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BY ELECTRONIC SUBMISSION ONLY

Scottish Borders Council
Planning Policy & Access Team
Council Headquarters
Newton St Boswells
Scottish Borders
TD6 0SA

26286/SI/
31 January 2019

For the attention of [redacted]

Dear Sir

SCOTTISH BORDERS COUNCIL - LOCAL DEVELOPMENT PLAN - MAIN ISSUES REPORT REPRESENTATION – EAST OF KITTLEGAIRY VIEW, PEEBLES (REFERENCE: APEEB054)

On behalf of our client, Taylor Wimpey Ltd, please find enclosed herewith a representation to Scottish Borders Council's Local Development Plan (LDP) Main Issues Report for the site nominated as East of Kittlegairy View, Peebles (Reference: APEEB054).

We would be pleased to discuss our submission with you in greater detail, as required. Should you require clarification on any matters, please do not hesitate to contact the undersigned via the following email address: steve.iannarelli@bartonwillmore.co.uk or alternatively on the above telephone number.

In the meantime, we would be grateful if you could confirm safe receipt of this letter and enclosures.

Yours faithfully

[redacted]

STEVE IANNARELLI
Senior Planner

Enc: Representation

Response ID ANON-7TG7-FA4E-9

Submitted to **LDP2 - Main Issues Report**
Submitted on **2019-01-31 13:44:37**

Data protection

About you

Are you responding as an: individual, organisation, or an agent acting on behalf of a client?

Agent

Agent

If you are responding as an agent on behalf of a client, please provide details below:

Name:
[redacted]

Business/ Company:
Barton Willmore

Job title:
Senior Planner

Address line 1 :
[redacted]

Address line 2:

Address line 3:

Town/ City:
Edinburgh

Postcode:
[redacted]

Contact number:
[redacted]

Email address:
[redacted]

Name:
AWG Property Ltd and Taylor Wimpey UK Ltd

Address line 1:
Per Agent

Address line 2:

Address line 3:

Town/ City:
Per Agent

Postcode:

Contact number:

Email address:

Vision aims and spatial strategy

Question 1

Q1 Agree aims LDP2:
We agree with the proposed strategy at paragraph 3.9 encouraging strategic growth within the three Rural Growth Areas and in particular the Western

Borders/Peebles.

We also agree with SBC's strategy to provide a generous supply of housing at paragraph 3.3. However, we object to the suggested strategy that the LDP2 will not require a significant number of new housing sites (i.e. SBC's position that there has been limited housing delivery on allocated housing sites, that there is an extensive housing land supply using existing allocated sites and on the reduced number of
new houses required through the emerging SESplan 2).

We agree with Homes for Scotland's position that the SESplan 2 housing supply tables should be amended resolve arithmetical errors in the Reporter's findings for the Examination (relating to the HNDA backlog) and that this needs to be factored into SBC's development planning process for the emerging LDP.

We therefore contend that the proposed MIR housing strategy to identify preferred housing sites on sites outwith strong market areas, and with potential constraints, is flawed given the potential risk to delivery. We recommend that increased provision of housing sites on effective land, and where developers have identified as a place where people want to live and where they wish to build should be progressed. For example, by allocating our client's Site for development - to help deliver increased overall levels of housing delivery, increased affordable housing completions, more developer contributions for vital infrastructure and, ultimately, additional economic activity within the Borders.

In order to assist SBC in ensuring that its HLR and 5 year effective land supply is delivered going forward through the emerging LDP, we therefore recommend that the Site is brought forward as a preferred mixed-use or housing site allocation within the LDP2 Proposed Plan.

Finally, we agree at Paragraph 3.13 that there is a strong housing market in Peebles and that it is attractive to house builders. However, we disagree that there is a need for a
second bridge prior to any housing being released on the southern side of the River Tweed. We do not consider that this is a prerequisite for future development nor does it limit options within this location given that this perceived technical constraint (relating to bridge capacity) can be overcome, particularly in the short term. In this regard, the accompanying commentary prepared by ECS Transport confirms that there is sufficient capacity on the bridge to accommodate further development and that there would not be unreasonable environmental nor safety impacts on Peebles High Street. Consequently, this outcome supports the proposals for housing development (and their allocation within the LDP2 Proposed Plan) on the southern side of the River Tweed. Please refer to accompanying documentation for further discussions.

Growing our economy

Question 2

Q2:
We object to the statement within paragraph 4.5 that flooding and traffic congestion issues restrict the development of any sites on the Southern Side of the River as these potential constraints could be overcome (particularly for smaller sites or sites currently within the planning system) and could allow for the allocation and future
development of housing sites on the southern side of the River without the need for a new bridge or flood mitigation.

In terms of the preferred option for Policy ED1: Business and Industrial Land, we agree that industrial and business allocations should be safeguarded but object to any amendments that prevent the support for mixed-use development that incorporate both business (Class 4 Uses etc) and housing within the same site. We also disagree that a sequential test should be required for complementary employment generating uses.

Q2 upload:
No file was uploaded

Question 3

Settlement business allocated:

Upload Q3:
No file was uploaded

Question 4

Business Use Towns:

Upload Q4:
No file was uploaded

Question 5

Land delivery effectively:

Question 6

Agree?:
In terms of mixed-use land allocations, we object to the preferred option that includes only one mixed-use (longer term) site (SPEEB008 – Land West of Edderston Ridge) within Peebles and request that our client's Site (East of Kittlegairy View, Peebles Ref: APEEB054) is identified as a preferred mixed-use site within the LDP2 MIR and, allocated as a mixed-use site in the LDP2 Proposed Plan.

As it stands, the current arrangement could effectively result in the removal of the Site's safeguarded status as a potential longer term mixed-use site within the LDP1. Please refer to our accompanying documentation which provides our rationale to support this position.

In addition, the LDP2 MIR Site Assessment states that our client's Site is acceptable for development but that constraints relating to the potential requirement for a new crossing over the River Tweed should be investigated before the Site can be
allocated. Again, based on technical assessment undertaken on behalf of AWG/Taylor Wimpey, this is a position that our client fundamentally disagrees with.

The LDP2 MIR approach also excludes the Site from the Western Rural Growth Area: Development Options Study ('WRGA Options Study') prepared by LUC Consultants on
behalf of SBC. As a result, other potential housing sites have been identified within this study to potentially accommodate future growth around Peebles, instead of our client's Site. Critically, the LDP2 MIR Site Assessment identified that the Site will be included as a longer-term mixed-use site within the LDP2, to allow further investigations in relation to any new river crossing and potential flooding issues to be overcome,
however this is not expressly mentioned within the main body of the LDP MIR. We understand through separate discussions with SBC's Forward Planning Team that this
would be the case. If not, we would also object to the Site's exclusion as a longer-term mixed-use site.

It is considered that all the respective site requirements within the adopted LDP1 Settlement Profile could be met and that there are feasible solutions to resolve any technical constraints, largely relating to a second road bridge over the River Tweed and to perceived flooding matters.

This outcome would therefore allow our client's Site to come forward for development within the LDP2 timescales, and sooner than anticipated by SBC.

Therefore, we object to the Site's exclusion as a preferred mixed use or housing site in the LDP2 MIR. Please refer to the accompanying documentation for further discussion.

Upload Q6:
No file was uploaded

Planning for housing

Question 7

Housing agree?:
We object to the strategy that the LDP2 will not require a significant number of new housing sites given an established housing land supply, low completion rates and low housing land requirement. We therefore recommend that the previous long-term mixed-use status of our client's Site (East of Kittlegairy View, Peebles Ref: APEEB054) is not only retained, but further strengthened to identify it as a preferred mixed-use site within the LDP2 MIR to support the delivery of housing within the Plan period.

We also object to the preferred options for housing and mixed-use sites within/around Peebles. Specifically, that the Site has not been identified as a preferred mixed-use site.
3.16 We note that the accompanying LDP2 MIR Site Assessment (for excluded sites) identified that: 'However, it will be retained in the LDP as a potential longer-term
mixed-use site. This will allow time for further investigations to be undertaken regarding the flood risk concerns and new bridge crossing requirement'. Despite this, the main body of the LDP2 MIR does not identify our client's Site as a preferred
or alternative longer-term housing site, however, we acknowledged that subsequent correspondence from SBC Forward Planning has confirmed this position. Again, if this
is not the case, we object to the removal of this long term status within the LDP2.

Similar to our response for Question 6, the LDP2 MIR Site Assessment states that our client's Site is acceptable for development but that constraints relating to the potential requirement for a new crossing over the River Tweed should be investigated before the Site can be allocated. Again, based on technical assessment undertaken on behalf of AWG/Taylor Wimpey, this is a position that our client fundamentally disagrees with.

The LDP2 MIR approach also excludes the Site from the Western Rural Growth Area: Development Options Study ('WRGA Options Study') prepared by LUC Consultants on
behalf of SBC. As a result, other potential housing sites have been identified within this study to potentially accommodate future growth around Peebles, instead of our client's Site.

It is considered that all the respective site requirements within the adopted LDP1 Settlement Profile could be met and that there are feasible solutions to resolve any technical constraints, largely relating to a second road bridge over the River Tweed and to perceived flooding matters.

This outcome would therefore allow our client's Site to come forward for development within the LDP2 timescales, and sooner than anticipated by SBC.

Therefore, we object to the Site's exclusion as a preferred housing site in the LDP2 MIR. Please refer to the accompanying documentation for further discussion.

Upload Q7:
No file was uploaded

Question 8

Housing countryside:

Upload Q8:
No file was uploaded

Question 9

Agree removed housing :

Supporting our town centres

Question 10

Core Activity Areas:

Question 11

Berwickshire supermarket:

Upload Q11:
No file was uploaded

Question 12

Develp contrib town:

Delivering sustainability and climate change agenda

Question 13

Support alternative option:

Question 14

National park:

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No file was uploaded

Regeneration

Question 15

Agree redevelopment:

Upload Q15:
No file was uploaded

Settlement Map

Question 16

Oxnam settlement:

Question 17

Core frontage Newcastleton:

Planning policy issues

Question 18

Agree amendments appendix3:
With respect to the Appendix 3 within the LDP2 MIR relating to amendments to LDP2 policy wording, we request that Policy PMD4: Development Outwith Development Boundaries is amended to remove any reference to SBC's Housing Land Audit. It is contended that consideration of any housing land shortfall should be assessed separately, at the time of determination, with the most up to date evidence base.

Any other comments

Question 19

Other main issues:
Please refer to the accompanying LDP2 MIR Representation for further issues that we considered should be addressed within the LDP2.

Landowner details

Have you submitted any site suggestions in this consultation?

Yes

If yes, please confirm the site and provide the landowner details (if known) for each site you have suggested.:
East of Kittlegairy View, Peebles (Reference: APEEB054): As outlined within previous representations the site is within joint ownership and fully controlled by AWG Property Ltd and Taylor Wimpey uk Ltd .

LAND EAST OF KITTLEGAIRY VIEW, PEEBLES.

REPRESENTATION TO SCOTTISH BORDERS COUNCIL
LOCAL DEVELOPMENT PLAN 2
MAIN ISSUES REPORT 2018

JANUARY 2019

awg

Taylor Wimpey

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Checked by:	MW
Authorised by:	ST
Issue Date:	January 2019

CONTENTS

1.0 INTRODUCTION

DEVELOPMENT PLAN CONTEXT

1.1 This representation has been prepared by Barton Willmore on behalf of AWG Property Ltd ('AWG') and Taylor Wimpey UK Ltd ('Taylor Wimpey') to Scottish Borders Council ('SBC') in relation to SBC's Local Development Plan 2 ('LDP2') Main Issues Report ('MIR') with respect to their land interests on land east of Kittlegairy View, Peebles ('the Site') (LDP2 MIR Reference: APEEB054). Please refer to the Location Plan (below) for further details.

1.2 The Site is currently identified as a 'safeguarded' potential longer-term mixed-use site within the adopted Scottish Borders Local Development Plan 1 ('LDP1') (LDP1 Reference: SPEEB005). It was also considered as a potential mixed use site as part of SBC's Housing Supplementary Guidance ('Housing SG') call for sites process (Housing SG Reference: MPEEB004) but subsequently discounted in the short term. However, as detailed within this submission, it is considered that solutions exist to the technical constraints outlined by SBC and therefore the Site should be considered effective now, and ready to come forward for development within the lifetime of LDP2.

1.3 On this basis, this representation **supports** the Site's status as a longer-term mixed-use site within the LDP2 MIR but we **object** to the Site's exclusion as a preferred mixed use or preferred housing site as it is contended that the Site is capable of coming forward in a shorter timescale and should, therefore, be progressed as an allocated site within the LDP2 Proposed Plan.

1.4 Please refer to the Indicative Masterplan which outlines a concept layout and capacity for the proposed housing use, alongside a safeguarded area for employment and associated infrastructure and landscaping opportunities.

1.5 This representation should be considered alongside the accompanying Flood Risk Assessment (2018) and Flood Mitigation Strategy - both prepared by Fairhurst, Landscape and Visual Appraisal ('LVA') prepared by Barton Willmore, Transport Technical Note (2019) prepared by ECS Transport and the Ecological Technical Response (2019) prepared by Envirocentre.

Figure 1: Location Plan

2.0 BACKGROUND CONTEXT AND SITE HISTORY

PREVIOUS SITE PROMOTION

LDP1 Site Assessment

2.1 SBC will be aware that the Site has been previously promoted through the LDP1 and earlier Housing Supplementary Guidance ('Housing SG') process (References: MPEEB004 and MPEEB008) seeking to ensure its status as a preferred/allocated residential or mixed-use site.

2.2 It is considered that the Site still presents an ideal opportunity to secure development on an accessible, effective site which can be brought forward without any significant barriers to development. This land is currently utilised as improved grassland and for sheep grazing.

2.3 As previously stated, this site is being promoted by AWG and Taylor Wimpey, with the latter having a proven track record of delivering, and selling, housing in Peebles. The momentum they have generated through the success of their other developments, including their adjacent Kingsmeadows site, should be recognised.

Housing SG Assessment

2.4 Despite this, the Site was assessed through the Housing SG consultation process and was not included as a preferred housing site. Having reviewed the Housing SG Site Assessment and the reasons set out by SBC for its non-inclusion, it is clear that - although viewed as an acceptable site in principle - before the Site could come forward and be considered effective, SBC considered that a new bridge crossing (over the River Tweed) would be required. **This is a position that we fundamentally disagree with and our rebuttal to this matter is presented within Chapter 4 of this representation.**

Progress to Date

2.5 During 2018 and early 2019, comprehensive assessments were undertaken to consider the environmental and other technical matters relating to the development of this Site. Specifically, to consider any issues relating to transport/ access, flooding, ecology, landscape/visual impact to confirm that such considerations do not represent a barrier/ constraint to the development of the Site. As outlined previously, these studies have all confirmed the suitability of the Site for development.

Planning Application Submission

2.6 Accordingly, a planning application (Reference: 17/00606/PPP) was submitted in April 2017 for residential development with associated Roads, Access, Infrastructure, Open Space and Landscaping including land for drainage/ flood mitigation purposes.

2.7 Various consultation responses have been received from internal SBC teams and from statutory consultees (some of which have been extremely positive) and the applicant is due to submit amended documentation in the coming weeks addressing the outstanding matters. This application remains live, although it is expected that a determination will be made later in 2019.

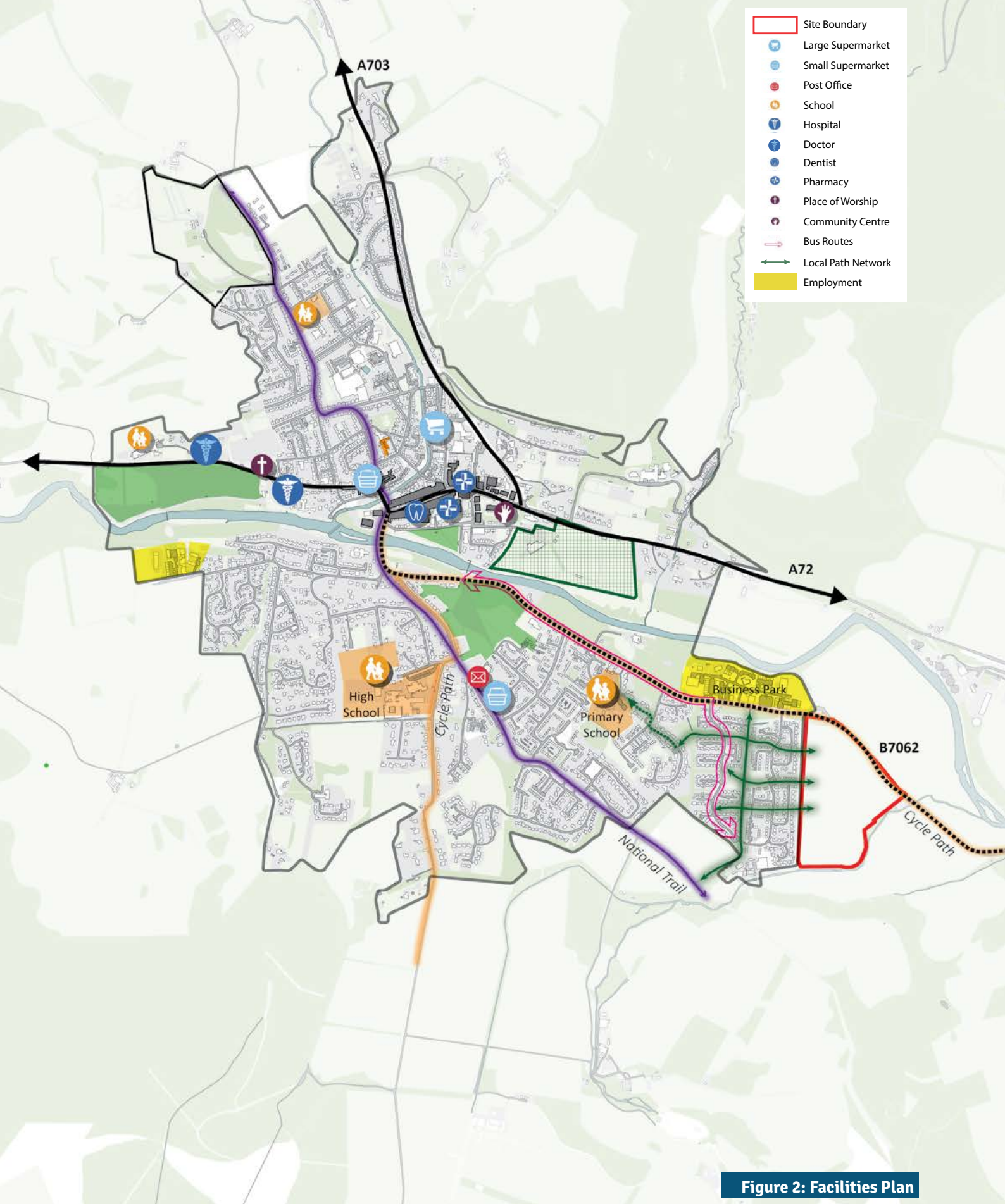


Figure 2: Facilities Plan

3.0 RESPONSE TO THE LDP2 MIR

LDP2 MIR - SITE ASSESSMENT

3.1 The LDP2 MIR Site Assessment states that the Site is acceptable for development but that constraints relating to the potential requirement for a new crossing over the River Tweed should be investigated before the Site can be allocated. Again, based on technical assessment undertaken on behalf of AWG/Taylor Wimpey, this is a position that our client fundamentally **disagrees** with.

3.2 The LDP2 MIR approach also excludes the Site from the Western Rural Growth Area: Development Options Study ('WRGA Options Study') prepared by LUC Consultants on behalf of SBC. As a result, other potential housing sites have been identified within this study to potentially accommodate future growth around Peebles, instead of the Site. Critically, the LDP2 MIR Site Assessment identified that the Site will be included as a longer-term mixed-use site within the LDP2, to allow further investigations in relation to any new river crossing and potential flooding issues to be overcome, however this is not expressly mentioned within the main body of the LDP MIR. We understand through separate discussions with SBC's Forward Planning Team that this would be the case. If not, we would also object to the Site's exclusion as a longer-term mixed-use site.

3.3 For the reasons set out in the following chapters, it is considered that all the respective site requirements within the adopted LDP1 Settlement Profile could be met and that there are feasible solutions to resolve any technical constraints, largely relating to a second road bridge over the River Tweed and to perceived flooding matters.

3.4 This outcome would therefore allow the Site to come forward for development within the LDP2 timescales, and sooner than anticipated by SBC.

3.5 Therefore, the following section provides our response to these matters and to the specific LDP2 MIR chapters and respective policy text, outlining on what basis we object to the Site's exclusion as a preferred mixed use or housing site in the LDP2 MIR.

LDP2 MIR - CHAPTER 3: VISION AIMS AND SPATIAL STRATEGY

Question 1 - Do you agree with the main aims of the LDP2?

3.6 We **agree** with the proposed strategy at **paragraph 3.9** encouraging strategic growth within the three Rural Growth Areas and in particular the Western Borders/Peebles. We also **agree** with SBC's strategy to provide a generous supply of housing at **paragraph 3.3**. However, we **object** to the suggested strategy that the LDP2 will not require a significant number of new housing sites (i.e. SBC's position that there has been limited housing delivery on allocated housing sites, that there is an extensive housing land supply using existing allocated sites and on the reduced number of new houses required through the emerging SESplan 2).

3.7 We agree with Homes for Scotland's position that the SESplan 2 housing supply tables should be amended resolve arithmetical errors in the Reporter's findings for the Examination (relating to the HNDA backlog) and that this needs to be factored into SBC's development planning process for the emerging LDP.

3.8 We therefore contend that the proposed MIR housing strategy to identify preferred housing sites on sites outwith strong market areas, and with potential constraints, is flawed given the potential risk to delivery. We recommend that increased provision of housing sites on effective land, and where developers have identified as a place where people want to live and where they wish to build should be progressed. For example, by allocating the Site for development - to help deliver increased overall levels of housing delivery, increased affordable housing completions, more developer contributions for vital infrastructure and, ultimately, additional economic activity within the Borders.

3.9 In order to assist SBC in ensuring that its HLR and 5 year effective land supply is delivered going forward through the emerging LDP, we therefore recommend that the Site is brought forward as a preferred mixed-use or housing site allocation within the LDP2 Proposed Plan.

3.10 Finally, we **agree** at **Paragraph 3.13** that there is a strong housing market in Peebles and that it is attractive to house builders. However, we **disagree** that there is a need for a second bridge prior to any housing being released on the southern side of the River Tweed. **We do not consider that this is a prerequisite for future development nor does it limit options within this location given that this perceived technical constraint (relating to bridge capacity) can be overcome, particularly in the short term.** In this regard, the accompanying commentary prepared by ECS Transport confirms that there is sufficient capacity on the bridge to accommodate further development and that there would not be unreasonable environmental nor safety impacts on Peebles High Street. Consequently, this outcome supports the proposals for housing development (and their allocation within the LDP2 Proposed Plan) on the southern side of the River Tweed. Please refer to Chapter 5 of this Report for further discussion.

LDP2 MIR - CHAPTER 4: GROWING OUR ECONOMY

Question 2 - Do you agree with the preferred option to retain the existing `Strategic High Amenity` site categorisation and amalgamate the remaining categories? Do you agree with any of the alternative options including to retain the current policy position? Or do you have another alternative option?

3.11 We **object** to the statement within **paragraph 4.5** that flooding and traffic congestion issues restrict the development of any sites on the Southern Side of the River as these potential constraints could be overcome (particularly for smaller sites or sites currently within the planning system) and could allow for the allocation and future development of housing sites on the southern side of the River without the need for a new bridge or flood mitigation.

3.12 In terms of the preferred option for **Policy ED1: Business and Industrial Land**, we agree that industrial and business allocations should be safeguarded but **object** to any amendments that prevent the support for mixed-use development that incorporate both business (Class 4 Uses etc) and housing within the same site. We also **disagree** that a sequential test should be required for complementary employment generating uses.

Question 6 - Do you agree with the preferred options for the provision of additional business and industrial land/mixed use land in the LDP2? Do you agree with the alternative option for mixed used land? Or do you have other alternative options?

3.13 In terms of mixed-use land allocations, we **object** to the preferred option that includes only one mixed-use (longer term) site (SPEEB008 – Land West of Edderston Ridge) within Peebles and request that the Site is identified as a preferred mixed-use site within the LDP2 MIR and, allocated as a mixed-use site in the LDP2 Proposed Plan. As it stands, this arrangement could effectively result in the removal of the Site's safeguarded status as a potential longer term mixed-use site within the LDP1. Please refer to Chapter 4 and the accompanying documentation which provides our rationale to support this position.

LDP2 MIR - CHAPTER 5: PLANNING FOR HOUSING

Question 7 - Do you agree with the preferred options for additional housing sites? Do you agree with the alternative options? Do you have other alternative options?

3.14 We **object** to the strategy that the LDP2 will not require a significant number of new housing sites given an established housing land supply, low completion rates and low housing land requirement. **We therefore recommend that the Site's previous long-term mixed-use status is not only retained, but further strengthened to identify it as a preferred mixed-use site within the LDP2 MIR to support the delivery of housing within the Plan period.**

3.15 We also **object** to the preferred options for housing and mixed-use sites within/around Peebles. Specifically, that the Site has not been identified as a preferred mixed-use site.

3.16 We note that the accompanying LDP2 MIR Site Assessment (for excluded sites) identified that: *'However, it will be retained in the LDP as a potential longer-term mixed-use site. This will allow time for further investigations to be undertaken regarding the flood risk concerns and new bridge crossing requirement'*. Despite this, the main body of the LDP2 MIR does not identify the Site as a preferred or alternative longer-term housing site, however, we acknowledged that subsequent correspondence from SBC Forward Planning has confirmed this position. Again, if this is not the case, we **object** to the removal of this long term status within the LDP2.

LDP2 MIR - CHAPTER 10: PLANNING POLICY ISSUES

Question 18 - Do you agree with the suggested policy amendments identified in Appendix 3? Do you think there are any other policy amendments which should be referred to?

3.17 With respect to the Appendix 3 within the LDP2 MIR relating to amendments to LDP2 policy wording, we request that **Policy PMD4: Development Outwith Development Boundaries** is amended to remove any reference to SBC's Housing Land Audit. It is contended that consideration of any housing land shortfall should be assessed separately, at the time of determination, with the most up to date evidence base.

4.0 OVERCOMING TECHNICAL CONSTRAINTS

INTRODUCTION

4.1 For a number of years, and prior to the Site's identification as a long-term mixed-use site within the LDP1, SBC have suggested that a range of potential technical constrains could delay its development - including bridge capacity and flooding matters.

4.2 Through the commissioning of detailed assessments by Transport and Flood Risk consultants by AWG/Taylor Wimpey, significant progress has been made with respect to these matters recently and SBC Flood Risk and Coastal Management have now agreed (on 22 January 2019) that development of the site - and allowing any flood waters escaping from the Haystoun Burn to flow naturally over the undeveloped land to the south and directly to the Tweed - has no measurable effect on the flows in the river Tweed and as result *'we are satisfied that the flood mitigation proposals represent a technical solution to the flood risk issues of the site'.*

4.3 In summary, this outcome confirms that this potential constraint has been overcome and that this matter is no longer considered to be an applicable constraint to development by SBC Flood Risk and Coastal Management.

4.4 In a similar vein, whilst SBC Road's position on the classification of the River Tweed bridge road crossing (and therefore its capacity) varies from our client's, the accompanying technical note prepared by ECS Transport demonstrates that potential traffic generation associated with the development of the Site (and others to the south of the River Tweed) would be acceptable and that there is sufficient capacity within the bridge to accommodate such traffic. It also outlines that there would not be unacceptable environmental or safety impacts on Peebles High Street .

4.5 Therefore, our position is that these, and other technical constraints outlined by SBC within the LDP2 MIR Site Assessment, can be overcome and that the Site should be allocated for mixed use or housing within the LDP2 Proposed Plan. Please refer to the following sections for further discussion on these technical matters.

LDP2 MIR SITE ASSESSMENT REVIEW

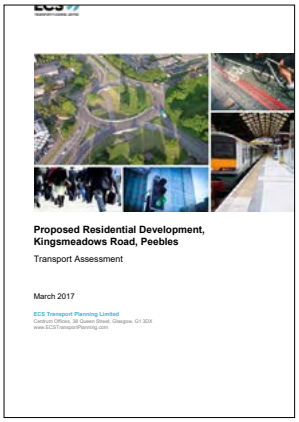
4.6 The Site is assessed in detail within SBC's LDP2 MIR Site Assessment. We understand that various constraints have been identified in relation to the Site but we **object** to assertions that these constraints cannot be overcome and that these should be the bases for solely excluding the Site as a preferred mixed use or housing site within the LDP2 MIR.

