Stephenson Street Embankment: Flood Defence Scheme

Environmental Constraints and Opportunities Record (ECOR)

Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0001

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Version history:
Because this is a live document that will be updated throughout the development of the project **it is important to maintain document control** and record the different versions.

Document version	Date published	Project stage
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3.1 - 274580-ARP-XX-XX-RP-EN-0001	[Feb-2021]	*Pre-Application Consultation – NRW Review*
3.2 - 274580-ARP-XX-XX-RP-EN-0001	[Mar-2021]	*Pre-Application Consultation Issue*
4.0 - 274580-ARP-XX-XX-RP-EN-0001	[May-2021]	*Planning Submission – NRW Review*
4.1 - 274580-ARP-XX-XX-RP-EN-0001	[June-2021]	*Planning Submission*

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i. Crynodeb Gweithredol

Mae arglawdd amddiffynfa rhag llifogydd Stryd Stephenson yn lleihau perygl llifogydd llanwol i lawer o ardal Llyswyry yng Nghasnewydd. Mae hyn yn cynnwys eiddo diwydiannol, hamdden a phreswyl sylweddol. Gan dybio y byddai toriad yn digwydd heddiw, byddai oddeutu 192 o eiddo preswyl a 620 o eiddo amhreswyl yn Spytty â pherygl mwy nag un mewn 200 o lifogydd llanwol mewn unrhyw flwyddyn. Mae codiad yn lefel y môr oherwydd newid hinsawdd yn cynyddu'r risg rhagweledig yn sylweddol i 1,117 o eiddo preswyl a 1,016 o eiddo amhreswyl. Mae cyflymder a dyfnder rhagweledig llifogydd posib yn beryglus, gan ehangu 2.5km o'r arglawdd.

Yng nghyflwr cyfredol yr arglawdd, byddai'n cael ei ddosbarthu fel ased sy'n methu oherwydd ymsuddiad a methiannau strwythurol. Mae digwyddiadau trwch blewyn wedi digwydd yn ystod cyfnodau llanw uchel, gan gynnwys ym mis Ionawr a mis Mawrth 2014.

Mae Cyfoeth Naturiol Cymru (CNC) yn cynnig gwelliannau i'r amddiffynfa rhag llifogydd sy'n cynnwys cyfres o waliau llifogydd, byndiau pridd a chodi'r tir ychydig ar hyd Afon Wysg ac ardaloedd y nodwyd eu bod mewn perygl. Dengys y cynigion yn Atodiad A ac maent wedi'u crynhoi isod (gogledd i'r de).

- **Codi'r tir ychydig wrth lan yr Orb Works** – Codi tir sy'n agos at ddau leoliad i'r de o Kingfisher Walk ac sy'n gyfagos ag Orb Electrical Steels.
- **Codi'r tir ychydig wrth lan Stryd Stephenson** – Codi tir sy'n agos i'r lan gyfredol sy'n union gyfagos â Phont Gludo Casnewydd.
- **Arglawdd llifogydd Stryd Stephenson a gwella Llwybr Arfordir Cymru** – Diweddaru arglawdd llifogydd Stryd Stephenson ar hyd ffin orllewinol Parc y Coroni. Codi ac ehangu'r arglawdd cyfredol gyda gwell tirweddu a gwelliannau i Lwybr Arfordir Cymru gan gynnwys ardaloedd eistedd a phlannu blodau gwyllt.
- **Ramp mynediad** - Mynediad ffurfiol drwy giât mewn argyfwng neu i wneud gwaith cynnal a chadw o Stryd Stephenson i'r blaendraeth ger y Bont Gludo. Bydd hyn yn darparu pwynt mynediad ffurfiol i'r gwasanaethau brys ynghyd â gweithgareddau cynnal a chadw (symud rwbel o gynefinoedd glan yr afon).
- **Tirweddu a phlannu ym Mharc y Coroni** - Gwelliannau drwy Barc y Coroni gan gynnwys dolen gerdded hygyrch, meinciau, biniau ac ardaloedd eistedd â grisiau concrit. Cynnwys byrddau dehongli treftadaeth ac ecolegol i arglawdd Stryd Stephenson. Plannu coed a llwyni yn ffin ddeheuol y parc, gan gynnwys tair ardal o blannu coed trwchus o'r enw 'coedwigoedd trefol'.
- **Wal bentyrru gyda Llwybr Arfordir Cymru wedi'i diweddaru, gan gynnwys mynediad â grisiau metel ar draws Ardal Gwregys Hanson** - Glan afon Wysg a Llwybr Arfordir Cymru o waelod Parc y Coroni i ardal y gwregys: adeiladu wal bentyrru llifogydd ac ail-wynebu. Byddai diweddaru'r llwybr cyfredol hefyd yn cynnwys brig ehangder amrywiol, gwella plannu, lleoedd i eistedd ac ardaloedd arsylwi. Byddai darparu mynediad â grisiau metel newydd yn Ardal Gwregys Hanson yn gwella hygyrchedd.
- **Wal lifogydd goncrit cyfnerthedig yn Ystâd Ddiwydiannol Felnex** - ffordd lleihau llifogydd uchel newydd wrth groesfan Ardal Gwregys Hanson ac Ystâd Ddiwydiannol Felnex. Adeiladu wal lifogydd goncrit cyfnerthedig gyfagos ag Ardal Gwregys Hanson,

sy'n ehangu i safle mynediad cyffordd T arfaethedig Heol Glan y Dwyrain. Byddai wal eilaidd (fwy) yn ehangu o'r gyffordd arfaethedig i gyffordd y ffordd lleihau llifogydd a Heol Glan y Dwyrain.

