Appendix 5A
Methodology

NYMNPA

31/10/2019

Appendix 5A
Methodology

Overview

The methodology for the LVIA has been undertaken in accordance with best practice guidance and the methodology as set out here, which is based on the *Guidelines for Landscape and Visual Impact Assessment, Third Edition* (*GLVIA 3*) (LI & IEMA, 2013).

Additional guidance has been taken from, but not limited to, the following key publications:

- Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment (LI, 2011);
- Visual Representation of Wind Farms Version 2.2 (Scottish Natural Heritage (SNH), 2017); and
- Technical Guidance Note 06/19 Visual Representation of Development Proposals. (LI, 2019).

The assessment of the significance of landscape and visual effects is, according to *GLVIA 3* "*an evidence-based process combined with professional judgement.*" (LI & IEMA, 2013). All assessments and judgements must be transparent and capable of being understood by others. Levels of landscape and visual effects are determined by consideration of the nature or '*sensitivity*' of each receptor or group of receptors and the nature of the effect or '*magnitude of change*' that would result from the proposed development.

The assessments reported in this LVIA represent the culmination of an iterative design and assessment process and therefore relate to the remaining residual effects that could not otherwise be mitigated or 'designed out'.

Landscape Effects

Landscape effects are defined by the Landscape Institute in *GLVIA 3* (LI & IEMA, 2013), paragraphs 5.1 and 5.2 as follows:

> "*An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner.*"

Evaluating Landscape Sensitivity to Change

The sensitivity of a landscape receptor e.g. a Landscape Character Area, to a particular proposed development is determined by the susceptibility of that landscape receptor and its value. The methodology describes landscape sensitivity as high, medium or low and is assessed by considering the landscape receptor's landscape value and landscape capacity or susceptibility to the changes identified as the result of a particular proposed development.

Further guidance on the evaluation of landscape sensitivity and the criteria for assessing value and susceptibility is set out in paragraphs 5.39 – 5.47 of *GLVIA 3* (LI & IEMA, 2013) and is summarised below.

Landscape Value

GLVIA 3 (LI & IEMA, 2013) defines landscape value as:

> "*The relative value that is attached to different landscapes by society.*"

A consistent approach has been applied to determining the landscape value of the individual landscape character receptors considered in the landscape assessment. This utilises a range of factors to help understand the value of each landscape receptor, as follows:

- Landscape designations: whether an area of landscape is recognised by statute (i.e. National Parks), is a heritage coast, a locally designated landscape or is undesignated;
- Landscape quality/condition: a measure of the physical state of the landscape (i.e. the intactness of the landscape and the condition of individual elements);
- Rarity: the presence of rare elements or features in the landscape or the presence of a rare landscape character type;
- Conservation interests: the presence of features of wildlife or historical and cultural interest which add value to the landscape;
- Recreational value: evidence that the landscape is valued for recreational activity where experience of the landscape is important;
- Perceptual aspects: a landscape may be valued for its perceptual qualities, notably tranquillity; and
- Associations: some landscapes are associated with particular people, such as artists or writers, or events in history.

Table 5A.1 draws from the advice provided in *GLVIA 3* (LI & IEMA, 2013) and provides further guidance and examples of landscape value.

Table 5A.1 Assessing Value

Landscape Value Criteria	Landscape value category: High	Medium	Low
Designations:	Internationally or nationally designated landscape.	Regional or locally designated landscape.	Non-designated or 'ordinary' landscapes and landscape features.
Landscape quality, condition and intactness:	A landscape/features recognised to be of high landscape quality and in excellent or good condition with a 'strong' intact/unified and distinctive character. Constant/mature landscape with strong time depth. Management plans aim for conservation.	A landscape/features that are of a reasonable or medium quality and condition with an intact and recognisable character. Constant or improving state. Management plans aim for conservation and enhancement.	A landscape/features that are in a poor condition with a fragmented or indistinct landscape character. The landscape may be in a declining state. Management plans aim for enhancement, restoration or regeneration.
Scenic quality:	A landscape of high aesthetic appeal supported by recognised tourist/visitor literature. There are few or no detracting features.	A landscape of moderate or 'ordinary' aesthetic appeal. There may be some minor detracting features.	A landscape of limited or no aesthetic appeal with many or large-scale detracting features, may by abandoned or partially derelict.
Rarity and representativeness:	A landscape or features that are rare and valued in a national or regional context that is supported by designation.	A landscape or features that are uncommon but, not particularly valued or supported through designation.	A landscape or features that are common and not rare
Conservation interest and associations:	A landscape with rich and diverse cultural, historic, nature conservation value and recognised literary or artistic associations	A landscape with some cultural or nature conservation features and interest	A landscape with few or no cultural or nature conservation features and interest.
Recreation value:	High recreational/tourist value indicated through land use (parks/sports facilities etc.) and the density/hierarchy of recreational routes.	A landscape of moderate recreational value, as indicated by land use and density/hierarchy of recreational routes.	A landscape of limited recreational value, where an appreciation of the landscape has a limited contribution to the public's recreational experience
Perceptual aspects:	Highest levels of tranquillity. Strong perceptions of 'wildness' or naturalness and dark skies.		Developed landscapes which are the antithesis of tranquillity 'wildness' or naturalness. Light intrusion occurs.

Value of Landscape Elements

In line with paragraphs 5.30 and 5.33 of GLVIA 3 (LI & IEMA, 2013) the value of landscape elements has been considered under three criteria as follows:

- Rarity: The presence of rare elements or features in the landscape often (although not always) supported through designation;
- Condition: a measure of the physical state of the landscape element or feature; and

- Role: the contribution the landscape element makes to the visual amenity and scenic quality, as well as the landscape character at a county level (reflected as key characteristics within a BCA).

It is the combination of the three criteria listed above that leads to the judgement of an overall landscape value which may be either Low, Medium or High.

Landscape Susceptibility to Change

GLVIA 3 (LI & IEMA, 2013) defines landscape susceptibility to change as follows:

> "*This means the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline situation…*" (LI & IEMA, 2013).

GLVIA 3 (LI & IEMA, 2013) also emphasises that susceptibility to change is dependent on the types of development proposed. Paragraph 5.42 states:

> "*Some of these existing assessments may deal with what has been called 'intrinsic' or 'inherent' sensitivity, without reference to a specific type of development. These cannot reliably inform assessment of the susceptibility to change since they are carried out without reference to any particular type of development and therefore do not relate to the specific development proposed. Since landscape effects in LVIA are particular to both the specific landscape in question and the specific nature of the development, the assessment of susceptibility must be tailored to the project*." (LI & IEMA, 2013).

Table 5A.2 provides further guidance and examples of landscape susceptibility, which considers the capacity or ability of the landscape receptor, by virtue of its particular physical, visual or perceptual characteristics to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies. Generally, landscapes with the highest susceptibility to the proposed change will have the least capacity to accommodate that proposed development. Conversely, landscapes with the lowest susceptibility to the proposed change are likely to have the greatest capacity to accommodate the proposed development.

Table 5A.2 Assessing Susceptibility to a Proposed Mine Development

Susceptibility criteria	**Landscape susceptibility category**		
	High	**Medium**	**Low**
Examples of physical elements/characteristics	Highly valued elements or combinations of characteristics such as of small-scale landscapes with strong topographical variation or distinctive landform and complex patterns, which are essentially intact and susceptible to development.	Elements or combinations of characteristics such as medium to large scale landscapes with more open, simple landform and patterns with some capacity for development.	Common/indistinct elements or combinations of characteristics such as large-scale and simple/uniform landscapes, with an absence of topographical variety/featureless/flat landform where similar development is already part of the baseline character and there is capacity for development.

Susceptibility criteria	Landscape susceptibility category		
	High	**Medium**	**Low**
Examples of visual characteristics:	Susceptibility to alteration of regionally/locally valued or distinctive skylines, views, vistas and skylines with historic landmarks. Open and exposed landscapes with a strong visual relationship with surrounding landscapes/setting and limited visual intrusion.	A partially enclosed landscape offering some visual containment and filtering of views and moderate levels of intervisibility with visual landmarks and surrounding landscapes. A landscape where light intrusion and some movement and change are already present.	A heavily enclosed landscape which contains or strongly filters views with a corresponding limited visual relationship with surrounding landscapes. A landscape with an absence of visual landmarks and/or where movement and visual intrusion is already present.
Examples of perceptual characteristics:	Perceptions of tranquillity, remoteness or naturalness, with a strong sense of time depth and/or related special qualities and low levels of light intrusion that would be susceptible to development.	Perceptions of moderate tranquillity, remoteness or naturalness, presence of some light intrusion and some visual or audible signs of existing built development/infrastructure giving rise to a landscape with some development capacity.	Landscapes lacking in tranquillity and/or remoteness, which are subject to land use change and high degrees of light intrusion and visual or audible signs of existing built development/infrastructure with development capacity.

Susceptibility of Landscape Elements

The susceptibility of landscape elements is approached with reference to whether or not these elements can be 'replaced' as described in paragraph 5.30 of GLVIA 3 (LI &IEMA, 2013). By way of an example one may consider that a stone wall can be re-built relatively easily, in contrast a 500-year-old oak tree cannot be replaced without a similar growth period. The concept of 'replacement' is not a reflection of what might or might not happen as part of the development, rather it is a measure of susceptibility to change. Landscape elements that are difficult to replace or cannot be replaced are likely to be of higher susceptibility than those which can be easily replaced such as grassland.

Overall Landscape Sensitivity

The manner in which the value and susceptibility are combined to determine landscape sensitivity is a matter for informed professional judgement and the following matrix shown in **Table 5A.3** has been used as a guide to assist this process. In terms of landscape value, national and international landscape designations are generally accorded the highest assessment value.

Table 5A.3 Overall Landscape Sensitivity

Overall landscape sensitivity		Susceptibility		
		High	**Medium**	**Low**
Value	**High**	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

Magnitude of Landscape Change

The magnitude of landscape change or degree of change resulting from the proposed development is described as high, medium, low or negligible, in accordance with *GLVIA 3* (LI & IEMA, 2013) paragraph 3.27 use of 'word scales'. In those instances where, due to mitigation, there would be no magnitude of landscape change, then this justification is also recorded in the landscape assessment. The magnitude of landscape change is described by reference to its size and scale, geographical extent and duration/reversibility in accordance with *GLVIA 3* (LI & IEMA, 2013), paragraph 5.48-52 that can be summarised as follows.

- Size or Scale:
  - The size or scale of landscape change is described via a simple word scale to describe the extent or proportion of loss or addition of landscape elements, the degree to which the perceptual characteristics of the landscape may be altered and whether the effect changes the key characteristics, critical to its distinctive character overall.
- Geographical Extent:
  - The geographical extent of the effect is distinct from the size and scale of effect. There may for example be a medium loss of landscape elements affecting a large geographical area, or a high level addition of a proposed development affecting a very localised area, both resulting in a high magnitude of landscape change. The geographical extent is described at a site level within the development site boundary, within the immediate setting of the site, at the scale of the landscape character type or area assessed or on a larger scale, affecting several landscape character types or areas.
- Duration and reversibility:
  - In accordance with *GLVIA 3* (LI & IEMA, 2013) this is a separate, but linked consideration and the duration of an effect may be described as temporary (short term 0-5 years, medium term 5-10 years or long term 10-20 years) or permanent. The proposed development may also be considered in terms of whether the effects are reversible.

Examples and further guidance on the evaluation of the magnitude of landscape change are described in **Table 5A.4.**

Table 5A.4 Magnitude of Landscape Change

Magnitude of landscape change	Key determining criteria
High	A large scale change that may include the loss of key landscape elements/characteristics or the addition of new uncharacteristic features or elements that would alter the perceptual characteristics of the landscape. The size or scale of landscape change could create new landscape characteristics and may change the overall distinctive landscape quality and character, typically, but not always affecting a larger geographical extent.
Medium	A medium scale change that may include the loss of some key landscape characteristics or elements, or the addition of some new uncharacteristic features or elements that could alter the perceptual characteristics of the landscape. The size or scale of landscape change could create new landscape characteristics and may lead to a partial change in landscape character, typically, but not always affecting a more localised geographical extent.
Low	A small scale change that may include the loss of some landscape characteristics or elements of limited characterising influence, or the addition of some new features or elements of limited characterising influence. They may be a small partial change in landscape character, typically, but not always affecting a localised geographical extent.
Very Low	A very small scale change that may include the loss or addition of some landscape elements of limited characterising influence. The landscape characteristics and character would be unaffected.

The assessment also identifies areas where no landscape change is predicted. In these instances '*No Change*' has been inserted into the magnitude of change column of the assessment tables and the resulting level of effect identified as '*None*'. This commonly occurs where no intervisibility (presence of a line of sight between two locations) or other perceptual effects pathway exists between the landscape receptor and the proposed development.

Types of Landscape Effect

In accordance with the relevant EIA Regulations the level of landscape effect is also described in terms of:

- Whether the effect would be permanent or temporary (in relation to temporary effects the duration of the effect will be important);
- Whether the effect would be direct or indirect (where direct effects are associated with loss or alteration of individual landscape elements or changes to the physical fabric of a landscape character unit and where indirect effects are associated with changes to surrounding landscape character via a visual or other perceptual effects pathway); and
- Whether the effect is judged to be positive (beneficial), neutral or negative (adverse).

The factors influencing judgements of whether effects are positive, neutral or negative and a consideration of cumulative effects are provided below.

In describing the level of landscape effect the assessment text clearly and transparently sets out the professional judgements that have been made in determining sensitivity and how the value and susceptibility of the receptor has been assessed; and in determining magnitude and how the size and scale, geographical extent and duration of the effect has been taken into account.

Visual Effects

Visual effects are concerned wholly with the effect of the proposed development on views, and visual amenity and are defined by the Landscape Institute in *GLVIA 3* (LI & IEMA, 2013), paragraph 6.1 as follows:

> "*An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern … is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views*."

Visual effects are identified for different receptors (people) who will experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through an area.

The level of visual effect (and whether this is significant) is determined through consideration of the *'sensitivity'* of each visual receptor (or range of sensitivities for receptor groups) and the *'magnitude of change'* that would be brought about by the construction and operation proposed development. Visual assessment unavoidably involves a combination of both quantitative and subjective assessment and wherever possible a consensus of professional opinion is sought through consultation and internal peer review.

Evaluating Visual Sensitivity to Change

In accordance with Paragraphs 6.31-6.37 of *GLVIA 3* (LI & IEMA, 2013) the sensitivity of visual receptors takes account of the susceptibility of the receptor to visual change and the value of the baseline view available to them. The sensitivity of visual receptors is described as high, medium or low.

The main factors influencing the susceptibility of a visual receptor to change are the occupation or activity of the receptor (people) at particular locations and the extent to which their attention or interest may therefore be focused on the available view.

The visual receptors most susceptible to change are likely to include:

- People at their place of residence;
- People engaged in outdoor recreation whose attention or interest is likely to be focussed on the landscape and on particular views;
- Visitors to heritage assets or other attractions where views of the surroundings are likely to make an important contribution to their experience; and
- People in their community where views contribute to their experience (e.g. users of public open spaces).

People using the transport network are usually considered to be moderately susceptible to change unless travelling on recognised scenic routes.

Visual receptors likely to be less susceptible to change include:

- People engaged in outdoor recreation that does not depend upon appreciation of views; and
- People at their place of work where views are not an important contributor to the quality of working life.

The factors influencing judgements regarding the value attached to views by receptors include:

- Any recognition of the value attached to a particular view in relation to heritage assets or through planning designations; and
- Any indications of value provided by guidebooks and tourist literature, the inclusion of specific viewpoints on OS maps, provision of car parking and/or provision of interpretation materials.

Examples of the judgements made regarding the sensitivity of visual receptors used in this assessment are described in **Table 5A.5.**

Table 5A.5 Visual Receptor Sensitivity

Visual receptor sensitivity	Key determining criteria
High	Receptors in this category would generally include residents, tourists/visitors, walkers, cyclists and horse riders, either stationary or travelling through the landscape, and/or undertaking outdoor recreational activities where the focus of the activity involves an appreciation of the landscape. ● Residential properties or settlements and related community outdoor spaces; ● Outdoor tourist and visitor attractions; ● Recreational routes (national trails, long distance footpaths and PRoWs; Sustrans national cycle routes (NCR); open access land/beaches and recognised scenic driving routes); ● People generally, undertaking recreational activity where the focus of the activity involves an appreciation of the landscape (outside internationally or nationally designated landscapes).
Medium	Receptors in this category would generally include people travelling through the landscape on road, rail or other transport routes as rail passengers and road users and people undertaking recreational and sporting activities where it is likely that their surroundings have some influence upon their enjoyment (e.g. angling and golfing).

Visual receptor sensitivity	Key determining criteria
Low	Receptors in this category would generally include people for whom their surroundings are unlikely to be a primary concern or affect how they undertake their current activity. Receptors are likely to include people at their place of work, people travelling on main roads through built up areas, dual-carriageways or motorways or taking part in activities not involving an appreciation of the landscape (e.g. playing team sports).

Evaluating the Magnitude of Change to the View

The magnitude of visual change is described as high, medium, low, or negligible which is in accordance with the guidance on the use of 'word scales' provided in Paragraph 3.27 of *GLVIA 3* (LI & IEMA, 2013). In any instances where the proposed development would not be visible, due to screening, then this is also recorded as '*No Change*' in the magnitude of change column of the assessment tables and the resulting level of visual effect identified as '*None*'.

The magnitude of visual change is assessed taking into account the composition of the visual baseline and is described by reference to the size and scale, geographical extent and duration/reversibility of the proposed development in accordance with *GLVIA 3* (LI & IEMA, 2013) as follows:

- Size and Scale:
  - Scale of change: The scale of change in the view is determined by the loss or addition of features in the view and changes in the composition and extent of view affected. This can in part be described objectively by reference to the numbers and scale of new objects visible and the horizontal/vertical field of view that these new objects will occupy. Other descriptors such as 'dominant', 'prominent', 'noticeable' and 'negligible' can also be used to describe the scale of change;
  - Contrast: The degree of contrast or integration that will be generated by the introduction of any new features or changes in the view that will arise with the existing or remaining visual elements and characteristics in terms of form, scale, mass, line, height, colour and texture. Developments which contrast or appear incongruous in terms of colour, scale and form are likely to be more visible and result in the generation of a higher magnitude of change;
  - Speed: The speed at which the proposed development may be viewed will affect how long the view is experienced (continuously, intermittently, glimpsed or repeatedly and sequentially along a route) and the likelihood of the proposed development being noticed by people travelling in cars or trains compared to those who may be walking/riding/cycling and able to stop and 'take in' a view;
  - Screening: The proposed development may be wholly or partly screened by landform, vegetation (including seasonal effects due to hedgerow management and seasonal variations in deciduous leaf cover) and/or buildings. Conversely visual receptors with open views, particularly from landscapes where such views are a key characteristic, are likely to be able to see a greater proportion of the proposed development;
  - Skyline/background: Whether the proposed development would be viewed against the skyline or a background landscape may affect the level of contrast and magnitude, for example, skyline developments may be more noticeable, particularly where they affect open and uninterrupted horizons.
- Geographical Extent:
  - Distance: The separation distance from the proposed development can be measured objectively. Distance often provides a strong indicator of the magnitude of visual change,

subject to any intervening screening of the proposed development by landform, vegetation, or buildings;

- Angle of view: The angle of view may be considered in terms of whether the proposed development will be seen directly in front of a visual receptor or if it will be seen more obliquely. Road users are generally more aware of the views in their direction of travel, whilst train passengers are more aware of views perpendicular to their direction of travel. Elevated views are likely to reveal more of the proposed development, whereas low level views are more likely to be screened by intervening built form and vegetation;
- Geographical extent of area over which the changes would be visible. This can be defined by the distance, area and the horizontal and vertical field of view affected.

- Duration and reversibility:
  - In accordance with *GLVIA 3* (LI & IEMA, 2013) this is a separate, but linked consideration and the duration of any visual effect may be described as temporary (short term 0-5 years, medium term 5-10 years or long term 10-20 years) or permanent. The proposed development may also be considered in terms of whether the effects are reversible.

Further guidance on the evaluation of the magnitude of visual change is provided in **Table 5A.6.**

Table 5A.6 Magnitude of Visual Change

Magnitude of visual change	Key determining criteria
High	A large and prominent change to the view, appearing in the fore to middle ground and involving the loss/addition of a number of features, which is likely to have a strong degree of contrast and benefits from little or no screening. The view is likely to be experienced at static or low speed and is more likely to be continuously/sequentially visible from a route.
Medium	A moderate and prominent/noticeable change to the view, appearing in the middle ground and involving the loss/addition of features and a degree of contrast with the existing view. There may be some partial screening. The view is likely to be experienced at static or low to medium speed and is more likely to be intermittently or partially visible from a route.
Low	A noticeable or small change, affecting a limited part of the view that may be obliquely viewed or partly screened and/or appearing in the background of the view. This category may include rapidly changing views experienced from fast-moving road vehicles or trains.
Very Low	A small or negligible change to the view that may be obliquely viewed and mostly screened and/or appearing in the distant background or viewed at high speed over short periods and capable of being missed by the casual observer.

Types of Visual Effect

In accordance with the relevant EIA Regulations the level of visual effect is also described in terms of:

- Whether the effect would be permanent or temporary (in relation to temporary effects the duration of the effect will be important);
- Whether the effect is as a result of a change to:
  - An existing static view;
  - Sequential views; or
  - Wider visual amenity;

- Whether the effect is a result of the introduction of new development or the loss of elements or features already present in the view; and
- Whether the effect is judged to be positive (beneficial), neutral or negative (adverse).

The factors influencing judgements of whether effects are positive, neutral or negative and a consideration of cumulative effects are provided below.

In describing the level of visual effect the assessment text clearly and transparently sets out the professional judgements that have been made in determining visual sensitivity and how the value and susceptibility of each visual receptor has been assessed; and in determining magnitude of visual change how the size and scale, geographical extent and duration of the effect have been taken into account.

Evaluating Positive, Neutral and Negative Effects

It is necessary for the assessment for each landscape and visual receptor to evaluate whether the effects identified and assessed would be positive (beneficial), neutral or negative (adverse) i.e. to determine the type or valency of the effect. The default evaluation for a new development is often negative. However, not all change, including high levels of change, is necessarily negative. The LVIA considers architectural and aesthetic factors such as the visual composition of the landscape and/or townscape in the receptor's view together with the proposed development. The proposed development may or may not be reasonably accommodated within the scale and character of the landscape as seen from the receptor location as follows:

- Positive or beneficial effects would include landscape mitigation and enhancement, combined with good landscape and architectural design quality resulting in a proposed development that can be reasonably well accommodated within the scale and landscape setting or context and/or which can be reasonably assessed as enhancing a visual receptor's view;
- Neutral visual effects include changes that neither add nor detract from the quality and character of an area or view including development that appears reasonably well accommodated within the scale and setting or context and includes negligible magnitudes of change; and
- Negative or adverse effects are likely to result from poor design quality such as the scale of the proposed development relative to the underlying landscape scale and landscape setting or context, or other visual factors that may reduce scenic quality, such that the development may appear dominating, over intrusive, overbearing, or oppressive for example.

The identification of negative landscape and/or visual effects can be used to formulate more effective mitigation and lead to the reduction in residual effects.

Cumulative Landscape and Visual Effects

The assessment of cumulative landscape or visual effects is essentially the same as for the assessment of the primary or 'stand-alone' landscape or visual effects, in that the level of effect is determined by assessing the sensitivity of the receptor and the magnitude of change, although the cumulative assessment considers the magnitude of change posed by multiple developments. Chapter 7 of *GLVIA 3* (LI & IEMA, 2013) notes that this is an evolving area of practice, but provides the following definitions sourced from the most recent established guidance (*Guidance: Assessing the Cumulative Impact of Onshore Wind Energy Developments*, Scottish Natural Heritage, 2012) in response to wind farm development as follows:

- Cumulative effects are defined as "*the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments taken together*".

Types of cumulative landscape or visual effect can be further defined as follows:

- Coincidental effects experienced from a single location as follows:
  - Simultaneous or combined: where two or more developments may be viewed from a single fixed viewpoint simultaneously, within the viewer's field of view and without requiring them to turn their head;
  - Successive or repetitive: where two or more developments may be viewed from a single viewpoint successively as the viewer turns their head or swivels through 360°;
- Sequential: where a number of developments may be viewed sequentially or repeatedly at increased frequency, from a range of locations when travelling along a route within the Study Area.

Significance Evaluation Methodology

The level of landscape and visual effects will be determined with reference to landscape or visual sensitivity and the magnitude of landscape or visual change experienced. For each receptor the evaluation process will be informed by use of a matrix as shown in **Table 5A.7**, below.

Table 5A.7 Level of Effect

Magnitude of change	**Sensitivity of receptor**		
	High	**Medium**	**Low**
High	*Substantial*	*Moderate/Substantial*	Moderate
Medium	*Moderate/Substantial*	Moderate	Slight/Moderate
Low	Moderate	Slight/Moderate	Slight
Very Low	Slight	Slight/Negligible	Negligible

In line with the emphasis placed in *GLVIA 3* (LI &IEMA, 2013) upon application of professional judgement, the adoption of an overly mechanistic approach through reliance upon a matrix as presented in **Table 5A.7** will be avoided. This will be achieved by the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor over and above the outline assessment provided by use of the matrix. Matrices for landscape and visual effects are provided as a summary in support of the narrative explanations. Wherever possible cross references will be made to baseline figures and/or to photomontage visualisations in order to support the rationale.

In accordance with the EIA Regulations, it is important to determine whether the predicted effects are likely to be 'significant'. Significant landscape and visual effects, in the assessor's opinion, resulting from the proposed development would be all those effects that result in a 'substantial' or a 'moderate / substantial' level of effect and any exceptions would be clearly explained.

Appendix 5B
Landscape Character Areas: Sensitivity Assessments

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Landscape Character Areas: Sensitivity Assessments

5.1 Methodology

5.1.1 The sensitivity assessment has been undertaken in accordance with the methodology presented in **Section 5.1** of the ES.

5.1.2 The sensitivity assessments have been undertaken for those Landscape Character Areas (LCAs) which lie within the LVIA study area for the Boulby Mine Site and where the Zone of Theoretical Visibility (ZTV) indicates the potential for landscape effects to occur. The LCAs are shown in **Figure 5.4** and the sensitivity assessments are contained within **Tables 5B.1** to **5B.4** of this appendix.

5.1.3 Landscape sensitivity is described as 'high', 'medium' or 'low'. This is assessed by considering the landscape value and landscape susceptibility to change, which may vary in response to both the type of development proposed and the specific characteristics of the study area, such that landscape sensitivity needs to be considered on a case by case basis. The following generic type of development and parameters have been considered when undertaking the sensitivity assessment:

- Boulby Mine Site: the construction and operation of a working mine with a number of large-scale buildings and structures, including chimney with associated smoke plume and the movement of vehicles and construction machinery.

5.2 Summary of LCAs Sensitivity Assessment

5.2.1 A summary of the LCAs sensitivity assessment is provided in **Table 5B.1** below.

Table 5B.1 Summary of LCA Sensitivity

LCA Reference	Landscape Designation	Overall Value	Overall Susceptibility	Overall Landscape Sensitivity
Landscape Character Areas – North Yorks Moors National Park Landscape Character Assessment				
1c: Northern Moorland LCA	North York Moors National Park	High	High	High
4a: Coast and Coastal Hinterland LCA	North York Moors National Park	High	High	High
Landscape Character Areas – Redcar and Cleveland Landscape Character Assessment				
P7 Plateau Farmland (south of Loftus)	Not designated	Medium	Low	Low-Medium

5.3 Sensitivity Assessments

5.3.1 Landscape Character Areas

Table 5B.2 Landscape Sensitivity Assessment: LCA 1c Northern Moorland

Sensitivity		
Value criteria	**Commentary**	**Value**
Landscape designations	The LCA is wholly situated within the NYMNP.	High
Condition/quality	Landscape elements are in moderate condition including extensive tracts of heather moorland managed for grouse shooting.	Medium
Scenic quality	Elevated areas of the LCA are open which allows panoramic views across gently undulating horizons to the west, including visibility of Roseberry Topping and the North Sea coastline.	High
Rarity	Heather moorland is rare on a worldwide scale and the one of the largest continuous expanses of moorland in England and Wales is present within the North York Moors[1].	High
Conservation interests	Numerous archaeological features are present within the LCA. Much of the LCA is designated as a SSSI.	High
Recreation value	Extensive areas of open access land, numerous PRoW and The Cleveland Way are present within the LCA.	High
Perceptual aspects	Open skies combine with lack of built development and noise from traffic movements to result in a sense of remoteness and tranquillity.	Medium - High
Associations	The LCA within the study area is rich in historic features round barrows and a long barrow.	High
Overall value	The overall value is assessed as High	**High**
Susceptibility criteria	**Commentary**	**Susceptibility**
Physical characteristics	There would be no physical changes to this LCA as a result of development within the Boulby Mine site.	N/A
Visual characteristics	Elevated landform allows panoramic views towards the coastline where the proposed development site is located. Some existing development is visible in long range views towards the coast although generally views of built development are limited within the LCA. This open and undeveloped area of landscape where views are likely to be at least locally valued is susceptible to visual change either within the LCA or within surrounding, intervisible LCAs.	High
Perceptual characteristics	This is a tranquil and remote LCA, with a strong perception of naturalness and sense of time depth. Reference to CPREs Night BLIght mapping indicates that this is a dark landscape as reflected in the key characteristics for the LCA which includes *"At night, the darkness of the skies is a key feature, although to the north of the area this has become eroded by the glow from the Cleveland conurbation".*	High
Overall	The overall susceptibility of this LCA is assessed as High.	**High**
Overall Sensitivity to the proposed development		

[1] https://www.northyorkmoors.org.uk/discover/moorland

Sensitivity
The overall value of this LCA is High. The overall susceptibility is High resulting in a High overall sensitivity.

Table 5B.3 Landscape Sensitivity Assessment: LCA 4a Boulby to Whitby

Sensitivity		
Value criteria	**Commentary**	**Value**
Landscape designations	The LCA is wholly situated within the NYMNP.	High
Condition/quality	Most agricultural field units are actively managed and in reasonable condition. Condition of hedgerows is variable with some complete and some with only occasional, remnant vegetation remaining.	Medium
Scenic quality	Elevated areas of the LCA are comparatively open which allows frequent views of the dramatic coastal topography. This contrasts with the more intimate, enclosed feel of the incised valleys which are also present within this LCA. Staithes old town overlooks a secluded bay surrounded by high cliffs and adjacent to a steep sided gorge.	Medium - High
Rarity	The dramatic rolling coastline landform with high cliffs combined with the steeply incised valleys with mature woodland combine to produce a unique and distinctive landscape.	Medium - High
Conservation interests	Includes Staithes Conservation Area and a high concentration of listed buildings in settlements including Staithes old town and Hinderwell. Round barrow and 20th century Royal Observer Corps post on Beacon Hill, known as the site of Hinderwell Beacon. Includes part of North Yorkshire and Cleveland Heritage Coast and several SSSI's.	High
Recreation value	Includes a section of the England Coastal Path, the Cleveland Way and NCR 1. Also includes a moderately dense local PRoW network.	High
Perceptual aspects	This is a predominantly rural, agricultural landscape. The presence of the A174 transport route and the settlements of Staithes, Hinderwell together with other settlements situated along the road corridor and Boulby Mine reduces the sense of remoteness and tranquillity.	Medium
Associations	There are links with Captain Cook. He was employed in William Sanderson's shop in Staithes which led to his first contact with the sea and to his maritime career. The television series '*Old Jacks Boat*' and the film '*Phantom Thread*' were both set in the town. The coastal edge has artistic associations with Runswick Bay and Staithes being home to artists colonies (e.g. Staithes Group) in the 19th and early 20th Century.	High
Overall value	The overall value is assessed as High	**High**
Susceptibility criteria	**Commentary**	**Susceptibility**
Physical characteristics	This LCA contains a small to medium-scale landscape with strong topographical variation along the coast and within the incised valleys and a complex pattern of woodland which is susceptible to development.	High
Visual characteristics	Visual enclosures and limited intervisibility is provided within the incised valleys which cut through this LCA whilst more elevated areas allow long distance views across the area and out to sea. This is a landscape where light intrusion from coastal conurbations and some movement along the busy A174 and change on settlement edges are already present.	Medium

Sensitivity		
Perceptual characteristics	This is a landscape where perceptions are of moderate tranquillity, remoteness or naturalness as a result of the visual and audible influence of the busy A174 and presence of some light intrusion as demonstrated by CPREs Night Blight Mapping. The presence of existing built development/infrastructure gives rise to a landscape with some development capacity.	Medium
Overall	The overall susceptibility is assessed as Medium.	**Medium**
Overall Sensitivity to the proposed development The overall value of this LCA is High. The overall susceptibility is Medium resulting in a High overall sensitivity.		

Table 5B.4 Landscape Sensitivity Assessment: P7 Plateau Farmland (South of Loftus)

Sensitivity		
Value criteria	**Commentary**	**Value**
Landscape designations	There are no landscape designations within the LCA.	Low
Condition/quality	Most agricultural field units are actively managed and in reasonable condition. Hedgerows to field and highway boundaries are often incomplete and some with only occasional, remnant vegetation remaining.	Medium
Scenic quality	A generally unremarkable agricultural landscape with some views from elevated area towards the upland areas of the NYMNP to the south and south east and the coastline to the north west.	Low-Medium
Rarity	Landscape elements are generally common place and not rare.	Low - Medium
Conservation interests	There are no statutory historic conservation designations within the LCA. Nature conservation designations are limited to the Warren House Plantation SNCI.	Low
Recreation value	Several local PRoWs (footpaths and bridleways) are present with in the LCA.	Medium
Perceptual aspects	This is a predominantly agricultural, rural landscape which provides some perceptions of remoteness although presence of the Loftus built environment and the A174 on the northern boundary of this LCA detracts from this.	Low - Medium
Associations	There are no known associations.	Low
Overall value	The overall value is assessed as Low - Medium.	**Low - Medium**
Susceptibility criteria	**Commentary**	**Susceptibility**
Physical characteristics	There would be no physical changes to this LCA as a result of development within the Boulby Mine site.	N/A
Visual characteristics	The elevated and open nature of the LCA allows partial intervisibility with adjoining LCAs although some screening is provided by the woodland blocks and copses. although the development site itself will not be visible. It is anticipated that the only visible elements would be the upper parts of the chimney.	Medium
Perceptual characteristics	This is a landscape where there is the perception of moderate tranquillity, remoteness or naturalness although this is weaker within the northern part of the LCA due to some visual or audible signs of existing built development/infrastructure within Loftus and the A174 giving rise to a landscape with some development capacity. CPREs Nigh Blight Mapping shows some moderate levels of radiance across the northern half of the LCA as a result of its proximity to Loftus and the influence of highway and domestic lighting associated with the settlement.	Medium
Overall	The overall susceptibility is assessed as Medium	**Medium**
Overall Sensitivity to the proposed development The overall value of this LCA is Low - Medium. The overall susceptibility is Medium resulting in a Low - Medium overall sensitivity.		

Appendix 5C
Viewpoint Assessment

Appendix 5C
Viewpoint Assessment

5.1 Introduction

5.1.1 This appendix sets out the viewpoint assessment for the 10 viewpoints agreed with consultees, the locations of which are illustrated in **Figures 5.2** and **5.3** Annotated baseline daytime photographs from the 10 viewpoints are shown in **Figures 5.8** to **5.17** with photomontages illustrating the proposed 10 year scenarios from 3 of these viewpoints (Viewpoints 1,2 and 8) presented in **Figures 5.8b, 5.9b and 5.14b**.

5.1.2 The viewpoint assessment considers the effects of the operational and restoration phases.

5.2 Viewpoint Assessment

5.2.1 The viewpoint assessments for the 10 viewpoints are presented in **Tables 5C.1** to **5C.10**.

Table 5C.1 Viewpoint 1 – Ings Farm/PRoW 101/3/1

Viewpoint Information			
Viewpoint OS grid reference:	NZ 75500 18553	**Figure Nos:**	Annotated baseline photos and photomontage - Figures 5.8a and b.
Visual receptor groups located at or close to Viewpoint:		Walkers using PRoW,101/3/1, vehicular receptors driving along the A174 and residents at Ings Farm.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties. Medium. Drivers and their passengers are typically assessed as possessing medium susceptibility in accordance with GLVIA3 paragraph 6.33.	
Description of Baseline View			
Current Baseline The viewpoint is situated to the east of the A174 adjacent to PRoW 101/3/1 at an elevation of ~161m AOD and adjacent to the western site boundary. The elevated position of the viewpoint allows extensive visibility across the lower lying landscape to the east which includes views across the Proposed Development site. The foreground of the view consists of the field boundary hedge and gateway leading to the footpath which is orientated towards the lower elevations of the site through an area of recently planted trees. Beyond the immature trees the land falls away and includes an arable field bounded by a mature gappy hedge. Further to the east a linear grassed bund is lies immediately to the west of the operational mine. Some lower level buildings and associated infrastructure are partially screened by this intervening landform. Beyond this landform much of the western elevation, comprising assorted buildings, chimneys, and infrastructure, is visible as a prominent visual presence in the mid ground of the view. Beyond the mine to the east and south east a number of settlements are discernible including the massed, built form of Staithes and Hinderwell and the more dispersed grouping of individual properties which comprises Roxby. The upland areas of Roxby Moor and Borrowby Moor defines the distant horizon. At lower elevations the incised, wooded valleys of Borrowby dale, Easington Beck and Roxby Beck are also visible to the east and south east of the mine. **Future baseline – Restored site** The future baseline scenario would result in removal of existing mine buildings and infrastructure and implementation of the approved restoration scheme. Mine buildings and infrastructure would be replaced by naturalistic elements including native woodland, native scrub and meadow areas. The existing landform introduced to screen the mine buildings and infrastructure will be modified to provide a softer, less engineered form and the topography will progressively slope towards Easington Beck. New surface drainage features will be introduce small scale variations to the land form and mosaic of surface textures.			
Description of Changes (In relation to future baseline)			
Operation - Year 3			

The Proposed Development would introduce visibility of large-scale industrial structures and buildings into a landscape dominated by naturalistic landscape elements. A considerable contrast would be experienced between the juxtaposition of angular and linear shapes which comprise the built profile of the mine and the predominance of more organic softer forms, colours and textures within the wider landscape. The Proposed Development would preclude visibility of the landscape behind the built structures and introduce a strong visual focus.		
Magnitude of visual change: High	**Type of effect**: Medium-term adverse and **Significant**	**Level of effect**: Substantial
Operation - Year 10 Recently planted trees immediately to the east of the viewpoint will provide increasing levels of screening. At year 10 (approximately 18 years of growth) these trees could reasonably be assumed to have reached a height of 5 metres and will be of stature which considerably reduces the extent to which the mine will be visible. This will be as a result of the filtering effects of leaves and branch structure present at close range. **Figure 5.8b** provides an illustration of the year 10 scenario during the operational phase of the mine without the screening effects of the adjacent vegetation to illustrate the general nature of visibility and the influence of the progressive restoration..		
Magnitude of visual change: Low	**Type of effect**: Long-term adverse and Not Significant	**Level of effect**: Moderate
Restoration – Year 33 At this stage trees planted trees immediately to the east of the viewpoint will provide increasing levels of screening ultimately resulting in a scenario where visibility of the site would be extremely limited and restricted to heavily filtered views through the leaves and branch structure of mature trees.		
Magnitude of visual change: Very Low	**Type of effect**: Long-term adverse and Not Significant	**Level of effect**: Negligible

Table 5C.2 Viewpoint 2 – Boulby Bank

Viewpoint Information			
Viewpoint OS grid reference:	NZ 75913 18877	**Figure Nos:**	Annotated baseline photos and photomontage - Figures 5.9a and b.
Visual receptor groups located at or close to Viewpoint:		Walkers using PRoW, vehicular receptors and cyclists travelling along Boulby Bank, residents at properties on Boulby Bank and walkers using PRoW 101/122/1	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties. Medium. Drivers and their passengers are typically assessed as possessing medium susceptibility in accordance with GLVIA3 paragraph 6.33.	

Description of Baseline View

Current baseline – Operational mine

The viewpoint is situated on Boulby Bank adjacent to a group of residential properties and PRoW 101/122/1 at an elevation of ~138m AOD and at a distance of ~195m from the site boundary. Visibility of the proposed development is restricted at road level by landform immediately to the south of the road, therefore, the viewpoint has been situated on top of the embankment adjacent to the field boundary and entry point to the PRoW.

The viewpoint is relatively elevated allowing views across the pastoral field in the foreground towards the dense woodland planting at the A174 corridor and to the north west boundary of the site. Many of the buildings and structures within the existing site boundary are visible including the main plant building, chimney stack and the rock shaft tower. Rising land to the right (west) of the panorama restricts visibility of the southern site area. Beyond the mine buildings woodland associated with Easington and Roxby Becks' is visible to the left (East) of the mine buildings. The elevated landform near Roxby and Roxby Moor is visible in the background with a patchwork of green fields and hedgerows. This elevated landform, together with more distant areas of moorland in the wider national park, defines the skyline.

Future baseline – Restored site

The future baseline scenario would result in removal of existing mine buildings and infrastructure and implementation of the approved restoration scheme. Mine buildings and infrastructure would be replaced by naturalistic elements including native woodland, native scrub and meadow areas. The existing area of woodland to the north west corner of the site would be retained and managed and will have reached a slightly greater level of maturity providing partial screening and filtering of the restored site beyond. It is anticipated that some elements of the restored site, including native planting will be increasingly influential as they reach maturity and provide integration with other existing areas of woodland as perceived in this view.

Description of Changes (In relation to future baseline)

Operation - Year 3

Introduction of the proposed development, which will include large industrial buildings and structures including tall chimneys into this predominantly rural landscape setting with a high proportion of naturalistic elements will introduce fundamental change. Built elements will be dominant elements in the visual experience. It is considered that walkers travelling south on PRoW 101/122/1 will experience the highest level of change because of the elevated situation. Views towards the proposed development for vehicular users travelling south east on Boulby Bank will be partially restricted by landform, the nature of the road is such that it is largely contained within a cutting, resulting in predominantly glimpsed views of the upper elevations of built development including the chimney and smoke plume.

Residents at ground level will also experience restricted visibility because of the rising landform and roadside vegetation. More extensive visibility will be available from first floor rooms where windows are orientated towards the proposed development.		
Magnitude of visual change: High	**Type of effect**: Medium-term adverse and **Significant.**	**Level of effect**: **Substantial**
Operation - Year 10 At year 10 buildings would be removed from the north of the operational site area as part of the ongoing site rationalisation and reduction in the built development footprint. This would result in a reduction in the lateral visible extent of built development to the left (north) of the view. Removal of structures at a higher level, such as the surge bunker and associated conveyor, will reduce the visible extent of development in the higher elevations of the mine profile. The removal will allow partial introduction of the restoration scheme including new areas of broadleaved woodland and scrub to the north east corner of the site and introduction of pastural field units and hedgerows. Soft landscape elements will be relatively immature but will contribute towards assimilation of the mine site with the wider landscape. The existing mixed species plantation to the north west corner of the site would have reached a greater stature and will be providing greater screening of lower level parts of mine buildings/structures.		
Magnitude of visual change: High	**Type of effect**: Long-term, adverse and **Significant.**	**Level of effect**: **Substantial**
Restoration – Year 33 At restoration landscape elements introduced during the early operational phases as part of the incremental introduction of the restoration scheme will have reached a level of maturity which provides visual linkages with woodland within Easington Beck to the east and the wider landscape. Woodland and meadow introduced to the main site area will be immature but visibility will be partially screened by the now mature mixed plantation to the north west corner. Overall the development site will be largely assimilated into the wider landscape and immature elements will not feature strongly in the view.		
Magnitude of visual change: Low	**Type of effect**: Long-term, adverse and Not Significant.	**Level of effect**: Moderate

Table 5C.3 Viewpoint 3 – Ridge Lane

Viewpoint Information			
Viewpoint OS grid reference:	NZ 76653 17632	**Figure Nos:**	Annotated baseline photos - Figure 5.10
Visual receptor groups located at or close to Viewpoint:		Residents living in properties on Ridge Lane and vehicular receptors and travelling along Ridge Lane.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties. Medium. Drivers and their passengers are typically assessed as possessing medium susceptibility in accordance with GLVIA3 paragraph 6.33 with the exception of those travelling along fast-moving motorways who are assessed as possessing low susceptibility.	

Description of Baseline View

The viewpoint is situated on Ridge Lane to the north of Ridge Hall and the Cleveland Way at an elevation of ~73m AOD and at a distance of ~200m from the site boundary.

Current baseline – Operational mine
The foreground view comprises a simple grassed pastural field with a single group of deciduous trees to the left (south) of the panorama. There is a mature hedge with hedge row trees to the field boundary. Upper elevations of buildings and structures of the existing mine are visible beyond the mature vegetation to the field boundary and the mature woodland situated within the Easington Beck Valley. The main plant building, chimney stack, surge bunker and associated conveyors feature prominently within the visible profile of built development. The larger buildings are visible above the skyline of the elevated landform of Rockcliffe Hill in the Background. There is also visibility of two wooden telegraph poles present within the view and a group of properties at Boulby is visible on the skyline.

Future baseline – Restored site
Removal of the mine buildings and structures will allow more comprehensive visibility of Rock Cliff Hill with associated mosaic of fields and hedgerows beyond the site boundary. Ground level elements within the site boundary are not widely visible and much of the immature restoration scheme would not be readily perceptible from this location because of the screening and filtering effects of intervening hedgerows, trees and woodland.

Description of Changes (In relation to future baseline)

Operation – Year 3
Introduction of the larger mine buildings would become a strong visual presence beyond the intervening areas of vegetation and mature woodland. The buildings would be partially perceived above the skyline including; chimney stack, main plant building, surge bunker and rock shaft tower. Visibility of lower ancillary buildings, and associated activity will largely be filtered by tree cover. The intervening vegetation is largely deciduous and the extent of visibility will be influenced by seasonal variations. The greatest change will be perceived during the winter months when the trees/hedgerows will largely be defoliated. **Figure 5.10** illustrates the existing visual baseline in early November at which point the trees are partially defoliated during the later winter months it is anticipated that the visibility of the Proposed Development would be slightly more extensive.

Magnitude of visual change: High	**Type of effect**: Medium-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Operation – Year 10

Removal of the surge bunker and associated conveyor will reduce the presence of built development. The profile of built development will become simplified and although the retention of the main plant building and chimney stack and associated intermittent presence of smoke plume will remain a strong visual focus in the view. Introduction of the proposed 2-3 storey office building may be partially visible although would the building would not be perceived in heavily filtered views through intervening trees and hedges.		
Magnitude of visual change: High	**Type of effect**: Long-term, adverse and **Significant.**	**Level of effect**: **Substantial**
Restoration – Year 33 Following decommissioning the recently restored site would barely perceptible because of the intervening vegetation screening views of the ground level site area. In the winter months the muted textures of the naturalistic restored landscape elements may be perceived in heavily filtered views through the branch structure of deciduous trees and hedges. In comparison to the more established future baseline restored site areas of woodland and scrub may be less strongly perceived.		
Magnitude of visual change: Very Low	**Type of effect**: Medium -term, adverse and Not Significant.	**Level of effect**: Slight

Table 5C.4 Viewpoint 4 – Cleveland Way

Viewpoint Information			
Viewpoint OS grid reference:	NZ 77053 18735	**Figure Nos:**	Annotated baseline photos - Figure 5.11
Visual receptor groups located at or close to Viewpoint:		Walkers using the Cleveland Way and PRoWs, vehicular receptors and cyclists travelling along the Cowbar access road.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties. High - Medium. Drivers and their passengers are typically assessed as possessing medium susceptibility in accordance with GLVIA3 paragraph 6.33. It is anticipated that most visual receptors will also be residents, or users of the recreational path network, or otherwise engaged in leisure activities.	

Description of Baseline View

The viewpoint is situated to the south of the Cleveland Way and also adjacent to PRoW 101/202/2 and Cowbar Lane at an elevation of ~69m AOD and at a distance of ~295m from the site boundary.

Current baseline – Operational mine
Cowbar Lane is visible in the foreground and is set within a flat coastal landscape of coarse grassland and a mix of arable and pastoral fields The red brick and slate roof properties at Red House Farm are visible beyond a simple timber fence to the left (east) of the panorama. To the right (east) of the panorama the agricultural landscape rises steadily at Rockcliff Hill and Ings Farm is visible situated amongst mature trees on the skyline. The A174 road corridor with associated lighting columns is discernible to the right of the panorama (east). Some existing planting is visible within the site boundary including a belt of willow species to the northern elevation and the woodland to the north west corner adjacent to the A174. Existing mine buildings including the chimney stack, rock shaft tower and main plant building are a prominent visual presence. Lower buildings to the north of the main operational mine including the sports dome, administration building and other ancillary buildings. The various buildings and structures are perceived as a complex juxtaposition of large blocky buildings, tall linear elements and angular structures. The higher buildings/structures are visible above the skyline defined by the elevated landform in the distance to the south west. Beyond the mine development extensive areas of mature woodland are visible set within the Easington Beck valleys and elsewhere within the agricultural landscape.

Future baseline – Restored site
Removal of the mine buildings/ infrastructure and completion of the restoration scheme will introduce a range of softer, naturalistic landscape elements with less dominance by built elements.

Description of Changes (In relation to future baseline)

Operation – Year 3
Introduction of large industrial buildings and structures would introduce fundamental visual change in relation to the future baseline scenario of the recently implemented restoration scheme. The various buildings and structures would be perceived as a complex juxtaposition of large blocky buildings, tall linear elements and angular structures. The higher buildings/structures would be visible above the skyline defined by the elevated landform in the distance to the south west. Smaller buildings to the north of the main operational mine, including the sports dome, administration building and other ancillary buildings would also be visible contributing to the complex arrangement of built development.

Magnitude of visual change: High	**Type of effect**: Medium-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Operation – Year 10 Removal of the smaller ancillary buildings to the north of the main operational area will result in a less cluttered arrangement and reduction in the overall lateral extent of visible built form to the northern and north western extent of the development. Introduction of the pastural fields and hedges to the north and areas of broadleaved woodland to the north east corner will be perceptible but at this stage will not be of a stature to influence the extent of visible built development. Introduction of a uniform surface finish to the remaining structures combined with removal of some lower buildings and the surge bunker/conveyor will combine to produce a simplified, less cluttered appearance.		
Magnitude of visual change: High	**Type of effect**: Long-term, adverse and **Significant.**	**Level of effect**: **Substantial**
Restoration – Year 33 Elements of the restoration scheme introduced progressively during the operational period including the broadleaved woodland/scrub to the north east corner of the site and boundary with the A174 will be reaching a state of maturity and stature which would screen visibility of the site area beyond these elements. In comparison to the future baseline scenario overall visible areas of scrub and woodland will be perceived as slightly less mature and less influential aspect of the landscape. In both scenarios the site area will become assimilated into the wider landscape as perceived from this viewpoint.		
Magnitude of visual change: Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Moderate

Table 5C.5 Viewpoint 5 – Staithes Tourist Information Centre

Viewpoint Information			
Viewpoint OS grid reference:	NZ 78104 18512	**Figure Nos:**	Annotated baseline photos - Figure 5.12
Visual receptor groups located at or close to Viewpoint:		Visitors to Staithes and local residents.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties.	

Description of Baseline View

The viewpoint is situated adjacent to the play area next to the visitor car park at the Staithes Tourist Information Centre at an elevation of ~47m AOD and at a distance of ~1250m from the site boundary.

Current baseline – Operational mine
The foreground of the view is composed of a reinforced gravel surfaced car park cars enclosed by a lower timber fence. A tarmac footpath leads from the parking area towards Staithes Lane with detached dwellings streetlights, signage and telecommunication poles and wires. There is a dense evergreen hedge to the right (north of the panorama). Beyond Staithes Lane, which defines the western extent of the village, individual farms and dwellings, including Cowbar Farm, are visible to the west of Staithes Beck in an area of more open agricultural landscape. The eastern elevation of the existing mine comprising a range of large-scale buildings and industrial structures is visible on a flat area of elevated landform. The upper elevations of built development, rock shaft tower, main plant building and chimney stack are visible above the skyline. Beyond the mine the skyline is defined by the elevated landform at Rockcliffe Hill where properties at Boulby and Ings Farm are visible.
Future baseline – Restored site
Removal of the mine buildings/ infrastructure and completion of the restoration scheme will introduce a range of softer, naturalistic landscape elements with less dominance by built elements.

Description of Changes (In relation to future baseline)

Operation – Year 3
Introduction of the Proposed Development would introduce fundamental change in relation to the future baseline scenario (restored site). The presence of large-scale industrialised structures would contrast with the smaller scale individual farms and dwellings present in the wider landscape and replace a range of naturalistic elements within the site area. Taller structures, including the chimneys, rock shaft tower and main plant building would be visible above the containment of the skyline. Many lower level buildings will also be visible adding to the visual complexity of the overall assemblage of the eastern mine elevation.

Magnitude of visual change: High	**Type of effect**: Medium-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Operation – Year 10
Removal of lower level buildings including the sports dome, ancillary buildings including the stores and administration building, together with removal of the surge bunker will reduce the overall lateral extent of development and also reduce the visibility of lower level clutter. The progressive restoration of the northern site area would introduce areas of scrub and woodland which would be present in the view but not at this stage be sufficiently established to influence the extent of visible built development. Proposed unification of surface finishes would introduce a more harmonised, recessive appearance.

Magnitude of visual change: High	**Type of effect**: Long-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Restoration – Year 33

Broadleaved woodland and scrub introduced to the north east of the site area during years 1 to 10 of the operational period will have experienced 15+ years growth and reached a stature which would be visible along the boundary with the A174 and also providing a visual linkage with the mature woodland in the Easington Beck valley.		
Magnitude of visual change: Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Moderate

Table 5C.6 Viewpoint 6 – Roxby Lane

Viewpoint Information			
Viewpoint OS grid reference:	NZ 76546 16462	**Figure Nos:**	Annotated baseline photos - Figures 5.13a and b
Visual receptor groups located at or close to Viewpoint:		Vehicular receptors travelling along Roxby Lane.	
Visual receptor sensitivity:		Medium. Drivers and their passengers are typically assessed as possessing medium susceptibility in accordance with GLVIA3 paragraph 6.33 with the exception of those travelling along fast-moving motorways who are assessed as possessing low susceptibility.	

Description of Baseline View

The viewpoint is situated on the western verge of Roxby Lane at an elevation of ~155m AOD and at a distance of ~1270m from the site boundary.

Current baseline – Operational mine
The elevated situation of the viewpoint allows panoramic views across the lower lying landscape to the north west. Broad, interwoven belts of mature, principally, deciduous woodland within Easington and Roxby Becks' feature prominently in these lower lying areas. Pastural fields are intermixed with the woodland. The full extent of the south eastern elevation of the mine buildings is largely visible above the woodland associated with Easington Beck. Beyond the mine the elevated landform of Rockcliff Hill is present with properties at Boulby Barns Farm are just visible on the skyline. The flatter, lower lying coastal plain with the North Sea beyond is visible to the right (north) of the panorama. Some individual properties are just perceptible including those at Red House Farm and Boulby.

Future baseline – Restored site
The visual experience of the future baseline scenario would be dominated by naturalistic landscape elements.

Description of Changes (In relation to future baseline)

Operation – Year 3
The Proposed Development would introduce large scale industrial buildings and structures within a landscape comprised of naturalistic landscape elements, pastoral and arable fields and individual small-scale dwellings and farms. The expanse of the visible built development would be comprised of a complex juxtaposition of angular blocky forms, tall linear elements and assorted lower level ancillary structures.

Magnitude of visual change: High	**Type of effect**: Medium-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Operation Year 10
Removal of the surge bunker and associated conveyor would expose visibility of the lower level main chimney stack which combined with removal of ancillary buildings to the north of the main operational area will simplify the building elevation and would reduce the lateral extent of visible development. Partial restoration introduced to the northern site area would be perceptible from this elevated situation. Areas of relatively immature broadleaved woodland intermixed with pastural fields and hedgerows will be visible in this northern area which will provide visual linkages with existing woodland within the Easington Beck valley.

Magnitude of visual change: High	**Type of effect**: Long-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Restoration Year 33
Elements introduced as part of the partial restoration of the northern site area during years 1-10 of the operational period including introduction of broadleaved woodland and scrub will be established within the landscape following 15+ years of growth. Other woodland introduced to the modified landform created within the main operational area will be less established and less influential in the view.

Magnitude of visual change: Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Moderate

Table 5C.7 Viewpoint 7 – Hinderwell

Viewpoint Information			
Viewpoint OS grid reference:	NZ 79015 17119	**Figure Nos:**	Annotated baseline photos - Figure 5.14
Visual receptor groups located at or close to Viewpoint:		Residents in Hinderwell and vehicular receptors using the A174.	
Visual receptor sensitivity:		High Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties. Medium. Drivers and their passengers are typically assessed as possessing medium susceptibility in accordance with GLVIA3 paragraph 6.33 with the exception of those travelling along fast-moving motorways who are assessed as possessing low susceptibility.	

Description of Baseline View

The viewpoint is situated on a footpath to the north of the A174 at the western extent of Hinderwell at an elevation of ~84m AOD and at a distance of ~2250m from the site boundary.

Current baseline – Operational mine
Foreground views comprise the A174 road corridor with associated grass verge and dense roadside hedge which defines the southern extent of the highway boundary. Views beyond the hedge are available towards the coastal hinterland to the east, the elevated landform at Rockcliff Hill which culminates in the Boulby cliffs at the interface with the North Sea. The full expanse of the eastern elevation of the operational mine buildings and structures is visible across the intervening agricultural landscape where it is perceived above the woodland contained in the incised valleys. The view shown in **Figure 5.14** is illustrative of the most open views available and is not considered to be widely available or typical of the visual experience for residents in Hinderwell or vehicular receptors to the western extent of Hinderwell.

Future baseline – Restored site
Removal of the mine buildings/ infrastructure and completion of the restoration scheme will introduce a range of softer, naturalistic landscape elements. The site will become assimilated into the wider landscape and will not be readily perceptible.

Description of Changes (In relation to future baseline)

Operation – Year 3
Individual elements of the Proposed Development would be discernible in the eastern elevation. Most buildings/structures would be set against the rising landform at Rockcliff Hill/Easington Heights beyond the site to the west with the exception of the main chimney stack which would be visible above the skyline. The scale of the built elements within the Proposed Development would contrast with the smaller scale buildings present in the wider agricultural landscape.

Magnitude of visual change: High	**Type of effect**: Medium-term, adverse and **Significant.**	**Level of effect**: **Substantial**

Operation – Year 10
Removal of buildings during year 1-10 of the operational period will result in a reduction in the lateral extent of perceived development. Smaller ancillary buildings to the north of the site will be progressively replaced by phased implementation of the restoration scheme. In this northern area this will include the introduction of pastural field units and areas of scrub and woodland to the boundary with the A174. Removal of the surge bunker will be apparent although overall the perceived scale of built development within the main operational area will be slightly diminished. The application of a single surface finish to the buildings and structures will provide a more recessive and unified appearance.

Magnitude of visual change: High	**Type of effect**: Long-term, adverse and **significant.**	**Level of effect**: **Substantial**

Restoration – Year 33

Following decommissioning, the removal of the large-scale buildings and introduction of the restoration scheme the Proposed Development site would not be a strong visual presence. A range of naturalistic landscape elements would be introduced including; broadleaved woodland, scrub , meadow, arable and pastoral fields with generally muted colours would have visual associations with the wider landscape. At this separation distance (2250m) following restoration the Proposed Development site would not be readily perceived as a discreet area and would become assimilated into the wider landscape.		
Magnitude of visual change: Very Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Slight

Table 5C.8 Viewpoint 8 – Ellerby

Viewpoint Information			
Viewpoint OS grid reference:	NZ 79952 14773	**Figure Nos:**	Annotated baseline photos - Figure 5.15
Visual receptor groups located at or close to Viewpoint:		Walkers using the Cleveland Way and PRoWs, vehicular receptors and cyclists travelling along the Cowbar access road.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties.	

Description of Baseline View

The viewpoint is situated on PRoW 30.34/002 adjacent to Ellerby Lane at the northern extent of Ellerby at an elevation of ~116m AOD and at a distance of ~4590m from the site boundary. The viewpoint is slightly elevated above Ellerby Lane and to the west of the roadside hedge and is considered to be illustrative of the most open views available from the settlement rather than being representative of the general nature of visibility experienced from Ellerby.

Current baseline – Operational mine
The foreground view comprises a simple gently undulating landscape of arable fields with hedgerow boundaries. To the right (north) of the panorama, built form is visible within Hinderwell and beyond this the flat coastal landscape to the north west and North sea coastline is also discernible. Rockcliff Hill provides a notable landmark and, together with rising landform at Borrowby Moor, defines the skyline. The eastern elevation of the mine buildings/structures is visible above a network of hedgerows, areas of woodland and fields in the intervening landscape. Some structures such as the main chimney stack, main plant buildings and the rock shaft tower are discernible but otherwise Individual elements of the mine are not readily perceived at a separation distance of ~4590m.

Future baseline – Restored site
The restored site would comprise a range of naturalistic elements and would appear to be assimilated into the wider landscape as perceived from this viewpoint.

Description of Changes (In relation to future baseline)

Operation – Year 3
The Proposed Development would introduce large industrial buildings and structures into a predominantly rural landscape. The colour, shape and angular/linear form of the structures would contrast with that of the wider agricultural landscape and naturalistic elements with associated muted colours and soft organic forms. At a separation distance of ~4590m built elements of the Proposed Development would represent a relatively small proportion of the overall field of view illustrated in the panorama.

Magnitude of visual change: Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Moderate

Operation Year 10
Phased removal of buildings during years 1-10 of the operational period will reduce the lateral extent of visible development to the northern extent of the site area.

Magnitude of visual change: Low	**Type of effect**: Long-term, adverse and Not Significant.	**Level of effect**: Moderate

Restoration - Year 33
Visual change as a consequence of the difference in maturity between the restored scheme of the Proposed Development and that of the future baseline would not be readily perceptible.

Magnitude of visual change: Very Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Slight

Table 5C.9 Viewpoint 9 – Kettleness

Viewpoint Information			
Viewpoint OS grid reference:	NZ 83048 15636	**Figure Nos:**	Annotated baseline photos - Figure 5.16
Visual receptor groups located at or close to Viewpoint:		Residents in kettleness and Walkers using the Cleveland Way.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high. Residential receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach a medium or high value to the views that are available from the windows and curtilage of their properties.	

Description of Baseline View

The viewpoint is situated within an area of green space at Kettleness and adjacent to the Cleveland Way at an elevation of ~90m AOD and at a distance of ~6620m from the site boundary.

Current baseline – Operational mine
The foreground view comprises the vehicular turning area at the northern extent of Goldsborough Lane within an area of mown grass. Kettleness Farm including farmhouse, access track and farm yard features prominently to the left (south) of the panorama. More widely the view is orientated to the west along the North Sea coastline where the high sea cliffs are a notable presence. Built development associated with the settlements of Hinderwell, Runswick Bay and Port Mulgrave is visible within the coastal hinterland. Intervening landform restricts visibility of the operational mine buildings although some taller elements are visible including the main chimney stack.

Future baseline – Restored site
Following removal of the operational mine buildings views of the site would be restricted to partial visibility of the elevated agricultural area beyond the main operational site.

Description of Changes (In relation to future baseline)

Operation – Year 3
Ground level and lower elevations of built development will not be visible because of the screening effects of an elevated area of landform to the east of the Proposed Development in the intervening landscape. Visible elements of the Proposed Development would include the upper elevation of the main chimney stack and the rock shaft tower.

Magnitude of visual change: Very Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Slight

Operation – Year 10
Removal of buildings and progressive introduction of the restoration scheme would not be readily perceptible and there would be no change to the assessment.

Magnitude of visual change: Very Low	**Type of effect:** Long-term, adverse and Not Significant.	**Level of effect**: Slight

Restoration - Year 33
Visual change as a consequence of the difference in maturity between the restored scheme of the Proposed Development and that of the future baseline would not be readily perceptible.

Magnitude of visual change: Zero	**Type of effect:** N/A	**Level of effect**: None

Table 5C.10 Viewpoint 10 – Danby Beacon

Viewpoint Information			
Viewpoint OS grid reference:	NZ 73653 09285	**Figure Nos:**	Annotated baseline photos - Figure 5.17
Visual receptor groups located at or close to Viewpoint:		Walkers using the network of paths on Beacon Hill and visitors accessing the viewpoint in vehicles.	
Visual receptor sensitivity:		High Recreational receptors are assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and there is a high likelihood that these receptors attach at least a medium value to the views that are available. As such the sensitivity of recreational receptors is assessed as high.	

Description of Baseline View

The viewpoint is situated adjacent to the viewpoint at Danby Beacon at an elevation of ~297m AOD and at a distance of ~8760m from the site boundary.

Current baseline – Operational mine
The viewpoint allows panoramic views across an open area of heather moorland towards the Proposed Development. Beyond the moorland Scaling Reservoir is visible within a shallow bowl enclosed to the north by an area of rising, partially tree covered, landform. The built form of the existing operational mine is perceived against the backdrop of the North Sea between two areas of rising landform; Rockcliff Hill to the west and Borrowby Moor to the east. The main stack chimney is visible rising above an amorphous mass of indistinguishable built form. Overall the Proposed Development represents a very small extent of visible development is very represents

Future baseline – Restored site
The restored site of the future baseline scenario would not be perceptible as a consequence of the considerable separation distance and the screening effects of intervening landform.

Description of Changes (In relation to future baseline)

Operation – Year 3
The Proposed Development would introduce built development at the land/sea interface. In the context of the wider view and considerable separation distance the perceived scale of visible development would be very small and would not be a prominent aspect of the visual experience for receptors at this viewpoint.

Magnitude of visual change: Very Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Slight

Operation Year 10
The overall scale of perceived development may be slightly reduced but overall it is not anticipated that change resulting from the phased reduction of the operational mine during years 1-10 will be perceptible.

Magnitude of visual change: Very Low	**Type of effect**: Medium-term, adverse and Not Significant.	**Level of effect**: Slight

Restoration - Year 33
The restored scheme will not be visible.

Magnitude of visual change: Zero	**Type of effect**: N/A	**Level of effect**: None

Appendix 6A
Noise Monitoring Equipment

Appendix A
Noise Monitoring Equipment

NL31 – 02 Calibration Details

Manufacturer	Instrument	Type	Serial Number	Calibration Date
Rion	Sound Level Meter	NL – 31	00541627	12/05/2017
Rion	Pre Amplifier	NH – 21	11613	12/05/2017
Rion	Microphone	UC – 53A	306431	12/05/2017

NL31 – 04 Calibration Details

Manufacturer	Instrument	Type	Serial Number	Calibration Date
Rion	Sound Level Meter	NL – 31	00541624	11/01/2017
Rion	Pre Amplifier	NH – 21	13939	11/01/2017
Rion	Microphone	UC – 53A	310266	11/01/2017

NL31 – 05 Calibration Details

Manufacturer	Instrument	Type	Serial Number	Calibration Date
Rion	Sound Level Meter	NL – 31	00541626	11/01/2017
Rion	Pre Amplifier	NH – 21	11612	11/01/2017
Rion	Microphone	UC – 53A	320377	11/01/2017

NL32 – 02 Calibration Details

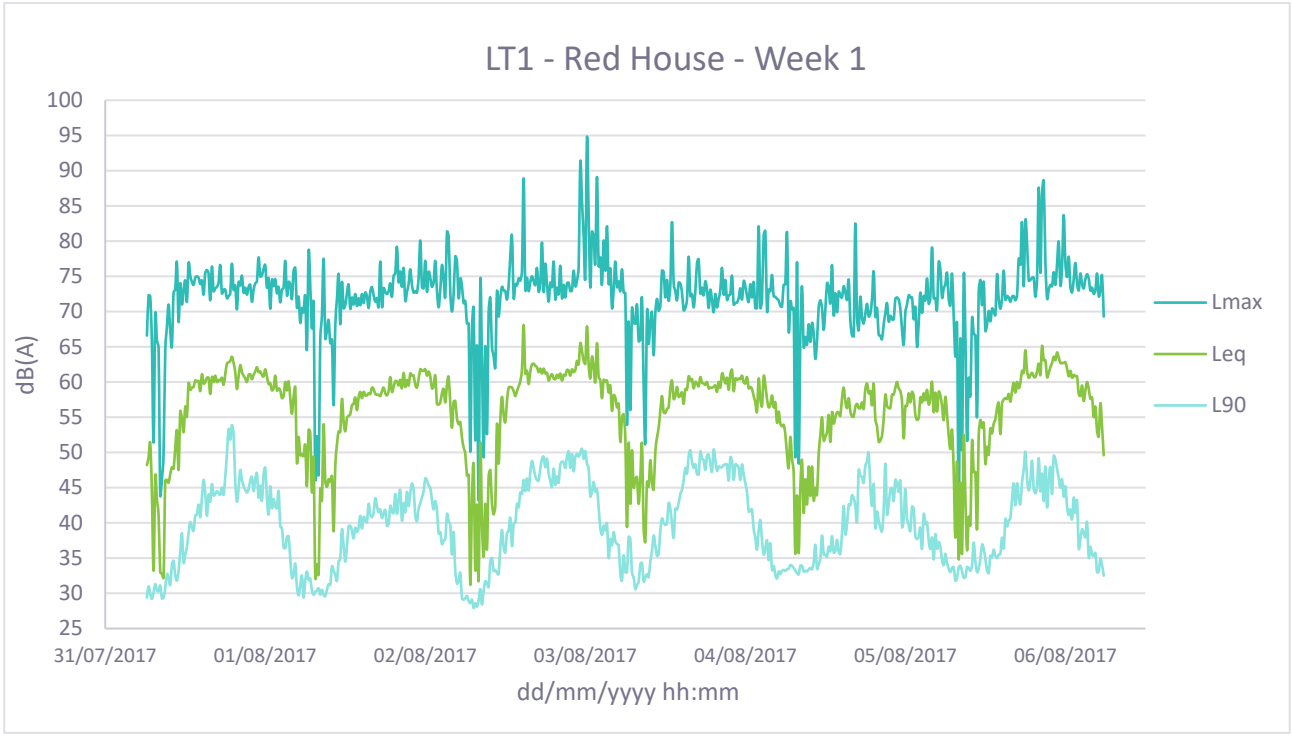
Manufacturer	Instrument	Type	Serial Number	Calibration Date
Rion	Sound Level Meter	NL – 32	00513581	19/12/2016
Rion	Pre Amplifier	NH – 21	35681	19/12/2016
Rion	Microphone	UC – 53A	318469	19/12/2016

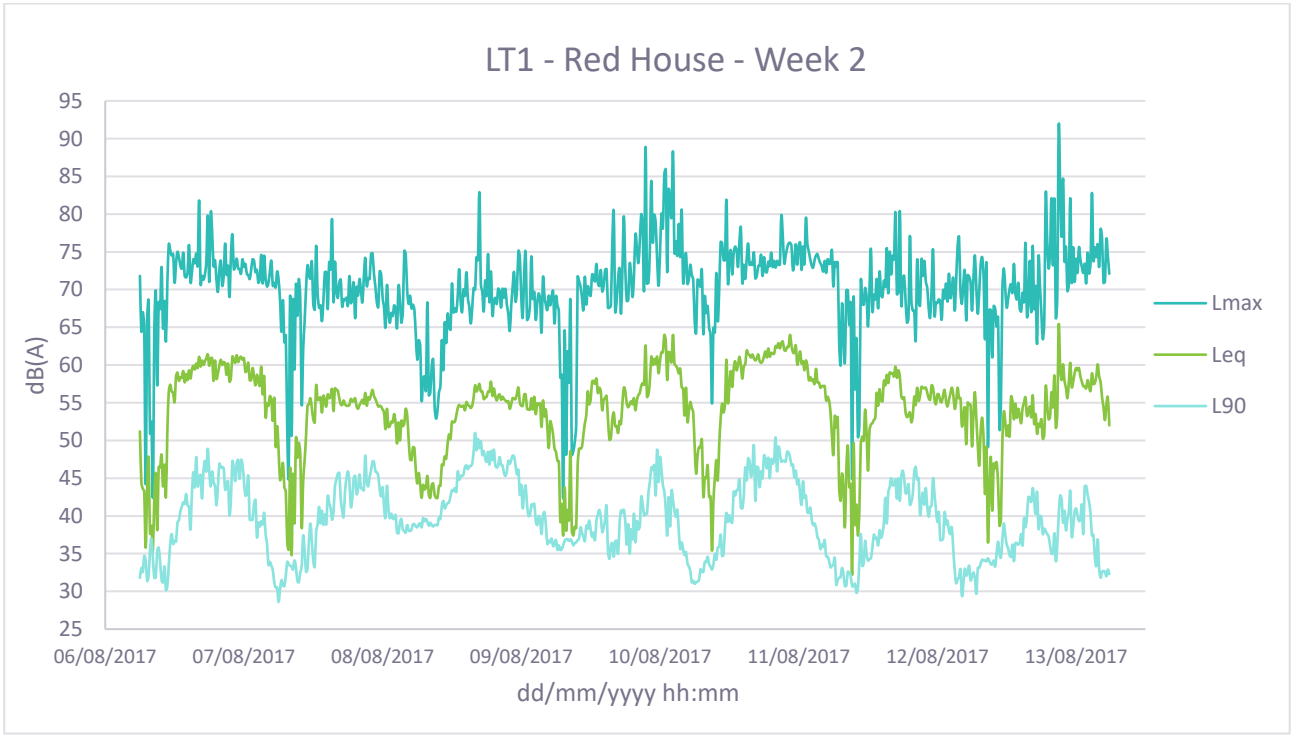
NL52 – 02 Calibration Details

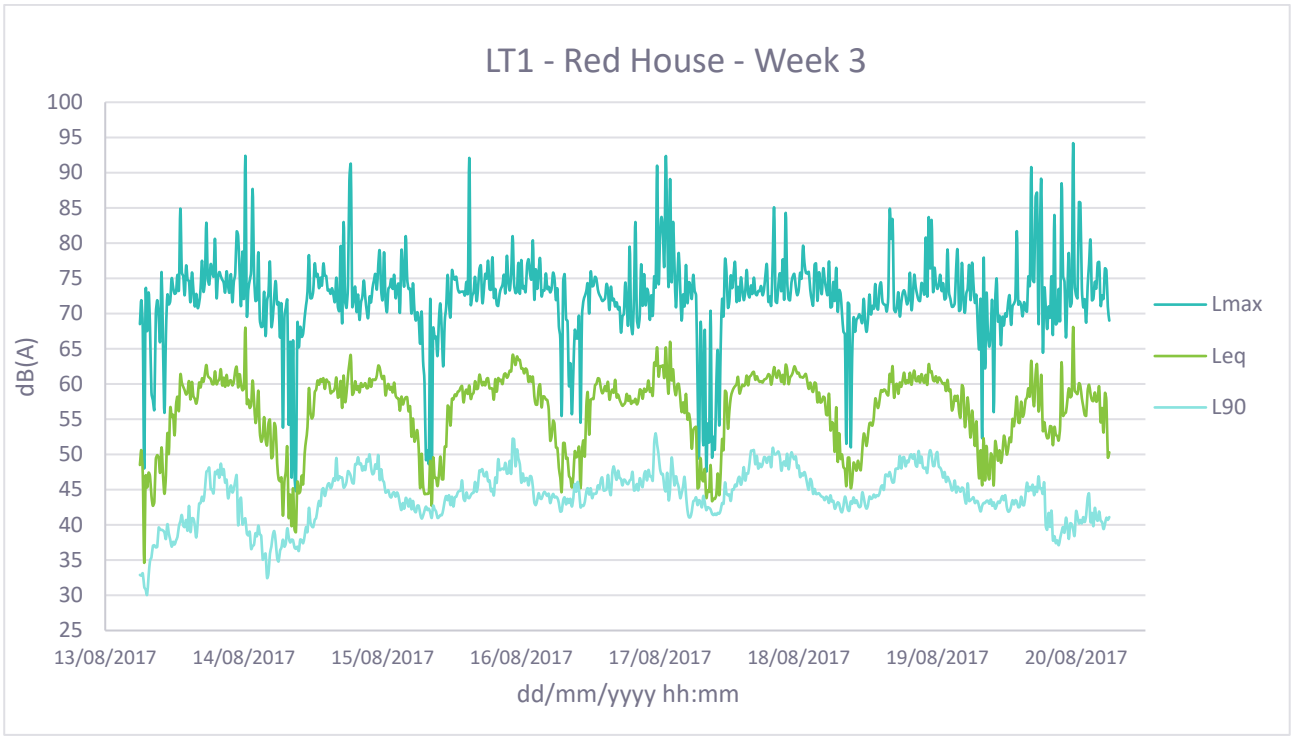
Manufacturer	Instrument	Type	Serial Number	Calibration Date
Rion	Sound Level Meter	NL – 52	00620802	15/08/2017
Rion	Pre Amplifier	NH – 25	20862	15/08/2017
Rion	Microphone	UC – 59	03628	15/08/2017

