APPENDIX A

ASEA Infrastructure (Flood Defence and Eco Mitigation) Phase 2
Further essential background / detail on the proposal

Overall Background (Current Position):

1. The Avonmouth Severnside Enterprise Area (ASEA) is protected by a combination of Environment Agency and privately maintained defences, these vary in terms of design and materials. The Severn Estuary Shoreline Management Plan 2 (SMP2) states that the short term (0-20 years) policy adopted in relation to the flood defences in the general area is "hold the line". The "hold the line" position will require investment over time as sea levels are predicted to rise as a result of climate change to 2050 and beyond. The recommended standard of protection for new development to be safe from tidal flooding is 1 in 200 years plus an allowance for climate change. The current defences along the sea frontage do not provide this level of protection along the entire length.

2. Current climate change predictions indicate a sea level rise that would lead to significant overtopping of the existing defences within ASEA. In the event of a tidal flood, this would lead (using the DEFRA "Flood Risks to People" flood hazard category system) to "danger for most"/"danger for all" across the area.

3. Improvements to the existing defences are therefore required to enable planned development within ASEA and to ensure that the increasing risks from tidal flooding are mitigated on a strategic scale. In the absence of a strategic solution to the risk of tidal flooding in the ASEA, development is unlikely to be sustainable and the Environment Agency will object to planning applications where they are at risk of flooding.

4. The Environment Agency, Bristol City and South Gloucestershire Councils (acting as local planning authorities) have to date supported proposals for development within ASEA on a case by case basis. However, the Environment Agency and Councils recognise, in the context of the Strategic Flood Risk Assessment level 2 (SFRA2), that it is not desirable to continue to deal with development on such a basis and that a long-term, comprehensive, strategic solution is required to reduce the risk of tidal flooding in ASEA to enable it to reach its full potential. The existing defences will therefore need to be increased in height (and the introduction of new defences where appropriate) to bring them up to the 1 in 200 year standard of protection today and will either need to be further increased in height in the future or, future proofed with an increased height today to take account of climate change modelling.

5. Development, including proposals for new infrastructure and improvement to ASEA's flood defences also need to consider the detailed implications on surface water drainage. In addition to coastal flooding risk, significant parts of ASEA are also at risk from fluvial (and pluvial) flooding. Watercourses are owned by a number of stakeholders including the Lower Severn Internal Drainage Board (IDB).

6. The SFRA2 indicates that it is essential that a strategic flood defence solution is brought forward to protect existing development within ASEA. A "do nothing" approach is therefore not an acceptable option since existing development and infrastructure within the ASEA would become increasingly at risk of tidal flooding. This option would also preclude new development within the study area as it becomes subject to an increasing risk of additional surface water flooding.

7. The Avonmouth & Severnside Integrated Development, Infrastructure and Flood Risk Management Study *(referred to as "the study" throughout the rest of this paper)* sought to identify the challenges to the Avonmouth Severnside Enterprise Area's (ASEA) development and suggested a viable way forward to ensure that existing infrastructure and development within ASEA remained sustainable. In particular, the Study explored the key challenges and opportunities to address identified issues in relation to flood risk and ecology mitigation.

8. With regard to ecology mitigation, the Study drew upon the 2010 Stage 1 (Distribution of Wetland Birds) and 2011 Stage 2 (review of Consent at Severnside and Avonmouth Impact Assessment) of the Severnside & Avonmouth Wetland Habitat Project (referred to as the Cresswell Report). The Cresswell Report had been commissioned in order to satisfy Regulation 63 of The Conservation of Habitats and Species Regulations, 2010 (now transposed into the 2017 Regulations) - the "Habitats Regulations" i.e. for a "competent authority" to review any unimplemented or, only partially implemented, permissions or consents that pre-dated the onset of the Habitats Directive 1992. In addition, the Creswell Report included an impact assessment of likely development which could take place within Avonmouth. The Cresswell Report concluded that through a loss of in-land wetland habitat, development within ASEA was likely to have a significant effect on certain qualifying species and the qualifying assemblage of wildfowl/waders for which the Severn Estuary is designated as a Special Protection Area/Ramsar Site*(1)*.

