Homes England

Making homes happen

Date: 15 September 2020
Our Ref: RFI3061
Tel: 0300 1234 500
Email: infogov@homesengland.gov.uk

[redacted]
By Email Only

Windsor House
Homes England – 6th Floor
50 Victoria Street
London
SW1H 0TL

Dear [redacted]

RE: Request for Information – RFI3061

Thank you for the request for information made on behalf of your client, we have processed the request in accordance with the Environmental Information Regulations 2004 (EIR).

Please see the link below which will direct you to the EIR legislation:
https://www.legislation.gov.uk/uksi/2004/3391/contents/made

For clarification, you requested the following information:

1.1 Please provide a copy of those sections of the submitted business case for the Harlow and Gilston Garden Town Sustainable Transport Improvements bid that refer to the requirement for and the delivery, cost and funding of the additional road crossing over the River Stort i.e. what the Harlow and Gilston Garden Town Infrastructure DeliveryPlan Final Report dated April 2019 (the "IDP") refers to as "the Second Stort Crossing (TR20)".

1.2 Please also provide any further information received following that submission from the applicant or any associated parties in relation to that business in case in relation to the requirement for and the delivery, cost and funding of the additional road crossing over the River Stort.

Response

We can confirm that we do hold information that falls within the scope of your request.

Please find enclosed to this response Annex A which contains the EIR information held which is in scope of your request. Please note that we rely on Regulation 13(1), Regulation 12(4)(e) and Regulation 12(5)(e) of the EIR to withhold some information from disclosure.

Regulation 13(1) – Personal Information

We have redacted and are withholding information on the grounds that in constitutes third party personal data and therefore engages section 13(1) of the EIR.

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To disclose personal data, such as names, contact details, addresses and email addresses could lead to the identification of third parties and would breach one or more of the data protection principles. Once it is established that the information is personal data of a third party and release would breach one or more of the data protection principles, then the exception is engaged.

Regulation 12(4)(e) – Internal Communications

We are withholding some information in accordance with Regulation 12(4)(e), as information falls under the definition of internal communication and to disclose would be likely to prejudice the Homes England's private thinking space, we therefore we rely on this exception.

This regulation is a class-based exception and we have considered the public interest in disclosing the internal communication held. Homes England has carried out a public interest test to assess whether it is in the wider public interest for the information to be disclosed, we have summarised our finding below;

Arguments in favour of disclosure:

- Homes England acknowledges there is a general public interest in promoting accountability, transparency, public understanding and involvement in how Homes England undertakes its work and how it spends public money; and
- Homes England understand and promotes a presumption in favour of disclosure regarding environmental information in accordance with Regulation 12(2).

Arguments in favour of withholding:

- Releasing the information at this moment in time would be likely to prejudice the Agency's private thinking space. To disclose internal communication whilst contracts for the grant funding are being negotiated would not be in the public interest. Homes England has a duty to maintain a level of protection for internal deliberation.
- Releasing information based on incomplete information could lead to poorer outcomes which would not be an effective use of public money;
- The consequences of releasing internal communication could damage our relationships with partners and put these potential funding allocations at risk. This would not be in the public interest as this could put potential homes in jeopardy and undermine our decision-making process; and
- Homes England has been unable to identify a wider public interest in disclosing the information requested.

Having considered the arguments for and against disclosure of the information, we have concluded that at this time, the balance of the public interest favours non-disclosure.

Regulation 12(5)(e) - Confidentiality of commercial or industrial information

We are withholding some information in accordance with Regulation 12(5)(e), as to disclose the information would be likely to prejudice the confidentiality of commercial information held and prejudice the commercial interest of both Homes England and third parties.

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This regulation is a class-based exception and we have considered the public interest in disclosing some of the information held. Homes England has carried out a public interest test to assess whether it is in the wider public interest for the information to be disclosed, we have summarised our finding below;

Arguments in favour of disclosure:

- Homes England acknowledges there is a general public interest in promoting accountability, transparency, public understanding and involvement in how Homes England undertakes its work and how it spends public money;
- Homes England understand and promotes a presumption in favour of disclosure regarding environmental information in accordance with Regulation 12(2).

Further to our arguments we have also taken into the consideration the arguments that you provided in your correspondence dated 23 July 2020. We have referenced these below for completeness;

(a) *First, there is an explicit presumption in favour of disclosure of environmental information. This presumption must be interpreted in the spirit of the 1998 Aarhus Convention which seeks to increase the quality and extent of public involvement in and scrutiny of decisions on the environment.*

(b) *Second, there is a compelling public interest in promoting accountability, transparency and public understanding and involvement in how Homes England spends public money.*

(c) *Third, disclosure of the information requested would help promote effective public participation in environmental decision-making and thereby promote the objectives of the 1998 Aarhus Convention by ensuring that: (i) the public properly understand the costs, benefits and financial drivers for an infrastructure delivery proposal which will have significant effects on the environment; and (ii) the public can meaningfully engage with questions around deliverability and therefore make an informed assessment of the likelihood of accrual of public benefits from the river crossing infrastructure, relative to harm on the environment.*

Arguments in favour of withholding:

- Releasing information that forms part of a competitive process before a contractual agreement has been concluded would be likely to compromise that process;
- Releasing the information could reveal financial information of third parties which may in turn affect their commercial interests;
- Releasing information, prior to a contractual agreement being concluded, in a competitive market would be likely to distort competition, making it a less competitive process, which would not be in the public interest;
- Releasing the information would be likely to negatively impact the future of our competitive application process as interested parties may feel unable to provide all the information requested for fear of disclosure, which would impact the ability of Government officials and ministers to make effective, informed decisions;
- Release of the information could lead to lobbying that could impact the impartiality of third parties concerned (or give rise to concerns on the part of others that impartiality could be adversely affected). It is essential that during negotiations third parties can make decisions based on the information provided and also be seen to do so;

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- Any decision based on incomplete information could lead to poorer outcomes which would not be an effective use of public money;
- Disclosure would result in local authorities being deterred from including commercially sensitive information in future applications for grant funding. This will mean that Homes England would potentially have to evaluate applications that are less comprehensive than would otherwise have been the case, meaning that Homes England's ability to undertake due diligence on the applications will be impaired. This will result in decision makers not taking all relevant information into account, meaning the decisions will be less robust and less likely to deliver value for money;
- The consequences of releasing information that is part of wider ongoing negotiations of a contractual nature could damage our relationships with partners and put these potential funding allocations at risk. This would not be in the public interest as this could put potential homes in jeopardy; and
- Homes England has been unable to identify a wider public interest in disclosing the information requested.

Having considered the arguments for and against disclosure of the information, we have concluded that at this time, the balance of the public interest favours non-disclosure.

Discretionary Disclosure

Some of the information contained within both Annex A is being disclosed as a discretionary disclosure. We believe that by disclosing the information it will provide further insight and we are disclosing the information in order to promote transparency and to provide assistance.

Right to Appeal

If you are not happy with the information that has been provided or the way in which your request has been handled you may request an internal review by writing to;

The Information Governance Team
Homes England – 6th Floor
Windsor House
50 Victoria Street
London
SW1H 0TL

Or by email to infogov@homesengland.gov.uk

You may also complain to the Information Commissioner however, the Information Commissioner does usually expect the internal review procedure to be exhausted in the first instance.

The Information Commissioner's details can be found via the following link:

https://ico.org.uk/

Please note that the contents of your request and this response are also subject to the Freedom of Information Act 2000 and the Environmental Information Regulations 2004. Homes England may be required to disclose your request and our response accordingly.

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Yours sincerely,
The Information Governance Team
For Homes England

Housing Infrastructure Fund

Business Case - HIF/FF/000362/BC/01 - Harlow and Gilston Garden Town: Stort Crossings and Sustainable Transport Corridor

Bid Details

Lead Authority

Hertfordshire County

Is it a joint bid with other Local Authorities?

Yes

Other local authorities

- Epping Forest
- Harlow
- East Hertfordshire
- Essex County

Contact Details

First name	[redacted]
Last name	[redacted]
Email Address	[redacted]@aecom.com
Telephone number	[redacted]

Are you an agent making this submission on behalf of one or multiple Local Authorities?

Yes

Organisation Name

AECOM

Are the contact details provided above for the lead responsible officer for the project at the local authority?

No

Contact name of lead officer

[redacted]

Email address of lead officer

[redacted]@hertfordshire.gov.uk

Telephone number of lead officer

[redacted]

Project Summary

What is the name of the scheme

Harlow and Gilston Garden Town: Stort Crossings and Sustainable Transport Corridor

Please provide an Executive Summary for your proposal

The Harlow Gilston Garden Town (HGGT) was granted Garden Town (GT) status by the Ministry of Housing Communities and Local Government (MHCLG) in 2017. The HGGT development includes 23,000 homes that are planned across strategic sites and connected to Harlow Town Centre by Sustainable Transport Corridors (STC). The GT Vision sets out the need for a sustainable movement with ambitious but achievable mode share targets of 60% of all journeys within and to/from the GT Community to be made by sustainable modes. This is to address the current transport issues in the area that restrict growth and to encourage housing and employment growth based on sustainable principles.

The HIF funding support is for providing the critical infrastructure links that will connect Gilston Area (GA) development to the STC corridor and help deliver the homes that are planned within the development. The GA development is planned across 7 villages with a total of 10,000 homes that is envisaged be delivered by 2040 with the HIF support.

Obtaining HIF funding would allow the delivery of infrastructure that achieves 60% sustainable mode share for the GA and supports the shift towards 50% sustainable mode share across the whole GT area. This would ensure that there is no network capacity constraint on the amount of new development that can be delivered. The developer contributions from the GA will result in creation of a rolling infrastructure fund that will fund further STC links and will help to unlock further homes across GT. Given the strategic location of the HGGT within the UK Innovation Corridor and major planned employment growth within Harlow, the STC and GT growth provides an opportunity to support economic growth and the delivery of housing that will be hinged on sustainable development principles.

The HGGT brings together two County Councils (Essex and Hertfordshire) and East Herts, Harlow and Epping Forest Districts to deliver the GT Vision. The GA site is owned by Places for People (PfP) for Villages 1- 6 and Village 7 is owned by Briggens Estate. An Outline Planning Application is being submitted for Villages 1-6 and Village 7 in April/May 2019.

Various options for the HIF funding have been assessed as part of this bid. The infrastructure for the scheme is formed of interlinked elements which achieve the mode share targets only if the critical connections are delivered upfront. The HIF funding also helps fund certain elements of the scheme that are currently unfunded. The various elements of infrastructure that support the delivery of the entire 10,000 homes within GA, is presented within the full HIF option in the bid.

The delivery of the infrastructure is envisaged to be led by PfP (Master Developers for Villages 1- 6), ECC and HCC. All of them have extensive experience to lead the delivery and have undertaken technical and design work and cost and programme planning. A clear programme for planning approvals has been established with the developers which includes a multi-stage consent process than ensures continual progress can be made in an efficient and effective manner in order to accelerate delivery of housing. A detailed implementation plan is in place to accelerate the delivery of infrastructure and the dependant housing within GA. PfP and the Councils have identified the contract management approach to streamline the delivery process. The Gross Development Value that can be achieved from the housing makes it viable for the developers to fund other elements of linked infrastructure alongside HIF funded elements, making the whole scheme both viable and sustainable.

The delivery of the proposed HIF Funded Infrastructure will be overseen by the Harlow Gilston Garden Town Board (HGGTB). The HGGT is in the process of establishing an Infrastructure Delivery Board (as part of the overall governance board structure) which will oversee performance against programme and project delivery. The HGGT Board (through its Infrastructure Delivery Board) will have responsibility for reporting on the agreed assurance and performance framework for the HIF funded infrastructure programmes. A MOU has been developed to confirm the on-going relationships between the parties in the delivery of the HIF programmes and projects.

The risks related to scheme are low as there is clarity on both planning and delivery of the infrastructure. The Core Programme team of Herts and Essex County Councils, the GT Authorities and PfP will operate a structured approach to risk management from the outset that will identify and capture mutual risks and then report back to the STC Programme Board which will comprise senior representatives of each partner.

Overall, the HIF funding support will enable housing delivery within GA and wider GT which will support economic growth within the region. This will be an exemplar scheme that will demonstrate how growth can be achieved based on sustainable principles.

Please provide an overview of the project, including your project scope for the infrastructure and for the wider project

The Harlow Gilston Garden Town (HGGT) was granted Garden Town (GT) status by the Ministry of Housing Communities and Local Government (MHCLG) in 2017. Nationally, the GT programme will contribute to the delivery of 155,000 new homes across England. HGGT covers sites within Harlow, Epping Forest and East Hertfordshire Districts. Some 23,000 homes are planned for the Harlow and Gilston Garden Town. Housing will be delivered within the Harlow Urban Area and four separate Garden Communities as set out below and in Appendix A:

Gilston Area, East Hertfordshire (10,000 homes)

East of Harlow, Harlow and Epping Forest Districts (3,350 homes)

Latton Priory, Epping Forest District (1,050 homes)

Water Lane Area, Epping Forest District (2,500 homes)

The investment from the HIF will directly unlock housing in the Gilston Area, which is made up of seven villages which will deliver 10,000 homes (outlined in Appendix B). The scale of growth that is set to come forward at the Gilston Area development will act as a catalyst for growth across the wider GT. Therefore it is critical that the supporting infrastructure that will allow this development to come forward is delivered at the right time and in the right sequence to maximise the wider benefits.

The GT Vision (set out in Appendix C) sets out the need for a Sustainable Movement with ambitious but achievable mode share targets of 60% of all journeys within and to/from the GT Community to be made by sustainable modes. In order to achieve the target mode share and accommodate the high levels of growth set to come forward in the area, infrastructure will need to be delivered in the early stages of the development. The infrastructure that is required to support the development is a series of Sustainable Transport Corridors (STC) and critical connections to the STC, illustrated in Appendix D.

The STC programme comprises the elements of infrastructure Items 1-13 and these can also been seen on the infrastructure plan set out in Appendix D.

The individual infrastructure Items 1, 2 (a, b, c) and 3 have a total cost of £171,180,000 and this is the infrastructure that is proposed to be funded using the HIF. These pieces of infrastructure are required in order to achieve the 60% sustainable mode share for the Gilston Area and helps to achieve the shift towards 50% sustainable mode share across the whole GT. Together the achievement of these targets will ensure that the total growth of the GT can be accommodated. The HIF funding addresses the market failures outlined in Section 2.5 of the bid which result from funding gaps (i.e. externality of upfront funding requirement) and co-ordination issues.

The HIF monies will be used to fund currently unfunded items such as, Item 3, the STC link from Burnt Mill roundabout through the Town Centre, and ‘forward fund’ the strategic River Crossings (Items 1 and 2). This will allow the developers to fund and accelerate delivery of the remaining infrastructure (Items 4 to 9) that are critical for the Gilston Area development to be delivered in its entirety of seven villages and to be linked with the wider STCs. By unlocking all seven villages within the Gilston Area, this will allow a policy compliant development of 10,000 homes to come forward. The recovery of developer financial contributions to the HIF forward funded River Crossings (items 1 and 2) secured through S106 agreements will allow the creation of the GT ‘rolling infrastructure fund’. This rolling infrastructure fund will then be used in conjunction with other financial contributions secured from developers across the GT to ‘forward fund’ other pieces of sustainable infrastructure. These are Items 11, 12 and 13 (in Appendix B) that will complete the STC network connecting all development sites in the wider GT, existing neighbourhoods, the Town Centre and places of work including the Enterprise Zone, Princess Alexandra Hospital and the relocated Public Health England facility.

Site Details

How many housing sites will the funding bring forward?

1

Please provide a list of the housing sites that the funding will bring forward, including the amount of units to be delivered on each site, the lower tier or unitary authority the site is in and the current land ownership

Site name	No of units	Local authority	Current ownership	Planning status	Planning reference
Gilston Area	10000	East Hertfordshire	Villages 1-6- Places for People and Village 7 - Freehold Ownership of Briggens Estate 1 Limited	Outline	n/a
Commentary					
There is a PPA between the Councils, PfP and Briggens Estate and includes submission of an outline planning application for 8,500 homes at Villages 1-6 (PfP) and for 1,500 homes at Village 7 (Briggens Estate) in April/May 2019.					

Please provide site boundaries for all housing sites

(see final page of document)

Please attach scheme plan(s) for your proposal - these should include plans of housing sites and infrastructure

Filename	Description
Appendix D- Wider Infrastructure Mapdocx.pdf	Wider Infrastructure Map
Ref 1.2.4 Site Boundary V7.pdf	Site Boundary Village 7
Ref 1.2.4 Site Boundary V1-6.pdf	Site Boundary Villages 1-6
Appendix B- Gilston Housing Map.pdf	Gilston Housing Map

What is the total size of the development (in hectares)?

1,068.00 ha

Of the total development size, what is the total housing area (in hectares)?

626.00 ha

How much of the total housing area is on:

Brownfield land

0.00 ha

Public sector land

0.00 ha

What are the proposed tenures of the homes to be delivered?

Affordable sale	20 %
Affordable rent	20 %
Market sale	30 %
Market rent	30 %
Other	0 %

Infrastructure Requirements

Please provide further details on the HIF infrastructure requirements and their link to the delivery of housing

Infrastructure Type	Road / highway - other	**Description**	•Re-alignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner (Item 2a) •Pye Corner bypass including junction between north-south section and east-west section (Item 2b) •Extension of STC from Burnt Mill Roundabout to Town Centre (Item 3) Items are illustrated further in Appendix D
HIF Funding	£67,648,000	**Link to housing**	HIF funded Items 2a and 2b allows the developer to fund and deliver : •Item 4& 6 - Access to Village 1 and Enhanced Sustainable Transport Hub •Item 5 access to Village 2 The infrastructure connections provide private vehicular and all modes access into the Gilston Area development allowing the central access and Central River Crossing to support the Sustainable Transport Corridor connection . This will unlock Village 1 and 2 within Gilston. Delivery of Item 3 through the HIF will allow the STC to be delivered in conjunction with the Central Stort Crossing, providing the critical link through Harlow Town Centre.
Sites benefitting	Gilston Area		

Infrastructure Type	Bridge	**Description**	•Expansion of Central Crossing to extend STC between Gilston Area and Railway Station and Burnt Mill Roundabout (Item 1) •Remainder of Eastern Crossing including River Way Bridge (Item 2c) Items are further illustrated in Appendix D.
HIF Funding	£103,550,000	**Link to housing**	Should Item 1 be funded by the HIF, it will provide the STC link to Harlow Town Railway Station and in conjunction with Item 3 it will form part of the STC through Harlow Town Centre. As the HIF will fund Item 1 this will allow the developer to fund and deliver the following: •Item7 - Gilston Area STC “inner loop” connection to Villages 3, 4, 5 •Item 8- Access to Village 7 •Item 9- Gilston Area STC “inner connection” opening up sustainable access and highway between Village 1 and Village 7 via Villages 5 and 6 This directly unlocks Villages, 3, 4, 5, 6 and 7 within Gilston Delivery of Item 2c through the HIF will allow the developer to fund and deliver the following: •Item 4& 6 - Access to Village 1 and Enhanced Sustainable Transport Hub •Item 5 access to Village 2 This will provide private vehicular and all modes access into the Gilston Area and allow the Central Stort Crossing to be delivered as a sustainable mode access. This will unlock Villages 1 and 2 within Gilston
Sites benefitting	Gilston Area		

Please outline, in further detail, the direct link between the infrastructure scheme(s) and how this unlocks the homes

The delivery of the Item 1 - Expansion of Central Crossing to extend the STC between the Gilston Area and the Railway Station and Burnt Mill Roundabout will help to create the direct link for the Sustainable Transport Corridor into Gilston. Item 1 in conjunction with Item 3 provides the essential link into Harlow Town Centre and connects Gilston to the STC. This will enable developers to forward

fund the following infrastructure items:

- (Item 7) Gilston Area STC “inner loop” connection to Villages 3, 4, 5
- (Item 8) Access to Village 7
- (Item 9) Gilston Area STC “inner connection” opening up sustainable access and highway between Village 1 and Village 7 via Villages 5 and 6

This piece of infrastructure directly unlocks villages 3, 4, 5, 6 and 7 and 6,502 homes.

However, for the above infrastructure items to operate as a sustainable corridor, car free access has to be achieved. This will only be possible following the completion of Items 2a, 2b and 2c which provide the critical private vehicular link into Gilston. They are:

- 2a. Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner
- 2b. Pye Corner bypass including junction between north-south section and east-west section
- 2c. Remainder of Eastern Crossing including River Way Bridge

This then enables developers to forward fund the following items:

- (Items 4 & 6) - Access to Village 1 and Enhanced Sustainable Transport Hub
- (Item 5) access to Village 2

As a linked piece of infrastructure these connections directly unlock Villages 1 and 2 and allow the delivery of 3,498 homes.

Overall, the HIF funded infrastructure will unlock all Villages (1- 7) in Gilston and deliver 10,000 homes.

Furthermore, the HIF funding helps to create the “rolling infrastructure fund” financed through developer contributions and this will be used to fund other unfunded elements of the STC which will unlock further homes in the GT. For the purposes of this HIF bid, the wider homes unlocked is treated as a wider benefit only.

As explained previously, developments within the Garden Town have a set objective to achieve 60% sustainable mode share targets for new developments and to support transport behavioural change across the whole GT to achieve the 50% sustainable mode target town-wide. These targets have to be met by all permitted developments. The HIF funded infrastructure helps to alleviate the capacity limitations on housing delivery. An increase in journeys made by private car without the mode shift will result in unacceptable traffic impacts on the road network and will therefore create a capacity limit on the number of homes that can be delivered across the GT. Further evidence of maximum number of homes the current infrastructure can accommodate can be found in Appendix E- Transport Modelling Information.

The HIF funding allows the STC links to be delivered as one piece of linked infrastructure which will help Gilston achieve the sustainability target and unlock the entire Gilson Area consisting of 10,000 homes.

Wider Development Impacts

Please provide a summary of what impact the scheme will have on the Transport Network

The Infrastructure Items 1-13 within the scheme (See list in Appendix D) provide the STC link into Gilston and provides the east-west and north-south STC links through the GT. This will encourage the mode share target to be met and ensure that developments that come forward are based on sustainable principles and hence achieve policy compliance.

Model runs that have been undertaken in the West Essex and East Herts VISUM model, in which trip rates have been altered between standard, intermediate and ambitious sustainable travel assumptions. The traffic modelling (See Appendix E for further details) indicates that the volume of traffic generated by the Local Plan level of development can only be tolerated if the ambitious targets are met.

The transport modelling outputs indicates that a maximum of only 2,000 homes can be delivered in Gilston before additional infrastructure improvements are required

Does the new housing development generate a need for new school places and how this will be accommodated

The Gilston Area will be built out over a 20 year period. Given this time horizon, there is uncertainty about the exact number and timing of school places that will be required. In order to estimate school demand, the Applicants and HCC have modelled and established a range of potential demand scenarios. The Outline Parameters and Development Specifications will include flexibility to respond to a range of school place demand scenarios in the future. It is intended that there will be enough school places provided on-site within the Gilston Area for every child who wants one to have a place.
The Gilston Area (all 10,000 homes) allows for a maximum of 20 Forms of Entry (FE) of primary and secondary school demand, although the potential range of demand is from 15 FE dependent upon final built housing mix. Build out rate, demographic trends and government policy may all affect the number of school places required to be delivered.
As part of the process of establishing detailed Village Masterplans and preparing Reserved Matters applications, the Applicant would be able to provide HCC with the detail required to establish a project specific child-yield projection. As the Development is built out, HCC will monitor the demand for school places. The delivery of new schools will be triggered in line with terms in the Section 106 Agreement. If school sites or floorspace are not needed, the terms of the Section 106 Agreement will also set out how the sites could be put to alternative uses, such as housing or other community or commercial floor space.
Villages will broadly seek to meet their own Primary provision but will be reliant on up to two secondary schools within the Gilston Area and therefore the maximum scenario for secondary school delivery will meet the needs of up to 10,000 homes. The applicants for Villages 1-6 and Village 7 will put in place agreements to achieve co-ordination of education delivery which will be secured through Section 106 agreements.

No attachments

How have you assessed that no new utility infrastructure (electricity capacity, water, waste water, gas and telecoms) will be required for this scheme and future housing delivery, or, how additional utility infrastructure will be delivered without HIF funding?

In the preparation of the Outline Planning Applications for the Gilston Area, PfP and Briggens Estate have engaged with the incumbent utility providers to ensure that there is available capacity in the existing networks in order to serve the future development. Where it was determined that the capacity required reinforcing, the requisite reinforcement works were determined and built into the proposed supply strategy. The following utility providers have been engaged with:
•Electricity supply UKPN – A primary sub-station will be required in order to deliver the development. This will link in to the existing primary sub-station to the west of Harlow.
•Gas supply National Grid– supply is available from the reduction station at Redricks Lane to the east of the development.
•Water supply Affinity Water – A connection will be required off both the existing strategic mains running north-south to the west of the development.
•Waste Water Thames Water– Connections to the trunk main running through the Stort Valley will be required in order to supply the proposed development and enhancements to the existing Rye Meads treatment works are currently taking place to facilitate

development. Future reinforcement works will be provided carried out by Thames Water through the Asset Management Planning process.
• Telecomms BT– Fibre to premises can be supplied.
The layouts for these connections will be designed and agreed with the relevant undertakers to support future reserved matters applications.
In terms of electrical supply requirements, the undertaker has confirmed that the development can be supplied but off-site reinforcement will be required. This will involve underground cabling from Harlow West Primary Substation and the establishment of a new primary sub-station on the wider site to serve the seven new villages.
To inform the proposals , engagement with the relevant undertakers is ongoing and will be updated accordingly through the emerging planning applications.

No attachments

What consideration have you given to ensuring that the health and care services locally will align with the additional homes to be built?

•The Garden Town authorities have engaged with both Princess Alexandra Hospital, the Clinical Commissioning Groups (CCGs) and NHS Improvement to prepare a Garden Town Infrastructure Delivery Plan.
•The Development includes 3,675m2 Gross External Area (GEA) of D1 space suitable for General Practitioner (GP) surgeries and associated facilities. This space is distributed around the Development, located in Villages 1 and 4. An indicative size for a multi-GP health centre with up to ten GPs is 1,800m2 GEA. Therefore, the proposed floor space could accommodate up to 20 GPs and is more than adequate to meet the needs of up to 13 GPs with substantial additional space for auxiliary facilities.
•Provision for healthcare has also been allowed for within Village 7 in order to meet the needs of the new population and to avoid increased pressure on existing resources within the area.
•Engagement with NHS England Midlands and East and East and North Herts and Herts Valleys CCGs established an on-site requirement for 2,388m2 Gross Internal Area (GIA) of additional GP floorspace to meet the needs of 10,000 homes which is being met and exceeded within the Outline Applications, providing flexibility.
•The Applicants are already in consultation with CCGs and with the Princess Alexandra Hospital Trust in order to ensure that the future strategy for delivery of GPs on-site at the Village Masterplan and reserved matters stage would be aligned with the wider healthcare strategy for East and North Hertfordshire and West Essex, the two local CCGs.
Further details on health and care services will be attached in Section 1.5.

Have you engaged with your Sustainability and Transformation Partnership?

The Garden Town authorities have engaged with both Princess Alexandra Hospital, the Clinical Commissioning Groups and NHS Improvement to prepare a Garden Town Infrastructure Delivery Plan which will be maintained to ensure a coherent holistic approach is taken to meeting all infrastructure needs, including health, across the Garden Town and overcome potential issues that might otherwise result through the cross-border nature of the Garden Town.

Places for People have undertaken extensive consultation with Princess Alexandra Hospital Trust, East and North Herts CCG and West Essex CCG. The Sustainability and Transformation Plan Partnership covers the Hertfordshire and West Essex catchment area.

East and North Herts CCG submitted a formal response to the Gilston Area Concept Framework Consultation. This response clearly set out the requirement for health provision, including on-site infrastructure, expected from the development, based on its proposed scale and location. This matter has since been discussed at several meetings with representatives of the two CCGs and their relevant partners in the NHS.

If you have any further information to support your project overview, which has not already been captured in the above, please include this here

The Harlow and Gilston Garden Town is an ambitious plan of growing and regenerating the former post-war new town of Harlow through a collaborative cross-political approach being taken by three Districts and two Counties in the UK Innovation Corridor building upon the strengths of Harlow (www.discoverharlow.co.uk) as a pioneer of technical innovation (the birthplace of fibre-optic

telecommunications invented in Harlow by Sir Charles Kao) and as the world's first sculpture town (home to 84 public sculptures from world leading artists including Auguste Rodin, Henry Moore and Barbara Hepworth) and addressing the challenges of worn out 1950s infrastructure and buildings, a car dominated environment, higher than average national unemployment, an imbalanced housing market and areas of deprivation and poor health. The Vision for the Garden Town is:

"The pioneering New Town of Gibberd and Kao will grow into a Garden Town of enterprise, health and sculpture at the heart of the UK Innovation Corridor. Harlow and Gilston will be a joyful place to live with sociable streets and green spaces; high quality homes connected to fibre optic broadband; local centres accessible by walking and cycling; and innovative, affordable public transport. It will set the agenda for sustainable living. It will be.... adaptable … healthy … sustainable … innovativ

A key tenet of the Vision is to drive modal shift towards active healthy sustainable travel by making walking, cycling and public transport the most attractive choice for residents, workers and visitors. It is an exciting time for the Garden Town with over 23,000 homes allocated within the District Plans and proposals for the first 10,000 homes due to be submitted this year. Princess Alexandra Hospital are preparing plans to reshape health provision in the town and Public Health England are investing over £400m in their relocation to Harlow bringing over 3,500 new jobs and a further 5,000 new jobs are being created in the Harlow Enterprise Zone. The Councils are preparing this bid for over £170M of Housing Infrastructure Funding to unlock and accelerate this growth and to use developer contributions to create a rolling infrastructure fund which together will support the creation of a network of Sustainable Transport Corridors and community sustainable transport hubs to deliver the proposed Garden Town Transport Strategy. he aim is for 60% of all journeys into, within and from the new Garden Villages and Neighbourhoods to be undertaken by walking, cycling and public transport and to drive a mode shift across the whole Garden Town that will support 50% of journeys being undertaken through active healthy sustainable choices.

The Garden Town authorities are working together with Homes England, developers, stakeholders and the community through the Garden Town Member Board and the Garden Town Director and Officer Group to shape and deliver these plans and are eager to partner and work with other organisations and government departments to drive positive change and explore innovation and establish best practice.
See Appendix C and Appendix F for details.

Filename	**Description**
Ref 1.4.4.1 Additional information on healthcare provision.pdf	Additional Information on healthcare provision
Appendix A- STC and Wider Housing Map.pdf	Appendix A- Wider Housing Map
Appendix B- Gilston Housing Map.pdf	Appendix B- Gilston Housing Map
Appendix C- The Garden Town Vision Document.pdf	Appendix C - Garden Town Vision Document
Appendix D- Wider Infrastructure Map.pdf	Appendix D- Wider Infrastructure Map
Appendix F- Harlow and Gilston Garden Town Transport Strategy.pdf	Appendix F- Harlow and Gilston Garden Town Transport Strategy
Appendix E1- Transport Modelling Information Part 1.zip	Appendix E1- Transport Modelling Information Part 1
Appendix E2- Trasnport Modelling Information Part 2.zip	Appendix E2 Transport Modelling Information Part 2
List of Abbreviations.docx	List of Abbreviations
List of Appendices.docx	List of Appendices

Strategic Case

Strategic Approach

How will this scheme support your long term housing and economic growth ambitions? Please refer to any development plans and / or associated planning guidance policies

The Government designated Harlow and Gilston as a Garden Town (GT) in January 2017. The Government aims to stimulate economic growth and create communities where there are ample job opportunities, a range of services and an integrated and accessible transport network. Through the Garden Community programme the Government will support 23 areas which together will deliver 200,000 homes by 2050. The housing growth set to come forward as a part of the Harlow and Gilston GT will have implications at a national scale, with the development making a significant contribution to the Government's target of 200,000 homes by 2050. The GT Vision underpins the aspirations of strategic allocations for development across the GT within the relevant adopted and emerging Local Plans in the area. Refer to Appendix C for details on HGGT vision.

The scale of the proposed GT development includes over 23,000 homes with a planned delivery of at least 16,000 homes by 2033 which will trigger a need for a significant level of new transport infrastructure to sustainably deliver the growth. With this scale of development, the GT will be a catalyst for growth across the UK London Stansted Cambridge Innovation Corridor.

The sustainable transport infrastructure, including walking and cycling measures and rapid bus transit, within this bid is central to achieving Garden City Principles and the GT Vision while acting as an engine for growth. At present, the local road network is congested (See Appendix F). Significant housing and employment growth planned for the area will put additional strain on the network. Without new infrastructure and significant mode shift towards active healthy sustainable travel this will place a capacity constraint on the future growth in the area, if not addressed as a matter of urgency. There is a significant modal shift to more sustainable and active modes of transport, which will contribute towards the design for healthy sustainability placemaking for the proposed development growth allowing the enhanced transport network to support this growth and also support the continued economic growth in the area.

The Sustainable Transport Corridor (STC) network across the wider GT is required to connect new and existing housing developments to the regenerated Harlow Town Centre, the railway station and key employment centres so that development encourages the use of active and sustainable modes of transport from the outset by presenting this as the most attractive choice. In order to do so the entire network is required to be delivered as early as possible in order to achieve the mode target of 60% of journeys from/to and within the new developments and to drive the modal shift across existing neighbourhoods to the targeted modal shift of 50% across the GT. This will require forward funding and guaranteed delivery of key components of the STC network as outlined in this HIF bid.

Without the HIF funding support, the STC network set to come forward as a part of the HGGT will have uncertainty in relation to the funding and delivery of some segments such as the link between Harlow Town railway station and through Harlow Town Centre. This will result in GT not achieving the modal share target which will result constraining the level of housing growth that can be achieved in the area.

HIF funding is therefore critical to achieving the following and these are outlined in more detail below:

- Transport infrastructure to support housing growth;
- Employment Growth; and
- Achieving the Garden City Principles and the wider regeneration of Harlow.

Significant Housing Growth

The GT has a central position in the UK London Stansted Cambridge Innovation Corridor with significant total housing growth planned of over 23,000 units, with at least 16,000 homes to be delivered within Local Plan Period to 2033.

The Development Plans of districts within GT all identify a significant need for new homes in the Harlow area. The East Herts Local Plan identifies a need for 18,458 homes by 2033. Additionally, 11,400 homes have been identified for the Epping Forest District within their emerging Local Plan (2017) and Harlow's emerging Local Development Plan (2018) identifies 9,200 homes for the area. Refer to Appendix G for further policy details.

The Gilston Area development is located in an area where there is evidence to suggest that there is an under supply of market and affordable housing with a very high ratio of house prices to incomes. Refer to Section 5.5.1 for more details.

Driving Employment Growth in a key UK Corridor

The GT is strategically located at the heart of the UK Innovation Corridor (LSCC). The LSCC opens up several growth opportunities for the area. Public Health England has chosen to locate their headquarters in Harlow and £400 million will be invested in New Frontiers Science Park, with 3,500 new jobs introduced to the town. The Harlow Enterprise Zone which will be delivering 5,000 jobs over 25 years is already home to Harlow Science Park, Kao Park and Data Centre Campus, and Anglia Ruskin University MedTech Innovation Centre.

According to the emerging Harlow District Plan there is a need for an attractive mix of good quality housing options that will help attract skilled workforce to live and work in the area. The town needs a wider mix of housing to attract and retain a wider range of socio-economic groups that can help to provide a more sustainable economic future.

The Local Plan Evidence Base suggests that Harlow needs housing growth to support the economic growth that is required. As evidenced above and in Section 2.6.1, there is large scale growth planned for the Harlow area. The GT development will help to support the economic growth, which will be more sustainable through the transport interventions being brought forward. Additionally, due to its strategic location, it will also deliver the ambitions of the LSCC and the four Grand Challenges of the UK Industrial Strategy.

Transport infrastructure to support growth

The housing and employment growth outlined above will significantly expand the settlement area of the GT and will have impacts on the local transport network. Essex County Council's (ECC) Local Transport Plan (LTP3) indicated that by 2036 there is forecast (See Appendix H for details) to be an average increase in overall traffic volume of up to 30% across Harlow's network in the peak periods. The HGGT Transport Strategy states that currently sections of the network, specifically parts of the A414, are either close to or are at capacity during peak periods. Congestion on the A414 is already restricting access to Harlow and is limiting growth. The A414 currently provides the main crossing over the River Stort and railway line and provides a connection between the Gilston Area and Harlow Town Railway Station and Town Centre. The already congested crossing is centred on private vehicle use and has very limited sub-standard provision for pedestrians and no segregation for cycling and no bus priority.

In line with the GT principles, the GT development aims to reduce the need to travel and achieve a target of 60% of all journeys being undertaken by an active or sustainable mode of transport to/from and within new 'Garden Communities' and 50% across the whole GT. This target is one of the key objectives within the Harlow Gilston Transport Strategy (Appendix F). The Strategy sets a further two objectives comprising supporting and encouraging a culture of active travel ensuring all journeys are safe and efficient as well as mobility options based on a hierarchy of importance as follows:

1. Reduce the need to travel
2. Walking and Cycling
3. Public Transport
4. Private Vehicles

The Strategy suggests that the GT growth provides a rare opportunity to deliver a significant and permanent step change in travel behaviour. It outlines the opportunity to offer good accessibility for all modes of transport with bus services being routed through the whole town as part of integrated network, by providing bus priority on some routes and through an extensive network of segregated footways and cycleways. Presently, 34% of travel within the town is through active and sustainable modes and this provides a solid foundation on which the town can grow from to achieve the sustainable travel ambitions.

Infrastructure improvements associated with the delivery of the GT growth must seek to achieve the Garden City principle of providing integrated sustainable transport, in which walking, cycling and public transport are the most attractive options. This will ensure mode share targets can be achieved. Failure to deliver the relevant infrastructure to enable and encourage sustainable travel will inevitably lead to a further increase in the number of trips being made by private vehicles. This will place additional pressure on the local road network creating unacceptable highway impacts which will constrain the number of homes which can be delivered. Obtaining HIF funding would allow the delivery of infrastructure that achieves 60% sustainable mode share for the Gilston Area and supports the shift towards 50% sustainable mode share across the whole GT area. This would ensure that there is no network capacity constraint on the amount of new development that can be delivered and would result in additional delivery of housing that will also be unlocked earlier across all of the new "Garden Communities" of the Gilston Area, Latton Priory, East of Harlow and Water Lane development sites. The delivery of the STC network would remove the capacity issues that are identified above. The full package of sustainable transport infrastructure is set out in Appendix D.

What is your assessment of local housing requirements in your area and how will this scheme address these needs? Please refer to any data and evidence sources you have, including local housing need

Overall housing need: The local housing requirement for the Harlow and Gilston GT ('HGGT') can be drawn from the Strategic Housing Market Assessment ('SHMA') documents for the West Essex and East Hertfordshire ('WEEH') Housing Market Area ('HMA') . The overall identified housing need for the WEEH HMA from 2011-2033 is 51, 710 dwellings, equivalent to an average of 2,350 dwellings per annum ('dpa'). WEEH is an extensive area and so it is necessary to look at each district's Objectively Assessed Need ('OAN') for housing to understand what proportion will be served by the HIF scheme. Figure 1 in the attachment shows the OAN for each of the relevant districts.

Affordability: Upward adjustments (+6,203 units in total – see Table 1 in the attachment) were recommended for each district, reflecting the considerable housing market pressures evident. The SHMA concluded that the full OAN should be higher than that estimated using the 2014-based household projections alone (the demographic starting point). The uplifts were a direct response to market signals and to align with future increases in jobs and workers . Figure 2 in the attachment shows that affordability in this area is worse than the East of England and nationally. The exception to this being Harlow which has historically had a lower affordability ratio in comparison to its neighbours in the East of England and the wider region but still worse than the national average.Whilst Harlow's property prices are lower than other parts of Essex, the house price growth in Harlow has outstripped wage increases making properties in Harlow unaffordable for many of the district's residents.

Affordable need: The overall affordable housing up to 2033 is approximately 13,600 dwellings . The highest level of affordable housing need in the HMA is in East Hertfordshire (3,685 households) compared to 2,851 in Epping Forest, 3,098 in Harlow and 2,167 in Uttlesford . However, the percentage requirement in these districts compared with overall need is in stark contrast to Harlow, with 61% in Harlow compared with 35% in Epping Forest and 32% in East Hertfordshire. The need in Harlow equates to around 3,400 new affordable dwellings over the Local Plan period. Each district has set an affordable housing requirement in policy which has been assessed against viability: 35-40% in East Hertfordshire; 40% in Epping Forest; and 30% in Harlow.

Distribution: A Memorandum of Understanding ('the MoU') on the Distribution of Objectively Assessed Housing Need across the WEEH HMA (March, 2017) was signed by the districts and supported by Essex County Council ('ECC'); Hertfordshire County Council ('HCC'); and Highways England. The MoU ensures that the WEEH districts fulfil the Duty to Cooperate and meet the full OAN in the HMA through the most sustainable pattern of development.

Based upon the Strategic Sites Assessment (and other relevant evidence), the MoU identifies sites in and around Harlow to accommodate circa 16,100 units, provided that: 'significant infrastructure requirements are met, including highways, sustainable travel options, education sewerage/drainage etc.' The HIF scheme identified will directly assist the delivery of the 16,100 units and in particular the Gilston Area. The HIF scheme will help to deliver the upfront infrastructure delivery and promotion of sustainable modes of transportation agreed in the MoU. The HGGT spatial distribution is transposed into the constituent Local Plans allocations, outlined in Table 2 of the attachment.

Range of products: The SHMA includes recommendations for the housing mix for both new build market and affordable homes, broken down by property type, size and affordable housing tenure. The East Hertfordshire, Epping Forest and Harlow Local Plans transpose these recommendations into statutory policies to be applied across the districts, illustrated in Table 3 of the attachment. A key principle embedded in the HGGT Vision and outlined in the National Garden City Principles (November 2018) propounds 'Balanced, diverse and functional communities' via the delivery of a range of homes and typologies to cater for the needs of residents at all stages of life and all abilities. The HGGT advocates a tenure-blind mix of homes, including owner occupied, private rented, affordable and social and shared ownership. The HGGT Housing Plan will build upon the district-wide policies and provide advice spatially, setting out the preferred mix (size, types and tenures) and delivery recommendations for the key HGGT strategic sites and large-scale allocations. The variety in product and dispersed spatial distribution set down in the HGGT Local Plans, Vision, Design Guide and Housing Plan is consistent with Government's objectives to accelerate housing delivery and the Letwin Review recommendations to include varying types, designs and tenures located in more distinctive settings, landscapes and streetscapes on large sites (to increase overall absorption rates and hence the overall build out rates).

Infrastructure Requirements: The WEEH districts, ECC and HCC recognise that major highways infrastructure, in addition to the implementation of M11 J7a, is required by the end of the local plan period (2033) in order to accommodate housing growth. The proposed River Stort crossing and A1019 junction improvement schemes will help to accommodate local housing need by alleviating existing congestion and delay, and improving the road network's resilience to incidents which will improve journey times and reliability supporting the HGGT's key economic areas, such as the Enterprise Zones. In addition, the identified junctions have

significant potential to increase the level of accessibility by walking, cycling and public transport and therefore promote a modal shift towards sustainable transport modes. As such, the schemes will help to realise the full potential for housing and economic growth. The impact of the Second Stort Crossing was assessed using the WEEH VISUM transport model and found that it would result in significant flow changes in the Harlow area, with changes along other routes also likely (including a reduction in eastbound flows and an increase in westbound flows along the A414 west of Harlow). See Appendix I for further details on the Modelling Technical Note 3.

Filename	Description
Appendix I- Transport Modelling Technical Note 3.pdf	Appendix I -Transport Modelling Technical Note
Ref 2.1.2 Local Housing requirements.pdf	Ref 2.1.2 Local Housing Requirements Graphs and Tables

Local Support

How will this scheme demonstrate effective joint working? E.g. with neighbouring local authorities and other local partners, Private sector organisations, Local Enterprise Partnerships etc.

The GT brings together two County Councils (Essex and Hertfordshire) and East Herts, Harlow and Epping Forest Districts. All the authorities have been working together to accelerate Local Plans to meet identified housing needs in an up to date SHMA and plan to meet these needs based on sustainable growth principles.

The successful delivery of the HGGT is of significant importance to a host of different private and public partners. The HIF investment will help to ensure that the GT development is delivered to the standard that is set out in the GT Vision document. The Harlow and Gilston growth will bring forward the delivery of 23,000 homes by 2033 and will help to meet housing requirements across several local authorities.

Each of the Councils have to meet the Duty to Co-operate as set out in section 33A of the Planning Compulsory Purchase Act 2004 as amended by the Localism Act 2011 and national policy on the Duty to Cooperate. Section 33A ensures that local planning authorities, county councils and other public bodies are in continued engagement to allow Local Plan preparation to be as effective as possible especially in relation to strategic matters. Additionally, the Local Authorities are working together with the developers and are also collaborating with the local community to ensure that the GT development is delivered to highest quality and is in line with Garden City Principles that are set out within the Harlow and Gilston GT Vision document.

Following the attainment of Garden Town status, East Herts Council, along with both Harlow and Epping Forest councils, were awarded a government grant of £500,000 to support the proposals that were set out for the GT. Further grant funding of £715,000 from MHCLG was received for 2018/2019.The grant was awarded to help fund a range of technical work that was required to deliver a large-scale project. Technical aspects of the project have been progressing as well as a number of community and stakeholder engagement events. Technical co-operation is also taking place regarding infrastructure provision and design with regular meetings being held between HCC, ECC and PfP and Briggens Estate, in relation to the Gilston Area.

A GT Member Board has been established with an independent Chair and Member representation from each of the GT authorities along with the LEPS and representatives of health and business. A GT Officer Group led by the GT Director and Working Groups with officers from a range of disciplines work jointly on a range of matters with officer representation from each District and County Council.

A Gilston Area Steering Group has also been set up and comprises East Hertfordshire Council, Harlow District Council, Hertfordshire County Council, Essex County Council, the Hunsdon, Gilston and Eastwick Neighbourhood Plan Group, Gilston and Eastwick Parish Council, Hunsdon Parish Council, High Wych Parish Council, Widford Parish Council, Places for People and Briggens Estate 1 Limited. The Steering Group meet on a regular basis to allow an open dialogue between all the relevant parties to provide a space for the Councils, developers, parishes and neighbourhood plan group to consider issues raised, provide a steer for community engagement and to share the broad development programme.

To support the planning approvals stage Planning Performance Agreements between EHDC, HDC, HCC and ECC and each of the developers PfP and Briggens Estate 1 Limited, establish a shared programme of planning milestones, common objectives and working arrangements and establishes dedicated resources to support the ambitious programme of pre-application and post-application milestones. These milestones include the submission of Outline Planning applications for the whole 10,000 homes of the Gilston Area and the detailed planning applications for the River Stort Crossing infrastructure works in April/May 2019 with a

targeted determination in December 2019/January 2020.

