The Great Grid Upgrade

North Humber to High Marnham

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North Humber to High Marnham

Volume 6: Environmental Statement

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1. Introduction

1.1 Introduction

1.1.1 This appendix to **Application Document 6.19 Chapter 19 Climate Change** presents the results of the In-Combination Climate Change Impact (ICCI) Assessment for the construction, and operational and maintenance phases of the Project.

1.2 In-Combination Climate Change Impact Assessment

1.2.1 The environmental topic leads for the Project have reviewed the future climate projections as set out in **Application Document 6.19 Chapter 19 Climate Change** and have examined the sensitivity of receptors before commenting on the combined impact of climate change and the Project on surrounding sensitive receptors (as identified by the relevant technical disciplines in the Environmental Statement (ES) chapters listed below, as well as **Application Document 6.19.A2 Appendix 19.2 Climate Change Risk Assessment** (CCRA)).

- **Application Document 6.6 Chapter 6 Landscape**;
- **Application Document 6.7 Chapter 7 Visual**;
- **Application Document 6.8 Chapter 8 Ecology**;
- **Application Document 6.9 Chapter 9 Ornithology**;
- **Application Document 6.10 Chapter 10 Cultural Heritage**;
- **Application Document 6.11 Chapter 11 Water Environment**;
- **Application Document 6.12 Chapter 12 Geology and Hydrogeology**;
- **Application Document 6.13 Chapter 13 Agriculture and Soils**;
- **Application Document 6.14 Chapter 14 Traffic and Transport**;
- **Application Document 6.15 Chapter 15 Air Quality**;
- **Application Document 6.16 Chapter 16 Noise and Vibration**;
- **Application Document 6.17 Chapter 17 Socio-economics, Recreation and Tourism**; **and**
- **Application Document 6.18 Chapter 18 Health and Wellbeing**.

1.2.2 The parameters considered by the technical disciplines in the preparation of the ICCI assessment were as follows:

a. Extreme weather events (heatwaves, storm surges, wildfire and drought);
b. Temperature changes;
c. Rainfall changes; and
d. Changes in wind patterns.

1.2.3 The ICCI is presented by theme, rather than on a chapter topic basis, and a theme may consider inputs from more than one technical discipline.

1.2.4 Table 1.1 and present the results of the ICCI Assessment for the construction, and operational and maintenance phases of the Project. Further context regarding mitigation measures is provided in the individual topic chapters of the ES (as listed in paragraph 1.2.1) and **Application Document 7.3 Register of Environmental Actions and Commitments**.

Table 1.1 – ICCI Assessment: construction phase

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
Air Quality	Decrease in annual precipitation rate and increase in risk of drought.	Unlikely	Increased dust generation during construction as a result of drier conditions and soil disturbance, leading to potential deterioration in local air quality.	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction:	Rare	Negligible	Not significant

[1] Four-digit codes represent the commitment identifier code in **Application Document 7.3 Register of Environmental Actions and Commitments**.

