# CHAPTER 18: SUMMARY OF MITIGATION AND RESIDUAL EFFECTS

## Introduction

18.1 The residual effects of the proposed development have been assessed as part of the EIA and can be described as the effects which remain after the implementation of the proposed mitigation measures. The residual effects have been identified for each effect category in the preceding technical chapters [Ref: Chapters 7-16] and are summarised in **Table 18.1**. It is expected that the various mitigation measures identified will be secured through appropriately worded planning conditions.

18.2 The EIA and the design evolution has been an iterative process and therefore many measures to mitigate potential adverse environmental effects, such as ecological enhancement, highways infrastructure and landscape features have all been incorporated into the design of the proposed development in order to avoid, reduce or offset negative changes. **Table 18.1** therefore summarises the residual effects from both the construction phase and once the proposed development is completed and operational. Those of significance (i.e. more than a negligible or minor adverse/beneficial effect) are highlighted for ease of reference. Reference should be made to each technical chapter for the definition of the significance of the effect stated.

18.3 In addition to the mitigation measures outlined in **Table 18.1**, a series of mitigation measures have been 'designed-in' to the proposals in order to reduce or where possible, avoid adverse effects. These are outlined in the Design and Access Statement.

18.4 Following the table is a discussion of the residual effects and a conclusion.

Table 18.1: Summary of Residual Effects

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| Socio-economics | Construction | Direct employment | None required | **Moderate/Minor Beneficial** |
| | | Induced and indirect employment | None required | **Moderate/Minor Beneficial** |
| | Operation | Increase in day and staying visitors | None required | **Major Beneficial** |
| | | Off-site expenditure | None required | **Major Beneficial** |
| | | On-site and off-site employment | None required | **Moderate/Major Beneficial** |
| Landscape and Visual | Construction | Landscape and visual construction effects | Range of measures including:<br>• Site compounds to be positioned close to the proposed access points<br>• Hydraulic cranes will be used<br>• Use of directional lighting<br>• Landscape screening areas to the boundaries of the site will be delivered at an early stage of development for each phase.<br>• Site hoarding will be used where appropriate and coloured to be sympathetic to the surrounding environment<br>• Where possible hoarding lines will also utilise existing areas of woodland and scrub cover to help visually break up the extent of the fencing.<br>• Where possible, landscape screening and ecological enhancement measures will be delivered in advance of each phase<br>• Lodges will primarily be prefabricated off site, which will help to minimise the duration of the construction period on site. | **Negligible to Minor Adverse**<br><br>Three viewpoints **~~moderate adverse~~** |
| | Operation | Impact on National landscape character | The design proposals have been formulated through an iterative process including | **Negligible** |

