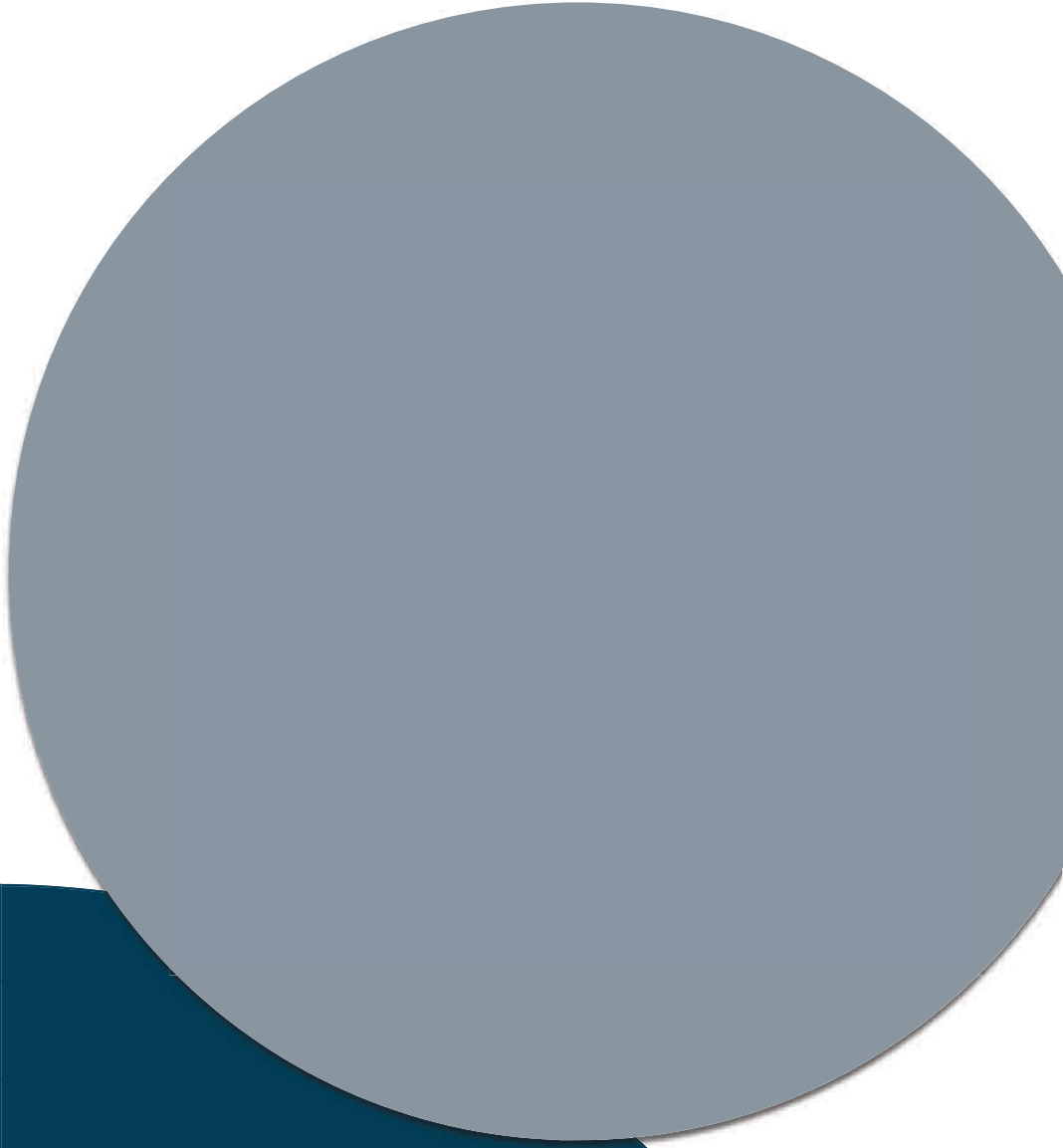




Appendix 4: Valley Crossing Study



LRM
PLANNING
LIMITED



SANDLEFORD PARK
VALLEY CROSSING STUDY

December 2020



Report Control

Project: Sandleford Park

Client: Bloor Homes and Sandleford Farm Partnership

Job Number: 16.159

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1 Introduction

- 1.1 The Development Proposals at Sandleford Park require new highway infrastructure to be constructed across the Site's valleys:
 - between Neighbourhood 1 (DPN) and Neighbourhood 2 (DPC) shown on the Framework Masterplan in the Council published Supplementary Document; and
 - within Neighbourhood 1, south of Crooks Copse, to provide east-west movement, as required by the Council's Highway Development Control Manager, and the absence of which had been a reason for refusal previously.
- 1.2 In considering planning application 20/01238/OUTMAJ, certain consultees raise comments about the design, appearance and potential environmental effect of the engineering works required in these locations.
- 1.3 Previously, and acknowledging the need to balance a range of considerations, the Council were satisfied that the design of the valley crossing could be determined at a later stage in the planning process. On this occasion the Council has chosen to include amongst its reasons for refusal their view that the access proposals to DPC (i.e. the valley crossing) fails to provide satisfactory access and is inadequate and therefore unacceptable; Reason for Refusal 6 refers.
- 1.4 The concern is expressed in the following terms:
 - i) in highways terms satisfactory emergency access could only be provided in this case in the form of two separate and independent access road structures across the entire width of the central valley. The applicant's illustrative solution is for a single substantial earthworks embankment bridge structure instead. This would result in unnecessary and unacceptable harm to:- a) the landscape character and visual quality of the valley; b) trees on the valley side; and c) the ecology of the riparian valley, including the priority habitat of rush pasture, with the area of purple moor grass of county importance. Similar concerns are also raised in respect of the potential adverse harmful impact of the proposed construction access across the central valley to DPC and also to PHS. The proposed central valley crossing embankment would also introduce an unacceptable and unnecessary obstacle to the proposed pedestrian and cycle routes running along the two sides of the central valley, which seek to connect the country parkland and the whole of the SSSA to the Rugby Club site to the north the Application Site.
