; and small increases (up to 0.09%) were expected in 24-hour mean PM₁₀ concentrations, each relative to the AQT. This is represented in **Table 6.44** to **Table 6.48**.

6.1.96 During the operation phase, between S4a and S5, annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} increased by a maximum of 2.20%, 0.6% and 0.7% relative to the AQT respectively, as shown in **Tables 6.44**, **6.46** and **6.48**.

6.1.97 **Table 6.56** to **Table 6.65** present the annual mean NO_x, daily mean NO_x, annual mean NH₃ concentrations; and nutrient nitrogen and acid deposition, between S2a and S3. The annual mean SO₂ concentration change would be zero, as the difference between these scenarios is attributable to road traffic.

6.1.98 In place of the annual mean NH₃, they also show the annual mean SO₂ concentrations, in S4a and S5. This is because the traffic attributable to the Site does not differ between S4a and S5, so NH₃ concentrations would not change.

6.1.99 As is expected due to the introduction of construction traffic or the EAF once operational, concentrations otherwise increased between the scenarios.

6.1.100 Moreover, the results of the In-Combination Scenario modelling (S4b, which only used 2023 meteorological data for the purposes of completing a sensitivity test) is presented in **Table 6.66** to **Table 6.71**. As expected, concentrations increased between the scenarios.

Table 6.44: Comparison of annual mean NO₂ concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025) and S4a – Bespoke Interim Baseline for Operational (2025), with scenarios S3 – Future Construction with Development (2025) and S5 – Future Operational with Development (2027)

Receptor ID	Annual mean NO ₂ concentration by scenario (µg/m ³)					
	S2a	S3	% difference between S2a and S3	S4a	S5	% difference between S4a and S5
R1	13.13	13.16	0.23	11.99	12.03	0.33
R2	12.81	12.85	0.31	11.73	11.76	0.26
R3	19.09	19.11	0.10	17.26	17.34	0.46
R4	18.01	18.02	0.06	16.44	16.59	0.90
R5	8.37	8.38	0.12	8.02	8.09	0.87
R6	17.19	17.26	0.41	15.84	15.89	0.31
R7	18.60	18.63	0.16	16.94	16.98	0.24
R8	14.96	14.97	0.07	13.40	13.44	0.30
R9	22.22	22.23	0.04	19.74	19.78	0.20
R10	29.30	29.32	0.07	28.11	28.27	0.57
R11	15.82	15.85	0.19	14.79	14.97	1.20
R12	15.95	16.02	0.44	14.85	15.04	1.26
R13	13.57	13.62	0.37	12.31	12.35	0.32
R14	17.63	17.66	0.17	16.08	16.21	0.80
R15	25.10	25.14	0.16	21.87	22.00	0.59
R16	22.34	22.37	0.13	19.71	19.84	0.66
R17	19.84	19.86	0.10	17.88	18.04	0.89
R18	22.10	22.12	0.09	19.63	19.78	0.76
R19	18.16	18.22	0.33	15.98	16.02	0.25
R20	25.89	25.92	0.12	22.01	22.04	0.14
R21	27.74	27.75	0.04	23.41	23.45	0.17

Receptor ID	Annual mean NO ₂ concentration by scenario (µg/m ³)					
	S2a	S3	% difference between S2a and S3	S4a	S5	% difference between S4a and S5
R22	23.13	23.14	0.04	19.76	19.80	0.20
R23	17.81	17.83	0.11	16.30	16.45	0.91
R24	16.92	16.93	0.06	15.60	15.76	1.02

Table 6.45: Comparison of short-term NO₂ concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025) and S4a – Bespoke Interim Baseline for Operational (2027), with scenarios S3 – Future Construction With Development (2025) and S5 – Future Operational With Development (2027)

Receptor ID	Hourly mean NO ₂ concentration by scenario (µg/m ³)			
	S2a	S3	S4a	S5
R1	13.13	28.11	11.99	26.88
R2	12.81	28.52	11.72	26.93
R3	19.10	40.60	17.27	37.69
R4	18.01	39.45	16.44	37.06
R5	8.37	17.73	8.02	17.96
R6	17.19	36.10	15.84	34.30
R7	18.60	38.58	16.94	36.31
R8	14.96	31.36	13.40	29.49
R9	22.22	45.89	19.74	41.84
R10	29.30	61.28	28.12	60.44
R11	15.83	34.76	14.80	33.71
R12	15.95	36.85	14.85	34.43
R13	13.58	28.70	12.31	27.14
R14	17.63	37.46	16.08	35.64
R15	25.10	52.41	21.86	47.33

Receptor ID	Hourly mean NO ₂ concentration by scenario (µg/m ³)			
	S2a	S3	S4a	S5
R16	22.34	46.90	19.71	43.27
R17	19.84	42.66	17.89	40.15
R18	22.10	47.14	19.64	43.79
R19	18.16	37.83	15.98	34.28
R20	25.89	52.99	22.01	46.21
R21	27.74	57.04	23.41	49.46
R22	23.13	47.88	19.76	42.26
R23	17.82	38.57	16.31	36.86
R24	16.92	36.80	15.61	35.31
P1	11.10	23.46	10.36	22.63
P2	14.18	30.07	12.80	28.40
P3	16.49	36.31	15.27	34.64
P4	18.73	39.04	16.33	35.28
P5	17.66	37.63	16.16	35.54
P6	9.35	20.50	8.70	20.83
P7	8.93	19.12	8.45	18.79
P8	15.74	33.34	13.98	30.85
P9	15.94	35.27	14.86	33.86
P10	18.95	39.52	16.50	35.64
P11	18.90	40.19	17.12	37.38
P12	26.01	54.15	22.57	48.74

Table 6. 46: Comparison of annual mean PM₁₀ concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025) and S4a – Bespoke Interim Baseline for Operational (2025), with scenarios S3 – Future Construction With Development (2025) and S5 – Future Operational With Development (2027)

Receptor ID	Annual mean PM ₁₀ concentration by scenario (µg/m ³)					
	S2a	S3	% difference between S2a and S3	S4a	S5	% difference between S4a and S5
R1	13.23	13.23	<0.01	13.20	13.21	0.08
R2	13.13	13.14	0.08	13.11	13.12	0.08
R3	15.18	15.19	0.07	15.14	15.17	0.20
R4	14.50	14.51	0.07	14.48	14.53	0.34
R5	10.51	10.51	<0.01	10.50	10.52	0.19
R6	13.64	13.66	0.15	13.63	13.64	0.07
R7	14.20	14.20	<0.01	14.18	14.19	0.07
R8	13.52	13.52	<0.01	13.50	13.51	0.07
R9	15.50	15.50	<0.01	15.46	15.47	0.06
R10	16.93	16.94	0.06	16.89	16.94	0.30
R11	14.14	14.14	<0.01	14.12	14.17	0.35
R12	14.23	14.26	0.21	14.19	14.27	0.56
R13	13.38	13.40	0.15	13.35	13.36	0.07
R14	14.61	14.62	0.07	14.58	14.63	0.34
R15	15.65	15.66	0.06	15.59	15.63	0.26
R16	14.83	14.84	0.07	14.79	14.83	0.27
R17	15.09	15.10	0.07	15.06	15.10	0.26
R18	15.61	15.62	0.06	15.57	15.62	0.32
R19	14.78	14.81	0.20	14.74	14.75	0.07
R20	15.84	15.85	0.06	15.79	15.80	0.06

Receptor ID	Annual mean PM ₁₀ concentration by scenario (µg/m³)					
	S2a	S3	% difference between S2a and S3	S4a	S5	% difference between S4a and S5
R21	16.14	16.15	0.06	16.11	16.12	0.06
R22	15.16	15.17	0.07	15.14	15.14	<0.01
R23	14.56	14.56	<0.01	14.54	14.58	0.27
R24	14.33	14.33	<0.01	14.31	14.36	0.35

Table 6. 47: Comparison of short-term PM₁₀ concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025) and S4a – Bespoke Interim Baseline for Operational (2025), with scenarios S3 – Future Construction With Development (2025) and S5 – Future Operational With Development (2027)

Receptor ID	Daily mean PM ₁₀ concentration by scenario (µg/m³)			
	S2a	S3	S4a	S5
R1	26.47	26.48	26.42	26.44
R2	26.28	26.30	26.23	26.27
R3	30.39	30.40	30.31	30.36
R4	29.05	29.05	29.01	29.15
R5	21.04	21.04	21.02	21.08
R6	27.29	27.34	27.28	27.32
R7	28.40	28.42	28.38	28.41
R8	27.04	27.05	27.01	27.04
R9	31.01	31.02	30.94	30.97
R10	33.93	33.95	33.86	33.96
R11	28.35	28.36	28.31	28.40
R12	28.53	28.57	28.45	28.61
R13	26.79	26.82	26.72	26.75

Receptor ID	Daily mean PM ₁₀ concentration by scenario (µg/m ³)			
	S2a	S3	S4a	S5
R14	29.50	29.52	29.45	29.61
R15	31.47	31.49	31.35	31.44
R16	29.83	29.85	29.73	29.81
R17	30.25	30.26	30.18	30.27
R18	31.28	31.29	31.20	31.28
R19	29.58	29.63	29.49	29.52
R20	31.68	31.71	31.59	31.62
R21	32.30	32.30	32.24	32.26
R22	30.34	30.34	30.28	30.31
R23	29.17	29.17	29.12	29.25
R24	28.71	28.72	28.67	28.81
P1	24.97	24.97	24.96	24.99
P2	26.74	26.75	26.71	26.74
P3	28.80	28.82	28.76	28.90
P4	28.94	28.94	28.90	28.93
P5	29.34	29.34	29.28	29.33
P6	21.57	21.58	21.54	21.63
P7	22.95	22.95	22.93	22.97
P8	28.24	28.25	28.15	28.18
P9	28.46	28.47	28.42	28.57
P10	28.77	28.77	28.73	28.75
P11	30.25	30.26	30.17	30.22
P12	32.05	32.07	31.91	31.99

Table 6.48: Comparison of annual mean PM_{2.5} concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025) and S4a – Bespoke Interim Baseline for Operational (2025), with scenarios S3 – Future Construction With Development (2025) and S5 – Future Operational With Development (2027)

Receptor ID	Annual mean PM _{2.5} concentration by scenario (µg/m³)					
	S2a	S3	% difference between S2a and S3	S4a	S5	% difference between S4a and S5
R1	7.95	7.96	0.13	7.94	7.95	0.13
R2	7.90	7.91	0.13	7.89	7.90	0.13
R3	9.39	9.39	<0.01	9.36	9.38	0.21
R4	9.06	9.06	<0.01	9.04	9.09	0.55
R5	6.43	6.44	0.16	6.43	6.45	0.31
R6	8.05	8.07	0.25	8.06	8.07	0.12
R7	8.36	8.36	<0.01	8.36	8.37	0.12
R8	8.47	8.47	<0.01	8.45	8.46	0.12
R9	9.04	9.04	<0.01	9.02	9.03	0.11
R10	10.41	10.42	0.10	10.38	10.43	0.48
R11	8.84	8.85	0.11	8.83	8.88	0.56
R12	8.88	8.90	0.22	8.86	8.93	0.78
R13	8.03	8.04	0.12	8.01	8.02	0.12
R14	9.33	9.34	0.11	9.31	9.36	0.53
R15	9.47	9.48	0.11	9.42	9.47	0.53
R16	9.03	9.03	<0.01	8.99	9.03	0.44
R17	9.37	9.37	<0.01	9.34	9.39	0.53
R18	9.66	9.66	<0.01	9.62	9.67	0.52
R19	9.06	9.07	0.11	9.03	9.04	0.11
R20	9.76	9.77	0.10	9.72	9.72	<0.01

Receptor ID	Annual mean PM _{2.5} concentration by scenario (µg/m³)					
	S2a	S3	% difference between S2a and S3	S4a	S5	% difference between S4a and S5
R21	10.02	10.02	<0.01	9.97	9.98	0.10
R22	9.44	9.44	<0.01	9.41	9.41	<0.01
R23	9.08	9.08	<0.01	9.06	9.11	0.55
R24	8.95	8.95	<0.01	8.94	8.99	0.56

Table 6.49: Comparison of short-term SO₂ concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	Hourly mean SO ₂ concentration by scenario (µg/m³)		
	Background	S2a, S3 & S4a	S5
R1	1.81	5.68	16.51
R2	1.81	5.47	18.57
R3	1.81	4.66	29.45
R4	1.81	4.29	24.30
R5	1.81	4.86	15.31
R6	1.81	5.44	16.64
R7	1.81	5.42	16.51
R8	1.81	5.09	15.06
R9	1.81	5.02	15.67
R10	1.81	4.20	23.39
R11	1.81	4.50	26.41
R12	1.81	4.76	35.57
R13	1.81	6.24	16.51

R14	1.81	4.09	25.02
R15	1.81	4.01	23.62
R16	1.81	4.02	23.61
R17	1.81	4.27	21.67
R18	1.81	4.25	21.66
R19	1.81	4.99	15.15
R20	1.81	4.66	15.10
R21	1.81	4.85	14.27
R22	1.81	4.74	14.32
R23	1.81	4.30	23.44
R24	1.81	4.36	25.43
P1	1.81	4.70	12.56
P2	1.81	5.32	15.06
P3	1.81	4.57	31.34
P4	1.81	4.65	13.99
P5	1.81	4.63	29.01
P6	1.81	4.02	21.56
P7	1.81	4.75	12.42
P8	1.81	5.73	15.44
P9	1.81	4.60	32.81
P10	1.81	4.68	14.01
P11	1.81	4.66	29.37
P12	1.81	4.00	23.62
Receptor ID	15-minute mean SO ₂ concentration by scenario (µg/m ³)		
	Background	S2a, S3 & S4a	S5
R1	1.81	6.30	29.11
R2	1.81	6.64	27.70