**Commented [HB1]:** Update once Planit have addressed Jon Berry's comments

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Impact on Local landscape character- *Type 1: Dissected Sandstone Cloughs and Valleys – Sub Area 1A: Alton and Oakamoor* | environmental assessment and consultation. The key design considerations are described below.<br>• The Hub building is located on flat, low lying area in order to maximise potential to accommodate larger buildings.<br>• Lodges are located within areas identified with potential for least visual impact.<br>• Development is integrated into the site utilising existing levels, and will therefore enable the retention of existing landscape features around lodges with potential for visual screening benefits.<br>• One-storey high lodges are proposed in potentially more visually prominent and/or sensitive locations.<br>• Quarry 3 – the proposed development is lower density than elsewhere, due to potential views from Eaves Lane<br>• New planting is proposed in key sensitive areas to minimise potential visual impacts.<br><br>In addition a comprehensive Landscape Plan will provide visual screening and mitigate against potential landscape or visual impacts. | **Negligible** |
| | | Impact on Local landscape character- *Type 1: Dissected Sandstone Cloughs and Valleys – Sub Area 1B: Consall and Froghall* | | **Negligible** |
| | | Impact on Local landscape character- Type 3: Dissected Sandstone Highland Fringe – Sub Area 3A: Ipstones and Whiston. | | **Negligible** |
| | | Impact on footpaths, cyclepaths and bridlepaths | • The plan allows for a future route to connect Blakeley Lane to the north of Quarry 2. | **Moderate Beneficial** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Impact on topography | • Any removed material will now be retained within the respective quarries to avoid unnecessary construction vehicle movements across the site.<br>• Within Quarry 2, material will be used to help consolidate settlement areas, whilst in Quarry 3, material will be utilised to form shallows at the existing lake edge.<br>• The proposed development will integrate built form into the existing topography wherever possible in order to minimise further regrading works.<br>• In Quarry 3 a new lower shelf will sit along the northern quarry face, helping lodges to sit low within the landform and be well screened from the surrounding areas. | **Negligible** |
| | | Visual Impacts: Viewpoint 1 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 2 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 3 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 4 | None required | **Minor adverse/Negligible** |
| | | Visual Impacts: Viewpoint 5 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 6 | • New tree cover and planting.<br>• Existing trees have the potential to mature over time and provide greater screening potential. | **Minor Adverse** |
| | | Visual Impacts: Viewpoint 7 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 8 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 9 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 10 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 11 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 12 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 13 | None required | **Negligible** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Visual Impacts: Viewpoint 14 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 15 | None required | **Negligible** |
| | | Visual Impacts: Viewpoint 16 | None required | **Minor Adverse** |
| | | Visual Impacts: Viewpoint 17 | None required | **Minor Adverse** |
| Ecology | Construction | Impact on Ancient Woodland (Frame Wood) and Black Plantation. | • Woodland management will be undertaken on the site.<br>• Planting of species-rich hedgerows around the field boundaries to the north-west of the application site.<br>• A detailed tree survey will be undertaken to inform the selection of the lowest quality trees within Frame Wood which are to be felled. | **Moderate Beneficial** |
| | | Impact on MG6 and MG5 grassland | • Protective fencing will be erected.<br>• The majority of MG6 grassland will be retained.<br>• Scrub within MG5 will be managed to prevent degradation of the habitat.<br>• Species rich and open grassland have been incorporated within the landscape proposals. | **Moderate Beneficial** |
| | | Landscaping/regrading works to the existing silt lagoons | • No water bodies will be lost as a result of the proposed application. The proposed landscaping scheme will seek to improve the quality of the silt lagoons by thinning scrub to reduce shading and planting marginal aquatic vegetation. | **Moderate Beneficial** |