9. The Cresswell Report identified Hallen Marsh as the only site within the BCC administrative area as suitable for the purposes of ecological mitigation works that could provide the necessary bird roosting areas (a single large site affording unrestricted sight-lines for wading birds and waterfowl).

10. The Study also considered the planning history and policy background within ASEA as well as other challenges including the presence of hazardous installations, heritage, archaeology and landscape.

11. The Study concluded that the ASEA development potential could be achieved through:

    i. The continuing economic development of about 350 ha of green field land within the extant 1957/58 planning permissions (generating significant employment opportunities in the area).
    ii. The development of a further 60ha of green field land within the study area (in doing so, allowing the opportunity for such land to be incorporated within Council Local Plans).

12. However, to fully realise such potential the Study identified that it was necessary to:

    i. Reduce the increasing risk of flooding within the area and to better protect both existing and future (re)development and infrastructure.
    ii. To mitigate the impacts of development on the area's important ecology by setting land in the area aside for habitat enhancement (such land provision effectively mitigating against potential objection to the Local Plan that could prevent further development within Avonmouth).
    iii. Take an integrated approach to dealing with the area's challenges so as to avoid piecemeal development that increases the risk of flooding elsewhere, harms the area's ecology and has an adverse impact on the area's transport infrastructure.
    iv. Undertake further detailed studies to confirm details and costs of the flood defence, and ecology options, including, if appropriate, proposals for the phasing of those options.

13. Given that future private sector investment would be more limited and existing investment would be placed at increasing risk unless the issues identified above were addressed, the Avonmouth Severnside Outline Development Strategy *(referred to as "the strategy" throughout the rest of this paper)* detailed the clear rationale for public sector involvement and proposed:

    i. **For Flood Defences:** that a 'do nothing' approach would limit development and lead to individual owners raising site levels and thereby increasing flood risks to other sites. Therefore, new defences to a height of 10.74 metres above Ordnance Datum were required. The assessment also acknowledged that a residual risk of tidal flooding and fluvial flooding would remain, even with the provision of new defences. The solution would require measures including the raising of land levels in certain parts of the area, the use of flood-resilient designs, appropriate emergency plans, as well as robust management and maintenance of the new defences.

ii. **For Ecology Mitigation:** that a 'do nothing' approach would fail to discharge the Creswell Report recommendations i.e. that the impact on the Severn Estuary arising from developing ASEA in full would remain unresolved (such a scenario having the potential for a challenge to the Core Strategy). Therefore, in order to meet the requirements of the Habitat Regulations, land would be required to provide mitigation for existing and planned development within ASEA.

Background to the Current Economic Development Project:

14. In 2012, SGC and BCC jointly established a project governance structure tasked with developing solutions to the issues identified both within the Study and Strategy.

15. In 2013, the project (via the Avonmouth-Severnside Flood Management Optioneering Technical Report) reviewed existing flood data and analysis gaps; confirmed flood risks and developed flood risk management possibilities to include an options appraisal (on engineering, economic and environmental grounds) for a preferred flood defence option. The project also considered the suitability of the six potential ecological mitigation sites identified through the Cresswell Report, concluding that only Hallen Marsh was fit-for-purpose and that alternate provisions would be required through the 'loss' of the other five sites.

16. In 2015, the West of England Local Enterprise Partnership (LEP) approved a £1.9m "phase 1" full business case submission to support the costs associated in developing the required flood defence and ecology mitigation solutions.

17. In 2015, following recommendation and approval via the ASEA Strategic Directors Board, the Environment Agency (EA) was appointed as the lead agency for the development stage of the project.

18. In June 2015, costs associated with the development process were agreed through the Avonmouth Severnside Enterprise Area Infrastructure Phase 1 Report to Cabinet. Similar procurement and budgetary process were agreed within SGC so as to share costs on a 50/50 basis (£0.95m per Council).