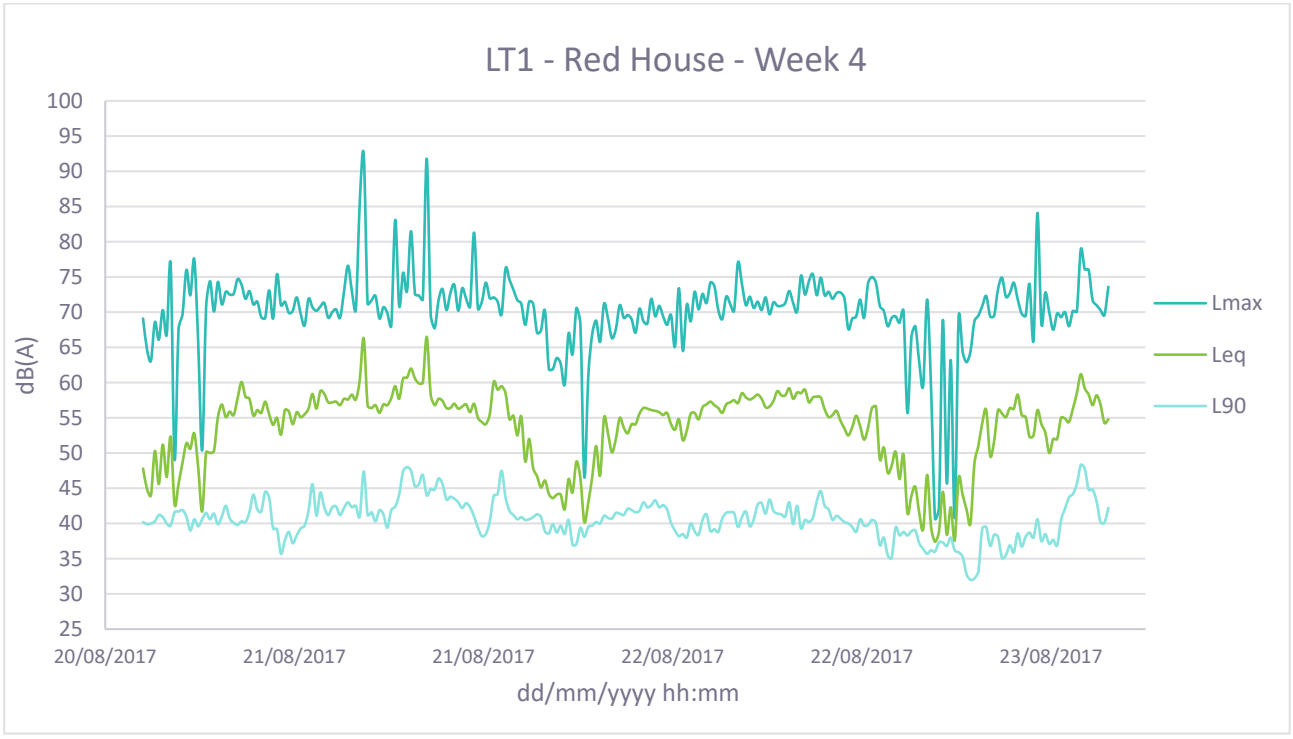
Appendix 6B
Noise Monitoring Graphs

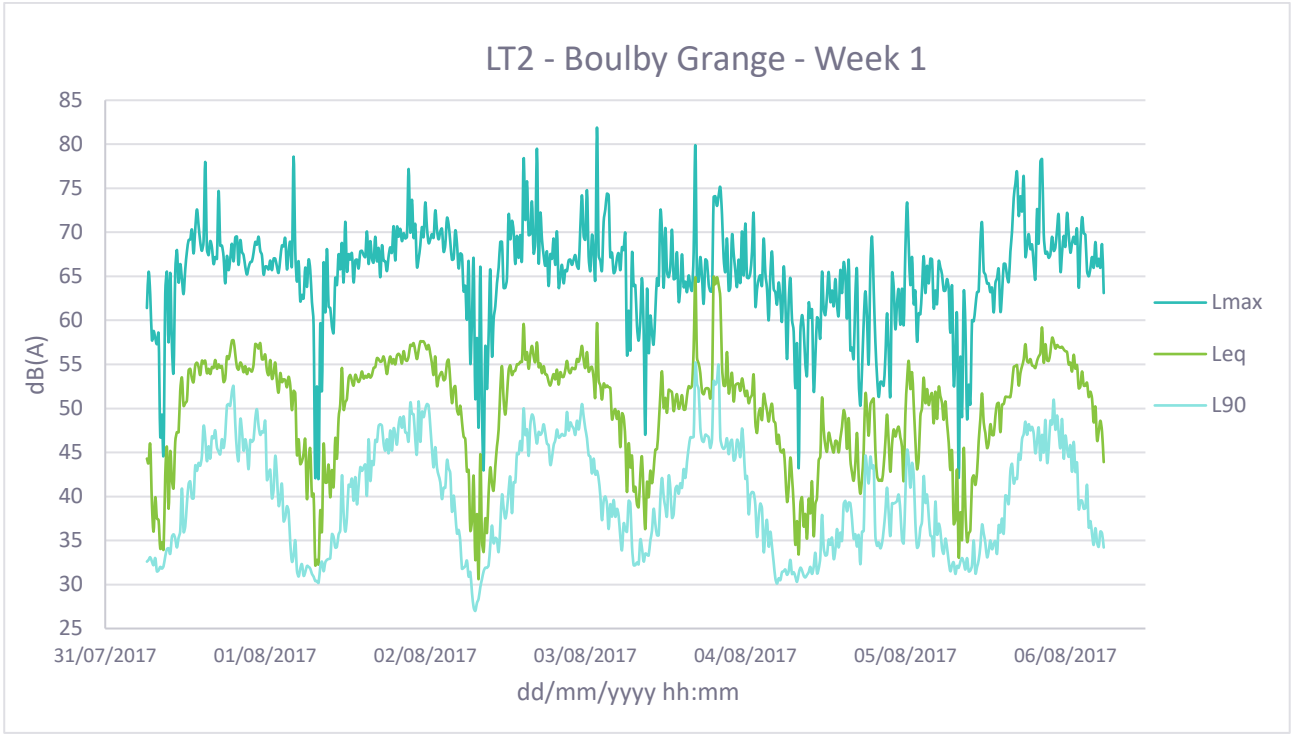
Appendix B
Noise Monitoring Graphs

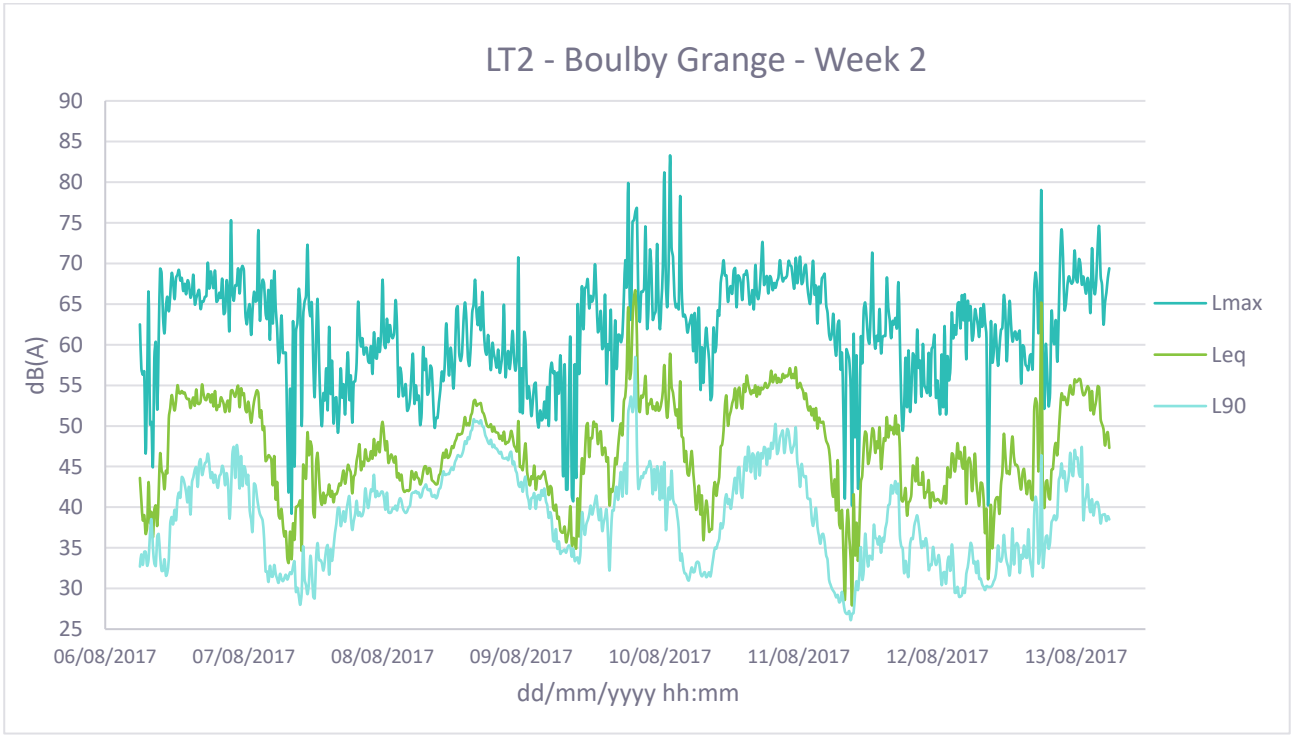


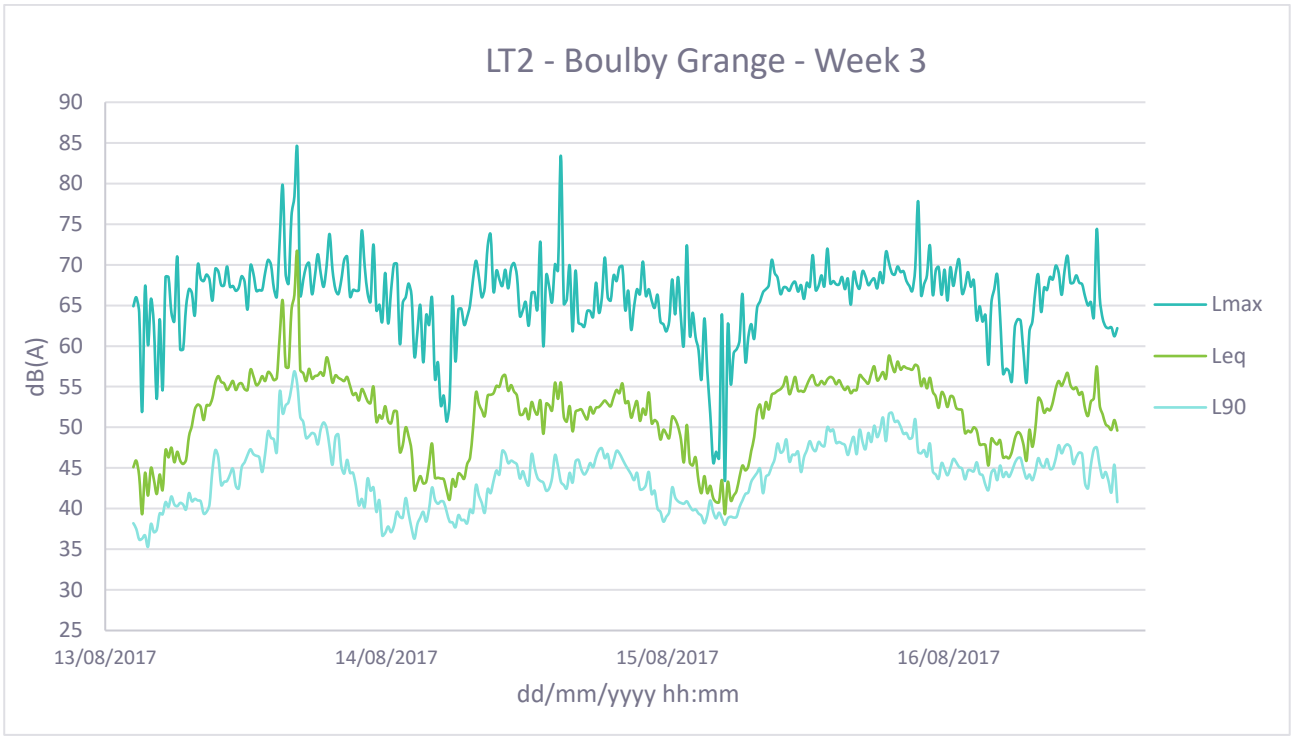


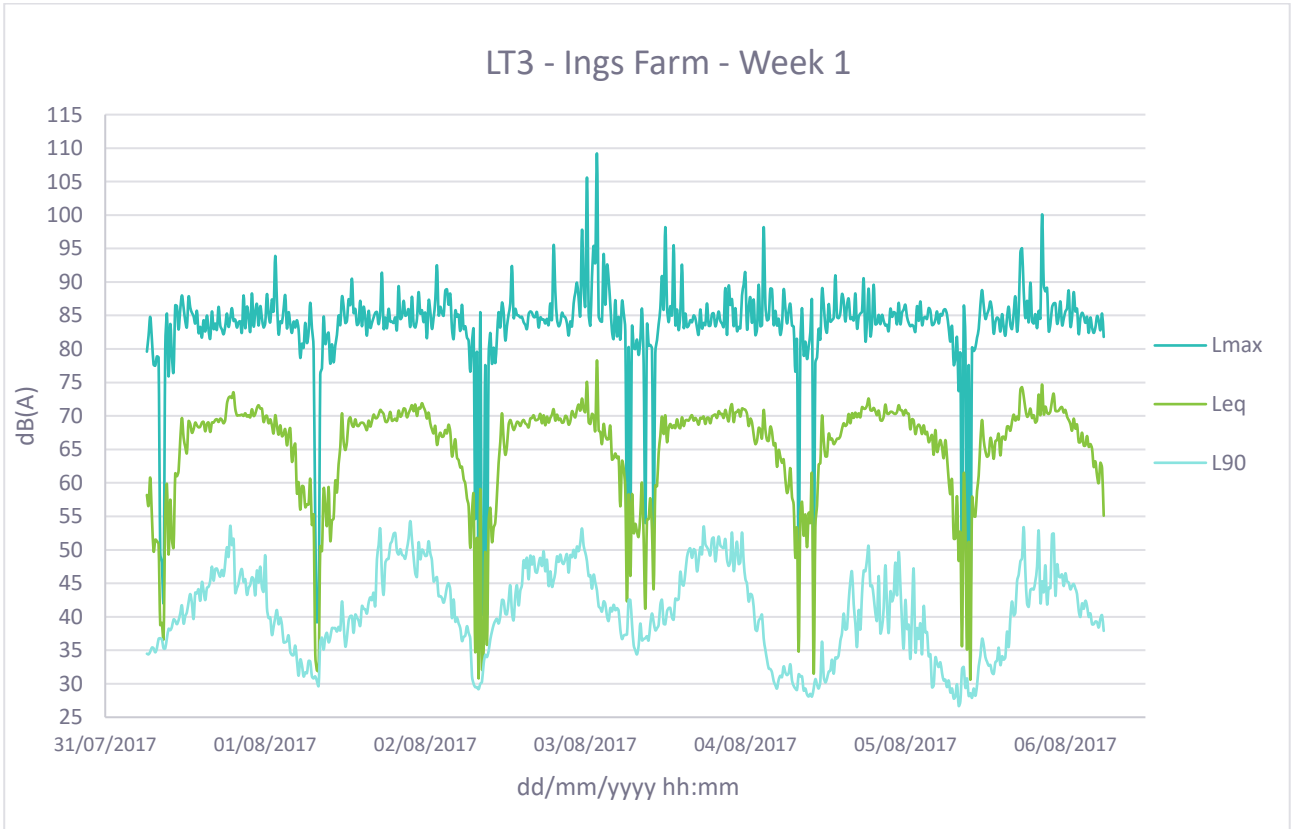


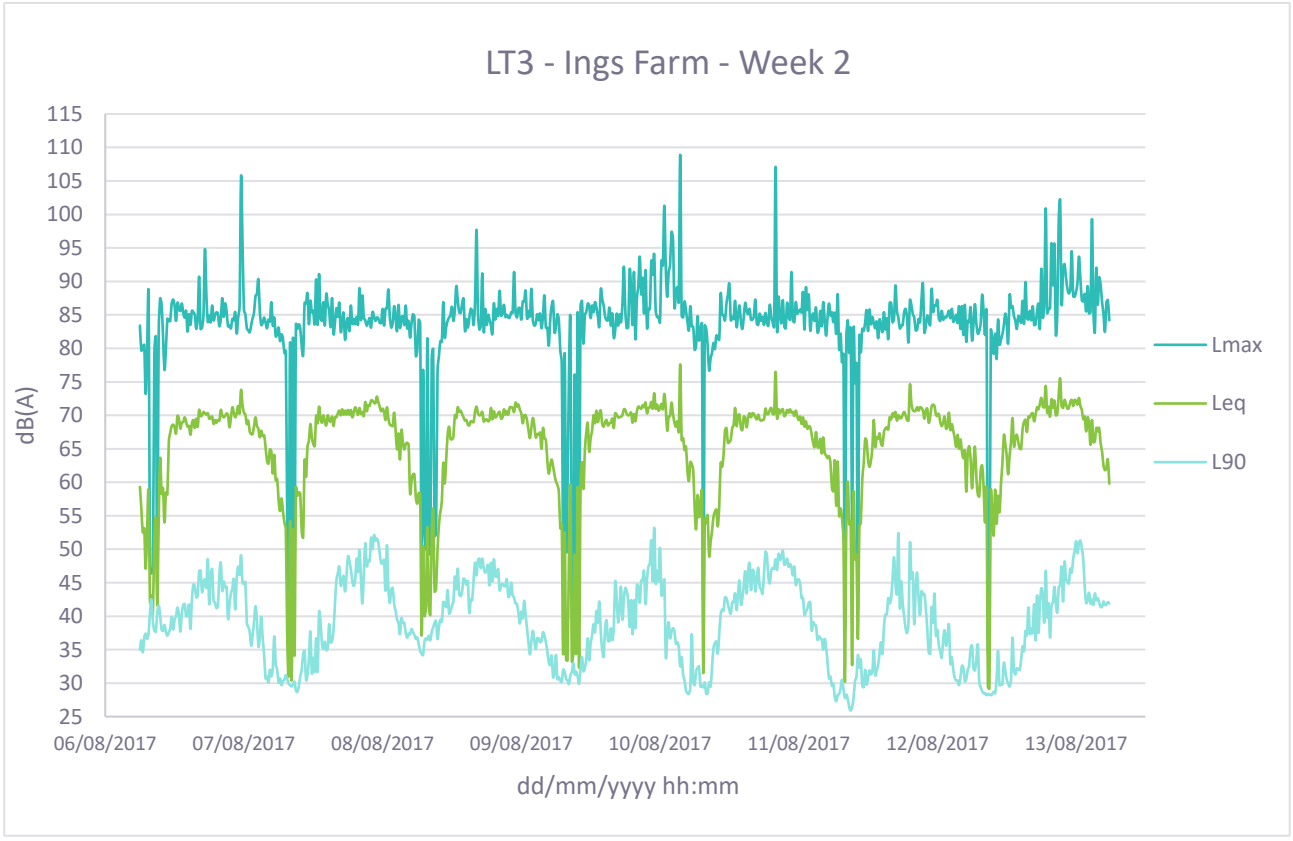


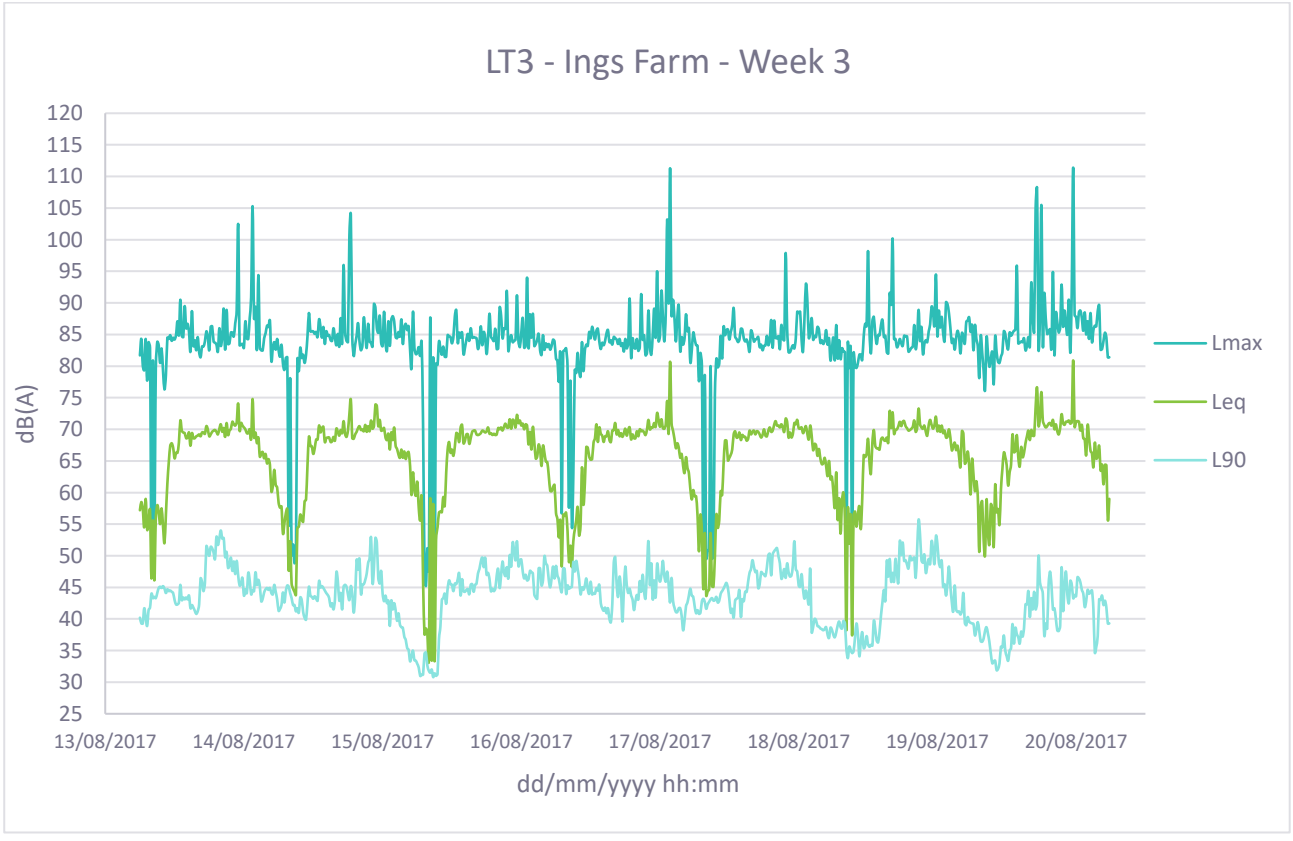


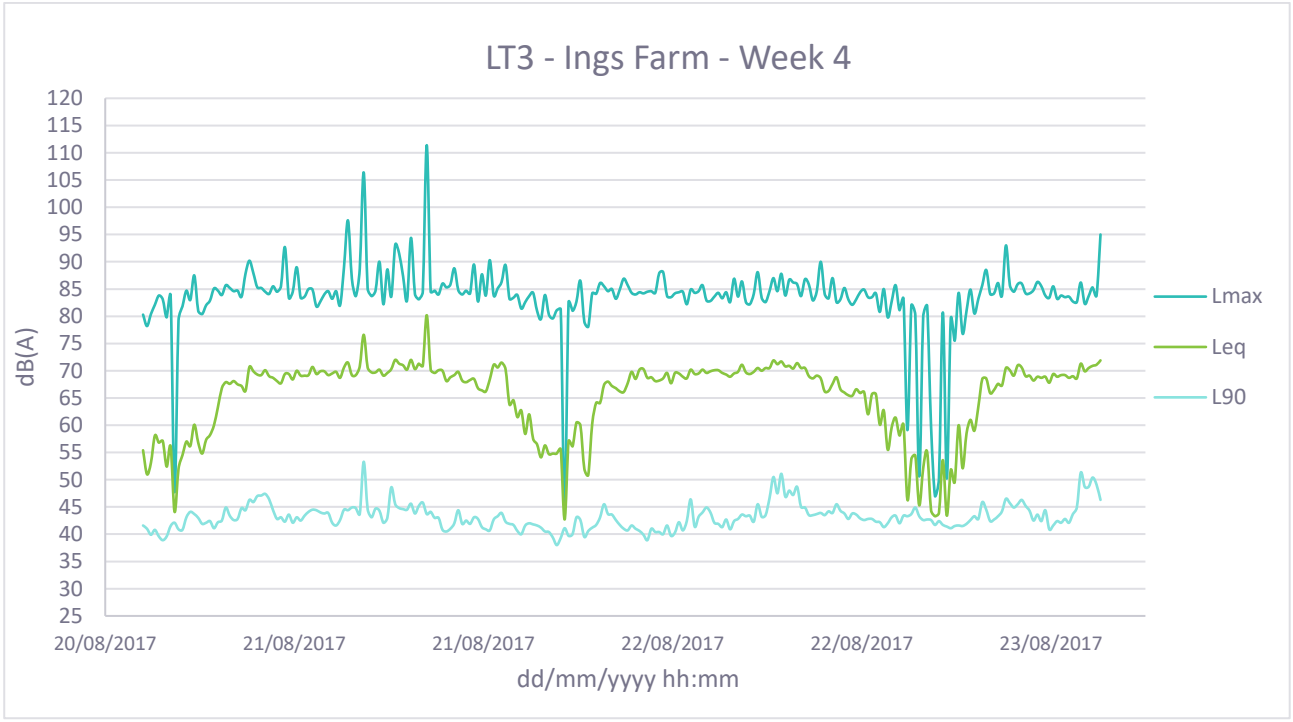


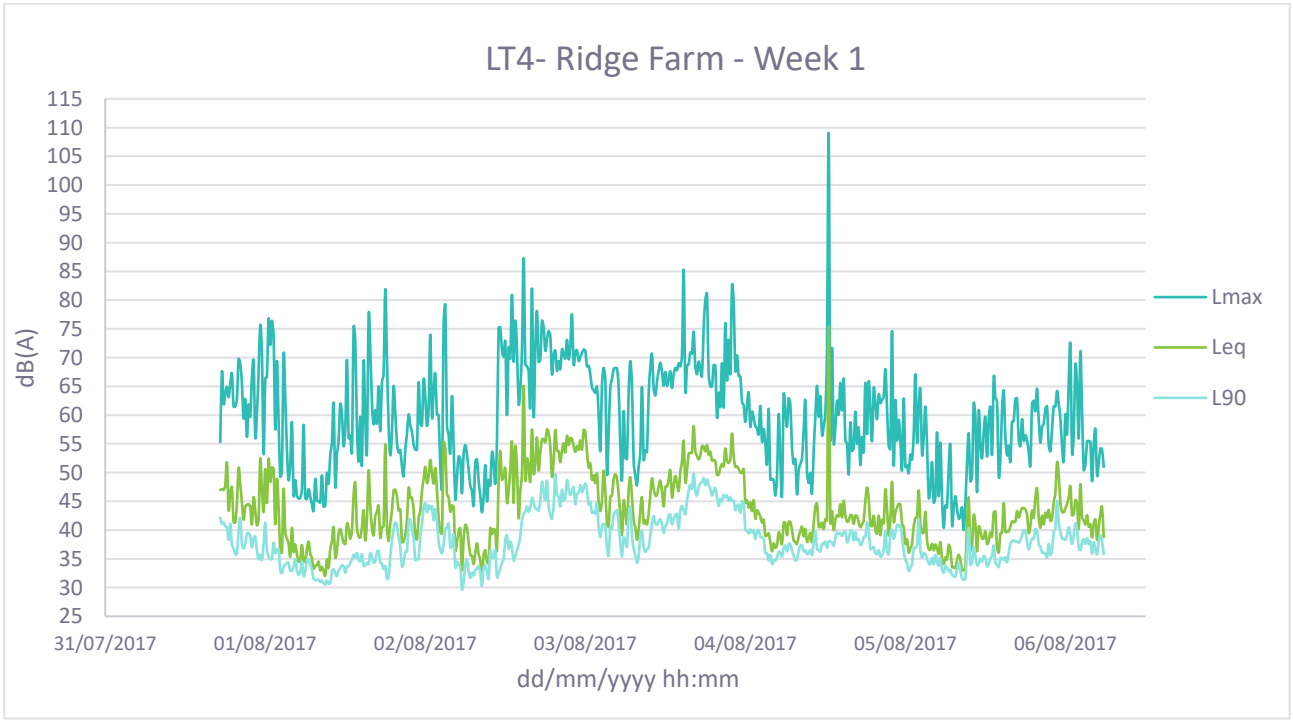









LT3 - Ings Farm - Week 4
dB(A)
120
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20/08/2017
21/08/2017
21/08/2017
22/08/2017
22/08/2017
23/08/2017
dd/mm/yyyy hh:mm
Lmax
Leq
L90


LT4- Ridge Farm - Week 1
dB(A)
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
31/07/2017
01/08/2017
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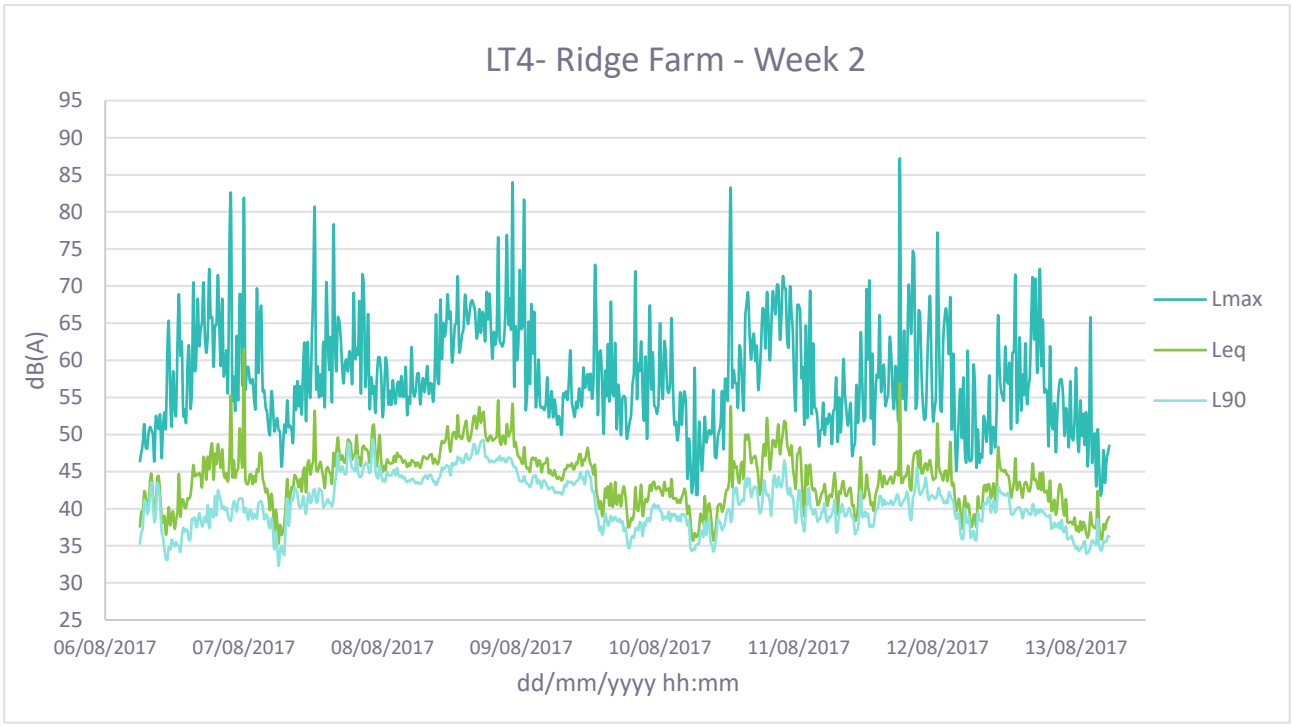
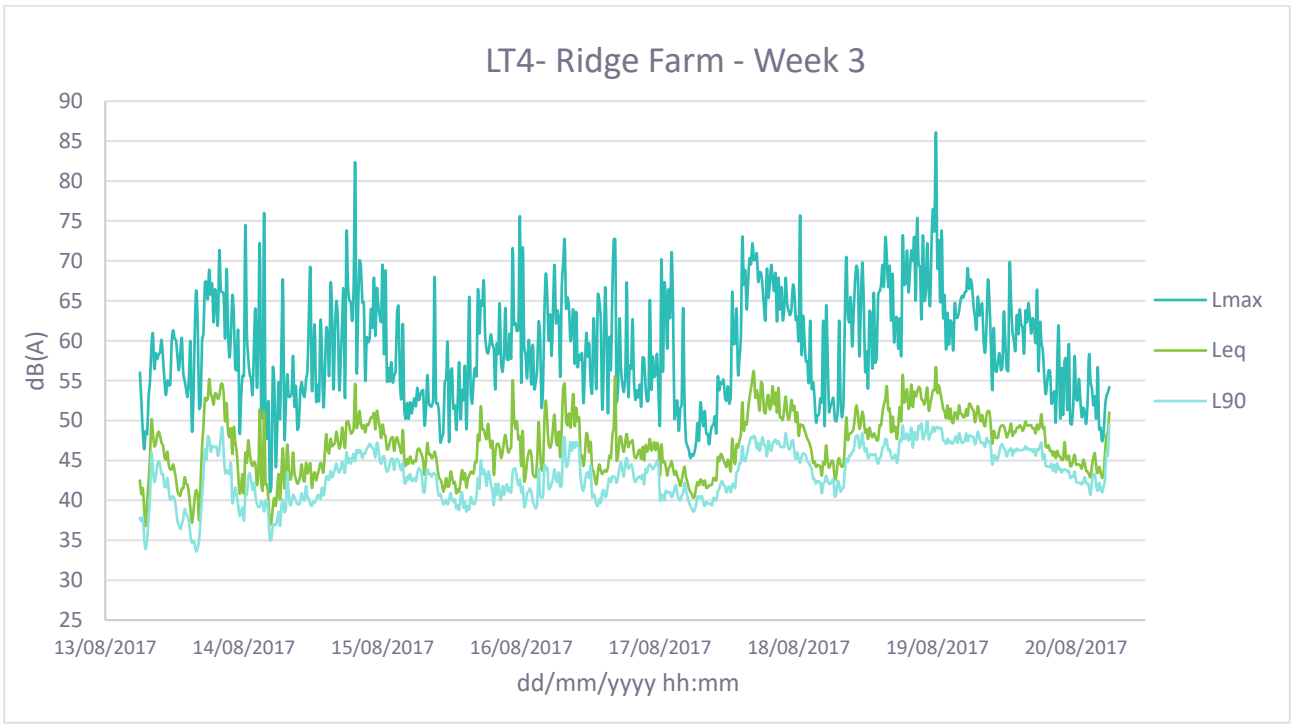
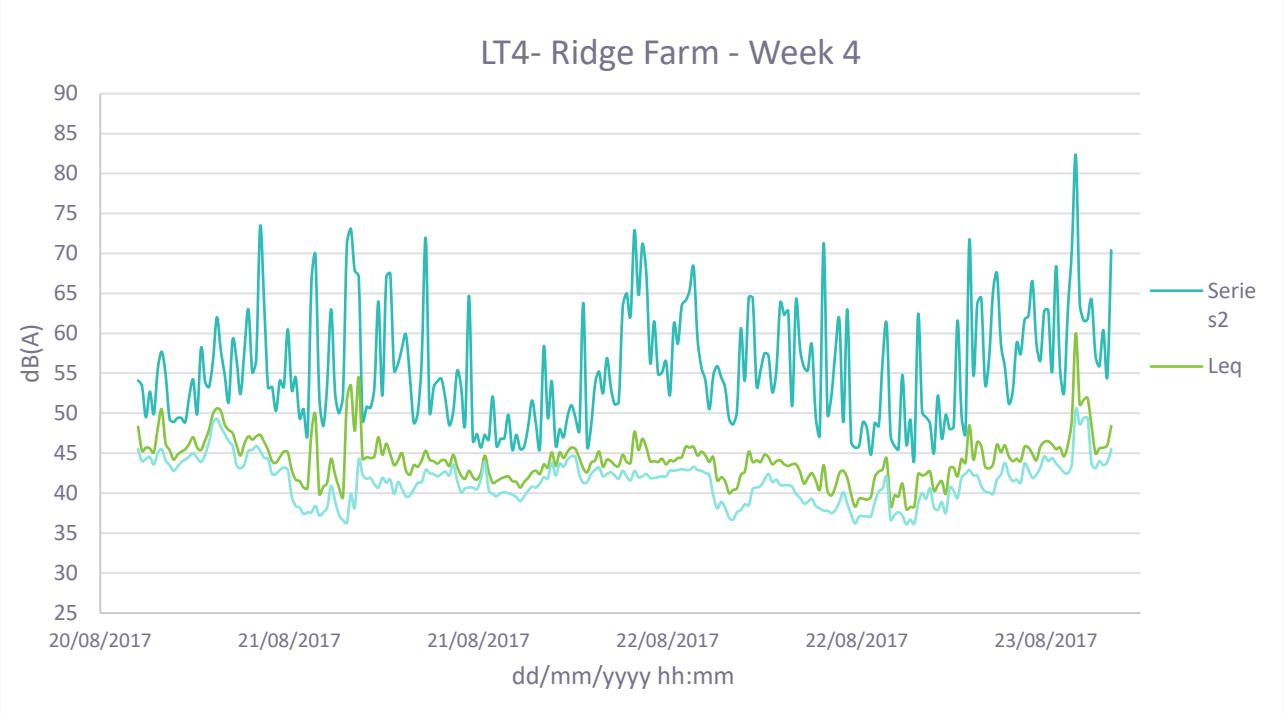
06/08/2017
dd/mm/yyyy hh:mm
Lmax
Leq
L90






LT4- Ridge Farm - Week 4
90
85
80
75
70
65
60
55
50
45
40
35
30
25
dB(A)
20/08/2017
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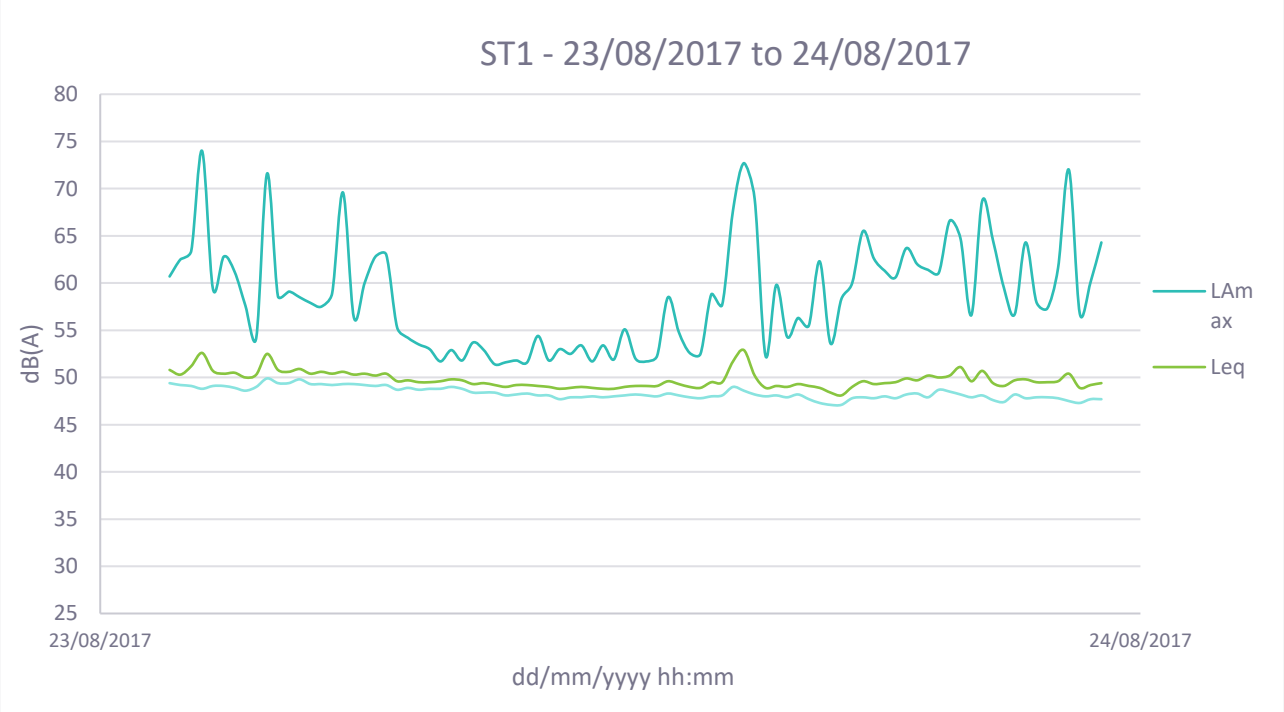
21/08/2017
22/08/2017
22/08/2017
23/08/2017
dd/mm/yyyy hh:mm
Series2
Leq


ST1 - 23/08/2017 to 24/08/2017
80
75
70
65
60
55
50
45
40
35
30
25
dB(A)
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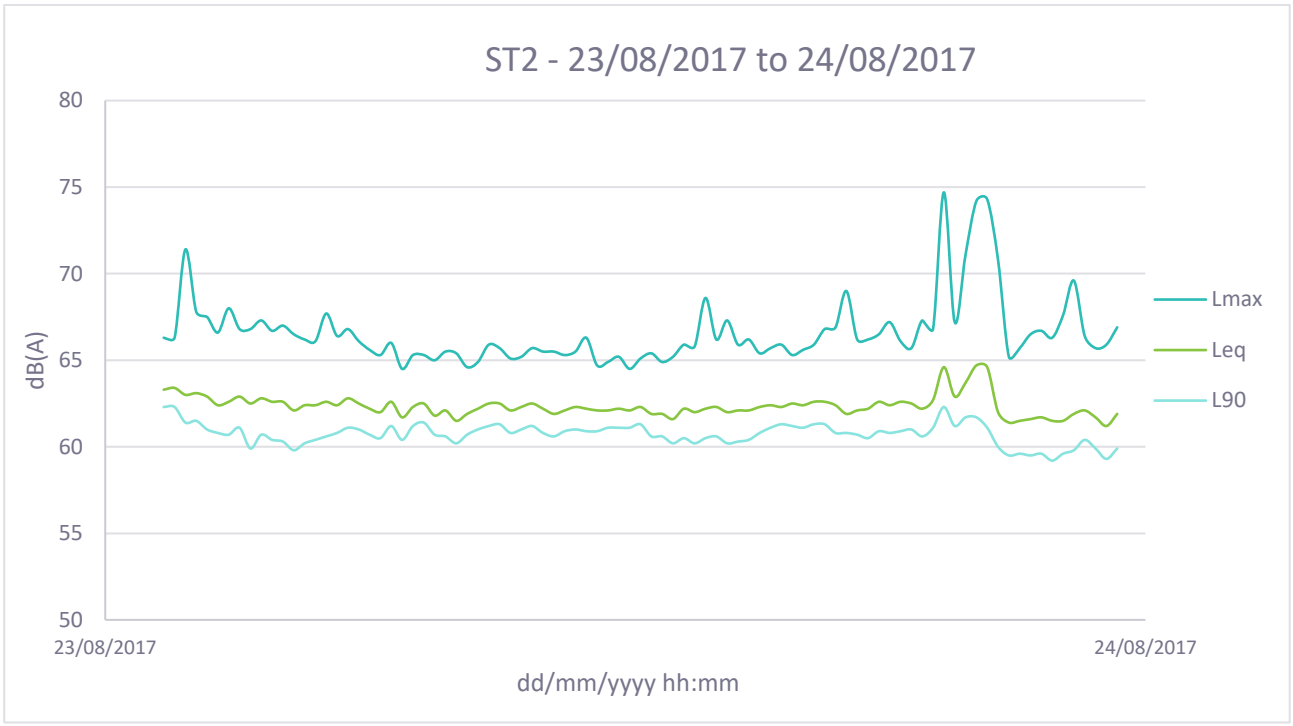
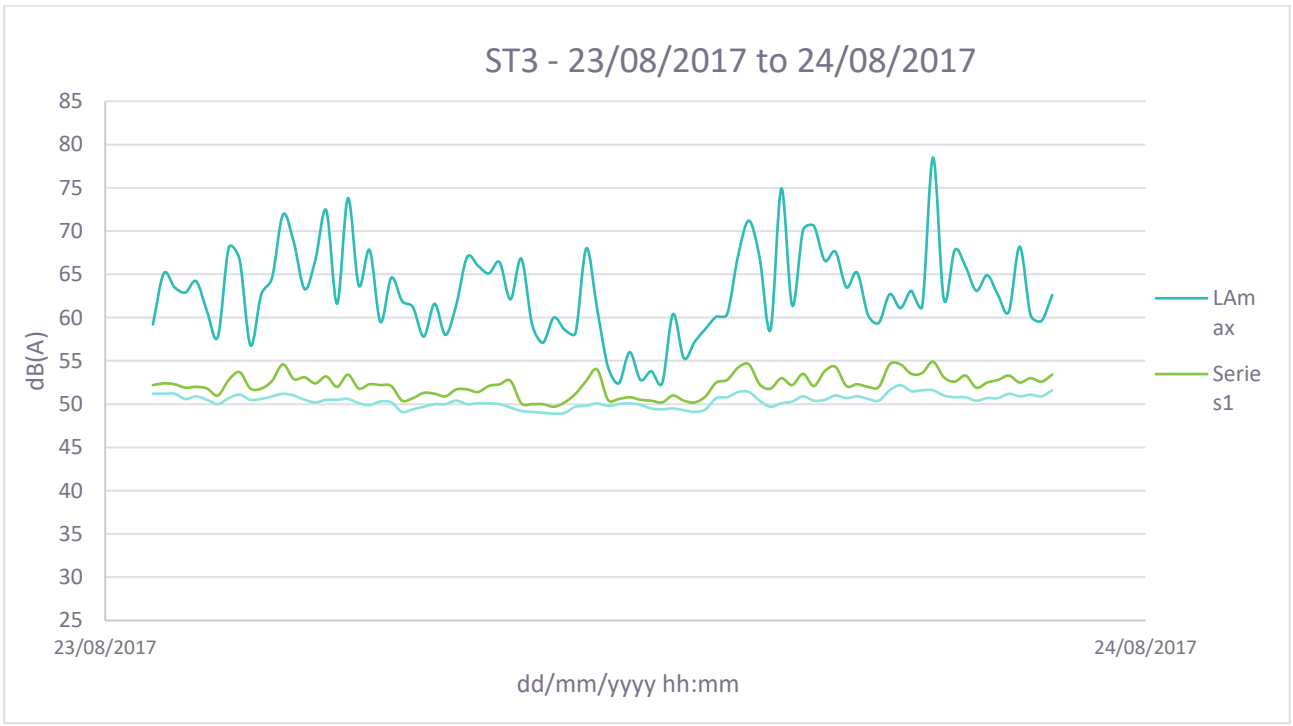
24/08/2017
dd/mm/yyyy hh:mm
LAmax
Leq





Appendix 8A
ATC Data – Site 1/Site 2/MCC Aata

21952		BOULBY							
		JULY 2017							
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Total Vehicles**	**5 Day Ave.**	**7 Day Ave.**	**Average 85%ile Speed**
Site No: 21952001	Site 1, A174, Boulby (Hedge) NZ 75539 18578	Channel: Eastbound	Sat 08-Jul-17	Fri 14-Jul-17	60	16560	2315	2366	51.8
		Channel: Westbound	Sat 08-Jul-17	Fri 14-Jul-17		16285	2247	2326	49.7

21952		BOULBY JULY 2017				
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Average Mean Speed**
Site No: 21952001	Site 1, A174, Boulby (Hedge) NZ 75539 18578	Channel: Eastbound	Sat 08-Jul-17	Fri 14-Jul-17	60	44.4
		Channel: Westbound	Sat 08-Jul-17	Fri 14-Jul-17		41.5

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sat 08-Jul-17											
00:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
01:00	**3**	0	0.0	2	66.7	1	33.3	0	0.0	0	0.0
02:00	**7**	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0
03:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
04:00	**10**	0	0.0	10	100.0	0	0.0	0	0.0	0	0.0
05:00	**46**	1	2.2	42	91.3	1	2.2	1	2.2	1	2.2
06:00	**29**	1	3.5	23	79.3	4	13.8	0	0.0	1	3.5
07:00	**83**	2	2.4	75	90.4	4	4.8	1	1.2	1	1.2
08:00	**93**	2	2.2	78	83.9	10	10.8	1	1.1	2	2.2
09:00	**155**	4	2.6	133	85.8	14	9.0	2	1.3	2	1.3
10:00	**186**	7	3.8	164	88.2	13	7.0	1	0.5	1	0.5
11:00	**244**	11	4.5	216	88.5	14	5.7	0	0.0	3	1.2
12:00	**254**	4	1.6	242	95.3	7	2.8	0	0.0	1	0.4
13:00	**252**	13	5.2	218	86.5	15	6.0	3	1.2	3	1.2
14:00	**219**	4	1.8	205	93.6	8	3.7	1	0.5	1	0.5
15:00	**193**	10	5.2	173	89.6	4	2.1	4	2.1	2	1.0
16:00	**194**	8	4.1	174	89.7	7	3.6	2	1.0	3	1.6
17:00	**163**	7	4.3	144	88.3	7	4.3	2	1.2	3	1.8
18:00	**166**	7	4.2	151	91.0	6	3.6	0	0.0	2	1.2
19:00	**115**	7	6.1	99	86.1	6	5.2	1	0.9	2	1.7
20:00	**68**	2	2.9	62	91.2	4	5.9	0	0.0	0	0.0
21:00	**55**	0	0.0	50	90.9	5	9.1	0	0.0	0	0.0
22:00	**34**	0	0.0	34	100.0	0	0.0	0	0.0	0	0.0
23:00	**19**	0	0.0	17	89.5	2	10.5	0	0.0	0	0.0
12H,7-19	**2202**	**79**	**3.6**	**1973**	**89.6**	**109**	**5.0**	**17**	**0.8**	**24**	**1.1**
16H,6-22	**2469**	**89**	**3.6**	**2207**	**89.4**	**128**	**5.2**	**18**	**0.7**	**27**	**1.1**
18H,6-24	**2522**	**89**	**3.5**	**2258**	**89.5**	**130**	**5.2**	**18**	**0.7**	**27**	**1.1**
24H,0-24	**2599**	**90**	**3.5**	**2330**	**89.7**	**132**	**5.1**	**19**	**0.7**	**28**	**1.1**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sun 09-Jul-17											
00:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
01:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
02:00	**6**	0	0.0	5	83.3	1	16.7	0	0.0	0	0.0
03:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
04:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
05:00	**41**	0	0.0	40	97.6	1	2.4	0	0.0	0	0.0
06:00	**28**	2	7.1	24	85.7	2	7.1	0	0.0	0	0.0
07:00	**78**	3	3.9	71	91.0	4	5.1	0	0.0	0	0.0
08:00	**73**	5	6.9	64	87.7	3	4.1	1	1.4	0	0.0
09:00	**168**	13	7.7	148	88.1	6	3.6	0	0.0	1	0.6
10:00	**208**	9	4.3	184	88.5	13	6.3	0	0.0	2	1.0
11:00	**262**	5	1.9	241	92.0	11	4.2	3	1.2	2	0.8
12:00	**274**	22	8.0	242	88.3	2	0.7	5	1.8	3	1.1
13:00	**253**	11	4.4	233	92.1	8	3.2	1	0.4	0	0.0
14:00	**191**	9	4.7	175	91.6	6	3.1	0	0.0	1	0.5
15:00	**158**	13	8.2	136	86.1	6	3.8	0	0.0	3	1.9
16:00	**146**	1	0.7	138	94.5	6	4.1	0	0.0	1	0.7
17:00	**138**	4	2.9	125	90.6	5	3.6	2	1.5	2	1.5
18:00	**111**	5	4.5	97	87.4	9	8.1	0	0.0	0	0.0
19:00	**95**	2	2.1	89	93.7	2	2.1	0	0.0	2	2.1
20:00	**48**	1	2.1	42	87.5	5	10.4	0	0.0	0	0.0
21:00	**54**	0	0.0	50	92.6	4	7.4	0	0.0	0	0.0
22:00	**19**	0	0.0	18	94.7	1	5.3	0	0.0	0	0.0
23:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**2060**	**100**	**4.9**	**1854**	**90.0**	**79**	**3.8**	**12**	**0.6**	**15**	**0.7**
16H,6-22	**2285**	**105**	**4.6**	**2059**	**90.1**	**92**	**4.0**	**12**	**0.5**	**17**	**0.7**
18H,6-24	**2313**	**105**	**4.5**	**2086**	**90.2**	**93**	**4.0**	**12**	**0.5**	**17**	**0.7**
24H,0-24	**2387**	**105**	**4.4**	**2158**	**90.4**	**95**	**4.0**	**12**	**0.5**	**17**	**0.7**

21952		BOULBY		Site No: 21952001		Location	Site 1, A174, Boulby (Hedge)				
Sat 08-Jul-17 to Fri 14-Jul-17				Channel: Eastbound							
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Mon 10-Jul-17											
00:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
01:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
02:00	**3**	0	0.0	2	66.7	1	33.3	0	0.0	0	0.0
03:00	**8**	0	0.0	6	75.0	2	25.0	0	0.0	0	0.0
04:00	**9**	1	11.1	8	88.9	0	0.0	0	0.0	0	0.0
05:00	**92**	3	3.3	85	92.4	3	3.3	1	1.1	0	0.0
06:00	**65**	1	1.5	60	92.3	3	4.6	0	0.0	1	1.5
07:00	**170**	1	0.6	149	87.7	17	10.0	0	0.0	3	1.8
08:00	**158**	0	0.0	138	87.3	16	10.1	2	1.3	2	1.3
09:00	**140**	1	0.7	115	82.1	21	15.0	1	0.7	2	1.4
10:00	**120**	2	1.7	97	80.8	17	14.2	1	0.8	3	2.5
11:00	**139**	0	0.0	121	87.1	13	9.4	3	2.2	2	1.4
12:00	**121**	0	0.0	106	87.6	11	9.1	2	1.7	2	1.7
13:00	**141**	0	0.0	128	90.8	7	5.0	2	1.4	4	2.8
14:00	**137**	0	0.0	122	89.1	10	7.3	3	2.2	2	1.5
15:00	**137**	0	0.0	122	89.1	13	9.5	1	0.7	1	0.7
16:00	**142**	0	0.0	134	94.4	5	3.5	0	0.0	3	2.1
17:00	**162**	1	0.6	149	92.0	9	5.6	0	0.0	3	1.9
18:00	**149**	1	0.7	140	94.0	6	4.0	0	0.0	2	1.3
19:00	**79**	0	0.0	72	91.1	5	6.3	0	0.0	2	2.5
20:00	**56**	0	0.0	54	96.4	2	3.6	0	0.0	0	0.0
21:00	**30**	0	0.0	29	96.7	1	3.3	0	0.0	0	0.0
22:00	**24**	0	0.0	24	100.0	0	0.0	0	0.0	0	0.0
23:00	**13**	0	0.0	13	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1716**	**6**	**0.4**	**1521**	**88.6**	**145**	**8.5**	**15**	**0.9**	**29**	**1.7**
16H,6-22	**1946**	**7**	**0.4**	**1736**	**89.2**	**156**	**8.0**	**15**	**0.8**	**32**	**1.6**
18H,6-24	**1983**	**7**	**0.4**	**1773**	**89.4**	**156**	**7.9**	**15**	**0.8**	**32**	**1.6**
24H,0-24	**2102**	**11**	**0.5**	**1881**	**89.5**	**162**	**7.7**	**16**	**0.8**	**32**	**1.5**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Tue 11-Jul-17											
00:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
01:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
02:00	**4**	0	0.0	2	50.0	2	50.0	0	0.0	0	0.0
03:00	**7**	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0
04:00	**12**	0	0.0	10	83.3	1	8.3	1	8.3	0	0.0
05:00	**84**	2	2.4	79	94.1	3	3.6	0	0.0	0	0.0
06:00	**70**	0	0.0	60	85.7	8	11.4	1	1.4	1	1.4
07:00	**178**	0	0.0	162	91.0	12	6.7	2	1.1	2	1.1
08:00	**160**	0	0.0	132	82.5	20	12.5	5	3.1	3	1.9
09:00	**123**	0	0.0	97	78.9	22	17.9	2	1.6	2	1.6
10:00	**131**	1	0.8	111	84.7	16	12.2	1	0.8	2	1.5
11:00	**138**	0	0.0	107	77.5	24	17.4	4	2.9	3	2.2
12:00	**140**	0	0.0	115	82.1	17	12.1	5	3.6	3	2.1
13:00	**151**	1	0.7	130	86.1	14	9.3	3	2.0	3	2.0
14:00	**125**	0	0.0	109	87.2	12	9.6	2	1.6	2	1.6
15:00	**126**	0	0.0	111	88.1	12	9.5	0	0.0	3	2.4
16:00	**162**	2	1.2	142	87.7	14	8.6	1	0.6	3	1.9
17:00	**159**	0	0.0	144	90.6	12	7.6	1	0.6	2	1.3
18:00	**162**	1	0.6	143	88.3	13	8.0	3	1.9	2	1.2
19:00	**88**	1	1.1	83	94.3	2	2.3	0	0.0	2	2.3
20:00	**60**	0	0.0	57	95.0	3	5.0	0	0.0	0	0.0
21:00	**44**	0	0.0	42	95.5	2	4.6	0	0.0	0	0.0
22:00	**23**	1	4.4	20	87.0	2	8.7	0	0.0	0	0.0
23:00	**12**	0	0.0	11	91.7	1	8.3	0	0.0	0	0.0
12H,7-19	**1755**	**5**	**0.3**	**1503**	**85.6**	**188**	**10.7**	**29**	**1.7**	**30**	**1.7**
16H,6-22	**2017**	**6**	**0.3**	**1745**	**86.5**	**203**	**10.1**	**30**	**1.5**	**33**	**1.6**
18H,6-24	**2052**	**7**	**0.3**	**1776**	**86.6**	**206**	**10.0**	**30**	**1.5**	**33**	**1.6**
24H,0-24	**2164**	**9**	**0.4**	**1879**	**86.8**	**212**	**9.8**	**31**	**1.4**	**33**	**1.5**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

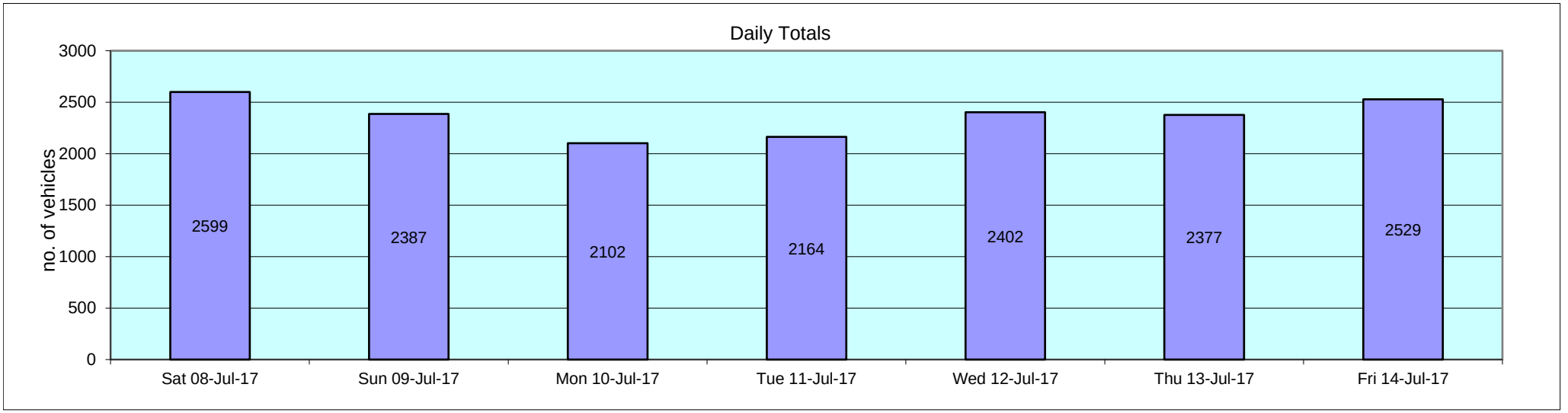
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Wed 12-Jul-17											
00:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**0**	0	-	0	-	0	-	0	-	0	-
03:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
04:00	**12**	0	0.0	11	91.7	1	8.3	0	0.0	0	0.0
05:00	**94**	2	2.1	82	87.2	10	10.6	0	0.0	0	0.0
06:00	**77**	1	1.3	65	84.4	8	10.4	2	2.6	1	1.3
07:00	**191**	1	0.5	174	91.1	14	7.3	0	0.0	2	1.1
08:00	**157**	1	0.6	131	83.4	21	13.4	2	1.3	2	1.3
09:00	**135**	2	1.5	108	80.0	22	16.3	0	0.0	3	2.2
10:00	**157**	2	1.3	132	84.1	18	11.5	1	0.6	4	2.6
11:00	**197**	9	4.6	164	83.3	18	9.1	4	2.0	2	1.0
12:00	**182**	10	5.5	154	84.6	17	9.3	1	0.6	0	0.0
13:00	**147**	3	2.0	130	88.4	12	8.2	0	0.0	2	1.4
14:00	**147**	3	2.0	127	86.4	12	8.2	2	1.4	3	2.0
15:00	**169**	2	1.2	139	82.3	24	14.2	2	1.2	2	1.2
16:00	**143**	3	2.1	131	91.6	8	5.6	1	0.7	0	0.0
17:00	**180**	5	2.8	167	92.8	4	2.2	1	0.6	3	1.7
18:00	**161**	5	3.1	143	88.8	6	3.7	5	3.1	2	1.2
19:00	**114**	5	4.4	94	82.5	9	7.9	4	3.5	2	1.8
20:00	**67**	1	1.5	62	92.5	4	6.0	0	0.0	0	0.0
21:00	**32**	0	0.0	31	96.9	1	3.1	0	0.0	0	0.0
22:00	**20**	0	0.0	20	100.0	0	0.0	0	0.0	0	0.0
23:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1966**	**46**	**2.3**	**1700**	**86.5**	**176**	**9.0**	**19**	**1.0**	**25**	**1.3**
16H,6-22	**2256**	**53**	**2.4**	**1952**	**86.5**	**198**	**8.8**	**25**	**1.1**	**28**	**1.2**
18H,6-24	**2285**	**53**	**2.3**	**1981**	**86.7**	**198**	**8.7**	**25**	**1.1**	**28**	**1.2**
24H,0-24	**2402**	**55**	**2.3**	**2085**	**86.8**	**209**	**8.7**	**25**	**1.0**	**28**	**1.2**

21952		BOULBY			Site No: 21952001		Location	Site 1, A174, Boulby (Hedge)			
Sat 08-Jul-17 to Fri 14-Jul-17					Channel: Eastbound						
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Thu 13-Jul-17											
00:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
01:00	**0**	0	-	0	-	0	-	0	-	0	-
02:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
03:00	**8**	0	0.0	7	87.5	1	12.5	0	0.0	0	0.0
04:00	**11**	0	0.0	11	100.0	0	0.0	0	0.0	0	0.0
05:00	**94**	2	2.1	85	90.4	7	7.5	0	0.0	0	0.0
06:00	**76**	1	1.3	68	89.5	3	4.0	2	2.6	2	2.6
07:00	**187**	1	0.5	171	91.4	7	3.7	5	2.7	3	1.6
08:00	**169**	4	2.4	136	80.5	26	15.4	1	0.6	2	1.2
09:00	**131**	1	0.8	109	83.2	18	13.7	1	0.8	2	1.5
10:00	**143**	2	1.4	115	80.4	19	13.3	5	3.5	2	1.4
11:00	**149**	5	3.4	121	81.2	18	12.1	2	1.3	3	2.0
12:00	**173**	2	1.2	144	83.2	20	11.6	5	2.9	2	1.2
13:00	**136**	4	2.9	114	83.8	10	7.4	5	3.7	3	2.2
14:00	**141**	2	1.4	114	80.9	19	13.5	3	2.1	3	2.1
15:00	**163**	4	2.5	143	87.7	9	5.5	4	2.5	3	1.8
16:00	**187**	11	5.9	161	86.1	10	5.4	3	1.6	2	1.1
17:00	**189**	31	16.4	145	76.7	7	3.7	4	2.1	2	1.1
18:00	**165**	21	12.7	134	81.2	4	2.4	4	2.4	2	1.2
19:00	**97**	9	9.3	84	86.6	2	2.1	1	1.0	1	1.0
20:00	**75**	0	0.0	71	94.7	3	4.0	1	1.3	0	0.0
21:00	**42**	0	0.0	40	95.2	1	2.4	1	2.4	0	0.0
22:00	**29**	1	3.5	27	93.1	1	3.5	0	0.0	0	0.0
23:00	**8**	0	0.0	8	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1933**	**88**	**4.6**	**1607**	**83.1**	**167**	**8.6**	**42**	**2.2**	**29**	**1.5**
16H,6-22	**2223**	**98**	**4.4**	**1870**	**84.1**	**176**	**7.9**	**47**	**2.1**	**32**	**1.4**
18H,6-24	**2260**	**99**	**4.4**	**1905**	**84.3**	**177**	**7.8**	**47**	**2.1**	**32**	**1.4**
24H,0-24	**2377**	**101**	**4.3**	**2012**	**84.6**	**185**	**7.8**	**47**	**2.0**	**32**	**1.4**

21952		BOULBY		Site No: 21952001		Location		Site 1, A174, Boulby (Hedge)			
Sat 08-Jul-17 to Fri 14-Jul-17				Channel: Eastbound							
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Fri 14-Jul-17											
00:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
01:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
02:00	**0**	0	-	0	-	0	-	0	-	0	-
03:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
04:00	**12**	0	0.0	11	91.7	1	8.3	0	0.0	0	0.0
05:00	**105**	3	2.9	97	92.4	5	4.8	0	0.0	0	0.0
06:00	**68**	1	1.5	60	88.2	4	5.9	2	2.9	1	1.5
07:00	**163**	0	0.0	150	92.0	10	6.1	2	1.2	1	0.6
08:00	**135**	1	0.7	104	77.0	25	18.5	3	2.2	2	1.5
09:00	**179**	3	1.7	145	81.0	25	14.0	4	2.2	2	1.1
10:00	**153**	2	1.3	129	84.3	17	11.1	1	0.7	4	2.6
11:00	**179**	9	5.0	145	81.0	17	9.5	6	3.4	2	1.1
12:00	**169**	1	0.6	153	90.5	11	6.5	3	1.8	1	0.6
13:00	**171**	4	2.3	146	85.4	13	7.6	5	2.9	3	1.8
14:00	**156**	2	1.3	140	89.7	9	5.8	2	1.3	3	1.9
15:00	**179**	0	0.0	159	88.8	14	7.8	4	2.2	2	1.1
16:00	**203**	3	1.5	190	93.6	5	2.5	5	2.5	0	0.0
17:00	**223**	7	3.1	199	89.2	15	6.7	0	0.0	2	0.9
18:00	**162**	2	1.2	146	90.1	9	5.6	3	1.9	2	1.2
19:00	**104**	2	1.9	94	90.4	6	5.8	0	0.0	2	1.9
20:00	**62**	1	1.6	59	95.2	2	3.2	0	0.0	0	0.0
21:00	**49**	1	2.0	47	95.9	1	2.0	0	0.0	0	0.0
22:00	**33**	0	0.0	33	100.0	0	0.0	0	0.0	0	0.0
23:00	**17**	0	0.0	17	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**2072**	**34**	**1.6**	**1806**	**87.2**	**170**	**8.2**	**38**	**1.8**	**24**	**1.2**
16H,6-22	**2355**	**39**	**1.7**	**2066**	**87.7**	**183**	**7.8**	**40**	**1.7**	**27**	**1.2**
18H,6-24	**2405**	**39**	**1.6**	**2116**	**88.0**	**183**	**7.6**	**40**	**1.7**	**27**	**1.1**
24H,0-24	**2529**	**42**	**1.7**	**2231**	**88.2**	**189**	**7.5**	**40**	**1.6**	**27**	**1.1**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 08-Jul-17	**2599**	90	3.5	2330	89.7	132	5.1	19	0.7	28	1.1
Sun 09-Jul-17	**2387**	105	4.4	2158	90.4	95	4.0	12	0.5	17	0.7
Mon 10-Jul-17	**2102**	11	0.5	1881	89.5	162	7.7	16	0.8	32	1.5
Tue 11-Jul-17	**2164**	9	0.4	1879	86.8	212	9.8	31	1.4	33	1.5
Wed 12-Jul-17	**2402**	55	2.3	2085	86.8	209	8.7	25	1.0	28	1.2
Thu 13-Jul-17	**2377**	101	4.3	2012	84.6	185	7.8	47	2.0	32	1.4
Fri 14-Jul-17	**2529**	42	1.7	2231	88.2	189	7.5	40	1.6	27	1.1
Total Vehicles											
[--]	**16560**	413	2.4	14576	88.0	1184	7.2	190	1.1	197	1.2



21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sat 08-Jul-17																
00:00	6	-	51.8	7.6	0	0	0	0	2	0	3	0	1	0	0	0
01:00	3	-	46.8	3.1	0	0	0	0	1	2	0	0	0	0	0	0
02:00	7	-	46	5.7	0	0	0	1	2	3	1	0	0	0	0	0
03:00	5	-	51	12.7	0	0	0	1	1	1	0	1	0	1	0	0
04:00	10	51	41.3	12.2	0	1	1	1	3	2	2	0	0	0	0	0
05:00	46	52.3	46.5	7.7	0	1	0	3	18	15	6	2	0	1	0	0
06:00	29	56.3	45.8	13.9	1	1	0	7	5	5	5	3	0	0	2	0
07:00	83	54.5	47.1	8	0	1	1	7	29	23	13	6	2	1	0	0
08:00	93	53.2	45.3	7.2	0	0	1	21	29	20	17	5	0	0	0	0
09:00	155	49.9	43.3	7.3	0	1	2	45	59	31	12	4	0	0	1	0
10:00	186	48.9	41.7	7.1	0	1	0	87	50	34	9	3	2	0	0	0
11:00	244	48.3	41.7	7	1	1	3	93	94	33	15	3	1	0	0	0
12:00	254	49	42.4	6.3	0	0	2	91	91	52	16	2	0	0	0	0
13:00	252	50.6	43.5	7.4	0	0	10	67	84	57	27	6	1	0	0	0
14:00	219	48.9	42.3	6.8	0	0	1	86	74	42	12	3	0	0	0	1
15:00	193	49.7	43.2	7	0	1	1	59	74	39	13	3	2	1	0	0
16:00	194	49.3	42.3	6.8	0	1	4	67	65	41	16	0	0	0	0	0
17:00	163	49.1	43.2	6.6	0	1	0	46	72	31	6	6	1	0	0	0
18:00	166	50.2	44.4	7.2	0	1	1	36	69	40	11	4	3	0	1	0
19:00	115	52	44	7.6	0	1	0	35	36	22	16	4	1	0	0	0
20:00	68	52.6	45.7	7.5	0	0	1	13	22	20	4	7	1	0	0	0
21:00	55	58.7	48.2	10.1	0	0	0	12	17	4	10	6	4	1	0	1
22:00	34	55.4	47.3	8.8	0	0	1	5	9	9	5	2	3	0	0	0
23:00	19	54.7	49	6.6	0	0	0	2	4	3	9	1	0	0	0	0
12H,7-19	2202	49.9	43	7.1	1	8	26	705	790	443	167	45	12	2	2	1
16H,6-22	2469	50.2	43.3	7.4	2	10	27	772	870	494	202	65	18	3	4	2
18H,6-24	2522	50.4	43.4	7.4	2	10	28	779	883	506	216	68	21	3	4	2
24H,0-24	2599	50.4	43.5	7.5	2	12	29	785	910	529	228	71	22	5	4	2

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sun 09-Jul-17																
00:00	**9**	-	51	9.3	0	0	0	1	1	4	0	1	2	0	0	0
01:00	**5**	-	43.5	18.3	0	1	0	1	0	1	1	0	1	0	0	0
02:00	**6**	-	55.2	12.2	0	0	0	0	1	1	3	0	0	0	0	1
03:00	**4**	-	54.1	13.6	0	0	0	1	0	0	1	1	0	1	0	0
04:00	**9**	-	40.4	6.9	0	0	1	2	5	1	0	0	0	0	0	0
05:00	**41**	55.6	48.3	7.9	0	0	0	5	12	10	8	5	0	0	1	0
06:00	**28**	54.1	48.2	8.6	0	0	0	5	4	10	7	0	1	0	1	0
07:00	**78**	56.4	49.4	7.2	0	0	1	5	18	21	20	10	3	0	0	0
08:00	**73**	54.9	47.1	8.8	0	1	2	9	15	26	11	5	4	0	0	0
09:00	**168**	53.2	44.9	7.9	0	2	2	37	56	31	32	7	1	0	0	0
10:00	**208**	50.2	43.8	6.6	0	1	0	56	80	47	20	3	1	0	0	0
11:00	**262**	49.5	42.8	7	0	0	5	89	91	53	18	3	1	2	0	0
12:00	**274**	50.6	43.9	8.6	0	2	3	86	89	57	19	7	4	4	3	0
13:00	**253**	49.6	42.2	8	0	3	6	93	82	42	17	6	3	1	0	0
14:00	**191**	50.1	44	6.8	0	0	1	48	80	40	16	4	1	0	0	1
15:00	**158**	50.9	43.7	9.2	0	4	3	40	55	32	13	5	4	1	1	0
16:00	**146**	51.4	43.8	8.3	0	0	5	46	36	35	19	1	2	1	1	0
17:00	**138**	50.5	44.6	7.6	0	0	1	36	44	40	11	2	2	1	0	1
18:00	**111**	53.4	45.3	8.7	0	2	2	16	47	22	10	9	2	0	1	0
19:00	**95**	51.8	46	8	0	0	0	19	33	27	8	3	3	1	0	1
20:00	**48**	54.3	48.9	5.7	0	0	0	4	7	18	17	2	0	0	0	0
21:00	**54**	53.2	46.6	6.6	0	0	0	8	17	16	10	2	1	0	0	0
22:00	**19**	54.3	47.2	8.1	0	0	0	4	4	5	4	1	1	0	0	0
23:00	**9**	-	52.7	12.8	0	0	0	1	2	2	1	1	1	0	0	1
12H,7-19	**2060**	**51.1**	**44**	**8**	**0**	**15**	**31**	**561**	**693**	**446**	**206**	**62**	**28**	**10**	**6**	**2**
16H,6-22	**2285**	**51.6**	**44.3**	**8**	**0**	**15**	**31**	**597**	**754**	**517**	**248**	**69**	**33**	**11**	**7**	**3**
18H,6-24	**2313**	**51.7**	**44.4**	**8**	**0**	**15**	**31**	**602**	**760**	**524**	**253**	**71**	**35**	**11**	**7**	**4**
24H,0-24	**2387**	**51.9**	**44.5**	**8.1**	**0**	**16**	**32**	**612**	**779**	**541**	**266**	**78**	**38**	**12**	**8**	**5**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Mon 10-Jul-17																
00:00	**5**	-	47	8.3	0	0	0	1	1	2	0	1	0	0	0	0
01:00	**2**	-	51	10.6	0	0	0	0	1	0	0	1	0	0	0	0
02:00	**3**	-	53.5	5	0	0	0	0	0	1	1	1	0	0	0	0
03:00	**8**	-	44.8	7	0	0	0	2	3	1	2	0	0	0	0	0
04:00	**9**	-	43.5	12.2	0	1	0	1	3	2	1	1	0	0	0	0
05:00	**92**	55.4	48.6	9.5	0	2	0	7	24	28	19	8	1	0	0	3
06:00	**65**	55.5	50.1	7.9	0	0	0	4	17	13	23	4	2	0	1	1
07:00	**170**	53.8	46.9	6.7	0	0	0	26	48	55	27	12	2	0	0	0
08:00	**158**	52.5	45.7	7	0	0	0	36	42	49	22	7	2	0	0	0
09:00	**140**	49.9	43.1	6.9	0	0	2	46	48	29	10	5	0	0	0	0
10:00	**120**	49.9	42.4	7.1	0	0	3	43	43	16	14	0	1	0	0	0
11:00	**139**	49.6	42.7	6.6	0	0	2	48	47	29	11	2	0	0	0	0
12:00	**121**	50.1	43.4	7.1	0	0	2	37	42	26	9	4	1	0	0	0
13:00	**141**	49.5	42.4	7.2	0	0	6	46	47	29	11	1	1	0	0	0
14:00	**137**	50.4	42.1	7.5	0	0	3	62	30	24	14	4	0	0	0	0
15:00	**137**	50.8	44.3	7.9	0	0	3	36	47	31	10	7	1	2	0	0
16:00	**142**	49	42	6.7	0	0	2	58	44	27	9	2	0	0	0	0
17:00	**162**	53.4	45.5	7.6	0	0	3	32	55	37	21	11	3	0	0	0
18:00	**149**	51.4	45.4	7.2	0	1	0	30	46	48	15	7	1	1	0	0
19:00	**79**	50.8	43.4	8.1	0	0	4	23	21	19	9	2	1	0	0	0
20:00	**56**	54.4	48	7	0	0	0	6	16	17	12	3	1	1	0	0
21:00	**30**	54.8	48.9	6	0	0	0	1	8	13	4	3	1	0	0	0
22:00	**24**	49.8	44	6.3	0	0	0	7	6	9	2	0	0	0	0	0
23:00	**13**	54.2	47.7	7.1	0	0	0	2	3	3	4	1	0	0	0	0
12H,7-19	**1716**	**50.9**	**43.9**	**7.3**	**0**	**1**	**26**	**500**	**539**	**400**	**173**	**62**	**12**	**3**	**0**	**0**
16H,6-22	**1946**	**51.6**	**44.3**	**7.5**	**0**	**1**	**30**	**534**	**601**	**462**	**221**	**74**	**17**	**4**	**1**	**1**
18H,6-24	**1983**	**51.6**	**44.3**	**7.4**	**0**	**1**	**30**	**543**	**610**	**474**	**227**	**75**	**17**	**4**	**1**	**1**
24H,0-24	**2102**	**52**	**44.5**	**7.6**	**0**	**4**	**30**	**554**	**642**	**508**	**250**	**87**	**18**	**4**	**1**	**4**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Tue 11-Jul-17																
00:00	**3**	-	46.8	5.9	0	0	0	0	2	0	1	0	0	0	0	0
01:00	**2**	-	43.5	1.8	0	0	0	0	2	0	0	0	0	0	0	0
02:00	**4**	-	56	6.5	0	0	0	0	0	1	1	1	1	0	0	0
03:00	**7**	-	49.6	11.6	0	0	0	1	1	4	0	0	0	0	1	0
04:00	**12**	52.2	46	6.4	0	0	0	2	4	3	3	0	0	0	0	0
05:00	**84**	55.3	48.2	9.2	0	2	0	9	15	31	16	8	1	0	1	1
06:00	**70**	56	49.9	6.8	0	0	0	4	15	23	17	7	3	1	0	0
07:00	**178**	54.4	47.5	7.2	0	0	0	25	52	47	39	8	6	0	1	0
08:00	**160**	52.8	45.9	8.2	0	1	4	27	43	52	23	5	3	1	1	0
09:00	**123**	49.4	42.8	6.4	0	0	0	46	34	35	6	2	0	0	0	0
10:00	**131**	48.7	42.2	6.7	0	0	2	49	47	24	7	1	0	1	0	0
11:00	**138**	47.9	41	6.6	0	0	2	68	41	15	11	1	0	0	0	0
12:00	**140**	47.5	41.3	6.4	0	1	1	59	51	21	6	1	0	0	0	0
13:00	**151**	49.1	41.9	7.2	0	0	3	64	43	29	9	1	1	1	0	0
14:00	**125**	51.2	42.9	8.6	1	2	3	36	39	24	16	4	0	0	0	0
15:00	**126**	52.4	45.9	7.2	0	0	0	23	48	32	13	6	2	2	0	0
16:00	**162**	51.8	44.5	8	0	1	1	44	52	36	19	7	0	1	0	1
17:00	**159**	53.9	46.3	7.6	0	0	2	30	43	42	30	9	2	1	0	0
18:00	**162**	50.4	43.5	7.3	0	1	4	44	51	42	18	1	1	0	0	0
19:00	**88**	54.3	46	8	0	1	0	15	33	20	8	8	3	0	0	0
20:00	**60**	54.1	46.2	7.9	0	0	0	15	14	14	12	4	0	1	0	0
21:00	**44**	52.9	45.9	8.4	0	0	2	7	11	15	5	2	2	0	0	0
22:00	**23**	52.8	45.9	11.8	0	0	3	3	3	9	3	0	0	1	1	0
23:00	**12**	58.8	49.1	10.1	0	0	0	3	2	1	2	3	1	0	0	0
12H,7-19	**1755**	**51.1**	**43.9**	**7.6**	**1**	**6**	**22**	**515**	**544**	**399**	**197**	**46**	**15**	**7**	**2**	**1**
16H,6-22	**2017**	**51.8**	**44.3**	**7.7**	**1**	**7**	**24**	**556**	**617**	**471**	**239**	**67**	**23**	**9**	**2**	**1**
18H,6-24	**2052**	**51.9**	**44.4**	**7.8**	**1**	**7**	**27**	**562**	**622**	**481**	**244**	**70**	**24**	**10**	**3**	**1**
24H,0-24	**2164**	**52.2**	**44.6**	**7.9**	**1**	**9**	**27**	**574**	**646**	**520**	**265**	**79**	**26**	**10**	**5**	**2**

