



River Corridor Survey

Oak Park, Havant
for:

Ashley House plc.

CRM.1112.009.EC.R.004



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Project:	Oak Park, Havant
For:	Ashley House plc.
Status:	Final
Date:	28 th October 2016
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1 Introduction

1.1 Commission

- 1.1.1 In January 2016 Enzygo Ltd was commissioned by Ashley House plc. to undertake a River Corridor Survey (RCS) of a stretch of the Lavant Stream which passes alongside a parcel of land off Oak Park, Havant, Hampshire, PO9 2EL (central grid reference: SU 7201 0714), located within Hampshire County Council (Havant Borough) planning authority.
- 1.1.2 The proposed works have been granted planning permission (APP/15/00303) and will involve clearance of the site and redevelopment as social care housing. This will include minor works (i.e. vegetation clearance) to the bank of the Lavant Stream which passes alongside the application footprint, but this report assumes that no significant structural works are to be undertaken along the bank, and that no works are to be undertaken to bridges or culverts which cross/enter the stream. Refer to Appendix A for proposed site layout.

1.2 Aims and Objectives

- 1.2.1 The study will seek to partly satisfy Condition 21 of planning Permission APP/15/00303, which requires details of ecological enhancement of the stream corridor to be submitted. A baseline assessment (i.e. RCS) is first required in order to determine enhancements.
- 1.2.2 The aim of the RCS survey is to ascertain:
- Condition and quality of the stretch of Lavant Stream;
 - Identify likely impacts of the proposed development on the Lavant Stream (and any other tributaries);
 - Recommend measures to avoid, mitigate or compensate for identified impacts; and
 - Recommend enhancements.
- 1.2.3 Additionally, a Water Vole (*Arvicola amphibius*) survey was undertaken to determine the presence/absence of this species and any associated impacts/required mitigation.
- 1.2.4 This report has been produced with reference to current guidelines for RCS (NRA, 1992), the Water Vole Conservation Handbook (Strachen & Moorhouse, 2016), and in accordance with BS42020:2013: Biodiversity – Code of Practice for Planning and Development (BSI, 2013).
- 1.2.5 This report remains valid for 2 years from the date of publication, or until conditions across the site should substantially alter.

1.3 Background

- 1.3.1 A Preliminary Ecological Appraisal (PEA) of the site (Enzygo, 2014), and a historic Phase 1 Habitat and Protected Species scoping survey (RPS, 2012) identified that a section of Lavant Stream passes alongside the site (which could be subject to impacts during construction activities etc.) and that there are historic records of Water Vole in the wider area.
- 1.3.2 Information from the Environment Agency (EA), supplied within planning permission APP/15/00303, stipulated that written consent would be required for any proposed works or structures, in, under, over or within 8m of the top of the bank of designated 'main river'.
- 1.3.3 The EA also stipulated that: "The culverted channel to the north of the proposed development is designated main river referred to as the 'pipe link', and the watercourse to the east of the

proposed development is designated main river referred to as the Lavant Stream.” With these connecting to Hermitage Stream further to the west and south.

1.4 Site Context

1.4.1 The approximately 2ha site comprises a matrix of coarse grassland, scrub, and ephemeral/short perennial habitat with remaining areas of hardstanding and building rubble from demolished buildings. The town of Havant extends on all aspects.

Figure 1.1: Surveyed Area



Image courtesy of Google Earth Pro 7.1.5.1557, 50°51'32.71"N 0°58'41.48"W Elev.79m. Imagery date 22/04/2015. Image sourced 25/10/2016.

2 Methodology

2.1 Desk Study

2.1.1 Desk study details were obtained from the following sources on the associated dates to provide background on important aquatic habitats on/near the site. In each case the search included the site and the specified area beyond the site boundary. The search radius was based on the professional judgement of the ecologist leading the appraisal, considering the scope of the proposed works and associated potential impacts. Records obtained included:

- Any national statutory sites within a 2km radius designated for or associated with aquatic habitats (Natural England GIS Digital Boundary Database and Natural England Site Designations, on 28th October 2016); and
- Records of local wildlife sites/protected habitats designated for aquatic habitats and records of Water Vole within a 1km radius (RPS, 2012 c/o Hampshire Biodiversity Information Centre (HBIC)).

2.2 Field Survey

River Corridor Survey

2.2.1 A River Corridor Survey (RCS) was undertaken of the full stretch of Lavant Stream (and any associated riparian habitats) which passes immediately alongside the site, in accordance with current guidance (NRA, 1992). There was no access to off-site stretches of Lavant Stream up or downstream, and no sections of the 'Pipe Link' were surveyed as this is culverted below ground. To aid in the interpretation of survey results the approximately 178m stretch of Lavant Stream was divided into 2 sections (labelled section A & B), with each section separated by a significant visual indicator, bridge crossings in this instance.