| | | Surface water run-off | • The proposed development will adhere to the Environment Agency's Guidance for standard pollution prevention methods - Working at Construction and Demolition Sites: PPG6. | **Negligible** |
| | | Impacts on remaining habitats | • Mitigation measures and construction management measures are outlined in the EcMP. | **Negligible** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Impact on amphibians | • Vegetation management in advance of construction to discourage amphibians away from construction areas.<br>• Temporary exclusion fencing within lodge and hub construction areas.<br>• Pitfall trapping.<br>• Mats/refugia to be used to clear areas where pitfall trapping is not practical.<br>• Removal of refugia under the supervision of a suitably qualified ecologist.<br>• Careful timing of works – installation of fencing in non refugia areas in winter to minimise the likelihood of trapping amphibians within exclusions areas, removal of amphibians during the period March to October.<br>• Where required, amphibians will be relocated to a suitable receptor site within the site boundary.<br>• Where habitat will be affected, Reasonable Avoidance Measures (RAMs) will be applied and/or supervised by a suitably qualified ecologist.<br>• Provision of new artificial refugia/hibernacula.<br>• Management of existing water bodies to benefit local amphibian populations. | **Moderate Beneficial** |
| | | Impact on reptiles | • Targeted vegetation management and removal of suitable refugia under a method statement and supervision will be undertaken within the areas of suitable impacted habitat.<br>• Works to known and potential reptile habitat will be timed to avoid the hibernation period (October to March).<br>• No materials are to be stockpiled within close proximity to those areas occupied by reptiles. | **Moderate Beneficial** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Impact on birds | • The majority of woodland and scrub habitat will be retained, with new planting replacing any affected areas.<br>• New nest boxes will be provided within woodland habitats to provide opportunities for a range of birds including barn owl and planting will include berry bearing species to provide a food source for birds.<br>• Any nesting bird habitat will be removed outside of the breeding bird season (late February until September). If this is not possible a pre-clearance bird survey will be undertaken.<br>• No vegetation will be cleared within 5m of an identified nest until the young have fledged and no longer returning to the nest site. Vegetation will only be cleared when the scheme ecologist has declared the nest clear of dependant young. | **Moderate Beneficial** |
| | | Impact on bats | • The design will avoid direct lighting and overspill into woodland or into potential foraging habitat such as woodland, water bodies and tree lines.<br>• The number of lights will be reduced to the minimum required for public safety, the brightness of which should be as low as is feasible.<br>• Limit the height of lighting columns, directing lights away from potential roosting/foraging/commuting features.<br>• Installation of artificial bat roost sites in selected new structures.<br>• Bat boxes will be installed within Key Wood and Black Plantation. | **Minor Beneficial** |
| | | Impact on otters | None required | **Negligible** |
| | Operation | Disturbance of SSSI and SBIs from increased visitor pressure | • An EcMP will be produced to manage visitor movement around the site. | **Negligible** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Impacts on areas of woodland | • Woodland management in the form of coppicing and thinning of selective species including Turkey Oak within Key Wood.<br>• Extended woodland planting.<br>• Implementation of habitat management and maturation of new landscape and woodland planting. | **Moderate Beneficial** |
| | | Other retained habitats | • Planting of species rich hedgerows.<br>• Scrub clearance and management of species rich MG5 grassland in Quarry 1.<br>• Management of moderate value/high potential grassland to the west of the site.<br>• Existing pond enhancement within Key Wood and Frame Wood, in the form of scrub thinning/management. | **Minor Beneficial** |
| | | Managing run-off and pollution | • Environment Agency best practice measures will be employed to avoid surface water run-off and risks of environmental pollution from the proposed development. | **Negligible** |
| | | Impacts on species groups including bats, birds, amphibians and reptiles. | • An EcMP will contain measures to manage the notable species present within the site.<br>• Bat and bird box scheme within Key Wood and Black Plantation.<br>• The EcMP will also contain measures to control invasive aquatic species if required to protect ponds supporting populations of great crested newts. | **Moderate Beneficial** |