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				GG02: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. **GG04**: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project as set out within **Application Document 7.2 Outline Code of Construction Practice**. **GG10**: As far as reasonably practicable and safe to do so, any activity carried out or equipment located within a construction compound that may produce dust, noise, vibration and lighting emissions, will be located away from sensitive receptors such as residential			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				properties or designated ecological sites. **S01**: Training will be provided to construction workers on the management of emissions (dust, noise, vibration, etc) in line with measures and methods defined in the Final CoCP. **AQ02**: Dust Management The Mains Works Contractor(s) will develop and comply with a Dust Management Plan (DMP), which may include measures to control other air emissions, and be implemented prior to construction. **AQ04**: Monitoring. Daily on-site and off-site inspections will be undertaken, where receptors (including roads) are nearby, to monitor dust, record inspection results. The information collected			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				from these inspections will be compiled within a log, which will be made available to the local authority on request. This will include regular dust soiling checks of surfaces such as street furniture, cars, and windowsills within 100 m of the site boundary, with cleaning to be provided if necessary. The inspection log will be made available to the local authority on request. There will be an increase in 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. Dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations will be discussed with the local authority, if required. Where			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				possible, baseline monitoring will commence at least three months before work commences on-site or, if it is a large site, before work on a phase commences. **AQ05**: Preparing and Maintaining the Site. Solid screens or barriers will be erected around dusty activities, where required, that are at least as high as any stockpiles on-site. Specific activities will be fully enclosed where there is a high potential for dust production and the activity is ongoing for an extensive period. Runoff of water or mud will be avoided where possible. Site fencing, barriers and scaffolding will be kept clean using wet methods. Materials that have the potential to produce dust from site will be removed as			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				soon as possible, unless being re-used on-site. If they are being re-used on-site, they will be covered as described below. Stockpiles will be covered, seeded or fenced to prevent wind whipping (where needed and depending on duration). **AQ06**: Operating vehicle/machinery and sustainable travel. A maximum speed limit will be imposed on construction access tracks and work areas. For longer length of construction access tracks, these speeds may be increased with suitable additional control measures provided, subject to the approval of the undertaker and with the agreement of the local authority, where appropriate. A Construction Logistics Plan will be produced and complied with to manage the			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				sustainable delivery of goods and materials. **AQ07**: Operations. Suitable dust suppression techniques, such as water sprays or local extraction, will be fitted to or used in conjunction with, cutting, grinding or sawing equipment. There will be an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. Enclosed chutes and conveyors and covered skips will be used, where reasonably practicable. Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised and fine water sprays will be used on such equipment wherever appropriate.			