- **Ffordd lleihau llifogydd** - Adeiladu ffordd lleihau llifogydd lôn gerbydau 0.7km sy'n cysylltu o Ffordd Glan y Dwyrain gyfagos ag Uned Ddiwydiannol KDK Metals i Heol Corporation gyfagos ag ystâd Marshalls. Mynediad â ramp a mynediad cyffordd T i gael eu darparu i draffig sy'n dod i mewn ac sy'n gadael ar Heol Glan y Dwyrain gyda throedffyrdd i gerddwyr.
- **Ailwynebu Llwybr Arfordir Cymru** - o'r ardal wregys lle mae Llwybr Arfordir Cymru yn cysylltu â Heol Corporation; ailwynebu Llwybr Arfordir Cymru â cherrig cywasgedig. Draenio dŵr wyneb i'r ffordd ollwng dŵr drwy'r arglawdd cyfredol.
- **Gatiau a waliau llifogydd Heol Corporation** - adeiladu dwy wal lifogydd wedi'u hatgyfnerthu gyfagos â throsbont reilffordd Heol Corporation a gosod giât llifogydd priffordd sy'n symud a fyddai'n rhedeg yn baralel ag arglawdd cyfredol y rheilffordd.
- **Wal llifogydd a llwybr mynediad i reilffordd** – Adeiladu wal goncrit cyfnerthedig gyfagos ag arglawdd cyfredol y rheilffordd. Ailwynebu ac ehangu Llwybr Arfordir Cymru dros dro, i'w adfer wrth gwblhau'r wal lifogydd. Bydd llwybr cynnal a chadw llai yn cael ei gadw'n barhaol.
- **Cwlfert arglawdd rheilffordd gyda mannau caled mynediad a chynnal a chadw** - Gosod siambr cwlfert concrit cyfnerthedig. Darparu 15m² o fan caled concrit i'r gorllewin o'r cwlfert ar gyfer gwaith cynnal a chadw a mynediad, gyda llinell ffens wedi'i hadfer.
- **Cwlfert arglawdd rheilffordd Liberty Steel** – Gosod siambr cwlfert concrit cyfnerthedig. Darpariaeth ychwanegol mynediad cerrig a llwybrau adeiladu wrth arglawdd y rheilffordd.
- **Wal lifogydd a llwybr mynediad Nash** - Adeiladu wal lifogydd goncrit cyfnerthedig i'r gogledd o safle trin dŵr gwastraff cyfredol Nash gyda llwybr mynediad parhaol uwch (llwybr yn destun cytundeb gan y tirfeddiannydd).

Mae rhagor o fanylion ar gyfer pob cydran wedi'u hymgorffori yn y lluniadau cynllunio yn y pecyn ymgynghoriad cyn ymgeisio, gan gynnwys plannu lliniarol a gwelliannau amwynder arfaethedig.

Mae'r cofnod Cyfyngiadau a Chyfleoedd Amgylcheddol yn nodi'r waelodlin amgylcheddol, cwmpas cytunedig asesiad amgylcheddol a'r broses asesu amgylcheddol yr ymgymerir â hi gan CNC fel arfer gorau (nid oedd angen Datganiad Amgylcheddol ar gyfer y cynllun). Ymgymerwyd â nifer o asesiadau technegol i gefnogi datblygiad dylunio ac mae'r rhain wedi'u crynhoi yn yr adroddiad hwn ac maent ar gael ar wahân yn y pecyn ymgynghoriad cyn ymgeisio. Mae pob asesiad yn adolygu'r amgylchedd gwaelodlin, yn nodi effeithiau posib ac yn argymell gwaith lliniaru a gwelliannau priodol yn unol â safonau proffesiynol ac arfer gorau.

Nodwyd risgiau amgylcheddol craidd yn gynnar a chawsant eu dylunio yn y cam dylunio amlinellol neu eu rheoli gan dechnegau adeiladu penodol i osgoi effeithiau amgylcheddol sylweddol. Caiff cyfyngiadau amgylcheddol eu cynnwys yn y Cynlluniau Cyfyngiadau a Chyfleoedd Amgylcheddol yn Atodiad B. Gwnaethom osgoi dyluniadau amddiffynfa rhag llifogydd y tu hwnt i ôl-troed yr amddiffynfa rhag llifogydd gyfredol i'r safleoedd

gwarchodedig cyfagos: Ardal Cadwraeth Arbennig (ACA) afon Wysg a Safle o Ddiddordeb Gwyddonol Arbennig (SoDdGA) afon Wysg (Wysg Isaf).

Gan hynny, caiff y byndiau pridd ym Mharc y Coroni eu hadeiladu wrth gefn y byndiau cyfredol. Yn yr un modd, caiff waliau pentyrru eu hadeiladu ar hyd adran gyfyngol arglawdd Stryd Stephenson i'r de o Barc y Coroni i gadw'r gwaith adeiladu yn yr ôl-troed cyfredol. Yn ogystal, mae stanciau hydrolig/gwthio 'tawel' wedi cael eu nodi ar gyfer gosod waliau pentyrru, gan osgoi'r angen am fynediad adeiladu dros dro ar waelod yr arglawdd a allai fod wedi effeithio ar gynefinoedd gwarchodedig. Bydd stanciau hydrolig hefyd yn lleihau effeithiau sŵn a dirgryniad posib yn ystod y cam stancio. Mae lleoliad yr amddiffynfeydd arfaethedig yn ddigon pell o'r afon (>40m) i osgoi'r potensial am unrhyw effeithiau dirgryniadau ar bysgod yn ystod y tymor mudo.

Mae Asesiad Cyfarwyddeb Fframwaith Dŵr yn cadarnhau nad yw'r prosiect yn debygol o gael effeithiau negyddol sylweddol ar statws corff dŵr. Mae Asesiad Rheoliadau Cynefinoedd yn cadarnhau nad yw'r prosiect yn debygol o gael effeithiau negyddol sylweddol ar rwydwaith y safle gwarchodedig Ewropeaidd. Mae Adroddiad Arfarnu Ecolegol yn asesu'r effeithiau posib ar dderbynyddion ecolegol lleol, yn cardarnhau effaith lleiaf posibl ar gynefinoedd lleol a rhywogaethau, ac yn argymell bod yn ofalus wrth weithio'n agos at fannau clwydo posibl ystlumod. Nodwyd rhywogaethau goresgynnol, ac mae stondinau yr effeithir arnynt wedi'u trin ac mae mesurau rheoli wedi cael eu sicrhau yn y Cynllun Gweithredu Amgylcheddol.

Mae Asesiad Effaith Coedyddiaeth wedi asesu'r risg i goed a llwyni ac wedi nodi bod mwyafrif y safle'n cynnwys coed a llwyni gwerth isel, hunan-hadu sydd wedi'u torri. Er gwaethaf dyluniad sensitif, efallai y bydd angen symud 650 o goed a llwyni. Mae'r lluniadau cynllunio a'r atodlen blannu (Atodiad C) yn y pecyn ymgynghoriad cyn ymgeisio'n nodi manylion y rhywogaethau coed a fydd yn cael eu hailblannu; yn bennaf ym Mharc y Coroni lle bydd oddeutu 1,600 o goed yn cael eu plannu, gan ddarparu cymhareb ddisodli o 2.6:1. Gall rhagor o gyfleoedd ar gyfer ailblannu fod yn bosib yn dilyn y gwaith adeiladu lle caiff lled llwybrau mynediad ei leihau.