- 1.5 The proposed crossing south of Crooks Copse is also referred to in the Officer's Delegated Report as causing isolation to this woodland leading to reduction in / loss of connectivity and its fragmentation.
- 1.6 This Study has been prepared to illustrate potential alternative options for providing the Valley Crossing and the design of the Crooks Copse Link, to aid all parties.



2 Supplementary Planning Document

2.1 In respect of the Central Valley Crossing, the Sandlesford Park Supplementary Planning Document refers to the following:

"The design of the access road across the wet valley is crucial to maintaining the landscape character of the valley. The views up and down the valley should not be lost and lighting should be kept to a minimum to maintain a dark north/south corridor. It should be designed to respond to landform and minimise the damage to tree cover on the valley sides" (page 36).

2.2 Later, the SPD describes the geometry of the Main Access Route as providing carriageway widths of 4.8 – 6.0m, plus 2 x 1.5m cycleways and 2 x 2m footways (page 63). The overall width of the Main Access Route is therefore between 11.8m and 13m.

2.3 In respect of Character Areas, **CA7. Valley Crossing** on page 79 of the SPD defines the Key Design Principles as follows:

- Mature trees within the valley will be retained to maintain the parkland setting and filter or obscure views of the development.
- The valley crossing will sympathetically respond to landform, avoiding the need for large scale earthworks.
- Views of the development edge from within the valley will be carefully managed to minimize the intrusion of development into key views.
- The highway crossing the valley will pass through the wetland on a high-quality low level bridge, which will minimise visual impact on the hydrological regime of the wetland.
- Dedicated pedestrian and cycle access will also be incorporated onto the bridge.
- Additional parkland tree planting will be included on the valley sides where it does not conflict with ecological objectives for the valley.

2.4 It goes on to state that *"should additional valley crossing be required the above design principles will apply"*.

2.5 **CA9 Valley Corridors** is explained in terms of key design principles (page 81):

- The undeveloped character of the valley corridors will be retained through the sensitive arrangement of the development edge in key views.
- Pedestrian routes into woodland areas will provide links to the wider network of pedestrian linkages within the development and through the valley onto the Country Parkland.
- The management of existing and created species rich grassland will maintain and maximize biodiversity value. Locally sourced seed mix should be used where possible for the creation of grassland.