2.2.2 The survey was undertaken on the 1st March 2016 by a Principal Ecologist from Enzygo (Derek Allan MSc, BSc (Hons) MCIEEM), who satisfies all necessary field survey competencies as stipulated by the Chartered Institute for Ecology and Environmental Management (CIEEM), plus an assistant for reasons of health & safety, with a subsequent visit undertaken on 14th July 2016 by a Field Assistant (Josh Richardson BSc (Hons)) to take additional photographs. Weather conditions on the day of survey were dry with a light wind, 90% cloud, and a temperature of 8°C. The March survey allowed an assessment of the stream following the wetter months and with a lower density of vegetation cover (so that stream characteristics and profile would be visible), whilst the July visit allowed photographs of the stream to be taken showing vegetation fully established.

2.2.3 The surveyors walked the full length of the channel, either along the bank or within the channel where the depth allowed, recording all pertinent features including details of vegetation and physical structure. A sketch of each section of the stream surveyed was produced using standard symbols in accordance with current guidance (NRA, 1992). At least 1 section profile of the stream was also produced for each section surveyed. Four zones were recorded in each instance, including: Aquatic Zone (labelled A); Marginal Zone (labelled B); Bank Zone (labelled C); and Adjacent Land Zone (labelled D). A, B & C were recorded for the full length/width of channel, whilst D was recorded up to 50m either side of the stream, with habitats mapped in accordance with standard Phase I Habitat codes (JNCC, 2010).

- 2.2.4 Plant communities were mapped, and whole community species lists compiled using the DAFOR scale (Dominant, Abundant, Frequent, Occasional, Rare), with a L (Local) prefix where appropriate. Photographs were also taken of each section surveyed.

Water Vole Survey

- 2.2.5 A detailed search for signs of Water Vole activity was undertaken in accordance with current guidance (Strachan & Moorhouse, 2016). This involved a search for feeding remains (stacks of neatly cut vegetation), latrines (sites regularly used for depositing droppings which act as territory markers), droppings (non-latrines sites), burrows, prints, runs, and sightings of Water Vole.

2.3 Assessment

River Corridor Survey

- 2.3.1 Each section of stream surveyed has been assessed in accordance with the definition of status stipulated within the Water Framework Directive (WFD) (WFD, 2016) as detailed within Table 2.1 below. This considers the ecological status only.

Table 2.1: Definition of status in the Water Framework Directive

Status	Definition
High	Near natural conditions. No restrictions on the beneficial uses of the water body. No impacts on amenity, wildlife or fisheries.
Good	Slight change from natural conditions as a result of human activity. No restriction on the beneficial uses of the water body. No impact on amenity or fisheries. Protects all but the most sensitive wildlife.
Moderate	Moderate change from natural conditions as a result of human activity. Some restriction on the beneficial uses of the water body. No impact on amenity. Some impact on wildlife and fisheries.
Poor	Major change from natural conditions as a result of human activity. Some restrictions on the beneficial uses of the water body. Some impact on amenity. Moderate impact on wildlife and fisheries.
Bad	Severe change from natural conditions as a result of human activity. Significant restriction on the beneficial uses of the water body. Major impact on amenity. Major impact on wildlife and fisheries with many species not present.

Water Vole Survey

- 2.3.2 An assessment of the level of Water Vole activity present on site has been made according to those results obtained from the field surveys. The number of adult females on site was estimated by dividing the number of latrines by six (Strachan & Moorhouse, 2016). The predictive equation developed by Morris et al. (1998) was also used to give an estimate of the total number of Water Voles that were present on site during the surveys. The predictive equation is $y = 1.48 + 0.683x$ (where y is Water Voles and x is latrines).
- 2.3.3 Potential ecological constraints to development have been identified from desk study and field survey data using current development proposals (see Appendix A).
- 2.3.4 An assessment of likely ecological impacts has been undertaken in accordance with CIEEM guidelines (CIEEM, 2016) only where clear evidence is available to substantiate and justify the findings. This covers construction and operational impacts and includes (but is not limited to): short-term impacts: disturbance; long-term impacts: modification, loss, and fragmentation/isolation; and post-development interference impacts. In the absence of such evidence, the ecological feature is merely identified as a potential constraint to development.

- 2.3.5 Where ecological constraints to development are identified, further survey requirements and/or avoidance, mitigation, compensation measures that are proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed works are described. In addition, in accordance with the NPPF, opportunities to enhance or create benefits to wildlife are explored alongside the hierarchy of aforementioned measures.

2.4 Nomenclature

- 2.4.1 The English names of flora and fauna species are given in the main text of this report. Scientific names are used alongside the English name where this first occurs. Vascular plants and Charophytes follow the nomenclature of The Botanical Society for the British Isles database (BSBI, 2007) with all other flora and fauna following the National Biodiversity Network (NBN) Gateway (NBN, 2014).