R3	1.81	5.39	34.09
R4	1.81	4.89	34.70
R5	1.81	5.43	22.20
R6	1.81	7.09	27.00
R7	1.81	6.01	27.61
R8	1.81	5.70	26.14
R9	1.81	5.56	25.42
R10	1.81	4.97	41.46
R11	1.81	5.21	39.71
R12	1.81	5.46	40.59
R13	1.81	7.39	30.04
R14	1.81	4.48	39.25
R15	1.81	4.39	35.79
R16	1.81	4.39	35.89
R17	1.81	4.96	38.46
R18	1.81	4.80	36.29
R19	1.81	5.85	25.16
R20	1.81	5.10	25.52
R21	1.81	5.37	25.55
R22	1.81	5.21	26.03
R23	1.81	4.86	35.68
R24	1.81	4.96	36.52
P1	1.81	5.47	19.36
P2	1.81	5.99	28.11
P3	1.81	5.25	36.10
P4	1.81	5.10	26.02
P5	1.81	5.39	33.67

P6	1.81	4.50	33.00
P7	1.81	5.71	19.22
P8	1.81	6.74	27.10
P9	1.81	5.26	38.15
P10	1.81	5.19	26.18
P11	1.81	5.39	34.01
P12	1.81	4.39	35.48
Receptor ID	Daily mean SO ₂ concentration by scenario (µg/m³)		
	Background	S2(a0, S3 & S4a	S5
R1	1.81	4.81	6.79
R2	1.81	4.44	7.03
R3	1.81	4.11	11.02
R4	1.81	3.84	13.82
R5	1.81	4.31	7.02
R6	1.81	4.20	6.71
R7	1.81	4.24	5.97
R8	1.81	4.20	6.10
R9	1.81	3.99	6.30
R10	1.81	3.80	11.72
R11	1.81	3.87	16.29
R12	1.81	3.94	18.23
R13	1.81	4.96	6.44
R14	1.81	3.75	10.59
R15	1.81	3.73	10.14

R16	1.81	3.73	10.40
R17	1.81	3.82	13.18
R18	1.81	3.83	13.54
R19	1.81	3.97	6.31
R20	1.81	3.87	5.92
R21	1.81	4.08	5.99
R22	1.81	4.04	6.07
R23	1.81	3.84	13.31
R24	1.81	3.85	14.55
P1	1.81	4.07	6.53
P2	1.81	4.29	6.28
P3	1.81	3.94	16.86
P4	1.81	4.01	6.09
P5	1.81	4.10	10.88
P6	1.81	3.71	9.23
P7	1.81	4.12	6.68
P8	1.81	4.58	6.37
P9	1.81	3.96	18.23
P10	1.81	4.02	6.10
P11	1.81	4.11	11.00
P12	1.81	3.73	10.13

Table 6.50: Comparison of short-term CO concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	Maximum Rolling 8-hour CO concentration by scenario (mg/m ³)		
	Background	S2a, S3 & S4a	S5
R1	0.20	0.41	0.44
R2	0.20	0.41	0.45
R3	0.20	0.41	0.48
R4	0.20	0.41	0.47
R5	0.20	0.41	0.43
R6	0.20	0.41	0.43
R7	0.20	0.41	0.44
R8	0.20	0.41	0.44
R9	0.20	0.41	0.43
R10	0.20	0.41	0.46
R11	0.20	0.41	0.47
R12	0.20	0.41	0.50
R13	0.20	0.41	0.44
R14	0.20	0.41	0.45
R15	0.20	0.41	0.45
R16	0.20	0.41	0.45
R17	0.20	0.41	0.45
R18	0.20	0.41	0.46
R19	0.20	0.41	0.43

R20	0.20	0.41	0.43
R21	0.20	0.41	0.44
R22	0.20	0.41	0.44
R23	0.20	0.41	0.46
R24	0.20	0.41	0.47
P1	0.20	0.41	0.43
P2	0.20	0.41	0.44
P3	0.20	0.41	0.49
P4	0.20	0.41	0.44
P5	0.20	0.41	0.47
P6	0.20	0.41	0.45
P7	0.20	0.41	0.43
P8	0.20	0.41	0.44
P9	0.20	0.41	0.49
P10	0.20	0.41	0.44
P11	0.20	0.41	0.48
P12	0.20	0.41	0.45
Receptor ID	Maximum Hourly CO concentration by scenario (mg/m³)		
	Background	S2a, S3 & S4a	S5
R1	0.20	0.41	0.51
R2	0.20	0.41	0.60
R3	0.20	0.41	0.60
R4	0.20	0.41	0.64
R5	0.20	0.41	0.49

R6	0.20	0.41	0.51
R7	0.20	0.41	0.52
R8	0.20	0.42	0.51
R9	0.20	0.41	0.50
R10	0.20	0.41	0.57
R11	0.20	0.41	0.58
R12	0.20	0.41	0.61
R13	0.20	0.41	0.51
R14	0.20	0.41	0.54
R15	0.20	0.41	0.51
R16	0.20	0.41	0.52
R17	0.20	0.41	0.62
R18	0.20	0.41	0.64
R19	0.20	0.41	0.50
R20	0.20	0.41	0.49
R21	0.20	0.42	0.51
R22	0.20	0.42	0.50
R23	0.20	0.41	0.60
R24	0.20	0.41	0.63
P1	0.20	0.41	0.48
P2	0.20	0.42	0.50
P3	0.20	0.41	0.60
P4	0.20	0.42	0.50
P5	0.20	0.41	0.60
P6	0.20	0.41	0.51
P7	0.20	0.41	0.48
P8	0.20	0.42	0.51

P9	0.20	0.41	0.60
P10	0.20	0.42	0.50
P11	0.20	0.41	0.60
P12	0.20	0.41	0.51

Table 6.51: Comparison of annual mean B[a]P concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	Annual mean B[a]P concentration (ng/m ³)		
	S2a, S3 & S4a	S5	Background
R1	0.62	0.63	0.62
R2	0.62	0.63	0.62
R3	0.62	0.64	0.62
R4	0.62	0.66	0.62
R5	0.62	0.63	0.62
R6	0.62	0.63	0.62
R7	0.62	0.63	0.62
R8	0.62	0.63	0.62
R9	0.62	0.63	0.62
R10	0.62	0.66	0.62
R11	0.62	0.66	0.62
R12	0.62	0.68	0.62
R13	0.62	0.63	0.62

Receptor ID	Annual mean B[a]P concentration (ng/m³)		
	S2a, S3 & S4a	S5	Background
R14	0.62	0.66	0.62
R15	0.62	0.65	0.62
R16	0.62	0.65	0.62
R17	0.62	0.66	0.62
R18	0.62	0.66	0.62
R19	0.62	0.63	0.62
R20	0.62	0.63	0.62
R21	0.62	0.63	0.62
R22	0.62	0.63	0.62
R23	0.62	0.66	0.62
R24	0.62	0.66	0.62

Table 6.52: Comparison of annual mean lead concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	Annual mean lead concentration (ng/m³)		
	S2a, S3 & S4a	S5	Background
R1	7.93	7.96	7.84
R2	7.96	8.00	7.84

Receptor ID	Annual mean lead concentration (ng/m ³)		
	S2a, S3 & S4a	S5	Background
R3	8.01	8.06	7.84
R4	8.10	8.24	7.84
R5	7.90	7.96	7.84
R6	7.90	7.93	7.84
R7	7.90	7.93	7.84
R8	7.91	7.94	7.84
R9	7.89	7.92	7.84
R10	8.47	8.61	7.84
R11	8.30	8.48	7.84
R12	8.21	8.41	7.84
R13	7.92	7.95	7.84
R14	23.81	23.98	7.84
R15	11.10	11.26	7.84
R16	10.89	11.06	7.84
R17	8.31	8.44	7.84
R18	8.24	8.35	7.84
R19	7.89	7.92	7.84
R20	7.88	7.91	7.84
R21	7.91	7.93	7.84
R22	7.90	7.93	7.84
R23	8.19	8.30	7.84
R24	8.13	8.27	7.84

Table 6.53: Comparison of short-term mercury concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	1-hour mean mercury concentration (ng/m ³)			24-hour mean mercury concentration (ng/m ³)		
	S2a, S3 & S4a	S5	Background	S2a, S3 & S4a	S5	Background
R1	3.72	5.5	1.86	3.72	3.95	1.86
R2	3.72	6.99	1.86	3.72	4.01	1.86
R3	3.72	7	1.86	3.72	4.19	1.86
R4	3.72	7.68	1.86	3.72	4.31	1.86
R5	3.72	5.15	1.86	3.72	3.96	1.86
R6	3.72	5.38	1.86	3.72	3.92	1.86
R7	3.72	5.66	1.86	3.72	3.91	1.86
R8	3.72	5.45	1.86	3.72	3.9	1.86
R9	3.72	5.21	1.86	3.72	3.89	1.86
R10	3.72	6.42	1.86	3.72	4.23	1.86
R11	3.72	6.67	1.86	3.72	4.44	1.86
R12	3.72	7.06	1.86	3.72	4.77	1.86
R13	3.72	5.41	1.86	3.72	3.9	1.86
R14	3.72	5.92	1.86	3.72	4.2	1.86
R15	3.72	5.53	1.86	3.72	4.11	1.86
R16	3.72	5.63	1.86	3.72	4.11	1.86
R17	3.72	7.25	1.86	3.72	4.27	1.86
R18	3.72	7.59	1.86	3.72	4.27	1.86
R19	3.72	5.26	1.86	3.72	3.88	1.86
R20	3.72	5.09	1.86	3.72	3.88	1.86
R21	3.72	5.45	1.86	3.72	3.89	1.86
R22	3.72	5.36	1.86	3.72	3.89	1.86
R23	3.72	6.95	1.86	3.72	4.36	1.86
R24	3.72	7.55	1.86	3.72	4.35	1.86

P1	3.72	4.94	1.86	3.72	3.9	1.86
P2	3.72	5.38	1.86	3.72	3.9	1.86
P3	3.72	6.98	1.86	3.72	4.56	1.86
P4	3.72	5.36	1.86	3.72	3.89	1.86
P5	3.72	7.04	1.86	3.72	4.18	1.86
P6	3.72	5.44	1.86	3.72	4.06	1.86
P7	3.72	4.98	1.86	3.72	3.91	1.86
P8	3.72	5.42	1.86	3.72	3.9	1.86
P9	3.72	7.01	1.86	3.72	4.66	1.86
P10	3.72	5.36	1.86	3.72	3.89	1.86
P11	3.72	7	1.86	3.72	4.19	1.86
P12	3.72	5.54	1.86	3.72	4.11	1.86

Table 6. 54: Comparison of daily mean chromium concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	24-hour mean chromium concentration (ng/m³)		
	S2a, S3 & S4a	S5	Background
R1	23.46	23.46	3.88
R2	27.13	27.13	3.88
R3	39.03	39.03	3.88
R4	64.38	64.38	3.88
R5	22.70	22.74	3.88
R6	21.04	21.04	3.88
R7	19.29	19.29	3.88

Receptor ID	24-hour mean chromium concentration (ng/m ³)		
	S2a, S3 & S4a	S5	Background
R8	19.52	19.52	3.88
R9	17.90	17.90	3.88
R10	121.79	121.79	3.88
R11	83.30	83.30	3.88
R12	78.90	78.90	3.88
R13	22.37	22.37	3.88
R14	882.42	882.42	3.88
R15	256.91	257.00	3.88
R16	246.91	246.91	3.88
R17	95.58	95.58	3.88
R18	83.70	83.70	3.88
R19	17.08	17.08	3.88
R20	16.17	16.17	3.88
R21	19.10	19.13	3.88
R22	18.97	19.00	3.88
R23	75.03	75.03	3.88
R24	66.90	66.90	3.88
P1	18.45	18.46	3.88
P2	20.48	20.48	3.88
P3	57.69	57.69	3.88
P4	18.72	18.76	3.88
P5	38.82	38.82	3.88

Receptor ID	24-hour mean chromium concentration (ng/m³)		
	S2a, S3 & S4a	S5	Background
P6	128.73	128.74	3.88
P7	18.71	18.71	3.88
P8	21.85	21.86	3.88
P9	56.08	56.08	3.88
P10	18.85	18.88	3.88
P11	38.93	38.93	3.88
P12	241.68	241.76	3.88

Table 6. 55: Comparison of annual mean dioxin and furans concentrations between interim scenarios S2a – Bespoke Interim Baseline for Construction (2025), S4a – Bespoke Interim Baseline for Operational (2025) and S3 – Future Construction With Development (2025) with scenario S5 – Future Operational With Development (2027)

Receptor ID	Annual mean dioxin concentration (ng/m³)	
	S2a, S3 & S4a	S5
R1	0.00000000	0.00000015
R2	0.00000000	0.00000019
R3	0.00000000	0.00000043
R4	0.00000000	0.00000097
R5	0.00000000	0.00000030
R6	0.00000000	0.00000019