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				It will be ensured that equipment will be readily available on-site to clean any dry spillages, and spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods. **AQ08**: Earthworks. Earthworks and exposed areas/ soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable, where appropriate and using appropriate seed mix for what habitat the top soil was from. Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. **AQ09**: Construction. Scabbling (roughening of			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				concrete surfaces) will be avoided if possible. Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process, in which case appropriate additional control measures will be in place. Fine powder materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials, bags will be sealed after use and stored appropriately to prevent dust. **AQ10**: Trackout. Vehicles carrying materials entering and leaving sites will be covered to prevent escape of materials during transport.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				On-site construction access tracks will be inspected for integrity and any necessary repairs to the surface will be instigated as soon as reasonably practicable. Hard surfaced haul routes will be installed where possible and regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers, and regularly cleaned. An adequate area of hard surfaced road will be provided between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates will be located at least 10 m from receptors where possible. **AQ14**: Where maintenance activities are required during the operational phase that have the potential to generate dust or emissions, proportionate dust and emissions management			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				measures consistent with those committed to for the construction phase shall be implemented, to minimise any effects on air quality. As set out in **Application Document 7.2 Outline Code of Construction Practice**, a Safety Health and Environment Plan will be prepared by the Main Works Contractor(s) for each element of the Project and updated accordingly as the Project develops. The Safety Health and Environment Plan will ensure that adequate arrangements and welfare facilities are in place to cover the safety of construction staff.			
	Increase in frequency and intensity of heatwaves	Unlikely	Higher temperatures and reduced rainfall may lead to faster drying of soil stockpiles, increasing the	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.	Rare	Negligible	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
			potential for dust generation and associated effects on local air quality.	**GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan;			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				GG04: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the Project as set out within **Application Document 7.2 Outline Code of Construction Practice**. **S01**: Training will be provided to construction workers on the management of emissions (dust, noise, vibration, etc) in line with measures and methods defined in the Final CoCP. **AQ02**: Dust Management The Mains Works Contractor(s) will develop and comply with a Dust Management Plan (DMP), which may include measures to control other air emissions, and be implemented prior to construction.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				AQ04: Monitoring. Daily on-site and off-site inspections will be undertaken, where receptors (including roads) are nearby, to monitor dust, record inspection results. The information collected from these inspections will be compiled within a log, which will be made available to the local authority on request. This will include regular dust soiling checks of surfaces such as street furniture, cars, and windowsills within 100 m of the site boundary, with cleaning to be provided if necessary. The inspection log will be made available to the local authority on request. There will be an increase in 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			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				prolonged dry or windy conditions. Dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations will be discussed with the local authority, if required. Where possible, baseline monitoring will commence at least three months before work commences on-site or, if it is a large site, before work on a phase commences. **AQ05**: Preparing and Maintaining the Site. Solid screens or barriers will be erected around dusty activities, where required, that are at least as high as any stockpiles on-site. Specific activities will be fully enclosed where there is a high potential for dust production and the activity is ongoing for an extensive period.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				Runoff of water or mud will be avoided where possible. Site fencing, barriers and scaffolding will be kept clean using wet methods. Materials that have the potential to produce dust from site will be removed as soon as possible, unless being re-used on-site. If they are being re-used on-site, they will be covered as described below. Stockpiles will be covered, seeded or fenced to prevent wind whipping (where needed and depending on duration). **AQ08**: Earthworks. Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable, where appropriate and using appropriate seed mix for what habitat the top soil was from.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. **AQ09**: Construction. Scabbling (roughening of concrete surfaces) will be avoided if possible. Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process, in which case appropriate additional control measures will be in place. Fine powder materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials, bags will be sealed after use and			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				stored appropriately to prevent dust. **AQ14**: Where maintenance activities are required during the operational phase that have the potential to generate dust or emissions, proportionate dust and emissions management measures consistent with those committed to for the construction phase shall be implemented, to minimise any effects on air quality. **GG21**: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression.			
Visual amenity	Decrease in annual precipitation rate, the increase in risk of drought and, heatwave frequency and intensity.	Unlikely	Reduced success or failure of seeding operations as a result of sub-optimal growing conditions, potentially affecting vegetation	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.	Rare	Negligible	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
			establishment (screening) and increasing the visual impact of the Project.	**GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan;			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				GG30: The construction work area will be reinstated to pre-existing conditions as far as reasonably practical in line with a Soil Management Plan and the Department for Environment, Food and Rural Affairs (Defra) Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009). This will include a commitment to develop and comply with the measures set out within an Aftercare Management Plan (including the aftercare period) prior to the completion of construction. **LV03**: A five-year aftercare period will be established for all reinstatement and mitigation planting **LV04**: Planting and seeding operations will be undertaken during an			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				appropriate planting/seeding season, and where planting is in locations not affected by other construction activities, planting will be undertaken at the earliest opportunity.			
Ecology and Landscape	Decrease in annual precipitation rate, the increase in risk of drought and, heatwave frequency and intensity.	Unlikely	Changes in temperature and precipitation patterns may create sub-optimal growing conditions, reducing the success of seeding operations and vegetation establishment. This may hinder habitat establishment and compromise landscape mitigation planting.	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following	Rare	Negligible	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				GG02: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. **GG30**: The construction work area will be reinstated to pre-existing conditions as far as reasonably practical in line with a Soil Management Plan and the Department for Environment, Food and Rural Affairs (Defra) Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009). This will include a commitment to develop and comply with the measures set out within an Aftercare Management Plan (including the aftercare			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				period) prior to the completion of construction. **LV03**: A five-year aftercare period will be established for all reinstatement and mitigation planting **LV04**: Planting and seeding operations will be undertaken during an appropriate planting/seeding season, and where planting is in locations not affected by other construction activities, planting will be undertaken at the earliest opportunity.			
Ornithology	No ICCIs identified						
Cultural Heritage	No ICCIs identified						
Geology and Hydrogeology	No ICCIs identified						
Noise and Vibration	No ICCIs identified						
Socio-economic	No ICCIs identified						

