10 TRAFFIC AND TRANSPORT

10.1 Introduction

10.1.1 This chapter assesses the environmental effects of the proposed Redcar Energy Centre (REC) in terms of traffic and transport.

10.1.2 The chapter describes the assessment methodology, the transport policy context, the existing baseline conditions at the Application Site and surroundings, the transport aspects of the development proposals and any required transport mitigation measures to prevent, reduce or offset any significant adverse effects.

10.1.3 The assessment is underpinned by an appraisal of transport conditions along the local transport network in scenarios that consider the conditions both with and without REC. The baseline conditions have been established through traffic survey data while the traffic that would be generated by REC has been evaluated by appraising the trip generation characteristics of the proposed development.

10.1.4 The analysis presented within this chapter is supported by a Transport Assessment (TA) which is included at Appendix 10.1 of this Environmental Statement (ES), hereafter referred to as the appended TA.

10.2 Assessment Methodology

Planning Policy Context

10.2.1 The National Planning Policy Framework (NPPF) (Ministry for Housing, Communities and Local Government (MHCLG), 2019), aims to enable local people and their accountable councils to produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

10.2.2 National policy in relation to the transport planning of developments is set out in Section 9 of the NPPF 'Providing Sustainable Transport – considering development proposals', full details of which is set out in the appended TA at Appendix 9.1.

10.2.3 The National Planning Practice Guidance (NPPG) was published in March 2014 and has been updated several times. PPG 'Travel Plans, Transport Assessments and Statements in Decision-Taking' provides a concise report on the use and importance of Transport Assessments / Statements and Travel Plans, full details of which is set out in the appended TA at Appendix 10.1.

10.2.4 Local planning policies are set out in the following documents:

- Redcar and Cleveland Local Plan (adopted May 2018); and
- Redcar and Cleveland Local Transport Plan 2011-2021 (adopted March 2011).
- Full details of these are set out in the appended TA at Appendix 10.1.

Relevant Guidance

10.2.5 The Traffic and Transport assessment has followed the methodology set out in Chapter 4: Environmental Assessment Methodology. Specific to this chapter, the following guidance documents have also been considered:

- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Management and Assessment (IEMA), 1993); and

- Design Manual for Roads and Bridges (DMRB), Volume 11 Environmental Impact Assessment (Highways Agency et al, 2008).

Study Area

10.2.6 The Application Site is accessed from the public highway network via the South Tees Development Corporation access, taken from a five-arm roundabout with A1085 Trunk Road and the Wilton site access road. Beyond which, traffic generated at the Application Site travels along A1085 Trunk Road to the north east, and along A1085 Trunk Road, the A66 and A1053 to the south west. The study area therefore, comprises these sections of highway.

Baseline Methodology

10.2.7 The baseline environment has been established by obtaining recent traffic survey data and obtaining Personal Injury Accident (PIA) data along the adjoining highway network, as follows:

- obtaining Average Annual Daily Traffic flows (AADT) from the department for Transport (DfT), and from Highways England via the Webtris website; and
- obtaining PIA data along the local highway network covering the latest available five year period from September 2013 to August 2018.

Consultation

10.2.8 Details of relevant consultation with the Local Highway Authority (LHA) are set out in Table 10.1.

Table 10.1: Consultation Responses Relevant to Traffic and Transport

Date	Consultee and Issues Raised	Where Addressed
May 2020 (Scoping response)	**Redcar and Cleveland Borough Council** ***Engineering Team (Highways)*** I refer to the application and would offer no further comments.	Noted.
June 2020 (Scoping response)	**South Tees Development Corporation** The Scoping Report includes information on its proposed cumulative assessment. The proposed schemes are included within Appendix A of the report. We have reviewed the schedule of schemes and feel it is comprehensive. .	Sites analysed and included as committed or cumulative sites accordingly as set out in baseline and in cumulative assessment sections and within the appended TA (Appendix 10.1).

Assessment Criteria and Assignment of Significance

10.2.9 In accordance with the 'Guidelines for the Environmental Assessment of Road Traffic' (IEMA, 1993), the significance of effects has been assessed by considering the interaction between the magnitude of the impact and the sensitivity of the receptor in the vicinity of transport corridors. This assessment has compared the future baseline situation in the year of opening, taking into account other schemes that are likely to affect the future baseline condition in the year of opening, against a scenario which includes REC.

10.2.10 The IEMA guidelines recommend two rules to be considered when assessing the impact of development traffic on a road link:

- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%); and
- Rule 2: Include any other specifically sensitive areas where total traffic flows have increased by 10% or more.

10.2.11 The above guidance is based upon research, knowledge and experience of environmental effects of traffic, with less than a 30% increase generally resulting in imperceptible changes in the environmental effects of traffic. At a simple level, the guidance considers that projected changes in total traffic flow of less than 10% creates no discernible environmental effect, hence the second threshold as set out in Rule 2.

10.2.12 In cases where the thresholds are exceeded, Column 3 in Table 2.1 of the IEMA guidelines set out a list of environmental effects which should be assessed for their magnitude of change.

10.2.13 Definitions of each of the potential effects identified in the IEMA guidelines are summarised below along with explanatory text relating to assessment criteria to determine the magnitude of impact. It is on this basis that the assessment in this chapter has been undertaken.

10.2.14 It is acknowledged at paragraph 2.4 of the IEMA guidelines that not all the effects listed in Column 3 of Table 2.1 would be applicable to every development. An analysis of the surrounding highway network has been undertaken to assist with the assessments.