- Pedestrian and cycle routes will link the individual parts of the development in a safe, convenient and attractive manner.
- Existing mature and veteran trees within the valley corridors will be retained and managed as appropriate.
- Pedestrian routes within the valley will follow the edge of the valley floor avoiding the wetland area to minimise adverse impacts and allow access into the development areas.
- Any changes to landform associated with pedestrian routes will be sensitive in approach and consistent with the character of the landscape.
- Path surfaces will be developed so as not to have any impact on the hydrology of the valley corridor.

2.6 It follows from the above that the landscape and visual features to be protected are as follows:

- the veteran tree;
- other mature trees;
- the openness and rural character of the valley;
- long uninterrupted views down the valley;
- retained wooded valley sides;
- the wet or damp vegetation in the valley floor; and
- pedestrian and bicycle access along the valley.

2.7 Vehicular and emergency access is also a consideration arising from comments by the Council's Highway Development Control Manager.

2.8 It is recognised by the SPD that there will be an inevitable change to the character, but that these changes should be minimized, so in landscape and visual terms options for the road are the crossing should either be:

- at grade, or as near to grade as possible, with very shallow side slopes; or
- at a high level with minimum interference to the side slopes and their vegetation, with the largest possible open area beneath the bridge, and with retained views down the valley.

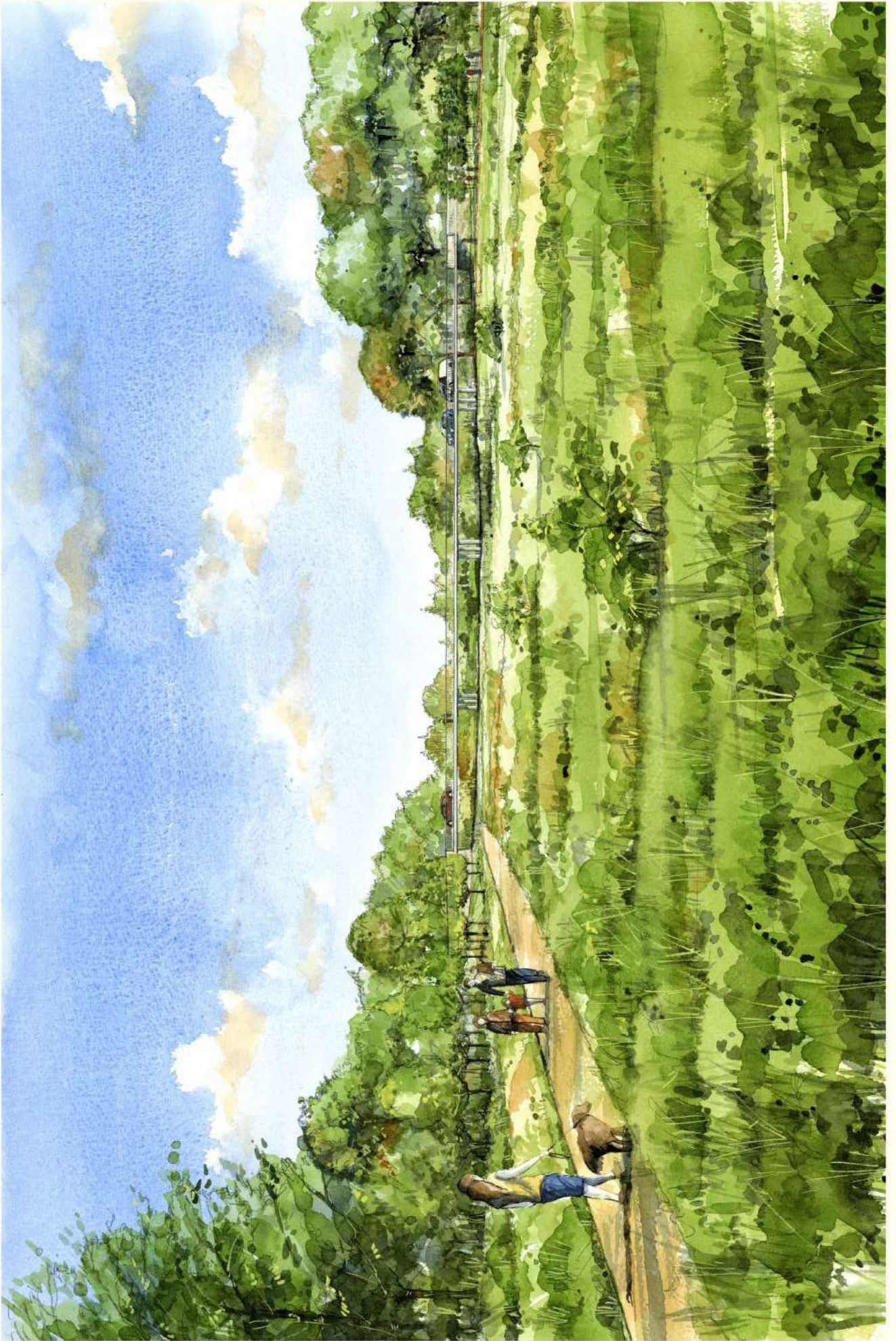
2.9 These alternative options are shown on the following plans:

- VD17562-SK014: proposed alignment & cross/longsections parallel option
- VD17562-SK001(rev B): alternative horizontal alignment / VD17562-0001 longsection
- VD17562-SK023: proposed vehicular/ pedestrian straight alignment bridge and VD17562-STR-SK-003: proposed parallel structures straight alignment option



2.10 Each of these plans are including at *Appendices 1 – 3*. Illustrative sketches of SK14 and SK023 are shown overleaf. The following section summarises the considerations in respect of these Options.







3 Options

3.1 The various considerations arising from the Options listed in para 2.9 are set out below:

	VD17562-SK014	VD17562-SK001	VD17562-SK023 / VD17562-STR-SK-003
Landscape and Visual	The at grade option would require extensive embankments which could appear artificial and sever the openness of the valley.	This scheme reduces the openness of the valley because of the introduction of the embankments.	This scheme shows a horizontal carriageway and open columns, both of which preserves the openness of the valley.
Hydrology	The existing ditch is left unencumbered with sufficient free height and width provided to not impact on storm water conveyance. It is expected that a box culvert will be required to facilitate the water flow, which in itself is not an issue.	The new at grade road severs the capacity of the open ditch and could create unacceptable levels of ponding and flooding on the northern side of the road.	The height of the bridge allows the existing ditch to be completely unencumbered, with no culvert or physical works to be carried out. Furthermore, the bridge columns are location sufficiently away from the ditch to not pose any adverse issues.
Ecology	This option will result in the loss of marshy grassland, of which a small area is habitat of principal importance (HPI). This requires compensation elsewhere on site. The crossing does impact on north/south connectivity, however this can be mitigated through suitable sizing and design of the culvert.	This at grade option takes a less direct approach, resulting in a greater amount of hard surfacing and permanent habitat loss. There could also be impacts on the hydrology of the valley, and ability of wildlife to traverse the crossing (with a much smaller culvert designed).	The use of a bridge minimises the loss of marshy grassland habitat through the valley, where it is limited to the footings of piers. Impacts on the valley sides are also reduced. There is no loss of connectivity with wildlife able to freely pass beneath. The piers avoid the existing ditch and there will be no impact on hydrology.
Trees	The embankment and level changes required to implement this option would cause the direct loss of T76. Level changes would also occur at the outer edge of T78.	This option would encroach within the RPA of T77, likely causing significant impact because the heavily wet soil would prevent the use of tree-friendly no-dig surfacing solutions.	Allows for the retention of the high-quality trees T69, T77 and T78.
Trees to be removed*	Part of G68 (cat C) T69 (cat B)	Part of G68 T69	Part of G68 T69