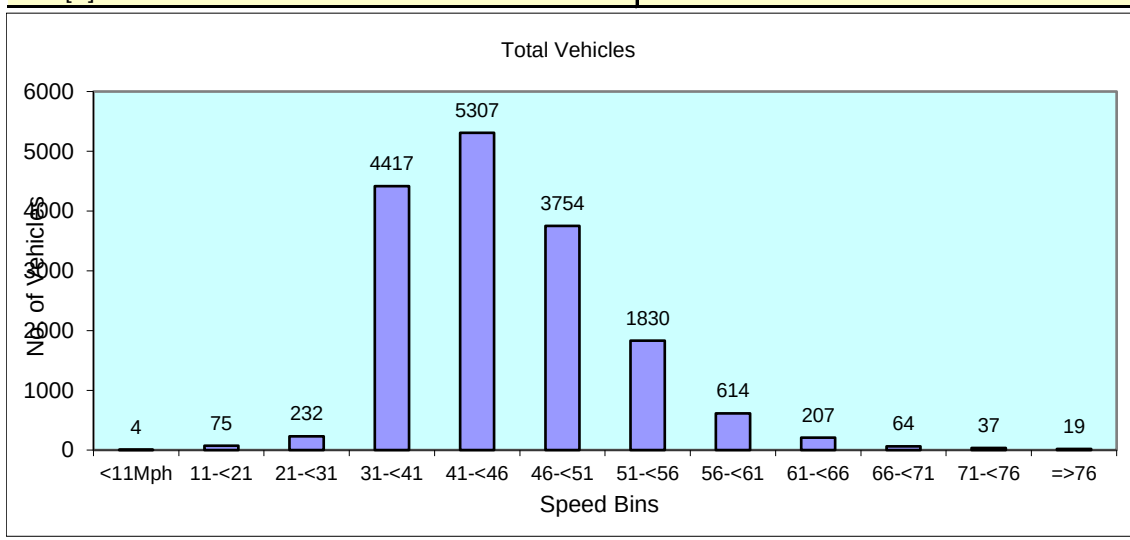
21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Wed 12-Jul-17																
00:00	**4**	-	52.3	8.5	0	0	0	0	1	1	1	0	1	0	0	0
01:00	**4**	-	46	11.9	0	0	0	2	0	0	1	1	0	0	0	0
02:00	**0**	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
03:00	**3**	-	42.7	6.3	0	0	0	1	1	1	0	0	0	0	0	0
04:00	**12**	57.2	46.6	8.7	0	0	0	3	3	3	0	3	0	0	0	0
05:00	**94**	53.7	46.2	8.1	0	2	0	11	35	25	12	6	3	0	0	0
06:00	**77**	56.6	49	8.5	0	0	0	12	10	29	13	8	3	1	0	1
07:00	**191**	54.2	47.6	6.7	0	0	1	19	57	62	36	12	2	2	0	0
08:00	**157**	54.2	47.2	7.5	0	1	0	20	47	46	30	7	4	2	0	0
09:00	**135**	49.8	43.8	6.4	0	0	1	34	57	29	10	3	1	0	0	0
10:00	**157**	49.7	43.1	7.6	0	1	5	43	57	36	8	5	2	0	0	0
11:00	**197**	48.9	41.8	7.3	0	0	5	82	57	39	10	3	0	0	0	1
12:00	**182**	50	42	8.6	0	4	4	69	53	30	14	5	2	1	0	0
13:00	**147**	50.1	42.1	8.1	0	0	7	56	45	20	16	1	0	1	1	0
14:00	**147**	50.9	44.2	8	0	0	3	39	53	30	15	3	1	1	2	0
15:00	**169**	49.2	41.8	7.3	0	1	2	75	44	33	10	2	2	0	0	0
16:00	**143**	51.5	44.3	7.8	0	2	1	36	44	36	19	3	2	0	0	0
17:00	**180**	52.7	44.5	8.1	0	1	0	57	50	37	22	8	3	2	0	0
18:00	**161**	52.1	45.5	7.6	0	2	0	29	56	45	19	7	2	0	1	0
19:00	**114**	53.1	44.6	8.3	0	0	5	30	24	30	18	6	1	0	0	0
20:00	**67**	54.2	46.9	7.8	0	0	0	12	21	14	15	2	1	2	0	0
21:00	**32**	53.8	47.1	7	0	0	0	4	11	10	3	3	1	0	0	0
22:00	**20**	59.1	49.9	8.7	0	0	0	1	9	2	2	4	1	1	0	0
23:00	**9**	-	47.9	8.1	0	0	0	2	1	2	3	1	0	0	0	0
12H,7-19	**1966**	**51.2**	**44**	**7.8**	**0**	**12**	**29**	**559**	**620**	**443**	**209**	**59**	**21**	**9**	**4**	**1**
16H,6-22	**2256**	**51.8**	**44.3**	**7.9**	**0**	**12**	**34**	**617**	**686**	**526**	**258**	**78**	**27**	**12**	**4**	**2**
18H,6-24	**2285**	**51.9**	**44.4**	**8**	**0**	**12**	**34**	**620**	**696**	**530**	**263**	**83**	**28**	**13**	**4**	**2**
24H,0-24	**2402**	**52.1**	**44.5**	**8**	**0**	**14**	**34**	**637**	**736**	**560**	**277**	**93**	**32**	**13**	**4**	**2**

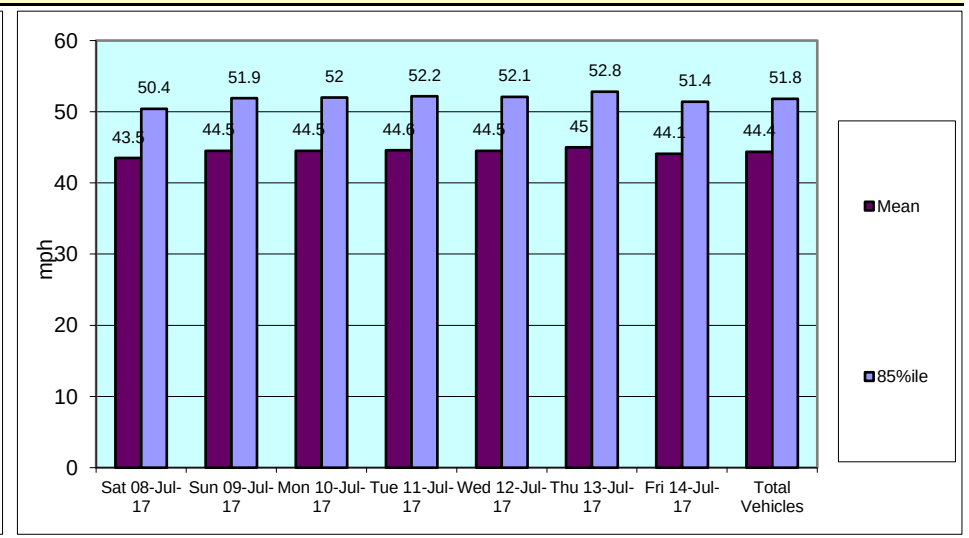
21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Thu 13-Jul-17																
00:00	**2**	-	51	10.6	0	0	0	0	1	0	0	1	0	0	0	0
01:00	**0**	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
02:00	**2**	-	53.5	7.1	0	0	0	0	0	1	0	1	0	0	0	0
03:00	**8**	-	46.9	5.3	0	0	0	1	1	5	1	0	0	0	0	0
04:00	**11**	60.3	49.4	10.7	0	0	0	2	3	2	1	1	1	1	0	0
05:00	**94**	55	48.6	7.1	0	1	0	5	23	36	18	10	0	0	1	0
06:00	**76**	56.1	50.2	7	0	0	0	4	10	36	14	7	4	0	0	1
07:00	**187**	54.6	47	8.4	0	1	5	25	52	47	39	9	7	2	0	0
08:00	**169**	52.3	44.9	7.2	0	1	3	32	60	40	27	6	0	0	0	0
09:00	**131**	50.6	43.9	7.4	0	0	2	35	52	24	13	2	1	2	0	0
10:00	**143**	48.2	41.6	7	0	1	1	60	47	27	5	1	0	0	1	0
11:00	**149**	49.2	43.1	6.9	0	2	2	35	68	30	9	2	1	0	0	0
12:00	**173**	48.9	42.6	7.4	0	1	1	63	61	35	5	3	3	0	1	0
13:00	**136**	52	44.2	7.9	0	0	3	38	45	26	16	6	1	0	1	0
14:00	**141**	48.6	40.7	8.2	0	0	14	53	42	20	9	2	0	1	0	0
15:00	**163**	50.8	43.7	7.8	0	0	5	43	66	25	14	7	1	2	0	0
16:00	**187**	51.6	44.1	7.8	0	1	2	57	52	44	19	10	2	0	0	0
17:00	**189**	54.8	46.8	9.2	0	2	1	30	67	41	25	10	8	0	4	1
18:00	**165**	55.4	47	8.4	0	0	1	27	60	34	20	14	6	1	1	1
19:00	**97**	55.6	47.5	9.2	0	0	1	23	17	19	24	8	3	1	0	1
20:00	**75**	55.3	47.6	7.6	0	0	0	10	25	18	12	8	1	0	1	0
21:00	**42**	53.3	46.2	8.5	0	0	1	8	12	11	7	0	2	1	0	0
22:00	**29**	56.4	46.8	8.6	0	0	0	6	9	8	1	2	3	0	0	0
23:00	**8**	-	45.7	12.9	0	0	0	3	3	0	1	0	0	0	1	0
12H,7-19	**1933**	**51.8**	**44.3**	**8.1**	**0**	**9**	**40**	**498**	**672**	**393**	**201**	**72**	**30**	**8**	**8**	**2**
16H,6-22	**2223**	**52.6**	**44.8**	**8.2**	**0**	**9**	**42**	**543**	**736**	**477**	**258**	**95**	**40**	**10**	**9**	**4**
18H,6-24	**2260**	**52.6**	**44.8**	**8.2**	**0**	**9**	**42**	**552**	**748**	**485**	**260**	**97**	**43**	**10**	**10**	**4**
24H,0-24	**2377**	**52.8**	**45**	**8.2**	**0**	**10**	**42**	**560**	**776**	**529**	**280**	**110**	**44**	**11**	**11**	**4**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Fri 14-Jul-17																	
00:00	**3**	-	42.7	6.3	0	0	0	1	1	1	0	0	0	0	0	0
01:00	**1**	-	43.5	-	0	0	0	0	1	0	0	0	0	0	0	0
02:00	**0**	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
03:00	**3**	-	51.8	3.1	0	0	0	0	0	1	2	0	0	0	0	0
04:00	**12**	49.5	44.1	7.1	0	0	0	3	6	1	1	1	0	0	0	0
05:00	**105**	55.9	49	8.2	0	2	0	5	23	41	18	12	2	0	2	0
06:00	**68**	54.8	49.2	6.1	0	0	1	2	14	25	20	5	1	0	0	0
07:00	**163**	54.1	47	7.5	0	0	0	27	47	45	31	7	4	0	2	0
08:00	**135**	52.9	45.8	7.4	0	0	1	26	47	33	19	4	4	1	0	0
09:00	**179**	50.9	44	7.8	1	1	0	53	53	45	16	8	2	0	0	0
10:00	**153**	49.1	41.5	7.8	0	2	5	61	45	27	10	2	0	1	0	0
11:00	**179**	49.3	42.9	7	0	1	2	56	69	36	9	4	2	0	0	0
12:00	**169**	48.2	41.3	7.3	0	1	8	62	57	34	4	2	0	1	0	0
13:00	**171**	48.2	41	7.3	0	1	5	79	47	29	5	4	1	0	0	0
14:00	**156**	48.5	41.4	6.6	0	0	3	70	45	28	9	1	0	0	0	0
15:00	**179**	49.3	42	7.3	0	0	3	77	55	25	13	5	0	1	0	0
16:00	**203**	51.3	44.5	6.9	0	0	2	45	85	39	21	9	2	0	0	0
17:00	**223**	52.1	45.7	6.9	0	0	0	44	74	65	27	8	4	1	0	0
18:00	**162**	51.3	43.7	7.9	0	2	5	38	58	33	19	7	0	0	0	0
19:00	**104**	53.2	45.6	8	0	0	2	22	32	27	11	7	2	1	0	0
20:00	**62**	56.1	48.5	8	0	0	0	7	22	9	14	7	1	2	0	0
21:00	**49**	53.3	47.2	6.7	0	0	0	4	21	13	7	2	1	1	0	0
22:00	**33**	53.5	45.6	8.2	0	0	1	7	9	7	7	1	1	0	0	0
23:00	**17**	47.6	42.3	5.9	0	0	0	6	7	3	1	0	0	0	0	0
12H,7-19	**2072**	**50.5**	**43.4**	**7.5**	**1**	**8**	**34**	**638**	**682**	**439**	**183**	**61**	**19**	**5**	**2**	**0**
16H,6-22	**2355**	**51**	**43.9**	**7.6**	**1**	**8**	**37**	**673**	**771**	**513**	**235**	**82**	**24**	**9**	**2**	**0**
18H,6-24	**2405**	**51**	**43.9**	**7.6**	**1**	**8**	**38**	**686**	**787**	**523**	**243**	**83**	**25**	**9**	**2**	**0**
24H,0-24	**2529**	**51.4**	**44.1**	**7.7**	**1**	**10**	**38**	**695**	**818**	**567**	**264**	**96**	**27**	**9**	**4**	**0**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Daily Totals																
Sat 08-Jul-17	**2599**	50.4	43.5	7.5	2	12	29	785	910	529	228	71	22	5	4	2
Sun 09-Jul-17	**2387**	51.9	44.5	8.1	0	16	32	612	779	541	266	78	38	12	8	5
Mon 10-Jul-17	**2102**	52	44.5	7.6	0	4	30	554	642	508	250	87	18	4	1	4
Tue 11-Jul-17	**2164**	52.2	44.6	7.9	1	9	27	574	646	520	265	79	26	10	5	2
Wed 12-Jul-17	**2402**	52.1	44.5	8	0	14	34	637	736	560	277	93	32	13	4	2
Thu 13-Jul-17	**2377**	52.8	45	8.2	0	10	42	560	776	529	280	110	44	11	11	4
Fri 14-Jul-17	**2529**	51.4	44.1	7.7	1	10	38	695	818	567	264	96	27	9	4	0
Total Vehicles																
[--]	**16560**	51.8	44.4	7.9	4	75	232	4417	5307	3754	1830	614	207	64	37	19

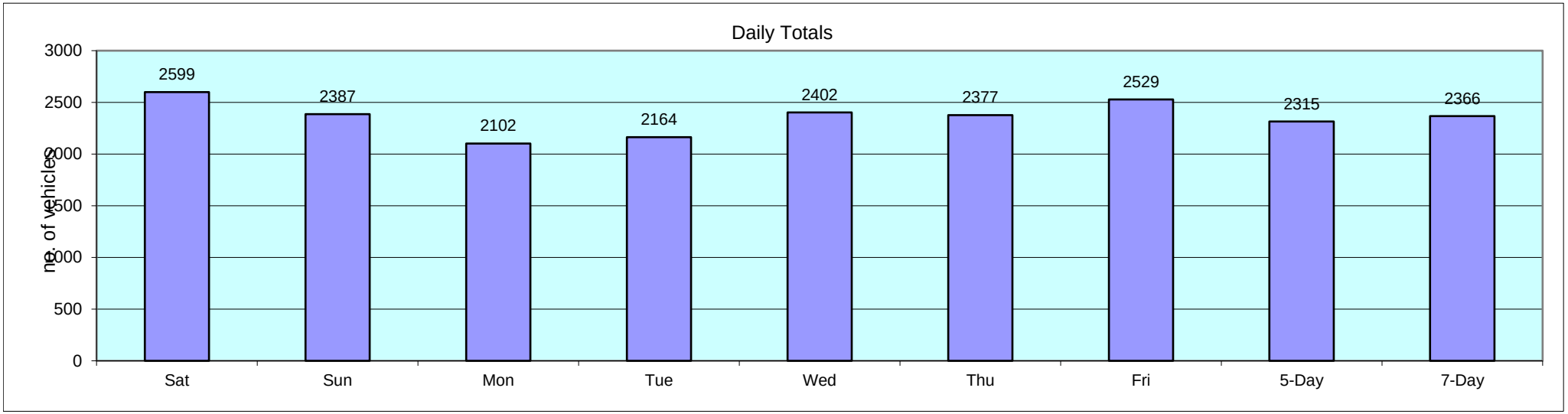




21952		BOULBY		Site No: 21952001 Channel: Eastbound		Location	Site 1, A174, Boulby (Hedge)		
TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av
Week Begin: 08-Jul-17									
00:00	**6**	9	5	3	4	2	3	3	5
01:00	**3**	5	2	2	4	0	1	2	2
02:00	**7**	6	3	4	0	2	0	2	3
03:00	**5**	4	8	7	3	8	3	6	5
04:00	**10**	9	9	12	12	11	12	11	11
05:00	**46**	41	92	84	94	94	105	94	79
06:00	**29**	28	65	70	77	76	68	71	59
07:00	**83**	78	170	178	191	187	163	178	150
08:00	**93**	73	158	160	157	169	135	156	135
09:00	**155**	168	140	123	135	131	179	142	147
10:00	**186**	208	120	131	157	143	153	141	157
11:00	**244**	262	139	138	197	149	179	160	187
12:00	**254**	274	121	140	182	173	169	157	188
13:00	**252**	253	141	151	147	136	171	149	179
14:00	**219**	191	137	125	147	141	156	141	159
15:00	**193**	158	137	126	169	163	179	155	161
16:00	**194**	146	142	162	143	187	203	167	168
17:00	**163**	138	162	159	180	189	223	183	173
18:00	**166**	111	149	162	161	165	162	160	154
19:00	**115**	95	79	88	114	97	104	96	99
20:00	**68**	48	56	60	67	75	62	64	62
21:00	**55**	54	30	44	32	42	49	39	44
22:00	**34**	19	24	23	20	29	33	26	26
23:00	**19**	9	13	12	9	8	17	12	12
12H,7-19	**2202**	**2060**	**1716**	**1755**	**1966**	**1933**	**2072**	**1888**	**1958**
16H,6-22	**2469**	**2285**	**1946**	**2017**	**2256**	**2223**	**2355**	**2159**	**2222**
18H,6-24	**2522**	**2313**	**1983**	**2052**	**2285**	**2260**	**2405**	**2197**	**2260**
24H,0-24	**2599**	**2387**	**2102**	**2164**	**2402**	**2377**	**2529**	**2315**	**2366**
Am	**11:00**	**11:00**	**07:00**	**07:00**	**11:00**	**07:00**	**11:00**	**-**	**-**
Peak	**244**	**262**	**170**	**178**	**197**	**187**	**179**	**182**	**202**
Pm	**12:00**	**12:00**	**17:00**	**18:00**	**12:00**	**17:00**	**17:00**	**-**	**-**
Peak	**254**	**274**	**162**	**162**	**182**	**189**	**223**	**184**	**207**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
		Channel: Eastbound		

TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av



21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sat 08-Jul-17											
00:00	**14**	0	0.0	14	100.0	0	0.0	0	0.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**5**	0	0.0	4	80.0	1	20.0	0	0.0	0	0.0
03:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
04:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
05:00	**25**	0	0.0	25	100.0	0	0.0	0	0.0	0	0.0
06:00	**28**	0	0.0	26	92.9	1	3.6	0	0.0	1	3.6
07:00	**44**	0	0.0	43	97.7	0	0.0	1	2.3	0	0.0
08:00	**70**	1	1.4	62	88.6	3	4.3	1	1.4	3	4.3
09:00	**113**	3	2.7	98	86.7	10	8.9	1	0.9	1	0.9
10:00	**146**	4	2.7	129	88.4	11	7.5	1	0.7	1	0.7
11:00	**152**	4	2.6	137	90.1	8	5.3	1	0.7	2	1.3
12:00	**154**	3	2.0	140	90.9	9	5.8	0	0.0	2	1.3
13:00	**159**	2	1.3	150	94.3	3	1.9	3	1.9	1	0.6
14:00	**202**	10	5.0	176	87.1	11	5.5	3	1.5	2	1.0
15:00	**195**	12	6.2	168	86.2	11	5.6	3	1.5	1	0.5
16:00	**221**	8	3.6	204	92.3	5	2.3	2	0.9	2	0.9
17:00	**273**	11	4.0	250	91.6	6	2.2	4	1.5	2	0.7
18:00	**164**	5	3.1	148	90.2	6	3.7	3	1.8	2	1.2
19:00	**147**	3	2.0	134	91.2	8	5.4	1	0.7	1	0.7
20:00	**146**	8	5.5	134	91.8	3	2.1	0	0.0	1	0.7
21:00	**69**	1	1.5	66	95.7	2	2.9	0	0.0	0	0.0
22:00	**72**	1	1.4	70	97.2	1	1.4	0	0.0	0	0.0
23:00	**35**	0	0.0	34	97.1	1	2.9	0	0.0	0	0.0
12H,7-19	**1893**	**63**	**3.3**	**1705**	**90.1**	**83**	**4.4**	**23**	**1.2**	**19**	**1.0**
16H,6-22	**2283**	**75**	**3.3**	**2065**	**90.5**	**97**	**4.3**	**24**	**1.1**	**22**	**1.0**
18H,6-24	**2390**	**76**	**3.2**	**2169**	**90.8**	**99**	**4.1**	**24**	**1.0**	**22**	**0.9**
24H,0-24	**2445**	**76**	**3.1**	**2223**	**90.9**	**100**	**4.1**	**24**	**1.0**	**22**	**0.9**

21952		BOULBY		Site No: 21952001		Location	Site 1, A174, Boulby (Hedge)				
Sat 08-Jul-17 to Fri 14-Jul-17				Channel: Westbound							
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Sun 09-Jul-17											
00:00	**19**	0	0.0	15	79.0	4	21.1	0	0.0	0	0.0
01:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
02:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
03:00	**8**	0	0.0	7	87.5	1	12.5	0	0.0	0	0.0
04:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
05:00	**23**	1	4.4	21	91.3	1	4.4	0	0.0	0	0.0
06:00	**23**	0	0.0	22	95.7	1	4.4	0	0.0	0	0.0
07:00	**45**	1	2.2	39	86.7	5	11.1	0	0.0	0	0.0
08:00	**46**	1	2.2	40	87.0	4	8.7	0	0.0	1	2.2
09:00	**82**	3	3.7	75	91.5	3	3.7	0	0.0	1	1.2
10:00	**175**	9	5.1	154	88.0	8	4.6	3	1.7	1	0.6
11:00	**175**	10	5.7	157	89.7	5	2.9	1	0.6	2	1.1
12:00	**185**	6	3.2	167	90.3	6	3.2	4	2.2	2	1.1
13:00	**207**	11	5.3	187	90.3	3	1.5	5	2.4	1	0.5
14:00	**241**	18	7.5	204	84.7	11	4.6	6	2.5	2	0.8
15:00	**272**	17	6.3	244	89.7	5	1.8	4	1.5	2	0.7
16:00	**260**	10	3.9	241	92.7	6	2.3	2	0.8	1	0.4
17:00	**272**	13	4.8	248	91.2	6	2.2	3	1.1	2	0.7
18:00	**185**	3	1.6	168	90.8	9	4.9	3	1.6	2	1.1
19:00	**122**	3	2.5	113	92.6	5	4.1	0	0.0	1	0.8
20:00	**123**	5	4.1	114	92.7	3	2.4	1	0.8	0	0.0
21:00	**55**	0	0.0	53	96.4	2	3.6	0	0.0	0	0.0
22:00	**31**	0	0.0	31	100.0	0	0.0	0	0.0	0	0.0
23:00	**43**	0	0.0	42	97.7	1	2.3	0	0.0	0	0.0
12H,7-19	**2145**	**102**	**4.8**	**1924**	**89.7**	**71**	**3.3**	**31**	**1.5**	**17**	**0.8**
16H,6-22	**2468**	**110**	**4.5**	**2226**	**90.2**	**82**	**3.3**	**32**	**1.3**	**18**	**0.7**
18H,6-24	**2542**	**110**	**4.3**	**2299**	**90.4**	**83**	**3.3**	**32**	**1.3**	**18**	**0.7**
24H,0-24	**2606**	**111**	**4.3**	**2356**	**90.4**	**89**	**3.4**	**32**	**1.2**	**18**	**0.7**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Mon 10-Jul-17											
00:00	**12**	0	0.0	11	91.7	1	8.3	0	0.0	0	0.0
01:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
02:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
03:00	**2**	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0
04:00	**3**	0	0.0	2	66.7	1	33.3	0	0.0	0	0.0
05:00	**31**	0	0.0	27	87.1	4	12.9	0	0.0	0	0.0
06:00	**54**	1	1.9	51	94.4	2	3.7	0	0.0	0	0.0
07:00	**102**	2	2.0	93	91.2	6	5.9	0	0.0	1	1.0
08:00	**86**	1	1.2	69	80.2	10	11.6	3	3.5	3	3.5
09:00	**116**	4	3.5	101	87.1	8	6.9	2	1.7	1	0.9
10:00	**126**	1	0.8	113	89.7	7	5.6	3	2.4	2	1.6
11:00	**148**	0	0.0	129	87.2	15	10.1	2	1.4	2	1.4
12:00	**137**	5	3.7	121	88.3	8	5.8	2	1.5	1	0.7
13:00	**135**	0	0.0	119	88.2	11	8.2	2	1.5	3	2.2
14:00	**192**	2	1.0	171	89.1	16	8.3	0	0.0	3	1.6
15:00	**177**	4	2.3	155	87.6	16	9.0	0	0.0	2	1.1
16:00	**206**	1	0.5	194	94.2	8	3.9	1	0.5	2	1.0
17:00	**165**	1	0.6	156	94.6	6	3.6	1	0.6	1	0.6
18:00	**120**	1	0.8	114	95.0	3	2.5	0	0.0	2	1.7
19:00	**77**	1	1.3	70	90.9	5	6.5	0	0.0	1	1.3
20:00	**97**	0	0.0	93	95.9	2	2.1	1	1.0	1	1.0
21:00	**41**	0	0.0	39	95.1	2	4.9	0	0.0	0	0.0
22:00	**31**	0	0.0	31	100.0	0	0.0	0	0.0	0	0.0
23:00	**17**	0	0.0	17	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1710**	**22**	**1.3**	**1535**	**89.8**	**114**	**6.7**	**16**	**0.9**	**23**	**1.4**
16H,6-22	**1979**	**24**	**1.2**	**1788**	**90.4**	**125**	**6.3**	**17**	**0.9**	**25**	**1.3**
18H,6-24	**2027**	**24**	**1.2**	**1836**	**90.6**	**125**	**6.2**	**17**	**0.8**	**25**	**1.2**
24H,0-24	**2081**	**24**	**1.2**	**1883**	**90.5**	**132**	**6.3**	**17**	**0.8**	**25**	**1.2**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Tue 11-Jul-17											
00:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
03:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
04:00	**6**	0	0.0	5	83.3	0	0.0	1	16.7	0	0.0
05:00	**30**	0	0.0	27	90.0	2	6.7	1	3.3	0	0.0
06:00	**57**	0	0.0	50	87.7	4	7.0	2	3.5	1	1.8
07:00	**100**	2	2.0	93	93.0	3	3.0	1	1.0	1	1.0
08:00	**92**	1	1.1	75	81.5	9	9.8	5	5.4	2	2.2
09:00	**106**	2	1.9	90	84.9	11	10.4	1	0.9	2	1.9
10:00	**128**	0	0.0	110	85.9	13	10.2	2	1.6	3	2.3
11:00	**153**	1	0.7	130	85.0	17	11.1	3	2.0	2	1.3
12:00	**148**	1	0.7	130	87.8	12	8.1	3	2.0	2	1.4
13:00	**139**	0	0.0	123	88.5	13	9.4	2	1.4	1	0.7
14:00	**169**	0	0.0	152	89.9	13	7.7	1	0.6	3	1.8
15:00	**198**	3	1.5	171	86.4	21	10.6	1	0.5	2	1.0
16:00	**212**	1	0.5	187	88.2	18	8.5	4	1.9	2	0.9
17:00	**168**	1	0.6	155	92.3	10	6.0	0	0.0	2	1.2
18:00	**125**	0	0.0	116	92.8	7	5.6	0	0.0	2	1.6
19:00	**80**	2	2.5	71	88.8	5	6.3	1	1.3	1	1.3
20:00	**87**	0	0.0	85	97.7	1	1.2	0	0.0	1	1.2
21:00	**52**	0	0.0	51	98.1	1	1.9	0	0.0	0	0.0
22:00	**39**	0	0.0	36	92.3	3	7.7	0	0.0	0	0.0
23:00	**15**	0	0.0	15	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1738**	**12**	**0.7**	**1532**	**88.2**	**147**	**8.5**	**23**	**1.3**	**24**	**1.4**
16H,6-22	**2014**	**14**	**0.7**	**1789**	**88.8**	**158**	**7.9**	**26**	**1.3**	**27**	**1.3**
18H,6-24	**2068**	**14**	**0.7**	**1840**	**89.0**	**161**	**7.8**	**26**	**1.3**	**27**	**1.3**
24H,0-24	**2116**	**14**	**0.7**	**1884**	**89.0**	**163**	**7.7**	**28**	**1.3**	**27**	**1.3**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Wed 12-Jul-17											
00:00	**11**	0	0.0	11	100.0	0	0.0	0	0.0	0	0.0
01:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
02:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
03:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
04:00	**5**	0	0.0	4	80.0	1	20.0	0	0.0	0	0.0
05:00	**30**	0	0.0	28	93.3	1	3.3	1	3.3	0	0.0
06:00	**49**	0	0.0	45	91.8	3	6.1	0	0.0	1	2.0
07:00	**110**	2	1.8	103	93.6	4	3.6	0	0.0	1	0.9
08:00	**104**	2	1.9	91	87.5	9	8.7	0	0.0	2	1.9
09:00	**119**	0	0.0	100	84.0	16	13.5	0	0.0	3	2.5
10:00	**141**	5	3.6	121	85.8	12	8.5	0	0.0	3	2.1
11:00	**124**	1	0.8	103	83.1	13	10.5	6	4.8	1	0.8
12:00	**132**	3	2.3	115	87.1	9	6.8	3	2.3	2	1.5
13:00	**169**	5	3.0	148	87.6	12	7.1	2	1.2	2	1.2
14:00	**197**	7	3.6	171	86.8	14	7.1	4	2.0	1	0.5
15:00	**217**	5	2.3	189	87.1	18	8.3	2	0.9	3	1.4
16:00	**243**	1	0.4	221	91.0	17	7.0	3	1.2	1	0.4
17:00	**192**	4	2.1	180	93.8	4	2.1	2	1.0	2	1.0
18:00	**118**	3	2.5	108	91.5	5	4.2	1	0.9	1	0.9
19:00	**96**	2	2.1	89	92.7	4	4.2	0	0.0	1	1.0
20:00	**116**	9	7.8	102	87.9	3	2.6	1	0.9	1	0.9
21:00	**66**	2	3.0	62	93.9	1	1.5	1	1.5	0	0.0
22:00	**35**	1	2.9	33	94.3	1	2.9	0	0.0	0	0.0
23:00	**19**	0	0.0	18	94.7	0	0.0	1	5.3	0	0.0
12H,7-19	**1866**	**38**	**2.0**	**1650**	**88.4**	**133**	**7.1**	**23**	**1.2**	**22**	**1.2**
16H,6-22	**2193**	**51**	**2.3**	**1948**	**88.8**	**144**	**6.6**	**25**	**1.1**	**25**	**1.1**
18H,6-24	**2247**	**52**	**2.3**	**1999**	**89.0**	**145**	**6.5**	**26**	**1.2**	**25**	**1.1**
24H,0-24	**2299**	**52**	**2.3**	**2048**	**89.1**	**147**	**6.4**	**27**	**1.2**	**25**	**1.1**

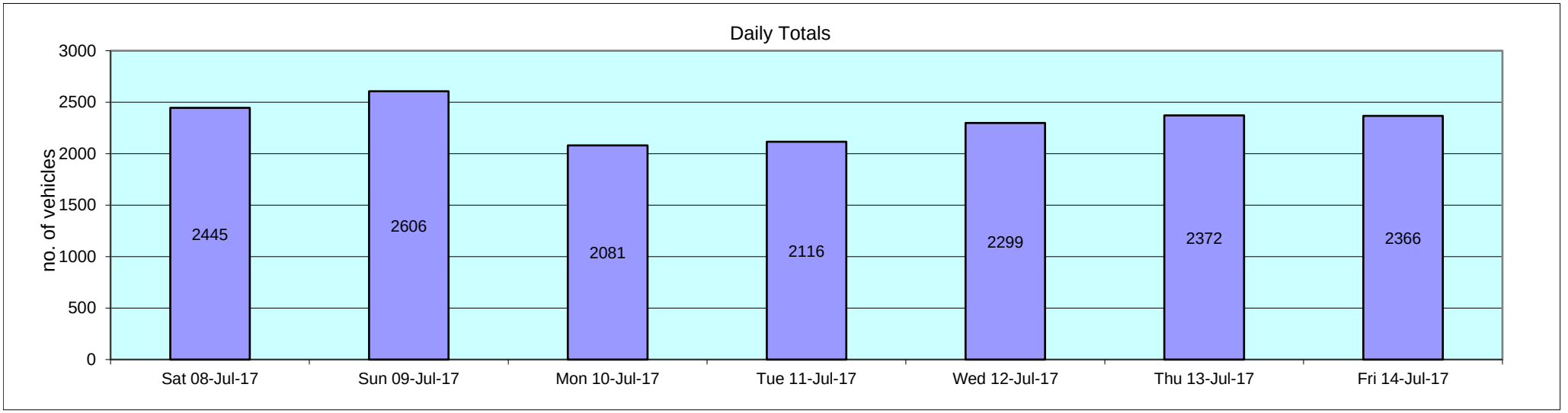
21952		BOULBY		Site No: 21952001		Location	Site 1, A174, Boulby (Hedge)				
Sat 08-Jul-17 to Fri 14-Jul-17				Channel: Westbound							
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Thu 13-Jul-17											
00:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
01:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
02:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
03:00	**0**	0	-	0	-	0	-	0	-	0	-
04:00	**6**	0	0.0	5	83.3	1	16.7	0	0.0	0	0.0
05:00	**34**	1	2.9	29	85.3	4	11.8	0	0.0	0	0.0
06:00	**49**	2	4.1	44	89.8	2	4.1	0	0.0	1	2.0
07:00	**108**	1	0.9	100	92.6	2	1.9	3	2.8	2	1.9
08:00	**94**	2	2.1	83	88.3	7	7.5	0	0.0	2	2.1
09:00	**120**	2	1.7	99	82.5	15	12.5	2	1.7	2	1.7
10:00	**115**	3	2.6	89	77.4	18	15.7	3	2.6	2	1.7
11:00	**125**	2	1.6	104	83.2	15	12.0	2	1.6	2	1.6
12:00	**144**	2	1.4	128	88.9	10	6.9	2	1.4	2	1.4
13:00	**162**	4	2.5	138	85.2	14	8.6	5	3.1	1	0.6
14:00	**222**	5	2.3	198	89.2	13	5.9	3	1.4	3	1.4
15:00	**207**	3	1.5	181	87.4	15	7.3	5	2.4	3	1.5
16:00	**241**	6	2.5	218	90.5	13	5.4	2	0.8	2	0.8
17:00	**206**	7	3.4	188	91.3	8	3.9	2	1.0	1	0.5
18:00	**129**	6	4.7	114	88.4	6	4.7	1	0.8	2	1.6
19:00	**113**	29	25.7	75	66.4	5	4.4	3	2.7	1	0.9
20:00	**146**	48	32.9	89	61.0	5	3.4	3	2.1	1	0.7
21:00	**68**	7	10.3	58	85.3	0	0.0	3	4.4	0	0.0
22:00	**43**	0	0.0	42	97.7	1	2.3	0	0.0	0	0.0
23:00	**28**	0	0.0	28	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1873**	**43**	**2.3**	**1640**	**87.6**	**136**	**7.3**	**30**	**1.6**	**24**	**1.3**
16H,6-22	**2249**	**129**	**5.7**	**1906**	**84.8**	**148**	**6.6**	**39**	**1.7**	**27**	**1.2**
18H,6-24	**2320**	**129**	**5.6**	**1976**	**85.2**	**149**	**6.4**	**39**	**1.7**	**27**	**1.2**
24H,0-24	**2372**	**130**	**5.5**	**2022**	**85.2**	**154**	**6.5**	**39**	**1.6**	**27**	**1.1**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Fri 14-Jul-17											
00:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
01:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
02:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
03:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
04:00	**5**	0	0.0	3	60.0	2	40.0	0	0.0	0	0.0
05:00	**35**	0	0.0	32	91.4	3	8.6	0	0.0	0	0.0
06:00	**40**	0	0.0	37	92.5	2	5.0	0	0.0	1	2.5
07:00	**98**	0	0.0	90	91.8	4	4.1	3	3.1	1	1.0
08:00	**98**	1	1.0	87	88.8	8	8.2	0	0.0	2	2.0
09:00	**144**	3	2.1	120	83.3	17	11.8	3	2.1	1	0.7
10:00	**139**	2	1.4	119	85.6	16	11.5	0	0.0	2	1.4
11:00	**160**	2	1.3	131	81.9	22	13.8	2	1.3	3	1.9
12:00	**162**	6	3.7	142	87.7	9	5.6	3	1.9	2	1.2
13:00	**170**	1	0.6	145	85.3	18	10.6	5	2.9	1	0.6
14:00	**210**	1	0.5	192	91.4	12	5.7	3	1.4	2	1.0
15:00	**204**	9	4.4	176	86.3	15	7.4	3	1.5	1	0.5
16:00	**182**	6	3.3	169	92.9	3	1.7	2	1.1	2	1.1
17:00	**225**	5	2.2	206	91.6	10	4.4	3	1.3	1	0.4
18:00	**125**	1	0.8	112	89.6	9	7.2	1	0.8	2	1.6
19:00	**112**	2	1.8	100	89.3	8	7.1	1	0.9	1	0.9
20:00	**104**	2	1.9	97	93.3	4	3.9	0	0.0	1	1.0
21:00	**62**	0	0.0	61	98.4	1	1.6	0	0.0	0	0.0
22:00	**55**	0	0.0	53	96.4	2	3.6	0	0.0	0	0.0
23:00	**25**	0	0.0	25	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1917**	**37**	**1.9**	**1689**	**88.1**	**143**	**7.5**	**28**	**1.5**	**20**	**1.0**
16H,6-22	**2235**	**41**	**1.8**	**1984**	**88.8**	**158**	**7.1**	**29**	**1.3**	**23**	**1.0**
18H,6-24	**2315**	**41**	**1.8**	**2062**	**89.1**	**160**	**6.9**	**29**	**1.3**	**23**	**1.0**
24H,0-24	**2366**	**41**	**1.7**	**2108**	**89.1**	**165**	**7.0**	**29**	**1.2**	**23**	**1.0**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 08-Jul-17	**2445**	76	3.1	2223	90.9	100	4.1	24	1.0	22	0.9
Sun 09-Jul-17	**2606**	111	4.3	2356	90.4	89	3.4	32	1.2	18	0.7
Mon 10-Jul-17	**2081**	24	1.2	1883	90.5	132	6.3	17	0.8	25	1.2
Tue 11-Jul-17	**2116**	14	0.7	1884	89.0	163	7.7	28	1.3	27	1.3
Wed 12-Jul-17	**2299**	52	2.3	2048	89.1	147	6.4	27	1.2	25	1.1
Thu 13-Jul-17	**2372**	130	5.5	2022	85.2	154	6.5	39	1.6	27	1.1
Fri 14-Jul-17	**2366**	41	1.7	2108	89.1	165	7.0	29	1.2	23	1.0
Total Vehicles											
[--]	**16285**	448	2.7	14524	89.2	950	5.9	196	1.2	167	1.0



21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sat 08-Jul-17																
00:00	**14**	59	51	7.1	0	0	0	0	4	5	0	4	1	0	0	0
01:00	**4**	-	45.4	7.5	0	0	0	1	1	1	1	0	0	0	0	0
02:00	**5**	-	42	16.2	0	0	1	2	1	0	0	0	0	1	0	0
03:00	**5**	-	49.5	6.6	0	0	0	0	2	1	1	1	0	0	0	0
04:00	**2**	-	48.5	1.8	0	0	0	0	0	2	0	0	0	0	0	0
05:00	**25**	53.2	44.7	8.7	0	0	0	10	3	6	4	1	1	0	0	0
06:00	**28**	58.2	49.5	9.2	0	0	0	5	5	5	7	3	2	1	0	0
07:00	**44**	54.8	46.9	8.9	0	0	1	10	7	12	9	3	1	1	0	0
08:00	**70**	51	42.7	9.3	0	1	5	20	19	14	7	2	2	0	0	0
09:00	**113**	49.1	40.8	8.1	0	0	12	41	25	28	6	1	0	0	0	0
10:00	**146**	48.7	41.6	7.5	1	0	2	63	47	20	9	2	2	0	0	0
11:00	**152**	47.7	41	6.6	0	0	5	66	49	25	6	1	0	0	0	0
12:00	**154**	48.7	42	6.6	0	0	2	62	48	34	7	0	0	1	0	0
13:00	**159**	49	41.8	7.6	0	0	9	56	53	28	6	6	1	0	0	0
14:00	**202**	47	39.4	8	1	1	15	102	47	25	8	1	0	2	0	0
15:00	**195**	48.4	41.2	8.5	0	0	7	97	48	28	6	2	4	1	0	2
16:00	**221**	47.6	40.1	8.7	0	1	12	124	44	20	8	7	1	2	1	1
17:00	**273**	48.6	41.3	7.5	0	0	11	119	77	48	10	5	2	0	0	1
18:00	**164**	46.2	38.2	8.7	1	3	21	76	37	19	4	2	1	0	0	0
19:00	**147**	50.6	42.2	8.4	0	1	5	58	40	22	16	4	0	0	0	1
20:00	**146**	50	42.3	8.5	0	0	6	60	37	26	8	5	3	0	1	0
21:00	**69**	51.1	43.4	7.7	0	0	1	25	19	13	8	2	1	0	0	0
22:00	**72**	52.1	43.1	10.7	0	0	5	28	14	12	8	1	0	2	1	1
23:00	**35**	50.4	42.9	7.5	0	0	0	15	9	6	3	2	0	0	0	0
12H,7-19	**1893**	**48.7**	**40.9**	**8.1**	**3**	**6**	**102**	**836**	**501**	**301**	**86**	**32**	**14**	**7**	**1**	**4**
16H,6-22	**2283**	**49.1**	**41.3**	**8.2**	**3**	**7**	**114**	**984**	**602**	**367**	**125**	**46**	**20**	**8**	**2**	**5**
18H,6-24	**2390**	**49.2**	**41.4**	**8.3**	**3**	**7**	**119**	**1027**	**625**	**385**	**136**	**49**	**20**	**10**	**3**	**6**
24H,0-24	**2445**	**49.4**	**41.5**	**8.3**	**3**	**7**	**120**	**1040**	**636**	**400**	**142**	**55**	**22**	**11**	**3**	**6**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sun 09-Jul-17																
00:00	**19**	52.6	43	9.2	0	0	0	10	3	2	2	1	1	0	0	0
01:00	**5**	-	36	10.3	0	0	2	1	1	1	0	0	0	0	0	0
02:00	**6**	-	58.5	6.4	0	0	0	0	0	1	1	1	3	0	0	0
03:00	**8**	-	46.6	8.9	0	0	0	2	2	2	0	2	0	0	0	0
04:00	**3**	-	31.8	10.4	0	0	2	0	1	0	0	0	0	0	0	0
05:00	**23**	56.1	45.6	11.5	1	0	0	3	10	3	2	3	0	1	0	0
06:00	**23**	50.4	45.1	6.5	0	0	0	5	7	8	2	1	0	0	0	0
07:00	**45**	54.8	45.1	10.1	0	0	1	17	8	5	9	2	1	2	0	0
08:00	**46**	52.1	43.4	7.5	0	0	1	14	18	4	7	2	0	0	0	0
09:00	**82**	49.7	41.1	9.4	1	0	5	35	23	7	5	3	3	0	0	0
10:00	**175**	46.6	38.9	9.5	4	3	13	79	47	20	6	1	1	0	0	1
11:00	**175**	47.2	40.3	7.1	2	0	4	82	53	30	2	2	0	0	0	0
12:00	**185**	47.2	40	7.3	0	0	9	99	43	25	3	4	2	0	0	0
13:00	**207**	46.1	39.4	8.5	0	1	20	105	49	16	9	3	3	0	0	1
14:00	**241**	45.8	37.8	8.6	1	0	45	112	48	19	9	7	0	0	0	0
15:00	**272**	45.8	39.8	7.8	1	0	14	144	75	20	11	3	1	2	0	1
16:00	**260**	45.5	38.4	8.4	0	0	38	129	59	22	5	1	4	1	1	0
17:00	**272**	49.9	41.1	9.1	0	3	25	99	72	41	19	8	4	1	0	0
18:00	**185**	48.7	41.8	7.9	0	0	7	74	63	24	9	4	2	1	1	0
19:00	**122**	49	41	9.6	1	3	6	45	41	12	7	3	3	1	0	0
20:00	**123**	50.5	43.6	8.6	0	0	5	37	36	29	10	3	1	0	1	1
21:00	**55**	56.2	45.7	9.9	0	0	3	13	11	16	3	6	1	2	0	0
22:00	**31**	55.8	45.8	10.3	0	0	1	9	8	4	4	3	0	2	0	0
23:00	**43**	56	47.3	7.9	0	0	0	8	12	9	7	6	1	0	0	0
12H,7-19	**2145**	**47.7**	**39.9**	**8.5**	**9**	**7**	**182**	**989**	**558**	**233**	**94**	**40**	**21**	**7**	**2**	**3**
16H,6-22	**2468**	**48.3**	**40.3**	**8.7**	**10**	**10**	**196**	**1089**	**653**	**298**	**116**	**53**	**26**	**10**	**3**	**4**
18H,6-24	**2542**	**48.6**	**40.5**	**8.7**	**10**	**10**	**197**	**1106**	**673**	**311**	**127**	**62**	**27**	**12**	**3**	**4**
24H,0-24	**2606**	**48.8**	**40.6**	**8.8**	**11**	**10**	**201**	**1122**	**690**	**320**	**132**	**69**	**31**	**13**	**3**	**4**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Mon 10-Jul-17																
00:00	**12**	54.5	47.5	9.1	0	0	0	3	2	3	2	1	1	0	0	0
01:00	**3**	-	50.2	7.6	0	0	0	0	1	1	0	1	0	0	0	0
02:00	**3**	-	46.8	5.9	0	0	0	0	2	0	1	0	0	0	0	0
03:00	**2**	-	48.5	7.1	0	0	0	0	1	0	1	0	0	0	0	0
04:00	**3**	-	40.2	7.6	0	0	0	2	0	1	0	0	0	0	0	0
05:00	**31**	54.1	45.4	10	0	0	1	9	7	7	3	2	0	2	0	0
06:00	**54**	54.7	46.3	9.4	0	0	0	15	13	13	6	4	1	0	2	0
07:00	**102**	52.2	44.2	9	1	1	0	32	23	26	13	3	2	1	0	0
08:00	**86**	48.8	41.6	7.2	0	0	5	30	27	19	4	1	0	0	0	0
09:00	**116**	47.1	40.2	6	0	0	1	65	28	19	3	0	0	0	0	0
10:00	**126**	45	37.9	7.6	1	1	12	70	28	9	5	0	0	0	0	0
11:00	**148**	44.7	37	7.8	0	0	29	77	26	9	6	1	0	0	0	0
12:00	**137**	45.2	38.3	7.7	0	1	12	86	20	6	9	3	0	0	0	0
13:00	**135**	46.6	39.3	7.8	0	1	15	57	39	18	3	2	0	0	0	0
14:00	**192**	47.4	39	8.4	1	0	22	96	37	24	7	4	0	1	0	0
15:00	**177**	47.4	40.2	8	1	3	4	86	49	25	3	5	0	1	0	0
16:00	**206**	48.3	41.2	6.6	0	0	6	91	59	41	7	2	0	0	0	0
17:00	**165**	49.3	42.6	7	1	0	1	56	63	28	12	4	0	0	0	0
18:00	**120**	51.8	43.5	7.8	0	0	5	33	42	19	15	6	0	0	0	0
19:00	**77**	51.7	43.2	9.4	1	0	3	23	24	13	7	4	1	1	0	0
20:00	**97**	50.7	44.4	7	0	0	0	25	40	18	8	4	2	0	0	0
21:00	**41**	50.6	42.8	8	0	0	1	17	8	9	5	0	1	0	0	0
22:00	**31**	49.7	44.8	6.6	0	0	0	6	14	8	1	1	1	0	0	0
23:00	**17**	50.8	45.6	8.6	0	0	1	3	3	7	1	2	0	0	0	0
12H,7-19	**1710**	**48.2**	**40.3**	**7.8**	**5**	**7**	**112**	**779**	**441**	**243**	**87**	**31**	**2**	**3**	**0**	**0**
16H,6-22	**1979**	**48.8**	**40.8**	**8**	**6**	**7**	**116**	**859**	**526**	**296**	**113**	**43**	**7**	**4**	**2**	**0**
18H,6-24	**2027**	**48.9**	**40.9**	**8**	**6**	**7**	**117**	**868**	**543**	**311**	**115**	**46**	**8**	**4**	**2**	**0**
24H,0-24	**2081**	**49.1**	**41**	**8.1**	**6**	**7**	**118**	**882**	**556**	**323**	**122**	**50**	**9**	**6**	**2**	**0**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Tue 11-Jul-17																	
00:00	**4**	-	46.6	9.4	0	0	0	1	1	1	0	1	0	0	0	0
01:00	**4**	-	47.9	10.1	0	0	0	1	1	0	1	1	0	0	0	0
02:00	**2**	-	43.5	1.8	0	0	0	0	2	0	0	0	0	0	0	0
03:00	**2**	-	43.5	1.8	0	0	0	0	2	0	0	0	0	0	0	0
04:00	**6**	-	45.6	7.6	0	0	0	1	3	1	0	1	0	0	0	0
05:00	**30**	56	48.8	8.5	0	0	0	3	11	6	5	1	3	1	0	0
06:00	**57**	54.9	46.4	9.4	0	0	4	6	19	12	9	3	3	1	0	0
07:00	**100**	51.8	44.9	7.7	0	1	1	21	35	25	10	5	2	0	0	0
08:00	**92**	49.1	41.7	8.3	0	2	3	33	31	14	5	3	1	0	0	0
09:00	**106**	44.9	39	6.3	0	0	5	62	29	6	3	1	0	0	0	0
10:00	**128**	45.4	38	7	0	0	15	73	23	14	3	0	0	0	0	0
11:00	**153**	44.3	37.8	6.6	0	0	12	105	19	11	5	1	0	0	0	0
12:00	**148**	45.2	38.8	6.5	0	0	9	87	35	12	4	1	0	0	0	0
13:00	**139**	48.4	39.9	8.6	0	1	17	54	39	14	10	4	0	0	0	0
14:00	**169**	45.9	39.8	6.9	0	0	10	84	50	15	8	2	0	0	0	0
15:00	**198**	49.1	41.3	7.9	1	0	10	79	60	29	11	8	0	0	0	0
16:00	**212**	48.5	40.7	8.4	0	0	15	98	52	30	10	3	1	1	2	0
17:00	**168**	52.5	44	9.3	0	0	14	41	36	45	21	6	3	1	1	0
18:00	**125**	50.7	42.6	7.5	0	0	2	51	35	19	13	4	1	0	0	0
19:00	**80**	52.3	43.4	10.2	1	0	3	27	22	13	6	4	3	0	0	1
20:00	**87**	54.2	46.2	8.1	0	0	1	20	18	28	10	9	0	0	1	0
21:00	**52**	53.6	44.9	9.3	0	0	0	18	15	7	7	2	1	1	1	0
22:00	**39**	53.2	43.9	8.6	0	0	1	15	6	8	6	3	0	0	0	0
23:00	**15**	54.8	48.5	6.9	0	0	0	2	2	6	3	2	0	0	0	0
12H,7-19	**1738**	**48.7**	**40.6**	**8**	**1**	**4**	**113**	**788**	**444**	**234**	**103**	**38**	**8**	**2**	**3**	**0**
16H,6-22	**2014**	**49.5**	**41.3**	**8.3**	**2**	**4**	**121**	**859**	**518**	**294**	**135**	**56**	**15**	**4**	**5**	**1**
18H,6-24	**2068**	**49.7**	**41.4**	**8.3**	**2**	**4**	**122**	**876**	**526**	**308**	**144**	**61**	**15**	**4**	**5**	**1**
24H,0-24	**2116**	**49.8**	**41.5**	**8.4**	**2**	**4**	**122**	**882**	**546**	**316**	**150**	**65**	**18**	**5**	**5**	**1**

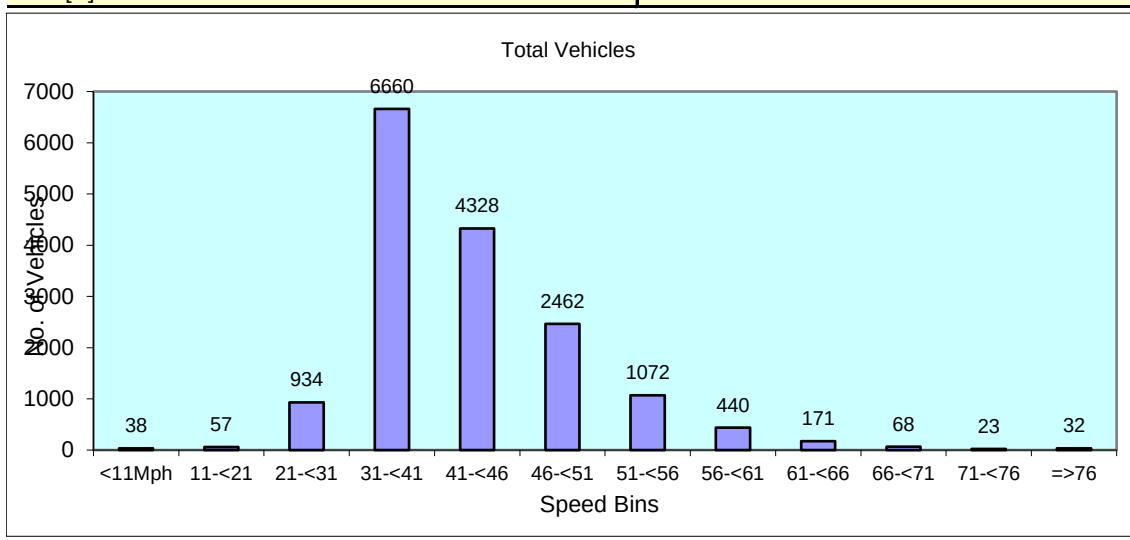
21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Wed 12-Jul-17																	
00:00	**11**	50.3	45.3	6.9	0	0	0	2	5	2	1	1	0	0	0	0
01:00	**2**	-	56	3.5	0	0	0	0	0	0	1	1	0	0	0	0
02:00	**3**	-	49.3	17	0	0	0	1	1	0	0	0	0	1	0	0
03:00	**1**	-	43.5	-	0	0	0	0	1	0	0	0	0	0	0	0
04:00	**5**	-	48	7.3	0	0	0	1	0	2	2	0	0	0	0	0
05:00	**30**	54.3	47.1	8.7	0	0	2	1	11	7	6	2	0	1	0	0
06:00	**49**	56.2	49	7.9	0	0	0	7	11	9	14	5	3	0	0	0
07:00	**110**	53.3	44.8	9	1	0	4	25	30	26	15	7	1	1	0	0
08:00	**104**	49.8	43.3	7.4	0	1	4	21	46	21	8	2	1	0	0	0
09:00	**119**	45.8	39	7.1	0	1	8	64	29	11	6	0	0	0	0	0
10:00	**141**	45.2	39	6.8	0	0	13	67	47	12	1	0	1	0	0	0
11:00	**124**	45.9	36.9	10.6	1	8	20	52	24	9	6	2	2	0	0	0
12:00	**132**	48.2	40.6	7.4	0	0	8	60	34	22	5	3	0	0	0	0
13:00	**169**	46.3	40.1	7.2	0	0	10	80	52	18	6	2	0	1	0	0
14:00	**197**	49.4	40.9	8.7	1	2	12	82	46	35	14	2	2	1	0	0
15:00	**217**	48.5	40.4	9	1	4	18	78	68	30	14	1	2	0	0	1
16:00	**243**	49.2	41.8	7.5	0	0	6	105	71	38	12	9	1	1	0	0
17:00	**192**	50.8	43.3	8.1	0	0	5	66	58	35	15	9	2	2	0	0
18:00	**118**	49.6	41.7	9.3	0	0	9	48	30	18	2	7	1	3	0	0
19:00	**96**	52.2	44.3	8.3	0	0	1	29	36	13	9	3	3	2	0	0
20:00	**116**	54.8	45.5	9.6	1	0	1	31	33	23	12	7	6	1	1	0
21:00	**66**	54.6	44	10.6	0	2	0	27	10	8	12	4	2	0	1	0
22:00	**35**	57.6	47.3	10.1	0	0	0	11	4	9	4	4	2	0	1	0
23:00	**19**	57.6	49	9.6	0	0	0	4	3	4	4	2	1	1	0	0
12H,7-19	**1866**	**49**	**41**	**8.4**	**4**	**16**	**117**	**748**	**535**	**275**	**104**	**44**	**13**	**9**	**0**	**1**
16H,6-22	**2193**	**49.9**	**41.7**	**8.7**	**5**	**18**	**119**	**842**	**625**	**328**	**151**	**63**	**27**	**12**	**2**	**1**
18H,6-24	**2247**	**50.1**	**41.8**	**8.8**	**5**	**18**	**119**	**857**	**632**	**341**	**159**	**69**	**30**	**13**	**3**	**1**
24H,0-24	**2299**	**50.2**	**41.9**	**8.8**	**5**	**18**	**121**	**862**	**650**	**352**	**169**	**73**	**30**	**15**	**3**	**1**

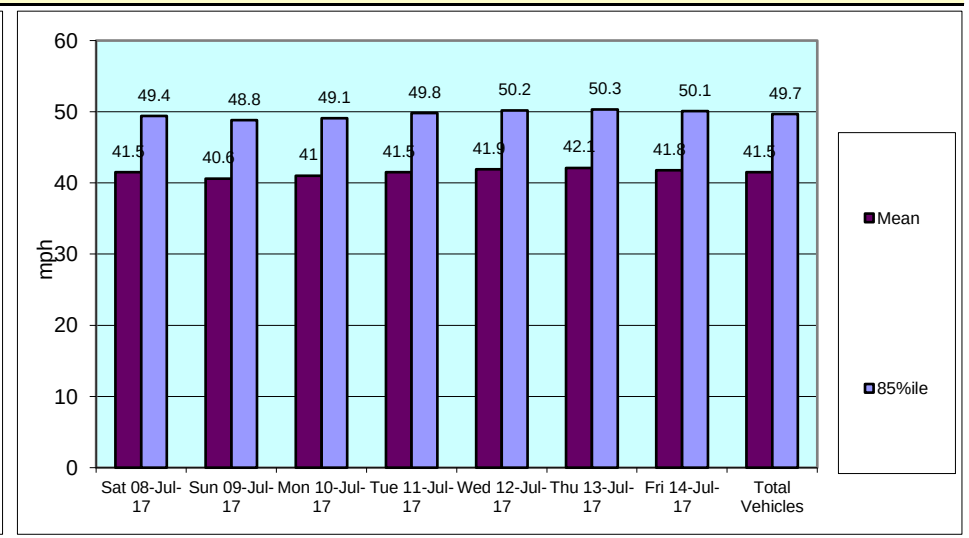
21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Thu 13-Jul-17																
00:00	**5**	-	43.5	7.9	0	0	0	2	1	1	1	0	0	0	0	0
01:00	**6**	-	45.6	7.6	0	0	0	1	3	1	0	1	0	0	0	0
02:00	**1**	-	43.5	-	0	0	0	0	1	0	0	0	0	0	0	0
03:00	**0**	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
04:00	**6**	-	47.3	8.1	0	0	0	1	2	1	1	1	0	0	0	0
05:00	**34**	51.7	42.9	10.9	1	0	1	11	10	5	3	1	1	1	0	0
06:00	**49**	57.2	49.3	11.2	0	0	2	6	10	11	11	5	1	0	0	3
07:00	**108**	52.3	44	8.7	0	0	5	32	26	25	13	4	2	1	0	0
08:00	**94**	49.9	42.3	7.7	0	1	5	27	31	20	10	0	0	0	0	0
09:00	**120**	47.7	40.1	7.5	0	0	8	59	28	19	2	4	0	0	0	0
10:00	**115**	44.9	37.9	7.7	0	4	8	62	30	9	1	0	1	0	0	0
11:00	**125**	47.3	40	7.4	0	1	9	55	37	15	8	0	0	0	0	0
12:00	**144**	46.7	40.1	7.4	0	0	8	74	38	13	8	2	0	1	0	0
13:00	**162**	47.4	40	8.3	0	0	14	78	40	18	6	3	2	0	1	0
14:00	**222**	46.7	40.3	8.3	0	1	13	110	61	23	4	3	4	2	1	0
15:00	**207**	47.5	39.3	9.1	1	0	30	87	51	22	9	3	2	2	0	0
16:00	**241**	50.6	42.5	8	0	0	12	86	66	44	25	6	1	1	0	0
17:00	**206**	49.8	42.7	7.6	0	0	2	83	64	34	10	7	6	0	0	0
18:00	**129**	50.6	42.3	9.6	0	3	7	43	32	26	12	4	0	1	0	1
19:00	**113**	55.6	46.1	11.6	1	0	2	30	36	16	11	5	5	2	0	5
20:00	**146**	57.6	47.9	11.1	0	0	2	39	22	35	23	8	9	1	1	6
21:00	**68**	52.8	45.1	9.6	0	0	0	21	24	9	9	2	0	0	1	2
22:00	**43**	52.8	44.6	8.4	0	0	0	13	17	5	3	3	1	1	0	0
23:00	**28**	54.8	45.6	9	0	0	0	9	7	5	3	2	2	0	0	0
12H,7-19	**1873**	**49**	**40.9**	**8.3**	**1**	**10**	**121**	**796**	**504**	**268**	**108**	**36**	**18**	**8**	**2**	**1**
16H,6-22	**2249**	**50.2**	**42**	**9.1**	**2**	**10**	**127**	**892**	**596**	**339**	**162**	**56**	**33**	**11**	**4**	**17**
18H,6-24	**2320**	**50.3**	**42.1**	**9.1**	**2**	**10**	**127**	**914**	**620**	**349**	**168**	**61**	**36**	**12**	**4**	**17**
24H,0-24	**2372**	**50.3**	**42.1**	**9.1**	**3**	**10**	**128**	**929**	**637**	**357**	**173**	**64**	**37**	**13**	**4**	**17**

21952			BOULBY				Site No: 21952001				Location	Site 1, A174, Boulby (Hedge)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Fri 14-Jul-17																
00:00	5	-	42.5	6.6	0	0	0	2	1	2	0	0	0	0	0	0
01:00	3	-	48.5	5	0	0	0	0	1	1	1	0	0	0	0	0
02:00	1	-	53.5	-	0	0	0	0	0	0	1	0	0	0	0	0
03:00	2	-	43.5	1.8	0	0	0	0	2	0	0	0	0	0	0	0
04:00	5	-	45	11.4	0	0	1	0	1	1	2	0	0	0	0	0
05:00	35	56.3	47.9	10.1	0	0	0	8	9	5	7	4	0	1	0	1
06:00	40	55.4	47.6	8.3	0	0	0	9	6	12	7	4	2	0	0	0
07:00	98	50.2	43.4	7.4	0	0	1	33	32	20	7	3	2	0	0	0
08:00	98	50.4	43.2	7.6	0	0	3	31	32	19	8	4	1	0	0	0
09:00	144	51	41.4	9.2	0	1	15	50	34	22	17	4	0	1	0	0
10:00	139	47.4	39.9	7.9	1	0	6	75	31	17	6	1	1	1	0	0
11:00	160	47.2	39.9	7.3	0	0	11	79	41	19	7	3	0	0	0	0
12:00	162	45.9	38.5	7.5	1	0	13	95	29	15	8	1	0	0	0	0
13:00	170	45.6	39.1	6.9	0	0	11	97	39	14	8	0	1	0	0	0
14:00	210	49.8	42.1	8	2	0	4	82	62	37	14	8	1	0	0	0
15:00	204	47.9	39.8	8.4	2	0	22	79	58	31	9	3	0	0	0	0
16:00	182	48.8	41.5	7.7	2	0	6	69	55	40	7	2	1	0	0	0
17:00	225	49.8	41.4	8.5	0	0	17	90	61	30	19	4	3	0	0	1
18:00	125	51.3	42.8	8.6	0	0	8	41	33	23	14	3	3	0	0	0
19:00	112	51.4	44.7	8.8	0	0	3	30	34	27	8	5	3	1	0	1
20:00	104	56.5	46.5	9.7	0	0	2	27	21	28	9	10	4	0	3	0
21:00	62	53.3	44.5	8	0	0	0	22	14	12	9	4	1	0	0	0
22:00	55	52.6	44.8	7.7	0	0	0	17	14	12	10	1	0	1	0	0
23:00	25	53.3	45.3	8.9	0	0	1	7	3	7	6	0	1	0	0	0
12H,7-19	1917	49	40.9	8.1	8	1	117	821	507	287	124	36	13	2	0	1
16H,6-22	2235	49.8	41.6	8.4	8	1	122	909	582	366	157	59	23	3	3	2
18H,6-24	2315	49.9	41.7	8.4	8	1	123	933	599	385	173	60	24	4	3	2
24H,0-24	2366	50.1	41.8	8.4	8	1	124	943	613	394	184	64	24	5	3	3

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Daily Totals																
Sat 08-Jul-17	**2445**	49.4	41.5	8.3	3	7	120	1040	636	400	142	55	22	11	3	6
Sun 09-Jul-17	**2606**	48.8	40.6	8.8	11	10	201	1122	690	320	132	69	31	13	3	4
Mon 10-Jul-17	**2081**	49.1	41	8.1	6	7	118	882	556	323	122	50	9	6	2	0
Tue 11-Jul-17	**2116**	49.8	41.5	8.4	2	4	122	882	546	316	150	65	18	5	5	1
Wed 12-Jul-17	**2299**	50.2	41.9	8.8	5	18	121	862	650	352	169	73	30	15	3	1
Thu 13-Jul-17	**2372**	50.3	42.1	9.1	3	10	128	929	637	357	173	64	37	13	4	17
Fri 14-Jul-17	**2366**	50.1	41.8	8.4	8	1	124	943	613	394	184	64	24	5	3	3
Total Vehicles																
[--]	**16285**	49.7	41.5	8.6	38	57	934	6660	4328	2462	1072	440	171	68	23	32

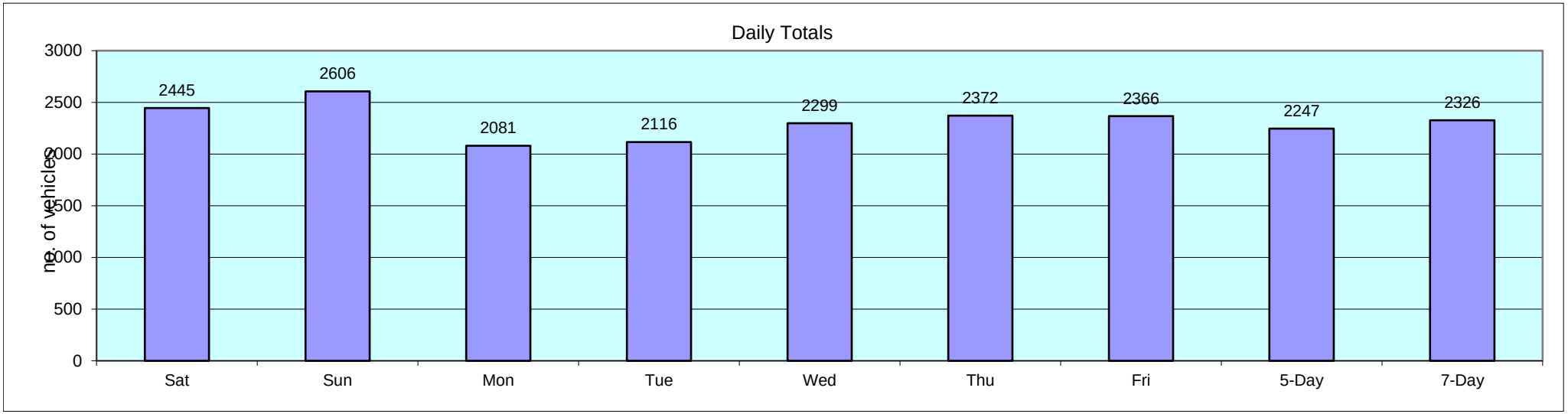




21952		BOULBY		Site No: 21952001 Channel: Westbound		Location	Site 1, A174, Boulby (Hedge)		
TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av
Week Begin: 08-Jul-17									
00:00	**14**	19	12	4	11	5	5	7	10
01:00	**4**	5	3	4	2	6	3	4	4
02:00	**5**	6	3	2	3	1	1	2	3
03:00	**5**	8	2	2	1	0	2	1	3
04:00	**2**	3	3	6	5	6	5	5	4
05:00	**25**	23	31	30	30	34	35	32	30
06:00	**28**	23	54	57	49	49	40	50	43
07:00	**44**	45	102	100	110	108	98	104	87
08:00	**70**	46	86	92	104	94	98	95	84
09:00	**113**	82	116	106	119	120	144	121	114
10:00	**146**	175	126	128	141	115	139	130	139
11:00	**152**	175	148	153	124	125	160	142	148
12:00	**154**	185	137	148	132	144	162	145	152
13:00	**159**	207	135	139	169	162	170	155	163
14:00	**202**	241	192	169	197	222	210	198	205
15:00	**195**	272	177	198	217	207	204	201	210
16:00	**221**	260	206	212	243	241	182	217	224
17:00	**273**	272	165	168	192	206	225	191	214
18:00	**164**	185	120	125	118	129	125	123	138
19:00	**147**	122	77	80	96	113	112	96	107
20:00	**146**	123	97	87	116	146	104	110	117
21:00	**69**	55	41	52	66	68	62	58	59
22:00	**72**	31	31	39	35	43	55	41	44
23:00	**35**	43	17	15	19	28	25	21	26
12H,7-19	**1893**	**2145**	**1710**	**1738**	**1866**	**1873**	**1917**	**1821**	**1877**
16H,6-22	**2283**	**2468**	**1979**	**2014**	**2193**	**2249**	**2235**	**2134**	**2203**
18H,6-24	**2390**	**2542**	**2027**	**2068**	**2247**	**2320**	**2315**	**2195**	**2273**
24H,0-24	**2445**	**2606**	**2081**	**2116**	**2299**	**2372**	**2366**	**2247**	**2326**
Am	**11:00**	**11:00**	**11:00**	**11:00**	**10:00**	**11:00**	**11:00**	**-**	**-**
Peak	**152**	**175**	**148**	**153**	**141**	**125**	**160**	**145**	**151**
Pm	**17:00**	**17:00**	**16:00**	**16:00**	**16:00**	**16:00**	**17:00**	**-**	**-**
Peak	**273**	**272**	**206**	**212**	**243**	**241**	**225**	**225**	**239**

21952	BOULBY	Site No: 21952001	Location	Site 1, A174, Boulby (Hedge)
		Channel: Westbound		

TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av



21952		BOULBY							
		JULY 2017							
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Total Vehicles**	**5 Day Ave.**	**7 Day Ave.**	**Average 85%ile Speed**
Site No: 21952002	Site 2, A174, Boulby (Fence) NZ 77227 18360	Channel: Eastbound	Sat 08-Jul-17	Fri 14-Jul-17	60	15309	2088	2187	60.9
		Channel: Westbound	Sat 08-Jul-17	Fri 14-Jul-17		15017	2016	2145	59.6

21952		BOULBY JULY 2017				
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Average Mean Speed**
Site No: 21952002	Site 2, A174, Boulby (Fence) NZ 77227 18360	Channel: Eastbound	Sat 08-Jul-17	Fri 14-Jul-17	60	52.6
		Channel: Westbound	Sat 08-Jul-17	Fri 14-Jul-17		50.9

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sat 08-Jul-17											
00:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
01:00	**3**	0	0.0	2	66.7	1	33.3	0	0.0	0	0.0
02:00	**7**	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0
03:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
04:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
05:00	**13**	0	0.0	10	76.9	1	7.7	1	7.7	1	7.7
06:00	**29**	1	3.5	24	82.8	3	10.3	0	0.0	1	3.5
07:00	**67**	3	4.5	59	88.1	3	4.5	1	1.5	1	1.5
08:00	**94**	2	2.1	79	84.0	9	9.6	2	2.1	2	2.1
09:00	**146**	5	3.4	127	87.0	11	7.5	1	0.7	2	1.4
10:00	**188**	5	2.7	169	89.9	12	6.4	1	0.5	1	0.5
11:00	**242**	10	4.1	217	89.7	10	4.1	2	0.8	3	1.2
12:00	**239**	5	2.1	224	93.7	8	3.4	1	0.4	1	0.4
13:00	**266**	24	9.0	227	85.3	9	3.4	3	1.1	3	1.1
14:00	**219**	3	1.4	204	93.2	6	2.7	5	2.3	1	0.5
15:00	**209**	15	7.2	186	89.0	5	2.4	1	0.5	2	1.0
16:00	**193**	5	2.6	179	92.8	7	3.6	0	0.0	2	1.0
17:00	**164**	12	7.3	137	83.5	10	6.1	2	1.2	3	1.8
18:00	**136**	7	5.2	125	91.9	2	1.5	0	0.0	2	1.5
19:00	**120**	7	5.8	105	87.5	6	5.0	0	0.0	2	1.7
20:00	**74**	2	2.7	67	90.5	5	6.8	0	0.0	0	0.0
21:00	**59**	0	0.0	55	93.2	4	6.8	0	0.0	0	0.0
22:00	**36**	0	0.0	35	97.2	1	2.8	0	0.0	0	0.0
23:00	**20**	0	0.0	17	85.0	3	15.0	0	0.0	0	0.0
12H,7-19	**2163**	**96**	**4.4**	**1933**	**89.4**	**92**	**4.3**	**19**	**0.9**	**23**	**1.1**
16H,6-22	**2445**	**106**	**4.3**	**2184**	**89.3**	**110**	**4.5**	**19**	**0.8**	**26**	**1.1**
18H,6-24	**2501**	**106**	**4.2**	**2236**	**89.4**	**114**	**4.6**	**19**	**0.8**	**26**	**1.0**
24H,0-24	**2538**	**106**	**4.2**	**2269**	**89.4**	**116**	**4.6**	**20**	**0.8**	**27**	**1.1**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sun 09-Jul-17											
00:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
01:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
02:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
03:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
04:00	**7**	0	0.0	7	100.0	0	0.0	0	0.0	0	0.0
05:00	**13**	0	0.0	11	84.6	2	15.4	0	0.0	0	0.0
06:00	**27**	3	11.1	24	88.9	0	0.0	0	0.0	0	0.0
07:00	**56**	3	5.4	51	91.1	2	3.6	0	0.0	0	0.0
08:00	**65**	5	7.7	57	87.7	3	4.6	0	0.0	0	0.0
09:00	**154**	11	7.1	133	86.4	7	4.6	2	1.3	1	0.7
10:00	**206**	9	4.4	181	87.9	12	5.8	2	1.0	2	1.0
11:00	**264**	7	2.7	242	91.7	9	3.4	4	1.5	2	0.8
12:00	**286**	23	8.0	256	89.5	2	0.7	3	1.1	2	0.7
13:00	**265**	8	3.0	245	92.5	9	3.4	1	0.4	2	0.8
14:00	**200**	11	5.5	181	90.5	6	3.0	0	0.0	2	1.0
15:00	**161**	16	9.9	136	84.5	6	3.7	1	0.6	2	1.2
16:00	**148**	2	1.4	136	91.9	7	4.7	1	0.7	2	1.4
17:00	**140**	4	2.9	130	92.9	4	2.9	0	0.0	2	1.4
18:00	**94**	5	5.3	81	86.2	7	7.5	0	0.0	1	1.1
19:00	**84**	2	2.4	81	96.4	0	0.0	0	0.0	1	1.2
20:00	**59**	1	1.7	52	88.1	4	6.8	1	1.7	1	1.7
21:00	**50**	0	0.0	47	94.0	3	6.0	0	0.0	0	0.0
22:00	**19**	0	0.0	19	100.0	0	0.0	0	0.0	0	0.0
23:00	**8**	0	0.0	8	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**2039**	**104**	**5.1**	**1829**	**89.7**	**74**	**3.6**	**14**	**0.7**	**18**	**0.9**
16H,6-22	**2259**	**110**	**4.9**	**2033**	**90.0**	**81**	**3.6**	**15**	**0.7**	**20**	**0.9**
18H,6-24	**2286**	**110**	**4.8**	**2060**	**90.1**	**81**	**3.5**	**15**	**0.7**	**20**	**0.9**
24H,0-24	**2330**	**110**	**4.7**	**2102**	**90.2**	**83**	**3.6**	**15**	**0.6**	**20**	**0.9**