| Archaeology and Heritage | Construction and Operation | No Impacts | None required | **N/A** |
| Ground Conditions | Construction | Trackout | • Soils to be treated in accordance with best practice and movement of soils to be kept to a minimum. | **Negligible** |
| | | Overflow from Q3 lake to SSSI | • Reduction of lake levels and improving slope stability | **Negligible** |
| | | Runoff from tailing lagoons to watercourses | • Capping of tailing lagoons | **Moderate beneficial** |
| | | Risk of contamination from concrete pouring | • The use of designated concrete batching areas | **Negligible** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Risks to people and animals from existing lagoons | • Capping of existing tailings | **Major Beneficial** |
| | | Risk of landslip affecting humans | • Improvements to slope stability | **Major Beneficial** |
| | | Contamination from site processes and materials storage | • Compliance with best practices on-site and direction of surface water to existing lagoons to remove suspended sediment. | **Negligible** |
| | | Sterilisation of mineral deposits | None required | **Negligible** |
| | Operation | Risk of slope collapse affecting visitors | • Control of access and monitoring slope stability | **Negligible** |
| | | Impact of flows from Q3 through the SSSI | • Ongoing control of outflow during operation of the leisure park. | **Minor Beneficial** |
| Water Resources and Flood Risk | Construction | Localised flooding | • Temporary sustainable drainage strategy during construction. | **Negligible** |
| | | Runoff rates to watercourses | None required | **Moderate Beneficial** |
| | | Silt laden runoff entering Stream A/ SSSI | • Silt traps and monitoring | **Negligible** |
| | | Silt laden runoff entering watercourses | • Runoff control measures to be included in the CEMP | **Negligible** |
| | | Acidic runoff entering watercourses | • Monitoring | **Negligible** |
| | Operation | Reduction of flood risk associated with the proposed drainage strategy | None required | **Moderate Beneficial** |
| | | Runoff rates to watercourses | • SuDS Strategy | **Negligible to moderate beneficial (major beneficial to the SSSI)** |
| | | Acidic runoff entering watercourses | • Reed beds to be created in Q3 | **Minor – Moderate Beneficial** |
| Transport and Access | Construction | Construction traffic | • A Construction Traffic Management Plan, Travel Plan Framework, and Car Park Management Plan will all contain measures to manage the temporary increase of construction traffic on the local highway network. | **Minor Adverse** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | Operation | Driver Delay | • Traffic movements will be actively managed.<br>• A Travel Plan Framework (TPF) will be produced.<br>• A detailed Car Park Management Plan will be implemented by the Travel Plan Coordinator. | **Negligible** |
| | | Pedestrian delay | | **Negligible** |
| | | Pedestrian amenity | | **Minor Beneficial** |
| | | Pedestrian severance | | **Negligible** |
| | | Accidents and safety | | **Negligible** |
| | | Hazardous loads | | **Negligible** |
| Air quality | Construction | Dust soiling | • The CEMP contains measures to manage the construction effects of the proposed development on air quality.<br>• A Construction Logistics Plan will also be produced to manage the sustainable delivery of goods and materials, identifying the most suitable routes to access the site for all construction traffic. | **Negligible** |
| | | Generation of $PM_{10}$ | | **Negligible** |
| | | Ecology | | **Negligible** |
| | | Construction traffic and plant emissions | | **Negligible** |
| | Operation | Changes in local pollutant concentrations generated from road traffic exhaust emissions. | None required | **Negligible** |
| Noise | Construction | Construction noise levels at nearby noise-sensitive receptors | • Adoption of best practice measures which are outlined in the CEMP.<br>• Development will be registered to the Considerate Constructors Scheme. | **Negligible** |
| | | Construction vibration levels at nearby vibration-sensitive receptors | • Adoption of low vibration working methods. Consideration should be given to use of the most suitable plant.<br>• Where processes could potentially give rise to significant levels of vibration, on-site vibration levels should be monitored regularly by a suitably qualified person.<br>• The provision of cut-off trenches in order to interrupt the direct transmission path of vibrations, where required. | **Negligible to Minor Adverse** |
| | Operation | Development generated road traffic noise on existing receptors. | None required. | **Negligible /Moderate Adverse (one dwelling)** |