Dust and Dirt

10.2.15 Certain types of development, particularly construction sites, can give rise to deposition of dust and dirt on surrounding roads. The overall impact of this occurrence normally depends to a large extent on the management practices adopted at a site, such as vehicle sheeting and wheel washing.

10.2.16 Problems with dust and dirt are unlikely to occur at distances greater than 50 metres from the road (IEMA, March 1993). The access road for the Application Site is hard surfaced and is some 2.7km long between the site and the highway. Dust and dirt transported from the Application Site onto the highway is therefore not expected. An assessment of potential dust impacts is provided in Chapter 11.

Visual Effects

10.2.17 The visual effect of traffic is complex and subjective and includes both visual obstruction and visual intrusion. The IEMA guidelines states that obstruction refers to the blocking of views, by structures for example, and intrusion refers to the more subjective impact by traffic on an area of scenic beauty or of historical or conservation interest.

10.2.18 It goes on to state that increases in the number of large or high-sided vehicles may have an intrusive impact in areas of scenic beauty and in historic or conservation areas and acknowledges that in the majority of situations the changes in traffic resulting from a development will have little effect.

10.2.19 There are already HGVs travelling through the study area and it is not regarded as an area of scenic beauty, a historic or conservation area. Therefore, in accordance with the IEMA guidelines, the changes in traffic resulting from REC would have negligible effects and there is no requirement for an assessment in this regard. The visual effects of the proposed development as a whole are considered in Chapter 6: Landscape and Visual Impact and this includes consideration to traffic generated by REC.

Severance

10.2.20 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance can also result from difficulty in crossing a heavily trafficked road (IEMA, March 1993).

10.2.21 The guidance indicates that severance effects are considered 'slight', 'moderate' and 'substantial' with changes in traffic flows of 30%, 60% and 90% respectively.

10.2.22 Where relevant, effects on severance are considered within this chapter.

Driver Delay

10.2.23 Where roads affected by development are at or near capacity, the traffic associated with such development can cause or add to vehicle delays. Some roads are typically at or near capacity during the weekday AM (typically 08:00 to 09:00) and PM (typically 17:00 to 18:00) peak hours. Other sources of delay for non-development traffic can include:

- at the site access where there will be additional turning movements;
- on the roads passing the site where there is likely to be additional traffic;
- at other key intersections along the road which might be affected by increased traffic; and
- at junctions where the ability to find gaps in the traffic may be reduced, thereby lengthening delays.

10.2.24 Where relevant, the effects on driver delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Pedestrian Delay

10.2.25 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. The IEMA guidelines advise that pedestrian delay is perceptible or considered significant beyond a lower delay threshold of 10 seconds, for a link with no crossing facilities. A 10 second pedestrian delay in crossing a road broadly equates to a two-way link flow of approximately 1,400 vehicles per hour (IEMA, March 1993).

10.2.26 Where relevant, the effects on pedestrian delay are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Pedestrian Amenity

10.2.27 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is considered to be affected by traffic flow, speed and composition as well as footway width and the separation/protection from traffic. It encompasses the overall relationship between pedestrians and traffic. There are no commonly agreed thresholds for quantifying the significance of changes in pedestrian amenity, although the IEMA guidelines suggest a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.

10.2.28 Where relevant, the effects on pedestrian amenity are considered within this chapter and the magnitude of impact identified using the tentative threshold where the traffic flow (or its HGV component) is halved or doubled.

Accidents and Safety

10.2.29 It is possible to estimate the effects of increased traffic on accidents and safety from existing accident records, national statistics, the type and quantity of traffic generated, journey lengths and the characteristics of the routes in question.

10.2.30 Where relevant, the effects on accidents and safety are considered within this chapter and the magnitude of impact identified using professional judgement and the advice provided in the above guidance document.

Hazardous Loads

10.2.31 Some developments may involve transporting hazardous loads by road such as special wastes, toxic materials and chemicals.

10.2.32 REC would not accept hazardous waste, however some non-waste deliveries would be required associated with the process which may be regarded as hazardous, such as the Air Pollution Control Residue (APCR) and some reagent deliveries, depending on the concentration.

10.2.33 All such hazardous material would be transported using specialist sealed bulk container vehicles in accordance with the relevant health and safety regulations.

10.2.34 Where relevant, the effects of the transportation of hazardous material are considered within this chapter.

Receptor Sensitivity/Value

10.2.35 Paragraph 2.5 of the IEMA guidelines explains that locations which may be sensitive to changes in traffic conditions could be:

- people at home;
- people in work places;
- sensitive groups such as children, the elderly or the disabled;
- sensitive locations such as hospitals, churches, schools or historical buildings;
- people walking or cycling;
- open spaces;
- recreational sites;
- shopping areas;
- sites of ecological/nature conservation value; and
- sites of tourist/visitor attraction.

10.2.36 As a general guide, the determination of receptor sensitivity is based on the criteria of value, adaptability and tolerance. In terms of transport, receptors include people that are living in and using facilities, and using transport networks, in the area.

10.2.37 Given that all persons are deemed to be of equal value, sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to or recover from changes. Table 10.2 summarises the broad criteria for identifying receptor sensitivity.

Table 10.2: Definitions of Sensitivity

Sensitivity	Descriptors
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident black spots (with reference to accident data), retirement homes, urban/residential roads without footways that are used by pedestrians.
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with regular pedestrian movement but with narrow / inadequate footways, unsegregated cycleways, community centres, parks, recreation facilities.
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident black spots (with reference to accident data), retirement homes, urban/residential roads without footways that are used by pedestrians.