Please demonstrate local support for your scheme (for example in Local Plans and policies)

There is very strong support for the scheme and programme of investments. The commitments of each council are set out below and each shows a high level of commitment and ambition to deliver the Garden Town development in order to unlock growth in the area.
East Herts District Plan: The East Herts District Plan was adopted October 2018 and aims to deliver 18,458 new homes by 2033, specifically outlining the need to accommodate strategic development in the Gilston Area. Policy GA1 sets out that the Gilston Area will provide 10,000 homes across distinct villages, each based on Garden City Principles. A Gilston Area Concept Framework was prepared jointly by the landowners, the Council and the community and was approved by EHDC on 25 July as a Material Planning Consideration for the Development Management Purposes. The document sets out an illustrative masterplan for the Gilston Area to deliver 7 villages and will act as a benchmark against which future development proposals will be assessed. The Council ran a consultation on the Draft Concept Framework between July and September 2017 including the transport infrastructure proposals that are seeking support via this funding bid. Policy GA2 within the Plan identifies that widening of the existing River Stort Crossing will help facilitate the provision of a sustainable transport corridor which will connect the Gilston Area to the urban area of Harlow. It is envisaged that this corridor will operate using the additional capacity created from dualling of the northbound and southbound carriageways through these being dedicated to sustainable travel. The Plan also identifies the Eastern Stort Crossing as the preferred option by Essex County Council as it provides relief to junctions along the western end of the A414 Edinburgh Way in Harlow, and enhances access to the Enterprise Zone and links through, potentially, to the proposed new motorway junction 7a.
Harlow District Council Local Development Plan :The Harlow Development Plan was submitted to the Secretary of State for Examination in Public in Oct 2018, with the examination taking place between 28th March and 4th April 2019. The emerging Plan has prioritised the east of Harlow as an area for housing growth and will aim to maximise the potential for regeneration as well as concentrate growth along major transport routes and areas where transport links can be enhanced. The emerging Plan has identified the HGGT as a location for strategic housing growth both within and on the boundaries of the Plan Area with policy HGT1 outlining the strategic need for the wider development and the need for the provision of infrastructure to allow sustainable growth. Policy SR1 outlines some of the infrastructure required for the GT development including the North-South Sustainable Transport Corridor and River Stort Crossing to Eastwick Roundabout (reference SIR1-1); the East West Sustainable Transport Corridor (reference SIR1-3); and the Second River Stort Crossing at River Way (reference SIR1-3).
Epping Forest Local Plan:EFDC Local Plan was submitted to the Secretary of State for Examination in Public in September 2018.The Plan recognises the importance of the HGGT development and is outlined through Policy SP 4 and SP 5 with the need for the required infrastructure delivery outlined in Policy D1.
The commitments of each council set out above show a high level of commitment and ambition to deliver the GT development in order to bring forward transformational growth in the area.
Engagement with Local communities:A series of community engagement workshops were held between January and June 2017 and were attended by EHDC, HCC, Neighbourhood Plan Group as well as Land Owners and Scheme Promoters. Moreover, public consultation events were also held in Gilston, Harlow, Hunsdon and Sawbridgeworth during September 2017.
Generally through Local Plan Policies and stakeholder engagement there is evidence of strong support for the scheme.

Can you provide evidence of support for your proposal from the following:

	Support	**Further Details**
Local MP(s)	Yes	Engagement with the following MPs has taken place: - Mark Prisk- Hertford and Stortford MP -RT Hon Robert Halfon- MP for Harlow, Roydon, Nazeing, Sheering and Hastingwood

Filename	**Description**
Mark Prisk Letter.pdf	Mark Prisk MP Letter of Support
RT Hon Robert Halfon support letter 31.01.19.pdf	RT Hon Robert Halfon Letter of Support

	Support	Further Details
Local community	No	A series of community engagement workshops were held between January and June 2017 and were attended by EHDC, HCC, Neighbourhood Plan Group as well as Land Owners and Scheme Promoters. Moreover, public consultation events were also held in Gilston, Harlow, Hunsdon and Sawbridgeworth during September 2017.

No attachments

	Support	Further Details
Local Enterprise Partnership(s)	Yes	Both the Hertfordshire and South East LEPs have been engaged with regarding this HIF bid- further details are provided in the attached letters.

Filename	Description
Harlow-Gilston Garden Town - HIF - letter of support 2018.02.08.pdf	SE LEP Letter of Support
HIF LEP letter of support 16-1-19.docx	Herts LEP Letter of Support

	Support	Further Details
Supporting upper tier local authorities	Yes	Engagement with the following Upper Tier Local Authorities has taken place: - Hertfordshire County Council -Essex County Council

Filename	Description
The Rt Hon James Brokenshire MP - Housing Infrastructure Bid - 140219.pdf	HCC Letter of Support
ECC Support Letter.pdf	ECC Letter of Support

	Support	Further Details
Supporting lower tier local authorities	Yes	Engagement with the following Lower Tier Local Authorities has taken place: -Harlow District Council -East Herts District Council

Filename	Description
Harlow and Gilston Garden Town - HIF Bid 28 Jan 19.pdf	Harlow District Council Letter of Support
CLLR DAVID WILLIAMS Ltr Feb 2019 EHDC.pdf	East Herts District Council Letter of Support

	Support	Further Details
Any other key stakeholders	Yes	The following key stakeholders have also been engaged with: - Harlow Enterprise Zone -Greater London Authority -Harlow Gilston Letter of Support -Places for People -Princess Alexandra Hospital -London Stansted Cambridge Consortium

Filename	Description
EZ HIF support letter.pdf	Harlow EZ Letter of Support
GLA HIF Support.pdf	GLA Letter of Support
HGGT HIF Letter of support Feb 2019.docx	Harlow Gilston Garden Town Letter of Support
HIF Bid - PfP Letter of Support March 2019.pdf	PfP Letter of Support
Letter to Councillor Williams.pdf	Princess Alexandra Hospital Letter of Support
letter to support Gilston_GT HIF bid2019.pdf	LSCC Letter of Support

Meeting housing policy objectives

How will your scheme support the Government's ambitions for housing, as set out in the Housing White Paper?

Local Planning Policies, HGGT Vision (2018), Design Guide (2018) and forthcoming Housing Plan require a varied housing mix and a dispersed spatial distribution across the new Garden Communities. This is consistent with Government's objectives to accelerate housing delivery and the Letwin Review recommendations to include varying types, designs and tenures located in more distinctive settings, landscapes and streetscapes on large sites (with the aim of increasing overall absorption rates and hence overall build out rates).

Diversifying the housing market through Small and Medium Sized Enterprises (SMEs), Modern Methods of Construction (MMCs), or Self-Build: HGGT will seek to encourage SME involvement throughout the scheme in line with the LEP policy Hertfordshire Enterprise Leadership Programme (HELP). The GT Vision embeds innovative building design, construction and performance into the local Garden City Principles. It is expected that the Masterplans and designs for each new HGGT community will explore and provide opportunities for best practice in low carbon design, manufacture, construction and performance of homes and commercial buildings. To support this aim, all adopted and emerging Local Plans include policies that encourage innovation in construction methods and design: East Hertfordshire (DES4 Design of Development); Epping Forest (SP4 Development & Delivery of Garden Communities in the Harlow and Gilston Garden Town; and DM9 High Quality Design); and Harlow (HGT1 Development and Delivery of GT Communities in the Harlow and Gilston Garden Town; and PL3 Sustainable Design, Construction and Energy Usage). East Hertfordshire (Policy HOU8 Self-Build and Custom Build Housing), Epping Forest (Policy H 1 Housing Mix and Accommodation Types) and Harlow (H9 Self-build and Custom-build Housing) East Hertfordshire requires at least 1% of plots to be self-build for developments over 200 units.

Making effective use of brownfield sites: All three of the Local Plans seek to maximise the use of brownfield sites for new homes and minimise impacts on the environment. The HGGT Design Guide calls for an intensification of the town (including effective use of brownfield sites) to support the modal shift towards sustainable travel. Development in strategic growth areas should demonstrate how higher densities can be achieved through utilisation of brownfield sites and good design, whilst carefully considering their relationship with adjacent neighbourhoods and settlements.

Unlocking public sector and local authority land: Redevelopment of, or a new site for, Princess Alexandra Hospital will be identified at an accessible location, with the PAH Board now having expressed a preference for the GT site to the east of Harlow. Opportunities to establish an innovative health care campus are encouraged in the GT Vision. This coincides with the arrival of Public Health England. Relocation of the Princess Alexander Hospital is identified in local planning policy and will provide an opportunity for the development of 650 homes on this significant public sector landholding. In addition, the GT Vision recognises that community assets (including land in public ownership) must be actively managed and properly looked after in perpetuity. The best delivery models will

be explored through the ongoing GT Infrastructure and Delivery work streams.
Supporting GTs and Villages: The HWP sets out Government's support for the new generation of new communities. In January 2017 the WEEH districts were awarded GT status for the HGGT and a Government grant of £500,000 was provided for project support and technical studies. A GT Member Board was established with representatives from these authorities and the two County Councils to help address cross boundary strategic matters. A grant was provided to help fund the significant amount of technical work required to deliver this ambitious project. A further £175,000 was awarded to the HGGT from the Government in March 2017, reflecting the significant opportunity and the potential for this area. In February 2019 MHCLG provided a further £715,000 in support for delivering 24,000 homes (including beyond 2033). The scale of the HGGT marks it out as one of the largest proposed nationally, measured by net additional homes.
The HGGT will support Government ambition set out in the HWP by:
1-Planning for the right homes in the right places: The HGGT vision, design guide and charter have been produced in consultation with the local community (and seek to encourage higher densities where feasible). This approach gives communities a strong voice in the design of new housing and will drive up the quality and character of new development
2-Building homes faster: The HIF funding shall fund infrastructure provided in the right place at the right time and complement Government investment in the HGGT and support developers to build out more quickly.
3-Diversifying the market: All three Local Plans include policy support for Build to Rent, custom-build and self-build homes and require at least 40% affordable housing. The HGGT Housing Plan will explore this in more detail and shall be used to guide planning decision in the HGGT area, including for building more homes for private rent, and encouraging family friendly tenancies etc. This will include close liaison and support for housing associations and local authorities to build more homes and explicitly address how modern methods of construction can boost productivity and innovation in house building and encourage SME developers and new entrants to the local house building market.
4-Helping people now: The three Local Plans and emerging HGGT housing plan shall encourage the development of housing that meets the needs of our future population and assist in developing a sustainable and workable approach to funding supported housing in the future. Emerging applications shall provide policy compliant affordable housing including discounted market housing.

Scheme Objectives

What are the overaching objectives of the scheme? Objectives should be SMART - specific, measurable, achievable, relevant and time constrained

- Deliver 10,000 new homes within the Gilston Area development across villages 1- 7 that are directly supported by HIF funding by 2040 with a target of 40% of affordable homes How can this objective be evidenced? • Does the HIF funded infrastructure unlock Villages 1- 7 across the Gilston Area? • Will the preferred option deliver 10,000 as a result of HIF intervention by 2040? • Does the housing mix in the preferred option deliver 40% affordable housing?
- Help diversify the housing market by providing a mix of build to rent, self-built and custom built homes with a range of housing typologies in the Gilston Area by 2040 and support housing initiatives in the wider Garden Town. How can this objective be evidenced? •Does the Housing typology and tenures within the developer housing delivery plan help diversify the housing market? •Does the HIF funded infrastructure help support other housing initiatives in the area?
- Provide high quality sustainable transport infrastructure to ensure that a 60% mode share is achieved in new 'Garden Communities' and 50% shift across the whole GT development is reached by 2040. How can this objective be evidenced? •Does the Transport infrastructure proposed as part of preferred option help the Gilston Area and wider development (Latton Priory, Water Lane and East of Harlow) achieve the modal share target of 60% by 2040? •Does the Transport infrastructure proposed as part of preferred option help other developments in the GT achieve the modal share target of 60% by 2040? •Does the transport infrastructure proposed as part of the preferred option help drive modal shift across the existing neighbourhoods and employment areas in the GT to achieve the shift to the mode share target of 50% by 2040?
- Support wider growth in the area including Harlow Enterprise Zone and Public Health England and contribution to the London-Stansted-Cambridge Corridor. How can this objective be evidenced? •Does the preferred option support the regeneration of the Harlow Town centre and wider area? •Does the preferred option help cater to housing demand in the wider area as a result of proposed economic growth in the region? •Does the preferred option support economic growth in locations and industries that are considered key to the success of the Enterprise Zone, the UK Innovation Corridor and the UK Industrial Strategy?

Please list the criteria (critical success factors - CSFs) against which you will assess the successful delivery of the project and the evaluation of options

- Provide a scheme that is deliverable and credible: The scheme must realistically be capable of delivery and seen as credible in the eyes of key stakeholders, including funding partners
- Act as a catalyst for wider public and private sector investment and partnership in regeneration: Given the large-scale, long-term nature of the GT development, the scheme must ensure that the intervention is sufficiently scaled to act as a catalyst for subsequent development.
- Allow for activity to commence within the next 2 years: It is imperative that the intervention scheme allow for key activities to begin moving forward relatively quickly so that housing targets are reached and sustainable travel goals are also reached.
- Be aligned with UK/London/local housing, transport, and infrastructure plans and policies: The scheme must be compliant with existing policies and aligned with the range of key strategic plans at various levels of Government; particularly those relating to the delivery of GTs.
- Be affordable in terms of cashflow and expected funding availability: The scheme must be reasonably capable of being funded, and any short-term cashflow shortfalls reasonably capable of being addressed

Rationale for intervention

What is the market failure being addressed? Please provide a detailed account of why the existing arrangements, both financial and delivery, are not sufficient to deliver the scheme and the rationale for government intervention (HIF funding)

In the HGGT context a market failure has been defined as being a scenario that requires intervention through HIF funding that will help to resolve an issue that would otherwise be unresolved through the conventional approach to market delivery of development. A key aspect underpinning successful delivery of the GT is the implementation of the STC and other strategic infrastructure which alleviates transport issues in the area and supports further development. However, some of the infrastructure elements and STCs cannot be funded solely by growth proposed for the GT and in the timescales that are necessary to ensure that new development comes forward in an integrated, sustainable manner consistent with GT Principles. The attainment of the level of sustainability that the GT is aiming to achieve may not be possible without HIF funding.

The HIF will enable the priority transport infrastructure to be delivered when required, whilst also enabling developers to fund the delivery of wider infrastructure needs early. A rolling transport infrastructure fund, created through receipt of S106 contributions, will allow the delivery of the wider STCs unlocking the wider GT. It is important to note that all housing sites that coming forward within the wider HGGT will need to be connected to Harlow Town Centre through the STCs. These corridors provide links to transport interchanges and employment sites. Due to the scale of the scheme, the complex phasing of housing and number of developers and authorities involved; the delivery of housing and infrastructure requires upfront funding and coordination as one entity.

Should the HIF funding not come forward there will not only be a funding gap(i.e. externality of upfront funding requirement) but also a co-ordination issue, both of which are considered a market failure.

Failure to achieve the target mode share in the new Garden Communities and a mode shift across the wider Garden Town due to the inability to deliver the STC links would require additional investment to the road network in the short term until such targets can be reached. This may mean that funding is being diverted from the sustainable infrastructure or delaying delivery of other infrastructure items due to cash flow reasons and would create a self-defeating cycle.

Market Failure 1-Funding Gap as an externality of upfront infrastructure funding requirement: The total strategic infrastructure required to unlock the 10,000 homes within the Gilston Area will cost c. £278mn in 2019 prices . These will need to be delivered upfront for the infrastructure to be operational and allow a policy compliant development to come forward. It is not possible for the developer to provide upfront contributions due to the significant infrastructure costs. Parts of the critical strategic infrastructure would remain unfunded. The unfunded elements include the STC link through Harlow Town Centre (Item 3 in Appendix D).

This funding gap (i.e. externality of upfront infrastructure funding requirement) market failure is for the most part as a result of the 'free rider' effect. This effect means that it is neither realistic nor possible for all beneficiaries of the infrastructure to make financial contributions towards the asset due to the fact that no mechanism exists to obtain the necessary funds from existing residents and employers in the area or to do so in the required timescale for the transport infrastructure to be functional.

The existing communities and destinations within the GT as well as small, residential and non-residential development sites that are

already consented or are in the current pipeline, would obtain direct benefit from the STC infrastructure. The aforementioned sites would also have some direct influence over the routing and form of the STCs but would not financially contribution towards them. Without the delivery of STCs, the local transport network will become congested and will not be able to mitigate the total transport impact of the whole GT and the benefits associated with the sustainable transport infrastructure will not be realised. In an area like Harlow it is anticipated that there will be both residential and non-residential growth over time which is also likely to occur through regeneration, intensification and changes of use. Any developments that come forward will benefit from the proposed transport infrastructure but these benefits cannot be fully identified and so corresponding S106 or CIL contributions cannot be acquired. Therefore, developments providing financial contributions are unable to provide the level of funding required simultaneously across the whole GT and in the timescales required, or are unable to provide adequate contributions to cover the full costs. As such, infrastructure costs are unable to be allocated and co-ordinated rationally and so cause a market failure.
Contributions from developers will need to withstand tests set out in Regulation122 of the CIL Regulations, namely that they are required for planning reasons and are directly related to the development as well as being fairly and reasonably related in scale and kind. The latter two tests may prove difficult especially when infrastructure is effectively a 'transport network' where benefits are only realised when substantial infrastructure has been delivered. Additional transport infrastructure items are also required due to cumulative effects from various developments. These developments may be very small and would not pass the threshold required for making a contribution. As these sites are not conditioned to any contributions they are adding to the free rider effect. The uses of S106 agreements are constrained and places risk on the delivery of infrastructure.
Market Failure 2 - Co-ordination Failure: According to WebTAG Unit A2.2, a co-ordination failure which is associated with induced investments occurs when "developers may under-invest in local transport improvements due to co-ordination failure, resulting in an inefficiently low level of investment in new development."
Connections to the wider GT development and to other key destinations comprising Rail Station and various Enterprise Zones including the Public Health England site will also be implemented via STCs which will improve active and sustainable transport connectivity. It is considered that these pieces of infrastructure, in combination with on-site measures, will play an integral role in ensuring that sustainable mode share targets are achieved. If these targets are not achieved, the anticipated level of growth as a result of the GT will not be delivered in a sustainable manner. The failure to deliver growth sustainably will lead to additional pressure being placed on the road network and will limit the network's capacity to support the delivery of the full allocation of 23,000 homes at the GT.
Without the HIF funding the infrastructure will be expected to be funded and facilitated by a wide range of strategic allocation sites. Infrastructure will need to be delivered in full and at an early stage in the development for the full benefits to be realised. If the sustainable transport infrastructure is not delivered at the earliest opportunity, the sustainable mode share for the whole GT will not be realised and will create capacity issues on the road network constraining the level of growth. The development will also not be in line with the GT principles. Due to the variation of delivery trajectories along with the competing demands on funding and particularly the delivery of other critical infrastructure at each development site in the GT, there will be a co-ordination issue. These factors demonstrate both a funding gap issue as well as a co-ordination issue which will be addressed by HIF funding.

Filename	Description
Appendix D- Wider Infrastructure Map.pdf	Appendix D Wider Infrastructure Map

Additional Information

If you have any further information to support your strategic case, which has not already been captured in the above, please include this here

Additional Information for Section 2.1.1
The Garden Town development is made up of four principal growth areas, with Garden Communities coming forward to the east, west and south of Harlow and new villages being established to the north of Harlow. These total to 23,000 homes of which at least 16,000 homes are set to come forward within the Garden Town development by 2033 and the sites are outlined below:
• Gilston Area - 10,000 homes .
• East of Harlow- 3,350 homes
• Latton Priory- 1,050 homes

• Water Lane area- 2,100 homes

The Gilston Area site allocation is in the ownership of two landowners. PfP own the land for six of the seven villages and will play a master developer role, planning for and delivering strategic infrastructure required opening up the sites. Briggens Estate owns the land for the remaining village (Village 7).

Driving Employment Growth in a key UK Corridor – Further evidence

There is a significant amount of employment growth expected in Harlow and the surrounding area and this is outlined within the emerging Harlow Local Plan as well as the East Herts District Plan. There are a number of large employment areas including the Harlow Enterprise Zone, Templefields industrial estate (separate to the EZ which is only part of that site) and The Pinnacles. Public Health England are moving to the site adjacent to the Pinnacles industrial area, which will further add to the local multiplier impacts. Harlow has the potential to grow strong economic assets especially in life sciences and other high value sectors. The life sciences sector within the LSCC accounts for 24,700 jobs and the sector contribute to 11% of all national employment. The South East LEP Strategic Economic Plan (SEP) 2014 suggests that there is a significant amount of growth set to come forward within the corridor. The Enterprise Zone will attract companies from the high value sectors including life sciences. It will also have the ability to secure over £150 million of private sector funding and will have the capacity for more than 5,000 jobs. Moreover, the Harlow Manufacturing and Engineering Centre (HAMEC), which opened in 2017 on the Harlow College campus provides facilities that will help meet the skills requirements that are required in the wider area.

Proposed Programme

The first phase of the proposed programme unlocks housing delivery in the GT by funding currently unfunded infrastructure of the Sustainable Transport Corridor (STC) link between Burnt Mill Roundabout/Harlow Town Railway Station and the Town Centre (Item 3 in Appendix D) and bringing forward funding for key infrastructure, the Central and Eastern Crossings over the River Stort (Items 1and 2). This will allow the developers to fund and deliver the remaining infrastructure (Items 4 to 9) earlier, which is critical for the new Gilston Area villages to be linked with the STC and GT. This will unlock all seven villages within the Gilston Area allowing the policy compliant development of 10,000 homes to come forward. The ‘rolling infrastructure fund’ will be created through S106 contributions from the Gilston Area developers and from the wider GT developers. This will then be used to ‘forward fund’ other pieces of sustainable infrastructure to complete the STC network (Items 11, 12 and 13). The STC networks will then provide the critical links within the wider GT allowing access to all the GT growth sites, existing neighbourhoods and key locations including the Railway Stations, Town Centre, Princess Alexandra Hospital the Enterprise Zone and to the new home of Public Health England. This will therefore unlock further strategic housing allocations in the emerging Harlow and Epping Forest Local Plans as well as supporting enable town centre regeneration and other economic and housing growth within the GT by adding the sustainable transport capacity.

Filename	**Description**
Appendix C- The Garden Town Vision Document.pdf	Appendix C Garden Town Vision Document
Appendix F- Harlow and Gilston Garden Town Transport Strategy.pdf	Appendix F HGGT Transport Strategy
Appendix G- Policy Review Table docx.pdf	Appendix G Policy Review Table
Appendix H- Essex LTP3.pdf	Appendix H Essex County Council LTP3

Commercial Case

Market analysis

Please provide details of how the proposed scheme fits with the local housing market and with local demand. Please provide supporting evidence of relevant value assumptions in the area

- Harlow is one of the original New Towns and is about 25 miles north of central-London with a highly desirable location and according to local agents, the area is perceived to be an attractive place to develop housing.

- Whilst the Gilston Area allocation is located within East Herts, its market is intrinsically linked to Harlow. Demand for property in Harlow has been relatively robust despite a challenging economic climate because Harlow is seen as a relatively affordable market by comparison to nearby settlements.

- **Average house prices and comparables:** Of the adjacent and nearby Local Authority areas Harlow has the second lowest (after Stevenage) average house prices. Harlow is a first generation New Town and therange of house types and types of development is typical of the second half of the 20th Century and is fairly homogenous.

- Lower house prices are a factor of the type, style and age of the houses in the town, rather than their location.There is no reason to suggest that modern homes, with a greater appeal, should not achieve prices that are higher. This can be seen at Barratt Homes' new Gilden Park scheme to the northeast of the town.

- **Trends and patterns in the local housing market:** It is not possible to attribute the change in values in Harlow on a particular factor, but it is, at least in part, due to:

    - Good links with London, Stansted and Cambridge on the M11. These help to attract a range of buyers who are employed in London and out along the M11 corridor.

    - The regeneration of the town centre and the improved housing offer through new housing schemes.

    - Harlow is becoming a centre for Life Science, MedTech and digital industries.This strong inward investment and economic growth will import over 1,000 skilled workers into the area. Ensuring an attractive and high quality housing offer close to their base will be essential in ensuring sustainable travel to work patterns.

- The housing market area has an under supply of market and affordable housing with a very high ratio of house prices to incomes. Help-to-buy has been an important factor driving new home sales in this location.

- Sales velocities across a range of housing and flatted developments have held up well with rates reflecting relatively normal conditions (3 to 10 units per month at each sales centre). This is despite the uncertainties surrounding Brexit and a flat housing market. The fact that larger units continue to sell well suggests that the market is not overly reliant on help-to-buy.

- The Land Registry shows that the average price paid for newbuild homes (at £547,945) is more than double than the average price paid for existing homes (at £264,474). This shows the newbuild market is distinctly different to the market for existing homes.

- The major developers and local agents suggest that the principal drivers of price are the situation rather than the location. The Garden Town proposals have four main areas, whilst these areas are different, across the Town there is relatively little variance between the different types of housing.

- The general pattern of all house prices across the study area, the price assumptions for the HGGT viability study. More details can be found in the attached file.

- **Local demographics:**It is clear from the ONS data that household growth will be driven by older age groups. The age profile of households will change significantly while household composition will remain largely the same.

- The sharp rise in the proportion of households aged over 65 comes at the expense of reductions in the combined 25-54 age brackets, while the 55-64 and youngest age brackets remain generally constant.

- **Market absorption and sales rates:** The range of product supplied (reflecting local demographics), combined with stable pricing and healthy sales velocities suggests that the Harlow housing market is capable of absorbing increased housing delivery. The rate of sales (i.e. sales per month) in the HGGT is a little greater than the wider country, under lining the fact that the local market is an active market.

- The 'Harlow and Gilston Garden Town Strategic Viability Assessment' assumes a pre-construction period of six months. Each dwelling is assumed to be built over a nine-month period.

- The phasing programme for an individual site will reflect market take-up and will, in practice, be carefully estimated taking into account the site characteristics and, in particular, the size and the expected level of market demand.

- The rate of delivery will be an important factor when the Council is considering the release of sites so as to manage the delivery of housing and infrastructure.

- The promoters of the Gilston area propose a higher housing trajectory than that in the submitted Local Plans. The HIF scheme will clearly help in this regard.

- The viability study assumed a maximum, per outlet, delivery rate of 50 units per year. On a site with 40% affordable housing this equates to 30 market units per year (based on the Councils housing trajectories and taking account of recent delivery rates in the Borough).

- To maximise build out rates it will be necessary to have a diverse range of housing products and a range of specifications and prices - particularly on large, long term schemes that may well be delivered across several economic cycles. This is a key principle that is embeded within the Harlow Gilston Garden Town Vision.

- A range of site specific factors which also reinforce why accelerated growth would be achievable, supported by the HIF scheme. These include:

    - Infrastructure delivery will shape the pace and direction of development, and the Councils and developers are committing to early delivery of on-site critical infrastructure. Creating an attractive platform for development will be a major attraction for people considering moving to the area.

    - Each village has been carefully designed to offer different sizes and types of home at different pricing points.

    - Over time the Gilston will grow and have the critical mass to have its own distinct market. As Gilston makes this transition it will gain wider appeal and be able to draw buyers from a larger market area. In doing so its sales capacity will increase.

Further information regarding market analysis can be foudn in the attachement to this response.

Filename	Description
Ref 5.1 Market Analysis.pdf	Market Analysis Additional Information

[redacted]

As with the public sector partners, PfP is bound by EU procurement guidelines and has therefore been developing its own procurement strategy for Gilston for some time. It is proposed that a construction and infrastructure framework or "Hub" will be procured that would ensure the most suitable contractors are selected and that value for money can be demonstrated. This Framework will be scoped with the County Councils and Garden Town Authorities and will be structured to deliver the full scope of the STC and other Garden Town infrastructure so that any of the partner Authorities may also procure through it. This is something that PfP has done on many occasions (for examples see http://www.procurementhub.co.uk/our-solutions/)

A review is being undertaken at present on the optimum structure to determine whether the preference would be a Restricted Procedures route (an initial 4 year framework to cover the HIF period and look beyond) or a Dynamic Purchasing System (which PfP typically scopes for 10 years)

ECC has a wealth of experience in delivering highways projects within the county. To date, ECC have called upon the services of Jacobs for the STC's design, environmental

assessment and business case development through their Joint Venture organisation Ringway Jacobs' existing Highways Strategic Transformation (HST) Contract 2012 (Essex CC Highways Partnership Contract). Ringway Jacobs has wider experience of designing, procuring and delivering similar schemes for Essex and other local authorities. This procurement method is expected to remain over the duration of the scheme's development.

Currently the Official Journal of the European Union (OJEU) is the publication in which all public-sector infrastructure tenders valued above £4,104,394 must be advertised if not covered by an existing framework agreement. In developing the procurement strategy, the merits of available framework agreements have been considered as follows;

- Eastern Highways Alliance Framework 2
- Highways England's New Routes to Market Framework
- The National Civil Engineering and Infrastructure Framework – Scape
- Public Procurement Regulations / OJEU Options

More information can be found in Appendix N.

[redacted]

Please outline the procurement strategy to ensure build out of the wider scheme, including engagement with development partners to date, including use of SPVs, other joint ventures and legal proposals to bring forward homes

Within the Gilston Area, PfP owns the land to deliver Villages 1-6 (8500 homes) together with the main primary, social and green infrastructure.

PfP will adopt a "Master Developer" role; delivering the infrastructure to serve its villages and bringing forward serviced land for development. It intends to deliver c.30% of the housing itself overall and will be the developer for the initial phase of c.500 homes. It aims to bring the full range of products and tenures that it offers through its Group members, including:

- Housing for sale (through PfP, Zero C and Millwood, its subsidiary companies)
- Market rent/PRS
- Mixed tenure Retirement Housing (Village 1 "extra care" and V4 Retirement Village)
- Custom & Self Build (through its "designyourhome" brand)

The majority of these will be incorporated into the initial phases to drive absorption and deliver mixed and balanced communities.

In addition it will lead on the delivery of the affordable housing both as a Registered Provider, but also working with other landlords and with different structures such as small scale Community Land Trusts/Co-operative housing models.

On the balance of the site, PfP will procure a diverse mix of development partners from small/local developers through to volume housebuilders. The unique character of each of the 6 villages will attract different types of developers and we are progressing a number of scoping discussions at present. It has also been confirmed that the location is of interest to a variety of Investment and Pension Funds.

PfP has extensive experience of working in joint ventures and has a pipeline of over 8,000 homes being delivered on this basis. This would also be an option for larger disposals.

Given the volume of housing to be delivered around the Garden Town and the pressure on local supply chains combined with increasing skills shortages, PfP has also been developing proposals for the introduction of off-site manufacturing including partnering with Harlow College to deliver innovative construction training and apprenticeships targeting this.

PfP, the lead private sector partner has extensive experience of the delivery of major housing developments and the infrastructure to support such developments.

Brooklands, Milton Keynes

A 2,500 mixed use development adjacent to the M1 motorway. Infrastructure works completed to date by PfP include:

- Noise Mitigation Ridge/Bund along the M1 motorway - 3.5 km long average height 11m and 75m wide, volume circa 1m cubic of soil and aggregates. All material site

worn and external import from other developments as non-waste was engineered and compacted forming a reinforced earth structure. Last phase (300m) to be completed next year

- City Street - Phase 1 and 2 compromising of 3Km by 28m wide carriageway forming major strategic highways including provisions for dedicated bus lanes and a 3m wide cycleway route (redway). Constructed in phases (under s278/s38 highways agreements) by major contractors selected by open competitive tender. Last phase(s) (0.75KM) to be completed next year

- Boulevard and Secondary Streets - 1.5km of highways and footpaths with varying carriageway widths 5.5m-9m. Constructed (under s38 highways agreements) Remaining phase (250m) currently being completed

- Strategic Foul and Storm Drainage Systems- 3Km of varying pipes sizes up to 1.2m in diameter including a 10m by 3m diameter Foul Pumping Station

Smith's Dock, North Tyneside

An 850 unit development with 700m of River Tyne frontage. A £30m enabling phase of remediation and infrastructure works undertaken by PfP ahead of residential development including:

- Major reclamation of heavily contaminated former dockyard site

- Construction of new roads, roundabouts and public transport routes

- Infilling of 5 tidal docks

- Construction of new river/sea wall

- Sculpting and contouring of site to create developable areas

- Major soil nailing and other ground stabilisation

Wolverton, Milton Keynes

- Site reclamation

- Construction of new bridge over the Grand Union Canal on top of an existing Stephenson bridge.
- Stabilisation of canal walls
- New road access and junction improvements
- Slewed secondary railway line at Wolverton Station (adjacent to West Coast Main line

Marlborough Park, Swindon

650 unit mixed use development

- Construction all on site roads.
- Major junction improvements to adjacent Piper's Way and strategic employment sites - carried out major S278 works to junction

Port Loop, Birmingham

A 1,300 unit site on the edge of Birmingham City Centre being developed in joint venture with Birmingham Council, Canals & Rivers Trust & Urban Splash. Infrastructure works include:

- Land Remediation creating workable plateaus - works include removing hardstanding and crushing for reuse, separating contaminated soils and placing back with a 2m inert blanket across the site.
- Canal wall - including remedial works and major reconstruction of canal wall edge and forming/creating new canal tow paths.
- Strategic Highways - forming numerous s278 junctions/bell mouths and new s38 highways and footpaths (average 7.5 m carriageway)
- Strategic Drainage - construct foul and surface water sewer systems (utilising the canal for discharge) including underground surface water tanks as SUDs.

Please attach any supporting evidence from contractors / developers which support your proposal

Filename	Description
Appendix O- Memorandum of Understanding.pdf	Appendix O Memorandum of Understanding

Implementation timescales

Please provide an overview of the implementation timescales for your procurement strategy

The delivery of the infrastructure construction framework detailed in 5.3.1 would take approximately 6 months from launch to contract award. PfP had initially planned to launch this whilst the detailed planning application for the two river crossings and its outline application for village 1 to 6 in the Gilston Area were under determination. However, it has committed to accelerate the planning of the river crossings, ahead of its outline application being determined, to meet the HIF programme timescales.

PfP has therefore also agreed to bring forward the formation of the contractor framework and assuming a Restricted Procedure, this would comprise 4-5 months with a 1 month scoping period as follows:

- Issue Contract Notice (1 day)
- Receipt of PQQ (minimum 30 days from date of advertising)
- Evaluation of PQQs (2 weeks)
- PQQ feedback and issue tenders to shortlisted contractors (1 week)
- Receipt of tenders (minimum 25 days (there are circumstances to reduce this to 10 if it is being advertised to allow access to other contracting authorities))
- Evaluation of tenders (1 month)
- Issue alcatel letters (1 week)
- Standstill period (10 days)
- Contract Award Notice (1 day)

This would enable PfP to swiftly move to formal contractor appointment for the initial HIF, works including the Central Crossing, once funding is confirmed. Therefore, assuming the procurement process commences in April 2019, a contractor should be appointed by the end of 2019.

Please provide an overview of your phasing and implementation strategy for the wider scheme

The development will be delivered over a phased 20 year period. The planning permissions sought will have flexibility for the delivery of the phases to respond to future factors. It is expected that a phasing strategy will be agreed with EHDC as part of the outline permission planning conditions. Delivery will start in Village 1, before moving on to Village 2 in line with the GA Concept Framework. The outline permission will set triggers for the delivery of key infrastructure (i.e. occupation of 1,000 units), to ensure infrastructure is provided at the appropriate time to ensure the impacts of the development are mitigated.

See 5.3.2 for the implementation approach.

Contract management approach

Please provide details of your approach to contract management and any details of any arrangements already in place - this should include charging mechanisms

PfP is finalising its Procurement Strategy; having updated it to reflect the HIF requirements. It is engaging in "soft market testing" with appropriate contractors to firm up the proposed contract arrangements. Based on its experience elsewhere, and working with the County Councils' teams, it envisages utilising New Engineering and Construction Contract (NEC) form of contract using payment and risk allocation options A to E to suit each contract.

It is too early to confirm actual contractual clauses, but these will be drafted in consideration of the Homes England and County Council requirements, as well as PfP. Usual consideration to appropriate levels of Parent company guarantee, Warranties, Dispute resolution and Change control management will be fully addressed.

Please provide details of the proposed key contractual clauses

HCC are working with their partners who are experienced in delivering projects via the NEC suite of contracts, and in fact operate both their major Term Service Contracts under an NEC type contract. These contracts have a combined annual throughput in the region £70m. They procure individual projects primarily under NEC3 and the changes from NEC3 to 4 are relatively minor and do not pose a risk or challenge to use in the future.

The table outlined in Appendix P uses current examples of the use of the NEC suite of contracts in Hertfordshire and extracts specifics from these contracts to respond to the bullet points below:

- New Engineering and Construction Contract (NEC) form of contract using payment and risk allocation options A to E to suit each contract.
- Contract management software used.
- Parent company guarantee.
- Warranties.
- Dispute resolution
- Change control management.

Please refer to Appendix P for more information

Additional information

Please provide details of the proposed key contractual clauses

Filename	Description
Appendix N- ECC Delivery Strategy.pdf	Appendix N ECC Delivery Strategy
Appendix O- Memorandum of Understanding.pdf	Appendix O- Memorandum of Understanding
Appendix P- NEC Suite Contracts Table.pdf	Appendix P NEC Suite Contracts Table

Financial Case

What are the total scheme costs?

£243,870,000

Will the infrastructure costs be 100% funded through HIF?

No

Please provide a summary of the total infrastructure costs of the project

Description	Type	Cost	HIF Funding
Item 1. Expansion of Central Crossing to extend STC between Gilston Area and Railway Station and Burnt Mill Roundabout.	Infrastructure	£36,200,000	£36,200,000
Item 2a. Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner.	Infrastructure	£5,924,000	£5,924,000
Item 2b.Pye Corner bypass including junction between north-south section and east-west section.	Infrastructure	£19,566,000	£19,566,000
Item 2c. Remainder of Eastern Crossing including River Way Bridge	Infrastructure	£67,350,000	£67,350,000
Item 3. Extension of STC from Burnt Mill Roundabout through the Town Centre	Infrastructure	£42,140,000	£42,140,000
Item 4. Enhanced Sustainable Transport Hub in Village 1- Costs are not available and will be confirmed at a later stage	Infrastructure	£0	£0
Item 5. Access to Gilston Area Village 2	Infrastructure	£2,159,000	£0
Item 6. Access to Gilston Area Village 1 (north of Eastwick junction) and creation of STC link within Village 1	Infrastructure	£13,240,000	£0
Item 7. Gilston Area STC “inner loop” connecting to Villages 3, 4, 5	Infrastructure	£45,406,000	£0
Item 8. Access to Village 7	Infrastructure	£1,535,000	£0
Item 9. Gilston Area STC “inner connection” opening up sustainable access and highway between Village 7 and Village 1	Infrastructure	£10,350,000	£0

[redacted]

[redacted]

3. Extension of STC from Burnt Mill Roundabout through the Town Centre
4. Enhanced Sustainable Transport Hub in Village 1
5. Access to Gilston Area Village 2
6. Access to Gilston Area Village 1 (north of Eastwick junction) and creation of STC link within Village 1
7. Gilston Area STC "inner loop" connecting to Villages 3, 4, 5
8. Access to Village 7
9. Gilston Area STC "inner connection" opening up sustainable access and highway between Village 7 and Village 1

No attachments

Can you provide detailed costing for the housing element of the wider project that forms part of your total scheme costs?

No

Please explain why these are not currently available and when you expect them to be more developed

Whilst housing costs are available they do not make up the total scheme costs of the scheme proposed in this HIF bid. Further information around the housing costs is detailed in Section 6.6.

Please provide a detailed cost plan for the scheme proposed to be fully or part funded by HIF.

Filename	Description
Appendix Q-Gilston Cost Plan.zip	Appendix Q Gilston Cost Plan
Appendix R- Order of Magnitude Cost Estimate Report.pdf	Jacobs Cost Estimate
Appendix S- Garden Town Viability Report.pdf	Appendix S Garden Town Viability Report

Please provide detail on how the land cost included in your scheme costs has been arrived at and the basis of this assumption (if you have included these costs in either your infrastructure or housing costs)

Land cost for infrastructure elements is not included in the scheme costs. Most of the infrastructure land is owned by various public bodies and the remaining land will be acquired. Details regarding land ownership can be found in Appendix V.
Land Cost is based on Cushman & Wakefield land value analysis based on a residual land value calculation (using Argus Developer). Details in attached Appendix T.

Please attach any evidence to support how the land cost has been assumed

Filename	Description
Appendix V- Land Ownership table.pdf	Appendix V Land Ownership Table
Appendix T - Financial and Economic Details C&W.zip	Evidence of Land Value Analysis

[redacted]

No attachments

What is the proposed funding and financing strategy for the housing scheme? If funding sources have not been secured you should also provide commentary of how this is expected to be secured and progress against this - please reference the above table in your answer

No attachments

Gross Development Value

How much is the assumed Gross Development Value (GDV) for the scheme?

£3,090,000,000

Please provide a breakdown of the assumed GDV of the scheme in relation to the below:

Private sale	£2,350,000,000
Rent income	£0
Affordable sales income	£740,000,000
Commercial income	£0
Other	£0

Please provide a summary evidencing how you have assumed the GDV subject to this bid

HCC appointed AECOM HIF Bid consortium consisting of AECOM and Cushman & Wakefield to advise on aspects related to all aspects of the Business Case inputs for the HIF Bid.
Cushman & Wakefield drew upon the Garden Town Viability Report and used comparable evidence to identify the following assumptions to estimate the GDV:

- £398/sqft market housing (average size 986sqft)
- £257/sqft intermediate (average size 986sqft)
- £178/sqft affordable rent (average size 986sqft)

Average Unit Price of £393,000 is assumed for Gilston as part of the analysis.
Details are provided in attached Appendix T

No attachments

Please provide a cashflow for both the infrastructure and the overall development or housing scheme (if available). Please provide details on any growth and inflation assumptions made

Filename	Description
Appendix U- HGGT HIF cashflow .xlsx	Appendix U HGGT HIF Cashflow

Recovery

Do you aim to recover any of the funding (to be retained locally)?

Yes

Please provide assumed profile of recovery

Up to 2020	£0
2020-2025	£86,519,915
2025-2030	£84,660,085
2030-2035	£0
Future years	£0

How will the funding be recovered?

The upfront HIF funding in combination with developer funding as explained above will result in Gilston development to come forward.The resulting S106/ CIL contributions from the developers will result in creation of a rolling infrastructure fund .

[redacted]

As these pieces of infrastructure are delivered, it will further unlock sites across Town centre, East of Harlow, Water Lane and Latton Priory.

Additional Information

If you have any further information to support the Financial Case for your project, which has not already been captured in the above, please include this here

Attachment Ref 6.1.6 includes a table of all housing costs.
HCC appointed AECOM HIF bid consortium consisting of AECOM and Cushman & Wakefield to advise on aspects related to all aspects of the Business Case inputs for the HIF bid.
The landowner and Master Developers for Villages 1- 6 - PFP appointed Knight Frank for advise on property valuations and market related inputs and Quod for viability analysis.
Harlow District Council (HDC), East Hertfordshire District Council (EHDC), Epping Forest District Council (EFDC), Hertfordshire County Council (HCC) and Essex County Council (ECC) appointed HDH Planning & Development Ltd to undertake a Strategic Viability Assessment for all strategic sites across the Harlow and Gilston Garden Town
Site specific costs and cost trajectory were provided to HIF bid consortium by PfP for Villages 1- 6. These are based on inputs from viability analysis conducted by Quod. Site specific costs for Village 7 was not made available for HIF bid consortium and hence were estimated using Village 1- 6 as the benchmark.
The Garden Town Viability Report (See Appendix S) which has detailed viability analysis and cash flows on all 7 villages within the Gilston Area has also informed the estimates.
Based on the above information – Cushman & Wakefield who are working as part of the HIF bid team estimated the costs presented in the attachment.
Further details of the analysis conducted by Cushman & Wakefield can be found within the Appendix T.
Additional information on the proposed funding and financing strategy for the housing scheme can be found in the attachment Ref 6.2.5

Filename	Description
Ref 6.1.6 Summary of Housing Costs.pdf	Ref 6.1.6 Summary of Housing Costs
Ref 6.2.5 Proposed Funding Strategy for Housing.pdf	Ref 6.2.5 Proposed Funding Strategy for Housing

Management Case

Project Dependencies

Description	Critical	Outside of direct control
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Project governance, organisation structure and roles

Please outline the authority's approach to governance and oversight of the delivery of the proposal. This should include how you will work with any other key delivery partners (such as other landowners)

Previous Experience:

The lead Authority for this bid is Hertfordshire County Council (HCC). The council has been established for well over 70 years. Hertfordshire County Council has experience of delivering capital programmes and schemes, working alone and with partners across sectors and tiers of government. Highways related infrastructure projects such as the A505 Baldock Bypass (£34m), Royston Rail Crossing (£4m), Hatfield Station Interchange (£3.8m). Currently delivering A602 Improvements (£20m) and the A120 Hadham

Bypass and Flood Alleviation Scheme (£35m) have been successfully delivered previously. The County Council brings experience of major programme and project management, asset investment and collaborative working in partnerships.
The Authority also has a track record of successfully working with public and private development partners and has recently established its own housing delivery company Herts Living in partnership with Morgan Sindell and has demonstrated that it can achieve high standard investment management and capitalise on benefits private and public collaboration can provide.
HGGT Board & Team:
The delivery of the proposed HIF Funded Infrastructure will be overseen by the Harlow Gilston Garden Town Board (HGGTB). The HGGTB was established as part of the governance arrangements for the delivery of the Harlow Gilston Garden Town under the HMG / HE Garden Town's programme in 2017. HGGT is in the process of establishing an Infrastructure Delivery Board (as part of the overall governance board structure) which will oversee performance against programme and project delivery. The HGGT Board (through its Infrastructure Delivery Board) will have responsibility for reporting on the agreed assurance and performance framework for the HIF funded infrastructure programmes.
Hertfordshire County Council will retain executive authority as the accountable body for the responsible fund management and will work closely with the HGGTB in a collaborative manner. To enable this, the existing HGGT Terms of Reference and governance procedures are being updated and amended to reflect the position.
There is an existing HGGT delivery team that supports the board and the overall development programme. It has its own Director and team. The delivery of the HIF funded projects will be overseen by the established senior officer group drawn from the constituent councils, augmented with additional reach-back capacity as needed.
Although Hertfordshire County Council will have responsibility as the accountable body including for financial assurance, the HGGT Board will have formal governance oversight of progress and performance in delivery of the HIF Projects and associated housing delivery, including reporting back to Homes England.
This will include provision for the accountable body to be represented on the HGGT Board (most likely as the HCC s151 or a deputy) to ensure that the project delivery is supported from a financial, governance, and value for money perspective and also to enable proper delivery of the responsibilities of the accountable body.
The Board will also provide strategic leadership and oversight to the Garden Town project; it will set and steer the project's direction and monitor progress, review the project's direction and objectives on an annual basis. The Board will also have responsibility and authority for the overall delivery of the project through the work-streams, and ensuring there is effective community and stakeholder engagement. Homes England are also represented on the Board.
The HGGT Board has broad political representation and an independent chair. The attached diagram identifies the representative governance on the HGGT Board (Members from two County Councils, two LEP's, three districts and the Independent chair as well as a representative from Homes England).
The project and programme management, assurance and reporting arrangements will be agreed with Homes England and will form part of the assurance framework developed for this project in line with the governance structure established above.
HGGT Sponsorship:
Programme sponsorship within the HGGT organisation involves providing top-level endorsement to the rationale and objectives of a particular programme, championing its implementation and ensuring appropriate programme governance is implemented.
For HGGT, the project sponsors are the HGGT Board – recognising that HCC are the accountable body and the Lead Authority for the HIF projects. The HGGT Board as a collective is responsible for ensuring that the programme meets its objectives and delivers the projected benefits. Whilst there will be no delegation of executive functions from HCC to HGGT it is intended that the Board will have responsibility for project and programme assurance monitoring and reporting to HE on the HIF projects.
Working with Partners:
HCC recognises the key to successfully delivering the project is to work closely in partnership with Government Departments, Homes England, other Local Authorities, private landowners and developers, i.e. PfP and Briggens Estate, and transport bodies in a coordinated way to deliver the desired outcomes. The scheme will provide the land, transport infrastructure necessary to make the Gilston area more accessible, linking it to surrounding communities and enabling development to deliver 10,000 new homes.
Much of the land in the scheme is owned by the developer partners PfP and Briggens Estate and is the subject of the Memorandum of Understanding (MoU) being developed between the Authorities and the developer partners. The MoU is a key framework tool which will set out the working arrangements for the delivery of the HIF funded projects and associated housing going forward. The MoU will build on the joint working arrangements and planning performance agreements already in place.