4.7 We contend that any potential constraints can be met or overcome and that the Site should therefore be identified as a preferred mixed use site or housing site and, subsequently, allocated within the LDP2 Proposed Plan for mixed use or housing. In addition, we contend that other site requirements associated with the LDP1 adoption could be met.

4.8 In light of this site assessment above, and through our knowledge of the Site, it is clear that the key factors determining its suitability for development are as follows:

- Flooding & Surface Water Drainage;
- Roads, Access & Bridge Capacity;
- Environmental Designations including Ecology/ Biodiversity;
- Landscape and Visual Impact;
- Requirement for Employment Land;
- Design Considerations including:
  - » Site Layout & Design (See Chapter 5);
  - » Ground Conditions (See Chapter 5);
  - » Infrastructure (See Chapter 5); and
  - » Landscape & Topography (See Chapter 5).

4.9 To this extent, each of these issues has been considered below and the following justification provides a rationale that reaffirms our client's position that there are no physical or environmental constraints that would prevent the Site from being developed for residential use immediately.



ROADS, ACCESS & BRIDGE CAPACITY

MIR Site Assessment: 'The Roads Planning Officer has advised that development in this location is reliant on a new crossing over the River Tweed, but some development could be brought forward to meet a need for employment land'.

Bridge Capacity

4.10 We understand that SBC's Roads Planning team are of the opinion that development in this location, together with other sites to the south of the River Tweed in Peebles, would require a new bridge crossing. Specifically, SBC Roads consider that the existing bridge does not have sufficient capacity to accommodate traffic generated by the development of the Site. We strongly **disagree** with this position.

4.11 In this regard, this matter has been assessed in detail within the accompanying Technical Transport Note (2019) prepared by ECS Transport who have confirmed that the existing capacity of the bridge could comfortably accommodate additional trips associated with the development of the Site.

4.12 In terms of traffic generation, SBC's earlier assessments outlined their understanding that the bridge has a 2-way capacity of 1,250 vehicles, which is based on standards applied to a 6.1m wide 'urban all-purpose road' on a busy high street that includes loading/unloading'. However, in reality, ECS Transport contend that the width of the bridge road is 8m, with no active frontage and therefore the capacity, in ECS Transport's opinion, should more correctly be updated to 1,500 Vehicles (as a conservative approach) or perhaps to 2,166 vehicles in reality (based on a UAP43 7.3m carriageway width).

4.13 In any instance, SBC Road's Planning has also raised doubts over the 1,250, threshold and outlined that a value between 1,250 and 1,500 could perhaps be more appropriate.

4.14 Nevertheless, to consider such potential impacts, surveys were undertaken in December 2018 by SBC and in January 2019 (by Transurveys). The results showed that:

- Existing traffic movements for the highest survey results fluctuated around 951 and 1130 two-way movements.
- Based on the highest survey results, in November 2018, the introduction of the development traffic (c. 200 units) would increase two-way movements on the bridge to 1,255 and 1,196 during both peaks, respectively.
- However, even if traffic associated with committed development sites is included in the flows, the AM and PM **two-way movements would increase to 1,327 and 1,263, respectively – well within the conservative capacity of 1,500 two-way vehicles.**
- Given that the traffic surveys undertaken in January, they would represent the 'worst-case' scenario as it generally accepted that traffic generation in this month will be greater than other months.
- The results (of the traffic surveys) show that over a circa 5 year period flows on the bridge have been fairly steady.
    - » Whilst variation in traffic is fully appreciated and recorded flows on the bridge are subject to change on a daily basis, it is noted that there is an increase in people choosing to travel by sustainable means and more employers offering flexible working hours or home working options - which could explain why recent development in the area has not increased background traffic.

4.15 Therefore, an assessment of trip generation associated with conservative estimates of traffic generated by the development of the Site and, considering the cumulative trips associated with committed development sites nearby, show that a bridge capacity of 1,500 would be met but that there was not a significant exceedance of the 1,250 capacity (despite that it is not applicable to the assessment of capacity on the bridge).

4.16 Therefore, the conclusions of the ECS Transport Technical Transport Note suggest that:

- ***'..the link capacity of the Tweed bridge is not a constraint to further development on the southern side of the Tweed.***
- *A conservative approach has been taken to the classification of the bridge which suggests* ***a link capacity of 1,500 vehicles, whereas, the capacity in reality could be 2,166 two-way vehicles if classified correctly with the measured width'.***

4.17 Accordingly, traffic associated within the development of the Site could be accommodated over the bridge and its delivery would not result in detrimental impacts to the surrounding road network.

Peebles High Street – Congestion and Environmental Impacts

4.18 In assessing the potential congestion and environmental impacts that could compromise road safety on Peebles High Street, ECS Transport have considered the function of the B7062 Kingsmeadows Road/A72/High Street Mini-Roundabout junction as a key node in the area.

4.19 Generally, ECS Transport found that the junction operates well, however, tidal flows and platooning vehicles during peak commuter peaks caused fluctuating queues on all approaches to the junction and that he nature of the High Street meant that there was not a constant demand from this arm of the junction.

4.20 Critically, it was found that platooning of vehicles (due to upstream signals, pedestrian crossings and servicing on High Street has been identified) created minor fluctuating queues at the B7062 Kingsmeadows Road/A72/High Street Mini-Roundabout during peak commuter periods. **However, journey times confirm that the platooning effect does not cause significant delay/congestion nor does it lead to any potential environmental impacts that could compromise road safety.**

4.21 Specifically, the video survey results found that:

- *'Generally, during the AM peak period,* ***it takes no more than an additional 30 seconds for vehicles to travel from the Edinburgh Road junction, along the High Street and to the south side of the Tweed bridge regardless of the direction of travel*** *and including any delay caused by the High Street pedestrian crossing.* ***An insignificant delay including short queues that form at the mini roundabout*** *at the western end of the High Street.*
- *The journey times recorded do not highlight any significant queuing issues or slow-moving sections, with exception of a spike at school start times'.*

4.22 ECS Transport therefore concluded that:

- *'High Street operates satisfactorily, and the minor traffic associated with the development (circa 1 two-way movement per minute) could be easily accommodated on the network'.*

4.23 We therefore **disagree** with SBC's position that there are potential constraints relating to environmental impacts that could compromise safety on Peebles High Street and we contend that this matter should not prevent the development of the Site.

ECOLOGY AND ENVIRONMENTAL MATTERS

MIR Site Assessment: 'The Ecology Officer advises that there are major biodiversity risks'.

4.24 We **disagree** that there would be major biodiversity risks with the development of the Site. Specifically, the recent ecological technical response prepared by EnviroCentre (Dated Jan 2019) fully responds to a recent consultation response from SBC's Ecology Officer and outlines that:

- *'The 2017 Envirocentre report (Habitat Regulations Appraisal) stated that there was potential for Atlantic salmon and water crowfoot vegetation to be impacted through alterations to flow or sediment loading of water within the SAC due to ineffective flood mitigation. It was concluded, however, that* ***regardless of flood mitigation strategy, the impact on any of the qualifying features as a result of flooding would likely be negligible due to the infrequency and temporary nature of flood events.***
- *Whilst an appropriate flood mitigation strategy may be an integral part of the overall planning application,* ***it is not considered to be vital for determining the HRA.***
- *Under all flood risk assessment scenarios it was concluded that there would be negligible impact on the River Tweed. This adds further weight to the assertion that flooding events are unlikely to result in adverse effects to qualifying features within the River Tweed SAC, regardless of the mitigation strategy'.*

4.25 With respect to queries relating to the proposed flood mitigation approach and its impact on ecological matters, Envirocentre have outlined that:

- *'The inclusion of a flood mitigation channel, along with a buffer area would have a similar mitigating effect as inclusion of a solid fence and/or greenspace planting.*
- *...further details on the proposed SuDS treatment are included within the revised FRA and are considered sufficient to mitigate the potential effects of surface water run-off on qualifying features of the River Tweed SAC'.*

4.26 Therefore, EnviroCentre have confirmed that SBC's Ecology Officer should now be in a position to assess the potential impacts on the SAC/SSSI qualifying criteria and that proposed mitigation measures within the updated Flood Risk Assessment can be relied upon to demonstrate that there would be negligible impact on the respective SAC/SSSI features.

4.27 As such, it is clear that suitable assessment of nature conservation has been undertaken and it has been demonstrated that suitable mitigation measures could be fully implemented, as required, to prevent any significant impacts on the River Tweed Special Areas of Conservation/Sites of Special Scientific Interest – in line with the respective LDP1 site requirements.

4.28 Therefore, we contend that there are **no** major biodiversity risks associated with the development of the Site and it should not be considered as a genuine constraint.

FLOODING AND SURFACE WATER MANAGEMENT

MIR Site Assessment: 'There are a number of constraints regarding the site. SEPA have raised flood risk issues and request that the site is removed from the LDP'.

4.29 Matters relating to flooding have been discussed extensively over the last few years in relation to the development of Site and significant progress has been made to overcome this constraint. Specifically, during the determination of the current planning application, SBC Flood Risk and Coastal Management have confirmed that an updated drainage solution could be applied, and supported, to overcome potential constraints relating to flooding and surface water management.

4.30 In this regard, the updated Flood Risk Assessment prepared by Fairhurst (dated November 2018) provides a comprehensive review of these concerns and details of a technical engineering solution that would fully mitigate any potential flood risk within the Site and the surrounding area. This is also summarised within the accompanying Flood Mitigation Strategy.

4.31 This flood mitigation approach includes the provision of flood channels around the proposed development platform to ensure that this land would not be at risk to flooding. It also removes the previously proposed compensatory storage area, allowing for potential flows from the Haystoun Burn to (generally) reflect their existing flowpath across the eastern part of the Site (shown undeveloped) until it reaches the River Tweed. In addition, this approach ensures that no development is proposed on land to the north of Kingsmeadow's Road – within the River Tweed functional flood plain – allowing for open space and structure planting provision as per the LDP1 site requirement. Furthermore, a watercourse 'buffer strip' of at least six metres would also be included to address the respective LDP1 site requirement.

4.32 This approach has been agreed in principle by both parties and as outlined above, on 22 January 2019 SBC Flood Risk and Coastal Management confirmed in writing that the proposed flood mitigation approach provides a technical solution to mitigate any potential flooding associated with the development site. Whilst SBC Flooding and Coastal Management suggest that this unconventional approach would not be in keeping with the principles of the Flood Risk Management Act (2009) and Scottish Planning Policy, they agreed that there would not be a risk of flooding within the site and elsewhere. To this extent, various detailed design recommendations have been suggested (i.e. implementing the protection levels proposed within the aforementioned Flood Risk Assessment and applying minimum finished floor levels etc) both of which we understand from our client's flooding engineer could be comfortably met.

4.33 With respect to Scottish Environmental Protection Agency's ('SEPA') comment, their position represents their long-standing view that despite any potential mitigation measures, development would contravene SEPA's Guidelines and therefore, that SEPA would continue to maintain their objection to the development of this land.

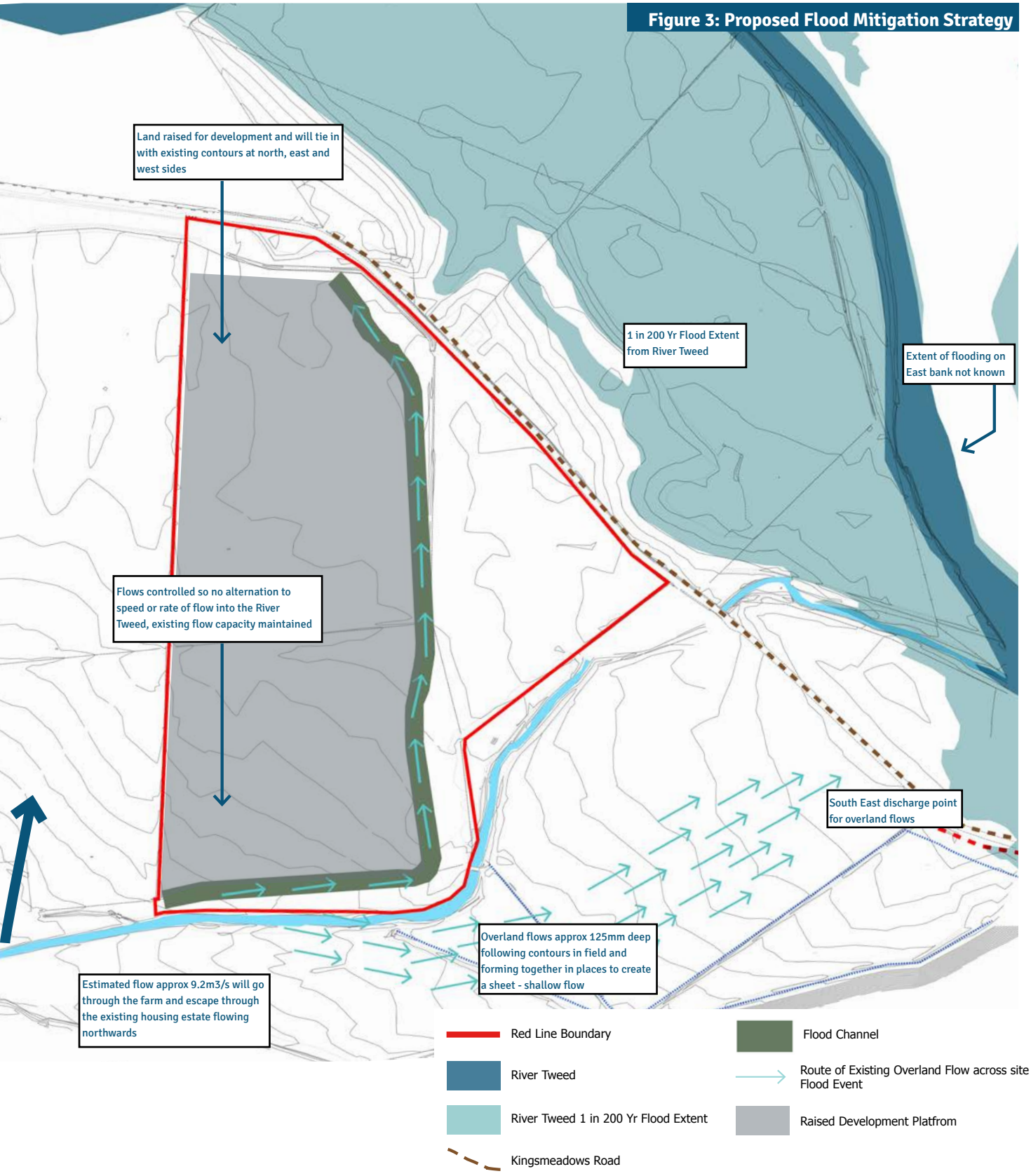
4.34 Despite this, SBC Planning (Development Management) have outlined that cognisance and significant weight should be afforded to SBC Flood Risk and Coastal Management given their local knowledge of flooding matters within Peebles. Therefore, even with an outstanding SEPA objection, the aforementioned support from SBC Flood Risk and Coastal Management for the proposed mitigation solution could enable the development of the Site as we understand that SBC Flood Risk and Coastal Management could effectively 'over-rule' any SEPA objection, subject to addressing the necessary notification and potential call-in requirements to the Scottish Government, should this be applicable.

4.35 Accordingly, the proposed flood mitigation solution is considered to be feasible and workable - and critically, has been agreed to be a feasible solution to avoid flood risk by SBC Flood Risk and Coastal Management - and we believe that such an approach (i.e. to approve development with an outstanding objection from a statutory consultee) has been undertaken in the past by SBC Planning (Development Management).

4.36 Therefore, as has been suggested, should SBC Development Management agree with their flooding counterparts, as the local flooding experts, the proposed flood mitigation approach as proposed within the updated Flood Risk Assessment effectively demonstrates that there are no potential flooding constrains that could restrict the development of the Site.

PREDICTED 1 IN 200 YEAR FLOODING EVENT POST DEVELOPMENT & MITIGATION MEASURES

Figure 3: Proposed Flood Mitigation Strategy



LANDSCAPE AND VISUAL IMPACT

MIR Site Assessment: 'In respect of landscape, the site is located within the Tweed Valley SLA and is constrained within the Landscape Capacity Study'.

4.37 Contrary to the constraints outlined above, the LVA accompanying the current planning application was supported by SBC's Landscape Architect in their consultation response to the application outlining that *'I do not object to housing proposal as shown on the indicative Masterplan'*. Potential settlement-wide concerns were outlined in relation to the potential deterioration of the Peebles urban fringe (a generic issue) rather than a site specific issue. It was also highlighted that if the eastern field was excluded from development (it is) it would *'assist in retaining a feeling of 'openness' and therefore the character of the area in the approach to and from Peebles along the valley floor'.*

4.38 Finally, and most critically, SBC's Landscape Architect went on to summarise that: 'Although this development will be an extension to the considerable mass of recent housing west of this location I believe that **if it is sensitively designed** and limited to the two field areas shown **it may in fact enhance what is currently a hard linear edge to the Peebles development boundary'.**

4.39 Therefore, comments from SBC's Landscape Architect on the current application are supportive of the proposed development of the Site for residential purposes which is at odds to the statement within the LDP2 MIR site assessment suggesting there are limitations to the development of the Site by virtue of its perceived 'constrained' nature within SBC's Landscape Capacity Study.

4.40 In this regard, the LVA accompanying the current planning application demonstrated that the proposed development of the Site would not result in adverse impacts to the surrounding landscape character. Specifically, the LVA it concludes that:

4.41 The Site is not visually prominent in the wider landscape due to the substantial vegetation that forms its boundaries and due to the intervening topographical variation, woodland blocks and tree groups within the local countryside;

- Visibility towards the Site is generally restricted to localised views;
- New planting would link with an established woodland framework and assist in screening available views towards the existing residential edge;
- A scheme of strategically located landscape measures would complement the landscape characteristics of the Site and would result in an attractive setting for the new development, as well as protecting the visual amenity of the surrounding area; and
- Landscape measures proposed would assimilate the residential development into the surrounding landscape and provide amenity and nature conservation benefits.

4.42 Accordingly, the development of the Site would not result in significant adverse impact to the character of surrounding landscape character and would not result in detrimental visual impacts contrary to SBC's recent site assessment comments above.

01 Western open space, at confluence of footpaths and in proximity to adjacent development.

02 Tree-lined avenues.

03 Woodland tree belt, to soften urban edge.

04 Scatter planting to screen employment, business and community use.

05 Buffer Planting.

06 SuDS.

07 Drainage channel, flowing north towards River Tweed.

08 Buffer between adjacent development, containing paths and planting.

Figure 4: Indicative Landscape Masterplan

REQUIREMENT FOR EMPLOYMENT LAND

MIR Site Assessment: 'It is acknowledged that the site within the LDP is identified for potential mixed use development which could incorporate a mixture of housing and employment uses. The site put forward is solely for housing development and omits a small parcel of land, which the applicant states could be for future employment use. Given the lack of employment land within the Central Tweeddale area it is considered more appropriate to retain this as a mixed use allocation, which would allow the provision of both housing and employment opportunities in the future'.

4.43 We agree with SBC's position that the Site could be allocated for mixed use development. The Indicative Masterplan outlines that alongside residential development, land of a sizable area (over 1ha) has been safeguarded for the purposes of employment uses within a dedicated business/employment centre. This could come forward a part of a future planning application.

4.44 This outcome would allow for the provision of both uses, and critically, the realisation of employment uses (including Classes 4, 5 or 6 uses subject to employment demand for such uses) within Peebles which we understand is a key priority for SBC.

4.45 This will ensure that SBC's aspirations for the Site, partly for employment uses, would be delivered, combined with the opportunity for the Site to deliver tangible employment and community benefits to Peebles.

WESTERN RURAL GROWTH AREA: DEVELOPMENT OPTIONS STUDY

MIR Site Assessment: 'As part of the MIR process, LUC have undertaken a study in order to identify and assess options for housing and business & industrial land within Tweeddale. The reason for this study being that there are limited development allocations currently identified within the LDP and for the future, within the Tweeddale area, in comparison to other areas within the Scottish Borders. A number of housing and mixed use sites, including additional longer term sites have been identified. It is considered that there are constraints to the development of this site, which require further investigation, for example the river crossing. Therefore, it is considered that more suitable sites have been identified as part of the Tweeddale Study which could be included within the MIR as options for the LDP2. This site will remain as an identified longer term option for housing in the future, and allow time for further investigations regarding a river crossing'.

4.46 Critically, the WRGA Options Study does not assess the Site for housing or employment uses. Perhaps because it is already identified as a longer-term housing site within the LDP1 but this is not expressly identified. Given that the Site is still identified as a longer-term mixed-use site within the LDP1 and, presumably, that SBC agreed that these matters could be overcome, we are unsure why it would not be considered within this study to demonstrate its suitability for residential and employment uses and its subsequent allocation in the LDP2 as a mixed-use site.

4.47 There is no rationale to exclude the Site from the assessment, unless SBC are using this study to look beyond the LDP2. If this is not the case, we request that the Site is considered within the WRGA Options Study assessment and, subsequently, that it is included as an allocated housing site within the LDP2 Proposed Plan.

INDICATIVE LAND SAFEGUARDED FOR EMPLOYMENT, BUSINESS AND COMMUNITY USE

4.48 The sketch below provides an indicative layout outlining how the area safeguarded for employment, business and/or community uses could be developed for employment use(s).

CONCLUSION – OVERCOMING TECHNICAL CONSTRAINTS

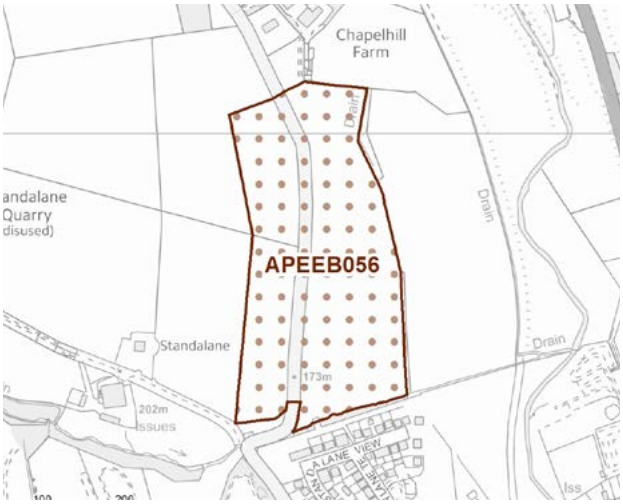
Given that these technical constraints can be overcome and that any site requirements can be met, it follows that the Site should be identified as a preferred mixed use or housing site within the LDP2 MIR.

ALTERNATIVE SITES WITHIN LDP2 MIR

4.49 A number of preferred and alternative sites were identified within Peebles within the LDP2 MIR including:

- APEEB056: Land South of Chapelhill Farm (7.0ha, 150 Units): Preferred Housing;
- SPEEB008: Land West of Edderston Ridge (19.5ha): Preferred Mixed Use (Longer Term); and
- SPEEB009: East of Cademuir Hill (13.2ha): Preferred Housing (Longer Term)

4.50 We contend that there are clear constraints with each of these sites which would compromise their effectiveness and delivery. Therefore, there are risks that they will not be brought forward within the respective timescales identified by SBC. We therefore suggest that the Site is allocated for mixed-use or housing to accommodate any potential undeliverability in these sites.



LAND SOUTH OF CHAPELHILL FARM, PEEBLES (APEEB056, 150 UNITS)

4.51 The WRGA Options Study outlines various constraints associated with this site including that the steep sloping western part of this site would require *'a fair amount of ground engineering to accommodate roads and building platforms'* to suit residential development. Furthermore, that these steep slopes are prominent in the landscape and that development in this location would be prominent. This concerns is echoed by Scottish Natural Heritage ('SNH') within the LDP2 MIR Site Assessment, stating that this development of this site would be *'physically and perceptually detached from Peebles'* and that any *'settlement extension appears incongruous and detracts from the defined landscape setting'*. Despite these constraints, and recommendations to remove them from any further consideration, the western part of this site has still been included within this preferred housing site. Most critically, the WRGA Options Study and the LDP2 MIR Site Assessment finds that there are serious access constrains on Rosetta Road that would need to be addressed before this site could be developed. This includes a requirement to provide a bridge linking Rosetta Road to Edinburgh Road (between Dalatho Street and Kingsland Road) before development is approved. However, support is not afforded by SBC Roads for this option as they suggest that there are serious constraints are present relating to both third-party ownership (critical) and to engineering restrictions in providing the respective bridge.

4.52 As such, this site's delivery for housing could certainly be questioned in the short term, which runs a genuine risk that up to 150 housing units could be 'lost' within Peebles within the Plan period.

LAND WEST OF EDDERSTON RIDGE, PEEBLES (SPEEB008)

4.53 Various constrains are identified within the WRGA Options Study in relation to this longer-term mixed use including its contribution to the Special Landscape Area and, to a lesser extent, its partial location within the National Scenic Area ('NSA'). The Study also highlights that serious access constraints would also be applicable, relating to insufficient road capacity on the adjacent road network. Therefore, whilst this site comprises a relatively large site area (across three fields), SBC Roads have outlined concerns (within the LDP2 MIR Site Assessment) suggesting that only part of this site could be developed given that its developability is contingent upon off-site road improvements on Caledonian Road and South Parks, which cannot yet be confirmed.

4.54 Other potential constraints were also identified relating to the River Tweed SSSI/SAC (presumably manageable) and to the River Tweed bridge crossing. However, in this instance, these have not been considered to be insurmountable and would not prevent this site's inclusion as a longer-term site in the LDP2 MIR, notwithstanding that SBC consider that these were key matters that could constrain our client's site.

4.55 Nevertheless, it is envisaged that the aforementioned access constraints could lead to housing deliverability issues within the longer term and we suggest that our client's site is included as a preferred housing or mixed-use site to overcome such uncertainty.

EAST OF CADEMUIR HILL, PEEBLES (SPEEB009)

4.56 The final site identified for longer term housing development within Peebles in the LDP2 MIR also contains a number of constraints that could potentially hinder its development. Specifically, landscape and visual impacts were outlined by SNH, who suggested that the development of this site would lead to *'piecemeal growth physically and perceptually detached from the town'*. They also suggest that this area acts as an important landscape approach to the NSA and development *'would result in both landscape and visual impacts on both the approach to Peebles and from wider views'* and that *'we are not convinced that these sites represents a co-ordinated or planned approach to expansion of Peebles'.* The WRGA Options Study echoes this statement outlining that high-quality rural landscape and development would breach the visual boundary created by mature shelter belts and represent a *'notable inclusion in to the landscape of the glen'.* Finally, comments from SBC Roads within the LDP2 MIR Site Assessment suggest that road improvements would be required, including a connection from this site to Kingsmeadows Road. However, it states that this connection would need to be undertaken through other long-term housing sites. This leaves the suitability and delivery of this site for development contingent upon the delivery of a road via alternative development sites - resulting in potential uncertainly regarding its development.

CONCLUSION

4.57 The constraints outlined above cast serious doubt on the effectiveness and delivery of these preferred and longer-term housing and mixed-use sites, in Peebles, suggesting that there could be some difficulty in bringing forward housing on the ground within the next Plan period and beyond (for longer term sites). Therefore, other sites, including the Site, could be better placed to deliver housing and should therefore be allocated in the LDP2 to provide greater flexibility to housing delivery and complement the existing housing offer within the LDP1.

5.0 PROVIDING AN APPROPRIATE DESIGN SOLUTION

SITE ASSESSMENT

5.1 The proposed development of the Site has been carefully considered to ensure that the indicative design (as shown within the Indicative Masterplan) is cognisant of various technical constraints and other design considerations. This includes consideration of matters relating to flooding, roads, access, ecology, landscape and visual impact, environmental designations (SSSI/SAC etc), design and built form, residential amenity, connectivity (both vehicular and pedestrian). Please refer to the Site Assessment Drawing below for further details.

SUMMARY

Considerations

- Integration of existing trees and hedgerows within and on the perimeter of the site.
- Addressing ecological considerations.
- Protecting amenity of adjacent uses/ residents.
- Ensuring an acceptable flood risk mitigation strategy.