19. In March 2016, EA appointment was secured through a three-way Collaborative Agreement (SGC, BCC and EA). The Agreement included a £250k EA financial contribution into the development stage of the project. The EA lead agency role was broadly defined as:

    i. Developing project governance through the Collaborative Agreement arrangements.
    ii. Linking project programmes and risk management with those of the greater Avonmouth/Severnside area.
    iii. Managing design and construction contracts, including environmental impact assessment.
    iv. Acquiring maximum possible Flood Defence Grant in Aid (FDGiA) contribution.
    v. Negotiating with landowners and developing legal agreements.
    vi. Developing operational protocols between EA and landowners (for business case and beyond).
    vii. Developing cost-effective business case for flood risk management, as a subset of the LEP business case for the area.
    viii. Leading local communication with landowners and stakeholders (as a subset of wider project communications).
    ix. Utilising specialist project management, estates, legal and procurement teams (trained in relevant legislation and associated statutory powers as well as being experienced in the risks presented with delivering flood risk management improvements).

20. In April 2016, through the EA Water and Environmental Management (WEM) Framework (Lot 3), Halcrow Group Ltd[*2)] was procured as the design consultant. The EA and Halcrow Group Ltd entered into a NEC3 professional services contract (PSC).

21. In August 2017, the BCC PPP Board approved progression of a balanced use of Hallen Marsh (a balance between development potential and creation of wetland habitat to help satisfy Cresswell Report requirements). In doing so, the Board sought to take a two-fold approach to compensate for the "loss" of land (compensation primarily attributable to loss/reduction in agricultural rates and income). The two-fold approach being to firstly seek a direct £250k cash contribution through the development of the ASEA "phase 2" full business case and secondly, future use of the Biodiversity Offsetting Scheme established by the ASEA project as a means to obtain further financial contributions from developers for development on greenfield land in Hallen Marsh (£226k).

Phase 2 – Details Design & Build Costs

22. Further to a "for review" submission in February 2018, a £63.9m Phase 2 (detailed design and build) Full Business Case (FBC) submission was made to the LEP and supported (with conditions) at its September 2018 Joint Committee meeting. The economic appraisal element of the FBC demonstrated that Phase 2 represents excellent value for money. The present value of project benefits is estimated at £2.9 billion.
23. Phase 2 of the scheme will therefore consist of a design and build contract. The contract is to be tendered via the Environment Agency's Water and Environmental Management Framework as this is deemed the most efficient route to market, to deliver the best outcome for the nature of the scheme.

Funding Sources – Defra Flood Defence Grant in Aid and Local Levy

24. In addition to the EDF funding, the scheme is eligible for two sources of Defra funding, Flood Defence Grant in Aid (FDGiA) and Local Levy.
25. In June 2018, a FDGiA Outline Business Case (OBC) submission was made to the Environment Agency's Large Project Review Group (LPRG), who oversee applications for large projects. Having satisfied all key issues raised by the LRPG through a November 2018 revision, the OBC was recommended for approval in December 2018. Using the FDGiA "funding calculator" process the approval was for a maximum FDGiA contribution of £32.6m (£35.3m cash sum, excl. inflation).
26. In October 2018 the Wessex Regional Flood and Coastal Committee confirmed £4m Local Levy funds to the project in phases from 2019/20 – 2022/23
27. Through the Wessex Regional Flood and Coastal Committee an indicative profile for FDGiA funding has been allocated for financial years 2021/22 onwards. This period falls into the next Government spending review period and no FDGiA allocations may formally be made until the next spending review is completed.
28. The indicative FDGiA position introduces uncertainty to the scheme delivery. The project team have been exploring opportunities to ensure that the scheme can be delivered within the available budget and to ensure that procurement rules are not breached. During the preliminary activities (design, surveys etc.) of the design and build contract (which are programmed over an 18-month period), the project team will work to develop scenario plans which will minimise the financial impact of having to delay or defer some activities and therefore ensure the scheme can be delivered within its allocated funding envelope.

Design and Build Contract Procurement Summary

29. During spring 2018, Jacobs concluded development of the "Works Information" for the Phase 2 design and build stage. The information described the services to be delivered by the design &

build contractor; the risk allocation between employer and contractor together with allocation of roles and responsibilities.