Receptor ID	Annual mean dioxin concentration (ng/m³)	
	S2a, S3 & S4a	S5
R7	0.00000000	0.00000014
R8	0.00000000	0.00000014
R9	0.00000000	0.00000017
R10	0.00000000	0.00000097
R11	0.00000000	0.00000116
R12	0.00000000	0.00000148
R13	0.00000000	0.00000015
R14	0.00000000	0.00000089
R15	0.00000000	0.00000083
R16	0.00000000	0.00000084
R17	0.00000000	0.00000093
R18	0.00000000	0.00000091
R19	0.00000000	0.00000016
R20	0.00000000	0.00000013
R21	0.00000000	0.00000013
R22	0.00000000	0.00000013
R23	0.00000000	0.00000094
R24	0.00000000	0.00000101
P1	0.00000000	0.00000021
P2	0.00000000	0.00000014
P3	0.00000000	0.00000128
P4	0.00000000	0.00000013

Receptor ID	Annual mean dioxin concentration (ng/m³)	
	S2a, S3 & S4a	S5
P5	0.00000000	0.00000043
P6	0.00000000	0.00000074
P7	0.00000000	0.00000021
P8	0.00000000	0.00000014
P9	0.00000000	0.00000135
P10	0.00000000	0.00000013
P11	0.00000000	0.00000043
P12	0.00000000	0.00000083

Table 6.56: Comparison of annual mean NOx between S2a – Bespoke Interim Baseline for Construction (2025) and S3 – Future Construction with Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	9.90	11.27	11.28	30	0.02
E2	E2 Margam Moors	277997	185011	0	7.95	8.98	8.98	30	0.01
E3	E3 Margam Moors	277571	184676	0	6.96	7.80	7.80	30	0.01
E4	E4 Eglwys Nunydd	279360	185703	0	12.81	16.79	16.81	30	0.07

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E5	E5 Eglwys Nunydd	278971	185332	0	9.90	11.83	11.84	30	0.02
E6	E6 Eglwys Nunydd	279152	184601	0	10.20	11.71	11.71	30	0.01
E7	E7 Eglwys Nunydd	279347	184181	0	10.20	11.70	11.70	30	0.01
E8	E8 Kenfig/Cynffig	278911	183412	0	6.82	7.90	7.91	30	0.01
E9	E9 Kenfig/Cynffig	278578	183294	0	6.82	7.69	7.70	30	0.01
E10	E10 Kenfig/Cynffig	277947	183429	0	6.30	7.02	7.03	30	0.01
E11	E11 Kenfig/Cynffig	277366	183205	0	6.30	6.92	6.92	30	0.01
E12	E12 Kenfig/Cynffig	280023	182746	0	11.54	14.17	14.17	30	0.01
E13	E13 Kenfig/Cynffig	280246	182907	0	11.54	17.75	17.75	30	0.01
E14	E14 Junction 38 Wetland Comple	279049	186481	0	17.34	23.52	23.63	30	0.38
E15	E15 Junction 38 Wetland Comple	278474	186441	0	24.33	32.50	32.53	30	0.09
E16	E16 Junction 38 Wetland Comple	278507	186263	0	24.33	29.68	29.70	30	0.06
E17	E17 Junction 38 Wetland Comple	278578	186056	0	24.33	26.65	26.67	30	0.04
E18	E18 Kenfig/Cynffig	283734	177209	0	8.27	8.50	8.50	30	0.00
E19	E19 Kenfig/Cynffig	284363	177536	0	6.73	6.96	6.96	30	0.00
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	9.66	10.26	10.26	30	0.00
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	13.19	13.61	13.61	30	0.00
E22	E22 Crymlyn Bog	272000	194540	0	13.95	14.37	14.37	30	0.00
E23	E23 Crymlyn Bog	271205	193885	0	10.19	10.66	10.66	30	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E24	E24 Crymlyn Bog	271148	193847	0	10.19	10.66	10.66	30	0.00
E25	E25 Crymlyn Bog	270537	193669	0	9.73	10.14	10.14	30	0.00
E26	E26 Crymlyn Bog	268207	193203	0	12.81	13.11	13.11	30	0.00
E27	E27 Unnamed Ancient Woodland	278654	186618	0	24.33	30.00	30.19	30	0.64
E28	E28 Unnamed Ancient Woodland	278959	186629	0	24.33	31.26	31.43	30	0.58
E29	E29 Unnamed Ancient Woodland	279486	186354	0	17.34	48.09	48.23	30	0.49
E30	E30 Unnamed Ancient Woodland	279716	186123	0	17.34	34.65	34.72	30	0.23
E31	E31 Unnamed Ancient Woodland	280228	185547	0	9.35	15.10	15.12	30	0.07
E32	E32 Unnamed Ancient Woodland	280266	185669	0	9.35	12.73	12.75	30	0.05
E33	E33 Unnamed Ancient Woodland	279353	186567	0	17.34	58.42	58.50	30	0.26
E34	E34 Unnamed Ancient Woodland	279215	186696	0	17.34	46.34	46.49	30	0.52
E35	E35 Unnamed Ancient Woodland	279167	186779	0	17.34	46.05	46.16	30	0.38
E36	E36 Unnamed Ancient Woodland	279171	186813	0	17.34	74.86	74.93	30	0.23
E37	E37 Unnamed Ancient Woodland	279073	186908	0	17.34	40.90	41.02	30	0.38
E38	E38 Unnamed Ancient Woodland	278973	187505	0	17.47	25.20	25.21	30	0.03

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E39	E39 Unnamed Ancient Woodland	278982	187276	0	17.47	44.92	44.94	30	0.07
E40	E40 Unnamed Ancient Woodland	278958	187625	0	17.47	23.16	23.16	30	0.03
E41	E41 Unnamed Ancient Woodland	277867	188475	0	14.75	23.72	23.74	30	0.05
E42	E42 Unnamed Ancient Woodland	277958	188412	0	14.75	26.00	26.02	30	0.05
E43	E43 Eglwys Nunydd	279181	185826	0	12.81	18.34	18.36	30	0.06
E44	E44 Eglwys Nunydd	278929	185677	0	9.90	12.14	12.15	30	0.04
E45	E45 Eglwys Nunydd	278768	185405	0	9.90	11.72	11.72	30	0.02
E46	E46 Eglwys Nunydd	279236	184084	0	10.20	11.53	11.53	30	0.01
E47	E47 Margam Country Park	280113	185600	0	9.35	21.73	21.78	30	0.16
E48	E48 Margam Country Park	280381	185503	0	9.35	15.21	15.23	30	0.07
E49	E49 Margam Country Park	281283	184909	0	8.64	16.48	16.51	30	0.10
E50	E50 Margam Country Park	281594	184546	0	8.64	17.03	17.06	30	0.10
E51	E51 Unnamed Ancient Woodland	279743	186141	0	17.34	27.30	27.35	30	0.14
E52	E52 Unnamed Ancient Woodland	279683	186182	0	17.34	31.40	31.46	30	0.19
E53	E53 Unnamed Ancient Woodland	279837	186331	0	17.34	21.25	21.27	30	0.06

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E54	E54 Unnamed Ancient Woodland	278952	187363	0	17.47	39.29	39.31	30	0.06
E55	E55 NPT Watercourse	274727	188533	0	8.58	9.47	9.48	30	0.01

Table 6.57: Comparison of daily mean NOx between S2a – Bespoke Interim Baseline for Construction (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	19.80	25.17	25.18	200	0.0
E2	E2 Margam Moors	277997	185011	0	15.90	20.15	20.16	200	0.0
E3	E3 Margam Moors	277571	184676	0	13.92	17.38	17.39	200	0.0
E4	E4 Eglwys Nunydd	279360	185703	0	25.62	35.18	35.22	200	0.0
E5	E5 Eglwys Nunydd	278971	185332	0	19.80	26.02	26.03	200	0.0
E6	E6 Eglwys Nunydd	279152	184601	0	20.40	25.17	25.17	200	0.0
E7	E7 Eglwys Nunydd	279347	184181	0	20.40	24.89	24.90	200	0.0
E8	E8 Kenfig/Cynffig	278911	183412	0	13.64	17.17	17.17	200	0.0
E9	E9 Kenfig/Cynffig	278578	183294	0	13.64	16.76	16.76	200	0.0
E10	E10 Kenfig/Cynffig	277947	183429	0	12.60	15.16	15.17	200	0.0
E11	E11 Kenfig/Cynffig	277366	183205	0	12.60	14.87	14.87	200	0.0
E12	E12 Kenfig/Cynffig	280023	182746	0	23.08	29.35	29.36	200	0.0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E13	E13 Kenfig/Cynffig	280246	182907	0	23.08	36.69	36.69	200	0.0
E14	E14 Junction 38 Wetland Comple	279049	186481	0	34.68	49.81	50.04	200	0.1
E15	E15 Junction 38 Wetland Comple	278474	186441	0	48.66	205.30	205.36	200	0.0
E16	E16 Junction 38 Wetland Comple	278507	186263	0	48.66	212.74	212.77	200	0.0
E17	E17 Junction 38 Wetland Comple	278578	186056	0	48.66	62.93	62.96	200	0.0
E18	E18 Kenfig/Cynffig	283734	177209	0	16.54	17.63	17.63	200	0.0
E19	E19 Kenfig/Cynffig	284363	177536	0	13.46	14.57	14.57	200	0.0
E20	E20 Cefn Cribwr Grassslands	284078	182005	0	19.32	21.10	21.10	200	0.0
E21	E21 Cefn Cribwr Grassslands	285458	181900	0	26.38	27.75	27.75	200	0.0
E22	E22 Crymlyn Bog	272000	194540	0	27.90	29.28	29.28	200	0.0
E23	E23 Crymlyn Bog	271205	193885	0	20.38	21.97	21.98	200	0.0
E24	E24 Crymlyn Bog	271148	193847	0	20.38	21.97	21.97	200	0.0
E25	E25 Crymlyn Bog	270537	193669	0	19.46	21.00	21.00	200	0.0
E26	E26 Crymlyn Bog	268207	193203	0	25.62	26.84	26.84	200	0.0
E27	E27 Unnamed Ancient Woodland	278654	186618	0	48.66	62.95	63.34	200	0.2
E28	E28 Unnamed Ancient Woodland	278959	186629	0	48.66	65.15	65.50	200	0.2

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E29	E29 Unnamed Ancient Woodland	279486	186354	0	34.68	99.40	99.69	200	0.1
E30	E30 Unnamed Ancient Woodland	279716	186123	0	34.68	72.31	72.45	200	0.1
E31	E31 Unnamed Ancient Woodland	280228	185547	0	18.70	32.13	32.18	200	0.0
E32	E32 Unnamed Ancient Woodland	280266	185669	0	18.70	27.72	27.75	200	0.0
E33	E33 Unnamed Ancient Woodland	279353	186567	0	34.68	119.95	120.10	200	0.1
E34	E34 Unnamed Ancient Woodland	279215	186696	0	34.68	95.52	95.83	200	0.2
E35	E35 Unnamed Ancient Woodland	279167	186779	0	34.68	94.81	95.04	200	0.1
E36	E36 Unnamed Ancient Woodland	279171	186813	0	34.68	152.48	152.62	200	0.1
E37	E37 Unnamed Ancient Woodland	279073	186908	0	34.68	84.54	84.77	200	0.1
E38	E38 Unnamed Ancient Woodland	278973	187505	0	34.94	52.33	52.35	200	0.0
E39	E39 Unnamed Ancient Woodland	278982	187276	0	34.94	92.54	92.58	200	0.0
E40	E40 Unnamed Ancient Woodland	278958	187625	0	34.94	48.37	48.38	200	0.0
E41	E41 Unnamed Ancient Woodland	277867	188475	0	29.50	48.96	48.99	200	0.0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S2a (µg/m³)	S3 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E42	E42 Unnamed Ancient Woodland	277958	188412	0	29.50	53.97	54.00	200	0.0
E43	E43 Eglwys Nunydd	279181	185826	0	25.62	38.45	38.49	200	0.0
E44	E44 Eglwys Nunydd	278929	185677	0	19.80	26.61	26.63	200	0.0
E45	E45 Eglwys Nunydd	278768	185405	0	19.80	25.81	25.82	200	0.0
E46	E46 Eglwys Nunydd	279236	184084	0	20.40	24.34	24.34	200	0.0
E47	E47 Margam Country Park	280113	185600	0	18.70	45.45	45.55	200	0.0
E48	E48 Margam Country Park	280381	185503	0	18.70	32.33	32.38	200	0.0
E49	E49 Margam Country Park	281283	184909	0	17.28	34.16	34.22	200	0.0
E50	E50 Margam Country Park	281594	184546	0	17.28	34.91	34.97	200	0.0
E51	E51 Unnamed Ancient Woodland	279743	186141	0	34.68	57.64	57.73	200	0.0
E52	E52 Unnamed Ancient Woodland	279683	186182	0	34.68	65.89	66.00	200	0.1
E53	E53 Unnamed Ancient Woodland	279837	186331	0	34.68	45.53	45.56	200	0.0
E54	E54 Unnamed Ancient Woodland	278952	187363	0	34.94	81.03	81.06	200	0.0
E55	E55 NPT Watercourse	274727	188533	0	17.16	20.08	20.09	200	0.0