Magnitude of Impact

10.2.38 The criteria for defining magnitude in this chapter are based upon the advice contained within the IEMA guidelines and as defined in Table 10.3.

Table 10.3: Definitions of Magnitude

Sensitivity	Descriptors
High	Substantial or total loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse).
	Large scale improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Medium	Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse).
	Moderate improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Low	Some measurable loss of capability for movement along and across transport corridors, some measurable loss of access to key facilities and some measurable loss of highway safety. Some measurable increase in delays to travellers (adverse).
	Some measurable increase in the capability for movement along and across transport corridors, some measurable increase in access to key facilities and some measurable increase in highway safety. Some measurable increase in delays to travellers. Reduced risk of negative impacts occurring (beneficial).
Negligible	Very minor loss of capability for movement along and across transport corridors, very minor loss of access to key facilities and very minor loss of highway safety. Very minor increase in delays to travellers (adverse).
	Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in highway safety. Very minor decreases in delays to travellers (beneficial).
No change	No loss of capability for movement along and across transport corridors, no change of access to key facilities and highway safety. No delays to travellers.

Significance of Effects

10.2.39 The significance of the effect upon Traffic and Transport is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 10.4. Where a range of effects is presented in Table 10.4 , the final assessment for each effect is based upon expert judgement.

10.2.40 For the purpose of this assessment, any effects with a significance level of minor or less are considered to be not significant in Environmental Impact Assessment (EIA) terms.

Table 10.4: Assessment Matrix

Sensitivity	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible or minor	Minor	Moderate	Moderate or major
High	Minor	Minor or moderate	Moderate or major	Major

Limitations of the Assessment

10.2.41 The baseline data and survey data have been obtained from recognised sources and methodologies. In this sense, there are few limitations to their use. The traffic data is considered representative of baseline conditions.

10.2.42 REC traffic flows have been estimated based on industry standard practices and recognised methodologies, as have those generated by other cumulative and committed developments. Future year traffic flows have been estimated based on industry standard practices and recognised methodologies and all assessments have been undertaken in accordance with recognised guidance. On this basis, there are few limitations and the assessment is considered robust.

10.3 Baseline Environment

Highway Network

10.3.1 The Application Site is accessed from the public highway network via the South Tees Development Corporation access, taken from a five-arm roundabout with A1085 Trunk Road and the Wilton Site access road. Beyond which, traffic generated at the Application Site travels along A1085 Trunk Road to the north east, and along A1085 Trunk Road, the A66 and A1053 to the south west.

A1085 Trunk Road

10.3.2 The A1085 Trunk Road is a dual carriageway road that routes from the A1053 to the south west, to the A1042 / A1085 Corporation Road junction to the north east. There is street lighting and a combined foot / cycleway on both sides of the carriageway. To the north of the access road roundabout, the A1085 Trunk Road reduces to a single carriageway road.

10.3.3 The A1085 continues to the east where it provides access to Redcar, continuing parallel to the coast to Marske-by-the-Sea, and routes south to join the A174.

10.3.4 To the south west of the site, A1085 Trunk Road provides access to a number of industrial sites such as British Steel and UK Wood Recycling. This section of the road network adjacent to the River Tees is heavily industrialised, and A1085 Trunk Road provides no access to residential dwellings between the A1053 junction and the site access roundabout.

10.3.5 The A1085 Trunk Road has a central grass strip as a central reservation within the vicinity of the access road roundabout. The five-arm roundabout from which the Application Site access road is taken from is a relatively flat grassed roundabout, therefore vehicles on each arm have good visibility of several arms of the roundabout.

A1053 Greystone Road / Tees Dock Road

10.3.6 The A1053 Greystone Road routes from the A1085 Trunk Road via a signalised five-arm roundabout with the A1085 and Wilton International site access. The A1053 is part of the Strategic Road Network and is maintained by Highways England. It is a dual carriageway road subject to the national speed limit.

10.3.7 The A1053 Greystone Road routes south east for approximately 2km where it joins the A174, which is also part of the Strategic Road Network and maintained by Highways England. To the west of the A1085 Trunk Road roundabout, the A1053 Tees Dock Road routes for approximately 300 metres to join the A66 via a three-arm roundabout.

10.3.8 The combined foot / cycleway along the A1085 Trunk Road routes across the A1053 Greystone Road arm of the five-arm roundabout; however, it does not extend along the A1053 Greystone Road towards the A174. The combined foot / cycleway instead routes west of the roundabout along the A1053 Tees Dock Road to the A66 roundabout.

A174

10.3.9 The A174 routes from the A1053 Greystone Road via a four-arm roundabout to the south west the A174 is a trunk road maintained by Highways England, and routes across the southern perimeter of Middlesbrough. The A174 provides access to key strategic roads and residential areas in south Middlesbrough before joining the A19 via a grade-separated four-arm roundabout.

Pedestrians

10.3.10 There are footways along the A1085 and A1053 Tees Dock Road which lead to residential areas, generally with street lighting. These provide links to the whole of the surrounding urban and residential areas.

Cycling

10.3.11 The above sets out that there are cycleways along all of the adjacent roads which lead to residential areas, generally with street lighting. These provide links to the whole of the surrounding urban and residential areas.

Traffic Flows

10.3.12 The Application Site benefits from close proximity to the Strategic Road Network and is located within a heavily industrialised area where there are large proportions of HGVs and the highway network is designed to accommodate these. All HGVs associated with the proposed development would utilise the network of A roads within the vicinity of the Application Site which route from the wider highway network.

10.3.13 The Department for Transport publishes street-level traffic data for road-links on the motorway, 'A' road and minor road network in Great Britain. The latest information available covers 2018.