21952		BOULBY		Site No: 21952002		Location	Site 2, A174, Boulby (Fence)				
Sat 08-Jul-17 to Fri 14-Jul-17				Channel: Eastbound							
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Mon 10-Jul-17											
00:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
01:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
02:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
03:00	**4**	0	0.0	3	75.0	1	25.0	0	0.0	0	0.0
04:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
05:00	**21**	2	9.5	17	81.0	1	4.8	1	4.8	0	0.0
06:00	**37**	2	5.4	31	83.8	3	8.1	0	0.0	1	2.7
07:00	**94**	0	0.0	79	84.0	11	11.7	1	1.1	3	3.2
08:00	**124**	1	0.8	105	84.7	14	11.3	2	1.6	2	1.6
09:00	**130**	1	0.8	111	85.4	16	12.3	0	0.0	2	1.5
10:00	**129**	1	0.8	113	87.6	11	8.5	1	0.8	3	2.3
11:00	**138**	1	0.7	118	85.5	13	9.4	4	2.9	2	1.5
12:00	**120**	0	0.0	110	91.7	9	7.5	0	0.0	1	0.8
13:00	**142**	0	0.0	129	90.9	8	5.6	1	0.7	4	2.8
14:00	**163**	1	0.6	148	90.8	8	4.9	4	2.5	2	1.2
15:00	**139**	1	0.7	125	89.9	11	7.9	1	0.7	1	0.7
16:00	**153**	1	0.7	141	92.2	7	4.6	2	1.3	2	1.3
17:00	**155**	1	0.7	142	91.6	8	5.2	1	0.7	3	1.9
18:00	**119**	2	1.7	111	93.3	3	2.5	1	0.8	2	1.7
19:00	**76**	0	0.0	71	93.4	3	4.0	1	1.3	1	1.3
20:00	**75**	0	0.0	73	97.3	2	2.7	0	0.0	0	0.0
21:00	**29**	0	0.0	27	93.1	1	3.5	1	3.5	0	0.0
22:00	**25**	0	0.0	25	100.0	0	0.0	0	0.0	0	0.0
23:00	**13**	0	0.0	13	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1606**	**10**	**0.6**	**1432**	**89.2**	**119**	**7.4**	**18**	**1.1**	**27**	**1.7**
16H,6-22	**1823**	**12**	**0.7**	**1634**	**89.6**	**128**	**7.0**	**20**	**1.1**	**29**	**1.6**
18H,6-24	**1861**	**12**	**0.6**	**1672**	**89.8**	**128**	**6.9**	**20**	**1.1**	**29**	**1.6**
24H,0-24	**1901**	**14**	**0.7**	**1707**	**89.8**	**130**	**6.8**	**21**	**1.1**	**29**	**1.5**

21952		BOULBY			Site No: 21952002		Location	Site 2, A174, Boulby (Fence)			
Sat 08-Jul-17 to Fri 14-Jul-17					Channel: Eastbound						
TIME PERIOD	**TOTAL VEHICLES**	**MOTOR-CYCLES**	**MOTOR-CYCLES%**	**CARS**	**CARS %**	**LGV**	**LGV %**	**HGV**	**HGV %**	**BUS**	**BUS %**
Tue 11-Jul-17											
00:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
01:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
02:00	**4**	0	0.0	3	75.0	1	25.0	0	0.0	0	0.0
03:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
04:00	**6**	0	0.0	5	83.3	0	0.0	1	16.7	0	0.0
05:00	**16**	0	0.0	13	81.3	3	18.8	0	0.0	0	0.0
06:00	**35**	0	0.0	29	82.9	4	11.4	1	2.9	1	2.9
07:00	**96**	0	0.0	81	84.4	8	8.3	3	3.1	4	4.2
08:00	**126**	0	0.0	102	81.0	16	12.7	6	4.8	2	1.6
09:00	**120**	0	0.0	95	79.2	21	17.5	1	0.8	3	2.5
10:00	**129**	1	0.8	111	86.1	14	10.9	1	0.8	2	1.6
11:00	**124**	1	0.8	102	82.3	16	12.9	3	2.4	2	1.6
12:00	**146**	0	0.0	122	83.6	17	11.6	3	2.1	4	2.7
13:00	**148**	3	2.0	129	87.2	10	6.8	4	2.7	2	1.4
14:00	**136**	3	2.2	117	86.0	10	7.4	4	2.9	2	1.5
15:00	**147**	0	0.0	133	90.5	11	7.5	0	0.0	3	2.0
16:00	**167**	1	0.6	150	89.8	11	6.6	1	0.6	4	2.4
17:00	**154**	0	0.0	142	92.2	10	6.5	0	0.0	2	1.3
18:00	**123**	1	0.8	108	87.8	9	7.3	3	2.4	2	1.6
19:00	**87**	1	1.2	83	95.4	1	1.2	0	0.0	2	2.3
20:00	**73**	0	0.0	70	95.9	2	2.7	1	1.4	0	0.0
21:00	**44**	0	0.0	42	95.5	2	4.6	0	0.0	0	0.0
22:00	**23**	1	4.4	19	82.6	2	8.7	1	4.4	0	0.0
23:00	**13**	0	0.0	12	92.3	1	7.7	0	0.0	0	0.0
12H,7-19	**1616**	**10**	**0.6**	**1392**	**86.1**	**153**	**9.5**	**29**	**1.8**	**32**	**2.0**
16H,6-22	**1855**	**11**	**0.6**	**1616**	**87.1**	**162**	**8.7**	**31**	**1.7**	**35**	**1.9**
18H,6-24	**1891**	**12**	**0.6**	**1647**	**87.1**	**165**	**8.7**	**32**	**1.7**	**35**	**1.9**
24H,0-24	**1927**	**12**	**0.6**	**1678**	**87.1**	**169**	**8.8**	**33**	**1.7**	**35**	**1.8**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Wed 12-Jul-17											
00:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
03:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
04:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
05:00	**20**	0	0.0	16	80.0	4	20.0	0	0.0	0	0.0
06:00	**37**	0	0.0	32	86.5	3	8.1	1	2.7	1	2.7
07:00	**97**	0	0.0	84	86.6	11	11.3	0	0.0	2	2.1
08:00	**116**	1	0.9	96	82.8	14	12.1	2	1.7	3	2.6
09:00	**129**	2	1.6	110	85.3	14	10.9	0	0.0	3	2.3
10:00	**151**	2	1.3	132	87.4	13	8.6	1	0.7	3	2.0
11:00	**190**	6	3.2	167	87.9	12	6.3	3	1.6	2	1.1
12:00	**183**	10	5.5	154	84.2	13	7.1	5	2.7	1	0.6
13:00	**145**	3	2.1	132	91.0	8	5.5	0	0.0	2	1.4
14:00	**160**	4	2.5	144	90.0	8	5.0	2	1.3	2	1.3
15:00	**180**	5	2.8	146	81.1	25	13.9	2	1.1	2	1.1
16:00	**152**	3	2.0	143	94.1	5	3.3	0	0.0	1	0.7
17:00	**166**	6	3.6	150	90.4	7	4.2	1	0.6	2	1.2
18:00	**143**	10	7.0	125	87.4	4	2.8	2	1.4	2	1.4
19:00	**109**	5	4.6	93	85.3	6	5.5	3	2.8	2	1.8
20:00	**80**	1	1.3	76	95.0	3	3.8	0	0.0	0	0.0
21:00	**39**	0	0.0	38	97.4	1	2.6	0	0.0	0	0.0
22:00	**20**	0	0.0	20	100.0	0	0.0	0	0.0	0	0.0
23:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1812**	**52**	**2.9**	**1583**	**87.4**	**134**	**7.4**	**18**	**1.0**	**25**	**1.4**
16H,6-22	**2077**	**58**	**2.8**	**1822**	**87.7**	**147**	**7.1**	**22**	**1.1**	**28**	**1.4**
18H,6-24	**2106**	**58**	**2.8**	**1851**	**87.9**	**147**	**7.0**	**22**	**1.0**	**28**	**1.3**
24H,0-24	**2141**	**58**	**2.7**	**1882**	**87.9**	**151**	**7.1**	**22**	**1.0**	**28**	**1.3**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

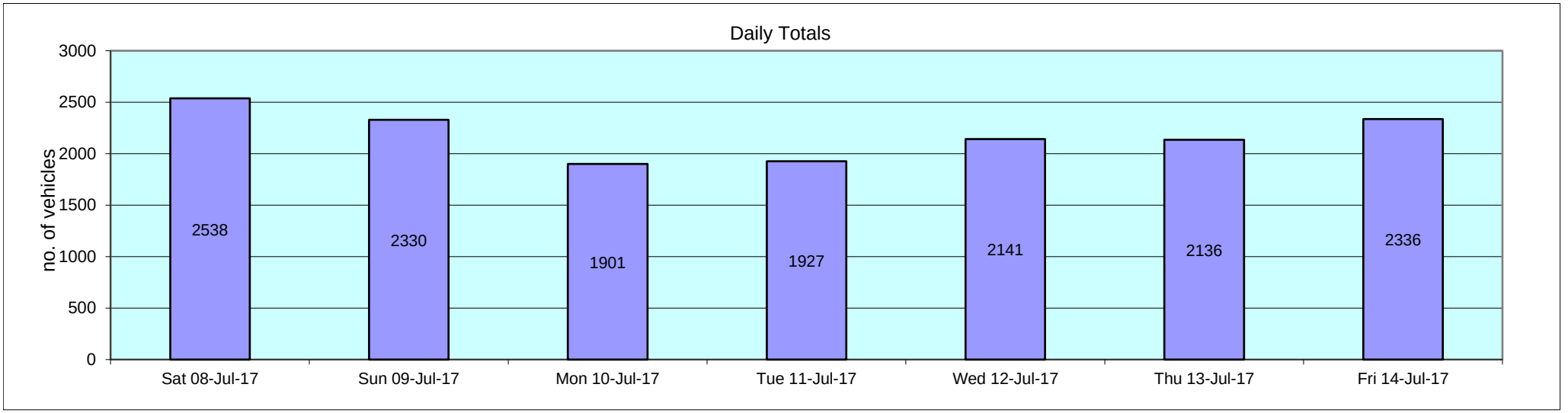
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Thu 13-Jul-17											
00:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
01:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
02:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
03:00	**6**	0	0.0	5	83.3	1	16.7	0	0.0	0	0.0
04:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
05:00	**21**	1	4.8	17	81.0	3	14.3	0	0.0	0	0.0
06:00	**44**	2	4.6	36	81.8	2	4.6	2	4.6	2	4.6
07:00	**107**	0	0.0	97	90.7	5	4.7	1	0.9	4	3.7
08:00	**130**	3	2.3	107	82.3	16	12.3	1	0.8	3	2.3
09:00	**123**	1	0.8	105	85.4	13	10.6	2	1.6	2	1.6
10:00	**140**	2	1.4	116	82.9	17	12.1	2	1.4	3	2.1
11:00	**148**	8	5.4	117	79.1	16	10.8	6	4.1	1	0.7
12:00	**150**	3	2.0	126	84.0	14	9.3	5	3.3	2	1.3
13:00	**150**	8	5.3	128	85.3	9	6.0	2	1.3	3	2.0
14:00	**150**	2	1.3	129	86.0	15	10.0	1	0.7	3	2.0
15:00	**171**	3	1.8	153	89.5	12	7.0	0	0.0	3	1.8
16:00	**188**	14	7.5	155	82.5	12	6.4	3	1.6	4	2.1
17:00	**169**	29	17.2	127	75.2	6	3.6	5	3.0	2	1.2
18:00	**163**	25	15.3	131	80.4	4	2.5	1	0.6	2	1.2
19:00	**90**	9	10.0	77	85.6	2	2.2	1	1.1	1	1.1
20:00	**88**	0	0.0	84	95.5	3	3.4	1	1.1	0	0.0
21:00	**45**	0	0.0	44	97.8	1	2.2	0	0.0	0	0.0
22:00	**34**	1	2.9	32	94.1	1	2.9	0	0.0	0	0.0
23:00	**9**	0	0.0	9	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1789**	**98**	**5.5**	**1491**	**83.3**	**139**	**7.8**	**29**	**1.6**	**32**	**1.8**
16H,6-22	**2056**	**109**	**5.3**	**1732**	**84.2**	**147**	**7.2**	**33**	**1.6**	**35**	**1.7**
18H,6-24	**2099**	**110**	**5.2**	**1773**	**84.5**	**148**	**7.1**	**33**	**1.6**	**35**	**1.7**
24H,0-24	**2136**	**111**	**5.2**	**1805**	**84.5**	**152**	**7.1**	**33**	**1.5**	**35**	**1.6**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Fri 14-Jul-17											
00:00	**6**	0	0.0	5	83.3	1	16.7	0	0.0	0	0.0
01:00	**4**	0	0.0	2	50.0	1	25.0	1	25.0	0	0.0
02:00	**0**	0	-	0	-	0	-	0	-	0	-
03:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
04:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
05:00	**20**	1	5.0	17	85.0	2	10.0	0	0.0	0	0.0
06:00	**34**	0	0.0	28	82.4	3	8.8	2	5.9	1	2.9
07:00	**108**	0	0.0	99	91.7	7	6.5	0	0.0	2	1.9
08:00	**119**	0	0.0	90	75.6	25	21.0	1	0.8	3	2.5
09:00	**174**	3	1.7	144	82.8	22	12.6	3	1.7	2	1.2
10:00	**149**	2	1.3	127	85.2	17	11.4	0	0.0	3	2.0
11:00	**175**	10	5.7	146	83.4	14	8.0	3	1.7	2	1.1
12:00	**173**	2	1.2	159	91.9	9	5.2	1	0.6	2	1.2
13:00	**166**	3	1.8	146	88.0	11	6.6	4	2.4	2	1.2
14:00	**178**	2	1.1	163	91.6	8	4.5	2	1.1	3	1.7
15:00	**191**	2	1.1	168	88.0	16	8.4	2	1.1	3	1.6
16:00	**205**	6	2.9	193	94.2	4	2.0	1	0.5	1	0.5
17:00	**206**	6	2.9	190	92.2	8	3.9	0	0.0	2	1.0
18:00	**146**	3	2.1	127	87.0	10	6.9	4	2.7	2	1.4
19:00	**98**	1	1.0	89	90.8	5	5.1	1	1.0	2	2.0
20:00	**73**	1	1.4	69	94.5	3	4.1	0	0.0	0	0.0
21:00	**54**	1	1.9	52	96.3	1	1.9	0	0.0	0	0.0
22:00	**32**	0	0.0	32	100.0	0	0.0	0	0.0	0	0.0
23:00	**18**	0	0.0	18	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1990**	**39**	**2.0**	**1752**	**88.0**	**151**	**7.6**	**21**	**1.1**	**27**	**1.4**
16H,6-22	**2249**	**42**	**1.9**	**1990**	**88.5**	**163**	**7.3**	**24**	**1.1**	**30**	**1.3**
18H,6-24	**2299**	**42**	**1.8**	**2040**	**88.7**	**163**	**7.1**	**24**	**1.0**	**30**	**1.3**
24H,0-24	**2336**	**43**	**1.8**	**2071**	**88.7**	**167**	**7.2**	**25**	**1.1**	**30**	**1.3**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 08-Jul-17	**2538**	106	4.2	2269	89.4	116	4.6	20	0.8	27	1.1
Sun 09-Jul-17	**2330**	110	4.7	2102	90.2	83	3.6	15	0.6	20	0.9
Mon 10-Jul-17	**1901**	14	0.7	1707	89.8	130	6.8	21	1.1	29	1.5
Tue 11-Jul-17	**1927**	12	0.6	1678	87.1	169	8.8	33	1.7	35	1.8
Wed 12-Jul-17	**2141**	58	2.7	1882	87.9	151	7.1	22	1.0	28	1.3
Thu 13-Jul-17	**2136**	111	5.2	1805	84.5	152	7.1	33	1.5	35	1.6
Fri 14-Jul-17	**2336**	43	1.8	2071	88.7	167	7.2	25	1.1	30	1.3
Total Vehicles											
[--]	**15309**	454	2.9	13514	88.2	968	6.4	169	1.1	204	1.4



21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sat 08-Jul-17																
00:00	6	-	57.7	10.2	0	0	0	0	1	0	2	1	1	0	1	0
01:00	3	-	55.2	3.1	0	0	0	0	0	0	2	1	0	0	0	0
02:00	7	-	57.1	7.5	0	0	0	0	0	2	1	2	1	1	0	0
03:00	5	-	65.5	10.4	0	0	0	0	0	0	1	1	1	0	1	1
04:00	3	-	48.5	1.7	0	0	0	0	0	3	0	0	0	0	0	0
05:00	13	63.8	58.5	7.7	0	0	0	0	1	0	4	4	2	1	1	0
06:00	29	66.4	57.1	13.3	0	1	1	0	1	4	3	8	6	2	1	2
07:00	67	64.9	57.5	9.4	0	0	2	0	1	10	13	21	12	4	1	3
08:00	94	64.1	55.9	8.1	0	0	0	2	9	15	16	33	7	10	2	0
09:00	146	60	52.4	8.2	0	0	2	3	19	43	40	21	13	1	1	3
10:00	188	58	51.8	7.4	0	0	0	3	31	62	54	23	6	3	3	3
11:00	242	58.1	50.8	7.9	0	0	2	12	40	79	59	31	13	2	0	4
12:00	239	57.6	51.1	6.7	0	0	0	5	40	90	60	24	10	10	0	0
13:00	266	60	51.2	11	0	10	3	4	40	71	73	31	17	7	4	6
14:00	219	56.6	49.5	8.7	0	1	2	24	35	64	57	21	7	6	0	2
15:00	209	58.3	51.3	7.1	0	0	2	3	36	65	57	31	12	0	2	1
16:00	193	59.5	52.3	8.5	0	1	1	9	21	49	57	36	11	4	0	4
17:00	164	60.3	52.8	8.1	0	0	1	6	21	40	45	30	15	2	2	2
18:00	136	59.4	52.4	8	0	0	0	7	17	34	41	24	8	1	1	3
19:00	120	60.1	53.2	8.4	0	0	0	10	8	27	25	38	8	1	1	2
20:00	74	67.2	55.7	11.2	0	1	0	2	6	18	14	14	6	6	2	5
21:00	59	74.7	58.5	12.6	0	0	0	2	9	6	14	7	1	7	5	8
22:00	36	65.4	57.5	9.4	0	0	0	0	4	4	10	6	7	1	2	2
23:00	20	64.5	56.8	7.4	0	0	0	0	0	7	2	4	5	2	0	0
12H,7-19	2163	59.5	51.8	8.5	0	12	15	78	310	622	572	326	131	50	16	31
16H,6-22	2445	60	52.2	8.9	0	14	16	92	334	677	628	393	152	66	25	48
18H,6-24	2501	60.2	52.3	8.9	0	14	16	92	338	688	640	403	164	69	27	50
24H,0-24	2538	60.3	52.4	8.9	0	14	16	92	340	693	650	412	169	71	30	51

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sun 09-Jul-17																
00:00	**9**	-	58.5	11	0	0	0	0	1	2	1	1	2	0	2	0
01:00	**5**	-	54	15.9	0	0	1	0	0	0	0	2	2	0	0	0
02:00	**6**	-	65.2	8.3	0	0	0	0	0	0	0	3	0	2	0	1
03:00	**4**	-	64.8	12.5	0	0	0	0	0	1	0	0	1	1	0	1
04:00	**7**	-	54.2	3.7	0	0	0	0	0	1	4	2	0	0	0	0
05:00	**13**	63.6	57.7	6.2	0	0	0	0	0	2	3	4	3	1	0	0
06:00	**27**	66.8	58.3	9	0	0	0	0	2	3	6	8	3	3	0	2
07:00	**56**	71.1	62.8	8	0	0	0	0	0	2	8	19	7	11	5	4
08:00	**65**	62	55	8.5	0	0	1	1	5	11	17	18	9	1	0	2
09:00	**154**	60.6	52.2	8.3	0	0	3	3	25	43	29	30	14	7	0	0
10:00	**206**	56.6	49.3	7.7	0	0	1	17	51	59	44	22	7	3	2	0
11:00	**264**	55.9	49.1	7.4	0	0	3	16	71	76	59	23	14	1	0	1
12:00	**286**	56.8	49.9	9.1	0	1	0	34	43	94	67	23	10	3	5	6
13:00	**265**	56.6	49.7	7.9	0	0	5	13	59	81	64	25	10	6	1	1
14:00	**200**	56.2	50.7	7.7	0	0	0	12	31	73	53	13	10	3	3	2
15:00	**161**	60.5	52.6	9.6	0	0	5	4	13	57	34	26	10	3	5	4
16:00	**148**	58.9	50.9	8.3	0	0	1	10	29	35	37	23	10	0	1	2
17:00	**140**	60.5	53	7.9	0	0	0	5	19	32	40	25	11	6	1	1
18:00	**94**	65.1	55.6	10	0	0	2	0	11	16	24	15	14	6	2	4
19:00	**84**	62.9	54.9	8.5	0	0	1	1	6	18	23	17	13	2	1	2
20:00	**59**	64	57.4	8.3	0	0	0	2	2	7	10	22	11	2	1	2
21:00	**50**	64	54.8	8.1	0	0	0	0	6	10	18	5	5	5	0	1
22:00	**19**	62.1	54.7	8.5	0	0	0	1	1	4	5	4	3	0	1	0
23:00	**8**	-	66	9.3	0	0	0	0	0	0	1	2	1	2	0	2
12H,7-19	**2039**	**59.5**	**51.2**	**8.7**	**0**	**1**	**21**	**115**	**357**	**579**	**476**	**262**	**126**	**50**	**25**	**27**
16H,6-22	**2259**	**60.1**	**51.7**	**8.8**	**0**	**1**	**22**	**118**	**373**	**617**	**533**	**314**	**158**	**62**	**27**	**34**
18H,6-24	**2286**	**60.2**	**51.8**	**8.8**	**0**	**1**	**22**	**119**	**374**	**621**	**539**	**320**	**162**	**64**	**28**	**36**
24H,0-24	**2330**	**60.3**	**51.9**	**8.9**	**0**	**1**	**23**	**119**	**375**	**627**	**547**	**332**	**170**	**68**	**30**	**38**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Mon 10-Jul-17																
00:00	**5**	-	55.5	6.8	0	0	0	0	0	2	0	2	1	0	0	0
01:00	**3**	-	58.5	10	0	0	0	0	0	1	0	1	0	1	0	0
02:00	**3**	-	63.5	5	0	0	0	0	0	0	0	1	1	1	0	0
03:00	**4**	-	62.3	6.4	0	0	0	0	0	0	1	0	2	1	0	0
04:00	**4**	-	58.5	4.2	0	0	0	0	0	0	1	2	1	0	0	0
05:00	**21**	67.7	57.2	10.4	0	0	1	0	0	4	3	7	1	4	1	0
06:00	**37**	67.2	60.5	8.2	0	0	0	0	0	5	6	8	11	4	0	3
07:00	**94**	64.3	56.4	8.4	0	0	0	4	3	14	23	25	16	6	1	2
08:00	**124**	59.8	53.2	7.8	0	1	0	2	9	35	38	26	8	3	0	2
09:00	**130**	56.4	49.8	7.4	0	0	3	4	23	50	29	14	4	3	0	0
10:00	**129**	56	50.1	6.4	0	0	0	7	25	38	39	17	2	1	0	0
11:00	**138**	58.1	49.9	7.7	0	0	1	13	24	40	30	21	9	0	0	0
12:00	**120**	57.3	51.2	7	0	0	0	3	20	43	32	14	2	4	2	0
13:00	**142**	56.8	49.2	7.9	0	0	2	14	24	51	27	13	10	1	0	0
14:00	**163**	56	48.8	7.2	0	0	0	12	46	59	21	13	9	3	0	0
15:00	**139**	59.6	51.9	7.9	0	0	1	6	20	36	39	22	11	1	3	0
16:00	**153**	57.6	48.9	9.7	1	1	4	14	31	37	35	21	6	1	1	1
17:00	**155**	63.4	55.6	7.6	0	0	0	0	9	39	40	36	15	11	3	2
18:00	**119**	64.3	53.7	11.1	0	3	0	5	18	17	26	23	13	10	2	2
19:00	**76**	59.7	52.2	7.9	0	0	0	3	10	25	18	11	6	1	1	1
20:00	**75**	63.9	56.4	8	0	0	0	0	6	13	19	17	14	2	2	2
21:00	**29**	64.2	57.8	7	0	0	0	0	2	2	6	11	5	2	1	0
22:00	**25**	56.8	51.5	5.2	0	0	0	0	4	7	9	5	0	0	0	0
23:00	**13**	69.9	57.2	11.1	0	0	0	1	0	3	3	1	2	1	2	0
12H,7-19	**1606**	**59.5**	**51.4**	**8.4**	**1**	**5**	**11**	**84**	**252**	**459**	**379**	**245**	**105**	**44**	**12**	**9**
16H,6-22	**1823**	**60.2**	**51.9**	**8.5**	**1**	**5**	**11**	**87**	**270**	**504**	**428**	**292**	**141**	**53**	**16**	**15**
18H,6-24	**1861**	**60.2**	**51.9**	**8.5**	**1**	**5**	**11**	**88**	**274**	**514**	**440**	**298**	**143**	**54**	**18**	**15**
24H,0-24	**1901**	**60.3**	**52.1**	**8.6**	**1**	**5**	**12**	**88**	**274**	**521**	**445**	**311**	**149**	**61**	**19**	**15**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Tue 11-Jul-17																
00:00	**2**	-	58.5	1.8	0	0	0	0	0	0	0	2	0	0	0	0
01:00	**3**	-	53.5	13.2	0	0	0	0	1	1	0	0	0	1	0	0
02:00	**4**	-	68.5	7.1	0	0	0	0	0	0	0	0	2	1	0	1
03:00	**5**	-	63.5	10.6	0	0	0	0	0	0	2	0	1	1	0	1
04:00	**6**	-	61	6.3	0	0	0	0	0	0	2	0	3	1	0	0
05:00	**16**	64.9	57.9	8.6	0	0	0	0	1	2	5	2	4	0	2	0
06:00	**35**	65.5	58.9	8.7	0	0	0	1	0	5	5	12	7	2	1	2
07:00	**96**	66.9	57	10.3	0	1	0	3	3	16	25	18	14	6	6	4
08:00	**126**	63.7	55.4	8.5	0	0	0	4	11	25	24	32	20	6	2	2
09:00	**120**	58.5	50.9	8.1	0	0	0	7	27	30	28	19	4	3	0	2
10:00	**129**	57.4	49.9	7.9	0	0	1	7	32	41	25	11	8	2	2	0
11:00	**124**	55	48.5	8	0	2	1	10	22	44	32	8	4	1	0	0
12:00	**146**	54.7	48.4	7.2	0	0	0	13	38	55	24	11	3	0	0	2
13:00	**148**	55.7	48.4	8.7	0	2	0	15	38	42	30	14	4	1	0	2
14:00	**136**	58.9	50.2	9.9	0	1	3	13	21	35	34	14	9	1	4	1
15:00	**147**	59.5	52.4	7.4	0	0	0	5	15	52	33	28	7	4	3	0
16:00	**167**	60.7	51.9	8.3	0	1	0	4	35	42	38	23	19	2	2	1
17:00	**154**	64.1	55.6	8.1	0	0	0	0	19	26	38	38	15	14	1	3
18:00	**123**	60.6	52.6	9.3	0	0	1	12	9	27	34	23	7	7	2	1
19:00	**87**	65	55.1	10.1	0	0	0	2	14	19	16	16	8	3	5	4
20:00	**73**	61.4	54.9	7.9	0	0	0	2	8	10	19	22	7	4	0	1
21:00	**44**	65.2	57.8	9.1	0	0	0	0	1	9	13	8	7	0	3	3
22:00	**23**	63.1	52.1	12.3	0	0	2	1	2	5	5	2	5	0	0	1
23:00	**13**	64.9	52.9	10.9	0	0	0	1	4	1	2	1	2	2	0	0
12H,7-19	**1616**	**60.1**	**51.6**	**8.9**	**0**	**7**	**6**	**93**	**270**	**435**	**365**	**239**	**114**	**47**	**22**	**18**
16H,6-22	**1855**	**60.7**	**52.2**	**9**	**0**	**7**	**6**	**98**	**293**	**478**	**418**	**297**	**143**	**56**	**31**	**28**
18H,6-24	**1891**	**60.7**	**52.2**	**9.1**	**0**	**7**	**8**	**100**	**299**	**484**	**425**	**300**	**150**	**58**	**31**	**29**
24H,0-24	**1927**	**60.9**	**52.4**	**9.1**	**0**	**7**	**8**	**100**	**301**	**487**	**434**	**304**	**160**	**62**	**33**	**31**

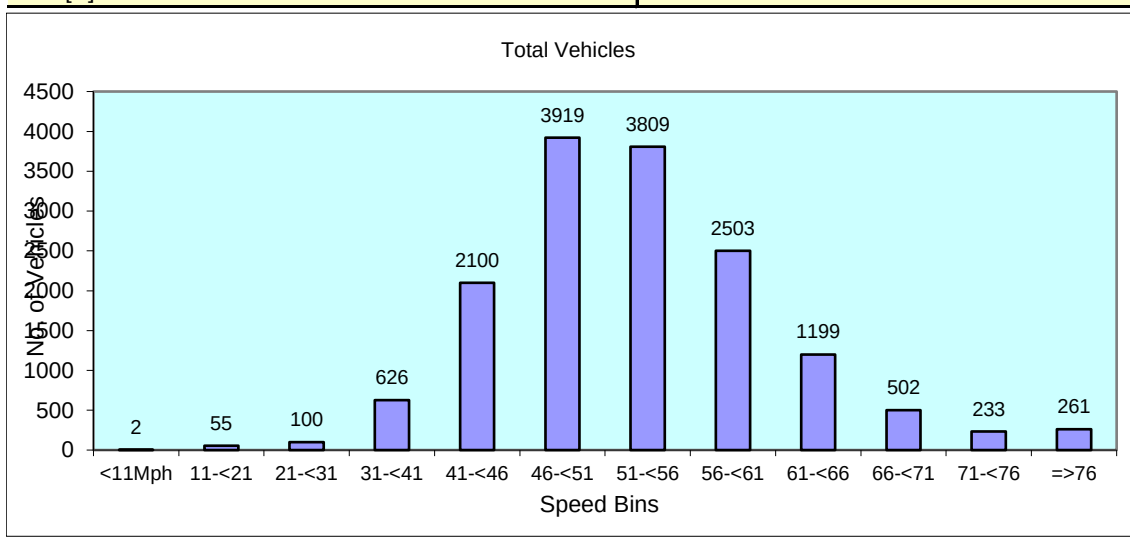
21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Wed 12-Jul-17																
00:00	**3**	-	65.2	5.9	0	0	0	0	0	0	0	1	0	2	0	0
01:00	**4**	-	68.5	9.1	0	0	0	0	0	0	0	1	1	0	1	1
02:00	**1**	-	43.5	-	0	0	0	0	1	0	0	0	0	0	0	0
03:00	**2**	-	46	3.5	0	0	0	0	1	1	0	0	0	0	0	0
04:00	**5**	-	51.5	9.1	0	0	0	0	2	1	0	1	1	0	0	0
05:00	**20**	64.1	56.5	8	0	0	0	0	1	5	4	4	4	1	1	0
06:00	**37**	64.3	58.4	7.7	0	0	0	0	2	3	7	15	6	2	0	2
07:00	**97**	66	57.2	8.4	0	0	0	0	6	17	25	20	14	10	2	3
08:00	**116**	64.9	56.6	8.1	0	0	0	2	6	23	26	21	26	7	5	0
09:00	**129**	59.7	52.9	7	0	0	0	3	13	36	41	22	10	1	3	0
10:00	**151**	59	51.9	6.8	0	0	1	1	19	55	41	18	12	3	1	0
11:00	**190**	57.2	49.7	8	0	0	4	10	41	59	41	25	5	3	1	1
12:00	**183**	59.5	51.6	8.8	0	0	2	7	31	59	40	23	7	8	3	3
13:00	**145**	58.6	51	7.4	0	0	0	7	28	43	32	25	7	2	0	1
14:00	**160**	63.3	54.3	9.7	0	0	0	5	20	43	36	26	12	7	1	10
15:00	**180**	59.3	51.7	8.6	0	2	1	1	34	54	38	34	10	1	2	3
16:00	**152**	60.2	52.7	8	0	1	0	7	15	38	38	35	15	2	0	1
17:00	**166**	62.3	54.6	8.6	0	1	1	2	14	36	42	39	21	3	5	2
18:00	**143**	63.4	55.2	9.2	0	0	4	1	8	27	40	34	15	7	4	3
19:00	**109**	63.6	52.1	12	0	0	7	11	5	25	21	18	10	7	2	3
20:00	**80**	65.5	57.4	9.2	0	0	0	0	7	15	14	21	11	5	2	5
21:00	**39**	62.4	54.3	7.6	0	0	0	1	3	8	14	5	6	1	1	0
22:00	**20**	72.3	59	13.1	0	0	0	2	1	3	2	4	0	4	2	2
23:00	**9**	-	58.5	12	0	0	0	0	1	3	0	1	1	2	0	1
12H,7-19	**1812**	**60.8**	**53**	**8.5**	**0**	**4**	**13**	**46**	**235**	**490**	**440**	**322**	**154**	**54**	**27**	**27**
16H,6-22	**2077**	**61.3**	**53.2**	**8.8**	**0**	**4**	**20**	**58**	**252**	**541**	**496**	**381**	**187**	**69**	**32**	**37**
18H,6-24	**2106**	**61.5**	**53.3**	**8.9**	**0**	**4**	**20**	**60**	**254**	**547**	**498**	**386**	**188**	**75**	**34**	**40**
24H,0-24	**2141**	**61.7**	**53.4**	**8.9**	**0**	**4**	**20**	**60**	**259**	**554**	**502**	**393**	**194**	**78**	**36**	**41**

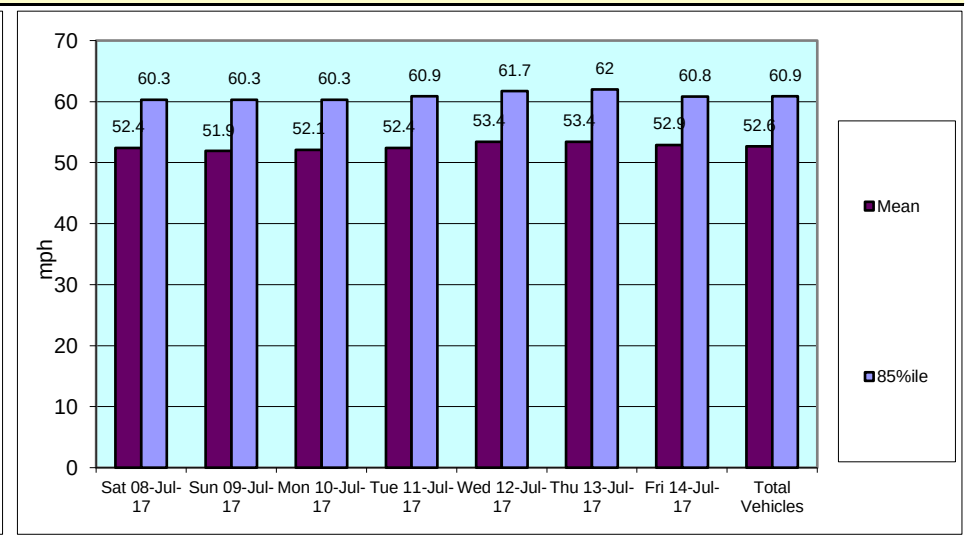
21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Thu 13-Jul-17																
00:00	**1**	-	68.5	-	0	0	0	0	0	0	0	0	0	1	0	0
01:00	**2**	-	68.5	14.1	0	0	0	0	0	0	0	1	0	0	0	1
02:00	**2**	-	71	3.5	0	0	0	0	0	0	0	0	0	1	1	0
03:00	**6**	-	57.7	6	0	0	0	0	0	1	1	2	2	0	0	0
04:00	**5**	-	59.5	6.6	0	0	0	0	0	1	0	1	3	0	0	0
05:00	**21**	64.8	59.5	7.6	0	0	0	0	0	2	6	4	7	0	1	1
06:00	**44**	69.6	59.5	10	0	0	0	1	2	4	10	10	7	4	2	4
07:00	**107**	66.3	57.9	8.9	0	0	0	0	2	22	30	21	15	7	2	8
08:00	**130**	62.6	54.8	7.4	0	0	1	3	3	33	35	29	19	7	0	0
09:00	**123**	58.2	51.8	8.1	0	0	0	5	21	33	38	16	3	2	3	2
10:00	**140**	56.9	50.6	7.3	0	0	0	2	39	40	35	14	6	1	1	2
11:00	**148**	58.8	49.9	9.7	0	2	5	10	19	46	32	20	7	7	0	0
12:00	**150**	58.6	51.3	8.1	0	1	2	4	24	39	43	27	6	1	3	0
13:00	**150**	58.3	51	8.4	0	0	0	11	27	40	42	15	8	3	2	2
14:00	**150**	56.5	49.7	8.3	0	0	0	16	31	43	36	11	8	3	0	2
15:00	**171**	59.5	52.7	8.1	0	0	0	7	27	37	42	45	3	6	1	3
16:00	**188**	60.2	52.2	8.4	0	0	3	6	24	54	49	28	16	5	0	3
17:00	**169**	67.2	56	10.7	0	0	2	6	20	23	36	40	14	9	11	8
18:00	**163**	65.7	55.7	8.9	0	0	0	2	11	41	48	21	16	13	6	5
19:00	**90**	64.5	55.8	8.3	0	0	0	2	6	20	21	13	20	5	3	0
20:00	**88**	64.8	56	8.9	0	1	0	0	5	17	25	18	11	6	5	0
21:00	**45**	65	56.6	10.1	0	0	0	2	2	7	15	7	6	0	3	3
22:00	**34**	67	55.6	10.8	0	0	0	2	3	4	14	4	1	2	1	3
23:00	**9**	-	51.8	17.8	0	1	0	1	0	1	3	0	2	0	0	1
12H,7-19	**1789**	**60.7**	**52.7**	**8.9**	**0**	**3**	**13**	**72**	**248**	**451**	**466**	**287**	**121**	**64**	**29**	**35**
16H,6-22	**2056**	**61.6**	**53.2**	**9**	**0**	**4**	**13**	**77**	**263**	**499**	**537**	**335**	**165**	**79**	**42**	**42**
18H,6-24	**2099**	**61.7**	**53.2**	**9.1**	**0**	**5**	**13**	**80**	**266**	**504**	**554**	**339**	**168**	**81**	**43**	**46**
24H,0-24	**2136**	**62**	**53.4**	**9.2**	**0**	**5**	**13**	**80**	**266**	**508**	**561**	**347**	**180**	**83**	**45**	**48**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Eastbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Fri 14-Jul-17																
00:00	**6**	-	46.4	6.1	0	0	0	1	1	3	1	0	0	0	0	0
01:00	**4**	-	39.8	21.2	1	0	0	0	1	0	2	0	0	0	0	0
02:00	**0**	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
03:00	**1**	-	63.5	-	0	0	0	0	0	0	0	0	1	0	0	0
04:00	**6**	-	61	7	0	0	0	0	0	1	0	1	3	1	0	0
05:00	**20**	-	59.8	11.5	0	0	0	0	3	1	5	2	4	1	1	3
06:00	**34**	70.3	60.7	9.7	0	0	0	0	0	6	4	12	3	4	0	5
07:00	**108**	66.2	57.8	8.6	0	0	0	0	8	12	27	33	11	7	5	5
08:00	**119**	63.5	55.9	8.1	0	0	0	2	7	23	33	27	17	3	5	2
09:00	**174**	60.2	52.6	8.7	0	0	1	13	13	41	60	23	9	11	1	2
10:00	**149**	60.2	52.1	8.7	0	0	0	11	24	31	39	25	11	3	4	1
11:00	**175**	59.6	52.4	7.4	0	0	0	2	28	54	47	24	12	4	3	1
12:00	**173**	58.4	51.3	9	0	5	0	3	24	39	63	26	10	1	0	2
13:00	**166**	57.5	49.7	8.8	0	1	1	16	34	44	39	19	5	4	2	1
14:00	**178**	58.2	50.5	7.5	0	1	0	9	36	48	46	25	12	1	0	0
15:00	**191**	59.9	51.8	9.2	0	2	2	8	24	54	50	28	13	5	2	3
16:00	**205**	59.3	51.9	8.2	0	1	0	10	28	54	63	27	11	6	5	0
17:00	**206**	60.2	52.2	10.7	0	8	2	5	15	41	76	33	11	10	3	2
18:00	**146**	61.2	54	7.7	0	0	2	0	15	29	49	28	15	5	3	0
19:00	**98**	62.9	56.4	8.1	0	0	0	2	4	16	26	31	10	3	3	3
20:00	**73**	65.2	56.9	9.1	0	0	0	0	9	10	15	20	9	5	1	4
21:00	**54**	63	55.1	10.3	0	1	0	2	3	9	13	15	6	2	1	2
22:00	**32**	65.5	55.1	9.6	0	0	0	1	3	8	8	4	3	3	1	1
23:00	**18**	54.5	48.2	7.3	0	0	0	2	5	5	4	1	1	0	0	0
12H,7-19	**1990**	**60.2**	**52.4**	**8.8**	**0**	**18**	**8**	**79**	**256**	**470**	**592**	**318**	**137**	**60**	**33**	**19**
16H,6-22	**2249**	**60.6**	**52.9**	**9**	**0**	**19**	**8**	**83**	**272**	**511**	**650**	**396**	**165**	**74**	**38**	**33**
18H,6-24	**2299**	**60.7**	**52.9**	**9**	**0**	**19**	**8**	**86**	**280**	**524**	**662**	**401**	**169**	**77**	**39**	**34**
24H,0-24	**2336**	**60.8**	**52.9**	**9.1**	**1**	**19**	**8**	**87**	**285**	**529**	**670**	**404**	**177**	**79**	**40**	**37**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Eastbound		

Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Daily Totals																
Sat 08-Jul-17	**2538**	60.3	52.4	8.9	0	14	16	92	340	693	650	412	169	71	30	51
Sun 09-Jul-17	**2330**	60.3	51.9	8.9	0	1	23	119	375	627	547	332	170	68	30	38
Mon 10-Jul-17	**1901**	60.3	52.1	8.6	1	5	12	88	274	521	445	311	149	61	19	15
Tue 11-Jul-17	**1927**	60.9	52.4	9.1	0	7	8	100	301	487	434	304	160	62	33	31
Wed 12-Jul-17	**2141**	61.7	53.4	8.9	0	4	20	60	259	554	502	393	194	78	36	41
Thu 13-Jul-17	**2136**	62	53.4	9.2	0	5	13	80	266	508	561	347	180	83	45	48
Fri 14-Jul-17	**2336**	60.8	52.9	9.1	1	19	8	87	285	529	670	404	177	79	40	37
Total Vehicles																
[--]	**15309**	60.9	52.6	9.0	2	55	100	626	2100	3919	3809	2503	1199	502	233	261

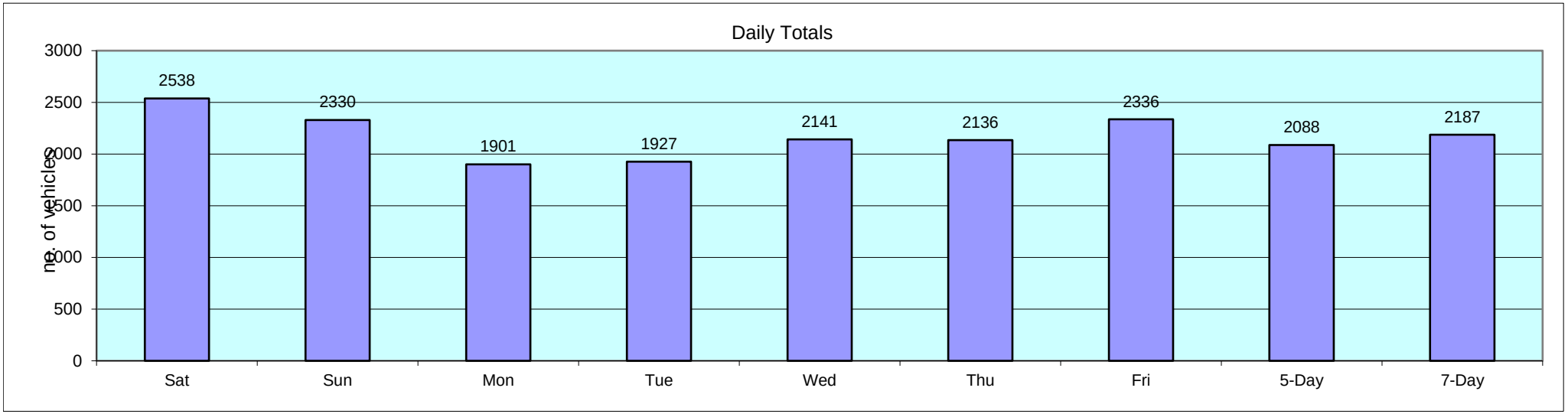




21952		BOULBY		Site No: 21952002 Channel: Eastbound		Location	Site 2, A174, Boulby (Fence)		
TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av
Week Begin: 08-Jul-17									
00:00	**6**	9	5	2	3	1	6	3	5
01:00	**3**	5	3	3	4	2	4	3	3
02:00	**7**	6	3	4	1	2	0	2	3
03:00	**5**	4	4	5	2	6	1	4	4
04:00	**3**	7	4	6	5	5	6	5	5
05:00	**13**	13	21	16	20	21	20	20	18
06:00	**29**	27	37	35	37	44	34	37	35
07:00	**67**	56	94	96	97	107	108	100	89
08:00	**94**	65	124	126	116	130	119	123	111
09:00	**146**	154	130	120	129	123	174	135	139
10:00	**188**	206	129	129	151	140	149	140	156
11:00	**242**	264	138	124	190	148	175	155	183
12:00	**239**	286	120	146	183	150	173	154	185
13:00	**266**	265	142	148	145	150	166	150	183
14:00	**219**	200	163	136	160	150	178	157	172
15:00	**209**	161	139	147	180	171	191	166	171
16:00	**193**	148	153	167	152	188	205	173	172
17:00	**164**	140	155	154	166	169	206	170	165
18:00	**136**	94	119	123	143	163	146	139	132
19:00	**120**	84	76	87	109	90	98	92	95
20:00	**74**	59	75	73	80	88	73	78	75
21:00	**59**	50	29	44	39	45	54	42	46
22:00	**36**	19	25	23	20	34	32	27	27
23:00	**20**	8	13	13	9	9	18	12	13
12H,7-19	**2163**	**2039**	**1606**	**1616**	**1812**	**1789**	**1990**	**1763**	**1859**
16H,6-22	**2445**	**2259**	**1823**	**1855**	**2077**	**2056**	**2249**	**2012**	**2109**
18H,6-24	**2501**	**2286**	**1861**	**1891**	**2106**	**2099**	**2299**	**2051**	**2149**
24H,0-24	**2538**	**2330**	**1901**	**1927**	**2141**	**2136**	**2336**	**2088**	**2187**
Am	**11:00**	**11:00**	**11:00**	**10:00**	**11:00**	**11:00**	**11:00**	**-**	**-**
Peak	**242**	**264**	**138**	**129**	**190**	**148**	**175**	**156**	**184**
Pm	**13:00**	**12:00**	**14:00**	**16:00**	**12:00**	**16:00**	**17:00**	**-**	**-**
Peak	**266**	**286**	**163**	**167**	**183**	**188**	**206**	**181**	**208**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
		Channel: Eastbound		

TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av



21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sat 08-Jul-17											
00:00	**15**	0	0.0	15	100.0	0	0.0	0	0.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**5**	0	0.0	4	80.0	1	20.0	0	0.0	0	0.0
03:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
04:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
05:00	**19**	1	5.3	16	84.2	2	10.5	0	0.0	0	0.0
06:00	**13**	0	0.0	10	76.9	2	15.4	1	7.7	0	0.0
07:00	**37**	0	0.0	36	97.3	0	0.0	0	0.0	1	2.7
08:00	**73**	0	0.0	67	91.8	2	2.7	2	2.7	2	2.7
09:00	**122**	3	2.5	107	87.7	8	6.6	3	2.5	1	0.8
10:00	**157**	3	1.9	141	89.8	11	7.0	0	0.0	2	1.3
11:00	**155**	3	1.9	140	90.3	7	4.5	3	1.9	2	1.3
12:00	**158**	3	1.9	142	89.9	11	7.0	0	0.0	2	1.3
13:00	**164**	3	1.8	150	91.5	7	4.3	2	1.2	2	1.2
14:00	**187**	9	4.8	169	90.4	7	3.7	1	0.5	1	0.5
15:00	**196**	16	8.2	165	84.2	12	6.1	1	0.5	2	1.0
16:00	**222**	7	3.2	208	93.7	3	1.4	2	0.9	2	0.9
17:00	**255**	12	4.7	232	91.0	7	2.8	2	0.8	2	0.8
18:00	**163**	5	3.1	148	90.8	8	4.9	0	0.0	2	1.2
19:00	**142**	3	2.1	132	93.0	6	4.2	0	0.0	1	0.7
20:00	**121**	7	5.8	108	89.3	4	3.3	1	0.8	1	0.8
21:00	**72**	1	1.4	69	95.8	2	2.8	0	0.0	0	0.0
22:00	**73**	1	1.4	70	95.9	2	2.7	0	0.0	0	0.0
23:00	**35**	0	0.0	34	97.1	1	2.9	0	0.0	0	0.0
12H,7-19	**1889**	**64**	**3.4**	**1705**	**90.3**	**83**	**4.4**	**16**	**0.9**	**21**	**1.1**
16H,6-22	**2237**	**75**	**3.4**	**2024**	**90.5**	**97**	**4.3**	**18**	**0.8**	**23**	**1.0**
18H,6-24	**2345**	**76**	**3.2**	**2128**	**90.8**	**100**	**4.3**	**18**	**0.8**	**23**	**1.0**
24H,0-24	**2397**	**77**	**3.2**	**2176**	**90.8**	**103**	**4.3**	**18**	**0.8**	**23**	**1.0**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Sun 09-Jul-17											
00:00	**20**	0	0.0	15	75.0	4	20.0	1	5.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**6**	0	0.0	6	100.0	0	0.0	0	0.0	0	0.0
03:00	**8**	0	0.0	7	87.5	1	12.5	0	0.0	0	0.0
04:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
05:00	**23**	1	4.4	19	82.6	3	13.0	0	0.0	0	0.0
06:00	**13**	0	0.0	12	92.3	1	7.7	0	0.0	0	0.0
07:00	**20**	1	5.0	16	80.0	3	15.0	0	0.0	0	0.0
08:00	**51**	1	2.0	46	90.2	2	3.9	1	2.0	1	2.0
09:00	**80**	2	2.5	75	93.8	2	2.5	0	0.0	1	1.3
10:00	**170**	8	4.7	150	88.2	8	4.7	3	1.8	1	0.6
11:00	**179**	10	5.6	163	91.1	2	1.1	2	1.1	2	1.1
12:00	**168**	9	5.4	149	88.7	8	4.8	0	0.0	2	1.2
13:00	**216**	14	6.5	196	90.7	3	1.4	2	0.9	1	0.5
14:00	**250**	20	8.0	213	85.2	8	3.2	8	3.2	1	0.4
15:00	**277**	20	7.2	251	90.6	3	1.1	2	0.7	1	0.4
16:00	**278**	11	4.0	258	92.8	6	2.2	2	0.7	1	0.4
17:00	**244**	15	6.2	220	90.2	6	2.5	2	0.8	1	0.4
18:00	**184**	3	1.6	170	92.4	7	3.8	2	1.1	2	1.1
19:00	**124**	5	4.0	118	95.2	1	0.8	0	0.0	0	0.0
20:00	**91**	5	5.5	81	89.0	4	4.4	1	1.1	0	0.0
21:00	**60**	0	0.0	60	100.0	0	0.0	0	0.0	0	0.0
22:00	**33**	0	0.0	33	100.0	0	0.0	0	0.0	0	0.0
23:00	**41**	0	0.0	40	97.6	1	2.4	0	0.0	0	0.0
12H,7-19	**2117**	**114**	**5.4**	**1907**	**90.1**	**58**	**2.7**	**24**	**1.1**	**14**	**0.7**
16H,6-22	**2405**	**124**	**5.2**	**2178**	**90.6**	**64**	**2.7**	**25**	**1.0**	**14**	**0.6**
18H,6-24	**2479**	**124**	**5.0**	**2251**	**90.8**	**65**	**2.6**	**25**	**1.0**	**14**	**0.6**
24H,0-24	**2542**	**125**	**4.9**	**2304**	**90.6**	**73**	**2.9**	**26**	**1.0**	**14**	**0.6**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Mon 10-Jul-17											
00:00	**13**	0	0.0	12	92.3	1	7.7	0	0.0	0	0.0
01:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
02:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
03:00	**1**	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
04:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
05:00	**37**	0	0.0	34	91.9	3	8.1	0	0.0	0	0.0
06:00	**49**	1	2.0	45	91.8	2	4.1	0	0.0	1	2.0
07:00	**97**	1	1.0	90	92.8	4	4.1	1	1.0	1	1.0
08:00	**102**	1	1.0	90	88.2	6	5.9	4	3.9	1	1.0
09:00	**114**	2	1.8	101	88.6	6	5.3	4	3.5	1	0.9
10:00	**122**	0	0.0	116	95.1	4	3.3	2	1.6	0	0.0
11:00	**147**	0	0.0	134	91.2	11	7.5	0	0.0	2	1.4
12:00	**136**	5	3.7	123	90.4	6	4.4	1	0.7	1	0.7
13:00	**125**	0	0.0	112	89.6	7	5.6	4	3.2	2	1.6
14:00	**148**	1	0.7	133	89.9	11	7.4	0	0.0	3	2.0
15:00	**144**	2	1.4	128	88.9	11	7.6	2	1.4	1	0.7
16:00	**154**	0	0.0	145	94.2	5	3.3	2	1.3	2	1.3
17:00	**135**	0	0.0	128	94.8	5	3.7	2	1.5	0	0.0
18:00	**110**	1	0.9	106	96.4	1	0.9	0	0.0	2	1.8
19:00	**69**	0	0.0	63	91.3	5	7.3	1	1.5	0	0.0
20:00	**66**	0	0.0	63	95.5	2	3.0	1	1.5	0	0.0
21:00	**39**	0	0.0	37	94.9	2	5.1	0	0.0	0	0.0
22:00	**31**	0	0.0	31	100.0	0	0.0	0	0.0	0	0.0
23:00	**16**	0	0.0	16	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1534**	**13**	**0.9**	**1406**	**91.7**	**77**	**5.0**	**22**	**1.4**	**16**	**1.0**
16H,6-22	**1757**	**14**	**0.8**	**1614**	**91.9**	**88**	**5.0**	**24**	**1.4**	**17**	**1.0**
18H,6-24	**1804**	**14**	**0.8**	**1661**	**92.1**	**88**	**4.9**	**24**	**1.3**	**17**	**0.9**
24H,0-24	**1864**	**14**	**0.8**	**1716**	**92.1**	**93**	**5.0**	**24**	**1.3**	**17**	**0.9**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Tue 11-Jul-17											
00:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
01:00	**4**	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0
02:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
03:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
04:00	**9**	0	0.0	8	88.9	0	0.0	1	11.1	0	0.0
05:00	**35**	1	2.9	34	97.1	0	0.0	0	0.0	0	0.0
06:00	**46**	0	0.0	41	89.1	4	8.7	1	2.2	0	0.0
07:00	**94**	1	1.1	87	92.6	3	3.2	2	2.1	1	1.1
08:00	**111**	1	0.9	97	87.4	7	6.3	4	3.6	2	1.8
09:00	**107**	2	1.9	92	86.0	10	9.4	1	0.9	2	1.9
10:00	**129**	0	0.0	120	93.0	7	5.4	0	0.0	2	1.6
11:00	**151**	2	1.3	129	85.4	17	11.3	2	1.3	1	0.7
12:00	**152**	1	0.7	138	90.8	10	6.6	1	0.7	2	1.3
13:00	**120**	0	0.0	101	84.2	13	10.8	5	4.2	1	0.8
14:00	**116**	1	0.9	105	90.5	7	6.0	2	1.7	1	0.9
15:00	**149**	2	1.3	132	88.6	12	8.1	2	1.3	1	0.7
16:00	**169**	1	0.6	144	85.2	15	8.9	7	4.1	2	1.2
17:00	**144**	1	0.7	132	91.7	9	6.3	1	0.7	1	0.7
18:00	**110**	0	0.0	102	92.7	6	5.5	1	0.9	1	0.9
19:00	**78**	1	1.3	70	89.7	5	6.4	2	2.6	0	0.0
20:00	**53**	0	0.0	52	98.1	0	0.0	0	0.0	1	1.9
21:00	**53**	0	0.0	53	100.0	0	0.0	0	0.0	0	0.0
22:00	**39**	0	0.0	37	94.9	1	2.6	1	2.6	0	0.0
23:00	**13**	0	0.0	13	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1552**	**12**	**0.8**	**1379**	**88.9**	**116**	**7.5**	**28**	**1.8**	**17**	**1.1**
16H,6-22	**1782**	**13**	**0.7**	**1595**	**89.5**	**125**	**7.0**	**31**	**1.7**	**18**	**1.0**
18H,6-24	**1834**	**13**	**0.7**	**1645**	**89.7**	**126**	**6.9**	**32**	**1.7**	**18**	**1.0**
24H,0-24	**1890**	**14**	**0.7**	**1699**	**89.9**	**126**	**6.7**	**33**	**1.8**	**18**	**1.0**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Wed 12-Jul-17											
00:00	**11**	0	0.0	11	100.0	0	0.0	0	0.0	0	0.0
01:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
02:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
03:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
04:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
05:00	**38**	1	2.6	36	94.7	1	2.6	0	0.0	0	0.0
06:00	**47**	1	2.1	41	87.2	3	6.4	1	2.1	1	2.1
07:00	**108**	3	2.8	98	90.7	5	4.6	2	1.9	0	0.0
08:00	**109**	1	0.9	97	89.0	9	8.3	0	0.0	2	1.8
09:00	**119**	0	0.0	102	85.7	12	10.1	2	1.7	3	2.5
10:00	**133**	4	3.0	117	88.0	6	4.5	5	3.8	1	0.8
11:00	**132**	2	1.5	117	88.6	8	6.1	4	3.0	1	0.8
12:00	**128**	3	2.3	115	89.8	5	3.9	3	2.3	2	1.6
13:00	**154**	6	3.9	135	87.7	6	3.9	5	3.3	2	1.3
14:00	**152**	5	3.3	136	89.5	9	5.9	1	0.7	1	0.7
15:00	**167**	7	4.2	141	84.4	15	9.0	2	1.2	2	1.2
16:00	**189**	0	0.0	169	89.4	13	6.9	4	2.1	3	1.6
17:00	**157**	7	4.5	146	93.0	2	1.3	0	0.0	2	1.3
18:00	**114**	4	3.5	104	91.2	4	3.5	1	0.9	1	0.9
19:00	**85**	2	2.4	80	94.1	2	2.4	0	0.0	1	1.2
20:00	**77**	10	13.0	64	83.1	2	2.6	1	1.3	0	0.0
21:00	**69**	2	2.9	66	95.7	1	1.5	0	0.0	0	0.0
22:00	**36**	1	2.8	34	94.4	1	2.8	0	0.0	0	0.0
23:00	**20**	0	0.0	19	95.0	1	5.0	0	0.0	0	0.0
12H,7-19	**1662**	**42**	**2.5**	**1477**	**88.9**	**94**	**5.7**	**29**	**1.7**	**20**	**1.2**
16H,6-22	**1940**	**57**	**2.9**	**1728**	**89.1**	**102**	**5.3**	**31**	**1.6**	**22**	**1.1**
18H,6-24	**1996**	**58**	**2.9**	**1781**	**89.2**	**104**	**5.2**	**31**	**1.6**	**22**	**1.1**
24H,0-24	**2055**	**59**	**2.9**	**1838**	**89.4**	**105**	**5.1**	**31**	**1.5**	**22**	**1.1**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

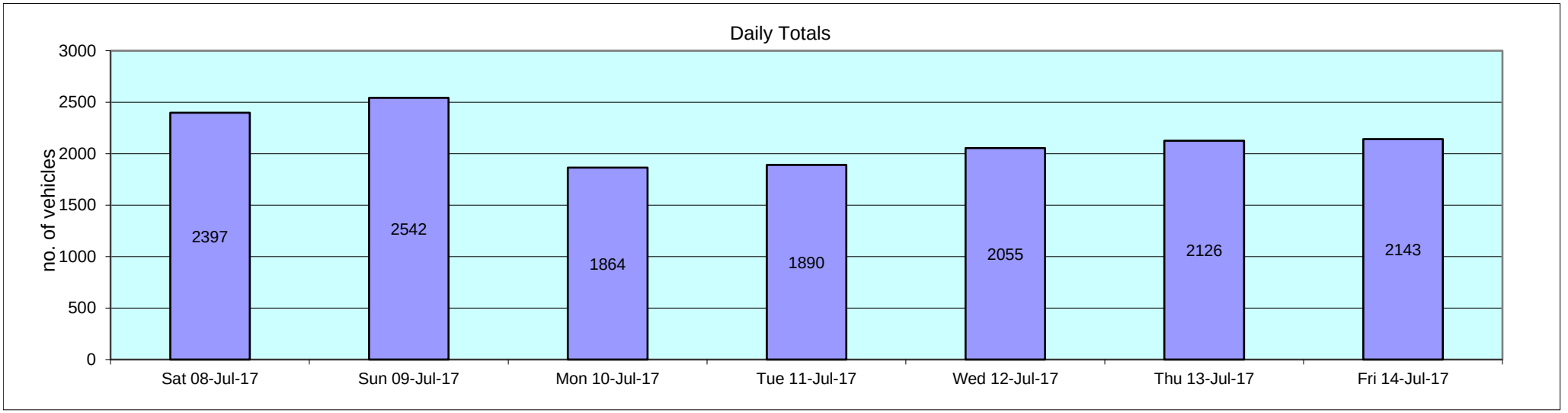
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Thu 13-Jul-17											
00:00	**5**	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0
01:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
02:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
03:00	**0**	0	-	0	-	0	-	0	-	0	-
04:00	**6**	0	0.0	5	83.3	1	16.7	0	0.0	0	0.0
05:00	**35**	0	0.0	31	88.6	4	11.4	0	0.0	0	0.0
06:00	**40**	0	0.0	38	95.0	1	2.5	0	0.0	1	2.5
07:00	**107**	2	1.9	93	86.9	8	7.5	3	2.8	1	0.9
08:00	**97**	2	2.1	89	91.8	4	4.1	1	1.0	1	1.0
09:00	**118**	2	1.7	104	88.1	10	8.5	2	1.7	0	0.0
10:00	**105**	2	1.9	87	82.9	12	11.4	3	2.9	1	1.0
11:00	**129**	0	0.0	112	86.8	12	9.3	3	2.3	2	1.6
12:00	**134**	2	1.5	119	88.8	9	6.7	3	2.2	1	0.8
13:00	**136**	3	2.2	119	87.5	9	6.6	5	3.7	0	0.0
14:00	**169**	4	2.4	146	86.4	13	7.7	3	1.8	3	1.8
15:00	**178**	4	2.3	157	88.2	11	6.2	3	1.7	3	1.7
16:00	**177**	6	3.4	157	88.7	10	5.7	3	1.7	1	0.6
17:00	**192**	6	3.1	174	90.6	9	4.7	2	1.0	1	0.5
18:00	**138**	9	6.5	122	88.4	4	2.9	1	0.7	2	1.5
19:00	**103**	26	25.2	71	68.9	3	2.9	2	1.9	1	1.0
20:00	**115**	47	40.9	65	56.5	2	1.7	0	0.0	1	0.9
21:00	**65**	7	10.8	57	87.7	1	1.5	0	0.0	0	0.0
22:00	**43**	0	0.0	43	100.0	0	0.0	0	0.0	0	0.0
23:00	**31**	0	0.0	30	96.8	1	3.2	0	0.0	0	0.0
12H,7-19	**1680**	**42**	**2.5**	**1479**	**88.0**	**111**	**6.6**	**32**	**1.9**	**16**	**1.0**
16H,6-22	**2003**	**122**	**6.1**	**1710**	**85.4**	**118**	**5.9**	**34**	**1.7**	**19**	**1.0**
18H,6-24	**2077**	**122**	**5.9**	**1783**	**85.8**	**119**	**5.7**	**34**	**1.6**	**19**	**0.9**
24H,0-24	**2126**	**122**	**5.7**	**1827**	**85.9**	**124**	**5.8**	**34**	**1.6**	**19**	**0.9**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Fri 14-Jul-17											
00:00	**6**	0	0.0	4	66.7	1	16.7	1	16.7	0	0.0
01:00	**3**	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0
02:00	**1**	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
03:00	**2**	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
04:00	**7**	0	0.0	5	71.4	2	28.6	0	0.0	0	0.0
05:00	**39**	1	2.6	37	94.9	1	2.6	0	0.0	0	0.0
06:00	**30**	0	0.0	26	86.7	3	10.0	0	0.0	1	3.3
07:00	**96**	1	1.0	85	88.5	8	8.3	1	1.0	1	1.0
08:00	**105**	1	1.0	93	88.6	10	9.5	0	0.0	1	1.0
09:00	**139**	2	1.4	119	85.6	15	10.8	0	0.0	3	2.2
10:00	**143**	1	0.7	127	88.8	12	8.4	1	0.7	2	1.4
11:00	**142**	2	1.4	120	84.5	17	12.0	2	1.4	1	0.7
12:00	**147**	5	3.4	129	87.8	9	6.1	3	2.0	1	0.7
13:00	**141**	2	1.4	122	86.5	14	9.9	2	1.4	1	0.7
14:00	**157**	3	1.9	140	89.2	10	6.4	3	1.9	1	0.6
15:00	**162**	7	4.3	139	85.8	12	7.4	2	1.2	2	1.2
16:00	**166**	5	3.0	153	92.2	4	2.4	2	1.2	2	1.2
17:00	**211**	5	2.4	195	92.4	8	3.8	3	1.4	0	0.0
18:00	**122**	1	0.8	112	91.8	7	5.7	1	0.8	1	0.8
19:00	**105**	1	1.0	95	90.5	7	6.7	1	1.0	1	1.0
20:00	**72**	3	4.2	65	90.3	3	4.2	1	1.4	0	0.0
21:00	**65**	0	0.0	63	96.9	2	3.1	0	0.0	0	0.0
22:00	**56**	0	0.0	54	96.4	2	3.6	0	0.0	0	0.0
23:00	**26**	0	0.0	26	100.0	0	0.0	0	0.0	0	0.0
12H,7-19	**1731**	**35**	**2.0**	**1534**	**88.6**	**126**	**7.3**	**20**	**1.2**	**16**	**0.9**
16H,6-22	**2003**	**39**	**2.0**	**1783**	**89.0**	**141**	**7.0**	**22**	**1.1**	**18**	**0.9**
18H,6-24	**2085**	**39**	**1.9**	**1863**	**89.4**	**143**	**6.9**	**22**	**1.1**	**18**	**0.9**
24H,0-24	**2143**	**40**	**1.9**	**1915**	**89.4**	**147**	**6.9**	**23**	**1.1**	**18**	**0.8**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES%	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 08-Jul-17	**2397**	77	3.2	2176	90.8	103	4.3	18	0.8	23	1.0
Sun 09-Jul-17	**2542**	125	4.9	2304	90.6	73	2.9	26	1.0	14	0.6
Mon 10-Jul-17	**1864**	14	0.8	1716	92.1	93	5.0	24	1.3	17	0.9
Tue 11-Jul-17	**1890**	14	0.7	1699	89.9	126	6.7	33	1.8	18	1.0
Wed 12-Jul-17	**2055**	59	2.9	1838	89.4	105	5.1	31	1.5	22	1.1
Thu 13-Jul-17	**2126**	122	5.7	1827	85.9	124	5.8	34	1.6	19	0.9
Fri 14-Jul-17	**2143**	40	1.9	1915	89.4	147	6.9	23	1.1	18	0.8
Total Vehicles											
[--]	**15017**	451	2.9	13475	89.7	771	5.2	189	1.3	131	0.9



21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sat 08-Jul-17																	
00:00	**15**	64.1	54.2	10.4	0	0	0	2	1	2	3	3	2	2	0	0
01:00	**4**	-	51.6	12.1	0	0	0	1	0	1	0	1	1	0	0	0
02:00	**5**	-	52	16.2	0	0	0	1	1	1	1	0	0	0	0	1
03:00	**5**	-	58.5	7.9	0	0	0	0	0	1	1	1	1	1	0	0
04:00	**4**	-	57.3	6.4	0	0	0	0	0	1	0	2	1	0	0	0
05:00	**19**	67.6	58	9.2	0	0	0	0	1	3	5	5	1	2	1	1
06:00	**13**	64.9	52.3	12.5	0	0	1	1	2	0	4	2	1	2	0	0
07:00	**37**	63	52.8	9.3	0	0	0	3	5	8	10	3	5	2	1	0
08:00	**73**	64.1	54.7	8.9	0	0	0	1	9	20	14	12	9	4	3	1
09:00	**122**	57.9	48.8	8.4	0	0	0	21	23	29	23	19	5	2	0	0
10:00	**157**	59.4	52.2	8	0	0	0	5	24	45	46	19	9	5	1	3
11:00	**155**	57.8	49.5	8.6	0	2	1	13	28	47	30	28	2	3	1	0
12:00	**158**	57.2	50.2	7.1	0	0	0	8	34	51	37	16	10	1	1	0
13:00	**164**	57.7	50.5	7.5	0	0	0	13	28	45	47	17	11	2	1	0
14:00	**187**	57.4	49.7	8.3	0	0	0	17	45	51	39	23	6	2	1	3
15:00	**196**	60.4	51.4	9.1	0	1	0	14	36	51	43	24	17	5	2	3
16:00	**222**	60.1	52	9.5	0	0	0	18	32	60	57	26	10	6	7	6
17:00	**255**	60.8	52.8	8.5	0	0	0	8	42	69	60	39	23	4	4	6
18:00	**163**	58.4	51.3	8.2	0	0	0	14	17	51	48	17	8	5	1	2
19:00	**142**	60.6	52.6	8.5	0	0	0	11	12	39	38	22	12	5	1	2
20:00	**121**	58.6	49.8	9.7	0	0	7	8	20	25	34	16	8	2	0	1
21:00	**72**	63.4	54.9	8.8	0	0	0	3	9	9	20	15	10	2	4	0
22:00	**73**	60.5	52.9	9.2	0	0	1	2	12	16	18	14	5	2	1	2
23:00	**35**	60.5	53.6	8.8	0	0	0	2	4	6	11	7	2	1	2	0
12H,7-19	**1889**	**59.3**	**51.2**	**8.5**	**0**	**3**	**1**	**135**	**323**	**527**	**454**	**243**	**115**	**41**	**23**	**24**
16H,6-22	**2237**	**59.6**	**51.3**	**8.7**	**0**	**3**	**9**	**158**	**366**	**600**	**550**	**298**	**146**	**52**	**28**	**27**
18H,6-24	**2345**	**59.7**	**51.4**	**8.7**	**0**	**3**	**10**	**162**	**382**	**622**	**579**	**319**	**153**	**55**	**31**	**29**
24H,0-24	**2397**	**59.8**	**51.5**	**8.8**	**0**	**3**	**10**	**166**	**385**	**631**	**589**	**331**	**159**	**60**	**32**	**31**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Sun 09-Jul-17																	
00:00	**20**	68.5	55.8	13.3	0	0	1	1	2	4	2	2	3	3	1	1
01:00	**4**	-	52.9	13.3	0	0	0	1	0	1	0	0	2	0	0	0
02:00	**6**	-	70.2	9.9	0	0	0	0	0	0	0	2	0	1	0	3
03:00	**8**	-	57.3	9.2	0	0	0	0	1	1	2	1	1	2	0	0
04:00	**2**	-	48.5	1.8	0	0	0	0	0	2	0	0	0	0	0	0
05:00	**23**	66.3	59.5	9.4	0	0	0	1	0	3	2	8	5	1	2	1
06:00	**13**	59.9	52.3	6.9	0	0	0	0	3	2	5	1	2	0	0	0
07:00	**20**	61.8	53.1	9	0	0	0	1	5	2	3	5	3	1	0	0
08:00	**51**	63.7	53.5	10.2	0	0	1	4	5	11	9	8	9	2	2	0
09:00	**80**	59.4	51.1	9	0	0	0	8	15	15	24	8	6	2	1	1
10:00	**170**	58	49.3	10	0	5	0	14	37	39	40	23	7	2	1	2
11:00	**179**	58.3	50.4	8.5	0	0	0	14	42	48	37	23	4	7	3	1
12:00	**168**	59.3	50.6	8.4	0	0	0	10	42	47	34	14	10	9	1	1
13:00	**216**	55.7	48.6	7.8	0	0	1	21	65	53	46	17	8	4	0	1
14:00	**250**	55.2	47	9	0	0	1	53	69	62	32	15	10	3	3	2
15:00	**277**	55	48	8.6	1	0	0	34	80	85	44	20	3	3	1	6
16:00	**278**	55.2	47.3	8.8	0	0	1	57	65	77	43	21	5	5	0	4
17:00	**244**	57.7	49.5	9	0	0	4	29	49	53	63	26	10	6	3	1
18:00	**184**	56.7	49.2	8.8	0	0	2	16	54	44	38	14	8	3	3	2
19:00	**124**	59.1	50.3	11.1	0	3	2	12	16	30	37	8	5	7	2	2
20:00	**91**	60	52.3	8.1	0	0	1	2	15	21	29	11	6	5	1	0
21:00	**60**	63.5	53.5	10.8	0	0	0	7	7	8	18	9	3	4	1	3
22:00	**33**	62.4	54.8	10.7	0	0	0	3	3	5	7	9	2	1	1	2
23:00	**41**	65.5	57.5	7.7	0	0	0	0	1	8	10	9	7	4	2	0
12H,7-19	**2117**	**57.2**	**48.9**	**8.9**	**1**	**5**	**10**	**261**	**528**	**536**	**413**	**194**	**83**	**47**	**18**	**21**
16H,6-22	**2405**	**57.6**	**49.3**	**9.1**	**1**	**8**	**13**	**282**	**569**	**597**	**502**	**223**	**99**	**63**	**22**	**26**
18H,6-24	**2479**	**58**	**49.5**	**9.2**	**1**	**8**	**13**	**285**	**573**	**610**	**519**	**241**	**108**	**68**	**25**	**28**
24H,0-24	**2542**	**58.5**	**49.7**	**9.4**	**1**	**8**	**14**	**288**	**576**	**621**	**525**	**254**	**119**	**75**	**28**	**33**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Mon 10-Jul-17																	
00:00	**13**	69.9	57.9	11.9	0	0	0	1	2	0	3	0	4	1	2	0
01:00	**1**	-	53.5	-	0	0	0	0	0	0	1	0	0	0	0	0
02:00	**3**	-	60.2	5.9	0	0	0	0	0	0	1	0	2	0	0	0
03:00	**1**	-	58.5	-	0	0	0	0	0	0	0	1	0	0	0	0
04:00	**5**	-	60	16.2	0	0	0	1	0	0	1	0	1	1	0	1
05:00	**37**	63.1	56.3	8	0	0	0	3	0	3	8	14	7	2	0	0
06:00	**49**	65.5	57.3	9.3	0	0	0	2	4	2	15	10	9	4	1	2
07:00	**97**	60.3	52.9	8.6	0	1	0	4	14	14	31	21	7	4	1	0
08:00	**102**	60.7	53.3	8.1	0	0	0	2	14	26	30	15	9	2	2	2
09:00	**114**	56.8	48.2	10.8	0	6	1	7	27	22	31	15	1	3	1	0
10:00	**122**	56.6	47.5	10.3	0	2	3	18	30	29	20	10	4	4	2	0
11:00	**147**	55.2	47	8.2	0	0	0	31	36	40	21	12	4	3	0	0
12:00	**136**	55.8	47.6	9.1	0	0	1	28	30	34	23	11	4	2	3	0
13:00	**125**	57.1	49.1	9	0	0	1	20	21	33	29	8	9	3	0	1
14:00	**148**	57.3	48.8	8.2	0	0	0	21	39	26	35	17	8	2	0	0
15:00	**144**	57.4	50.2	8	0	0	0	15	25	35	42	17	6	3	0	1
16:00	**154**	55.3	46.8	7.9	0	0	0	30	45	39	19	13	8	0	0	0
17:00	**135**	59.2	52.2	7.1	0	0	0	2	26	30	42	22	8	4	1	0
18:00	**110**	59.5	50.6	9.2	0	0	0	15	14	32	25	10	8	3	2	1
19:00	**69**	59.5	52.6	7.3	0	0	0	4	6	16	21	16	4	2	0	0
20:00	**66**	60	51.9	8.9	0	1	0	2	10	17	20	7	5	3	1	0
21:00	**39**	58.6	51.8	6.6	0	0	0	0	8	11	10	7	2	1	0	0
22:00	**31**	65.8	54.6	9.1	0	0	0	0	5	7	9	3	2	4	0	1
23:00	**16**	64.5	56.5	9.2	0	0	0	1	2	0	3	5	3	2	0	0
12H,7-19	**1534**	**57.9**	**49.3**	**8.9**	**0**	**9**	**6**	**193**	**321**	**360**	**348**	**171**	**76**	**33**	**12**	**5**
16H,6-22	**1757**	**58.5**	**49.8**	**9**	**0**	**10**	**6**	**201**	**349**	**406**	**414**	**211**	**96**	**43**	**14**	**7**
18H,6-24	**1804**	**58.7**	**50**	**9**	**0**	**10**	**6**	**202**	**356**	**413**	**426**	**219**	**101**	**49**	**14**	**8**
24H,0-24	**1864**	**59.1**	**50.2**	**9.1**	**0**	**10**	**6**	**207**	**358**	**416**	**440**	**234**	**115**	**53**	**16**	**9**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Tue 11-Jul-17																	
00:00	**5**	-	57.5	10.9	0	0	0	0	1	0	1	2	0	0	1	0
01:00	**4**	-	59.8	11.1	0	0	0	0	1	0	0	0	2	1	0	0
02:00	**1**	-	58.5	-	0	0	0	0	0	0	0	1	0	0	0	0
03:00	**2**	-	56	3.5	0	0	0	0	0	0	1	1	0	0	0	0
04:00	**9**	-	56.8	8.7	0	0	0	0	1	1	2	3	1	0	1	0
05:00	**35**	64.5	57.6	7.2	0	0	0	0	1	3	13	8	6	3	0	1
06:00	**46**	63.3	55.1	9.1	0	0	1	3	1	6	10	14	8	3	0	0
07:00	**94**	60.3	53.3	7.5	0	0	0	3	11	20	30	18	8	2	2	0
08:00	**111**	58.3	51.8	7.3	0	0	0	5	15	30	35	19	4	1	1	1
09:00	**107**	55.7	48.7	7.9	0	0	0	17	20	27	28	7	8	0	0	0
10:00	**129**	54.2	46.8	7.4	0	0	0	23	37	34	24	7	3	1	0	0
11:00	**151**	54.7	45.9	8.6	0	0	1	40	42	28	23	10	4	3	0	0
12:00	**152**	55.5	47.3	7.8	0	0	0	25	48	34	24	16	3	1	1	0
13:00	**120**	56.7	46.3	9.6	0	0	5	30	20	28	16	17	3	0	1	0
14:00	**116**	56.8	48.8	8.6	0	0	0	17	27	30	22	13	3	1	3	0
15:00	**149**	58.1	50.8	7.6	0	0	0	9	30	39	40	19	7	3	2	0
16:00	**169**	56.9	50.2	7.8	0	0	0	15	29	52	44	17	6	4	1	1
17:00	**144**	61.2	52.9	8.5	0	0	0	10	20	26	34	31	20	0	2	1
18:00	**110**	62.1	53.9	8.7	0	0	0	5	13	22	30	21	9	6	3	1
19:00	**78**	64.4	55	9	0	0	0	2	9	13	26	11	7	6	2	2
20:00	**53**	65	55.5	10	0	0	0	5	2	5	19	8	7	4	1	2
21:00	**53**	65.4	55.4	10	0	0	0	2	6	12	9	11	5	4	2	2
22:00	**39**	60.6	53.8	9.6	0	0	1	2	3	7	8	12	4	1	0	1
23:00	**13**	64.9	58.1	8.1	0	0	0	0	1	2	2	2	4	2	0	0
12H,7-19	**1552**	**58.1**	**49.6**	**8.5**	**0**	**0**	**6**	**199**	**312**	**370**	**350**	**195**	**78**	**22**	**16**	**4**
16H,6-22	**1782**	**59.1**	**50.3**	**8.9**	**0**	**0**	**7**	**211**	**330**	**406**	**414**	**239**	**105**	**39**	**21**	**10**
18H,6-24	**1834**	**59.2**	**50.4**	**8.9**	**0**	**0**	**8**	**213**	**334**	**415**	**424**	**253**	**113**	**42**	**21**	**11**
24H,0-24	**1890**	**59.5**	**50.6**	**9**	**0**	**0**	**8**	**213**	**338**	**419**	**441**	**268**	**122**	**46**	**23**	**12**