2.5 Limitations

- 2.5.1 The 'Pipe Link' was not surveyed as this is culverted below ground.
- 2.5.2 Data held by consultees may not be exhaustive. The absence of evidence, does not indicate evidence of absence.
- 2.5.3 Enzygo cannot take responsibility for the accuracy of external data sources and as such discrepancies and inaccuracies may occur.
- 2.5.4 Species lists should not be considered fully comprehensive, as rarely-occurring or late-flowering species may have been missed during the survey.

3 Results and Evaluation

3.1 Desk Study

3.1.1 A description of desk study findings relevant to the aquatic interest of the site is presented in Table 3.1. Along with predicted impacts and their effect, determined following guidelines set out by CIEEM (CIEEM 2016), in the absence of mitigation. Refer to Drawing CRM.1112.009.EC.D.004A/B for location/extent of any identified as a potential constraint.

Table 3.1: Desk Study Findings

Reference	Description	Assessment	Potential Constraint
<i>Statutory Sites Designated or Associated with important aquatic features</i>			
Chichester & Langstone Harbours Ramsar, 1,793m S.	Qualifies under Ramsar criterion 1, 5 & 6. 1. Large estuarine basins linked by a channel, includes a number of habitat types; 5. Assemblages of species of international importance; and, 6. Species/populations occurring at levels of international importance during winter, spring/autumn and breeding seasons.	Ramsar is of International value.	Yes- a) potential indirect impacts though pollution/silt runoff during construction activities on site. Minor adverse, temporary, reversible impact.
Chichester & Langstone Harbours Special Protection Area (SPA), 1,793m S.	This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance including; Little Tern (<i>Sterna albifrons</i>), Sandwich Tern (<i>Sterna sandvicensis</i>), Little Egret (<i>Egretta garzetta</i>), Bar-tailed Godwit (<i>Limosa lapponica</i>), Ringed Plover (<i>Charadrius hiaticula</i>), Dark-bellied Brent Goose (<i>Branta bernicla bernicla</i>), Dunlin (<i>Calidris alpina alpina</i>), Grey Plover (<i>Pluvialis squatarola</i>) and Redshank (<i>Tringa tetanus</i>).	SPA is of International value.	Yes- a) potential indirect impacts though pollution/silt runoff during construction activities on site. Minor adverse, temporary, reversible impact.
Chichester Harbour Site of Special Scientific Interest (SSSI) 1,793m S.	Large estuarine basin with tidal range which exposes mud flats, designated for winter wildfowl and waders with a range of habitats with important plant communities.	SSSI is of National value.	Yes- a) potential indirect impacts though pollution/silt runoff during construction activities on site. Minor adverse, temporary, reversible impact.

Reference	Description	Assessment	Potential Constraint
Solent Maritime Special Area of Conservation (SAC), 1,793m S.	Annex I Habitats that area primary reason for selection: 1130 Estuary; 1320 Spartina swards (Spartinion maritimae); and, 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae). Annex I Habitats present as a qualifying feature: 1110 Sandbanks which are slightly covered by sea water all the time; 1140 Mudflats and sandflats not covered by seawater at low tide; 1150 Coastal lagoons (priority feature); 1210 Annual vegetation of drift lines; 1220 Perennial vegetation of stony banks; 1310 Salicornia and other annuals colonizing mud and sand; and, 2120 "Shifting dunes along the shoreline with Ammophila arenaria (white dunes)".	SAC is of International value.	Yes- a) potential indirect impacts though pollution/silt runoff during construction activities on site. Minor adverse, temporary, reversible impact.
Warblington Meadow SSSI, 1,934m SE.	Unimproved grazing marsh adjoining Chichester Harbour designated for gradation from freshwater, base rich marsh to old reclaimed salt marsh and rich associated flora.	SSSI is of National value.	Yes- a) potential indirect impacts though pollution/silt runoff during construction activities on site. Minor adverse, temporary, reversible impact.
<i>Local Wildlife Sites Designated or Associated with important aquatic features</i>			
None	-	-	-
<i>Historical Records</i>			
Urban Stream	Lavant Stream and 'pipe link' which runs through Havant town partially underground and splits to join the Hermitage Stream and on to the Solent.	Rivers and Streams for the purpose of HPI (and Local BAP) classification are defined as all natural and near-natural running waters. Hermitage Stream Catchment, including Lavant Stream and 'pipe link' all meet criteria to qualify as this, hence are of National value.	Refer to field survey findings, Table 3.2.