Table 6.58: Comparison of annual mean NH₃ between S2a – Bespoke Interim Baseline for Construction (2025) and S3 – Future Construction with Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2a (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	0.90	0.93	0.93	3	0.01
E2	E2 Margam Moors	277997	185011	0	0.89	0.92	0.92	3	0.01
E3	E3 Margam Moors	277571	184676	0	0.88	0.90	0.90	3	0.00
E4	E4 Eglwys Nunydd	279360	185703	0	0.89	1.00	1.00	3	0.02
E5	E5 Eglwys Nunydd	278971	185332	0	0.90	0.95	0.95	3	0.01
E6	E6 Eglwys Nunydd	279152	184601	0	0.91	0.95	0.95	3	0.00
E7	E7 Eglwys Nunydd	279347	184181	0	0.91	0.95	0.95	3	0.00
E8	E8 Kenfig/Cynffig	278911	183412	0	0.90	0.93	0.93	1	0.01
E9	E9 Kenfig/Cynffig	278578	183294	0	0.90	0.92	0.92	1	0.01
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.02	0.02	1	0.01
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.02	0.02	1	0.01
E12	E12 Kenfig/Cynffig	280023	182746	0	0.98	1.06	1.06	1	0.01
E13	E13 Kenfig/Cynffig	280246	182907	0	0.98	1.17	1.17	1	0.01
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.82	1.00	1.00	1	0.46
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.81	0.87	0.87	1	0.11
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.81	0.86	0.86	1	0.07
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.81	0.86	0.86	1	0.05

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2a (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E18	E18 Kenfig/Cynffig	283734	177209	0	0.89	0.90	0.90	1	0.00
E19	E19 Kenfig/Cynffig	284363	177536	0	0.93	0.94	0.94	1	0.00
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.24	1.26	1.26	1	0.00
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.22	1.23	1.23	1	0.00
E22	E22 Crymlyn Bog	272000	194540	0	0.89	0.90	0.90	1	0.00
E23	E23 Crymlyn Bog	271205	193885	0	0.88	0.89	0.89	1	0.00
E24	E24 Crymlyn Bog	271148	193847	0	0.88	0.89	0.89	1	0.00
E25	E25 Crymlyn Bog	270537	193669	0	0.89	0.90	0.90	1	0.00
E26	E26 Crymlyn Bog	268207	193203	0	0.92	0.93	0.93	1	0.00
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.81	0.97	0.98	1	0.79
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.81	1.02	1.02	1	0.70
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.82	1.73	1.74	1	0.81
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.82	1.29	1.29	1	0.22
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.89	1.06	1.06	1	0.07
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.89	0.99	0.99	1	0.05
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.82	2.05	2.06	1	0.37

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2a (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.82	1.71	1.72	1	0.69
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.82	1.70	1.71	1	0.54
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.82	2.56	2.57	1	0.42
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.82	1.54	1.55	1	0.53
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.71	0.94	0.94	1	0.05
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.71	1.54	1.54	1	0.15
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.71	0.88	0.88	1	0.04
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.57	0.84	0.84	1	0.07
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.57	0.91	0.91	1	0.08
E43	E43 Eglwys Nunydd	279181	185826	0	0.89	1.06	1.06	3	0.02
E44	E44 Eglwys Nunydd	278929	185677	0	0.90	0.95	0.96	3	0.01
E45	E45 Eglwys Nunydd	278768	185405	0	0.90	0.95	0.95	3	0.01
E46	E46 Eglwys Nunydd	279236	184084	0	0.91	0.95	0.95	3	0.00
E47	E47 Margam Country Park	280113	185600	0	0.89	1.27	1.27	1	0.15
E48	E48 Margam Country Park	280381	185503	0	0.89	1.06	1.07	1	0.07
E49	E49 Margam Country Park	281283	184909	0	0.96	1.20	1.20	1	0.09

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S2a (µg/m ³)	S3 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E50	E50 Margam Country Park	281594	184546	0	0.96	1.22	1.22	1	0.09
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.82	1.10	1.10	1	0.15
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.82	1.20	1.20	1	0.19
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.82	0.93	0.93	1	0.07
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.71	1.37	1.37	1	0.12
E55	E55 NPT Watercourse	274727	188533	0	0.00	0.02	0.02	3	0.00

Table 6.59: Comparison of nutrient nitrogen deposition between S2a – Bespoke Interim Baseline for Construction (2025) and S3 – Future Construction with Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2a (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E1	E1 Margam Moors	278509	185287	0	1.58	1.58	6	0.02
E2	E2 Margam Moors	277997	185011	0	1.19	1.20	6	0.01
E3	E3 Margam Moors	277571	184676	0	0.97	0.97	6	0.01
E8	E8 Kenfig/Cynffig	278911	183412	0	0.96	0.96	5	0.01
E9	E9 Kenfig/Cynffig	278578	183294	0	0.91	0.91	5	0.01

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2a (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E10	E10 Kenfig/Cynffig	277947	183429	0	0.84	0.84	5	0.01
E11	E11 Kenfig/Cynffig	277366	183205	0	0.81	0.82	5	0.01
E12	E12 Kenfig/Cynffig	280023	182746	0	1.83	1.83	5	0.01
E13	E13 Kenfig/Cynffig	280246	182907	0	2.68	2.68	5	0.01
E14	E14 Junction 38 Wetland Comple	279049	186481	0	6.31	6.36	10	0.53
E15	E15 Junction 38 Wetland Comple	278474	186441	0	4.68	4.68	5	0.14
E16	E16 Junction 38 Wetland Comple	278507	186263	0	4.36	4.36	5	0.10
E17	E17 Junction 38 Wetland Comple	278578	186056	0	4.04	4.04	5	0.05
E18	E18 Kenfig/Cynffig	283734	177209	0	0.86	0.86	5	0.00
E19	E19 Kenfig/Cynffig	284363	177536	0	0.72	0.72	5	0.00
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.06	1.06	5	0.00
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.41	1.41	5	0.00
E22	E22 Crymlyn Bog	272000	194540	0	1.50	1.50	5	0.00
E23	E23 Crymlyn Bog	271205	193885	0	1.11	1.11	5	0.00
E24	E24 Crymlyn Bog	271148	193847	0	1.11	1.11	5	0.00
E25	E25 Crymlyn Bog	270537	193669	0	1.05	1.05	5	0.00
E26	E26 Crymlyn Bog	268207	193203	0	1.36	1.36	5	0.00
E27	E27 Unnamed Ancient Woodland	278654	186618	0	9.36	9.45	10	0.90
E28	E28 Unnamed Ancient Woodland	278959	186629	0	9.86	9.94	10	0.80

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2a (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E29	E29 Unnamed Ancient Woodland	279486	186354	0	15.59	15.67	10	0.83
E30	E30 Unnamed Ancient Woodland	279716	186123	0	10.23	10.26	10	0.29
E31	E31 Unnamed Ancient Woodland	280228	185547	0	4.17	4.18	10	0.09
E32	E32 Unnamed Ancient Woodland	280266	185669	0	3.22	3.22	10	0.07
E33	E33 Unnamed Ancient Woodland	279353	186567	0	19.48	19.52	10	0.41
E34	E34 Unnamed Ancient Woodland	279215	186696	0	15.19	15.27	10	0.77
E35	E35 Unnamed Ancient Woodland	279167	186779	0	15.06	15.11	10	0.59
E36	E36 Unnamed Ancient Woodland	279171	186813	0	25.53	25.58	10	0.41
E37	E37 Unnamed Ancient Woodland	279073	186908	0	13.12	13.17	10	0.59
E38	E38 Unnamed Ancient Woodland	278973	187505	0	6.92	6.93	10	0.07
E39	E39 Unnamed Ancient Woodland	278982	187276	0	14.45	14.47	10	0.14
E40	E40 Unnamed Ancient Woodland	278958	187625	0	6.12	6.13	10	0.03
E41	E41 Unnamed Ancient Woodland	277867	188475	0	6.48	6.49	10	0.09
E42	E42 Unnamed Ancient Woodland	277958	188412	0	7.37	7.38	10	0.09

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (process contribution only)			
					S2a (kgN/ha/yr)	S3 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E51	E51 Unnamed Ancient Woodland	279743	186141	0	7.63	7.65	10	0.17
E52	E52 Unnamed Ancient Woodland	279683	186182	0	9.06	9.08	10	0.23
E53	E53 Unnamed Ancient Woodland	279837	186331	0	5.39	5.40	10	0.08
E54	E54 Unnamed Ancient Woodland	278952	187363	0	12.33	12.34	10	0.12
Note: Receptors where insufficient information was available to estimate a critical load, or the habitat was considered unlikely to be sensitive to nutrient nitrogen deposition have been excluded. Regardless, concentrations at excluded receptors decreased so would not have breached the critical load.								

Table 6.60: Comparison of acid deposition between S2a – Bespoke Interim Baseline for Construction (2025) and S3 – Future Construction With Development (2025)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2a Nitrogen Deposition (keq/ha/yr)	S3 - S2a Sulphur Deposition (keq/ha/yr)	PC as % of Critical Load Function (EAF only)
E1	E1 Margam Moors	278509	185287	0	0.00	0.00	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2a Nitrogen Deposition (keq/ha/yr)	S3 - S2a Sulphur Deposition (keq/ha/yr)	PC as % of Critical Load Function (EAF only)
E2	E2 Margam Moors	277997	185011	0	0.00	0.00	0.00
E3	E3 Margam Moors	277571	184676	0	0.00	0.00	0.00
E8	E8 Kenfig/Cynffig	278911	183412	0	0.00	0.00	0.00
E9	E9 Kenfig/Cynffig	278578	183294	0	0.00	0.00	0.00
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.00	0.00
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.00	0.00
E12	E12 Kenfig/Cynffig	280023	182746	0	0.00	0.00	0.00
E13	E13 Kenfig/Cynffig	280246	182907	0	0.00	0.00	0.00
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.00	0.00	0.00
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.00	0.00	0.00
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.00	0.00	0.00
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.00	0.00	0.00
E18	E18 Kenfig/Cynffig	283734	177209	0	0.00	0.00	0.00
E19	E19 Kenfig/Cynffig	284363	177536	0	0.00	0.00	0.00
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	0.00	0.00	0.00
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	0.00	0.00	0.00
E22	E22 Crymlyn Bog	272000	194540	0	0.00	0.00	0.00
E23	E23 Crymlyn Bog	271205	193885	0	0.00	0.00	0.00
E24	E24 Crymlyn Bog	271148	193847	0	0.00	0.00	0.00
E25	E25 Crymlyn Bog	270537	193669	0	0.00	0.00	0.00
E26	E26 Crymlyn Bog	268207	193203	0	0.00	0.00	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2a Nitrogen Deposition (keq/ha/yr)	S3 - S2a Sulphur Deposition (keq/ha/yr)	PC as % of Critical Load Function (EAF only)
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.00	0.00	0.00
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.00	0.00	0.00
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.00	0.00	0.00
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.00	0.00	0.00
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.00	0.00	0.00
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.00	0.00	0.00
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.00	0.00	0.00
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.00	0.00	0.00
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.00	0.00	0.00
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.00	0.00	0.00
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.00	0.00	0.00
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.00	0.00	0.00
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.00	0.00	0.00

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S3 - S2a Nitrogen Deposition (keq/ha/yr)	S3 - S2a Sulphur Deposition (keq/ha/yr)	PC as % of Critical Load Function (EAF only)
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.00	0.00	0.00
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.00	0.00	0.00
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.00	0.00	0.00
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.00	0.00	0.07
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.00	0.00	0.10
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.00	0.00	0.03
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.00	0.00	0.09

Table 6.61: Comparison of annual mean NO_x between S4a – Bespoke Interim Baseline for Operational (2027) and S5 – Future Operational with Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	9.90	11.02	11.14	30	0
E2	E2 Margam Moors	277997	185011	0	7.95	8.78	8.89	30	0
E3	E3 Margam Moors	277571	184676	0	6.96	7.63	7.73	30	0
E4	E4 Eglwys Nunydd	279360	185703	0	12.81	15.96	16.12	30	1
E5	E5 Eglwys Nunydd	278971	185332	0	9.90	11.46	11.59	30	0
E6	E6 Eglwys Nunydd	279152	184601	0	10.20	11.41	11.50	30	0
E7	E7 Eglwys Nunydd	279347	184181	0	10.20	11.39	11.47	30	0
E8	E8 Kenfig/Cynffig	278911	183412	0	6.82	7.68	7.74	30	0
E9	E9 Kenfig/Cynffig	278578	183294	0	6.82	7.52	7.58	30	0
E10	E10 Kenfig/Cynffig	277947	183429	0	6.30	6.88	6.94	30	0
E11	E11 Kenfig/Cynffig	277366	183205	0	6.30	6.79	6.86	30	0
E12	E12 Kenfig/Cynffig	280023	182746	0	11.54	13.59	13.65	30	0
E13	E13 Kenfig/Cynffig	280246	182907	0	11.54	16.36	16.42	30	0
E14	E14 Junction 38 Wetland Comple	279049	186481	0	17.34	22.15	22.40	30	1
E15	E15 Junction 38 Wetland Comple	278474	186441	0	24.33	32.05	32.39	30	1
E16	E16 Junction 38 Wetland Comple	278507	186263	0	24.33	29.30	29.58	30	1
E17	E17 Junction 38 Wetland Comple	278578	186056	0	24.33	26.30	26.55	30	1
E18	E18 Kenfig/Cynffig	283734	177209	0	8.27	8.46	8.50	30	0
E19	E19 Kenfig/Cynffig	284363	177536	0	6.73	6.92	6.96	30	0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	9.66	10.14	10.19	30	0
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	13.19	13.53	13.58	30	0
E22	E22 Crymlyn Bog	272000	194540	0	13.95	14.28	14.32	30	0
E23	E23 Crymlyn Bog	271205	193885	0	10.19	10.56	10.60	30	0
E24	E24 Crymlyn Bog	271148	193847	0	10.19	10.56	10.60	30	0
E25	E25 Crymlyn Bog	270537	193669	0	9.73	10.06	10.10	30	0
E26	E26 Crymlyn Bog	268207	193203	0	12.81	13.05	13.10	30	0
E27	E27 Unnamed Ancient Woodland	278654	186618	0	24.33	28.76	29.04	30	1
E28	E28 Unnamed Ancient Woodland	278959	186629	0	24.33	29.68	29.92	30	1
E29	E29 Unnamed Ancient Woodland	279486	186354	0	17.34	41.00	41.22	30	1
E30	E30 Unnamed Ancient Woodland	279716	186123	0	17.34	30.73	30.92	30	1
E31	E31 Unnamed Ancient Woodland	280228	185547	0	9.35	13.82	13.97	30	0
E32	E32 Unnamed Ancient Woodland	280266	185669	0	9.35	12.01	12.16	30	1
E33	E33 Unnamed Ancient Woodland	279353	186567	0	17.34	49.08	49.31	30	1
E34	E34 Unnamed Ancient Woodland	279215	186696	0	17.34	39.72	39.95	30	1