The assurance framework that will be developed by the partners for approval by HE will confirm the detail of the programme progress and any additional performance reporting that will be put in place for the delivery of the HIF funded projects. Since the HGGT Board structure is already established and operating under the HMG/HE Garden Towns programme, the delivery of the HIF funded infrastructure will be a work stream within the wider HGGT delivery programme, overseen by the HGGT Board and HGGT Infrastructure Delivery Board when established.

Please provide details of the authority's resourcing for the proposal

For HCC, additional capacity has been procured to support the development of the bid. On-going programme and project management support will be required to manage delivery of the projects once confirmed. These resources will be procured on a secondment or interim basis working with the HGGT delivery team. Oversight of progress, assurance and reporting to the HGGT Board on behalf of the accountable body and the councils will be the responsibility of a dedicated Programme Manager with appropriate seniority and experience from HCC's Environment and Infrastructure Department.
Additional resources necessary to deliver the components of the HIF infrastructure projects and programme will be procured by the councils and partners as necessary, according to the agreed programme. The dedicated programme manager/project lead will be appointed at the earliest opportunity upon confirmation of funding being available to enable programme mobilisation without delay. In the interim the HCC and wider partner project team engaged on the HIF submission will continue to move mobilisation and delivery plans forward over the summer.
There will be a mixture of areas to be resourced, including land & property, planning and legal. Initial priority will be the programme lead and support to get mobilisation underway. At key stages of the programme, specialist inputs will be required. The local authorities and partners will look to support the programme's mobilisation with pace. Any necessary recruitment will be fast tracked and streamlined processes will be used wherever possible, commensurate with assurance and procurement responsibilities. A significant resource and delivery structure is already established and being augmented through the HGGT delivery team. Being able to resource this project through existing partnership working, secondments and using established contractual arrangements across the project and partners will facilitate a greater pace of mobilisation and delivery. HCC along with the HGGT would look to forward fund recruitment of additional capacity necessary to support mobilisation.
PPAs have been agreed between EHDC, HDC, HCC and ECC with PfP and Briggens Estate respectively to establish the agreed milestones for planning approvals as set in 7.1.1 including the allocation of dedicated resources to support the planning approvals stage. This includes: for EHDC & HDC a dedicated Project Officer (in post) to lead the planning approvals process for the Gilston Area Villages and River Crossings; a jointly appointed dedicated lead River Crossings planning case officer (in post) to support the River Crossings planning approvals for both Local Planning Authorities in accordance with working arrangements agreed by an MoU for these cross-boundary applications; a dedicated Principal Planning Officer (in post) to support a continued pre-application process to support future stages of planning approvals for the Gilston Area Village Masterplanning and Infrastructure and Housing Reserved Matters; and a dedicated Senior Planning Officer and a dedicated project Co-ordinator; for HCC a dedicated Growth & Infrastructure Officer (in post) and a dedicated Transport Officer to support the planning approvals and pre-application processes; for ECC a dedicated Transport Officer (in post) and a dedicated Planning Officer (under recruitment) to support the planning approvals and pre-application processes. Consultant support has also been commissioned, through the co-operative arrangements of the Garden Town including a joint Garden Town Legal Advisor (appointed) and a joint Garden Town Land Assembly Advisor.

Please attach an organogram depicting the governance structure and/or roles and responsibilities within the authority

Filename	Description
Ref 7.2.1 HGGT Delivery Team Structure and HGGT Board Composition.pdf	HGGT Delivery Team Structure and HGGT Board Composition

Project management arrangements and project plan

Please provide details of the overall project management delivery arrangements for the project, including any challenges or constraints to delivery of the project

Management Team:

Hertfordshire County Council (HCC) and Essex County Council (ECC) have significant experience in the delivery of strategic infrastructure projects.

HCC's delivery experience includes:

HCC has a strong track record in scheme delivery of large infrastructure schemes, including:

• A505 Baldock Bypass (£34m)
• Royston Rail Crossing (£4m)
• Hatfield Station Interchange (£3.8m)
• Currently delivering A602 Improvements (£20m)
• Currently delivering A120 Hadham Bypass and Flood Alleviation Scheme (£35m)

ECC's delivery experience includes:

• A414 Dualling between M11 Junction 7 and Southern Way;
• First Avenue Sustainable Transport Corridor;
• A414 Clock Tower Junction Improvements
• Ongoing delivery of M11 Junction 7a

The Garden Town Board with representatives from HCC and ECC has been set up to support and oversee the delivery of HGGT. The developer partners PfP and C&PBriggens Estate are committed to the delivery of the individual Garden Town components including infrastructure delivery. A governance framework and board is already in place for the garden town that would be used for these projects. An Infrastructure Delivery Board and associated support structure is being established by the HGGT.

HCC are the accountable body but delivery is expected to be through the partners under the governance of the HGGT Board. Project and programme management will be part of the HGGT delivery work, under a lead Programme Director / Project Manager reporting to the HGGT Board. This arrangement reflects the partnership approach and nature of the HGGT project. An assurance framework addressing performance, programme and project management will be agreed with HMG/HE and this will be monitored by the HGGT Board on behalf of the partners and the accountable body. Existing programme and project management processes for the delivery stage will be rolled forward (from the HIF bid preparation stage) over the coming months.

The detailed programme and project management arrangements for delivery of the HIF infrastructure will also build on the work and structures already in place and undertaken by partners engaged on planning and delivery of the components of the GT. Specific assurance and programme/project management components required for the HIF projects will be put in place over coming months, at risk if necessary. Assurance arrangements will be agreed with HE and Hertfordshire County Council under the accountable body responsibilities and then via MoU's with the other partners (e.g. Essex County Council, East Herts DC, Epping Forest DC and Harlow DC as necessary within the programme of works).

All the local authority partners are represented on the HGGT Board, as well as on the senior officer steering group. They are all supporting the delivery of the HGGT. The HIF projects programme delivery will be part of the infrastructure delivery approach that has already been established.

At the core of the finalised Programme Management Methodology will be the Infrastructure Programme Execution Plan (PEP). It will provide the key information necessary to successfully execute the Infrastructure delivery funded by HIF by detailing the 6 key questions for the management of the Programme – who, what, where, when, why and how.

For these sections we will ensure the following will be addressed:

"who"– we will detail the key stakeholders, the project governance and authorities, organisation structure and key personnel roles and responsibilities and how these will relate to governance and delivery partners. It will include a RACI matrix and detail communications strategy and plans;

"what" – a description of the HGGT infrastructure and housing programme, and what risks and opportunities should be considered as part of the scheme;

"where" – detailed plans for the projects, taking in consideration the land ownership and 3rd party land affected/required for the scheme, together with acquisition and assembly strategy;

"when" – integrated detailed and summary programmes and key milestones, their monitoring and reporting regimen;

"why" – details of the strategic business case describing the objectives and desired benefits, how they will be tracked, and the rationale for the project.

"how" – details how the project will be managed, including - change management, communications management, risk management strategies, information management, procurement and contract strategies, cost plans and management, procurement and delivery

strategies.
Governance Framework:
An assurance framework addressing performance, programme and project management will be agreed with HMG/HE and this will be monitored by the HGGT Board on behalf of the partners and the accountable body.
Existing HGGT governance framework will be used with adjustments needed to address the HIF delivery assurance approach that would be agreed with HE. The intention would be to work within the governance framework set up for the HGGT incorporating delivery governance under the emerging Infrastructure Delivery Board. The HGGT Board has member representation from the five local councils as well as an independent chair. Although HCC would be the accountable body, delivery is expected to be undertaken by others and a framework to address programme and performance management within this structure would be developed as part of the assurance and reporting arrangements. HGGT is part of Homes England already established national Garden Towns Programme with existing reporting and delivery arrangements. The HIF projects would be incorporated into the established delivery and governance structure of the HGGT.
A programme and project lead will be appointed on behalf of the partners to establish management protocols and oversee delivery. They will be responsible (with others) for the overall programming and mobilisation of delivery across the partners. There already exist recognised programme management and project delivery approaches used by the upper tier authorities. These will be used to inform the approach set out in the assurance framework that will be developed for the delivery of the HIF infrastructure projects. Significant work has already been undertaken on infrastructure delivery across HGGT.

Please summarise your project delivery plan to deliver the infrastructure, this should include your anticipated land ownership / control strategy

HGGT are appointing a Land Assembly Advisor to lead a joint Land Assembly Team (LAT) and prepare a Land Assembly Strategy (LAS) to advise and lead on the assembly of land for the authorities or to monitor and mediate where necessary where land assembly is led by a developer or other landowner. The HGGT and local authorities are working with the PfP to secure necessary land and rights to implement the HIF projects (whether by agreement or through formal processes), the Land Assembly Advisor and LAT will represent the authorities in this process including land referencing, identifying prioritisation of assembly and working to the LAS to ensure that land acquisition is undertaken in a co-ordinated matter. Where necessary the Land Assembly Advisor will directly monitor, act as mediator in the negotiation of access and land assembly where led by the developer and ensure the Councils positions are protected both in respect that the land assembly will allow delivery of the HIF projects as well as running parallel processes for the potential use of Compulsory Purchase Orders so that this can be expedited if required according to a master programme linked to the delivery of those projects.
Land owners have been identified and listed for each Infrastructure element and are outlined in Appendix V, which is attached in Section 7.8.1 .

Please provide details of your project delivery plan to deliver the homes unlocked by the infrastructure. Please detail any expected controls or levers you will put in place to ensure the delivery of housing comes forward on the sites

Arrangements will be put in place between the partners that tie infrastructure and housing delivery commitments together. This could take the form of legal agreements and/or MOU's and the precise approach will be confirmed shortly.
Planning:
Statutory local planning authorities have put in place a framework that addresses all necessary planning requirements to ensure the development is acceptable and will secure planning permission. This includes a Local Plan, masterplan, infrastructure plan and legal agreements that tie s.106 and other cross boundary measures into a seamless framework that supports delivery.
East Herts District Council (EHDC) is the local planning authority for the Gilston Area, which includes all land allocated for the 10,000 homes, for key infrastructure (Items 1, 5, 6, 7, 10, 11 and 12), and the northern elements of the River Crossings (part of Items 2, 3 and 8). EHDC has an adopted District Plan which includes all necessary policies to support in principle this growth and infrastructure and has approved the Gilston Area Concept Framework document as a Material Planning Consideration which sets out a masterplan for the Gilston Area. EHDC has worked collaboratively with the developers for a number of years to support a pre-application process and has prepared a PPA (as set out in response to 7.2.2) which includes agreed milestones for the planning process including submission of first applications in April/May 2019 with targeted determination in December 2019 and decision notices and legal agreements in January 2020. Harlow District Council and both Hertfordshire and Essex County Councils are also

parties to the prepared PPA and to its programme reflecting their roles as important statutory consultees to these applications.
Harlow District Council (HDC) is the local planning authority for the southern elements of the River Crossings (part of Items 2, 3 and 8) and for the STC between Burnt Mill roundabout/Harlow Town Railway Station and through the Town Centre (Item 4), other related infrastructure (Item 9) and the wider network of STC's (Items 13, 14 and 15). HDC is undergoing examination of its District Plan which includes all necessary policies to support in principle this infrastructure and the wider Garden Town growth. EHDC and HDC along with Hertfordshire and Essex County Councils have prepared an MoU which sets out the officer and member working arrangements for the planning process relating to the Gilston Area allocation of 10,000 homes and the River Crossings, this includes working practices to co-ordinate and co-operate on the cross-boundary planning applications all of which are considered to be supported in principle under both the existing and emerging policy basis.
This collaborative approach to pre-application engagement and co-ordinated approach to the application stage are considered to improve the quality and likelihood of success of the applications.
A clear programme for planning approvals has been established with the developers which includes a multi-stage consent process than ensures continual progress can be made in an efficient and effective manner in order to accelerate delivery of housing. This process is set out further in Appendix W and attached in Section 7.8.1. The process in Appendix W demonstrates that the Plan Making stage has been completed and is now supported by an adopted Gilston Area Concept Framework which establishes the illustrative masterplan and the concept delivery framework for the Gilston Area, including the River Crossings.
The Outline application stage is therefore able to proceed on the basis of approving outline parameters and completing the appropriate consideration of Environmental Impacts and Mitigation with all matters being reserved except for access.
Preparation of a Charter SPD, Engagement Strategy and Monitoring Framework will establish holistic high level supplementary guidance that bridges the policy framework of the District Plan, the Concept Framework and the Garden Town Vision and will be used to set clear targets for the Village Masterplanning stage.
Strategic conditions approvals will follow Outline stage including Village Masterplans for each of the 7 villages, which can be brought forward as each is Village approval is necessary reducing the scale of masterplan approvals to discrete new communities of between 700 and 2,000 homes. Design Coding will accompany Village Masterplanning to establish distinct character for each stage and clear principles around the scale and appearance of the development in each village. The Masterplans and Design Codes will establish a clear framework of guidance for Reserved Matters to assist an efficient and effective approvals process for the appearance of buildings and placemaking stage.
The multi-stage planning approvals process will seek to overlap throughout so that this iterative process runs to a significantly reduced programme. This has considerable benefits through providing opportunity for 'proof of concept' by detailed design helping to shape the framework above. Examples of this are in relation to the Concept Framework being used to shape the District Plan policy, the Gilston Charter SPD will be prepared in parallel with the first Village Masterplans and first Reserved Matters will be progressed in tandem with Village Masterplanning and Design Coding. This helps establish confidence that each stage is fit for purpose and therefore approval.
The Village by Village Masterplanning and Design Coding approach allows flexibility and future-proofing into the process by allowing Village form and approaches to change to respond to external influences such as advances in Modern Methods of Construction/Off-site construction and changes in technology such as electric and autonomous vehicles. For a 20 year project the flexibility this multi-stage approvals process and Village by Village Masterplanning and Coding brings is very valuable and minimises risk of having to revisit previous approvals through amendments to existing permissions.
EHDC have set up the Gilston Area Steering Group with representatives of the Councils, the developers and the local community and are preparing an overarching Engagement Strategy, these build upon existing engagement in the plan making and pre-application stages to establish a framework for continued community engagement at all stages of the planning process.
Design Quality will be supported both through the up to date policies in the newly adopted District Plan and the multi-stage process of layering up iteratively the design detail through parameters, masterplans, design codes and finally detailed reserved matters. This process will be supported through the collaborative approach of the Garden Town with the guidance of the Garden Town Vision document and Design Guide and by the Garden Town Quality Review Panel which provides independent critical friend design support.
The five authorities of the Garden Town have jointly appointed a single Legal Advisor through the Garden Town to prepare Section 106 agreements, the co-ordination of this through a single jointly instructed body is considered a prudent approach to ensuring legal agreements are expedited efficiently and effectively.
Timely Land Assembly:

The land required to deliver the homes is owned by the development partners PfP and Briggens Estate. Land assembly will be required to support certain elements of the delivery of infrastructure identified within the HIF bid. The land ownerships have all been identified and PfP will be the applicant for the planning approvals process and the commissioning body for the delivery of that infrastructure working with the local planning authorities and the County Councils. PfP have commenced their land assembly strategy and will report progress of this to the Garden Town authorities. As set out in 7.3.2 HGGT are appointing a Land Assembly Advisor to lead a joint Land assembly Team and prepare and deliver a Strategy for the effective and timely assembly of land by the authorities and the monitoring and mediation where land assembly is led by developers. The Land Assembly Strategy will protect the authorities' position in respect of the potential for their, or another agency, to use Compulsory Purchase powers and run in parallel such measures that are deemed necessary to ensure this can be expedited according to a clear programme that identifies and prioritises land assembly.

Housing Delivery:

EHDC cannot predetermine the proper planning approvals process for the Gilston Area housing sites but it has worked with the developer and other stakeholders including statutory consultees and the community through a collaborative process in the preparation of the Plan, the Concept Framework and the forthcoming applications. EHDC has also set out a clear and logical programme for the planning approvals process, above, which together with the collaborative engagement places the projects in the best position to improve their quality and likelihood of success. EHDC will engage with the developers to establish appropriate planning conditions including to ensure proposals are implemented in a timely manner in accordance with paragraph 76 of the NPPF. EHDC will work with partners to monitor the implementation of approvals to support timely delivery. Policy DEL4 of the adopted East Herts District Plan requires (I) that the Council will draw up an action plan setting out key milestones for the delivery of the site, including masterplanning, phasing of infrastructure and submission of planning applications, and monitor its progress on an annual basis; and (II) the annual rate of housing completions at the Gilston Area will be considered as part of District wide monitoring, in accordance with the provisions of Policy DEL3. Policy DEL3 requires (I) that should delivery of housing in any given monitoring year falls below 110% of the annual requirement, the Council will consider implementing all or some of the following measures to bring forward development:

•Working with developers and infrastructure providers to remove obstacles to the delivery of sites;
•Seeking alternative sources of funding if problems with infrastructure provision is delaying development of key strategic sites;
•Consideration of the potential to increase density on allocated sites;
•Consideration of the ability to deliver strategic sites earlier in the Plan period; and
•Working with other authorities under the Duty to Co-operate to address any unmet needs.

EHDC will meet the above both through the Annual Monitoring Report arrangement and through a bespoke Monitoring Framework that will be prepared for the Gilston Area project. The S106 for the applications and the strategic conditions relating to phasing will establish clear programmes against which the progress can be monitored in accordance with Paragraphs 73-75 of the NPPF through the AMR and Gilston Monitoring Framework. This will ensure that risks to delivery can be identified swiftly in order for appropriate action to be considered. Actions will likely be informed through a co-operative process of engagement with the developer and other stakeholders.

The high housing need and demand in the District provides reasonable confidence to EHDC that timely delivery will be possible and that the site is well places to weather impacts of an external or unforeseeable nature. If necessary EHDC will consider actions to unlock or accelerate delivery where this is shown to not be meeting the trajectory including working with developers and stakeholders to remove obstacles, seek external financial support, although noting that HIF is expected to remove the largest potential obstacle identified by the authorities and developers. If necessary EHDC will work with partner authorities including Harlow District Council and Hertfordshire County Council through HTS Group and Herts Living, respectively, their private limited companies to consider if these Council owned development companies can help deliver or remove obstacles.

Should obstacles to delivery prove insurmountable to overcome through agreement with the relevant parties consideration will be given to the use of Compulsory Purchase Orders. On 21 September 2017 EHDC set out agreement to the principle of using the Council's Compulsory Purchase Powers in respect of land required to support development in the Gilston Area. This demonstrates the importance that EHDC gives to the delivery of the Gilston Area allocation at both officer and member level and establishes a clear willingness to use all the tools that the Council has available to it to support delivery where necessary.

Please summarise your maintenance strategy for ongoing costs for the scheme

HCC will adopt new highways and related structures within Hertfordshire under its normal highways asset management criteria and regulations. Future maintenance requirements will be considered at design and delivery stages. HCC will work with ECC to ensure that maintenance requirements are fully considered in accordance with best asset management practice.

Project milestones

Please provide actual or estimated dates for the following infrastructure delivery milestones:

First infrastructure planning permission granted	31/01/2020
Last infrastructure planning permission granted	30/09/2022
All land assembly completed (if required)	30/09/2022
Project infrastructure works started	30/06/2022
Project infrastructure works completed	30/09/2024

Please provide actual or estimated dates for the following housing delivery milestones:

First residential units commenced	01/01/2021
Last residential units commenced	01/01/2034
First residential completion	31/12/2022
First residential completion	31/12/2040

Please attach an outline delivery programme for your proposal and the key milestones required to achieve it

Filename	Description
Appendix X- Project Programme.pdf	Outline Delivery Programme

Please list planning references for the infrastructure works

No planning references currently exist.
Pre-application engagement is ongoing, with the intention to submit the two village development outline applications and the two river crossing full applications in April/May 2019, with public consultation commencing in May 2019.

Please list all statutory powers or consents required and already obtained to deliver the HIF works

- Full planning permissions for each of the Crossings
- A HCC Highways Act promoted CPO for the land required for the Crossings
- A confirmed CPO for each Crossing or agreements with the relevant landowners
-Potential environmental consents for works affecting landfill site on Eastern Crossings

Stakeholder management

Please summarise how the key delivery partners will work together effectively

Scheme delivery will require close collaboration and joined up strategic planning between the various local authorities and stakeholder and the developer partners have co-developed the HIF bids. Given the close working relationship between the public and private sector, it is considered that a sound delivery team is in place. It is envisaged that the initial works for the existing and new river crossings will likely be delivered by Places for People. Wider works on the STC would be delivered by Essex and/or Hertfordshire County Council. Essex Highways, (a combination of ECC and Ringway Jacobs) will deliver the STC scheme from Burntmill Roundabout through Harlow Town Centre. However, all parties will be working collaboratively on the phasing, procurement and delivery strategy of the works and will agree the party/parties best placed to lead on each element.
Appropriate contractual arrangements will be put in place between the Accountable body and delivery agencies or parties (e.g. Hertfordshire County Council, Essex County Council or the developers) where this is necessary under and relevant public finance, highways or Town and Country Planning legislation requirements.

An MOU has been developed to confirm the on-going relationships between the parties in the delivery of the HIF programmes and projects. An MOU for the cross-boundary approach to the Consideration and Determination of Outline Planning Applications for the Gilston Area allocation and the Detailed Planning Applications for the River Stort Crossings has been signed between East Herts District Council, Harlow District Council, Hertfordshire County Council and Essex County Council.
All key parties including the local authorities and developers will continue to input resources as required. This is also supported by the Gilston Garden Towns Steering Group, who are aware of and supportive of the proposals.

Please summarise how you will work with the other key stakeholders to ensure project success (i.e. local residents / businesses)

Stakeholder engagement and public consultation will be key processes and milestones for the scheme. Early engagement and scheme buy-in are important to determine what is likely to be deliverable (particularly where the scheme may be more challenging to deliver, such as requiring land or property acquisition) and to gain support for the scheme. A communication and engagement strategy will be developed at the outset to outline how stakeholders will be involved throughout the scheme and to provide a schedule for promotional activities such as workshops and forums. Stakeholders will include council officers, elected representatives, key businesses and organisations and community groups, and regular communication will take place to keep stakeholders apprised of scheme progress and key issues
In January 2017, East Herts council, along with Harlow and Epping Forest councils, were awarded a government grant of £500,000 to support proposals for a Garden Town at Harlow and Gilston with a further £175,000 awarded in July 2017. Further grant funding of £715,000 from MHCLG was received for 2018/2019. The grant was provided to help fund the significant amount of technical work required to deliver this ambitious project. Since January there has been significant progress on technical aspects of the scheme along with community and stakeholder engagement events. Governance of the garden town project is through a garden town steering group, comprised of the three districts (East Herts, Harlow and Epping Forest) and two county councils (Hertfordshire and Essex) and enacted via project team and 15 workstreams.
A series of community engagement workshops have been held between January and June 2018, these were attended by East Hertfordshire Council Hertfordshire County Council, Neighbourhood Plan Group and Landowners / Site Promoters. Public consultation events were also held in Gilston, Harlow, Hunsdon and Sawbridgeworth between May and September 2017.
In addition to these community engagement events, a Gilston Steering Group has been set up and a series of meeting have been held. The Steering Group consists of East Hertfordshire Council, Hertfordshire County Council, Essex County Council, High Wych Parish Council, Widford Parish Council, Places for People and Neighbourhood Plan Group.
Technical co-operation is also taking place on infrastructure provision and design with regular meetings between Herts CC, Essex CC and the landowner's consultants. Meetings have also been held with the Train Operating Company, bus operators and Network Rail.
A key stakeholder group for this scheme is the local bus operators. Early discussions have already been held with the main bus operator about the aspirations / vision within Harlow, and they are understood to be receptive towards working as part of a partnership arrangement.
As part of the development of the Harlow & Gilston Garden Town, East Herts Council along with input from the various stakeholders has developed a Gilston Area Concept Framework. The purpose of the document was to support the strategic Site Allocation in the emerging East Herts District Plan for 10,000 homes in the Gilston Area. The Council ran a consultation on the Draft Concept Framework between Monday 24th July 2017 and Friday 8th September 2017 including the transport infrastructure proposals that we seeking to support via this funding bid.
A Stakeholder and Communications VISION document has recently been prepared to raise the profile of the Sustainable Transport Corridor scheme. It provides key information to stakeholders about the local and political context and sets out what the scheme is seeking to achieve.

Project assurance

What are your project assurance processes, such as gateways reviews, to ensure project delivery against the business case?

HCC are the accountable body but delivery is expected to be through the partners under the governance of the HGGT Board. Project and programme management will be part of the HGGT delivery work, under a lead Programme/Project Manager/Director reporting to the HGGT Board. This person would in all likelihood employed by HCC on behalf of the partnership. The PM approach put in place will be agreed with the partners and HE through an assurance framework that will be developed once HIF funding is confirmed.

For more information how this is going to be achieved, please refer to sections 7.2.1 and 7.3.1.

Please provide details of your proposed internal monitoring approach for the scheme

Same as Section 7.6.1 . The detailed descriptions of periodic monitoring regiment will be developed and detailed in the PEP.

Risk Management

Please outline key risks to delivery and mitigations including known delivery constraints and blockages

Number	1	**Likelihood**	Medium low	**Impact**	Medium low
Description	Land Acquisition & Assembly: Third party land is required to allow delivery of infrastructure and development, in particular the second Stort crossing. Challenges to the compulsory process or complications in land assembly could lead to overall programme delivery delay and complications. There are also risks of negotiated acquisition cost and/or compensation being higher than anticipated.				
Mitigation	Comprehensive Land Assembly Programme is to be produced highlighting key stages for negotiation, acquisition and assembly of land to facilitate the delivery of infrastructure and development. Negotiation with key landowners and occupiers should be conducted as early as possible. Negotiation tactics should be established with impact mitigation for all interests considered. Successful negotiations create the opportunity to secure land at lower cost and more quickly than through compulsory means. Should negotiation not be possible, HCC / EHDC have the ability to use its statutory powers to purchase the land. Specialist advice is being sought to ensure land can be acquired and assembled in a reasonable time and without “ransom”.				

Number	2	**Likelihood**	Medium low	**Impact**	High
Description	Planning Approvals and Consents Delayed or Refused: Despite the council’s close involvement in the planning of the proposed works, the council will require the developer partners to go through due process to obtain planning consent. As such there is a material risk that if the application is not acceptable, it could fail to achieve the recommendation of officer and/or ultimately be refused.				
Mitigation	The planning strategy should be agreed between HCC, the developer partners and the planning authority at the outset. Substantial pre-application work with planning officers should be allowed for to ensure the proposed works are understood by the planners and meet policy requirements. An approach using PPAs is also proposed to ensure the approval process is carried out expediently.				

Number	3	**Likelihood**	Medium high	**Impact**	Medium high
Description	Proposals crossing Network Rail Infrastructure: The proposals include crossing of Network Rail infrastructure so there is a risk they may seek a share of the value of the land that is being unlocked.				
Mitigation	The complexity of delivering structures over Network Rail land is inherently difficult this has been mitigated to a certain extent by PFP through early engagement and utilising structural engineers that are used to working with Network Rail.				

Number	4	**Likelihood**	Low	**Impact**	Low
Description	Ground Conditions: The ground on which a section of the Second Stort Crossing is located is 'made up' so there are some unknowns about how this will be accommodated.				
Mitigation	Early ground investigations to be commissioned where possible, together with strategy to overcome unfavourable conditions in the design process, preventing delays.				

Please outline your approach to managing risk

HCC are the accountable body but delivery will be through the partners under the governance of the HGGT Board/Infrastructure Delivery Board. Project and programme management is already part of the HGGT delivery work, and the HIF projects will work within the established approach, under a lead Programme/Project Manager/Director reporting to the HGGT Board. This person would in all

likelihood employed by HCC on behalf of the partnership. The PM approach for the delivery of the HGGT is already in place and will be used to address risk management requirements for the HIF funded projects.
The effective identification of risks and their mitigation or rigorous management is critical to the success of the STC Programme; not just from a commercial perspective, but ensuring deliverability and confidence in delivery for Homes England. The Core Programme team of Herts and Essex County Councils, the Garden Town Authorities and Places for People will will operate a structured approach to risk management from the outset that will identify and capture mutual risks and then report back to the STC Programme Board which will comprise senior representatives of each partner.
The development of the detailed infrastructure proposals for the Gilston element of the STC has taken place over a period of the last 10 years and Places for People has adopted a consistent and robust approach to risk analysis and management processes from the initial stages of the project to:
•Identify and quantify the risk (in terms of impact and probability)
•Allocate the most appropriate mitigation strategy – whether managing it effectively as Master Developer, transferring it to a partner best able to manage in terms of the contracting arrangements or insuring it
•Monitoring residual risk within the project and ensuring strong management and reporting is in place
This has guided the approach to the HIF submission and will guide legal documentation and also the supply chain/contractual arrangements that sit beneath the Project Team for the delivery of the works in the required timescales.
Wherever possible, the approach will be to pass risk on to those partners and supply chain members best able to manage it, through formal contractual arrangements. Any residual risk remaining within the partners will be managed on behalf of the shareholders by the appointed management team or through management agreements with one/both partner(s)
The Risk Register summarises the key “upstream” (e.g. land assembly/CPO/legal/planning) and “downstream” (e.g. delivery – time/cost/quality) risks associated from these projects.
The effective identification of risks and mitigation strategies will be undertaken by the dedicated project management team and will continue to be a fundamental part of the project management systems and management. This team will provide support to the STC partners in the context of operational risk and Site specific risks. Both risks and opportunities will be considered at dedicated risk and opportunity workshops.
Risks of all types will be assessed, such as development, financial, programme and political. A project risk register has been created using Places for People’s established and successful risk management system which will be independently monitored by PfP’s Business Assurance and Audit teams. The implications of the risk, both prior to and after mitigation, are identified in terms of probability and impact on timeframes, cost and quality. A clearly identifiable RAG (Red, Amber & Green) system is used to actively manage risk, with owners allocated to each risk. The system employed is very robust and has already been successfully utilised and iteratively improved by Places for People over a number of years and applied on all of their major developments.

Please attach a copy of your current risk register for the scheme

Filename	Description
Appendix Y- Risk Register.pdf	Risk Register

Additional information

If you have any further information to support the Management Case for your project, which has not already been captured in the above, please include this here

Additional Information- Ref. 7.7.1
The main risks can be categorised as delay risk and cost risk, as summarised in the attached table. Whilst management controls can be put in place to manage the delay risk, the cost risk, aside from the contract with the contractor, will be more difficult to manage. - Third party land needs to be acquired to deliver the river crossings. PfP will, with the support of the Garden Town Land Assembly Team, engage with the individual landowners to try and acquire the necessary land by private treaty once EHDC and/or one of the two County Counties resolve to use CPO powers to deliver the scheme (both river crossings and the STC) if necessary. EHDC has already resolved to use CPO to support the delivery of the Central Crossing, but this resolution needs to be refreshed and/or replaced by a new resolution in light of the revised scheme / STC Programme for the Garden Town.
In the event of any delay on the Eastern Crossing that would take its delivery outside of the HIF funding period, the partners can

advance alternative parts of the STC in its place.
The early involvement of contractors and the timely procurement of detailed site investigations will help mitigate programme and cost over-runs.

Filename	Description
Appendix W- Programme of Planning Approvals.pdf	Appendix W Programme of Planning Approvals
Appendix V- Land Ownership table.pdf	Appendix V Land Owenership Table

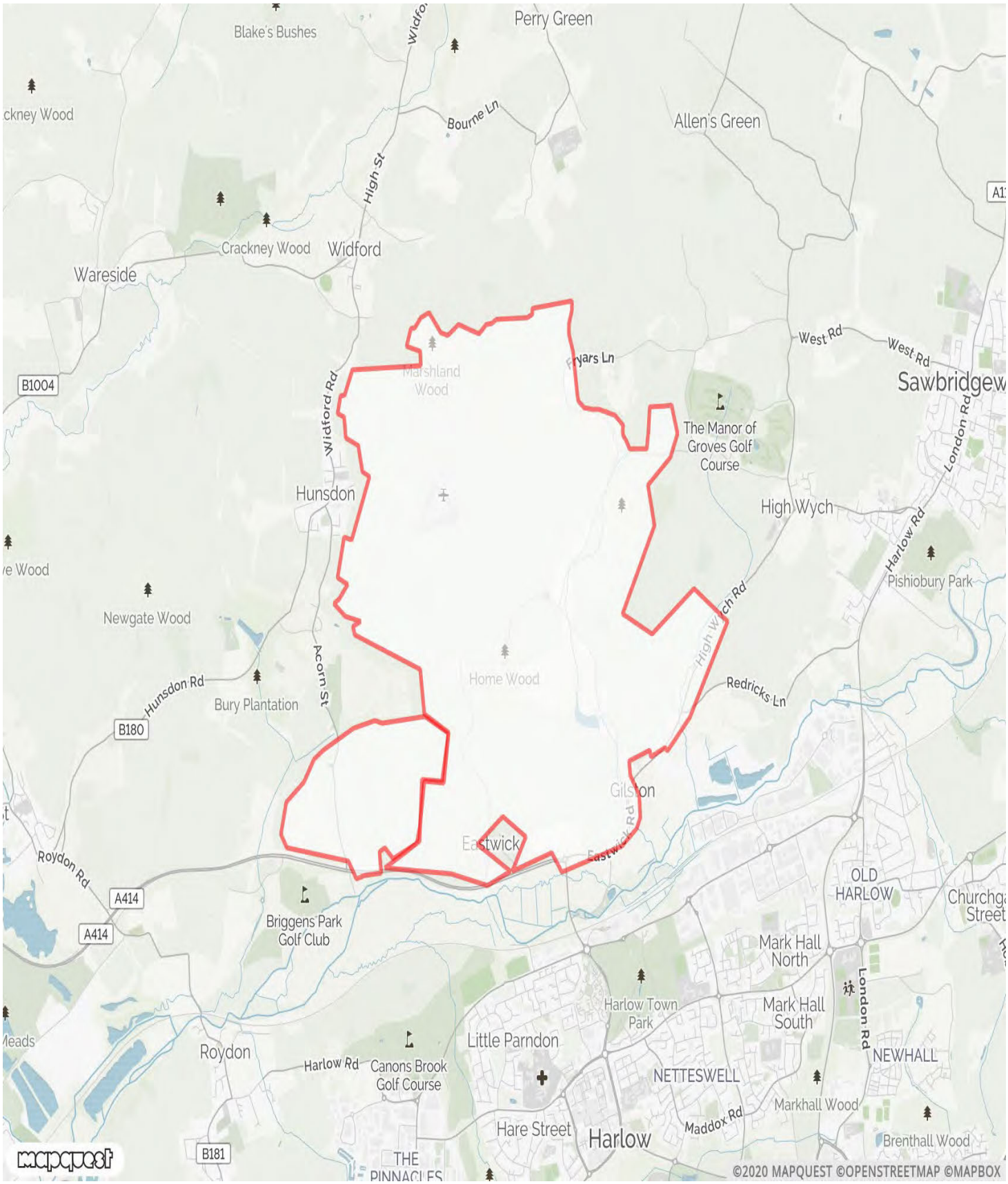
Project Sign Off

Please set out how you have considered your duties under the Equalities Act 2010 (Public Sector Equality Duty) and State Aid risks

HCC have considered the equalities implications of the proposals being submitted. The Equality Act 2010 requires the County Council when exercising its functions to have due regard to the need to (a) eliminate discrimination, harassment, victimisation and other conduct prohibited under the Act; (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it and (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it. The protected characteristics under the Equality Act 2010 are age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion and belief, sex and sexual orientation. The Council will ensure proper appreciation of any potential impact of our decisions on the County Council's statutory obligations under the Public Sector Equality Duty. An Equality Impact Assessment (EqIA) has not been undertaken at this stage. However, future decisions around the implementation of the works comprising the bid may require assessment as part of the Implementation Plan. Please see State Aid risks outlined in the letter attached.

Please attach your Section 151 officer sign off for your proposal

Filename	Description
HGGT S151 sign off and State Aid Advice.pdf	S151 sign off and State Aid Advice


Blake's Bushes
Perry Green
Bourne Ln
Allen's Green
High St
Crackney Wood
Widford
Wareside
B1004
Widford Rd
Marshland Wood
Fryars Ln
West Rd
West Rd
Sawbridgew
The Manor of Groves Golf Course
London Rd
Hunsdon
High Wych
Harlow Rd
Pishiobury Park
Newgate Wood
Acorn St
Home Wood
High Wych Rd
Redricks Ln
Hunsdon Rd
Bury Plantation
B180
Gilston
Eastwick
Eastwick Rd
Roydon Rd
A414
A414
Briggens Park Golf Club
OLD HARLOW
Churchga Street
Mark Hall North
Harlow Town Park
Mark Hall South
London Rd
Roydon
Harlow Rd
Canons Brook Golf Course
Little Parndon
NETTESWELL
NEWHALL
Markhall Wood
Hare Street
Harlow
Maddox Rd
Brenthall Wood
B181
THE PINNACLES
mapquest
©2020 MAPQUEST ©OPENSTREETMAP ©MAPBOX

creating a better place

Environment Agency

[redacted]
Aecom
Aecom House
Victoria Street
St. Albans
Hertfordshire
AL1 3ER

Our ref: NE/2018/128267/01-L01

Date: 14 March 2018

Dear [redacted]

Pre-application meeting to discuss Eastern Stort Crossing design changes. Gilston Park Estate, North of Harlow, East Herts.

Thank you for inviting us to discuss the following plans during our meeting held at our Alchemy office on Tuesday 6th March 2018:

- Eastern Stort Crossing General Arrangement, Drawing number VD17516-EC-101-GA, Revision E
- Eastern Stort Crossing Proposed Structure Elevation over floodplain, Drawing number VD17516-EC-107-BE, Revision C

We appreciate the opportunity to provide some initial feedback on the proposals.

Our clear preference is for the open span bridge structure as originally proposed as it ensures there is continuity of the functional floodplain, landscape sight lines for wildlife and people and connectivity and protection of the existing habitats. We highlighted previously that the River Stort and its floodplain is one of the best and most extensive functioning floodplains in Hertfordshire and the floodplain itself has habitat value. The site's sensitivity also relates to its connection to a variety of local wildlife sites and the Hunsdon Mead SSSI. We would not accept a design that would have a detrimental impact on flood risk or habitats.

The revised proposal shows a significant length of what was previously proposed as open span bridge to be lowered into a box culvert arrangement across the floodplain. A box culvert structure would separate the floodplain into two areas rather than maintaining the connectivity for flood storage and biodiversity habitat. The lower the structure and the closer the proximity to the marsh, the more risk of disturbance (noise, movement, pollution) in addition to the impact and loss of habitat connectivity. For these reasons, we could not support the revised proposals as they are currently. However, we appreciate there would need to be a compromise and there are benefits, for example, reduced piling into the ground will reduce the risk of creating pathways for contamination of groundwater.

Our recommendation is that further design options are considered. When considering design options, the shorter the length of the box culvert arrangement can be the better, resulting in reduced impact on flood risk and biodiversity. Any length of box culvert proposed along the length of the Eastern Crossing (instead of the open span arrangement) would require

compensatory habitat improvements and potential floodplain enhancements along the River Stort. The compensatory habitat improvements should be directed at restoring the Fiddlers Brook which is in a very poor condition and likely to degrade further as a result of the new development and associated infrastructure.

The final design would need to be modelled with the ‘Higher Central’ and ‘Upper End’ climate change allowances, and this must demonstrate the flood risk will not be increased elsewhere. If there were any increased risk of flooding to the surrounding areas as a result of the revised modelling we would be unlikely to accept the proposal. As stated during the meeting, any revised flood modelling work would need to be reviewed by our Modelling and Forecasting Team and their current review timescales for modelling work is 8-12 weeks.

Any increased footprint within the 1 in 100 year plus 35% flood extent will need to be compensated for on a level-for-level, volume-for-volume basis in the first instance. As discussed during the meeting there should be ample space on-site to provide any floodplain compensation. Flood risk also needs to be considered and mitigated for the temporary and enabling works, for example, stockpiled materials and plant should avoid being located in Flood Zone 3.

I hope this clarifies our position, and assists you with the design work going forward. I look forward to receiving the meeting minutes when available.

Yours sincerely

[redacted]
Planning Specialist

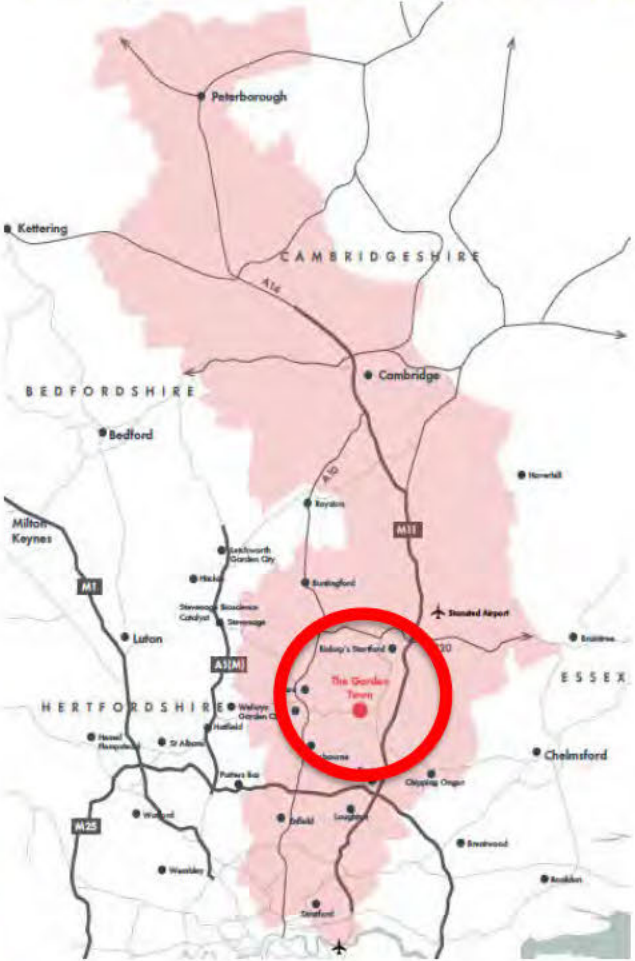
Direct dial 0203 025 5560
Direct e-mail HNLSustainablePlaces@environment-agency.gov.uk

Housing Infrastructure Grant

Harlow Gilston Garden Town Overview

22nd June 2020

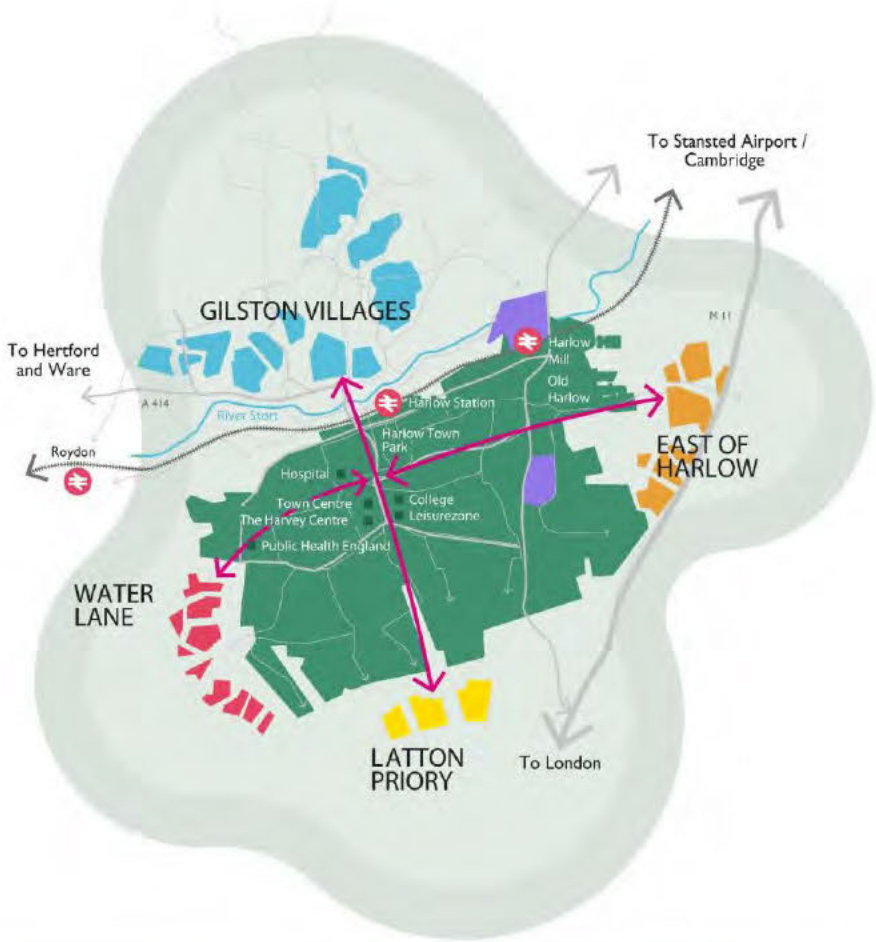
Project overview and vision



- The scheme is located to the north of London within the district council of East Hertfordshire (EHDC) and the County of Hertfordshire (HCC). Some infrastructure improvements that form part of the scheme are also located within the district council of Harlow (HDC) and the County of Essex (ECC).

- The scheme is located within the UK Innovation Corridor, spanning from London to Stansted and onto Cambridge and Peterborough.

- The grant funding is for providing critical infrastructure links that will help unlock 10,000 homes in the Gilston Area development within the Harlow Gilston Garden Town.


To Stansted Airport / Cambridge
GILSTON VILLAGES
To Hertford and Ware
A414
River Stort
Roydon
Harlow Mill
Old Harlow
Harlow Station
Harlow Town Park
EAST OF HARLOW
Hospital
Town Centre
The Harvey Centre
College
Leisurezone
Public Health England
WATER LANE
LATTON PRIORY
To London

HGGT

HARLOW & GILSTON
GARDEN TOWN

What's in the Garden

23,000 new homes

9,000 new jobs

Walking & Cycling Routes – new and improv

New Sustainable Transport Routes

Regeneration of the Town Centre

New green spaces and a country park

New and upgraded community, cultural and

High quality employment space at the Enter

(life sciences, biotech and data focus)

New Hospital – Preferred site is East Harlow

Public Health England Science Campus & HC

HGGT
HARLOW & GILSTON GARDEN TOWN

Modal Share Objectives

60% of all journeys within the new Garden Town communities and 50% of journeys across the town will be sustainable.