3.2 Field Survey

3.2.1 A description of each section of the Lavant Stream surveyed is presented in Table 3.2. Along with predicted impacts and their effect, determined following guidelines set out by CIEEM (CIEEM 2016), in the absence of mitigation. Refer to Drawing CRM.1112.009.EC.R.004A/B for location/extent and associated section plans/cross-sections. In summary, Lavant Stream is a tributary of the Hermitage Stream. It is an urban stream which has undergone channelization, leaving a narrow shingle channel with sediment build up along steep sided banks. Conditions to the north are generally poor with no aquatic flora within the main channel at the time of the survey (some emergent vegetation noted during summer months). The flow rate is moderate with several small riffles occurring throughout its length. The banks are comprised of scattered scrub to the east with steep/almost vertical exposed banks and root systems to the west. The stream passes beneath a road bridge to the south, with increasing sediment build as the channel widens, resulting in a slower flow rate. The banks remain steep with a dense scrub forming the dominant habitat type, however patches of amenity grassland are present along the eastern bank towards the south. No evidence of any protected species was identified within the channel during the survey.

Table 3.2: RCS Results

Reference	Description	Assessment	Potential Constraint
Section A	Approximately 66m stretch, end defined by a road bridge crossing the Stream. Begins with a weir, as the stream emerges from the junction of the “pipe link”. The stream overall is channelized, with steep/almost vertical sides and narrow base.  The aquatic zone is comprised of shingle substrate which is approx. 10cm deep with a low/moderate flow, no channel vegetation present at the time of survey. The marginal zone has significant sediment build up with	Poor (major change resulting from channelized stream, which provides limited benefit to wildlife). HPI and Local BAP Habitat.	Yes- a) potential direct disturbance of stream bank during construction activities within 8m; b) potential indirect impact through pollution/silt runoff during construction activities. Minor adverse, temporary, reversible impact (potential for a positive impact through appropriate enhancement).

Reference	Description	Assessment	Potential Constraint
	some limited terrestrial flora species establishing. The bank zone is dominated with scattered scrub, some mature trees along the western bank leaving exposed roots. The adjacent land zone has scattered scrub before rough grassland to the west and scattered scrub with amenity grassland to the east.  There is negligible potential for the majority of protected species (due to the disturbance from the surrounding urbanised environment, limited fish/prey availability, significant collections of silt, limited aquatic vegetation and low water level). No evidence of Water Vole was identified.		
Section B	Approximately 112m stretch, end defined by a road bridge. Begins emerging from a road bridge which has a concrete channel bed as part of the structure. 	Poor (major change resulting from channelized stream and installed road bridges, which provides limited benefit to wildlife). HPI and Local BAP Habitat.	Yes- a) potential direct disturbance of stream bank during construction activities within 8m; b) potential indirect impact through pollution/silt runoff during construction activities. Minor adverse, temporary, reversible impact (potential for a positive impact through appropriate enhancement).

Reference	Description	Assessment	Potential Constraint
	The aquatic zone has increasing silt build up, the channel widens to the north of this Section causing a deeper, slower flowing stretch at approx. 30cm's deep which returns to a narrow, shallower flow further south. There was no channel vegetation present at the time of survey. The marginal zone is again heavily silted with some amenity grassland species establishing. The bank zone is comprised of dense scrub with patches of amenity grassland are present along the eastern bank. The adjacent land zone is comprised of scrub and hardstanding to the west and scrub with amenity grassland to the east.  There is negligible potential for the majority of protected species (due to the disturbance from the surrounding urbanised environment, limited fish/prey availability, significant collections of silt, limited aquatic vegetation and low water level). No evidence of Water Vole was identified (a single Brown Rat (<i>Rattus norvegicus</i>) hole with associated rubbish was present alongside the central road bridge).		

4 Relevant Legislation and Policy

4.1 Legislation

4.1.1 Wildlife legislation and policy relevant (or potentially relevant pending further survey) to the proposed works, based on the findings of the desk study and field survey are set out below. This legal information is a summary only, and the original legal documents should be consulted for definitive information.

Table 4.1: Legislation Protection Afforded to Sites/Habitats that could Potentially be Affected by the Proposed Works

Designated Site/Habitat	Legal Status
Ramsar Sites	Ramsar Sites are wetlands of international importance designated under The Ramsar Convention. They are afforded the same level of protection as SSSIs under the Wildlife and Countryside Act 1981 (as amended). UK policy, however, affords the same level of protection to Ramsar Sites as SPAs/SACs in terms of the consideration of impacts on their integrity subject to Habitats Regulations Assessment.
Special Protection Areas (SPA)	SPAs are strictly protected sites classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), also known as the Birds Directive. They are classified for rare and vulnerable birds, listed in Annex I of the Birds Directive, and for regularly occurring migratory species. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2012 (as amended) are the legal instrument for implementing the Birds Directive in the UK.
Special Area of Conservation (SAC)	SACs are strictly protected areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed in Annexes I and II of the EC Habitats Directive. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2012 (as amended) are the legal instrument for implementing the Habitats Directive in the UK.
Sites of Special Scientific Interest (SSSI)	SSSIs are the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been re-notified under the Wildlife and Countryside Act 1981 (as amended). Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000.