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E35	E35 Unnamed Ancient Woodland	279167	186779	0	17.34	39.52	39.76	30	1
E36	E36 Unnamed Ancient Woodland	279171	186813	0	17.34	61.86	62.09	30	1
E37	E37 Unnamed Ancient Woodland	279073	186908	0	17.34	35.55	35.78	30	1
E38	E38 Unnamed Ancient Woodland	278973	187505	0	17.47	23.49	23.68	30	1
E39	E39 Unnamed Ancient Woodland	278982	187276	0	17.47	38.70	38.90	30	1
E40	E40 Unnamed Ancient Woodland	278958	187625	0	17.47	21.90	22.10	30	1
E41	E41 Unnamed Ancient Woodland	277867	188475	0	14.75	21.71	21.76	30	0
E42	E42 Unnamed Ancient Woodland	277958	188412	0	14.75	23.46	23.51	30	0
E43	E43 Eglwys Nunydd	279181	185826	0	12.81	17.16	17.32	30	1
E44	E44 Eglwys Nunydd	278929	185677	0	9.90	11.72	11.89	30	1
E45	E45 Eglwys Nunydd	278768	185405	0	9.90	11.38	11.50	30	0
E46	E46 Eglwys Nunydd	279236	184084	0	10.20	11.26	11.34	30	0
E47	E47 Margam Country Park	280113	185600	0	9.35	18.90	19.05	30	0
E48	E48 Margam Country Park	280381	185503	0	9.35	13.90	14.05	30	0
E49	E49 Margam Country Park	281283	184909	0	8.64	14.68	14.79	30	0
E50	E50 Margam Country Park	281594	184546	0	8.64	15.10	15.20	30	0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E51	E51 Unnamed Ancient Woodland	279743	186141	0	17.34	25.08	25.28	30	1
E52	E52 Unnamed Ancient Woodland	279683	186182	0	17.34	28.24	28.44	30	1
E53	E53 Unnamed Ancient Woodland	279837	186331	0	17.34	20.44	20.67	30	1
E54	E54 Unnamed Ancient Woodland	278952	187363	0	17.47	34.35	34.54	30	1
E55	E55 NPT Watercourse	274727	188533	0	8.58	9.31	9.44	30	0

Table 6.62: Comparison of daily mean NOx between S4a – Bespoke Interim Baseline for Operational (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	19.80	24.67	25.24	200	0.3
E2	E2 Margam Moors	277997	185011	0	15.90	19.77	20.15	200	0.2
E3	E3 Margam Moors	277571	184676	0	13.92	17.05	18.10	200	0.5
E4	E4 Eglwys Nunydd	279360	185703	0	25.62	33.53	35.39	200	0.9
E5	E5 Eglwys Nunydd	278971	185332	0	19.80	25.27	25.43	200	0.1
E6	E6 Eglwys Nunydd	279152	184601	0	20.40	24.56	25.03	200	0.2
E7	E7 Eglwys Nunydd	279347	184181	0	20.40	24.28	24.59	200	0.2

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E8	E8 Kenfig/Cynffig	278911	183412	0	13.64	16.72	16.97	200	0.1
E9	E9 Kenfig/Cynffig	278578	183294	0	13.64	16.40	16.85	200	0.2
E10	E10 Kenfig/Cynffig	277947	183429	0	12.60	14.87	15.67	200	0.4
E11	E11 Kenfig/Cynffig	277366	183205	0	12.60	14.62	15.63	200	0.5
E12	E12 Kenfig/Cynffig	280023	182746	0	23.08	28.20	28.63	200	0.2
E13	E13 Kenfig/Cynffig	280246	182907	0	23.08	33.91	34.31	200	0.2
E14	E14 Junction 38 Wetland Comple	279049	186481	0	34.68	47.08	49.82	200	1.4
E15	E15 Junction 38 Wetland Comple	278474	186441	0	48.66	204.42	205.11	200	0.3
E16	E16 Junction 38 Wetland Comple	278507	186263	0	48.66	211.97	212.79	200	0.4
E17	E17 Junction 38 Wetland Comple	278578	186056	0	48.66	62.22	62.33	200	0.1
E18	E18 Kenfig/Cynffig	283734	177209	0	16.54	17.54	18.15	200	0.3
E19	E19 Kenfig/Cynffig	284363	177536	0	13.46	14.49	14.93	200	0.2
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	19.32	20.85	21.32	200	0.2
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	26.38	27.58	28.13	200	0.3
E22	E22 Crymlyn Bog	272000	194540	0	27.90	29.11	29.49	200	0.2
E23	E23 Crymlyn Bog	271205	193885	0	20.38	21.79	22.39	200	0.3
E24	E24 Crymlyn Bog	271148	193847	0	20.38	21.78	22.38	200	0.3
E25	E25 Crymlyn Bog	270537	193669	0	19.46	20.83	21.22	200	0.2

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E26	E26 Crymlyn Bog	268207	193203	0	25.62	26.72	27.26	200	0.3
E27	E27 Unnamed Ancient Woodland	278654	186618	0	48.66	60.46	62.30	200	0.9
E28	E28 Unnamed Ancient Woodland	278959	186629	0	48.66	61.99	64.19	200	1.1
E29	E29 Unnamed Ancient Woodland	279486	186354	0	34.68	85.23	88.03	200	1.4
E30	E30 Unnamed Ancient Woodland	279716	186123	0	34.68	64.47	67.23	200	1.4
E31	E31 Unnamed Ancient Woodland	280228	185547	0	18.70	29.57	31.70	200	1.1
E32	E32 Unnamed Ancient Woodland	280266	185669	0	18.70	26.27	28.58	200	1.2
E33	E33 Unnamed Ancient Woodland	279353	186567	0	34.68	101.26	103.69	200	1.2
E34	E34 Unnamed Ancient Woodland	279215	186696	0	34.68	82.28	84.51	200	1.1
E35	E35 Unnamed Ancient Woodland	279167	186779	0	34.68	81.76	84.47	200	1.4
E36	E36 Unnamed Ancient Woodland	279171	186813	0	34.68	126.46	129.18	200	1.4
E37	E37 Unnamed Ancient Woodland	279073	186908	0	34.68	73.85	76.45	200	1.3
E38	E38 Unnamed Ancient Woodland	278973	187505	0	34.94	48.90	50.48	200	0.8
E39	E39 Unnamed Ancient Woodland	278982	187276	0	34.94	80.11	81.45	200	0.7

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4a (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level (EAF only)
E40	E40 Unnamed Ancient Woodland	278958	187625	0	34.94	45.86	47.25	200	0.7
E41	E41 Unnamed Ancient Woodland	277867	188475	0	29.50	44.94	45.74	200	0.4
E42	E42 Unnamed Ancient Woodland	277958	188412	0	29.50	48.88	49.73	200	0.4
E43	E43 Eglwys Nunydd	279181	185826	0	25.62	36.08	38.05	200	1.0
E44	E44 Eglwys Nunydd	278929	185677	0	19.80	25.79	26.42	200	0.3
E45	E45 Eglwys Nunydd	278768	185405	0	19.80	25.13	25.33	200	0.1
E46	E46 Eglwys Nunydd	279236	184084	0	20.40	23.79	24.22	200	0.2
E47	E47 Margam Country Park	280113	185600	0	18.70	39.79	41.97	200	1.1
E48	E48 Margam Country Park	280381	185503	0	18.70	29.71	31.81	200	1.0
E49	E49 Margam Country Park	281283	184909	0	17.28	30.56	32.01	200	0.7
E50	E50 Margam Country Park	281594	184546	0	17.28	31.04	32.12	200	0.5
E51	E51 Unnamed Ancient Woodland	279743	186141	0	34.68	53.20	55.95	200	1.4
E52	E52 Unnamed Ancient Woodland	279683	186182	0	34.68	59.56	62.35	200	1.4
E53	E53 Unnamed Ancient Woodland	279837	186331	0	34.68	43.89	46.41	200	1.3
E54	E54 Unnamed Ancient Woodland	278952	187363	0	34.94	71.14	72.29	200	0.6
E55	E55 NPT Watercourse	274727	188533	0	17.16	19.75	21.00	200	0.6

Table 6.63: Comparison of annual mean SO₂ between S4a – Bespoke Interim Baseline for Operational (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4a (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E1	E1 Margam Moors	278509	185287	0	1.81	1.83	2.31	20	2.4
E2	E2 Margam Moors	277997	185011	0	1.81	1.82	2.26	20	2.2
E3	E3 Margam Moors	277571	184676	0	1.81	1.82	2.19	20	1.8
E4	E4 Eglwys Nunydd	279360	185703	0	1.81	1.82	2.53	20	3.5
E5	E5 Eglwys Nunydd	278971	185332	0	1.81	1.82	2.34	20	2.6
E6	E6 Eglwys Nunydd	279152	184601	0	1.81	1.82	2.17	20	1.8
E7	E7 Eglwys Nunydd	279347	184181	0	1.81	1.82	2.13	20	1.6
E8	E8 Kenfig/Cynffig	278911	183412	0	1.81	1.82	2.08	10	2.6
E9	E9 Kenfig/Cynffig	278578	183294	0	1.81	1.82	2.07	10	2.5
E10	E10 Kenfig/Cynffig	277947	183429	0	1.81	1.82	2.07	10	2.5
E11	E11 Kenfig/Cynffig	277366	183205	0	1.81	1.81	2.04	10	2.3
E12	E12 Kenfig/Cynffig	280023	182746	0	1.81	1.81	2.04	10	2.2
E13	E13 Kenfig/Cynffig	280246	182907	0	1.81	1.81	2.04	10	2.2
E14	E14 Junction 38 Wetland Comple	279049	186481	0	1.81	1.83	2.89	10	10.6
E15	E15 Junction 38 Wetland Comple	278474	186441	0	1.81	1.84	3.22	10	13.9
E16	E16 Junction 38 Wetland Comple	278507	186263	0	1.81	1.83	2.99	10	11.5
E17	E17 Junction 38 Wetland Comple	278578	186056	0	1.81	1.83	2.82	10	9.9

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4a (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E18	E18 Kenfig/Cynffig	283734	177209	0	1.81	1.81	1.94	10	1.3
E19	E19 Kenfig/Cynffig	284363	177536	0	1.81	1.81	1.95	10	1.4
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.81	1.81	1.98	10	1.7
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.81	1.81	1.97	10	1.6
E22	E22 Crymlyn Bog	272000	194540	0	1.81	1.81	1.91	10	1.0
E23	E23 Crymlyn Bog	271205	193885	0	1.81	1.81	1.93	10	1.2
E24	E24 Crymlyn Bog	271148	193847	0	1.81	1.81	1.93	10	1.2
E25	E25 Crymlyn Bog	270537	193669	0	1.81	1.81	1.94	10	1.3
E26	E26 Crymlyn Bog	268207	193203	0	1.81	1.81	1.97	10	1.6
E27	E27 Unnamed Ancient Woodland	278654	186618	0	1.81	1.84	3.08	10	12.4
E28	E28 Unnamed Ancient Woodland	278959	186629	0	1.81	1.83	2.90	10	10.7
E29	E29 Unnamed Ancient Woodland	279486	186354	0	1.81	1.82	2.74	10	9.1
E30	E30 Unnamed Ancient Woodland	279716	186123	0	1.81	1.82	2.64	10	8.2
E31	E31 Unnamed Ancient Woodland	280228	185547	0	1.81	1.82	2.39	10	5.8
E32	E32 Unnamed Ancient Woodland	280266	185669	0	1.81	1.82	2.42	10	6.0
E33	E33 Unnamed Ancient Woodland	279353	186567	0	1.81	1.83	2.76	10	9.4