· Prioritising local journeys based on the following hierarchy of importance:

i. Reduce the need to travel

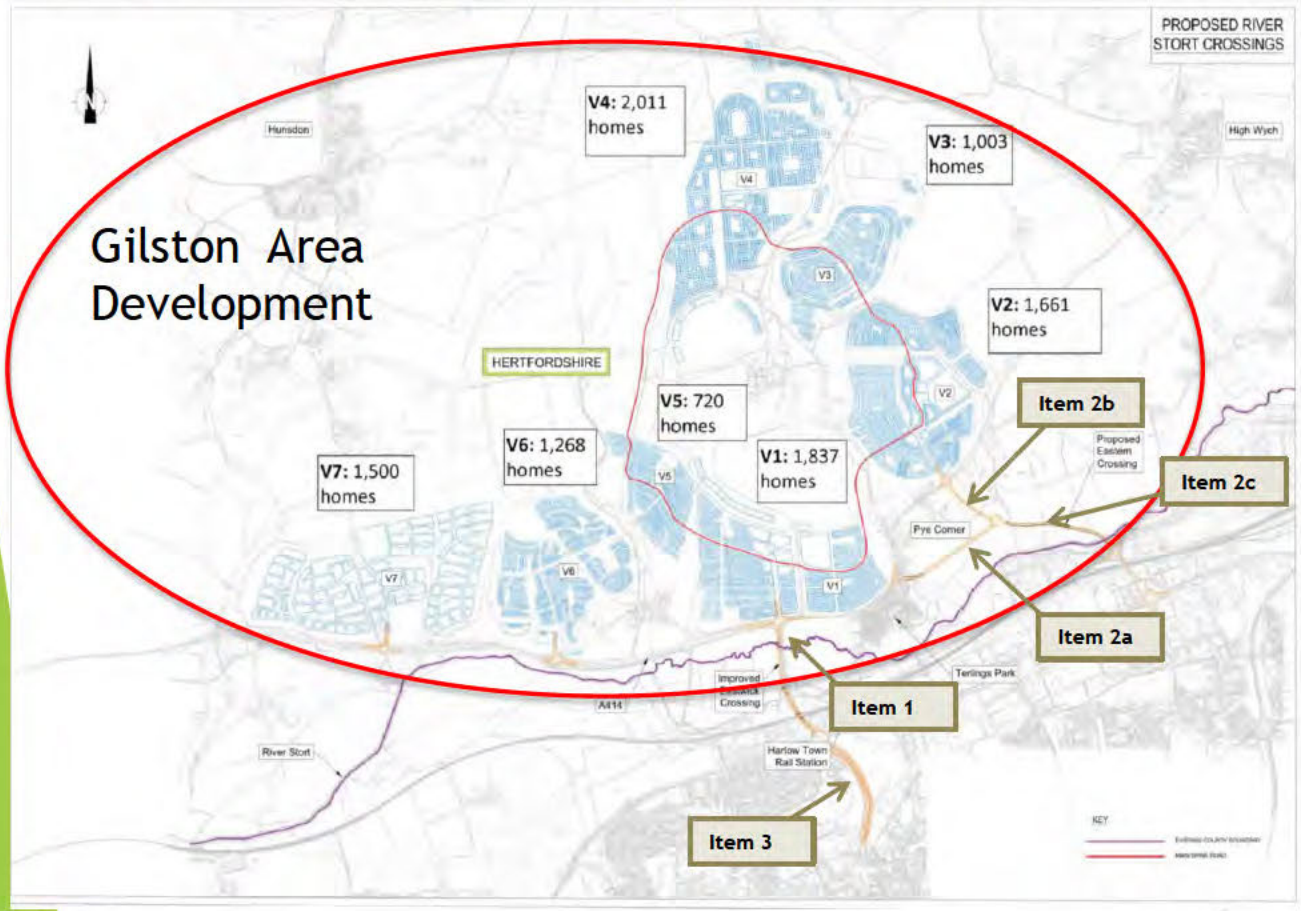
ii. Journeys by walking and cycling

iii. Journeys by public transport

iv. Journeys by private car will be least preferable

· Supporting a culture of active and sustainable transport, ensuring that journeys are efficient, attractive and safe.

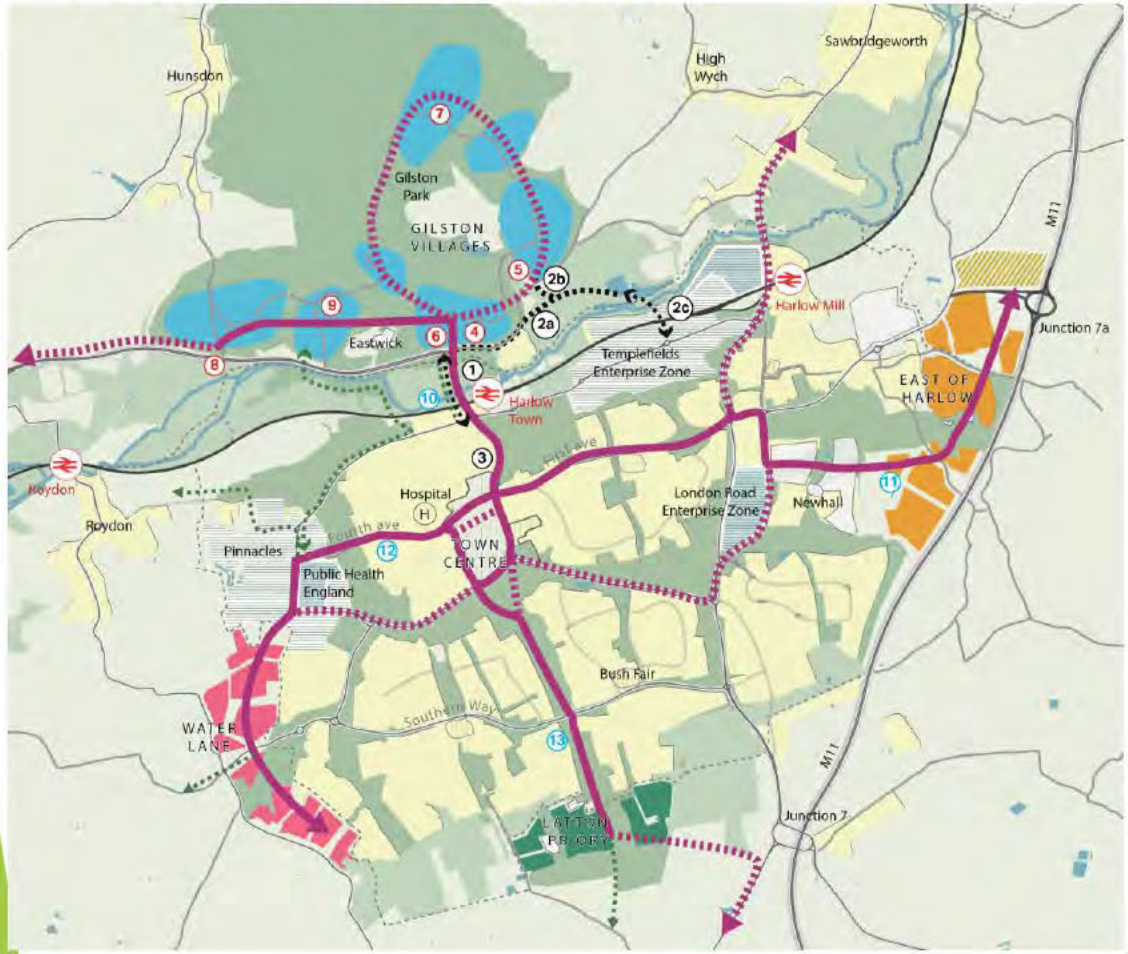
Project overview and vision



- The Gilston Area development is planned across 7 villages, delivering a total of 10,000 homes and is envisaged to be delivered by 2040 with grant support.

1. Expansion of Central Stort Crossing
2. Eastern Stort Crossing (comprising Items 2a, 2b and 2c)
3. Extension of STC from Burnt Mill Roundabout through Harlow Town Centre

Grant Infrastructure



1. Expansion of Central Crossing to extend Sustainable Transport Corridor (STC) between Gilston Area and Railway Station and Burnt Mill Roundabout.
2. Eastern Stort River Crossing (comprising Items 2a, 2b and 2c below)

2a. Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner.

2b. Pye Corner bypass including junction between north-south section and east-west section

2c. Remainder of Eastern Crossing including River Way Bridge

3. Extension of STC from Burnt Mill Roundabout through the Town Centre.
4. Enhanced sustainable transport hub in Village 1.
5. Access to Gilston Area Village 2.
6. Access to Gilston Area Village 1 (north of Eastwick junction) and creation of STC link within Village 1.
7. Gilston Area STC "inner loop" connection to Villages 3, 4, 5
8. Access to Village 7.
9. Gilston Area STC "inner connection" opening up sustainable access and highway between Village 7 and Village 1.
10. Replacement of Central Crossing Rail Bridge.
11. Eastern STC between Town Centre, Enterprise Zones and Harlow East Garden Community.
12. Western STC between Town Centre, PHE/Pinnacles and Water Lane Garden Community.
13. Southern STC between Town Centre and Latton Priory Garden Community.

Funded by the HIF

Funded by the Developers

Funded by rolling infrastructure fund


Overview of Central and Eastern Stort Crossing
Eastern Stort Crossing
Central Stort Crossing


CENTRAL STORT CROSSING
VISION
NEW SIGNAL CONTROLLED JUNCTION
DEDICATED BUS LANE
NEW PEDESTRIAN & CYCLE BRIDGE
PEDESTRIAN & CYCLIST ACCESS TO STORT NAVIGATION PATH
NEW BRIDGE CROSSING OVER STORT NAVIGATION FOR NORTHBOUND CARRIAGEWAY
WIDENING OF RAILWAY BRIDGE
ROUNDABOUT TO BECOME CONTROLLED BY TRAFFIC SIGNALS


EASTERN STORT CROSSING
VISION
LINK TO EASTWICK CROSSING
PYE CORNER CLOSED TO THROUGH TRAFFIC
1
2
SEGREGATED 5M FOOTWAY & CYCLEWAY THROUGHOUT
NEW ROUNDABOUT LINKING PROPOSED ROAD 1,2 AND 3
3
STEEL CULVERTS PROPOSED BENEATH ROAD
BRIDGE STRUCTURE PROPOSED OVER STORT NAVIGATION
NEW ROUND ABOUT AT RIVERWAY

Infrastructure costs from initial bid

No.	Infrastructure Items	Cost in £	Funding source
1	Expansion of Central Crossing to extend STC between Gilston Area and Railway Station and Burnt Mill Roundabout	£36,200,000	HIF
2	Eastern Stort River Crossing, comprising Items 2a, 2b and 2c		HIF
2a	Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner	£5,924,000	HIF
2b	Pye Corner bypass including junction between north-south section and east-west section	£19,566,000	HIF
2c	Remainder of Eastern Crossing inc River Way Bridge	£67,350,000	HIF
3	Extension of STC from Burnt Mill Roundabout to Town Centre	£42,140,000	HIF
	Subtotal HIF	**£171,180,000**	
4	Enhanced Sustainable Transport Hub in Village 1		
5	Access to Gilston Area Village 2	£2,159,000.00	Developer
6	Access to Gilston Area Village 1 (north of Eastwick junction) and creation of STC link within Village 1	£13,240,000.00	Developer
7	Gilston Area STC "inner loop" connection to Villages 3, 4, 5	£45,406,000.00	Developer
8	Access to Village 7	£1,535,000.00	Developer
9	Gilston Area STC "inner connection" opening up sustainable access and highway between Village 7 and Village 1	£10,350,000.00	Developer
	Subtotal Developer	**£72,690,000**	
10	Replacement of Central Crossing Rail Bridge	£4,454,000.00	Rolling Infrastructure Fund
11	Eastern STC between Town Centre, Enterprise Zones and Harlow East Garden Community;	£13,691,734.00	Rolling Infrastructure Fund
12	Western STC between Town Centre, PHE/Pinnacles and Water Lane Garden Community;	To be confirmed	Rolling Infrastructure Fund
13	Southern STC between Town Centre and Latton Priory Garden Community;	£15,839,353.00	Rolling Infrastructure Fund
	Subtotal Rolling Infrastructure Fund	**£33,985,087**	

The housing sites

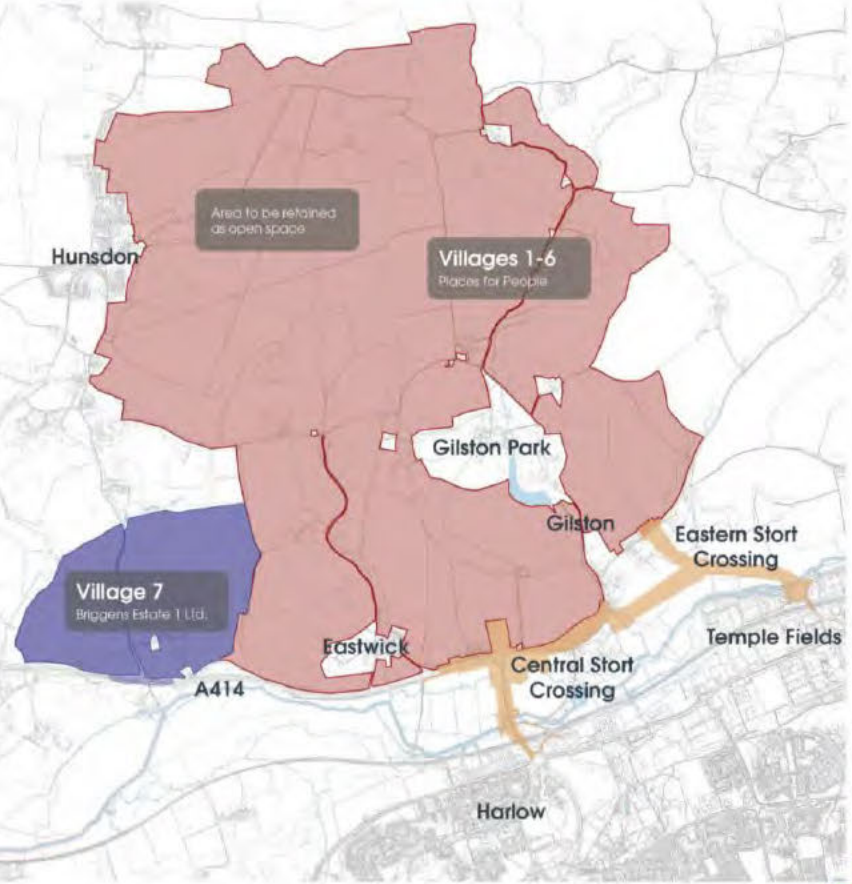
Places for People

Villages 1 – 6 application submitted May 2019. Public consultation June - early August 2019

Central and Eastern Stort Crossings. Applications submitted May 2019. Public consultation June – early August 2019

Briggens Estate 1 Ltd.

Village 7 application to be submitted July 2019. Public consultations expected Aug – Sep 2019



The housing sites – planning status

Housing sites	Planning Status	Planning reference	Comments
Villages 1-6	Outline planning application submitted	3/19/1045/OUT	Gilston Park Estate (Villages 1-6) submitted for Outline Planning to EHDC with all matters reserved except for strategic motor vehicle access. Determination expected November 2020
Village 7	Outline planning application submitted	3/19/2124/OUT	Briggens Estate (Village 7) submitted with determination expected November 2020

Infrastructure - planning status

Planning Status – Infrastructure

	Planning Status	Planning reference	Comments
Central Stort Crossing	Full planning application submitted	3/19/1046/FUL	5th Avenue River Crossing was submitted for detailed planning to EHDC and HDC. Application determination expected November 2020
Eastern Stort Crossing	Full planning application submitted	3/19/1051/FUL	Eastern Crossing was submitted for detailed planning to EHDC and HDC. Application determination expected November 2020.

Grant infrastructure spend profile - Revised

	20%	40%	25%	15%	
Grant Fund Drawdown (Revised Feb 2020)	2020/2021 Q4	2021/22	2022/23	2023/2024 Q1, Q2 , Q3	Total
Expansion of Central Crossing to extend STC between Gilston Area and Railway Station and Burnt Mill Roundabout	7,240,000	14,480,000	9,050,000	5,430,000	36,200,000
Eastern Stort River Crossing, comprising Items 2a, 2b and 2c					
Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner	1,184,800	2,369,600	1,481,000	888,600	5,924,000
Pye Corner bypass including junction between north-south section and east-west section	3,913,200	7,826,400	4,891,500	2,934,900	19,566,000
Remainder of Eastern Crossing inc River Way Bridge	13,470,000	26,940,000	16,837,500	10,102,500	67,350,000
Extension of STC from Burnt Mill Roundabout through the Town Centre	8,428,000	16,856,000	10,535,000	6,321,000	42,140,000
Total grant fund drawdown	**34,236,000**	**68,472,000**	**42,795,000**	**25,677,000**	**171,180,000**

Housing delivery

Key housing delivery milestones with grant funding :

Timeline	Housing Units
Units started up to 2022	200
Units started 2023 - 2025	1,350
Units started 2026 - 2030	3,237
Units started 2031 - 2035	2,956
Units started in future years	2,257

Infrastructure delivery

Key infrastructure delivery milestones with grant funding:

Milestones	Dates
First infrastructure planning permission granted	30/11/2020
Last infrastructure planning permission granted	30/09/2022
All land assembly completed (if required)	30/09/2022
Project infrastructure works started	30/06/2022
Project infrastructure works completed	31/12/2024

VISION FOR THE GARDEN TOWN

The pioneering New Town of Gibberd and Kao will grow into a Garden Town of enterprise, health and sculpture at the heart of the UK Innovation Corridor. Harlow and Gilston will be a joyful place to live with sociable streets and green spaces; high quality homes connected to fibre optic broadband; local centres accessible by walking and cycling; and innovative, affordable public transport. It will set the agenda for sustainable living. It will be....

...ADAPTABLE

- *Buildings which are designed to be flexible in their use over time rather than being replaced*
- *Transport infrastructure that can adapt to new technologies and changing habits*
- *Green infrastructure that supports a variety of uses such as play, walking, cycling and community events*
- *Local industry that can respond to economic shifts and the emergence of new sectors.*
- *A place that can adapt to climate change*

...HEALTHY

- *Accessible routes that encourage people to move actively - to walk, cycle and skate - and are inclusive to all abilities*
- *Sociable streets and local centres that encourage daily interaction*
- *Space for food production - improving mental health and access to good nutrition*
- *An active and vibrant town centre with a strong cultural and commercial offer*
- *A good range of active leisure facilities*

...SUSTAINABLE

- *A fully integrated public transport network that connects within and beyond the Garden Town*
- *A place where people are inspired to work locally and encouraged to travel actively*
- *Self-sufficient neighbourhoods with their own centres*
- *Efficient use of energy and wider resources over the life of the Garden Town*
- *A biodiverse place with continuity of habitats*

...INNOVATIVE

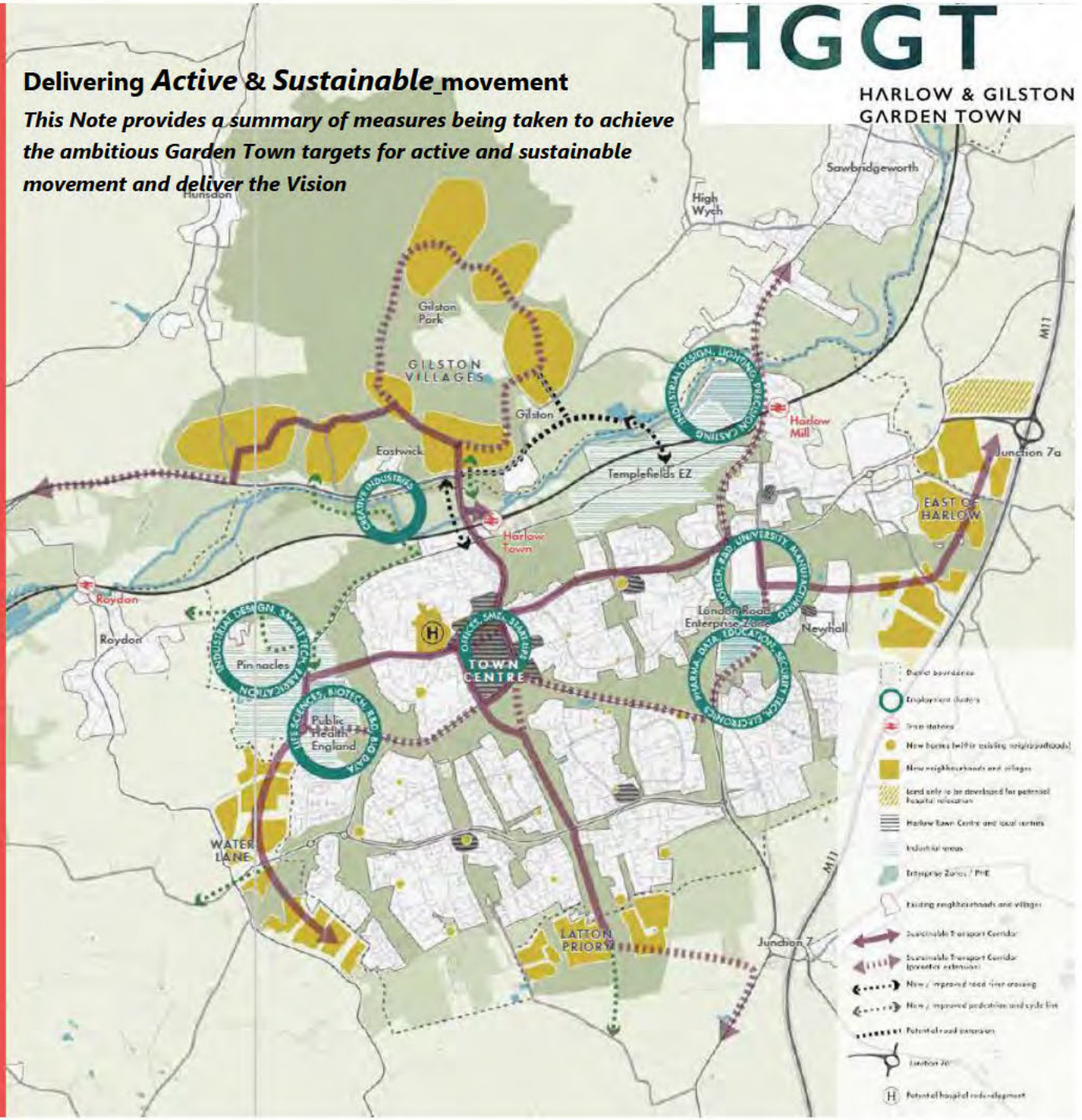
- *At the forefront of public rapid transit technology*
- *Innovative building design, construction and performance*
- *New models for housing types and housing delivery*
- *Pioneering temporary interventions and quick wins*
- *Spearheading the nation's response to the UK Industrial Strategy through science, technology and education*

Delivering *Active* & *Sustainable* movement

This Note provides a summary of measures being taken to achieve the ambitious Garden Town targets for active and sustainable movement and deliver the Vision

HGGT

HARLOW & GILSTON GARDEN TOWN



Measures	*Approach*	*Evidenced*
Setting the Targets		
50% of journeys by active and sustainable travel for Garden Town And **60%** of journeys for new Garden Communities (inc. Gilston Area)	Targets established within HGGT Vision based upon Garden City Principles and sensitivity modelling of the Harlow network (see understanding movement).	HGGT Vision; HGGT Transport Strategy; District Plans;
Defining Active & Sustainable		
Active travel = **walking** and **cycling** (and micro-mobility modes) Sustainable Travel = **Public Transport** including scheduled (e.g. bus or other) and on-demand (MaaS) but excluding rail (rail stations treated as interchanges/destinations and origins of linked-trips)	Establish in policies and guidance based upon Garden City Principles and supported by commissioned technical transport work; ITP commission on defining active and sustainable	District Plans; HGGT Transport Strategy; ITP Technical Note 1;
Other modes actively monitored including Rail, Taxi, Car Club and Car Share and private vehicles but <u>not</u> as active or sustainable	(See monitoring).	
Understanding Movement – *Evidence & Policy*		
1. Mobility options based on hierarchy of importance a. Reduce the need to travel b. Walking and cycling c. Public transport d. Private vehicles 2. Support and encourage a culture of active and sustainable travel ensuring all journeys will be efficient and safe.	Defining a clear mode hierarchy and priority to inform design, planning and delivery decisions to achieve targets through material planning considerations including County Transport Plan and HGGT Transport Strategy.	HCC LTP 4 (2018); HGGT Transport Strategy (consulting);
HGGT Transportation Study – Issues and Opportunities – 01/2018	Transportation Study commissioned by HGGT provides comprehensive review of travel movements in and around Harlow.	Report
HGGT Sustainable Transport Corridor Study – 01/2019	Building upon the information collected in the Transportation Study developed the idea of the Sustainable Transport Corridors (STC).	Systra Report;
West Essex East Hertfordshire Traffic modelling for Local Plan evidence base Memorandum of Understanding signed by 6 authorities for agreed approach to modelling and improvements	A series of technical notes published as supporting evidence for Local Plans.	Local Plan Evidence base and MOU;

Measures	*Approach*	*Evidenced*
HDC, EHDC, EFDC District Plan Policies;	District Plan policies to support active and sustainable travel and joint Garden Town work;	EHDC District Plan (Adopted 2018); HDC Plan (Main Modifications); EFDC Plan (Examination);
Vision	HGGT Vision places transport at heart (see page 1);	HGGT Vision (endorsed 2018);
Transport Strategy	HGGT Transport Strategy defines targets, mode hierarchy and introduces action plan - planned housing and economic growth for the Garden Town provides a once-in-a-lifetime opportunity to deliver a step-change in travel behaviour. Appropriate transport infrastructure and services will also be needed to deliver our growth aspirations in accordance with the Vision. Ensuring that transport infrastructure and services can adapt to new technologies, innovative new service models and changing habits is fundamental to ensure this investment has long term benefits for the whole of the Garden Town.	HGGT Transport Strategy (consultation);
Understanding potential and demand for active travel and the infrastructure needs.	Local Cycling and Walking Infrastructure Plan (LCWIP) commissioned of whole Garden Town. Work will inform the Transport Strategy Action Plan and updates of the Infrastructure Delivery Plan.	ECC LCWIP (commissioned);
The Big Moves – *Major Design Steps & Infrastructure to create an inherently sustainable place*		
Sustainable Transport Corridors (STC) network north-south and east-west across Garden Town	Harlow Town Railway Station (Burntmill Roundabout) to Town Centre – ECC accelerated design for the North to Town Centre STC corridor to inform HIF submission;	Route identified in HDC District Plan; Essex Advanced Scheme Design;
	Town Centre to East STC including Enterprise Zone, Harlow East new Garden Community, proposed Princess Alexandra Hospital relocation site and new M11 Junction 7A;	Route identified in HDC District Plan; Essex Scheme Stage 1 Design (Commissioned);
	Town Centre to West STC including Public Health England campus and Waterlane new Garden	Route identified in HDC/EFDC District Plan; Essex Scheme Stage 1 Design

Measures	*Approach*	*Evidenced*
	Community;	(Commissioned);
	Town Centre to South to Latton Priory new Garden Community;	Route identified in HDC/EFDC District Plan; Essex Scheme Stage 1 Design (Commissioned);
	STC potential extensions & greenways connecting to Harlow Mill Railway Station and wider neighbourhoods;	Routes identified in HGGT Vision;
Inter-Urban Sustainable Travel	HCC Harlow to Hemel Hempstead A414 Strategy for inter-urban bus rapid transit (BRT) connections.	HCC A414 Strategy;
Prioritising infrastructure to support active and sustainable travel	5th Avenue River Crossing works to provide for active and sustainable travel as part of STC connection between Gilston Area and Harlow Town Station; Joint National Design Competition to inform grade separated high quality pedestrian/cycle bridge across Stort Valley.	PfP Planning Application for 5th Avenue River Crossing submitted to EHDC May 2019 (target determination July 2020); Design Competition Brief (commissioned);
	Second (Eastern) River Crossing to provide active and all modes route into Harlow and allow re-prioritisation of carriageway space.	PfP Planning Application for Eastern River Crossing submitted to EHDC May 2019 (target determination July 2020);
	Village 1 Access including priority measures for active & sustainable modes.	PfP Outline Planning Application for Villages 1-6;
	Village 7 Access designed to support dedicated BRT entrance taking inter-urban route through new Garden Community and onto STC.	BE/CPP Outline Planning Application for Village 7;
Existing network review	ECC conducting Harlow road network review to create safer spaces (slower speed environments) and reprioritisation of carriageway.	ECC scheme stage 1 (scoping);
Sustainable Movement Placemaking – *New Garden Communities*		
Design Guidance	HGGT Design guide published including the need for to provide for Sustainable Transport.	HGGT Design Guide (endorsed 2018);
	Commissioned ITP to inform what actions need to be undertaken to deliver 60% mode share and review	

Measures	*Approach*	*Evidenced*
	strategic development locations	
	A series of workshops have been held with Partners on the development of the Sustainable Transport Corridors	
Working with Service Partners		
Creating high quality sustainable community transport hubs for changing between modes: i. Interchange – town centre/railway stations ii. Primary – major village/neighbourhood centres iii. Secondary – Enterprise Zone/Public Health England & small communities iv. Local – accessible locations supporting first/last mile journeys	HGGT commissioned guide to sustainable transport hubs through public/private joint working with PfP/Vectos; HGGT engaged COMOUK to inform Hubs workshop and forthcoming event on Car Share and Bike Share schemes;	HGGT Hubs Guide;
Introducing Garden Town wide Cycle Hire	HGGT engaged COMOUK for suppliers day for cycle hire; HGGT bid for DfT/Energy Saving Trust 'eCargo bike grant fund';	Suppliers day April 2020; eCargo bike Bid;
Introducing Garden Town wide Car Club (to help reduce need for individual car ownership through catering for journeys that are not conducive by active and sustainable travel options)	HGGT engaged COMOUK to suppliers day for car club;	Suppliers day April 2020;
Extending bus services to new Garden Communities and establishing stable and convenient Garden Town wide network and scheduled and on demand (MaaS) services;	HCC Intalink Enhanced Bus Partnership; Bus operator have been engaged in workshops on HGGT vision for growth and how public transport can best support growth; HGGT considering bid for All-Electric Bus Town Bid;	HCC/Intalink Consultation Nov 2019; All-Electric Bus Town Bid;
Enhancing Railway Stations as active and sustainable interchanges including creating Harlow Town Station Northern Access to Gilston Area;	HGGT and PfP discussions with Train Operating Company held on making access and improvements to Harlow Town station with funding committed through planning obligations;	Planning Application commitment;
Branding and Smart Technology	Discover Harlow public/private ambassador events; HGGT public launch event March 2020;	www.discoverharlow.co.uk www.harlowandgilstongardentown.co.uk

Measures	*Approach*	*Evidenced*
	Essex & Herts Digital Innovation Zone (DIZ) partnership;	www.diz.org.uk
Monitoring Mode Shift		
Monitoring Travel Behaviours	Travel Plan targets and monitoring for all major new developments including residential, employment and schools.	District Plan Policies; Both Gilston Area Outline Planning Applications;
	Creating Transport Review Group (TRG) with responsibility to interrogate monitoring and implement additional measures;	Both Gilston Area Outline Planning Applications;
Managing Behavioural Change		
HGGT appointed Sustrans Travel Change Behaviour officer to work with local schools and businesses;	Identified local schools and businesses to develop and help deliver travel change behaviour programmes	
Gilston Application supported by Travel Plan and Transport Review Group	Travel Plan to be approved as part of the Outline Application, funding to be secured through S106. Transport Review Group to be set up to monitor performance and direct Sustainable Transport Fund	
Partnership Working & Delivery		
Local Government without borders - co-ordinating across boundaries	HGGT Garden Town designation; HGGT Board and joint officer group; HGGT Combined Delivery Service Bid in response to MHCLG business-backed development corporations and regeneration delivery models; HGGT MoU on working practices; Single HGGT Infrastructure Delivery Plan; Single 'Template' Section 106 approach; Joint planning obligations commission;	
Applicant/Authority working arrangements	Planning Performance Agreements (PPA) in place with Gilston Area landowners including all public partners establishing joint working arrangements with Project Leads and Project Champions	PPA with Places for People; PPA with Briggens Estate/City and Provincial Properties;

Canal & River Trust

8 January 2018

[redacted]
AECOM
AECOM House
179 Moss Lane
Altrincham
WA15 8FH

Our Ref CRTR-PLAN-2017-23933
Your Ref N/A

Dear [redacted]

Proposal: Second pre-application proposal for new Central Crossing bridge and Eastern Crossing bridge over River Stort, associated with new Garden Town Gilston development
Location: Central and Eastern Crossing, River Stort, Fifth Avenue & River Way, Harlow
Waterway: River Stort

Thank you for your consultation.

The Canal & River Trust (the Trust) is the guardian of 2,000 miles of historic waterways across England and Wales. We are among the largest charities in the UK. Our vision is that "living waterways transform places and enrich lives". We are a statutory consultee in the development management process.

The Trust has reviewed the meeting minutes and other information sent to us for comment. Based upon the information available we have the following comments to make:

Ecology
We note the requirement for an ecological survey and habitat loss mitigation for the construction of the new bridges, this should be conducted with suitable enhancements for the loss of habitat. We consider that this project should seek to enhance the River Stort's aquatic and terrestrial habitat. There is mention of hedge planting in an area of dead space, and this should be exclusively native species, preferably a mixed hedge (multiple species). Furthermore, installation of bat boxes beneath the bridge structure could aid in mitigating loss of habitat.

Lighting beneath the bridges is described as low luminance LED lighting, and the Bat Conservation Trust's 'Bats and Lighting' report should be used to select the correct lighting for this site. Lighting on the top of the bridge should be focused onto the road area, with no direct light spill onto the surface of the water, as this can have a seriously detrimental effect on aquatic fauna.

Canal & River Trust

Drainage

We acknowledge your comments regarding drainage from the bridges, which should be positive. We would also reiterate that the existing drainage problem from the existing bridge at the Central Crossing should be rectified in the proposals so that there is no leaking onto the towpath.

Any proposed discharge of drainage into the river would require further discussion and the formal consent of the Trust.

Central Crossing

We are pleased to note the amendments to the design in response to some of our comments. The existence of the original highway bridge and the visual appearance of this means that options are somewhat limited as we agree that new and original structures should probably complement each other, so whereas we would not usually be supportive of metal parapets, it seems to be appropriate in this location, where it should match that of the existing structure. It is unclear whether the parapets are to feature an internal vehicular parapet and a lighter-weight pedestrian barrier to match the existing bridge, or a combined vehicular/pedestrian parapet on the outer edge of the bridge. Our preference would be for the former, so that the parapets on each bridge accord with one another.

We agree with the interpretation of our discussions regarding the extension of the bank protection along both banks of the proposal. We still have some concerns about the tunnel effect the additional bridge deck crossing will impose on the waterway and towpath.

The wet abutment and flat soffit are welcomed, and I hope that we will be able to contribute to the eventual finish of the abutment and approach walls, as these are likely to be very susceptible to graffiti as seen at the existing abutment.

We are concerned about the inclusion of palisade fencing between the existing and proposed structures, as this will be visually intrusive and not concordant with the canal corridor. A coloured ‘paladin’ fencing is the minimum quality which should expect, although a low wall matching the material of the abutment and surmounted with less intrusive fencing might be more appropriate. The ‘offside’ (non-towpath side) gap is less important but, again, should strive for better visual quality than palisade fencing.

Eastern Crossing

Of the two proposed bridges, the Eastern Crossing would have the most significant impact on the River Stort. We are still concerned about the alignment not being perpendicular to the navigation and remain to be convinced that there is no scope to realign the exit from the

roundabout to deliver a crossing that is much closer to perpendicular. It would appear that there is an opportunity to rotate this exit by a few degrees clockwise, and by starting the horizontal curve from the north bank, should move the main east-west alignment onto the strip of land between the two water bodies. This would bring the carriageway further to the northeast (parallel to the navigation) before turning south towards the roundabout, avoiding the long, linear waterbody completely and reducing the angle to the roundabout (and possibly the requirement for a visibility splay, which creates a wider deck). We would seek to minimise the width of the bridge deck over the waterway as far as possible. We currently still don't fully appreciate the reasoning for the sight line strip at the southern end of the interaction with the roundabout.

There is insufficient information on the detailed visual appearance of the Eastern Crossing to give particularly detailed advice, but we are encouraged to see that the piers on the river span have been realigned from the earlier design, allowing the opportunity for this natural feature to be given 'special' status.

The structure for this span appears to be steel beams, rather than concrete, so this will require careful detailing to avoid some of the issues we have already mentioned above that we are seeking to design out of the proposed Central Crossing.

There is also no detail as to the appearance of the springing structure from the roundabout, which could be quite evident once the vegetation is removed to facilitate the crossing. We would welcome the opportunity to work with you with regard to detailing of the navigation span and piers to ensure that the finishes, appearance and detailing are appropriate and robust.

As this is a completely new structure there is potential to explore different materials and parapet finishes but we would continue to make our usual recommendations with regard to flat soffits, surface treatments, detailing to visually reduce the impacts of the leading edge, and appropriate designed parapets (not visually intrusive or too utilitarian).

Despite the existence of a hedge line along the back of the towing path, we are keen that the proposals include the enhancement of this with additional planting where possible, to reduce the visual impact of the potentially intrusive, raised approach structure to the north of the navigation. The navigation currently enjoys a relatively rural feel, and this should be protected as far as is practicable, with means of mitigating against the visual and noise impacts of the new road and bridge structure investigated as widely as possible to preserve the amenity of users of the navigation corridor.

For your information, though I believe you are already aware, please refer to our “Code of Practice for Works affecting the Canal & River Trust”: https://canalrivertrust.org.uk/business-and-trade/undertaking-works-on-our-property-and-our-code-of-practice

Other matters
We would also still refer you to our previous letter dated 9 August 2017, for our other comments, which are still relevant, such as towpath access and towpath improvements.

Land Ownership Matters
You also asked about the process for seeking land ownership consent for the proposed bridges, and I emailed you separately about this, with details from our Estates team.

I hope these comments are helpful. Should you have any further queries please feel free to contact me.

Yours sincerely,

[redacted]
Area Planner - London

Telephone: 0203 204 4409 E-mail: [redacted]@canalrivertrust.org.uk

creating a better place

Environment Agency

[redacted]
Aecom
Aecom House
63-77 Victoria Street
St. Albans
Hertfordshire
AL1 3ER

Our ref: NE/2014/121050/02-L01
Your ref: 8OCA/2435

Date: 14 October 2014

Dear [redacted]

Gilston Park Estate – Details of River Stort Crossings

It was good to meet you and the team to get an overview of the projects and the latest updates. I look forward to receiving the meeting minutes for review. I had a couple of actions from that meeting that I have included within this letter.

Thank you for confirming that the western crossing is not being considered at the current time. The route of this crossing was likely to cause several environmental concerns. We are happy to review plans and comment based on the flood modelling, however before we can formally agree any proposals the modelling will need to be reviewed by our national Modelling and Forecasting team.

You asked for a map showing the ordinary watercourse in the location of your proposed eastern crossing roundabout, and the culvert that our maps indicate is beneath the landfill site at Pole Hole. I have attached this as appendix 1. We can't be certain where this culvert does actually go. It does seem unlikely that it is beneath the landfill due to the loading that it would have been under. Hopefully our map will provide you with sufficient information to enable you to investigate the true course of this river and how it connects into the wider network.

I have also included a map (appendix 2) showing the surface water flow route that meets the location of the proposed A414 roundabout connecting Gilston Park Estate to the central crossing. It would be sensible to consider the topography of this area and likely flows to ensure that the road will continue to be passable following heavy rainfall.

<u>Biodiversity comments</u>
I have spoken to my biodiversity colleague about the plans. He asked if it was possible for the new carriageway of the central crossing to be on the east side of the current road. There is a prospective bid to secure HLF funding for projects in the River Lee catchment. This includes a major restoration project on Parndon Lock Meadows to restore the wet grasslands on the site.

If the road bund is built on Parndon Lock Meadows then the area of habitat lost will need to be compensated for. This will be equally applicable to any habitat lost, but we know that this area has good potential to be restored to floodplain habitat.

We do not have much knowledge of the existing road crossing and whether it could be improved for wildlife. Otters are definitely known to be using this area, and any opportunities to make river corridors more accessible should be taken. One of the maps of road improvements that you sent to us shows a variety of works proposed by Essex County Council to facilitate traffic movement through Harlow. Point 1 provides a good opportunity to address a known otter movement constraint. The primary cause of premature death for otters is being hit by cars. With traffic set to increase considerably then it would be tragic if the knock on impact is to make the area unviable for successful otter colonisation.

Of interest, my biodiversity colleague also mentioned a plan to reintroduce watervoles to the Stort valley. This appears to be a plan led by the Essex Wildlife Trust.

All impacts on the River Stort floodplain need to be considered as a whole, and mitigation and compensation provided. The most sustainable way of protecting the important nature of the floodplain would be to secure continuous management throughout the grassland habitats. In the meeting grazing was mentioned. From Hunsdon Mead up to Pishiobury Park to the north, there are some areas of grazing. In isolation this is of limited value, but as part of a wider scheme it could have an incredibly positive impact on the floodplain habitats. There are numerous groups and interested parties that I am sure could come together to help make this work, and help to keep the Stort as one of our best continuous river floodplains in the area.

As soon as I can I will make the Hunsdon Mead Diffuse Water Pollution Plan available to you, as mentioned in our meeting.

<u>Pole Hole Quarry</u>

The eastern link is passing through/over a Landfill with multiple Environmental Permits. Any development would need to comply with these permits and their requirements. Some of the landfill areas are very old and will require highly detailed intrusive investigation to properly characterise the waste mass and risk posed to the environment.

The proposal includes the excavation of previously disposed waste. Any waste arising from this activity will need to be tested at a very high frequency and sent to an appropriate class of landfill. They cannot be reused on site due to the variability of the deposits.

The proposal also includes the construction of an embankment over previously disposed waste. This will compress the landfill material and squeeze out contamination which may impact the environment. It may also lead to differential settlement along the route of the bypass.

The proposal will disrupt the landfill and may require leachate extraction and treatment before discharging to the watercourse. This may be a long term commitment (60-150 years) to ensure pollution does not occur.

As I explained in the meeting the topography used for the calculations is out of date. The levels should be in line with the latest planning permission for the re-grade of the land at Pole Hole Farm.

Changes to surface water system may pose a significant risk to the groundwater and should be examined in detail. No storage of surface water should occur above the waste deposits as it may pose a risk of contaminant mobilisation. Any proposal to pile through landfill is likely to be unacceptable as it will create pathways for contamination to pollute groundwater, surface water and the wetlands to the south.

I have received and will respond to the email that [redacted] sent regarding water quality. Please contact me if any further queries arise,

Yours sincerely

[redacted]

Direct dial: [redacted]
E-mail: SPHatfield@environment-agency.gov.uk

Eastern Stort Crossing

Options Report

April 2019

Places for People

vectos
highway infrastructure specialists

Places for People

EASTERN STORT CROSSING OPTIONS REPORT

Highways and Structure Options Assessment

VD17516

April 2019

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REPORT CONTROL

Document:	VD17516/Eastern Stort Crossing Options Report
Project:	Gilston Area
Client:	PfP
Job Number:	VD17516
File Origin:	I:\JOBS\2017\VD17516 Planning\Docs\Reports\ Options Report - Stort Valley Eastern Crossing (rev A).docx

Document Checking:

Primary Author	[redacted]	**Initialled:**	[redacted]
Contributor	[redacted]	**Initialled:**	AR
Review By	[redacted]	**Initialled:**	[redacted]

Issue	Date	Status	Checked for Issue
1	27.02.19	DRAFT	[redacted]
2	15-04-19	REV A	[redacted]
3	07.05.19	REV B	[redacted]
4			

CONTENTS

1 EXECUTIVE SUMMARY

1.1 General

1.1.1 The Gilston Area forms part of the wider growth within the Harlow area that is anticipated to deliver circa 16,000 homes by the end of the plan period (which includes 3,000 homes in the Gilston Area) and a further 7,000 in the Gilston Area post plan period. The Gilston Park Estate comprises 8,500 homes within the overall total of 23,000 homes. To serve this wider growth, Hertfordshire and Essex County Councils have identified the need for additional strategic infrastructure including additional capacity across the Stort Valley.

1.1.2 This Options Report has been prepared in support of the detailed planning application submitted by Places for People for the Eastern Stort Crossing (ESC). The ESC provides capacity improvements between Eastwick Road and River Way, inclusive of the realignment of Eastwick Road between Pye Corner and the junction of A414 with Fifth Avenue, as part of proposals to facilitate the proposed development at Gilston Park Estate and support growth planned across Harlow. This ESC Options Report identifies the highway scheme recommendations assessed in developing the current scheme, as reflected in the detailed drawings prepared to accompany the planning application for the ESC.

1.1.3 Refer to Appendix A for the detailed planning application drawings and schedule of the submitted drawings.

1.1.4 The ESC comprises three new highway link roads referred to as Roads 1, 2 and 3; the realignment of Eastwick Road between Pye Corner and Fifth Avenue; three new roundabouts; a traffic signal-controlled junction and highway structures spanning Fiddler's Brook, the Stort Valley and the East Anglia railway at River Way. Additional unadopted minor pedestrian footbridges are proposed at Fiddler's Brook and to replace two poorly maintained footbridge decks between the Stort Navigation and River Way.

1.1.5 The proposed highway works are shown on drawing and VD17516-EC-GA-100, 101 and 101.1 and referenced as

i. Road 1: which includes the realignment of Eastwick Road between Fifth Avenue and Terlings Park, continuing as new highway east from Eastwick Road/Terlings Park junction to the Central Roundabout, spanning Fiddler's Brook;

ii. Road 2: which links Eastwick Road east of Pye Corner to the Central roundabout; and

iii. Road 3: which links River Way northwest to the Central roundabout, crossing the Stort Valley inclusive of the River Stort and the Stort Navigation (canal).

1.1.6 Road 1 has been designed mindful of future capacity demands and to reflect the expectation that traffic travelling between the A414 and destinations east of Harlow will use the ESC to connect to Edinburgh Way rather than use the Central Stort Crossing (CSC). Road 1 includes improvements and the realignment of Eastwick Road between Fifth Avenue and Terlings Park to accommodate such increased traffic and comply with appropriate geometric design criteria.

1.1.7 Highway connectivity between the proposed new Road 1 infrastructure and the existing highways which serve the residents of Pye Corner (along Eastwick Road) and Terlings Park (south of Eastwick Road) has been subject to significant scrutiny and public consultation, resulting in the proposed traffic signal controlled staggered junction and toucan crossing layout proposed where the ESC alignment passes between Pye Corner and Terlings Park. As part of the traffic signal-controlled junction proposals, a footway from Pye Corner is provided along Eastwick Road to the pedestrian crossing facilities, linking to the 5m cycleway/footway corridor along the south side of the ESC Road 1.

1.1.8 There are two locations where highway bridge structures are required. Road 1 is required to span Fiddler' Brook in the locality of Terlings Park. Road 3 is required to span the River Stort Navigation to the south east where the road links with the existing highway at River Way.

1.1.9 Retention of the existing Grade II Listed Fiddlers' Brook footbridge has been achieved through design considerations of the ESC alignment. Restoration of the existing footbridge will ensure a long period of future use and prevent the current decline in condition affecting the structure.

1.1.10 Proposals maintain existing pedestrian connectivity either side of Fiddler's Brook footbridge between Terlings Park and Pye Corner, offering pedestrian segregation from the upgraded ESC public highway and if preferred, the opportunity for pedestrians to avoid crossing the ESC at-grade at the new signal-controlled junction. Sufficient headroom below the new Road 1 highway Fiddler's Brook highway bridge structure has been provided to retain use of the existing PROWs connecting Terlings Park to Pye Corner and between the Stort Valley to the south and Gilston Park Estate to the north.

1.1.11 Road 3 is located within the River Stort flood plain and has been subject to extensive consultation with primary stakeholders including the Environment Agency (EA) and the Canal and River Trust (CRT). The alignment of Road 3 has been designed to minimise the physical and visual effects where the road spans the Stort Navigation and adjacent towpath on structures, particularly on wildlife and minimising loss of flood storage within the flood plain. The north-western section of Road 3 is entirely above existing ground and is supported by steel arch culverts with overlying fill across the valley for the purposes of conveyance of flood water and connectivity of wildlife below the new highway. The south-eastern section of Road 3 is on a bridge structure where spanning the Stort Navigation and River Stort, removing impact on the navigable canal, the adjacent towpath and reflecting the existing road levels at the south connection to River Way.

1.1.12 Facilities for pedestrians and cyclists have been fully explored with proposals reflecting SUSTRANS best practice guidance. Segregated 5m wide footway/cycleway facilities plus buffer zones are provided for the full extent of the ESC between Fifth Avenue/Central Stort Crossing and River Way. A new cyclist/pedestrian bridge over the railway line adjacent to the existing River Way road bridge enables the 5m wide segregated footway/cycleway to continue south of the ESC to join existing segregated cycleway/pedestrian facilities.