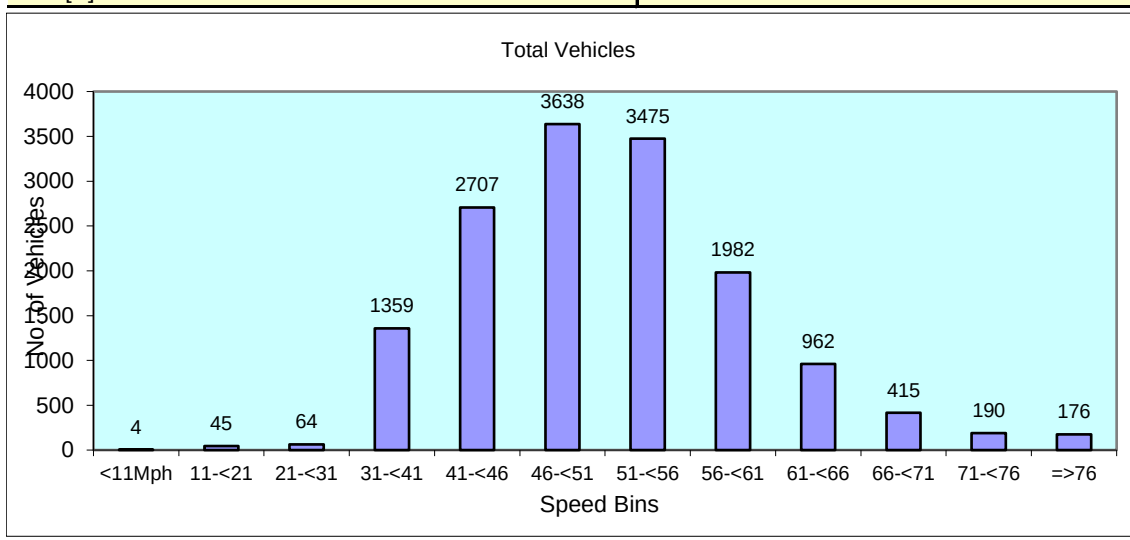
21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Wed 12-Jul-17																	
00:00	**11**	60.6	54.9	5.7	0	0	0	0	0	3	4	2	2	0	0	0
01:00	**2**	-	71	3.5	0	0	0	0	0	0	0	0	0	1	1	0
02:00	**2**	-	61	17.7	0	0	0	0	0	1	0	0	0	0	1	0
03:00	**1**	-	48.5	-	0	0	0	0	0	1	0	0	0	0	0	0
04:00	**5**	-	55.5	11.5	0	0	0	0	2	0	0	1	1	1	0	0
05:00	**38**	65.8	57.1	9.2	0	0	0	1	3	4	10	9	5	4	0	2
06:00	**47**	65.3	55.8	9.2	0	0	0	4	0	4	20	8	4	5	1	1
07:00	**108**	60.1	52.3	9.9	0	1	1	12	9	16	27	31	6	3	0	2
08:00	**109**	59.4	53	7.1	0	0	0	5	9	25	34	28	4	3	1	0
09:00	**119**	56.9	49.3	7.7	0	0	2	9	24	38	25	14	6	1	0	0
10:00	**133**	54.6	48.1	6.6	0	0	1	10	37	46	26	9	4	0	0	0
11:00	**132**	56.9	48.5	9.4	0	0	2	18	39	25	26	10	6	3	2	1
12:00	**128**	57	49	8.1	0	0	0	18	27	33	28	12	8	2	0	0
13:00	**154**	56.9	50	7.8	0	0	0	12	33	43	39	20	3	1	1	2
14:00	**152**	57.1	48.2	9.8	0	1	0	30	30	41	25	8	10	5	0	2
15:00	**167**	58.8	50.6	8.7	0	0	0	18	31	37	46	17	10	5	2	1
16:00	**189**	57.4	49.2	8.8	1	0	0	18	49	51	36	18	12	1	0	3
17:00	**157**	63.4	55	8.3	0	0	0	2	15	35	44	27	21	6	3	4
18:00	**114**	61.3	51.9	10.6	0	1	0	9	22	29	17	18	7	5	2	4
19:00	**85**	67.9	56	10.1	0	0	0	3	9	17	19	13	7	10	4	3
20:00	**77**	63.5	54.1	8.3	0	0	0	0	10	22	22	7	8	5	2	1
21:00	**69**	63.3	53.9	10.1	0	0	0	6	9	10	16	14	7	2	4	1
22:00	**36**	65.1	55.7	10.7	0	0	0	4	1	4	11	6	5	1	3	1
23:00	**20**	69.8	60.3	9.6	0	0	0	0	1	3	3	3	5	2	2	1
12H,7-19	**1662**	**58.9**	**50.4**	**8.9**	**1**	**3**	**6**	**161**	**325**	**419**	**373**	**212**	**97**	**35**	**11**	**19**
16H,6-22	**1940**	**59.7**	**51**	**9.1**	**1**	**3**	**6**	**174**	**353**	**472**	**450**	**254**	**123**	**57**	**22**	**25**
18H,6-24	**1996**	**60**	**51.2**	**9.2**	**1**	**3**	**6**	**178**	**355**	**479**	**464**	**263**	**133**	**60**	**27**	**27**
24H,0-24	**2055**	**60.2**	**51.4**	**9.2**	**1**	**3**	**6**	**179**	**360**	**488**	**478**	**275**	**141**	**66**	**29**	**29**

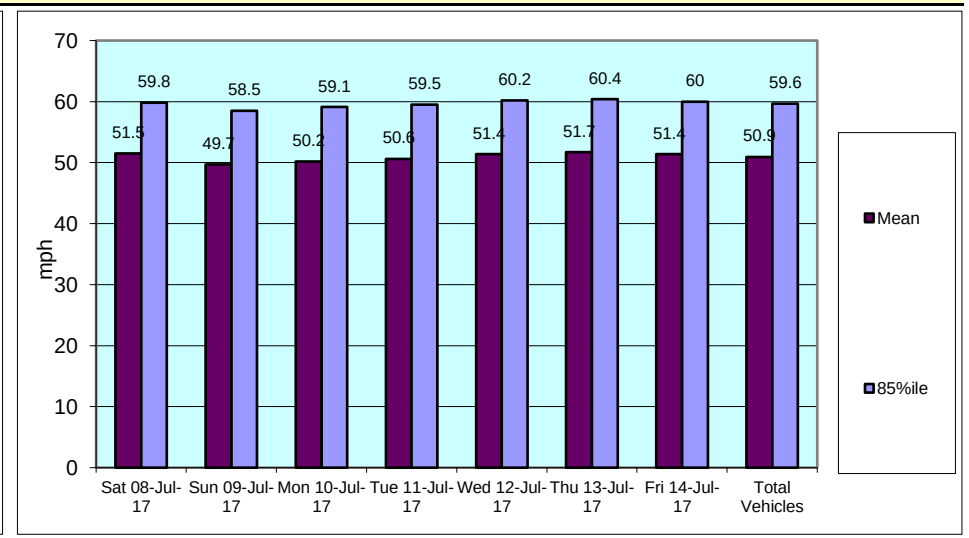
21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)				
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound									
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Thu 13-Jul-17																
00:00	**5**	-	55.5	11.5	0	0	0	0	2	0	0	1	1	1	0	0
01:00	**2**	-	61	3.5	0	0	0	0	0	0	0	1	1	0	0	0
02:00	**1**	-	58.5	-	0	0	0	0	0	0	0	1	0	0	0	0
03:00	**0**	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
04:00	**6**	-	56	13	0	0	0	0	2	0	1	2	0	0	0	1
05:00	**35**	67.3	56.4	10.2	0	0	0	1	4	3	13	6	2	1	3	2
06:00	**40**	66.5	57.4	9.1	0	0	0	2	2	4	9	9	7	5	2	0
07:00	**107**	61.8	54.8	6.9	0	0	0	1	11	14	37	25	15	3	1	0
08:00	**97**	59.4	53.5	7.7	0	1	0	2	5	21	36	25	4	1	0	2
09:00	**118**	60.6	51.6	9	0	1	0	9	15	32	28	16	12	3	2	0
10:00	**105**	56.3	48.6	8.3	0	0	0	18	17	32	21	11	4	1	1	0
11:00	**129**	57.9	49.3	7.8	0	0	0	13	31	40	19	16	8	2	0	0
12:00	**134**	55.7	48.8	8.5	0	0	2	12	37	36	28	7	7	4	0	1
13:00	**136**	57.1	49.2	8.7	0	0	1	18	20	54	20	10	6	5	2	0
14:00	**169**	55.5	48.3	8.3	0	0	0	21	49	49	27	11	5	4	2	1
15:00	**178**	55.7	49	7.1	0	0	0	17	40	55	41	18	5	2	0	0
16:00	**177**	59.5	51.6	8.6	0	2	1	7	25	45	52	26	12	6	0	1
17:00	**192**	60.1	52.1	8.8	0	0	0	16	23	49	51	29	15	2	3	4
18:00	**138**	60.1	52.5	9	0	0	0	9	17	39	32	24	7	3	4	3
19:00	**103**	67.7	55.9	11.4	0	2	0	1	14	16	22	19	10	9	5	5
20:00	**115**	70.5	56.6	12.8	0	0	3	6	16	16	14	16	19	8	6	11
21:00	**65**	62.8	53.8	9.2	0	0	0	3	11	8	21	10	5	3	4	0
22:00	**43**	60.1	52.8	9.4	0	0	0	2	5	15	10	5	1	3	0	2
23:00	**31**	65.3	55.3	9.9	0	0	0	0	4	9	7	4	2	1	3	1
12H,7-19	**1680**	**58.9**	**50.7**	**8.5**	**0**	**4**	**4**	**143**	**290**	**466**	**392**	**218**	**100**	**36**	**15**	**12**
16H,6-22	**2003**	**60.3**	**51.5**	**9.2**	**0**	**6**	**7**	**155**	**333**	**510**	**458**	**272**	**141**	**61**	**32**	**28**
18H,6-24	**2077**	**60.3**	**51.6**	**9.2**	**0**	**6**	**7**	**157**	**342**	**534**	**475**	**281**	**144**	**65**	**35**	**31**
24H,0-24	**2126**	**60.4**	**51.7**	**9.3**	**0**	**6**	**7**	**158**	**350**	**537**	**489**	**292**	**148**	**67**	**38**	**34**

21952			BOULBY				Site No: 21952002				Location	Site 2, A174, Boulby (Fence)					
Sat 08-Jul-17 to Fri 14-Jul-17							Channel: Westbound										
Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Fri 14-Jul-17																	
00:00	**6**	-	37.7	17.7	0	2	0	0	2	1	0	1	0	0	0	0
01:00	**3**	-	58.5	8.8	0	0	0	0	0	1	0	0	2	0	0	0
02:00	**1**	-	63.5	-	0	0	0	0	0	0	0	0	1	0	0	0
03:00	**2**	-	56	10.6	0	0	0	0	0	1	0	0	1	0	0	0
04:00	**7**	-	59.6	15.6	0	0	0	1	0	1	1	1	1	0	0	2
05:00	**39**	65	58	9.4	0	0	0	0	2	9	5	11	7	0	2	3
06:00	**30**	63	56.1	8	0	0	0	1	2	4	6	10	5	1	1	0
07:00	**96**	62.5	55.3	7.6	0	0	0	2	6	15	33	21	14	1	3	1
08:00	**105**	60.1	53.3	7.8	0	0	0	3	12	26	29	23	6	3	2	1
09:00	**139**	59.9	51.7	8.5	0	0	0	8	22	45	28	19	10	3	1	3
10:00	**143**	55.5	48.3	8.7	0	3	0	17	26	43	36	11	5	2	0	0
11:00	**142**	55.7	49	8.1	0	0	0	22	23	36	42	9	8	1	1	0
12:00	**147**	55.8	49.8	6.9	0	0	0	7	36	42	41	16	3	0	1	1
13:00	**141**	55.4	48.6	7.1	0	0	0	17	32	35	40	13	4	0	0	0
14:00	**157**	56.9	47.9	10.4	0	6	1	21	31	31	40	16	9	2	0	0
15:00	**162**	58.4	49.9	9.1	1	1	0	10	37	49	30	19	9	3	2	1
16:00	**166**	60.4	51.3	9.9	1	1	0	13	30	40	30	29	12	6	3	1
17:00	**211**	59.3	50.5	9.6	0	0	10	10	33	61	44	32	13	3	2	3
18:00	**122**	61.5	53.9	8.3	0	0	0	6	12	26	29	29	12	5	2	1
19:00	**105**	63.2	55.7	8.1	0	0	0	0	11	19	27	27	11	5	2	3
20:00	**72**	64.9	53.5	11.9	0	2	2	3	4	13	20	12	6	7	2	1
21:00	**65**	62.8	55.2	8.7	0	0	0	1	6	14	17	15	5	4	0	3
22:00	**56**	61.7	53.6	8.1	0	0	0	2	7	12	15	10	8	1	0	1
23:00	**26**	64	54.7	13.7	0	0	0	4	6	2	0	4	6	1	0	3
12H,7-19	**1731**	**59**	**50.5**	**8.9**	**2**	**11**	**11**	**136**	**300**	**449**	**422**	**237**	**105**	**29**	**17**	**12**
16H,6-22	**2003**	**59.6**	**51.2**	**9.1**	**2**	**13**	**13**	**141**	**323**	**499**	**492**	**301**	**132**	**46**	**22**	**19**
18H,6-24	**2085**	**59.8**	**51.3**	**9.2**	**2**	**13**	**13**	**147**	**336**	**513**	**507**	**315**	**146**	**48**	**22**	**23**
24H,0-24	**2143**	**60**	**51.4**	**9.3**	**2**	**15**	**13**	**148**	**340**	**526**	**513**	**328**	**158**	**48**	**24**	**28**

21952	BOULBY	Site No: 21952002	Location	Site 2, A174, Boulby (Fence)
Sat 08-Jul-17 to Fri 14-Jul-17		Channel: Westbound		

Time Period	Total Vehicles	85%ile Speed	Mean Speed	Stand Dev.	<11Mph	11-<21	21-<31	31-<41	41-<46	46-<51	51-<56	56-<61	61-<66	66-<71	71-<76	=>76
Daily Totals																
Sat 08-Jul-17	**2397**	59.8	51.5	8.8	0	3	10	166	385	631	589	331	159	60	32	31
Sun 09-Jul-17	**2542**	58.5	49.7	9.4	1	8	14	288	576	621	525	254	119	75	28	33
Mon 10-Jul-17	**1864**	59.1	50.2	9.1	0	10	6	207	358	416	440	234	115	53	16	9
Tue 11-Jul-17	**1890**	59.5	50.6	9	0	0	8	213	338	419	441	268	122	46	23	12
Wed 12-Jul-17	**2055**	60.2	51.4	9.2	1	3	6	179	360	488	478	275	141	66	29	29
Thu 13-Jul-17	**2126**	60.4	51.7	9.3	0	6	7	158	350	537	489	292	148	67	38	34
Fri 14-Jul-17	**2143**	60	51.4	9.3	2	15	13	148	340	526	513	328	158	48	24	28
Total Vehicles																
[--]	**15017**	59.6	50.9	9.2	4	45	64	1359	2707	3638	3475	1982	962	415	190	176

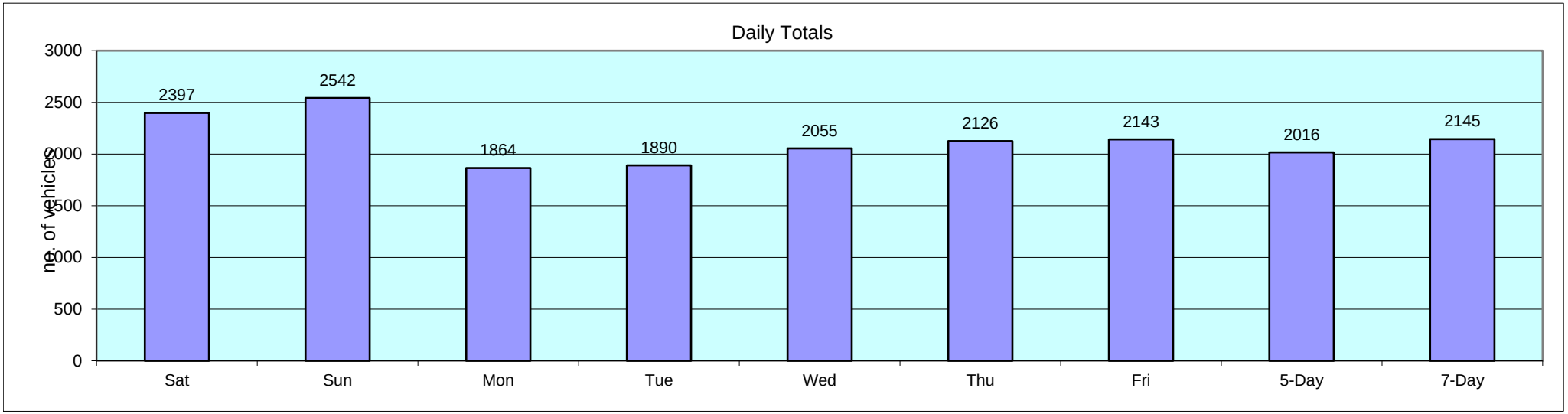


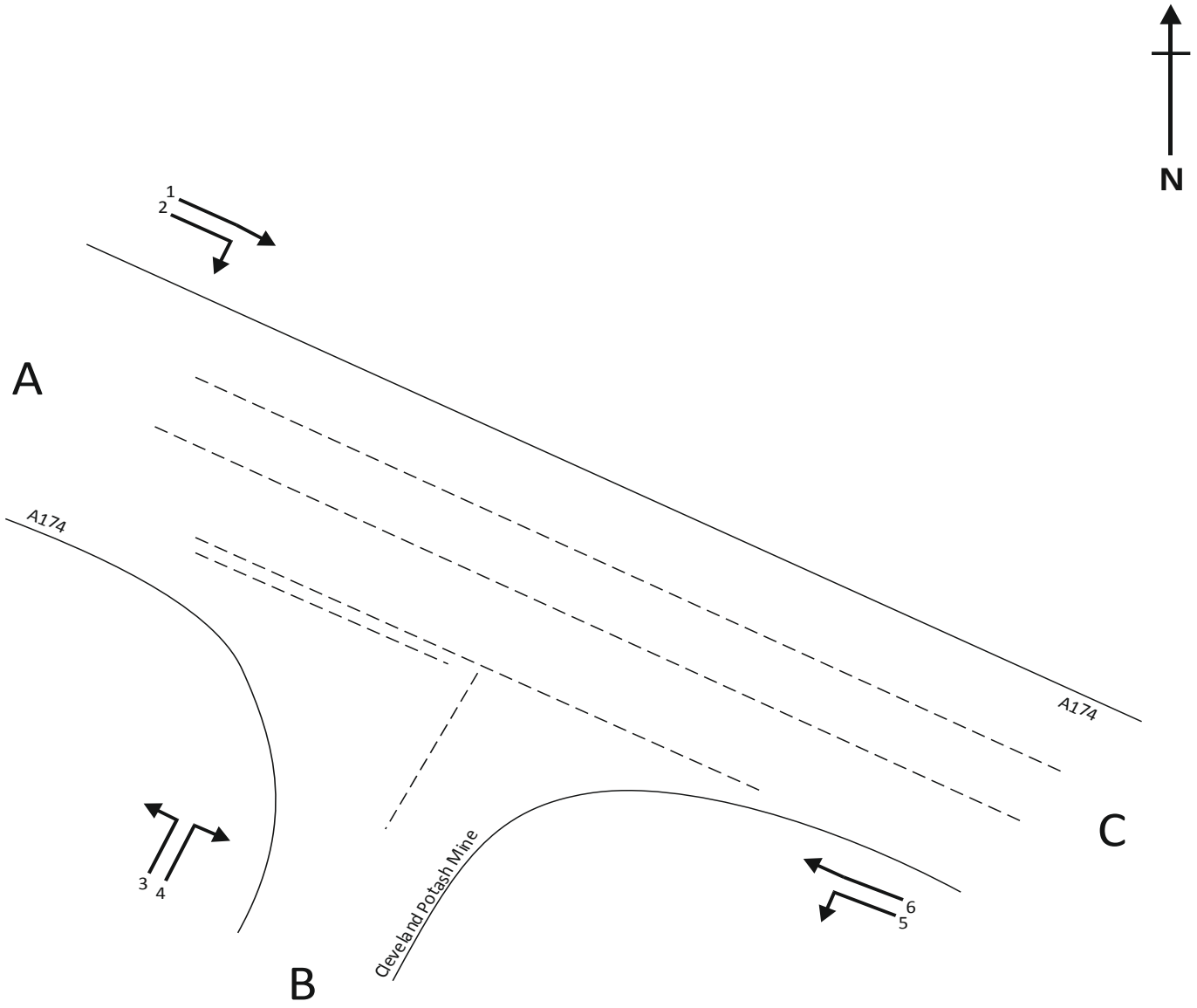


21952		BOULBY		Site No: 21952002 Channel: Westbound		Location	Site 2, A174, Boulby (Fence)		
TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av
Week Begin: 08-Jul-17									
00:00	**15**	20	13	5	11	5	6	8	11
01:00	**4**	4	1	4	2	2	3	2	3
02:00	**5**	6	3	1	2	1	1	2	3
03:00	**5**	8	1	2	1	0	2	1	3
04:00	**4**	2	5	9	5	6	7	6	5
05:00	**19**	23	37	35	38	35	39	37	32
06:00	**13**	13	49	46	47	40	30	42	34
07:00	**37**	20	97	94	108	107	96	100	80
08:00	**73**	51	102	111	109	97	105	105	93
09:00	**122**	80	114	107	119	118	139	119	114
10:00	**157**	170	122	129	133	105	143	126	137
11:00	**155**	179	147	151	132	129	142	140	148
12:00	**158**	168	136	152	128	134	147	139	146
13:00	**164**	216	125	120	154	136	141	135	151
14:00	**187**	250	148	116	152	169	157	148	168
15:00	**196**	277	144	149	167	178	162	160	182
16:00	**222**	278	154	169	189	177	166	171	194
17:00	**255**	244	135	144	157	192	211	168	191
18:00	**163**	184	110	110	114	138	122	119	134
19:00	**142**	124	69	78	85	103	105	88	101
20:00	**121**	91	66	53	77	115	72	77	85
21:00	**72**	60	39	53	69	65	65	58	60
22:00	**73**	33	31	39	36	43	56	41	44
23:00	**35**	41	16	13	20	31	26	21	26
12H,7-19	**1889**	**2117**	**1534**	**1552**	**1662**	**1680**	**1731**	**1632**	**1738**
16H,6-22	**2237**	**2405**	**1757**	**1782**	**1940**	**2003**	**2003**	**1897**	**2018**
18H,6-24	**2345**	**2479**	**1804**	**1834**	**1996**	**2077**	**2085**	**1959**	**2089**
24H,0-24	**2397**	**2542**	**1864**	**1890**	**2055**	**2126**	**2143**	**2016**	**2145**
Am	**10:00**	**11:00**	**11:00**	**11:00**	**10:00**	**11:00**	**10:00**	**-**	**-**
Peak	**157**	**179**	**147**	**151**	**133**	**129**	**143**	**141**	**148**
Pm	**17:00**	**16:00**	**16:00**	**16:00**	**16:00**	**17:00**	**17:00**	**-**	**-**
Peak	**255**	**278**	**154**	**169**	**189**	**192**	**211**	**183**	**207**

21952	BOULBY	Site No: 21952002 Channel: Westbound	Location	Site 2, A174, Boulby (Fence)

TIME PERIOD	Sat 08/07/17	Sun 09/07/17	Mon 10/07/17	Tue 11/07/17	Wed 12/07/17	Thu 13/07/17	Fri 14/07/17	5-Day Av	7-Day Av





AXIOM Traffic Limited

For and on behalf of:

amec foster wheeler

BOULBY

Wednesday 12 July 2017

0700-1900

Drawing N°: **21952 - 01**

Site: **1**

Location: **A174 / Cleveland Potash mine**

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 1 FROM A174 (NW) TO A174 (SE)								MOVEMENT 2 FROM A174 (NW) TO CLEVELAND POTASH MINE							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	10	2	1	0	0	0	0	13	6	0	1	0	0	0	0	7
07:15	14	2	0	0	1	0	0	17	15	1	0	0	0	0	0	16
07:30	21	5	1	0	0	0	0	27	30	4	0	0	0	1	0	35
07:45	26	6	0	0	0	0	0	32	42	4	1	0	0	0	0	47
H/TOT	71	15	2	0	1	0	0	89	93	9	2	0	0	1	0	105
08:00	19	7	0	0	0	0	0	26	17	4	0	0	0	0	0	21
08:15	19	2	0	0	1	0	0	22	8	3	0	0	0	0	0	11
08:30	22	8	1	0	0	1	0	32	7	2	0	0	0	0	0	9
08:45	25	5	0	0	1	0	0	31	3	4	1	0	0	0	0	8
H/TOT	85	22	1	0	2	1	0	111	35	13	1	0	0	0	0	49
09:00	26	6	1	0	0	2	0	35	0	0	0	0	0	0	0	0
09:15	26	9	1	0	1	0	0	37	0	2	0	0	0	0	0	2
09:30	21	5	0	0	0	0	0	26	2	3	0	0	0	0	0	5
09:45	20	6	2	0	1	0	0	29	2	3	0	0	0	0	0	5
H/TOT	93	26	4	0	2	2	0	127	4	8	0	0	0	0	0	12
10:00	21	5	2	0	1	0	1	30	2	1	0	0	0	0	0	3
10:15	32	4	1	0	1	0	0	38	0	3	0	0	0	0	0	3
10:30	36	4	1	0	0	1	0	42	4	2	0	0	0	0	0	6
10:45	35	3	1	0	1	0	0	40	1	1	0	0	0	0	0	2
H/TOT	124	16	5	0	3	1	1	150	7	7	0	0	0	0	0	14
11:00	38	5	2	0	0	1	0	46	2	2	1	0	0	0	0	5
11:15	43	5	1	0	1	2	0	52	0	2	0	0	0	0	0	2
11:30	36	5	0	0	0	0	0	41	1	1	0	0	0	0	0	2
11:45	33	10	0	0	1	6	0	50	0	2	0	0	0	0	0	2
H/TOT	150	25	3	0	2	9	0	189	3	7	1	0	0	0	0	11
12:00	36	4	0	0	0	3	0	43	2	2	1	0	0	0	0	5
12:15	43	6	0	0	1	2	1	53	1	1	0	0	0	0	0	2
12:30	27	4	3	0	0	1	0	35	2	0	1	0	0	0	0	3
12:45	31	4	0	0	0	1	2	38	3	2	0	0	0	0	0	5
H/TOT	137	18	3	0	1	7	3	169	8	5	2	0	0	0	0	15

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 1 FROM A174 (NW) TO A174 (SE)								MOVEMENT 2 FROM A174 (NW) TO CLEVELAND POTASH MINE							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
13:00	34	4	0	0	0	0	0	38	2	2	1	0	0	0	0	5
13:15	36	3	0	0	1	1	0	41	3	1	0	0	0	0	0	4
13:30	22	4	1	0	0	0	0	27	0	0	0	0	0	0	0	0
13:45	31	2	0	0	1	1	0	35	0	0	0	0	0	0	0	0
H/TOT	123	13	1	0	2	2	0	141	5	3	1	0	0	0	0	9
14:00	36	3	0	0	0	3	0	42	0	0	0	0	0	0	0	0
14:15	28	1	0	0	1	0	0	30	0	3	1	0	0	0	0	4
14:30	31	2	0	0	0	1	0	34	0	1	2	0	0	0	0	3
14:45	34	0	2	0	1	0	0	37	0	0	1	0	0	0	0	1
H/TOT	129	6	2	0	2	4	0	143	0	4	4	0	0	0	0	8
15:00	31	6	0	0	0	0	0	37	0	1	0	0	0	0	0	1
15:15	44	6	1	0	1	1	2	55	0	2	0	0	0	0	0	2
15:30	33	10	2	0	0	0	0	45	0	1	0	0	0	0	0	1
15:45	23	5	0	0	1	0	1	30	1	0	0	0	0	0	0	1
H/TOT	131	27	3	0	2	1	3	167	1	4	0	0	0	0	0	5
16:00	39	2	0	0	0	0	0	41	0	0	0	0	0	0	0	0
16:15	21	3	0	0	1	1	1	27	3	0	0	0	0	0	1	4
16:30	38	3	0	0	0	1	0	42	1	0	1	0	0	0	0	2
16:45	32	3	0	0	0	0	0	35	4	0	0	0	0	0	0	4
H/TOT	130	11	0	0	1	2	1	145	8	0	1	0	0	0	1	10
17:00	35	1	1	0	1	2	0	40	3	0	0	0	0	0	0	3
17:15	31	0	0	0	1	1	0	33	10	0	0	0	0	0	0	10
17:30	31	3	1	0	0	0	0	35	9	1	0	0	0	0	0	10
17:45	38	3	0	0	1	1	0	43	7	0	0	0	0	0	1	8
H/TOT	135	7	2	0	3	4	0	151	29	1	0	0	0	0	1	31
18:00	32	5	0	0	0	0	0	37	2	1	0	0	0	0	0	3
18:15	30	4	1	0	1	0	1	37	6	0	0	0	0	0	0	6
18:30	26	0	0	0	0	3	3	32	7	1	0	0	0	0	0	8
18:45	26	0	1	0	1	3	0	31	7	1	0	0	0	0	0	8
H/TOT	114	9	2	0	2	6	4	137	22	3	0	0	0	0	0	25
P/TOT	1422	195	28	0	23	39	12	1719	215	64	12	0	0	1	2	294

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 1 FROM A174 (NW) TO A174 (SE)								MOVEMENT 2 FROM A174 (NW) TO CLEVELAND POTASH MINE							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 3 FROM CLEVELAND POTASH MINE TO A174 (NW)								MOVEMENT 4 FROM CLEVELAND POTASH MINE TO A174 (SE)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	25	2	0	0	0	0	0	27	2	0	0	0	0	0	0	2
07:15	5	2	0	0	0	0	0	7	1	0	0	0	0	0	0	1
07:30	1	0	1	0	0	0	0	2	1	0	0	0	0	0	0	1
07:45	1	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
H/TOT	32	5	1	0	0	0	0	38	4	0	0	0	0	0	0	4
08:00	2	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
08:30	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
08:45	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	2
H/TOT	3	0	1	0	0	0	0	4	3	1	0	1	0	0	0	5
09:00	0	2	2	0	0	0	0	4	1	0	0	0	0	0	0	1
09:15	0	2	0	0	0	0	0	2	0	1	0	0	0	0	0	1
09:30	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	2
09:45	0	2	2	0	0	0	0	4	0	1	0	0	0	0	0	1
H/TOT	0	7	4	0	0	0	0	11	2	3	0	0	0	0	0	5
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
10:30	2	4	0	0	0	0	0	6	0	0	0	0	0	0	0	0
10:45	1	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0
H/TOT	4	7	0	0	0	0	0	11	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
11:15	2	0	0	1	0	0	0	3	0	1	0	0	0	0	0	1
11:30	0	1	1	0	0	0	0	2	0	1	0	1	0	0	0	2
11:45	1	0	0	0	0	0	0	1	1	2	0	0	0	0	0	3
H/TOT	3	1	1	1	0	0	0	6	3	4	0	1	0	0	0	8
12:00	2	1	0	0	0	0	0	3	2	1	0	0	0	1	0	4
12:15	4	2	0	0	0	1	0	7	0	1	0	0	0	0	0	1
12:30	2	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0
12:45	2	1	1	0	0	0	0	4	0	0	0	0	0	0	0	0
H/TOT	10	6	1	0	0	1	0	18	2	2	0	0	0	1	0	5

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 3 FROM CLEVELAND POTASH MINE TO A174 (NW)								MOVEMENT 4 FROM CLEVELAND POTASH MINE TO A174 (SE)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
13:00	2	1	1	0	0	0	0	4	0	1	0	0	0	0	0	1
13:15	1	1	0	0	0	0	0	2	1	0	0	0	0	0	0	1
13:30	5	2	0	0	0	0	0	7	0	0	0	0	0	0	0	0
13:45	8	1	0	0	0	0	0	9	0	1	0	0	0	0	0	1
H/TOT	16	5	1	0	0	0	0	22	1	2	0	0	0	0	0	3
14:00	20	0	1	0	0	0	0	21	7	0	0	0	0	0	0	7
14:15	11	2	0	0	0	0	1	14	3	1	0	0	0	0	0	4
14:30	10	2	0	0	0	0	0	12	3	0	0	1	0	0	0	4
14:45	3	4	0	0	0	1	0	8	1	1	1	0	0	0	0	3
H/TOT	44	8	1	0	0	1	1	55	14	2	1	1	0	0	0	18
15:00	13	1	1	1	0	0	0	16	3	2	2	0	0	1	0	8
15:15	9	1	0	0	0	0	1	11	2	2	0	0	0	0	0	4
15:30	9	6	0	0	0	0	0	15	1	1	0	0	0	0	0	2
15:45	12	2	0	0	0	0	0	14	1	0	0	0	0	0	0	1
H/TOT	43	10	1	1	0	0	1	56	7	5	2	0	0	1	0	15
16:00	38	1	0	0	0	1	0	40	8	0	0	0	0	0	1	9
16:15	12	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0
16:30	7	1	0	0	0	0	0	8	4	1	0	0	0	0	0	5
16:45	9	0	1	0	0	0	0	10	2	0	0	0	0	0	0	2
H/TOT	66	2	1	0	0	1	0	70	14	1	0	0	0	0	1	16
17:00	8	0	0	0	0	0	0	8	1	0	0	0	0	0	0	1
17:15	3	1	0	0	0	0	0	4	4	0	0	0	0	0	0	4
17:30	20	1	0	0	0	0	0	21	4	2	0	0	0	1	0	7
17:45	10	4	0	0	0	0	0	14	1	0	0	0	0	0	0	1
H/TOT	41	6	0	0	0	0	0	47	10	2	0	0	0	1	0	13
18:00	6	2	0	0	0	0	0	8	7	0	0	0	0	0	0	7
18:15	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
18:30	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	10	2	0	0	0	0	0	12	8	0	0	0	0	0	0	8
P/TOT	272	59	12	2	0	3	2	350	68	22	3	3	0	3	1	100

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1

LOCATION: A174 / CLEVELAND POTASH MINE

DATE: 12/07/2017

DAY: WEDNESDAY

TIME	MOVEMENT 3 FROM CLEVELAND POTASH MINE TO A174 (NW)								MOVEMENT 4 FROM CLEVELAND POTASH MINE TO A174 (SE)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 5 FROM A174 (SE) TO CLEVELAND POTASH MINE								MOVEMENT 6 FROM A174 (SE) TO A174 (NW)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	3	0	0	0	0	0	0	3	10	0	0	0	0	1	0	11
07:15	6	1	0	0	0	1	1	9	11	1	0	0	0	0	1	13
07:30	5	1	1	0	0	0	0	7	21	2	0	0	1	0	0	24
07:45	9	1	0	0	0	0	0	10	24	4	1	0	0	0	1	30
H/TOT	23	3	1	0	0	1	1	29	66	7	1	0	1	1	2	78
08:00	3	0	0	0	0	0	0	3	22	2	0	0	1	0	0	25
08:15	3	0	0	0	0	0	0	3	16	1	0	0	0	0	0	17
08:30	2	0	1	0	0	0	0	3	20	8	0	0	1	0	0	29
08:45	2	0	0	0	0	0	0	2	25	5	0	0	0	1	0	31
H/TOT	10	0	1	0	0	0	0	11	83	16	0	0	2	1	0	102
09:00	1	0	0	0	0	0	0	1	19	6	0	0	1	0	0	26
09:15	1	0	0	0	0	0	0	1	21	1	0	0	0	0	0	22
09:30	0	0	0	0	0	0	0	0	32	4	3	0	1	0	1	41
09:45	0	0	0	0	0	0	0	0	27	5	0	0	0	0	0	32
H/TOT	2	0	0	0	0	0	0	2	99	16	3	0	2	0	1	121
10:00	0	0	0	0	0	0	0	0	30	2	0	0	1	2	0	35
10:15	0	0	0	0	0	0	0	0	16	2	0	0	0	1	0	19
10:30	0	0	0	1	0	0	0	1	20	8	0	0	1	2	0	31
10:45	0	0	0	1	0	0	0	1	43	1	1	1	0	0	1	47
H/TOT	0	0	0	2	0	0	0	2	109	13	1	1	2	5	1	132
11:00	0	0	0	0	0	0	0	0	25	5	1	0	1	0	0	32
11:15	1	0	0	0	0	0	0	1	26	1	2	0	0	1	0	30
11:30	0	0	0	0	0	0	0	0	25	4	1	0	1	0	0	31
11:45	1	0	0	0	0	0	0	1	24	7	0	0	0	0	0	31
H/TOT	2	0	0	0	0	0	0	2	100	17	4	0	2	1	0	124
12:00	1	0	0	0	0	1	0	2	31	7	2	0	1	0	0	41
12:15	3	1	0	0	0	0	0	4	23	4	1	0	0	0	0	28
12:30	1	0	0	0	0	0	0	1	22	2	0	0	1	1	0	26
12:45	1	0	0	0	0	0	0	1	26	3	1	0	0	1	0	31
H/TOT	6	1	0	0	0	1	0	8	102	16	4	0	2	2	0	126

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 5 FROM A174 (SE) TO CLEVELAND POTASH MINE								MOVEMENT 6 FROM A174 (SE) TO A174 (NW)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
13:00	0	0	0	0	0	0	0	0	33	3	0	0	1	0	0	37
13:15	0	0	1	0	0	0	0	1	19	9	0	0	0	1	0	29
13:30	0	0	0	1	0	0	0	1	34	2	0	0	1	3	0	40
13:45	0	0	0	0	0	0	0	0	35	9	1	0	0	0	0	45
H/TOT	0	0	1	1	0	0	0	2	121	23	1	0	2	4	0	151
14:00	0	0	0	0	0	0	0	0	22	2	0	0	1	2	0	27
14:15	0	0	0	0	0	0	0	0	23	3	1	0	0	1	0	28
14:30	0	0	0	0	0	0	0	0	39	6	0	0	2	2	0	49
14:45	0	0	0	0	0	0	0	0	46	5	0	0	0	0	0	51
H/TOT	0	0	0	0	0	0	0	0	130	16	1	0	3	5	0	155
15:00	0	0	0	0	0	0	0	0	16	4	2	0	1	1	0	24
15:15	0	0	0	0	0	0	0	0	39	4	0	0	0	1	0	44
15:30	0	0	0	0	0	0	0	0	35	8	1	0	2	1	0	47
15:45	0	0	0	0	0	0	0	0	41	7	0	1	0	5	0	54
H/TOT	0	0	0	0	0	0	0	0	131	23	3	1	3	8	0	169
16:00	1	0	0	0	0	0	0	1	43	6	1	0	0	0	0	50
16:15	1	0	0	0	0	0	0	1	42	7	0	0	0	0	0	49
16:30	2	1	0	0	0	0	0	3	29	9	1	0	0	0	0	39
16:45	2	0	0	0	0	0	0	2	32	2	0	0	1	0	0	35
H/TOT	6	1	0	0	0	0	0	7	146	24	2	0	1	0	0	173
17:00	2	0	0	0	0	0	0	2	27	1	0	0	1	0	0	29
17:15	2	0	0	0	0	0	0	2	40	3	0	0	0	2	0	45
17:30	1	1	0	0	0	0	0	2	42	2	0	0	1	1	0	46
17:45	2	0	0	0	0	0	0	2	25	1	1	0	0	3	0	30
H/TOT	7	1	0	0	0	0	0	8	134	7	1	0	2	6	0	150
18:00	1	0	0	0	0	0	0	1	28	0	0	0	1	0	0	29
18:15	4	0	0	0	0	0	0	4	31	2	0	0	0	2	0	35
18:30	4	0	0	0	0	0	0	4	12	4	0	0	1	0	0	17
18:45	4	1	0	0	0	0	0	5	17	3	0	0	0	1	1	22
H/TOT	13	1	0	0	0	0	0	14	88	9	0	0	2	3	1	103
P/TOT	69	7	3	3	0	2	1	85	1309	187	21	2	24	36	5	1584

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	MOVEMENT 5 FROM A174 (SE) TO CLEVELAND POTASH MINE								MOVEMENT 6 FROM A174 (SE) TO A174 (NW)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM A A174 (NW)								FROM ARM A A174 (NW)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	35	2	0	0	0	1	0	38	16	2	2	0	0	0	0	20
07:15	16	3	0	0	0	0	1	20	29	3	0	0	1	0	0	33
07:30	22	2	1	0	1	0	0	26	51	9	1	0	0	1	0	62
07:45	25	5	1	0	0	0	1	32	68	10	1	0	0	0	0	79
H/TOT	98	12	2	0	1	1	2	116	164	24	4	0	1	1	0	194
08:00	24	2	1	0	1	0	0	28	36	11	0	0	0	0	0	47
08:15	16	1	0	0	0	0	0	17	27	5	0	0	1	0	0	33
08:30	20	8	0	0	1	0	0	29	29	10	1	0	0	1	0	41
08:45	26	5	0	0	0	1	0	32	28	9	1	0	1	0	0	39
H/TOT	86	16	1	0	2	1	0	106	120	35	2	0	2	1	0	160
09:00	19	8	2	0	1	0	0	30	26	6	1	0	0	2	0	35
09:15	21	3	0	0	0	0	0	24	26	11	1	0	1	0	0	39
09:30	32	5	3	0	1	0	1	42	23	8	0	0	0	0	0	31
09:45	27	7	2	0	0	0	0	36	22	9	2	0	1	0	0	34
H/TOT	99	23	7	0	2	0	1	132	97	34	4	0	2	2	0	139
10:00	30	2	0	0	1	2	0	35	23	6	2	0	1	0	1	33
10:15	17	2	0	0	0	1	0	20	32	7	1	0	1	0	0	41
10:30	22	12	0	0	1	2	0	37	40	6	1	0	0	1	0	48
10:45	44	4	1	1	0	0	1	51	36	4	1	0	1	0	0	42
H/TOT	113	20	1	1	2	5	1	143	131	23	5	0	3	1	1	164
11:00	25	5	1	0	1	0	0	32	40	7	3	0	0	1	0	51
11:15	28	1	2	1	0	1	0	33	43	7	1	0	1	2	0	54
11:30	25	5	2	0	1	0	0	33	37	6	0	0	0	0	0	43
11:45	25	7	0	0	0	0	0	32	33	12	0	0	1	6	0	52
H/TOT	103	18	5	1	2	1	0	130	153	32	4	0	2	9	0	200
12:00	33	8	2	0	1	0	0	44	38	6	1	0	0	3	0	48
12:15	27	6	1	0	0	1	0	35	44	7	0	0	1	2	1	55
12:30	24	4	0	0	1	1	0	30	29	4	4	0	0	1	0	38
12:45	28	4	2	0	0	1	0	35	34	6	0	0	0	1	2	43
H/TOT	112	22	5	0	2	3	0	144	145	23	5	0	1	7	3	184

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM A A174 (NW)								FROM ARM A A174 (NW)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
13:00	35	4	1	0	1	0	0	41	36	6	1	0	0	0	0	43
13:15	20	10	0	0	0	1	0	31	39	4	0	0	1	1	0	45
13:30	39	4	0	0	1	3	0	47	22	4	1	0	0	0	0	27
13:45	43	10	1	0	0	0	0	54	31	2	0	0	1	1	0	35
H/TOT	137	28	2	0	2	4	0	173	128	16	2	0	2	2	0	150
14:00	42	2	1	0	1	2	0	48	36	3	0	0	0	3	0	42
14:15	34	5	1	0	0	1	1	42	28	4	1	0	1	0	0	34
14:30	49	8	0	0	2	2	0	61	31	3	2	0	0	1	0	37
14:45	49	9	0	0	0	1	0	59	34	0	3	0	1	0	0	38
H/TOT	174	24	2	0	3	6	1	210	129	10	6	0	2	4	0	151
15:00	29	5	3	1	1	1	0	40	31	7	0	0	0	0	0	38
15:15	48	5	0	0	0	1	1	55	44	8	1	0	1	1	2	57
15:30	44	14	1	0	2	1	0	62	33	11	2	0	0	0	0	46
15:45	53	9	0	1	0	5	0	68	24	5	0	0	1	0	1	31
H/TOT	174	33	4	2	3	8	1	225	132	31	3	0	2	1	3	172
16:00	81	7	1	0	0	1	0	90	39	2	0	0	0	0	0	41
16:15	54	7	0	0	0	0	0	61	24	3	0	0	1	1	2	31
16:30	36	10	1	0	0	0	0	47	39	3	1	0	0	1	0	44
16:45	41	2	1	0	1	0	0	45	36	3	0	0	0	0	0	39
H/TOT	212	26	3	0	1	1	0	243	138	11	1	0	1	2	2	155
17:00	35	1	0	0	1	0	0	37	38	1	1	0	1	2	0	43
17:15	43	4	0	0	0	2	0	49	41	0	0	0	1	1	0	43
17:30	62	3	0	0	1	1	0	67	40	4	1	0	0	0	0	45
17:45	35	5	1	0	0	3	0	44	45	3	0	0	1	1	1	51
H/TOT	175	13	1	0	2	6	0	197	164	8	2	0	3	4	1	182
18:00	34	2	0	0	1	0	0	37	34	6	0	0	0	0	0	40
18:15	34	2	0	0	0	2	0	38	36	4	1	0	1	0	1	43
18:30	13	4	0	0	1	0	0	18	33	1	0	0	0	3	3	40
18:45	17	3	0	0	0	1	1	22	33	1	1	0	1	3	0	39
H/TOT	98	11	0	0	2	3	1	115	136	12	2	0	2	6	4	162
P/TOT	1581	246	33	4	24	39	7	1934	1637	259	40	0	23	40	14	2013

TO ARM A IS TOTAL OF MOVEMENTS 3, 6

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM A A174 (NW)								FROM ARM A A174 (NW)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT

FROM ARM A IS TOTAL OF MOVEMENTS 1, 2

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1

DATE: 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE

DAY: WEDNESDAY

TIME	TO ARM B CLEVELAND POTASH MINE								FROM ARM B CLEVELAND POTASH MINE							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	9	0	1	0	0	0	0	10	27	2	0	0	0	0	0	29
07:15	21	2	0	0	0	1	1	25	6	2	0	0	0	0	0	8
07:30	35	5	1	0	0	1	0	42	2	0	1	0	0	0	0	3
07:45	51	5	1	0	0	0	0	57	1	1	0	0	0	0	0	2
H/TOT	116	12	3	0	0	2	1	134	36	5	1	0	0	0	0	42
08:00	20	4	0	0	0	0	0	24	2	0	1	0	0	0	0	3
08:15	11	3	0	0	0	0	0	14	0	0	0	1	0	0	0	1
08:30	9	2	1	0	0	0	0	12	2	0	0	0	0	0	0	2
08:45	5	4	1	0	0	0	0	10	2	1	0	0	0	0	0	3
H/TOT	45	13	2	0	0	0	0	60	6	1	1	1	0	0	0	9
09:00	1	0	0	0	0	0	0	1	1	2	2	0	0	0	0	5
09:15	1	2	0	0	0	0	0	3	0	3	0	0	0	0	0	3
09:30	2	3	0	0	0	0	0	5	1	2	0	0	0	0	0	3
09:45	2	3	0	0	0	0	0	5	0	3	2	0	0	0	0	5
H/TOT	6	8	0	0	0	0	0	14	2	10	4	0	0	0	0	16
10:00	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0
10:15	0	3	0	0	0	0	0	3	1	0	0	0	0	0	0	1
10:30	4	2	0	1	0	0	0	7	2	4	0	0	0	0	0	6
10:45	1	1	0	1	0	0	0	3	1	3	0	0	0	0	0	4
H/TOT	7	7	0	2	0	0	0	16	4	7	0	0	0	0	0	11
11:00	2	2	1	0	0	0	0	5	2	0	0	0	0	0	0	2
11:15	1	2	0	0	0	0	0	3	2	1	0	1	0	0	0	4
11:30	1	1	0	0	0	0	0	2	0	2	1	1	0	0	0	4
11:45	1	2	0	0	0	0	0	3	2	2	0	0	0	0	0	4
H/TOT	5	7	1	0	0	0	0	13	6	5	1	2	0	0	0	14
12:00	3	2	1	0	0	1	0	7	4	2	0	0	0	1	0	7
12:15	4	2	0	0	0	0	0	6	4	3	0	0	0	1	0	8
12:30	3	0	1	0	0	0	0	4	2	2	0	0	0	0	0	4
12:45	4	2	0	0	0	0	0	6	2	1	1	0	0	0	0	4
H/TOT	14	6	2	0	0	1	0	23	12	8	1	0	0	2	0	23

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM B CLEVELAND POTASH MINE								FROM ARM B CLEVELAND POTASH MINE							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
13:00	2	2	1	0	0	0	0	5	2	2	1	0	0	0	0	5
13:15	3	1	1	0	0	0	0	5	2	1	0	0	0	0	0	3
13:30	0	0	0	1	0	0	0	1	5	2	0	0	0	0	0	7
13:45	0	0	0	0	0	0	0	0	8	2	0	0	0	0	0	10
H/TOT	5	3	2	1	0	0	0	11	17	7	1	0	0	0	0	25
14:00	0	0	0	0	0	0	0	0	27	0	1	0	0	0	0	28
14:15	0	3	1	0	0	0	0	4	14	3	0	0	0	0	1	18
14:30	0	1	2	0	0	0	0	3	13	2	0	1	0	0	0	16
14:45	0	0	1	0	0	0	0	1	4	5	1	0	0	1	0	11
H/TOT	0	4	4	0	0	0	0	8	58	10	2	1	0	1	1	73
15:00	0	1	0	0	0	0	0	1	16	3	3	1	0	1	0	24
15:15	0	2	0	0	0	0	0	2	11	3	0	0	0	0	1	15
15:30	0	1	0	0	0	0	0	1	10	7	0	0	0	0	0	17
15:45	1	0	0	0	0	0	0	1	13	2	0	0	0	0	0	15
H/TOT	1	4	0	0	0	0	0	5	50	15	3	1	0	1	1	71
16:00	1	0	0	0	0	0	0	1	46	1	0	0	0	1	1	49
16:15	4	0	0	0	0	0	1	5	12	0	0	0	0	0	0	12
16:30	3	1	1	0	0	0	0	5	11	2	0	0	0	0	0	13
16:45	6	0	0	0	0	0	0	6	11	0	1	0	0	0	0	12
H/TOT	14	1	1	0	0	0	1	17	80	3	1	0	0	1	1	86
17:00	5	0	0	0	0	0	0	5	9	0	0	0	0	0	0	9
17:15	12	0	0	0	0	0	0	12	7	1	0	0	0	0	0	8
17:30	10	2	0	0	0	0	0	12	24	3	0	0	0	1	0	28
17:45	9	0	0	0	0	0	1	10	11	4	0	0	0	0	0	15
H/TOT	36	2	0	0	0	0	1	39	51	8	0	0	0	1	0	60
18:00	3	1	0	0	0	0	0	4	13	2	0	0	0	0	0	15
18:15	10	0	0	0	0	0	0	10	3	0	0	0	0	0	0	3
18:30	11	1	0	0	0	0	0	12	2	0	0	0	0	0	0	2
18:45	11	2	0	0	0	0	0	13	0	0	0	0	0	0	0	0
H/TOT	35	4	0	0	0	0	0	39	18	2	0	0	0	0	0	20
P/TOT	284	71	15	3	0	3	3	379	340	81	15	5	0	6	3	450

TO ARM B IS TOTAL OF MOVEMENTS 2, 5

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM B CLEVELAND POTASH MINE								FROM ARM B CLEVELAND POTASH MINE							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT

FROM ARM B IS TOTAL OF MOVEMENTS 3, 4

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM C A174 (SE)								FROM ARM C A174 (SE)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	12	2	1	0	0	0	0	15	13	0	0	0	0	1	0	14
07:15	15	2	0	0	1	0	0	18	17	2	0	0	0	1	2	22
07:30	22	5	1	0	0	0	0	28	26	3	1	0	1	0	0	31
07:45	26	6	0	0	0	0	0	32	33	5	1	0	0	0	1	40
H/TOT	75	15	2	0	1	0	0	93	89	10	2	0	1	2	3	107
08:00	19	7	0	0	0	0	0	26	25	2	0	0	1	0	0	28
08:15	19	2	0	1	1	0	0	23	19	1	0	0	0	0	0	20
08:30	24	8	1	0	0	1	0	34	22	8	1	0	1	0	0	32
08:45	26	6	0	0	1	0	0	33	27	5	0	0	0	1	0	33
H/TOT	88	23	1	1	2	1	0	116	93	16	1	0	2	1	0	113
09:00	27	6	1	0	0	2	0	36	20	6	0	0	1	0	0	27
09:15	26	10	1	0	1	0	0	38	22	1	0	0	0	0	0	23
09:30	22	6	0	0	0	0	0	28	32	4	3	0	1	0	1	41
09:45	20	7	2	0	1	0	0	30	27	5	0	0	0	0	0	32
H/TOT	95	29	4	0	2	2	0	132	101	16	3	0	2	0	1	123
10:00	21	5	2	0	1	0	1	30	30	2	0	0	1	2	0	35
10:15	32	4	1	0	1	0	0	38	16	2	0	0	0	1	0	19
10:30	36	4	1	0	0	1	0	42	20	8	0	1	1	2	0	32
10:45	35	3	1	0	1	0	0	40	43	1	1	2	0	0	1	48
H/TOT	124	16	5	0	3	1	1	150	109	13	1	3	2	5	1	134
11:00	40	5	2	0	0	1	0	48	25	5	1	0	1	0	0	32
11:15	43	6	1	0	1	2	0	53	27	1	2	0	0	1	0	31
11:30	36	6	0	1	0	0	0	43	25	4	1	0	1	0	0	31
11:45	34	12	0	0	1	6	0	53	25	7	0	0	0	0	0	32
H/TOT	153	29	3	1	2	9	0	197	102	17	4	0	2	1	0	126
12:00	38	5	0	0	0	4	0	47	32	7	2	0	1	1	0	43
12:15	43	7	0	0	1	2	1	54	26	5	1	0	0	0	0	32
12:30	27	4	3	0	0	1	0	35	23	2	0	0	1	1	0	27
12:45	31	4	0	0	0	1	2	38	27	3	1	0	0	1	0	32
H/TOT	139	20	3	0	1	8	3	174	108	17	4	0	2	3	0	134

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM C A174 (SE)								FROM ARM C A174 (SE)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
13:00	34	5	0	0	0	0	0	39	33	3	0	0	1	0	0	37
13:15	37	3	0	0	1	1	0	42	19	9	1	0	0	1	0	30
13:30	22	4	1	0	0	0	0	27	34	2	0	1	1	3	0	41
13:45	31	3	0	0	1	1	0	36	35	9	1	0	0	0	0	45
H/TOT	124	15	1	0	2	2	0	144	121	23	2	1	2	4	0	153
14:00	43	3	0	0	0	3	0	49	22	2	0	0	1	2	0	27
14:15	31	2	0	0	1	0	0	34	23	3	1	0	0	1	0	28
14:30	34	2	0	1	0	1	0	38	39	6	0	0	2	2	0	49
14:45	35	1	3	0	1	0	0	40	46	5	0	0	0	0	0	51
H/TOT	143	8	3	1	2	4	0	161	130	16	1	0	3	5	0	155
15:00	34	8	2	0	0	1	0	45	16	4	2	0	1	1	0	24
15:15	46	8	1	0	1	1	2	59	39	4	0	0	0	1	0	44
15:30	34	11	2	0	0	0	0	47	35	8	1	0	2	1	0	47
15:45	24	5	0	0	1	0	1	31	41	7	0	1	0	5	0	54
H/TOT	138	32	5	0	2	2	3	182	131	23	3	1	3	8	0	169
16:00	47	2	0	0	0	0	1	50	44	6	1	0	0	0	0	51
16:15	21	3	0	0	1	1	1	27	43	7	0	0	0	0	0	50
16:30	42	4	0	0	0	1	0	47	31	10	1	0	0	0	0	42
16:45	34	3	0	0	0	0	0	37	34	2	0	0	1	0	0	37
H/TOT	144	12	0	0	1	2	2	161	152	25	2	0	1	0	0	180
17:00	36	1	1	0	1	2	0	41	29	1	0	0	1	0	0	31
17:15	35	0	0	0	1	1	0	37	42	3	0	0	0	2	0	47
17:30	35	5	1	0	0	1	0	42	43	3	0	0	1	1	0	48
17:45	39	3	0	0	1	1	0	44	27	1	1	0	0	3	0	32
H/TOT	145	9	2	0	3	5	0	164	141	8	1	0	2	6	0	158
18:00	39	5	0	0	0	0	0	44	29	0	0	0	1	0	0	30
18:15	30	4	1	0	1	0	1	37	35	2	0	0	0	2	0	39
18:30	27	0	0	0	0	3	3	33	16	4	0	0	1	0	0	21
18:45	26	0	1	0	1	3	0	31	21	4	0	0	0	1	1	27
H/TOT	122	9	2	0	2	6	4	145	101	10	0	0	2	3	1	117
P/TOT	1490	217	31	3	23	42	13	1819	1378	194	24	5	24	38	6	1669

TO ARM C IS TOTAL OF MOVEMENTS 1, 4

MANUAL CLASSIFIED COUNTS

JOB REF: 21952

JOB NAME: BOULBY

SITE: 1 **DATE:** 12/07/2017

LOCATION: A174 / CLEVELAND POTASH MINE **DAY:** WEDNESDAY

TIME	TO ARM C A174 (SE)								FROM ARM C A174 (SE)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT

FROM ARM C IS TOTAL OF MOVEMENTS 5, 6

Appendix 8B
TEMPro

Dataset Version:	70
Result Type:	Trip ends by time period
Base Year:	2017
Future Year:	2040
Trip Purpose Group:	All purposes
Time Period:	Average Weekday
Trip End Type:	Origin/Destination
Alternative Assumptions Applied:	No

Growth Factor

Area Description		All purposes	
Level	Name	Origin	Destination
E02002530	Redcar and Cleveland 016	1.1308	1.1315

Future Year - Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
E02002530	Redcar and Cleveland 016	786	807

Base Year

Area Description		All purposes	
Level	Name	Origin	Destination
E02002530	Redcar and Cleveland 016	6,011	6,136

Future Year

Area Description		All purposes	
Level	Name	Origin	Destination
E02002530	Redcar and Cleveland 016	6,797	6,943

Local Adjustment

Level	Area	Local Growth Figure
E02002530	Redcar and Cleveland 016	1.15398562

Appendix 8C
PIA Analysis

Appendix 8C
PIA Data Analysis

1. Purpose

This Personal Injury Accident (PIA) data analysis document provides a comparison between the observed number of accidents that have occurred along the A174 and the B1266, between the B1266/A171 junction to the south of the Cleveland Potash mine and the A174/A173 junction to the west.

2. Methodology

PIA data has been obtained from the online database crashmap, which plots accidents recorded by UK police forces across the UK. Accident data has been taken for the eastern and western routes from the site access to the A171. Data for the most recent five-year period has been assessed.

National default accident rates were taken from COBA, the industry-standard DfT software for predicting accident numbers during transport appraisals. COBA accident rates vary depending on the speed limit of the road and its classification (e.g. Modern Dual-Carriageway, Motorway, Older Single-Carriageway).

The PIA data analysis therefore required the two routes to be split into several different sections, depending the roads characteristics.

Accident rates in COBA are quoted in accidents per million vehicle-kilometres (Veh-Km). Veh-km are derived by multiplying the length of a road by its flow.

The length of each of section of road was measured using Google Earth, and the flow was extracted from the two-way ATC data. The flow was then multiplied by 365 to derive the level of traffic for a whole year.

Table 2.1 shows the annual Veh-Km by each section of the road network according to the speed limit and road classification. Sections 1 to 6 cover the eastern route and Section 7 to 13 cover the western route (both of which are defined in the Environmental Statement).

Table 2.1 Annual Veh-Km

Section	Road	Speed limit	Distance (km) (A)	2-way AADT flow (B)	Annual Veh-km (C = A x B x 365)
1	B1266 High Street/A174 Station Road (B1266/A171 rbt to Hinderwell)	60mph	7.62	4104	11,414,455
2	A174 High Street/A174 Hinderwell Lane (Hinderwell)	30mph	0.97	4104	1,453,021
3	A174 Hinderwell Lane (Hinderwell to 100m south of Seaton Hall)	60mph	0.93	4104	1,393,103
4	A174 Hinderwell Lane (100m south of Seaton Hall to Staithes)	40mph	0.25	4104	374,490

5	A174 Whitby Road (Staithes)	30mph	0.61	4104	913,756
6	A174 (Staithes to Boulby Mine)	60mph	1.55	4104	2,321,838
7	A174 (Boulby Mine to Easington)	60mph	1.93	4562	3,213,701
8	A174 Whitby Road (Easington)	30mph	0.81	4562	1,348,755
9	A174 Whitby Road (Easington to Loftus)	40mph	0.87	4562	1,448,663
10	A174 Whitby Road/A174 Victoria Terrace/A174 Zetland Road/A174 Loftus Bank (Loftus)	30mph	1.94	4562	3,230,352
11	A174 Loftus Bank/A174 Mill Bank (Loftus to Carlin How)	40mph	0.97	4562	1,615,176
12	A174 Mill Bank/A174 Brotton Road (Carlin How)	30mph	0.75	4562	1,248,848
13	A174 Brotton Road (Carlin How to A174/A173 rbt)	60mph	5.81	4562	9,674,405

In order to compare predicted and observed data, the observed data was collected for the latest five year period available, which is between 2012 and 2016 and the predicted data was calculated for a five year period based on COBA's accident rates. To calculate this, the five year veh-km for each section of road was multiplied by the relevant COBA accident rate (taken from Table 4/1, Part 2 of the COBA manual).

Note that COBA accident rates are based on 2009 data, but it is known that accident rates fall over time. COBA therefore provides factors to convert the 2009 accident rates to future years, as shown in **Extract 2.1**. These factors are in Table 4/1 of the COBA manual. As the observed accident rates are based on 2012-2016 data, COBA accident rates were calculated for 2014 i.e. the central year of 2012-2016. The calculations are shown in **Table 2.2.**

Extract 2.1 COBA Link and Junction Combined Accident Rates and Change Factors

Link and Junction Combined Accident Rates and Change Factors
Base Year
2009

Road Type	Speed Limit (mph)	Accident Rate	Beta Factor	Road Description
1	50/60/70	0.080	0.956	Motorways
2	50/60/70	0.067	0.956	Motorways
3	50/60/70	0.079	0.956	Motorways
4	30/40	0.532	0.959	Modern S2 Roads
4	>40	0.244	0.955	Modern S2 Roads
5	30/40	0.532	0.959	Modern S2 Roads with HS
5	>40	0.244	0.955	Modern S2 Roads with HS
6	30/40	0.863	0.959	Modern WS2 Roads
6	>40	0.163	0.955	Modern WS2 Roads
7	30/40	0.863	0.959	Modern WS2 Roads w. HS
7	>40	0.163	0.955	Modern WS2 Roads w. HS
8	30/40	0.863	0.959	Older S2 A Roads
8	>40	0.244	0.955	Older S2 A Roads
9	30/40	0.559	0.951	Other S2 Roads
9	>40	0.233	0.933	Other S2 Roads
10	30/40	0.553	0.967	Modern D2 Roads
10	>40	0.107	0.956	Modern D2 Roads
11	30/40	0.599	0.967	Modern D2 Roads with HS
11	>40	0.072	0.956	Modern D2 Roads with HS
12	30/40	0.599	0.967	Older D2 Roads
12	>40	0.107	0.956	Older D2 Roads
13	30/40	0.620	0.951	Modern D3+ Roads
13	>40	0.123	0.946	Modern D3+ Roads
14	30/40	0.620	0.951	Modern D3+ Roads w. HS
14	>40	0.123	0.946	Modern D3+ Roads w. HS
15	30/40	0.620	0.951	Older D3+ Roads
15	>40	0.123	0.946	Older D3+ Roads

Table 2.2 Proportional Year Factor (2009-2014)

Acc/mvkm	Older S2 30/40	Older S2 >40
2009 (A)	0.863	0.244
Factor (as taken from Table 4/1 of the COBA manual)	0.959	0.955
Years (2009-2014)	5	5
2014 (B)	0.811	0.794
Total (A x B)	**0.700**	**0.194**

Based on the above, **Table 2.3** sets out the results of the PIA assessment.

Table 2.3 Predicted and Observed Accident Numbers

Section	Road	5 year Veh-km (D = C x 5)	Road type (Table 4/1 Pt.2 COBA manual)	Default Acc rate per mvkm (2009 base)	Default Acc rate per mvkm (2014) (E)	Predicted Accidents over 5 years (F = D x E)	Observed accidents over 5 years	Change
1	B1266 High Street/A174 Station Road (B1266/A171 rbt to Hinderwell)	57,072,276	Older S2 A Roads	0.244	0.194	14	9	-5
2	A174 High Street/A174 Hinderwell Lane (Hinderwell)	7,265,106	Older S2 A Roads	0.863	0.700	5	3	-2
3	A174 Hinderwell Lane (Hinderwell to 100m south of Seaton Hall)	6,965,514	Older S2 A Roads	0.244	0.194	1	0	-1
4	A174 Hinderwell Lane (100m south of Seaton Hall to Staithes)	1,872,450	Older S2 A Roads	0.863	0.700	1	0	-1
5	A174 Whitby Road (Staithes)	4,568,778	Older S2 A Roads	0.863	0.700	3	1	-2
6	A174 (Staithes to Boulby Mine)	11,609,190	Older S2 A Roads	0.244	0.194	2	2	0
7	A174 (Boulby Mine to Easington)	16,068,505	Older S2 A Roads	0.244	0.194	3	3	0
8	A174 Whitby Road (Easington)	6,743,777	Older S2 A Roads	0.863	0.700	5	2	-3
9	A174 Whitby Road (Easington to Loftus)	7,243,316	Older S2 A Roads	0.863	0.700	5	2	-3
10	A174 Whitby Road/A174 Victoria Terrace/A174 Zetland Road/A174 Loftus Bank (Loftus)	16,151,761	Older S2 A Roads	0.863	0.700	11	16	5
11	A174 Loftus Bank/A174 Mill Bank (Loftus to Carlin How)	8,075,881	Older S2 A Roads	0.863	0.700	6	0	-6

12	A174 Mill Bank/A174 Brotton Road (Carlin How)	6,244,238	Older S2 A Roads	0.863	0.700	4	7	3
13	A174 Brotton Road (Carlin How to A174/A173 rbt)	48,372,027	Older S2 A Roads	0.244	0.194	9	14	5
				Eastern Route		**27**	**15**	**-12**
				Western Route		**44**	**44**	**0**

Author	Reviewer
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Management systems

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Appendix 9A
Scientific Names of Species Mentioned in the ES

Appendix A
Scientific Names of Species Mentioned in the ES

English name	Scientific name
Amphibians and reptiles	
Common toad	*Bufo bufo*
Great crested newt	*Triturus cristatus*
Aquatic fauna	
Brown trout	*Salmo trutta*
Birds	
Mallard	*Anas platyrhynchos*
Red grouse	*Lagopus lagopus*
Grey partridge	*Perdix perdix*
Fulmar	*Fulmarus glacialis*
Cormorant	*Phalacrocorax carbo*
Hen harrier	*Circus cyaneus*
Buzzard	*Buteo buteo*
Oystercatcher	*Haematopus oestralegus*
Golden plover	*Pluvialis apricaria*
Lapwing	*Vanellus vanellus*
Curlew	*Numenius arquata*
Redshank	*Tringa totanus*
Snipe	*Gallinago gallinago*
Black-headed gull	*Chroicocephalus ridibundus*
Lesser black-backed gull	*Larus fuscus*
Herring gull	*Larus argentatus*
Short-eared owl	*Asio flammeus*
Green woodpecker	*Picus viridis*
Great-spotted woodpecker	*Dendrocops major*
Kestrel	*Falco tinnunculus*
Merlin	*Falco columbarius*
Peregrine	*Falco peregrinus*
Goldcrest	*Regulus regulus*

English name	Scientific name
Blue tit	*Cyanistes caerulus*
Great tit	*Parus major*
Coal tit	*Peripatus ater*
Marsh tit	*Poecile palustris*
Skylark	*Alauda arvensis*
Swallow	*Hirundo rustica*
House martin	*Delichon urbichum*
Chiffchaff	*Phylloscopus collybita*
Willow warbler	*Phylloscopus trochilus*
Blackcap	*Sylvia atricapilla*
Lesser whitethroat	*Sylvia curruca*
Whitethroat	*Sylvia communis*
Waxwing	*Bombycilla garrulus*
Nuthatch	*Sitta europaea*
Treecreeper	*Certhia familiaris*
Wren	*Troglodytes troglodytes*
Starling	*Sturnus vulgaris*
Ring ouzel	*Turdus torquatus*
Blackbird	*Turdus merula*
Song thrush	*Turdus philomelos*
Mistle thrush	*Turdus viscivorus*
Robin	*Erithacus rubecula*
Black redstart	*Phoenicurus ochruros*
Whinchat	*Saxicola rubetra*
Stonechat	*Saxicola rubicola*
Wheatear	*Oenanthe oenanthe*
Dunnock	*Prunella modularis*
House sparrow	*Passer domesticus*
Tree sparrow	*Passer montanus*
Grey wagtail	*Motacilla cinerea*

English name	Scientific name
Pied wagtail	*Motacilla alba yarelli*
Rock pipit	*Anthus petrosus*
Chaffinch	*Fringilla coelebs*
Bullfinch	*Pyrrhula pyrrhula*
Linnet	*Carduelis cannabina*
Goldfinch	*Carduelis carduelis*
Siskin	*Carduelis spinus*
Long-tailed tit	*Aegithalos caudatus*
Yellowhammer	*Emberiza citronella*
Invertebrates	
Bloomers rivulet	*Venusia blomeri*
Brown-spot pinion	*Agrochola litura*
Dingy skipper	*Erynnis tages*
Grayling	*Hipparchia semele*
Green-brindled crescent	*Allophyes oxyacanthae*
Shaded broad-bar	*Scotopteryx chenopodiata*
Small pearl-bordered fritillary	*Boloria selene*
Small phoenix	*Ecliptopera silaceata*
Wall	*Lasiommata megera*
White ermine	*Spilosoma lubricipeda*
White-letter hairstreak	*Satyrium w-album*
Mammals	
Badger	*Meles meles*
Brown hare	*Lepus europaeus*
Brown long-eared bat	*Plecotus auritus*
Common pipistrelle	*Pipistrellus pipistrellus*
European hedgehog	*Erinaceus europaeus*
Grey squirrel	*Sciurus carolinensis*
Harvest mouse	*Micromys minutus*
Leislers bat	*Nyctalus leisleri*

English name	Scientific name
Myotis sp.	*Myotis* sp.
Nathusius pipistrelle	*Pipistrellus nathusii*
Noctule bat	*Nyctalus noctula*
Otter	*Lutra lutra*
Soprano pipistrelle	*Pipistrellus pygmaeus*
Plants	
Common valerian	*Valeriana officinalis*
Creeping forget-me-not	*Myosotis secunda*
Cross-leaved heath	*Erica tetralix*
Giant hogweed	*Heracleum mantegazzianum*
Goldenrod	*Solidago virgaurea*
Montbretia	*Crocosmia x crocosmifolia*
Rhododendron	*Rhododendron ponticum*
Sanicle	*Sanicula europaea*
Water whorl-grass	*Catabrose aquatique*
Reptiles	
Slow worm	*Anguis fragilis*

Appendix 9B
Biodiversity Scoping Information

Appendix B
Biodiversity Scoping Information

As discussed in Section **9.6**, the following three tables form part of the assessment process for the operational, decommissioning and restoration phase. The Tables include:

- Table **B.1** lists the receptors that are relevant to the assessment because they are either important or legally protected, and could be affected by the proposed development. A justification is provided for any receptors that are scoped out because they are assessed as being of insufficient value for effects to be likely to be significant.
- For receptors that have not been scoped out (in Table **B.1**), Table **B.2** in Appendix **B** sets out information about the relevant ecological zones of influence relating to the environmental changes that are likely to be caused by the proposed development (where relevant, during operation and decommissioning), which have the potential to cause significant effects and/or contravention of wildlife legislation.
- Table **B.3** sets out a conclusion about the potential for significant effects to occur or for protected species legislation to be contravened.

Evaluation of Receptors

Table **B.1** lists the receptors that are relevant to the assessment because they are either legally protected or of sufficient biodiversity importance that an effect on them could be significant, and which could be affected by the proposed development. A justification is provided for any receptors that are scoped out of further assessment because they are assessed as being of insufficient biodiversity value for potential effects to be significant.

The receptors assessed within Table **B.1** are those that potentially could be significantly affected by proposed works during current operation and decommissioning within the Site. Receptors potentially present within the 2048 Restored Site potentially affected by mine operation are assessed in Section **9.8**.

Table B.1 Evaluation of Receptors

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Phase 1 Habitats				
Amenity grassland	No	No	Fields with little floral diversity. Widely represented in the wider area. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Arable field	No	No	One monoculture field with little floral diversity. Widely represented in the wider area. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Arable field margin	No	Yes	Very narrow margins generally ~1m wide. Poor floral diversity and structure and not managed specifically for biodiversity. Therefore, habitat does not meet criteria to be priority habitat, and so assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Bare ground	No	No	Bare ground areas are located within the operational area. No or little flora present. Bare ground can be an important component of the Open Mosaic Habitats on Previously Developed Land and will therefore be assessed within this context within the priority habitat section below. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Broad-leaved woodland plantation	No	No	Woodland type widely represented in the wider area and is not a priority habitat. Assessed as being of insufficient biodiversity value for potential effects to be significant. Some areas are designated as ancient woodland and/or deciduous woodland but this is covered in the priority habitats section below.	Scoped Out
Buildings/structures including mines and tunnels	No	No	Buildings present on the Mine Site, particularly within the operational area. Widely represented in the wider area. When considered separately, the buildings, tunnels and mines are an important component of roosting bats, and will therefore be assessed within this context within the species section below. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out

[1] * Desk study up to ~10km for statutory Sites designated for bats, up to ~2km for all other statutory and non-statutory Sites Protected species records from within the last ten years.