Opportunities

- Improve vehicle, pedestrian and cycle connections.
- Contribute to enhancing the landscape character through the provision of a high-quality area of open space in keeping with the character of the area, positioned in close proximity to the River Tweed.
- Providing a varied choice of housing, designed to improve the local character and built to ensure a high standard of sustainable construction to meet the needs of future generations.

Figure 5: Site Assessment Plan

SITE LAYOUT, DESIGN & BUILT FORM

5.2 The sensitive development of the Site will allow for a high-quality residential environment whilst also safeguarding opportunities for employment uses - significantly improving the local housing offer through the provision of approximately 200 open market and affordable homes (25%) and safeguarding over 1ha of employment land.

5.3 Please refer to the Indicative Masterplan which provides an indicative set of design principles demonstrating the suitability of the Site, in design terms, for housing and to provide an area safeguarded for employment). This approach demonstrates compliance with six criteria for successful places and Designing Streets/Designing Places. In this regard, the Indicative Masterplan:

- Provides an innovative design that complements the character of the surrounding area, enhances legibility and pedestrian connectivity through the Site, affords good sightlines for pedestrian safety and establishes 'Secure by Design' principles;
- Retains dense woodland and other existing green infrastructure, with sufficient new extensive new landscaping buffers introduced to protect visual amenity, complement landscape characteristics and soften the existing hard edge to Peebles from the east;
- Allows for development of an appropriate scale, massing to complement and enhance the setting and local townscape character of the surrounding area. The density is also commensurate with the built form in the adjacent housing development without resulting in significant adverse amenity impacts;
- Utilises a permeable structure comprising of perimeter blocks with in streets, paths and open spaces that are well connected, defined and overlooked, providing a safe and pleasant residential environment;
- Green spaces and open space with new planting throughout will provide attractive, functional and accessible places for screening, leisure and recreation, that would be suitably maintained to afford their long-term use.

01 The main vehicle access point from the B7062.

02 Secondary vehicle access point at Kingsmeadows Road and to adjacent development, including pedestrian links.

03 Main access route connecting primary and secondary vehicle access points.

04 Network of secondary shared spaces, and private drives.

05 Area retained for future development for employment, business and community use.

06 Perimeter block structure overlooking streets.

07 Adjacent dwellings overlook open space.

08 Network of footpaths around the development.

Figure 6: Indicative Masterplan

VEHICLE LINK & ACCESS LINKS

5.4 The Indicative Masterplan provides accessible vehicular and pedestrian links to the adjacent allocated site at Kittlegairy View whilst also providing two new potential access routes to Kingsmeadows Road that would comply with the respective visibility requirements – allowing for safe, manageable and efficient vehicular manoeuvrability to/from the Site.

5.5 The Indicative Masterplan also includes sufficient areas for the provision of pedestrian and cyclist links, both within the Site but also linked to Kittlegairy View and to Kingsmeadows Road to the north and east – fully addressing this LDP1 site requirement.

SITE INFRASTRUCTURE, UTILITIES & SERVICES

5.6 In terms of services, there is adequate capacity and scope for future connection for electricity, gas, water and foul drainage to service the development of the Site. There are connections to all services at the Site's boundary within the adjacent Kingsmeadows site, also developed by Taylor Wimpey. There were servicing network upgrades undertaken during the development of this site in order to accommodate future development in the area.

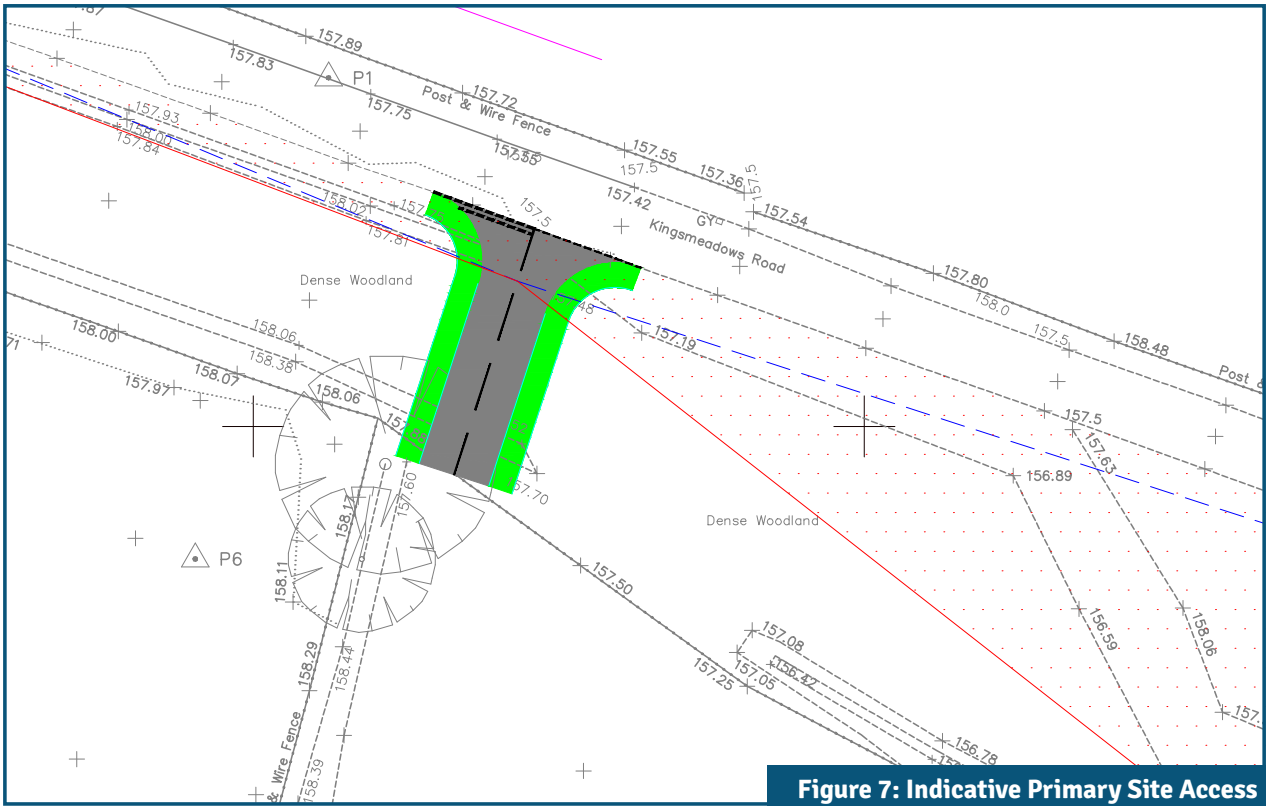


Figure 7: Indicative Primary Site Access

Figure 8: Street Hierarchy

LANDSCAPE & TOPOGRAPHY

5.7 The Indicative Masterplan now incorporates a green/ landscape buffer along all site boundaries and particularly along the eastern boundary, directly responding to the respective LDP1 site requirements. Suitable setbacks have also been included along the western boundary to preserve amenity to existing properties on Kittlegairy View, and to ensure that the Site integrates visually with the surrounding area.

5.8 The natural, enclosed setting of the Site, which sits alongside established woodland and greenspace, allows for the creation of a positive residential environment, and the Indicative Masterplan demonstrates that a sensitively designed, high quality residential development can be provided within the Site. The proposed density is such that the resultant units would be a mixture of detached and semi-detached homes – with 25% affordable housing provision.

5.9 Any future development (and detailed design) would consider the Special Landscape Area and would include a landscape and visual capacity study that would demonstrate that the development of the Site would not compromise landscape objectives for this area.

GROUND CONDITIONS

5.10 No previous development has been undertaken on the Site and historical maps indicate that the Site has supported undeveloped agricultural land from at least 1859 until the present day.

5.11 Given the Site's green field nature and knowledge of ground conditions of the adjacent Kingsmeadow site which has been developed by Taylor Wimpey (2010 to 2016), it is considered likely that ground conditions will not restrict development of the Site. There are no overhead pylons on or near to the Site. There are no health and safety exclusions zones either covering the Site or within proximity to the Site.

Figure 9: Visual Appraisal

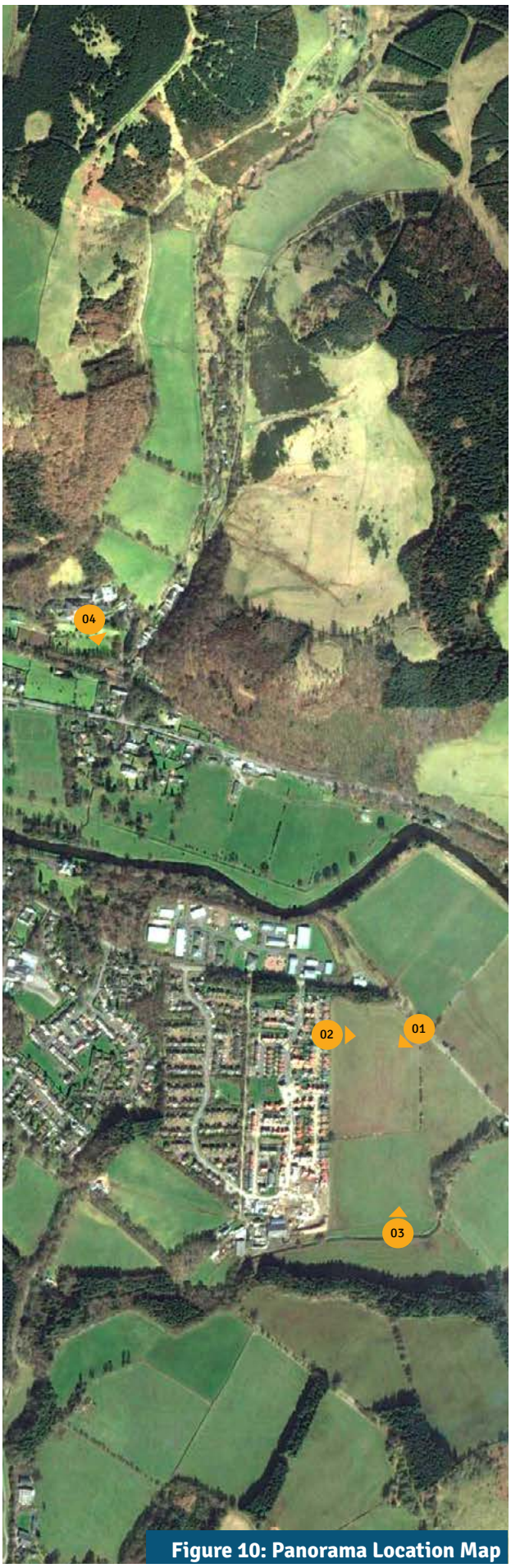


Figure 10: Panorama Location Map

Figure 11: Panorama 1 - Kingsmeadows Road Looking West

Figure 12: Panorama 2 - Kittlegairy Estate Looking East

Figure 13: Panorama 3 - South of Site, Looking North

Figure 14: Panorama 4 - Peebles Hydro

DELIVERY & PHASING

5.12 The Site is effective and the opportunities and constraints presented have informed an appropriate design response to the Site which can be delivered in phases over the course of the plan period.

5.13 The Site is available for development, and construction could therefore commence comfortably within the short term and deliver housing within the Plan period.

5.14 It is anticipated that housing development would be delivered first, within years 1 – 4, followed by the potential to develop the land safeguarded for employment, business and community use.

5.15 Each phase would deliver appropriate provision of green space and SuDS, and the four phases would combine to form a distinctive and comprehensive development that would deliver high quality housing set in an attractive landscaped setting complemented by nearby (but sufficiently setback) employment uses on the eastern part of the Site.

Figure 15: Indicative Phasing Diagram

6.0 CONCLUSION

CONCLUSION

6.1 The principle of residential development on the Site has already been established through its inclusion as a 'safeguarded' longer-term mixed-use site within the adopted SBC LDP1.

6.2 AWG and Taylor Wimpey are fully committed to achieving development on this site in accordance with a programme of phasing agreed with SBC. To deliver this goal, a range of 'effective' sites are required and, in this instance, it is abundantly clear that the Site has sufficient capacity and the attributes to accommodate this requirement.

6.3 The Site has been excluded as a preferred site within the LDP2 MIR relating, primarily, to perceived technical constraints - including bridge capacity and potential flooding - that SBC perceive to be significant barriers to the Site's development.

6.4 However, and as detailed above, technical studies undertaken demonstrate, with confidence, that these matters can be fully addressed. Specifically, SBC Flood Risk and Coastal Management agree that the proposed flood mitigation solution is feasible and would address potential food risk associated with the development of the site whilst robust evidence from ECS Transportation confirms that traffic associated with development south of the River Tweed could be accommodated over the bridge and that it would not result in detrimental impacts to the surrounding road network (including environmental quality of the High Street).

6.5 In addition, other constraints/requirements outlined within the respective LDP2 MIR Site Assessment (including landscape/visual impact, ecology and employment uses etc) and the design-related LDP1 site requirements have all been addressed and should not detract from the Site's allocation in the LD2.

6.6 We therefore support the retention of the Site as a safeguarded longer-term mixed-use site within the LDP2 (albeit, we note that this is not expressly identified within the main body of the text but this position is mentioned within the LDP2 MIR Site Assessment and has since been confirmed separately by SBC Forward Planning).

6.7 Despite this, we object to the Site's exclusion as a preferred mixed use or housing site within the LDP2 MIR given that it is effective and could address the housing land requirements within Peebles. We therefore request its inclusion as an allocated mixed use or housing site within the LDP2 Proposed Plan.

6.8 We also question the inclusion of the three LDP2 MIR preferred and longer term housing sites within Peebles given that various constraints, as outlined above, cast doubt on their effectiveness and delivery for housing and/or mixed use sites, suggesting that there could be some difficulty in bringing forward housing on the ground within the Plan period and beyond (for longer term sites).

6.9 Therefore, the allocation of the Site for residential or mixed-use within the LDP2 would be a more appropriate option as it would provide greater flexibility to housing delivery on an unconstrained site to complement the existing housing offer within the LDP1.

6.10 In addition, other constrains relating to landscape and visual impacts, ecology, and employment requirement have all been addressed and should not detract from the Site's allocation in the LD2.

6.11 In addition, its allocation, and subsequent delivery of the Site, would deliver the following benefits:

- It will allow SBC to meet its housing requirements and in maintaining the necessary continuous minimum five-year land supply of effective housing land supply;
- Delivery of mainstream and 'affordable' housing;
- Creation of local jobs and employment and bring longer term economic benefits to the town and region;
- Generation of further training opportunities for school leavers through their (Taylor Wimpey) apprenticeship schemes – Taylor Wimpey will also use local supply chains to source materials where possible;
- As well as providing affordable homes - therefore allowing people to remain living in the area - the development will provide support for existing facilities; will generate annual household retail expenditure to help support the local economy and will generate an increase in Council Tax revenue annually;
- The change of land use to housing would result in habitat diversification and management of the new open spaces will be introduced that would improve wildlife potential of the Site in both the short and long term;
- Delivery of high-quality open spaces and opportunities for connecting with the existing wider footpath network; and
- The provision of a scheme of strategically located landscape measures will complement the landscape characteristics of the Site and its surroundings and will result in an attractive setting for the new development as well as protecting the visual amenity of the surrounding area.

6.12 We therefore respectfully request that the Site (Site Reference: APEEB054 - Land east of Kittlegairy View, Peebles) is identified as a preferred mixed-use or housing site within the LDP2 MIR and subsequently allocated as a mixed use or housing site within the subsequent LDP2 Proposed Plan.

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24 January 2019

Dear Steve

Land East of Kittlegairy Avenue, Peebles
Review of Updated Flood Risk Assessment and Response to Planning Comments

Envirocentre Ltd has previously assessed whether the proposed development of land east of 10 Kittlegairy, Peebles, would have any adverse effects on qualifying features of the River Tweed Special Area of Conservation (SAC) in Envirocentre report 7861: *Kingsmeadow, Peebles, Habitat Regulations Appraisal* (2017). This was submitted as part of planning application 17/00606/PPP, to provide the Scottish Borders Council (SBC) with information required to complete a Habitats Regulation Appraisal (HRA).

Feedback provided by the SBC ecology officer (Nov 2017) stated that it was not possible to determine the HRA until a flood mitigation strategy had been agreed by Scottish Environment Protection Agency (SEPA). Whilst an appropriate flood mitigation strategy may be an integral part of the overall planning application, it is not considered to be vital for determining the HRA.

The 2017 Envirocentre report stated that there was potential for Atlantic salmon and water crowfoot vegetation to be impacted through alterations to flow or sediment loading of water within the SAC due to ineffective flood mitigation. It was concluded, however, that regardless of flood mitigation strategy, the impact on any of the qualifying features as a result of flooding would likely be negligible due to the infrequency and temporary nature of flood events.

Since these comments, the Flood Risk Assessment (FRA) and mitigation strategy has been revised[1] in consultation with SBC Engineering and Infrastructure (Flood Risk & Coastal Management Team). Section 6.2 of the revised report considers impacts to the River Tweed as a result of a flood event on the Haystoun Burn in a variety of scenarios including:

- Existing conditions;
- Proposed conditions including flood channel and compensatory storage, and with overland flood route through the existing housing estate cut off;

[1] Fairhurst (2018) *Peebles East, Flood Risk Assessment.*

- Proposed conditions including flood channel but omitting compensatory storage, and with overland flood route through the existing housing estate cut off; and
- Proposed conditions including flood channel and compensatory storage, but with overland flood route through the existing housing estate retained.

Under all scenarios it was concluded that there would be negligible impact on the River Tweed. This adds further weight to the assertion that flooding events are unlikely to result in adverse effects to qualifying features within the River Tweed SAC, regardless of the mitigation strategy.

The following points were also raised by the SBC ecology officer with regards to the Envirocentre 2017 report:

1. *"I would also state that the proposal to mitigate impacts such as dumping of material into the Haystoun Burn and disturbance to otter through greenspace planting may be at odds with recommendations from SEPA (as per 1.13 in their response of October 2017). Similarly the proposal to mitigate impacts through erection of a solid fence on the line of the existing fence is not in line with the response of Landscape Architecture (May 2017), which advocates a landscape of open character, with visual permeability to the rural landscape."*
2. *"Furthermore, at the time of writing, I have not seen a response from SEPA removing their objection to the application for Planning Permission in Principle on the grounds of insufficient information regarding drainage (SEPA, May 2017), in particular the two-stage SUDS treatment process, which is presented in the HRA (EnviroCentre 2017), as mitigation for potential impacts relating to sediment deposition."*

With regards to the first point, the inclusion of a flood mitigation channel, separating the residential development and the Haystoun Burn, along with a buffer area (as shown in the indicative masterplan included in the revised FRA) would have a similar mitigating effect as inclusion of a solid fence and/or greenspace planting.

Similarly, for the second point, further details on the proposed SUDS treatment are included within the revised FRA and are considered sufficient to mitigate the potential effects of surface water run-off on qualifying features of the River Tweed SAC.

Yours sincerely
for EnviroCentre Ltd

(issued electronically)

Mhairi MacKintosh
Consultant Ecologist

Douglas Blease
Principal Consultant: Ecology

Land to East of Kittlegairy View, Peebles
LDP2 MIR Reference APEEB054
Technical Transport Note

Introduction

ECS Transport Planning has been commissioned by AWG Property Ltd (AWG) and Taylor Wimpey UK Ltd (Taylor Wimpey) to prepare a Technical Transport Note demonstrating that transportation constraints outlined by Scottish Borders Council (SBC) would not restrict mixed use development within the lifetime of the Local Development Plan 2.

This note should be considered alongside the accompanying 'Representation to SBC Local Development plan 2 Main Issues Report 2018' prepared by Barton Willmore 2019.

Access Proposals

The internal layout of the development site is schematic and will be fully developed during the detailed planning stage, however, it is envisaged that the proposals will accommodate un the region of 200 residential units. An area within the eastern quadrant of the site has also been set aside for possibly small commercial units or retail / leisure uses, nonetheless, the land-use will be driven my market demand.

The site has frontage with the B7062 Kingsmeadows Road on the northern and eastern boundaries between Kittlegairy View and Haystoun Burn, with the western boundary formed by the neighbouring residential site, ensuring that various access points can be promoted for all modes of travel.

Vehicle access to the site is proposed via a new priority junction with the B7062 Kingsmeadows Road on the northern boundary of the site, approximately 100m east of Kittlegairy View. A footway on the southern side of Kingsmeadows Road will be introduced along the site frontage to the west to enhance pedestrian accessibility. The footway will be extended to the frontage of the Kingsmeadow Residential Development site and connect with existing facilities introduced on Kittlegairy View. A second vehicle access will also be introduced with the B7062 Kingsmeadow Road on the eastern boundary of the site approximately 200m north of Haystoun Burn. As part of proposals an application will be submitted to extend the existing 30mph zone along the site frontage to the southern side of White Bridge. Extending the 30mph zone will reduce the visibility requirements and will also improve road safety for pedestrians.

The site layout will be designed in accordance with the Scottish Government document 'Designing Streets'. The aim of creating an accessible and sustainable community is the guiding theme of the policy and the future layout will endeavour to make the site as porous as possible with multiple vehicle and pedestrian access points. The neighbouring residential development site has been designed with the proposed site in mind, with pedestrian footpath connections provided up to the boundary and a spur for potential additional vehicular access via Kittlegairy View.

Shared surface arrangements will be introduced where possible to support pedestrian, cycling and vehicle movement, and allow residents to move freely within the site.

The layout will also be in keeping with the requirements of the SCOTS National Roads Development Guide.

Pedestrian Accessibility

The site could generate up to 82 and 79 (two-way) trips on foot during the AM and PM peak periods, respectively. However, it is expected that the level of walking trips could be increased with the location of local bus stops, Priorsford Primary School and Cavalry Park Business Centre.

It is expected that the main pedestrian desire lines will be to the west of the development site, given the location of public transport facilities and local amenities. Pedestrian access to the site will be introduced on the northern and western boundaries, with a new footway installed along the site frontage of Kingsmeadows Road to link with existing facilities on the southern side of the carriageway. The new facilities, which will be introduced on the western boundary of the site, will connect with the established routes introduced as part of the Kingsmeadow Residential Development. These established routes comprise a network of segregated footways and traffic-free lit footpaths.

The network of facilities introduced as part of the neighbouring Kingsmeadow Residential Development link with the existing residential settlements, where footways are present on both sides of the majority of local streets, as would be expected within a built-up area. These routes provide links to bus stops on Kittlegairy View and also Kingsway / Kingsmeadows Gardens. Pedestrians will utilise these facilities to connect with public transport facilities and places of education, however, the majority of attraction will be towards the town centre.

Beyond the Cavalry Business Park, which is located less than 500m west of the site, footways are present on either side of Kingsmeadows Road for approximately 200m prior to the northern footway being discontinued at a section with no development on the northern side of the carriageway. These facilities are of a good standard and benefit from street lighting. An uncontrolled crossing facility is present at the position at which the northern footway is discontinued and benefits from dropped kerbs and a refuge island.

The southern footway is continued to Victoria Park where a controlled crossing facility provides access across the carriageway and a connection with a footbridge over the River Tweed to the town centre.

Footways in the surrounding area are in a reasonable condition and benefit from street lighting as would be expected within a developed area.

Local amenities, such as, Priorsford Primary School, the local convenience store and recreational facilities are accessible within a 1,600m (20 minute) walking distance from the centre of the development site as recommended within national policy (PAN75). However, it should be noted that the centre of the town, High Street, where the majority of local amenities are positioned, is only located 1,700m from the edge of the development site. It is considered that the attractive walking routes will encourage residents to slightly exceed the recommended walking distances to access the facilities on offer within the town centre.

High Street operates as a typical main street within the centre of a small town or village, with wide footways on either side of the carriageway, local amenities fronting the street, bus stops with shelters and several crossing points. Pedestrian build-outs with tactile paving and refuge islands are located at two locations along High Street, towards the western end and in the centre, with a controlled crossing

point at the eastern end. These facilities support safe pedestrian movement in and around the centre of the town.

Bus stops are located on Kittlegairty View and on Kingsway / Kingsmeadow Gardens to the west of the development site and, as previously detailed, footway / footpath connections and crossing facilities are available to these services. Bus stops are also available along High Street providing access to local amenities.

It is expected that the inclusion of external footway connections with Kingsmeadows Road and Kittlegairy View as part of the development will promote journeys on foot from the site and accommodate the expected uplift in pedestrian activity, particularly with journeys to schools. It is therefore considered that the estimated pedestrian generation could be exceeded, thereby reducing reliance on private car use for local trips.

Cycle Infrastructure

Based on previous supporting transportation studies undertaken in support of this site, it is estimated a future development could increase the number of cycling trips on the local road network by 6 movements during both the AM and PM commuter peaks. However, with the introduction of connections to adjacent cycling facilities and the promotion of a Travel Pack it is considered that cycling will be more attractive to residents than the multi-modal assessment suggests. The key cycle destinations from the residential site will be to education, amenities or public transport facilities for multi-modal travel.

The B7062 Kingsmeadows Road, which bounds the northern and eastern boundaries of the development site, forms part of the Borders Loop Cycle Route providing the site with connections to Biggar and Broughton in the west and Innerleithen and Tweedbank in the east. Locally, cycle lanes are marked on the carriageway connecting with traffic free crossings over the River Tweed to the town centre.

To the north of the River Tweed a local cycle route which starts at the Peebles Hydro Hotel provides connections to the Glentress Forest to the south of the town, which is the base for some of the best mountain biking routes in the county attracting more than 300,000 visitors per year. Beyond Glentress Forest, the local cycle route connects with National Cycle Route 1 in the centre of Innerleithen which provides onwards connections north to Edinburgh.

Due to the footfall attracted to the area by the Glentress Forest, cyclists are ever present on the local roads. Motorists in the area are aware of the high volume of cyclists on the local network and are considered to be courteous towards cyclists, which makes for safer conditions.

With the exception of Kingsmeadow Road to the east of the site, the local roads surrounding the development host speed restrictions of 30mph which ensures a pleasant environment for cyclists. The development proposals include aspirations to extend the 30mph zone along the site frontage.

The site provides cyclists with a connection to both traffic-free and on-road routes towards the centre of the town and the main local amenities. Cycle parking facilities are present on High Street to encourage sustainable trips to and from the centre of the town. Furthermore, the layout of the existing street network and the low traffic speeds are conducive for cycling.

The surrounding cycle routes and lanes will support commuters with a safe connection to employment opportunities in the area and town centre, and also provide residents with recreational options in the vicinity of the site.

An appropriate journey time for cycling is considered to be between 30 and 40 minutes and taking into account factors such as the time required for crossing roads and / or negotiating topography, an average speed of 10 to 20kph is considered possible, equating to a cycle distance of 5km to 13km from the proposed allocation site. Given that the whole town is accessible within a 3km catchment of the development site, which equates to less than an 15 minute cycle time, it is considered that cycling would be an attractive mode of travel for residents accessing local amenities, such as, the supermarkets, places of employment and local schools. Furthermore, the cycle lanes present on Kingsmeadows Road adjacent to the development site lead to crossings over the River Tweed providing an attractive connection to the town centre.

Based on the existing cycle opportunities, location of the site, connections to cycle routes in the area and nature of the local road network, it is considered that the anticipated demand for cycling can be adequately accommodated.

Public Transport

It is estimated that the development will generate up to 14 and 13 (two-way) trips during the AM and PM peaks, respectively.

With the exception of school and education services, at present, there are 7 separate bus services operating within the town. The nearest bus stop to the development site is situated on Kittlegairy View, approximately 80m from the western boundary of the site or 250m from the centre of the site, and supports service number 90A operated by Barc Coaches. Service 90A is a local circular service operating within Peebles between Kingsway and Edderston Road south of the River Tweed.

The X70 service is a commuter service between the south of Peebles and Edinburgh City Centre and operates at times which would benefit residents working 9 till 5 in the city. The X70 serves bus stops located on Kingsway / Kinsgsmeadows Gardens located within approximately 12 minutes' walk from the development site in the west (1000m).

Alternative services operate on the northern side of the River Tweed and, whilst located outwith recommended walking distances to public transport facilities as detailed within PAN75, it is considered that the attractiveness of the services would encourage commuters to exceed the typically recommended walking distances. Furthermore, these services are also accessible as a multi-modal option with service 90A connecting with the services at the A72 / B7062 mini-roundabout junction.

Given the location of the bus stops, interconnecting routes, and the key employment centres accessible via these services, it is considered that the additional patronage generated by the development proposals can be easily accommodated by the existing provision.