	VD17562-SK014	VD17562-SK001	VD17562-SK023 / VD17562-STR-SK-003
	T76 (cat A)	Part of G75 (cat C)	
Retained trees impacted*	T78 (cat A)	T77 (cat A)	None
Access	<p>This scheme provides two separate carriageways on a single embankment.</p> <p>The geometry is as follows:</p> <p>carriageway 6m wide cycleway 1.5m x 2 footway 2m x 2 separation 4m</p> <p>The total width of the structure is 17m plus embankments.</p> <p>To provide emergency access to DPC, WBC (Highways) refer to the need for two separate and independent access road structures across the entire width of the central valley.</p>	<p>This at grade route provides the following geometry:</p> <p>carriageway 6m cycleway 1.5m x 2 footway 2m x 2</p> <p>The total width of the structure 13m is plus embankments.</p> <p>Earthworks and retaining walls would be required on the northern side of the Valley to achieve gradients that accord with Standards.</p>	<p>The design of the bridge provides the following geometry:</p> <p>carriageway 6m cycleway 1.5m (northbound) footway/cycleway 4.5m</p> <p>The overall width of these structures is 16m.</p> <p>The separate eastern structure is sufficiently wide to serve as an emergency access (>3.7m) and mitigates against the potential for an obstruction to emergency vehicles.</p>

*see summary of value below

Arboricultural Value

G68 – Category C. Hazel, hawthorn, blackthorn, goat willow, holly. An overgrown hedge now forming a linear group of small trees and shrubs.

T69 – Category B. Birch. A twin stemmed mature tree of moderate quality.

G75 – Category C. Hawthorn, blackthorn, hazel, sycamore. A linear group of small trees and shrubs.

T76 – Category A. Oak. A mature, open grown tree in wet and marshy ground.

T77 – Category A. Oak. A mature, open grown tree in wet and marshy ground.

T78 – Category A. Oak. A mature tree on the edge of a larger group, with some deadwood and evidence of limb failure.



The low-quality trees (G68 and G75) have very little potential to contribute to local character because of the backdrop of large trees to be retained.

The loss of the moderate quality tree (T69) will be buffered by the retention of the significant trees in close proximity.

Trees T76, T77 and T78 are high quality mature trees and should be retained if possible. Their loss would have an impact on the character of the immediate vicinity.

There will be not be any adverse impacts on retained trees by Option VD17562-SK023 and VD17562-STR-SK-003 once the development is completed and occupied.



4 Crooks Copse Link

- 4.1 The drawing at *Appendix 4* illustrates how the vehicular link required for east-west movement could be delivered. The scheme achieves the following principles:

Access

- 4.2 The proposals will provide a new at-grade link road with a small culvert over the existing watercourse. The proposed alignment of the carriageway, which follows the contours of the existing valley, has been design in accordance with the proposed design speed of 20mph. The link road will provide a maximum gradient of 6%, which accords with design guidance.
- 4.3 The width of the proposed link road varies between 5m-6m, providing sufficient space on bends to allow two HGVs to pass, plus a 2m pedestrian footway on the northern side. To minimize the size and scale of the link road, a footway has only been provided on the northern side of the carriageway. This footway will provide a direct east-west route for pedestrians. However, new pedestrian crossings will be provided, which will enable pedestrians/cyclists to cross the route safely and link to the network of footpaths to the north and south of the link road.

Landscape and Visual

- 4.4 Inevitably this link required for highway reasons creates at least some severance of the valley to the south, and great care has been given to ensuring that the footpath links and the appearance of continuity are continued, and this severance is limited as far as possible. To ensure that this new road fits into its landscape it has been designed to follow a serpentine form, following the contours, and its width as narrow as possible.
- 4.5 Most of the vegetation will be retained. The north-south pedestrian route will be visually defined by new tree planting, and this will be underplanted with scrub for wildlife benefit and strategic linkages. This new vegetation links Crooks Copse with the valley, ensuring continuity visually and functionally. Trees will be planted on either side of the road for bat crossings, as set out under ecology below.
- 4.6 The new footpath system in this vicinity will be designed to provide the following:
- a macadam footpath on the northern side of the road, to reduce its size and land take;
 - an offline macadam path on the southern side, linking east to west, in a serpentine form;
 - hoggin landscape paths running north-south from Crooks Copse to both valley sides, creating a sensitive and gently circuitous system of recreational paths down the valley; and
 - pedestrian crossing where these cross the road.
- 4.7 Lighting will be sensitively designed with downward facing time controlled LEDs.