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Coniferous woodland plantation	No	No	Woodland type does not qualify as a priority habitat and is assessed as being of insufficient biodiversity value for potential effects to be significant. Some areas are designated as ancient replanted woodland but this is covered in the priority habitats section below.	Scoped Out
Ephemeral/short perennial	No	No	Ephemeral/short perennial along railway embankments and within operational area. Little floral diversity and assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Hardstanding	No	No	Hardstanding roads and areas particularly prevalent within the operational area. No flora present. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Hedgerow	No	Yes	Species-poor defunct hedgerows with poor floral diversity and structure and not managed specifically for biodiversity. Therefore, habitat does not meet criteria to be priority habitat, and so assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Improved grassland	No	No	Pasture fields with little floral diversity. Widely represented in the wider area. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Maritime hard/soft cliff	No	Yes	Maritime cliff on the Mine Site are considered to fit the criteria for the priority habitats Maritime cliff and slope, and will therefore be assessed within the priority habitat section below.	Scoped Out
Mixed woodland plantation	No	No	Woodland type widely represented in the wider area and is not a priority habitat. Assessed as being of insufficient biodiversity value for potential effects to be significant. Some areas are designated as ancient replanted woodland but this is covered in the priority habitats section below.	Scoped Out
Ponds	No	Yes	Ponds on the Mine Site are considered to fit the criteria for the priority habitats Ponds, and will therefore be assessed within the priority habitat section below.	Scoped Out
Poor semi-improved grassland	No	No	Fields of poor semi-improved grassland are species-poor, dominated by common grasses. Grazed by sheep and cattle. Widely represented in the wider area. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Rivers/streams	No	Yes	Easington Beck on the Mine Site is considered to fit the criteria for the priority habitats "Rivers and streams", and will therefore be assessed within the priority habitat section below.	Scoped Out
Scattered trees	No	No	Scattered trees on the Mine Site, generally immature to semi-mature and are locally common species. Assessed as being of insufficient biodiversity value on this Mine Site for potential effects to be significant.	Scoped Out
Scrub	No	No	Scattered and dense scrub on the Mine Site, typically locally common species. Widely represented in the wider area. Assessed as being of insufficient biodiversity value for potential effects to be significant. When considered separately, scrub is an important component of the Open Mosaic Habitats on Previously Developed Land and will therefore be assessed within this context within the priority habitat section below.	Scoped Out
Semi-improved neutral grassland	No	No	Semi-improved neutral grassland on the Mine Site comprises of a reasonably diverse grassland sward (herb- and species-rich), however it is less diverse than areas of unimproved grassland within the Mine Site. With evident agricultural improvements, this semi-improved neutral grassland is considered unlikely to qualify as a priority habitat in its own right, however it is a component of Oneham's LWS and will therefore be considered within the non-statutory designated site section below.	Scoped Out
Unimproved neutral grassland	No	No	Areas of unimproved neutral grassland on the Mine Site are predominately considered to be secondary swards; either being semi-natural swards which have colonised previously disturbed ground, or areas of restored ground which show evidence of sowing, but where an otherwise semi-natural sward has established through an absence of management/enrichment. Considering the secondary nature of the habitat present, it is considered unlikely to qualify as Lowland Meadow priority habitat. Considering the previous industrial use of this area of land, and the secondary nature of the habitat on landscaped spoil heaps, the grassland can potentially be considered an important component of the Open Mosaic Habitats on Previously Developed Land, it will therefore be assessed within this context within the priority habitat section below, and will therefore be assessed within the priority habitat section below.	Scoped Out
Tall ruderal	No	No	Tall ruderal on the Mine Site, consisting of locally common species. Widely represented in the wider area. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Priority habitats				

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Ancient woodland/ancient replanted woodland including individual ancient/veteran trees	No	Yes	See Table 8C	Scoped In
Deciduous woodland	No	Yes	The desk study identified that a large proportion of the mature woodland within the Mine Site is recorded on the Priority Habitat Inventory (PHI) as being "deciduous woodland" priority habitat. PHI is a spatial dataset which describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance in England. Lowland mixed deciduous woodland is the Section 41 habitat type which bests describes the woodland habitat with the Mine Site. However, the Section 41 habitat definition for lowland mixed deciduous woodland focuses predominantly on semi-natural woodlands. Similarly, the Tees Valley Biodiversity Action Plan includes semi-natural broadleaved lowland woodland. Consequently, those habitats recorded on the Mine Site are considered unlikely to qualify as either Section 41 or LBAP habitat; thus are not considered to be priority habitat. However, all woodland is to be retained as part of the restoration plan and this receptor is not considered further in this assessment due it not being impacted by works. Assessed as being of insufficient biodiversity value for potential effects to be significant.	Scoped Out
Good quality semi-improved grassland	No	Yes	Although a priority habitat and considered of biodiversity value, the nearest area of this habitat is ~4.7km to the south, therefore in this instance this receptor is not considered further in this assessment due to being of insufficient biodiversity value for potential effects to be significant, as it is not considered present and will not be impacted by works.	Scoped Out
Maritime cliff and slope[2]	No	Yes	See Table 8C	Scoped In
Open mosaic habitat on previously developed land[3]	No	Yes	See Table 8C	Scoped In
Ponds[4]	No	Yes	See Table 8C	Scoped In

[2] This also includes the local BAP habitat 'Maritime cliffs and slopes'.
[3] This also includes the local BAP habitat 'Brownfields'.
[4] This also includes the local BAP habitat 'Ponds'.

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Rivers/streams[5]	No	Yes	See Table 8C	Scoped In
Saline lagoons	No	Yes	Although a priority habitat and considered of biodiversity value, the nearest area of this habitat is ~4.3km to the northwest, therefore in this instance this receptor is not considered further in this assessment due to being of insufficient biodiversity value for potential effects to be significant, as it is not considered present and will not be impacted by works.	Scoped Out
Traditional orchard	No	Yes	Although a priority habitat and considered of biodiversity value, the nearest area of this habitat is ~3.6km to the southwest, therefore in this instance this receptor is not considered further in this assessment due to being of insufficient biodiversity value for potential effects to be significant, as it is not considered present and will not be impacted by works.	Scoped Out
Non-native invasive species				
Canada goose (non-native invasive animal)	Yes	No	The desk study returned a record from ~4.75km south from the Mine Site. They are protected during nesting, but no records of Canada goose are known from the Mine Site. In addition, the habitats on the Mine Site are not optimal for this species who prefer wetland habitat[6]. The species is already widespread, and if they were to be present it would likely only be in small numbers. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scope Out
Giant hogweed (non-native invasive plant)	Yes	No	See Table 8C	Scoped In
Grey squirrel (non-native invasive animal)	Yes	No	See Table 8C	Scoped In
Montbretia (non-native invasive plant)	Yes	No	See Table 8C	Scoped In

[5] This also takes into account the local BAP 'Rivers and Streams'.
[6] Pers comm. with principal ornithologist James Wilson on 25th October 2017.

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Rhododendron (non-native invasive plant)	Yes	No	See Table 8C	Scoped In
Protected Species				
Badger	Yes	No	See Table 8C	Scoped In
Bats	Yes	Yes	See Table 8C	Scoped In
Common porpoise	Yes	Yes	Common porpoise will not occur within the Mine Site or in the immediate area as there is no suitable habitat present; common porpoise inhabit offshore open sea habitat. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scope Out
Great crested newts	Yes	Yes	See Table 8C	Scoped In
Grey seal	Yes	No	Grey seal are not present within the Mine Site or in the immediate area as there is no suitable habitat present. All desk study records were from Skinningrove which is approximately 4.3km west of the Mine Site. The nearest main breeding colony of grey seals is the Farne Island (http://www.nhsn.ncl.ac.uk/interests/mammals/mammals-north-east/grey-seal/). A non-breeding population of grey seal occurs within the Tees Estuary, primarily around Seal Sands ~23km northwest. Although legally protected, they are assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scoped Out
Otter	Yes	Yes	See Table 8C	Scoped In
Reptiles	Yes	Yes	See Table 8C	Scoped In

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Water vole	Yes	Yes	Water vole are unlikely to occur within the Mine Site due to the absence of local records (the desk study did not return any records within ~5km) and the UK distribution (http://www.wildlifetrusts.org/Sites/default/files/guide_to_the_use_of_project_outputs_2014.pdf). The Wildlife Trusts national database and mapping project reveals the nearest recorded population of water vole to be within the vicinity of Guisborough[7], which is approximately 8.5 miles southwest from the Mine Site. The 10km grid square that Boulby Mine is located within does not contain any water vole records. The Mine Site does not support suitable habitat within water vole dispersal distance (~2km) from known populations, The majority of water courses on the Mine Site are not suitable to support water vole as they contain dense tree cover along their banks. The ~200m length of superficial suitable habitat (along Boulby Gill) is not appropriate to support a viable population of water vole, as a self-sustaining population requires at least ~2km or ~6km. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scoped Out
White-clawed crayfish	Yes	Yes	White-clawed crayfish very unlikely to occur within the Mine Site or in the immediate area due to absence of local records and the species UK distribution (http://jncc.defra.gov.uk/publications/JNCC312/species.asp?FeatureIntCode=s1092). No records returned from desk study. The scoping opinion states that it is considered highly unlikely this species will be present on the Mine Site. If they were to be present, white-clawed crayfish, environmental measures would protect this species from pollution (see Table 8C for justification). Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scoped Out
Priority Species				
Brown hare	No	Yes	See Table 8C	Scoped In
Brown trout	No	Yes	See Table 8C	Scoped In
Common toad	No	Yes	See Table 8C	Scoped In

[7] The quality of the mapping means it is difficult to ascertain an exact location.

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Harvest mouse	No	Yes	No evidence of harvest mouse found during the baseline survey and they are therefore considered to be either absent or present in very low number of individuals. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scope Out
European hedgehog	No	Yes	See Table 8C	Scoped In
Invertebrates (bloomers rivulet, brown-spot pinion, dingy skipper, grayling, green-brindled crescent, shaded broad-bar, small pearl-bordered fritillary, small phoenix, wall, white ermine, and white-letter hairstreak)	No	Yes (only for species listed)	See Table 8C	Scoped In
Plants (notable and priority plant species) (including bristly oxtongue, sea pearlwort, water whorl-grass, wood vetch, common valerian, goldenrod, sanicle, common quaking-grass and tormentil)	No	Yes (only for species listed)	See Table 8C	Scoped In
Risso's dolphin	No	Yes	Risso's dolphin will not occur within the Mine Site or in the immediate area as there is no suitable habitat present; Risso's dolphin inhabit offshore open sea habitat. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scoped Out
Statutory designated Sites				
Boulby Quarries SSSI	Yes	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works.	Scoped Out

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Clarksons Wood LNR	Yes	Yes	See Table 8C	Scoped In
Loftus Wood LNR	Yes	Yes	See Table 8C	Scoped In
North York Moors NPA	Yes	Yes	See Table 8C	Scoped In
North York Moors SSSI	Yes	Yes	See Table 8C	Scoped In
North York Moors SAC	Yes	Yes	See Table 8C	Scoped In
North York Moors SPA	Yes	Yes	See Table 8C	Scoped In
Rosecroft Woods LNR	Yes	Yes	See Table 8C	Scoped In
Runswick Bay SSSI	Yes	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Staithes – Port Mulgrave SSSI	Yes	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Whitecliff, Iotus and Rosecraft Woods LNR	Yes	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Non-statutory designated Sites				
Blue House Farm Grassland North LWS	No	Yes	See Table 8C	Scoped In
Easington Beck Complex LWS	No	Yes	See Table 8C	Scoped In

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Easington Beck LGS	No	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Extension to Loftus Wood Complex LWS	No	Yes	See Table 8C	Scoped In
Grinkle Park Grassland South East LWS	No	Yes	See Table 8C	Scoped In
Grinkle Park Grassland South LWS	No	Yes	See Table 8C	Scoped In
Handale Abbey Grassland LWS	No	Yes	See Table 8C	Scoped In
Handale Banks Grassland LWS	No	Yes	See Table 8C	Scoped In
Handale Pasture LWS	No	Yes	See Table 8C	Scoped In
Holygill Grassland LWS	No	Yes	See Table 8C	Scoped In
Hummersea Back LWS	No	Yes	See Table 8C	Scoped In
Kilton Beck LGS	No	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Kilton Beck Complex LWS	No	Yes	See Table 8C	Scoped In
Loftus Woods Complex LWS	No	Yes	See Table 8C	Scoped In

Legally protected and/or 'Important' receptors recorded within the study area from desk study[1] and/or field surveys	Legally protected and controlled species (see Box 2 in Chapter 9)	Designated biodiversity Sites and priority habitats and species (see Box 1 in Chapter 9)	Justification if receptors are of insufficient biodiversity value for effects to be significant (Box 3 in Chapter 9)	Scoping conclusion
Low Waupley Farm Lane Grassland LWS	No	Yes	See Table 8C	Scoped In
Moorsholm Lane Verge LWS	No	Yes	See Table 8C	Scoped In
Onehams Pasture LWS	No	Yes	See Table 8C	Scoped In
Saltburn to Skinningrove Coast LGS	No	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Saltburn to Staithes Coast 1 LWS	No	Yes	See Table 8C	Scoped In
Saltburn to Staithes Coast 2 LWS	No	Yes	See Table 8C	Scoped In
Saltburn to Staithes Coast LGS	No	Yes	Designated for geological value. Assessed as being of insufficient biodiversity value for potential effects to be significant, as they are not considered present and will not be impacted by works	Scoped Out
Skinningrove Grassland LWS	No	Yes	See Table 8C	Scoped In
Skinningrove Cliffs (east) LWS	No	Yes	See Table 8C	Scoped In
Skinningrove Cliffs (west) LWS	No	Yes	See Table 8C	Scoped In
Waupley Wood grassland LWS	No	Yes	See Table 8C	Scoped In
Warren Cottage Grassland LWS	No	Yes	See Table 8C	Scoped In
Waytail Beck Grassland LWS	No	Yes	See Table 8C	Scoped In

Justification for Defining Zones of Influence

Table **B.2** defines the ZoI which have been used during the assessment, and provides a rationale justifying how these have been determined. Receptors have only been assessed against potential environmental changes to which they are likely to be sensitive. Whether a receptor is sensitive or not to an environmental change has been determined based on professional judgement, project design, statutory guidance and appropriate relevant literature. Proposed operational, decommissioning and restoration areas, and the Mine Site boundary, as defined in **Chapter 9**, are referenced as appropriate.

Table B.2 Justification for Defining Zones of Influence

Environmental Change	Receptor	Zone of Influence (ZoI)	Justification
Land-take/Land cover change	All receptors	Within operational area and decommissioning & restoration area	Land-take/land cover change will only take place where decommission and restoration is planned. Other areas within and outside the Mine Site boundary would not be affected by land-take/land cover change.
	Montbretia/giant hogweed/rhododendron	~3m from the operational area and decommissioning & restoration area	These plants can spread their roots and seeds if disturbed (https://www.gov.uk/japanese-knotweed-giant-hogweed-and-other-invasive-plants). Any work within ~3m from the plant may spread roots/seeds.
	GCN	~500m from the operational and decommissioning & restoration area	This zone of influence is based on best practice guidance (Great crested newt mitigation guidelines, English nature 2001).
	Priority woodland habitats including individual ancient/veteran trees	~15x the diameter of the trunk or 2m beyond the canopy (whichever is the greater) from the operational and decommissioning & restoration area	These trees can be damaged via ground works. This zone of influence is based upon guidance: https://www.woodlandtrust.org.uk/mediafile/100263310/pg-wt-2014-ancient-tree-guide-3-development.pdf?cb=61526d506cac4666b82c563b254cc70f. Distance represents a precautionary approach for the root protection zones. Each tree will be assessed against a ZoI on an individual basis.
Changing levels of light, noise and/or vibration	Badger	~30m from the operational area and decommissioning & restoration area	This zone of influence is based upon guidance from English Nature "Badgers and Development" 2002.

Environmental Change	Receptor	Zone of Influence (ZoI)	Justification
	Bats	~100m from the operational area and decommissioning & restoration area	Light spill from temporary lighting during the decommissioning periods would be restricted to the working area as far as possible; however, lights on the Mine Site including vehicles may typically cast light to a distance of approximately ~100m. Given the Mine Site already supports vehicle movement at night this ZoI is considered to be worst case scenario. There is little information on the effects of noise and vibration on bats, however recent studies indicate that bats foraging ability can be adversely affected by road and wind turbine noise up to a distance of at least 50-60m. The ZoI takes into account potential disturbance distance via noise and vibration, and although literature shows this may be to a distance of ~50-60m, a distance of ~100m is being used to account for lighting.
	Great crested newt	Within the operational area and decommissioning & restoration area	Best practice guidance states "Great crested newt populations are fairly robust to modest disturbance". Within the guidance neither noise, lighting, nor vibration are mentioned as having a potential impact on GCN. There is a lack of research into how lighting affects newts (CIEEM 2008). However, given torching is an appropriate method for GCN surveying, and that GCN are known to breed in quarry ponds where active operations have been ongoing, such as blasting and the driving of large trucks[8], it is considered that this zone of influence is appropriate and takes into account potential disturbance via noise, vibration and lighting.
	Otter	~200m from operational area and decommissioning & restoration area	In the absence of specific guidance relating to distance form NE, this zone of influence is based upon guidance from Scottish Natural Heritage (SNH) "Protected Species Advice for Developers" 2016. SNH state that otter disturbance can occur up to 200m from a natal holt. As there are watercourses on the Mine Site with natal holt potential, the 200m ZoI is considered appropriate.
	Reptiles	Within operational area and decommissioning & restoration area	This zone of influence is based on professional judgement of reptile behaviour. Although only protected from killing and injury, this environmental change has been included to account for a worst case scenario to allow for any potential effects on the conservation status of reptiles on-site. The ZoI takes into account potential disturbance distance via light, noise and vibration during current operation and decommissioning & restoration of the mine.
	Brown hare, Common toad, and European hedgehog	Within operational area and decommissioning & restoration area	This zone of influence is based on professional judgement of the species behaviour and as best practice a worst case scenario approach has been adopted to allow for any potential effects on the conservation status of priority species on-site. The ZoI takes into account potential disturbance distance via light, noise and vibration during current operation and the decommissioning & restoration area of the mine.

[8] Wood. (formerly Amec Foster Wheeler) have worked on several active quarry sites in northern England that have had GCN within ponds.

Environmental Change	Receptor	Zone of Influence (ZoI)	Justification
Dust deposition	Designated sites (that are designated for their habitats), priority habitats, watercourses and water bodies	~50m from operational area and decommissioning & restoration area	This zone of influence is based upon the "IAQM (Institute of Air Quality Management) guidance on the assessment of dust from demolition and construction", 2014.
Atmospheric (including acidic) pollution	European designated sites (that are designated for their habitats)	~10km from the operational area and decommissioning & restoration area, and ~200m from rail and road links	This distance represents a precautionary approach for European designated sites with notable habitats present that may be affected by atmospheric and acidic deposition. This zone of influence is based upon the DEFRA and EA guidance https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas. Other than for the potential effects of nitrogen deposition on NYM SAC[9], only the decommissioning and restoration phase is considered due to the environmental permit controls that are in place during current operations.
	SSSIs	~2km from the decommissioning & restoration area	This distance represents a precautionary approach for nationally designated sites with notable habitats present that may be affected by atmospheric and acidic deposition. This zone of influence is based upon the DEFRA and EA guidance https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas. Only the decommissioning and restoration phase is considered due to the environmental permit controls that are in place during current operations.
	Ancient woodland/ancient replanted woodland including individual ancient/veteran trees, local wildlife sites and national and local nature reserves)	~2km from the decommissioning & restoration area	Distance represents a precautionary approach for nationally designated sites with notable habitats present that may be affected by atmospheric and acidic deposition. This zone of influence is based upon the DEFRA and EA guidance https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit#screening-for-protected-conservation-areas. Only the decommissioning and restoration phase is considered due to the environmental permit controls that are in place during current operations.
	Priority habitats and species (excluding ancient woodland)	~200m from the decommissioning & restoration area	Operational impacts scoped out following scoping opinion which stated gaseous and particulate emissions arising from the processing of minerals should be scoped out because of the environmental permit controls in place. Potential impacts during decommissioning & restoration are limited to an increase in transport on the Mine Site only, therefore a ~200m ZoI has been applied following guidance in Natural England "Potential risk of impacts of nitrogen oxides from road traffic on designated nature conservation sites" 2016. Only the decommissioning and restoration phase is considered due to the environmental permit controls that are in place during current operations.

[9] Wood (2017) Boulby mine: Habitats Regulations Assessment Screening.

Environmental Change	Receptor	Zone of Influence (ZoI)	Justification
Change in vehicle movement	Badger, bats, great crested newt, otter, reptiles, brown hare, common toad and European hedgehog	Within the Mine Site boundary	This zone of influence is based on an increase in vehicle movement on the Mine Site during operation and decommissioning & restoration and risk of direct collision.
	Montbretia/Giant hogweed/rhododendron	~3m from the operational area and decommissioning & restoration area	These plants can spread their roots and seeds if disturbed (https://www.gov.uk/japanese-knotweed-giant-hogweed-and-other-invasive-plants). Any vehicle movement within ~3m from the plant may spread roots/seeds.
	Designated sites (SSSI, SAC and SPA)	Within the designated site boundary	This zone of influence is based on an increase in vehicle movement on the designated sites during operation and decommissioning & restoration and risk of direct collision.
Water pollution[10]	Water bodies, statutory sites (with water dependent habitats), watercourses, otter, great crested newt, common toad, and other aquatic priority species (e.g. brown trout).	Within ~8m of a watercourse/waterbody bank-top, For downstream effects, a total length of ~3.5 km of watercourses covering all areas of watercourse within the mine (including Boulby Gill, Twizzie Gill, Newton Gill and Easington Beck), and downstream areas that run into Staithes Beck and to the coast.	Distance represents a precautionary approach for ditches, drains, and streams. The zone of influence is based on Environment Agency guidance and the governments mapped fluvial flood risk zones: https://flood-map-for-planning.service.gov.uk/summary/476027/518845.8. Each watercourse/waterbody will be assessed against a ZoI on an individual basis as dispersion may vary due to topography.

Environmental Changes and zones of influence

Table **B.3** describes the environmental changes which could impact upon individual receptors, and concludes whether there is the potential for significant effects and/or contravention of protected species legislation. Receptors have only been assessed against potential environmental changes to which they are likely to be sensitive. For example, "hedgerow" as a receptor would not be sensitive to light, noise and vibration. Whether a receptor is sensitive or not to an environmental change has been determined based on professional judgement, project design, statutory guidance and appropriate relevant literature.

[10] Change in the water table was also considered but this was scoped out following a discussion with Gareth Owen from the Water management team, on 18th October 2017, due to the already present drainage system. As such no consideration is therefore given to water dependent habitats.

The receptors assessed within Table **B.3** are those that potentially could be significantly affected by operational and proposed decommissioning works on the Mine Site.

Table B.3 Environmental Changes and Zones of Influence

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Priority habitats					
Ancient woodland/ancient replanted woodland including individual ancient/veteran trees	Land-take/Land cover change	~15x the diameter of the trunk or 2m beyond the canopy (whichever is the greater) from the operational and decommissioning & restoration area	Yes	**No –** receptor is potentially within the ZoI. The desk study identified that a large proportion of the mature woodland within the Mine Site is recorded on the Ancient Woodland Inventory (AWI) as being ancient replanted woodland, and a smaller area of mature woodland on Rabbit Hill Plantation is recorded on the AWI as semi-natural woodland. No areas of woodland have been identified as true semi-natural woodland. However, the woodland habitat is broadly consistent with ancient replanted woodland. Woodland canopy generally appears to have originated from planting, though the canopy is predominantly well-established and mature. There are differing levels of natural regeneration throughout, with some areas becoming more/very naturalised in the lower canopies, and ground flora is diverse and varied and includes several species which are indicative of ancient woodland in North East Yorkshire[11]; and thus appearing more like semi-natural woodland. Given the above, and that all woodland to be retained during current working and demolition proposals, and environmental measures such as ensuring all woodland habitat is retained, and no ground works to be carried out within the root protection zone of any ancient/veteran tree, will mean these habitats would not be significantly affected by the works.	

[11] Table of ancient woodland indicator plants for North East Yorkshire, shown on pages 558-561 in Rose & O'Reilly (2006)**Error! Bookmark not defined.**.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** only a small proportion of the receptor is within the ZoI; ~2.5ha of a total ~23ha. However, there are environmental measures already in place (for example vehicle washes and dust suppressors), and as there will be no change to operations, this means the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by the works.	**No –** the receptor is within the ZoI. Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. In addition only a small proportion (~2.5ha of a total ~23ha) of the woodland on the Mine Site is within the ZoI which means this habitat would not be significantly affected by the works. In addition, any additional tree planting undertaken under the habitat management plan proposed will consist of tree species that are most resilient to the local conditions as revealed by results of the trial plots. This habitat will not be significantly affected by the works.
	Atmospheric pollution	~2km from operational area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Maritime cliff and slope	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is not within the ZoI. This habitat will not be significantly affected by the works.
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** although the receptor is within the ZoI, works within the closest section of the operational area are limited to two transformer buildings and no mining buildings (~60m distant from maritime cliff habitat). In addition, only ~1.3ha of the habitat is within the ZoI, which is a very small percentage designated as maritime cliff and slope along this coastline. Therefore this habitat will not be significantly affected by the works.	**No –**the receptor is within the ZoI. Although the operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. In addition, works within the closest section of the operational area (pump house site) are limited to a small number of transformer buildings only (~60m distant). With the inclusion of environmental measures there are not considered to be any significant effect upon this habitat.
	Atmospheric pollution	~200m from the decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Open mosaic habitat on previously developed land	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. The habitat is approximately ~135m southeast from the operational and decommissioning area. This area of land is to be retained during current working and demolition proposals. This habitat will not be significantly affected by the works.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. The habitat is approximately ~85m southeast from the ZoI. This habitat will not be significantly affected by the works.	
	Atmospheric pollution	~200m from the decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.
Ponds	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to current operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI, however the ponds are to be retained during the decommissioning phase in the future baseline scenario. Environmental measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered this habitat will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, dust reducing mitigation is already in place (for example vehicle washes and dust suppressors), and there will be no change to current operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by the works.	**No –** the receptor is within the ZoI. Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. This habitat will not be significantly affected by the works.
	Atmospheric pollution	~200m from the decommissioning & restoration area only	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.
	Water pollution	Within ~8m of a waterbody bank-top	No	**No –** the receptor is not within the ZoI. The closest pond is directly above the culverted Easington Beck. All other ponds >200m from the watercourses. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is not within the ZoI. This habitat will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Rivers/streams	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by the works.	**No –** the receptor is within the ZoI. The decommissioning future baseline would see existing culverts below the mine opened up to open surface channels compared to against the proposed development where these will remain culverted. Continuing working practices with environmental measures such as adhering to PPG will mean this habitat will not be significantly affected by the works.
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, dust mitigation measures already in place (for example vehicle washes and dust suppressors) ensures this habitat would not be significantly affected by the current mine works.	**No -** the receptor is within the ZoI. Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. This habitat will not be significantly affected by the works.
	Atmospheric pollution	~200m from the decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This habitat will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Water pollution	Within ~8m of a watercourse bank-top, For downstream effects, a total length of ~3.5 km of watercourses covering all areas of watercourse within the mine (including Boulby Gill, Twizzie Gill, Newton Gill and Easington Beck), and downstream areas that run into Staithes Beck and to the coast.	Yes	**No –** the receptor is within the ZoI. However, there are environmental measures already in place for the mine (for example Substance Spill Management), and as there will be no change to operations, the current conditions that the receptor exists within will remain the same. A water quality and freshwater invertebrate survey was carried out from 1997-2013 (Mercer 2014) within Easington Beck at two locations; sampling above and below the confluence of the Boulby Gill and Easington Beck (which allowed a comparison to ascertain if there was any pollution from site drainage from the mine to the downstream area). Water at both locations was rated as being of "exceptional quality" and there was no significant difference between the two locations. This habitat will not be significantly affected by the works.	**No –** the receptor is within the ZoI. However, given the water quality and freshwater invertebrate survey results over a span of 16 years, and as the mine has been present for ~45 years having previously had no lasting significant effect on the water quality of the becks, it is unlikely there will be any significant effects in the decommissioning phase of the future baseline scenario compared against the proposed development (continuing working practices with environmental measures). It is therefore considered that only negligible changes would occur. Environmental measures will be put in place and best practice adhered to, will ensure there will be no significant effect on this species by the works.
Non-native invasive species					
Giant hogweed (non-native invasive plant)	Land-take/Land cover change	~3m from the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. The receptor was recorded ~55m southwest of the operational area. All works would follow an invasive species method statement (as part of environmental measures) to prevent potential spread of this species. No contravention of legislation.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	~3m from the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI, however environmental measures would ensure no legal breach. All works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.	
Grey squirrel (non-native invasive animal)	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, the species is already widespread throughout the Mine Site and wider landscape. Current working and demolition are not considered to potential increase the spread of this species. No contravention of legislation.	
Montbretia (non-native invasive plant)	Land-take/Land cover change	~3m from the operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. All future operational works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.	**No –** the receptor is within the ZoI with a new native hedgerow proposed (as part of decommissioning works) along the track where the tall ruderal vegetation which includes the stand of Montbretia. The proposed hedgerow would also be included under the current working phase of the proposed development. However, environmental measures would ensure no legal breach as all works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	~3m from the operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI, however environmental measures would ensure no legal breach. All future operational works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.	**No –** the receptor is within the ZoI due to vehicle movement involved during the hedgerow creation along the track where the tall ruderal vegetation which includes the montbretia stand. This is proposed during both the decommissioning and restoration phase of the future baseline scenario and the current working proposals. However, environmental measures would ensure no legal breach. All works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.
Rhododendron (non-native invasive plant)	Land-take/Land cover change	~3m from the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI.	**No –** the receptor is not within the ZoI.
	Change in vehicle movement	~3m from the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Environmental measures would ensure no legal breach. All future operational works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.	**No –** the receptor is not within the ZoI. Environmental measures would ensure no legal breach. All works would follow an invasive species method statement to prevent potential spread of this species. No contravention of legislation.
Protected species					

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Badger	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** Receptor potentially within ZoI, but no recent and definite badger evidence recorded on the Mine Site during the course of ecological survey work. A potential disused outlier sett was recorded in Mines Wood (albeit there were no signs of recent activity); this was located ~235m southeast of the operational area. There will be no change to operations, meaning the current conditions will remain the same. This species will not be significantly affected by ongoing works.	**No -** Receptor potentially within ZoI. However, environmental measures would ensure no legal breach if commuting/foraging badger are present on the Mine Site. All works would follow a protected species method statement to prevent potential breach of environmental legislation. This species will not be significantly affected by the works.
	Changing levels of light, noise and vibration	~30m from operational area and decommissioning & restoration area	Yes	**No –** Receptor potentially within ZoI, but no recent badger evidence recorded on the Mine Site during the course of ecological survey work. A potential disused outlier sett was recorded in Mines Wood, however there were no signs of recent activity, and this was outside the ZoI. There will be no change to operations, meaning the current conditions will remain the same. This species will not be significantly affected by ongoing works.	**No -** Receptor potentially within ZoI. Although operational related noise, light and vibration would have ceased in this future baseline scenario, the decommissioning activities would themselves require light (i.e. security lighting), noise and vibration (i.e. decommissioning of the buildings). Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur, and would ensure no legal breach if commuting/foraging badger were to be on the Mine Site. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** Receptor potentially within the ZoI, but no recent badger evidence recorded on the Mine Site during course of ecological survey work. A potential disused outlier sett was recorded in Mines Wood but there was no signs of recent activity. Environmental measures would ensure no legal breach if commuting/foraging badger were to be on the Mine Site. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. There will be no change to operations, meaning the current conditions will remain the same. This species will not be significantly affected by ongoing works.	**No -** Receptor potentially within ZoI. Although operational related traffic would have ceased in this future baseline scenario, the decommissioning activities would themselves require traffic, particularly those activities outwith the operational area e.g. soil reprofiling and planting that may increase the traffic around the Mine Site. Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur and would ensure no legal breach if commuting/foraging badger were to be on the Mine Site. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.
Bat roosting: Operational area	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** receptor is within the ZoI - an individual common pipistrelle transitional roost was identified in Building 06. However, there will be no change in the use of the building during ongoing works, therefore there is considered to be no potential for any significant impacts upon this species.	**Yes** – The receptor is within the ZoI. An individual common pipistrelle transitional roost was identified in building 6. Common pipistrelle makes up at least 90% of the total number of bats in the Tees Valley, and is the only species not to be included on the Tees Valley BAP (Tees Valley BAP, 2012). As such, it is therefore not considered to be of sufficient biodiversity conservation value for a potential significant effect to occur in EIA terms regarding its biodiversity conservation value, but solely in respect of contravention of the legislation.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Changing levels of light, noise and vibration	~100m from operational area and decommissioning & restoration area	Yes	**No –** receptor within the ZoI. Activity and emergence/re-entry surveys identified limited bat activity (foraging and commuting) within the operational area, with a higher level of activity recorded in the surrounding ~100m. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**Yes** – The receptor is within the ZoI. An individual common pipistrelle transitional roost was identified in building 6. Common pipistrelle makes up at least 90% of the total number of bats in the Tees Valley, and is the only species not to be included on the Tees Valley BAP (Tees Valley BAP, 2012). As such, it is therefore not considered to be of sufficient biodiversity conservation value for a potential significant effect to occur in EIA terms regarding its biodiversity conservation value, but solely in respect of contravention of the legislation.
	Change in vehicle movement	Within the Mine Siteboundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However, environmental measures would ensure no legal breach. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.
Bat roosting: Mine Site	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. The brown-long-eared roost within the disused mineral line tunnel is located ~280m southeast of the operational area. The mine tunnel adjacent the archaeological dig is located ~120m south of the operational area. Bat box 24 (common pipistrelle roost) is located ~200m east of the operational area.	**No –** the receptor is not within the ZoI. The brown-long-eared roost within the disused mineral line tunnel is located ~235m southeast of the decommissioning area. The mine tunnel adjacent the archaeological dig is located ~120m south of the decommissioning area. Bat box 24 (common pipistrelle roost) is located ~160m east of the decommissioning area. The common pipistrelle roost in the disused shaft building is located ~120m to the west of the decommissioning area.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
				The common pipistrelle roost in the disused shaft building is located ~120m to the west of the operational area. This species will not be significantly affected by ongoing works.	These roosts will also be retained during current working and demolition proposals. This species will not be significantly affected by the works.
	Changing levels of light, noise and vibration	~100m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. The brown-long-eared roost within the disused mineral line tunnel is located ~280m southeast of the operational area. The mine tunnel adjacent the archaeological dig is located ~120m south of the operational area. Bat box 24 (common pipistrelle roost) is located ~200m east of the operational area. The common pipistrelle roost in the disused shaft building is located ~120m to the west of the operational area. This species will not be significantly affected by ongoing works.	**No –** the receptor is not within the ZoI. The brown-long-eared roost within the disused mineral line tunnel is located ~235m southeast of the decommissioning area. The mine tunnel adjacent the archaeological dig is located ~120m south of the decommissioning area. Bat box 24 (common pipistrelle roost) is located ~160m east of the decommissioning area. The common pipistrelle roost in the disused shaft building is located ~120m to the west of the decommissioning area. This species will not be significantly affected by the works.
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However, environmental measures would ensure no legal breach. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.
Bat assemblage: Foraging and commuting within the Mine Site	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** receptor within the ZoI. Activity and emergence/re-entry surveys identified limited bat activity (foraging and commuting) within the operational area, with a higher level of activity recorded in the surrounding ~100m.	**No –** receptor is within the ZoI. However, environmental measures would ensure no legal breach. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
				There will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	
	Changing levels of light, noise and vibration	~100m from operational area and decommissioning & restoration area	Yes	**No –** receptor within the ZoI. Activity and emergence/re-entry surveys identified limited bat activity (foraging and commuting) within the operational area, with a higher level of activity recorded in the surrounding ~100m. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** receptor is within the ZoI. However, environmental measures would ensure no legal breach. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** receptor is within the ZoI. However, environmental measures would ensure no legal breach. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.	**No –** receptor is within the ZoI. However, environmental measures would ensure no legal breach. All works would follow a protected species method statement to prevent potential breach of environmental legislation spread of this species. No contravention of legislation. This species will not be significantly affected by the works.
Great crested newts (GCN)	Land-take/Land cover change	Within ~500m of the operational area and decommissioning & restoration area	Yes	**No –** Receptor within the ZoI. Two ponds were identified to contain GCN; P3 and P1 which are located ~320m northwest and ~100m of the west of the operational area respectively.	**Yes** – The receptor is within the ZoI. It is likely pond 1 supports a single GCN population, rather than a metapopulation. Although GCN are widely distributed across the Tees Valley, there are few records from the lower Tees Estuary, with populations seemingly small and fragmented (Tees Valley BAP, 2012).

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
				Due to the distance it is unlikely GCN will commute from P3 onto the operational area; habitat within ~250m of a pond is the area most likely to be used by GCN (English Nature, 2001). Although P1 is closer, it is also considered unlikely GCN will commute to the operational area due to the following: - The operational area largely comprises hard standing which is unsuitable for GCN; - The land between the pond and operational area is cattle grazed pasture which is suboptimal commuting and refuging habitat; - There is suitable scrub habitat immediately surrounding the pond; - Woodland is located ~35m to the southwest, with a tree line leading from the pond to the woodland. It is therefore likely GCN will use this tree line to commute to the woodland and use the woodland for refuge and hibernation rather than commute to the operational area. In addition, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. With the inclusion of environmental measures such as working to a protected species method statement, this species will not be significantly affected by ongoing works.	As such, the ponds and the GCN populations they support are therefore not considered to be of sufficient biodiversity conservation value for a potential significant effect to occur in EIA terms regarding its biodiversity conservation value, but solely in respect of contravention of the legislation.

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				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Changing levels of light, noise and vibration	Within the operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**Yes -** The receptor is within the ZoI. It is likely pond 1 supports a single GCN population, rather than a metapopulation. Although GCN are widely distributed across the Tees Valley, there are few records from the lower Tees Estuary, with populations seemingly small and fragmented (Tees Valley BAP, 2012). As such, the ponds and the GCN populations they support are therefore not considered to be of sufficient biodiversity conservation value for a potential significant effect to occur in EIA terms regarding its biodiversity conservation value, but solely in respect of contravention of the legislation.
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**Yes -** The receptor is within the ZoI. It is likely pond 1 supports a single GCN population, rather than a metapopulation. Although GCN are widely distributed across the Tees Valley, there are few records from the lower Tees Estuary, with populations seemingly small and fragmented (Tees Valley BAP, 2012). As such, the ponds and the GCN populations they support are therefore not considered to be of sufficient biodiversity conservation value for a potential significant effect to occur in EIA terms regarding its biodiversity conservation value, but solely in respect of contravention of the legislation.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is not within the ZoI. The nearest pond, P1 is situated ~50m from the ZoI. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. This species will not be significantly affected by the works.
	Water pollution	Within ~8m of a waterbody bank-top	No	**No –** the receptor is not within the ZoI. The closest pond with GCN presence is >200m from a watercourse and therefore this species will not be significantly affected by ongoing works.	**No –** the receptor is not within the ZoI. This species will not be significantly affected by the works.
Otter	Land-take/Land cover change	Within the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI, No evidence of this species was recorded within the operational area during survey work. This species will not be significantly affected by ongoing works.	**No –** the receptor is potentially within the ZoI; no evidence of otter has been recorded within the decommissioning & restoration area, however suitable habitat will become present. The proposed current working phase of the proposed development will result in a delay to the suitable habitat becoming present, and as such the potential for otter to become present within the operational area remains low-negligible. Environmental measures would ensure no legal breach if commuting/foraging otter are present on the Mine Site.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Changing levels of light, noise and vibration	~200m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. 4x otter spraint (but no fresh spraint) was recorded along the Easington Beck in March 2017, suggesting that this watercourse is only used sporadically by otter. The closest point of Easington Beck is ~175m from the operational area. Evidence was only recorded along the Easington Beck suggesting the remaining watercourses have less potential to support otter. No evidence of otter holts/resting sites were identified during the survey. Even if a holt/resting site is present on-site, given there will be no change to operations, meaning the current conditions will remain the same, this species will not be significantly affected by ongoing works.	All works would follow a protected species method statement to prevent potential breach of environmental legislation. This species will not be significantly affected by the works. **No –** the receptor is within the ZoI. Otter spraint was recorded along Easington Beck, but no evidence of otter holts/resting sites were identified during the survey. However, the majority of the Easington Beck (that had evidence of otter) is more than 200m from the decommissioning & restoration area. The woodlands for which the watercourses run through and which provide potential for holt/resting sites will be retained. Although operational related noise, light and vibration would have ceased in this future baseline scenario, the decommissioning activities would themselves require light (i.e. security lighting), noise and vibration (i.e. decommissioning of the buildings). Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. This species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No - r**eceptor is within the ZoI. Although operational related traffic would have ceased in this future baseline scenario, the decommissioning activities would themselves require traffic, particularly those activities outwith the operational area e.g. soil reprofiling and planting that may increase the traffic around the Mine Site. Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur.Environmental measures would ensure no legal breach if commuting/foraging otter were to be on the Mine Site. All works would follow a protected species method statement to prevent potential breach of environmental legislation. No contravention of legislation. This species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Water pollution	Within ~8m of a watercourse bank-top, For downstream effects, a total length of ~3.5 km of watercourses covering all areas of watercourse within the mine (including Boulby Gill, Twizzie Gill, Newton Gill and Easington Beck), and downstream areas that run into Staithes Beck and to the coast.	Yes	**No –** the receptor is within the ZoI. However, there are environmental measures already in place (for example they currently adhere to a Substance Spill Management), and as there will be no change to operations, the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However, given the results of the water quality and freshwater invertebrate survey carried out from 1997-2013 (Mercer 2014), the fact the survey results span 16 years, and given the mine has been present for many years previously and has had no lasting significant effect on the water quality of the Becks, it is unlikely there will be any significant effects in the decommissioning phase of the future baseline scenario compared against the proposed development (continuing working practices with environmental measures). It is therefore considered that only negligible changes would occur. Therefore in this instance there is not considered to be any indirect significant impacts on otter or any potential otter prey species that rely on the current good water quality within watercourses on the Mine Site. Environmental measures will be put in place and best practice adhered to, will ensure there will be no significant effect on this species by the works.
Reptiles	Land-take/Land cover change	Within the operational area and decommissioning & restoration area	No	**No –** the receptor is within the ZoI. There is an anecdotal historical record of a single slow worm identified within the operational area (INCA 2012). However, this was likely an isolated rare occasion where an individual has strayed into the area.	**No –** The receptor is within the ZoI. The most suitable habitat for reptiles on Mine Site (e.g. the mosaic of unimproved grassland, scrub and woodland area) is not present within the decommissioning & restoration area. This habitat will be retained during both the decommissioning future baseline scenario and the current working proposals. Therefore this species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
				Reptile surveys undertaken by INCA in 2017 recorded a total of 13 slow worms during one survey in the grassland/scrub/woodland mosaic to the south-east of the operation area. However, there will be no change to the habitat suitable that supports the receptor during current operations meaning they will stay as they are. This species will not be significantly affected by ongoing works.	
	Changing levels of light, noise and vibration	Within the operational area and decommissioning & restoration area	No/Yes	**No –** the receptor is not within the ZoI. This species will not be significantly affected by ongoing works.	**No –** the receptor is not within the ZoI. This species will not be significantly affected by the works.
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Although operational related traffic would have ceased in this future baseline scenario, the decommissioning activities would themselves require traffic, particularly those activities outwith the operational area e.g. soil reprofiling and planting that may increase the traffic around the Mine Site. Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures would ensure no legal breach if reptile were encountered.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
					All works would follow a protected species method statement to prevent potential breach of environmental legislation. No contravention of legislation. This species will not be significantly affected by the works.
Notable species					
Brown hare	Land-take/Land cover change	Within the operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. Surveys have recorded incidental records of brown hare within the operational area and throughout the Mine Site indicating that brown hare are habituated to the current operating conditions. However, there will be no change to habitat suitable for receptor during current operations. This species will not be significantly affected by ongoing works.	**No –** receptor is within ZoI however only in small numbers (small numbers of individuals on 6 different occasions) recorded on the Mine Site during suite of ecological surveys) which is typical of the wider area. Decommissioning footprint (~32ha) is small compared to the size of the Mine Site (~133ha) and the surrounding off-site habitat; it is therefore considered to be limited overall loss of habitat. The current working proposals would see the continuation of the mine and so no short term loss of suitable brown hare habitat compared to the decommissioning phase of the future baseline. Environmental measures included within the proposed development such as working to an ecology method statement will ensure no significant effects upon this species.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Changing levels of light, noise and vibration	Within the operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. Surveys have recorded incidental records of brown hare within the operational area and throughout the Mine Site meaning brown hare are already habituated to the current conditions on the Mine Site. There will be no change to habitat suitable for receptor during current operations. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Although operational related noise, light and vibration would have ceased in this future baseline scenario, the decommissioning activities would themselves require light (i.e. security lighting), noise and vibration (i.e. decommissioning of the buildings). Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures such as all works follow a protected species method statement would ensure this species will not be significantly affected by the works.
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Although operational related traffic would have ceased in this future baseline scenario, the decommissioning activities would themselves require traffic, particularly those activities outwith the operational area e.g. soil reprofiling and planting that may increase the traffic around the Mine Site. Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures such as all works follow a protected species method statement would ensure this species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Brown trout (aquatic priority species)	Land-take/Land cover change	Within the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. The Easington Beck is ~200m from the operational area. There will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** receptor is not within the ZoI and no suitable habitat considered to be present within ZoI. This species will not be significantly affected by the works.
	Water pollution	Within ~8m of a watercourse bank-top, For downstream effects, a total length of ~3.5 km of watercourses covering all areas of watercourse within the mine (including Boulby Gill, Twizzie Gill, Newton Gill and Easington Beck), and downstream areas that run into Staithes Beck and to the coast.	Yes	**No –** the receptor is within the ZoI. However, there are environmental measures already in place (for example they currently adhere to a Substance Spill Management), and as there will be no change to operations, the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However, given the results of the water quality and freshwater invertebrate survey carried out from 1997-2013 (Mercer 2014), the fact the survey results span 16 years, and given the mine has been present for many years previously and has had no lasting significant effect on the water quality of the Becks, it is unlikely there will be any significant effects in the decommissioning phase of the future baseline scenario compared against the proposed development (continuing working practices with environmental measures). It is therefore considered that only negligible changes would occur. Therefore in this instance there is not considered to be any direct significant impacts on brown trout or any potential brown trout prey species that rely on the current good water quality within watercourses on the Mine Site. Environmental measures will be put in place and best practice adhered to, will ensure there will be no significant effect on this species by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Common toad	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptor is not within the ZoI. This species will not be significantly affected by ongoing works.	**No –** receptor is potentially within ZoI however only in small numbers which is typical of the wider area. Development footprint (~32ha) is small compared to the size of the Mine Site (~133ha) and the surrounding offsite habitat therefore only limited loss of overall habitat. Receptor only recorded on the Mine Site within grassland to the south of the operational area which will not be affected by the decommissioning phase of the future baseline scenario or the current working proposals. There is suitable habitat for the receptor throughout the Mine Site, however environmental measures included within the scheme such as working to a method statement will ensure no significant effects upon this species.
	Changing levels of light, noise and vibration	Within the operational area and decommissioning & restoration area	Yes	**No –** the receptor is not within the ZoI. This species will not be significantly affected by ongoing works.	**No –** the receptor is potentially within the ZoI. Although operational related noise, light and vibration would have ceased in this future baseline scenario, the decommissioning activities would themselves require light (i.e. security lighting), noise and vibration (i.e. decommissioning of the buildings). Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures such as all works follow a protected species method statement would ensure this species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is potentially within the ZoI. Although operational related traffic would have ceased in this future baseline scenario, the decommissioning activities would themselves require traffic, particularly those activities outwith the operational area e.g. soil reprofiling and planting that may increase the traffic around the Mine Site. Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures such as all works follow a protected species method statement would ensure this species will not be significantly affected by the works.
European hedgehog	Land-take/Land cover change	Within the operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However there will be no change to habitat suitable for receptor during current operations meaning they will stay as they are. This species will not be significantly affected by ongoing works.	**No –** receptor is potentially within ZoI however only in small numbers which is typical of the wider area. Development footprint (~32ha) is small compared to the size of the Mine Site (~133ha) and the surrounding offsite habitat therefore there is limited overall loss of habitat. Receptor mostly recorded around the edge of the Mine Site and within Mines Wood to the south of the operational area (~150m southeast from the decommissioning area). There is suitable habitat for the receptor throughout the Mine Site, including within the decommissioning area.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Changing levels of light, noise and vibration	Within the operational area and decommissioning & restoration area	Yes	**No –** the receptor is not within the ZoI. There is no suitable habitat present within the operational area. This species will not be significantly affected by ongoing works.	Environmental (method statement) measures would take place and compared against the proposed development (continuing working practices with environmental measures) where there will be no decommissioning of the operational area, it is therefore considered that only negligible changes would occur. This species will not be significantly affected by the works. **No –** the receptor is potentially within the ZoI. Although operational related noise, light and vibration would have ceased in this future baseline scenario, the decommissioning activities would themselves require light (i.e. security lighting), noise and vibration (i.e. decommissioning of the buildings). Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures such as all works follow a protected species method statement would ensure this species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	Within the Mine Site boundary	Yes	**No –** the receptor is present within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Although operational related traffic would have ceased in this future baseline scenario, the decommissioning activities would themselves require traffic, particularly those activities outwith the operational area e.g. soil reprofiling and planting that may increase the traffic around the Mine Site. Environmental measures (e.g. working to a method statement) would take place and compared against the proposed development (continuing development practices with environmental measures), it is therefore considered that only negligible changes would occur. However, environmental measures such as all works follow a protected species method statement would ensure this species will not be significantly affected by the works.
Invertebrates (blomer's rivulet, brown-spot pinion, dingy skipper, grayling, green-brindled crescent, shaded broad-bar, small pearl-bordered fritillary, small phoenix, wall, white ermine, and white-letter hairstreak)	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptors are within the ZoI. However there will be no change to habitat suitable for receptor during current operations meaning they will stay as they are. These species will not be significantly affected by ongoing works.	**No –** the receptors are within the ZoI. No woodland will be lost during either the decommissioning & restoration or the current working proposals, which it is suitable habitat for blomer's rivulet, brown spot pinion, small phoenix, white letter hairstreak, and green brindled crescent. Shaded-broad bar has also been recorded within Mines Wood. The open mosaic habitat within Mines Wood which has recorded dingy skipper, small pearl-bordered fritillary, blomer's rivulet, grayling and small phoenix, will be retained during the decommissioning & restoration phase of the future baseline scenario and the current working proposals.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
					Both dingy skipper and grayling have been recorded in small numbers within the operational area. Environmental measures will ensure that the proposed woodland planting will not encroach upon suitable grayling habitat, while additional linked habitat will be created within the wildflower meadows. Environmental measures will include a higher concentration of bird's foot trefoil to be incorporated within the wildflower meadows, including adding patches of bare ground amongst the wildflower meadow to optimise the habitat suitability for dingy skipper and grayling. The current working proposals would see the extension of the operational area in its current capacity, and as such no planting would occur within the operational area meaning no grayling/dingy skipper habitat would be lost. Given the majority of suitable habitat for these species (i.e. grassland, open mosaic and woodland) will be retained during the current working proposals and the decommissioning and restoration phase of the future baseline scenario, and that proposed wildflower meadows and woodland are tailored to accommodate these species (within the environmental measures), these species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Plants (notable and priority plant species: bristly oxtongue, sea pearlwort, water whorl-grass, wood vetch, common valerian, goldenrod, sanicle, common quaking-grass and tormentil)	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However there will be no change to habitat suitable for receptor during current operations meaning they will stay as they are. This species will not be significantly affected by ongoing works.	**No** – The receptor is within the ZoI. Sanicle, goldenrod, common valerian, common quaking-grass and tormentil are notable in a national (England) context i.e. Near Threatened status on the vascular plant Red Data List for England. Bristly oxtongue, sea pearlwort, water whorl-grass and wood vetch are notable in a local context i.e. rare status within the North York Moors. Bristly oxtongue was recorded within Boulby Mine Wood and the surrounding perimeter, and along the railway within the operational area. The railway trackbed is proposed to be retained during decommissioning and restoration as a historic feature, with all areas of woodland also to be retained; both these habitats will remain in their current capacity during the current working proposal. Although bristly oxtongue is notable within the North York Moors, it is not considered notable for Northeast Yorkshire or nationally (England or GB level).

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
					Only four sea pearlwort plants were recorded adjacent the operational area along a track. It is possible this species arrived at this site through importation of soils for operational activities/landscaping. This is an early successional species that is normally lost from a sward due to natural succession (i.e. as a closed sward develops). Although the plant is notable within the North York Moors, it is not considered notable for Northeast Yorkshire or nationally (England or GB level). Water whorl-grass and wood vetch were identified within the grassland along the railway embankment and within the mature woodlands respectively. These habitats will be retained as part of the restored plan and the current working proposals and therefore will not be impacted by the works. Common quaking grass was identified within Oneham's Pasture LWS. This LWS will be retained as part of the restoration plan and the current working proposals. Therefore, these species will not be significantly affected by the works.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. There are environmental measures already in place (for example vehicle washes), and the fact there will be no change to operations, means the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. These species will not be significantly affected by the works.
	Atmospheric pollution	~200m from the decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario.. As such these species will not be significantly affected by ongoing works.
	Water pollution	The approximate 3.5 km of Becks (Boulby Gill, Easington Beck and Staithes Beck) from the mine to the coast.	Yes	**No –** the receptor is within the ZoI. There are environmental measures already in place (for example they currently adhere to a Substance Spill Management), and as there will be no change to operations, the current conditions that the receptor exists within will remain the same. This species will not be significantly affected by ongoing works.	**No –** the receptor is within the ZoI. Given the survey's results over a span of 16 years, and given the mine has been present for ~45 years previously and has had no lasting significant effect on the water quality of the Becks, it is unlikely there will be any significant effects in the decommissioning phase of the future baseline scenario compared against the proposed development (continuing working practices with environmental measures). It is therefore considered that only negligible changes would occur.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
					Environmental measures will be put in place and best practice adhered to, will ensure there will be no water pollution to significantly effect this species by the works. Therefore in this instance there is not considered to be any significant impacts on plant species that rely on the current good water quality within watercourses on the Mine Site.
Statutory designated sites					
Clarksons Wood LNR	Land-take/Land cover change	Within the operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Loftus Wood LNR	Land-take/Land cover change	Within operational area and decommissioning	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
North York Moors SSSI	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**Yes** – the receptor is within the 200m ZoI with regards to associated road links and is therefore solely assessed in relation to this as the SSSI lies outwith the ~2km ZoI from the decommissioning and restoration area.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Change in vehicle movement	Within the SSSI boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same.	
North York Moors SAC	Land-take/Land cover change	Within operational area, decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~10km of operational, decommissioning & restoration area	Yes	**Yes** – The receptor is within the ZoI.	
	Change in vehicle movement	Within the SAC boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same.	
North York Moors SPA	Land-take/Land cover change	Within operational area and decommissioning area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~10km from decommissioning area	Yes	**Yes** – The receptor is within the ZoI.	
	Change in vehicle movement	Within the SPA boundary	Yes	**No –** the receptor is within the ZoI. However, there will be no change to operations, meaning the current conditions that the receptor exists within will remain the same.	
Rosecroft Woods LNR	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
Non-statutory designated sites					
Blue House Farm Grassland North LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Easington Beck Complex LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However only about a ~2.5ha (of ~14ha) of the LWS which is located on the Mine Site is within the ZoI. There are ~150ha of the LWS that extends further to the south beyond the Mine Site boundary. There are environmental measures already in place (for example vehicle washes and dust suppressors), and as there will be no change to operations, the current conditions in which the receptor exists will remain the same. This habitat will not be significantly affected by the ongoing works.	**No –** the receptor is within the ZoI. Only a small proportion of the woodland on the Mine Site is within the ZoI. Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. This habitat will not be significantly affected by the works.
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.	
Extension to Loftus Wood Complex LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Grinkle Park Grassland South East LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Grinkle Park Grassland South LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Handale Abbey Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Handale Banks Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Handale Pasture LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Holygill Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Hummersea Back LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Kilton Beck Complex LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Loftus Woods Complex LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Low Waupley Farm Lane Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Moorsholm Lane Verge LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Oneham's Pasture LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	Yes	**No –** the receptor is not within the ZoI. The receptor is ~35m east from the operational area. This habitat would not be significantly affected by the ongoing works.	**No –** the receptor is not within the ZoI. This habitat would not be significantly affected by the works.
	Dust deposition	~50m from operational area and decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However only about a ~15m strip (~0.1ha) of the LWS towards the periphery of the ZoI, with the majority (~0.4ha) outside the ZoI.	**No –** the receptor is within the ZoI. Only a small proportion of the grassland on the Mine Siteis within the ZoI.

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
				There are environmental measures already in place (for example vehicle washes and dust suppressors), and the fact there will be no change to operations, means the current conditions that the receptor exists within will remain the same. This habitat would not be significantly affected by the works. This habitat will not be significantly affected by the ongoing works.	Although operational practices which would see dust created (mineral stockpiling and movements) would have ceased in this future baseline scenario, the decommissioning activities would themselves raise dust. Environmental (dust compression) measures would take place and compared against the proposed development (continuing working practices with environmental measures) it is therefore considered that only negligible changes would occur. This habitat will not be significantly affected by the works.
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	Yes	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this habitat will not be significantly affected by ongoing works.	
Saltburn to Staithes Coast 1 LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Saltburn to Staithes Coast 2 LWS (Breeding population of birds as a percentage of national population)	Land-take/Land cover change	Within operational area and decommissioning area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning area	Yes	**No –** the receptor is within the ZoI. However atmospheric emissions are expected to be similar during the proposed continued working as they would be during the decommissioning phase in the future baseline scenario. Environmental measures such as the conditions within the current environmental permit control will be adhered to. As such, this site and the breeding bird assemblage that it supports will not be significantly affected by ongoing works.	
Skinningrove Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Skinningrove Cliffs (east) LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Skinningrove Cliffs (west) LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Waupley Wood grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Warren Cottage Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Receptor	Environmental Change	ZoI (where receptor is sensitive to the environmental change) – distances defined in Table B.2	Receptor within ZoI?	Conclusion – is there the potential for significant effect and/or contravention of protected species legislation? (Yes/No – if no, a justification is provided on why the effects are scoped out)	
				Existing baseline (continuing operational phase): now to 2023	Future baseline: Decommissioning and restoration phase (Site clearance, soil replacement and Site planting: 2023 to 2025)
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
Waytail Beck Grassland LWS	Land-take/Land cover change	Within operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Dust deposition	~50m from operational area and decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	
	Atmospheric pollution	Within ~2km from decommissioning & restoration area	No	**No –** the receptor is not within the ZoI. Therefore no significant effects predicted upon this receptor.	

Appendix 9C
Relevant Terminology

Appendix C
Relevant Terminology

Term/Abbreviation	Description
Acid deposition	Atmospheric input to ecosystems of pollutants which may acidify soils and freshwaters; this includes species derived from SO2, NOx and NH3 emissions, as well as a number of other minor pollutants (e.g. HCl, HF).
Amphibian	Frogs, toads and newts
Ancient woodland	Land continuously wooded since AD1600 in England
APIS	Air pollution information System- an online database providing a comprehensive source of information on air pollution and the effects on habitats and species
Appropriate Assessment	An assessment of the impacts of plans and projects on European Sites. An Appropriate Assessment is required under the Habitat Regulations where there is likely to be a significant effect on a European site
Assemblage	A group of populations of different species
BAP	See Biodiversity Action Plan
Biodiversity	Genetically determined variability amongst living organisms, including the variability within species, between species, and of ecosystems.
Biodiversity Action Plan	a strategy for conserving and enhancing wild species and wildlife habitats in the UK
BoCC	Birds of Conservation Concern -Bird species listed in Birdlife International et al . (2002)
Bryophyte	Mosses and liverworts
BTO	British Trust for Ornithology
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practice - this describes the environmental requirements and constraints for construction of the different elements of the Scheme. It will remain live for the duration of the Scheme to retain its relevance as the Scheme progresses.
CRoW Act 2000	Countryside and Rights of Way Act 2000
CWS	County Wildlife Site- a non-statutory, county level designation
Drey	A squirrel's nest, built of twigs in a tree
EA	Environment Agency
Ecology	The study of living things in their environment
EMP	Environmental Management Plan
EN	English Nature – see Natural England
European Site	Defined in the Conservation of Habitats and Species Regulations 2010 as : (a) a Special Area of Conservation, (b) a site of Community importance which has been placed on the list referred to in the third sub-paragraph of Article 4(2) of the Habitats Directive, (c) a site hosting a priority natural habitat type or priority species in respect of which consultation has been initiated under Article 5(1) of the Habitats Directive, during the consultation period or pending a decision of the Council under Article 5(3), or (d) an area classified pursuant to Article 4(1) or (2) of the Wild Birds Directive.
Fauna	All the animals in a particular area
Flora	All the plants in a particular area
Flush	A patch of wet ground, usually on a hillside, where the water flows diffusely and not in a fixed channel
Foraging	Searching for food
GCN	Great crested newt
GIS	Geographic information system
Habitat	Place where an organism (e.g. human, animal, plant, micro-organism) or population of organisms live, characterised by its surroundings, both living and non-living.

Term/Abbreviation	Description
Habitat Regulations	The Conservation of Habitats and Species Regulations 2010
Herpetofauna	Amphibians and reptiles
Holt	A site used by an otter for breeding
CIEEM	Chartered Institute of Ecology and Environmental Management
IEMA	Institute of Environmental Management and Assessment
Invasive species	Usually a non-native species that is highly successful in a new habitat and whose presence is significantly detrimental to other species.
Invertebrates	Animals without a backbone e.g. insects and shellfish.
JNCC	Joint Nature Conservation Committee
Laying-up site	A site where an otter rests or sleeps, but does not use for breeding
LBAP	Local (usually county) Biodiversity Action Plan
Legally protected species	Many species of animal and plant receive some degree of legal protection. For the purposes of this study, legal protection refers to: (i) species included on Schedules 2 and 4 of The Conservation of Habitats and Species Regulations 2017 (SI 2010 No. 1012) (the 'Habitats Regulations') and Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981, excluding species that are only protected in relation to their sale (see Section 9[5] and 13[2]) reflecting the fact that the proposed development does not include any proposals relating to the sale of species; and (ii) badgers, which are protected under the Protection of Badgers Act 1992.
Lek	Display ground for ceremonial courtship fighting and mating
LNR	Local Nature Reserve
LWS	Local Wildlife Site- a non-statutory, county level designation
Macrophyte	A plant large enough to be visible to the naked eye, a term usually used in relation to the aquatic environment.
Magic	Multi-Agency geographic Information for the Countryside- a web-based interactive map providing information on environmental schemes and designations set up by a partnership between government organisations: Defra, English Heritage, Natural England, Environment Agency, Forestry Commission, Department for Communities and Local Government. Magic makes use of GIS tools to enable people to view and query the available data.
Main River	Watercourse defined as Main River under the *Water Resources Act 1991* and shown on the main river map kept by the Environment Agency. The Environment Agency is the drainage board for these watercourses and has powers to improve and maintain them.
Metapopulation	In relation to great crested newts, a metapopulation occurs where newts are considered to be using a group of ponds in a particular locality
Mitigation	Measures to reduce or avoid an adverse effect
N	Nitrogen
Nationally Scarce	Species recorded from 16-100 10km squares of the UK national grid
NE	Natural England – formed in 2006 by amalgamation of English Nature, parts of the Countryside Agency and the Rural Development Service (formerly part of Defra).
NERC Act 2006	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NRA	National Rivers Authority (now the Environment Agency)
Ordinary watercourse	Any watercourse that is not designated Main River (*q.v.*)
Passerines	Song birds
Phase 1 habitat survey	A standard methodology for recording habitats within a site (JNCC 1993)

Term/Abbreviation	Description
Poaching	Trampling by cattle which results in muddy ground, particularly along the edge of water bodies and water courses
Priority Habitats and Priority Species	Habitats and species listed under S41 of the NERC Act or the UKBAP (see relevant sections)
Ramsar	Sites listed under the Convention on wetlands of international importance especially as waterfowl habitat (Ramsar, Iran, 1971), as amended
Raptor	Birds of prey; hawks, falcon, eagles etc.
Receptors	The resources and people that could be affected by the development
Red Data Book species	National list of endangered, vulnerable and rare species
Red list	Bird species included in the Red list of Birds of Conservation Concern
Reptiles	Snakes and lizards
RSPB	Royal Society for the Protection of Birds
S41	Section 41 of the NERC Act 2006, which lists habitats and species of Principle Importance for Conservation in England (Section 42 in Wales)
SAC	Special Area of Conservation
Salmonid	Fish belonging to the family Salmonidae, which includes salmon and trout
Sett	The burrows of a badger family group
SPA	Special Protection Area
Spraints	Otter droppings
SSSI	Site of Special Scientific Interest- a statutory designation for sites of national (Great Britain) nature conservation importance
Succession	The sequence in which plants colonise a piece of ground.
Target note	See TN
Territory	The area defended by an individual or group of animals.
TN	Target Note - a written record of species/habitats of nature conservation value found in a location that has been surveyed as part of a Phase 1 habitat survey.
TPO	Tree Preservation Order
UK BAP	United Kingdom Biodiversity Action Plan
Valued	Some assessment criteria used in the Environmental Statement, e.g. in the biodiversity and cultural heritage assessments consider objectively the 'value' of a particular receptor.
Waders	Wading birds
Water body	A discrete and significant element of surface water such as a river, estuary, lake or reservoir, or a distinct volume of groundwater within an aquifer.
Watercourse	A stream of water such as a river or canal, or the channel along which it flows.
Waterfowl	Wildfowl and waders
WCA	*Wildlife and Countryside Act 1981*
WeBS	Wetland Bird Survey
Wildfowl	Ducks, geese and swans

Appendix 9D
Protected Species Legislation

Appendix D
Protected Species Legislation

Birds

With certain exceptions[12], all wild birds, their nests and eggs are protected by section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, inter alia, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 of the Act subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

Bats (Rhinolophidae and Vespertilionidae)

All British bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat (this applies anywhere, not just at its roost), in particular in such a way as to be likely to:
  - Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - Impair their ability to hibernate or migrate;
  - Affect significantly the local distribution or abundance of that bat species.
- Damage or destroy a breeding site or resting place of any bat;
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not).

In addition, five British bat species are listed on Annex II of the Habitats Directive.

These are:

- Greater horseshoe bat (Rhinolophus ferrumequinum);
- Lesser horseshoe bat (Rhinolophus hipposideros);
- Bechstein's bat (*Myotis bechsteinii*);
- Barbastelle (Barbastella barbastellus);

[12] Some species, such as game birds, are exempt in certain circumstances.

- Greater mouse-eared bat (*Myotis myotis*).

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

European Otter (*Lutra lutra*)

These species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, in particular in such a way as to be likely to:
  - Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - Impair their ability to hibernate or migrate;
  - Affect significantly the local distribution or abundance of that species.
- Damage or destroy a breeding site or resting place of any such animal;
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Marine Cetaceans

The following marine cetaceans are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended):

- All dolphins, including common dolphin (*Delphinus delphis*), Risso's dolphin (*Grampus griseus*), bottle-nosed dolphin (*Tursiops truncatus*), white-sided dolphin (*Lagenorhynchus acutus*), white-beaked dolphin (*Lagenorhynchus albirostris*) and striped dolphin (*Stenella coeruleoalba*);
- All porpoises, including harbour porpoise (*Phocoena phocoena*).

They are afforded full protection under Section 9(4A) of the Act (except porpoises) and under Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, in particular in such a way as to be likely to:
  - Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - Impair their ability to hibernate or migrate;
  - Affect significantly the local distribution or abundance of that species; or
- Damage or destroy a breeding site or resting place of any such animal.

Section 9(4A) of the Act also makes it an offence intentionally or recklessly to disturb a dolphin or whale (wherever it is).

Reptiles

The four widespread[13] species of reptile that are native to Britain, namely common or viviparous lizard (*Zootoca* (*Lacerta*) *vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (N*atrix natrix* (*Naturix helvetica*)), are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, inter alia, to:

- Intentionally kill or injure any of these species.

Great crested newt (*Triturus cristatus*)

The great crested newt is listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). It is afforded protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- Deliberately capture, injure or kill any such newt;
- Deliberately disturb any such newt, in particular in such a way as to be likely to:
  - Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - Impair their ability to hibernate or migrate;
  - Affect significantly the local distribution or abundance of that species.
- Deliberately take or destroy the eggs of such a newt;
- Damage or destroy a breeding site or resting place of any such newt;
- Intentionally or recklessly disturb any such newt while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any such newt uses for shelter or protection.

This relates to both the aquatic and terrestrial habitat they occupy. The legislation applies to all life stages of this species.

White-clawed Crayfish (Austropotamobius pallipes)

The white-clawed crayfish is listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, inter alia, to:

- Intentionally take individuals of this species.

Badger

The Protection of Badgers Act 1992 makes it an offence to:

- Wilfully kill, injure or take a badger;
- Attempt to kill, injure or take a badger; or
- Cruelly ill-treat a badger.

[13] 2 The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection in England and Wales under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended). However, the distribution of these species is restricted to only a very few sites. All marine turtles (Cheloniidae and Dermochelyidae) are also protected.

It is also an offence to interfere with a badger set by:

- Damaging a badger sett or any part of it;
- Destroying a badger sett;
- Obstructing access to, or any entrance of, a badger sett;
- Disturbing a badger when it is occupying a badger sett or

intending to do any of those things or being reckless as to whether his actions would have any of those consequences.

Seals

The Conservation of Seals Act 1970 (as amended) makes it an offence to kill, injure or take a seal during the close season or to use certain methods of killing seals.

All Wild Mammals (including rabbits and foxes)

Under the Wild Mammals (Protection) Act 1996 it is an offence intentionally to cause unnecessary suffering to any wild mammal.

Appendix 9E
Extended Phase 1 Report

Cleveland Potash Limited

Boulby Mine Environmental Statement

Appendix 9.E: Extended Phase 1 Habitat Survey Technical Note

Wood Environment & Infrastructure Solutions UK Limited – October 2019

Report for

Cleveland Potash Limited

Main contributors

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Issued by

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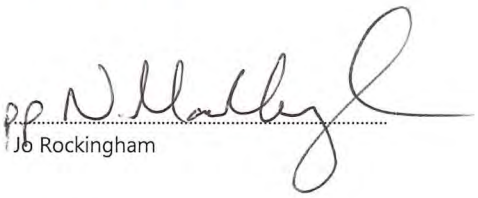

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Document revisions

No.	Details	Date
1	Final Report	21/10/16
2	Updated Report	15/10/19

Contents

1. Introduction

Wood (formerly Amec Foster Wheeler Environment & Infrastructure Ltd.) has been commissioned by Cleveland Potash Limited to provide ecological consultancy services in relation to an extension to the planning permission for Boulby Mine. Boulby Mine is in the borough of Redcar and Cleveland, between the villages of Easington and Staithes, within the North York Moors National Park. The proposed development covers an area of 127ha and has a central Ordnance Survey grid reference of NZ 761 182. The scope of the works includes survey and assessment for a number of ecological receptors, including extended Phase 1 habitat survey.

An extended Phase 1 habitat survey was undertaken between September and October 2016. The following report details the methodology and results of the survey, and accompanying desk study. An updating Phase 1 habitat survey was carried out in October 2019, and results from the 2016 survey have been updated accordingly within this report.

1.1 Mine Site Description

Boulby Mine has been operating since 1973, extracting minerals (potash and salt) from underground workings situated at a depth of around 1100m. The existing planning permission for the mine expires in 2023 and a planning application is currently being prepared to apply for the continuation of mining operations. The application will propose that all operations and activities continue as currently permitted, with no changes to the extent, layout or design of structures on the site. The site comprises the land owned by Cleveland Potash Ltd (CPL) as shown on **Figure 1.1** of the Planning Statement, referred to herein as the 'Mine Site'. The Mine Site comprises two parts; the larger proportion of which is occupied by the operational mine, and a smaller area of land ~170m to the north adjacent the coast line which contains a pumphouse facility and tailings switch room.

The Mine Site consists of a mosaic of habitats including arable, improved and poor semi-improved grassland, neutral grassland, plantation woodlands, maritime hard cliff and running water. The Mine Site is largely bordered by plantation broadleaved and mixed woodland to the south and east, and a mix of arable, improved and semi-improved grassland to the north and west. The operational area of the mine comprises buildings, bare ground and hardstanding, with occasional areas of scrub, continuous bracken, tall ruderal and ephemeral/short perennial vegetation, with a railway accessing the Mine Site from the south.

2. Methodology

2.1 Desk Study

A desk study was undertaken in September 2016 with the aim of identifying potential and/or confirmed ecological constraints to the scheme following best practice guidance (CIEEM, 2013). This study provided an insight into the potential nature conservation interest of the Mine Site and surroundings and informed the scope of the surveys required to ensure that all ecological legislation is adhered to. The desk study included a search for statutory sites (local, national and internationally designated sites), non-statutory sites (such as Local Wildlife Sites (LWSs)), and species which are legally protected or otherwise notable (of particular conservation interest), as follows:

- Information regarding statutory designated sites within a ~5km search radius of the Mine Site was acquired using the Multi Agency Geographical Information for the Countryside (MAGIC) organisation website (http://www.magic.gov.uk/). Definitions of site designations are provided in **Appendix A;**
- Information regarding non-statutory sites for nature conservation within a ~5km radius of the Mine Site was acquired from the north east Environmental Records Information Centre (ERIC)[1];
- Information regarding protected and notable species within a ~5km radius of the Mine Site was also acquired from ERIC. Analysis of species data focuses only on records from the last 10 years, as older records may not give an accurate picture of the current ecological interest on the Mine Site;
- A search for waterbodies within ~500m of the Mine Site was undertaken using 1:10,000 and 1:25,000 scale Ordnance Survey maps (www.ordnancesurvey.co.uk), aerial photographs from Google Maps (www.maps.google.co.uk), and MAGIC. This search radius reflects the potential for great crested newts (GCNs) to utilise terrestrial habitat up to ~500m from their breeding ponds based on guidelines from English Nature (2001) (now Natural England) with respect to the potential for disturbance; and
- A review of ecological reports from work that has previously been undertaken on-site by INCA (Industry Nature Conservation Association 2006, 2012, 2015 and 2015), Aquatic Environments (Mercer, 2014 and INCA, 2014), Trewren, K (2004), and Royal HaskoningDHV (2013) during the period 2004 to 2015.

2.2 Field Survey

An extended Phase 1 habitat survey was carried out on 15th September and 05th October 2016 by Wood principal consultant ecologist Jo Rockingham MSc MCIEEM and consultant ecologist Tim Kell MSc GradCIEEM. The weather at the time of survey on 15th September was warm and misty (which reduced long range visibility), and on 05th October sunny and a moderate breeze. An updating survey was carried out on 08th October 2019 by Wood principal consultant ecologists Mark Wilkinson and Jess Welch and Wood assistant consultant ecologists Will Horlock and Shaun Hollern. Weather during this updating survey was mild and largely dry, with occasional rain showers and moderate breeze. The survey method was based on the Phase 1 habitat survey methodology (JNCC, 2010) and aimed to identify features of ecological interest present on Mine Site. Distinct

[1] Following agreement from ERIC received 27th October 2017[1], this use of this data has been extended to 31st March 2018. As stated in an email Ian Thomas (ERIC) to Tim Kell (Wood) on 27th October 2017.

habitats were identified and mapped, and any features of nature conservation interest were subject to a more detailed description in a Target Note (TN) (**Appendix B**). In addition to identifying habitat types the survey was extended (IEA, 1995) to include an assessment of the Mine Site for evidence of, or potential to support the following:

- Legally protected species; notably those protected under the Wildlife and Countryside Act 1981 (WCA 1981; as amended), the Conservation of Habitats and Species Regulations 2017 (the "Habitat Regulations"), the EC Directive on the Conservation of Wild Birds (79/409/EEC), and the Protection of Badgers Act 1992;
- Habitats and Species of Principal Importance in England (the 'England Biodiversity List') listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006; and;
- Other species of particular conservation interest listed such as those included in the Tees Valley Biodiversity Action Plan (TVBP) and Red Data Book/Red List[2] species.

A search was also conducted for the presence of Schedule 9 (WCA 1981) invasive non-native plant and animal species[3] such as Japanese knotweed and Himalayan balsam. Plant species were identified in accordance with Rose (2006) and Stace (2010).

Where the desk study identified the presence of suitable waterbodies on or within ~500m of the Mine Site, or where these were identified during the Mine Site survey, a Habitat Suitability Index (HSI) assessment was undertaken (where access allowed) to establish the suitability of these waterbodies to support Great Crested Newts (GCNs). HSI is a quantitative measure of habitat quality that is derived from an assessment of ten habitat variables known to influence the presence of GCNs. Scientific names for all species included in this report are provided in **Appendix C**.

2.3 Constraints

The desk study does not provide an exhaustive list of potential protected species records within the local area, as consultation was restricted to ERIC. ERIC cannot provide detailed records for certain protected species, such as badger or bats.

The site survey represents an ecological snapshot of the Mine Site at the time of survey. The fauna and flora present may subsequently fluctuate in both species composition and numbers, on both a diurnal and seasonal basis. Species that appear earlier or later in the year may not therefore have been observed, and thus may remain unrecorded. However, consideration has been given to the potential for the Mine Site to support protected and notable species which may be present in relation to the Mine Site's location and the habitats present.

[2] The IUCN (International Union for the Conservation of Nature and Natural Resources) maintains an international list, published as the *Red Data Book*. Red Data Book species are classified into different categories of perceived risk. Each Red Data Book usually deals with a specific group of animals or plants (for instance, reptiles, insects or mosses).

[3] Schedule 9 of The Wildlife and Countryside Act 1981 (as amended) identifies a number of invasive non-native plant and animal species which are deemed to have serious negative impacts on native British species, public health or the economy. Under this Act it is an offence to plant or otherwise cause to grow in the wild any plant which is included in Schedule 9 of the Act, or to release to the wild any animal included on Schedule 9.

3. Results

3.1 Desk Study

Statutory and Non-Statutory Sites

There are 10 statutory and 26 non-statutory sites within ~5km of the survey area. The location of these sites relative to the survey area is shown in **Table 3.1** and **Appendix D Statutory and Non-statutory Sites**.

Table 3.1 Statutory and Non-statutory Sites within ~5km of the Mine Site

Site name	Designation	Grid Reference	Brief description/reason for designation	Approx. distance (m) and orientation from the Mine Site
Statutory sites				
North York Moors	National Park	SE 729 988	Comprises 1,436 square kilometres of a rich variety of landscapes, habitats and buildings ranging from the largest tract of unbroken heather moorland in England to coastline, historic villages and large areas of woodland.	**Within Mine Site boundary**
Boulby Quarries	SSSI	NZ 754 192	Designated for its geological features.	~645m northwest
Staithes – Port Mulgrave	SSSI	NZ 784 188	Designated for its geological features.	~1590m northeast
North York Moors	SSSI	NZ 766 151	Contains the largest continuous tract of heather moorland in England. It is of national importance for its mire and heather moorland vegetation communities and of international importance for its breeding bird populations, particularly merlin and golden plover. It provides a transition between blanket bog and dry heath land. Supports the following breeding species listed on Annex 1 of the EU Birds Directive: merlin, peregrine falcon, hen harrier, golden plover and short-eared owl. Supports the following species which are listed as Red Data Birds in Britain: merlin, peregrine falcon, hen harrier, golden plover, red grouse, curlew and redshank.	~2510m south
North York Moors	SAC	NZ 766 151	Annex I habitats that are a primary reason for selection of this site: Northern Atlantic wet heaths with *Erica tetralix*; and European dry heaths. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: Blanket bogs.	~2510m south

Site name	Designation	Grid Reference	Brief description/reason for designation	Approx. distance (m) and orientation from the Mine Site
North York Moors	SPA	NZ 766 151	Qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive: During the breeding season: Golden plover, 526 pairs representing at least 2.3% of the breeding population in Great Britain; merlin, 40 pairs representing at least 3.1% of the breeding population in Great Britain.	~2510m south
Loftus Wood	LNR	NZ 721 176	Ancient Woodland[4].	~3270m west
Rosecroft Woods	LNR	NZ 718 180	Ancient Woodland[5].	~3470m west
Whitecliff, loftus and Rosecraft Woods	LNR	NZ 717 181	Designated for its geological features.	~3605m west
Runswick Bay	SSSI	NZ 807 170	Designated for its geological features.	~3925m southeast
Clarksons Wood	LNR	NZ 710 183	Ancient woodland with species such as small leaved lime and spindle.	~4335m west
Non-Statutory sites				
Oneham's Pasture	**LWS**	**NZ 76597 18227**	**Neutral grassland.**	**Within Mine Site boundary**
Easington Beck Complex	**LWS**	**NZ 75931 17790**	**Ancient woodland.**	**Within Mine Site boundary**
Easington Beck	LGS	NZ 75356 16943	Designated for its geological features.	~860km southwest
Saltburn to Staithes Coast 2	LWS	NZ 74369 19934	Breeding populations of birds as a percentage of national population[6].	~1775m northwest
Skinningrove to Staithes Coast	LGS	NZ 74341 19969	Designated for its geological features.	~2100km northwest
Warren Cottage Grassland	LWS	NZ 73184 19743	Neutral grassland.	~2545m northwest
Hummersea Bank	LWS	NZ 72741 19827	Coastal grasslands.	~2970m northwest

[4] As shown on MAGIC – citation not available.
[5] As shown on MAGIC – citation not available.
[6] The actual percentage could not be obtained from citation.