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
Health and Wellbeing	Decrease in annual precipitation rate and increase in risk of drought.	Unlikely	Drier conditions associated with climate change may increase dust generation from construction activities, resulting in reduced local air quality and potential health effects for site workers and nearby residents. Low rainfall may lead to increases in dust and reduced air quality. Breathing in this dust can have negative health impacts, especially on construction workers spending lots of time onsite and nearby residents.	**GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan;	Rare	Negligible	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				GG10: As far as reasonably practicable and safe to do so, any activity carried out or equipment located within a construction compound that may produce dust, noise, vibration and lighting emissions, will be located away from sensitive receptors such as residential properties or designated ecological sites. **S01**: Training will be provided to construction workers on the management of emissions (dust, noise, vibration, etc) in line with measures and methods defined in the Final CoCP. **AQ02**: Dust Management The Mains Works Contractor(s) will develop and comply with a Dust Management Plan (DMP), which may include measures to control other air emissions, and be			

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				implemented prior to construction. **AQ03**: Site Management. All dust and air quality complaints will be recorded and their cause(s) identified. Appropriate measures to reduce emissions will be implemented in a timely manner, and these measures will be recorded. The complaints log will be made available to the local authority on request. Any exceptional incidents that cause dust and/ or air emissions, either on- or off-site, and the action taken to resolve the situation will be recorded in the logbook. Regular liaison meetings with other high risk construction sites within 500 m of the Order Limits will be held to ensure plans are coordinated and dust and particulate matter emissions are minimised.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				Off-site transport and delivery activities using shared sections of the Strategic Road Network and local road network will be considered to understand potential interactions and minimise associated dust and particulate matter emissions. **AQ04**: Monitoring. Daily on-site and off-site inspections will be undertaken, where receptors (including roads) are nearby, to monitor dust, record inspection results. The information collected from these inspections will be compiled within a log, which will be made available to the local authority on request. This will include regular dust soiling checks of surfaces such as street furniture, cars, and windowsills within 100 m of the site boundary, with cleaning to be provided if necessary.			

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				The inspection log will be made available to the local authority on request. There will be an increase in 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. Dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations will be discussed with the local authority, if required. Where possible, baseline monitoring will commence at least three months before work commences on-site or, if it is a large site, before work on a phase commences. **AQ05**: Preparing and Maintaining the Site. Solid screens or barriers will be erected around dusty			

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				activities, where required, that are at least as high as any stockpiles on-site. Specific activities will be fully enclosed where there is a high potential for dust production and the activity is ongoing for an extensive period. Runoff of water or mud will be avoided where possible. Site fencing, barriers and scaffolding will be kept clean using wet methods. Materials that have the potential to produce dust from site will be removed as soon as possible, unless being re-used on-site. If they are being re-used on-site, they will be covered as described below. Stockpiles will be covered, seeded or fenced to prevent wind whipping (where needed and depending on duration).			

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				AQ07: Operations. Suitable dust suppression techniques, such as water sprays or local extraction, will be fitted to or used in conjunction with, cutting, grinding or sawing equipment. There will be an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. Enclosed chutes and conveyors and covered skips will be used, where reasonably practicable. Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised and fine water sprays will be used on such equipment wherever appropriate. It will be ensured that equipment will be readily			

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				available on-site to clean any dry spillages, and spillages will be cleaned up as soon as reasonably practicable after the event using wet cleaning methods. **AQ08**: Earthworks. Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable, where appropriate and using appropriate seed mix for what habitat the top soil was from. Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. The cover will be removed in small areas during work and not all at once. **AQ09**: Construction. Scabbling (roughening of			