1.1.13 Road 1 has been designed mindful of potential Essex CC aspirations to extend the dual carriageway at the A414/Fifth Avenue junction east to connect to M11 Junction 7A. The horizontal and vertical alignment for Road 1 has been designed to enable the road to be widened to dual carriageway by adding a westbound carriageway, the currently proposed Road 1 becoming the eastbound carriageway. The Central Roundabout has been designed to accommodate a future addition of a westbound carriageway to form a dual carriageway alignment, should this be required. The proposed Fiddler's Brook road bridge carrying Road 1 has been detailed to accommodate a dual carriageway without further upgrade works to the structure or further impacts on Fiddler's Brook. The dual carriageway is not required to support the Gilston Park Estate development, though may form part of long term strategic provisions to meet the demands of planned growth across Harlow.

1.1.14 A design period of circa 2 years has been identified with 18-24 months recommended for construction of Road 1 and Road 2, and a 24 month period for the construction of Road 3.

1.1.15 Road 1 and Road 2, once constructed, will function as a bypass to Pye Corner and enable Eastwick Road traffic to be re-routed away from Pye Corner and the village of Gilston. Eastwick Road is proposed to be closed as part of traffic calming to remove through traffic from Pye Corner and Gilston. The proposed scheme includes the closure of Eastwick Road to the east of Pye Corner, with vehicular access provided via the new traffic signal controlled staggered junction. The removal of through traffic will improve the environment within the heart of Gilston and enable significant public realm enhancements to be considered.

2 SCOPE OF REPORT

2.1 Introduction

2.1.1 Places for People (PfP), the Applicant, is submitting an outline planning application to East Hertfordshire District Council (EHDC), for a residential-led development of 8,500 new homes across six distinct villages (the "Village Development") on 950 hectares of land in the south-east of the district, directly north of the A414 and Eastwick Road, referred to as Gilston Park Estate The outline planning application has all matters reserved, save for three "Strategic Accesses" into the Gilston Park Estate (the "Central Access" to Village 1, the "Eastern Access" to Village 2 and the "Western Access" to Village 6). The application includes a series of standards and specifications provided as development parameters and design principles which will act as a framework to guide the detailed design of future master-planning and reserved matters applications.

2.1.2 The Applicant is also submitting two separate full detailed planning applications for infrastructure that supports the Village Development as well as wider growth across East Herts and Harlow. One application proposes enhancements and widening to the existing vehicular crossing over the River Stort (known as the "existing Eastwick Crossing") to create the "Central Stort Crossing". The proposals deliver additional high quality vehicular, public transport, cycle and pedestrian capacity connecting the A414 Eastwick Road with the A414 Edinburgh Way via Fifth Avenue.

2.1.3 The other infrastructure application is for the creation of a new crossing over the River Stort, to the east of the existing Eastwick Crossing, referred to as the "Eastern Stort Crossing". This strategic infrastructure item connects Eastwick Road to the eastern end of the A414 Edinburgh Way via River Way and provides more direct connectivity to new Junction 7a on the M11 for east/west traffic on the A414. The crossing will also provide high quality pedestrian and cycle facilities and link to the Eastern Access. The crossings straddle the administrative boundaries of East Herts and Harlow, and therefore the applications will be submitted to both EHDC and Harlow District Council ("HDC").

2.1.4 Together the applications for the Village Development, Central Stort Crossing and Eastern Stort Crossing are referred to as "the Development", and the land within the three red line boundaries as "the Site".

2.1.5 The “Gilston Area” has been identified in the East Herts District Plan as a site allocation for 10,000 homes. It comprises the Gilston Park Estate (owned by PfP) and the “Briggens Estate”, owned by City & Provincial Properties (“CPP”), which represents a 7th village.

2.1.6 The Applicant is submitting the outline planning application to define the vision and design quality intended for the Village Development and to demonstrate that all technical matters have been fully assessed and addressed in the development proposals. The principles defined in these applications will guide future master-planning and detailed design, undertaken with key stakeholders and the local community. The Gilston Park Estate will be a high-quality and attractive development, delivering much needed local housing in sustainable communities for East Herts, which will also support the regeneration of Harlow.

2.1.7 Three possible route options were referred to as the Western, Central and Eastern Crossings as identified in Policy GA2 of the adopted EHDC District Plan. Following testing and consideration with feedback from the highway authorities on their preference, two routes were identified to support development of Gilston Area and wider growth across Harlow, being the Central and Eastern Crossings. To reflect the crossings being deemed major infrastructure delivery works, detailed planning applications are submitted for each in addition to the outline planning application for the Village Development.

2.1.8 It is expected that the residential build out of the Gilston Area as well as strategic growth across Harlow will be linked to the delivery of the crossings through planning conditions or a legal agreement.

2.1.9 The two crossings will be designed to be in full compliance with the design standards operated by the local highway authorities. These design standards are contained within Highways England’s “Design Manual for Roads and Bridges”, referred to as DMRB and as amended by any specific amendments introduced by the highway authorities.

2.1.10 The route alignment and form of bridge structures to be included as part of the Detailed Application submissions for the two crossings have been developed to reflect external constraints, initial consultation responses from 2014 and more recently, pre-application consultation responses in 2017, 2018 and 2019.

2.1.11 An Options Report has been prepared for the CSC and ESC which summarises the highway alignments and bridge structure options considered. Each report describes the proposed scheme forming the detailed planning application submission and includes a set of the Detailed Application drawings as developed to reflect external constraints, stakeholder consultation responses and pre-application public consultation feedback.

2.1.12 The Options Reports are intended to act as a source of information to demonstrate the factors considered when preparing the detailed proposals and complement the EIA documentation.

2.1.13 This Option Report deals specifically with the ESC.

3 ALIGNMENT OPTIONS – ISSUES AFFECTING THE CHOICE OF ROUTE ALIGNMENT

3.1 Introduction

3.1.1 The evolution of the ESC highway layout and the influencing factors that determined the current layout as shown on the General Arrangement layout drawings VD17516-EC-GA-100, 101 and 101.1 are described in this Section. Refer to Appendix A for the detailed application drawings.

3.1.2 Information, constraints and consultation which influenced the location and type of highway structures proposed in the current scheme is contained with Section 4 of this Report.

3.1.3 The proposed highway alignment is compliant with DMRB and the geometric requirements of the highway authorities.

3.2 Consultations

3.2.1 The proposals for the ESC have developed from a detailed scheme layout prepared in early 2017, in order to seek feedback from a) public consultation, b) highway authority liaison relating to traffic modelling, non-vehicular access and public transport provisions; and c) statutory consultee feedback from the EA and CRT.

3.2.2 Consultation with Network Rail, as a statutory consultee, commenced in 2018 as the proposals evolved to introduce a cyclist/pedestrian bridge over the railway in the vicinity of River Way.

3.2.3 The following text describes the development of the ESC resulting from pre-application consultation between early 2017 and early 2019.

3.2.4 The following stakeholders were contacted in order to develop the highway proposals. Full details of all consultations carried out are set out in the EIA.

i. Environment Agency (EA)

- The Stort Valley is a Flood Zone 3 area (FZ3) and significant liaison has been held with the EA to consider the impacts to potential loss of flood storage within the valley flood plain due to the introduction of the ESC.
- Preliminary proposals for Road 3 were to span the Stort Valley on a structure in order to minimise impact on the flood zone. The viaduct structure spanned the full width of the valley to accommodate the alignment of Road 3 which was circa 650m long and up to 12m

above ground level. Further assessment was undertaken of the impacts of the bridge structure affecting flood storage in order to minimise the presence of columns supporting the structure. Modelling of the flood plain identified depths of flood water for the 1 in 1000 event year storm event between 0.3m and a maximum of 1.4m within the valley, the variance reflecting the slightly undulating ground profile. Typically under the proposed highway structure, the flood depth was circa 0.3m to 1.0m. Assessment of bridge column spacings and deliverable lengths of bridge beams to site were reviewed in order to assess the spacing of bridge piers and loss of flood storage. Flood modelling undertaken identified minimal loss of storage and resulted in no material adverse impact to the flood storage capacity of the flood plain.

- The significant extent of the bridge structure and associated bridge height as a result of spanning the whole valley led to considerations being given to reducing the overall length of the bridge structure and considering other options for conveying Road 3 across the remainder of the Stort Valley. The bridge was necessary to span the Stort Navigation and River Stort and form a new road junction with River Way (River Way being circa 6m above the valley floor).
- A meeting was held on 6th March 2018 with the EA to present the proposals for use of box culverts to supplement the use of the elevated road bridge to convey the highway across the Stort Navigation and River Stort. The accompanying road levels were significantly reduced where the road was supported on concrete box culverts, away from the river crossings. The use of culverts presented a much less visible road crossing of the Stort Valley, whilst maintaining the through flow of flood water and opportunities for the movement of wildlife. The EA reviewed and responded under letter dated 14th March 18 with several points of concern, namely;
    i. Continuity of the functional flood plain
    ii. Landscape visual connectivity for wildlife, the public and maintaining previous open views
    iii. Protection of existing habitats
    iv. The lowered road causing increased noise and pollution harm to wildlife
- The EA requested that the proposed culverts be increased in height which would offset many of their concerns. The EA also requested that the bridge structure length associated

with the use of concrete box culverts be increased in combination with a reduction in the use of culverts.

- Detailed consideration of the EA's response of March 2018 was undertaken in the form of optioneering various other solutions. The current proposal (as put forward to the EA in October 2018) was developed to address EA's concerns regarding the limited open internal height offered by concrete box culverts and the preference to lengthen the bridge structure. The current scheme incorporates the use of semi oval steel section (thin walled) culverts with associated embankment fill material placed between and above the culvert profiles, thereby maintaining the level of Road 3 well above valley ground levels. The increased internal opening height of the semi oval steel culvert sections proposed, being 4.24m and 5.36m, assists with maintaining visual connectivity through the culverts for wildlife within the valley. Public access through the culverts will be restricted to avoid unsociable behaviour. The use of fill material above the culverts enables the introduction of a landscaped finish which will over time, enable the culvert openings to be overgrown and naturalised. The volume of lost flood water storage resulting from the use of the semi oval steel section culverts was quantified and a replacement storage volume has been provided in the form of localised ground reprofiling (lowering) within the footprint of the culverts, thereby avoiding the need for replacement storage to be created elsewhere.
- Further discussion with the EA regarding mitigation works has identified proposals to provide a landscaping scheme along the Fiddler's Brook watercourse corridor which is described within the EIA as part of the overall development landscaping provisions for the Village Development planning application.
- The existing ground cover vegetation below the footprint of the Road 3 proposed culverts on the valley floor is of little ecological value, being of recent origin following gravel extraction activities. It is therefore of little intrinsic value in itself. Road 1 of the ESC crosses part of Fiddler's Brook Marsh. The development proposals include compensation for ecological loss through the creation/enhancement of habitat in other parts of the Stort Valley including the Fiddler's Brook corridor. Enhanced mitigation measures were discussed at the meeting with the EA on the 6th March 2018 which form part of the Gilston Park Estate Village application and which the EA would see as contributing to betterment within the Stort Valley.

ii. Canal and River Trust (CRT)

- An ongoing dialogue has been maintained with the CRT mindful the ESC viaduct bridge structure spans the Stort Navigation close to River Way. CRT previously developed and produced a document for HS2 which is intended to be used by designers as a good practice guide when considering new structures which span canals.
- The horizontal alignment of Road 3 is required to satisfy DMRB horizontal radii criteria for the design speed of 60kph (30mph) whilst being constrained by the need to tie in at River Way (southeast extent of ESC) and the middle roundabout where Roads 1, 2 and 3 converge. The vertical profile for Road 3 accommodates the existing highway levels of River Way and the requirement to satisfy EA criteria relating to height of Road 3 across the Stort Valley. Whilst headroom provision below the new bridge structure which spans the Stort Navigation is not overly constrained, the presence of existing hedgerows abutting the canal corridor along with shrubs and trees in the vicinity of the new bridge have been considered in order to maintain the visual feel of the canal corridor for canal users and the public using the towpath.
- Submission of the highway proposals for Road 3 to CRT resulted in ongoing dialogue to look to best protect the rural vista of the canal corridor whilst taking account of CRT concerns relating to the form of the bridge structure passing overhead. Joint site inspections have been undertaken between CRT staff and the Applicant's team (including planning, landscaping, heritage, environmental and highway advisors) to understand specific preferences of CRT and to agree how such preferences could be accommodated. Updated proposals incorporating CRT requirements have been circulated with CRT.

- Technical bridge requirements to span the Stort Navigation canal and associated visual and physical impacts were reviewed during joint site visits with CRT and in subsequent exchanges of correspondence. The proposals were developed to protect amenity use to canal users and avoid adverse visual intrusion, informing the bridge proposals as follows;
    i. the orientation of bridge piers flanking the canal;
    ii. the use of column piers rather than long solid wall piers to maintain openness,
    iii. avoidance of a tunnel structure effect,

iv. minimise isolation with the surrounding vegetated areas,

v. provision of bird netting to avoid birds being able to gain access to flat surfaces, causing adverse impacts from droppings and the massing of larger birds in close proximity to canal users passing below.

- Additional mitigation discussions with CRT to enhance facilities for user of the tow path by walkers includes replacement of deteriorating decks, parapets and associated approach ramps for two existing footbridges located between the Stort Navigation and River Way, thereby improving amenity value.

- The proposed scheme drawings prepared for the Detailed Application incorporate the provisions agreed with CRT to be included as part of the scheme proposals.

iii. Highway Authorities – Essex County Council (ECC) and Hertfordshire County Council (HCC)

- ECC and HCC, as statutory highway authorities, own and maintain the existing adopted highway infrastructure, with ECC's adopted highway boundary generally being south of the River Stort, HCC's highway region being north of the River Stort. The River Stort also denotes the boundary between EHDC and HCD planning authorities. Both ECC and HCC will become responsible for owning and maintaining new highway infrastructure forming the ESC, once designed and constructed to the highway authority's satisfaction. The proposed ESC spans both highway authority boundaries and as such, all liaison, dialogue and meetings relating to highway works have included both highway authorities. Indeed, it has been the intention during consultation to obtain joint statements from the highway authorities in order to avoid conflicting responses that might lead to difficulties reaching agreement on overall provisions for highway works. This has also applied to discussions relating to traffic modelling, public transport considerations and provisions for non-vehicular users.
- The full extent of traffic assessment discussions influencing the ESC detailed layout have taken place continually from 2013 and continue to evolve. Several key meetings have been held with both highway authorities in which the full extent of highway and structure proposals have been described and feedback received. With regard to the ESC, mindful of the authorities potential long term aspiration to extend a dualled highway

from the A414/Fifth Avenue junction eastwards to eventually connect to M11 Junction 7A, the alignment of Road 1 has been significantly amended since early 2017 to accommodate such provision in order to avoid subsequent disruption and abortive works.

- Footway and cycleway proposal initially included a 3m footway/cycleway along the full extent of the ESC when detailed layout drawings were circulated in 2017. More recent discussions with both highway authorities identified their preference for a 5m wide segregated footway/cycleway and this has been accommodated in the current scheme. The proposals to deliver a 5m effective width segregated cycleway/footway corridor are accompanied by landscaping proposals.
- Proposals for new bridge structures have been developed to accommodate the proposed highway and cycleway/pedestrian requirements. Material choice has been informed to reflect key stakeholder requirements (EA, CRT and NR) whilst mindful of future maintenance requirements, such as headroom, access and minimising routine maintenance input. It is expected that ECC will adopt the full extent of the Road 3 viaduct for maintenance purposes.
- A description of the detailed highway layout drawings forming the Detailed Application is given in Section 3.3.
- An independent Quality Review Panel (QRP) was appointed by the planning authority to review the scheme proposals. A QRP Presentation and discussion took place on 22nd February 2019 which highlighted the opportunity to further enhance landscaping and cycleway/footway provisions.

iv. Network Rail (NR)

- Evolving considerations in 2018 to improve pedestrian and cycle connectivity south of River Way resulted in a cyclist/pedestrian bridge being proposed which offers significant betterment to the existing provisions at the existing road bridge where River Way spans the railway line. The proposed cyclist/pedestrian bridge is located adjacent to and west of the existing River Way road bridge, spanning over the railway line to offer a segregated route that avoids the restricted footways on the existing River Way road bridge.

- NR has been consulted on the proposed new bridge and liaison has been undertaken to set out the bridge provisions and to demonstrate the bridge can be delivered without adverse impact on NR infrastructure. Dialogue continues with NR and includes the preparation of plans to confirm clearances, land ownership, operational headroom and width clearances to rolling stock and impacts on the overhead electric cable infrastructure.
- Detailed liaison with NR will continue to programme all works impacting on NR including procurement of the River Way cyclist/pedestrian bridge over the railway.
- Dialogue with NR is to continue up to and through the detailed design and tender period to ensure delivery of infrastructure affecting the railway network is fully assessed and requirements agreed with NR relating to lead in prior to key stages in the process of gaining NR review/sign off of programme, planned possessions, design liaison, NR review periods, advance payments to NR and other aspects controlling the procurement programme.

v. Public consultation

- The existing nature of Eastwick Road where it passes through the residential area of Pye Corner to the north and provides the only vehicular access to Terlings Park to the south will be altered to accommodate the new alignment of the ESC as it passes between both Pye Corner and Terlings Park. Eastwick Road in its existing form carries significant traffic, with higher than appropriate traffic speeds. Existing traffic using Eastwick Road has caused severance to both sides of this small community, adversely impacting on the character of the village.
- A significant extent of public consultation has therefore progressed with residents of Pye Corner, Terlings Park and the wider Gilston Area in order to understand their concerns and identify solutions that are deliverable and sustainable.
- A public meeting was held on the 21st May 2018 to discuss the proposed junction, potential stopping up of Eastwick Road associated with removing through traffic from Pye Corner and impact on local roads, from which feedback was reviewed in order to best capture local views on the proposed highway access provisions around Pye Corner and Terlings Park. This feedback was disseminated and amended access layouts and provisions specifically relating to non-vehicle movements were presented at a Community Transport Workshop on 7th July 2018. The

responses from the workshop have informed the development of the current junction proposals serving Pye Corner and Terlings Park, described more fully in Section 3.3.

vi. Statutory Service Undertakers

- Existing services located within existing highway or on land required to accommodate the proposed highway works will be affected and require assessment for protection or diversion.
- An assessment of affected major services has identified several service diversion requirements to accommodate the proposed highway works, including a partial realignment of a trunk foul sewer in the Stort Valley. Such service diversions are identified within the EIA and will be progressed in the detailed design period, following planning consent, which is normal protocol.
- Localised Statutory Services protection works or local service diversions will be required where the new highways connect to highway and such local diversions will be developed as part of the detailed design process.

3.3 ESC Route description – alignment options and constraints

3.3.1 General

3.3.1.1 The ESC is made up of three new roads.

3.3.1.2 Road 1 connects Fifth Avenue/Central Stort Crossing (CSC) in the west, eastwards to the new Central Roundabout, from which Roads 2 and 3 head north and southeast respectively.

3.3.1.3 Road 2 heads north from the Central Roundabout connecting to Eastwick Road east of Pye Corner at a new roundabout, which forms the new access to Gilston Park Estate Village 2.

3.3.1.4 Road 3 heads southwest to connect to River Way at a new roundabout, passing over the Stort Valley and providing onward connectivity with Edinburgh Way and links to the M11.

3.3.1.5 Once constructed, Road 1 and 2 will enable Eastwick Road traffic to bypass the village of Pye Corner.

3.3.1.6 Road 3 crosses the Stort Valley and the associated flood plain at an elevated level and spans the Stort Navigation canal on a viaduct structure. A new roundabout junction is detailed on River Way which is at a similar level to the bridge structure spanning the Stort Navigation.

3.3.2 Road 1 Route Description

3.3.2.1 The extent and provisions of Road 1 are shown on the General Arrangement layout drawing numbers VD17516-EC-100-GA (as amended) and VD17516-EC-100.1-GA (as amended).

3.3.2.2 The existing Eastwick Road is a single two-lane carriageway of rural character with the national speed limit being in place from the existing A414 roundabout junction at Fifth Avenue to the Terlings Park junction. A 30mph maximum speed limit commencing at the Terlings Park junction, follows Eastwick Road northeast, through the local residential area of Pye Corner, after which the speed limit returns to the national speed limit.

3.3.2.3 It is proposed that Road 1 will have a maximum speed limit of 40mph along its full length. A 30mph speed limit is proposed along Eastwick Road where it passes through Pye Corner between its junction with the ESC Road 1 to the point Eastwick Road is stopped up, adjacent to the Road 2 roundabout east of Pye Corner.

3.3.2.4 The typical cross section of Road 1 consists of a 7.3m wide carriageway and two 1.0m hardstrips, with a 2.0m wide footway and 0.5m wide soft verge on the north side, a 5.0m wide segregated footway/cycleway with a minimum 0.5m soft verge on the south side. Proposed earthworks slopes have been detailed at 1 in 3 (where in cut) or 1 in 2.5 (where on embankment). The 1.0m wide hard strips adjacent to the carriageway are provided to reflect the possible future use of Road 1 as part of a dual carriageway whereby an “Urban” cross section dual carriageway includes 1m hardstrips either side of the running lanes.

3.3.2.5 Road 1 comprises a realignment of Eastwick Road between the CSC and Terlings Park junction in order to provide a compliant alignment for a potential dual carriageway alignment and to introduce environmental benefits adjacent to Terlings Park; and a new section of highway, east of Terlings Park junction.

3.3.2.6 The following text describes Road 1 from west to east.

3.3.2.7 The realignment of Eastwick Road to form Road 1 complies with a DMRB compliant horizontal geometric alignment. The carriageway having been realigned northwards affords the opportunity to introduce enhanced landscaping between Terlings Park, the adjacent 5m cycleway/footway and the new alignment for Road 1. The increased separation of Road 1 from Terlings Park reducing road traffic impacts adjacent to Terlings Park. Relocating Eastwick Road to form Road 1 further to the north, the un-trafficked extent of Eastwick Road will be left in-situ and modified for use by pedestrian and cyclists as part of introducing the 5m wide segregated footway/cycleway provision, whilst maintaining access to existing properties in the vicinity of Burnt Mill Lane.

3.3.2.8 Burnt Mill Lane will be extended north from its existing junction with the existing Eastwick Road to form a new, all movements at-grade T-junction with Road 1. An uncontrolled crossing point is proposed across Burnt Mill Lane to provide a safe crossing for pedestrians and cyclists who use the new 5m segregated footway/cycleway facility along the south side of Road 1. A 20mph speed limit is proposed for Burnt Mill Lane to reflect its intended shared use status. Burnt Mill Lane is intended to operate as a Quite Lane and thereby encourage pedestrian and cyclist use for journeys to Harlow Town railway station and Harlow centre. Details relating to the intended use for Burnt Mill Lane to complement the HGGT sustainable transport corridor facilities provided by the CSC are described in the CSC Options Report.

3.3.2.9 Terlings Park residential estate currently has a priority junction with Eastwick Road which permits all vehicle turning movements. The proposed horizontal realignment of Road 1 at the Terlings Park junction requires modification of the existing Terlings Park junction. The proposed Road 1 alignment also changes the form of connectivity with Pye Corner. Access to both Terlings Park and Pye Corner is provided by introduction of a new staggered traffic signal-controlled junction as part of Road 1. The staggered junction enables previous traffic flows which passed through Pye Corner to be conveyed by Road 1, thereby avoiding passing through Pye Corner.

3.3.2.10 The Road 1 alignment continues on a new carriageway east of the staggered junction providing access to Terlings Park and Pye Corner, passing over Fiddler's Brook on a new highway bridge and continuing east over a former landfill site before joining the Central Roundabout. Significant optioneering has taken place to in order to select an alignment for Road 1 inclusive of the staggered junction footprint that minimises impacts to Pye Corner and the Terlings Park residential development, whilst providing an appropriate bridge location to span Fiddler's Brook and avoiding physical impacts on the adjacent listed Fiddler's Brook footbridge.

3.3.2.11 Detailed consideration has been given to the interface between the existing highway network at the junction of Terlings Park, Eastwick Road, and Pye Corner, resulting in the proposed traffic signal-controlled junction offering safe and controlled pedestrian and cyclist at-grade crossing facilities of the realigned Road 1. Grade separated pedestrian facilities are also offered to enable local movement by footpath, passing below the new Fiddler's Brook road bridge carrying Road 1 and connecting to local footpaths within Terlings Park. The existing Fiddler's Brook footbridge is being retained to reflect its listed status and to provide a segregated pedestrian crossing facility of Fiddler's Brook at low level, away from the highway, connecting via public rights of way to the Gilston area in the north and Stort Navigation tow path and other informal pedestrian routes crossing the Stort Valley to the south.

3.3.2.12 The proposed staggered signal-controlled junction will provide two lane approaches along Road 1 and single lane approaches on the two minor roads linking into Terlings Park and Pye Corner. To cater for pedestrian and cyclists movements, the signal-controlled junction includes toucan facilities across the access into Terlings Park and across the ESC, to the east side of the signalised junction. An uncontrolled crossing is proposed across Eastwick Road which forms the north arm of the junction, to reflect this route being less desirable and with no specific pedestrian movement desire line.

3.3.2.13 A 2m wide footway is provided along the north verge of Road 1 to cater for pedestrians wishing to walk between Village 1 access, Lime Tree Avenue and Pye Corner, linking into the uncontrolled pedestrian crossing of the north arm of the signalised junction at Terlings Park and Pye Corner.

3.3.2.14 To improve pedestrian facilities and linkage between the existing public rights of way that are east of Fiddler's Brook and Terlings Park, a new footbridge is proposed over Fiddler's Brook, located to the south of Road 1. This will not be an adopted highway structure and will add to the existing informal means of pedestrian access into Terlings Park from Pye Corner using PROW passing below the new Road 1 Fiddler's Brook road bridge. Environmental mitigation landscaping works are being implemented in the Fiddler's Brook corridor which will provide a pleasant environment for pedestrians.

3.3.2.15 A Toucan crossing is proposed across Road 1 on west side of the Central Roundabout, providing a safe, controlled crossing of Road 1 for users of the proposed 5m wide segregated footway/cycleway network travelling between Roads 2 and 3.

3.3.2.16 PROW 31 passes over the former landfill site and connects Pye Corner in the north to River Stort in the south. A minor diversion of the PROW is proposed via the new toucan crossing facility across the west arm of the Central Roundabout, to provide a safe and controlled means of crossing Road 1. The diversion connects the existing PROW 31 route north and south of Road 1 to the toucan crossing.

3.3.2.17 The proposed Central Roundabout consists of a 60m outer diameter (ICD) roundabout and a circulatory carriageway width of 9.0m, with two lane approaches on all 3 arms and tapered single lane exits.

3.3.2.18 Road 1 vertical profile is constrained by the requirement to be at grade with the proposed Central Stort Crossing to the west and at the Terlings Park / Eastwick Road junction. East of Terlings Park Junction, the ESC vertical alignment takes into account the topography of the area, whilst providing a DMRB compliant vertical alignment.

3.3.2.19 Terlings Park junction has been the subject of much consideration and public consultation to arrive at the proposed signalised junction. The original proposal promoted the use of a 4 arm 48m ICD roundabout on Eastwick Road, maintaining much of the existing highway. However, such a roundabout would not accommodate a potential future dualled carriageway alignment without major impact on adjacent properties and loss of habitat from the vegetated area surrounding Fiddler's Brook.

3.3.2.20 A Public workshop held on 7th July 2018 for local residents explored all possible alignment choices in detail with both horizontal and vertical road alignments considered, with associated junction option layouts prepared. An independent report produced in August 2018 summarised the findings from this event and is appended to the "Statement of Community Involvement" application document.

3.3.2.21 The junction proposals prepared for the Public Workshop are included as Appendix B and include:

i) Junction options for Terlings Park / Pye Corner and the alignment of Road 1;

ii) Cyclist/pedestrian bridge options to enhance non-vehicular movements across the ESC;

iii) Placing ESC Road 1 on bridge over Terlings Park/Pye Corner/Eastwick Road junction;

iv) Placing ESC Road 1 in tunnel below Terlings Park/Pye Corner/Eastwick Road junction;

v) Alternative ESC alignment north of Pye Corner.

3.3.2.22 A proposal to construct an underpass beneath Terlings Park / Eastwick Road junction to allow Road 1 traffic to flow unobstructed below Terlings Park junction was prepared and presented at public consultation. Furthermore, an alternative overpass Road 1 alignment which conveyed Road 1 on a bridge over the Eastwick Road / Terlings Park junction was also presented for consideration. Both options intended to retain the existing junctions between Terlings Park and Pye Corner with connectivity provided to the ESC Road 1 (for westbound traffic) and Road 2 (south bound traffic) via the North Roundabout 2 at the north extent of Road 2.

3.3.2.23 The underpass and overpass options were discounted following feedback from the consultation process as the residents felt either of the layouts would isolate them from the new highway network and introduce significant adverse environmental impact to local residents and the local environment. Construction of the bridge or tunnel option to convey Road 1 as a grade separated road from Eastwick Road would impact in the vicinity of Fiddler's Brook, the tunnel option alignment clashing directly with the Fiddler's Brook bed level.

3.3.2.24 Fiddler's Brook, local pedestrian access needs and the PROWs have been influential factors is establishing the vertical profile of Road 1. A minimum head room clearance of 2.8m to the underside of the proposed bridge structure has been applied where PROWs pass below, with an allowance of 1.9m depth for the bridge structure. Fiddler's Brook road bridge falls from south to north, resulting in headroom above PROWs at the south extent of the bridge greater than 4m.

3.3.2.25 The vertical profile of the section of Road 1 which spans from Terlings Park junction to the Central Roundabout has deviated little from the initially circulated alignment. The Road 1 profile along this section of road is dictated by the Terlings Park junction level and clearance over Fiddler's Brook. Eastbound, Road 1 takes a vertical profile generally following ground levels across the former landfill site including areas of cut and fill to reflect the undulating existing ground levels before connecting to the Central Roundabout. The Central Roundabout finished level reflects surrounding ground levels.

3.3.3 Road 2 Route Description

3.3.3.1 Road 2 alignment is detailed on General Arrangement layout drawing number VD17516-EC-100-GA (as amended).

3.3.3.2 The typical cross section of Road 2 consists of a 7.3m wide carriageway (no hardstrips being required), a 2.0m wide footway and 1.5m wide verge on the east side and a 5.0m wide segregated footway/cycleway with 1.5m verge on the west side. Proposed earthworks slopes have been detailed at 1 in 3 to reflect Road 2 being predominantly in cutting and 1.5m verge widths have been provided on both sides to accommodate filter drains, which will intercept cut slope rainfall runoff before over-running the footways.

3.3.3.3 It is proposed that Road 2 will have a maximum speed limit of 40mph along its full length.

3.3.3.4 Road 2 runs from the Central Roundabout for 310m in a north westerly direction, over the former landfill site. At the north extent, Road 2 connects to the proposed North Roundabout, which is located on Eastwick Road, east of Pye Corner.

3.3.3.5 The proposed North Roundabout consists of a 50m outer diameter (ICD) roundabout and a circulatory carriageway width of 9.0m, with two lane approaches on all 3 arms and tapered single lane exits.

3.3.3.6 Once installed, Road 1 and Road 2 will function as a bypass of Pye Corner for users of Eastwick Road. In response to local resident concerns regarding expected increased traffic flows passing through Pye Corner, Road 2 North Roundabout will not provide a vehicular connection on its west side with Eastwick Road.

3.3.3.7 A turning head is proposed on Eastwick Road where it is to be closed, west of the North Roundabout, such that the only means of vehicular access to Pye Corner will be limited from the new staggered signalised junction at Terlings Park. This provision will remove through traffic and significantly reduce the adverse environmental effects associated with traffic in the vicinity of Pye Corner.

3.3.3.8 Uncontrolled pedestrian crossings are provided across each arm of the three arms forming the Road 2 North Roundabout. Pedestrian and cycle connectivity is provided between the 5m wide segregated footway and cycleway on the west side of Road 2 and North Roundabout with Village 2, Pye Corner to the west of the North Roundabout and Eastwick Road east of the North Roundabout.

3.3.3.9 Road 2 provides direct access to the Gilston Area Village 2 via the North Roundabout.

3.3.3.10 Village 2 access from Eastwick Road will be required before completion of the ESC and specifically the Pye Corner bypass scheme (Roads 1 and 2). In the interim and ahead of procurement of either Road 1 or Road 2, a priority junction will be formed between Eastwick Road and Village 2 to the north. The priority junction will be absorbed into the North Roundabout when Road 2 is constructed.

3.3.3.11 Road 2 has no structures which impact on vertical alignment proposals. However, the vertical profile is governed by connection to Eastwick Road at the North Roundabout and to the Central Roundabout to the south. The vertical current profile has been designed to assist with surface water drainage of Road 2 towards outfall locations close to the proposed roundabouts.

3.3.4 Road 3 Route Description

3.3.4.1 Road 3 alignment is detailed on General Arrangement layout drawing number VD17516-EC-101-GA (as amended).

3.3.4.2 The typical cross section of Road 3 consists of a 7.3m wide carriageway (no requirement for hardstrips), with a 2.0m wide footway and verges on the north side, a 5.0m wide segregated footway/cycleway with verges on the south side and earthworks at 1 in 2.5 where on embankment, to minimise impact of loss of flood storage within the flood plain. A 0.5m hard verge buffer strip is provided to the rear of footways and cycleway/footways where located on a bridge deck.

3.3.4.3 It is proposed that Road 3 will have a maximum speed limit of 40mph from the Central Roundabout, which will be reduced to 30mph on the approach to the River Way Roundabout.

3.3.4.4 Road 3 runs from west to south east for approximately 650m, commencing at the Central roundabout to the west and connecting to the proposed River Way Roundabout to south east.

3.3.4.5 Design evolvement has progressed since early 2017 to consider options to reduce the length of the viaduct structure spanning the Stort Valley, including the use of culverts and overlying fill material to support Road 3 at a lower and less visually intrusive elevation. Refer to Section 3.2 relating to key stakeholder consultation. The road crosses the Stort Navigation and the Stort Valley flood plain using a combination of a new bridge structure where spanning the Stort Navigation and River Stort; and steel pipe arch culverts with surrounding fill once remote from the Stort Navigation. Conveying Road 3 at an elevated level above the Stort Valley on bridge and on culvert, minimises the loss of flood plain and segregation to the movement of wildlife across the valley.

3.3.4.6 The proposed River Way Roundabout consists of a 4 arm 50m outer diameter (ICD) roundabout and a circulatory carriageway width of 9.0m, with two lane approaches on all four arms and single lane exits.

3.3.4.7 The roundabout links the proposed ESC to River Way which provides connectivity to A414 Edinburgh Way to the south.

3.3.4.8 A toucan crossing is proposed to the west and north arms of the River Way Roundabout, with uncontrolled crossings to the south and east arms. The west toucan crossing forms part of the 5m segregated footway/cycleway corridor along the west side of the ESC. The north toucan crossing provides a controlled crossing of Road 3 at the River Way Roundabout for those wishing to access Temple Meads / Enterprise Zone places of employment. The vertical alignment of Road 3 has evolved since 2017 at which time a bridge structure was detailed to span between the Central Roundabout and River Way, a distance of over 650m. The depth of the flood water based on a flood design level of 40.4m AOD, below the proposed Road 3 alignment, is typically 0.4m deep over 80% of the length of the Road 3 crossing, increasing to an average of 0.8m over the remaining 20% extent. As part of continuing liaison with the EA since 2017 to look toward a more sustainable solution for Road 3 to cross the Stort Valley, a combined use of a road bridge where spanning the Stort Navigation and large diameter steel walled culverts with overlying embankment fill for the remaining west extent of Road 3 has been discussed in some detail, this option forming the current scheme.

3.3.4.9 Refer to Section 3.2 “Consultations” for further details relating to the evolvement of the use of culverts.

3.3.4.10 Liaison has been ongoing since 2013 to share and reach agreement on the output of flood modelling undertaken with regard to the presence of Road 3 within the flood plan. The modelling identifies a minimum loss of flood plain when a bridge structure is provided, the loss of storage reflecting for the presence of piers supporting the bridge beams. Modelling has continued to be updated for amendments made to the extent of proposed bridge structure across the valley as depicted by the evolving highway proposals forming the current Road 3 scheme. Refer to Vectos drawing VD17516-EC-107-BE for the longitudinal section along Road 3 which details the road profile relating to the bridge and embankment fill placed over the steel culverts.

3.3.4.11 As part of the current scheme proposals, the volume of lost storage within the flood plan arising from the presence of the large thin walled culverts and bridge piers has been quantified as 1,455 cum. Existing ground levels under the footprint of Road 3 (CH 240 to 410) are higher than the surrounding ground levels by approximately 0.5m. This area corresponds to the proposed footprint extent of the culverts. The proposed use of culverts as detailed on VD17516-EC-107-BE demonstrates that lowering of the higher ground levels within the footprint of the culverts (shown as a red dashed boundary) by 0.25m will enable additional flood storage to be provided equivalent to that lost due to the presence of the current Road 3 proposals. It is noted that ground levels could be lowered a further 0.25m in the same location to provide further increased flood plain storage capacity. The ground levels lowered to offset the presence of Road 3 in the flood plain, remain above surrounding ground levels, removing concerns of flood water ponding without being able to discharge freely as storm water dissipates.

3.3.4.12 A minimum 4m headroom clearance for maintenance access between the underside of the bridge beams and ground levels is deemed necessary for safe man entry. The initial Stort Valley bridge scheme proposed to the EA which including the use of thin walled steel culvert sections (with an interface location between bridge and culverts at Ch480) provided a minimum 4m headroom at the lowest point of the bridge (Ch 480).

3.3.4.13 Maintaining a headroom clearance of 4m will also assist with daylight entering the area below the bridge deck, avoiding the area below becoming sterile. Responding to the EA's request to increase the length of the bridge as a compromise to the use of culverts across the remaining Stort Valley, an option was considered to extend the bridge deck west to Ch420 (an additional 60m of bridge deck in lieu of steel culverts). In relocating the interface to Ch420, ground levels were higher than at Ch480 by approximately 1m, requiring the road levels to be raised to maintain the 4m headroom clearance deemed appropriate for maintenance access.

3.3.4.14 As a consequence of raising road levels to accommodate the bridge/culvert interface at Ch420, the footprint of the culverts and associated earthworks was increased and overlapped the adjacent naturalised gravel pit (pond) on the south side. The horizontal alignment of Road 3 was therefore adjusted and moved northwards as could be accommodated whilst complying with DRMB horizontal design radii criteria. The horizontal re-alignment to prevent Road 3 culverts and earthworks clashing with the naturalised pond resulted in the section of Road 3 above the Stort Navigation being realigned. The resulting alignment of Road 3 above the Stort Navigation is at an angle closer to 90 degrees, which is deemed beneficial by CRT to canal users.

3.3.4.15 The structures are discussed in Section 4.

3.4 Alignment standards

3.4.1 DMRB standards have been adopted for the 70kph and 60kph design speeds for the ESC as follows:

i) TD 9/93 “Highway Link Design” for design speed, sight distance, horizontal alignment, super-elevation and vertical alignment;

ii) TD 16/07 “Geometric Design of Roundabouts” for the geometric design if roundabouts;

iii) TD 27/05 “Cross sections and Headroom” for dual carriageway cross section, including carriageway and central reserve;

iv) TD 42/95 “Geometric Design of Major/Minor Priority Junctions” for visibility standards, deceleration and merge lanes and junction radii;

v) Traffic Signs Manual Chapters 1 (Original), 3, 4, 5 and 7;

vi) The Traffic Signs Regulations and General Directions 2016.

3.5 Pedestrian and Cycleway provision

3.5.1 Eastwick Road currently has no pedestrian or cycle provision between the A414 junction with Fifth Avenue and Burnt Mill Lane, the existing rural single two-lane carriageway having grass and dense vegetation along each verge of the carriageway.

3.5.2 A footway is present between Burnt Mill Lane and Terlings Park along the south side of the Eastwick Road, varying in width between 2.0m and 1.2m over its length. There is no footway provision along the side road of Burnt Mill Lane until south of the River Stort, where an existing footway links with the existing east footway on A414 Fifth Avenue.

3.5.3 Continuing northeast along Eastwick Road and over Fiddler’s Brook, the south footway deviates from the carriageway alignment and crosses the Grade II Listed Fiddler’s Brook footbridge before linking with PROW29 and PROW30. The footpath provision varies in width and quality of surface, the maximum width being 1.2m.

3.5.4 The footway continues along the east side of Eastwick Road through Pye Corner to the end of the row of terrace houses at Pye corner, where it terminates, a grass verge continues eastward. A further footway is provided on the west side of Eastwick Road within Pye Corner linking to Gilston Lane.

3.5.5 The following provides a summary of the design evolution for the provision of footways and cycleways delivered as part of the ESC scheme;

i) The early 2017 scheme proposals included a 3.0m wide shared use footway/cycleway along the north side and a 2.0m wide footway on the south side of Roads 1, 2 and 3 which make up the ESC, with uncontrolled crossing points on each arm of each roundabout;

ii) Design evolvement in 2017 and 2018 resulted in the extension of Road 1 west to the junction of Fifth Avenue/A414 in 2018. The pedestrian/cycle infrastructure proposals were improved to include a 5m wide segregated footway/cycleway to connect westwards with the Village 1 and Central Stort Crossing segregated footway/cycleway provision. From the A414/Fifth Avenue junction, the 5.0m wide segregated footway cycleway followed the south side of Road 1, the west side of Road 2 and the south side of Road 3, providing a 5m wide segregated footway and cycleway linking Village 1 and Village 2 to Pye Corner, Terlings Park and onward to River Way. A new Toucan crossing facility incorporated into the proposed Central Stort Crossing/A414 signalised junction enables pedestrians and cyclists from Village 1 to cross the new CSC/A414 junction to reach the segregated facility on the south side of Road 1. Additional to the 5m segregated footway/cycleway facility on Road 1, 2 and 3, a 2.0m wide footway is provided on the opposite side of each road. He 5m segregated cycleway/footway includes a buffer set back from the kerbed edge of carriageway and a soft verge to the back for landscaping, except on bridge deck, where 0.5m hard surface buffers are provided;

iii) Whilst initially intended to continue the segregated cycleway/footway facility along the south side of the new alignment of Road 1 between the CSC and Terlings Park / Pye Corner junction, an improved amenity value is provided by locating the 5.0m wide segregated facility along the extent of Eastwick Road no longer used by vehicular traffic. A raised platform is provided where the cycleway/footway crosses Burnt Mill Lane to afford priority to pedestrians and cyclists. Landscaping is provided between Eastwick Road and the realigned Road 1 to enhance the environment for cyclists and pedestrians and to assist in measures to minimise the effects of road traffic using Road 1 from Terlings Park residents;

iv) As part of the wider provisions to be delivered to support the Village development, Burnt Mill Lane is intended to become a shared surface route to improve pedestrian and cyclist linkage with Harlow and Harlow Town Railway Station, whilst maintaining vehicular access to residents. A 20mph speed limit Order is proposed to be introduced along Burnt Mill Lane between Road 1 and the CSC and a raised table is provided for the 5m wide cycleway/footway crossing of Burnt Mill Lane at both Road 1 and CSC;

v) The proposed traffic signal-controlled junction at Terlings Park/Pye Corner includes Toucan crossing facilities across the south and east arms to reflect the route of the 5m segregated footway/cycleway along Road 1 and the designated at-grade pedestrian and cycle link to Pye Corner. The signalised crossing facilities provide for pedestrian and cycle movements from Pye Corner and the Gilston Park Estate Villages to Terlings Park, the Stort Valley and Harlow to the south. This at-grade facility offers a safe and controlled means of crossing the ESC;

vi) The proposed alignment of Road 1 cuts across the current footpath which links Terlings Park with Pye Corner via the existing Fiddler's Brook footbridge. Road 1 also passes above the PROWs linking Pye Corner with the Stort Valley. A number of options have been considered to retain a pedestrian link which is grade-separated from Road 1, between Pye Corner (north of Road 1) and Terlings Park and the Stort Valley (south of Road 1). Options considered included;

- A cyclist/pedestrian bridge over Road 1 located between Terlings Park junction and Burnt Mill Lane, with a new footway connection from the north side of the cyclist/pedestrian bridge connecting to the 5m cycleway/footway south of Road 1. This option was ruled out as introducing too long a diversion route and being remote from the desire line, along with the adverse physical presence of illuminated approach ramps and stairwells in the vicinity of Terlings Park,

- The retention of the Grade II Listed Fiddler's Brook Footbridge and inclusion of the adjacent footways to form part of pedestrian facilities linking to local PROWs and maintaining connectivity from Pye Corner to Stort Valley,

- The relocation of the Fiddler's Brook footbridge to a location south of the proposed Fiddler's Brook road bridge with associated new footway links between Terlings Park and Pye Corner via a new footway connection to the 5m cycleway/footway which passes below the new Fiddler's Brook road bridge,

vii) To inform consideration of these options, a specialist study was undertaken by Woods Hardwick to assess the condition and structural integrity of Fiddler's Brook Footbridge; considering a) if retained in its current location, b) the likely impacts of Road 1 construction on future integrity and c) the possibility of relocating the footbridge intact, to a new location, south of the proposed new Road 1 road bridge. (Refer to Appendix C for Fiddler's Brook Footbridge study report). The findings of the study confirmed the risk of structural failure during relocation by moving the bridge in sections was high and that if retained in the current position, routine maintenance would allow the structure to continue to perform safely and effectively to convey pedestrian movements.

viii) The proposed scheme retains Fiddler's Brook footbridge in situ where it connects via steps with the proposed signal-controlled junction pedestrian facilities on Road 1. The north approach footway to Fiddler's Brook footbridge maintains connectivity to the PROWs within the Stort Valley. The PROWs can be accessed either from Pye Corner via the east approach footway to the Fiddlers Brook footbridge and from Terlings Park via the Road 1 signal-controlled junction and the steps down to Fiddlers Brook footbridge.

ix) The scheme includes an additional footbridge provided over Fiddler's Brook to the south of Road 1, which will link Pye Corner and the existing PROWs east of Fiddler's Brook to the footpath network within the Terlings Park estate, providing a direct access for residents in Terlings Park to the PROWs.

x) The east approach to the retained Fiddler's Brook Footbridge retains connectivity to the existing PROWs which cross the Stort Valley. The Road 1 vertical alignment design provides 2.8m headroom below the new Road 1 road bridge spanning Fiddler's Brook in order to maintain use of the two existing PROWs whilst providing access to the additional footbridge south of Road 1.

xi) At River Way Roundabout, toucan crossings are provided across the west and north roundabout arms. The west arm toucan crossing will provide continuity of the proposed 5.0m wide segregated facility on the west side of Road 3. The north arm toucan crossing will provide a controlled means of crossing Road 3 for users wishing to access the industrial park to the east. Uncontrolled crossing points will be provided across the south and east arms of the roundabout to link with the existing footway infrastructure.

xii) The inclusion of a 5.0m wide segregated facility along River Way and over the existing railway bridge has been the subject of much consideration. Improvements to road and pedestrian/cycle facilities within the confines of the existing bridge structure over the railway are not possible. The existing carriageway width on the bridge has been identified by ECC as requiring an increase of circa 100mm to provide a carriageway width of 7.3m to better cater for existing HGV movements Such carriageway widening would result in an associated reduction in available footway width over River Way bridge, the footways already being narrow and constrained in use by the presence of secondary vehicle restraint barrier. Refer to Section 4 for further details relating to the structure.

xiii) To overcome the above restriction, a new cyclist/pedestrian bridge (see Section 4) is proposed over the railway, located on the west side of the existing River Way road bridge, thereby continuing provision of the 5m wide segregated footway/cycleway facility to the south side of the railway line. South of River Way cyclist/pedestrian bridge, the existing west side footway along River Way is to be upgraded to include a 5m wide cycleway/footway link to existing pedestrian and cycle provisions on A414 Edinburgh Way.