Additionally, Highways England directly monitor the speed and flow of roads using on road sensors.

10.3.14 Due to the proximity of the Application Site to the strategic road network, existing data derived from the Department for Transport and Highways England has been used to obtain traffic flow data.

10.3.15 Traffic flow data from the following locations for 2018 has been obtained from the Department for Transport.

- A1085 Trunk Road, South of Access Roundabout;
- A1053 between A66 and A1085 Trunk Road junction;
- A1053 between A66 and A174 Junctions;
- A66 between A1053 and A171 Junctions;
- A1085 Trunk Road, between junction with A1053 and junction with Normanby Road;
- A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane;
- A174 between the A1053 and A171;
- A1042 between the A1085 Trunk Road and Waveney Road junction; and
- A1085 Trunk Road between A1042 and Thrush Road junctions.

10.3.16 Highways England also provided additional traffic flow data for the A1053 and A174 which was broken down by direction, hourly flows and vehicle length. The observed traffic flows are set out in the appended TA.

Road Safety

10.3.17 PIA data was obtained from Crashmap for the most recent five-year period for the surrounding highway network within the vicinity of the Application Site. The area for which data was obtained includes A1085 Trunk Road from the site access junction, and the A1053 junction to the south where HGVS would join the trunk road network.

10.3.18 Crashmap updates its database after receiving the official data from the Department for Transport. This occurs annually and in 2017 and 2018 it was in late September, and it was expected that it will revert to the last-June date in future.

10.3.19 The most recent PIA data available runs to June 2019. Based on this, Crashmap data for the five year period from July 2014 to June 2019 has been analysed below.

10.3.20 There were twelve injury accidents during the five year period, all of which resulted in slight or serious injury. There were no fatal injury accidents. All injury accidents occurred at the locations as described below:

- Three slight injury accidents occurred on the north section of circulatory carriageway of the Application Site Access / A1085 Trunk Road roundabout;
- One serious injury accident occurred on the eastern section of the circulatory carriageway of the Application Site Access / A1085 Trunk Road roundabout;
- One serious injury accident occurred on the south-eastern section of the circulatory carriageway of the Application Site Access / A1085 Trunk Road roundabout;
- One sight injury accident occurred on A1085 Trunk Road approximately 310 metres north of the A1085 Trunk Road / British Steel access roundabout;

- One slight injury accident occurred on the circulatory carriageway of the British Steel access / A1085 Trunk Road roundabout;
- Two serious accidents occurred approximately 50 metres south of the British Steel access / A1085 Trunk Road roundabout;
- Three slight injury accidents occurred on the circulatory carriageway of the A1085 Trunk Road / A1053 Greystone Road roundabout.

10.3.21 From the analysis undertaken, there are a low number of injury accidents and all occurred at different locations, which suggests there are no aspects with the local highway network that contribute to a road safety issue.

Receptors

10.3.22 Receptors to be considered within the impact assessment were selected based upon the access route to be taken by vehicle movements generated by the proposed development.

10.3.23 Table 10.5 highlights the qualification of the sensitivity assessment of each receptor group for the proposals

Table 10.5: Sensitivity of Receptors

Link	Sensitivity	Qualification
A1085 Trunk Road South of Access Roundabout	Low	Partial dual / single carriageway. There are combined foot/cycleway on both sides of the carriageway with street lighting, partially separated from the main carriageway by grass verges but primarily adjacent to the carriageway. There are bus stops located 1000m north of the A1053 roundabout, which are serviced by the 62 and 64 bus services.
A1053 between A66 and A1085 Trunk Road junction	Low	Dual carriageway with street lighting, and combined foot/cycleway on the southern side of the carriageway, separated from the main carriageway by a grass verge.
A1053 between A66 and A174 Junctions	Negligible	Strategic Road Network subject to the national speed limit.
A66 between A1053 and A171 Junctions	Low	50mph dual carriageway road with street lighting. Partial footways adjacent to the carriageway within the vicinity of junctions which require pedestrians to cross the A66, with the majority of footways separated from the main carriageway by metal fencing or grass verge. The Church Lane / Easton Road signalised junction has pedestrian crossing points
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	Medium	A1085 Broadway provides access to residential dwellings, with zebra crossings at the Birchington Avenue junction. The speed limit is 30/40mph. There is a combined foot/cycleway which is partially

Link	Sensitivity	Qualification
		adjacent to the carriageway and partially separated by a grass verge, with some sections of cycleway on the main carriageway. The A1085 has footways and street lighting on both sides of the carriageway along its length, with cycle paths which are partially on-road, and on a combined foot/cycleway. A1085 Trunk Road provides access to retail parks and supermarkets, with signalised junctions with pedestrian crossing points.
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	Low	Single carriageway road with an on-road cycle path in both directions. Footways adjoin the carriageway with good levels of street lighting, and the speed limit varies between 30/40mph. A1085 Trunk Road provides access to a retail park via a signalised junction with pedestrian crossing points. There are no dwellings which take direct access from A1085 Trunk Road.
A174 between the A1053 and A171	Negligible	Strategic Road Network
A1042 between the A1085 Trunk Road and Waveney Road junction	Low	Provides direct access to dwellings, but the A1042 has wide footways and good levels of street lighting. Partial cycle lanes in both directions; however, there is evidence of cars parking within cycle lanes.
A1085 Trunk Road between A1042 and Thrush Road junctions	Low	Combined foot/cycleway on the northern side of the carriageway, with street lighting. Provides direct access to dwellings and college, with good footway provision.