Gwnaeth Asesiad Pen Desg Archaeolegol lywio dyluniad risgiau i nodweddion treftadaeth. Cafodd effeithiau eu hystyried ynghylch Pont Gludo Gradd 1 Rhestredig Casnewydd ar y cyd â Cadw, Ymddiriedolaeth Archaeolegol Morgannwg Gwent a Chyngor Dinas Casnewydd a'r casgliad oedd na fyddai unrhyw effeithiau sylweddol. Nid oes unrhyw nodweddion statudol na nodweddion wedi'u nodi yn bresennol y byddent yn cael eu heffeithio arnynt; fodd bynnag, cafodd risgiau archaeoleg anhysbys eu rheoli, a chafodd dulliau rhagofalus eu sicrhau yn y cynllun gweithredu amgylcheddol.

Gwnaeth Asesiad Tirwedd a Gweledol asesu effeithiau posib ar nodweddion tirwedd a lleoliadau gweledol a gwelliannau arfaethedig i ardaloedd amwynder gan ddarparu gwaith plannu coed, blodau gwyllt a llwyni a fydd yn lliniaru ac yn gwella'r ardal leol; darperir manylion yn y lluniadau cynllunio yn y pecyn ymgynghoriad cyn ymgeisio.

Mae'r holl fesurau lliniaru wedi'u darlunio mewn Cynllun Gweithredu Amgylcheddol unigol a gynhelir gan CNC a'i gontractiwr penodol. Mae'r cynllun gweithredu amgylcheddol yn coladu'r mesurau lliniaru angenrheidiol i ddarparu set glir o ofynion ar gyfer y contractiwr adeiladu.

Caiff mesurau gwella hefyd eu cyflawni fel rhan o'r cynllun, gan gynnwys gwelliannau bioamrywiaeth ac amwynder, sy'n canolbwyntio'n bennaf yn Arglawdd Stryd Stephenson a Pharc Coroni ac o'u hamgylch. Dylech gyfeirio at y lluniadau cynllunio yn y pecyn ymgynghoriad cyn ymgeisio am fanylion. Caiff Llwybr Arfordir Cymru ei uwchraddio a chaiff llwybrau newydd eu creu ym Mharc y Coroni i ddarparu cysylltiad gwell rhwng y llwybr ger yr afon a'r caeau chwaraeon gan greu llwybr cerdded cylchol. Caiff llwyfannau golygfa eu hintegreiddio i'r arglawdd er mwyn darparu mannau gorffwys a darparu cysylltiad â chynefinoedd glan yr afon. Caiff gwaith plannu coed a blodau gwyllt ei wneud yn y parc i gynyddu bioamrywiaeth leol, yn ogystal â'r coedwigoedd trefol o oddeutu 1,600 o goed, cynefin gwely cyrs, mannau gorffwys ar gyfer dyfrgwn, adar, ystlumod ac ati, caiff biniau eu darparu i leihau sbwriel a baw cŵn a byrddau dehongli sy'n darparu gwybodaeth am y prosiect, bioamrywiaeth a threftadaeth sy'n canolbwyntio ar Bont Gludo Gradd 1 Rhestredig Casnewydd. Bydd gwelliannau amwynder a bioamrywiaeth yn arwain at welliant cyffredinol i'r ardal ar ôl i'r cynllun gael ei gyflawni. Yn bwysicach, bydd yr amddiffynfeydd llifogydd gwell yn lleihau'r risg o lifogydd i 1,117 eiddo preswyl a 1,016 eiddo amhreswyl yn Llyswyry, Casnewydd.

Executive Summary

Stephenson Street flood defence embankment reduces tidal flood risk to much of the Lliswerry area of Newport. This includes significant industry, leisure and residential properties. Assuming a breach was to occur today some 192 residential and 620 non-residential properties in Spytty have greater than a 1 in 200 risk of tidal flooding in any given year. Sea level rise due to climate change increases the predicted risk significantly to 1,117 residential and 1,016 non-residential properties. The predicted speed and depth of potential flooding is hazardous, extending 2.5km from the embankment.

In the embankment’s current condition, it would be classified as a failing asset due to subsidence and structural failures. Near misses have occurred during recent high tides, including in January and March 2014.

Natural Resources Wales (NRW) are proposing flood defence improvements comprising a series of flood walls, earth bunds and minor ground raising along the River Usk and at identified areas of risk. The proposals are shown in Appendix A and summarised as follows (north to south).

- **Orb Works riverbank minor ground raising** – Localised ground raising at two locations south of Kingfisher Walk and adjacent to Orb Electrical Steels.
- **Stephenson Street riverbank minor ground raising** – Localised ground raising of existing riverbank immediately adjacent to the Newport Transporter Bridge.
- **Stephenson Street flood embankment and upgrade to Wales Coast Path** – Upgrading the existing Stephenson Street flood embankment along the western boundary of Coronation Park. Raising and widening of the existing embankment with enhancement landscaping and Wales Coast Path improvements including seating areas and wildflower planting.
- **Access ramp** - Formalised gated emergency and maintenance access from Stephenson Street to the foreshore next to the Transporter Bridge. This will provide a

formal access point for the emergency services and also maintenance activities (removal of debris from riverside habitats).

- **Coronation Park landscaping and planting** – Enhancements throughout Coronation Park including an accessible walking loop, benches, bins and concrete step seating areas. Inclusion of heritage and ecological interpretation boards to Stephenson Street embankment. Tree and shrub planting to the southern boundary of the park, including three areas of dense tree planting that are known as ‘urban forests’.
- **Sheet pile wall with upgraded Wales Coast Path, including replacement metal stepped access spanning the Hanson Conveyor Belt** – River Usk riverbank and Wales Coast Path from end of Coronation Park to the conveyor: construction of sheet pile flood wall and resurfacing. Upgrading the existing path would also include a variable width crest, enhancement planting, seating and observation areas. Provision of replacement stepped metal access spanning the Hanson Conveyor would improve accessibility.
- **Reinforced concrete flood wall at Felnex Industrial Estate** – new raised flood relief road and Hanson Conveyor crossing the Felnex Industrial Estate. Construction of a reinforced concrete flood wall adjacent to the Hanson Conveyor, extending to the site of the proposed T-junction access of East Bank Road. A secondary (larger) wall would extend from the proposed junction along the flood relief road and East Bank Road.
- **Flood relief road** – Construction of a 0.7km single carriageway flood relief road connecting from East Bank Road adjacent to KDK Metals Industrial Unit to Corporation Road adjacent to Marshalls estate. Ramped access and T-Junction access to be provided for incoming and outgoing traffic at East Bank Road with pedestrian footways.
- **Wales Coast Path resurfacing** – from the conveyor belt to where the Wales Coast Path meets Corporation Road, resurfacing of Wales Coast Path with compacted stone. Surface water drainage for flood relief road to outfall though existing embankment.
- **Corporation Road flood gate and walls** – Construction of two reinforced flood walls adjacent to the Corporation Road railway overbridge and installation of sliding highway flood gate which would run flush to the existing railway embankment.
- **Railway flood wall and access track** – Construction of a reinforced concrete flood wall adjacent to the existing railway embankment. Temporary resurfacing and widening of the Wales Coast Path, to be reinstated upon completion of the flood wall. A smaller maintenance track will remain permanently.
- **Marshalls railway embankment culvert with access and maintenance hardstanding** – Installation of reinforced concrete culvert chamber. Provision of 15m² concrete hardstanding to the west of the culvert for maintenance and access, with reinstated fence line.
- **Liberty Steel railway embankment culvert** – Installation of reinforced concrete culvert chamber. Additional provision of a gravel access and construction tracks at railway embankment.
- **Nash flood wall and access track** – Construction of a reinforced concrete flood wall to the north of the existing Nash wastewater treatment site with raised permanent access track (track subject to landowner agreement).