4 STRUCTURE OPTIONS

4.1 Description of proposed structure options, including form of construction

4.1.1 The existing highway network of Eastwick Road has few structures along the length that are affected by the ESC.

i) Eastwick Road is conveyed over Fiddler's Brook by a shallow depth concrete box culvert which is not affected by the proposed ESC works,

ii) The south footway of Eastwick Road is offset from the highway and makes use of the listed Fiddler's Brook Footbridge where the footway crosses the watercourse, Fiddler's Brook footbridge being formed from two independent but abutting brick arches with brick sidewalls, located on concrete footings with an in-situ, bitumen surfaced walkway and timber handrails. The footbridge and associated approach footways are retained in the proposed scheme.

4.1.2 The following summarises new structures to be provided as part of the ESC.

i) The proposed Fiddler's Brook Road Bridge conveys Road 1 above Fiddler's Brook and reflects the needs of the ESC whilst accommodating the cross section and vertical alignment of a potential future dual carriageway upgrade should this be promoted by the highway authorities to accommodate the wider growth of Harlow. The ESC is designed to form the eastbound carriageway of the potential future dual two lane all-purpose rural carriageway alignment, such that minimal disruption is necessary should the upgrade to dual carriageway be required.

ii) There are no highway structures associated with Road 2.

iii) Road 3 is almost entirely elevated on structures, being located within the Stort Valley which functions as a flood plain. The proposed scheme includes the Stort Valley bridge structure with an overall span of approximately 240m, located at the southeast extent of Road 3, spanning the Stort Navigation, River Stort and joining to River Way approximately 6m above the valley floor. West of the bridge structure, thin walled steel section oval culverts are proposed, surrounded and overlaid with granular fill, to convey the remainder of Road 3 towards the Central Roundabout for a distance of approximately 370m.

iv) Road 3 connects to River Way at a new roundabout, immediately north of the existing River Way railway bridge which carries the River Way over the East Anglia Cambridge to London railway line. The existing railway bridge is limited in width and coveys a carriageway and adjacent footways, the carriageway width and footways over the bridge being below standard in width. A new cyclist/pedestrian bridge is proposed west of the existing railway bridge to continue the 5m wide cycleway/footway to reach the existing footway south of the existing road bridge. Minor adjustment to kerblines are proposed to the railway bridge (owned by ECC) to increase the existing road width.

v) Two existing privately maintained footbridges which connect the River Stort Navigation towpaths with River Way are beyond their serviceable life. It is proposed to replace the deck and parapet on each bridge with improvements to the approaches to both bridges.

4.1.3 The following sections describe the bridge forms considered for each structure. The bridge elevation detailed application drawings are included in Appendix D, along with Road 3 crossing options.

4.2 ROAD 1 - Fiddler's Brook Crossing

4.2.1 Design Considerations

4.2.1.1 The proposed new structure general arrangement is shown on Vectos drawing number VD17516-EC-105-BE (as amended).

4.2.1.2 As discussed in Section 3, the horizontal alignment of Road 1 has considered a number of variations during the design process. Key design parameters for the bridge include the road layout of the junction serving Terlings Park and Pye Corner, the road crossing of Fiddler's Brook and the presence of the existing listed Fiddler's Brook Footbridge.

4.2.1.3 In the initial scheme circulated for consultation in 2017, the ESC Road 1 terminated at a proposed roundabout junction on Eastwick Road. At the time, the bridge structure was designed for a 7.3m wide single two-lane carriageway, which included an element of widening for two lane approach to the roundabout at Eastwick Road. The road cross section also had provision for a 3.5m wide footway/cycleway to the north and a 2.5m wide footway to the south of Road 1.

4.2.1.4 The original structure had an overall span of 78m between abutments with three rows of supporting piers between abutments and a maximum deck width (parapet to parapet) of 31.0m. The minimum headroom clearance below the structure was set at 2.8m above Fiddler's Brook standing water level.

4.2.1.5 The flood level for a 1 in 1000 year event has been determined as 40.4m AOD, which informed the design of the structure and vertical profile.

4.2.1.6 As part of ongoing consultation with the highway authorities, proposals for the ESC evolved to consider the potential aspirations by the highway authority to introduce a dual carriageway eastward from the A414 at the junction with CSC, which could eventually extend to the M11 Junction 7. Subsequent consideration to facilitate delivery of a potential future dial carriageway materially altered the alignment and design of the ESC and has influenced the choice of alignment and form of junction at Terlings Park/Pye Corner. Road 1 has been aligned such that it could form the eastbound carriageway of a potential future dual carriageway provided by others to reflect future growth plans across Harlow. The form and layout of the Road 1 junction at Terlings Park/Pye Corner has been chosen to minimise environmental impact on Terlings Park and Pye Corner residents whilst the Road 1 vertical alignment accommodates the junction connectivity with Terlings Park and Pye Corner necessary and facilitates pedestrian and cyclist access below Fiddler Brook road bridge.

4.2.1.7 The proposed structure has been designed to accommodate the future width of a 2-lane dual carriageway, including the 5.0m effective width (6m between kerb and parapet) segregated footway/cycleway on the south side with a 2.0m wide footway on the north side. The provision or justification of a dual carriageway is outside the remit of this application and is not proposed as part of the ESC.

4.2.1.8 The bridge deck width between parapets is 43.4m at the west abutment and 34.6m at the east abutment, reflecting the proposed horizontal Road 1 centreline curvature of 255m radius and the requirement for driver's forward visibility to be maintained and not restricted by the parapet.

4.2.1.9 The bridge span along its centre line between abutments is 85m in length, supported by 2No. supporting piers. The piers are located to avoid impacting on Fiddler's Brook and any requirement for diversion of the two PROWs (29 and 30) on the east side of the brook. The abutments are located to avoid where possible encroaching within the extent of the flooded width of Fiddler's Brook (reflective of a flood level of 40.4m AOD).

4.2.1.10 Extended wingwalls will be used to minimise the use of embankment to minimise environmental impacts in the book area and due to constraints presented by existing features on both the north and south sides of the bridge.

4.2.2 Choice of materials

4.2.2.1 Material choice for the new bridge has been reviewed internally to reflect good engineering practice and reflects advice from CRT guidance on bridge structures above canals and watercourses.

4.2.2.2 Mindful of the available headroom above general ground levels and the PROWs, the presence of steel beams projecting below the bridge deck would be unsightly and might lead to anti-social behaviour. A smooth soffit finish was deemed be advantageous in this location which would be suitably provided by the use of a composite concrete deck/beam arrangement with no voids between underlying concrete beams. The deck and beam arrangement shall be located on concrete abutments. Concrete column piers are proposed to minimise the visual presence of the piers, avoid creating an enclosed space for users of the PROWs and to minimise the impact on Fiddler's Brook at times of flooding.

4.2.2.3 Alternatively, an integral concrete deck, beam and abutment structure shall be provided avoiding the use of joints or bearings, significantly reducing future maintenance requirements. Pier provision is to reflect the above proposals.

4.2.2.4 Details of the finish treatment to the abutments, piers, concrete edge beams and deck soffit will be informed by the early bridge design process to provide a surface resistant to graffiti.

4.2.2.5 An un-adopted footbridge is proposed to be located south of Fiddler's Brook Road Bridge to enhance connectivity to Terlings Park across Fiddler's Brook to connect to the PROWs and via new footways to Pye Corner. Details for this footbridge shall be determined during the detailed design period.

4.3 Road 2 – No highway structures identified

4.4 Road 3 - River Stort Flood Plain Crossing

4.4.1 Design Considerations

4.4.1.1 The initial proposals circulated in 2017 for consultation purposes detailed an elevated bridge structure to span the flood plain between River Way and the Central Roundabout. The elevated bridge structure length was approximately 650m long, typically between 6m and 10m high above the valley floor, rising to approximately 12m above valley level at the highest point of the structure. Immediately northwest of River Way, the bridge structure spans the Stort Navigation / River Stort, thereafter continuing westwards to carry the ESC highway at an elevated level across the remainder of the Stort Valley until reaching the Central Roundabout located on the raised ground formed by the former landfill site.

4.4.1.2 This proposal was detailed on drawing VD17516-EC-107-BE rev C.

4.4.1.3 An ongoing review of the ESC provisions identified a 650m long bridge structure as excessive, such a large structure not being necessary to avoid loss of flood storage in the Stort Valley. Flood modelling was used to assess the impact on flood storage if a shorter bridge structure was used in conjunction with culverts supporting the remainder of Road 3 at an elevated level across the flood plain. The proposed change to a shorter bridge in association with the use of culverts to support the remainder of Road 3 was shown to be immaterial to the capacity of the Stort Valley to accommodate flood plain storage.

4.4.1.4 Options were prepared to consider opportunities to reduce the extent of the elevated bridge structure in combination with the use of culverts.

4.4.2 Initial Option - Use of concrete box culverts and bridge structure

4.4.2.1 Proposals were detailed to retain the section of elevated bridge structure sufficient to span the Stort Navigation and River Stort and thereafter to consider the use of 2m high x 5m wide concrete box culverts to carry the highway across the flood plain. The box culverts would run perpendicular to the road alignment and consist of individual precast concrete box sections, circa 2m long assembled in line below the footprint of the road and supporting earthworks.

4.4.2.2 The flood level in the valley during the 1 in 1000 year storm event is 40.40m, with the existing valley ground levels being between 39.00m and 40.80m, resulting in a typical 1 in 1000 year flood depth of 0.40m above ground level in the vicinity of the proposed use of box culverts. The provision of box culverts would accommodate the 0.4m depth of flood water within the 2m high box culverts. An assessment of lost flood storage due to the presence of the culvert side walls was quantified and by lowering existing ground levels and thereby culvert bed levels, additional storage volume is created within the culverts to mitigate any loss of flood plain storage caused by the presence of the box culvert side walls.

4.4.2.3 The proposed road alignment for the road was lowered to minimise the road construction build up above the box culverts and minimise "visual presence" of the road crossing within the valley from local and distant views.

4.4.2.4 Following a meeting on 6th March 2018 to present to the Environment Agency the proposals for use of box culverts to supplement the use of the elevated road bridge to convey the highway across the Stort Navigation and River Stort, the EA subsequently responded under letter dated 14th March 18 with several points of concern, namely that:

i) The use of box culverts to support Road 3 on shallow embankment resulted a pathway between each side of the road which was unattractive to mammals and other wildlife;

ii) The presence of the highway on a low embankment (supported on box culverts) was visually intrusive and would form a visual barrier to longer views across the valley. The lowered road surface would be accompanied by lowered street lighting which the EA deemed more likely to spread light on adjacent valley floor. Use of the proposed culverts should therefore be reduced in extent.

iii) The loss of flood storage and mitigation measure of localised lowering of ground levels/box culvert invert levels below the footprint of the extent of box culverts would require confirmation.

4.4.3 Amended Option – Use of large culverts and bridge structure

4.4.3.1 In responding to the EA's comments above, the following changes have been introduced and are detailed on drawings:

i) Road and Culvert/Bridge Elevation VD17516-EC-BE-107 rev F;

ii) Culvert cross sections VD17516-EC-SK029 rev B;

4.4.3.2 Culvert size

i) Use of much larger culvert units has been introduced to replace the previously proposed concrete box culverts. Steel section culverts will be delivered in panels and bolted together on site with fill material placed below, around and above them to support the road construction above;

ii) The steel section culverts offer increased headroom and permit significantly more light to enter the culverts, whilst also minimising the length of the culvert soffit through use of a truncated end profiles, reflecting a 1 in 2.5 side slope profile to the culverts and overlying fill material supporting Road 3 at an elevated level of typically 5m above valley floor levels;

iii) The increased culvert internal height accompanied an overall increase in cross sectional area offering a much-improved pathway for mammals and other wildlife. Public access is not to be facilitated through the culverts.

4.4.3.3 Visual and Environmental Impacts

i) The EA raised the concern that a continuous row of concrete box culverts up to 2m high would be visually intrusive. Landscaping proposals to accompany use of the concrete box culverts were to include use of low-level hedgerow planting (up to 2m in height) which would shield the culverts from view. When combined with planting of the embankment fill material placed above the culverts, the road presence would be much reduced;

ii) Unlike the use of concrete box culverts which were intended to abut each other continuously across the flood plain, the steel section culvert cross section is semi oval. The use of semi oval steel section (thin walled) culverts and the associated fill material placed between and above the culvert profile will assist with introducing a landscaped finish which will over time, enable the culvert openings to be overgrown and naturalised. Being steel shell structures, there is very little visible “hard” evidence of the culvert “structure” being present.

iii) The images included on the proposed long section drawing detailing the use of the steel section culverts do not include topsoil or landscaping (VD17516-EC-107-BE-Rev). The fill material surrounding the thin walled culverts and the fill above the culverts supporting the road construction will include provision of topsoil on the finished slope faces to support landscaping. Refer to the Landscaping application drawings prepared by Grants for the landscaping proposals.

iv) The use of larger cross section culverts also resulted in the road level being further raised by several metres above the ground level within the Stort Valley. This enabled street lighting to be raised higher above the valley floor, addressing a further concern of the EA that light spillage onto the valley floor would affect foraging mammals;

v) The use of LED full cut off lanterns for highway street lighting was discussed with the EA at a meeting on the 6th March 2018. LED lighting minimises the impact of street lighting on bats and is proposed to be used for all highway lighting on both crossings. LED luminaires present a significant improvement over the use of non-LED lighting to wildlife and offer a significant maintenance benefit whereby energy levels are significantly lower than for other forms of luminaire and bulb life is exceptionally long, minimising maintenance frequency and thereby minimising risk to workers using platform access to change bulbs. Lighting columns will be attached/bolted to the bridge structure parapet and planted between culvert sections where located off the bridge deck. The method of fixing lighting columns onto the bridge structure will be developed as part of the detailed design process.

4.4.3.4 Flood Storage Mitigation

i) The accompanying long section drawing VD17516-EC-BE-107 rev F details the proposed steel section culverts and the associated finished road levels. The drawing also illustrates the area of existing ground proposed to be lowered below the footprint of the culverts by approximately 250mm, resulting in the culvert inverts being similarly lowered, thereby increasing storage provision below the established 1 in 1000 flood level. The drawing illustrates the areas of fill placed between the culvert sections and which is unavailable for storing flood water. This lost storage volume is offset by the increased flood storage volume created by the lowering referred to above. It is noted that the high ground levels identified for local lowering can be lowered by a further 250mm in order to increase existing flood storage capacity, should this be necessary.

ii) The profile of the steel section culverts offers the opportunity to infill the culvert bed/invert with material retained from the existing ground in the same local area, thereby re-stablishing and maintaining a surface familiar to mammals and other wildlife, providing a naturalised bed to the culverts. The culvert cross section has been set such that the narrowest gap between adjacent culverts is set at existing ground level, minimising the loss of flood storage volume.

4.4.4 Further considerations to reduce the extent/provision of culverts

4.4.4.1 The current proposals accommodate the EA's request to increase the bridge span as mitigation for accepting the use of culverts to partially span the Stort Valley. The bridge/culvert interface was therefore relocated from Ch480 to Ch420, increasing the bridge span from 180m to 240m, representing approximately 42% of the Road 3 length across the Stort Valley.

4.4.4.2 The vertical alignment of the ESC has been amended to reflect the use of steel section culverts between Ch80 to Ch420. This includes amendment to the road levels on the elevated bridge structure between Ch420 and Ch660 to reflect a minimum headroom clearance of 4m provided for maintenance access and man entry.

4.4.4.3 A minimum 4m height for headroom between the underside of the bridge beams and ground level has been accommodated. Maintaining a minimum 4m of headroom at the lowest point of the bridge (at the abutment/culvert interface location at Ch420) will assist increasing light entering the area below the bridge deck to avoid the area becoming sterile.

4.4.4.4 Moving the bridge/culvert interface westwards from Ch480 to Ch420, resulted in higher road level above the culverted section (to maintain the 4m headroom parameter below the deck for maintenance access), resulting in widening of the culverts to support the raised and thereby widened embankment fill slope profile. To minimise the impact of Road 3 on adjacent naturalised lakes and ponds formed from previous gravel extraction operations, the horizontal alignment of Road 3 was adjusted northwards.

4.4.4.5 A typical cross section of the culvert arrangement is shown on Vectos drawing number VD17516-EC-111-XS (as amended).

4.4.5 Choice of materials - culverts

4.4.5.1 The semi oval culverts are formed from structural grade corrugated steel (varying thickness), which are pressed, punched and hot-dip galvanised.

4.4.5.2 The corrugated steel panels are secured together on site by nuts and bolts, which are hot dipped galvanised.

4.4.5.3 The steel culvert design life is 120 years and the products will have sector type approval certificates in accordance with DMRB CD375 or as amended.

4.4.6 Choice of materials – Stort Valley Bridge

4.4.6.1 Material choice for the new Stort Valley Bridge has been considered to reflect good engineering practice and advice from CRT regarding good practice guidance on bridge structures above canals.

4.4.6.2 The new bridge shall employ weathered steel beams to support the concrete deck. The deck and beam arrangement shall be located on concrete abutments. To minimise pier spacings and maximise deck beam spans, it is expected that the weathered steel beams will be delivered to site and bolted together to form longer deck beams than could be delivered to site by road. Following liaison with CRT with regard to maintaining amenity value, it is agreed to include the use of bird netting to prevent birds from perching on the beams, especially above the canal and towpath.

4.4.6.3 Alternatively, an integral concrete deck, beam and abutment structure may be provided avoiding the use of joints or bearings, significantly reducing future maintenance requirements. Whilst a concrete soffit finish offers a clean and smooth finish, it is considered that weathered steel will be less visible to users of the canal and tow path below, being generally dark and thereby minimises the presence of the bridge when approaching along the canal and towpath.

4.4.6.4 Bridge parapets will be designed to current standards and include a 1.5m minimum height parapet fixed to the stringcourses at the edge of the deck of the new bridge, in the interests of safe use by cyclists. The parapet material choice has been considered in detail. Whilst open rail bridge parapets with close spaced aluminium grill mesh would be a typical parapet provision above pedestrian routes below, CRT advice suggests the use of solid parapets directly above the canal, extending beyond the existing screening provided to both sides of the canal by dense vegetation, shrubs, hedges and trees. This localised solid parapet treatment would remove the constant moving vista of passing cars and pedestrians along the bridge, noting higher goods vehicles and similar would still be visible above the solid section of parapet. Agreement was reached with CRT that final design decisions should be agreed at the commencement of the detailed design process.

4.4.6.5 Details of the finish treatment to the abutments and deck soffit will be informed by the early bridge design process to provide a surface resistant to graffiti.

4.4.6.6 Further to site visits held with CRT to consider the visual impact of the bridge in relation to the canal crossing, the different types of pier that could be used were discussed and reviewed by CRT. Whilst existing hedgerow follows the north side of the canal and dense vegetation and tree canopy cover lies to the south side in the vicinity of the bridge, CRT concurred with the use of open column type piers to avoid a tunnel environment which might arise from the use of solid wall type piers either side of the canal.

4.4.6.7 The remainder of the Stort Bridge is expected to be supported on two or three concrete columns at each pier location, to minimise presence and lost flood storage volume, were solid walls to be used as piers.

4.5 Road 3 – River Way crossings over the East Anglia Mainline Railway line

4.5.1 Road 3 connects to River Way at a new roundabout, immediately north of the existing River Way railway bridge, which carries River Way over the East Anglia Cambridge to London railway line. The existing railway bridge is limited in width and conveys a carriageway and two adjacent footways, the carriageway width over the bridge being slightly less than 7.3m wide. The existing constrained footway widths are narrow and further reduced in effective width by the presence of wide Trief vehicle containment kerbs installed to prevent vehicle impacts reaching the existing bridge parapets which are sub-standard. The remaining useable footway width is further reduced by the presence of pedestrian guardrail barrier, installed to offset pedestrians sufficiently from the upstanding Trief kerbs (and associated trip hazard).

4.5.2 Appendix D includes previous periodic bridge assessment reports commissioned by ECC.

4.5.3 The existing footway south of River Way road bridge is constrained between the road and third party land to both sides, continuing south of River Way road bridge with an approximate width of between 1.5m to 1.8m which continues to Edinburgh Way Roundabout.

4.5.4 Footway and cycleway connectivity south of the ESC towards A414 Edinburgh Way would be significantly improved by extending the 5m footway/cycleway provision across the railway line and on to Edinburgh Way to connect to existing segregated cycleway and footway facilities.

4.5.5 To avoid terminating the ESC 5m wide cycleway/footway provision north of River Way road bridge due to restrictions imposed by the existing River Way road bridge, a new cyclist/pedestrian bridge is proposed west of the existing railway bridge with a clear width between parapets of 6m to convey the 5m wide cycleway/footway provision. The 5m cycleway/footway with associated 0.5m wide buffer strips is continued southwards to Edinburgh Way by proposed widening into third party land. An upgraded toucan crossing is provided at the west arm of Edinburgh Way Roundabout to connect to existing segregated cycleway/footway facilities along the south side of Edinburgh Way.

4.5.6 Provision of the new cyclist/pedestrian bridge over the railway at River Way enables the west footway on the existing River Way road bridge to be closed. Removing the need for the west footway provision on the River Way road bridge permits the present footway width to be reduced. In turn, this facilitiates widening of the carriageway on the existing River Way road bridge by slight relocation of the existing Trief vehicle containment kerbs, sufficient to meet ECC's preferred width of 7.3m.

4.5.7 River Way road bridge is owned by ECC and is an adopted highway structure. ECC has previously commissioned several bridge assessments to be carried out of the River Way road bridge to assess bridge strength, remaining serviceable life and to considered opportunities for carriageway and/or footway widening. River Way road bridge carriageway widening has been recommended in the bridge assessment reports commissioned by ECC. However, the adverse impact on the adjacent footway widths on the bridge deck has prevented ECC from implementing such recommendations.

4.5.8 ECC is intending to commission a further bridge assessment report of the existing River Way road bridge in the near future and will consider the structural impacts of relocating the existing kerbs to widen the carriageway width to 7.3m. If widening of the carriageway width by slight kerbline adjustment is not deemed viable, due to either loading conditions on bridge beams being unacceptable or practical reasons arising from relocating the kerbline, the existing carriageway width will be retained, whilst the adjacent west footway may still be closed, making use of the new cycleway/footway bridge.

4.5.9 Liaison will continue with NR and ECC until the commencement of the detailed design period in order to develop the preferred type, form and choice of material for the cycleway/footway bridge structure. Preliminary bridge alignment proposals are included on the application drawings in Appendix A and in Appendix D.

4.5.10 There is no known adverse impact on NR infrastructure below the existing road bridge associated with proposals to widen the existing carriageway or in providing a new cycleway/pedestrian bridge. Detailed design of the cyclist/pedestrian bridge and modifications to the existing road bridge will be progressed at the detailed design stage.

4.6 Geology

4.6.1 The EIA includes the “Phase 1 Geotechnical and Geo-environmental Desk Study Report – River Stort Crossing Options” dated 2015, prepared by AECOM to assess the ground conditions for the identified crossing options. Site investigation has not been undertaken at this time along the highway corridor or at the proposed bridge/structure locations.

4.6.2 Further intrusive geotechnical investigation will need to be undertaken to determine ground conditions and ground material properties to inform the foundation design process for the structures along the crossing, to classify materials to be used in the highway works and to prepare the Geotechnical Design Report(s).

4.6.3 Structural foundations are currently expected to include abutments and mid span piers located on piles mindful of the following criteria:

i) Piles are expected to extend down to the London Clay or Lambeth Group.

ii) Ground water is shallow (between 2m to 4m below ground).

iii) The valley ground surface is likely to unstable and saturated.

4.7 Loading and lateral clearance

4.7.1 All highway structures shall be designed to withstand loading defined within DMRB and conform to current standards.

4.7.2 Headroom clearances for structures will comply with DMRB, noting that;

i) River Way cyclist/pedestrian bridge over the railway will comply with headroom and lateral clearance requirements set by Network Rail.

4.8 Environmental constraints

4.8.1 All environmental aspects are covered within the EIA, inclusive of specific impacts relating to Stort Navigation (canal) amenity value, flood storage loss (due to footprint of new structures and embankments), landscaping and visual intrusion.

5 ENGINEERING ASSESSMENT

5.1 Construction Access

5.1.1 The ESC Road 3 is located within the Stort Valley (which has former uses for gravel extraction) and across a former landfill site below Roads 1 and 2, east of Fiddler's Brook.

5.1.2 Construction access is required from the public highway of Eastwick Road, Pye Corner, and River Way. Separate agreements may be negotiated for use of private existing means of access serving the former landfill site.

5.1.3 Highways works are proposed in close proximity to existing residential development which will form part of the scope informing any method statement preparation and all traffic management proposals.

5.1.4 The roads which will serve the construction sites are of suitable size and geometry to accommodate road legal construction plant. Burnt Mill Lane and Gilston Lane will not be permitted site access routes or construction traffic access routes.

5.1.5 Much of the construction can be undertaken off line of the public highway, which will present little disruption to the travelling public. The Contractor will be required to prepare Construction Management Plans which will identify site access layouts to provide construction traffic access off the public highways and when the new construction works interface with the public highway such as at new connection junctions.

5.1.6 The highway and bridge construction works will include site clearance and topsoil strip, possible demolition works, bulk earthworks, drainage installation, new carriageways, new footway/cycleways, street lighting, vehicle restraint barriers, signage, road markings and traffic signal control at respective locations, bridge foundations, substructure (abutments and piers) works and superstructure (deck) works. Diverted or new Statutory Undertakers services shall be installed during the construction of the highway and bridge works. Landscaping proposals are detailed on the landscape drawings prepared by Grant Associates.

5.1.7 The bridge structures consist of abutments on piled foundations, located either side of the spanned features. The decks span between the abutments will be supported on underlying weathered steel (Stort Crossing bridge) or concrete (Fiddler's Brook, River Way) beams to support the deck. Alternatively, where a concrete soffit finish is required, a composite beam/deck construction may be provided removing the requirement for bridge joints and bearings. The bridge beam and deck construction shall be constructed using cranes located at the abutment sites, working either from existing ground levels or following completion of placement of embankment fill between the bridge structures.

5.1.8 Construction works within the former land fill site and within the Stort Valley shall require specific details to be provided to the key stakeholders (as shall be identified during the design process) by the contractor relating to management of waste materials and proposals for safe working within flood zones, respectively.

5.1.9 There are 4 separate PROWs affected by the ESC, each will be given due consideration within the construction planning, design and management process. Temporary closures and diversions shall be determined as part of the detailed design process with the contractor being required to programme and request additional requirements as determined from the contractor's programme.

5.2 Temporary traffic constraints and requirements

5.2.1 Construction access points will be located at distinctive and controlled locations with appropriate traffic management in place to enable construction traffic to leave and join the public highway with as little disruption as possible to the public. Diverge and merge areas will be surfaced to minimise dirt and debris being carried onto the public highway due to dirty wheels/vehicles leaving site.

5.2.2 A temporary speed limit may be required on Eastwick Road, where currently the national speed limit applies, on the approach to construction site entrances, for the safety of both the travelling public and construction personnel. Such temporary TRO applications will require an appropriate lead in period following formal submission to the highway authority for review and legal process. Permanent TRO applications will be prepared and submitted during the design period for permanent changes in speed limit, such legal orders to effect changes in existing speed limit coming into force on completion of Road 1 and 2, there being no proposed change in speed limit at River Way, once connected by Road 3.

5.2.3 Where the highway construction of proposed improvements takes place on the public highway such as for the construction of the realigned Eastwick Road, the reconstruction of Eastwick Road and Terlings Park access at the proposed signalised junction; the extension of Burnt Mill Lane; the North roundabout of Road 2; and works at River Way, appropriate traffic management plans and method statements will be developed sufficiently in advance to enable all works to be programmed from the commencement of works.

5.2.4 The River Way cyclist/pedestrian bridge over the railway will require a significant level of lead in to agree with Network Rail the procurement of the bridge structure, including booking rail track possessions and close working access for construction of the bridge foundations, abutments, central pier (if required) and deck, advance payments to Network Rail and general provisions relating to NR overhead electric cable infrastructure as may be required, subject to detailed design and booking of outages to the power lines.

5.3 Construction Phasing and timescale

5.3.1 Construction phasing has been considered in terms of the likely build programme and whether temporary construction access requirements may result in environmental impacts additional to the effects of the permanent works footprint.

5.3.2 The first phase of construction is envisaged to be Road 1 and Road 2, to promote early delivery of the Pye Corner Bypass. The preliminary estimated construction period is 24 months.

5.3.3 Road 3 will be constructed in line with an agreed programme, with an estimated construction period of 24-30 months.

5.3.4 Appendix E includes preliminary construction phasing plans.

5.4 Bridge Maintenance Boundaries

5.4.1 The two highway authority boundaries of Essex County Council (ECC) and Herts County Council (HCC) are typically delineated by the River Stort, with ECC owning and maintaining highway infrastructure to the south of the River Stort. Where a bridge structure spans a watercourse which represents a County border and highway maintenance boundary, it is often the case that one of the two highway authorities takes overall responsibility for maintaining the structure and the highway on the structure.

5.4.2 The majority of the new ESC infrastructure falls within the boundary of HCC, inclusive of Fiddler's Brook road bridge, the culverted section of Road 3 and part of the Stort Navigation Bridge. River Way road bridge, River Way cycleway/footway Bridge and part of the Stort Navigation Bridge are located within the boundary of ECC. It is expected that one highway authority will take overall responsibility for the Stort Navigation bridge to avoid maintenance responsibility conflicts part way across a single bridge structure, such details to be confirmed as part of the detailed design process. The River Way cycleway/footway bridge will be maintained by ECC.

5.5 Bridge Material Choice

5.5.1 When assessing the choice of materials for the construction of the bridges, consideration was given to the extent and frequency of maintenance. Concrete structures are generally deemed to require low maintenance input whilst painted steel structures attract a high level of maintenance, reflective of the need to undertake regular visual inspections for paint deterioration/repair, inspections on welds and bolts and general condition. More recently, the use of weathered steel for bridge beams has become prevalent which is left unpainted. The weathered steel will rust but includes additional material thickness to offset future deterioration through rusting. The choice of weathered steel for highway structures is supported by designers and maintaining authorities in circumstances where the visual effects of rusting are less onerous and in order to reduce future maintenance needs.

5.5.2 The River Stort bridge includes the use of weathering steel beams whilst the Fiddler's Brook Bridge includes the use of either concrete beams or concrete composite deck, as detailed in Section 4.

5.5.3 The River Way cycleway/footway bridge material choice remains to be determined, though stainless or galvanised steel rather than painted steel (if not concrete) would minimise need for repainting during the life of the structure.

5.5.4 VD17516-CC-BE series drawings located in Appendix D include detailed plans and elevations of the proposed bridges.

5.6 Design Life, Operation and Maintenance

5.6.1 The highway is intended to operate with resurfacing maintenance of the pavement undertaken at staged intervals or as necessary to reflect wear. The pavement surfacing design life, for the purpose of calculations, will be taken as 20 years with two replacements for a 40-year overall design life applicable to new roads, in accordance with DMRB HD 24/06 or as amended.

5.6.2 New carriageway street lighting is to be provided which will consist of 10m or 12m high columns supporting full cut off, LED luminaires, providing minimal visual intrusion to wildlife including bats, which is a key consideration in respect of all highways forming the ESC. Street lighting proposals will include the replacement of the existing and outdated highway lighting infrastructure within the extent of affected existing highways where new junctions are to be formed. Existing means of highway currently result in significant lighting spillage to the surrounding area, whereas the use of full cut-off LED luminaires will result in a material reduction in lighting spillage. Use of LED technology luminaires significantly increases bulb life whilst reducing power demand, thereby reducing operational costs whilst increasing maintenance intervals between bulb replacements. The opportunity to introduce contemporary style and exemplar materials when selecting lighting columns and lanterns will be explored during the detailed design period Full details relating to the visual impacts arising from street lighting is considered separately within the "Lighting" section of the EIA.

5.6.3 The structures will have a design life of 120 years (IAN 124/11) with the exception of bearing plates which will have a design life of up to 50 years, subject to the choice of bearing and on the basis of a regular maintenance regime being implemented. Bridge deck joints, where used, are usually replaced more frequently than 50-year intervals, depending on type specified.

5.6.4 Concrete of high quality and high grade will be specified to reflect the design life of 120 years afforded to reinforced and tensioned concrete beam structures and assist to prevent moisture ingress and discolouration of finishes. Vandal resistant surfaces and finishes shall be identified during the design period.

5.7 Design Standards

5.7.1 The proposed ESC shall be designed and procured in accordance with the DMRB or as amended by design standard requirements of HCC and ECC highway authorities.

5.7.2 The ESC proposed highway cross sections are in accordance with TD27/05 "Cross sections and Headroom" for a rural all-purpose road classification. The rural classification reflects the assessment procedure of TA 46/97.

5.7.3 A review of all appropriate DMRB standards shall be undertaken at commencement of detailed design to inform the design process and incorporate requirements relating to the operation and maintenance of the ESC.

5.8 Constraints & Departures from Standard

5.8.1 The vertical and horizontal link alignments of the ESC have been established in accordance with DMRB TD 9/93 for a 70kph design speed, with a 60kph design speed used at River Way. The proposed speed limit strategy is shown on Vectos drawing number VD17516-EC-140.

5.8.2 Terlings Park, Fiddler's Brook, and the properties at Pye Corner on Eastwick Road present constraints for Road 1 in respect of achievable horizontal and vertical curvature. A compliant road alignment above 70kph design speed would require land take of adjacent properties for the purpose of demolition to make way for highway infrastructure. The design speed of 70kph is appropriate for the ESC mindful of the junctions provided with the existing highway and adjacent 5m wide segregated footway/cycleway provided with each road.

5.9 Adapting for future infrastructure developments

5.9.1 The proposed two-way single carriageway of Road 1 has been designed as a dual carriageway, to meet the potential future aspirations of the highway authority. The Road 1 carriageway follows the alignment of what would be the eastbound carriageway of the dual scheme. This enables Road 1 highway infrastructure to be retained as part of a potential future dual carriageway scheme, with only minimal alterations required and minimum adverse impact on the public.

5.9.2 The Central Roundabout ICD and circulatory carriageway has been sized to accommodate a potential future dual scheme, to minimise the amount of alteration required to the new infrastructure.

5.9.3 It is understood that the potential future dual scheme aspirations could introduce a fourth arm to the Central Roundabout to enable the dual carriageway to continue in a north easterly direction toward High Wych / Sawbridgeworth. The Central Roundabout geometry has been designed to accommodate a fourth arm with a dual carriageway cross section.

5.9.4 The potential future dual scheme is to be delivered by the highway authority, if and when required.

5.10 Utilities

5.10.1 Existing services are detailed in the Utilities Chapter of the EIA and on AECOM drawing number 60286648_SK005 (as amended).

5.10.2 The ESC footprint will encounter the following utility services;

i) 33kVA overhead electricity cables, which currently cross above Eastwick Road and run parallel to the road within land required for Road 1. The overhead cables cross Eastwick Road in the locality of the existing listed Fiddler's Brook footbridge and head south towards the River Stort. The intention is to divert the overhead infrastructure which is located within the highway/development footprint to run underground;

ii) 11kVA overhead electricity cables, which head north from Burnt Mill Lane across Eastwick Road. The intention is to divert the overhead infrastructure which is located within the highway/development footprint to run underground;

iii) 75mm to 125mm potable water distribution main located in the south verge along Eastwick Road, terminating at the row of terrace properties on Pye Corner but, continuing north to Gilston Park on a separate main. It is possible that this main requires protection works rather a diversion as a result of the proposed ESC;

iv) A foul water trunk sewer is located to the south of the Eastern Crossing, running from west to east roughly following the alignment of the River Stort. Road 3 will cross over the sewer, potentially in the location of the bridge structure where piles foundations are proposed. The main will be diverted to provide a perpendicular crossing beneath Road 3.

5.10.3 New / diverted services will be installed to the guidelines provided within NJUG Volume 2 document.

5.10.4 The new bridge structures will include service corridors and ducting for known services with spare ducting for potential future uses.

5.11 Surface Water Discharge

5.11.1 The strategy for the discharge of surface water runoff from the ESC is set out below. The provision of the following four stages of collection prior to discharge to watercourse is intended to provide a minimum of two stages of treatment:

i) Type 1 To be applied in combination with Type 2, 3 and 4 as the first stage of surface water capture and conveyance from the paved highway, Kerbs/trapped gullies / Combined Kerb & Drainage block (CKDB) with sump outfall on highway, with deck drainage, sumped collection points and down pipes on bridges;

ii) Type 2 Piped network with catchpits (attenuated where necessary) including the use of a vortex separator/interceptor (as LLFA/highway authority preference) prior to outfall from piped system into wetland;

iii) Type 3 Swales and/or unlined ditches, provided along the toe of embankments, discharging embankment slope runoff to watercourse/wetlands. Bridge deck down pipe discharge points outfalling to catchpits before discharging to swales and/or unlined ditches, discharging to watercourse/wetlands

iv) Type 4 Wetland / pond inclusion at the downstream end of the swales, prior to discharge into River Stort / Stort Navigation / existing ditches / existing adjacent ponds, as appropriate.

5.11.2 A HAWRAT (DMRB HD45/09) water quality assessment has been undertaken to consider the level of pollutants likely to be found within the highway runoff, reflective of predicted traffic flows. The assessment suggests two levels of treatment are likely to be required. Whilst the existing carriageway runoff level of treatment is currently undefined, the proposed stages of collection and discharge mentioned earlier will satisfy the requirements of CIRIA C753 SuDS Manual when applied to carriageways forming the ESC.

5.11.3 Surface water falling onto the bridge deck surfacing is to be conveyed along the bridge structure using ductile iron deck drainage channels, discharging via down pipes at regular intervals to ground level outfalls. Design of the deck drainage unit internal dimensions may limit the need for regular down pipes.

5.11.4 Catchment area runoff plans have been provided which identify the areas of carriageway and footway/cycleway runoff to be conveyed by a piped drainage network to suitable outfalls. These are included in Appendix F. Due to the provision of footways/cycleways on both sides of the ESC, over-the-edge runoff from carriageway surfacing to swales located in the verges is not feasible. The widened embankment provided to support the new northbound carriageway lies within the Flood Zone 3 (FZ3) and efforts have been implemented to minimise embankment footprint. Embankment widening to accommodate a swale within the verge additional to the cycleway/footway provisions at the top of the embankments would impact on flood storage loss within the FZ3. The use of swales part of the surface water discharge treatment process is likely to be primarily located along Road 3 as a means of treatment for discharges from the bridge deck drainage down pipes. The Road 3 carriageway supported by culverts will be drained and discharge treated using a combination of Type 1, 2 and 4 solutions.

5.11.5 Calculations have been undertaken to assess the volume of storage required to accommodate surface water runoff from the impermeable surfaces of a) the net increase in impermeable surface area for the Eastern Stort Crossing and b) impermeable surfaces on existing amended highway, should discharges from the existing carriageways affected by the Works not be attenuated. The calculations and Catchment Area drawings are located in Appendix F. A piped network may also be used to provide attenuation if deemed appropriate, using flow control devices to limit discharge rates into the swales.

5.11.6 As part of the treatment process of surface water runoff from the impermeable highway surfaces, consideration to inclusion of ponds or wetland areas has been assessed, along the length of the new road links, prior to discharge to watercourse (such as the River Stort, Stort Navigation or watercourse). Creation of a pond or wetland can be detailed for swales discharging into River Stort/Stort Navigation. With regard to Road 3 surface water discharges via swales into the Stort Navigation, further consideration will be given during detailed design as to the opportunity to include a pond or wetland without adversely impacting on the existing feature. The detailed design process should assess the viability of utilising the existing wetland feature to form part of the highway runoff treatment process and if deemed negative, the flow conveyed within the swale shall be discharged into the Stort Navigation without inclusion of a further pond or wetland.

5.12 Health and Safety

5.12.1 Health and Safety matters will be overseen by the Principal Designer and Principal Contractor during the design and construction stages of the scheme. H&S Files shall be provided to the maintaining highway authorities detailing maintenance requirements and specific maintenance tasks.

5.12.2 The design of the highway and structural improvements shall fully consider both buildability and future maintenance access requirements in order that identifiable risks are reduced where reasonably possible.

5.12.3 Whilst procurement of the road and bridge works is not considered to be specifically complex, there are several key areas of interface with the public throughout the construction period, namely:

i) Network Rail cyclist/pedestrian bridge works being undertaken above and adjacent to a live, electrified railway;

ii) River Stort (Navigation) and Fiddler's Brook bridge works above water;

iii) River Stort (Navigation) bridge interaction with users of the tow path and canal;

iv) Construction works generally interfacing with the public using existing highways and footways;

v) Construction traffic use of public highways;

vi) All works impacting on flora and fauna.

5.12.4 Liaison with NR when preparing the River Way cyclist/pedestrian bridge Feasibility drawings and supporting documentation has identified the need for a significant lead-in period both to undertake design input but more so to establish track possessions and book accordingly. H&S processes will be implemented to reflect the stringent criteria operated by NR to facilitate advance works relating to the overhead electric cable and other associated works before commencement of the ESC highways contract.

5.12.5 The proposed ESC scheme shown on the detailed application plans contained within Appendix A will be subject to a Stage 1 Road Safety Audit (RSA1).

5.13 Detailed Application Drawings

5.13.1 The detailed application drawings setting out the recommended proposals for the route alignment and non-motorised user facilities are identified on the following drawings; VD17516-EC-100-GA, VD17516-EC-100.1-GA, AND VD17516-EC-101-GA, which are located in Appendix A.

5.13.2 Supporting information consisting of photographs is located in Appendix H.

6 LIST OF DRAWINGS AND DOCUMENTS ACCOMPANYING THE REPORT

Appendix A – Detailed Application Drawings (as amended)

- VD17516-EC-1 -!A Eastern Crossing – !eneral Arrangement (1 o" #)
- VD17516-EC-1 $1-!A Eastern Crossing – !eneral Arrangement (% o" #)
- VD17516-EC-1 1-!A Eastern Crossing – !eneral Arrangement (# o" #)
- VD17516-EC-1 %-&' &ongit(dinal 'ection (Road 1)
- VD17516-EC-1 #-&' &ongit(dinal 'ection (Road %)
- VD17516-EC-1)-&' &ongit(dinal 'ection (Road #)
- VD17516-EC-1 *-R& Red &ine +o(ndar,
- VD17516-EC-11 --' .,pical Cross 'ections (Road 1 and %)
- VD17516-EC-111--' .,pical Cross 'ections (Road #)
- VD17516-EC-11%-.R Ve/icle 'wept 0at/s – 16$5m Artic(lated (.erlings 0ar1 2(nction)
- VD17516-EC-11#-.R Ve/icle 'wept 0at/s – 1 m Rigid (.erlings 0ar1 2(nction)
- VD17516-EC-11)-.R Ve/icle 'wept 0at/s – 16$5m Artic(lated (3ort/ Ro(nda4o(t)
- VD17516-EC-115-.R Ve/icle 'wept 0at/s – 1 m Rigid (3ort/ Ro(nda4o(t)
- VD17516-EC-116-.R Ve/icle 'wept 0at/s – 16$5m Artic(lated (Central Ro(nda4o(t)
- VD17516-EC-117-.R Ve/icle 'wept 0at/s – 1 m Rigid (Central Ro(nda4o(t)
- VD17516-EC-11*-.R Ve/icle 'wept 0at/s – 16$5m Artic(lated (Ri5er 6a, Ro(nda4o(t)
- VD17516-EC-117-.R Ve/icle 'wept 0at/s – 1 m Rigid (Ri5er 6a, Ro(nda4o(t)
- VD17516-EC-1##-.R Ve/icle 'wept 0at/s – +(rnt 8ill &ane !/ost 9sland 2(nction
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- VD17516-EC-1%%-V' 0roposed Visi4ilit, (Central Ro(nda4o(t)
- VD17516-EC-1%#-V' 0roposed Visi4ilit, (Ri5er 6a, Ro(nda4o(t)
- VD17516-EC-1# -E- Existing &a,o(t (1 o" #)
- VD17516-EC-1#1-E- Existing &a,o(t (% o" #)
- VD17516-EC-1#%-E- Existing &a,o(t (# o" #)
- VD17516-EC-1) -'0 0roposed 'peed &imit 'trateg, – C'C and E'C
- VD17516-EC-1)1-'0 Existing 'peed &imits – C'C and E'C
- VD17516-EC-15 -!C Ro(nda4o(t !eometr, – Ri5er 6a,
- VD17516-EC-151-!C Ro(nda4o(t !eometr, – Central
- VD17516-EC-15%-!C Ro(nda4o(t !eometr, – 3ort/

Appendix + – .erlings 0ar1 2(nction :ptions

- VD17516-EC-'; #5 Eastern Crossing 'ingle Carriagewa, wit/ Ro(nda4o(t (:ption 1)
- VD17516-EC-'; #6 Eastern Crossing 'ingle Carriagewa, wit/ 2(nction (:ption %)
- VD17516-EC-';1 % Eastern Crossing 'ingle Carriagewa, wit/ 2(nction (:ption %A)
- VD17516-EC-';1 %$1 Eastern Crossing 'ingle Carriagewa, wit/ 2(nction and <oot4ridge (:ption %+)
- VD17516-EC-';1 %$% Eastern Crossing 'ingle Carriagewa, wit/ 2(nction and Alternati5e <oot4ridge (:ption %+)
- VD17516-EC-';1 # Eastern Crossing 'ingle Carriagewa, wit/ =nderpass (:ption #)
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- VD17516-EC-';1 5 Eastern Crossing 'ingle Carriagewa, wit/ :5erpass (:ption 5)
- - .erlings 0ar1 0(4lic 6or1s/op 0resentation Drawings

Appendix C – <iddler›s +roo1 <oot4ridge Report

- - <iddler›s +roo1 <oot4ridge st(d, report

Appendix D – +ridge Ele5ations (detailed application) and Road # options

- VD17516-EC-1 5-+E 0roposed 'tr(ct(re Ele5ation at <iddler›s +roo1
- VD17516-EC-1 6-+E 0roposed 'tr(ct(re Ele5ation at Ri5er 'tort (3a5igation)
- VD17516-EC-1 7-+E 0roposed C(l5erted Ele5ation across <lood 0lain
- - Road # crossing options
- 7 55**#-DR!- 1 Ri5er 6a, <oot4ridge !A

APPENDIX A – DETAILED APPLICATION DRAWINGS

Notes:

SECTION A-A
EASTERN STORT CROSSING IN CUTTING ROAD 1:
- 7.3m CARRIAGEWAY (+ 1.0m HARD STRIPS)
- 2.0m FOOTWAY (+0.5m BUFFER) WITH 1.5m VERGE (NORTH)
- A 5.0m WIDE SOFT VERGE ON SOUTH SIDE FOR DRIVER VISIBILITY. NOTE 5.0m FOOTWAY / CYCLEWAY LOCATED ON THE REDUNDANT LENGTH OF EASTWICK ROAD
- EARTHWORKS 1 IN 3.0 (CUT)

KEY

A A — CROSS SECTION MARKER

EXISTING PROW

RED LINE BOUNDARY

NEW FOOTWAY CONNECTION

EXISTING PEDESTRIAN ROUTE OVER GRADE 2 LISTED FIDDLERS' BROOK FOOTBRIDGE

ACCESS MAINTAINED TO SIGNALISED JUNCTION AT HIGHER LEVEL

TERLINGS PARK / PYE CORNER JUNCTION

TWO 3.65m WIDE RUNNING LANES ON APPROACH AND THROUGH THE JUNCTION

2.0m WIDE FOOTWAY WITHIN NORTH VERGE

FUTURE SIGNALISED CROSSING LINK FROM THE DEVELOPMENT (VIA RAMP OR STEPS) DOWN NORTH BATTER SLOPE TO BURNT MILL LANE

GHOST ISLAND JUNCTION WITH BURNT MILL LANE

PROPOSED 5.0m (+1.0m BUFFER and 2.0m VERGE) WIDE SEGREGATED FOOTWAY / CYCLEWAY FORMING PART OF THE SUSTAINABLE TRANSPORT CORRIDOR BETWEEN THE GILSTON AREA AND HARLOW.