30. During summer 2018, the Phase 1 project utilised the EA WEM (Lot 4) Framework to tender for the Phase 2 design & build contractor (project geographical areas 1, 2, 3A, 3B, 4 & 5). The intent being to utilise a NEC3 Option C (target cost incentivised model) that also invokes the relevant secondary and standard amendment clauses.
31. Project geographical Area 3 was not included within the Lot 4 tender process. Area 3 has been included with the planning process to incorporate a flood defence design on the landward side of the railway. The project intent is to enter Network Rail's Asset Protection process and discuss alternate and/or a seaward defence alignment. Should discussions with Network Rail not be successful then the project would default to the approved landward alignment and either a) award a compensation event to the successful Lot 4 supplier or, commence a new procurement process for the design and build for area 3. The project has therefore maintained a cost allowance for area 3 in line with the outturn of the Jacobs/Arcadis project cost estimates (see Tables 2 and 3).
32. In addition, to the main design and build tender process, the Phase 1 project also tendered for and secured Arcadis as the preferred Engineering & Construction Contract (ECC) Project Manager. The ECC Project Manager has been involved in the Lot 4 design & build tender evaluation process.
33. The Environment Agency's current WEM framework expires 30 June 2019, requiring contracts to be concluded by this date or risk a nine to twelve months slippage into 2020.

Economic Development Fund

34. This project is part funded through allocations from the West of England Economic Development Fund (EDF). The EDF forward programme is reviewed regularly by the Business Rates Pooling Board which receives updates from the West of England Combined Authority (WECA) as accountable body for the EDF.
35. In September 2018 the BRPB was asked to consider the principle of re-profiling spend against this project through the substitution of existing BCC and SGC schemes. The BRPB was supportive in principle, however resolved that the exact profile of EDF spend for the project would need to be finalised following the WEM Lot 4 procurement process when programme and costs were finalised to allow a formal decision to be made. The BRPB noted:

    a. That the original EDF profile for the phase 2 project included the following breakdown:

Scheme	2018/19	2020/21	2021/22	2028/29	2032/33	2033/34	TOTAL
	£m	£m	£m	£m	£m	£m	£m
Avonmouth/Severnside Flood		10.000	8.300	20.000	20.000		**58.300**
Avonmouth/Severnside Ecology	2.800	2.800					**5.600**
Total	**2.800**	**12.800**	**8.300**	**20.000**	**20.000**	**0.000**	**63.900**

    b. Unless the Board was willing to accept an additional call on the EDF through earlier repayment, meeting the actual project programme profile would need to be accommodated by reprofiling allocations from other EDF schemes by BCC and SGC.
    c. That BCC proposed to meet the actual project programme profile by substituting into the ASEA scheme, from 2019/20 onwards, £20 m of the £53 m EDF previously allocated to the Temple Quarter Arena scheme for repayment in 2020/21. The original EDF profile for BCC schemes already included a £1.4 m repayment for ASEA (ecology works)in 2018-19, which can be slipped backwards to 2019-20 or later as required.
    d. Whilst the general presumption is that payment from the EDF will commence at practical completion, the EDF agreement makes provision for staged payments (both SGC and BCC having indicated that staged payments would be requested once a detailed programme and costs were confirmed).

Project Budget Profile

36. Table 2 below details the proposed budget profile based on the project forecast spend across multiple years. This will be subject to change as the project progresses and any changes to the annualised profile will be the subject of further Cabinet approval, in line with financial regulations. The table below assumes a re-profiling of EDF funding by both SGC and BCC in line with the principles outlined to BRPB and noted in paragraph 17 above.

37. The summary table below reflects the required funding as per Table 2 and compares it to the current EDF allocations for this project. This indicates that £1.283m of the 2018/19 allocation will need to be rolled into 2019/20 leaving shortfalls across all years due to the main EDF allocation for the project of £20m being held at 2028/29 and 2032/33.