It is considered that the available public transport within the area will provide residents with an alternative option to the private car, with timetables accommodating commuter travel.

Sustainable Travel Summary

In accordance with local and national transport policy, an assessment of the development proposals has been undertaken for all sustainable modes of travel. This indicates that the current walking and cycling provision in the area is sufficient to accommodate the expected future demand from the site.

As part of the internal site design, connections to the existing footway networks will be provided and will link with existing public transport facilities enhancing connectivity with the surrounding area. Finally, a residential travel pack will be distributed to residents upon occupation of each property to highlight sustainable travel options and encourage a shift in mode choice.

The site is accessible to a range of sustainable modes of transport, integrates well with the surrounding residential area and will be designed in accordance with the principles of Designing Streets thereby ensuring that the site is compliant with the national and local policies.

Development Traffic

The two access junctions to the neighbouring Taylor Wimpey site were surveyed during the AM and PM peak periods on Wednesday 18th January 2017. Surveying the two access points allowed the total generation from the site to be calculated and divided by the total number of properties (344) to calculate a trip rate for the proposed development site.

Based on the trip rates calculated from the neighbouring site, it is estimated that the proposed site could generate a maximum of 137 and 131 (two-way) vehicle movements during the weekday AM (08:15-09:15) and PM (16:15-17:15) peak hours, respectively, which are expected to coincide with the peak background traffic periods.

It was agreed with SBC as part of a previous Transport Assessment undertaken as part of a planning application that traffic would be distributed based on turning movements at the neighbouring residential development, Kinsmeadows (Taylor Wimpey). Once applied to the network, the development will increase two-way movements on Tweed Bridge by 125 and 110 during the AM and PM peaks, respectively, which subsequently results in two-way flows increasing on High Street by 82 and 69, during the AM and PM peaks respectively.

Tweed Bridge

Particular focus has been given to Tweed Bridge in recent years and capacity has been raised as a limiting factor on further development within the town, particularly to the south of the river. Studies undertaken on the capacity of Tweed Bridge, instructed by Scottish Borders Council, included future Local Development Plan (LDP) sites and concluded that once all of the current LDP sites have been built out, a second bridge would be required prior to further development south of the river.

SBC assumed that the bridge had a two-way capacity of 1,250 vehicles which is taken from the Design Manual for Roads and Bridges (DMRB) Volume 5 and relates to a 6.1m wide Urban All-Purpose Road 4 (UAP4). This road type is classified as a busy high street carrying predominantly local traffic with frontage activity including loading / unloading and unrestricted parking. However, Tweed Bridge is not a busy High Street and is considered to support a mix of traffic. Furthermore, there is no frontage access activity and benefits from parking and loading restrictions. As a result, it would be more appropriately classified as an Urban All-Purpose Road 3 (UAP3). As a result, a more appropriate value for the capacity of the bridge would be 1,500 vehicles two-way, as previously contested in LDP submissions. It should be noted that a link capacity of 1,500 is still a cautious approach as this continues to refer to a width of 6.1m, when the width of the bridge is actually greater than 8m, therefore, in reality, the capacity of the bridge is essentially 2,166 (7.3m classification for a UAP3 Road).

Even if SBC disagree with altering the classification of Tweed Bridge from UAP4 to UAP3, applying the correct carriageway width to the bridge would result in a link capacity of 1,900 two-way movements (based on a 7.3m carriageway width for an UAP4 Road). Nonetheless, this study will review traffic on the bridge in relation to a 1,500 two-way link flow capacity.

Four independent surveys have been undertaken in recent years and these results are available within the public domain. The surveys have been undertaken on a typical weekday during school terms times to ensure a robust assessment. Given that residential developments generate most traffic during the AM and PM peak periods which is due to residents departing for work in the morning and arriving from work in the evening, focus is given to the composite peak.

In 2014 traffic was recorded as 1040 and 1048 two-way during the AM and PM peak hours, respectively. The results from 2014 are based on a week-long survey and represent the busiest day. In 2016 traffic was recorded as 1083 and 911 two-way during the AM and PM peak hours, respectively. In 2018 SBC commissioned a 7 day survey and weekday average results were presented as 1130 and 1086 two-way flows during the AM and PM peak hours, respectively. The final study commissioned by the applicant was also a seven day survey and the average results indicated an average two-way flow of 1097 and 951 during the AM and PM peaks, respectively. The results show that over a circa 5 year period flows on the bridge have been fairly steady. Whilst variation in traffic is fully appreciated and recorded flows on the bridge are subject to change on a daily basis, it should be noted that more and more people are choosing to travel by sustainable means and more employers are offering flexible working hours and / or home working options which could explain why recent development in the area hasn't increased background traffic.

Generation from the development site has been calculated by determining the volume of trips from nearby residential developments. The calculations, which are agreed with SBC, confirm that the development site will increase traffic on the bridge by 125 and 110 two-way movements during the AM and PM peaks, respectively.

Based on the highest survey results, November 2018, the introduction of the development traffic would increase two-way movements on the bridge to 1,255 and 1,196 during both peaks, respectively. There are questions over the deliverability of the March Street Mills and Rosetta sites, and the Persimmon South Parks site has yet to be consented. However, even if traffic with all three of these sites were included in the flows, the AM and PM two-way movements would increase to 1,327 and 1,263, respectively.

It should be noted that the 1,250 two-way flow capacity has been based on a busy high street with frontage activity. The carriageway width of the bridge is in excess of 8m and it does not operate as a high street with frontage activity, therefore, a more appropriate capacity is considered to be 1,500 two-way vehicles. For the avoidance of doubt, the 1,500 vehicle capacity is based on a 6.1m carriageway and is therefore still overly robust.

SBC has raised doubts over the 1,250, threshold and suggested that a value between 1,250 and 1,500 may be more appropriate.

In summary, the link capacity of the Tweed Bridge is not a constraint to further development on the southern side of the Tweed. A conservative approach has been taken to the classification of the bridge which suggests a link capacity of 1,500 vehicles, whereas, the capacity in reality could be 2,166 two-way vehicles if classified correctly with the measured width.

High Street

The B7062 Kingsmeadows Road / A72 / High Street Mini-Roundabout junction is a key node in the area providing access towards Glasgow in the north west, Edinburgh in the north and Galashields in the east, all of which are likely to be key areas of employment for future residents of the proposed development site.

In general terms the junction operates well, however, tidal flows and platooning vehicles during peak commuter peaks are causing fluctuating queues on all approaches to the junction. Due to the nature of the High Street, there is not a constant demand from this arm of the junction.

Constant flow can be disrupted by vehicles parking and by the controlled crossing at the eastern end of the street, which results in platoons of vehicle approaching the junction at the same time. Whilst these queues are not particularly excessive, and are generally moving or rolling queues, the queues fluctuate on each approach throughout both peak hours. Furthermore, there is a spike in demand for a circa twenty minute period during the AM period associated with residents on the north travelling to the south to access the school, but there is no obvious congestion.

A review of the mini-roundabout junction survey video footage confirms the platooning effect of the High Street. On the A72 about ½ a mile west of Peebles at Neidpath Castle there are traffic lights on the narrow bends, these are permanent and also cause a platoon of traffic to arrive in the town, and this sometimes consist of about 10 cars although the average would be 5.

Journey times were recorded during peak periods to determine the operation of High Street and Tweed Bridge. Generally, during the AM peak period, it takes no more than an additional 30 seconds for vehicle to travel from the Edinburgh Road junction, along the High Street and to the south side of the Tweed Bridge regardless of the direction of travel and including any delay caused by the High Street Pedestrian Crossing. An insignificant delay including short queues that form at the mini-roundabout at the western end of High Street.

The journey times recorded do not highlight any significant queuing issues or slow-moving sections, with exception of a spike at school start times.

It is considered that High Street operates satisfactorily, and the minor traffic associated with the development (circa 1 two-way movement per minute) could be easily accommodated on the network.

If successfully consented the developer will have a responsibility to contribute towards town centre upgrades.

Summary

The site is accessible to a range of sustainable modes of transport, integrates well with the surrounding residential area and will be designed in accordance with the principles of Designing Streets thereby ensuring that the site is compliant with the national and local policies.

Assessment of the site access proposals within previous studies concludes that the proposed site access junctions would operate well within capacity with the introduction of the additional traffic associated with the development proposals.

A study of the wider network has identified that Tweed Bridge has sufficient link capacity to accommodate the committed and proposed development traffic.

Platooning vehicles due to upstream signals, pedestrian crossings and servicing on High Street has been identified, which creates minor fluctuating queues at the B7062 Kingsmeadows Road / A72 / High Street Mini-Roundabout during peak commuter periods. However, journey times confirm that the platooning effect does not cause significant delay.

Peebles East

Flood Risk Assessment Report

November 2018

FAIRHURST

CONTROL SHEET

CLIENT: **AWG / Taylor Wimpey Strategic Land**

PROJECT TITLE: **Peebles East**

REPORT TITLE: **Flood Risk Assessment Report**

PROJECT REFERENCE: **94600**

DOCUMENT NUMBER: **GLA/W/04**

Issue & Approval Schedule	ISSUE 1 FINAL	Name	Signature	Date
	Prepared by	K M H Barr	Signed copy held on file	24/04/18
	Checked by	V Ford	Signed copy held on file	24/04/18
	Approved by	K M H Barr	Signed copy held on file	24/04/18

Issue Record	Issue	Date	Status	Description		
	2	09/11/18	FINAL	Flood mitigation proposals revised.	By	KMHB
					Checked	VF
					Approved	KMHB

This document has been prepared in accordance with procedure OP/P02 of the *Fairhurst Quality and Environmental Management System*

CONTENTS

Appendices

1 Introduction

Fairhurst was appointed by AWG / Taylor Wimpey Strategic Land to carry out an assessment of the flood risk from the Haystoun Burn to part of the proposed mixed use development site at Peebles East, Scottish Borders. The site comprises the southern part of the Site Ref. SPEEB005 identified within the Local Development Plan (LDP) as a potential longer term site for mixed use development and part of the site has been suggested as one that would assist Scottish Borders Council (SBC) to meet their housing shortfall target.

SPEEB005 identifies land to the east and west of the B7062 at the south eastern edge of the town. The area to the east of the B7062 is identified as being within the flood plain of the River Tweed and as such is not being promoted for development, whereas the land to the west of the B7062 is, and has been identified as being at risk from the Haystoun Burn to the south

Proposals have been developed in conjunction with planning consultants Barton Wilmore based on detailed discussion with SBC over a number of years regarding the proposed development of the land.

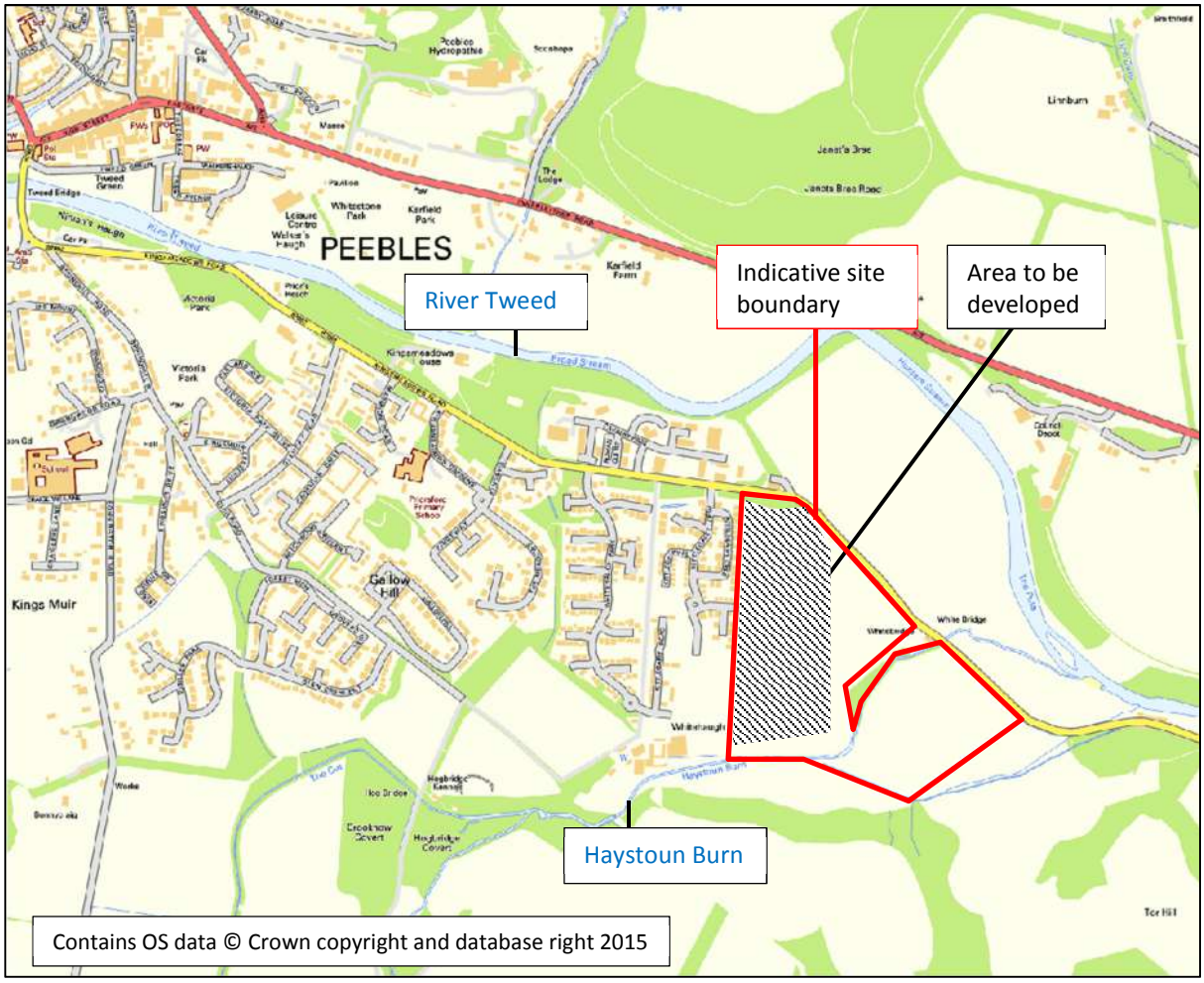

Figure 1: Site Location Plan

This Flood Risk Assessment Report presents the findings of a hydraulic modelling study undertaken for the Haystoun Burn and River Tweed, together with flood mitigation proposals. Other potential sources of flood risk have also been considered.

2 Planning Policy

2.1 National planning policy

In consideration of planning applications, planning authorities require to be satisfied that due account has been taken of Scottish Planning Policy (SPP), and the Scottish Government's online Planning Advice on Flood Risk. It is necessary to show that adequate protection against flooding exists or can be provided for the proposed development and that the development does not increase any existing flood risk to persons or property upstream and downstream.

The flood risk framework guiding development sets out three categories of coastal and watercourse flood risk, together with guidance on surface water flooding, and the appropriate planning approach for each (the annual probabilities referred to in the framework relate to the land at the time a plan is being prepared or a planning application is made):

- ***Little or No Risk*** *- annual probability of coastal or watercourse flooding is less than 0.1% (1:1000 years)*
    - *No constraints due to coastal or watercourse flooding.*
- ***Low to Medium Risk*** *- annual probability of coastal or watercourse flooding is between 0.1% and 0.5% (1:1000 to 1:200 years)*
    - *Suitable for most development. A flood risk assessment may be required at the upper end of the probability range (i.e. close to 0.5%), and for essential infrastructure and the most vulnerable uses. Water resistant materials and construction may be required.*
    - *Generally not suitable for civil infrastructure. Where civil infrastructure must be located in these areas or is being substantially extended, it should be designed to be capable of remaining operational and accessible during extreme flood events.*
- ***Medium to High Risk*** *- annual probability of coastal or watercourse flooding is greater than 0.5% (1:200 years)*
    - *May be suitable for:*
        - *residential, institutional, commercial and industrial development within built-up areas provided flood protection measures to the appropriate standard already exist and are maintained, are under construction, or are a planned measure in a current flood risk management plan;*
        - *essential infrastructure within built-up areas, designed and constructed to remain operational during floods and not impede water flow;*
        - *some recreational, sport, amenity and nature conservation uses, provided appropriate evacuation procedures are in place; and*
        - *job-related accommodation, e.g. for caretakers or operational staff.*
    - *Generally not suitable for:*
        - *civil infrastructure and the most vulnerable uses;*
        - *additional development in undeveloped and sparsely developed areas, unless a location is essential for operational reasons, e.g. for navigation and water-based recreation, agriculture, transport or utilities infrastructure (which should be designed and constructed to be operational during floods and not impede water flow), and an alternative, lower risk location is not available; and*
        - *new caravan and camping sites.*

- *Where built development is permitted, measures to protect against or manage flood risk will be required and any loss of flood storage capacity mitigated to achieve a neutral or better outcome.*
- *Water-resistant materials and construction should be used where appropriate. Elevated buildings on structures such as stilts are unlikely to be acceptable.*

Surface Water Flooding

- *Infrastructure and buildings should generally be designed to be free from surface water flooding in rainfall events where the annual probability of occurrence is greater than 0.5% (1:200 years).*
- *Surface water drainage measures should have a neutral or better effect on the risk of flooding both on and off the site, taking account of rain falling on the site and run-off from adjacent areas.*

SPP states that new development should not take place if it would be at significant risk of flooding from any source or would materially increase the probability of flooding elsewhere. In general, the storage capacity of floodplains should be safeguarded and works to elevate the level of the site by landraising should not lead to a loss of floodwater storage capacity.

The Scottish Environment Protection Agency (SEPA) has a duty to give advice to planning authorities as to flood risk under the Flood Risk Management Act 2009, Section 72. SEPA considers this to include professional and expert interpretation of data or records.

The Secretary of State for Scotland's guidance requires SEPA to take a holistic approach to the protection and enhancement of the environment. Planning authorities must consider SEPA's views on the merits of any proposals involving carrying out works or operations in the bed or on the banks of rivers and streams.

The SEPA/Planning Authority Protocol on Development at Risk of Flooding Advice and Consultation issued in 2011 provides principles to be followed by authorities regarding advice and consultation on flood risk issues. It also gives generic guidance on the requirements for undertaking flood risk assessments.

2.2 Local planning policy

The Scottish Borders Local Development Plan (LDP) was adopted on 12th May 2016. The LDP sets out Council policies on development and land use within the Scottish Borders.

The LDP identifies a number of areas for potential longer term development subject to review. These include the current site, which lies within the area identified within LDP site reference SPEEB005, Peebles East (South of the River). The current site forms the southern part of SPEEB005.

The policy for SPEEB005 includes the following statements:

> *As this site is at high risk of flooding, a flood risk assessment is required to inform site layout, design and mitigation.*
>
> *No built development should take place on the functional flood plain. The flood risk area in the northern half of the site (north of the B7062) should be safeguarded as open space, for structure planting and landscaping purposes only.*

The Site has been named as 'Land South East of Peebles (Part of SPEEB005)' within in the Housing Supplementary Guidance (SG). The respective site reference is 'MPEEB004' within this document.

Scottish Planning Policy (SPP) was revised in 2014. The SPP risk framework states that areas of Medium to High Risk (where the annual probability of flooding is greater than 1:200 years) are generally not suitable for additional development in undeveloped and sparsely developed areas.

Clause 265 of SPP (2014) states: *"Land raising should only be considered in exceptional circumstances, where it is shown to have a neutral or better impact on flood risk outside the raised area. Compensatory storage may be required."*

3 Development Site

3.1 Existing Site Conditions

Site conditions

The Peebles East site is located at OS grid ref. NT 266391 on the outskirts of Peebles.

The site is bounded by existing residential development to the west, the B7062 to the north and east and the Haystoun Burn to the south. The River Tweed flows west to east through Peebles, passing approximately 160m to the north and 200m to the east of the site.

The Haystoun Burn is fed from various tributaries and rises to the south of Peebles in the Borders Hills and drains an extensive area of hillside used for grazing livestock.

The land comprising the site is currently open fields used for grazing by the Wood family who own and occupy Whitehaugh Farm and are understood to have farmed the land for over fifty years.

Topographical Information

Various sources of topographical information are available for the area:

- Spot levels across the site, including top-of-bank-levels along the Haystoun Burn, surveyed in February 2008
- Cross-section survey of the Haystoun Burn including the three bridges adjacent to the site, surveyed by Aird Geomatics in January 2015
- Additional survey comprising spot levels around Whitehaugh Farm, three additional cross-sections of the Haystoun Burn upstream of the farm, and additional top of bank levels, surveyed by Fairhurst in December 2016
- Cross-section survey of the River Tweed local to the site, surveyed by Aird in October 2011
- Additional cross-section survey of the River Tweed downstream of the site to a point beyond Cardrona Village, surveyed by Aird in February 2016
- LiDAR level information, 1m resolution, for the site and surrounding area, thought to have been flown in 2011.

3.2 Previous Information on Flood Risk

Historic Flood Information

No flow data is known to exist for the Haystoun Burn.

On December 30th 2015 a flooding incident was reported from the Haystoun Burn. This affected rear gardens of four recently completed houses in Kittlegairy View to the west of the site. This was caused by water escaping from the Haystoun Burn via eroded banks in the vicinity of an abandoned sluice valve that fed a disused lade/mill lade at Whitehaugh Farm. No damage was reported as occurring to the properties. There was no reported flooding from the Haystoun Burn in the direction of the proposed development site and the farmer reported that the burn did not overtop its northern banks at the site. Work during the summer of 2016 has reinstated the banks of the burn in this area.

An inspection of the Haystoun Burn and the surrounding area after the December 2015 event concluded that water did escape from the burn to the south, away from the site. Water was diverted out of the burn due to the high flow rate at the small bridge between Whitehaugh Farm and White Bridge and escaped over the southern banks. Evidence was noted that water had flowed eastwards

across the fields towards the B7062, and had also flowed south-east following the line of an old lade and watercourse that fed a mill originally located at Scotsmill adjacent to the River Tweed.

Areas of Peebles adjacent to the River Tweed were also flooded on 30 December 2015, when the highest water levels were recorded at Peebles since reliable data was first collected in 1986. However, despite the significant rainfall event that affected much of southern Scotland at this time, no flooding of the proposed development site occurred.

The Wood family advise that they have never witnessed the proposed development area to flood.

Previous Modelling Study (2011)

A previous Flood Risk Assessment was carried out for Taylor Wimpey in 2011 by consultants. The 2011 study found the site to be at risk of flooding from the Haystoun Burn, but not from the River Tweed, and considered a number of proposed site layout options.

The critical flood mechanism for the site was found to be overtopping of the banks of the Haystoun Burn along the southern boundary of the site.

SEPA Flood Maps

SEPA's flood maps (SEPA 2015) provide guidance on the possible extent, depth and velocity for different likelihoods ('High, Medium and Low') of three different sources of flooding (River, Sea and Surface Water), alongside other associated information. They are designed to provide a community level assessment of flooding and its impacts and are modelled at a national level. For this reason, they are not intended to be used to predict flood risk at specific site locations.

The SEPA flood map indicates that the proposed site is at an area with a high likelihood of river flooding. The flood map also shows areas within the site at risk of surface water flooding. It does not indicate any groundwater flooding.

Scottish Borders Council River Tweed and Haystoun Burn Modelling (2017)

More recently, SBC has undertaken modelling of the River Tweed and Haystoun Burn to assess the risk of flooding to existing properties. A hydraulic model was developed to allow the full appraisal of the flood risk from the River Tweed from Peebles to Walkerburn. A separate model was constructed of the Haystoun Burn.

The output of the SBC River Tweed model demonstrates that no part of the current application site is at risk from the River Tweed in the 1:200 year or 1:200 year plus climate change events. A very small area at the eastern extremity of the red line boundary is shown to be at risk in the 1:1000 year event. This location is remote from the part of the site proposed for development.

3.3 Development Proposals

Current development proposals are shown on Barton Willmore drawing no. 26286-PL03 Rev. A – Indicative Masterplan included in Appendix A.

4 Potential Sources of Flood Risk

At this location there are several potential sources of flooding that require consideration:

- **Fluvial flooding:** Extreme fluvial flood events have the potential to cause rapid inundation of properties whilst posing a threat to the welfare of occupants and potentially preventing emergency access to properties and essential infrastructure.
- **Infrastructure failure:** The failure of conveyance infrastructure such as culverts or bridges, or the failure of any man-made water storage or conveyance infrastructure that could increase the risk of flooding at the site.
- **Overland flow:** Overland flow occurs when the infiltration capacity of the ground is exceeded in a storm event. This could result in water travelling as sheet flow overland or excess water being conveyed from one location to another via local road networks.
- **Sewer flooding:** If the capacity of sewers is exceeded in an extreme event, or a blockage occurs, surcharging of the network can result in surface flooding. The local drainage network should be considered with a view to assessing flood risk to the site.
- **Groundwater:** high groundwater levels could exacerbate flooding occurring at low points on any given site, potentially contributing to flood risk from other sources.

The following potential source of flood risk has been discounted:

- **Coastal flooding:** The elevation of the site means it is not at risk from tidal inundation or coastal waves.

5 Fluvial Flood Risk

The Peebles East site is potentially at fluvial flood risk from the Haystoun Burn and River Tweed. Fluvial flooding and infrastructure failure risk associated with bridge and culvert failure require further more detailed consideration. A hydraulic modelling study undertaken to assess fluvial flood risk in a 200yr design event, and explore the potential for a mitigation option, is detailed below.

5.1 Scope of modelling

The previous 2011 study included a model study of the Haystoun Burn and the River Tweed. The River Tweed model extended only a short distance downstream of the confluence. The 2011 study results indicated that the site is not at risk from the River Tweed, but the predicted water levels at the site were found to be sensitive to assumed downstream boundary conditions.

At the commencement of the current study in 2015, enquiries were made with SBC and others, but no previous modelling based on surveyed cross-sections downstream of Peebles was found to be available for use in this study.

The River Tweed cross-sections from the 2011 study were made available for the current study. Additional survey was carried out to extend the coverage of the River Tweed cross-section survey to a point beyond the Horsbrugh Bridge at Cardrona Village. This allowed the hydraulic model to be extended downstream such that the results at the site were not affected by the boundary conditions. The 2011 cross-sections of the Haystoun Burn were not available for this study and were re-surveyed in 2015.

Following the December 2015 flood event, additional survey was carried out to allow the model to be extended a short distance further upstream on the Haystoun Burn to include the observed flow route that led to garden flooding in Kittlegairy View, upstream of the current application site.

As a separate exercise, the SBC River Tweed model has been used as part of this study to assess the effect of mitigation options on flood risk downstream of the site. This exercise is reported in Section 6.2 below.

5.2 Hydrology

A hydrological assessment of the upstream catchment has been carried out in order to determine the design flow in the Haystoun Burn at the confluence with the River Tweed. Flow estimates have been made using the industry standard FEH Rainfall-Runoff method.

The rainfall-runoff approach is based on FEH catchment descriptors. Catchment descriptors extracted from the FEH CD-ROM v.3 for the Haystoun Burn and for the River Tweed adjacent to the site are provided in Appendix B, as are the outputs from the Flood Modeller Pro FEH boundary unit for both.

The 200 year peak flow for the Haystoun Burn is estimated to be 39.4m^3/s (storm duration 4.9hr).

The sensitivity of flow estimates to a change in specific runoff parameter (SPR) has been tested using the FEH relationship for Base Flow Index (BFI) to SPR and the BFI given in the UK Hydrometric Register (2008) for the local flow gauge: 21019 on Manor Water (0.59). The results giving the highest flow have been adopted.

5.3 Hydraulic model construction

A 1D–2D linked model has been constructed in Flood Modeller Pro and TUFLOW industry standard software to assess the flood risk to the site from the Haystoun Burn as well as potential site layout scenarios.

Thirty-one cross-sections of the Haystoun Burn were incorporated in the model from the cross-section data surveyed for this purpose. These cross-sections were used to create a 1D Flood Modeller Pro model representing the reach of the burn from approximately 400m upstream of the site to the confluence with the River Tweed approximately 200m downstream of the B7062 crossing at the eastern corner of the site. Cross-section locations are shown on Figure A1: Haystoun Burn cross section location plan included in Appendix A.

Twenty cross-sections of the River Tweed were incorporated in the model, extending from Cavalry Park to a point just downstream of the road bridge crossing at Cardrona Village. Cross-section locations are shown on Figure A2: River Tweed cross section location plan included in Appendix A.