EASTERN CROSSING LAYOUT TO TIE INTO CENTRAL CROSSING LAYOUT. REFER VD17516-CC-100-GA FOR DETAILS

FLOOD REPLACEMENT STORAGE PROVIDED DURING CENTRAL STORT CROSSING PHASE

FIELD ACCESS MAINTAINED

5.0m WIDE SEGREGATED FOOTWAY/CYCLEWAY CONSTRUCTED TO THE NORTH OF THE CARRIAGEWAY TO MAINTAIN VEHICULAR ACCESS TO PRIVATE PROPERTIES - VEHICLE CROSSOVER PROVIDED OFF BURNT MILL LANE

EXISTING PROW19 NOT AFFECTED

PEDESTRIAN AND CYCLE CONNECTIVITY WITH TABLE TOP SPEED CUSHION AND RETAINED / AMENDED FOOTWAY BETWEEN TERLINGS PARK / BURNT MILL LANE

SOFT VERGE

5.0m WIDE SEGREGATED FOOTWAY / CYCLEWAY LOCATED ABOVE EXISTING CARRIAGEWAY

ADDITIONAL PEDESTRIAN ROUTE BETWEEN PYE CORNER AND TERLINGS PARK, AVOIDING USE OF ROAD CROSSING FACILITY

EASTWICK ROAD CLOSED TO VEHICULAR TRAFFIC

FIDDLERS BROOK ROAD BRIDGE, EXTENT SHOWN REFLECTING POTENTIAL FUTURE DUALLING OF ROAD 1

EASTWICK ROAD

TERLINGS PARK

FIDDLERS' BROOK

PROW30

PROW29

ROAD 1

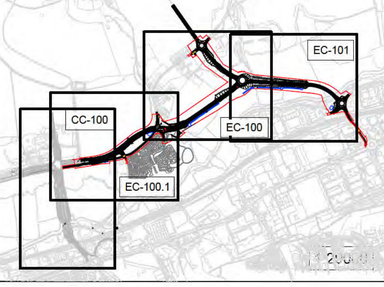
LIME AVENUE

BURNT MILL LANE

RIVER STORT

A414 FIFTH AVENUE

SITE LOCATION



REV.	DETAILS	DRAWN	CHECKED	DATE
L	SUDS FEATURES SHOWN	NL	MS	15.04.19
K	AMENDMENTS FOLLOWING QRP	NL	MS	15.04.19
J	ALTERATIONS FOLLOWING QRP	AR	MS	09.04.19
I	GHOST ISLAND JUNCTION ADDED AT BML	AR	MS	21.03.19
H	LIME AVENUE UNCONTROLLED CROSSING	AR	MS	12.03.19
G	STEP TO FIDDLERS BROOK BRIDGE ADDED	AR	MS	19.02.19
F	AMENDMENTS TO RED LINE BOUNDARY	JD	MS	11.01.19
E	MINOR AMENDMENTS	JD	MS	11.12.18
D	AMENDMENTS FOR ISSUE	JD	MS	22.11.18
C	AMENDMENTS FOR ISSUE	JD	MS	08.10.18
B	AMENDMENTS FOR ISSUE	JD	MS	25.09.18
A	AMENDMENTS FOR ISSUE	JD	MS	17.09.18

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: General Arrangement Sheet 2 of 3

SCALES: 1:1250 @ A1

DRAWN: [redacted] CHECKED: [redacted] DATE: 05.09.18

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DRAWING NUMBER: VD17516-EC-100.1-GA REVISION: L

VILLAGE 2 ACCESS

EXTENT OF SECTION 278 WORKS

EASTWICK ROAD

LANDSCAPING AREA TO PREVENT THROUGH VISIBILITY TO DRIVERS APPROACHING FROM EAST OF JUNCTION

EASTERN CROSSING NORTH ROUNDABOUT 50m ICD CONNECTING VILLAGE 2 , EASTERN STORT CROSSING AND EASTWICK ROAD

EASTWICK ROAD CLOSED TO ROAD TRAFFIC.TURNING HEAD PROVIDED AND ACCESS TO PRIVATE FIELD GATE MAINTAINED

EXISTING ACCESS MAINTAINED

EASTERN CROSSING CENTRAL ROUNDABOUT 60m ICD

PROPOSED 5.0m WIDE SEGREGATED FOOTWAY / CYCLEWAY FORMING PART OF THE SUSTAINABLE TRANSPORT CORRIDOR BETWEEN THE GILSTON AREA AND HARLOW.

ROAD 2

EARTHWORKS 1 IN 3

EARTHWORKS 1 IN 2.5 (WITHIN STORT VALLEY)

ROAD 3

EXISTING PROW 31

PYE CORNER

EARTHWORKS 1 IN 3 (CUT)

EARTHWORKS 1 IN 3

EARTHWORKS 1 IN 2.5 (WITHIN STORT VALLEY)

PROPOSED 5.0m (+1.0m BUFFER AND 2.0m VERGE) WIDE SEGREGATED FOOTWAY / CYCLEWAY FORMING PART OF THE SUSTAINABLE TRANSPORT CORRIDOR BETWEEN THE GILSTON AREA AND HARLOW.

PROPOSED PROW 31 DIVERSION VIA TOUCAN CROSSING

FIDDLERS BROOK

EASTWICK ROAD

ROAD 1

NEW FOOTWAY CONNECTION

EASTERN STORT CROSSING FOOTPATH LINK TO PROW30 AND PROW29

EXISTING PEDESTRIAN ROUTE OVER GRADE 2 FIDDLERS' BROOK FOOTBRIDGE

ACCESS MAINTAINED TO SIGNALISED JUNCTION AT HIGHER LEVEL

NEW FIELD ACCESS TO MAINTAIN (RELOCATED) EXISTING PROVISION

PROW30

PROW29

FIDDLERS BROOK ROAD BRIDGE STRUCTURE - REFER TO DRAWING VD17516-EC-105-BE

ADDITIONAL PEDESTRAIN ROUTE BETWEEN PYE CORNER AND TERLING PARK, AVOIDING USE OF ROAD CROSS FACILITY

SITE LOCATION

EC-101

CC-100

EC-100

EC-100.1

1:20000

Notes:

SECTION A-A
EASTERN STORT CROSSING IN CUTTING ROAD 2:
- 7.3m CARRIAGEWAY
- 2.0m (+0.5m BUFFER) FOOTWAY WITH 1.0m VERGE (EAST)
- 5.0m (+0.5m BUFFER) SEGREGATED FOOTWAY/CYCLEWAY WITH 1.5m VERGE (WEST)
- EARTHWORKS 1 IN 3.0 (CUT)

SECTION B-B
EASTERN STORT CROSSING IN CUTTING ROAD 1:
- 7.3m CARRIAGEWAY (+ 1.0m HARD STRIPS)
- 2.0m (+0.5m BUFFER) FOOTWAY WITH 1.5m VERGE (NORTH)
- 5.0m (+1.0m BUFFER) SEGREGATED FOOTWAY/CYCLEWAY WITH 2.0m VERGE (SOUTH)
- EARTHWORKS 1 IN 3.0 (CUT)

SECTION C-C
EASTERN STORT CROSSING IN FILL ROAD 1:
- 7.3m CARRIAGEWAY (+ 1.0m HARD STRIPS)
- 2.0m (+0.5m BUFFER) FOOTWAY WITH 1.5m VERGE (NORTH)
- 5.0m (+1.0m BUFFER) SEGREGATED FOOTWAY/CYCLEWAY WITH 2.0m VERGE (SOUTH)
- EARTHWORKS 1 IN 2.5 (FILL)

KEY

A A CROSS SECTION MARKER

PROPOSED PROW DIVERSION

EXISTING PROW

RED LINE BOUNDARY

REV.	DETAILS	DRAWN	CHECKED	DATE
O	SUDS FEATURES SHOWN	NL	MIS	15.04.19
N	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19
M	AMENDMENTS FOLLOWING QRP	AR	MIS	09.04.19
L	CULVERT PROFILES ADDED TO ROAD 3	AR	MIS	21.03.19
K	ADDITIONAL ANNOTATION ADDED	AR	MIS	12.03.19
J	STEPS TO FIDDLERS BROOK BRIDGE ADDED	AR	MIS	19.02.19
I	AMENDMENTS TO RED LINE BOUNDARY	JD	MIS	11.01.19
H	AMENDMENTS FOR ISSUE	JD	MIS	22.11.18
G	AMENDMENTS FOR ISSUE	JD	MIS	21.09.18
F	AMENDMENTS FOR ISSUE	AR	MIS	14.09.18
E	FOOTWAY/CYCLEWAY TO SOUTH SIDE	AR	MIS	31.08.18
D	CULVERTS INCLUDED FOR EAST HIGHWAY	AR	MIS	25.05.18
C	VIADUCT CARRIAGEWAY WIDTH AMENDED	AH	MIS	17.08.17
B	MINOR AMENDMENTS & NOTES AMENDED	AH	MIS	07.08.17
A	LAYOUT UPDATED FOLLOWING DTM (27.07.17)	AH	MIS	04.08.17

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: General Arrangement Sheet 1 of 3

SCALES: 1:1250 @ A1

DRAWN: ■ CHECKED: ■ DATE: 21.06.17

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DRAWING NUMBER: VD17516-EC-100-GA REVISION: O

I:\JOBS\2017\VD17516 Gilston Park Planning\CAD\VI Drawings\AH Design Pack\ VD17516-EC-100-GA Rev O.dwg

Notes:

SECTION A-A
EASTERN STORT CROSSING ON CULVERTS AND A STRUCTURE OVER FLOOD PLAIN:
- 7.3m CARRIAGEWAY (NO HARD STRIPS)
- 2.0m FOOTWAY WITH 0.5m VERGE FRONT AND 1.0m VERGE BACK (NORTH)
- 5.0m (+ 0.5m BUFFER) SEGREGATED FOOTWAY/CYCLEWAY WITH 1.0m VERGE (SOUTH)
- EARTHWORKS 1 IN 2.5 (FILL)

KEY

A A — CROSS SECTION MARKER

RED LINE BOUNDARY

EARTHWORKS 1 IN 3

EARTHWORKS 1 IN 2.5

2m WIDE FOOTWAY WITH 0.5m WIDE OFFSET FROM KERB AND 1.0m SOFT VERGE

EASTERN STORT CROSSING SUPPORTED ON CULVERTS / EMBANKMENT AND A BRIDGE STRUCTURE ACROSS THE FLOOD PLAIN.

EMBANKMENT AT 1 IN 2.5 SLOPES SUPPORTED ON CORRUGATED STEEL CULVERTS TO MAINTAIN WILDLIFE CORRIDOR AND FLOOD PLAIN CAPACITY. REFER TO DRAWING VD17516-EC-106-BE AND VD17516-EC-107-BE

ROAD 3

BRIDGE STRUCTURE

ABUTMENT TO STRUCTURE TO HOLD WIDENED EARTHWORKS

EASTERN CROSSING CENTRAL ROUNDABOUT 60m ICD

5.0m EFFECTIVE WIDTH SEGREGATED FOOTWAY / CYCLEWAY ON SOUTH SIDE OF ROAD 3 FORMING PART OF THE SUSTAINABLE TRANSPORT CORRIDOR BETWEEN THE GILSTON AREA AND HARLOW.

RIVER WAY

5.0m EFFECTIVE WIDTH FOOTWAY/CYCLEWAY

EXISTING FOOTWAY WIDENED, VARIES IN WIDTH

FOOTBRIDGE DECK AND PARAPET TO BE REPLACED

RIVERWAY ROUNDABOUT 50m ICD ROUNDABOUT CONNECTING SOUTH END OF EASTERN STORT CROSSING WITH RIVER WAY

RIVER STORT

RAILWAY

EXISTING ECC BRIDGE OVER RAILWAY. MINOR ROAD WIDENING WEST KERB LINE AND CLOSURE OF WEST FOOTWAY DIVERTED TO NEW CYCLEWAY / FOOTWAY BRIDGE OVER THE RAILWAY

NEW INDEPENDENT 5.0m EFFECTIVE WIDTH FOOTWAY/CYCLEWAY STRUCTURE OVER RAILWAY. PROVIDING 6.0m BETWEEN PARAPETS

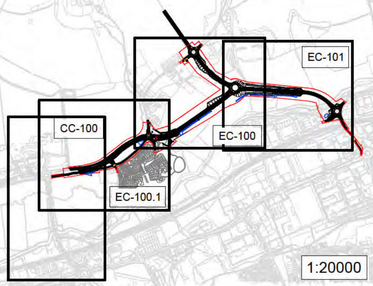
RIVER WAY

5.0m WIDE EFFECTIVE WIDTH FOOTWAY/CYCLEWAY UPGRADE CONECTING INTO FOOTWAY/CYCLEWAY AT EDINBURGH WAY/RIVER WAY ROUNDABOUT

EDINBURGH PL

ECC JUNCTION IMPROVEMENT SCHEME TO PROVIDE CONNECTIVITY TO PEDESTRIAN & CYCLE ROUTES ON SOUTH SIDE OF EDINBURGH WAY

SITE LOCATION



1:20000

REV.	DETAILS	DRAWN	CHECKED	DATE
O	SUDS FEATURES SHWON	NL	MIS	15.04.19
N	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19
M	AMENDMENTS FOLLOWING QRP	AR	MIS	09.04.19
L	CULVERT PROFILES ADDED TO ROAD 3	AR	MIS	21.03.19
K	ADDITIONAL ANNOTATION ADDED	AR	MIS	12.03.19
J	AMENDMENTS FOR ISSUE	JD	MIS	22.11.18
I	AMENDMENTS FOR ISSUE	JD	MIS	25.09.18
H	AMENDMENTS FOR ISSUE	AR	MIS	14.09.18
G	BASE PLAN AMENDED	AR	MIS	31.08.18
F	CULVERT EARTHWORKS INCLUDED	AR	MIS	25.05.18
E	AMENDMENTS TO FOOTBRIDGE LAYOUT FOOTWAY LINK TO TOWPATH NOTE	JD	MIS	08.02.18
D	REMOVED VIADUCT CARRIAGEWAY WIDTH AMENDED	AH	MIS	17.08.17
C	BRIDGE DECK AT RIVER WAY RBT AMENDED	AH	MIS	08.08.17
B	MINOR AMENDMENTS & NOTES AMENDED	AH	MIS	07.08.17
A	LAYOUT UPDATED FOLLOWING DTM (27.07.17)	AH	MIS	04.08.17

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: General Arrangement Sheet 3 of 3

SCALES: 1:1250 @ A1

DRAWN: ■ CHECKED: ■ DATE: 21.06.17

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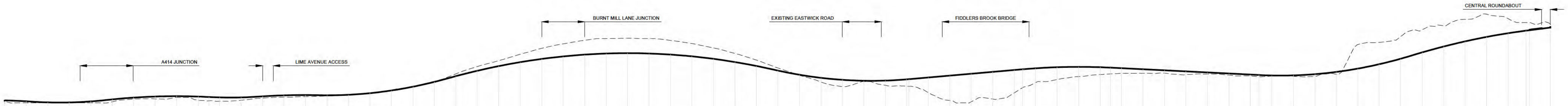
DRAWING NUMBER: VD17516-EC-101-GA REVISION: O

EASTERN CROSSING - OPTION 2B - LONGSECTION
SCALE: H 1:1000,V 1:200. DATUM: 35.000



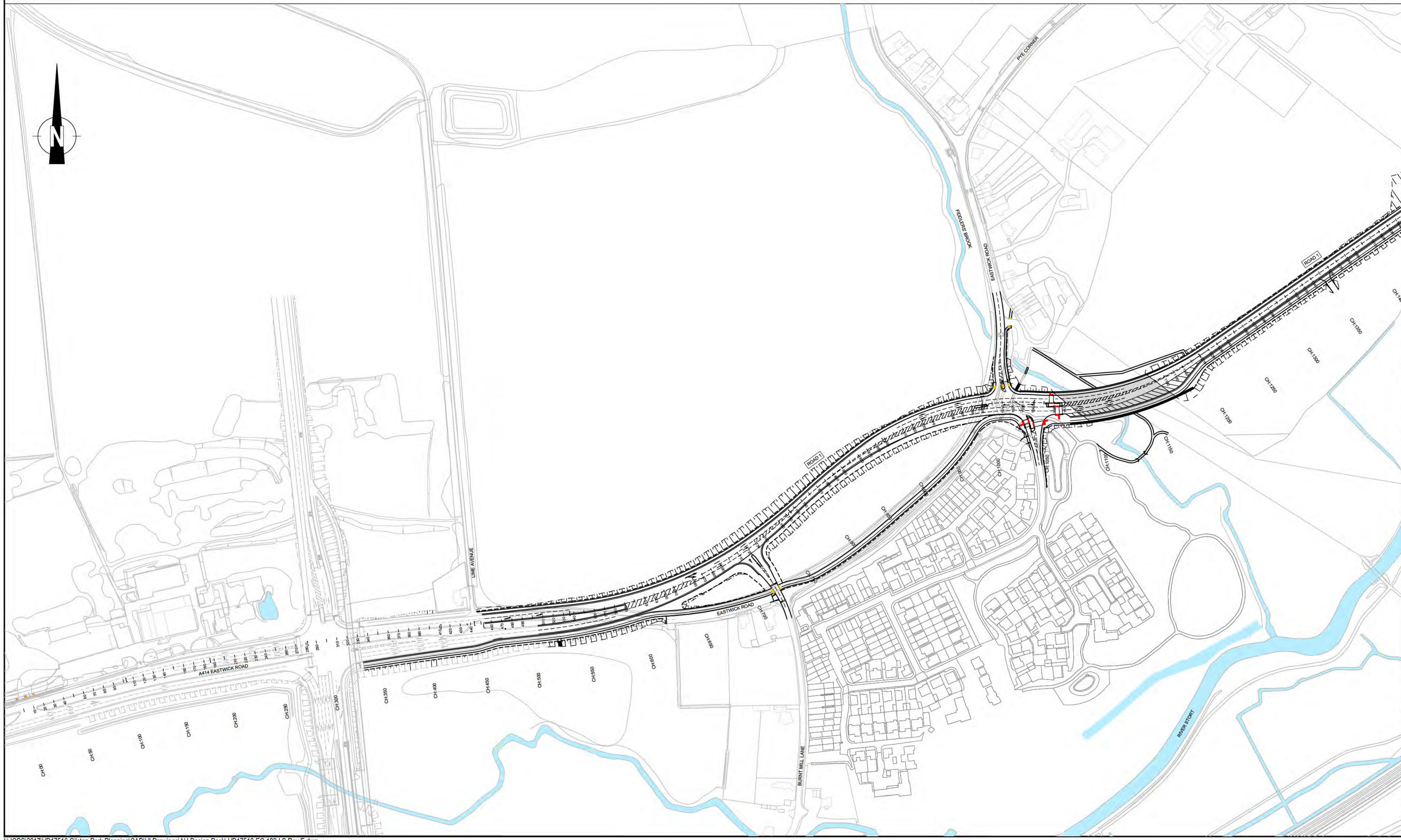
CHAINAGE	PROPOSED LEVELS	EXISTING LEVELS
210.000	39.409	39.000
220.000	39.311	39.000
230.000	39.191	39.000
240.000	39.110	39.000
250.000	39.080	39.000
260.000	39.100	39.000
270.000	39.170	39.000
280.000	39.289	39.000
290.000	39.459	39.000
300.000	39.666	39.220
310.000	39.849	39.563
320.000	39.999	39.742
330.000	40.115	39.773
340.000	40.198	39.756
350.000	40.247	39.663
360.000	40.263	40.000
370.000	40.246	40.000
380.000	40.195	39.515
390.000	40.111	39.401
400.000	40.036	39.334
410.000	40.011	39.353
420.000	40.036	39.509
430.000	40.111	39.726
440.000	40.233	39.912
450.000	40.344	40.037
460.000	40.421	40.092
470.000	40.465	40.136
480.000	40.476	40.181
490.000	40.454	40.230
500.000	40.429	40.298
510.000	40.454	40.424
520.000	40.528	40.531
530.000	40.653	40.700
540.000	40.827	40.793
550.000	41.051	41.050
560.000	41.326	41.420
570.000	41.650	41.750
580.000	42.025	42.056
590.000	42.449	42.559
600.000	42.924	43.051
610.000	43.448	43.627
620.000	43.997	44.417
630.000	44.515	45.162
640.000	44.999	45.786
650.000	45.450	46.342
660.000	45.868	46.880
670.000	46.252	47.478
680.000	46.603	48.077
690.000	46.921	48.637
700.000	47.205	49.181
710.000	47.456	49.639
720.000	47.673	50.014
730.000	47.858	50.355
740.000	48.009	50.675
750.000	48.126	50.959
760.000	48.210	51.000
770.000	48.261	51.030
780.000	48.279	51.066
790.000	48.263	51.004
800.000	48.214	51.000
810.000	48.132	50.913
820.000	48.016	50.660
830.000	47.867	50.386
840.000	47.685	50.069
850.000	47.469	49.671
860.000	47.220	49.254
870.000	46.937	48.775
880.000	46.622	48.224
890.000	46.273	47.636
900.000	45.890	46.995
910.000	45.475	46.253
920.000	45.031	45.521
930.000	44.620	44.853
940.000	44.259	44.166
950.000	43.947	43.592
960.000	43.686	42.908
970.000	43.475	42.338
980.000	43.314	42.053
990.000	43.203	42.423
1000.000	43.142	43.000
1010.000	43.131	42.727
1020.000	43.170	42.294
1030.000	43.259	42.177
1040.000	43.397	42.136
1050.000	43.570	41.870
1060.000	43.744	40.931
1070.000	43.919	39.950
1080.000	44.093	39.479
1090.000	44.267	39.000
1100.000	44.441	39.223
1110.000	44.615	40.000
1120.000	44.789	39.727
1130.000	44.963	39.890
1140.000	45.137	40.871
1150.000	45.310	42.019
1160.000	45.460	42.796
1170.000	45.577	43.000
1180.000	45.661	43.360
1190.000	45.711	43.684
1200.000	45.728	43.915
1210.000	45.711	44.118
1220.000	45.661	44.293
1230.000	45.578	44.424
1240.000	45.479	44.530
1250.000	45.380	44.551
1260.000	45.280	44.533
1270.000	45.181	44.500
1280.000	45.081	44.558
1290.000	44.982	44.345
1300.000	44.883	44.281
1310.000	44.783	44.400
1320.000	44.684	44.404
1330.000	44.585	44.396
1340.000	44.485	44.187
1350.000	44.386	44.056
1360.000	44.287	44.020
1370.000	44.188	43.880
1380.000	44.123	44.029
1390.000	44.108	44.087
1400.000	44.143	43.997
1410.000	44.229	43.853
1420.000	44.364	43.933
1430.000	44.549	44.403
1440.000	44.784	44.323
1450.000	45.069	46.725
1460.000	45.404	49.884
1470.000	45.789	50.263
1480.000	46.224	50.297
1490.000	46.709	50.526
1500.000	47.244	51.379
1510.000	47.829	52.510
1520.000	48.426	52.643
1530.000	48.989	53.299
1540.000	49.519	53.416
1550.000	50.015	54.241
1560.000	50.479	54.578
1570.000	50.908	54.923
1580.000	51.305	55.549
1590.000	51.668	55.185
1600.000	51.998	54.700
1610.000	52.294	54.000
1620.000	52.559	54.000
1630.000	52.817	53.841
1639.358	53.058	53.684

HORIZONTAL GEOMETRY

1	L =95.479
2	R: 1440.000, L: 129.690
3	R: 1440.000, L: 32.421
4	L =92.462
5	R: 360.000, L: 214.289
6	L: 25.000
7	L: 25.000
8	R: 510.000, L: 61.866
9	L: 50.000
10	R: 255.000, L: 101.011
11	L: 25.000
12	L: 25.000
13	R: 255.000, L: 118.114
14	L: 50.000
15	L =283.274
16	R: 1020.000, L: 43.300
17	R: 504.100, L: 81.305

VERTICAL GEOMETRY

1	[illegible]
2	R =2000.000, K =20.000, L =69.679
3	R =3000.000, K =30.000, L =95.366
4	R =2000.000, K =20.000, L =47.363
5	R =3000.000, K =30.000, L =54.043
6	R =2000.000, K =20.000, L =120.805
7	R =3000.000, K =30.000, L =304.272
8	R =2000.000, K =20.000, L =125.589
9	G =1.741%, L =105.794
10	R =3000.000, K =30.000, L =82.024
11	G =-0.994%, L =138.258
12	R =2000.000, K =20.000, L =142.255
13	R =3000.000, K =30.000, L =106.345
14	G =2.574%, L =22.646



REV.	DETAILS	DRAWN	CHECKED	DATE
E	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19
D	BML GHOST ISLAND ADDED	AR	MIS	25.03.19
C	AMENDMENTS FOR ISSUE	JD	MIS	22.11.18
B	VARIOUS AMENDMENTS	AH	MIS	04.10.18
A	LAYOUT UPDATED	AH	MIS	22.08.17

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Site Road 1 Longitudinal Secton Sheet 1 of 3

SCALES: 1:2000 @ A1

DRAWN: [redacted] CHECKED: [redacted] DATE: 21.06.17

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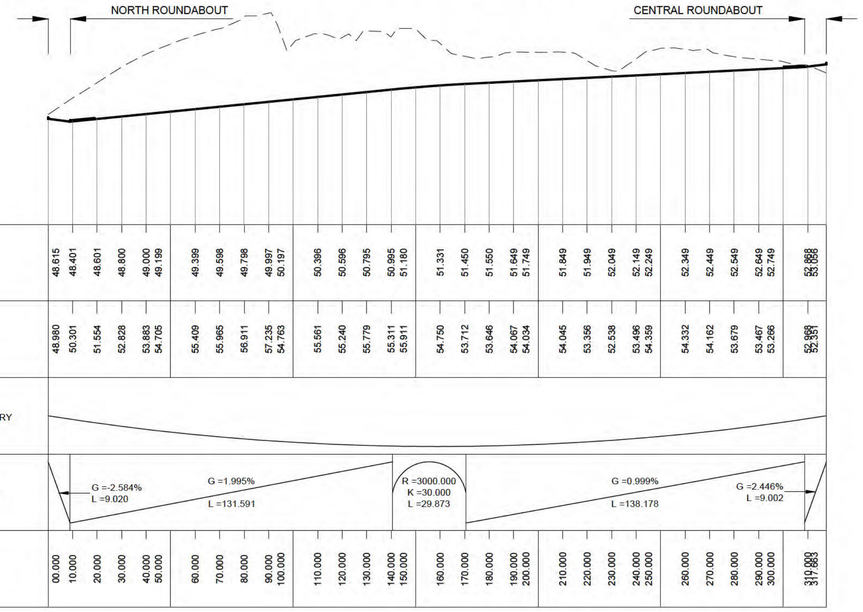
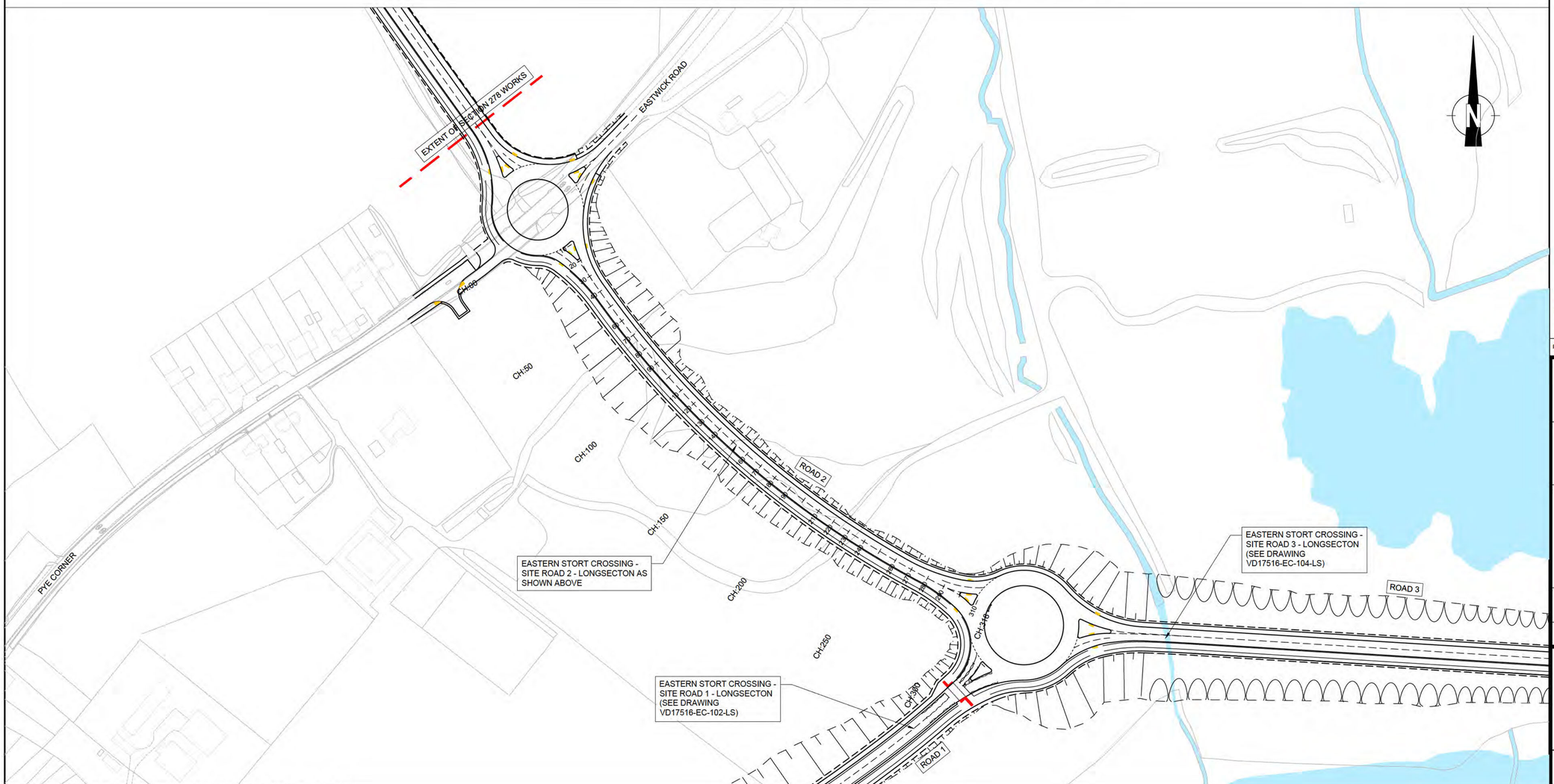
DRAWING NUMBER: VD17516-EC-102-LS REVISION: E

EAST CROSSING - SITE ROAD 2 - LONGSECTION
SCALE: H 1:1250,V 1:250. DATUM: 40.000





Notes:

REV.	DETAILS	DRAWN	CHECKED	DATE
D	AMENDMENTS FOLLOWING QPR	NL	MIS	15.04.19
C	AMENDMENTS FOR ISSUE	JD	MIS	22.11.18
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A	LAYOUT UPDATED	AH	MIS	22.08.17

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Site Road 2 Longitudinal Secton Sheet 2 of 3

SCALES: 1:1250 @ A1

DRAWN: ■ CHECKED: ■ DATE: 21.06.17

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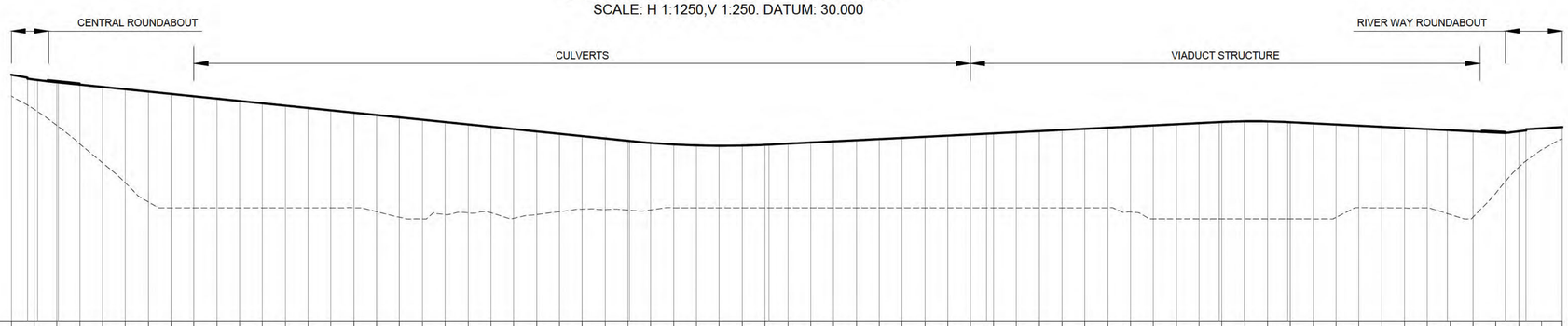
DRAWING NUMBER: VD17516-EC-103-LS REVISION: D

I:\JOBS\2017\VD17516 Gilston Park Planning\CAD\VI Drawings\AH Design Pack\ VD17516-EC-103-LS Rev D.dwg

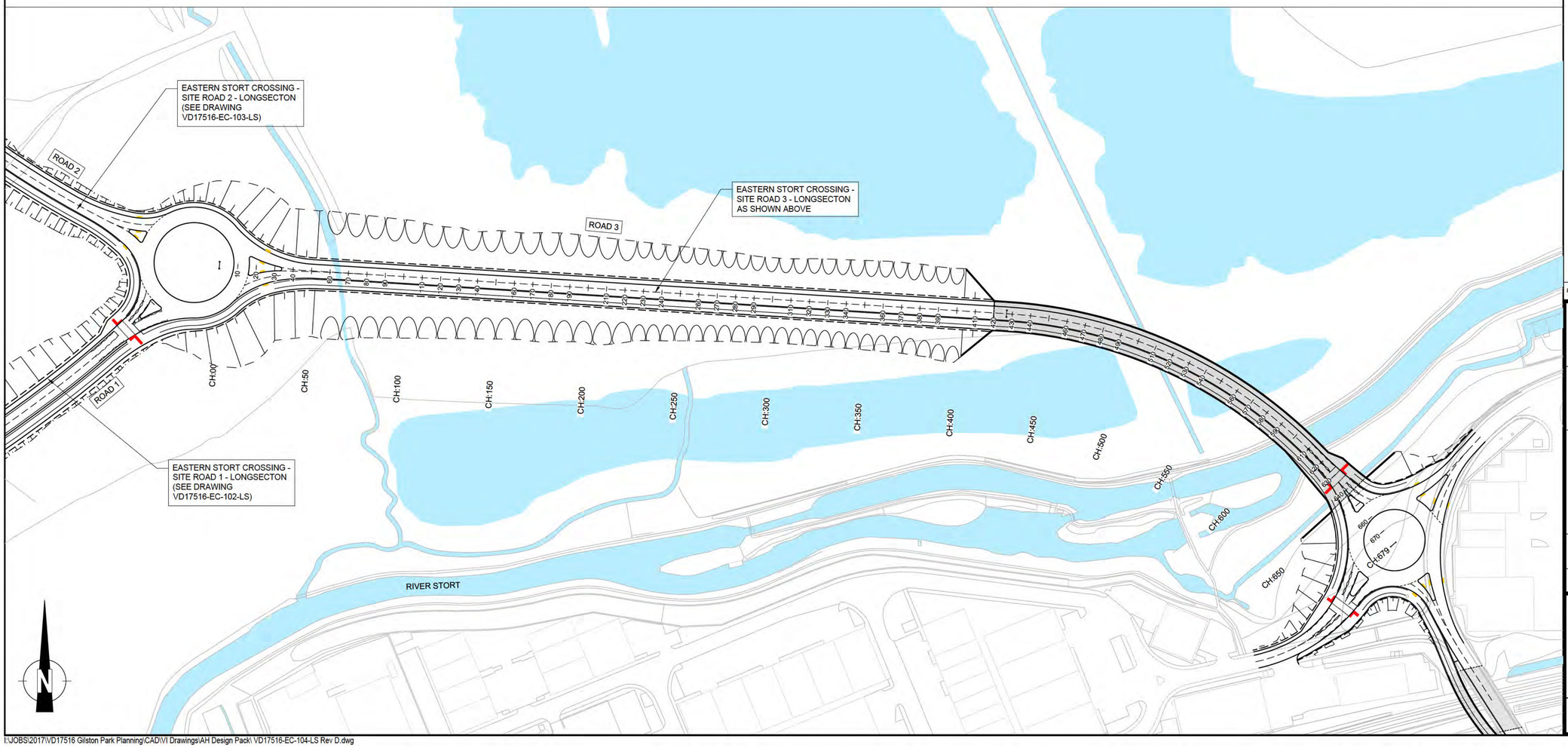
EAST CROSSING - SITE ROAD 3 - LONGSECTION
SCALE: H 1:1250,V 1:250. DATUM: 30.000



CHAINAGE	PROPOSED LEVELS	EXISTING LEVELS
00.000	51.640	49.794
10.000	51.213	48.623
20.000	50.980	47.201
30.000	50.775	45.585
40.000	50.570	43.920
50.000	50.364	42.171
60.000	50.159	40.505
70.000	49.954	40.000
80.000	49.749	40.000
90.000	49.544	40.000
100.000	49.338	40.000
110.000	49.133	40.000
120.000	48.928	40.000
130.000	48.723	40.000
140.000	48.518	40.000
150.000	48.312	40.000
160.000	48.107	39.647
170.000	47.902	39.161
180.000	47.697	39.000
190.000	47.492	39.388
200.000	47.287	39.545
210.000	47.081	39.554
220.000	46.876	39.060
230.000	46.671	38.392
240.000	46.466	39.649
250.000	46.261	39.869
260.000	46.055	39.824
270.000	45.850	39.791
280.000	45.667	39.801
290.000	45.534	40.000
300.000	45.450	40.000
310.000	45.417	40.000
320.000	45.434	40.000
330.000	45.500	40.000
340.000	45.600	40.000
350.000	45.700	40.000
360.000	45.800	40.000
370.000	45.900	40.000
380.000	46.000	40.000
390.000	46.100	40.000
400.000	46.200	40.000
410.000	46.300	40.000
420.000	46.400	40.000
430.000	46.500	40.000
440.000	46.600	40.000
450.000	46.700	40.000
460.000	46.800	40.000
470.000	46.900	40.000
480.000	47.000	40.000
490.000	47.100	39.622
500.000	47.200	39.000
510.000	47.300	39.000
520.000	47.400	39.000
530.000	47.500	39.000
540.000	47.588	39.000
550.000	47.550	39.000
560.000	47.476	39.000
570.000	47.375	39.000
580.000	47.275	39.150
590.000	47.175	40.000
600.000	47.075	40.000
610.000	46.975	39.982
620.000	46.875	40.000
630.000	46.774	39.394
640.000	46.674	39.171
650.000	46.574	41.284
660.000	46.683	43.533
670.000		45.065
679.025		46.000

HORIZONTAL GEOMETRY
- L =426.949
- R: 255.000, L: 201.738
- L =50.339

VERTICAL GEOMETRY
- R =2000.000, K =20.000, L =8.969
- G =-2.052%, L =250.016
- R =2000.000, K =20.000, L =61.047
- G =1.000%, L =197.085
- R =1498.366, K =14.984, L =30.000
- G =-1.002%, L =95.263
- G =2.491%, L =9.171



Notes:

REV.	DETAILS	DRAWN	CHECKED	DATE
D	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19
C	AMENDMENTS FOR ISSUE	JD	MIS	22.11.18
B	VARIOUS AMENDMENTS	AH	MIS	04.10.18
A	LAYOUT UPDATED	AH	MIS	22.08.17

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Site Road 3 Longitudinal Secton Sheet 3 of 3

SCALES: 1:1250 @ A1

DRAWN: ■ CHECKED: ■ DATE: 21.06.17

vectos highway infrastructure specialists
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DRAWING NUMBER: VD17516-EC-104-LS REVISION: D

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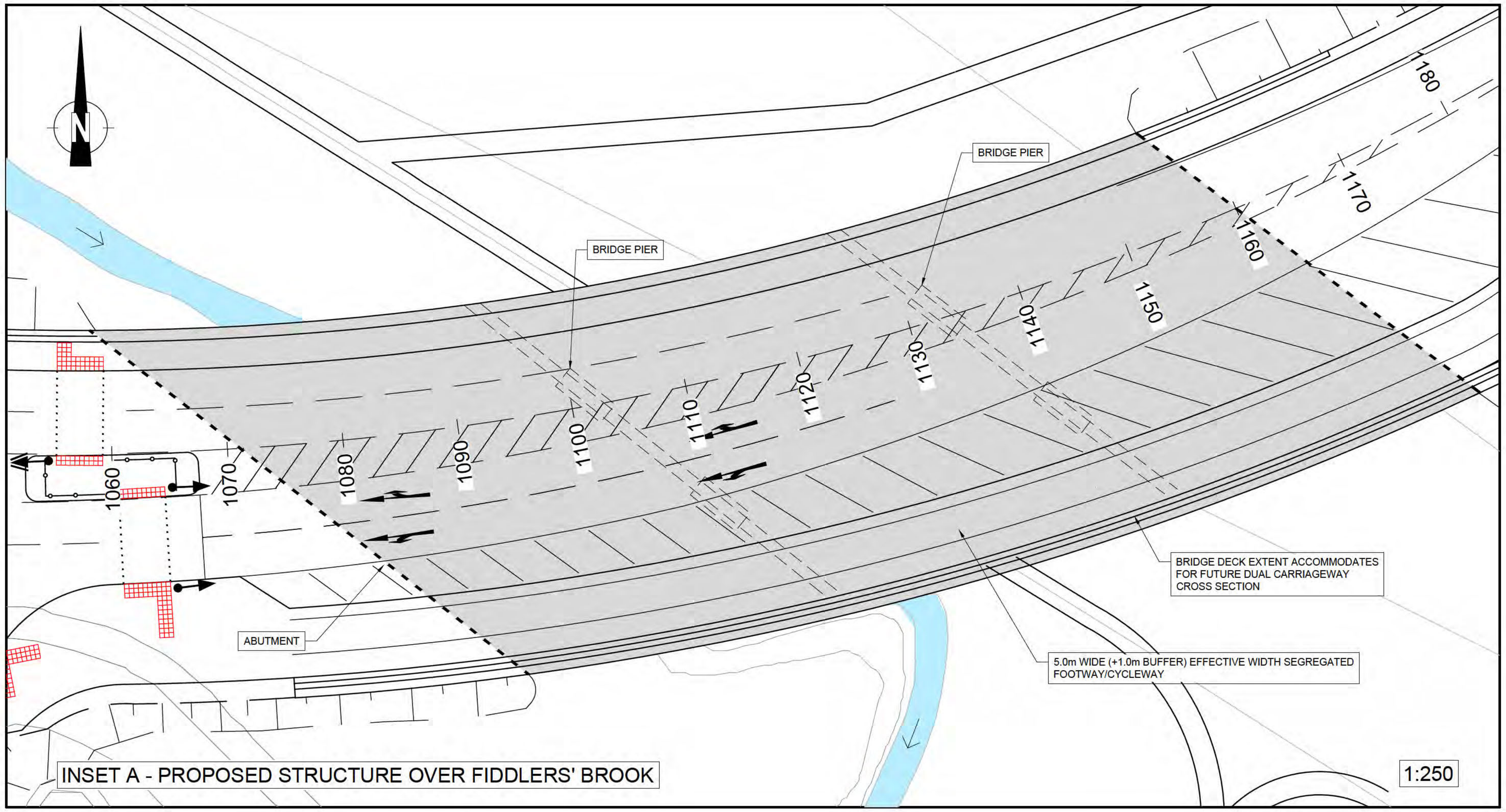
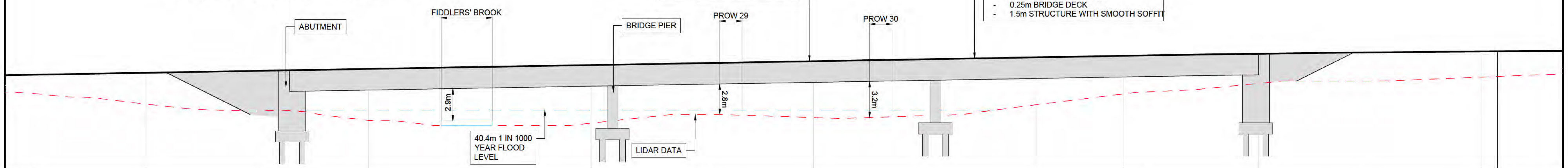


INSET A - PROPOSED STRUCTURE OVER FIDDLERS' BROOK

EAST CROSSING - SITE ROAD 1 - LONGSECTION
SCALE: H 1:200,V 1:200. DATUM: 35.000



Proposed Levels	43.570	43.744	43.919	44.093	44.267	44.441	44.615	44.789	44.963	45.137	45.310	45.460	45.577	45.661
Existing Levels	41.870	40.931	40.405	39.479	39.000	39.223	40.000	39.727	39.890	40.871	42.019	42.796	43.000	43.360
Chainage	1050.000	1060.000	1070.000	1080.000	1090.000	1100.000	1110.000	1120.000	1130.000	1140.000	1150.000	1160.000	1170.000	1180.000

REV.	DETAILS	DRAWN	CHECKED	DATE	REV.	DETAILS	DRAWN	CHECKED	DATE
A	STRUCTURES AMENDED	AH	MIS	24.08.17					
B	FOOTPATH ALONG FIDDLERS' BROOK ADDED	MH	AR	31.05.18					
C	SECTION AMENDED	JD	MS	23.11.18					
D	FURTHER ANNOTATION ADDED	AR	MS	19.02.19					
E	AMENDMENTS FOLLOWING QRP	NL	MS	15.04.19					

Notes:

PROJECT:
Eastern Stort Crossing

DRAWING TITLE:
Proposed Structure Elevation over Fiddlers' Brook

DRAWN: [redacted]
CHECKED: [redacted]
DATE: 21.06.17
SCALES: As Shown @ A1

CLIENT: Places for People

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DRAWING NUMBER: VD17516-EC-105-BE
REVISION: E

