

3 SITE EVOLUTION AND ALTERNATIVES

3.1 Introduction

3.1.1 This chapter provides a description of the design process undertaken to reach the proposed development as described in Chapter 2: Proposed Development Description. It provides information on:

- Considerations relating to site selection and that no significant alternative locations were identified or examined;

A description of design evolution taking into account any significant constraints; and

- An indication of how environmental considerations fed into the proposed site design, and where measures were built into the proposed development which acted to design out potential environmental impacts.

3.1.2 Consultation as presented in Technical Appendix 1.2 in Volume 3 also influenced the proposed development, as described in Sections 3.2 and 3.3 of this chapter.

3.1.3 There are no supporting technical appendices for this chapter.

3.1.4 This chapter refers to the following Figure (refer to Volume 4)

- Figure 3.1: NMU Provision.

3.2 Background to the Proposed Development

3.2.1 The proposed development is directly linked to the progression of the Winchburgh Masterplan development, which involves the urban expansion around the existing Winchburgh village, which incorporates delivery of a motorway junction on the M9 motorway at Winchburgh. The proposed development is regarded as a strategic objective of the Masterplan and will aim to provide an efficient connection between the local and trunk road networks, while serving the expansion created by delivery of the Winchburgh Masterplan development.

3.2.2 Outline planning consent for the Winchburgh Masterplan (application reference: 1012/P/05) was received from WLC in April 2012 and covers the development of a 352 ha settlement expansion, including residential, commercial, industrial, recreation and retail uses. It also includes community facilities, landscaping and open spaces, rail and road infrastructure, including a train station, park and ride facilities, a junction to the M9 motorway (i.e. the proposed development), and primary and secondary school provision. A number of mechanisms were incorporated into a set of planning conditions, which aim to safeguard the commitment to providing the appropriate road infrastructure, which will serve the settlement as it expands. One of these conditions includes a restriction on the construction of no more than 1,000 residential units until the implementation of the new junction on the M9 motorway is complete. The consented total number of residential units for the Winchburgh Masterplan is up to 3,450 units.

3.2.3 In 2010, an Appropriate Appraisal¹ was prepared that set out access strategy scenarios for the development. This document enabled Transport Scotland as the Roads Authority to consider the strategic importance of the Winchburgh Masterplan development and conclude that a new junction at Duntarvie on the M9 motorway was justified.

¹ Grontmij (now Sweco), 2010. Winchburgh Development Initiative - Appropriate Appraisal, April 2010.

3.3 Considerations in Site Selection

- 3.3.1 The location of the new motorway junction was ultimately determined as part of the overall masterplanning process for the Winchburgh Masterplan. Considerations for the siting of a motorway junction as part of the Masterplan included the need to:
- Connect the Winchburgh Masterplan area with the wider road network, and specifically the M9 motorway network;
 - Locate the motorway junction in relatively close proximity to the Winchburgh settlement;
 - Consider the potential to use existing road infrastructure as part of the new junction, to minimise the creation of new road infrastructure as far as practicable; and
 - Consider the (at that time) future plans for a second Forth crossing, which has been delivered as the Queensferry Crossing and associated M9 motorway junction 1A, in particular the ability to deliver an appropriate separation distance between junctions.
- 3.3.2 These considerations resulted in the selection of the site of the proposed development as considered here as part of the Winchburgh Masterplan (refer to Figure 1.2 in Volume 4). Furthermore, the site selection took into account existing environmental considerations, as presented in Figure 2.1 in Volume 4.
- 3.3.3 The design of the proposed development as presented is the result of a preliminary design exercise, aiming to deliver a suitable motorway junction for the anticipated traffic volumes which would use it in future years based on forecasts produced by the South East Scotland Regional Transport Model.