Site name	Designation	Grid Reference	Brief description/reason for designation	Approx. distance (m) and orientation from the Mine Site
Saltburn to Staithes Coast 1	LWS	NZ 72594 19904	Breeding populations of birds as a percentage of national population[7].	~3120m northwest
Loftus woods Complex	LWS	NZ 72979 15933	Ancient woodland. Broad-leaved woodland and replanted ancient woodland.	~3185m southwest
Grinkle Park Grassland South East	LWS	NZ 74436 14365	Neutral grassland.	~3510m southwest
Handale Pasture	LWS	NZ 72460 16114	Neutral grassland.	~3585m southwest
Waytail Beck Grassland	LWS	NZ 71743 17340	Neutral grassland.	~3675m west
Handale Abbey Grassland	LWS	NZ 72546 15747	Neutral grassland.	~3685m southwest
Grinkle Park Grassland South	LWS	NZ 74360 14138	Neutral grassland.	~3755m southwest
Extension to Loftus Wood Complex	LWS	NZ 72474 15623	Ancient Woodland[8]	~3800m southwest
Blue House Farm Grassland North	LWS	NZ 71780 16683	Neutral grassland.	~3835m southwest
Waupley Wood grassland	LWS	NZ 72815 15097	Neutral grassland.	~3840m southwest
Handale Banks Grassland	LWS	NZ 72391 15664	Neutral grassland.	~3855m southwest
Skinningrove Grassland	LWS	NZ 71598 19544	Neutral grassland.	~3935m northwest
Skinningrove Cliffs (east)	LWS	NZ 71527 20013	Coastal grasslands. Neutral grassland.	~4085m northwest
Kilton Beck Complex	LWS	NZ 70961 17041	Ancient woodland. Broad-leaved woodland and replanted ancient woodland.	~4505m southwest

[7] The actual percentage could not be obtained from the citation.
[8] As shown on MAGIC – citation not available.

Site name	Designation	Grid Reference	Brief description/reason for designation	Approx. distance (m) and orientation from the Mine Site
Saltburn to Skinningrove Coast	LGS	NZ 71264 20085	Designated for its geological features.	~4530km northwest
Low Waupley Farm Lane Grassland	LWS	NZ 73295 13682	Neutral grassland.	~4640m southwest
Skinningrove Cliffs (west)	LWS	NZ 71015 20280	Coastal grasslands.	~4710m northwest
Kilton Beck	LGS	NZ 70904 18343	Designated for its geological features.	~4770km west
Holygill Well Grassland	LWS	NZ 70981 16505	Neutral grassland.	~4850m southwest
Moorsholm Lane Verge	LWS	NZ 70978 15859	Neutral grassland.	~4895m southwest

Priority Habitats

The following priority habitats have been recorded from MAGIC and ERIC within the Mine Site boundary and can be seen in **Appendix E Priority Habitats**:

- Ancient woodland (Rabbit Hill Plantation);
- Ancient replanted woodland (Low Ridge Lane Wood and Mines Wood);
- Deciduous woodland (Rabbit Hill Plantation, Low Ridge Lane Wood, Mines Wood and Newton Gill Wood); and
- Maritime cliff and slope.

The following priority habitats have been recorded from MAGIC and ERIC within ~5km of the Mine Site boundary:

- Good quality semi-improved grassland;
- Lowland meadows;
- Saline lagoons; and
- Traditional orchard.

Protected Species

ERIC provided a number of protected species records from within ~5km of the Mine Site, and these are summarised in **Table 3.2**.

Table 3.2 Protected Species Records within ~5km of the Mine Site

Species	Number of records	Date of most recent record	Grid reference of closest record	Approximate distance and direction of closest record from the Mine Site (m)
Amphibians and Reptiles				
Common lizard	3	2009	NZ 754 191	~545m northwest
Great crested newt	1	Unknown	NZ 796 175	~2730m southeast
Slow worm	7	2010	NZ 72450 17850	~2910m west
Mammals				
Badger	2	2015	NZ 75167 18314	~235m southwest
Brown long-eared bat	**1**	**2009**	**NZ 762 184**	**Within Mine Site boundary**
Common pipistrelle	**3**	**2011**	**NZ 763 178**	**Within Mine Site boundary**
Common porpoise	13	2011	NZ 727 186	~2670km west
Grey seal	12	2011	NZ 727 186	~2670km west
Otter	6	2010	NZ 770 180	~105m southeast
Unidentified bat	**3**	**2009**	**NZ 762 184**	**Within Mine Site boundary**
Unidentified pipistrelle	4	2011	NZ 743 178	~1090m southwest

Note: Absence of particular species records may indicate lack of survey records rather than the absence of the species. Distance may be limited to either tetrad references (2km accuracy) or 4-figure NGRs (1km accuracy). These records have been included for completeness.

Notable Species

The desk study also provided a number of records of notable species within or to a distance of ~5km of the Mine Site:

- Amphibians: Common toad (England Biodiversity List);
- Birds: Black-headed gull; Common gull; Cuckoo; Curlew; Dunnock; Greylag goose; Grey partridge; House martin; House Sparrow; Lapwing; Lesser black-backed gull; Oystercatcher; Song thrush; Skylark; Starling; Swallow; Swift; Teal; Tree sparrow; Whitethroat; Willow warbler (England Biodiversity List, Red list and/or Amber list);
- Butterflies: Small pearl-bordered fritillary; Wall (England Biodiversity List); and
- Mammals: Brown hare; Harvest mouse; Hedgehog; Risso's dolphin (England Biodiversity List).

Invasive Non-native Species

The desk study provided the following records of Schedule 9 invasive non-native species ~5km of the Mine Site:

- Canada goose; and
- Eastern grey squirrel.

Waterbodies

The desk study identified 8 potential waterbodies that are located on or within ~500m of the Mine Site and these are summarised in **Table 3.3,** discussed in **Section 3** and shown on **Figure 3.1**.

Table 3.3 Waterbodies within ~500m of the Mine Site

Waterbody	Grid reference of closest point	Approximate distance and direction from Mine Site (m)
Pond 1	**NZ 75739 18100**	**Within Mine Site boundary**
Pond 2	NZ 76027 18931	~200m northeast
Pond 3	NZ 76058 18986	~255m northwest
Pond 4	NZ 75059 17829	~360m southwest
Pond 5	NZ 76177 17431	~170m south
Pond 6	NZ 76464 17593	~105m south
Pond 7	NZ 76379 17526	~130m southeast
Pond 8	**NZ 76207 17993**	**Within Mine Site boundary**

Review of Existing Ecology Reports

The following was noted from the ecological reports of works carried out within the Mine Site boundary. It is not known whether all these surveys were carried out to best practice guidance. The surveys were undertaken by INCA, Aquatic Environments, Trewren, K and Royal HaskoningDHV, and are subject to further discussion in **Section 4**[2]:

Cleveland Potash Bird Survey (INCA, 2006)

- Two visits were made on 7th June 2006 and 12th July 2006.
- 35 bird species recorded including:
  - Kingfisher (Schedule 1 on WCA 1981; as amended);
  - Herring gull, House sparrow, Lapwing, Linnet, Skylark, Song thrush, Starling, Wood warbler (England Biodiversity List); and
  - Swift (TVBP).

Cleveland Potash Casual Bird Records[9]

- Pair of barn owls observed in fields in October 2009.

Nest Box Results[10]

- Blue tits and great tits nesting in boxes in 2006.

An Ecological Scoping Assessment Relating to External Works Required to Repair a Damaged Drainage Culvert in Mines Wood, Boulby (INCA, 2015)

- Slow worm recorded near the engineering block within the operational area at NZ 762 183.

Documentation of Activities to Prepare for Culvert Repair in Mines Wood, Boulby (INCA, 2015)

- 3 slow worms observed during the culvert repairs.

Easington Beck – Water Quality and Macro-Invertebrate Monitoring 2013 for Cleveland Potash Ltd.(Mercer, 2014)

- Run off from the Boulby Potash Mine site could potentially damage the ecology of any receiving waters, should there be any accidental spillage or poor site management practice occurring within the boundary of the plant. This run-off would enter the Easington Beck via Boulby Gill. As a result, two surveys were carried out by Aquatic Environments of Boulby Gill and Easington Beck in June and October 2013. The aim of the surveys was to compare the current status of the water quality at sites above and below the confluence of the Boulby Gill and Easington Beck to ascertain if there was any difference;
- The watercourses were assessed as having exceptional water quality in the spring survey, and were dominated by pollution sensitive species of stoneflies and mayflies. The autumn survey results were limited due to flooding that had recently occurred;
- The results of the surveys in 2013 show no significant pattern between the two sites indicating there was no constant chronic pollution from the mine's site drainage;
- A diverse invertebrate community was recorded at both sites; and
- No red data book or nationally scarce species recorded in 2013.

An Annual Summary of Survey Activity Relating to the CPL Site Biodiversity Action Plan (INCA, 2014)

- Two seeded areas immediately adjacent to the CPL office block, known as the 'east meadow' and 'west meadow', were initially surveyed by INCA in 2013. A visit by INCA to these meadows on 20th May 2014 showed few plants to be in flower;
- Two dingy skipper butterflies were recorded ~75m south of the east meadow in an area containing bird's foot trefoil;
- Grayling butterfly (England Biodiversity List) occurs on the Mine Site;
- A hibernation roost survey was carried in the disused mineral line tunnel on 19th January 2014; and

[9] Provided as an excel spreadsheet from Jennie Thomas, Environmental Services Manager, on 13th September 2016.
[10] Provided as a pdf from Jennie Thomas, Environmental Services Manager, on 13th September 2016.

- No bats were seen but evidence of their presence was seen in the form of a number of brown long-eared bat droppings.

- Checks of all of bat boxes were carried out on 20th August 2014 and the following were recorded:
  - There are 24 boxes in total, including 5 boxes within the disused mineral line tunnel;
  - Box 1 located on a tree contained a Myotid bat, possibly whiskered bat;
  - Box 2 located on a tree contained a common pipistrelle;
  - Box 19 located on a tree contained four whiskered bats which were identified via DNA analysis of their droppings;
  - The bat boxes at Mines Wood recorded a single tissue moth, an unusual record for north-east Yorkshire and is only the second modern record from this part of the county; and
  - Several bats had been reported to emerge from the Tailings Switch Room in 2014. No evidence was found during an inspection on 15th September 2014.

Botanical Survey of Boulby Mine Wood (Including Newton Gill Wood) (Trewren, 2004)

- A botanical survey of Boulby Mine Wood was carried out in 2004 assessing any changes since the last survey in 1997, particularly with regard to rare or notable species;
- Habitats present include deciduous and coniferous woodland, mixed woodland on former mining spoil, coarse grassland and bracken, steep banks and shale cliffs and boggy areas;
- Identified a number of notable plant species on the Mine Site;
- Identified over 130 species in the landscaped spoil heaps area; and
- Identified the following butterfly species on the Mine Site including, peacock, painted lady, red admiral, large white, brimstone, speckled wood, wall butterfly, meadow brown, small copper, common blue, and large skipper.

Boulby Mine Landscape Masterplan: Ecological Report (Royal HaskoningDHV, 2013)

- Objectives of the masterplan - The landscape appraisal identified that the following key landscape characteristics should be incorporated in the preparation of the proposed landscape restoration plan:
  - Restore site topography close to pre-mining landforms, including removal or softening of the screening embankment, formation of minor gills along restored watercourses and general softening of the current development plateau;
  - Extend woodland cover along the existing Boulby Gill and restored minor gills, to reflect the presence and key local characteristics of mature woodland within incised valleys (as noted along the valleys of Easington Beck and Roxby Beck to the south of the Mine Site);
  - Reinforce and/or restore degraded hedgerow field boundaries to the area north west of the minehead and within the parcel of open farmland north of the A174 near Red House Nab; and
  - Use tree and shrub species which are local to the area and able to withstand the exposed maritime climate.
- The woodland surrounding the mine is managed by INCA with the help of conservation volunteers and is used as an educational area for schools;

- Woodland areas are managed by CPL and INCA to maintain and improve the diversity of these areas. The area is known to support roe deer, fox, the speckled wood butterfly, uncommon moth species, the locally rare wood warbler and four bat species;
- The fields within the Mine Site (directly to the west of the mine buildings) are managed under an entry level stewardship scheme. Features managed include historical features, the hedgerows, permanent grassland and wildlife friendly edges. The area is also managed to ensure a diverse seed mix for invertebrate and bird species and mixed livestock are used to increase diversity;
- A small ruined building on the southern boundary of Newton Gill Wood provides suitable bat roost habitat; and
- Evidence of a swallow nest was found in one of the buildings located near the railway line.

A Biodiversity Action Plan for Cleveland Potash Ltd at Boulby (INCA, 2012)

- The report contained the following recommendations and points:
- The Site BAP would focus on the Mine Site's mature woodland and associated meadow habitats;
- The meadow is a result of natural re-vegetation of the spoil heaps of the disused Grinkle Mines;
- Much of the area covered by the Site BAP is comprised of mixed deciduous woodland, which is of a fairly uniform age, having been felled during the first half of the 20th Century. Today's habitat is partly a result of regrowth and replanting;
- The Environment Agency surveyed the water quality of the Easington Beck in 1997 and 2002 and found the water quality to be very good with no evidence of adverse impacts resulting from run-off from the Boulby Mine site;
- Semi-improved calcareous grassland has developed on the spoil heaps of old mine workings. This grassland has a short open sward, occasional bare patches and relatively high floral species diversity. Nationally this habitat-type is best described as 'Open Mosaic Habitat on Previously Developed Land' (OMH), a priority habitat which was included in 2007;
- The Mine Site has a diverse invertebrate species assemblage. The invertebrate communities of the Mine Site, particularly the Lepidoptera, have been extensively studied by INCA;
- At least 40 species of bird have been recorded from the woodlands;
- The occurrence of singing wood warbler males in June 2006 could be indicative of breeding;
- Otter has been known to use the Mine Site; a single set of prints were seen in mud at the western end of the drainage culvert along Easington Beck in the summer of 2012;
- There are habitat action plans for Brownfields (Open Mosaic Habitat) and Semi-natural Deciduous Woodland; and
- There are species action plans for invertebrates and mammals.

Summary

North York Moors National Park is located within the Mine Site boundary, and the North York Moors SSSI/SAC/SPA, designated for ecological features such as breeding birds is ~2510m south from the Mine Site. Given that the bird species within the SPA citation are highly mobile, these are subject to further consideration in **Section 4**. Considering the nature of the proposals, it is considered unlikely that the proposed development would affect the integrity of the remaining statutory designated sites given they are located at least ~3270m from the Mine Site.

Oneham's Pasture and Easington Beck Complex LWS's are located within the Mine Site boundary and are therefore subject to further consideration in **Section 4**. With the exception of the two Saltburn to Staithes Coast LWS's which are also designated for bird interest, the remaining LWS's are located at least ~2545m from the Mine Site, and considering the nature of the proposals, it is considered unlikely that the proposed development would affect the integrity of these designated sites.

Records exist for a number of protected and notable species within ~2 km of the Mine Site. Where there is sufficient potential for these species to be present on the Mine Site (i.e. where evidence of species, or suitable habitat, was identified during the field survey), such as bats, great crested newts (GCN) and otter, these are given appropriate consideration in **Section 4**. For species such as red squirrel[11] which are not present in the local area, these species are not considered further within this report.

3.2 Field Survey

Habitats

The areas on the Mine Site comprises a diverse range of habitats. The operational area is located in the centre of the larger section and comprises numerous industrial buildings, bare ground and hardstanding with occasional ephemeral/short perennial vegetation, small areas of continuous bracken and poor semi-improved grassland, which was found to be becoming more dominated by tall ruderal species during the updating survey in 2019. Outside the mining area is plantation broadleaved and mixed woodland, arable land, unimproved, semi-improved, improved and amenity grassland, tall ruderal vegetation, cliffs, hedgerows, scattered and dense scrub, trees, waterbodies and watercourses. All habitats identified within the Mine Site during the extended Phase 1 habitat survey are shown on **Figure 3.2**, and the main habitats are described below. Target notes (**TNs**) are shown on **Figure 3.2** and are detailed in **Appendix B**.

Woodland

Broadleaved Plantation

Extensive mature stands of broadleaved plantation woodland are present to the west (Newton Gill Wood (**TN 1**) and encompassing the Easington Beck to the south and east of the Mine Site (**TN 2**). The woodland composition is variable. It is mostly semi-mature to mature in age and dominated by broadleaved specimens with a minor component of coniferous species in places. The woodland mostly exists on steep terrain, sloping towards the Easington Beck. Some areas of the woodland are likely to be on mining spoil and shale. There is a significant level of natural regrowth beneath the canopy in places, and a diverse and varied ground flora, which has an appearance of semi-natural woodland, but the canopy is considered to have originated from planting.

Canopy species include sycamore, field maple, silver birch, oak, ash, hazel, and wych elm with occasional pine. Species present in the field layer include goat willow, elder, hazel, hawthorn, guilder rose, honeysuckle, holly and beech. Ground flora includes ferns, bracken, bramble, common nettle, ivy, rough meadow grass, dog rose, red campion, wood rush, pendulous sedge, dog's-mercury and creeping buttercup. Several compressed bare ground rides/footpaths ~3m wide exist throughout all the woodlands; the vegetation immediately adjacent the rides is dominated by scrub and shrubs.

Mixed Plantation

Areas of mature mixed plantation woodland are present to the south and south east of the operational areas mine. The composition of this woodland is similar to the mature broadleaved plantation described above, with

[11] http://rsst.org.uk/wp-content/uploads/2012/07/squirrel-maps.jpg

natural regrowth within the shrub layer and diverse ground flora. However, Scots pine becomes more abundant in the canopy along with occasional other coniferous species such as larch.

A semi-mature area dominated by sycamore, field maple, oak, ash and pine is situated to the north of the operational area (**TN 5**). A shrubby layer of hawthorn and blackthorn is present, while ground flora species comprise fern, bramble, common nettle, common grasses, bramble, common hogweed and dog rose.

Several areas of grassland, to the northeast (**TN 6**) and northwest (**TN 7**) of the Mine Site, have been planted within the last four years with a mixture of immature trees including field maple, sycamore, red alder, silver birch, common hawthorn, black pine, grey poplar and Swedish whitebeam[12]. The trees are sheathed at their base to protect from grazing, and the grassland is actively managed via strimming and spraying. These areas are part of the Phase 1 planting required to meet the objectives of the landscape masterplan.

Four small trial plots consisting of approximately 100 immature trees each (**TN 13, TN 14, TN 15,** and **TN 16**), ~1-1.5m in height, can be found amongst improved and poor semi-improved grassland fields situated ~445m and 400m northeast. ~70m west, and ~245m northeast of the operational area respectively. Species include black pine, field maple, hornbeam, alder, and birch. These are trial plots to determine which species grow best on the Mine Site given the saline conditions from the mine and the coast. The trees are sheathed at their base to protect from grazing, and the grassland is actively managed via strimming and spraying.

Coniferous Plantation

Stands of coniferous plantation woodland are located adjacent the operational area (**TN 3**), before grading into broad-leaved plantation heading towards the Easington Beck. These areas are dominated by Scots pine with occasional immature ash, and shrubby elder, hawthorn and blackthorn. The ground flora is frequently a dense mat of horsetail, red campion and bramble, although sparse areas consisting of bare ground and nettle, bramble, broad-buckler fern and brome are present where the canopy is dense. Due to being closest to the operational area, and as a result of having salt from the mine being blown onto, the trees nearest to the operational area are damaged/dead; as a result some trees have been felled (**TN 4**).

Grassland

Neutral Grassland

An area of neutral grassland immediately east of the operational area has not been managed as intensively as the surrounding areas; some parts have previously been planted with broom, dog rose and vetch spp.[13] and had several corrugated iron mats lying in the field (**TN 9**). Part of this grassland, within Oneham's Pasture LWS is sheep grazed and there was other evidence of agricultural enrichment, therefore the grassland is considered to be semi-improved. Updating survey in October 2019 indicated that short cropped grassland areas are becoming more dominant in places in this area.

Enclosed within dense scrub and mixed/broad-leaved woodland ~155m southeast of the operational area is an area of neutral grassland (**TN 10**) on landscaped areas of mining spoil, comprising areas of secondary grassland which are likely to have developed semi-naturally, and areas which have at least in part originated from sowing. These areas are not grazed and are otherwise unmanaged, they lack evidence of enrichment or other improvements, and are species- and herb-rich, are consequently considered to be unimproved. The area immediately surrounding waterbody 9 has been planted with wild flower seed mixes following the maintenance works of the culvert that runs below, in which a large excavation of the ground was made[14]. This area had a

[12] Species list provided via email from Jennie Thomas, Environmental Services Manager, on 30th September 2016.
[13] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey.
[14] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey.

short open sward with occasional bare patches. Species present include cock's-foot, tufted hair grass, bent, brome, fescue spp., perennial rye grass, Yorkshire fog, yarrow, hogweed, knapweed, teasel, bristly ox-tongue, spear thistle, broad-leaved dock, creeping thistle, common nettle, birds-foot trefoil, cow slip, daisy, scarlet pimpernel, ox-eye daisy, hawkweed, pineapple weed, red clover, vetch spp., self-heal, fairy flax, ribwort plantain, eye bright, black medick and fleabane. Towards the western edge of the grassland is a spoil and brash pile.

Other small areas of semi-improved neutral grassland are present at the western most edge of the Mine Site and to the south of the operational area (**TN43**), although scrub and tall ruderal vegetation was found to be becoming more prevalent in these areas during the 2019 survey.

Poor Semi-improved

There are several poor semi-improved grassland fields within the survey area, and smaller sections located throughout the operational area around the buildings and car parks. Some areas to the west and north are grazed by sheep and cattle. A rough rank tussocky pasture field containing several willow plantations and a rubble pile (suitability for reptiles is discussed below) is located to the northeast of the operational area (**TN 8**), with the northeast corner of the field containing a patch of fleabane and rush. These fields are dominated by cock's-foot, perennial rye grass, Yorkshire fog, rough meadow grass and tufted hair grass, with additional species such as spear thistle, broad-leaved dock, creeping thistle, common nettle, vetch spp., ribwort plantain and red clover.

Improved

Fields of improved grassland are mostly species-poor pasture or managed grassland. Pasture fields are generally grazed by sheep or cows (e.g. **TN 11** and **TN 12**) and dominated by perennial ryegrass with limited Timothy, cocks-foot, white clover and crested dogs-tail. Broad-leaved dock, common nettle, common thistle, soft rush and creeping buttercup are also present.

Amenity

Areas of amenity grassland within the survey area are limited to a small area of fields that are used by the shooting club for clay-pigeon shooting and archery. These areas of grassland are likely to be species-poor (the grass was very short, rendering species identification difficult), heavily managed and likely to be regularly mown. The amenity grassland is an area which is a mosaic of rough grassland, scrub, and tall ruderal vegetation.

Scrub

Several areas of scattered and dense scrub are present, generally associated with areas of woodland edges, within areas of coarse species poor semi-improved grassland, and along field boundaries (e.g. **TN 17** and **TN 18**). Scrub is dominated by bramble, gorse, broom, immature birch, hawthorn, blackthorn, bindweed, dog rose, bracken and willow species such as goat willow.

Several willow and oak sp[15] plantation stands can be found in the semi-improved grassland fields to the east of the operational area (**TN 8**). These were planted as part of screening for the mine in 1998. The plantations are ~2-3m high and the growth is stunted. Some of these willow stands are due to be removed during the next phase of planting[16].

Tall Ruderal

Areas of tall ruderal are located amongst areas of coarse species poor semi-improved grassland and along field boundaries. Species include ox-eye daisy, bramble, creeping thistle, ivy, common hogweed, common

[15] Mediterranean oak as identified by Royal HaskoningDHV (2013).
[16] Plans provided by Jennie Thomas, Environmental Services Manager, on 30th September 2016.

nettle, horsetail, rosebay willowherb, broad-leaved dock and black knapweed. Since the 2016 survey, a number of areas of the site which were previously dominated by poor semi-improved and semi-improved neutral grassland have become more tall ruderal in nature. This includes an area on the western-most edge of the Mine Site (**TN46**), and areas at the eastern and southern edges of the operational area (TN35).

Arable

Two fields to the west of the Mine Site is used for arable. The crop was too short to enable identification at the time of survey. The larger field has scattered scrub bordering it to the north and east. At the bottom of the field along the south-eastern boundary is a dry ditch (**TN 19**) with a ~2m semi-improved grassland buffer strip. During the 2019 survey, an area of topsoil along the south-western edge of the field was found to have been excavated and a topsoil mound created. The smaller arable field lies to the north of the large field and is bordered by areas of scrub, semi-improved grassland and tall ruderal vegetation to the west and north, with a hedgerow present on the eastern field boundary (**TN45**).

Ephemeral/Short Perennial

Ephemeral/short perennial vegetation exists along the shingle embankment of the railway within the operational area (**TN 20**), and immediately east of the operational area where piles of rubble have been stored (**TN 21**). The vegetation includes salt tolerant spear leaved orache and lesser sea spurrey, as well as groundsel, round-leaved plantain, creeping thistle, bristly ox-tongue, burdock, ragwort, and occasional grasses including cocks-foot and Yorkshire fog.

Hedgerows

An intact species-poor hedgerow dominated by hawthorn is located along the eastern boundary of the Mine Site immediately adjacent a road (**TN 6**). The hedgerow is managed and is ~2m high. Occasional sycamore and elder are present within the hedgerow. Ground flora includes round-leaved plantain, common hogweed, annual meadow grass, dandelion, creeping thistle, sow thistle, vetch, violet and clover. A defunct species-poor hedgerow is present ~360m to the west of the operational area along a field boundary (**TN 45**).

Maritime Hard Cliff

Steep cliffs form the northern most boundary of the northern pumphouse site which the grassland fields adjoin onto. The cliffs could not be surveyed from above in detail due to health and safety, but a view of the cliffs further down the shore indicated their composition. The cliffs appear to be 'hard cliff' overlain by a layer of 'soft cliff', where a steeply sloping and heavily eroding layer of earth deposits, mudstone and shale overlay more vertical faces of rock such as ironstone and sandstone. The upper eroding slopes comprise a patchy surface of bare eroded substrate and vegetation. The lower rock faces are likely to be mostly devoid of vegetation, except where eroded material has fallen from above and collected on ledges and crevices. The cliff is maritime cliff and slope priority habitat, as identified by MAGIC during the desk study.

Watercourses and Waterbodies

Watercourses

*Easington Beck (**TN 22**) (Surveyed at Two Locations)*

Easington Beck runs through the Mine Site in a north-easterly direction, parallel to the south-eastern boundary. It is ~3-5m wide, ~15cm deep, with a gravel and rock substrate. It has steep earth and rock banks and is encompassed by broad-leaved woodland on both sides. It has a slow flow with moderate water quality; the

water appeared to be slightly silty. The Beck has been culverted for a stretch of ~350m and has had maintenance works carried out including reinforcing the bank sides at one location (**TN 23**).

*Boulby Gill (**TN 24**) (Surveyed at One Location)*

Boulby Gill is ~30cm wide and ~5cm deep with an earth substrate. It has a slow flow, moderate water quality and steep grassy banks. The Gill flows through the mine's operational area and interceptor, before flowing into the Easington Beck.

Dry Ditches

Several dry ditches also occur on the Mine Site though the woodlands and grasslands which are likely to only contain occasional runoff:

- Dry ditch 1 (**TN 19**): Located along the southern boundary of an arable field. The ditch is within a ~2m semi-improved grassland buffer strip with occasional scattered scrub. To the south of the ditch is a poor-semi improved field that is grazed by cattle;
- Dry ditch 2 (**TN 25**): Located within an improved grassland grazed by sheep, the ditch contains scattered gorse scrub, common nettle, and soft rush;
- Dry ditch 3 (**TN 26)**: A small depression in a poor-semi-improved field, grazed by cows, links waterbody 1 (see below) to the broad-leaved woodland ~50m to the southwest. Sycamore and ash trees are present along the ditch;
- Dry ditch 4 (**TN 27**): A dry stream due to the water being diverted from the mine to the interceptor. The stream is only likely to hold occasional runoff and is located within woodland.

Waterbodies

One of the eight waterbodies identified in the desk study, and another found during the field survey, were accessed during the extended Phase 1 habitat survey and a HSI assessment was carried out. The waterbodies vary in size and structure and are described below:

*Waterbody 1 (**TN 26**)*

This is a pond located within a poor semi-improved grassland field grazed by cows. The pond is ~30m x 15m in size and is at least 1m deep. It is likely that the pond will never dry out. The pond is likely to contain a moderate invertebrate diversity and ~100% of its perimeter is shaded by continuous scrub around its edge with steep bank sides. Five mallard ducks were observed and fish are likely to be present. The nearby broad-leaved woodland and surrounding scrub provides excellent terrestrial habitat for refuging, hibernating, commuting and foraging for GCN. ~0% of the pond surface area is covered by macrophytes. The scrub and pond are enclosed by a barbed wire fence. This pond was described in 2013 by Royal HaskoningDHV (2013) as a small reservoir used for farming purposes such as irrigation.

*Waterbody 9 (**TN 10**)*

This is located within a semi-improved grassland field. The pond was formed in 2015 after repairs to the drainage culvert of the Easington Beck. A large area of grassland was excavated to allow access to the culvert. Once finished the excavation was filled in with the excavated spoil, which then sunk creating a depression in the field. The pond is ~15m x 5m in size and was ~5-10cm deep at the time of survey. It is likely that the pond will dry out annually. The pond is likely to contain a poor invertebrate diversity and ~0% of its perimeter is shaded. No fowl were observed, and fish are absent. The nearby broad-leaved woodland provides excellent terrestrial habitat for refuging, hibernating, commuting and foraging for GCN. Less than 5% of the ponds surface area is covered by macrophytes with occasional yellow flag iris present.

Buildings

Buildings within the survey area are limited to large industrial buildings and offices within the operational area, and two buildings in the northern pumphouse site. These are discussed further in the **Bat** section.

Other

The operational area with roads and car parking is composed of mostly bare ground and hard standing.

Protected and Notable Species

Badger

No evidence of badger activity (such as footprints, latrines or badger hairs) was identified on the Mine Site during the 2016 or 2019 surveys. The woodland and scrub habitat provides high potential for sett creation, and high potential for foraging habitat within areas of grassland, scrub, tall ruderal vegetation, and woodland. Some areas of woodland however are disturbed by members of the public and dog walkers and this may affect badger distribution in the locale.

Bats

Habitats on the Mine Site such as woodland, scrub, grassland and watercourses/waterbodies provide high potential for roosting, commuting and foraging bats. Linear features such as hedgerows, the Easington Beck, and the rides within the woodland provide good sheltered, connective corridors across the landscape. The range of habitats on the Mine Site provides high potential foraging opportunities with woodland, scrub, grassland, and watercourses/waterbodies likely to support a diverse invertebrate assemblage.

Trees within the woodlands on the Mine Site may provide potential roosting habitat for a range of bat species, with a number of trees observed to have ivy cladding and features such as holes, cracks, and dead wood. Twelve bat boxes (although the total number of bat boxes present within the Mine Site boundary is 24 (INCA 2014)) were noted at four locations in the woodland in groups of three, approximately 5m high around a tree (**TN 22, TN 27, TN 28,** and **TN 29**). In addition, the following mines/tunnels are present that provide summer/maternity/hibernation roost opportunities (all survey work was based upon the best practice guidance, including the Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2016) methodology):

- A disused mine is situated along the Easington Beck (**TN 22**). The mine could only be viewed from across the Beck; an assessment of its potential was therefore made from a distance. The entrance is ~3m x 3m. Wooden support beams are placed across the roof. There appear to be numerous cracks, holes, and fissures within the stone walls that could provide roosting opportunities for bats. The walls appear to be covered in moss/algae. The mine opens out onto the Easington Beck providing an unobtrusive access and egress. It is assessed as having moderate-high potential to support roosting bats;
- One end of the culvert that takes the Easington Beck under the woodland is located at the same location as the above disused mine (**TN 22**). The culvert has the appearance of a tunnel, and is ~5m high and ~3m wide. Inside, a metal frame supports the brick and stone outer works. The inner bricks are sealed with mortar, although the outer brick/stone work was not sealed. Thus, there are gaps in between the bricks which provide moderate-high potential for bats to roost within. The metal inner frame could only be observed from one end, but did not appear to provide any roosting opportunities;

- A disused mineral line (**TN 28**) from the old iron works extending through the woodland is a confirmed brown-long eared hibernacula[17]. The tunnel contains numerous bat boxes that have been erected onto the wall[18]. It opens out onto a ride within broad-leaved woodland providing suitable access and egress. The tunnel is ~3m x 3m in size and was built from brick and stone. Alcoves are present within the tunnel along the western wall. The tunnel was moist and the ground was waterlogged in some areas. There were numerous cracks and gaps in between the brick work that provide suitable roosting features. The entrance has previously been at least partially bricked up, but approximately half of the entrance is still open. Potential bat droppings and the remains of moth wings were found in one of the alcoves, and have been sent for DNA analysis to ascertain the species. There were numerous footprints and dog prints within the tunnel, and it appears to be used by members of the public;
- Another disused mine is located near the old engine house (**TN 30**). The entrance is blocked off with a metal fence and access was not possible. The mine is ~5m wide and ~3m high. The inner layer is brick built, with stone surrounding the brick. There were gaps in between the bricks and stone work where mortar is missing, providing suitable roosting features for bats. Based on the section of mine that could be seen, and the disused mineral line tunnel (**TN 28**) that was inspected in detail, it is assumed that there are abundant additional features such as cracks, gaps and fissures within the mine. It is therefore considered to have high potential to support roosting bats.

Numerous buildings are present on the Mine Site, with the majority within the operational area. These comprise a mix of industrial buildings and offices and laboratories. A detailed ground based bat risk assessment of these buildings is provided within a separate bat technical notes[19].

Two buildings however are present in the northern pumphouse site and were subject to an external inspection only during the extended Phase 1 habitat survey:

- The first is a fairly modern (~30years) transformer building ~5m x 10m in size (**TN 31**), and constructed of stone walls and slate roof. The stone work is in moderate condition, although four gaps are present where it abuts the wooden door on the western side. All of the gaps had light cobwebbing, and a bat is known to have roosted in the lower right gap approximately 7 years ago[20]. The doors on the eastern side are in poor condition with a possible gap at the door edge. The slate roof is pitched with gable ends and is in moderate condition. The ridge tiles appear to be recently repointed with no gaps or cracks. There are ~8 raised tiles that bats may use for access/egress. The wooden fascias around the building are in moderate condition with a gap between the wall and fascia board which also provide possible entry points for bats. The eastern gable end had ~12 inches of damaged pointing which may provide suitable roosting opportunities although it is also cobwebbed. The plastic drain pipes are in good condition. The building has a corrugated metal shed attached which contains a gap between the shed and building which is suitable for bat entry. There are also gaps present around the two wooden doors;
- The second building is of similar construction to the previous building but larger in size (~10m x 20m) (**TN 32**). The fascias are in good condition but still have a gap in between the fascia and

[17] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey.
[18] 6 bat boxes are present within the tunnel according to INCA (2014) An Annual Summary of Survey Activity Relating to the CPL Site Biodiversity Action Plan.
[19] Appendix 9.G Wood (2019) Boulby Mine Proposed Extension, Bat Technical Note.
[20] Pers. comm. with building manager on 05th October 2016 during extended Phase 1 habitat survey – likely to be same record mentioned in INCA (2014) An Annual Summary of Survey Activity Relating to the CPL Site Biodiversity Action Plan.

the wall, while there are gaps above the ~14 windows present. In addition, there is a ~20cm gap in the pitched roof pointing.

Results of a detailed ground based assessment and further surveys of these buildings are provided within the separate bat report[21].

Breeding Birds

The Mine Site supports a range of habitats likely to be used by breeding birds. Woodland, hedgerow, scrub, and scattered trees have high potential for use by nesting birds during the breeding season (approximately March to August inclusive). A number of bird boxes (e.g. **TN 27**) were noted in the broad-leaved woodland encompassing the Easington Beck during the survey. Some areas of semi-improved and improved grassland are regularly grazed. This level of disturbance is likely to dissuade ground nesting species from these areas. The buildings, particularly those with open faces, provide some nesting potential for birds such as swallows.

Woodland and hedgerow habitats present onsite are likely to support a range of common species and potentially some listed on the RSPB red list and England Biodiversity List such as house and tree sparrow and yellowhammer. Given the number of conifers within woodlands onsite, there is potential of common crossbill being present. This species is listed on Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 as amended.

Barn owl are known to frequent the local area[22] (**TN 8**), with habitats such as grassland and rough field edges likely to support small prey, which provides a potential foraging resource for raptor species such as barn owl. The Easington Beck also provides breeding opportunities for species such as kingfisher.

Great Crested Newts

No evidence of GCN was recorded during the extended Phase 1 habitat survey. Areas of terrestrial habitat such as semi-improved grassland, tall ruderal vegetation, scrub, woodland and log/rock/rubble piles provide high potential for GCN, which are suitable for shelter, refuge, hibernating, and foraging. However, areas of suboptimal habitat such as the operational area, consisting of predominately buildings, bare ground and hard standing, are located within the centre of the Mine Site.

Waterbodies with aquatic and emergent vegetation provide potential for GCN to breed, as females lay their eggs on the submerged leaves of aquatic plants, while increased invertebrate diversity within the waterbodies provide opportunities for foraging. The presence of fish and fowl reduce the suitability of a waterbodies potential to support GCN as fish can predate upon GCN larvae. Nine waterbodies are located either on-site or within ~500m of the Mine Site. Waterbodies 1 and 9 were subject to a HSI assessment which can be seen in **Table 3.4** below. Waterbody 1 scored 0.64, which equates to 'average' suitability to support GCN. Waterbody 9 scored 0.49, which equates to 'poor' suitability to support GCN.

[21] Appendix 9.G Wood (2019) Boulby Mine Proposed Extension, Bat Technical Note.
[22] Pers. comm. with contractor on 15th September 2016 during extended Phase 1 habitat survey.

Table 3.4 GCN HSI Scores

Pond number	SI_1 Location	SI_2 Pond Area	SI_3 Pond Drying	SI_4 Water Quality	SI_5 Shade	SI_6 Fowl	SI_7 Fish	SI_8 Ponds	SI_9 Terrestrial habitat	SI_{10} Macrophytes	Score
1	A	450m^2	Never	Moderate	100%	Minor	Possible	6	Good	0%	**Average**
	1	0.9	0.9	0.67	0.2%	0.67	0.67	0.82	1	0.3%	**0.64**
9	A	75m^2	Annually	Poor	0%	Minor	Absent	5	Good	2%	**Poor**
	1	0.15	0.1	0.33	1	0.67	1	0.78	1	0.32	**0.49**

Otter, Water Vole, White-clawed Crayfish, Freshwater Pearl Mussel and Freshwater Fish

The Easington Beck which is encompassed by woodland provides good sheltered, connective corridors across the Mine Site. The steep banks with trees support the potential for otter resting sites. The Easington Beck on the Mine Site is considered to have high potential for otter resting sites, foraging and commuting; otter and brown trout (a TVBP species) are known to be present[23]. Waterbody 1 on-site may also provide a potential foraging resource for otter should fish be present within it. There is low-moderate potential for otter commuting and lay up sites along the Boulby Gill, although it has negligible potential for foraging. The dry ditches may also provide otter commuting potential.

Easington Beck is assessed as having negligible-low potential to support water vole as the shaded steep woodland banks provide unsuitable habitat for burrowing and foraging. Boulby Gill is considered to have low-moderate potential to support water vole. Although it has grassy banks which provide burrowing and foraging suitability, the shallow and narrow water level decrease its suitability to support water vole.

The steep earth banks and gravel/rock substrate of Easington Beck provide refuging opportunities for white-clawed crayfish; the Beck is considered to have moderate potential to support white-clawed crayfish. While the shallow water level of Boulby Gill means it has negligible potential to support white-clawed crayfish.

Easington Beck is also assessed as having negligible potential to support freshwater pearl mussel given its low depth and the historical mining use of the Beck. The shallow water level of Boulby Gill means it has negligible potential to support freshwater pearl mussel, and freshwater fish. Considering all watercourses have negligible potential to support freshwater pearl-mussel, they are no longer considered further within this report.

Reptiles

The mosaic of grassland, scrub, woodland, tall ruderal, hedgerows, and waterbodies, along with rubble/rock/log piles, pipes (**TN 31** and **33**), corrugated mats and stone walls that are located throughout the Mine Site, provide potential habitat for foraging, basking, refugia, and hibernation. There is particularly high potential for reptiles in the area surrounding the old engine house (**TN 30**). Here there are numerous piles of rock, brick, and logs amongst a mosaic of grassland, scrub and woodland, while the stone foundations of the house also provide refugia and hibernacula potential; slow worm have been recorded in the semi-improved grassland adjacent to the old engine house[24].

Notable Species

Given the range of suitable habitats present on the Mine Site, there is potential for a number of England Biodiversity List species to be present. These include a range of invertebrate species such as dingy skipper and wall butterfly, as well as brown hare and hedgehog. Wall butterflies predominantly feed on a variety of grass species, some of which are present on the Mine Site. Dingy skipper larvae predominantly feed on birds-foot trefoil. This plant species was recorded during the extended Phase 1 survey within the semi-improved grassland to the south of the operational area; both dingy skipper and grayling have been recorded here[25] (**TN 10**). Habitats on the Mine Site are suitable for brown hare, common toad and hedgehog, with the mosaic of grassland, woodland and waterbodies providing good foraging opportunities and potential refugia/hibernacula within leaf piles.

[23] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey. Otter spraint has been found on a rock within the mineral line tunnel.
[24] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey.
[25] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey.

Invasive Non-native Species

The location of invasive non-native plant and animal species recorded within the Mine Site are shown on **Figure 3.3**, and described as follows:

- A single grey squirrel was observed in a tree adjacent to waterbody 1 (**TN26**);
- A small stand of montbretia (**TN 34**) was recorded in the verge adjacent to the access road to the pumphouse site, amongst a mosaic of grassland, tall ruderal vegetation and scrub;
- Two stands of rhododendron sp. (one approximately 2m x 5m, and another larger stand close by) were recorded in an open stand of the Scots pine plantation; and
- Giant hogweed is locally frequent on the railway embankment adjacent to Newton Gill Woods.

475000 475500 476000 476500 477000 477500

519500 519000 518500 518000 517500 517000

N

1 2 3 4 5 6 7 8 9

Key

- Boulby Mine site boundary
- Boulby Mine operational area
- 500m buffer from site
- Pond

0 100 200 300 400 500 m

Scale at A3: 1:10,000

Boulby Mine
Environmental Staement
Extended Phase 1 Habitat
Survey Technical Note

amec foster wheeler

Figure 3.1
Ponds within 500m of the Mine site

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475500
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N
Boulby Barns Farm
Boulby Bank
Boulby
RedHouse Farm
Coatal Cp
Onehams Farm
Onehams Wood
Key
Site boundary
Target Note
Scrub - scattered
Parkland and scattered trees - broad-leaved
Scattered bracken
Spoil
Intact hedge native species poor
Defunct hedge native species poor
Fence
Dry ditch
Broadleaved woodland - plantation
Coniferous woodland - plantation
Mixed woodland - plantation
Scrub - dense/continous
Scrub - scattered
Neutral grassland - unimproved
Neutral grassland - semi-improved
Improved grassland
Poor semi-improved grassland
Tall ruderal
Standing water - mesotrophic
Running water
Other exposure basic
Arable
Amenity grassland
Ephemeral/short perennial
Buildings
Bare ground
Hardstanding
0 50 100 150 200 250 300 350 m
Scale at A3: 1:6,000

Boulby Mine New Development
Figure 3.2
Phase 1 habitat plan
October 2019
wood.
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Key

Boulby Mine site boundary

Boulby Mine operational area

Species

Giant hogweed

Grey squirrel

Montbretia

Rhododendron

0 100 200 300 400 500 m

Scale at A3: 1:10,000

Boulby Mine
Environmental Statement
Extended Phase 1 Habitat Survey Technical Note

amec foster wheeler

Figure 3.3
Schedule 9 non-native species records

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4. Conclusions

4.1 Designated Sites

Boulby Mine Site is located within the North York Moors National Park. North York Moors SAC/SPA and coincident SSSI is ~2.51km south of the Mine Site. Breeding populations of merlin and golden plover are the qualifying species of the North York Moors SPA, listed on Annex 1 of the EU Birds Directive. The citation for the coincident SSSI highlights that the SPA/SSSI also supports breeding populations of peregrine falcon, hen harrier and short-eared owl, which are also Annex 1 species, as well as supporting a number of Red Data Birds in Britain including red grouse, curlew and redshank, and other candidate Red Data Birds. Saltburn to Staithes Coast 2 and 1 LWSs (located ~1.76km northwest and ~3.12km northwest of the Mine Site respectively) are also noted for similar bird interest. These designated sites are surrounded by expanses of similar agricultural habitats compared to those on the Mine Site, and these are better connected to and in closer proximity than those on the Mine Site. There is also an area of woodland that lies in between the North York Moors SSSI/SPA and the Mine Site.

Oneham's Pasture LWS and Easington Beck Complex LWS are located on the Mine Site and are designated for neutral grassland and ancient woodland respectively, though these lie outside of operational areas of the mine. Habitats recorded during the survey are broadly consistent with the descriptions of these LWS sites, though woodland habitats appear to be ancient replanted woodland (which has an appearance of semi-natural woodland due to significant natural regrowth in places and a diverse and varied ground flora, but with the canopy originating from planting).

4.2 Habitats

The majority of the Mine Site supports a range of common habitats such as poor semi-improved, improved and amenity grassland, hardstanding, bare ground and arable. The majority of these habitats are relatively widespread, comprise common species. Areas of habitat with increase conservation interest exist, such as waterbodies, mature plantation woodlands, and neutral grassland, hedgerows, scrub and maritime cliffs. The majority of trees within the woodlands are semi-mature or mature with areas of natural regrowth, and areas of diverse ground flora exist. Areas of neutral grassland are herb- and species-rich, and include areas of unimproved sward.

The desk study and extended Phase 1 habitat survey have identified a number of habitat types which are considered to potentially qualify as priority habitats (e.g. Section 41 and/or TVBP), including maritime cliff and slope, hedgerows, open mosaic habitat (brownfields) and deciduous woodland.

Areas identified as being botanically diverse, including mature plantation woodland and neutral grassland, have been subject to detailed Phase 2 botanical survey and National Vegetation Classification community analysis. The methodology and results of the detailed botanical survey are presented within Appendix 9.F: Phase 2 Botanical Survey Technical Note, along with analysis of community types and the status of habitats and plant species in a local and national context.

No area of the Mine Site appears to be currently being managed under an entry level stewardship scheme[26].

[26] Checked using the Magic Map Application website on 15th October 2019.

4.3 Species

Badger

Although no evidence of badger was found during the extended Phase 1 habitat survey, the Mine Site contains suitable habitat for badgers to forage, commute, and for sett creation. Badgers are known to be in the vicinity as the desk study returned a record of this species within ~235m of the Mine Site, although it is unknown whether this is a sett record or a sighting. Previous surveys have not recorded any evidence of badger[27]; it is not known if these have been full surveys using best practice guidance, or when they were carried out. A separate badger survey of the Mine Site was undertaken in 2017, and the methodology and results of this are presented within Confidential Appendix 9.L: Badger and Otter Survey Technical Note.

Bats

The likelihood of foraging and commuting bats being present on the Mine Site during the active season is considered to be high. Habitats present within the Mine Site, such as woodland, hedgerow, scrub, rough grassland and wetland, provide suitable habitat for foraging and commuting bats, and there is good habitat connectivity between the Mine Site and other optimal foraging habitats within the surrounding area.. The network of woodlands on-site support immature to mature tree specimens and in conjunction with bat boxes, mines, culverts and tunnels, and buildings within the operational parts of the Mine Site, these provide potential roosting locations for a range of bat species. The desk study identified that whiskered bat and common pipistrelle have been recorded to roost within the bat boxes, unknown bats have roosted in the Tailings Switch Room (INCA, 2014), and several brown-long eared bats have hibernated within the disused mineral line tunnel during the winter of 2011/2012 (INCA, 2012).

A programme of bat surveys was undertaken at the Mine Site during 2017 to monitor bat roosting and other activity, and the methodology and results of this are presented within Appendix 9.G: Bat Survey Technical Note. This also includes results of an updating ground based bat risk assessment carried out in October 2019.

Breeding Birds

The combination of habitats present on the Mine Site, including trees, hedgerows, scrub, grassland and arable fields, and in conjunction with bird boxes, have high potential to support breeding birds during the breeding period (usually March to mid-August inclusive). Birds species such as blue tits and great tits are known to breed within the bird boxes. The Mine Site is known to support barn owl and kingfisher, both listed on schedule 1 of WCA (1981; as amended), and species such as the wood warbler which is a Section 41 species of principal importance. Areas of bare ground within the operational parts of the Mine Site have potential to support ground nesting birds such as oystercatcher, and the desk study identified records of this species within ~5km from the Mine Site. A swallow's nest was found in one of the buildings located near the railway line during the 2013 survey (Royal HaskoningDHV, 2013), and evidence of disused nests, also likely to be swallow or house marten, was recorded during the updating ground based risk assessment of buildings during October 2019.

A programme of breeding bird surveys was undertaken at the Mine Site during 2017, and the methodology and results of this are presented within Appendix 9.M: Ornithological Survey Technical Note.

Great Crested Newts

The desk study identified a record of GCN within ~3km to the Mine Site, although the date of the record is unknown. Terrestrial habitats within the Mine Site are optimal for GCN, including woodland, scrub and tussocky grasslands which provide habitat for foraging, commuting, refuging and hibernating. A network of ponds

[27] Pers. comm. with Jennie Thomas, Environmental Services Manager, on 15th September 2016 during extended Phase 1 habitat survey.

present provides aquatic habitat with suitability for GCN breeding. Detailed waterbody assessments and GCN presence/likely absence surveys were undertaken at the Mine Site during 2017, and the methodology and results of these are presented within Appendix 9.H: Great Crested Newt Survey Technical Note.

Otter, Water Vole, White-clawed Crayfish and Freshwater Fish

An otter record was returned from the desk study, ~105m from the Mine Site along the Easington Beck. Both otter and brown trout have been recorded on the Easington Beck within the Mine Site. The Easington Beck and Boulby Gill have potential to support otter resting/lay-up sites, as well as the potential to support water vole, white-clawed crayfish and other freshwater fish.

An otter survey was undertaken at the Mine Site during 2017, and the methodology and results of this are presented within Confidential Appendix 9.L: Badger and Otter Survey Technical Note.

Reptiles

Areas of habitats present on the Mine Site including grassland, scrub, hedgerow, woodland, scrub, waterbodies and log/rubble/rock piles and stone walls provide suitable habitat to support common reptile species. The desk study provided records of reptiles within ~3km of the Mine Site, while a review of previous reports revealed that slow worm have been recorded on the Mine Site.

Reptile surveys were undertaken by INCA at the Mine Site during 2017, and the results of these are presented in Appendix 9.I: Reptile Survey Technical Note.

Notable Species

The desk study returned records of brown hare, hedgehog, and common toad within ~5km of the Mine Site. There is considered to be a moderate to high potential that hedgehogs and brown hare are present on the Mine Site given the range of habitats present. Suitable aquatic habitat to support common toad is present in the ponds on the Mine Site, and the surrounding grassland, scrub, and mixed/broad-leaved woodland provide suitable accompanying terrestrial habitat.

Wall butterfly larvae may feed within areas of semi-improved grassland or roost as adults, while both the dingy skipper and grayling butterfly have been recorded on the Mine Site.

In addition, there are numerous other notable invertebrate species that have been recorded on the Mine Site including Blomer's Rivulet, which is a nationally scarce species (TVBP) and one of over 200 moth species recorded within the woodlands (INCA, 2012).

Invasive Non-native Species

Four invasive non-native species (three plant species and one animal species) were recorded within the Mine Site. These species are included under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Under Section 14 of the Act it is an offence to plant or otherwise cause to grow in the wild a Schedule 9 plant species, or to release or allow to escape from captivity any Schedule 9 animal species. Additionally, giant hogweed poses a threat to human health as its sap is phototoxic and contact with the plant can cause severe irritation.

5. References

CIEEM (2013). *Guidelines for Preliminary Ecological Appraisa*l. www.cieem.net.

Collins, J. (ed.) (2016) *Bat surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

English Nature (2001). *Great crested newt mitigation guidelines*.

INCA (2006) *Cleveland Potash bird survey*.

INCA (2012) *A Biodiversity Action Plan for Cleveland Potash Ltd at Boulby*.

INCA (2014) *An Annual Summary of Survey Activity Relating to the CPL Site Biodiversity Action Plan*.

INCA (2015) *An Ecological Scoping Assessment Relating to External Works Required to Repair a Damaged Drainage Culvert in Mines Wood, Boulby*.

INCA (2015) *Documentation of Activities to Prepare for Culvert Repair in Mines Wood, Boulby*.

Institute of Environmental Assessment (1995). *Guidelines for Ecological Assessment*. Chapman and Hall.

JNCC (2010). *Handbook for Phase 1 habitat survey - a technique for environmental audit*. ISBN 0 86139 636 7.

Mercer, T.S. (2014). Eas*ington Beck – water quality and macro-invertebrate monitoring 2013 for Cleveland Potash Ltd*. A report to Cleveland Potash Limited from Aquatic Environments, Weardale, Co. Durham, DL132SG. 16pp.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

Rose F. as revised and updated by O'Reilly C. (2006). *The Wild Flower Key - New Revised Expanded Edition*. Penguin Books Ltd.

Royal HaskoningDHV (2013) *Boulby Mine Landscape masterplan: Ecological Report*.

Stace C. (2010). *New Flora of the British Isles*, Third Edition. Cambridge.

Trewren, K (2004) *Report on a Botanical Survey of Boulby Mine Wood (Including Newton Gill Wood)*.

Appendix A
Definition of Designated Sites

Name	Abbreviation	Description
Statutory Sites		
Ramsar	Ramsar	Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
Special Protection Area	SPA	The European Community meets its obligations for bird species under the Bern Convention and Bonn Convention by means of the Council Directive 79/409/EEC on the conservation of wild birds (the 'Birds Directive'). The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The main provisions of the Directive include the identification and classification of Special Protection Areas for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4). Together with Special Areas of Conservation (SACs) designated under the Habitats Directive, SPAs form a network of pan-European protected areas known as Natura 2000.
Special area of conservation	SAC	In 1992 the European Community adopted Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive). In the UK the Directive has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended). The provisions of the Directive require Member States to introduce a range of measures including the protection of habitats and species listed in the Annexes. Each Member State is required to prepare and propose a national list of sites for evaluation in order to form a European network of Sites of Community Importance (SCIs). Once adopted, these are designated by Member States as Special Areas of Conservation (SACs), and along with Special Protection Areas (SPAs) classified under the EC Birds Directive, form a network of protected areas known as Natura 2000.
Site of Special Scientific Interest	SSSI	These sites include the best examples of our natural heritage, wildlife habitats, geological features and landforms. Sites that are internationally important are also designated as SACs and SPAs. The national suites of sites providing statutory protection for flora, fauna, or geological or physiographical features are designated as Sites of Special Scientific Interest (SSSIs).
National Nature Reserve	NNR	National Nature Reserves (NNRs) are a selection of the very best parts of England's Sites of Special Scientific Interest. It is this underlying designation which gives NNRs their strong legal protection. The majority also have European nature conservation designations. Natural England is the body empowered to declare NNRs in England and manages about two thirds of England's NNRs, whilst the remaining third are managed by organisations approved by Natural England; for example, National Trust, the Forestry Commission, RSPB, many Wildlife Trusts and Local Authorities.
Local Nature Reserve	LNR	LNRs are of local, but not necessarily national, importance. LNRs are almost always owned by local authorities, who often pass the management of the LNR onto county Wildlife Trusts or other local environmental bodies. LNRs also often have good public access and facilities.
Non-Statutory Sites		
Local Wildlife Site	LWS	A non-statutory site with significant value to wildlife as judged by strict criteria agreed with the local Wildlife Trust and the relevant local authority. LWSs are designated by the Trust but confirmed through the Local Development Plan.

Appendix B
Target Notes

Target notes are presented on **Figure 3.2** – extended Phase 1 habitat map.

Target Note Number	Description
1	Newton Gill Wood. Semi to mature broad-leaved semi-natural woodland. Dominated by sycamore, ash, oak, and elm. Shrub species include hawthorn and elder. Ground flora includes bracken, nettle, fern and bramble.
2	Semi-mature broad-leaved woodland. Species present include birch, wych elm, ash, oak, sycamore, hazel, and field maple. Ground flora include fern, bramble, nettle, bare ground, ivy, and wood rush. Some pine trees present.
3	Semi-mature to mature coniferous trees with occasional ash and elder. A dense ground flora includes horsetail, common nettle, red campion, elder and bramble.
4	The coniferous trees closest to the operational area have been felled due to being damaged by the salt being blown from the mine. The area in between the fence line and woodland is now covered by a mosaic of grassland, scrub, tall ruderal and bracken.
5	An immature to semi-mature area of mixed woodland. Broad-leaved species include sycamore, field maple, oak, goat willow, blackthorn and hawthorn. Shrubby layer of hawthorn and blackthorn. Occasional pine trees include scots pine. Ground flora with broad buckler fern, bramble, common nettle, common grasses, bramble, common hogweed, dog rose. Pine with field maple and oak.
6	Improved grassland with plantation as part of a phased planting. Grassland is had just been strimmed, but appeared to be dominated by perennial rye-grass, with occasional Timothy, cock's-foot and rough meadow grass. Clover, dock, nettle, thistle and creeping buttercup are also present. NZ 76962 18388: Intact species-poor hedgerow. Dominated by hawthorn with elder and sycamore. Ground flora resembles poor semi-improved grassland, with nettle, cow parsley, broad-leaved dock, round leaved plantain, hogweed, annual meadow grass, dandelion, creeping thistle, sow thistle, vetch, violet, and clover. Hedgerow is ~2m high and is managed.
7	Poor semi-improved planted with plantation mixed woodland in tree sheaths as part of a phased planting. The rest of the field which has been separated by a fence is sheep grazed.
8	Rough pasture field containing meadow foxtail, Yorkshire fog and cock's-foot grass. Several willow and oak plantations have been planted within the field. Scattered willow is also present in the field. Barn owl have been seen flying over the field. A rock pile is located at NZ 76656 18450. The field is being grazed by sheep.
9	Area of grassland formerly planted with broom, dog rose and vetch. The field is heavily sheep grazed with short cropped grass becoming more dominant in places. Rushes are present on lower slopes. Strips of corrugated iron are within the area and provide refuge for reptiles.
10	Waterbody 9. Wild flower seed mix planted in this area. Grassland colonised engineered slopes. NZ 76163 17743: Remains of hopper, with ash and knapweed growing within. Species present include white clover, pendulous sedge, tall fescue, white & red clover, coltsfoot, cock's-foot, perennial rye-grass, birds foot trefoil, ribwort plantain, common knapweed, fescue, eye bright, vetch, rose, black medic, selfheal, tufted hair grass, cow slip, daisy, scarlet pimpernel, ox eye daisy, rough hawkweed and pineapple weed. Dingy skipper and grayling have been recorded within this grassland area.
11	Sheep grazed field.
12	Sheep grazed field.
13	A trial plot consisting of approximately 100 trees. Planted about a year ago. Trees have sheaths to protect from deer and grazing. Grassland is managed and being strimmed and sprayed.
14	A trial plot consisting of approximately 100 trees. Planted about a year ago. Trees have sheaths to protect from deer and grazing. Grassland is managed and being strimmed and sprayed.
15	A trial plot consisting of approximately 100 trees. Planted about a year ago. Trees have sheaths to protect from deer and grazing. Grassland is managed and being strimmed and sprayed. The surrounding field is sheep grazed.
16	A trial plot consisting of approximately 100 trees. Planted about a year ago. Trees have sheaths to protect from deer and grazing. Grassland is managed and being strimmed and sprayed.
17	Scattered scrub and tall ruderal in amongst grass.

Target Note Number	Description
18	Scattered scrub and bracken amongst grass becoming increasingly dense towards the woodland edge
19	Dry ditch 1 encompassed by poor semi-improved grassland.
20	NZ 76003 18285: Short ephemeral along railway embankment on operational area side, grading into tall ruderal towards the southwest. Species present include groundsel, round leaved plantain, creeping thistle, bristle ox tongue, burdock, ragwort, cock's-foot, Yorkshire fog. NZ 75981 18193: Rock piles alongside road.
21	Several rock, rubble, and spoil piles on bare ground. These are to be discarded as will be used for road aggregate etc. Short perennial, ephemeral vegetation and tussocky semi-improved grass is growing over spoil piles.
22	Easington Beck. Bat boxes 7-9. Disused mine, and end of culvert along Easington Beck
23	NZ 75966 17643: Beginning of culvert and reinforced bank sides. NZ 75939 17671 – Walls of Easington Beck have been reinforced, as has the path down to the Beck with stone and netting to enable machine to access the Beck for maintenance works.
24	Boulby Gill. NZ 76500 18241: Interceptor catches runoff and pumps to reservoir which then gets exported to sea as effluent.
25	Dry ditch 2 with gorse, nettle, and rush present. Occasional soft rush and crested dogs tail is present within the surrounding improved grassland field.
26	Waterbody 1. Sycamore and ash trees along dry ditch 3. NZ 75722 18055: Grey squirrel observed.
27	Dry stream 4 due to the water being diverted from mine to interceptor. Only occasional runoff maybe be present. NZ 76488 17954: Bat boxes 22-24 NZ 76467 17921: 2x bird boxes
28	NZ7 6414 17771: Bat boxes 10-12 NZ 76421 17769: Disused mineral line
29	NZ 76467 17921: Bat boxes 19-21 present on nearly dead sycamore, that contains some dead wood and holes providing moderate bat roost potential.
30	NZ 76033 17744: Disused mine. A culvert runs below the mine and joins to other culvert. The mine has high bat roost potential. NZ 76081 17741: Old engine house. This is currently being excavated by archaeologists. Numerous rubble and log piles and is surrounded by scrub. Herb Robert, meadowsweet, burdock, coltsfoot and birds foot trefoil are found here.
31	Transformer building. The end of the wall behind the building is damaged and provides potential for reptile's refugia and hibernacula. There is also a reinforced wall made from stone that provides reptile refugia as well. NZ 76521 18913: Storage of pipes which provide reptile refugia.
32	Similar to building in TN 31 but larger in size.
33	Pipe in field provides potential reptile refugia.
34	Montbretia identified in a rank area dominated by cock's-foot, with occasional knapweed, common hogweed and broad-leaved dock, ox eye daisy, bramble, thistle, ivy,, nettle, vetch and colts foot, horsetail, immature gorse, sycamore, hawthorn, dog rose, and goat willow.
35	Creeping thistle, ragwort, rosebay willow herb, fescue, cock's-foot, teasel, broad-leaved dock, bristly ox tongue, and spear thistle present. Patches of scattered bracken are also present in this field. During the October 2019 updating survey, this area was noted as becoming more tall ruderal in nature, with rosebay willowherb, teasel, thistles and dock becoming more dominant. Dog rose is also forming occasional scrub patches.

Target Note Number	Description
36	Animal pen. To the west of the pen is coniferous woodland towards the mine, and broad-leaved woodland to the east. To the south of the pen and woodland is scrub and bracken. Species present include blackthorn, honeysuckle, bramble, knapweed, hawthorn, sycamore, wych elm, horsetail, sessile oak, field maple and scots pine.
37	Mosaic of bare ground and ephemeral/short perennial mosaic.
38	Mature broadleaved woodland with sycamore, ash, oak, shrub layer including hazel, holly. Ground flora with scattered bracken, pendulous sedge, wood avens, male fern, honeysuckle and ivy.
39	Slope dominated by horsetail, pendular sedge and hard rush. Scattered bracken around peripheries. Mid to lower slope where rushes prevent grades into grassland with sedge, fleabane, teasel, tufted hair grass, common knapweed, bent grass. This continues through the entire unimproved neutral grassland area with increased biodiversity further west.
40	Common knapweed extensive on slope.
41	Mounds.
42	Recent felling – thinned not clear felled.
43	Steep westward facing slope. Tussocky with false oat grass, cock's foot, field horse tail, creeping thistle, wild angelica, St John's wort, scattered hawthorn, hogweed, yarrow and dog rose scrub. Continuous patches of bramble scrub at the top and bottom of the slope.
44	Scot's pine abundant, but broadleaved species occasionally present as mature trees including oak, beech, sycamore and more frequent in shrub layer. Ground flora is relatively dense with scattered bramble and bracken. Grasses include wood false brome, honeysuckle, pendulous sedge, broad buckler fern and male fern.
45	Defunct species-poor hedgerow. Dominated by hawthorn with gorse and blackthorn. Ground flora resembles poor semi-improved grassland. Hedgerow is ~3m high and becomes more gappy to the northern end.
46	An area of tall ruderal vegetation (formerly semi-improved neutral grassland), dominated by nettle, common hogweed, bramble and greater willowherb, with frequent creping buttercup, cleavers, creeping thistle, gorse, cock's foot and false oat grass. Occasional marsh woundwort was noted. The ground in this area was very wet at the time of survey in October 2019 and is likely to be frequently inundated in periods of high rainfall.

Appendix C
Species Names

Common name	Scientific name
Amphibians and Reptiles	
Common lizard	*Zootoca vivipara*
Common toad	*Bufo bufo*
Great crested newt	*Triturus cristatus*
Slow worm	*Anguis fragilis*
Birds	
Barn owl	*Tyto alba*
Black-headed gull	*Chroicocephalus ridibundus*
Blue tit	*Cyanistes caeruleus*
Canadian goose	*Branta canadensis*
Common crossbill	Loxia curvirostra
Common gull	*Larus canus*
Cuckoo	*Cuculus canorus*
Curlew	*Numenius arquata*
Dunnock	*Prunella modularis*
Golden plover	*Pluvialis apricaria*
Great tit	*Parus major*
Greylag goose	*Anser anser*
Grey partridge	*Perdix perdix*
Hen harrier	*Circus cyaneus*
Herring gull	*Larus argentatus*
House martin	*Delichon urbicum*
House sparrow	*Passer domesticus*
Kingfisher	*Alcedo atthis*
Lapwing	*Vanellus vanellus*
Lesser black-backed gull	*Larus fuscus*
Linnet	*Carduelis cannabina*

Common name	Scientific name
Merlin	*Falco columbarius*
Oystercatcher	*Haematopus ostralegus*
Peregrine	*Falco peregrinus*
Red grouse	*Lagopus lagopus scotica*
Redshank	*Tringa totanus*
Short eared owl	*Asio flammeus*
Skylark	*Alauda arvensis*
Song thrush	*Turdus philomelos*
Starling	*Sturnus vulgaris*
Swallow	*Hirundo rustica*
Swift	*Apus apus*
Teal	*Anas crecca*
Tree sparrow	*Passer montanus*
Whitethroat	*Sylvia communis*
Willow warbler	*Phylloscopus trochilus*
Wood warbler	*Phylloscopus sibilatrix*
Yellowhammer	*Emberiza citronella*
Freshwater fish and Crustacean	
Brown trout	*Salmo trutta*
Freshwater pearl mussel	*Margaritifera margaritifera*
White-clawed crayfish	*Austropotamobius pallipes*
Invertebrates	
Brimstone	*Gonepteryx rhamni*
Common blue	*Polyommatus icarus*
Dingy skipper	*Erynnis tages*
Grayling	*Hipparchia semele*
Large white	*Pieris brassicae*

Common name	Scientific name
Large skipper	*Ochlodes sylvanus*
Meadow brown	*Maniola jurtina*
Painted lady	*Vanessa cardui*
Peacock	*Aglais io*
Red admiral	*Vanessa atalanta*
Small copper	*Lycaena phlaeas*
Small pearl-borded fritillary	*Boloria selene*
Speckled wood	*Pararge aegeria*
Tissue moth	*Triphosa dubitata*
Wall	*Lasiommata megera*
Mammals	
Brown hare	*Lepus europaeus*
Brown long-eared bat	*Plecotus auritus*
Common pipistrelle	*Pipistrellus pipistrellus*
Common porpoise	*Phocoena phocoena*
Eastern grey squirrel	*Sciurus carolinensis*
Eurasian badger	*Meles meles*
Eurasian red squirrel	*Sciurus vulgaris*
European hedgehog	*Erinaceus europaeus*
European otter	*Lutra lutra*
Fox	*Vulpes vulpes*
Grey seal	*Halichoerus grypus*
Harvest mouse	*Micromys minutus*
Noctule bat	*Nyctalus noctula*
Risso's dolphin	*Grampus griseus*
Roe deer	*Capreolus capreolus*
Water vole	*Arvicola amphibious*

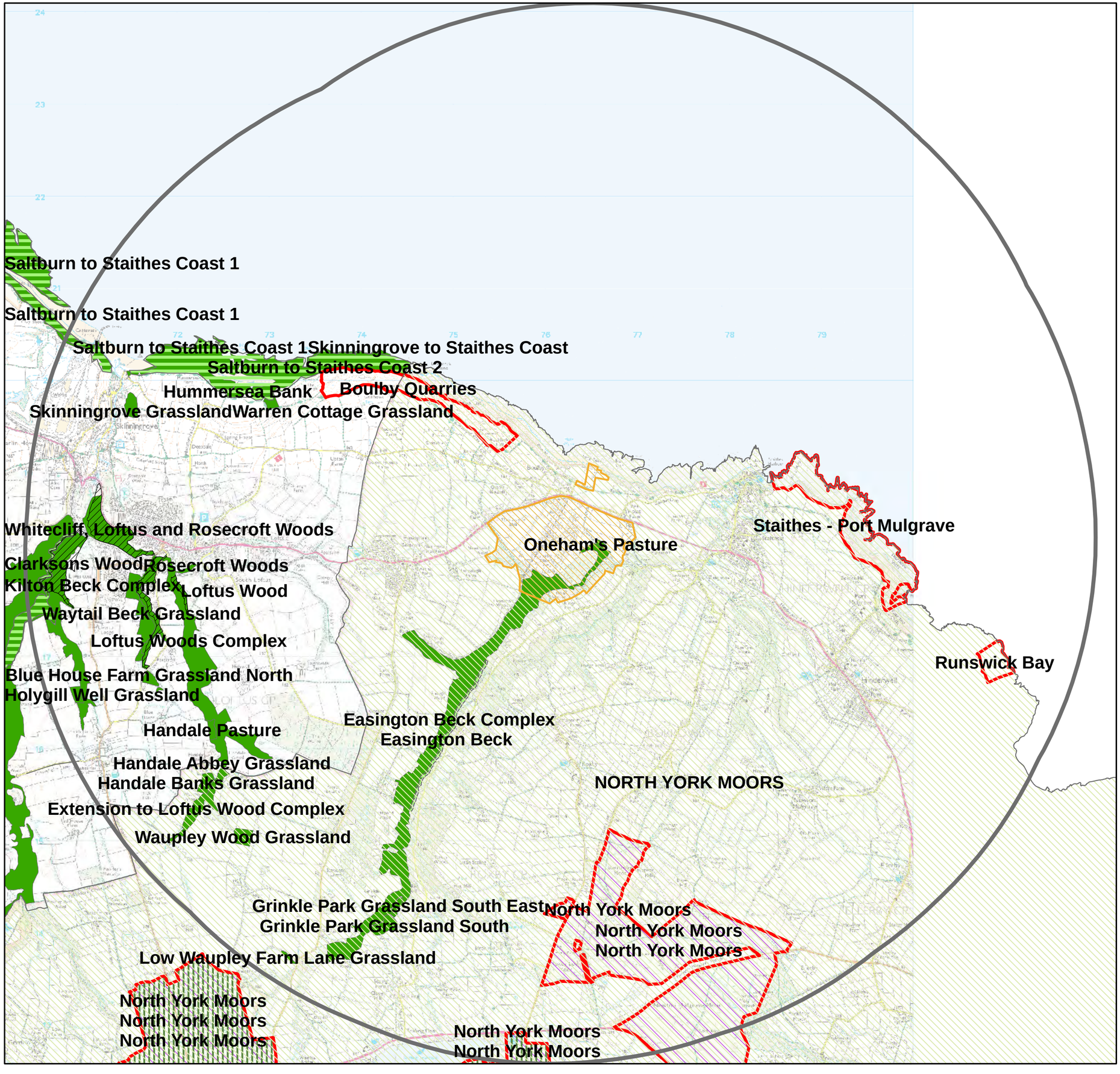
Common name	Scientific name
Whiskered bat	*Myotis mystacinus*
Plants	
Alder	*Alnus* sp.
Annual meadow grass	*Poa annua*
Ash	*Fraxinus excelsior*
Beech	*Fagus* sp.
Birds-foot trefoil	*Lotus corniculatus*
Bent	*Agrostis* sp.
Bindweed	*Convolvulus* sp.
Birch	*Betula* sp.
Black medick	*Medicago lupulina*
Black pine	*Pinus nigra*
Blackthorn	*Prunus spinosa*
Blue fleabane	*Erigeron acer*
Bracken	*Pteridium* sp.
Bramble	*Rubus fruticosus* agg.
Broad-buckler fern	*Dryopteris dilatata*
Broad-leaved dock	*Rumex obtusifolius*
Bristly ox-tongue	*Helminthotheca echioides*
Brome	*Bromus* sp.
Broom	*Cytisus scoparius*
Burdock	*Arctium* sp.
Cocks-foot	*Dactylis glomerata*
Coltsfoot	*Tussilago farfara*
Common hogweed	*Heracleum sphondylium*
Common nettle	*Urtica dioica*
Cow slip	*Primula veris*

Common name	Scientific name
Creeping thistle	*Cirsium arvense*
Crested dogs-tail	*Cynosurus cristatus*
Cross-leaved heath	*Erica tetralix*
Creeping buttercup	*Ranunculus repens*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale*
Dogs mercury	Mercurialis perennis
Dog rose	*Rosa canina*
Dogs mercury	*Mercurialis perennis*
Elder	*Sambucus nigra*
Eye bright	*Euphrasia* sp.
Fairy flax	*Linum catharticum*
False oat grass	*Arrhenatherum elatius*
Fern	Pteridophytes
Fescue	*Festuca* sp.
Field maple	*Acer campestre*
Flea bane	*Erigeron* sp.
Goat willow	*Salix caprea*
Gorse	*Ulex europaeus*
Grey poplar	*Populus × canescens*
Groundsel	*Senecio vulgaris*
Guilder rose	*Viburnum opulus*
Greater prickly lettuce	*Lactuca serriola*
Hard rush	*Juncus inflexus*
Hawkweed	*Hieracium* sp.
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus* sp.