Table 4.2: Legislation Protection Afforded to Species that could Potentially be Affected by the Proposed Works

Species	Legal Status
European Protected	
None	-
Nationally Protected	
Water Vole	These animals receive full protection under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which makes it illegal (subject to exceptions) to: - Intentionally kill, injure or take any such animal; - Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.

Species	Legal Status
Invasive Species	
None	-

4.1.2 Section 40 of the Natural Environment and Rural Communities Act 2006 (the NERC Act) places a legal duty on public bodies, including planning authorities, to 'have regard' to the conservation of biodiversity when carrying out their normal functions, which includes consideration of planning applications.

4.1.3 In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is known as the list of Habitats and Species of Principal Importance (HPI/SPI), of which there are 56 habitats and 943 species. The HPI/SPI list is used to guide planning authorities in implementing their duty under the NERC Act.

4.2 National Planning Policy

4.2.1 The NPPF set out the Government's planning policies for England and how these are expected to be applied. At the heart of the NPPF is a presumption in favour of sustainable development. This presumption does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined.

4.2.2 The NPPF states that:

'When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;
- opportunities to incorporate biodiversity in and around developments should be encouraged;
- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and
- the following wildlife sites should be given the same protection as European sites: potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC); listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'

- 4.2.3 Under the NPPF, the Planning Authority has a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan.
- 4.2.4 Also under the NPPF the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

4.3 Local Planning Policy

- 4.3.1 Havant borough Core Strategy (March 2011). Policy CS11 Protecting and Enhancing the Special environment and Heritage of Havant Borough:

"Planning permission will be granted for development that:

1. Ensures the key landscape and built form principles set out in the Havant Borough Townscape, Landscape and Seascape Character Assessment are protected and where possible enhanced by partnership working with developers, groups and the wider community.
2. Protects and where possible enhances the borough's statutory and non-statutory designated landscape, habitats and features of biological, hydrological or geological interest. Protection and enhancement will be achieved by appropriate adaption and mitigation measures including wardening, education and information and the creation of new habitats, waterbodies/courses planting of new trees and woodland.
3. Has particular regard to the following hierarchy of nature conservation designations within the borough (as identified on the Proposals Map):
 - i. Special Protection Area (SPA), Special Areas of Conservation (SAC) and Ramsar [International];
 - ii. Sites of Special Scientific Interest (SSSI) and National Nature Reserves [National]; and,
 - iii. Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), other Ancient Woodland not identified in (ii) above [Local].
4. Protects and where appropriate enhances the borough's statutory and non-statutory heritage designations by appropriately managing development in or adjacent to conservation areas, listed buildings, scheduled ancient monuments, historic parks and gardens, archaeological sites, buildings of local historic or architectural interest.
5. Supports an ongoing programme of survey of habits and species and designations of Sites of Importance for Nature Conservation.
6. Incorporates partnership working with conservation organisations to improved public understanding of biodiversity and to manage public access to designated sites, particularly on the coast, to reduce harm to nature conservation interests.
7. Incorporates partnership working with landowners and developers to ensure land management practices restore, enhance and where appropriate create new valued landscapes, habitats and their soil structure, particularly the ancient woodland remnants of the Forest of Bere and costal salt marsh.

8. Protects wildlife habitats and wildlife corridors to prevent the fragmentation of existing habitats and to allow species, for example Brent Geese, to respond to the impacts of climate change by making provision for habitat adaption e.g. coastal managed realignment and species migration.
9. Maintains undeveloped gaps between the settlements of Emsworth;/ Havant/Waterlooville; Havant/Portsmouth; Emsworth/Westbourne and Leigh Park/Rowlands Castle as shown on the Proposals Map (see references).
10. Protects the best and most versatile agricultural land that has the greatest potential for local food security.
11. Responds to the merging evidence from the Solent Disturbance and Mitigation Project, the published recommendations, and future related research.

4.3.2 Policy DM8 Conservation, Protection and Enhancement of Existing Natural Features:

“Development will only be permitted where it protects and enhances local habitats and landscape distinctiveness and which addresses all of the relevant criteria as set out below:

1. Protects natural features of nature conservation and/or amenity importance on the site, for example trees, woodlands, hedgerows, soils streams, stream corridors, springs, ditches or ponds from damage, destruction and a deterioration in quality.
2. Sympathetically incorporates existing features into the overall design of the scheme including measures taken to ensure their continued survival.
3. Provides new landscape works that integrate successfully with the local environment and existing natural features, using local materials and plant species and making provision for future maintenance of new landscape works associated with new developments.
4. Ensures sequences of greenspaces are maintained and protects the attractiveness and visual amenity of all green open spaces that contribute to the identity of the borough.”