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				concrete surfaces) will be avoided if possible. Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular process, in which case appropriate additional control measures will be in place. Fine powder materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials, bags will be sealed after use and stored appropriately to prevent dust. **AQ10**: Trackout. Vehicles carrying materials entering and leaving sites will be covered to prevent escape of materials during transport.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				On-site construction access tracks will be inspected for integrity and any necessary repairs to the surface will be instigated as soon as reasonably practicable. Hard surfaced haul routes will be installed where possible and regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers, and regularly cleaned. An adequate area of hard surfaced road will be provided between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates will be located at least 10 m from receptors where possible. **AQ14**: Where maintenance activities are required during the operational phase that have the potential to generate dust or emissions, proportionate dust and emissions management			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				measures consistent with those committed to for the construction phase shall be implemented, to minimise any effects on air quality. **GG21**: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression. As set out in **Application Document 7.2 Outline Code of Construction Practice**, a Safety Health and Environment Plan will be prepared by the Main Works Contractor(s) for each element of the Project and updated accordingly as the Project develops. The Safety Health and Environment Plan will ensure that adequate arrangements and welfare facilities are in place to cover the safety of construction staff.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
Agriculture and Soils	Decrease in Summer precipitation rate	Unlikely	Higher temperatures and reduced rainfall may increase the risk of soil erosion where soils are handled or trafficked in excessively dry conditions. These conditions may also lead to the drying and degradation of soil stockpiles, reducing soil quality and increasing the potential for dust generation.	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP);	Rare	Low	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				plans and their subordinate plans as set out within GG01. The Soil Management Plan which will be substantially based upon **Application Document 7.5 Outline Soil Management Plan**, will set out appropriate measures for the handling of soils, including trafficking, to mitigate soil erosion. **GG30**: The construction work area will be reinstated to pre-existing conditions as far as reasonably practical in line with a Soil Management Plan and the Department for Environment, Food and Rural Affairs (Defra) Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009). This will include a commitment to develop and comply with the			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				measures set out within an Aftercare Management Plan (including the aftercare period) prior to the completion of construction. **S01**: Training will be provided to construction workers on the management of emissions (dust, noise, vibration, etc) in line with measures and methods defined in the Final CoCP. **AQ02**: Dust Management. The Main Works Contractor(s) will develop and comply with a Dust Management Plan (DMP), which may include measures to control other air emissions, and will be implemented prior to construction. **AQ05**: Preparing and Maintaining the Site Solid screens or barriers will be erected around dusty			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				activities, where required, that are at least as high as any stockpiles on-site. Specific activities will be fully enclosed where there is a high potential for dust production and the activity is ongoing for an extensive period. Runoff of water or mud will be avoided where possible. Site fencing, barriers and scaffolding will be kept clean using wet methods. Materials that have the potential to produce dust from site will be removed as soon as possible, unless being re-used on-site. If they are being re-used on-site, they will be covered as described below. Stockpiles will be covered, seeded or fenced to prevent wind whipping (where needed and depending on duration).			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				AQ08: Earthworks. Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable, where appropriate and using appropriate seed mix for what habitat the top soil was from. Hessian, mulches or trackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. The cover will be removed in small areas during work and not all at once. **AQ09**: Construction. Scabbling (roughening of concrete surfaces) will be avoided if possible. Sand and other aggregates will be stored in bunded areas and will not be allowed to dry out, unless this is required for a particular			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				process, in which case appropriate additional control measures will be in place. Fine powder materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. **AQ10**: Trackout. Vehicles carrying materials entering and leaving sites will be covered to prevent escape of materials during transport. On-site construction access tracks will be inspected for integrity and any necessary repairs to the surface will be instigated as soon as reasonably practicable. Hard surfaced haul routes will be installed where possible and regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers, and regularly cleaned.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				An adequate area of hard surfaced road will be provided between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates will be located at least 10 m from receptors where possible. **GG21**: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression.			
Agriculture and Soils	Increase in Winter precipitation rate	Possible	Soils may be at risk of structural damage if handled or trafficked when too wet. This could result in increased flood risk and erosion of soils Increase in Winter Precipitation will increase the likelihood of soils being in a wet state.	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1**	Rare	Low	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
			During the construction phase, the incorrect handling of soils (e.g., stripping, storage, or reinstatement) when they are in a wet state can cause structural damage (e.g., through compaction or deformation). Compaction lowers soil permeability increasing the risk of flooding and levels of surface water run-off. Structural damage can also leave the soils more vulnerable to erosion increasing the risk of silty runoff. Structural damage (compaction and smearing) can also	**Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