10.3.24 Links that are defined as high or very high sensitivity are deemed as sensitive, in accordance with the IEMA guidance, and would be assessed against the rule 2 threshold. Links that are defined as medium, low or negligible sensitivity are deemed as not being sensitive, in accordance with the IEMA thresholds, and will be assessed against the rule 1 threshold.

10.3.25 On the basis of the above, no links are deemed as being sensitive by the definitions in the IEMA guidance; therefore, all links are assessed against the Rule 1 threshold described above.

Future Baseline Conditions

Extant Site Operations

10.3.26 The Application Site occupies an area of approximately 10.1 hectares (ha) and currently forms part of the Redcar Bulk Terminal. The Application Site is predominantly open land which has been used for the storage of materials from the terminal. There are also a number of small corrugated metal buildings located in the east of the site.

10.3.27 As the Application Site is predominantly open land used for storage, for the purposes of this assessment it is assumed that all vehicle movements to be generated by REC are new trips. Any vehicle trips generated by the Application Site's current use would not be removed from the baseline scenario.

Future Assessment Year

10.3.28 The timing of the proposed development would be dependent on securing planning permission and the discharge of planning conditions. The indicative construction programme envisages approximately 32 months from start on site to end of commissioning.

10.3.29 Assuming that planning permission is granted for the facility in winter 2020 the following development timescales are anticipated:

- Notice to Proceed to Contractor: 1st Quarter 2021.
- Clearance and Demolition: 2nd Quarter 2021.
- Commencement of Construction: 3rd Quarter 2021.
- Commissioning: 1st Quarter 2024.
- Commercial Operation: 2nd Quarter 2024.

10.3.30 As RECs first year of operation is anticipated to be 2024, this would be assessed.

Committed and Cumulative Developments

10.3.31 As part of the assessments, committed development sites and cumulative development sites are also considered.

10.3.32 Developments that already have planning consent have already been through that process and have identified any highway and transport improvements that may be necessary to mitigate their impact. There is no further opportunity for these developments to provide additional highway or transport mitigation and so these developments and their highway and transport schemes are treated as committed within any future year scenarios.

10.3.33 For this reason, those developments (traffic flows and their highway and transport mitigation schemes) form part of a future transport baseline scenario for any other developments that follow. In doing that, the impact of development proposals that follow consented developments is able to be determined in the knowledge of what has already been consented in transport and highways terms along with the need for any additional highway and transport improvements that may be necessary.

10.3.34 Other developments that emerge at the same time are treated together and are cumulatively assessed against the baseline scenario described above to determine their cumulative impact and their cumulative highway and transport mitigation requirements (if required).

10.3.35 A detailed assessment has been undertaken of all planning applications in the surrounding area and allocated sites. From a transport perspective, their status (i.e. consented, awaiting determination or allocated), traffic generation, their study area and the study area of this chapter have all been analysed to determine how they should be considered within this chapter.

10.3.36 A full list along with comments are set out in the appended TA (Appendix 10.1). In summary, there are no sites that have planning consent that would generate a significant level of traffic onto the study area of this chapter that need to be considered as a committed development and form part of the future year baseline scenario.

10.3.37 There is one site that has a live planning application awaiting determination and which will be a cumulative development, as set out in Table 10.6 . This does not form part of the future year baseline scenario but would be included as a cumulative assessment.

Table 10.6: Sites with a Live Planning Application Considered as a Cumulative Development

Application Type	Title	Description	Planning Reference	Status
Energy from Waste Facility	Grangetown Prairie Energy Recovery Facility	Outline application for the construction of an energy recovery facility (REF) and associated development.	R/2019/0767/OOM	Application submitted 19/12/19

10.3.38 Details on how the traffic flows predicted to be generated by the development are set out in Table 10.6 and how it has been included in the cumulative assessment are set out in the appended TA.

10.3.39 Allocated sites form part of the cumulative assessment and details on how their cumulative traffic flows have been determined are also set out in the appended TA.

2024 Baseline Traffic Flows

10.2 Traffic flows on the local highway network are the observed traffic flows with the addition of traffic growth and committed developments as calculated within the appended TA. The resultant 2024 baseline traffic flows are set out within the appended TA and a summary is in Table 10.7.

Table 10.7: 2024 Baseline Traffic Flows

Link	Annual Average Daily Traffic Flows	
	Total	HGV
A1085 Trunk Road South of Access Roundabout	18622	843
A1053 between A66 and A1085 Trunk Road junction	24194	1798
A1053 between A66 and A174 Junctions	14785	1338
A66 between A1053 and A171 Junctions	24143	3090
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	10910	102
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	13132	155
A174 between the A1053 and A171	32502	1837
A1042 between the A1085 Trunk Road and Waveney Road junction	10097	177
A1085 Trunk Road between A1042 and Thrush Road junctions	10662	120

10.4 Mitigation Measures Adopted as Part of the Project

10.4.1 A Code of Construction Practice (CoCP) would be prepared post consent and agreed with Redcar and Cleveland Borough Council prior to the commencement of construction. The CoCP would include measures for the planning and management of construction traffic in terms of routeing, loads and general good practice. The CoCP would seek to minimise the effects of construction traffic upon sensitive receptors along the affected road network.

10.4.2 On entering the Application Site, waste vehicles accessing the ERF directly would follow the access road within the site to stop on the inbound weighbridge and be weighed. Once weighed they would go to the tipping hall to unload waste into the bunker. After leaving the tipping hall, the waste vehicles would travel via the outbound weighbridge to the site exit. The site layout has been designed to operate as a one-way system for all HGV traffic, which is segregated from staff and visitor vehicular access.