Ecology

- 4.8 The requirement for an east-west link does introduce the potential for severing connectivity between Crooks Copse and other woodlands and open space to the south. Pre-development, this corridor comprises grassland with a ditch at the base. The design seeks to minimise this



impact as far as possible. Primarily this is through minimising the width of the link, which includes only a single footpath. The link has been designed to follow existing contours as closely as possible to avoid introducing an elevated barrier and to reduce the construction area and any banking required. The sinuosity of the road design also works to reduce vehicle speeds to minimise risk to wildlife. As detailed above, impacts from lighting will be minimised through the use of downward-facing LED lights (which avoid upward spill) which will be time-controlled.

- 4.9 New vegetation planting is proposed to improve the quality of the north-south corridor which connects Crooks Copse to the valley. This will comprise new native tree and understorey planting to create a wooded belt. Where this strategic planting intersects with the link, high-level tree planting will be used to provide connectivity at canopy level, in particular for bats.

Hydrology

- 4.10 The link passes over an existing unnamed watercourse which flows in a southerly direction to discharge into the River Enborne. As the link is to be constructed at the approximate grade of the existing topography at the point of the watercourse, a piped culvert will be installed. The culvert is sized to sufficiently provide an unencumbered conveyance of storm water at greenfield run off rates. The pipe will also be laid at a longitudinal gradient which allows for self-cleansing, hence no ponding directly beneath the link will occur. It is common and accepted practice to pipe storm water beneath a road link and the design proposed here is considered sound and robust.

Trees

- 4.11 The proposed route of the road does not encroach upon the RPAs or buffer zones of adjacent retained trees or woodlands. There is no detrimental arboricultural impact as a result of this proposal.



Appendix 1: VD17562-SK014: proposed alignment & cross/longsections parallel option