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4a (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E34	E34 Unnamed Ancient Woodland	279215	186696	0	1.81	1.83	2.79	10	9.6
E35	E35 Unnamed Ancient Woodland	279167	186779	0	1.81	1.83	2.78	10	9.5
E36	E36 Unnamed Ancient Woodland	279171	186813	0	1.81	1.83	2.77	10	9.4
E37	E37 Unnamed Ancient Woodland	279073	186908	0	1.81	1.83	2.76	10	9.3
E38	E38 Unnamed Ancient Woodland	278973	187505	0	1.81	1.83	2.67	10	8.4
E39	E39 Unnamed Ancient Woodland	278982	187276	0	1.81	1.83	2.69	10	8.6
E40	E40 Unnamed Ancient Woodland	278958	187625	0	1.81	1.83	2.66	10	8.2
E41	E41 Unnamed Ancient Woodland	277867	188475	0	1.81	1.92	2.07	10	1.5
E42	E42 Unnamed Ancient Woodland	277958	188412	0	1.81	1.91	2.08	10	1.7
E43	E43 Eglwys Nunydd	279181	185826	0	1.81	1.82	2.60	20	3.9
E44	E44 Eglwys Nunydd	278929	185677	0	1.81	1.83	2.54	20	3.6
E45	E45 Eglwys Nunydd	278768	185405	0	1.81	1.82	2.37	20	2.7
E46	E46 Eglwys Nunydd	279236	184084	0	1.81	1.82	2.12	20	1.5
E47	E47 Margam Country Park	280113	185600	0	1.81	1.82	2.42	10	6.0
E48	E48 Margam Country Park	280381	185503	0	1.81	1.82	2.37	10	5.6
E49	E49 Margam Country Park	281283	184909	0	1.81	1.81	2.22	10	4.0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4a (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level (EAF only)
E50	E50 Margam Country Park	281594	184546	0	1.81	1.81	2.15	10	3.3
E51	E51 Unnamed Ancient Woodland	279743	186141	0	1.81	1.82	2.64	10	8.2
E52	E52 Unnamed Ancient Woodland	279683	186182	0	1.81	1.82	2.67	10	8.4
E53	E53 Unnamed Ancient Woodland	279837	186331	0	1.81	1.82	2.69	10	8.7
E54	E54 Unnamed Ancient Woodland	278952	187363	0	1.81	1.83	2.69	10	8.6
E55	E55 NPT Watercourse	274727	188533	0	1.81	1.84	2.27	20	2.1

Table 6.64: Comparison of nutrient nitrogen deposition between S4a – Bespoke Interim Baseline for Operational (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4a (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E1	E1 Margam Moors	278509	185287	0	1.54	1.55	6	0.20
E2	E2 Margam Moors	277997	185011	0	1.16	1.17	6	0.18
E3	E3 Margam Moors	277571	184676	0	0.94	0.95	6	0.15
E8	E8 Kenfig/Cynffig	278911	183412	0	0.92	0.93	5	0.12
E9	E9 Kenfig/Cynffig	278578	183294	0	0.88	0.88	5	0.13
E10	E10 Kenfig/Cynffig	277947	183429	0	0.81	0.82	5	0.13
E11	E11 Kenfig/Cynffig	277366	183205	0	0.79	0.80	5	0.13
E12	E12 Kenfig/Cynffig	280023	182746	0	1.72	1.73	5	0.13
E13	E13 Kenfig/Cynffig	280246	182907	0	2.54	2.55	5	0.13

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4a (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E14	E14 Junction 38 Wetland Comple	279049	186481	0	5.93	5.98	10	0.50
E15	E15 Junction 38 Wetland Comple	278474	186441	0	4.62	4.65	5	0.69
E16	E16 Junction 38 Wetland Comple	278507	186263	0	4.31	4.33	5	0.57
E17	E17 Junction 38 Wetland Comple	278578	186056	0	3.99	4.01	5	0.50
E18	E18 Kenfig/Cynffig	283734	177209	0	0.82	0.83	5	0.09
E19	E19 Kenfig/Cynffig	284363	177536	0	0.69	0.69	5	0.09
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.01	1.02	5	0.11
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.31	1.31	5	0.10
E22	E22 Crymlyn Bog	272000	194540	0	1.38	1.38	5	0.07
E23	E23 Crymlyn Bog	271205	193885	0	1.05	1.05	5	0.08
E24	E24 Crymlyn Bog	271148	193847	0	1.05	1.05	5	0.08
E25	E25 Crymlyn Bog	270537	193669	0	1.00	1.00	5	0.09
E26	E26 Crymlyn Bog	268207	193203	0	1.30	1.30	5	0.10
E27	E27 Unnamed Ancient Woodland	278654	186618	0	9.09	9.15	10	0.57
E28	E28 Unnamed Ancient Woodland	278959	186629	0	9.57	9.62	10	0.50
E29	E29 Unnamed Ancient Woodland	279486	186354	0	14.75	14.80	10	0.44
E30	E30 Unnamed Ancient Woodland	279716	186123	0	9.63	9.67	10	0.38

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4a (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E31	E31 Unnamed Ancient Woodland	280228	185547	0	3.95	3.98	10	0.30
E32	E32 Unnamed Ancient Woodland	280266	185669	0	3.05	3.08	10	0.31
E33	E33 Unnamed Ancient Woodland	279353	186567	0	18.62	18.66	10	0.47
E34	E34 Unnamed Ancient Woodland	279215	186696	0	14.41	14.46	10	0.48
E35	E35 Unnamed Ancient Woodland	279167	186779	0	14.31	14.35	10	0.49
E36	E36 Unnamed Ancient Woodland	279171	186813	0	24.57	24.62	10	0.49
E37	E37 Unnamed Ancient Woodland	279073	186908	0	12.43	12.48	10	0.47
E38	E38 Unnamed Ancient Woodland	278973	187505	0	6.60	6.64	10	0.40
E39	E39 Unnamed Ancient Woodland	278982	187276	0	13.82	13.85	10	0.40
E40	E40 Unnamed Ancient Woodland	278958	187625	0	5.85	5.88	10	0.39
E41	E41 Unnamed Ancient Woodland	277867	188475	0	6.14	6.15	10	0.10
E42	E42 Unnamed Ancient Woodland	277958	188412	0	6.98	6.99	10	0.10
E51	E51 Unnamed Ancient Woodland	279743	186141	0	7.21	7.24	10	0.38

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4a (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin (EAF only)
E52	E52 Unnamed Ancient Woodland	279683	186182	0	8.53	8.57	10	0.40
E53	E53 Unnamed Ancient Woodland	279837	186331	0	5.11	5.16	10	0.46
E54	E54 Unnamed Ancient Woodland	278952	187363	0	11.77	11.81	10	0.38
Note: Receptors where insufficient information was available to estimate a critical load, or the habitat was considered unlikely to be sensitive to nutrient nitrogen deposition have been excluded. Regardless, concentrations at excluded receptors decreased so would not have breached the critical load.								

Table 6.65: Comparison of acid deposition between S4a – Bespoke Interim Baseline for Operational (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4a Nitrogen Deposition (keq/ha/yr)	S5 – S4a Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E1	E1 Margam Moors	278509	185287	0	0.00	0.06	2.88
E2	E2 Margam Moors	277997	185011	0	0.00	0.05	1.23
E3	E3 Margam Moors	277571	184676	0	0.00	0.04	1.02
E8	E8 Kenfig/Cynffig	278911	183412	0	0.00	0.03	0.77
E9	E9 Kenfig/Cynffig	278578	183294	0	0.00	0.03	0.74
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.03	0.75
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.03	0.68
E12	E12 Kenfig/Cynffig	280023	182746	0	0.00	0.03	0.66

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4a Nitrogen Deposition (keq/ha/yr)	S5 – S4a Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E13	E13 Kenfig/Cynffig	280246	182907	0	0.00	0.03	0.66
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.00	0.25	14.97
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.00	0.16	9.81
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.00	0.14	8.14
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.00	0.12	6.96
E18	E18 Kenfig/Cynffig	283734	177209	0	0.00	0.02	1.90
E19	E19 Kenfig/Cynffig	284363	177536	0	0.00	0.02	1.94
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	0.00	0.02	1.58
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	0.00	0.02	1.51
E22	E22 Crymlyn Bog	272000	194540	0	0.00	0.01	1.85
E23	E23 Crymlyn Bog	271205	193885	0	0.00	0.01	2.13
E24	E24 Crymlyn Bog	271148	193847	0	0.00	0.01	2.15
E25	E25 Crymlyn Bog	270537	193669	0	0.00	0.01	2.30
E26	E26 Crymlyn Bog	268207	193203	0	0.00	0.02	2.99
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.00	0.29	10.23
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.00	0.25	8.82
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.00	0.22	12.90
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.00	0.19	11.59

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4a Nitrogen Deposition (keq/ha/yr)	S5 – S4a Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.00	0.14	7.75
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.00	0.14	8.05
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.00	0.22	13.27
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.00	0.23	13.55
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.00	0.22	13.45
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.00	0.22	13.35
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.00	0.22	13.13
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.00	0.20	21.56
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.00	0.20	22.02
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.00	0.19	21.09
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.00	0.04	1.26
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.00	0.04	1.38
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.00	0.19	11.62

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4a Nitrogen Deposition (keq/ha/yr)	S5 – S4a Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.00	0.20	11.92
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.00	0.21	12.32
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.00	0.20	22.01

Table 6.66: Comparison of annual mean NO_x between S4b – Bespoke Interim Baseline for Operation Without Cumulative Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NO _x concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E1	E1 Margam Moors	278509	185287	0	9.90	10.88	11.14	30	1
E2	E2 Margam Moors	277997	185011	0	7.95	8.66	8.89	30	1
E3	E3 Margam Moors	277571	184676	0	6.96	7.53	7.73	30	1
E4	E4 Eglwys Nunydd	279360	185703	0	12.81	15.50	16.12	30	2
E5	E5 Eglwys Nunydd	278971	185332	0	9.90	11.26	11.59	30	1
E6	E6 Eglwys Nunydd	279152	184601	0	10.20	11.25	11.50	30	1
E7	E7 Eglwys Nunydd	279347	184181	0	10.20	11.24	11.47	30	1
E8	E8 Kenfig/Cynffig	278911	183412	0	6.82	7.51	7.74	30	1
E9	E9 Kenfig/Cynffig	278578	183294	0	6.82	7.38	7.58	30	1

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E10	E10 Kenfig/Cynffig	277947	183429	0	6.30	6.78	6.94	30	1
E11	E11 Kenfig/Cynffig	277366	183205	0	6.30	6.70	6.86	30	1
E12	E12 Kenfig/Cynffig	280023	182746	0	11.54	13.31	13.65	30	1
E13	E13 Kenfig/Cynffig	280246	182907	0	11.54	15.63	16.42	30	3
E14	E14 Junction 38 Wetland Comple	279049	186481	0	17.34	21.51	22.40	30	3
E15	E15 Junction 38 Wetland Comple	278474	186441	0	24.33	31.85	32.39	30	2
E16	E16 Junction 38 Wetland Comple	278507	186263	0	24.33	29.12	29.58	30	2
E17	E17 Junction 38 Wetland Comple	278578	186056	0	24.33	26.11	26.55	30	1
E18	E18 Kenfig/Cynffig	283734	177209	0	8.27	8.45	8.50	30	0
E19	E19 Kenfig/Cynffig	284363	177536	0	6.73	6.90	6.96	30	0
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	9.66	10.12	10.19	30	0
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	13.19	13.51	13.58	30	0
E22	E22 Crymlyn Bog	272000	194540	0	13.95	14.21	14.32	30	0
E23	E23 Crymlyn Bog	271205	193885	0	10.19	10.46	10.60	30	0
E24	E24 Crymlyn Bog	271148	193847	0	10.19	10.46	10.60	30	0
E25	E25 Crymlyn Bog	270537	193669	0	9.73	9.96	10.10	30	0
E26	E26 Crymlyn Bog	268207	193203	0	12.81	12.97	13.10	30	0
E27	E27 Unnamed Ancient Woodland	278654	186618	0	24.33	28.38	29.04	30	2

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E28	E28 Unnamed Ancient Woodland	278959	186629	0	24.33	29.02	29.92	30	3
E29	E29 Unnamed Ancient Woodland	279486	186354	0	17.34	39.15	41.22	30	7
E30	E30 Unnamed Ancient Woodland	279716	186123	0	17.34	29.75	30.92	30	4
E31	E31 Unnamed Ancient Woodland	280228	185547	0	9.35	13.41	13.97	30	2
E32	E32 Unnamed Ancient Woodland	280266	185669	0	9.35	11.77	12.16	30	1
E33	E33 Unnamed Ancient Woodland	279353	186567	0	17.34	46.59	49.31	30	9
E34	E34 Unnamed Ancient Woodland	279215	186696	0	17.34	36.61	39.95	30	11
E35	E35 Unnamed Ancient Woodland	279167	186779	0	17.34	36.09	39.76	30	12
E36	E36 Unnamed Ancient Woodland	279171	186813	0	17.34	55.37	62.09	30	22
E37	E37 Unnamed Ancient Woodland	279073	186908	0	17.34	32.84	35.78	30	10
E38	E38 Unnamed Ancient Woodland	278973	187505	0	17.47	22.79	23.68	30	3
E39	E39 Unnamed Ancient Woodland	278982	187276	0	17.47	36.78	38.90	30	7
E40	E40 Unnamed Ancient Woodland	278958	187625	0	17.47	21.41	22.10	30	2