10.4.3 It is likely that the weighbridge would use automatic number plate recognition to identify delivery vehicles. Each waste vehicle driver would also have a card or PIN number that when inputted automatically identifies the driver and allows the weighbridge control system to calculate the tonnage of waste delivered. The details of the weight of incoming waste would be printed, to provide a record for the waste carrier.

10.4.4 The location of the tipping hall on the Application Site allows space to accommodate waste vehicles queuing on site. An HGV queuing zone would be located in the central reserve between the site entrance and the weighbridges for vehicles entering the site, to prevent any traffic queuing on external roads. There is the capacity to accommodate seven of the largest HGVs at the weighbridge without interrupting other accesses, but the site is not likely to be a nuisance in this regard in any event as it is remote from other road users.

10.4.5 Staff and visitor traffic would be segregated from HGV traffic on site. A separate car park with 41 car parking spaces would be provided in front of the MRF facility, giving pedestrian access to the MRF office building. 50 car parking spaces are provided to the side of the ERF facility giving direct pedestrian access to the Office element incorporated into the ERF building. Cycle parking would also be provided for both staff and visitors compromising of 12 cycle spaces, with more to be made available on demand.

10.5 Assessment of Construction Effects

10.5.1 The proposed development is anticipated to utilise standard construction methodologies (including piling) for infrastructure and buildings. The existing corrugated buildings would be demolished, and a new circulatory road network on the Application Site would be installed (see Figure 2.1).

10.5.2 The timing of the proposed development would be dependent on securing planning permission and the discharge of planning conditions. The indicative construction programme envisages approximately 32 months from start on site to end of commissioning.

10.5.3 Traffic volumes generated during the construction phase are expected to be less than that generated when the site is operational. Therefore, the assessments that are undertaken below for the operational phase cover those for the construction phase.

10.5.4 In accordance with the IEMA guidelines the sensitivity of receptors are considered to be negligible, low and medium and the magnitude of impact in terms of severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads is deemed to be negligible, of medium-term duration, temporary in the sense that traffic flows would not be generated continuously and fully reversible. On that basis, the level of effect would be negligible adverse, which is not significant in EIA terms.

Further Mitigation

10.2 No further mitigation is required as a result of the effects determined above.

Future Monitoring

10.5.1 A Code of Construction Practice would be implemented during construction. The measures of the CoCP would be agreed with Redcar and Cleveland Borough Council prior to construction commencing and are likely to include an element of traffic monitoring.

10.5.2 No further monitoring is required as a result of the effects determined above.

Accidents and/or Disasters

10.5.3 From a traffic and transport perspective, the movement of construction vehicles along the highway are governed by legislation in the same way that as other vehicles on the highway. The potential for accidents and / or disasters is therefore the same as any other vehicles on the highway and there is no need for any specific mitigation in this regard.

10.6 Assessment of Operational Effects

HGV Movements

10.6.1 During operation of the REC, it is estimated that there would be 247 two-way HGV movements per day based on the assumption that 75% of waste is bulked via a Waste Transfer Station (WTS) and 25% is delivered to the REC directly by RCVs. Full details of the HGV generation traffic flows are set out in the appended TA.

Staff Movements

10.6.2 The REC would employ up to 100 full time equivalent employees comprising operation and maintenance staff, clerical and administrative staff and plant management. The ERF plant operations and maintenance staff would be employed within up to five shift teams. In addition, approximately 100 additional contractors will be temporarily employed during the planned annual shutdowns.

10.6.3 All staff would be suitably trained, qualified and experienced and a structured training and development programme would be provided.

10.6.4 Although there would be up to 100 new staff on site, there would be shift working. As a result, not all employees would be on site on the same day. It is assumed that there would be five administration staff on site working 09:00 to 17:00 each day. The remaining 95 staff would work across the four remaining shifts, consisting of two 12-hour shift teams each of 24 staff (24 staff working 07:00 to 19:00 and 24 staff working 19:00 to 07:00). The shift workers would all arrive during the hour before their shift and depart during the hour after. Full details of staff movements are set out in the appended TA.

Trip Distribution and Assignment

HGVs

10.6.5 In total, REC would generate approximately 247 two-way HGV movements. It is expected that the majority of waste HGVs would route to and from the A1053 Greystone Road and A66. Some HGVs would route to / from the north along A1085 Corporation Road or to / from the A1042 Kirkleatham Lane if there was a local collection from that area.

10.6.6 To estimate the likely routeing of HGVs, census population data has been used as a proxy for the local collection areas and has been analysed. This includes deriving census data from MSOAs in population centres such as Redcar, Newcastle upon Tyne, Sunderland, Scarborough, Darlington. The census data is within the appended TA at Annex H.

Staff

10.6.7 In total, it is estimated that REC would generate approximately 106 two-way staff movements per day. Census 2011 Journey to Work data has formed the basis of the assumptions of staff vehicle routeing. Full details of the calculations are set out in the appended TA and a summary is in Table 10.8.

Table 10.8: Staff Distribution

	A1085 Trunk Road North	A1042	A174 North	A174 South	A66	Longlands Road / A1085 Trunk Road
Distribution	5.4%	31.7%	1.7%	26.1%	20.2%	14.9%

10.6.8 Staff movements have been assigned onto the network in accordance with the above distribution and the resultant movement of staff cars along links throughout the day are set out in the appended TA (Appendix 10.1).

Development Traffic Flows

10.6.9 In total, REC will generate 247 two-way HGV movements and 106 two-way staff movements. The REC development traffic flows are set out in Table 10.9.