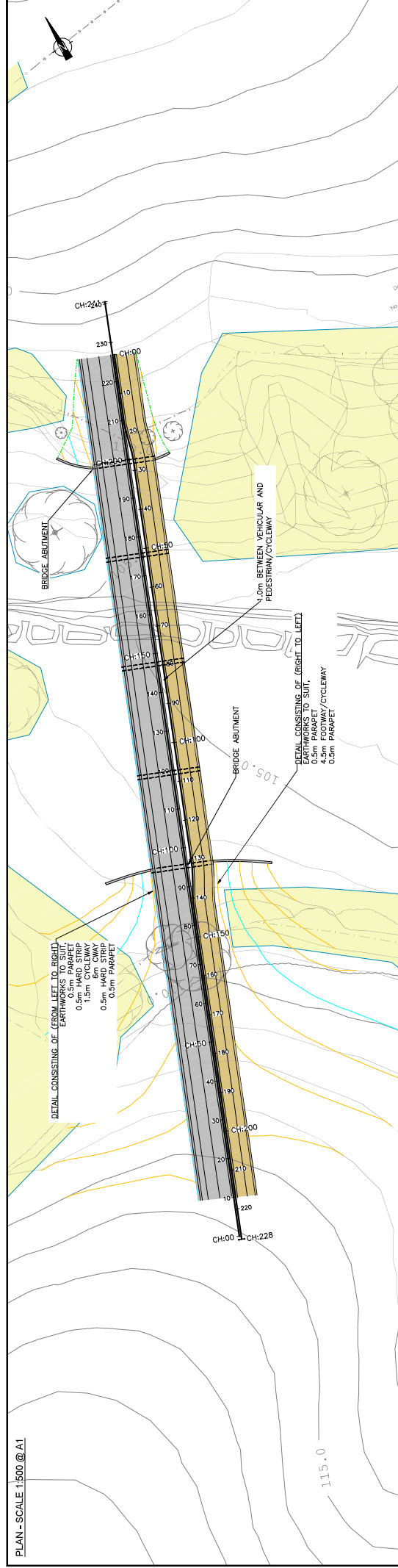


Appendix 2: VD17562-SK001(rev B): alternative horizontal alignment



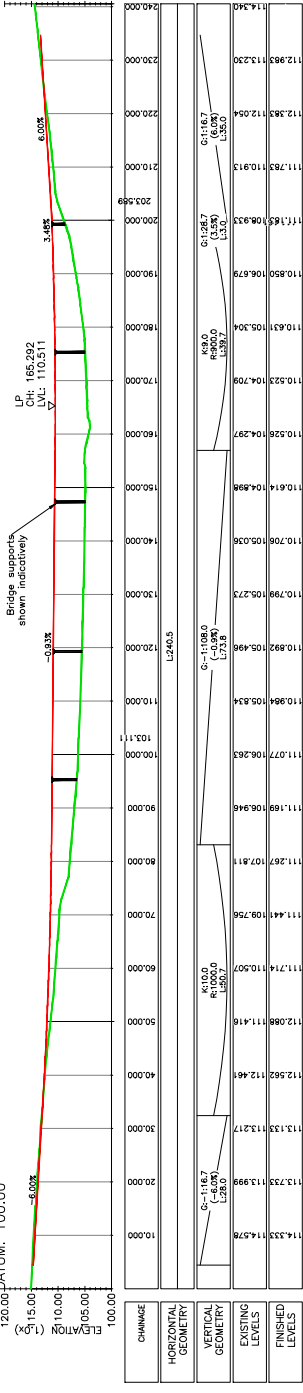
**Appendix 3: VD17562-SK023: proposed vehicular/ pedestrian straight alignment bridge /
VD17562-STR-SK-003: proposed parallel structures straight alignment option**