Common name	Scientific name
Holly	*Ilex aquifolium*
Honeysuckle	*Lonicera* sp.
Hornbeam	*Carpinus betulus*
Horsetail	*Equisetum* sp.
Ivy	*Hedera helix*
Knapweed	*Centaurea nigra*
Lesser sea spurrey	*Spergularia marina*
Male fern	*Dryopteris Filix-mas*
Meadow foxtail	*Alopecurus pratensis*
Mediterranean oak	*Quercus ilex*
Montbretia	*Crocosmia*
Oak	Quercus sp.
Ox-eye daisy	*Leucanthemum vulgare*
Pendulous sedge	*Carex pendula*
Perennial rye-grass	Lolium perenne
Ragwort	*Senecio jacobaea*
Red alder	*Alnus rubra*
Red campion	*Silene dioica*
Red clover	*Trifolium pratense*
Ribwort plantain	*Plantago lanceolata*
Round-leaved plantain	*Plantago major*
Rough meadow grass	*Poa trivialis*
Scarlet pimpernel	*Anagallis arvensis*
Scots pine	*Pinus sylvestris*
Self-heal	*Prunella vulgaris*
Sessile oak	*Quercus petraea*
Silver birch	*Betula pendula*

Common name	Scientific name
Soft rush	Juncus effusus
Sow thistle	*Sonchus* sp.
Spear leaved orash	*Atriplex prostrata*
Spear thistle	*Cirsium vulgare*
St John's wort	*Hypericum sp.*
Swedish whitebeam	*Sorbus intermedia*
Sycamore	*Acer pseudoplatanus*
Tall fescue	*Festuca arundinacea*
Teasel	*Dipsacus* sp.
Timothy	*Phleum pratense*
Tufted hair grass	*Deschampsia cespitosa*
Vetch	*Vicia* sp.
Violet	*Viola* sp.
Wild angelica	*Angelica sylvestris*
White clover	*Trifolium repens*
Willow	*Salix* sp.
Wood avens	*Geum urbanum*
Wood false brome	*Brachypodium sylvaticum*
Wood rush	*Luzula* sp.
Wych elm	*Ulmus glabra*
Yarrow	Achillea millefolium
Yorkshire fog	*Holcus lanatus*

Appendix D
Statutory and Non-statutory Sites



ECOLOGICAL DATA SEARCH - STATUTORY & NON STATUTORY SITES

BOULBY

AMEC FOSTER WHEELER

PLOT PRODUCED: 14 September 2016

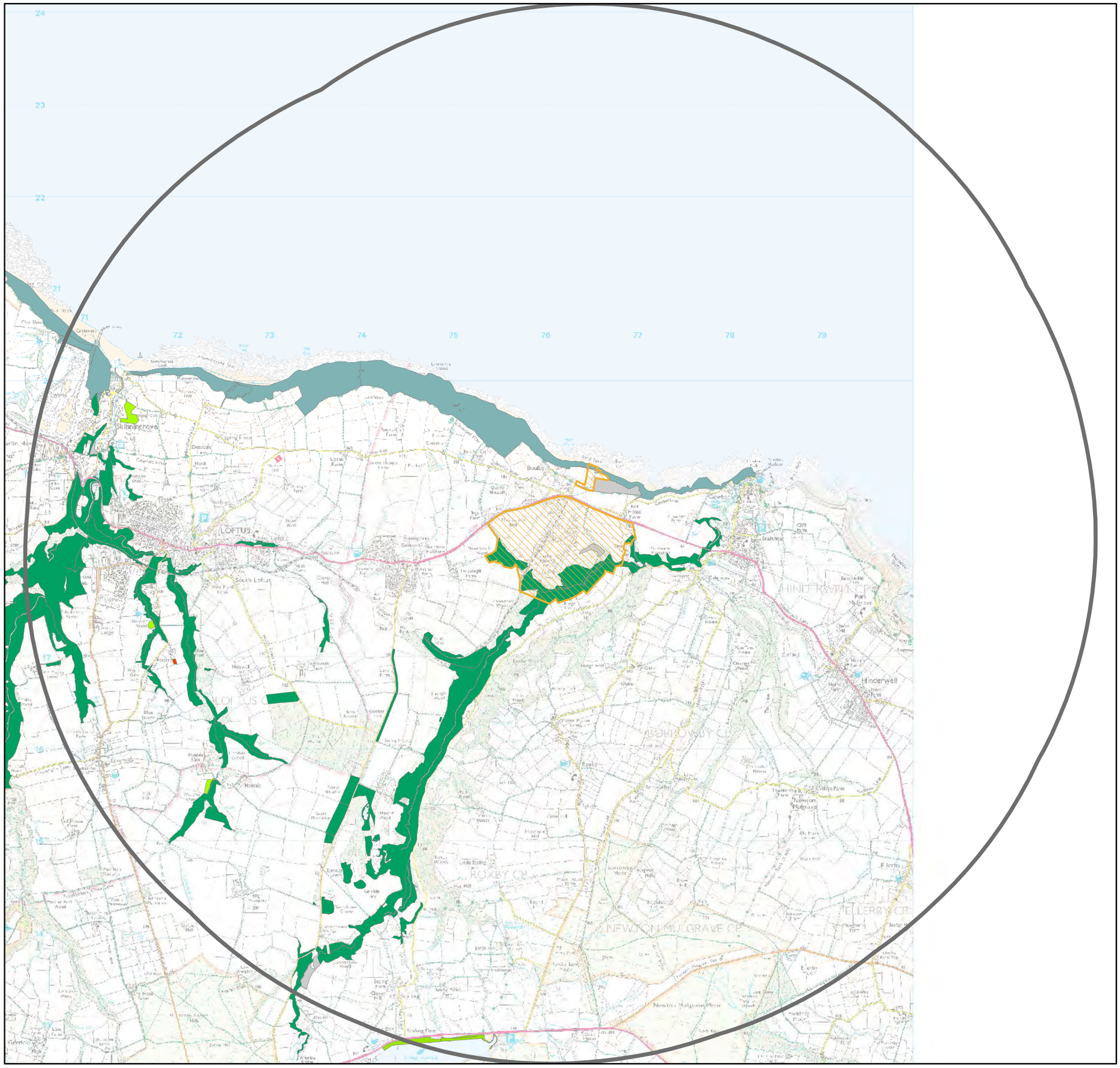
- Site Boundary
- 5km Search Area
- Local Nature Reserve
- National Park
- SSSI
- Special Area of Conservation
- Special Protection Area
- Redcar and Cleveland LGS
- Redcar and Cleveland LWS

Produced by

Environmental Records Information Centre North East

Great North Museum: Hancock
Barras Bridge
Newcastle upon Tyne
Tyne & Wear
NE2 4PT

Appendix E
Priority Habitats



ECOLOGICAL DATA SEARCH - PRIORITY HABITATS

BOULBY

AMEC FOSTER WHEELER

PLOT PRODUCED: 14 September 2016

- Site Boundary
- 5km Search Area
- Deciduous woodland
- Good quality semi-improved grassland
- Lowland meadows
- Maritime cliff and slope
- No main habitat but additional habitats
- Saline lagoons
- Traditional orchard

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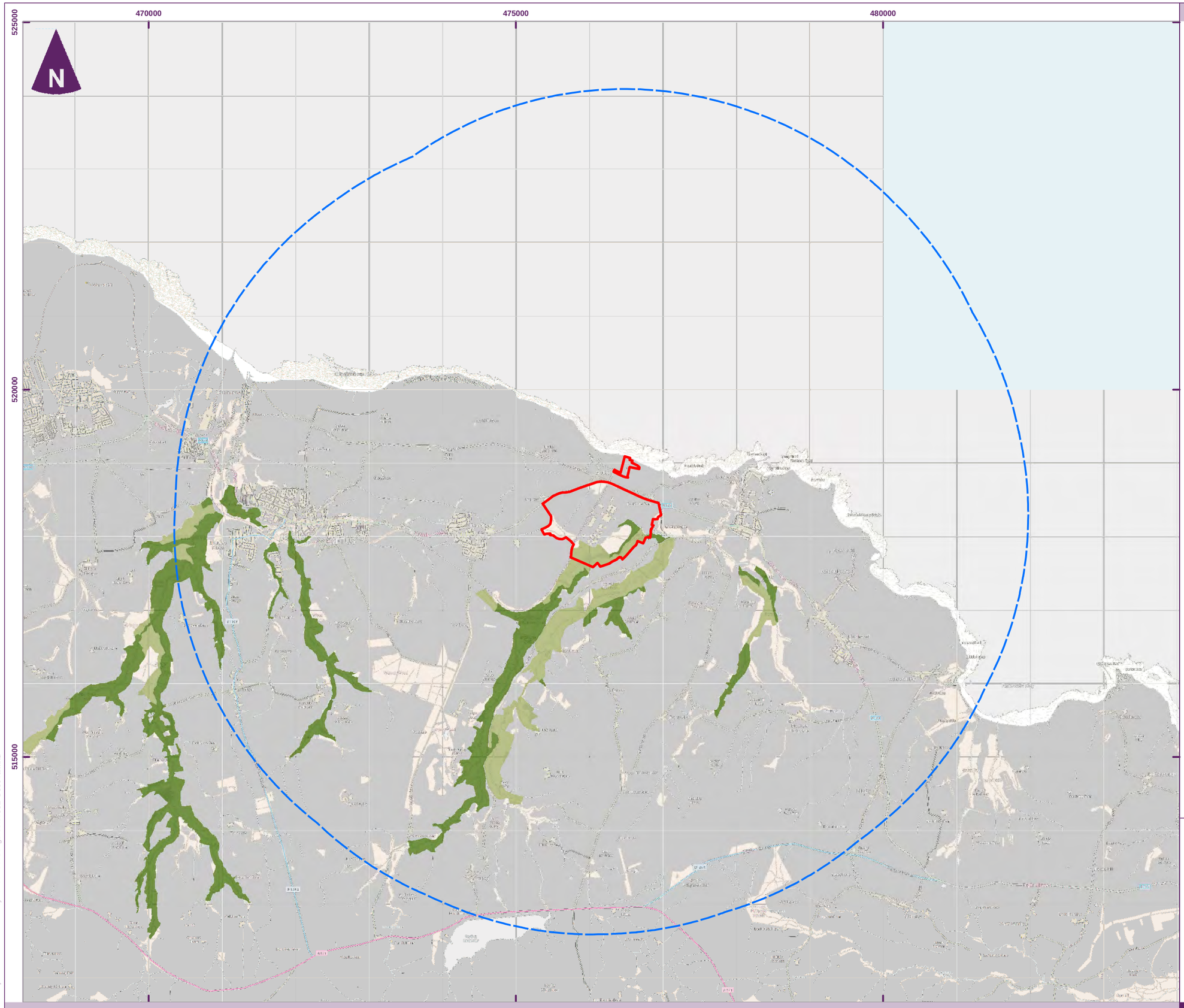
NE2 4PT



Key

Boulby Mine site boundary

5km buffer from site boundary

Ancient Woodland © Natural England

Ancient & Semi-Natural Woodland

Ancient Replanted Woodland

0 500 1,000 1,500 2,000 2,500 m

Scale at A3: 1:50,000

Boulby Mine
Environmental Statement
Extended Phase 1 Habitat
Survey Technical Note

amec foster wheeler

Appendix E
Ancient woodland

November 2017 38552-Gos04a.mxd panng

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Appendix 9F
Phase 2 Botanical Survey Technical Note

Cleveland Potash Limited

Boulby Mine Environmental Statement

Phase 2 Botanical Survey Technical Note

November 2017

Amec Foster Wheeler Environment
& Infrastructure UK Limited

Report for

Cleveland Potash Limited
Boulby Mine
Loftus
Saltburn-by-the-Sea
Cleveland
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Document revisions

No.	Details	Date
1	Final	16/11/2017

Contents

1. Introduction

Wood (formerly Amec Foster Wheeler Environment & Infrastructure Ltd.) has been commissioned by Cleveland Potash Limited to provide ecological consultancy services in relation to an extension to the planning permission for Boulby Mine. Boulby Mine is in the borough of Redcar and Cleveland, between the villages of Easington and Staithes, within the North York Moors National Park. The proposed development covers an area of 127ha and has a central Ordnance Survey grid reference of NZ 761 182. The scope of the works includes survey and assessment for a number of ecological receptors, including Phase 2 botanical survey, which entailed a National Vegetation Classification (NVC) survey and a rare plant survey.

The Phase 2 botanical survey was undertaken between June and August 2017. The following report details the methodology and results of the survey, and accompanying desk study.

1.1 Mine Site Description

Boulby Mine has been operating since 1973, extracting minerals (potash and salt) from underground workings situated at a depth of around 1100m. The existing planning permission for the mine expires in 2023 and a planning application is currently being prepared to apply for the continuation of mining operations. The application will propose that all operations and activities continue as currently permitted, with no changes to the extent, layout or design of structures on the site. The site comprises the land owned by Cleveland Potash Ltd (CPL) as shown on **Figure 1.1**, referred to herein as the 'Mine Site'. The Mine Site comprises two parts; the larger proportion of which is occupied by the operational mine, and a smaller area of land ~170m to the north adjacent the coast line which contains a pumphouse facility and tailings switch room.

The Mine Site consists of a mosaic of habitats including arable, improved and poor semi-improved grassland, neutral grassland, plantation woodlands, maritime hard cliff and running water. The Mine Site is largely bordered by semi-natural broadleaved woodland to the south and east, and a mix of arable, improved and semi-improved grassland to the north and west. The operational area of the mine comprises buildings, bare ground and hardstanding, with occasional areas of tall ruderal and ephemeral/short perennial vegetation, with a railway accessing the Mine Site from the south.

2. Methods

2.1 Study area

The Phase 2 botanical survey (comprising NVC survey and a rare plant survey) study area was informed by a review of the results of the following surveys:

- Extended Phase 1 habitat survey of the Mine Site undertaken in 2017 (see Appendix 9.E: Extended Phase 1 Habitat Survey Technical Note); and
- A rare plant survey of Boulby Mine Wood and Newton Gill Wood undertaken in 2004 (Trewren, 2004).

The extended Phase 1 habitat survey of the Mine Site identified several habitat types with potential botanical interest, including mature plantation woodlands, and neutral grassland. The NVC survey study area included all areas of potential botanical interest within the Mine Site which were identified during the Phase 1 habitat survey.

In addition to the NVC survey study area, the rare plant survey study area also included all locations where rare plants were recorded during the 2004 survey, including:

- Boulby Mine Wood, including areas of deciduous, coniferous and mixed woodland;
- Dirt and hardcore tracks and associated ditches and woodland fringe vegetation;
- An area of replanted woodland on a slope below the perimeter fence of the mine;
- Landscaped spoil mounds;
- Newton Gill wood;
- Semi-natural grassland on the railway embankment; and
- A small area of scrubby woodland adjacent to the main road.

2.2 Desk study

A detailed desk study was undertaken in September 2016 as part of the extended Phase 1 habitat survey of the Mine Site, and the methodology is detailed in Appendix 9.E: Extended Phase 1 Habitat Survey Technical Note. This included a search within ~5km of the Mine Site for: statutory and non-statutory designated sites; priority habitats; and protected and notable species.

Additionally, a review was undertaken of the report/results of the 2004 rare plant survey (Trewren, 2004).

2.3 National Vegetation Classification (NVC) survey

The NVC survey was carried out by Wood Consultant Ecologist Kristi Leyden between June and September 2017 (see **Table 2.1**). Kristi Leyden is a professionally recognised ecologist (Member of the Chartered Institute of Ecology and Environmental Management).

Table 2.1 Phase 2 Vegetation Survey Details

Survey	Survey Personnel	Date
NVC survey walkover	Kristi Leyden	14-16 June 2017
NVC survey and rare plant survey	Kristi Leyden	11-14 July 2017

Survey	Survey Personnel	Date
NVC survey and rare plant survey	Kristi Leyden	2-4 August 2017

NVC field work

The survey methodology was carried out in line with the *NVC: Users' Handbook* (Rodwell, 2006), whilst the identification of vegetation communities present was informed by the *British Plant Communities Volumes 1* (Rodwell, 1991) *and* (Rodwell, 1992) and a *Review of Coverage of the National Vegetation Classification*[1].

The surveyor walked the study area to ascertain the homogenous vegetation stands present and to identify any particular features of interest. Homogenous stands of vegetation were identified and mapped onto 1:15,000 field maps, aided using satellite imagery[2].

Quadrat data of representative samples of homogenous communities (or sub-communities where possible, referred to as 'communities' hereafter) were taken using a set number of quadrats. Three 4m x 4m quadrats were taken per community, except in one instance where the community size restricted the number of quadrats to two. The number of quadrats taken per community was based on professional judgement as the *NVC: Users' Handbook* (Rodwell, 2006) does not provide a standardised number for use. Data from three (or greater) quadrats enables the surveyor to assign vegetation communities with a high level of confidence using the range and frequency columns on the quadrat data table.

In cases where the vegetation community's assemblage varied too frequently to facilitate representative quadrats, detailed target notes were taken in place of quadrats. This was the case with the woodland on the Mine Site.

Species cover was recorded for the NVC survey quadrats (or detailed target-noted samples where quadrats were not practicable) using the Domin scale[3] in accordance with *NVC: Users' Handbook* (Rodwell, 2006). The NVC survey was also supplemented where necessary with provisional NVC communities as described in the *Review of coverage of the National Vegetation Classification*[1].

Target notes were taken of features of particular interest. Quadrat and target note positions were recorded using a hand-held GPS device. Photographs were taken of each quadrat recorded, features of interest, and relevant target notes.

Higher plants were identified in accordance with Rose *et al*.[4] and Rose[5] whilst identification of bryophytes followed Atherton *et al*.[6].

NVC post-field work

Data processing post field work converted the NVC survey data into NVC community tables, digitised text and digitised maps.

Vegetation community types were identified using the keys and vegetation community descriptions in the *British Plant Communities Volumes 1* **Error! Bookmark not defined.** *and 3* **Error! Bookmark not defined.**. Recorded quadrat data are presented as NVC community tables with assigned vegetation communities in **Appendix A**. Communities that were identified without the aid of quadrats (i.e. using data from detailed target-noted samples) are identified within the NVC target notes in **Appendix B**.

[1] Rodwell, JS, Dring, JC, Averis, ABG, Proctor, MCF, Malloch, AJC, Schaminée, JNJ, and Dargie TCD. (2000). *Review of coverage of the National Vegetation Classification.* JNCC Report No. 302.
[2] Google Earth Pro [Accessed June 2017].
[3] Rodwell (2006) describes the Domin scale as a measure of cover/abundance, using vertical projection on the ground of the extent of the living parts of a plant species. The following reference scale is provided: 1 = - <4% (few individuals); 2 = <4% (several individuals); 3 = <4% (many individuals); 4 = 4-10%; 5 = 11-25%; 6 = 26-33%; 7 = 34-50%; 8 = 51-75%; 9 = 76-90%; and = 91-100%.
[4] Rose, F. & O' Reilly, C. (2006). *The Wild Flower Key (Revised Edition) - How to identify wild plants, trees and shrubs in Britain and Ireland*. Penguin Group, London, U.K.
[5] Rose, F. (1989). *Colour Identification Guide to the Grasses, Sedges, Rushes and Ferns of the British Isles and North Western Europe.* Penguin Group, London, U.K.
[6] Atherton, I., Bosanquet, S. & Lawley, M. (2010). British Bryological Society, U.K.

Hand drawn field maps were digitised using ArcGIS to produce a digital NVC plan showing polygons for separate NVC community types. The location of target notes were recorded as point features and illustrated on the NVC plan.

Nomenclature for higher plant species follows Stace[7] and nomenclature for bryophyte species follows Smith[8].

A species list (with vernacular and scientific names) of all plant species mentioned in this report is provided in **Appendix C**.

Non-native invasive plants

The presence of invasive non-native plant species[9] was noted during the NVC survey. Target notes were used to record the location and frequency of any non-native plant species present.

2.4 Rare plant survey

A search for rare plant species was undertaken, focussing primarily on searching for those species recorded during the 2004 rare plant survey (Trewren, 2004), and the areas where these were recorded (see **Section 2.1**). The distribution and abundance of rare plant species encountered was recorded, and data compared with that of the 2004 survey.

Defining scarcity

With respect to defining local scarcity, the 2004 rare plant survey characterised plant species as 'uncommon' which occur in 50 or less tetrads[10] out of a possible 396 within the North York Moors, and as 'rare' occurring in 10 or less tetrads. For the 2017 survey, the same definitions were adopted for local scarcity to provide direct comparison with the 2004 survey data. Additionally, 2017 species data was compared against the rare plant register for vice-county 62 (North East Yorkshire)[11].

The 2004 survey (Trewren, 2004) defined national scarcity in accordance with scarcity ratings presented for species in the Collins Pocket Guide to Wild Flowers. Additionally, 2017 species data was compared against the Botanical Society of Britain and Ireland (BSBI) nationally rare plant list[12] to derive national status of species.

2.5 Vegetation Conservation Status

The vegetation conservation status of the vegetation communities present within the study area is informed by both the desk study and the field survey results. The sources that inform the assessment are provided in **Table 2.2**.

Table 2.2 Sources that inform the vegetation conservation status of the study area

Status	Rational
Statutory Sites	Statutory Nature Conservation Sites (e.g. international designations including Special Areas of Conservation (SAC), and national designations including Site of Special Scientific Interest (SSSI) and National and Local Nature Reserves (NNR and LNR); and

[7] Stace, C. (2010). *New Flora of the British Isles. Third edition*. Cambridge University Press, Cambridge.
[8] Smith, A.J.E. (2004). The Moss Flora of Britain and Ireland. Cambridge University Press.
[9] Schedule 9 of The Wildlife and Countryside Act 1981 (as amended) identifies several invasive non-native plant and animal species ('Schedule 9 species') which are deemed to have serious negative impacts on native British species, public health or the economy. Under Section 14 of the Act it is an offence to plant or otherwise cause to grow in the wild any plant which is included on Schedule 9.
[10] An area of 2km x 2km.
[11] The Vice County Recorder for vc-62 is currently preparing a rare plant register (RPR), to be published through the Botanical Society of Britain and Ireland in 2018. Although the RPR is currently in draft form, a summary list of rare and scarce plants within vc-62 was provided by the Vice County Recorder (Pers comms, Magee, J., via email 31 October 2017).
[12] BSBI nationally rare and scarce plant list, available at http://bsbi.org/Nationally_Scarce_-_Rare.xlsx [Accessed November 2017].

Status	Rational
	Non-Statutory Nature Conservation Sites such as Local Wildlife Sites (LWS).
Priority Habitats	Annex 1 habitats of the Habitats Directive[13] [14]; Section 41 habitats of principal importance in England[15]; Areas included under the Priority Habitat Inventory (PHI)[16]; and Areas included under the Ancient Woodland Inventory (AWI)[17].
Protected/notable Plant Species	Schedule 4 of The Habitats Regulations (1994)[18] which transposes Annex II of the Habitats Directive (1992); International Union for Conservation of Nature (IUCN) Red Data List[19]; Schedule 8 of the Wildlife and Countryside Act (1981) (as amended); Section 41 species of principal importance in England[15]; Vascular plant Red Data List for Great Britain[20]; Vascular plant Red List for England[21] BSBI national rare and scarce plant list[12]; Rare Plant Register for vice-county 62 North East Yorkshire[11]; and Tees Valley Local Biodiversity Action Plan (LBAP)[22].
Potential Groundwater Dependency	The presence of Groundwater Dependent Terrestrial Ecosystems (GWDTE)[23].

2.6 Surveying and Reporting Limitations

The semi-improved grassland within Oneham's Pasture LWS was tightly grazed at the time of surveying, restricting the amount of plants identifiable. It is possible that species cover is biased towards less palatable species.

[13] Annex 1 habitats are habitats of European conservation importance as listed in Annex 1 of the 'Habitats Directive' (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, adopted in 1992). Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0043:20070101:EN:PDF [Accessed June 2017].
[14] European Commission. (2013). Interpretation manual of European Union Habitats – EUR 28 European Commission DG Environment. (EU habitats Interpretation Manual). Available at: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf [Accessed June 2017].
[15] Species and habitats of principal importance for the conservation of biological diversity in England, having been defined as such by the Secretary of State in accordance with Section 41 of the Natural Environment and Rural Communities Act 2006. 56 habitats and 943 species of principal importance are included on the 'S41 list'.
[16] The PHI is a spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance, available at www.magic.gov.uk [Accessed June 2017].
[17] AWI is a provisional guide to the location of ancient and long-established woodland in England based on interpretations from historic maps, supplemented by other sources such as ground survey and aerial images. In England, 'Ancient woodland' is defined as any wooded area that has been wooded continuously since at least 1600 AD. It includes 'ancient semi-natural woodland' mainly made up of trees and shrubs native to the Mine Site, usually arising from natural regeneration, and 'plantations on ancient woodland Mine Sites' where the former native tree cover has been felled and replaced by planted trees usually of species not native to the Mine Site. AWI is available at www.magic.gov.uk [Accessed June 2017].
[18] The Conservation (Natural habitats, &c.) Regulations 1994. Available on: http://www.legislation.gov.uk/uksi/1994/2716/contents/made [Accessed June 2017].
[19] IUCN Red Data List publications are listed on the Joint Nature Conservation Committee (JNCC) webMine Site at this location: http://jncc.defra.gov.uk/page-3352 and available for reference on Conservation Designations for UK Taxa spreadsheet (updated January 2011) at this location: http://jncc.defra.gov.uk/page-3408 Species are listed as follows: Regionally Extinct, Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern according to IUCN (2001) criteria.
[20] Cheffings, C. and Farrell, L. (Ed). (2005). *Species Status No. 7: The Vascular Plant Red Data List for Great Britain. Revised in 2006.* Available on the JNCC webMine Site: http://jncc.defra.gov.uk/pdf/pub05_speciesstatusvpredlist3_web.pdf [Accessed June 2017].
[21] Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. & Taylor, I. (2014). *A Vascular Plant Red List for England*. The Botanical Society of Britain and Ireland, Bristol.
[22] List of Tees Valley priority habitats and species available on line at: http://teesvalleynaturepartnership.org.uk/wp-content/uploads/2012/11/Tees-Valley-priority-habitats-and-species-updated-5-jan-2012-pdf.pdf [Accessed June 2017].
[23] Presence of vegetation communities considered to be groundwater dependent, which indicate that there may be groundwater input to a wetland (with reference to UK Technical Advisory Group [UK TAG] on the Water Framework Directive, 2009, *Guidance on the identification and risk assessment of groundwater dependent terrestrial ecosystems*). UK TAG (2009) provides a list of The NVC plant communities that are of most use for identifying groundwater dependency, and assign scores indicating dependency on groundwater (i.e. 3=low , 2=moderate or 1=high). Vegetation communities defined as having a higher groundwater dependency, where present on Groundwater Dependent Terrestrial Ecosystems (GWDTE), are typically of greater conservation interest than those that defined as having low or no groundwater dependency.

3. Results

3.1 Desk study

Desk study results for statutory and non-statutory designated sites, priority habitats, and notable species are presented in full within Appendix 9.E: Extended Phase 1 Habitat Survey Technical Note. Notable results with respect to botanical interest within the Mine Site include:

- Two non-statutory LWS within the Mine Site:
  - Oneham's Pasture LWS, designated for neutral grassland; and
  - Easington Beck Complex LWS, designated for Ancient Woodland.
- Four priority habitats within the Mine Site:
  - Ancient and semi-natural woodland[24] (Recorded on the AWI as 'Roxby Woods East' but shown on Ordnance Survey mapping locally as 'Rabbit Hill Plantation');
  - Ancient replanted woodland[24] (Recorded on the AWI as 'Roxby Woods East' but shown on Ordnance Survey mapping locally as 'Low Ridge Lane Wood' and 'Mines Wood');
  - Deciduous woodland[25] (Rabbit Hill Plantation, Low Ridge Lane Wood, Mines Wood and Newton Gill Wood); and
  - Maritime cliff and slope[25].

No records of notable plant species within the Mine Site were provided by the north east Environmental Records Information Centre (ERIC).

A review of the 2004 rare plant survey report**Error! Bookmark not defined.** identified plant species within the Mine Site which are considered to be rare in accordance with definitions of local and national scarcity outlined within the report (see **Section 2.4**). **Table 3.1** lists the rare plant species recorded (excluding introduced species), and their scarcity status in line with these definitions.

Table 3.1 Species recorded within the Mine Site and assessed as being rare during the 2004 rare plant survey**Error! Bookmark not defined.**

Species	Defined as locally rare (North York Moors) within 2004 report	Defined as nationally rare within 2004 report
Beaked hawksbeard	Y	N
Bristly oxtongue	Y	N
Greater prickly lettuce	Y	N
Hautbois strawberry	Y	Y
Manton's polypody	N	Y
Sea pearlwort	Y	N
Small-flowered willow-herb	Y	N
Water whorl-grass	Y	N

[24] Shown on the AWI, available at www.magic.gov.uk [Accessed June 2017].
[25] Shown on the Priority Habitats Inventory (PHI). The PHI is a spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

Species	Defined as locally rare (North York Moors) within 2004 report	Defined as nationally rare within 2004 report
Wood vetch	N	Y

3.2 National Vegetation Classification survey

NVC community descriptions

NVC plant communities recorded within the Mine Site during the survey are described in the following sections. Quadrat data is presented in **Appendix A** with detailed target notes presented in **Appendix B**, and the NVC species list is provided in **Appendix C**. The NVC plan is presented in **Figure 3.1**.

W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland

W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland dominates a large section of the NVC study area, forming an almost continuous strip around the southern boundary of Boulby Mine, only separated by a minor road. The W9 community is highly variable (mostly the ground flora but the canopy also to a lesser extent), however, this community is considered to be the best fit in terms of species composition.

The woodland is predominantly of plantation origin. The canopy consists of a diversity of species, and the species which occur most consistently throughout the community include sycamore, wych elm, beech, silver birch, ash and pedunculate oak. Canopy type varies from predominantly broadleaved species to a mixed canopy in places where Scot's pine becomes abundant (Target Note 1, 2 and 33) and Sitka spruce (Target Note 2) and larch occurs occasionally (Target Note 32 and 33). The age structure of the canopy is relatively uniform, with semi-mature trees around 20-30m high. Composition and abundance of species within the shrub layer is variable throughout the community, with the most abundant species including hawthorn, field maple and hazel being locally frequent in places, saplings of sycamore and ash occur occasionally, and holly occurs rarely.

The ground flora is variable throughout the W9 community and includes a variety of species. There is an abundance of ferns throughout, including often abundant male fern with broad buckler fern, lady fern and scaly male fern, and hart's-tongue occurs occasionally. Grasses are frequent throughout the community and include false oat-grass, creeping soft- grass and slender false brome, and pendulous sedge and greater wood-rush are locally abundant. Species occurring more often in higher abundances include dog's mercury, ramsons, bluebell, bramble and bracken and creepers such as ivy and honeysuckle. Species occurring less frequently or occasionally include herb Robert, enchanter's nightshade, common dog violet, red campion, forget-me-nots and primrose. Some species occur only occasionally or rarely throughout the community, but achieve high local abundances, such as goldenrod and common valerian (Target Note 22), and common tamarisk moss.

The W9 community is flushed in places (Target Note 4, 30, 31, 37 and 40), where species occur such as floating sweet-grass, opposite-leaved golden saxifrage, pendulous sedge, field horsetail, enchanter's nightshade, sanicle, and mosses such as *Kindbergia praelonga* and *Eurhynchium striatum.*

Standing and fallen dead wood is occasionally present throughout the W9 community.

W9Spin woodland

W9Spin has been used to describe sections of coniferous plantation woodland where the canopy is dominated by Scot's pine (Target Note 18 & 29), and the canopy is ~20-25m tall. It is not a true NVC code but has been used to best describe this community in this instance. The canopy includes occasional broadleaved species including pedunculate oak, ash, and locally abundant to rare wych elm. The shrub layer includes immature specimens of species which occur in the canopy, as well as additional species such as elder and hazel.

Where the canopy is densest, the field layer supports abundant ash seedlings and slender false brome and occasional broad buckler-fern, whilst the ground layer is mostly unvegetated and covered in a layer of conifer needles, cones and branches. In stands where the canopy becomes more open, the ground flora resembles that of standard W9 community, including abundant male-fern, bramble and slender false brome, with locally abundant bracken, mosses *Eurhynchium striatum* and *Kindbergia praelonga*, frequent common dog-violet, and occasional species including pendulous sedge and honeysuckle, red campion, cowslip, honeysuckle and bluebell.

MG5 *Cynosurus cristatus – Centaurea nigra* grassland

MG5 *Cynosurus cristatus – Centaurea nigra* grassland was recorded in two areas of the study area; one in an open area amongst woodland, adjacent to the Easington Beck at the south of the Mine Site (Target Note 21, and **Appendix A** quadrats 1-3), and the second on steep grazed slopes towards the east of the Mine Site (see **Appendix A** quadrats 9-11) within Oneham's Pasture LWS. The species composition within both areas is variable, but is consistent with MG5 neutral grassland.

Grassland within the open area amongst woodland, adjacent to the Easington Beck at the south of the Mine Site, occurs on land which has had previous industrial use and has been restored in places. Species composition is consequently variable, as is sward height and density, and there is a minor component of bare ground in places. The sward appears to be a mix of semi-natural secondary grassland and areas which have received sowing following restoration, though is otherwise considered to be unimproved; being unmanaged and lacking other evidence of improvement/enrichment. The grassland is broadly consistent with MG5, and several constant species which are characteristic of this grassland type were recorded within all of quadrats 1-3. The most frequently occurring species which were present in all quadrat samples included common bent-grass, crested dog's-tail, Yorkshire fog, cock's-foot, red clover, ribwort plantain and common bird's-foot-trefoil. Other species which were well represented in all quadrat samples include common knapweed, tufted hair-grass, selfheal, glaucous sedge, tufted vetch and black medic, and species which occurred either less frequently or less consistently throughout quadrats include eyebright, cowslip, salad burnet, oxeye daisy, fairy flax and dog violet. Orchids were also noted to be locally abundant within the MG5 grassland, though these did not occur within the quadrat samples. Scrub is encroaching in localised areas, with scattered sycamore and downy birch seedlings recorded within quadrats, and ash seedlings, gorse and bramble recorded within the grassland but outside of quadrat samples.

The area of MG5 located at the east of the Mine Site in Oneham's Pasture LWS is a less species rich example of MG5 neutral grassland compared to that described above, and considered to be semi-improved. The grassland sward was tightly grazed at the time of survey by sheep, and there is other evidence of agricultural improvement. It is possible that species cover is biased towards less palatable species. Several constant species which are characteristically abundant in this grassland type were recorded within all of quadrats 9-11, including red fescue, crested dog's-tail, cock's-foot and white clover, while other constant species recorded in only some quadrats included common bird's-foot-trefoil and Yorkshire fog. Other characteristic grasses recorded include yellow oat-grass and perennial ryegrass, while common quaking grass is a distinctive occasional. Species recorded less frequently within the sward include heath-grass, cat's-ear, yarrow, tormentil, bristly oxtongue, the moss *Pseudoscleropodium purum*, and *Cladonia* sp. lichen. Weedy species such as creeping thistle and spear thistle were occasionally or rarely recorded.

MG1 *Arrhenatherum elatius* grassland

A small area of MG1 *Arrhenatherum elatius* grassland (**Appendix A** quadrats 7 & 8) was recorded within the study area, adjoining MG5 grassland adjacent to the Easington Beck at the south of the Mine Site. This herb-rich neutral grassland, with a tall and coarse sward comprising abundant false-oat grass and common knapweed, with smaller amounts of cock's-foot. Other species which occur regularly within the sward include Yorkshire fog, crested dog's-tail, creeping bent-grass, creeping thistle, creeping buttercup, ribwort plantain, common bird's-foot-trefoil, selfheal and meadow vetchling. Species recorded only occasionally or rarely include wood sage, yarrow, crosswort, field speedwell, tufted vetch, oxeye daisy, common sorrel and wild angelica. This area of grassland occurs under a partial ash canopy, the tall and coarse sward is typical of a lack of grazing or other management, and it is and being encroached by scrub including bramble and dog rose.

MG11 *Festuca rubra – Agrostis stolinifera – Potentilla anserina* grassland

MG11 *Festuca rubra – Agrostis stolinifera – Potentilla anserina* grassland was recorded at the south of the Mine Site, but was too small to map. This grassland is located within a wider area of MG5 grassland, and exists as a narrow strip surrounding a pond, which is seasonally inundated (see Target Note 42, quadrats 4-6). The dominance of creeping bent-grass within the sward is characteristic of MG11 neutral grassland community, and there are few other grasses. Bare ground is occasionally present. Species which were present in all quadrat samples include red cover, common bird's-foot-trefoil, selfheal, creeping buttercup, ribwort plantain, curled dock, pendulous sedge and the moss *Calliergonella cuspidata.* Hard rush, field horsetail, silverweed and tufted hair-grass occurred less frequently or rarely.

3.3 Non-native invasive plants

Giant hogweed is locally frequent on the railway embankment (Target Note 34), adjacent to Newton Gill Woods. Stands of rhododendron were recorded in woodland (Target Note 6) at Rabbit Hill Plantation.

3.4 Rare plant survey

Table 3.2 compares the findings from the rare plant survey undertaken in 2004 with the rare plant survey carried out as part of the 2017 surveys, and identifies the status of species recorded in a local and national context in line with the definitions outlined in **Section 2.4**.

Table 3.2 Status of rare plant species recorded within the Mine Site during 2017 rare plant survey

Species	2004 Botanical survey Description	2017 NVC Survey Description	Defined as locally rare (North York Moors) within 2004 report	Rare plant register for vice-county 62 (North East Yorkshire)	BSBI nationally rare plant list
Bristly oxtongue	Present in small numbers close to gate 3 and appearing in several other areas in which the soil has been disturbed including trackways within recently replanted woodland.	Several stands of bristly ox-tongue were recorded in Boulby Mine wood and the surrounding perimeter. It was locally abundant in places.	Y	Not listed.	Not listed.
Greater prickly lettuce	18 plants about to flower in June, plus a number of plants in the rosette stage, were recorded close to the top of a slope in an area of recently replanted woodland. The species probably developed due to recent disturbance to the area, and the plants are likely to be crowded out as the newly planted trees develop.	Not found.	Y	Not listed.	Not listed.
Hautbois strawberry	The species recorded did not fully fit the description of Hautbois strawberry, though it was notably different from wild strawberry with which it was growing. Just a few plants were recorded close to the public footpath on the south side of Newton Gill Wood.	Not found.	Y	Not listed.	Not listed.

Species	2004 Botanical survey Description	2017 NVC Survey Description	Defined as locally rare (North York Moors) within 2004 report	Rare plant register for vice-county 62 (North East Yorkshire)	BSBI nationally rare plant list
Manton's polypody	Well-established colony growing in Boulby Mine Wood on top of the bank beside the road, close to the public entrance to the wood.	Not found – It appears that the road has been widened at the location where this species was previously recorded, so there is potential that the species no longer exists at that location.	N	Not listed.	Not listed.
Sea pearlwort	Found in the track and recently landscaped area just beyond gate 3. Could have appeared due to the importation of soil for landscaping, and likely to die out naturally as the vegetation of the area becomes more established.	4 specimens recorded east of the gate and fence-related equipment on the track. No specimens were identified west of the gate. This area had been recently modified; a fresh spoil heap was present.	Y	Not listed.	Not listed.
Small-flowered willow-herb	Just one plant of this species was seen in the landscaped spoil heaps. The species is ephemeral, and may appear from time to time in areas subject to periodic disturbance.	Not found.	Y	Not listed.	Not listed.
Water whorl-grass	Several plants were recorded in a wet flush close to the eastern end of the railway embankment, adjacent to Newton Gill Wood. Both flat-stemmed and round-stemmed forms were present.	At least 25 flowering specimens present in a flush with bare ground on an embankment of the active railway, adjacent to the Newton Gill Wood.	Y	Not listed.	Not listed.
Wood vetch	Recorded as being common in Boulby Mine Wood, being distributed alongside the tracks, the fringes of the spoil-heaps, and with occasional plants being found within the deciduous woodland also.	Several stands were found in Boulby Mine Wood where it was often locally abundant. Wood vetch was not found in Newington Gill Wood.	N	Not listed.	Not listed.

3.5 Vegetation Conservation Status

Table 3.3 indicates whether the NVC communities recorded qualify as Annex 1 habitats, Section 41 habitats of principal importance in England and Tees Valley Local Biodiversity Action Plan (LBAP) priority habitats; this is informed by both the desk study and field survey results. Additionally, the presence of potentially[26] groundwater dependent communities[23] have been identified.

[26] Hydrological assessments are necessary to understand the actual level of groundwater dependency and this is outside the remit of this report.

Table 3.3 Conservation status of plant communities*

NVC community	Habitats Directive - Annex 1 habitat	Section 41 of NERC Act 2006 - Habitats and of principal importance in England	Tees Valley LBAP - Priority Habitat	Ground Water Dependent Terrestrial Ecosystem - groundwater dependency score*** (i.e. 3=low dependency, 2=moderate or 1=high)
W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland	No	Not applicable**	Not applicable	Not usually groundwater dependent
MG1 *Arrhenatherum elatius* grassland	No	Not applicable	Not applicable	Not usually groundwater dependent
MG5 *Cynosurus cristatus – Centaurea nigra* grassland	No	Not applicable	Not applicable	3
MG11 *Festuca rubra – Agrostis stolinifera – Potentilla anserina* grassland	No	Not applicable	Not applicable	2

*Only those communities that meet one of the categories are listed. **'Not applicable' is used when vegetation communities/habitats types are listed under Annex 1, Section 41, or Tees Valley Biodiversity Action Plan but they are not of suitable quality to be considered. ***Groundwater dependency as set out in UK TAG (2009)[23]. Groundwater dependency scores are only available for the NVC plant communities that are of most use for identifying groundwater dependency.

476000

477000

519000

518000

N

Key

Boulby Mine site boundary

National Vegetation Classification Habitat Community Type

MG1

MG5

W9

W9 Spin

Target note

Quadrat location

0 100 200 300 m

Scale at A3: 1:6,000

Boulby Mine Environmental Statement Phase 2 Botanical Technical Note

amec foster wheeler

Figure 3.1
National Vegetation Classification Habitat Plan

November 2017

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4. Conclusions

4.1 NVC community types

The Phase 2 botanical survey study area included plantation woodland and neutral grassland habitats, and recorded five distinct NVC community types within these areas.

W9 woodland habitats

W9 is the predominant woodland type. This community is variable, ranging from predominantly broadleaved woodland to areas of mixed woodland, and W9Spin is used to describe areas where Scot's pine becomes dominant in the canopy.

The desk study identified that a large proportion of the W9 woodland within the study area is recorded on the AWI as being ancient replanted woodland, and a smaller area of W9 woodland on Rabbit Hill Plantation is recorded on the AWI as semi-natural woodland. No areas of woodland surveyed were identified as true semi-natural woodland, but the habitat was broadly consistent with ancient replanted woodland. All areas of woodland sampled appeared to have originated from planting, though the canopy is predominantly well-established and mature. There was differing levels of natural regeneration throughout, with some areas becoming more/very naturalised in the lower canopies, and ground flora is diverse and varied and includes several species which are indicative of ancient woodland in North East Yorkshire[27]; and thus appearing more like semi-natural woodland.

Lowland mixed deciduous woodland is a Section 41 habitat of principal importance in England, but this habitat type focuses predominantly on semi-natural woodlands. Similarly, the Tees Valley Biodiversity Action Plan includes semi-natural broadleaved lowland woodland. Consequently, those habitats recorded on Mine Site are considered unlikely to qualify as either Section 41 or LBAP habitat.

MG1, MG5 and MG11 neutral grassland habitats

MG5 is the predominant grassland type recorded within the study area. This neutral grassland community is present as both unimproved and semi-improved swards. The MG5 grassland within the open area amongst woodland, adjacent to the Easington Beck at the south of the Mine Site, is secondary habitat; originating in part from sowing during landscaping works. However, this grassland is considered to be unimproved, as it has since developed a semi-natural, diverse sward, which is unmanaged; being unmodified by artificial fertilisers, herbicides or intensive grazing. Included amongst this grassland is a narrow strip of MG11 around a pond which receives periodic inundation, and a small area of MG1 where a tall and coarse herb-rich sward has developed adjacent to woodland. These areas are also considered to be unimproved neutral grassland.

The MG5 community recorded within Onehams's Pasture LWS is a considered to be semi-improved, as agricultural improvement is evident within this grassland, along with intensive grazing, which is reflected in variations in the sward compared to the areas of unimproved MG5.

MG5 and MG11 communities have groundwater dependency scores of 3 (low dependency) and 2 (moderate dependency) respectively; with groundwater dependency reflecting potential for increased conservation interest.

The unimproved neutral grasslands are of a habitat type broadly consistent with the national (Section 41) and local (LBAP) habitat type Lowland Meadows, consisting of species- and herb-rich neutral grassland, however the definition of Lowland Meadows primarily focuses on traditional unimproved semi-natural meadows and pastures, and the habitat present on the Mine Site is considered unlikely to qualify owing to its secondary nature and absence of traditional management.

[27] Table of ancient woodland indicator plants for North East Yorkshire, shown on pages 558-561 in Rose & O'Reilly (2006)[4].

Similarly, areas of semi-improved neutral grassland present within Oneham's Pasture LWS are species- and herb-rich, but unlikely to qualify as priority habitat owing to the level of agricultural improvement evident in the sward.

4.2 Status of plant species

The 2004 rare plant survey recorded eight species within the Mine Site which were assessed as rare either locally (within the North York Moors) or nationally in accordance with criteria defined in the 2004 report**Error! Bookmark not defined.**. Four of these species (bristly oxtongue, sea pearlwort, water whorl-grass and wood vetch) were recorded during the 2017 survey. None of these species listed are recorded as rare on either the rare plant register for vice-county 62 (North East Yorkshire)[11] or the BSBI nationally rare plant list[12].

For the four species recorded in 2004 which were not found in 2017 (greater prickly lettuce, hautbois strawberry, Manton's polypody and small-flowered willow-herb), likely reasons for the loss of these species were noted either in the 2004 report or during the 2017 survey; e.g. ephemeral species/species associated with disturbed ground being lost due to succession of more dominant species, or small numbers of individual plants lost due to localised habitat modification.

Five plant species recorded during the 2017 survey, are listed as 'near threatened' on the vascular plant Red List for England[21]; sanicle, goldenrod, common valerian, common quaking-grass and tormentil. These five species do not occur on the BSBI nationally rare and scarce plant list[12], and are listed as 'least concern' on the vascular plant Red Data List for Great Britain[20]. Supporting notes of the vascular plant Red List for England[21] states that threat is a measure of the risk of a species becoming extinct, not a reflection of how rare or scarce it may be, and that a species which is more threatened in England than it is in Great Britain should naturally be considered as a high priority for conservation action within England (even though it is accepted that it may be considered a lower priority elsewhere in Great Britain).

4.3 Non-native invasive plants

Two non-native invasive plant species were recorded within the Mine Site; giant hogweed and rhododendron. Both species are included under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), making it an offence to plant or otherwise cause these species to grow in the wild. Additionally, giant hogweed poses a threat to human health as its sap is phototoxic and contact with the plant can cause severe irritation.

5. References

Trewren, K. (2004). *Report on a Botanical Survey of Boulby Mine Wood (Including Newton Gill Wood).*

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Appendix A NVC Quadrat Data

Table A.1 MG5 *Cynosurus cristatus – Centaura nigra* grassland community quadrat data

	Quadrat 1	Quadrat 2	Quadrat 3		
NVC community code	*MG5*	*MG5*	*MG5*		
Grid reference	*NZ 76028 17702*	*NZ 76022 17706*	*NZ 75994 17691*		
Date	*12 July 2017*	*12 July 2017*	*12 July 2017*		
Species	**DOMIN**	**DOMIN**	**DOMIN**	**Frequency**	**Range**
Trifolium pratense	4	9	5	III	4-9
Carex flacca	6	5	5	III	5-6
Holcus lanatus	6	5	4	III	4-6
Plantago lanceolata	6	4	6	III	4-6
Agrostis capillaris	6	4	4	III	4-6
Lotus corniculatus	6	3	5	III	3-6
Cynosurus cristatus	6	3	5	III	3-6
Prunella vulgaris	5	3	5	III	3-5
Centaurea nigra	3	4	3	III	3-4
Dactylis glomerata	3	4	4	III	3-4
Deschampsia cespitosa	4	4	3	III	3-4
Brachypodium sylvaticum	2	5	5	III	2-5
Agrostis stolonifera		4	4	II	4
Linum catharticum	3		3	II	3
Medicago lupulina	3	3	3	III	3
Hypericum hirsutum	2	3	3	III	3
Vicia cracca	2	2	3	III	2-3
Lolium perenne	4	3		II	3-4
Euphrasia officinalis agg.	3		3	II	3
Viola riviniana	2		3	II	2-3
Primula veris	2		3	II	2-3
Lathyrus pratensis	3	2		II	2-3

	Quadrat 1	Quadrat 2	Quadrat 3		
Rosa canina	3		2	II	2-3
Leucanthemum vulgare	+		3	II	3
Rhytidiadelphus squarrosus			5	I	5
Cerastium fontanum	3			I	3
Trisetum flavescens		3		I	3
Sanguisorba minor			3	I	3
Potentilla reptans	2			I	2
Acer pseudoplatanus seedling			2	I	2
Taraxacum agg.			2	I	2
Hieracium spp.			2	I	2
Veronica persica			2	I	2
Carex pendula	1			I	1
Betula pubescens			+	I	+
Brassica spp.			+	I	+

Table A.2 MG11 *Festuca rubra – Agrostis stolonifera – Potentilla anserina* grassland community quadrat data

	Quadrat 4	Quadrat 5	Quadrat 6		
NVC community code	*MG11*	*MG11*	*MG11*		
Grid reference	*NZ 76187 17736*	*NZ 76173 17724*	*NZ 76177 17727*		
Date	*12 July 2017*	*12 July 2017*	*12 July 2017*		
Species	**DOMIN**	**DOMIN**	**DOMIN**	**Frequency**	**Range**
Agrostis stolonifera	9	8	8	III	8-9
Bare ground (soil and stones)	4	5	6	III	4-6
Calliergonella cuspidata	4	3	4	III	3-4
Rumex crispus	3	3	3	III	3
Trifolium pratense	3	3	3	III	3
Lotus corniculatus	2	2	3	III	2-3
Prunella vulgaris	2	3	3	III	2-3
Ranunculus repens	3	3	2	III	2-3
Plantago lanceolata	2	2	3	III	2-3
Carex pendula	2	2	1	III	1-2
Lolium perenne	4	3		II	3-4
Junus inflexus	3	3		II	3
Equisetum arvense	3	3		II	3
Brassica sp.		2	1	II	1-2
Potentilla anserina			2	I	2
Deschampsia cespitosa	1			I	1

Table A.3 MG1 *Arrhenatherum elatius* grassland community quadrat data

	Quadrat 7	Quadrat 8		
NVC community code	*MG1*	*MG1*		
Grid reference	*NZ 76236 17711*	*NZ 76237 17729*		
Date	*12 July 2017*	*12 July 2017*		
Species	**DOMIN**	**DOMIN**	**Frequency**	**Range**
Centaurea nigra	9	7	II	7-9
Arrhenatherum elatius	5	6	II	5-6
Holcus lanatus	6	5	II	5-6
Agrostis stolonifera	5	5	II	5
Plantago lanceolata	4	4	II	4
Cynosurus cristatus	4	4	II	4
Ranunculus repens	6	3	II	3-6
Lotus corniculatus	3	4	II	3-4
Prunella vulgaris	3	3	II	3
Cirsium arvense	3	3	II	3
Lathyrus pratensis	3	3	II	3
Odontites vernus	2	2	II	2
Glechoma hederacea		4	I	4
Rubus fruticosus agg.		4	I	4
Teucrium scorodonia		3	I	3
Achillea millefolium		3	I	3
Cruciata laevipes		3	I	3
Veronica persica		3	I	3
Dactylis glomerata		3	I	3
Rumex acetosa	3		I	3
Trifolium repens	3		I	3
Cerastium fontanum	3		I	3
Leucanthemum vulgare		3	I	3
Ranunculus acris	2		I	2
Angelica sylvestris	2		I	2
Vicia cracca	2		I	2
Rosa canina		2	I	2

Table A.4 MG5 *Cynosurus cristatus – Centaura nigra* grassland community quadrat data (Oneham's Pasture LWS)

	Quadrat 9	Quadrat 10	Quadrat 11		
NVC community code	*MG5*	*MG5*	*MG5*		
Grid reference	*NZ 76687 18156*	*NZ 76679 18163*	*NZ 76654 18167*		
Date	*12 July 2017*	*12 July 2017*	*12 July 2017*		
Species	**DOMIN**	**DOMIN**	**DOMIN**	**Frequency**	**Range**
Festuca rubra	7	6	7	III	6-7
Cynosurus cristatus	4	5	5	III	4-5
Trisetum flavescens	3	5	6	III	3-6
Lolium perenne	3	5	4	III	3-5
Hieracium spp.	3	5	4	III	3-5
Dactylis glomerata	3	3	4	III	3-4
Tortella sp.	4	3	3	III	3-4
Cerastium fontanum	3	3	3	III	3
Bellis perennis	3	3	3	III	3
Trifolium repens	3	3	3	III	3
Danthonia decumbens	4		3	II	3-4
Achillea millefolium	3	3		II	3
Lotus corniculatus	3		3	II	3
Cirsium vulgare		3	3	II	3
Primula sp.	2		3	II	2-3
Hypochaeris radicata	4			I	4
Anthoxanthum odoratum	4			I	4
Holcus lanatus			4	I	4
Briza media	3			I	3
Potentilla erecta	3			I	3
Anthoxanthum odoratum	4			I	4
Holcus lanatus			4	I	4

	Quadrat 9	Quadrat 10	Quadrat 11		
Briza media	3			I	3
Potentilla erecta	3			I	3
Pseudoscleropodium purum			3	I	3
Cirsium arvense			3	I	3
Senecio vulgaris	1			I	1
Picris echioides	1			I	1
Cladonia sp.			1	I	1

Appendix B NVC Target Notes

Table B.1 NVC Target Notes

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
1	NZ 76601 18128	11.07.2017	W9	A mixed woodland plantation, with trees of even age (approximately 20m in height) growing in linear form on moderately sloping ground. The ground flora is relatively homogeneous. The canopy supports abundant Scot's pine and ash, occasional beech, frequent wych elm and rare pedunculate oak. The shrub layer supports rare hawthorn, whilst the field layer is dominated by grasses with ferns occasional to locally abundant. The field layer supports abundant false oat-grass and creeping soft-grass, abundant to locally dominant slender false brome, frequent to locally abundant male-fern, locally abundant to frequent honeysuckle, locally abundant pendulous sedge, occasional to locally dominant dog's mercury and rare red campion. Dead wood is abundant in this woodland.
2	NZ 76624 18082	11.07.2017	W9	The mixed woodland plantation starts to grade into broadleaved woodland in this location. The canopy is more closed in this location and the conifer trees (in this instance Scot's pine) are less than 10% of the canopy cover. The broadleaved woodland field layer supports more foliage than the adjacent mixed woodland plantation field layer, and is more natural in form. The canopy support abundant wych elm, ash, sycamore and pedunculate oak, occasional Scot's Pine and Sitka spruce and rare beech, whilst the shrub layer supports occasional hawthorn, locally frequent bramble and rare holly. The field layer includes abundant to dominant floating sweet-grass, abundant scaly male-fern, occasional herb Robert, frequent ash seedling and slender false brome, occasional to rare lady-fern. The moss *Kindbergia praelonga* is abundant as ground cover. In other stands, the field layer supports abundant male-fern, locally frequent wood-sedge and frequent hart's-tongue. In yet other stands, the field layer supports locally abundant dog's mercury and soft shield-fern, locally frequent floating sweet-grass and occasional cowslip and *Eurhynchium striatum* as ground cover. The dominant field layer supports abundant slender false brome, male-fern and abundant to occasional ash seedlings. Other field layer assemblages include locally abundant ivy, broad buckler-fern, frequent ash seedlings, occasional slender false brome and pendulous sedge in more open area under conifer trees. Dead wood is abundant in this woodland.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
3	NZ 76637 18056	11.07.2017	W9	On the embankment above the stream, the vegetation alters locally from the above described vegetation community, in the more open area of woodland. The field layer in this area supports abundant ash seedlings, herb Robert, wood dock, scaly male-fern, dog's mercury, bluebell (only remains visible at the time of survey) and common dog-violet, with occasional slender false brome, hart's-tongue and enchanter's nightshade.
4	NZ 76726 18038	11.07.2017	W9	Beech is dominant in the canopy here; it also supports occasional silver birch. The shrub layer supports occasional hawthorn and rare ash saplings. Much of the steep ground is bare, where it is not it supports locally abundant ivy, frequent pendulous sedge, broad buckler-fern, male-fern, with locally frequent greater wood-rush and occasional hart's-tongue. In the wetter flushed areas, the field layer alters; it supports abundant pendulous sedge, red campion, enchanter's nightshade, male-fern, hart's-tongue, locally abundant opposite-leaved golden-saxifrage, bramble, bracken and forget-me-not sp., ramsons and occasional dog's mercury and primrose.
5	NZ 76588 18016	12.07.2017	W9	Slender false brome becomes replaced gradually by dominant greater wood-rush and frequent bracken. The woodland canopy changes in line with the field layer change; it includes abundant to dominant beech, frequent ash and occasional sycamore. The shrub layer includes occasional sycamore and ash saplings and hawthorn and rare holly. The field and ground layers include abundant greater wood-rush, *Eurhynchium striatum*, locally abundant enchanter's nightshade, frequent broad buckler-fern, with occasional ivy, honeysuckle and pendulous sedge and ash seedling. Dead wood is rare to occasional in this stand of woodland.
6	NZ 76508 18026	02.08.2017		Stand of Rhododendron sp. approximately 2m x 5m. Another inaccessible larger stand is present close by occurs in an open stand of the Scot's pine plantation. The vegetation occurring adjacent to the rhododendron stand includes a thicket of undergrowth comprised of abundant bramble, frequent male-fern, pendulous sedge and honeysuckle and occasional common nettle.
7	NZ 76726 17980	11.07.2017		An open stand of woodland, where trees have fallen and are not dead wood, with dominant bracken and abundant bramble.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
8	NZ 76750 17972		W9	Variable woodland vegetation in this location, in both the canopy and field layer, potentially due to the narrowness of this stand of the woodland. The woodland canopy includes abundant wych elm, ash, sycamore and locally frequent beech. The shrub layer includes frequent wych elm and hawthorn and rare holly. The field layer includes locally dominant slender false brome, abundant male-fern, locally abundant pendulous sedge, dog's mercury, ramsons, enchanter's nightshade, bracken, with frequent sanicle and common nettle and occasional wych elm and ash seedlings and meadowsweet. Drier stands support locally abundant floating sweet-grass and enchanter's-nightshade and frequent herb Robert. In some stands there is locally abundant bramble, tufted-hair grass, male-fern and false-oat grass. Young trees are planted into parts of this stand of woodland.
9	NZ 76444 17943	11.07.2017	W9	A narrow stand of broadleaved woodland supporting occasional Scot's pine occurs, before the woodland starts to support 10% coniferous trees and 90% broadleaved trees, taking it to a mixed woodland plantation. This woodland is relatively open. The woodland canopy includes abundant sycamore, ash (many of which are affected by ash-dieback), with frequent silver birch and occasional pedunculate oak and beech and locally occasional Scot's pine. The semi-mature trees are all the same height, approximately 20m high. The shrub layer includes abundant field maple, frequent hawthorn and occasional ash saplings. The field and ground layers support abundant slender false brome, honeysuckle, common dog-violet, stone bramble and male-fern and *Eurhynchium striatum*, locally abundant creeping bent, enchanter's nightshade, dog's-mercury and wood-sedge, occasional bracken and ash seedlings, locally occasional pendulous sedge and locally frequent primrose. Further along, a more closed canopy supports with a mature oak canopy supports the following different vegetation: rare coppiced hazel trees and guelder rose in the shrub layer, whilst the field and ground layers support locally abundant *Thuidium tamariscinum* and rare herb Robert and ivy. Standing and fallen dead wood is abundant in this area.
10	NZ 76472 17918	11.07.2017	W9	Some of the embankment vegetation is occurring on basalt. This substrate supports similar vegetation to the surrounding field layers including male-fern and occasional pendulous sedge, ash seedlings, bramble, honeysuckle and enchanter's nightshade.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
11	NZ 76469 17909	11.07.2017		Localised stand of scrub, supporting locally abundant bramble and sycamore saplings.
12	NZ 76433 17880	11.07.2017	W9	Adjacent to the culvert, the field layer includes abundant male-fern, pendulous sedge and ivy, with frequent enchanter's nightshade and occasional currant sp. Beyond the culvert, the field layer supports abundant male-fern, ivy, locally abundant to frequent enchanter's nightshade, with frequent dog's-mercury, wood-sedge, herb Robert and honeysuckle. Locally damper areas support frequent ground-ivy and tufted hair-grass and occasional sanicle.
13	NZ 76375 17805	11.07.2017	W9	Much of the woodland here supports young trees, however mature oak trees occur on the steep slopes.
14	NZ 76351 17790	11.07.2017	W9	An open section on woodland occurring on ballast. The field layer supports scrub, with currant sp. and bramble locally dominant.
15	NZ 76411 17770	11.07.2017	W9	Steep sided stream embankment, with similar vegetation to Target Note 2. The woodland canopy supports semi-mature to mature trees which include locally abundant wych elm, occasional ash and pedunculate oak and rare horse chestnut. The shrub layer includes frequent holly, with locally frequent ash saplings and occasional wych elm saplings. The field layers (of which parts are too steep to access locally) include abundant male-fern, locally frequent pendulous sedge and sanicle, and occasional broad buckler-fern. On the steep banks with more bare ground mosses are the dominant vegetation, including abundant *Kindbergia praelonga* and frequent *Eurhynchium striatum*. This woodland has water run-off from culverts which is influencing soil movement and the field layer, which includes locally abundant dog's-mercury, enchanter's nightshade and hedge woundwort, whilst the shrub layer includes locally frequent hazel. Wetter areas influenced by the culvert run-off, include locally abundant floating sweet-grass and locally frequent forget-me-not sp. The field layer immediately surrounding this supports abundant dog's mercury, locally abundant hedge woundwort, frequent sanicle and occasional stone bramble. Dead wood is locally frequent in this area. The vast majority of this area supports slender false brome and ferns. In the shrub layer, the woodland supports rare ash saplings, whilst the field and ground layer support locally abundant wood speedwell, locally frequent wood-sedge, occasional red campion and wood dock and rare wild Angelica.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
				Whilst ivy is frequent as a creeper. Whilst other stands within this woodland include locally abundant ramsons, locally frequent wood-rush, locally occasional pendulous sedge and scaly male-fern. Primrose is locally abundant on the burn's bank. Rocky outcrops in this steep section of woodland support abundant male-fern, with frequent hart's-tongue, greater wood-rush and honeysuckle and occasional broad buckler-fern.
16	NZ 76344 17747	11.07.2017	W9	A small stand of beech woodland plantation, with trees, approximately 30m in height. The shrub layer includes occasional beech and rare sycamore and holly. The field layer is not species-rich; it includes frequent scaly-male fern, enchanter's nightshade, ivy and common field-speedwell, occasional wood-sedge, with locally occasional ramsons and rare primrose. Approximately half the ground layer is bare or with only leaf litter, whilst the other half supports mosses including frequent *Eurhynchium striatum.*
17	NZ 76326 17714		W9	The beech woodland plantation grades into a mixed woodland plantation, in which all the tree boles are approximately the same height and are evenly spaced. The trees include abundant sycamore, with locally abundant horse chestnut and beech and frequent ash. The field layer includes locally abundant ramsons, frequent scaly-male fern, with occasional pendulous sedge and sycamore seedlings and rare lords-and-ladies. The ground layer is composed of approximately half bare ground and approximately half supporting mosses. In more open stands of this woodland, dog's-mercury, bracken and bramble are locally abundant.
18	NZ 76281 17801	02.08.2017	W9Spin	A coniferous woodland plantation, the canopy of which is dominated by Scot's pine which are between 20-25m high. The canopy also includes locally abundant to rare wych elm and occasional pedunculate oak. The shrub layer includes abundant wych elm, frequent field maple, with occasional pedunculate oak and elder, locally abundant hawthorn and rare hazel. The field layer supports abundant ash seedlings and slender false brome and occasional broad buckler-fern, whilst the ground layer is mostly bare bar conifer needles, cones and branches.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
				In more open stands, the canopy continues to be dominated by Scot's pine with occasional ash, the shrub layer includes frequent wych elm saplings and the ground flora includes abundant male-fern, bramble, slender false brome, with locally abundant bracken, *Eurhynchium striatum* and *Kindbergia praelonga* and occasional pendulous sedge and honeysuckle. In other even more open areas where there is standing dead Scot's pine, the ground flora includes abundant false brome and enchanter's nightshade, locally abundant honeysuckle and frequent bramble, field speedwell and *Kindbergia praelonga*. Other stands of the woodland have a field layer that includes abundant brome grass and locally frequent male-fern.
19	NZ 76259 17710		W9	A broadleaved woodland plantation. The woodland canopy includes abundant sycamore, locally abundant elder, occasional pedunculate oak and a conifer sp. The shrub layer supports locally abundant hawthorn saplings, frequent elder, locally frequent hazel, with occasional sycamore and ash saplings and rare holly. The field layer includes scaly-male fern, dog's-mercury and common nettle, locally abundant enchanter's nightshade, ramsons, opposite-leaved golden-saxifrage, honeysuckle, hedge woundwort, floating sweet-grass, ground-ivy, with frequent pendulous sedge and rare primrose. The ground flora is composed of abundant *Thidium tamarscium*, frequent *Eurhynchium striatum* and occasional *Plagiothecium undulatum.*
20	NZ 76256 17719		MG1	The MG1 neutral grassland adjacent to the track and the broadleaved woodland plantation supporting abundant false oat-grass, Yorkshire-fog, hogweed, tufted vetch and creeping buttercup, locally abundant wood vetch, with frequent cock's-foot and locally frequent common knapweed.
21	NZ 76235 17731	02.08.2017	MG5	Lady's bedstraw is locally abundant and musk mallow is locally occasional within the MG5 neutral grassland community.
22	NZ 76198 17672	02.08.2017	W9	Sycamore is dominant at this point for a small stand. The field layer is variable, with ferns and mosses, predominately it supports dominant sycamore and dog's mercury. In another section of this stand, there is locally abundant bramble, enchanter's nightshade, common field-speedwell, herb-Robert, wych elm saplings and false-oat grass, with frequent red campion and occasional slender false brome.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
				Canopy trees locally support abundant sycamore and ash and occasional conifers. The shrub layer includes occasional ash saplings. The field layer is quite disturbed, with a track associated with ongoing digging, it includes abundant bramble, frequent goldenrod and tufted-hair grass and occasional common valerian.
23	NZ 75972 17803	02.08.2017	W9	A young stand of broadleaved woodland plantation, with natural regeneration, has a canopy with abundant wych elm, locally abundant silver birch, frequent ash and occasional sycamore. The shrub layer includes frequent hawthorn, locally frequent field maple and occasional hazel. The species-rich ground flora includes abundant cowslip, common dog-violet, *Eurhynchium striatum*, floating sweet-grass, male-fern, slender false brome, wood-sedge and ash seedling and rare ground-ivy, ivy, sanicle and red campion.
24	NZ 76213 17826	02.08.2017	W9	A broadleaved woodland plantation, dominated by broadleaved trees which include abundant semi-mature sycamore trees up to 15m high, abundant ash and occasional silver birch, hawthorn and the conifer Scot's pine. The shrub layer includes abundant hawthorn and occasional fir sp. and the field layer includes abundant male-fern, wood meadow-grass, locally abundant dog's-mercury and ash seedlings and frequent slender false brome and wood sedge and occasional bramble and pendulous sedge. Dead wood is frequent within this stand of woodland. The broadleaved woodland ends at: NZ 76281 17801.
25	NZ 76042 17790	02.08.2017	W9	A young broadleaved woodland plantation with abundant silver birch, many of which are saplings resulting in an open woodland canopy. More mature canopy trees include locally dominant ash and locally abundant coppiced sycamore. The ground flora includes frequent bramble and honeysuckle. The woodland become more mature at NZ 76058 17793, with this area including more semi-mature trees and shrubs including silver birch, sycamore and coppiced hazel, the majority of trees are approximately 10m high and densely planted. The ground flora in this stand includes abundant bramble and frequent honeysuckle.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
26	NZ 75967 17735	02.08.2017		A narrow, young birch plantation woodland (too small to map); the trees ranging from saplings to semi-mature occurring adjacent to the mixed plantation woodland. The canopy of the narrow woodland supports abundant silver birch, whilst the shrub layer included frequent sycamore and ash and occasional hazel. The scrub and field layer support abundant slender false brome, herb-Robert and tufted-hair grass, with locally abundant wood vetch and occasional sanicle and ash seedlings.
27	NZ 75960 17741	02.08.2017		A small stand of coniferous woodland plantation with abundant fir sp. present on steep slopes. The stream divides the woodland here, creating an open stand which supports abundant common nettle, frequent pendulous sedge and occasional broad buckler-fern.
28	NZ 75920 17839	02.08.2017	W9	Broadleaved woodland plantation with somewhat uneven spacing but trees of similar height and bole thickness. The canopy includes abundant sycamore and occasional fir sp. whilst the shrub layer includes hawthorn and wych elm. The ground flora supports abundant field speedwell, locally abundant dog's-mercury, frequent male-fern and occasional cowslip, pendulous sedge and common dog-violet.
29	NZ 75902 17902	02.08.2017	W9Spin	A narrow Scot's pine woodland plantation, which has a relatively open canopy, borders a broadleaved woodland plantation. The Scots pine plantation has a canopy dominated by Scot's pine, with occasional wych elm in the shrub layer and a field layer which is composed of abundant slender false brome, ash seedling, with frequent common dog-violet and occasional male-fern, red campion, bramble, cowslip, honeysuckle and bluebell.
30	NZ 75887 17887		W9	A broadleaved woodland plantation with vegetation which varies greatly. The tree boles in this plantation are similar in height and evenly spaced. The canopy layer includes abundant sycamore, frequent wych elm and occasional ash. A flushed stand of this woodland includes abundant meadowsweet, floating sweet-grass and common field-speedwell, locally abundant pendulous sedge, sanicle and slender false brome, with frequent enchanter's nightshade, *Kindbergia praelonga* and *Eurhynchium striatum*, occasional primrose and locally occasional field horsetail. The shrub layer includes abundant sycamore saplings, frequent ash saplings and occasional hawthorn saplings.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
				Scrub and field layer species include locally abundant bramble, abundant herb Robert, wood meadow-grass and dog's mercury, locally abundant bramble, opposite-leaved golden-saxifrage, with frequent red campion, pendulous sedge and common nettle and occasional bluebell.
31	NZ 75854 17822	02.08.2017	W9	A mixed woodland plantation is present, south of the coniferous woodland plantation. The canopy includes abundant sycamore, with occasional wych elm and locally occasional birch, ash and fir sp. The flushed ground flora which includes abundant opposite-leaved golden-saxifrage, *Eurhynchium striatum*, broad buckler-fern, with frequent *Plagiothecium undulatum*. Other stands of the woodland ground flora support abundant floating sweet-grass, *Kinbergia praelonga*, male-fern, locally abundant bramble, frequent cowslip, with occasional pendulous sedge and rare wood sorrel.
32	NZ 75750 17809	02.08.2017	W9	A steep embankment where the vegetation noticeably alters. In the canopy sycamore is dominant, with larch sp. locally dominant, with rare hazel and ash. There is limited growth within the ground flora. In more open stands where trees have fallen, the ground flora supports male-fern, floating sweet-grass, cowslips and hedge woundwort. This woodland includes large borrow pits. This woodland is separated from the broadleaved woodland by a stream.
33	NZ 75751 17725	02.08.2017	W9	A mixed woodland which was planted but has developed a natural form, with mixed woodland layers and regeneration present. The canopy includes abundant sycamore, pedunculate oak and ash, with locally abundant Scot's pine and silver birch and occasional larch. The shrub layer is composed of locally abundant coppiced hazel and hawthorn. The field layer includes locally abundant slender false brome, broad buckler-fern and bramble and occasional oak and ash seedlings, herb Robert, ivy and pendulous sedge. Dead wood is frequent within this stand of woodland. Locally, bramble becomes dominant. In localised stands beech is locally abundant in the canopy, with abundant to dominant dog's-mercury, with abundant male-fern, *Eurhynchium striatum*, locally abundant common dog-violet, occasional slender false-brome, pendulous sedge and sanicle and rare enchanter's nightshade.
34	NZ 75778 17952	11.07.2017		Giant hogweed is locally frequent on the railway embankment adjacent to Newton Gill Woods.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
35	NZ 75740 18018	03.08.2017	W9	A stand of woodland in which the ground flora has been strimmed for pheasants, kept in this area.
36	NZ 75726 17991	03.08.2017	W9	Woodland adjacent to a stream, with very steep banks, particularly on the west. There has been recent tree fall in this area, resulting in bare ground and locally abundant ivy on the ground layer. The trees within this stand of woodland are of mixed age and are a mixture of plantation and natural regeneration. The canopy includes abundant young sycamore trees and coppiced hazel, with frequent young ash trees and occasional semi-mature beech. The shrub layer includes rare hawthorn and the creeper ivy is abundant. The ground flora includes locally abundant dog's-mercury, *Kindbergia praelonga* and ivy, with occasional male-fern, broad buckler fern and ash seedling. Dead wood, in the form of fallen trees, is frequent in this area. A more open stand within this woodland, composed largely of coppiced hazel, supports the following ground flora: abundant *Eurhynchium striatum*, frequent bluebell (dying back at the time of surveying), *Plagiothecium undulatum*, with occasional field speedwell and ash seedlings and rare dog's-mercury. The ground flora of the above woodland stand quickly transitions into abundant male-fern, ivy, *Eurhynchium striatum*, frequent enchanter's nightshade, with occasional slender false brome, wood sorrel and primrose and rare bramble and common dog-violet.
37	NZ 75709 17975	03.08.2017	W9	The woodland becomes much more mature west of this location on flatter ground (not steep banks); with mostly semi-mature trees approximately 20m high. The canopy abundant semi-mature to mature beech, frequent ash and locally frequent wych elm. The shrub layer includes occasional hazel coppice and rare holly and wych elm saplings. The ground flora is variable. One stand of ground flora is composed of occasional red campion and herb Robert and bare ground. Another stand of ground flora on small embankments support a range of species including abundant male-fern, dog's-mercury, enchanter's nightshade, locally abundant ivy, frequent bramble and *Kindbergia praelonga* and occasional sancile, slender false brome, herb Robert and bracken. The shrub layer includes frequent hazel and occasional ash saplings. Fallen wood is locally frequent.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
				A small stand of open woodland with a canopy of young elm trees occurs. The flushed ground flora of this stand supports abundant opposite-leaved golden-saxifrage, locally abundant dog's-mercury and floating sweet-grass, with frequent common nettle and occasional bracken. Other stands of ground flora include dominant dog's-mercury, with frequent bluebell, red campion and wood meadow-grass and locally frequent wild madder.
38	NZ 75633 18051	03.08.2017	W9	An open stand of woodland on steep slopes with a canopy of abundant semi-mature ash, locally abundant hawthorn and sycamore, occasional pedunculate oak, locally occasional field maple and frequent wych elm. The shrub layers include abundant hawthorn and rare elm, field maple, hazel and hawthorn. The creeper ivy is locally abundant, whilst the field layer supports abundant dog's-mercury and wood-sedge, locally abundant wild madder, frequent slender false brome and red campion, occasional wood dock, common nettle, male-fern and locally occasional hart's-tongue.
39	NZ 75537 18006	03.08.2017	W9	A small stand of open broadleaved woodland plantation at the boundary of an arable field. The canopy of this woodland includes abundant sycamore, with frequent ash and pedunculate oak, whilst the field layer includes abundant false-oat grass, bluebell, wood meadow-grass, common cow-wheat, with frequent bramble and occasional herb Robert and hogweed.
40	NZ 75436 18098	03.08.2017	W9	A stand of woodland, with the canopy supporting mature trees which include abundant ash, locally abundant sycamore and occasional wych elm. The shrub layer includes hawthorn scrub, whilst there are several stands of ground flora. One stand of flushed ground flora supports only dominant floating sweet-grass and occasional common nettle. Another stand on sloping ground includes abundant floating sweet-grass and opposite-leaved golden-saxifrage and occasional male-fern and red campion. Another stand includes locally abundant dog's-mercury and lords-and ladies.

Target Note number	Grid reference	Date	NVC code (where relevant)	Vegetation description
41	NZ 75401 18060	03.08.2017	W9	An open stand of woodland begins here, the canopy includes abundant large, mature sycamore and occasional ash. The field layer is composed of abundant false-oat grass, floating sweet-grass, common nettle, hogweed, red campion, field speedwell and creeping buttercup, with locally abundant cow-wheat, frequent bramble and bluebell and occasional sanicle.
42	NZ 76183 17732	12.07.2017	MG11	Narrow strip of seasonally inundated grassland surrounding a pond, dominated by creeping bent-grass.

Appendix C Phase 2 Botanical Survey Species List

Table C.1 List of Species Recorded During the Phase 2 Botanical Survey

Group	Vernacular name	Scientific name
Trees		
	Ash	*Fraxinus excelsior*
	Beech	*Fagus sylvatica*
	Blackthorn	*Prunus spinosa*
	Field maple	*Acer campestre*
	Hawthorn	*Crataegus monogyna*
	Hazel	*Corylus avellana*
	Holly	*Ilex aquifolium*
	Horse chestnut	*Aesculus hippocastanum*
	Pedunculate oak	*Quercus robur*
	Rowan	*Sorbus aucuparia*
	Scot's pine	*Pinus sylvestris*
	Silver birch	*Betula pendula*
	Sitka spruce	*Picea sitchensis*
	Sycamore	*Acer pseudoplatanus*
	Wych elm	*Ulmus glabra*
Shrubs and scrub		
	Bramble	*Rubus fruticosus agg.*
	Currant sp.	*Ribes sp.*
	Guelder rose	*Viburnum opulus*
	Stone bramble	*Rubus saxatilis*
Creepers		
	Honeysuckle	*Lonicera periclymenum*
	Ivy	*Hedera helix*
Ferns		
	Bracken	*Pteridium aquilinum*

Group	Vernacular name	Scientific name
	Broad buckler-fern	*Dryopteris dilatata*
	Hart's-tongue	*Phyllitis scolopendrium*
	Lady-fern	*Athyrium filix-femina*
	Male-fern	*Dryopteris filix-mas*
	Scaly male-fern	*Dryopteris affinis*
	Soft shield-fern	*Polystichum setiferum*
Grasses		
	Cock's-foot	*Dactylis glomerata*
	Creeping bent	*Agrostis stolonifera*
	Creeping soft-grass	*Holcus mollis*
	Common quaking-grass	*Briza media*
	False oat-grass	*Arrhenatherum elatius*
	Floating sweet-grass	*Glyceria fluitans*
	Perennial rye-grass	*Lolium perenne*
	Slender false brome	*Brachypodium sylvaticum*
	Tufted hair-grass	*Deschampsia cespitosa subsp. cespitosa*
	Wood meadow-grass	*Poa nemoralis*
	Wood small-reed	*Calamagrostis epigejos*
	Yorkshire-fog	*Holcus lanatus*
Sedges		
	Glaucous sedge	*Carex flacca*
	Pendulous sedge	*Carex pendula*
	Wood-sedge	*Carex sylvatica*
Rushes		
	Greater wood-rush	*Luzula sylvatica*
	Hard rush	*Juncus inflexus*
	Toad rush	*Juncus bufonius*
Herbs		

Group	Vernacular name	Scientific name
	Bluebell	*Hyacinthoides non-scripta*
	Bristly oxtongue	*Picris echioides*
	Burdock sp.	*Arctium sp.*
	Common bird's-foot-trefoil	*Lotus corniculatus*
	Common dog-violet	*Viola riviniana*
	Common field-speedwell	*Veronica persica*
	Common knapweed	*Centaurea nigra*
	Common nettle	*Urtica dioica*
	Common ragwort	*Senecio jacobaea*
	Common valerian	*Valeriana officinalis*
	Cowslip	*Primula veris*
	Creeping buttercup	*Ranunculus repens*
	Creeping thistle	*Cirsium arvense*
	Ground-ivy	*Glechoma hederacea*
	Hedge woundwort	*Stachys sylvatica*
	Herb Robert	*Geranium robertianum*
	Hogweed	*Heracleum sphondylium*
	Lady's bedstraw	*Galium verum*
	Lesser sea spurrey	*Spergularia marina*
	Meadowsweet	*Filipendula ulmaria*
	Musk mallow	*Malva moschata*
	Opposite-leaved golden-saxifrage	*Chrysosplenium oppositifolium*
	Primrose	*Primula vulgaris*
	Ramsons	*Allium ursinum*
	Red campion	*Silene dioica*
	Ribwort plantain	*Plantago lanceolata*
	Sanicle	*Sanicula europaea*
	Sea pearlwort	*Sagina maritima*
	Selfheal	*Prunella vulgaris*

Group	Vernacular name	Scientific name
	Teasel	*Dipsacus fullonum*
	Tormentil	*Potentilla erecta*
	Tufted vetch	*Vicia cracca*
	Wild Angelica	*Angelica sylvestris*
	Wood dock	*Rumex sanguineus*
	Wood speedwell	*Veronica montana*
Mosses		
	-	*Eurhynchium striatum*
	-	*Kindbergia praelonga*
	-	*Thidium tamarscium*
	-	*Tortella sp.*

Appendix D Phase 2 Botanical Survey Photographs

Table D.1 Phase 2 Botanical Survey Photographs

Description	Photograph
W9 broadleaved woodland to the west of the Mine Site.	
Mixed woodland best described a s W9 woodland present in the south of the study area, south of operational area of Boulby Mine.	
W9Spin coniferous woodland to the west of the study area.	

Description	Photograph
MG5 neutral grassland present to the middle south of the study area, on shallow stony soil.	
MG5 neutral grassland is visible in the middle ground of the photograph, adjacent to the woodland.	
MG11 inundation grassland bordering a pond in the middle south of the study area.