5 Discussions and Recommendations

5.1 Further Survey

5.1.1 No further surveys are recommended.

5.2 Mitigation

5.2.1 For each potential constraint identified, all mitigation options provided follow the established mitigation hierarchy as set out in BS42020:2013 (BSI, 2013). This seeks as a preference to avoid impacts, then to mitigate unavoidable impacts, and as a last resort, to compensate for unavoidable residual impacts that remain after avoidance and mitigation measures. All recommended mitigation measures follow current best practice guidance as identified by CIEEM and is proportionate to the level of impact identified and to the nature and scale of the proposed works. A clear and valid justification of methods has been provided where necessary. The implementation of mitigation methods should make reference to the Construction (Design and Management) Regulations 2015 (CITB, 2016) where applicable.

Avoidance

5.2.2 Direct impacts to the banks of Lavant Stream will be avoided by creating an 8m buffer along the length of the Lavant Stream. This will be marked with temporary heras fencing during construction activities as necessary. Where works are required within this 8m buffer (i.e. vegetation clearance, boundary fencing, new planting, enhancements etc), this will proceed under the direction of an ecologist.

5.2.3 Indirect impacts from pollution/silt runoff to HPI and Local BAP Habitats (Hermitage Stream catchment, Lavant Stream and 'pipe link'), and statutory designated sites further downstream will be avoided through the incorporation of Pollution Prevention Guidelines (specifically PPG5) or similar guidance.

Mitigation

5.2.4 If avoidance of direct impacts to the stream is not practical during construction activities through implementation of an 8m buffer zone, written consent will be required from the EA, and an appropriate mitigation strategy incorporated.

Compensation

5.2.5 None proposed.

Enhancement

5.2.6 In accordance with national and local planning policy, opportunities for biodiversity enhancement (above and beyond those required to mitigate for any identified impacts) have been considered. This takes into consideration, the South East River Basing Management Plan (RBMP) (EA, 2015a), which the Hermitage catchment and Lavant Stream is part of, the Channel Management Handbook (EA, 2015b), and Havant Local BAP (Havant Borough Council, 2011).

5.2.7 Several key actions stipulated within the South East RBMP are not feasible in this instance (i.e. removal of barriers, removal of channelization, widening of riparian corridors up to 8m) as no significant works to stream banks or works that would result in changes to flooding/hydrology in the area are practical, hence these have not been considered further. Only minor enhancements are proposed. Whilst this is unlikely to change the assessed status of the stream under the WFD from Poor to Moderate, there is opportunity to create an overall positive impact to Lavant Stream. Enhancements to be incorporated will include:

- Removal of excess silt build up to expose shingle stream bed, and to help improve the flow of water;
- Management of bordering vegetation, to prevent scrub encroachment over the channel and reduce shade, which will allow the establishment of aquatic vegetation;
- Installation of 2x 1FF Schwegler Bat boxes (or similar product) upon mature trees (at least 6ft from the ground facing south-west, situated away from lighting and human disturbance to increase bat roosting opportunities for wildlife along the channel; and
- Installation of a single Schwegler No.19 Dipper and Pied Wagtail Nest Box located beneath bridge structures along the stream to provide additional nesting opportunities.

6 Conclusion

- 6.1.1 Incorporation of the proposed avoidance and mitigation will result in no residual impact to protected riparian habitats (or any associated protected species). Enhancement opportunities will result in a biodiversity net gain, including the future protection of HPI/Local BAP Priority Habitat of a more favourable condition.