Further details for each component are embedded within the planning drawings within the planning application, including proposed mitigation planting and amenity improvements.

This Environmental Constraints and Opportunities Record (ECOR) documents the environmental baseline, the agreed scope of environmental appraisal and the process undertaken to manage environmental risk. This was undertaken by Natural Resources Wales as best practice; an Environmental Statement was not required for the scheme. A number of technical assessments were undertaken to support design development and are summarised within this report and available separately within the planning application pack. Each assessment reviews the baseline environment, identifies potential environmental risks and recommends appropriate mitigation and enhancements in accordance with professional standards and best practice.

Core environmental risks were identified early and designed out at the outline design stage or managed by specified construction techniques. Environmental constraints are included within the Environmental Constraints and Opportunities Plans (ECOPs) in Appendix B. We avoided flood defence designs that extended beyond the footprint of the existing flood defence into the adjacent protected sites: River Usk Special Area of Conservation (SAC) and River Usk (Lower Usk) Site of Special Scientific interest (SSSI).

As such, the earth bund at Coronation Park will be constructed to the rear of the existing bund. Similarly, sheet pile walls will be constructed along the constrained section of the Stephenson Street embankment south of Coronation Park to maintain construction within the existing footprint. In addition, 'silent' hydraulic / push piling has been specified for sheet pile installation, avoiding the need for temporary construction access at the base of the embankment that may have affected protected habitats. Hydraulic piling will also minimise potential noise and vibration effects during the piling phase. The location of the proposed defences is far enough away from the river (>40m) to avoid the potential for any vibration effects on fish during their migration season.

A Water Framework Directive (WFD) Assessment confirms that the project is not likely to have significant adverse effects on waterbody status. A record of Habitats Regulations Assessment (HRA) confirms that the project is not likely to have significant adverse effects on the European Protected site network. An Ecological Appraisal Report assesses potential effects on local ecological receptors, confirms minimal effects on local habitats and species and proposes precautionary working in the vicinity of a potential bat roost. Invasive species have been identified, affected stands treated and management measures secured in the project Environmental Action Plan (EAP).

An Arboricultural Impact Assessment (AIA) has assessed the risk to trees and shrubs and identified that the majority of the site comprises low value self-seeded and stunted trees and shrubs. Despite sensitive design, approximately 650 trees and shrubs may need to be removed. The planning drawings and planting schedule (Appendix C) within the planning application pack details the tree species that will be replanted; primarily at Coronation Park where around 1,600 trees will be planted, providing a replacement ratio of 2.6:1. Further opportunities for replanting may be possible following construction where the access tracks widths will be reduced.

An Archaeological Desk-Based Assessment (DBA) informed the design of risks to heritage features. Setting impacts were considered regarding the Grade 1 Listed Newport Transporter Bridge in discussion with Cadw, Glamorgan Gwent Archaeological Trust (GGAT) and Newport City Council and concluded minimal effects. No statutory or recorded features are present that would be affected; however, risks of unknown archaeology were managed, and precautionary methods secured in the Environmental Action Plan.

A Landscape and Visual Assessment (LVA) assesses the potential effects on landscape character and visual setting and proposes improvements to amenity areas providing new tree, wildflower and shrub planting that will mitigate and enhance the local area; details are provided in the planning drawings within the planning application pack.

All mitigation measures are captured within a single Environmental Action Plan maintained by Natural Resources Wales and their appointed contractor. The Environmental Action Plan collates necessary mitigation measures to provide a clear set of requirements for the construction contractor. This includes best practice measures including relevant Guidance for Pollution Prevention.

Enhancement measures will also be delivered as part of the scheme, including biodiversity and amenity enhancements, primarily focussed in and around the Stephenson Street Embankment and Coronation Park. Refer to the planning drawings for details. The Wales Coast Path will be upgraded, and new pathways created within Coronation Park to provide better connection between the riverside walk and the sports pitches whilst creating a circular walking route. Viewing platforms will be integrated into the embankment to allow for resting areas and provide a connection with the riverside habitats. Tree and wildflower planting will be provided within the park to increase local biodiversity, in addition to three urban forests providing around 1,600 trees, reedbed habitat, resting places for otter, birds, bats, etc., provision of bins to reduce litter and dog waste and interpretation boards providing information on the project, biodiversity and heritage focussing on the Garde 1 Listed Newport Transporter Bridge. Amenity and biodiversity enhancements will lead to an overall improvement of the area following scheme delivery. Most importantly, the upgraded flood defences will reduce the risk of flooding to 1,117 residential and 1,016 non-residential properties in Lliswerry, Newport.

Part A - Baseline and Environmental Risks

Introduction

1.1 Purpose

The purpose of this Environmental Constraints and Opportunities Record (ECOR) is to provide a mechanism to appraise potential environmental risks of the proposed flood defence improvements and secure appropriate controls. This follows the receipt of an EIA Screening Opinion from Newport City Council (NCC) confirming that the project is not likely to lead to any significant environmental effects, and that the project does not constitute EIA Development.

This ECOR documents the appraisal and records the mitigation measures required to avoid, reduce and offset any other (i.e. non-significant) potential environmental risks from the project, and promotes opportunities to embed enhancements. Requisite mitigation measures are secured through an Environmental Action Plan (EAP) that will be implemented by the appointed contractor. The EAP is available as Document 274580-ARP-XX-XX-RP-EN-0006 in the Planning Application Pack.