Out of bank flows across the Haystoun Burn floodplain were incorporated in the hydraulic model using a digital terrain model derived from topographic survey and LiDAR aerial laser scanning.

Design flows for the Haystoun Burn catchment at the River Tweed confluence are input to the upstream end of the 1D model using a Flood Modeller Pro FEH boundary unit. The 1D model is linked to a 2D model built in TUFLOW covering the site, the land to the east and the land to the south. The 1D-2D link takes account of bank-top levels captured by the site survey. Model extents are shown on the 2D model results in Appendix A.

The TUFLOW model is based on LiDAR data and the 2008 spot level survey. There is no evidence of change over much of the land since the 2008 survey; where changes have been made these have been incorporated into the model. Levels from the site survey are used to describe ground level adjacent to the Haystoun Burn, where the site survey picks up bank-top levels, and LiDAR levels are used to define site levels throughout the majority of the site where points on the site survey are sparse. Levels from the 2016 survey have been used to describe bank levels at the rebuilt bund adjacent to the bridge in the middle of the site.

Model output – existing conditions

The 1D-2D model was run for the critical event duration in the Haystoun Burn. Peak modelled water levels for the Haystoun Burn are provided in Table C1: Existing flood levels in the Haystoun Burn, included in Appendix C.

The 1D-2D model was also run for the critical event for the River Tweed. Following publication of results from the SBC River Tweed model in early 2018, model predictions were compared. The SBC model was calibrated using observed water levels from the December 2015 event. The calibration justified lower roughness coefficients than were adopted in the Fairhurst model. The SBC model predicts lower water levels in the River Tweed than the model used for the current study. The peak water level predicted at the Haystoun Burn confluence in the 1:200 year event in the SBC model is 154.14m AOD, compared to a level of 154.89m AOD in the model used in this report.

The River Tweed model results used in this report are conservative. Readers are referred to the reports and plans prepared for SBC using the calibrated model for flooding predictions on the River Tweed. Peak modelled water levels for the River Tweed in its critical event from the Fairhurst model are provided in Table C2: Existing flood levels in the River Tweed, included in Appendix C for completeness of this report.

Model sensitivity

Model sensitivity was tested by increasing flows in the Haystoun Burn by 20%, increasing 1D and 2D Manning's n by 20%, 25% bridge blockage for structures on the Haystoun Burn, and by decreasing

downstream boundary slope by 50%. The model water levels were found to be relatively insensitive to these changes.

Model sensitivity results are provided in Table C3: Model sensitivity - Haystoun Burn, included in Appendix C.

5.4 Flood risk – existing conditions

Flood risk from the Haystoun Burn

The site was found to be at risk of flooding in a 1:200yr event. The results of the existing case model show that the critical flood mechanism for the site is overtopping of the banks of the Haystoun Burn along the southern boundary of the site. In particular, flood waters are predicted to overtop the banks of the burn at the south-western corner of the site and form shallow flows across the site, as the current topography prevents any water from getting back to the channel of the Haystoun Burn. Water entering the site would flow to the northern corner, where it would spill across the B7062 to the River Tweed floodplain and then enter the River Tweed which is running to the north-east of the site and is lower lying.

A plan showing the extent of inundation in the 200yr critical event for the Haystoun Burn is shown on Figure A3: Haystoun Burn flood extent for existing conditions, included in Appendix A.

Flood risk from the River Tweed

The area of the site to be developed is not at risk from the River Tweed in the 1:200yr event as confirmed by the SBC modelling undertaken in 2017. The limit of the 200yr floodplain is at or beyond the B7062.

A plan showing the extent of inundation in the 200yr critical event for the River Tweed is shown on Figure A4: River Tweed flood extent for existing conditions, included in Appendix A. This plan also shows inundation from the Haystoun Burn, but the duration of the event is not critical for peak flows in the Burn.

Overland flow route at Whitehaugh Farm

The model of existing conditions also predicts that approximately 9.2m^3/s would escape from the Haystoun Burn floodplain at Whitehaugh Farm upstream of the current application site, spilling through the farmyard and away from the burn towards the north through the existing development to the west of the site. Flow is likely to follow the existing road network including Kittlegairy View. Spot levels taken on the road network of this development indicate that water flowing overland in this area would continue to the north and would not return to the Haystoun Burn, but would join the River Tweed directly. The flow route through the existing development to the River Tweed has not been modelled as part of this study, but is shown on SEPA flood maps.

6 Flood Mitigation

6.1 Flood mitigation proposals

Land-raising

Land-raising of the site is required to provide falls for surface water drainage as has occurred on the adjacent development to the west. This would also protect the site against flooding.

In order to provide drainage falls, it is proposed to raise the part of the site to be developed by importing fill material to the approximate levels shown on Fairhurst drawing no. 94600/2030 Revision C included in Appendix A.

Overland flood channel

Removing the existing flood flow route across the part of the site to be developed would, in isolation, increase the flood depth predicted for the 200yr event across much of the remainder of the site. This includes the level of flood waters spilling across the road at Whitebridge and adjacent flood levels to the south of the burn. Further mitigation is required to address these adverse effects.

It is proposed to replicate the existing flood route across the site so far as is practicable by providing an overland flood route around the landraised part of the site. The flood route would take the form of a shallow grass-lined channel following the north bank of the Haystoun Burn along the southern edge of the raised platform and turning to the north along the eastern edge of the platform. The flood channel would terminate near the north-east corner of the site adjacent to the B7062. Flood water is predicted to overtop the B7062 at this location in existing conditions. The flood channel would be dimensioned to convey a similar flow rate to that point as in existing conditions.

The strip of land on-site between the Haystoun Burn and the area to be raised would be planted sympathetically to form a greenspace and slow flood flows in an out-of-bank flood event.

Compensatory storage

Landraising of the part of the site for development and construction of an overland flood channel would maintain the existing flow routes from the Haystoun Burn into the River Tweed, but would reduce flood storage within the site. The volume of storage provided by shallow overland flow is small relative to the volume of hydrograph passing down the Tweed, but reduction is storage could result in earlier transmission of peak flows into the river.

The purpose of the proposed flood storage was to match the volume lost by landraising within the site. The proposed storage would be created by a raised bund within the agricultural grazing field on the south bank of the Haystoun Burn. Gradual release of flood waters to the River Tweed would be allowed via a series of pipe culverts through the bund. Due to the volume of the storage proposed, it could require to be registered as a controlled reservoir at some future date.

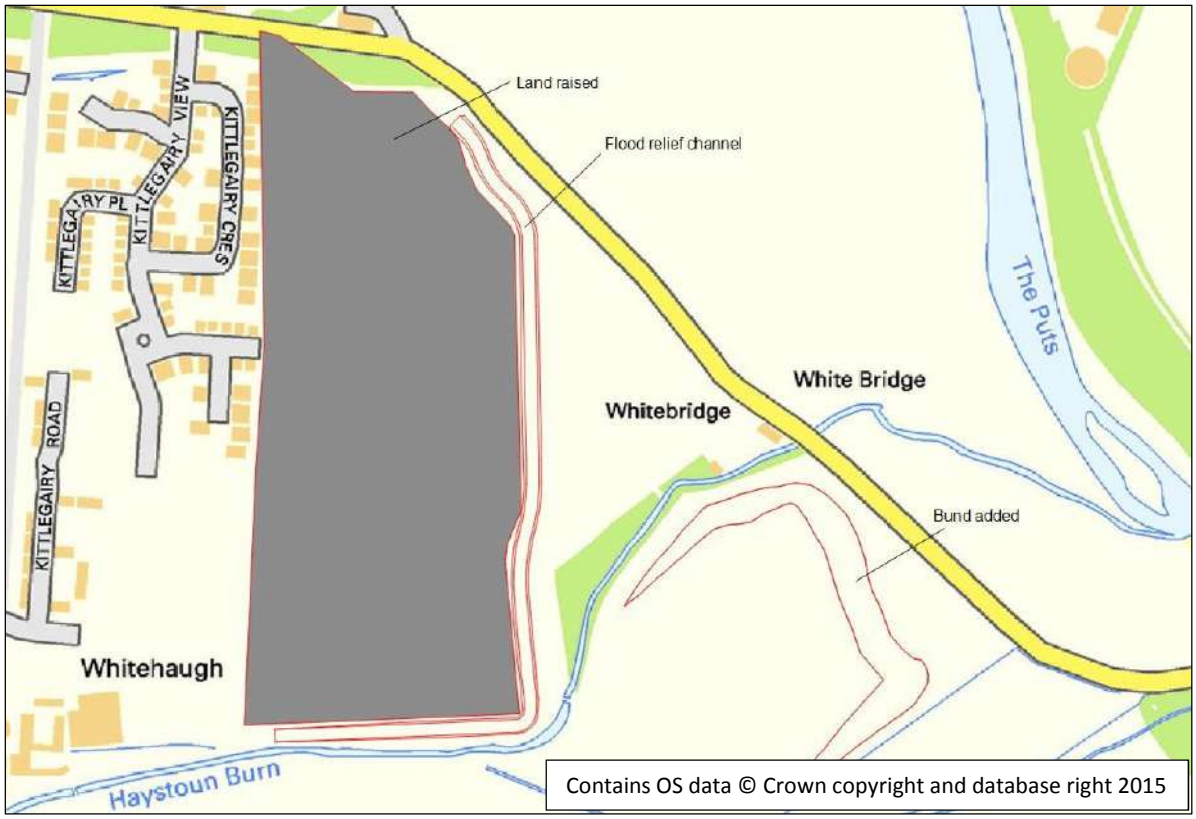

Figure 2: Mitigation proposals.

6.2 Revised flood mitigation proposals

6.2.1 Context

Following discussion with SBC's flooding team regarding long term maintenance responsibility for the flood storage, the applicant was asked to consider the effect of omitting the flood storage element of the proposal on flood risk downstream of the site in the River Tweed.

6.2.2 Scottish Borders Council River Tweed model

SBC is undertaking flood risk management studies to address potentially vulnerable areas (PVAs), existing property that may be at flood risk, which were identified in the local flood risk management plan for the Tweed catchment. The ongoing Council studies include modelling of the River Tweed and Haystoun Burn.

The Council model of the River Tweed covers a 19km reach from upstream of Peebles to downstream of Walkerburn. The model includes a 1D representation of the river channel using 90 cross-sections linked to a 2D representation of the floodplain local to Peebles derived from LiDAR data. There are lateral inflows from eight tributary catchments including the Haystoun Burn, but hydraulic modelling of tributaries has been undertaken separately. The Tweed model was calibrated using wrack mark survey data from the December 2015 flood event, which was estimated to have a return period around 50 years. The Tweed model has been run for a range of flows up to 1000 year return period and has been accepted as representative by SBC and SEPA.

The Council agreed to make its River Tweed model available to carry out an assessment of the effect of omitting flood storage at the current application site. The purpose of this modelling exercise is to assess downstream impacts in the River Tweed, so use of this model is considered appropriate.

6.2.3 River Tweed assessment methodology

The Council's modelling consultant, JBA Consulting, was appointed to undertake the River Tweed model rums as a sub consultant to Fairhurst.

A range of event return periods consisting of 30 year, 200 year, 200 year plus climate change, and 1000 year was considered. The model was run for the critical event duration adopted for the River Tweed model of 15 hours.

In each case the critical event for the River Tweed was applied to the Haystoun Burn catchment and peaks set to coincide. This is likely to be conservative in terms of joint probability.

Four scenarios were modelled:

- Existing conditions
- Proposed conditions including flood channel and compensatory storage, and with overland flood route through the existing housing estate cut off
- Proposed conditions including flood channel but omitting compensatory storage, and with overland flood route through the existing housing estate cut off
- Proposed conditions including flood channel and compensatory storage, but with overland flood route through the existing housing estate retained

Haystoun Burn hydrographs for these scenarios were supplied by Fairhurst to JBA for input into the River Tweed model.

6.2.4 River Tweed model results

JBA has reported that overall the different scenarios represent an extremely small variation in the total River Tweed flow downstream of the Haystoun Burn confluence and they have limited impact on water levels in the River Tweed. There is no discernible difference between scenarios in terms of impact on modelled water levels on the River Tweed.

The letter report prepared by JBA on the modelling results is included as Appendix D.

Scottish Borders Council's flooding team have reviewed the JBA letter report and have advised that they have no comments.

6.2.5 Conclusions

The hydraulic modelling has shown that the different scenarios proposed to manage flood risk to the site from the Haystoun Burn are predicted to have negligible impact on the River Tweed. Any slight change in water levels at the Haystoun Burn confluence is expected to dissipate upstream of Cardrona. On that basis it is recommended to omit the flood storage element of mitigation.

The revised mitigation proposals are shown on Figure 3.

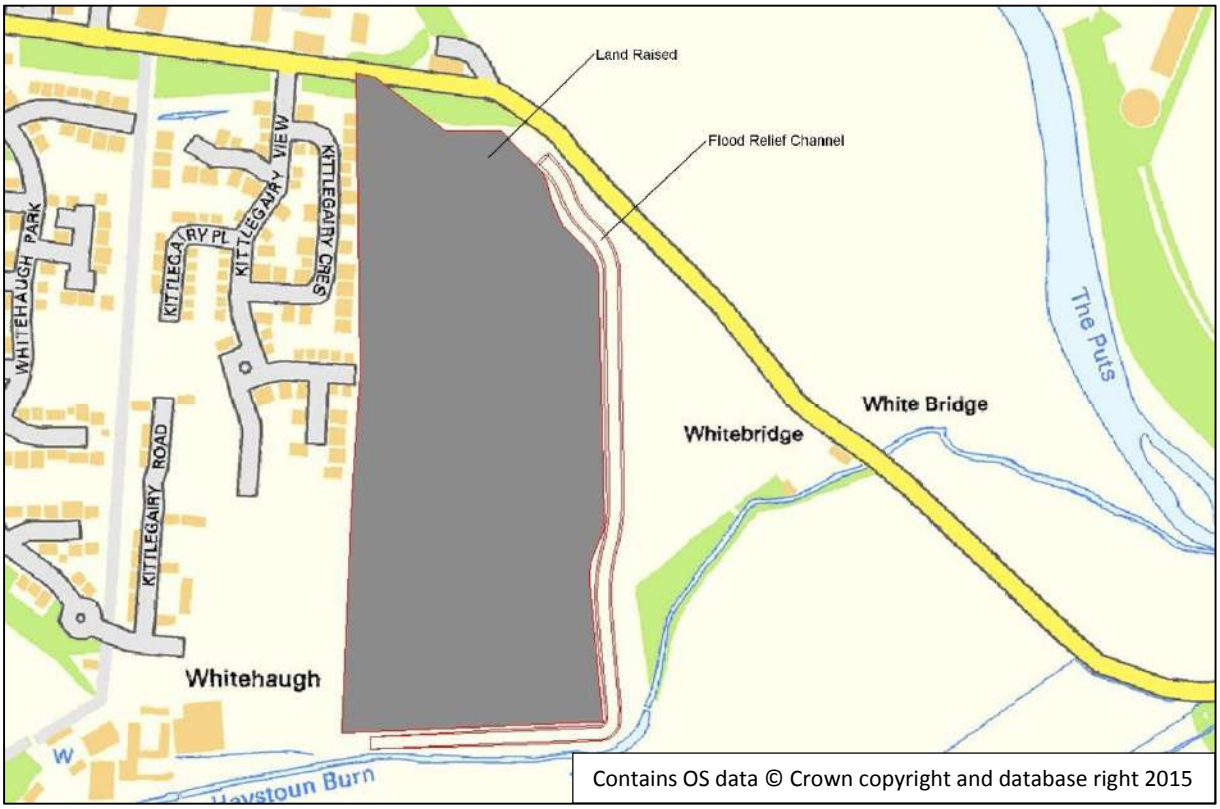

Figure 3: Revised mitigation proposals.

6.3 Hydraulic modelling of mitigation proposals

The mitigation proposals, comprising landraising of the development area and overland flood route and compensatory storage in the field to the south, were incorporated in the Haystoun Burn hydraulic model.

Model output – proposed conditions

The 1D-2D model with mitigation proposals was run for the critical event duration in the Haystoun Burn. Peak modelled water levels for the Haystoun Burn are provided in Table C4: Flood levels in the Haystoun Burn with proposed mitigation, included in Appendix C. Differences from predicted levels in existing conditions are minimal.

The flood extents and maximum depths predicted for the mitigation proposals are shown in Figure A5: Haystoun Burn flood extent with mitigation proposals, included in Appendix A.

Design flow discharging to the River Tweed

Model results indicate that the peak flow discharging to the River Tweed including the proposed mitigation is almost unchanged from the existing case. There is a slight change in the shape of the hydrograph as illustrated in Figure C1 included in Appendix C, showing 200yr flows from the Haystoun Burn passing across the B7092 to the River Tweed floodplain for the pre and post development model scenarios. This change has been shown to have no effect of flood risk to receptors downstream on the River Tweed (see section 6.2.5 above).

Flood risk to potential local receptors

Flood risk to receptors away from the watercourse channels but local to the site could be affected by the mitigation proposals. A number of potential receptor points have been identified. These are the existing house at Whitebridge and various locations on the B7062. Flood risk has been assessed at these receptor points for existing conditions and for the mitigation proposals. No increase in maximum flood depth is predicted at any of the receptor points in the 200 year return period event.

Predicted maximum water depths for existing and proposed conditions are provided on Figure A6: Maximum water depths at key receptors, included in Appendix A.

Closing of flood route at Whitehaugh Farm

An existing overland flood route was identified by the hydraulic model as described in Section 5.4 above, with flow passing through the farmyard at Whitehaugh Farm and escaping towards the north via roads including Kittlegairy View towards the River Tweed. This area is not within the application site, and measures to address the resultant flood risk are not included in the current application. However, such measures may be implemented in future.

The landraising proposed as part of the current application has been designed to provide an appropriate freeboard above the predicted flood levels including the increased flow in the Haystoun Burn arising from closing off the overland flood route. This is so that development of the current site is not a constraint to any future flood management intervention to protect the adjacent existing development.

Model output for this case is provided in Table C5: Flood levels in the Haystoun Burn with mitigation proposals and flood route at Whitehaugh Farm closed off, included in Appendix C.

Recommended minimum levels

The minimum levels recommended for the development platform are shown on Figure A7: Recommended minimum flood protection levels, included in Appendix A. The levels are derived from the 200yr maximum predicted water level (with flood route at Whitehaugh Farm closed off) plus 600mm freeboard. These levels are lower than those required for site drainage except locally at the south-east corner of the platform, where the required level for flood protection is 0.23m higher.

6.4 Demonstrating an Effective/Deliverable Approach to Flood Mitigation

SPP states that land-raising should only be considered in exceptional circumstances, where it is shown to have a neutral or better impact on flood risk outside the raised area, and that compensatory flood storage may be required.

The model results discussed within Sections 6.2 and 6.3 demonstrate that the site can be effectively protected against flood risk by land-raising, and that provision of an alternative flood route around the site could provide a neutral or better impact on flood risk to the surrounding area.

Although development of the site may be regarded as contrary to policy set out in SPP, it has been demonstrated that the site can be developed without adverse effect on the surrounding area.

7 Other Potential Sources of Flood Risk

7.1 Infrastructure failure

Areas close to the River Tweed are shown on SEPA's reservoir flood maps as being potentially at risk in the event of uncontrolled release of water from Fruid or Talla Reservoirs. These are large reservoirs owned by Scottish Water and regulated under the Reservoirs (Scotland) Act 2011. The risk of failure resulting in uncontrolled release of water is very low. There are no impoundments registered under the Act within the Haystoun Burn catchment. There is a small impoundment formed by a weir just upstream of Haystoun, but the volume impounded is insufficient to pose a significant risk.

7.2 Overland flow

Review of the topography of the site and surroundings shows that there are very limited areas draining towards the site. Once the site is raised to protect it against fluvial flooding, the upslope catchment is largely eliminated. Overland flow resulting from rainfall falling within the site is likely to flow northwards towards the River Tweed following the route of access roads.

Potential flood risk to the site from overland flow is considered to be low. Finished floor levels of the proposed properties will be set above external ground levels and flow paths around and away from buildings maintained. In the event that overland flow does occur, this will mitigate the residual risk to the proposed development.

7.3 Sewer flooding

Scottish Water records indicate that there is no major sewerage infrastructure in the vicinity of the site. The proposed development will be raised. It will therefore be protected from any sewer flood flows from surrounding areas. Any residual risk will be mitigated by setting finished floor levels of the proposed properties above external ground levels and maintaining flow paths around and away from buildings.

7.4 Groundwater

The proposed development will be raised. It will therefore be naturally protected from any potential groundwater flow. Any residual risk will be mitigated by setting finished floor levels of the proposed properties above external ground levels and maintaining flow paths around and away from buildings.

8 Conclusions

Fairhurst was appointed by AWG / Taylor Wimpey Strategic Land to carry out an assessment of the flood risk from the Haystoun Burn to part of the proposed mixed use development site at Peebles East, Scottish Borders.

A hydraulic modelling study was undertaken for the Haystoun Burn and River Tweed as part of this study. The site was found to be at risk of flooding from the Haystoun Burn. In extreme flood events flood waters are predicted to overtop the banks of the burn and travel overland across the area of the site to be developed. Land-raising of the site is required to provide falls for surface water drainage as has occurred on the adjacent development to the west. This would also protect the site against flooding.

Removing the existing flood flow route across the part of the site to be developed would, in isolation, increase the flood depth predicted for the 200yr event across much of the remainder of the site. This includes the level of flood waters spilling across the road at Whitebridge and adjacent flood levels to the south of the burn. Further mitigation is required to address these adverse effects.

It is proposed to replicate the existing flood route across the site by providing an overland flood route around the landraised part of the site. The flood route would take the form of a shallow grass-lined channel following the north bank of the Haystoun Burn along the southern edge of the raised platform and turning to the north along the eastern edge of the platform. The flood channel would be dimensioned to convey a similar flow rate to that point as in existing conditions.

Landraising of the part of the site for development and construction of an overland flood channel would maintain the existing flow routes from the Haystoun Burn into the River Tweed, but would reduce flood storage within the site. The volume of storage provided by shallow overland flow is small relative to the volume of hydrograph passing down the Tweed.

Hydraulic modelling using the SBC River Tweed model has shown that the proposed measures to manage flood risk to the site from the Haystoun Burn are predicted to have negligible impact on the River Tweed. Any slight change in water levels at the Haystoun Burn confluence is expected to dissipate upstream of Cardrona.

Flood risk from other potential sources comprising infrastructure failure, sewer flooding, overland flow and groundwater has also been taken into account. Flood risk to the site from these other potential sources is considered to be low. Finished floor levels of the proposed properties will be set above external ground levels and flow paths around and away from buildings maintained. In the event that flooding from other sources does occur, this will mitigate the residual risk to the proposed development.

SPP states that land-raising should only be considered in exceptional circumstances, where it is shown to have a neutral or better impact on flood risk outside the raised area, and that compensatory flood storage may be required. The model results discussed within this report demonstrate that the site can be effectively protected against flood risk by land-raising, and that provision of an alternative flood route around the site could provide a neutral or better impact on flood risk to the surrounding area.

Appendix A

Drawings

Barton Willmore drawing no. 26286-PL03 Revision A – Indicative Masterplan

Fairhurst drawing no. 94600/2030 Revision C – Indicative Drainage Layout

Fairhurst drawing no. 94600/Sk2002 Revision A – Channel Proposals

Figure A1: Haystoun Burn cross section location plan

Figure A2: River Tweed cross section location plan

Figure A3: Haystoun Burn flood extent for existing conditions

Figure A4: River Tweed flood extent for existing conditions

Figure A5: Haystoun Burn flood extent with mitigation proposals

Figure A6: Maximum water depths at key receptors

Figure A7: Recommended minimum flood protection levels

Fairhurst drawing nos. 94600/Sk2004 to 2009 – Channel cross-sections (6 sheets)

The scaling of this drawing cannot be assured

Revision	Date	Drn	Ckd
-	-	-	-

LEGEND

- Red line planning application boundary
- Formal Open Space
- Flood Mitigation Channel
- Shared Zones
- Developable Area
- SuDs (Indicative)
- Area to Accommodate Potential Overland Flows from the Haystoun Burn
- Landscape Buffer
- Avenue Street Trees
- Primary/ Secondary Streets
- Pedestrian Paths
- Shared Surface Streets
- Safeguarded Land for employment, business and community use, which will be subject to separate approval in future. (i.e excluded from application)

0 12.5 25 50 100m

NORTH

Project
LAND TO THE EAST OF KITTLEGAIRY VIEW, PEEBLES

Drawing Title
Indicative Masterplan

Date	Scale	Drawn by	Check by
13.04.2017	1:1500@A1	EH	MW

Project No	Drawing No	Revision
26286	PL03	A

BARTON WILLMORE

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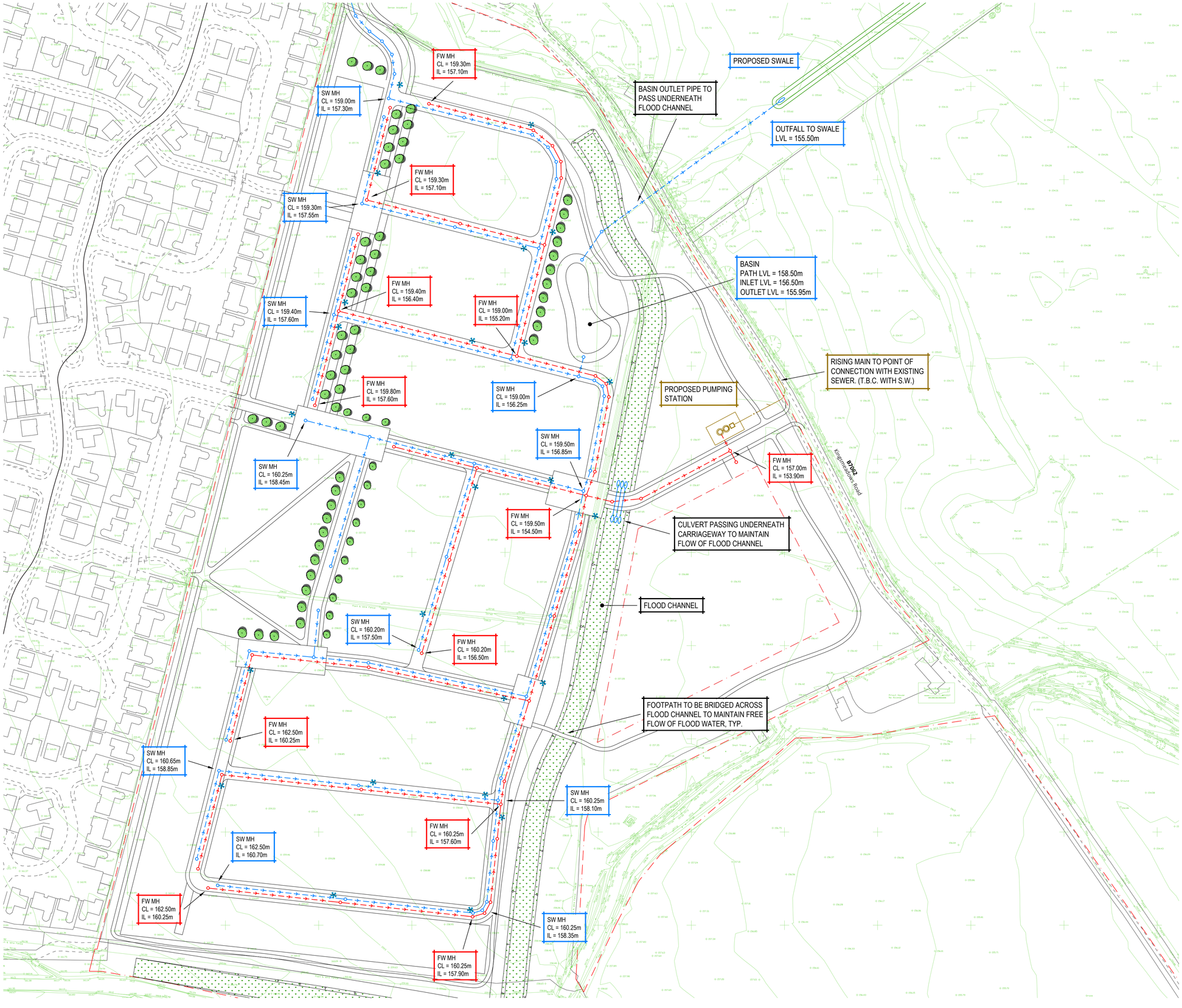