			occur due to the trafficking (driving over) of wet soils by heavy machinery.	• Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. The Soil Management Plan, which will be substantially based upon **Application Document 7.5 Outline Soil Management Plan**, will set out appropriate measures for the handling of soils, including trafficking, to			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				mitigate soil structural damage and erosion. **GG30**: The construction work area will be reinstated to pre-existing conditions as far as reasonably practical in line with a Soil Management Plan and the Department for Environment, Food and Rural Affairs (Defra) Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009). This will include a commitment to develop and comply with the measures set out within an Aftercare Management Plan (including the aftercare period) prior to the completion of construction. **AS01**: Where land is being returned to agricultural use, the appropriate soil conditions (for example through the replacement of stripped layers and the			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				removal of any compaction) will be recreated. This will be achieved to a depth of 1.2 m (or the maximum natural soil depth if this is shallower). **AS09**: Appropriate technology/material will be installed in areas where heavy equipment, such as cranes and piling rigs, are to be used to provide stable working areas and reduce disturbance to the ground. **S01**: Training will be provided to construction workers on the management of emissions (dust, noise, vibration, etc) in line with measures and methods defined in the Final CoCP. **W20**: The Mains Works Contractor(s) will develop and comply with a Construction Surface Water Management Plan (CSWMP) in accordance			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				with **Application Document 7.13 Flood Risk Assessment** Appendix B Framework Construction Surface Water Management Plan. This will set out measures to manage surface water runoff during construction.			
Traffic and Transport	No ICCIs identified						
Water Environment	Increase in Winter precipitation rate	Possible	Increased groundwater level mixed with potential existing contamination if present.	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect	Low	Negligible	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP).			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. **GH01**: Intrusive ground investigations and assessment will be undertaken prior to construction, including the measurement and monitoring of groundwater levels, geotechnical and geoenvironmental sampling and testing as appropriate. The information will inform geoenvironmental assessment, where required, and appropriate			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				geotechnical design in relation to the site/structure specific ground conditions, identified by the intrusive ground investigation including ground instability/adverse ground conditions/ground gas etc. Therefore, any risks from these hazards would be considered within the engineering design of the new infrastructure in accordance with good practice. **GH02**: Where specific sites within the Order Limits have been assessed in the ES as presenting a Moderate or above risk to sensitive receptors, these sites will be individually investigated and assessed in accordance with Land Contamination Risk Management (LCRM) prior to construction. This will inform the assessment of the risks to receptors, and good practice measures and			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				working methods to control those risks will be developed. The results will be discussed, and the nature and scope of any mitigation or remediation will be agreed with the Environment Agency and LPA (as appropriate). Where sites have been identified within the Order Limits as having a moderate (or above) potential for generating contamination (and not also a moderate or above risk to receptors, for example due to limited or no interaction with the Project), these sites will be reviewed against the final detailed design. Where the final detailed design and proposed construction activities do not interact with these sites, no further assessment will be required. However, where there is potential for any interaction of the final design or proposed construction			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				activities with these sites, each site will be individually investigated and assessed to determine any mitigation or remediation measures required. The nature and scope of any mitigation or remediation will be agreed with the Environment Agency and local authority (as appropriate). If a site to be investigated is identified as a historical landfill, then prior discussions will be held with the Environment Agency to determine any assessments required to be undertaken before any intrusive ground investigations commence. **GH03**: A protocol for dealing with any unexpected contamination will be developed and complied with by the Main Works Contractor(s). The protocol will include, as a minimum: • Details of a watching brief and toolbox talks to			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				be implemented throughout the construction phase; • Details regarding how any affected area will be delineated, protected, investigated and assessed; • The qualifications and competencies of the person appointed to oversee the works; • The preparation of a method statement for how the contamination will be dealt with or remediated (as appropriate); • An escalation policy describing when and how any notifications and approvals will be agreed with the local planning authority; and Details of verification procedures for any mitigation or remediation works demonstrating			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				compliance with the method statement.			
Water Environment	Increase in Winter precipitation rate and associated further flood risk	Possible	Peak discharge rates exceeding capacity of attenuation treatment train.	**DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits. **DE18**: Temporary infrastructure such as construction compounds, lay down areas (as well as areas where impermeable material will be installed or where heavy equipment would be used) and construction access tracks would be drained using sustainable drainage systems (SuDS) techniques that are suitable for local ground conditions and topography and which are designed to accommodate a 1 in 10-year (10% Annual Exceedance Probability) event, plus a 40% allowance for climate change resilience. These areas will	Low	Negligible	Not significant