3.4 Alternatives

"Do Nothing" Alternative

- 3.4.1 The "do nothing" scenario is a hypothetical alternative conventionally considered in EIA as a basis for comparing the proposed development under consideration. This scenario is largely considered to represent the current baseline situation as described in the individual chapters of this EIAR.
- 3.4.2 The new junction ('proposed development') is an element of the overall Winchburgh Masterplan (one of several Core Development Areas for WLC), which includes *"...the development of 3,450 new homes together with a town centre, two new neighbourhood centres, five new primary school streams, two secondary schools co-located on a single campus, a railway station, a junction with the M9 motorway, two park and ride facilities, a commercial centre, new roads, cycleways and footpaths, and new and enhanced green spaces with recreational, amenity and ecological functions"*².
- 3.4.3 As noted in paragraph 3.2.2 above, the consents for the Winchburgh Masterplan require the motorway junction to be delivered in advance of the construction of the 1,000th residential unit as part of the Winchburgh Masterplan. In the absence of the proposed development, residential units as part of the Winchburgh Masterplan would be capped at 1,000.
- 3.4.4 The "do nothing" scenario would lead to the incomplete delivery of the Winchburgh Masterplan; and therefore, the "do nothing" scenario is not considered a desirable option, given it would restrict the delivery of consented development under the Winchburgh Masterplan.

² Environ (now Ramboll), 2005. Winchburgh Development Initiative – Environmental Statement. August 2005.

"Do Something"

- 3.4.5 The "do something" option (i.e. delivering the proposed development in full) has therefore been chosen as this would deliver both the Winchburgh Masterplan beyond the 1,000-unit cap which would provide socio-economic benefits and growth potential to the area.

3.5 Alternative Designs – Design Evolution

- 3.5.1 No significant layout alternatives have been identified during the design process; therefore, the junction has been progressed on the basis of four slip roads leading to and from two proposed roundabouts situated on the existing B8020 Beatlie Road. This junction layout has been determined by using the anticipated traffic flows, supported by the need for local access and for mode transfer at the proposed park and ride facilities.
- 3.5.2 The site meets the considerations given in Section 3.3.1 namely its proximity to Winchburgh and will provide good access to the Winchburgh Masterplan; its use of the existing road network by incorporating the B8020; and is an appropriate distance from the existing Junctions 1a (2.8 km south east) and Junction 2 (3.5 km north west).
- 3.5.3 No other nearby locations will match or better the criteria in Section 3.3.1 and were not therefore considered further for the proposed development.
- 3.5.4 The potential for impact on the nearby Duntarvie Castle, a Category A Listed Building, was considered as part of the junction design. In particular slip roads were developed so as not to be any higher than the existing motorway so as not to impinge on castle views south towards the Pentland Hills.

3.6 Preliminary Design

- 3.6.1 Minor additions have been made to the layout since design work commenced in 2009. In certain cases, these additions were in response to specific environmental requirements (such as ecological and flood protection measures).
- 3.6.2 Embedded landscape and visual mitigation measures have been incorporated into the design to aid assimilation of the proposed development into the adjoining landscape. This includes gently graded landforms consistent with the existing landforms and incorporation of vegetation and woodland planting to screen or filter views of the proposed development. More information is provided in Chapter 4.
- 3.6.3 The preliminary design of the proposed development is presented in Figure 2.2 in Volume 4 and the proposed landscaping presented in Figure 4.8 in Volume 4. Detailed design of elements will be undertaken in the period leading to the construction phase of the proposed development.

3.7 Mitigation by Design

- 3.7.1 This section outlines the consideration of potential effects relevant to the EIA process in the design process.

Non-Motorised Users

- 3.7.2 Throughout designing the proposed development, it was considered important to address requirements of other road users (including but not limited to pedestrians, cyclists and equestrian users, collectively known as non-motorised users (NMU)). These have primarily

been accommodated for through the overall design of the elements of the junction which modify the existing B8020 (Beatlie Road).

- 3.7.3 A consultation process was held between Tuesday 12th March 2019 and Friday 22 March 2019. The consultation looked specifically at proposed new NMU routes along the B8020 between the north and south scheme extents and asked for aspirational facilities which the stakeholders would like to see and what would encourage active travel through the junction and to the wider area. The stakeholders consulted are listed below:
- Sustrans;
 - British Horse Society;
 - Paths for All; and
 - West Lothian Council NETs, Land and Countryside Services.
- 3.7.4 Responses were received from Sustrans and the British Horse Society:
- Sustrans responded highlighting that they would like to see their own design guidance implemented where possible and that tie-in points from the shared footway/cycleway be carefully considered to provide safe connections back on to the carriageway.
 - The British Horse Society emphasised the importance of the B8020 route for equestrian users accessing the Hopetoun Estate from Winchburgh and committed to providing any additional information they held regarding historical bridal ways.
- 3.7.5 Where reasonably practicable the feedback has been incorporated into the design of the proposed development.
- 3.7.6 The realigned section of the B8020 will replicate the existing cross section and will consist of a 6 m wide single carriageway, with minimum 2 m verge widths. The carriageway through the M9 motorway overbridge will be 7 m. A 3 m shared NMU route will be provided around the western side of the roundabouts and on the western side of the B8020 through the existing M9 motorway overbridge. This new NMU route will terminate at the new access to Duntarvie Castle on the north side, with four uncontrolled crossing points located through the proposed development.
- 3.7.7 The routes for NMUs are presented in Figure 3.1 in Volume 4.