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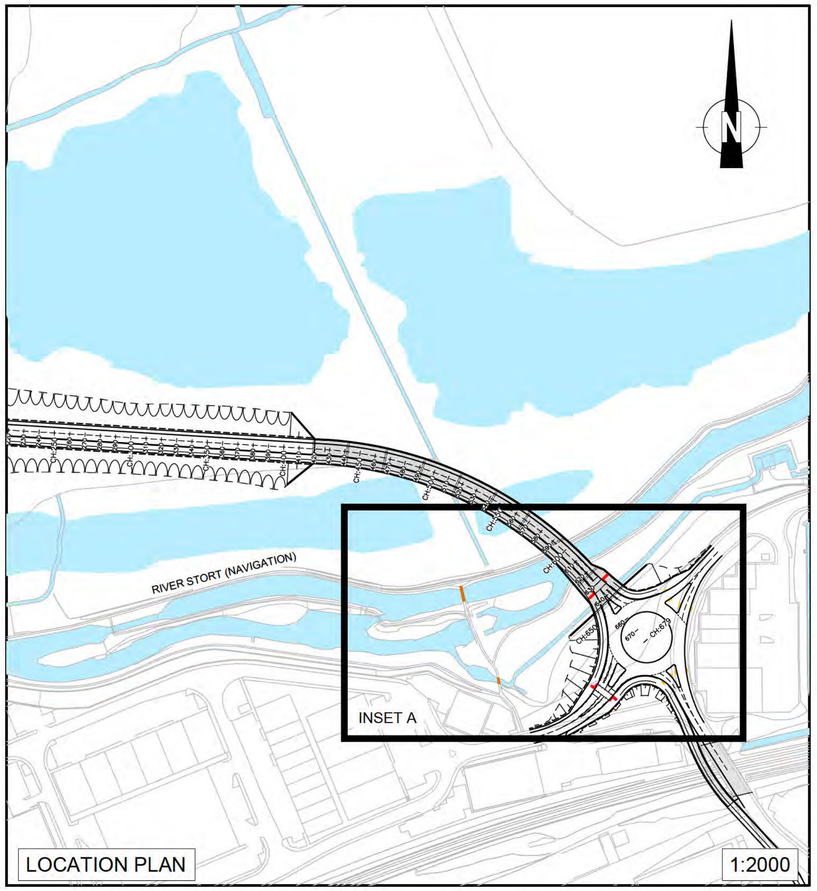
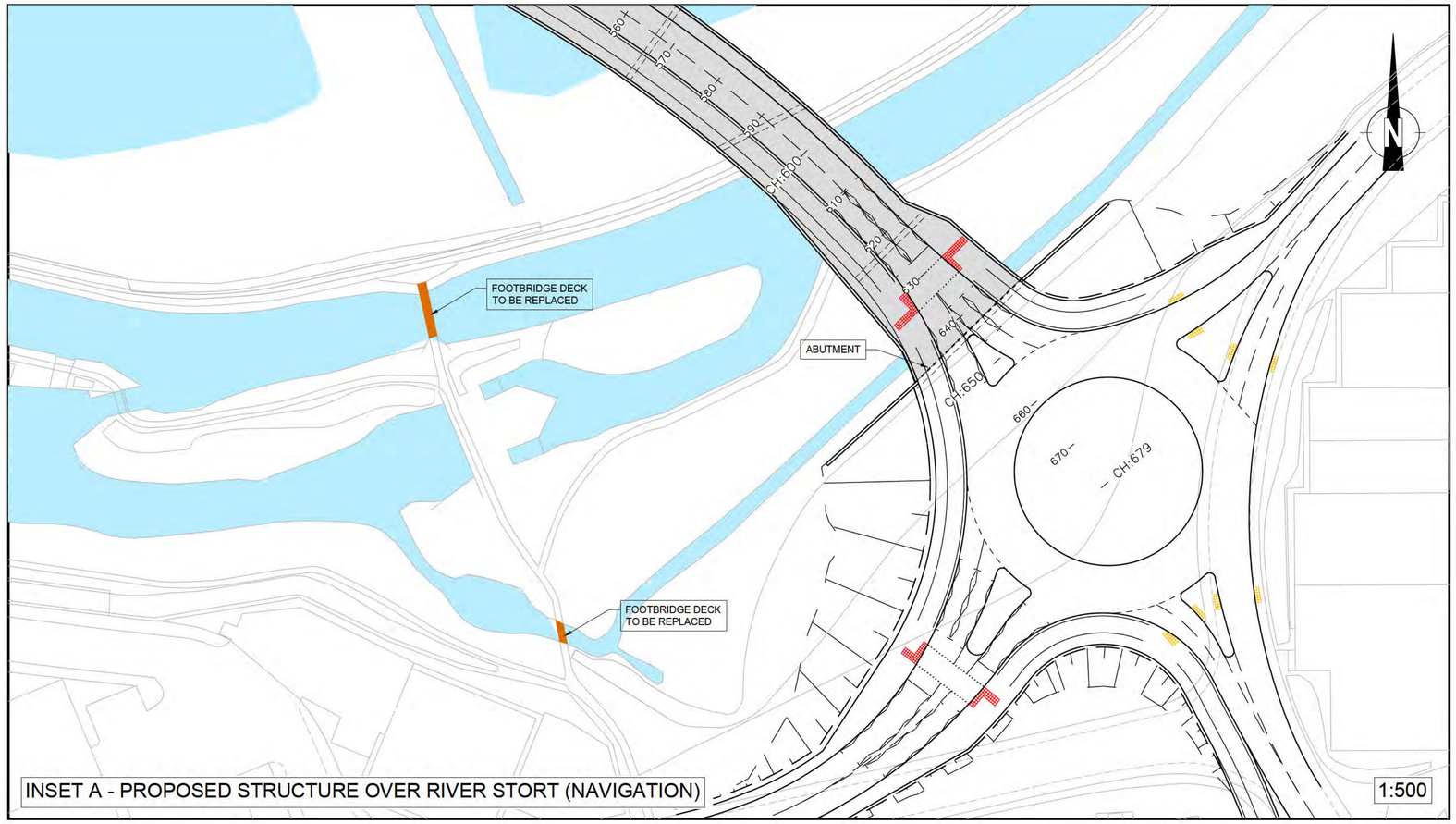


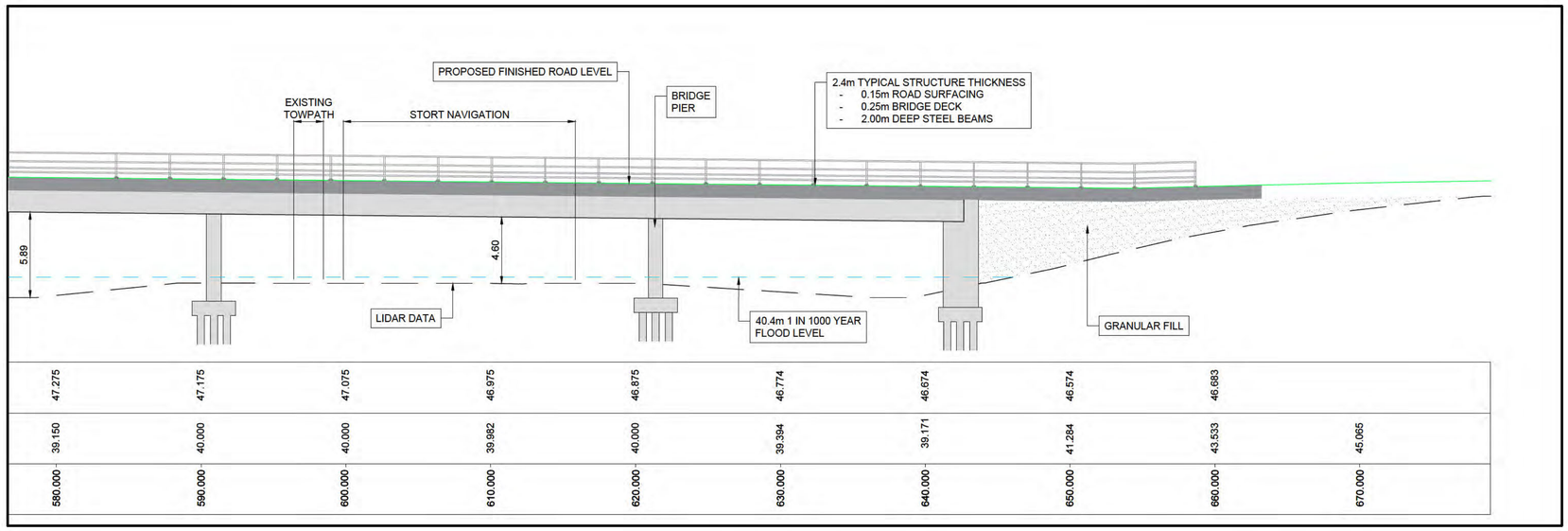
LOCATION PLAN

1:2000



INSET A - PROPOSED STRUCTURE OVER RIVER STORT (NAVIGATION)

1:500



47.275	47.175	47.075	46.975	46.875	46.774	46.674	46.574	46.683	
39.150	40.000	40.000	39.982	40.000	39.394	39.171	41.284	43.533	45.065
580.000	590.000	600.000	610.000	620.000	630.000	640.000	650.000	660.000	670.000

REV.	DETAILS	DRAWN	CHECKED	DATE
A	STRUCTURES AMENDED	AH	MIS	24.08.17
B	FOOTBRIDGES DECKS TO BE REPLACED ADDED	AS	MIS	11.12.17
C	REDUCTION IN STRUCTURE EXTENT INCLUDED	AR	MIS	25.05.18
D	SECTION AMENDED	JD	MIS	23.11.18
E	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19

Notes:

PROJECT: Eastern Stort Crossing

CLIENT: Places for People

DRAWING TITLE: Proposed Structure Elevation over River Stort (Navigation)

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DRAWN:	CHECKED:	DATE:	SCALES:	DRAWING NUMBER:	REVISION:
■	■	21.06.17	As Shown @ A1	VD17516-EC-106-BE	E

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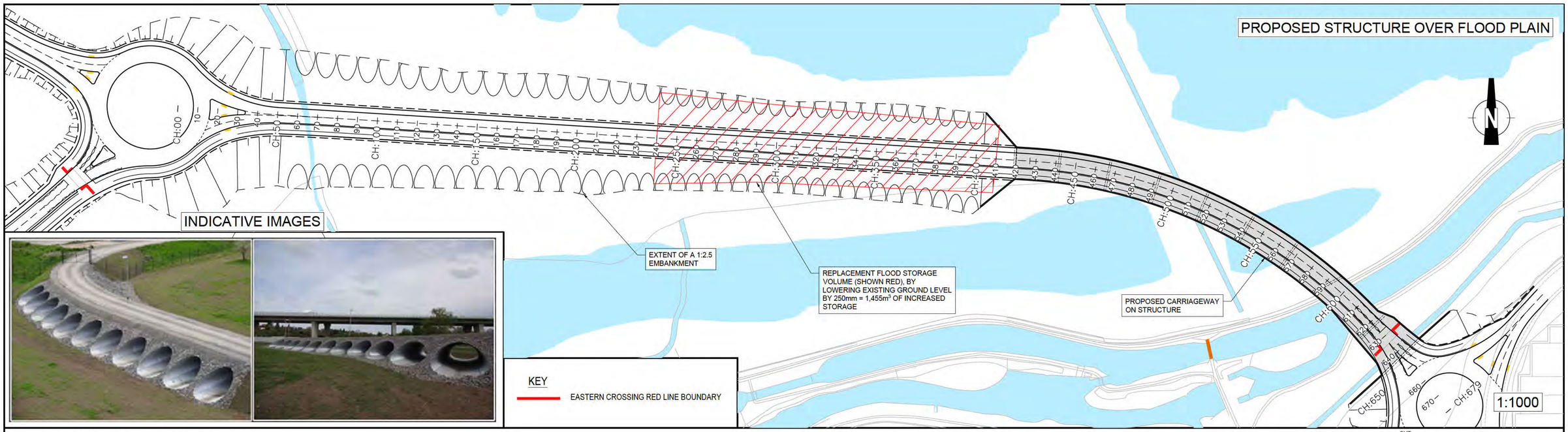
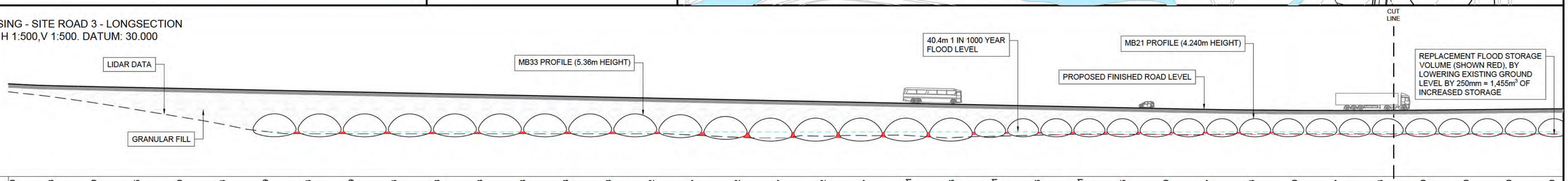
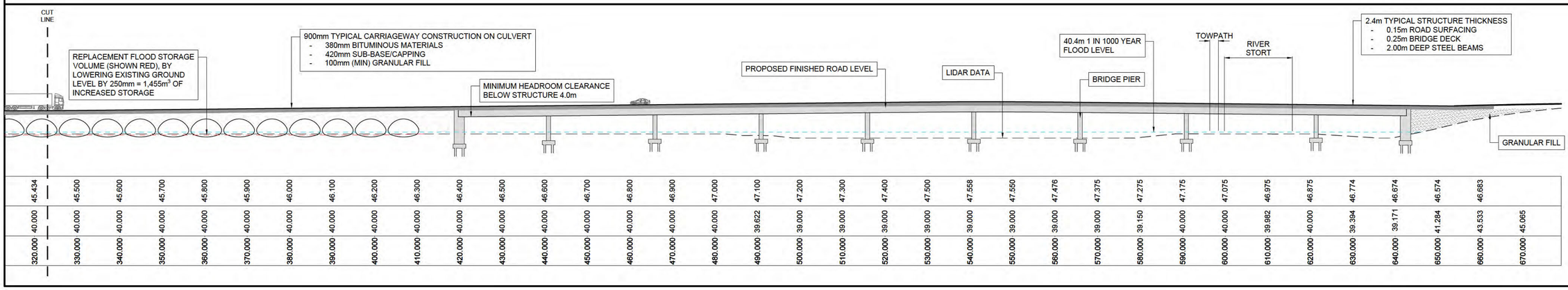
PROPOSED STRUCTURE OVER FLOOD PLAIN



EAST CROSSING - SITE ROAD 3 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 30.000



Chainage	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000	340.000	350.000	360.000
Existing Levels	49.794	48.623	47.201	45.585	43.920	42.171	40.505	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	39.647	39.161	39.000	39.388	39.545	39.554	39.060	39.392	39.649	39.869	39.824	39.791	39.801	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000
Proposed Levels	51.640	51.213	50.980	50.775	50.570	50.364	50.159	49.954	49.749	49.544	49.338	49.133	48.928	48.723	48.518	48.312	48.107	47.902	47.697	47.492	47.287	47.081	46.876	46.671	46.466	46.261	46.055	45.850	45.667	45.534	45.450	45.417	45.434	45.500	45.600	45.700	45.800



Chainage	45.434	45.500	45.600	45.700	45.800	45.900	46.000	46.100	46.200	46.300	46.400	46.500	46.600	46.700	46.800	46.900	47.000	47.100	47.200	47.300	47.400	47.500	47.558	47.550	47.476	47.375	47.275	47.175	47.075	46.975	46.875	46.774	46.674	46.574	46.683		
Existing Levels	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	39.622	39.000	39.000	39.000	39.000	39.000	39.000	39.000	39.000	39.150	40.000	40.000	39.982	40.000	39.394	39.171	41.284	43.533	45.085	
Proposed Levels	320.000	330.000	340.000	350.000	360.000	370.000	380.000	390.000	400.000	410.000	420.000	430.000	440.000	450.000	460.000	470.000	480.000	490.000	500.000	510.000	520.000	530.000	540.000	550.000	560.000	570.000	580.000	590.000	600.000	610.000	620.000	630.000	640.000	650.000	660.000	670.000	

REV.	DETAILS	DRAWN	CHECKED	DATE
A	STRUCTURES AMENDED	AH	MIS	24.08.17
B	TOWPATH AMENDED ON LONG SECTION	AS	MIS	11.12.17
C	CULVERTS ADDED TO DESIGN	AH	MIS	31.01.18
D	ALTERNATIVE CULVERT AND ALIGNMENT DESIGN	AR	MIS	27.04.18
E	ESTIMATED OBSTRUCTION VOLUME ADDED	AR	MIS	30.04.18
F	ESTIMATED REPLACEMENT STORAGE ADDED	AR	MIS	15.05.18
G	BRIDGE STRUCTURE EXTENDED	AR	MIS	25.05.18
H	AMENDED FOR ISSUE	AR	MIS	14.09.18
I	AMENDED FOR ISSUE	JD	MIS	25.09.18
J	ROAD ALIGNMENT AMENDED	JD	MIS	23.11.18
K	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19

Notes:

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Proposed Structure Elevation over River Stort / Stort Valley

DRAWN:	CHECKED:	DATE:	SCALES:
■	■	21.06.17	As Shown @ A1

CLIENT: Places for People

vectos highway infrastructure specialists
Network Building, 97 Tottenham Court Road, London, W1T 4TP
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DRAWING NUMBER: REVISION:

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FOR CONTINUATION REFER INSET A

INSET

Notes:

KEY

EASTERN CROSSING RED LINE BOUNDARY

ADMINISTRATIVE BOUNDARY (EAST HERTS DISTRICT COUNCIL / HARLOW DISTRICT COUNCIL)

REV.	DETAILS	DRAWN	CHECKED	DATE
I	AMENDMENTS FOLLOWING QRP	NL	MS	15.04.19
H	BML GHOST ISLAND JUNCTION ADDED	AR	MS	25.03.19
G	RED LINE BOUNDARY AMENDMENTS	JD	MS	11.01.19
F	ADMINISTRATIVE BOUNDARY ADDED	JD	MS	13.12.18
E	MINOR ROAD ALIGNMENT AMENDED	JD	MS	23.11.18
D	ROAD AND RED LINE AMENDED	JD	MS	25.09.18
C	RED LINE AMENDED	JD	MS	25.09.18
B	RED LINE AMENDED	JD	PW	15.02.18
A	RED LINE AMENDED	AH	PW	14.07.17

CLIENT: Places for People

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Red Line Boundary

SCALES: 1:2000 @ A1

DRAWN: ■ CHECKED: ■ DATE: 19.10.18

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DRAWING NUMBER: VD17516-EC-108-RL REVISION: I

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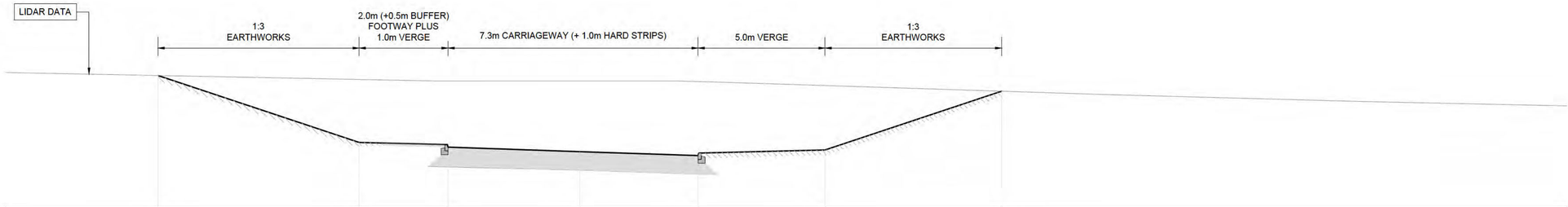
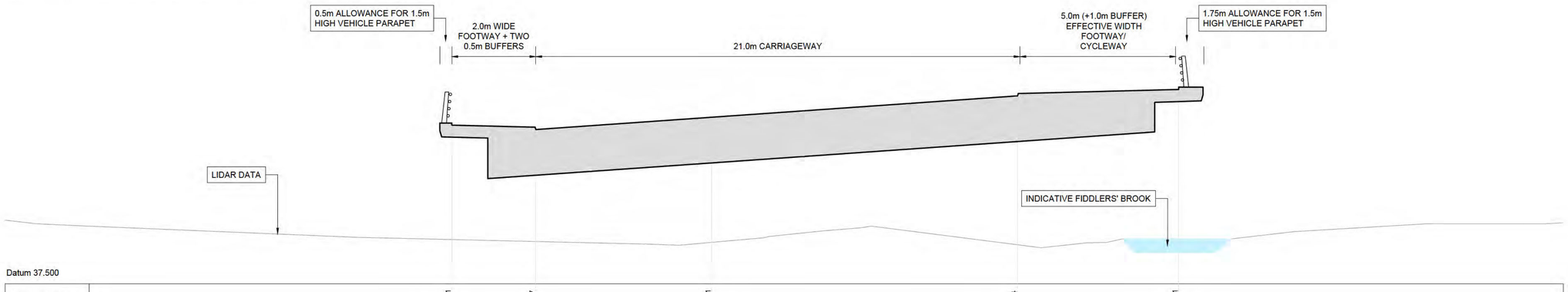


Datum 46.000

Proposed Levels	51.214	48.574	48.390	48.214	48.056	48.278	50.596
Existing Levels	51.397	51.222	51.145	51.030	51.000	50.976	50.803
Offsets	-16.604	-8.684	-5.183	0.000	4.667	9.667	16.620

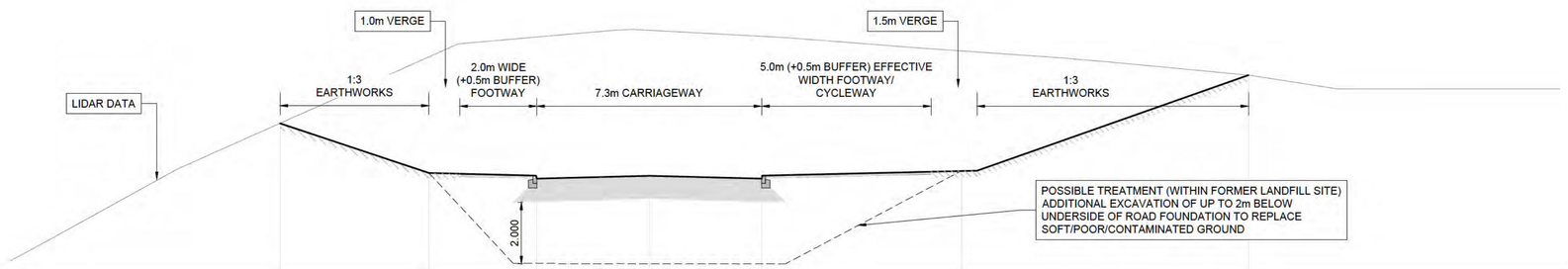
Chainage 800.000 EASTERN STORT CROSSING SITE ROAD 1



Datum 37.500

Proposed Levels	44.111	43.927	44.441	45.334	45.581
Existing Levels	39.340	39.259	39.224	39.125	39.361
Offsets	-10.843	-7.343	0.000	12.762	19.482

Chainage 1100.000 EASTERN STORT CROSSING SITE ROAD 1 (FIDDLERS BROOK ROAD BRIDGE)



Datum 48.000

Proposed Levels	52.887	51.273	51.089	51.180	51.089	51.348	54.451
Existing Levels	52.887	55.046	55.690	55.910	55.712	55.236	54.451
Offsets	-11.992	-7.150	-3.650	0.000	3.650	10.150	19.460

Chainage 150.000 EASTERN STORT CROSSING SITE ROAD 2

REV.	DETAILS	DRAWN	CHECKED	DATE
A	SECTIONS AMENDED	AH	MIS	24.08.17
B	SECTIONS AMENDED	AH	MIS	04.10.18
C	SECTIONS AMENDED	JD	MIS	23.11.18
D	FIDDLERS BROOK SECTION AMENDED	JD	MIS	26.11.18
E	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19

Notes:

1. FOR TYPICAL CROSS SECTION LOCATIONS SEE DRAWING VD17516-EC-102-LS AND VD17516-EC-103-LS.

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Site Road 1 and Site Road 2
Typical Cross Sections (Sheet 1 of 2)

DRAWN: ■ CHECKED: ■ DATE: 22.06.17 SCALES: 1:100 @ A1

CLIENT: Places for People

vectos highway infrastructure specialists
Network Building, 97 Tottenham Court Road, London, W1T 4TP
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DRAWING NUMBER: VD17516-EC-110-XS REVISION: E

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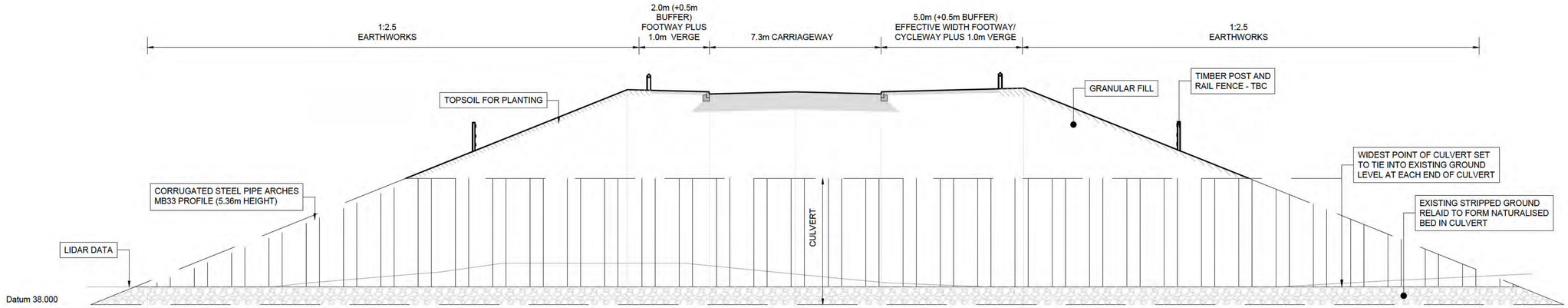
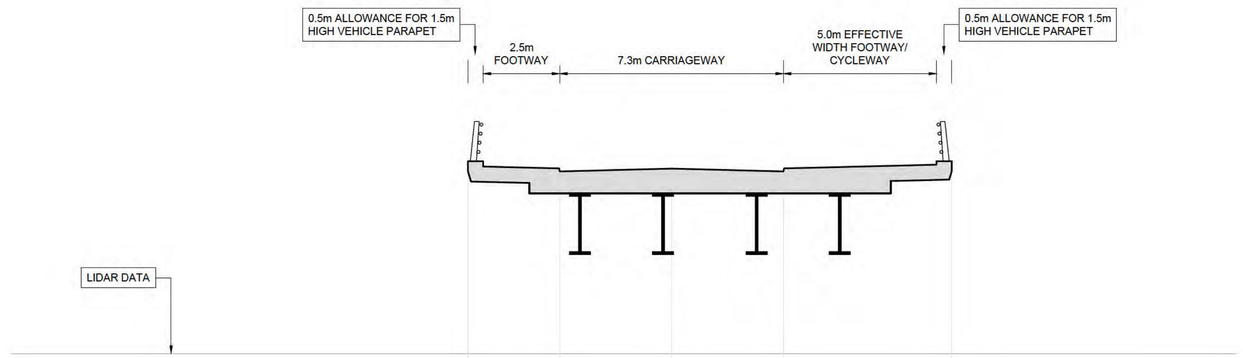


Proposed Levels	39.000	47.367	47.195	47.287	47.195	47.430	39.448
Existing Levels	39.000	40.000	39.901	39.545	39.198	39.000	39.448
Offsets	-27.568	-7.150	-3.650	0.000	3.650	10.150	29.105

Chainage 200.000 EASTERN STORT CROSSING SITE ROAD 3



Proposed Levels	45.124	44.952	45.044	44.952	45.187
Existing Levels	39.000	39.000	39.000	39.000	39.000
Offsets	-6.650	-3.650	0.000	3.650	9.150

Chainage 500.000 EASTERN STORT CROSSING SITE ROAD 3

REV.	DETAILS	DRAWN	CHECKED	DATE
A	SECTIONS AMENDED	AH	MIS	24.08.17
B	SECTIONS AMENDED	AH	MIS	04.10.18
C	SECTIONS AMENDED	JD	MIS	23.11.18
D	SITE ROAD 3 BRIDGE SECTION AMENDED	JD	MIS	26.11.18
E	FOOTWAY ANNOTATION AMENDED	AR	MIS	19.02.19
F	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19

Notes:

1. FOR TYPICAL CROSS SECTION LOCATIONS SEE DRAWING VD17516-EC-104-LS.

PROJECT: Eastern Stort Crossing

DRAWING TITLE: Site Road 2 & Site Road 3
Typical Cross Sections (Sheet 2 of 2)

DRAWN: ■ CHECKED: ■ DATE: 22.06.17 SCALES: 1:100 @ A1

CLIENT: Places for People

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Network Building, 97 Tottenham Court Road, London, W1T 4TP
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DRAWING NUMBER: VD17516-EC-111-XS REVISION: F

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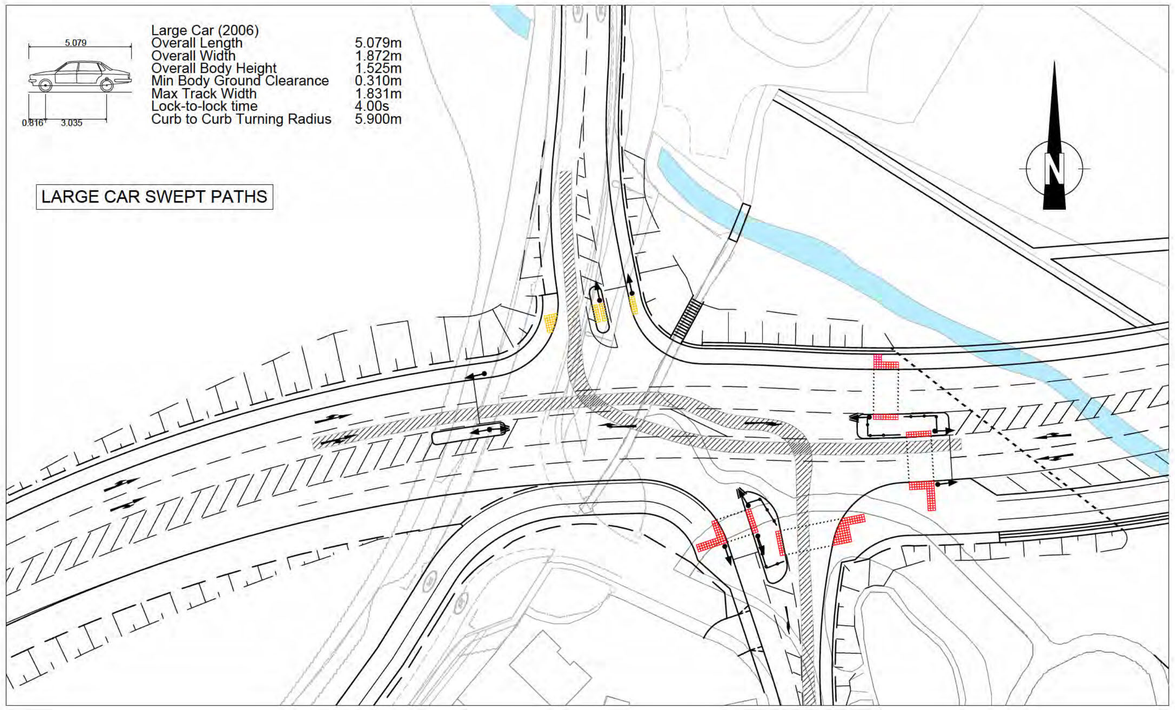
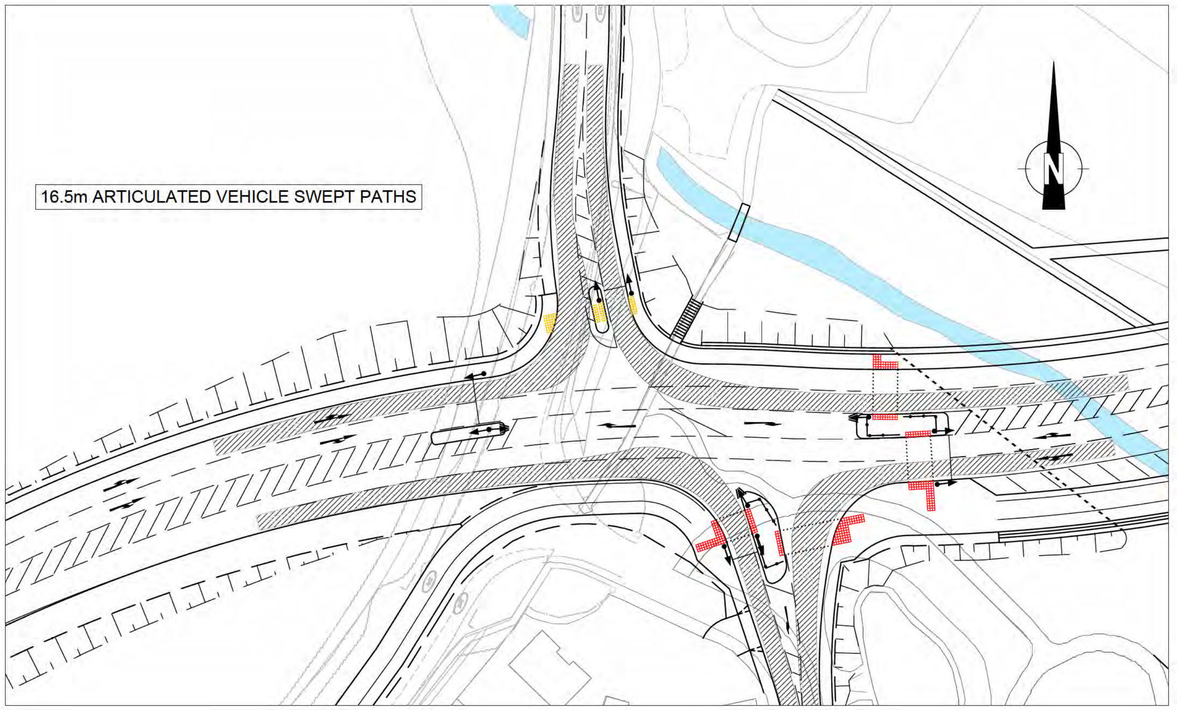
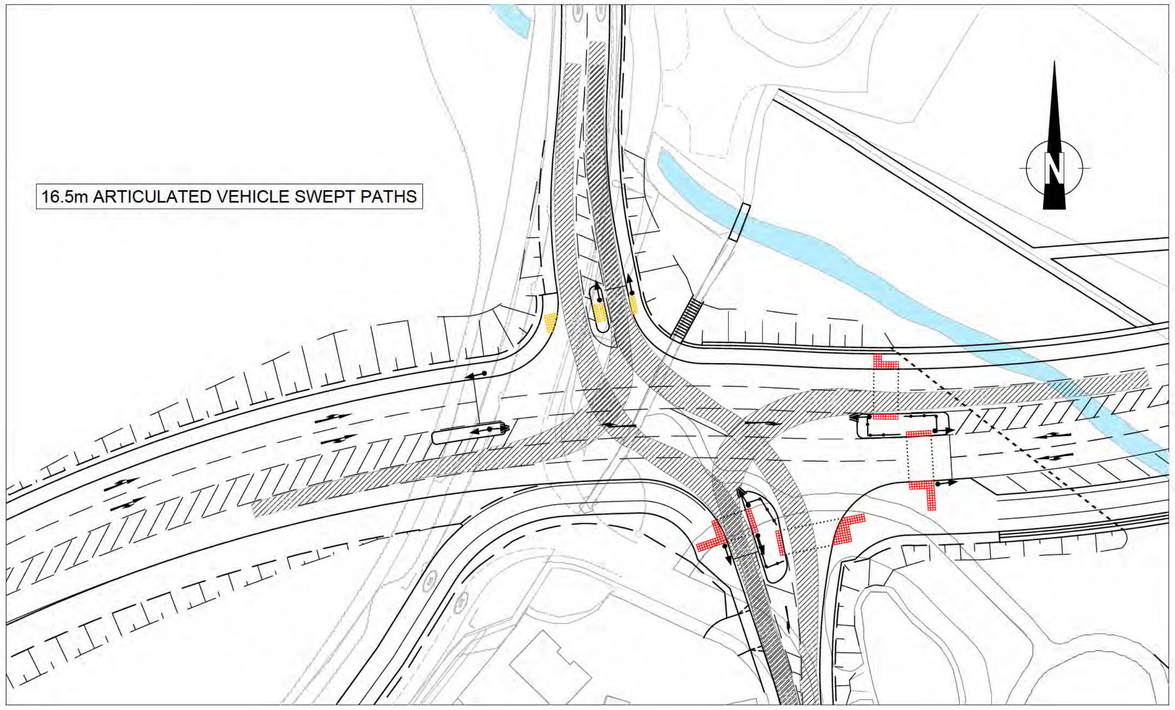
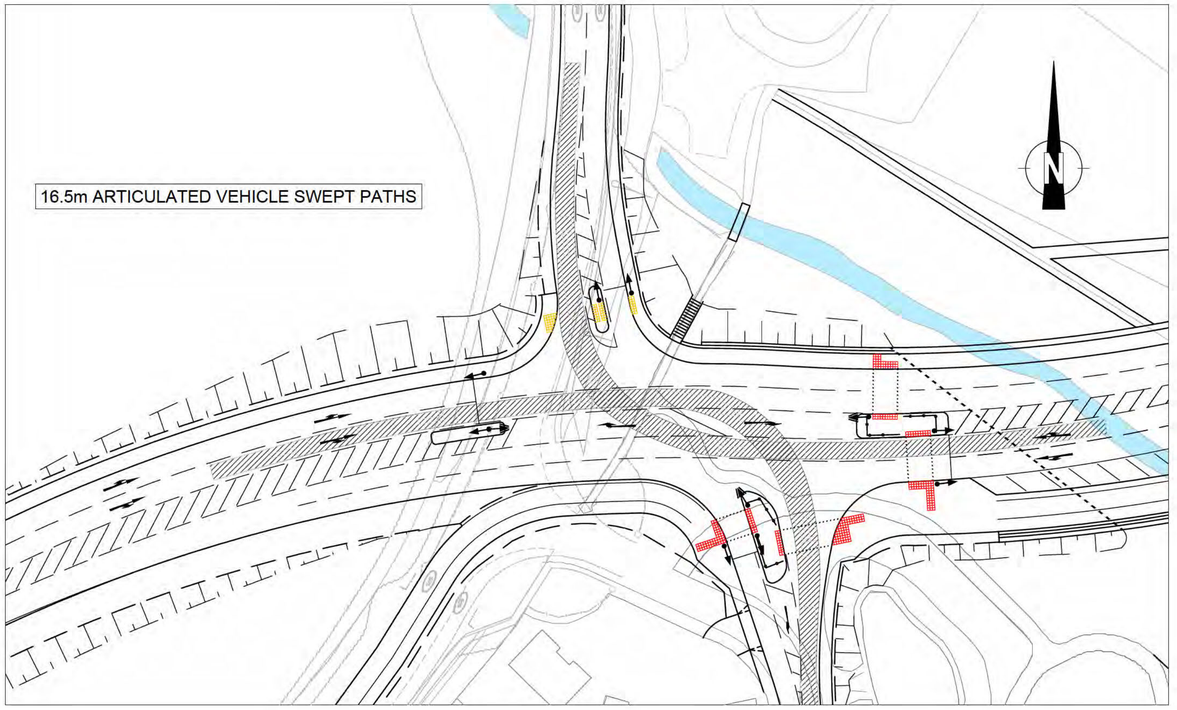
Large Car (2006)

Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.900m



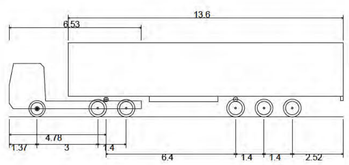






REV.	DETAILS	DRAWN	CHECKED	DATE
A	LAYOUT UPDATED	AH	MIS	22.08.17
B	LAYOUT UPDATED	JD	MIS	22.10.18
C	TRACKING UPDATED	JD	MIS	23.11.18
D	AMENDMENTS FOLLOWING QRP	NL	MIS	15.04.19

Notes:



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	6.530m

PROJECT: Eastern Stort Crossing

CLIENT: Places for People

DRAWING TITLE: Fiddlers' Brook Junction
Large Car & 16.5m Large Articulated Vehicle Swept Paths

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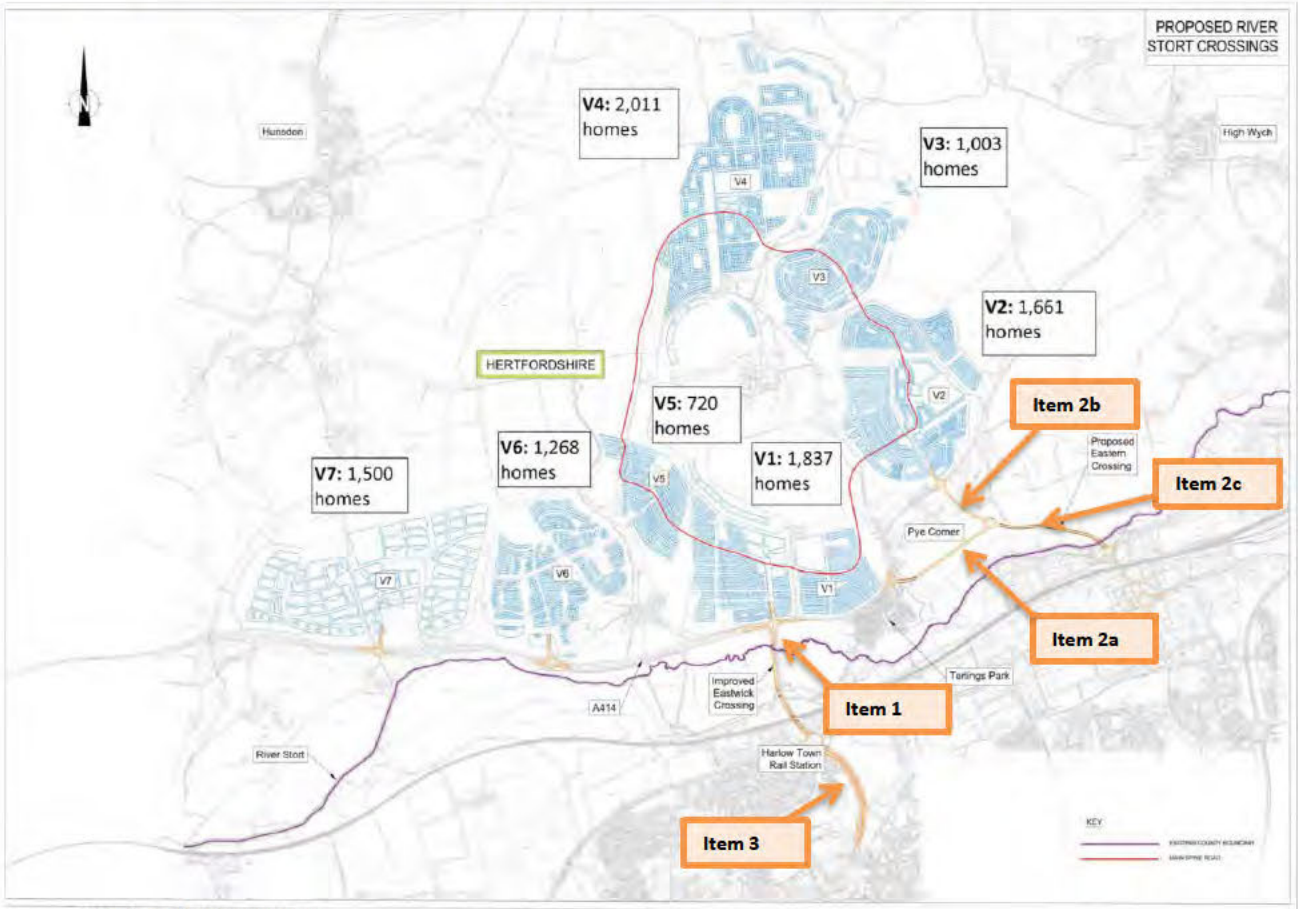
HIF Funded Infrastructure



Item 1: Expansion of Central Stort Crossing

Item 2: Eastern Stort Crossing (comprising Items 2a, 2b and 2c below)

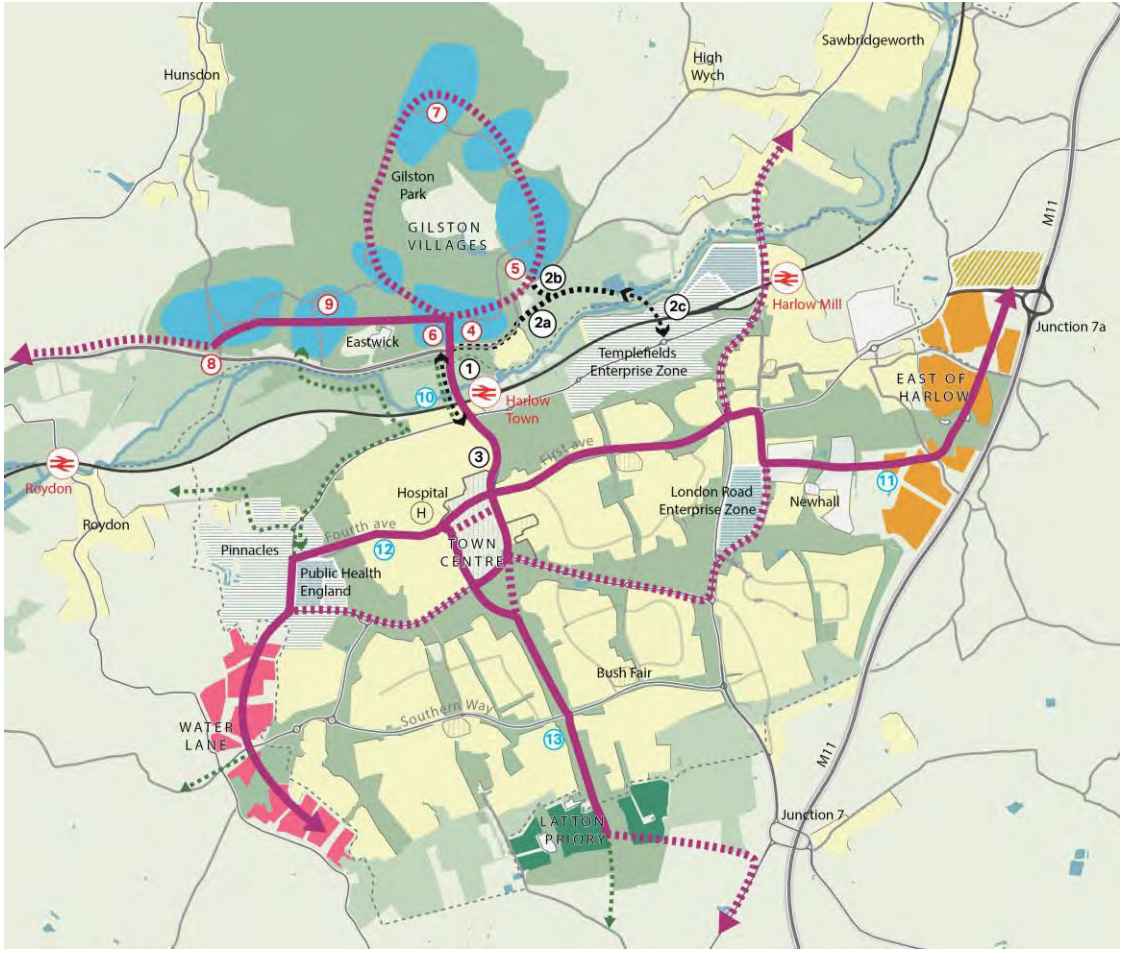
Item 2a: Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner

Item 2b: Pye Corner bypass including junction between north-south section and east-west section

Item 2c: Remainder of Eastern Crossing inc River Way Bridge

Item 3:Extension of STC from Burnt Mill Roundabout through Harlow Town Centre

HIF Infrastructure



1. Expansion of Central Crossing to extend Sustainable Transport Corridor (STC) between Gilston Area and Railway Station and Burnt Mill Roundabout.
2. Eastern Stort River Crossing (comprising Items 2a, 2b and 2c below)

2a. Realignment of the Eastwick Road and new junction allowing access to Terlings Park and Pye Corner.

2b. Pye Corner bypass including junction between north-south section and east-west section

2c. Remainder of Eastern Crossing including River Way Bridge

3. Extension of STC from Burnt Mill Roundabout through the Town Centre.
4. Enhanced sustainable transport hub in Village 1.
5. Access to Gilston Area Village 2.
6. Access to Gilston Area Village 1 (north of Eastwick junction) and creation of STC link within Village 1.
7. Gilston Area STC "inner loop" connection to Villages 3, 4, 5
8. Access to Village 7.
9. Gilston Area STC "inner connection" opening up sustainable access and highway between Village 7 and Village 1.
10. Replacement of Central Crossing Rail Bridge.
11. Eastern STC between Town Centre, Enterprise Zones and Harlow East Garden Community.
12. Western STC between Town Centre, PHE/Pinnacles and Water Lane Garden Community.
13. Southern STC between Town Centre and Latton Priory Garden Community.

Funded by the HIF

Funded by the Developers

Funded by rolling infrastructure fund