EDF Funding Profiling								
	2018/19	2019/20	2020 / 21	2021 / 22	2022 / 23	2023 / 24	2024/25 +	Total
Required Funding as per Budget Profile (see Table 2)	117,500	2,470,550	12,607,750	11,006,250	4,966,750	781,200	0	31,950,000
Current EDF Allocation for Avonmouth	-1,400,000		-6,400,000	-4,150,000			-20,000,000	-31,950,000
Reprofiling of Current Allocation for Avonmouth	1,282,500	-1,282,500						0
Reprofiling of EDF support required	**0**	**1,188,050**	**6,207,750**	**6,856,250**	**4,966,750**	**781,200**	**-20,000,000**	**0**

38. To avoid the council carrying significant cost in terms of borrowing and interest due to the shortfalls in these years until the funding is released through EDF in 2028/29 (£10m) and 2032/33 (£10m), there is a need to re-profile the council's allocations of EDF funding to other schemes allowing funding to be released in a timely manner matching the costs of this project. An indicative re-profiling of the Council's EDF schemes, including new schemes in the Temple Quarter, is underway, but not yet completed at this point in time. In principle, the council can substitute EDF schemes provided funding is not drawn down any earlier than anticipated in the wider EDF programme allocations. On the basis, the re-profiling is, firstly, within overall allocations and secondly, delaying drawdown in 2020/21 and 2022/23, and having been discussed with WECA, this is anticipated to be acceptable to the BRPB at its 12 March 2019 meeting.

Development Project Position – May 2018:

39. Determination of the full construction requirements remain on-going but, the whole life (sixty years) estimated value of the project is circa £94m (£92m if discounting expenditure incorporated within the "phase 1" development stage). The current assumption is that the construction programme will have a duration of up to five years.

40. The scope associated for any design and build will involve construction of flood defences (a mix of earth embankments and concrete structures) as well as ecology mitigation features within both BCC and SGC administrative areas.

41. The current development project is recommending that the procurement route for the design and build stage is via the EA WEM Framework (Lot 4). The route will require a new three-way Collaborative Agreement to be set in place between SGC, BCC and EA that will also outline the client – employer – contractor governance arrangements. In November 2017, Gateway One support for such a proposal was secured through the BCC Corporate Procurement Group.

42. Funding to cover all construction costs will be sought through a two-way partner funding process. Firstly, through a circa **£64m** full business case submission to the LEP administered Economic Development Fund. The methodology for a Full Business Case Submission demonstrates that the present value of project benefits are estimated at **£2.9** billion, based on the following benefit streams:

i. Construction stage impacts - **£59.7m**
ii. Operational stage: safeguarding existing activity impacts - **£40.7m**
iii. Operational stage: unlocking future activity impacts - **£2.8bn**

43. Secondly, through utilising the EA's Flood Defence Grant in Aid programme (FDGiA) Standard Partnership Funding Calculator, South Gloucestershire Council has sought to secure up to £34.3m This will include a commuted sum to cover on-going maintenance costs for any new defences (estimated at £12m).

44. Release of BCC Land at Hallen Marsh – September 2018

    Hallen Marsh is currently occupied by 3 farmers who use the land for growing and grazing under 5 separate agreements. Over the last 24 month these farmers have been met with by BCC Property and the ASEA Project Manager to advise them of the position of the project and the likely impact on their farms.

    To enable Hallen Marsh to be released by BCC for wetland habitat and a development site it has been necessary to bring the current farmers' tenancies to an end. These tenancies vary in age with 3 older agreements known as 'Agricultural Holding Act 1986 tenancies' (AHA) and the 2 more recent tenancies let as Farm Business Tenancies (FBT).

    The FBT agreements can be brought to an end with 12 months' notice at the landlord's discretion, whereas the AHA agreements can only be terminated under specific grounds as set out under the Agricultural Holding Act 1986. BCC has been receiving legal advice from solicitors DJB (Davitt Jones Bould) who are experienced in this area, to ensure correct notices were served by BCC to terminate the respective agreements.