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				be reinstated after completion of the temporary works, as agreed with the landowner. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan;			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				plans as set out within GG01. **GG19**: Runoff across the site will be controlled through a variety of methods including header drains, buffer zones around watercourses, on-site ditches, silt traps and bunding. There will be no intentional discharge of site runoff to ditches, watercourses, drains (including highway drainage systems), or sewers without appropriate treatment and agreement of the appropriate authority. All practicable steps will be put in place to prevent pollution of watercourses. In the case of an emergency, protocols will be followed as per a Emergency Response Plan to be produced by the Mains Work Contractor(s) in accordance with GG25 below.			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				GG25: An Emergency Response Plan will be developed by the Mains Work Contractor(s) for the construction phase which will outline procedures to be implemented and to be followed in case of unplanned events, including but not limited to site flooding and pollution incidents. **AS04**: Consultation with affected landowners will be carried out to investigate the current extent of land drainage. A scheme of pre-construction land drainage will be designed with the intent of maintaining the efficiency of the existing land drainage system and to assist in maintaining the integrity of the working area during construction. The Project may include a system of 'cut-off' drains which feed into a new header drain and the Project			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				will also take into account surface water runoff measures. The Main Works Contractor(s) will ensure any land drains within the Order Limits, affected as a result of the Project are reinstated to their former functional condition, where agreed with the landowner. Any installed pre-construction land drainage to replace existing land drains affected by permanent infrastructure, as well as any drainage improvements resulting from the Project, would be retained. The baseline flood risks have been evaluated within the Order Limits in the **Application Document 7.13 Flood Risk Assessment** (FRA). The FRA identified areas of vulnerability to the Project stemming from flooding caused by fluvial, tidal, surface water and			