LEGEND

PROPOSED SURFACE WATER SEWER DENOTED THUS:

PROPOSED FOUL WATER SEWER DENOTED THUS:

PROPOSED BIO RETENTION TREE SuDS TREATMENT MEASURE DENOTED THUS: *

Rev.	Date	Description	Drwn.	Chkd.	Appd.
D	09/11/18	BUND REMOVED.	KAB	KMHB	KMHB
C	13/04/17	REVISED TO SUIT COMMENTS RE PLANNING REQUIREMENTS	MM	JR	JR
B	12/04/17	REVISED TO SUIT UPDATED LAYOUT	MM	JR	JR
A	11/04/17	DRAINAGE REVISED TO SUIT UPDATED LAYOUT	MM	JR	JR

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Client:

awg

Project Title:

WHITEHAUGH FARM, PEEBLES

Drawing Title:

INDICATIVE DRAINAGE LAYOUT

Scale at A1:	Status:	
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Drawn: MM	Checked:	Approved:
Date: 07/04/17	Date:	Date:
Drawing No.: 94600/2030		Revision: D

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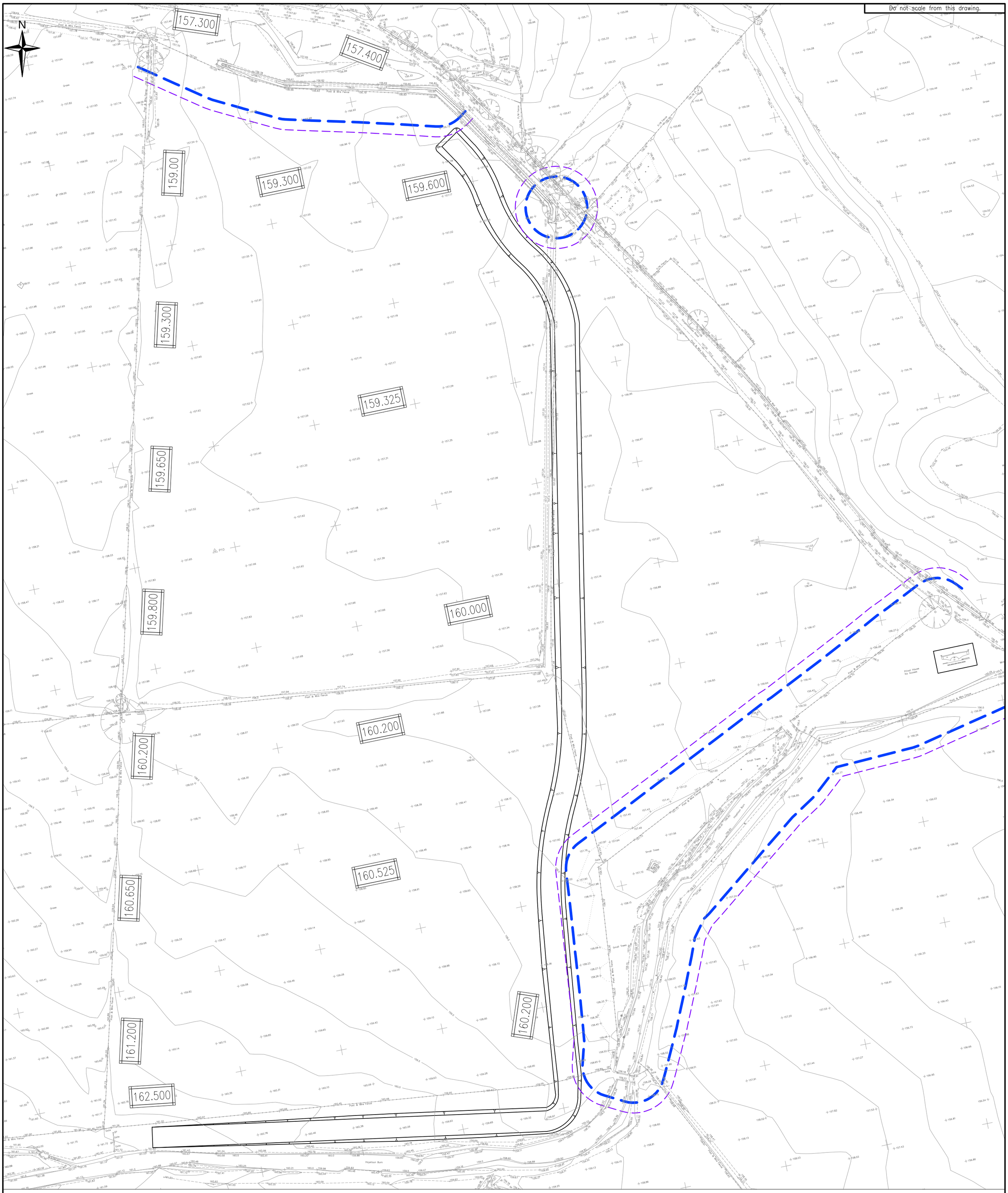

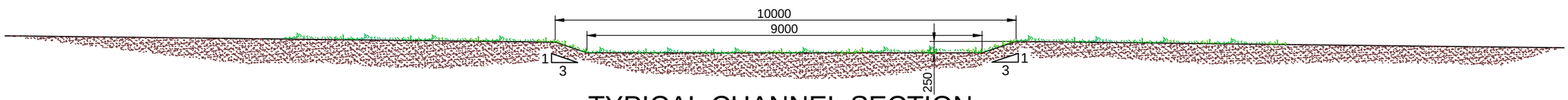

TYPICAL CHANNEL SECTION

(SCALE 1:50)

Rev.	Date	Description	Drawn	Checked	Approved
A	14/04/17	TYPICAL CHANNEL SECTION ADDED.	KAB		

LEGEND:

160.525 — INDICATIVE DEVELOPMENT PLATFORM LEVEL

15/20m TREE ROOT PROTECTION BOUNDARIES

(EXTRACTED FROM BARTON WILLMORE LSK2 DRAWING RECEIVED 06/04/17)

Client:

awg

Project Title:

WHITEHAUGH FARM,
PEEBLES

Drawing Title:

CHANNEL PROPOSALS

FAIRHURST

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Scale at A2:	Status:		
1:1250	For Comment		
Drawn:	Checked:	Approved:	
KAB			
Date:	Date:	Date:	
07/04/17			
Drawing No.:		Revision:	
94600/sk2002		A	

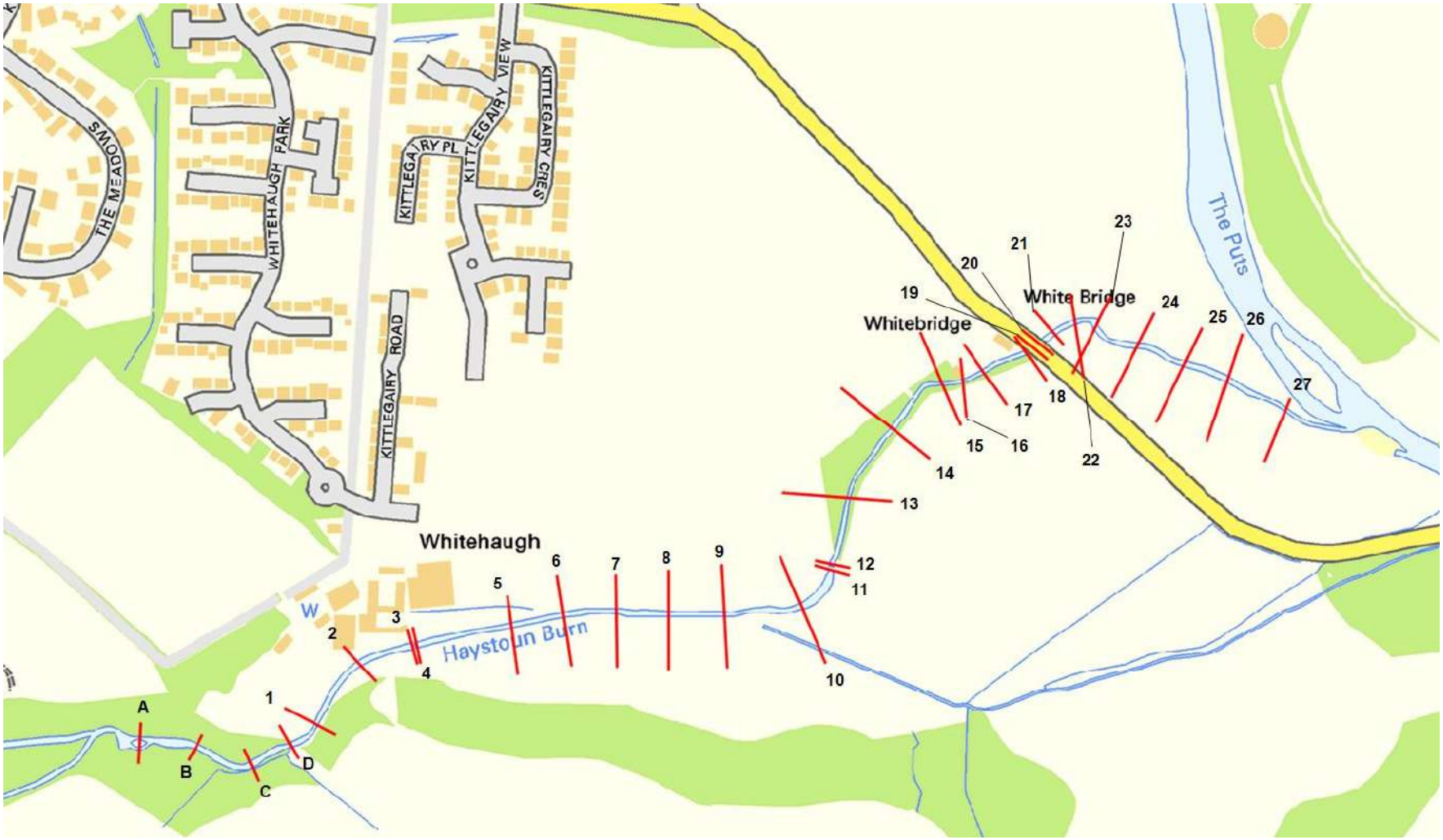

Figure A1: Haystoun Burn cross section location plan

Figure A2: River Tweed cross section location plan

2D model flood extents: Existing versus Proposed for 200yr Haystoun Burn event

Lightened area indicates 2D model domain.

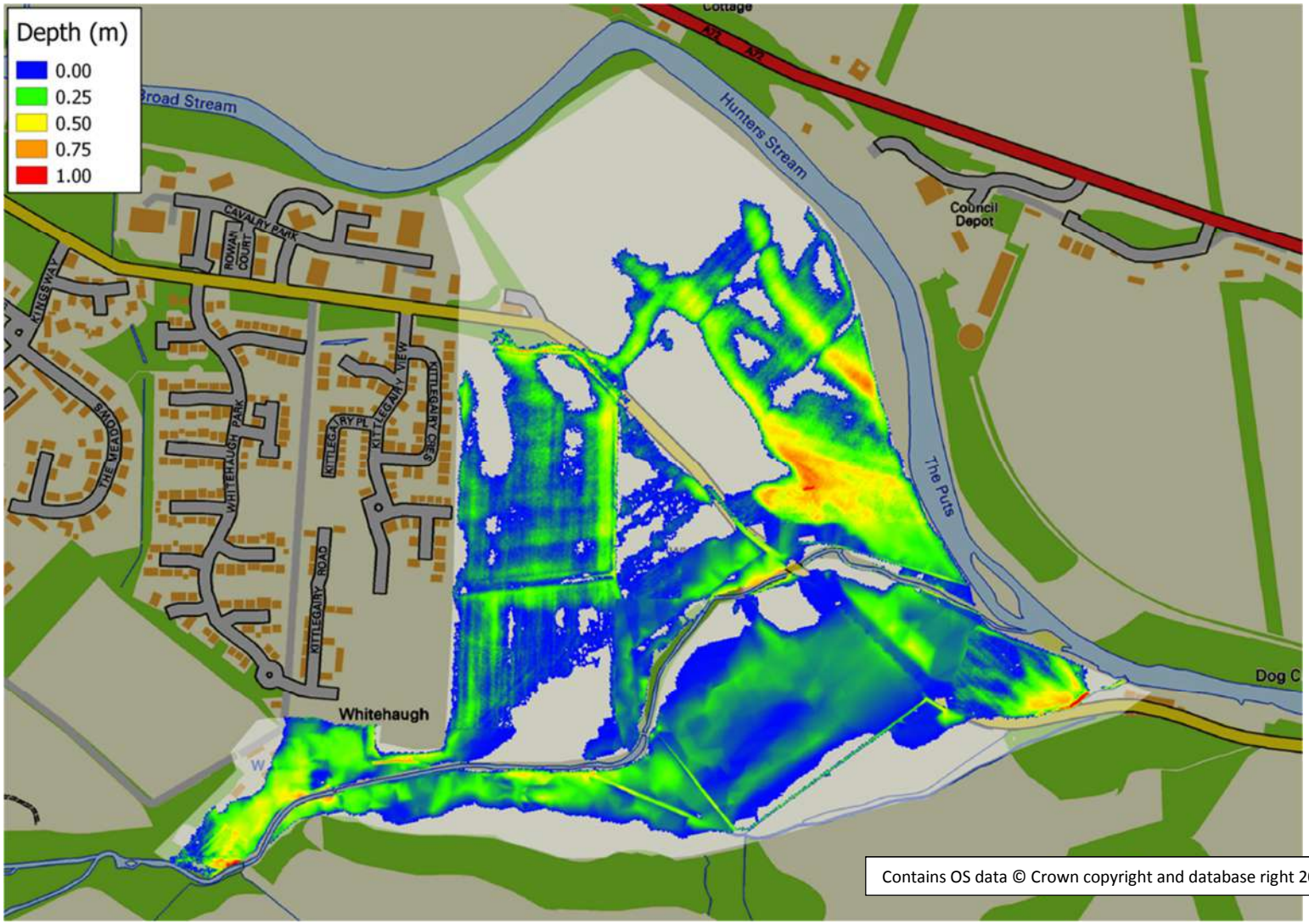

Figure A3: Haystoun Burn 200yr flood extent for existing conditions [Depth key in meters]

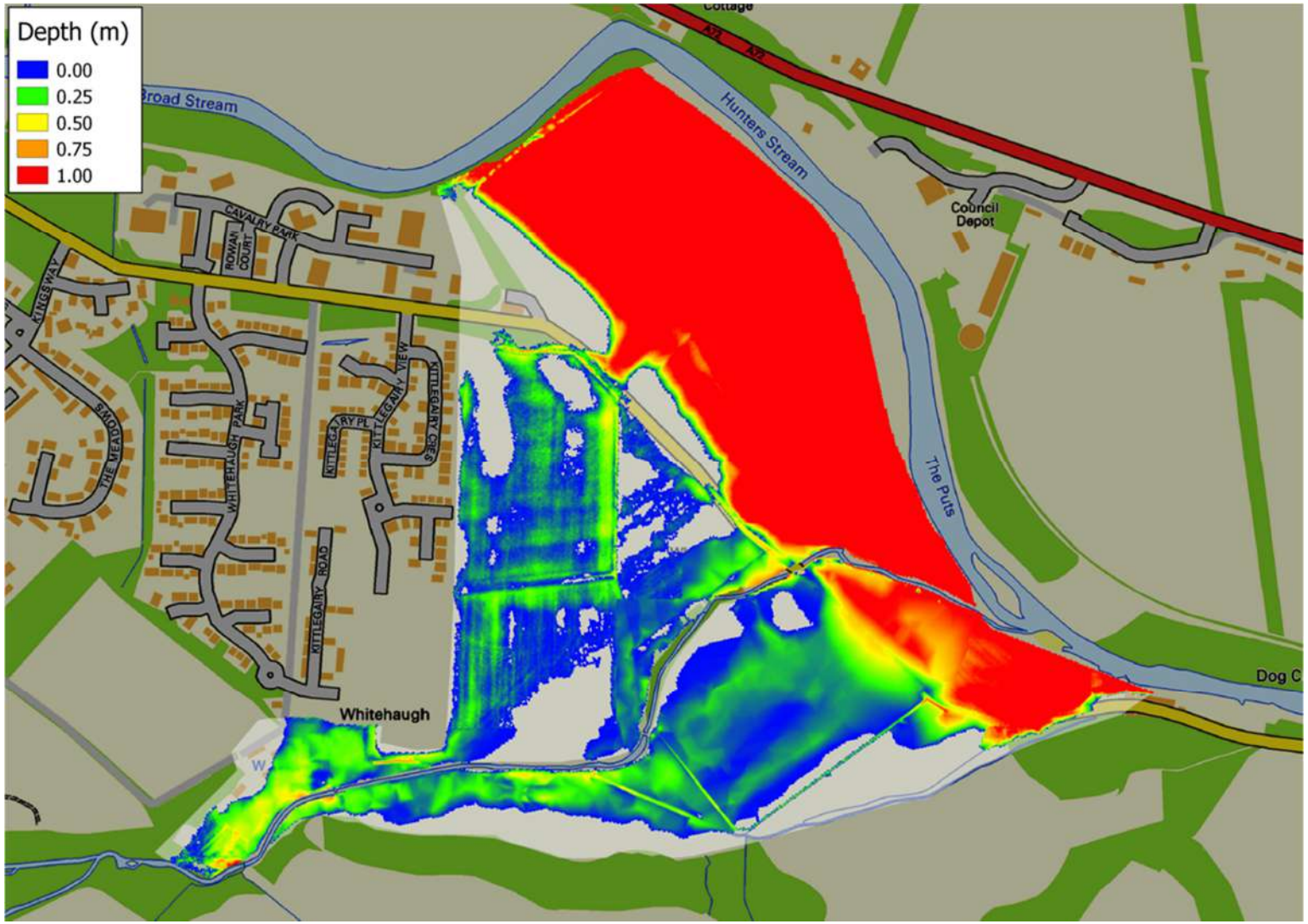

Figure A4: Combined Haystoun Burn and River Tweed 200yr flood extent for existing conditions [Depth key in meters]
Site raising shaded and channel and bund indicated with thin red line.

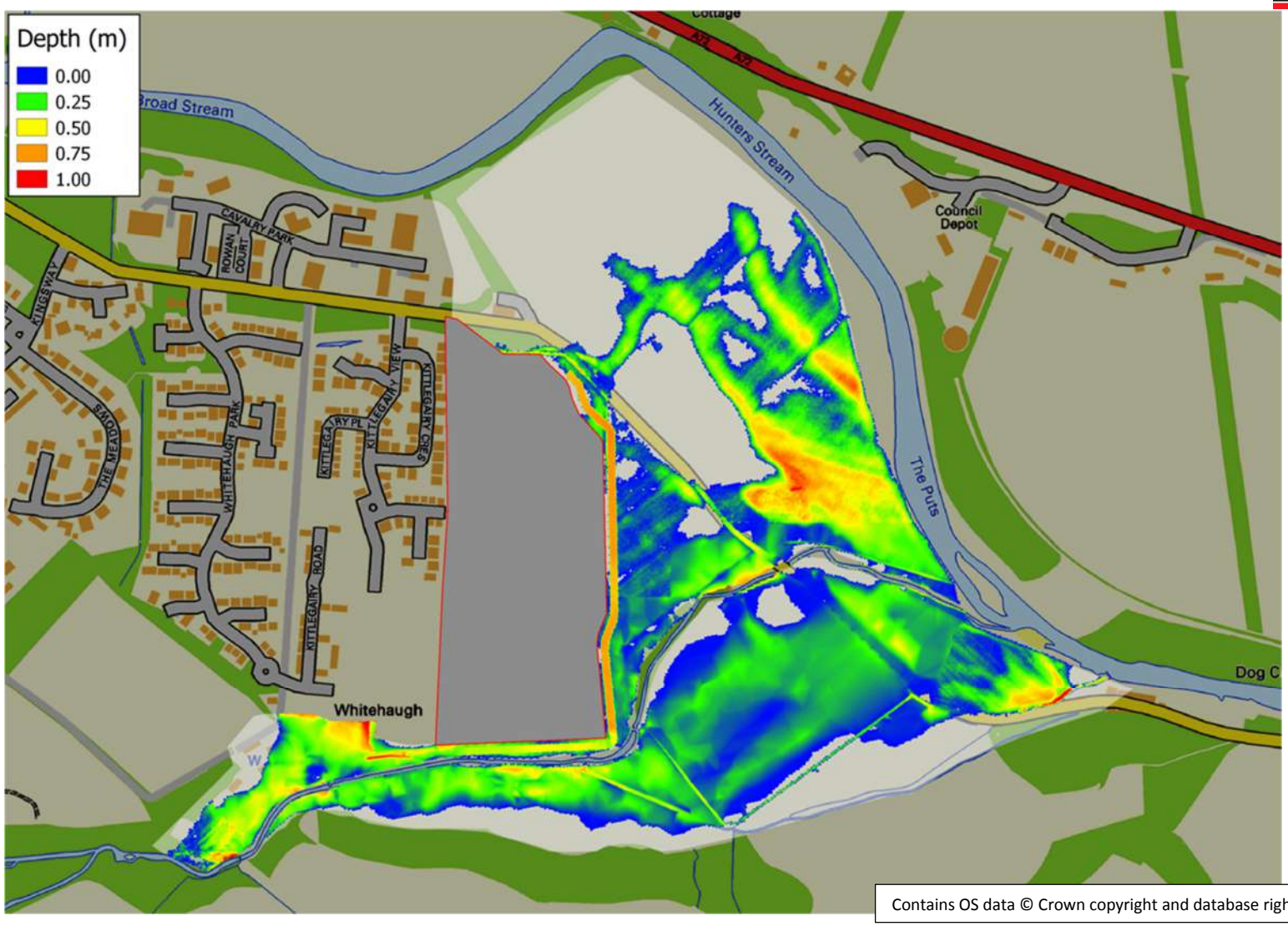

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Figure A5: Haystoun Burn 200yr flood extent with revised mitigation proposals [Depth key in meters]

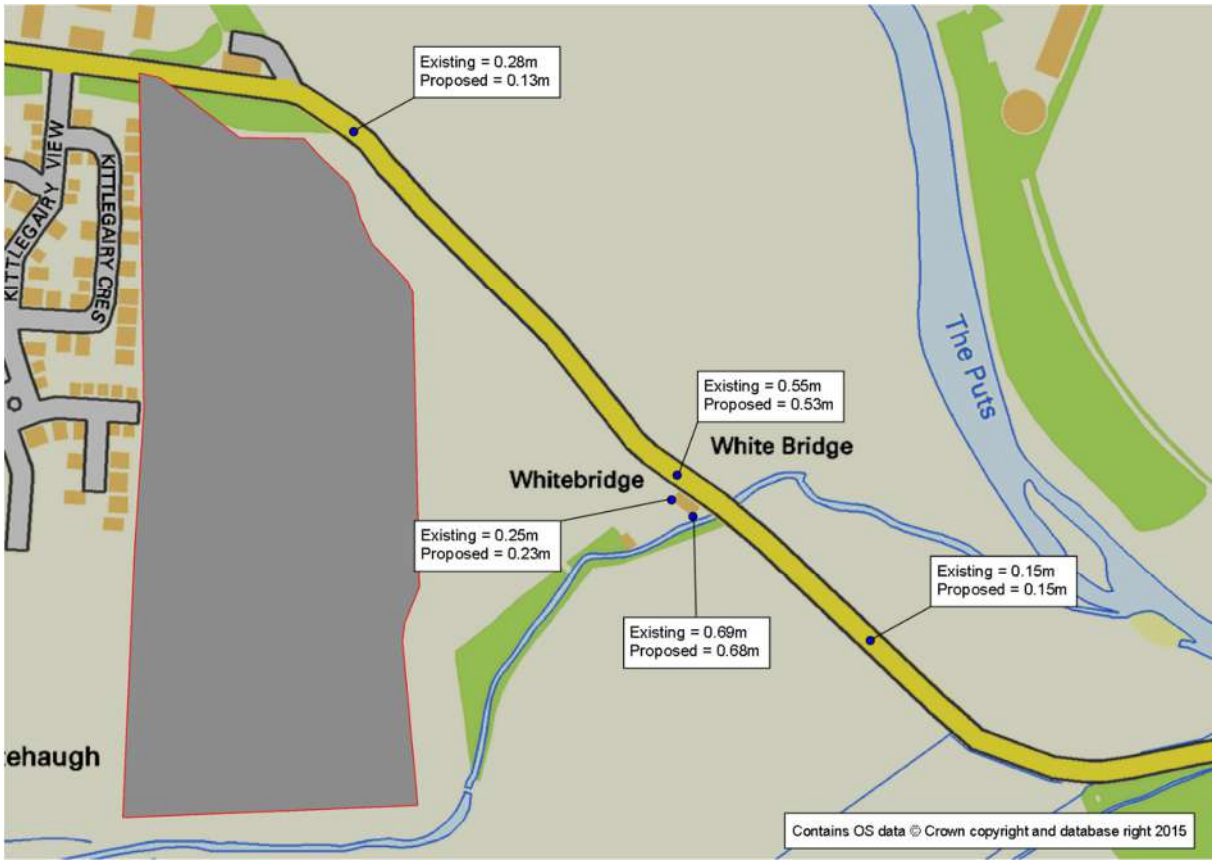
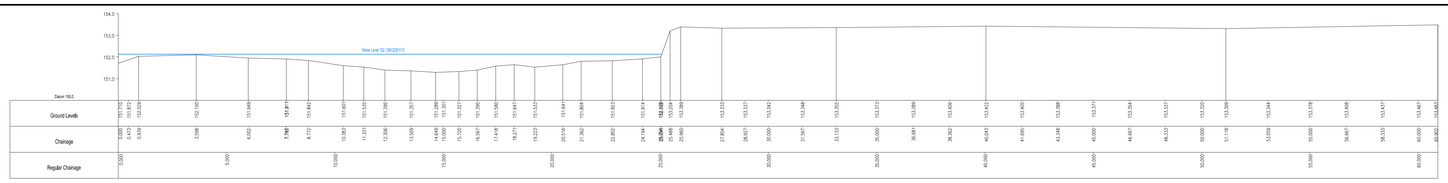


Figure A6: Maximum water depths at key receptors

Figure A7: Recommended minimum flood protection levels (mAOD)

Do not scale from this drawing.



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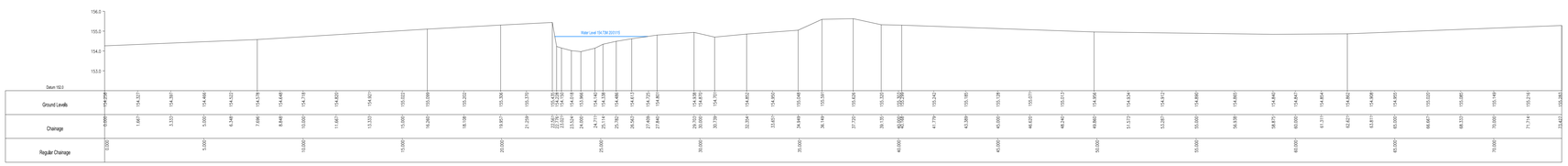
Section : HB 27

Section : HB 26

Section : HB 25

Section : HB 24



Section : HB 23

Section : HB 22

Rev.	Date	Description	Drawn	Checked	Approved

NOTES:

1. CROSS-SECTION SURVEY OF THE HAYSTOUN BURN INCLUDING THE THREE BRIDGES ADJACENT TO THE SITE, SURVEYED BY AIRD GEOMATICS IN JANUARY 2015.