Environmental Constraints and Opportunities Plans (ECOPs) supports the ECOR, identifying where constraints are located in relation to the flood defence improvements and where enhancements are proposed; refer to Appendix B.

Environmental appraisal is an iterative process that starts at the inception of a project and continues through options appraisal, detailed design, construction and operation. Good environmental assessment is an integrated process that influences and challenges project options and design, rather than being a standalone paper exercise. However, there is a need for transparency and justification in the decisions and actions taken, which need to be documented. The ECOR provides an efficient mechanism to consult internal and external stakeholders, regulators, approvers and permitters.

The supporting reports are summarised within this ECOR for brevity and are available in full separately; document references are provided below. Relevant supporting documents include the following:

- Access and Recreation Audit; Arup 2020. Doc. Ref.: 274580-ARP-XX-XX-RP-LA-0001.
- Arboricultural Impact Assessment (AIA); TreeWorks 2021. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0005.
- Archaeological Desk-Based Assessment (DBA); Archaeology Wales, 2020. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0007.
- Construction Traffic Management Plan; Arup 2020. Doc. Ref.: 274580-ARP-XX-RW-RP-PL-0002.
- Ecological Appraisal Report; Arup 2020. Doc. Ref.: 274580-ARP-XX-NW-RP-EN-0004.
- Ecological Baseline Reports – Preliminary Ecological Appraisal Reports (PEAs) and National Vegetation Classification (NVC) Reports. Doc. Refs.: 274580-ARP-XX-XX-RP-EN-0010 to 274580-ARP-XX-XX-RP-EN-0017.

- Environmental Action Plan; Arup, 2021. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0006.
- Equality Impact Assessment; NRW 2021. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0008.
- Flood Consequence Assessment; Arup, 2020. Doc. Ref.: 274580-ARP-XX-XX-RP-XX-0001.
- Health Impact Assessment; NRW 2021. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0009.
- Landscape and Visual Appraisal (LVA); Arup 2021. Doc. Ref.: 274580-ARP-XX-XX-RP-LA-0002.
- Planning Drawings; Arup 2020. Refer to Planning Application Pack.
- Record of Habitats Regulations Assessment (HRA); Arup 2020. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0002.
- Transport Statement; Arup 2021. Doc. Ref.: 274580-ARP-XX-RW-RP-PL-0001.
- Water Framework Directive (WFD) Compliance Assessment; Arup 2020. Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0003.

1.2 NRW Duties

Natural Resources Wales (NRW), in undertaking our work, is required to comply with responsibilities under the Environment (Wales) Act 2016 and Well-Being of Future Generations (Wales) Act 2015 pursue the Sustainable Management of Natural Resources (SMNR) and to demonstrate the application of the principles of SMNR and Sustainable Development (SD). We think that the environmental assessment process is well aligned with these principles as demonstrated in Table 2. The environmental assessment process provides a systematic and transparent way of managing the environmental risks, avoiding, reducing or mitigating environmental risks and identifying opportunities for delivery of multiple benefits.

Table 1: The role of environment appraisal in demonstrating the principles of sustainable management of natural resources

SMNR (SD Principle)	Role of Environmental Appraisal
Manage adaptively	Monitoring and audit of projects and their environmental effects feedback into future projects. Continual improvement
Appropriate spatial scale	The options appraisal or consideration of alternatives determines the study area. Economic, technical and environmental aspects feed into this to ensure that the options/alternatives and their effects are considered at the appropriate scale.
Collaboration and engagement (Collaboration)	Internal and external stakeholder engagement starts early and continues throughout project development.
Public participation in decision making (Involvement)	Public engagement through drop-in sessions at key stages in the project or engagement with community or user groups. Consenting route publicises project proposal.
Relevant evidence	Considers broad environmental baseline and trends with and without project implementation.

SMNR (SD Principle)	Role of Environmental Appraisal
Take account of benefits and intrinsic value of natural resources and ecosystems	Identify ecosystem services provided by the natural resources in the study area through internal and external stakeholder engagement. The environmental assessment should seek to maximise wider benefits provided by ecosystems and natural resources in the study area.
Short, medium and long-term consequences (Long term)	Consider environmental effects throughout the life of the project. Planning, construction, operation & decommissioning. Taking into account the evolution of the baseline e.g. climate change.
Prevent significant damage to ecosystems (Prevention)	Identify ecosystem services provided by the natural resources in the study area through internal and external stakeholder engagement. The environmental assessment should aim to avoid, reduce or mitigate any negative effects.
Building resilience of ecosystems	The environmental assessment must consider the effects of a project on the resilience of ecosystems. Then, through options appraisal and input to design, aim to avoid, reduce or mitigate negative effects and maximise positive effects (multiple benefits).

By applying these principles throughout the development of our projects we can maximise our contributions to our Well Being Objectives, towards our duty to enhance biodiversity (Section 6 of Environment Act) and the water environment (Water Framework Directive).

Our Well-being Objectives are:

1. Champion the Welsh environment and the sustainable management of Wales' natural resources
2. Ensure land and water in Wales is managed sustainably and in an integrated way
3. Improve the resilience and quality of our ecosystems
4. Reduce the risk to people and communities from environmental hazards such as flooding and pollution
5. Help people live healthier and more fulfilled lives
6. Promote successful and responsible business, using natural resources without damaging them
7. Develop NRW into an excellent organisation, delivering first-class customer service

1.3 Report Structure

The ECOR is structured as follows:

PART A - undertaken at optioneering and outline design:

- Introduction – background to the proposed scheme, environmental assessment and NRW Duties.
- Project Description – describes the need for the project, project objectives, each component of the project, design development and likely temporary works.
- Environmental Baseline - a description of the baseline scenario for each environmental topic and an overview of the studies and surveys undertaken.

PART B - detailed design and appraisal stage:

- Environmental Appraisal Screening – describes the environmental appraisal to be undertaken, further surveys / appraisal required and preliminary mitigation.
- Environmental Appraisal - Evaluation and Mitigation of Detailed Design providing a summary of further appraisal, survey and requisite mitigation measures.
- Delivery of Multiple Benefits: proposed enhancements to be delivered under the project.
- Appendices: Flood Defence Solutions Drawing, Environmental Constraints and Opportunities Plans (ECOPs), Consultation Record. The Environmental Action Plan (EAP) is available in the Planning Application Pack as Document 274580-ARP-XX-XX-RP-EN-0006.

Project Description

1.4 Project Need

The current Stephenson Street flood defences include an existing 1,350m long flood defence embankment located on the left (eastern) bank of the River Usk from Stephenson Street south past Coronation Park in Newport, between National Grid Reference (NGR): ST3191986152 and NGR: ST 32873 85428. A Location Plan and Environmental Constraints and Opportunities Plans (ECOP) are provided in Appendix B.