    Formal notices were served by BCC on all farmers on 18 September 2018. As expected, those farmers with AHA tenancies have served a counter notice challenging the grounds that BCC have used of 'Sound Estate management'. BCC, with assistance from DJB, will be making an application to the first tier Lands tribunal in December to establish that the termination of the AHA tenancies was in the interest of sound management of our estate.

    If BCC is unsuccessful in its application to the Land tribunal and the ground is not upheld, then it will be necessary for BCC to enter into direct negotiations with the farmers of the AHA agreements to agree the surrender of their holdings. This will significantly increase the cost of compensation as it will need to be agreed through open negotiations.

Development Project Position – September 2018 – March 2019

45. During Spring/early summer 2018, Jacobs completed development of the "Works Information" for any design and build stage. The information describes the services to be delivered by the design & build contractor; the risk allocation between Employer and Contractor together with allocation of roles and responsibilities.

46. As per previous briefings, the project has utilised the EA Water & Ecology Management Framework (Lot 4) to tender for the design & build contractor (project geographical areas 1, 2, 4 & 5). The intent was to utilise a NEC3 Option C (target cost incentivised model) contract that also invokes the relevant X and Z clauses.

47. Two Finance Officer Workshops (BCC, SGC) have taken place (7 July 2018 and 18 September 2018) principally to consider the approach towards modelling Economic Development Fund (EDF) borrowing costs; to understand overall EDF capacity to repay and to work through the implications of approach towards both three and five-year construction programmes.

48. Further to a "for review" submission in February 2018, a £63.9m Full Business Case (FBC) submission was made to WECA and supported (with conditions) at its 28th September 2018 Joint Committee meeting. The Decision Notice was dated 15th October 2018.

49. A Flood Defence Grant in Aid (FDGiA) Outline Business Case (OBC) submission was made to the Environment Agency's Large Projects Review Group (LPRG). Further to previous LPRG comment, the options appraisal element was strengthened so that there was increased emphasises that the standard of flood defence protection proposed is the same that would have been proposed if the EA had been working on its own as the provider of defences.

50. Through the use of FDGiA "funding calculator" process with SGC as the applicant, the business case submission:
    a. Sought to secure a circa £34.6m grant sum calculated so that any award is made on a net present value basis.
    b. Derives the maximum financial benefit (any WECA administered grant utilised as a partner contribution).
    c. Assigns the local authority as the asset maintainer.

51. The Environment Agency's Large Projects Review Group undertook a technical and economic review of the project, and approved the Outline Business Case in November 2018.

52. Planning applications to both SGC and BCC were made at the end of May 2018. BCC Development Control Committee approved the application on 28th November 2018, and the equivalent SGC Committee approved the application on 7th February 2019, subject to various conditions.

53. The Engineering & Construction Contract (ECC) Project Manager procurement process has proceeded from tender submission and evaluation through to identification of Arcadis as the preferred contractor. The ECC Project Manager has been involved in the design & build tender evaluation process.

54. Development of a new three-way "Legal Agreement" between SGC, BCC and EA has been completed. This outlines the client – employer – contractor governance arrangements and is in line with the model presented to both the project Delivery Board and Strategic Directors Board.

55. Development of a "third" funding stream via the Local Levy process administered by the Wessex Regional Flood & Coastal Committee finance meeting has been completed successfully. An initial briefing submission was made in June 2018 to the Committee via the Environment Agency Area Programming Team. The basis of which is to create further financial headroom within the project (up to £4m). There is potential for use of Local Levy as a substitution factor within the FDGiA calculator. Ron Curtis (EA representative to the project's Strategic Directors Board) is effectively acting as the sponsor for the approach.

56. South Gloucestershire Council approved funding of the scheme up to £31.95 m at its Cabinet meeting on 7th March 2019.

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*(*1)* Ramsar is the oldest of the modern global intergovernmental environmental agreements. The treaty was negotiated through the 1960s by countries and non-governmental organisations concerned about the increasing loss and degradation of wetland habitat for migratory water birds. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.

*(*2)* In November 2011, CH2M Hill acquired Halcrow Group Ltd (branded as CH2M). In December 2017, CH2M was acquired by Jacobs.