**Commented [HB2]:** To be updated following completion of AQ chapter

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | | Noise from proposed mechanical and electrical plant items. | • Maximum noise levels will be incorporated into planning conditions.<br>• Once the detailed nature for future uses are confirmed, if considered necessary, noise from any related operations can be outlined in a mitigation scheme.<br>• Noise emission limits will be lower than the maximum limits outlined in Table 15.17. | **Negligible** |
| | | Existing baseline noise levels on proposed noise sensitive receptors. | • Standard double glazing is sufficient to achieve the internal noise criteria within the lodges and buildings on site.<br>• Passive ventilation systems will be used which meets or exceeds the required performance set out in the Building Regulations Approved Document F for background ventilation.<br>• The site will experience noise levels below the adopted 50db(A) criterion. Mitigation for external living areas is not required. | **Negligible** |
| Waste | Construction | Waste management infrastructure | • Best practice measures in the CEMP will minimise and manage waste associated with the development.<br>• All construction works will be undertaken in accordance with the Considerate Constructors Scheme.<br>• Where practicable, waste streams will be segregated that have the potential to be reused on-site or transported off-site for recycling.<br>• The Site Manager will identify suitably licensed waste facilities in order for material to be redistributed to other suitable sites. | **Negligible/Minor** |

| Category | Stage of the Development | Description of Effect | Mitigation Measures | Residual Significance |
|---|---|---|---|---|
| | Operation | Waste management infrastructure | • Design measures will ensure patrons and visitors have access to both internal and external refuse and recycling storage facilities.<br>• Non-residential areas will have facilities segregating recyclable materials.<br>• Waste storage areas are to be clearly labelled, minimising cross contamination.<br>• Retailers and commercial tenants will be encouraged to undertake a 'waste audit' and create an Action Plan. | **Negligible** |

## Summary & Conclusions

18.5 On behalf of Laver Leisure, HOW Planning submitted an outline planning application for a high quality leisure development at the above site to SMDC on 20 October 2014. Despite the Council's Planning Officers recommending the application for approval, the Planning Committee resolved to refuse the planning application at its meeting on 26 November 2015. The application was formally refused by the Council on 2 December 2015.

18.6 Laver Leisure have sought to accommodate the concerns of the Planning Committee. Accordingly, without prejudice to the ongoing appeal by Laver Leisure, HOW Planning has been instructed to submit this revised planning application which directly addresses all the issues raised within the reasons for refusal.

18.7 A comprehensive assessment of the potential effects of the construction and operational phases of the proposed development has been undertaken as part of this EIA to establish the environmental changes associated with the development.

18.8 The EIA has identified the potential for residual effects (i.e. with mitigation measures in place) of moderate to minor adverse significance during the construction phase. These relate to the landscape and visual changes experienced at the site during the construction phase. Other identified effects are of minor to negligible significance and relate to activities that are likely to generate noise and dust effects during some of the demolition and construction works. These effects are unavoidable, despite the implementation of best practice measures, are common to almost all developments and are limited to the anticipated construction period only. Conversely, positive impacts are identified in relation to job creation.

18.9 In order to further minimise any potential disruption and disturbance to nearby sensitive receptors, a Construction Environmental Management Plan (CEMP), developed in conjunction with Staffordshire Moorlands District Council and relevant consultees, is recommended. The CEMP will outline how the effects of construction can be managed by good practice and environmental controls which have been identified in the EIA, are routinely and successfully applied on other similar development proposals. The applicant therefore invites SMDC to secure the implementation of a CEMP via a suitably worded planning condition which can then be enforced by the Council as appropriate.

18.10 As with the 2014 application, the majority of construction phase impacts, when mitigation is considered, have been shown to be negligible. Some negative impacts have been identified in relation to the construction phase in terms of noise, construction traffic, and landscape and visual impacts. In general, mitigation measures will significantly reduce the potential effects, however, some of the construction processes are unavoidable to a degree, therefore adverse impacts are inevitable. To ensure these impacts are kept to a minimum, the mitigation measures in Table 18.1 will be applied. In the long term, the operational phase of development will have a predominantly positive impact on the site and the surrounding area. With moderate to major beneficial effects witnessed in drainage & flood risk, ecology and ground conditions during the operation of the development.

18.11 In addition, significant positive effects associated with the scheme have been identified as part of the assessment process. The employment opportunities are

also significant and will assist with creating local and stable job opportunities for communities within the Staffordshire Moorlands area.

**Conclusions**

18.12 The proposed development has been designed in accordance with the findings and recommendations of the EIA. Any adverse effects identified through the assessment have been minimised as far as possible through the design process or the application of appropriate mitigation measures.

18.13 In conclusion, in developing the proposals, a thorough iterative design process has been undertaken in conjunction with the EIA process to ensure that mitigation measures have been identified early and become inherent in the design of the development. This also provides a robust benchmark for developing the proposals at later detailed design stages as key design principles have already been established. In addition, through the EIA process, a number of additional mitigation measures have been identified in order to further reduce adverse effects where these have been identified. Such measures can be secured through suitably worded planning conditions and enforced as appropriate by the local planning authority.