Stephenson Street flood defence embankment reduces tidal flood risk to much of the Lliswerry area of Newport. This includes significant industry, leisure and residential properties. Assuming a breach was to occur today, some 192 residential and 620 non-residential properties in Spytty have greater than a 1 in 200 risk of tidal flooding in any given year. Sea level rise due to climate change increases the predicted risk significantly to 1,117 residential and 1,016 non-residential properties. The predicted speed and depth of inundation is hazardous, extending some 2.5km from the embankment.

In the embankment's current condition, it would be classified as a failing asset due to subsidence and structural failures; although, this asset is not recorded on the NRW register as its ownership is currently under Newport City Council. The embankment crest level varies along its length, with known low spots originating from the original design, subsequent subsistence and landowner activity. NRW estimate the standard of protection provided is as low as a 1 in 30-year tidal event (3.33% chance of occurrence) at certain low spots. Near misses have occurred during recent high tides, including in January and March 2014, which corroborate NRW's estimate of the lowest standard of protection.

The improvement works to Stephenson Street flood defence embankment aim to manage flood risk in accordance with the Severn Estuary Flood Risk Management Strategy (i.e. hold the line with a standard of protection of 1-in-200-year tidal event with sea level rise).

1.5 Project Objectives

- Reduce flood risk from the River Usk to at least 800 properties in Lliswerry, Newport.
- Consider future operation, inspection and maintenance requirements of the flood defence.
- Reduce and mitigate environmental risks, especially on the sensitive ecology of the area.
- Consider the requirements and experience of people using the Wales Coast Path.
- Integrate the principles of Sustainable Management of Natural Resources (SMNR), focusing on improvements at Coronation Park.
- Minimise effects to neighbouring property and businesses.

1.6 Optioneering, Outline and Detailed Design

Optioneering and identification of the preferred solution was undertaken during the development of the Outline Business Case (OBC) that was submitted to and approved by Welsh Government in December 2018.

A range of options to manage flood risk as required by the Severn Estuary Flood Risk Management Strategy were considered during the development of the OBC, including:

- Option A: Do nothing - cease existing defence maintenance.
- Option B: Do minimum – continue with existing defence maintenance to maintain current standard of protection.
- Option C: Enhance flood defence (standard NRW soil bund) – to achieve target flood defence levels.
- Option D: Enhance flood defence (concrete canvas lined bund) – to achieve target flood defence levels.
- Option E: Enhance flood defence (concrete wall options) – to achieve target flood defence levels.
- Option F: Enhance flood defence (sheet piles) – to achieve target flood defence levels.

Option C was adopted as the preferred option for the length of defences adjacent to Coronation Park and Option F was adopted as the preferred option for raising the existing bund to the south of Coronation Park. In addition, a series of options were considered for providing flood protection to the south of the proposed works at Corporation Road, including a combination of flood gates, flood walls and road raising to provide the necessary flood protection levels.

Both a ‘long list’ and ‘short list’ options appraisal were undertaken before the preferred option was identified. Full details are available within the OBC.

During the Detailed Design stage, further investigation and assessment has introduced necessary changes and additions to the flood defence improvements, which address new flood pathways identified during preparation of the Flood Consequences Assessment (FCA - 274580-ARP-XX-XX-RP-XX-0001). Detailed design has therefore seen the addition of wider components (areas of minor ground raising, the Railway and Nash Walls and culvert resilience works) that will preclude flooding from such broader flow paths.

Notably, the outline design included sheet pile wall extending down the full length of the Stephenson Street Embankment. Detailed design provided an alternative solution to defending this section, whilst maintaining operability within the industrial units. Refer to Section 1.7, the ECOPs and Detailed Design Drawings for details on flood defence solutions.

Detailed design has integrated amenity and biodiversity enhancement as detailed within this ECOR and detailed in the Planning Drawings within the Planning Application Pack.

1.7 Proposed Solution

The proposed flood defence improvements comprise a series of flood walls, earth bunds and minor ground raising along the River Usk and at identified areas of risk. The proposals are shown in Appendix A and summarised as follows (north to south):

- **Orb Works Riverbank Minor Ground Raising** – south of Kingfisher Walk and adjacent to Orb Electrical Steels. Localised ground raising at two locations to tie into existing Jetty Structure Wall and ground levels with 1:2 slope and 100mm of seeded topsoil. Located 6m and c. 30m southeast of the River Usk SAC boundary respectively and within the footprint of the existing flood defence structure. Drawing Ref.: 2001.
- **Stephenson Street Riverbank Minor Ground Raising** – land abutting the eastbound carriageway of Stephenson Street, immediately adjacent to the Newport Transporter Bridge. Localised ground raising of existing riverbank adjacent to Transporter Bridge to tie into existing verge and bank with 100mm seeded topsoil and 1:2 slope. Located within the River Usk SAC boundary, but within the footprint of the existing flood defence structure. Drawing Ref.: 2002.
- **Stephenson Street Flood Embankment and Upgrade to Wales Coast Path (WCP)** – Upgrading the existing Stephenson Street flood embankment along the western boundary of Coronation Park. Raising and widening of the existing embankment with enhancement landscaping and WCP improvement including seating areas and wildflower planting. Located partly within the River Usk SAC boundary but within the footprint of the existing flood defence structure. Drawing Ref.: 2003, 2004, 2005.
- **Access Ramp** - formalised gated emergency and maintenance access from Stephenson Street to the foreshore adjacent to the Transporter Bridge. This will provide a formal access point for the emergency services and also maintenance activities (removal of debris from SAC habitat). Localised to c. 100m^2 area of degraded grassland. Drawing Ref.: 2003.
- **Coronation Park Landscaping and Planting** – Coronation Park, south of Stephenson Street. Enhancements throughout Coronation Park including an accessible walking loop, benches, bins and concrete step seating areas. Inclusion of heritage and ecological interpretation boards to Stephenson Street embankment. Tree and shrub planting to the southern boundary of the park, including three areas of dense tree planting that are known as ‘urban forests’. Located outside the River Usk SAC boundary within Coronation Park. Drawing Ref.: 2003.
- **Sheet Pile Wall and Embankment with upgraded Wales Coast Path, including replacement metal stepped access spanning the Hanson Conveyor Belt** – River Usk riverbank and Wales Coast Path from end of Coronation Park to the conveyor: construction of sheet pile flood wall and resurfacing. Upgrading the existing path would also include a variable width crest, enhancement planting, seating and observation areas. Provision of replacement stepped metal access spanning the Hanson Conveyor would improve accessibility. Located partly within the River Usk SAC boundary but within the footprint of the existing flood defence structure. Minor encroachment required to install stanchions for the replacement stepped access. Drawing Ref.: 3000, 3001, 3004.
- **Reinforced Concrete Flood Wall at Felnex Industrial Estate** – Land comprising the lateral edges of East Bank. Road, new proposed flood relief road and Hanson

Conveyor crossing the Felnex Industrial Estate. Construction of a reinforced concrete flood wall adjacent to the Hanson Conveyor, extending to the site of the proposed T-junction access of East Bank Road. A secondary (larger) wall would extend from the proposed junction along the flood relief road and East Bank Road. Located c. 5m northeast of the River Usk SAC boundary behind the footprint of the existing flood defence structure. Drawing Ref.: 4000, 4001, 4002.