Table 10.9: Daily Development Flows

Link	Daily Traffic Flows	
	Total	HGV
A1085 Trunk Road South of Access Roundabout	306	240
A1053 between A66 and A1085 Trunk Road junction	201	180
A1053 between A66 and A174 Junctions	81	52
A66 between A1053 and A171 Junctions	201	180
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	22	6
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	22	6
A174 between the A1053 and A171	78	51
A1042 between the A1085 Trunk Road and Waveney Road junction	37	4
A1085 Trunk Road between A1042 and Thrush Road junctions	10	5

Impact of Development Traffic Flows

10.6.10 The REC development traffic flows have been assessed against the 2024 baseline traffic flows. Full details of these are set out in the appended TA (Appendix 10.1) and a summary is set out in Table 10.10.

Table 10.10: Summary of the REC Impact

Link	Development Percentage Impact (AADT)	
	Total	HGV
A1085 Trunk Road South of Access Roundabout	1.62%	22.14%
A1053 between A66 and A1085 Trunk Road junction	0.83%	9.11%
A1053 between A66 and A174 Junctions	0.54%	3.71%
A66 between A1053 and A171 Junctions	0.83%	5.51%
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	0.20%	5.98%
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	0.17%	4.02%
A174 between the A1053 and A171	0.24%	2.68%
A1042 between the A1085 Trunk Road and Waveney Road junction	0.37%	2.29%
A1085 Trunk Road between A1042 and Thrush Road junctions	0.10%	3.78%

10.6.11 As can be seen from Table 10.10, the daily percentage increases in total traffic flows along the highway as a result of REC are no more than 1.62%. The daily percentages in total HGV flows along the highway as a result of REC are no more than 22.14%.

10.6.12 In all instances, the increases in total traffic flows do not exceed the Rule 1 or Rule 2 thresholds set out above. In accordance with the IEMA guidelines, no further assessment is required for these highway links.

10.6.13 In accordance with the IEMA guidelines the sensitivity of receptors along the A174 and A1053 between the A1085 and A174 junctions are considered to be negligible and the magnitude of impact in terms of severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads is deemed to be negligible, of long-term duration, temporary in the sense that traffic flows would not be generated continuously and fully reversible. The level of effect is predicted to be negligible, which is not significant in EIA terms.

10.6.14 In accordance with the IEMA guidelines the sensitivity of receptors along the A1085 Trunk Road, A1053, A66, the A1085 Trunk Road / Longlands Road and the A1042 is considered to be low and the magnitude of impact in terms of severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads is deemed to be negligible, of long term duration, temporary in the sense that traffic flows would not be generated continuously and are fully reversible. The level of effect is predicted to be negligible, which is not significant in EIA terms.

10.6.15 In accordance with the IEMA guidelines, the sensitivity of receptors on the A1085 Trunk Road, between its junction with A1053 and Normanby Road is considered to be medium and the magnitude of impact in terms of severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads is deemed to be negligible, of long term duration, temporary in the sense that traffic flows would not be generated continuously and fully reversible. The level of effect is predicted to be of negligible, which is not significant in EIA terms.

Further Mitigation

10.6.16 No further mitigation is required as a result of the effects determined above.

Future Monitoring

10.6.17 No further monitoring is required as a result of the effects determined above.

Accidents/Disasters

10.6.18 From a traffic and transport perspective, the movement of waste and other delivery vehicles along the highway are governed by legislation in the same way that all other vehicles on the highway are governed.

10.6.19 The potential for accidents and / or disasters is therefore, the same as any other vehicle on the highway and there is no need for any specific mitigation in this regard.

Potential Changes to the Assessment as a Result of Climate Change

10.6.20 In traffic and transport terms and in relation to this chapter, changes to the assessment as a result of climate change relates to how it may affect movement (e.g. traffic flows, pedestrian movement or cyclist movement) and how it may alter the sensitivity of receptors.

10.6.21 In terms of sensitivity, receptors that are sensitive to changes in traffic flows would not be altered by climate change and neither would their assessment of sensitivity (i.e. negligible, low, medium or high), so the receptors identified would remain relevant.

10.6.22 People could be considered able to adapt to the effects of climate change in the sense that if a movement is needed by a particular mode of transport, then it is reasonable to assume that movement would still occur regardless of climate change (e.g. a person would still walk to a local shop or a person would still drive to and from work).

10.6.23 On this basis, it is considered that climate change is unlikely to affect future baseline conditions to such an extent that it would affect the conclusions reached in this chapter.

10.7 Assessment of Decommissioning Effects

10.7.1 The operation of REC would generate the greatest number of vehicle movements, with construction traffic flows lower in comparison. It is anticipated that decommissioning would generate fewer HGV movements than construction and operation.

10.8 Assessment of Cumulative Effects

10.8.1 Details on committed and cumulative developments are set out above. The above also sets out that there is an undetermined planning application for the Grangetown Prairie Energy Recovery Facility.

10.8.2 The appended TA (Appendix 10.1) contains the traffic flows set out within the ES Chapter and TA for Grangetown Prairie Energy Recovery Facility. These have been added to the above traffic flows plus those of REC and the resultant 2024 baseline plus cumulative development traffic flows are set out in the appended TA with a summary contained in Table 10.11.