Client:

awg

Project Title:

WHITEHAUGH FARM,
PEEBLES

Drawing Title:

HAYSTOUN BURN
CROSS SECTIONS SHEET 1 OF 3

FAIRHURST
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Tel: 0141 204 8800 Fax: 0141 204 8801

Scale at A0:	Status:
1:100	For Information

Drawn:	Checked:	Approved:
KAB		
Date: 14/04/17	Date:	Date:

Drawing No.: 94600/sk2004

Revision: –

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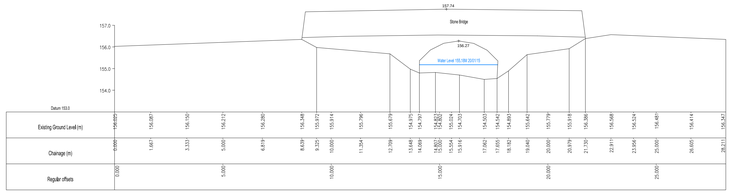

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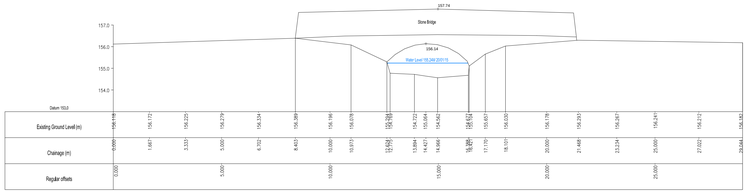

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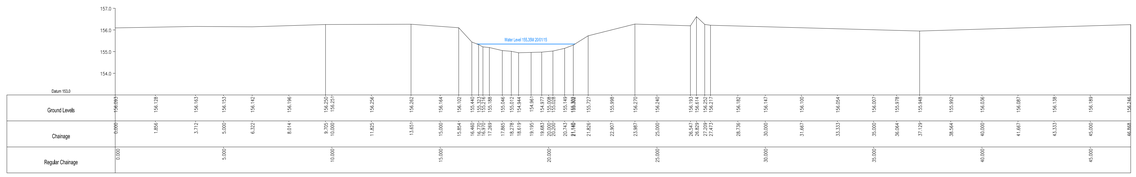

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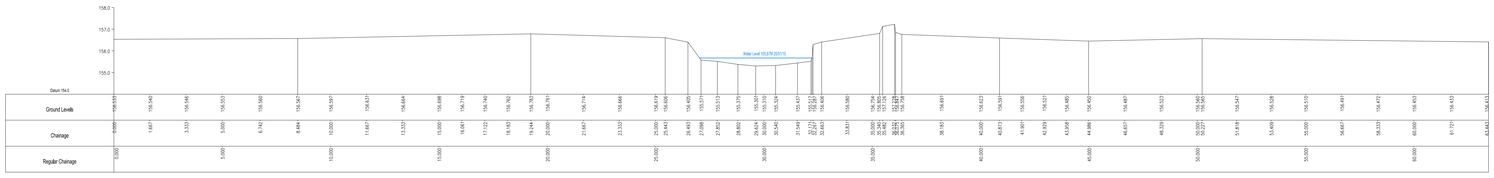

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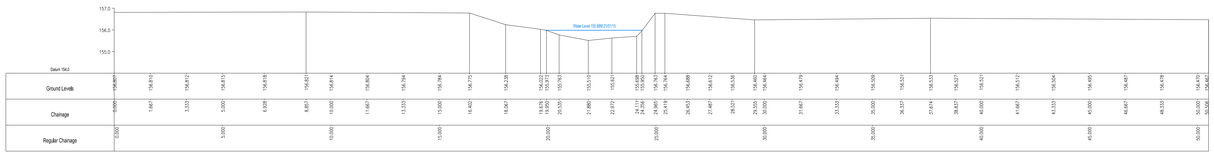

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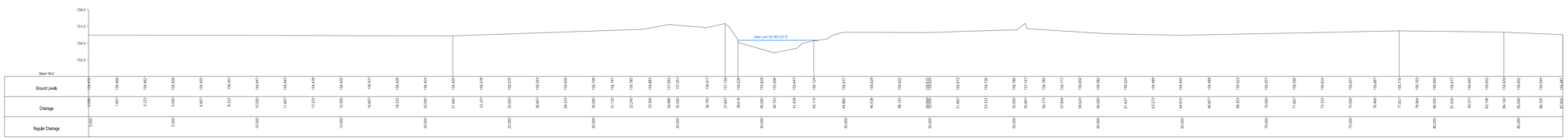

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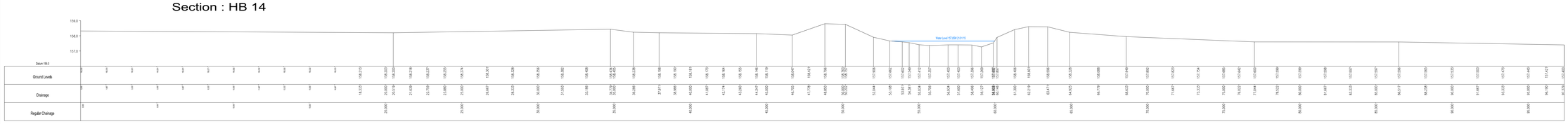

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NOTES:

1. CROSS-SECTION SURVEY OF THE HAYSTOUN BURN INCLUDING THE THREE BRIDGES ADJACENT TO THE SITE, SURVEYED BY AIRD GEOMATICS IN JANUARY 2015.

Rev.	Date	Description	Drawn	Checked	Approved

Client: awg

Project Title: WHITEHAUGH FARM, PEEBLES

Drawing Title: HAYSTOUN BURN CROSS SECTIONS SHEET 2 OF 3

FAIRHURST
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Scale: at A0:	Status:
1:100	For Information

Drawn:	Checked:	Approved:
KAB		
Date: 14/04/17	Date:	Date:

Drawing No.: 94600/sk2005 Revision: –

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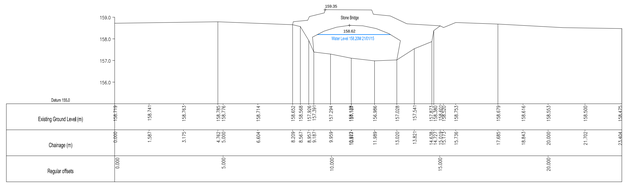

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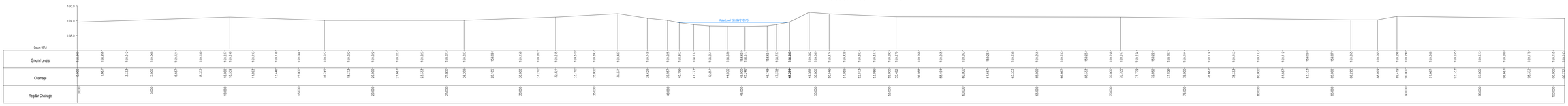

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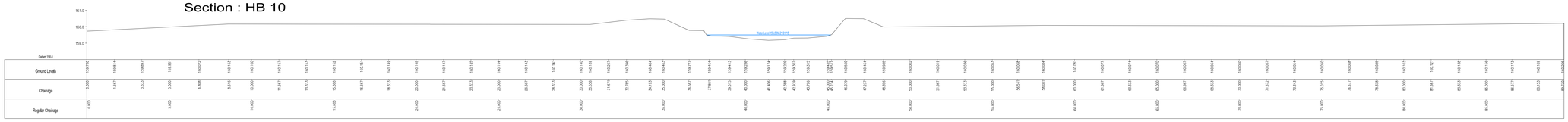

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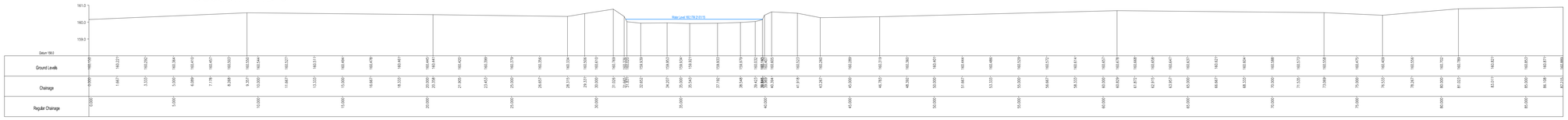

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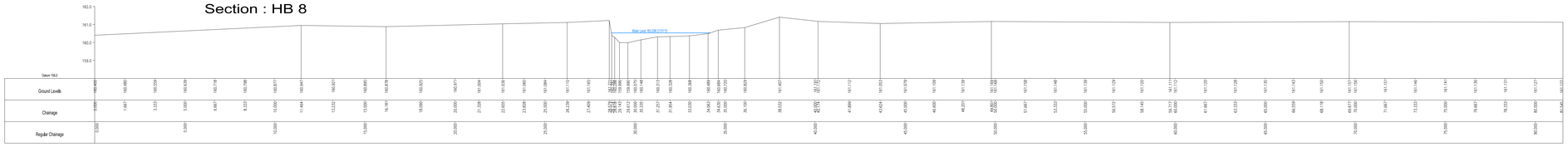

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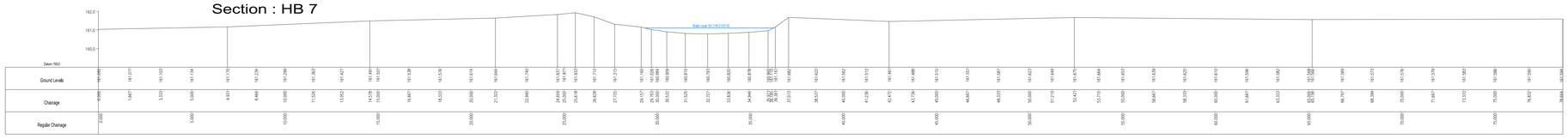

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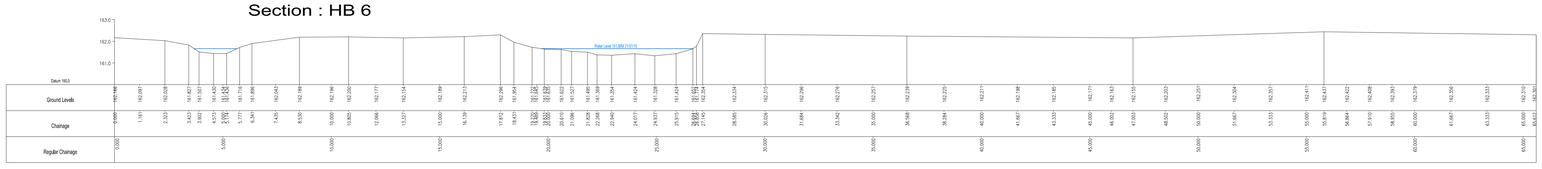

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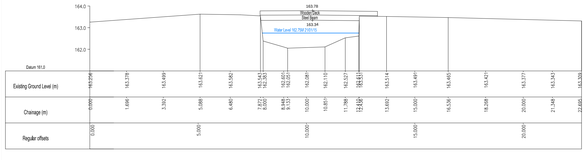

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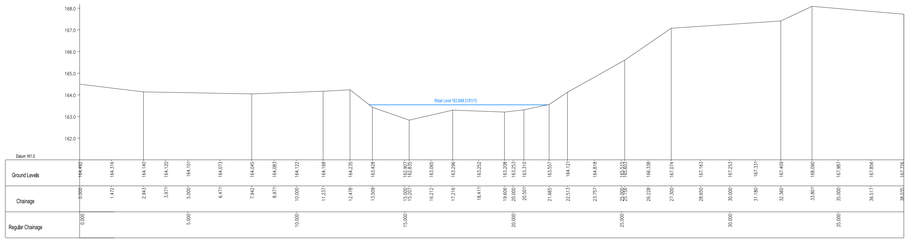

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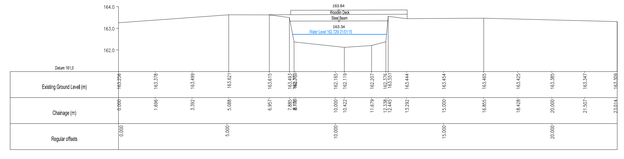

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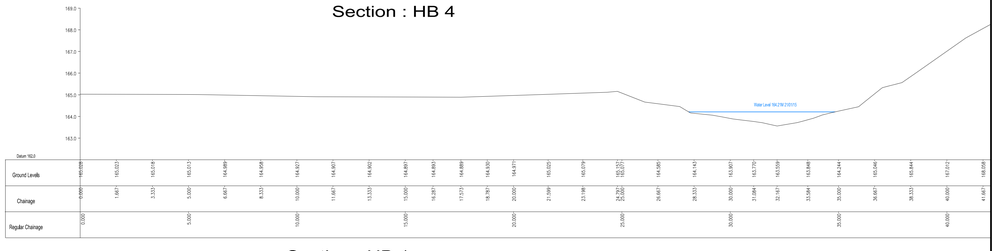

Section : HB 1

NOTES:

1. CROSS-SECTION SURVEY OF THE HAYSTOUN BURN INCLUDING THE THREE BRIDGES ADJACENT TO THE SITE, SURVEYED BY AIRD GEOMATICS IN JANUARY 2015.

Rev.	Date	Description	Drawn	Checked	Approved

Client:

awg

Project Title:

WHITEHAUGH FARM,
PEEBLES

Drawing Title:

HAYSTOUN BURN
CROSS SECTIONS SHEET 3 OF 3

FAIRHURST
225 Bath Street,
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Scale at A0:	Status:
1:100	For Information

Drawn:	Checked:	Approved:
KAB		
Date:	Date:	Date:
14/04/17		

Drawing No: 94600/sk2006

Revision: –

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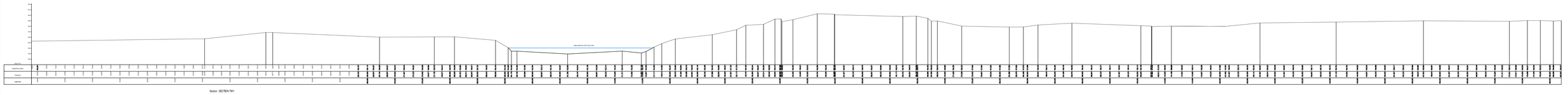

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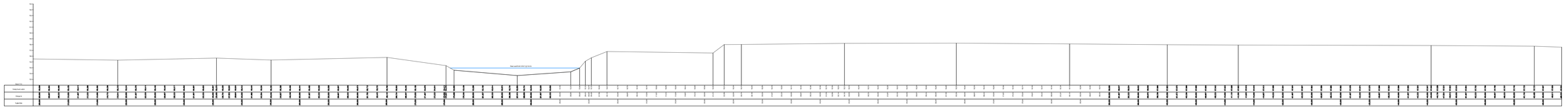

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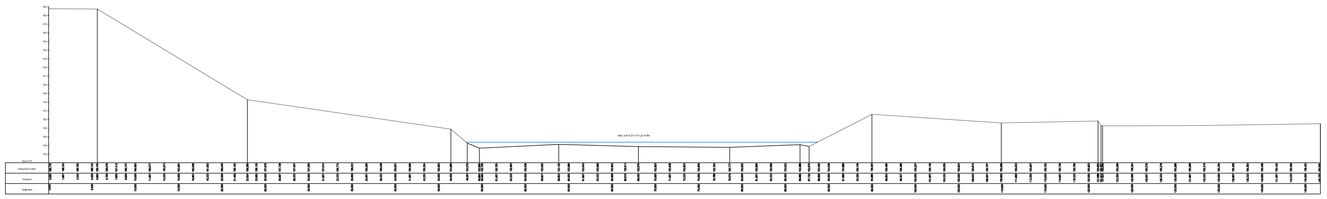

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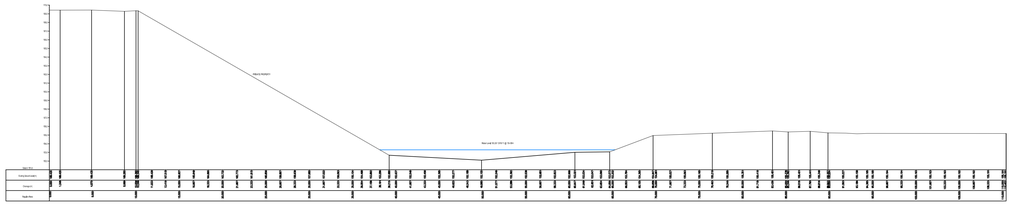

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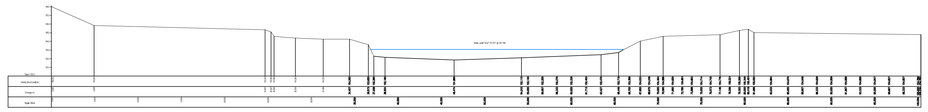

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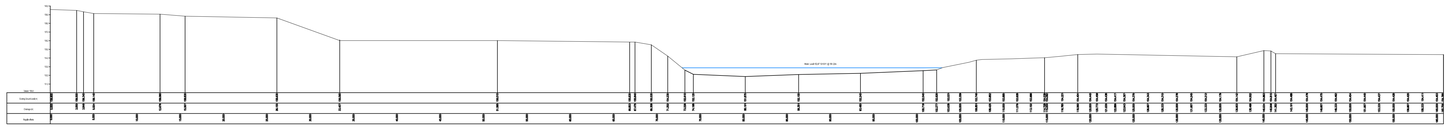

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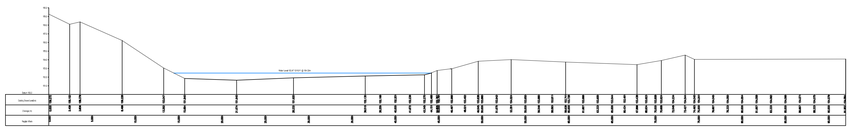

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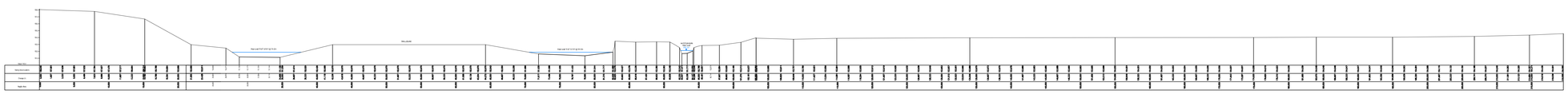

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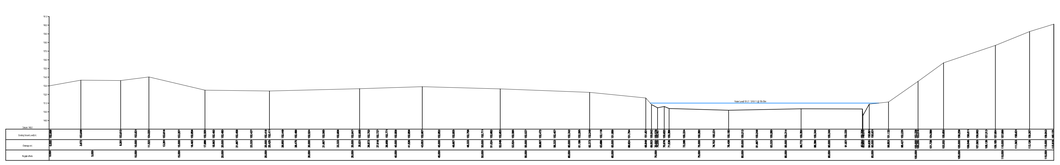

Section : SECTION TW9

Rev.	Date	Description	Drawn	Checked	Approved

NOTES:

1. SECTIONS EXTRACTED FROM AIRD GROUP DRAWINGS DATED 18/10/11.

Client:

awg

Project Title:

WHITEHAUGH FARM,
PEEBLES

Drawing Title:

RIVER TWEED
CROSS SECTIONS SHEET 1 OF 1

FAIRHURST
225 Bath Street,
GLASGOW, G2 4GZ
Tel: 0141 204 8800 Fax: 0141 204 8801

Scale at A0:	Status:	
1:250	For Information	
Drawn:	Checked:	Approved:
KAB		
Date:	Date:	Date:
14/04/17		
Drawing No.:		Revision:
94600/sk2007		–

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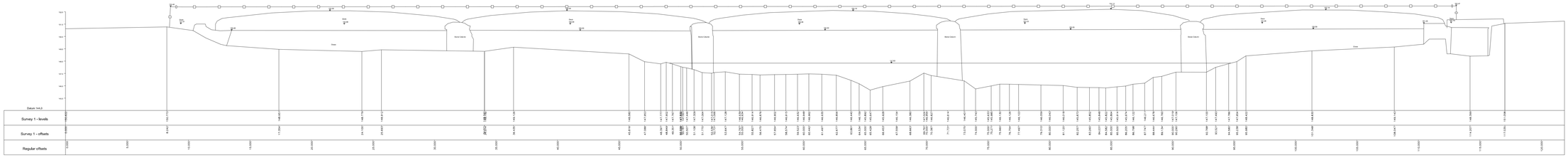

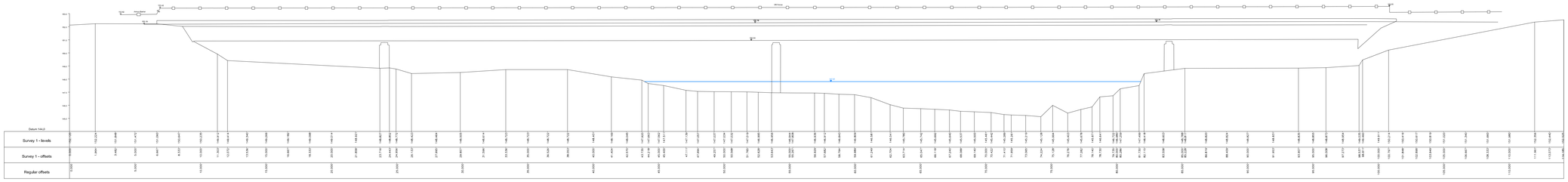

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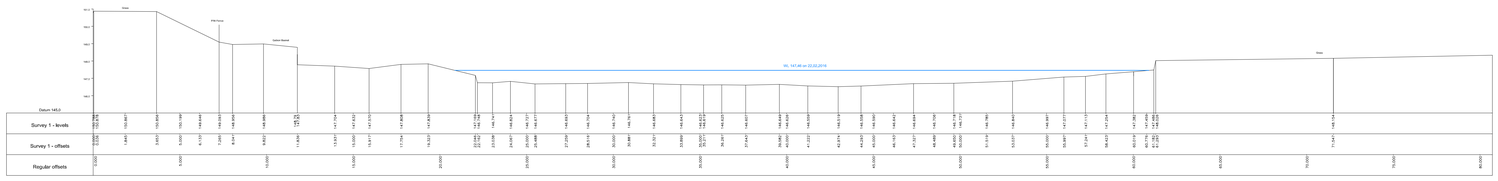

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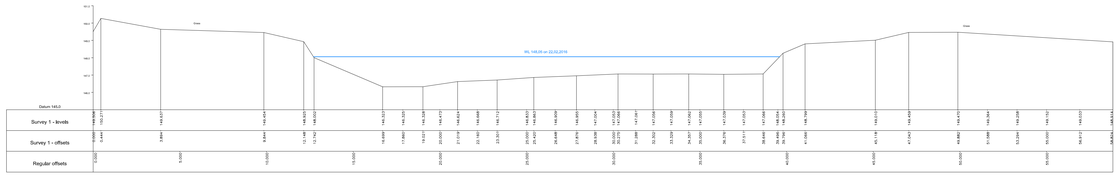

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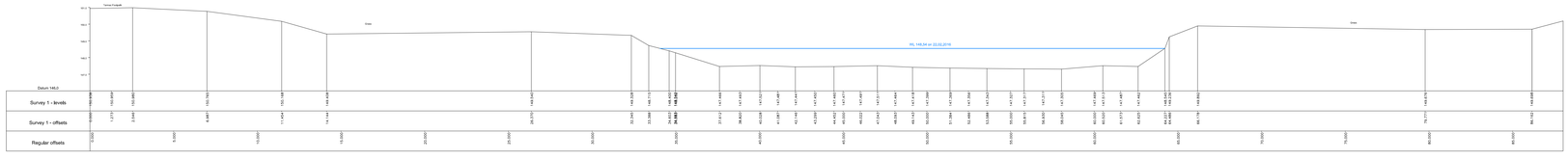

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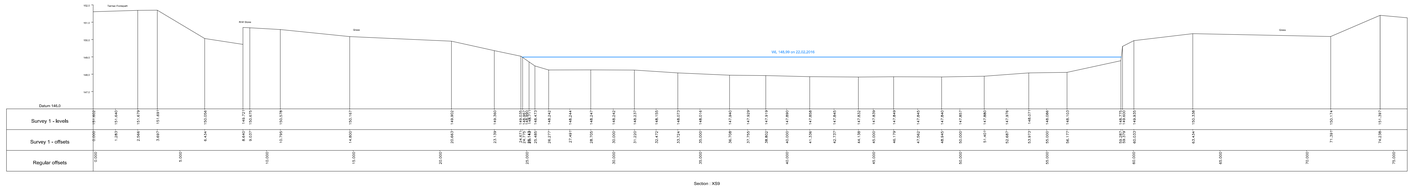

Section : XS9

Rev.	Date	Description	Drawn	Checked	Approved

NOTES:

1. SECTIONS EXTRACTED FROM AIRD GROUP DRAWINGS DATED 18/10/11.

Client:

awg

Project Title:

WHITEHAUGH FARM,
PEEBLES

Drawing Title:

RIVER TWEED MASTER
CROSS SECTIONS SHEET 1 OF 2

FAIRHURST
225 Bath Street,
GLASGOW, G2 4GZ
Tel: 0141 204 8800 Fax: 0141 204 8801

Scale at A0:	Status:	
1:1250	For Information	
Drawn:	Checked:	Approved:
KAB		
Date:	Date:	Date:
14/04/17		
Drawing No.:		Revision:
94600/sk2008		–

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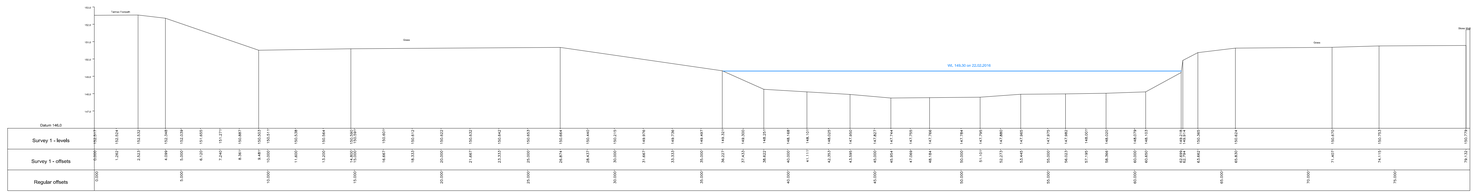

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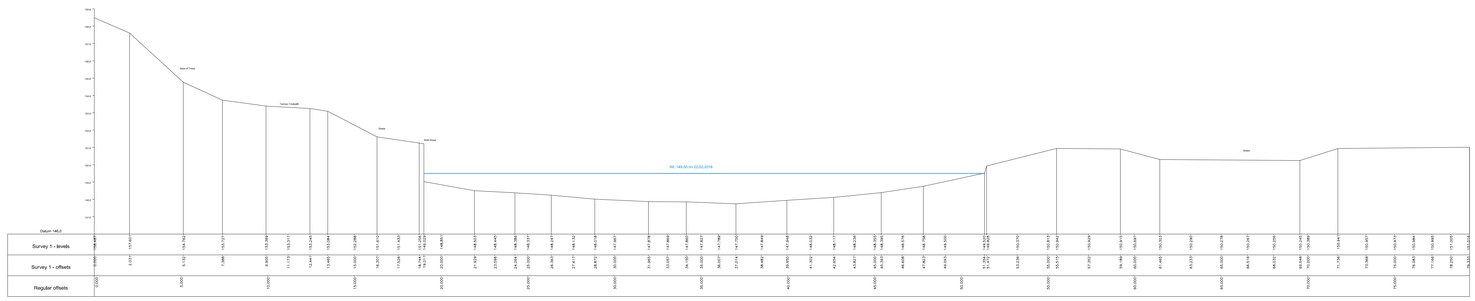

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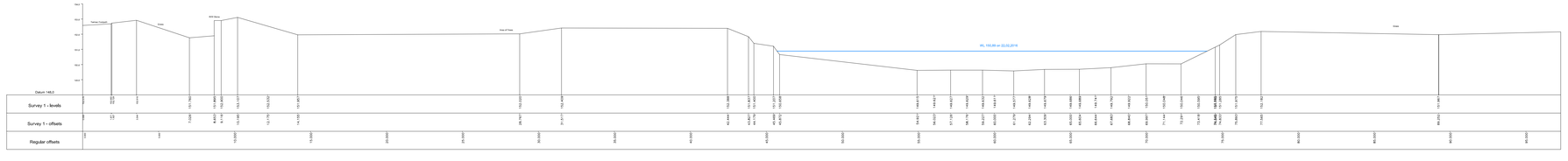
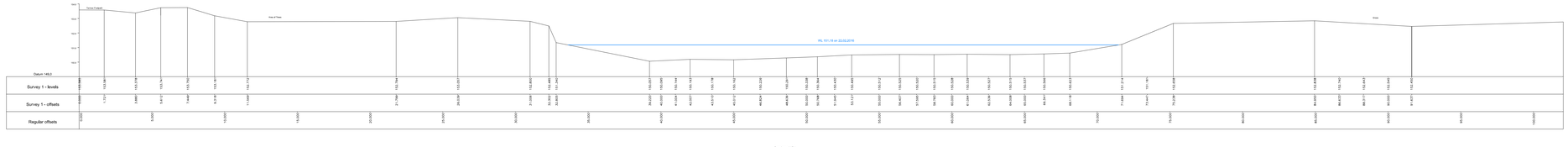
Section : XS6