- **Flood Relief Road** – Land comprising the Felnex Industrial Estate, Hanson Aggregates and Marshalls sites connecting East Bank Road to the north and Corporation Road to the south. Construction of a 0.7km single carriageway flood relief road connecting from East Bank Road adjacent to KDK Metals Industrial Unit to Corporation Road adjacent to Marshalls estate. Ramped access and T-Junction access to be provided for incoming and outgoing traffic at East Bank Road with pedestrian footways. Located c. 5m northeast of the River Usk SAC boundary behind the footprint of the existing flood defence structure. Drawing Ref.: TBC.
- **Wales Coastal Path Resurfacing** – from the conveyor belt to where the Wales Coast path meets Corporation Road; resurfacing of Wales Coast Path with compacted stone. Surface water drainage for flood relief road to outfall through existing embankment. Located partly within the River Usk SAC boundary but within the footprint of the existing flood defence structure. Minor encroachment required to install small headwall and outfall within the existing embankment. Drawing Ref.: 4003.
- **Corporation Road Flood Gate and Walls** – Railway overbridge at Corporation Road, south of WCP. Construction of two reinforced flood walls adjacent to the Corporation Road railway overbridge and installation of sliding highway flood gate which would run flush to the existing railway embankment. Located c. 330m northeast of the River Usk SAC boundary behind the Eastern Docks. Drawing Ref.: 4004 and 4005.
- **Railway Flood Wall and Access Track** – land comprising the existing Wales Coast Path to the northeast of the existing railway line and land immediately adjacent to the embankment slope. Construction of a reinforced concrete flood wall adjacent to the existing railway embankment with non-return tidal flap valve at the base. Temporary resurfacing and widening of the Wales Coast Path to be reinstated upon completion of the flood wall. A smaller maintenance track will remain permanently. Located c. 400m east of the River Usk SAC boundary behind the footprint of the existing flood defence structure. Drawing Ref.: 5000, 5001, 5002.
- **Marshalls Railway Embankment Culvert with access and maintenance hardstanding** – Railway embankment situated to the northern boundary of Marshalls. Installation of reinforced concrete culvert chamber with non-return duckbill tidal valve. Provision of 15m² concrete hardstanding to the west of the culvert for maintenance and access with reinstated fence line. Located c. 280m north of the River Usk SAC boundary behind the footprint of the existing flood defence structure. Drawing Ref.: 7000.
- **Liberty Steel Railway Embankment Culvert** – Railway embankment situated to the north eastern boundary of Liberty Steel. Installation of reinforced concrete culvert chamber with a non-return duckbill return valve. Additional provision of a gravel access and construction tracks at railway embankment. Located c. 360m north of the River Usk SAC boundary behind the footprint of the existing flood defence structure. Drawing Ref.: 7001.

- **Nash Flood Wall and Access Track** – Nash Sewerage Treatment Works. Construction of a reinforced concrete flood wall to the north of the existing Nash site with raised permanent access track (track subject to landowner agreement). Located c. 150m east of the River Usk SAC boundary (Julian's Gout outfall) behind the footprint of the existing flood defence structure. Drawing Ref.: 6000, 6001.

Amenity, biodiversity and landscape enhancements are detailed in the Planning Drawings within the Planning Application Pack and describe the proposed enhancements the project will deliver, focussing around Coronation Park. Upgraded access will be provided, at the entrances to Coronation Park, along the new bund section and within Coronation Park itself to provide better connection between the riverside walk and the sports pitches and creating a circular walking route. Viewing platforms will be integrated into the soil bund section to allow for resting areas and provide a connection with the riverside habitats. Additional planting will be provided within the park and wildflower planting on the inland embankment to increase local biodiversity without compromising integrity of the flood defence. Further biodiversity enhancements will be delivered by the project, including: provision of higher value habitat (three urban forests (c. 1,600 trees), reedbed habitat and wildflower planting), restriction of access to SAC / SSSI habitats to reduce damage and disturbance, provision of bins to reduce litter / dog waste and planting of c. 82 trees.

The total length of the flood defence improvement works proposed, as described above, is approximately 1,350m. The proposed works cover an area of circa 8.3 hectares. The earliest construction start date is Autumn 2021, subject to securing consents and final confirmation of funding.