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E41	E41 Unnamed Ancient Woodland	277867	188475	0	14.75	20.73	21.76	30	3
E42	E42 Unnamed Ancient Woodland	277958	188412	0	14.75	22.31	23.51	30	4
E43	E43 Eglwys Nunydd	279181	185826	0	12.81	16.63	17.32	30	2
E44	E44 Eglwys Nunydd	278929	185677	0	9.90	11.51	11.89	30	1
E45	E45 Eglwys Nunydd	278768	185405	0	9.90	11.19	11.50	30	1
E46	E46 Eglwys Nunydd	279236	184084	0	10.20	11.12	11.34	30	1
E47	E47 Margam Country Park	280113	185600	0	9.35	18.08	19.05	30	3
E48	E48 Margam Country Park	280381	185503	0	9.35	13.47	14.05	30	2
E49	E49 Margam Country Park	281283	184909	0	8.64	14.17	14.79	30	2
E50	E50 Margam Country Park	281594	184546	0	8.64	14.62	15.20	30	2
E51	E51 Unnamed Ancient Woodland	279743	186141	0	17.34	24.49	25.28	30	3
E52	E52 Unnamed Ancient Woodland	279683	186182	0	17.34	27.37	28.44	30	4
E53	E53 Unnamed Ancient Woodland	279837	186331	0	17.34	20.14	20.67	30	2
E54	E54 Unnamed Ancient Woodland	278952	187363	0	17.47	32.31	34.54	30	7
E55	E55 NPT Watercourse	274727	188533	0	8.58	9.16	9.44	30	1

Table 6.67: Comparison of daily mean NOx between S4b – Bespoke Interim Baseline for Operation Without Cumulative Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E1	E1 Margam Moors	278509	185287	0	19.80	24.28	25.24	200	0.5
E2	E2 Margam Moors	277997	185011	0	15.90	19.54	20.15	200	0.3
E3	E3 Margam Moors	277571	184676	0	13.92	16.86	18.10	200	0.6
E4	E4 Eglwys Nunydd	279360	185703	0	25.62	32.48	35.39	200	1.5
E5	E5 Eglwys Nunydd	278971	185332	0	19.80	24.69	25.43	200	0.4
E6	E6 Eglwys Nunydd	279152	184601	0	20.40	24.13	25.03	200	0.5
E7	E7 Eglwys Nunydd	279347	184181	0	20.40	23.85	24.59	200	0.4
E8	E8 Kenfig/Cynffig	278911	183412	0	13.64	16.39	16.97	200	0.3
E9	E9 Kenfig/Cynffig	278578	183294	0	13.64	16.08	16.85	200	0.4
E10	E10 Kenfig/Cynffig	277947	183429	0	12.60	14.67	15.67	200	0.5
E11	E11 Kenfig/Cynffig	277366	183205	0	12.60	14.43	15.63	200	0.6
E12	E12 Kenfig/Cynffig	280023	182746	0	23.08	27.51	28.63	200	0.6
E13	E13 Kenfig/Cynffig	280246	182907	0	23.08	32.36	34.31	200	1.0
E14	E14 Junction 38 Wetland Comple	279049	186481	0	34.68	45.61	49.82	200	2.1
E15	E15 Junction 38 Wetland Comple	278474	186441	0	48.66	204.09	205.11	200	0.5
E16	E16 Junction 38 Wetland Comple	278507	186263	0	48.66	211.60	212.79	200	0.6
E17	E17 Junction 38 Wetland Comple	278578	186056	0	48.66	61.81	62.33	200	0.3
E18	E18 Kenfig/Cynffig	283734	177209	0	16.54	17.47	18.15	200	0.3
E19	E19 Kenfig/Cynffig	284363	177536	0	13.46	14.41	14.93	200	0.3

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	19.32	20.75	21.32	200	0.3
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	26.38	27.50	28.13	200	0.3
E22	E22 Crymlyn Bog	272000	194540	0	27.90	28.86	29.49	200	0.3
E23	E23 Crymlyn Bog	271205	193885	0	20.38	21.38	22.39	200	0.5
E24	E24 Crymlyn Bog	271148	193847	0	20.38	21.38	22.38	200	0.5
E25	E25 Crymlyn Bog	270537	193669	0	19.46	20.39	21.22	200	0.4
E26	E26 Crymlyn Bog	268207	193203	0	25.62	26.46	27.26	200	0.4
E27	E27 Unnamed Ancient Woodland	278654	186618	0	48.66	59.77	62.30	200	1.3
E28	E28 Unnamed Ancient Woodland	278959	186629	0	48.66	60.46	64.19	200	1.9
E29	E29 Unnamed Ancient Woodland	279486	186354	0	34.68	81.36	88.03	200	3.3
E30	E30 Unnamed Ancient Woodland	279716	186123	0	34.68	62.38	67.23	200	2.4
E31	E31 Unnamed Ancient Woodland	280228	185547	0	18.70	28.68	31.70	200	1.5
E32	E32 Unnamed Ancient Woodland	280266	185669	0	18.70	25.71	28.58	200	1.4
E33	E33 Unnamed Ancient Woodland	279353	186567	0	34.68	96.08	103.69	200	3.8
E34	E34 Unnamed Ancient Woodland	279215	186696	0	34.68	75.83	84.51	200	4.3

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E35	E35 Unnamed Ancient Woodland	279167	186779	0	34.68	74.84	84.47	200	4.8
E36	E36 Unnamed Ancient Woodland	279171	186813	0	34.68	113.43	129.18	200	7.9
E37	E37 Unnamed Ancient Woodland	279073	186908	0	34.68	68.46	76.45	200	4.0
E38	E38 Unnamed Ancient Woodland	278973	187505	0	34.94	47.59	50.48	200	1.4
E39	E39 Unnamed Ancient Woodland	278982	187276	0	34.94	76.32	81.45	200	2.6
E40	E40 Unnamed Ancient Woodland	278958	187625	0	34.94	44.96	47.25	200	1.1
E41	E41 Unnamed Ancient Woodland	277867	188475	0	29.50	43.26	45.74	200	1.2
E42	E42 Unnamed Ancient Woodland	277958	188412	0	29.50	46.82	49.73	200	1.5
E43	E43 Eglwys Nunydd	279181	185826	0	25.62	34.96	38.05	200	1.5
E44	E44 Eglwys Nunydd	278929	185677	0	19.80	25.28	26.42	200	0.6
E45	E45 Eglwys Nunydd	278768	185405	0	19.80	24.58	25.33	200	0.4
E46	E46 Eglwys Nunydd	279236	184084	0	20.40	23.36	24.22	200	0.4
E47	E47 Margam Country Park	280113	185600	0	18.70	38.07	41.97	200	2.0
E48	E48 Margam Country Park	280381	185503	0	18.70	28.78	31.81	200	1.5
E49	E49 Margam Country Park	281283	184909	0	17.28	29.49	32.01	200	1.3
E50	E50 Margam Country Park	281594	184546	0	17.28	30.03	32.12	200	1.0

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Daily Mean NOx concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E51	E51 Unnamed Ancient Woodland	279743	186141	0	34.68	51.89	55.95	200	2.0
E52	E52 Unnamed Ancient Woodland	279683	186182	0	34.68	57.68	62.35	200	2.3
E53	E53 Unnamed Ancient Woodland	279837	186331	0	34.68	43.15	46.41	200	1.6
E54	E54 Unnamed Ancient Woodland	278952	187363	0	34.94	67.12	72.29	200	2.6
E55	E55 NPT Watercourse	274727	188533	0	17.16	19.52	21.00	200	0.7

Table 6.68: Comparison of annual mean SO₂ between S4b – Bespoke Interim Baseline for Operation Without Cumulative Development (2027) and S5 – Future Operational With Development (2027)

10	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m³)	S4b (µg/m³)	S5 (µg/m³)	Critical Level (µg/m³)	PC as % of Critical Level
E1	E1 Margam Moors	278509	185287	0	1.81	1.81	2.31	20	2.5
E2	E2 Margam Moors	277997	185011	0	1.81	1.81	2.26	20	2.3
E3	E3 Margam Moors	277571	184676	0	1.81	1.81	2.19	20	1.9
E4	E4 Eglwys Nunydd	279360	185703	0	1.81	1.81	2.53	20	3.6
E5	E5 Eglwys Nunydd	278971	185332	0	1.81	1.81	2.34	20	2.7
E6	E6 Eglwys Nunydd	279152	184601	0	1.81	1.81	2.17	20	1.8
E7	E7 Eglwys Nunydd	279347	184181	0	1.81	1.81	2.13	20	1.6

10	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E8	E8 Kenfig/Cynffig	278911	183412	0	1.81	1.81	2.08	10	2.7
E9	E9 Kenfig/Cynffig	278578	183294	0	1.81	1.81	2.07	10	2.6
E10	E10 Kenfig/Cynffig	277947	183429	0	1.81	1.81	2.07	10	2.6
E11	E11 Kenfig/Cynffig	277366	183205	0	1.81	1.81	2.04	10	2.4
E12	E12 Kenfig/Cynffig	280023	182746	0	1.81	1.81	2.04	10	2.3
E13	E13 Kenfig/Cynffig	280246	182907	0	1.81	1.81	2.04	10	2.3
E14	E14 Junction 38 Wetland Comple	279049	186481	0	1.81	1.81	2.89	10	10.9
E15	E15 Junction 38 Wetland Comple	278474	186441	0	1.81	1.81	3.22	10	14.2
E16	E16 Junction 38 Wetland Comple	278507	186263	0	1.81	1.81	2.99	10	11.8
E17	E17 Junction 38 Wetland Comple	278578	186056	0	1.81	1.81	2.82	10	10.1
E18	E18 Kenfig/Cynffig	283734	177209	0	1.81	1.81	1.94	10	1.4
E19	E19 Kenfig/Cynffig	284363	177536	0	1.81	1.81	1.95	10	1.4
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.81	1.81	1.98	10	1.7
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.81	1.81	1.97	10	1.6
E22	E22 Crymlyn Bog	272000	194540	0	1.81	1.81	1.91	10	1.1
E23	E23 Crymlyn Bog	271205	193885	0	1.81	1.81	1.93	10	1.3
E24	E24 Crymlyn Bog	271148	193847	0	1.81	1.81	1.93	10	1.3
E25	E25 Crymlyn Bog	270537	193669	0	1.81	1.81	1.94	10	1.3

10	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E26	E26 Crymlyn Bog	268207	193203	0	1.81	1.81	1.97	10	1.7
E27	E27 Unnamed Ancient Woodland	278654	186618	0	1.81	1.81	3.08	10	12.7
E28	E28 Unnamed Ancient Woodland	278959	186629	0	1.81	1.81	2.90	10	11.0
E29	E29 Unnamed Ancient Woodland	279486	186354	0	1.81	1.81	2.74	10	9.3
E30	E30 Unnamed Ancient Woodland	279716	186123	0	1.81	1.81	2.64	10	8.4
E31	E31 Unnamed Ancient Woodland	280228	185547	0	1.81	1.81	2.39	10	5.9
E32	E32 Unnamed Ancient Woodland	280266	185669	0	1.81	1.81	2.42	10	6.1
E33	E33 Unnamed Ancient Woodland	279353	186567	0	1.81	1.81	2.76	10	9.6
E34	E34 Unnamed Ancient Woodland	279215	186696	0	1.81	1.81	2.79	10	9.8
E35	E35 Unnamed Ancient Woodland	279167	186779	0	1.81	1.81	2.78	10	9.7
E36	E36 Unnamed Ancient Woodland	279171	186813	0	1.81	1.81	2.77	10	9.7
E37	E37 Unnamed Ancient Woodland	279073	186908	0	1.81	1.81	2.76	10	9.5
E38	E38 Unnamed Ancient Woodland	278973	187505	0	1.81	1.81	2.67	10	8.7
E39	E39 Unnamed Ancient Woodland	278982	187276	0	1.81	1.81	2.69	10	8.9

10	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean SO ₂ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E40	E40 Unnamed Ancient Woodland	278958	187625	0	1.81	1.81	2.66	10	8.5
E41	E41 Unnamed Ancient Woodland	277867	188475	0	1.81	1.81	2.07	10	2.7
E42	E42 Unnamed Ancient Woodland	277958	188412	0	1.81	1.81	2.08	10	2.7
E43	E43 Eglwys Nunydd	279181	185826	0	1.81	1.81	2.60	20	4.0
E44	E44 Eglwys Nunydd	278929	185677	0	1.81	1.81	2.54	20	3.7
E45	E45 Eglwys Nunydd	278768	185405	0	1.81	1.81	2.37	20	2.8
E46	E46 Eglwys Nunydd	279236	184084	0	1.81	1.81	2.12	20	1.6
E47	E47 Margam Country Park	280113	185600	0	1.81	1.81	2.42	10	6.1
E48	E48 Margam Country Park	280381	185503	0	1.81	1.81	2.37	10	5.7
E49	E49 Margam Country Park	281283	184909	0	1.81	1.81	2.22	10	4.1
E50	E50 Margam Country Park	281594	184546	0	1.81	1.81	2.15	10	3.4
E51	E51 Unnamed Ancient Woodland	279743	186141	0	1.81	1.81	2.64	10	8.4
E52	E52 Unnamed Ancient Woodland	279683	186182	0	1.81	1.81	2.67	10	8.6
E53	E53 Unnamed Ancient Woodland	279837	186331	0	1.81	1.81	2.69	10	8.9
E54	E54 Unnamed Ancient Woodland	278952	187363	0	1.81	1.81	2.69	10	8.9
E55	E55 NPT Watercourse	274727	188533	0	1.81	1.81	2.27	20	2.3