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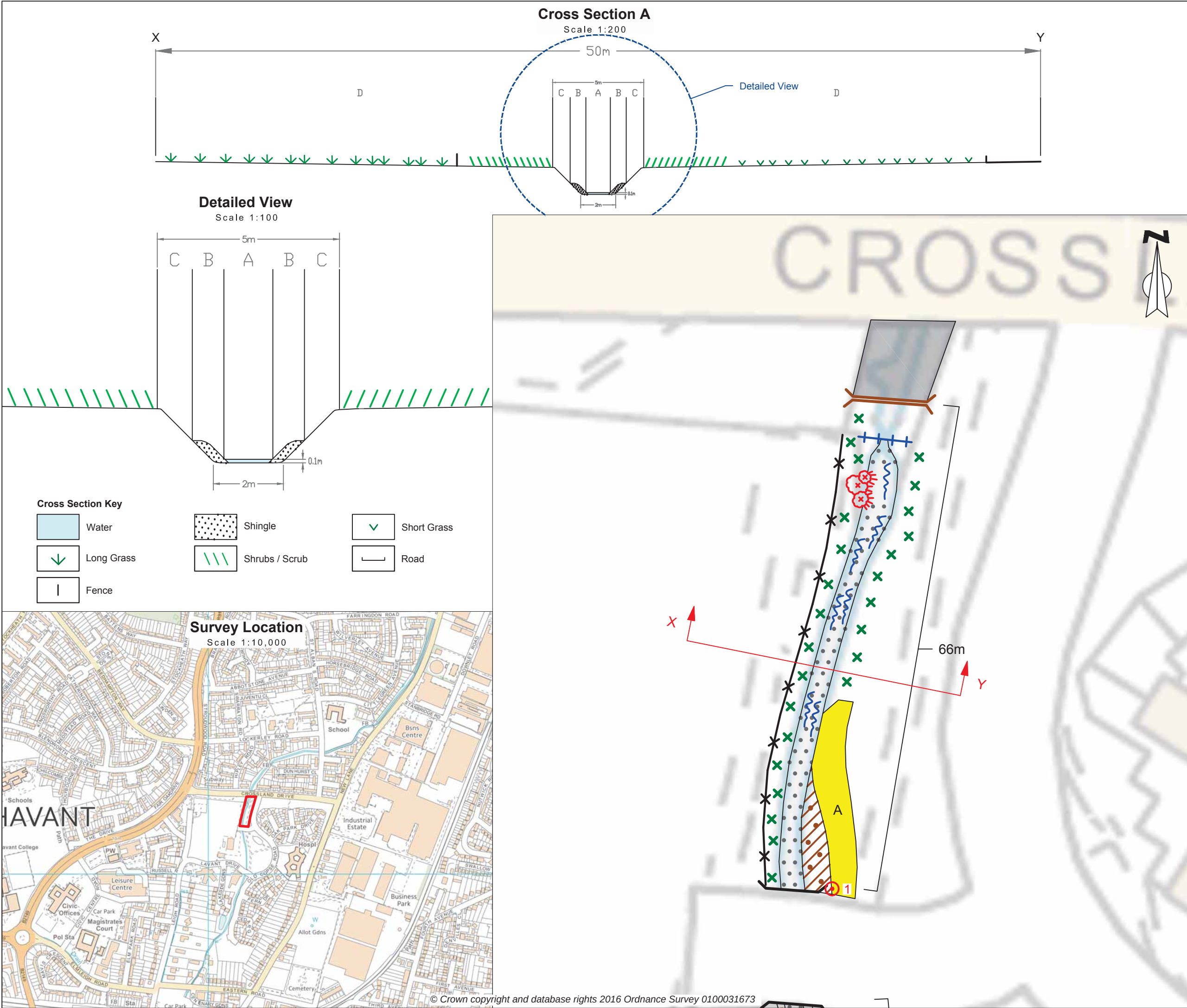
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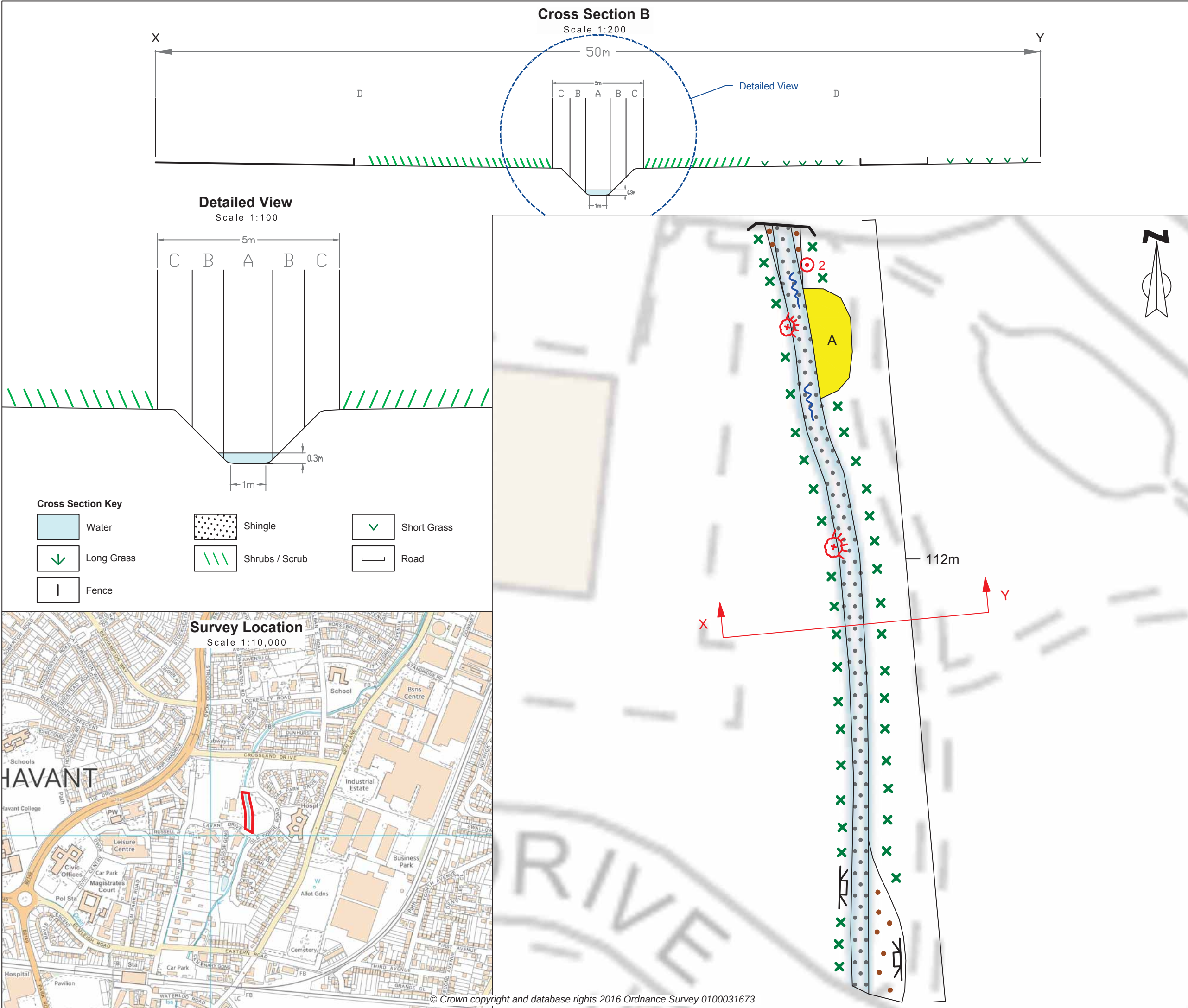
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Drawing CRM.1112.009.EC.R.004A – RCS