Table 10.11: Summary of REC and Cumulative Development Traffic Flows

Link	2024 Baseline + Cumulative + Development Daily Traffic Flows	
	Total	HGV
A1085 Trunk Road South of Access Roundabout	18928	1083
A1053 between A66 and A1085 Trunk Road junction	24477	2024
A1053 between A66 and A174 Junctions	14948	1436
A66 between A1053 and A171 Junctions	24674	3518
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	10933	108
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	13154	161
A174 between the A1053 and A171	32581	1888
A1042 between the A1085 Trunk Road and Waveney Road junction	10134	181
A1085 Trunk Road between A1042 and Thrush Road junctions	10672	124

10.8.3 The REC development traffic flows along with cumulative development flows have been assessed against the 2024 baseline traffic flows. Full details of these are set out in the appended TA (Appendix 10.1) and a summary is set out in Table 10.12.

Table 10.12: REC and Cumulative Development Impact

Link	Development Percentage Impact (AADT)	
	Total	HGV
A1085 Trunk Road South of Access Roundabout	1.62%	22.14%
A1053 between A66 and A1085 Trunk Road junction	1.16%	11.17%
A1053 between A66 and A174 Junctions	1.09%	6.80%
A66 between A1053 and A171 Junctions	2.16%	12.18%
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	0.20%	5.98%
A1085 Trunk Road / Longlands Road, between junction with	0.17%	4.02%

Link	Development Percentage Impact (AADT)	
Normanby Road and junction with A171 Cargo Fleet Lane		
A174 between the A1053 and A171	0.24%	2.68%
A1042 between the A1085 Trunk Road and Waveney Road junction	0.37%	2.29%
A1085 Trunk Road between A1042 and Thrush Road junctions	0.10%	3.78%

10.8.4 As can be seen from Table 10.12 and Appendix 10.1, the daily percentage increases in total traffic flows along the highway as a result of REC are no more than 2.16%.

10.8.5 In all instances, the increases in total traffic flows do not exceed the Rule 1 or Rule 2 thresholds set out above.

10.8.6 The predicted cumulative effects for the links listed in Table 10.12 would be the same as reported for the REC and are not considered significant.

Inter-relationships

10.8.7 There are inter-relationships between traffic and transport and other topics within the ES. Increases in traffic flows generated by REC could interact with other disciplines to have an effect from a noise and vibration, visual, air quality, dust and dirt, population and health, ecology or heritage and conservation perspective. There are direct links to the effects of noise and vibration and air quality and traffic flows have been provided to these disciplines. The potential effects relating to air quality because of development-related traffic are assessed in Chapter 11: Air Quality. Potential effects relating to noise and vibration as a result of traffic are assessed in Chapter 12: Noise and Vibration.

Summary of Effects

10.8.8 The sensitivities of receptors have been identified as low or negligible and the magnitudes of impacts have been identified to be negligible. No significant environmental effects are predicted.

References

- Redcar and Cleveland Local Plan (adopted May 2018);
- Redcar and Cleveland Local Transport Plan 2011-2021 (adopted March 2011;
- Crashmap Website (www.Crashmap.co.uk)
- Department for Communities and Local Government (2014 as amended) National Planning Practice Guidance (PPG). PPG 'Travel Plans, Transport Assessments and Statements in Decision-Taking' ;
- Highways Agency, Transport Scotland, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges. Volume 11;
- IEMA (1993) Guidelines for the Environmental Assessment of Road Traffic;
- Ministry of Housing, Communities and Local Government (2019) National Planning Policy Framework.

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Table 10.13: Summary of Likely Environmental Effects on Traffic and Transport

Receptor	Sensitivity of receptor	Description of impact	Mitigation measure	Magnitude of impact	Significance of effect	Significant / Not significant
Construction						
A1085 Trunk Road South of Access Roundabout	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice.	Negligible	Negligible	Not significant
A1053 between A66 and A1085 Trunk Road junction	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice.	Negligible	Negligible	Not significant
A1053 between A66 and A174 Junctions	Negligible	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice.	Negligible	Negligible	Not significant
A66 between A1053 and A171 Junctions	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice.	Negligible	Negligible	Not significant
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	Medium	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice	Negligible	Negligible	Not significant
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice	Negligible	Negligible	Not significant

Receptor	Sensitivity of receptor	Description of impact	Mitigation measure	Magnitude of impact	Significance of effect	Significant / Not significant
A174 between the A1053 and A171	Negligible	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice	Negligible	Negligible	Not significant
A1042 between the A1085 Trunk Road and Waveney Road junction	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice	Negligible	Negligible	Not significant
A1085 Trunk Road between A1042 and Thrush Road junctions	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	Measures within the CoCP relating to routeing of construction traffic and best practice	Negligible	Negligible	Not significant
Operation						
A1085 Trunk Road South of Access Roundabout	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A1053 between A66 and A1085 Trunk Road junction	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A1053 between A66 and A174 Junctions	Negligible	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A66 between A1053 and A171 Junctions	Low	Severance, driver delay, pedestrian delay, pedestrian amenity,	No mitigation required	Negligible	Negligible	Not significant

Receptor	Sensitivity of receptor	Description of impact	Mitigation measure	Magnitude of impact	Significance of effect	Significant / Not significant
		accidents and safety and hazardous loads				
A1085 Trunk Road, between junction with A1053 and junction with Normanby Road	Medium	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A1085 Trunk Road / Longlands Road, between junction with Normanby Road and junction with A171 Cargo Fleet Lane	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A174 between the A1053 and A171	Negligible	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A1042 between the A1085 Trunk Road and Waveney Road junction	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
A1085 Trunk Road between A1042 and Thrush Road junctions	Low	Severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety and hazardous loads	No mitigation required	Negligible	Negligible	Not significant
Decommissioning						
As reported for the construction phase						