Theme	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[1]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				groundwater sources. The FRA provides mitigation measures to direct risks and advice on the management of any residual risk.			

Table 1.2 – ICCI Assessment: operational and maintenance phase

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
Air Quality	No ICCIs identified						
Ecology	No ICCIs identified						
Cultural Heritage	No ICCIs identified						
Landscape	No ICCIs identified						
Geology and Hydrogeology	No ICCIs identified						
Noise and Vibration	No ICCIs identified						
Health and Wellbeing	No ICCIs identified						
Visual amenity	No ICCIs identified						
Agriculture and Soils	Decrease in Summer precipitation rate	Unlikely	Drier conditions associated with climate change may increase the susceptibility of soils to erosion when handled or trafficked. These	During the operational phase, decreased precipitation could result in the drying of soils leaving it more vulnerable to erosion. There would be no requirement for soil handling during normal operation.	Rare	Low	Not significant

[2] Four-digit codes represent the commitment identifier code in **Application Document 7.3 Register of Environmental Actions and Commitments**.

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
			conditions may also lead to the desiccation of soil stockpiles, reducing soil quality and increasing the potential for dust emissions.	During maintenance activities handling of soil would be confined to small discrete areas of a smaller scale than at construction. Works plans (or similar) for these operations would include the appropriate management of soil resources (based upon the measures described in **Application Document 7.3 Register of Environmental Actions and Commitments** and **Application Document 7.5 Outline Soil Management Plan**) which would mitigate any impacts. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP).			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. **GG30**: The construction work area will be reinstated to pre-existing conditions as far as reasonably practical in line with a Soil Management Plan and the Department for Environment, Food and Rural Affairs (Defra) Code of Construction Practice for the Sustainable Use of Soils on Construction Sites (Department for Environment, Food and Rural Affairs, 2009). This will			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				include a commitment to develop and comply with the measures set out within an Aftercare Management Plan (including the aftercare period) prior to the completion of construction. **DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.			
Agriculture and Soils	Increase in Winter precipitation rate	Possible	Soils may be at risk of structural damage if handled or trafficked when too wet. This could result in increased flood risk and erosion of soils. The incorrect handling of soils (e.g. stripping, storage or reinstatement) when they are in a wet state can cause structural	There would be no requirement for soil handling during normal operation. During maintenance activities handling of soil would be confined to small discrete areas of a smaller scale than at construction. Method Statements (or similar) for these operations would include the appropriate management of soil resources (based upon the measures described in **Application Document 7.3**	Rare	Low	Not significant

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
			damage for example through compaction or deformation. Compaction lowers soil permeability increasing the risk of flooding and levels of surface water runoff. Structural damage can also leave the soils more vulnerable to erosion, increasing the risk of silty run off. Structural damage (compaction and smearing) can also occur due to heavy machinery trafficking (driving over) of wet soils. Increase in Winter precipitation will increase the likelihood of soils being in a wet state.	**Register of Environmental Actions and Commitments** and **Application Document 7.5 Outline Soil Management Plan**) which would mitigate any impacts. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP);			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. **DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.			
Traffic and Transport	No ICCIs identified						
Water Environment	Increase in Winter precipitation rate and associated flood risk	Possible	More intense rainfall events may generate peak discharge rates that exceed the capacity of the attenuation and treatment train, increasing the risk of flooding, erosion and reduced water quality.	**GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works	Low	Negligible	Not significant

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP); • Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. The Outline Surface Water Drainage Strategy presented as Appendix A of **Application Document 7.13 Flood Risk Assessment**. **DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.			
	Increase in Winter precipitation rate and	Possible	Higher flow rates associated with more intense rainfall events may	Climate change allowances have been included in the drainage design. Further details are available in	Low	Negligible	Not significant

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
	associated flood risk		modify sediment dynamics within the channel, potentially increasing erosion and altering sediment deposition patterns.	**Application Document 6.11 Chapter 11 Water Environment**, and the Outline Surface Water Drainage Strategy presented as Appendix A of **Application Document 7.13 Flood Risk Assessment**. **GG01**: The final versions of the outline environmental management plans will be submitted for approval in accordance with Requirement 4 (construction management plans) of **Application Document 3.1 Draft Development Consent Order** prior to commencement of development and will reflect the final construction methodologies produced by the Main Works Contractor(s). The following will be produced prior to construction: • Code of Construction Practice (CoCP);			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				• Construction Traffic Management Plan (CTMP); • Soil Management Plan; • Public Right of Way Management Plan; • Noise and Vibration Management Plan; • Landscape and Ecology Management Plan; • Archaeological Written Scheme of Investigation; and • Cultural Heritage Management Plan. • Framework Construction Surface Water Management Plan (CSWMP). All construction works will be undertaken in general accordance with these plans and all referenced subordinate plans. **GG02**: The Mains Works Contractor(s) will undertake site inspections to check			

Discipline	Climate hazard	Likelihood of climate hazard occurring	Likely ICCIs identified	Description of ICCI considering environmental measures[2]	Likelihood of ICCI occurring	Level of consequence	Significance of effect
				conformance to the measures set out within each of the management plans and their subordinate plans as set out within GG01. **DE1**: The Project will be delivered and operated in compliance with all relevant legislation, consents and permits.			

2. References

Department for Environment, Food and Rural Affairs. (2009). *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.* London: Department for Environment, Food and Rural Affairs. Retrieved from https://assets.publishing.service.gov.uk/media/5b2264ff40f0b634cfb50650/pb13298-code-of-practice-090910.pdf

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