PLAN - SCALE 1:500 @ A1

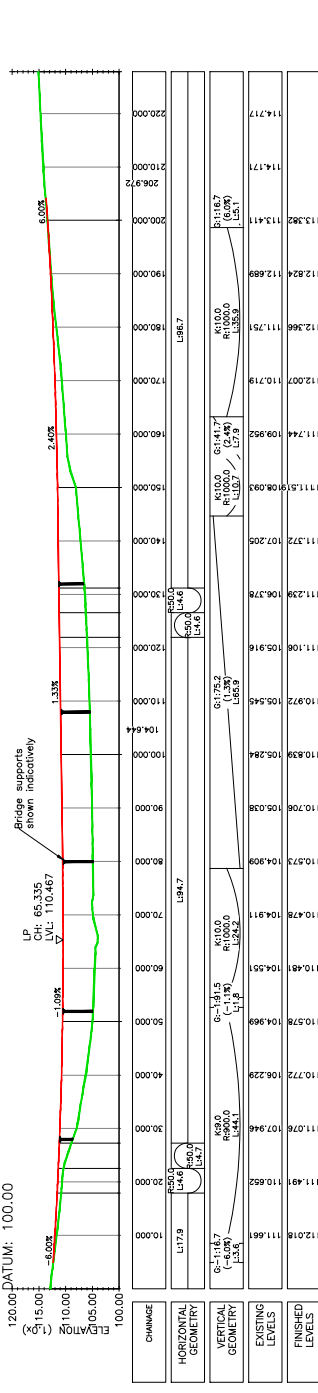


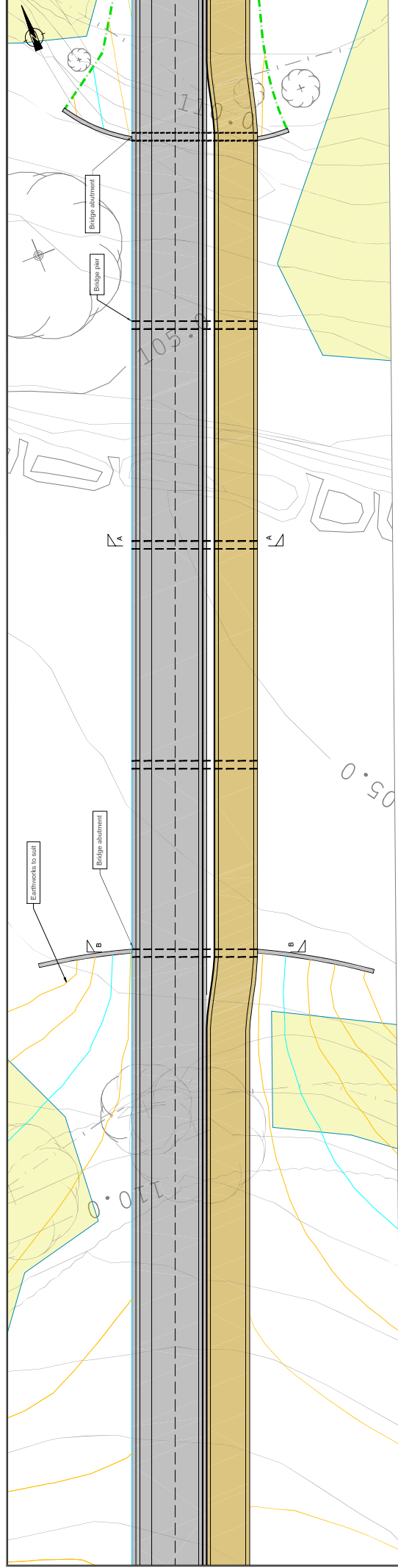
LONG SECTIONS - SCALE 1:500 @ A1

LONG SECTION: Alignment - Left Cway
SCALE: H:500, V:500
DATUM: 100.00

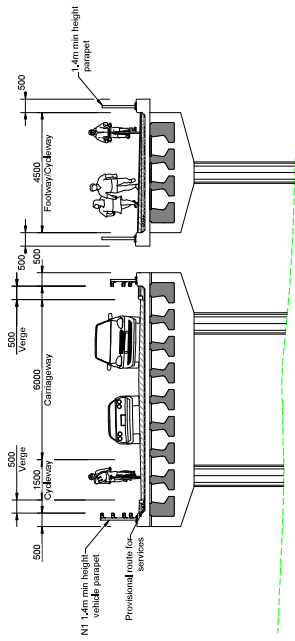


LONG SECTION: Alignment - Right Cway
SCALE: H:500, V:500
DATUM: 100.00

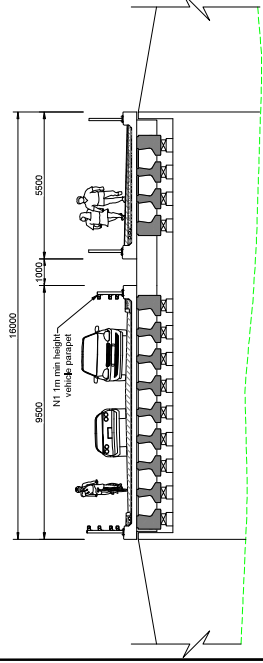




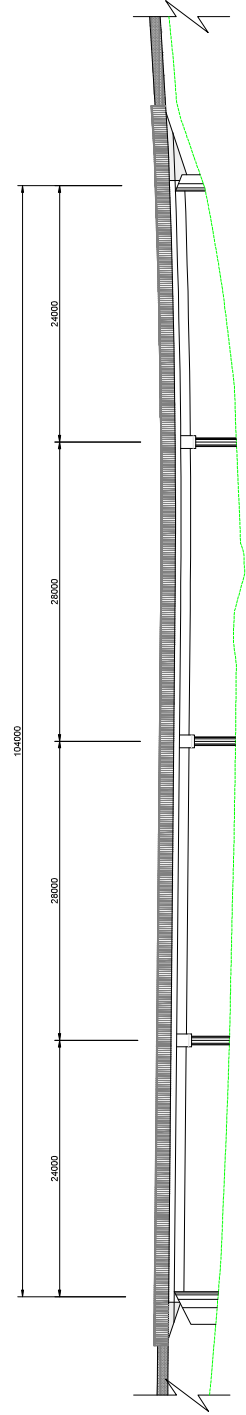
PLAN
Scale 1:250



SECTION A-A
Scale 1:100



SECTION B-B
Scale 1:100



EAST ELEVATION
Scale 1:250

NOTES: THE PROPOSED CHANGES TO THE PROPOSED DESIGN ARE SHOWN IN RED. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

REV	DATE	BY	CHECKED	DATE	DETAILS	NOTES
1	15/10/2020	CR	FRM			1. All dimensions in millimeters unless otherwise stated

PROJECT	SANDLEFORD PARK, NEWBURY	CUSTOMER	BLOOR HOMES
DRAWING TITLE	PROPOSED PARALLEL STRUCTURES STRAIGHT ALIGNMENT OPTION	DATE	10/12/2020
DRAWN	CR	PERMITTED	FRM
SCALE	AS SHOWN	DRAWING NUMBER	VD17562-STR-SK-003

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Appendix 4: Crooks Copse Link