Table 6.69: Comparison of annual mean NH₃ between S4b – Bespoke Interim Baseline for Operation Without Cumulative Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E1	E1 Margam Moors	278509	185287	0	0.90	0.931	0.935	3	0.16
E2	E2 Margam Moors	277997	185011	0	0.89	0.913	0.917	3	0.14
E3	E3 Margam Moors	277571	184676	0	0.88	0.899	0.903	3	0.12
E4	E4 Eglwys Nunydd	279360	185703	0	0.89	0.987	1.005	3	0.61
E5	E5 Eglwys Nunydd	278971	185332	0	0.90	0.945	0.952	3	0.24
E6	E6 Eglwys Nunydd	279152	184601	0	0.91	0.947	0.953	3	0.18
E7	E7 Eglwys Nunydd	279347	184181	0	0.91	0.948	0.953	3	0.18
E8	E8 Kenfig/Cynffig	278911	183412	0	0.90	0.925	0.932	1	0.62
E9	E9 Kenfig/Cynffig	278578	183294	0	0.90	0.921	0.925	1	0.49
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.017	0.021	1	0.37
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.014	0.018	1	0.36
E12	E12 Kenfig/Cynffig	280023	182746	0	0.98	1.051	1.062	1	1.12
E13	E13 Kenfig/Cynffig	280246	182907	0	0.98	1.149	1.179	1	3.02
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.82	0.977	1.003	1	2.52
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.81	0.864	0.871	1	0.69
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.81	0.857	0.863	1	0.63
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.81	0.853	0.859	1	0.62

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E18	E18 Kenfig/Cynffig	283734	177209	0	0.89	0.896	0.896	1	0.03
E19	E19 Kenfig/Cynffig	284363	177536	0	0.93	0.935	0.936	1	0.06
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.24	1.257	1.258	1	0.06
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.22	1.232	1.232	1	0.04
E22	E22 Crymlyn Bog	272000	194540	0	0.89	0.900	0.903	1	0.26
E23	E23 Crymlyn Bog	271205	193885	0	0.88	0.890	0.894	1	0.39
E24	E24 Crymlyn Bog	271148	193847	0	0.88	0.890	0.894	1	0.40
E25	E25 Crymlyn Bog	270537	193669	0	0.89	0.898	0.902	1	0.37
E26	E26 Crymlyn Bog	268207	193203	0	0.92	0.925	0.928	1	0.31
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.81	0.958	0.973	1	1.44
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.81	0.993	1.019	1	2.58
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.82	1.709	1.781	1	7.19
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.82	1.276	1.313	1	3.74
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.89	1.052	1.069	1	1.67
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.89	0.981	0.991	1	0.93
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.82	2.030	2.133	1	10.33

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.82	1.630	1.760	1	13.02
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.82	1.606	1.750	1	14.45
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.82	2.409	2.681	1	27.25
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.82	1.468	1.583	1	11.43
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.71	0.927	0.955	1	2.79
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.71	1.513	1.593	1	7.93
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.71	0.870	0.889	1	1.92
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.57	0.821	0.856	1	3.56
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.57	0.886	0.930	1	4.36
E43	E43 Eglwys Nunydd	279181	185826	0	0.89	1.042	1.064	3	0.73
E44	E44 Eglwys Nunydd	278929	185677	0	0.90	0.950	0.958	3	0.26
E45	E45 Eglwys Nunydd	278768	185405	0	0.90	0.942	0.949	3	0.22
E46	E46 Eglwys Nunydd	279236	184084	0	0.91	0.943	0.948	3	0.17
E47	E47 Margam Country Park	280113	185600	0	0.89	1.252	1.286	1	3.44
E48	E48 Margam Country Park	280381	185503	0	0.89	1.056	1.074	1	1.78
E49	E49 Margam Country Park	281283	184909	0	0.96	1.191	1.213	1	2.17

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Annual Mean NH ₃ concentrations				
					Background (µg/m ³)	S4b (µg/m ³)	S5 (µg/m ³)	Critical Level (µg/m ³)	PC as % of Critical Level
E50	E50 Margam Country Park	281594	184546	0	0.96	1.212	1.232	1	2.02
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.82	1.087	1.111	1	2.32
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.82	1.187	1.220	1	3.31
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.82	0.922	0.933	1	1.13
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.71	1.326	1.411	1	8.42
E55	E55 NPT Watercourse	274727	188533	0	0.00	0.019	0.024	3	0.17

Table 6.70: Comparison of nutrient nitrogen deposition between S4b – Bespoke Interim Baseline for Operation Without Cumulative Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4b (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin
E1	E1 Margam Moors	278509	185287	0	1.50	1.55	6	0.82
E2	E2 Margam Moors	277997	185011	0	1.13	1.17	6	0.72
E3	E3 Margam Moors	277571	184676	0	0.91	0.95	6	0.62
E8	E8 Kenfig/Cynffig	278911	183412	0	0.88	0.93	5	1.06
E9	E9 Kenfig/Cynffig	278578	183294	0	0.84	0.88	5	0.86

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4b (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin
E10	E10 Kenfig/Cynffig	277947	183429	0	0.78	0.82	5	0.66
E11	E11 Kenfig/Cynffig	277366	183205	0	0.76	0.80	5	0.68
E12	E12 Kenfig/Cynffig	280023	182746	0	1.64	1.73	5	1.73
E13	E13 Kenfig/Cynffig	280246	182907	0	2.33	2.55	5	4.39
E14	E14 Junction 38 Wetland Comple	279049	186481	0	5.63	5.98	10	3.45
E15	E15 Junction 38 Wetland Comple	278474	186441	0	4.57	4.65	5	1.71
E16	E16 Junction 38 Wetland Comple	278507	186263	0	4.26	4.33	5	1.49
E17	E17 Junction 38 Wetland Comple	278578	186056	0	3.94	4.01	5	1.43
E18	E18 Kenfig/Cynffig	283734	177209	0	0.82	0.83	5	0.15
E19	E19 Kenfig/Cynffig	284363	177536	0	0.68	0.69	5	0.19
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	1.01	1.02	5	0.19
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	1.30	1.31	5	0.18
E22	E22 Crymlyn Bog	272000	194540	0	1.36	1.38	5	0.46
E23	E23 Crymlyn Bog	271205	193885	0	1.02	1.05	5	0.66
E24	E24 Crymlyn Bog	271148	193847	0	1.02	1.05	5	0.67
E25	E25 Crymlyn Bog	270537	193669	0	0.97	1.00	5	0.63
E26	E26 Crymlyn Bog	268207	193203	0	1.27	1.30	5	0.58
E27	E27 Unnamed Ancient Woodland	278654	186618	0	8.92	9.15	10	2.23
E28	E28 Unnamed Ancient Woodland	278959	186629	0	9.27	9.62	10	3.48

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4b (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin
E29	E29 Unnamed Ancient Woodland	279486	186354	0	13.94	14.80	10	8.58
E30	E30 Unnamed Ancient Woodland	279716	186123	0	9.20	9.67	10	4.69
E31	E31 Unnamed Ancient Woodland	280228	185547	0	3.75	3.98	10	2.26
E32	E32 Unnamed Ancient Woodland	280266	185669	0	2.94	3.08	10	1.40
E33	E33 Unnamed Ancient Woodland	279353	186567	0	17.49	18.66	10	11.78
E34	E34 Unnamed Ancient Woodland	279215	186696	0	12.96	14.46	10	14.98
E35	E35 Unnamed Ancient Woodland	279167	186779	0	12.70	14.35	10	16.56
E36	E36 Unnamed Ancient Woodland	279171	186813	0	21.62	24.62	10	29.92
E37	E37 Unnamed Ancient Woodland	279073	186908	0	11.16	12.48	10	13.25
E38	E38 Unnamed Ancient Woodland	278973	187505	0	6.28	6.64	10	3.61
E39	E39 Unnamed Ancient Woodland	278982	187276	0	12.93	13.85	10	9.23
E40	E40 Unnamed Ancient Woodland	278958	187625	0	5.62	5.88	10	2.64
E41	E41 Unnamed Ancient Woodland	277867	188475	0	5.71	6.15	10	4.40
E42	E42 Unnamed Ancient Woodland	277958	188412	0	6.46	6.99	10	5.30

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Nutrient Nitrogen Deposition (inclusive of ammonia)			
					S4b (kgN/ha/yr)	S5 (kgN/ha/yr)	Lower Critical Load (CLMin) (kgN/ha/yr)	PC as % of CLMin
E51	E51 Unnamed Ancient Woodland	279743	186141	0	6.94	7.24	10	3.07
E52	E52 Unnamed Ancient Woodland	279683	186182	0	8.15	8.57	10	4.23
E53	E53 Unnamed Ancient Woodland	279837	186331	0	4.98	5.16	10	1.79
E54	E54 Unnamed Ancient Woodland	278952	187363	0	10.82	11.81	10	9.86
Note: Receptors where insufficient information was available to estimate a critical load, or the habitat was considered unlikely to be sensitive to nutrient nitrogen deposition have been excluded. Regardless, concentrations at excluded receptors decreased so would not expect any adverse impacts.								

Table 6.71: Comparison of acid deposition between S4b – Bespoke Interim Baseline for Operation Without Cumulative Development (2027) and S5 – Future Operational With Development (2027)

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4b Nitrogen Deposition (keq/ha/yr)	S5 – S4b Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E1	E1 Margam Moors	278509	185287	0	0.00	0.06	3.01
E2	E2 Margam Moors	277997	185011	0	0.00	0.05	1.28
E3	E3 Margam Moors	277571	184676	0	0.00	0.04	1.07
E8	E8 Kenfig/Cynffig	278911	183412	0	0.00	0.03	0.77
E9	E9 Kenfig/Cynffig	278578	183294	0	0.00	0.03	0.74
E10	E10 Kenfig/Cynffig	277947	183429	0	0.00	0.03	0.75
E11	E11 Kenfig/Cynffig	277366	183205	0	0.00	0.03	0.69

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4b Nitrogen Deposition (keq/ha/yr)	S5 – S4b Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E12	E12 Kenfig/Cynffig	280023	182746	0	0.01	0.03	0.66
E13	E13 Kenfig/Cynffig	280246	182907	0	0.02	0.03	0.67
E14	E14 Junction 38 Wetland Comple	279049	186481	0	0.02	0.25	16.31
E15	E15 Junction 38 Wetland Comple	278474	186441	0	0.01	0.16	10.08
E16	E16 Junction 38 Wetland Comple	278507	186263	0	0.01	0.14	8.39
E17	E17 Junction 38 Wetland Comple	278578	186056	0	0.01	0.12	7.16
E18	E18 Kenfig/Cynffig	283734	177209	0	0.00	0.02	1.90
E19	E19 Kenfig/Cynffig	284363	177536	0	0.00	0.02	1.94
E20	E20 Cefn Cribwr Grasslands	284078	182005	0	0.00	0.02	1.61
E21	E21 Cefn Cribwr Grasslands	285458	181900	0	0.00	0.02	1.53
E22	E22 Crymlyn Bog	272000	194540	0	0.00	0.01	2.06
E23	E23 Crymlyn Bog	271205	193885	0	0.00	0.01	2.45
E24	E24 Crymlyn Bog	271148	193847	0	0.00	0.01	2.47
E25	E25 Crymlyn Bog	270537	193669	0	0.00	0.01	2.59
E26	E26 Crymlyn Bog	268207	193203	0	0.00	0.02	3.25
E27	E27 Unnamed Ancient Woodland	278654	186618	0	0.02	0.30	10.72
E28	E28 Unnamed Ancient Woodland	278959	186629	0	0.02	0.25	9.61
E29	E29 Unnamed Ancient Woodland	279486	186354	0	0.06	0.22	16.36
E30	E30 Unnamed Ancient Woodland	279716	186123	0	0.03	0.20	13.47

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4b Nitrogen Deposition (keq/ha/yr)	S5 – S4b Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E31	E31 Unnamed Ancient Woodland	280228	185547	0	0.02	0.14	8.55
E32	E32 Unnamed Ancient Woodland	280266	185669	0	0.01	0.14	8.50
E33	E33 Unnamed Ancient Woodland	279353	186567	0	0.08	0.22	18.08
E34	E34 Unnamed Ancient Woodland	279215	186696	0	0.11	0.23	19.72
E35	E35 Unnamed Ancient Woodland	279167	186779	0	0.12	0.23	20.28
E36	E36 Unnamed Ancient Woodland	279171	186813	0	0.21	0.22	25.77
E37	E37 Unnamed Ancient Woodland	279073	186908	0	0.09	0.22	18.57
E38	E38 Unnamed Ancient Woodland	278973	187505	0	0.03	0.20	24.08
E39	E39 Unnamed Ancient Woodland	278982	187276	0	0.07	0.20	28.85
E40	E40 Unnamed Ancient Woodland	278958	187625	0	0.02	0.19	22.87
E41	E41 Unnamed Ancient Woodland	277867	188475	0	0.03	0.04	2.40
E42	E42 Unnamed Ancient Woodland	277958	188412	0	0.04	0.04	2.73
E51	E51 Unnamed Ancient Woodland	279743	186141	0	0.02	0.20	12.80

Receptor ID	Receptor Name	X(m)	Y(m)	Z(m)	Acid Deposition (process contribution only)		
					S5 – S4b Nitrogen Deposition (keq/ha/yr)	S5 – S4b Sulphur Deposition (keq/ha/yr)	%PC of Critical Load Function
E52	E52 Unnamed Ancient Woodland	279683	186182	0	0.03	0.20	13.59
E53	E53 Unnamed Ancient Woodland	279837	186331	0	0.01	0.21	12.90
E54	E54 Unnamed Ancient Woodland	278952	187363	0	0.07	0.20	29.32