Ecology

- 3.7.8 An Ecology Assessment is included in Chapter 7: Ecology and Nature Conservation.
- 3.7.9 The ecological baseline information available for the site, including that generated as part of the Winchburgh Masterplan and also specifically for the proposed development, identified a number of protected species issues in the area. Specifically, there are high levels of badger and bat activity in the area.
- 3.7.10 The design process has incorporated proposals to include badger fencing to reduce the potential for badger fatalities around the new junction, routes for safe passage of badger and specific mitigation measures to ensure setts are not disturbed. The ecology surveys completed did not record any badger activity through the B8020 (Beatlie Road) underpass structure which would form part of the proposed development, however it is possible that badgers use this or could use it in the future. This structure is being retained as part of the proposed development and will include space not for use by motorised vehicles, improving the potential for safe passage of mammals through the underpass.

- 3.7.11 Several trees in the vicinity of the proposed development have potential to support bat species and would need to be checked in advance of construction works and appropriate mitigation employed if they are found to be in use as roosts. The proposed development would deliver planting of the verges and adjacent areas of the junction which would create additional biodiversity opportunities.

Cultural Heritage

- 3.7.12 A Cultural Heritage Assessment is included in Chapter 5: Cultural Heritage and Archaeology.
- 3.7.13 The key consideration in design from a cultural heritage perspective has been Duntarvie Castle, a nearby Scheduled Monument and Category A Listed Building to the west of the site. The proposed development has sought to minimise the change to the alignment of the B8020 (Beatlie Road) in relation to Duntarvie Castle, while delivering a suitably designed road for the anticipated traffic volumes which the junction and B8020 (Beatlie Road) would serve in the future.

Road Drainage and Water Environment

- 3.7.14 A Road Drainage and Water Environment Assessment is included in Chapter 6: Road Drainage and Water Environment.
- 3.7.15 The M9 motorway and surrounding land currently drains primarily to the Swine Burn. The proposed development incorporates appropriate Sustainable Drainage Systems (SUDS) infrastructure to deliver suitable treatment of the road surface water run-off which would be generated by the proposed development.
- 3.7.16 Measures to prevent construction impacts on existing watercourses would be included in the Environmental Management Plan (EMP) and associated Construction Method Statements (CMS); for example, incorporation of good site practice measures to prevent potential pollution from site materials/fuel oils/sediment.

Construction Environmental Management

- 3.7.17 As outlined in Chapter 2: Proposed Development Description, the proposed development would be delivered in accordance with an EMP³ and associated Construction Method Statements (CMS) to minimise impacts arising from the construction stage.
- 3.7.18 The assessments undertaken within this EIAR consider the likely proposed measures to be included in the EMP to be an integral part of the proposed development. However, where particular aspects of this would require to be incorporated to avoid potentially significant environmental impacts, these are listed in the relevant assessments.

3.8 Summary

- 3.8.1 The proposed development is a key element of the Winchburgh Masterplan and without the junction, the Masterplan would be capped at 1,000 residential units, rather than the consented up to 3,450 units. Therefore, the “do nothing” alternative would not maximise the socio-economic benefit and potential of Winchburgh.

³ Prior to commencement of the works the contractor will be required to prepare and implement an EMP to ensure that all potential environmental effects during the construction phase are addressed and appropriate controls set in place. Method statements for construction activities will need to be prepared in accordance with the objectives and mitigation measures contained in the EMP.

- 3.8.2 The consented Winchburgh Masterplan identified the most practicable site for the junction to be situated and this has ultimately governed where the proposed development would be (i.e. no alternative sites were considered appropriate).
- 3.8.3 The various environmental assessments (such as ecological protection/safeguarding, road drainage and landscaping – as presented in this EIAR) and ongoing consultation with Transport Scotland, SEPA and other consultees have driven the design evolution of the proposed development and resulted in the final design of the proposed development.