Section : XS5



Section : XS4

Rev.	Date	Description	Drawn	Checked	Approved

NOTES:

1. SECTIONS EXTRACTED FROM AIRD GROUP DRAWINGS DATED 18/10/11.

Client:

Project Title:

WHITEHAUGH FARM,
PEEBLES

Drawing Title:

RIVER TWEED MASTER
CROSS SECTIONS SHEET 2 OF 2

FAIRHURST
225 Bath Street,
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Scale at A0:	Status:
1:1250	For Information

Drawn:	Checked:	Approved:
KAB		
Date: 14/04/17	Date:	Date:

Drawing No: 94600/sk2009

Revision: –

Appendix B

Hydrology

FEH catchment descriptors

FEH Rainfall Runoff summary

FEH catchment descriptors (FEH CD-ROM v.3)

Descriptor	Haystoun Burn	River Tweed adjacent to Haystoun Burn
Easting	327250	327250
Northing	639250	639300
AREA (km^2)	22.97	709.5
ALTBAR	396	355
ASPVAR	0.28	0.04
BFIHOST	0.597	0.518
DPLBAR	6.5	26.88
DPSBAR	252.2	181.8
FARL	1.0	0.975
LDP	12.33	51.9
PROPWET	0.72	0.56
SAAR (mm)	1154	1136
SPRHOST	31.4*	37.09
URBEXT1990	0.0007	0.0021

FEH Rainfall Runoff summary

Catchment: Haystoun Burn

Catchment Characteristics
****
Easting : 327250 Northing : 639250
Area : 22.970 km2
DPLBAR : 6.500 km
DPSBAR : 252.200 m/km
PROPWET : 0.720
SAAR : 1154.000 mm
Urban Extent : 0.001
c : -0.023
d1 : 0.396
d2 : 0.490
d3 : 0.331
e : 0.284
f : 2.221
SPR : 32.765 %
****
Summary of estimate using Flood Estimation Handbook rainfall-runoff method
****
Estimation of T-year flood
==========
Unit hydrograph time to peak : 2.244 hours
Instantaneous UH time to peak : 2.194 hours
Data interval : 0.100 hours
Design storm duration : 4.900 hours
Critical storm duration : 4.833 hours
Return period for design flood : 200.000 years
requires rain return period : 246.667 years
ARF : 0.936
Design storm depth : 63.343 mm
CWI : 124.335
Standard Percentage Runoff : 32.765 %
Percentage runoff : 36.695 %
Snowmelt rate : 0.000 mm/day
Unit hydrograph peak : 2.252 (m3/s/mm)
Quick response hydrograph peak : 38.612 m3/s
Baseflow : 0.791 m3/s
Baseflow adjustment : 5.000 m3/s
Hydrograph peak : 39.404 m3/s
Hydrograph adjustment factor : 1.000

Flags
=====
Unit hydrograph flag : FSRUH
Tp flag : FEHTP
Event rainfall flag : FEHER
Rainfall profile flag : WINRP
Percentage Runoff flag : FEHPR
Baseflow flag : F16BF
CWI flag : FSRCW

FEH Rainfall Runoff summary

Catchment: River Tweed at Haystoun Burn

Catchment Characteristics

```
************************************************************
Easting      :  327250 Northing      :  639300
Area         :  709.750 km2
DPLBAR       :   26.880 km
DPSBAR       :  181.800 m/km
PROPWET      :    0.560
SAAR         : 1136.000 mm
Urban Extent :    0.002
c            :   -0.019
d1           :    0.423
d2           :    0.465
d3           :    0.317
e            :    0.262
f            :    2.269
SPR          :   37.090 %
************************************************************
Summary of estimate using Flood Estimation Handbook rainfall-runoff method
************************************************************
Estimation of T-year flood
==========================
Unit hydrograph time to peak  :    6.472 hours
Instantaneous UH time to peak :    6.422 hours
Data interval                 :    0.100 hours
Design storm duration         :   13.900 hours
Critical storm duration       :   13.824 hours
Return period for design flood :  200.000 years
requires rain return period   :  246.667 years
ARF                           :    0.880
Design storm depth            :   84.059 mm
CWI                           :  124.296
Standard Percentage Runoff    :   37.090 %
Percentage runoff             :   43.317 %
Snowmelt rate                 :    0.000 mm/day
Unit hydrograph peak          :   24.127 (m3/s/mm)
Quick response hydrograph peak :  651.605 m3/s
Baseflow                      :   24.062 m3/s
Baseflow adjustment           :    0.000 m3/s
Hydrograph peak               :  675.667 m3/s
Hydrograph adjustment factor  :    1.000

Flags
=====
Unit hydrograph flag          : FSRUH
Tp flag                       : FEHTP
Event rainfall flag           : FEHER
Rainfall profile flag         : WINRP
Percentage Runoff flag        : FEHPR
Baseflow flag                 : F16BF
CWI flag                      : FSRCW
```

Appendix C

Hydraulic Modelling Output

Flood Modeller 1D model results

Flood Modeller 1D model results

Table C1: Existing flood levels in the Haystoun Burn (mAOD)

Model cross-section ref.	200 yr	200 yr + CC	Comment
A	167.64	167.72	
B	166.93	167.01	
C	165.89	165.92	
D	166.01	166.11	Footbridge
1	164.97	165.06	
2	164.45	164.53	
3	164.21	164.36	Bridge at Whitehaugh Farm
4	163.65	163.72	
5	162.41	162.46	
6	161.80	161.82	
7	161.20	161.22	
8	160.72	160.76	
9	160.15	160.18	
10	159.34	159.34	
11	159.26	159.29	Farm access bridge
12	158.75	158.77	
13	158.25	158.26	
14	157.45	157.46	
15	156.82	156.83	
16	156.57	156.58	
17	156.52	156.54	
18	156.37	156.40	
19	156.37	156.39	White Bridge
20	155.76	155.77	
21	155.59	155.59	
22	155.37	155.38	
23	155.20	155.20	
24	154.80	154.80	
25	154.30	154.32	
26	154.04	153.94	
27	152.76	152.89	River Tweed confluence

Highlighted cross-sections represent the channel adjacent to the site

Table C2: Existing flood levels in the River Tweed (mAOD)

Model cross-section ref.	200 yr	200 yr + CC	Comment
T1	157.40	157.59	
T2	157.29	157.47	Upstream end of site
T3	156.89	157.12	
T4	156.76	157.02	
T5	156.64	156.91	
T6	156.55	156.83	
T7	156.43	156.71	
T8	154.89	155.08	Confluence with Haystoun Burn
T9	154.04	154.22	
4	153.75	153.92	
5	153.25	153.40	
6	152.88	153.04	
7	152.38	152.57	
8	152.00	152.24	
9	151.76	152.02	
11	151.45	151.74	
10	151.27	151.57	
2	151.15	151.45	
1	150.73	151.01	The Horsbrugh Bridge
3	150.49	150.74	

Highlighted cross-sections represent the channel adjacent to the site

Table C3: Model sensitivity - Haystoun Burn (mAOD)

Model cross-section ref.	200 yr	Haystoun Burn Flow + 20%	1D and 2D Manning's +20%	25% Bridge Blockage	Downstream Boundary Slope decreased 50%
A	167.64	167.72	167.73	167.64	167.64
B	166.93	167.01	166.98	166.92	166.93
C	165.89	165.92	166.00	165.90	165.89
D	166.01	166.11	166.04	166.06	166.01
1	164.97	165.06	165.08	164.95	164.97
2	164.45	164.53	164.51	164.46	164.45
3	164.21	164.36	164.19	164.36	164.21
4	163.65	163.72	163.68	163.58	163.65
5	162.41	162.46	162.45	162.42	162.41
6	161.80	161.82	161.83	161.81	161.80
7	161.20	161.22	161.25	161.23	161.19
8	160.72	160.76	160.76	160.73	160.72
9	160.15	160.18	160.16	160.21	160.15
10	159.34	159.34	159.36	159.29	159.34
11	159.26	159.29	159.24	159.39	159.26
12	158.75	158.77	158.80	158.71	158.76
13	158.25	158.26	158.30	158.20	158.25
14	157.45	157.46	157.50	157.39	157.45
15	156.82	156.83	156.90	156.82	156.82
16	156.57	156.58	156.57	156.56	156.57
17	156.52	156.54	156.53	156.53	156.52
18	156.37	156.40	156.32	156.48	156.37
19	156.37	156.39	156.30	156.51	156.37
20	155.76	155.77	155.82	155.58	155.76
21	155.59	155.59	155.59	155.43	155.59
22	155.37	155.38	155.39	155.28	155.37
23	155.20	155.20	155.26	155.10	155.20
24	154.80	154.80	154.82	154.68	154.80
25	154.30	154.32	154.32	154.22	154.30
26	154.04	153.94	153.93	153.82	154.04
27	152.76	152.89	152.89	152.74	152.76

Highlighted cross-sections represent the channel adjacent to the site

Table C4: Flood levels in the Haystoun Burn with proposed mitigation (mAOD)

Model cross-section ref.	200 yr	Change from existing	200 yr + CC
A	167.64	0.00	167.72
B	166.93	0.00	167.01
C	165.89	0.00	165.92
D	166.01	0.00	166.11
1	164.97	0.00	165.06
2	164.45	0.00	164.53
3	164.21	0.00	164.36
4	163.65	0.00	163.72
5	162.40	-0.01	162.43
6	161.82	0.02	161.85
7	161.20	0.00	161.23
8	160.73	0.01	160.77
9	160.16	0.00	160.19
10	159.34	0.00	159.34
11	159.27	0.01	159.30
12	158.76	0.00	158.77
13	158.25	0.00	158.27
14	157.45	0.00	157.46
15	156.82	0.00	156.83
16	156.56	-0.01	156.58
17	156.51	-0.01	156.54
18	156.36	-0.01	156.39
19	156.36	-0.01	156.39
20	155.76	0.00	155.77
21	155.58	0.00	155.59
22	155.37	0.00	155.38
23	155.20	0.00	155.20
24	154.79	0.00	154.80
25	154.30	0.00	154.33
26	154.04	0.00	153.94
27	152.76	0.00	152.89

Highlighted cross-sections represent the channel adjacent to the site

Table C5: Flood levels in the Haystoun Burn with mitigation proposals and flood route at Whitehaugh Farm closed off (mAOD)

Model cross-section ref.	200 yr	200 yr + CC
A	167.64	167.72
B	166.93	167.01
C	165.89	165.92
D	166.01	166.11
1	164.97	165.06
2	164.45	164.53
3	164.21	164.36
4	163.65	163.72
5	162.48	162.56
6	161.89	161.96
7	161.26	161.35
8	160.80	160.90
9	160.20	160.33
10	159.34	159.42
11	159.31	159.43
12	158.78	158.84
13	158.28	158.31
14	157.48	157.51
15	156.85	156.89
16	156.60	156.64
17	156.56	156.61
18	156.43	156.47
19	156.43	156.49
20	155.78	155.79
21	155.60	155.62
22	155.38	155.39
23	155.21	155.22
24	154.81	154.82
25	154.33	154.36
26	154.04	154.07
27	152.88	153.07

Highlighted cross-sections represent the channel adjacent to the site

Figure C1 - Hydrographs at the B7062: Existing vs. Proposed

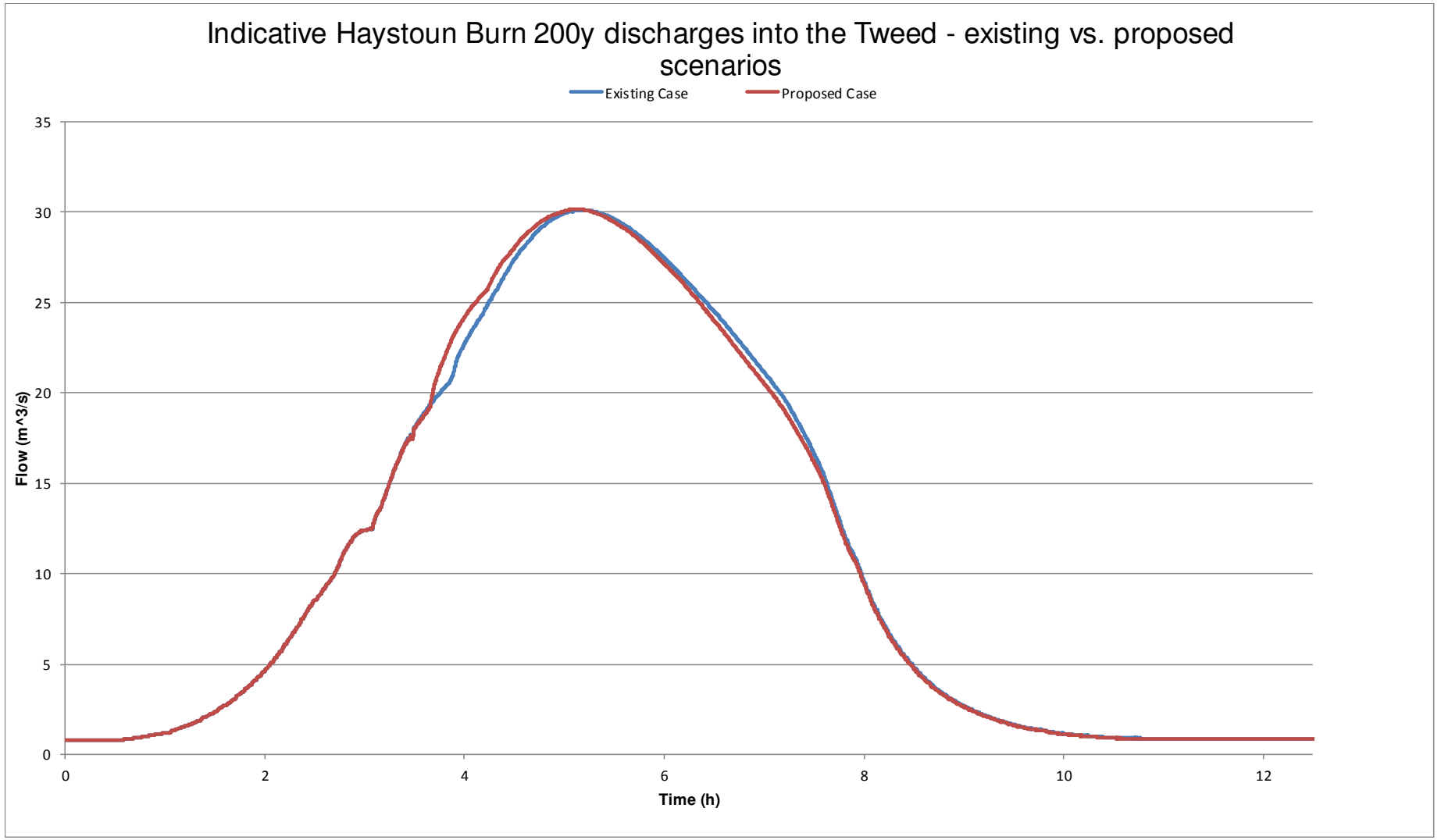
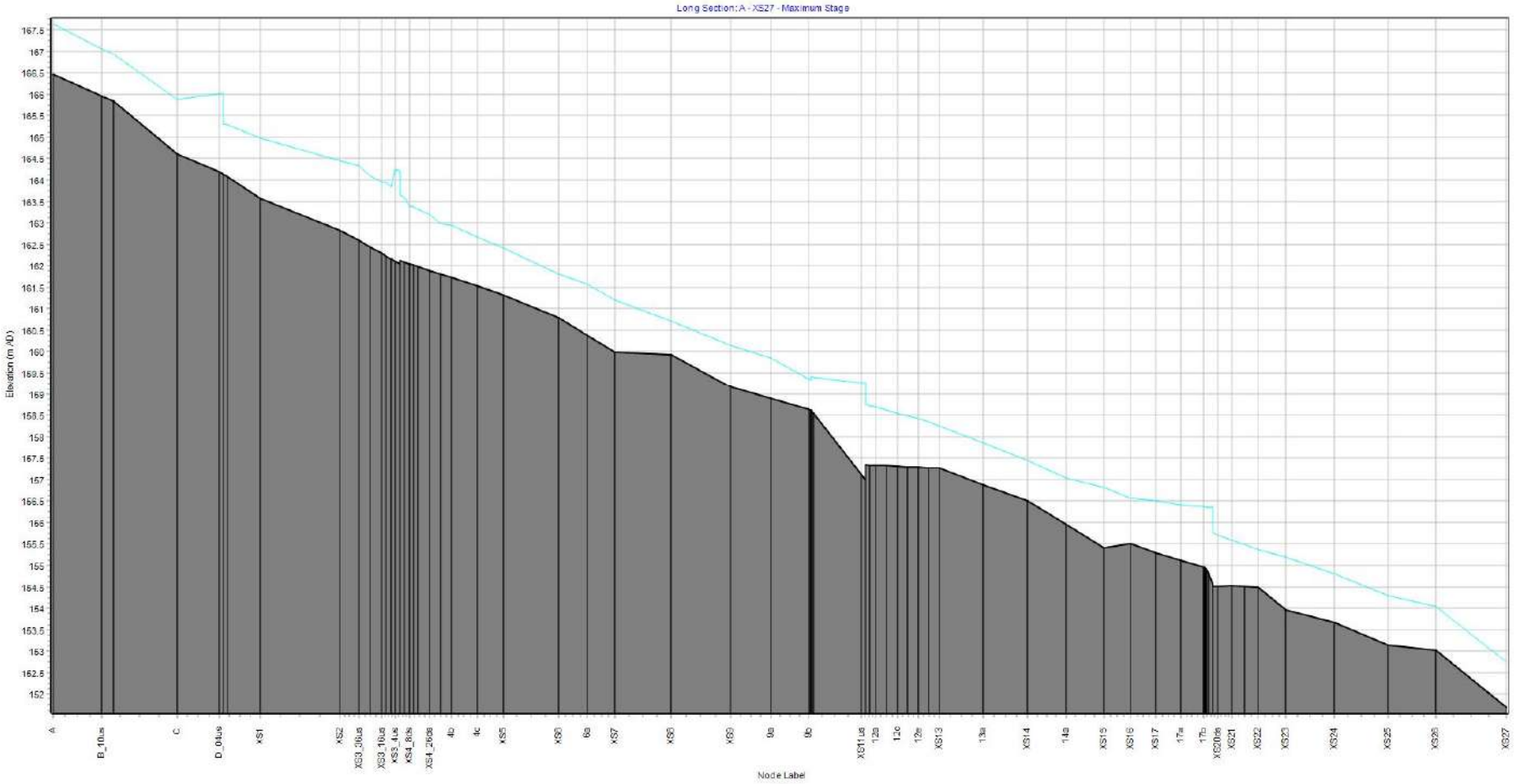


Figure C2 – Haystoun Burn 1D model long-section – Peak 200yr flood level (Existing)



Appendix D

JBA Modelling Report

Kenneth Barr
Technical Director
Water Services Division
W A Fairhurst & Partners
225 Bath Street
GLASGOW
G2 4GZ

Our Ref: BB\2018s0827-E-L001-2.doc

31 July 2018

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Dear Mr Barr,

River Tweed Modelling

As part of a wider evaluation of flood risk to a development site in Peebles, Fairhurst commissioned JBA Consulting to undertake an assessment of the impact proposed development and flood risk management options on the Haystoun Burn might have on the River Tweed, and in particular on flood risk receptors downstream. This letter describes the assessment carried out and presents the results.

The assessment entailed a hydraulic modelling exercise using an existing River Tweed 1D-2D FloodModeller Pro-TUFLOW model developed as part of the ongoing Borders Flood Studies for Scottish Borders Council. The only change made to the model was the inflow which represents the contribution to the River Tweed from the Haystoun Burn. The inflow was changed from a ReFH unit to a Flow-Time boundary to allow input of hydrographs derived from the Fairhurst Haystoun Burn model. The inflow occurs at a single point on the River Tweed, adjacent to the confluence, rather than being spread across multiple model nodes which may occur during times of flood. The JBA model audit report produced for the Scottish Borders Council study has been reviewed by SEPA but the JBA model itself has not been externally reviewed.

The hydrographs supplied by Fairhurst cover a range of return periods: 30 year, 200 year, 200 year with a 20% increase for climate change and 1000 year; and a range of scenarios based on different control measures for flood waters near the development site. The scenarios referred to in the results section were defined by Fairhurst and are as follows:

Scenario	Description
001	Existing case model, No CSA*, Western flood route open
101	Proposed case model, Bunded CSA included, Western flood route blocked
102	Proposed case model, Bunded CSA removed, Western flood route blocked
103	Proposed case model, Bunded CSA included, Western flood route open
* CSA = Compensatory Storage Area	

The hydrographs supplied to JBA were a model output from the Fairhurst Haystoun Burn model and were based on a storm event of 15.1 hours duration, the critical storm duration for the River Tweed at the Haystoun Burn. Whilst this differs from the critical storm duration on the Haystoun Burn (4.75 hours) here the focus was on the worst-case impacts on the River Tweed and thus this approach was appropriate. The Haystoun model hydrographs have been aligned with the peak flow on the River Tweed.

A summary of the peak flows for the Haystoun Burn for each of the return periods and scenarios of interest are presented below. The difference between each scenario and the respective peak flow for scenario 001 is also presented to highlight the small difference in flow between scenarios. Whilst the peak flow for most of the proposed scenarios is lower than scenario 001, there are marginal changes in the shape of the hydrograph that may influence the change in flow and level on the River Tweed.

	30 year event				**200 year event**			
Scenario	001	101	102	103	001	101	102	103
Haystoun peak flow (m^3/s)	21.05	20.86	21.32	20.82	32.25	32.06	32.11	31.35
Difference from 001 (m^3/s)	-	-0.19	0.27	-0.23	-	-0.19	-0.14	-0.9
Tweed peak flow (m^3/s)	413.1				690.7			

	200 year event with a 20% increase for Climate Change				**1000 year**			
Scenario	001	101	102	103	001	101	102	103
Peak flow (m^3/s)	38.68	38.44	38.47	38.56	46.91	46.7	46.76	46.87
Difference from 001 (m^3/s)	-	-0.24	-0.21	-0.12	-	-0.21	-0.15	-0.04
Tweed peak flow (m^3/s)	816.9				1,104.5			

Results

The results of the modelling are supplied alongside this letter in Microsoft Excel format and are summarised below. Results are reported for each model cross section as shown in Figure 1-1 below. The model runs have shown that the small differences in flow between the different scenarios results in very little impact on the River Tweed when compared with the baseline 001 scenario. Peak flows on the River Tweed generally increase by 0.1-0.7 m^3/s. This represents an increase of 0.1-0.6% of the total flow on the River Tweed across all events and scenarios.

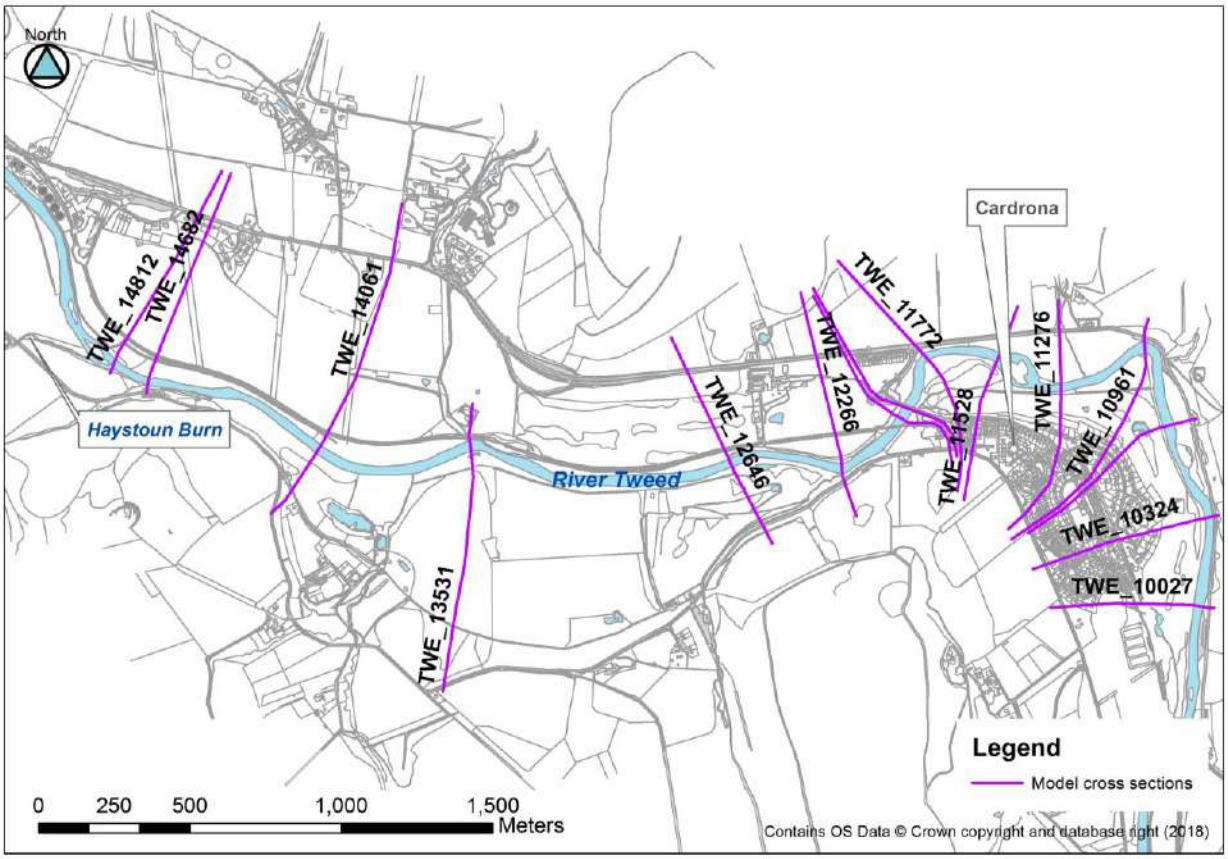

Figure 1-1: River Tweed model cross section locations

The following table provides the maximum stage recorded at model cross section TWE_14061, 620m downstream of the Haystoun Burn confluence. The model reports that different scenarios produce a maximum of 0.001m difference in water level at this location on the River Tweed with many scenarios reproducing the same levels in scenarios 101-103 as in 001. Whilst the model results are generated to millimetre precision, the uncertainty involved in the modelling exercise requires that caution be used when drawing conclusions and hence this small difference in level should be taken as being within approximately ±0.010m of the baseline levels.

Table 1-1: Model results at model cross section TWE_14061

Scenario	**30 year** (mAOD)	**200 year** (mAOD)	**200 year + CC** (mAOD)	**1000 year** (mAOD)
001	152.59	153.04	153.20	153.52
101	152.59	153.04	153.20	153.52
102	152.59	153.04	153.20	153.52
103	152.59	153.04	153.20	153.52

Model section TWE_12007_US is located further downstream than TWE_14061, just upstream of Cardrona where some flood risk receptors are located. The results for this model node show that the different scenarios have a negligible impact on water levels by this point in the water course as the effects of any changes in flow between scenarios have dissipated. Model cross sections TWE_4596 and TWE_2263 are located in Innerleithen and Walkerburn, respectively and show similarly small differences in water level between the different scenarios. Whilst in general properties in Cardrona are not deemed to be at risk of flooding from the River Tweed, properties in Innerleithen and Walkerburn are.

Table 1-2: Model results at model cross section TWE_12007_US

Scenario	**30 year** (mAOD)	**200 year** (mAOD)	**200 year + CC** (mAOD)	**1000 year** (mAOD)
001	150.03	150.70	151.02	151.67
101	150.03	150.70	151.02	151.67
102	150.03	150.70	151.02	151.67
103	150.03	150.70	151.02	151.67

Overall the different scenarios represent an extremely small variation in the total River Tweed flow downstream of the Haystoun Burn confluence and, as expected, they have limited impact on water levels in the River Tweed. There is no discernible difference between scenarios in terms of impact on modelled water levels on the River Tweed.

Summary

The hydraulic modelling has shown that the different scenarios proposed by Fairhurst to manage flood risk to a site on the Haystoun Burn are estimated to have negligible impact on the River Tweed. A change in water levels of approximately 10mm may be expected immediately downstream of the confluence and this effect is expected to dissipate upstream of Cardrona.

Yours sincerely,

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