Drawing CRM.1112.009.EC.R.004B – RCS



Key

Channel Features

- Weir
- Riffle
- Foot Bridge
- Road Bridge

Bank Features

- Exposed Root
- Fence
- Outfall

Vegetation

- Scattered Scrub
- Tall Ruderal
- Amenity Grassland
- Target Note

Substrate

- Shingle
- Mud/Silt

Other

- Cross Section (50m)
- Limited/No Access



Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

CLIENT:

Ashley House Plc

SCALE:

1:500@A3

PROJECT REF:

CRM.1112.009

DRAWN:

MG

CHECKED:

KR

DATE:

Oct 2016

PROJECT:

Oak Park, Havant

TITLE:

Hampshire Living Spaces
Channel Features - Section B

DRAWING NO:

CRM.1112.009.EC.D.004.B

Appendix A – Proposed Site Layout



DESIGN OBJECTIVES

To create a safe, attractive and stimulating environment for residents, staff and visitors.

- The design seeks to:
- create a range of spaces of distinctive character and that offer a range of experiences;
 - provide opportunities for residents to engage with and influence their environment;
 - ensure that the environment is safe, secure and legible;
 - provide an attractive setting for the building and activities within;
 - provide privacy for residents within the building;
 - ensure the protection and integration of important existing vegetation;
 - create an ecologically rich environment, incorporating a range of planting and habitat; and,
 - specify planting that offers sensory and seasonal interest.

For further details refer to the landscape section of the Design & Access Statement

KEY

- Site Boundary
- Levels (indicative - subject to confirmation by engineer)
- Existing Vegetation**

 Existing trees to retain
- Existing hedge to retain
- Proposed Vegetation**

 Feature tree
- Pleached tree
- Multi-stem tree
- Specimen plant
- Ornamental hedge
- Mixed ornamental border
- Ground cover planting
- Climbing plant
- Meadow
- Lawn
- Street Furniture**

 Pergola
- Seat type 1
- Seat type 2 (sculptural cubes)
- Water feature
- Sulptural feature
- Raised plant bed (incorporating seating)
- Raised plant bed (incorporating wicking system)
- Greenhouse
- Compost area
- Bin store (enclosed within pergola, fence and trellis)
- Cycle store
- Sprinkler housing

Boundary Treatment, Access and Level Change

- 2-2.5m high timber acoustic fence
- 1.5m high grey steel railings
- 1.8m high timber fencing
- 1.5m high glass balustrade
- Timber trellis panels
- Vehicular gate
- Pedestrian gate
- Freestanding handrail
- Retaining wall and handrail
- Steps
- Ramp

Hard Surface Treatment

- Feature paving type 1
- Feature paving type 2
- Feature paving type 3
- Decking
- Resin bounded gravel
- Concrete block paving
- Tarmac surface
- Compacted gravel
- Stepping stones type 1
- Stepping stones type 2

Lighting

Lighting to consist of low level bollards, in ground lighting and feature lighting

Arboriculture

For details of existing vegetation to be retained and protection measure refer to the arboriculturalist's information

Ecology

For details of existing site ecology and recommendations refer to the ecologist's information

Architecture

For details of buildings, including details of the extensive green roof refer to the architect's plans



SCALE	PROJECT NO.	PROJECT
1:500@A2	CRM.1112.005.L.D.007	HAVANT HEALTH AND WELLBEING CAMPUS
DATE	DRAWING NO.	DRAWING TITLE
March 2015	7 (revision B)	LANDSCAPE PROPOSALS
DRAWN	CHECKED	CLIENT
SF	PB	HAMPSHIRE LIVING SPACE



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