1.8 Temporary and Ancillary Works

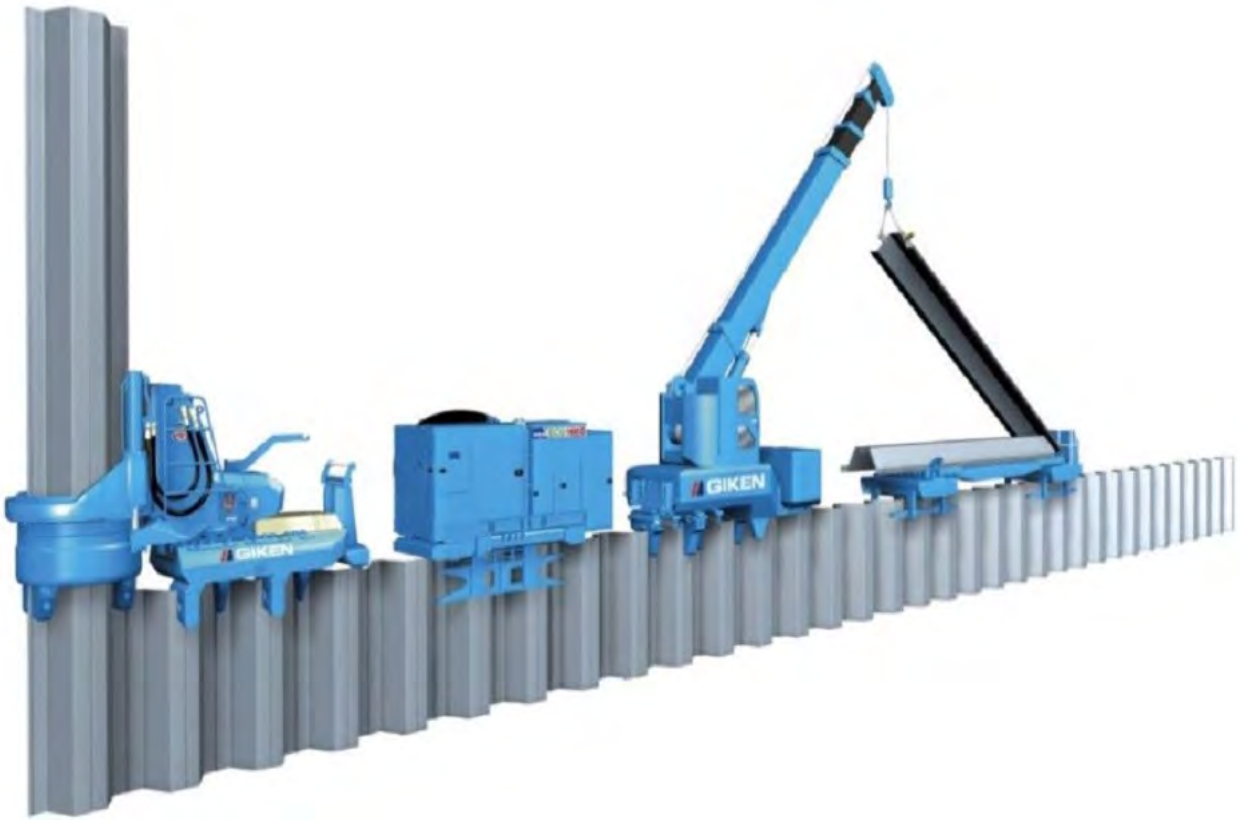
Stephenson Street Embankment - The flood defence infrastructure has been sensitively designed to avoid encroachment beyond the existing defence footprint into the River Usk SAC and River Usk (Lower Usk) SSSI. Neither bund nor sheet pile wall installation will require a temporary access track within the foreshore during construction following specification of pile installation methodology; described further below. Raising and widening of the embankment in Coronation Park and localised ground raising north of the Transporter Bridge will be built up with imported clean soil of known origin and is secured by the Environmental Action Plan (EAP - 274580-ARP-XX-XX-RP-EN-0006).

To demonstrate NRWs commitment to avoiding potential environmental effects, NRW have committed to specifying hydraulic ('silent') piling for sheet pile installation along the Stephenson Street Embankment; this has been secured within the EAP. Hydraulic piling is a push method of piling that does not incur the percussive or vibration impacts of typical piling methods. Whilst the initial few piles may be installed using vibratory piling methods this may be a brief necessity enabling the adoption of this method; a counterweighted solution[1] may be employed that would preclude the need for the initial vibratory piling. Whilst initially the reason for considering the hydraulic piling method was to avoid potential impacts on vibration-sensitive fish in the River Usk, further NRW consultation confirmed this was not a requirement due to the works being undertaken >30m from the River Usk /

[1] Weights would be added to the crane clamp to resist the reactionary force during the initial piling. Following installation of the first few piles, the reactionary force of the installed piles will be sufficient to permit continued piling unweighted. Should a counterweight solution not be possible, the initial few piles would be vibro-piled as described.

Mean High Water Springs (MHWS). NRW ultimately undertook the decision to commit to hydraulic piling, combined with a specialist 'service crane', to avoid the need for constructing a temporary access track within the River Usk SAC and River Usk (Lower Usk) SSSI. The Giken hydraulic piling rig and the service crane, track along the installed piles (refer to Figure 1 below) and do not rely upon a separate access track. This technique therefore avoids potential impacts on the adjacent protected sites by negating the need for temporary construction works in the River Usk SAC.

Figure 1: Giken Hydraulic Piling Rig and Service Crane



Ancillary Works - Minor encroachment into the SAC boundary, c. 100m^2 of degraded grassland (refer to Stephenson Street Embankment NVC Report; Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0016) will be required to install a maintenance access ramp onto the foreshore from Stephenson Street, adjacent to the eastern access to the Newport Transporter Bridge. The access ramp is required to allow the continued access for [1] emergency access to the River Usk for emergency services and [2] continued maintenance access to remove debris deposited by the tidal river onto SAC / SSSI habitats.

Further minor encroachment (<10m^2) is proposed, as detailed in the Planning Drawings within the Planning Application Pack, to accommodate a new viewing platform; refer to the LVA - 274580-ARP-XX-XX-RP-LA-0002. The design can be constructed from the bund and does not require a separate access track into the SAC / SSSI and will be installed using a no excavation method, a decking type structure will be placed onto the ground surface.

Access along the Wales Coast Path / Public Right of Way (PRoW) over the conveyor belt is currently via metal steps. Newport City Council asked NRW to improve access over the conveyor belt and so a replacement footbridge will be provided as the steps are at the end of their life. Sensitive design has ensured that the raised structure will have a negligible effect beyond the existing footprint with temporary access only required to install the supporting stanchions. A permanent loss of <10m^2 is anticipated.

To accommodate the new raised highway / flood defence in the Felnex and Marshalls Estates, SuDS Approval Body (SAB) compliant sustainable drainage is proposed to encourage infiltration and remove sediment and any hydrocarbons prior to discharge. In accordance with the SuDS Manual and SAB requirements, petrol interceptors are not encouraged, since the green infrastructure proposed adequately manages any risk. Swales will traverse each side of the road, leading to an attenuation basin with an overflow through the existing flood embankment to a new surface water outfall periodically discharging to a gabion mattress (c. 6m x 20m) providing erosion protection. The erosion protection is anticipated to become vegetated over time, without affecting its function, but will allow restoration of habitat. A non-return tidal flap valve will be installed on the outfall to prevent the outfall becoming a conduit during flood events.

Railway Wall and Nash Wall – the flood defence walls will be cast in situ to reduce the scale of construction access necessary to accommodate pre-cast units. Pre-cast units may be a viable option in the Felnex Estate and will be confirmed at a later stage.

Environmental Baseline

This section provides a description of the baseline environmental conditions for environmental receptors relevant to the project. Environmental Constraints and Environmental Opportunities Plans (ECOPs) have been prepared to portray key data within the study area (see Appendix B).

Table 2 – Baseline: Challenges and Opportunities

Topic	Summary of Baseline	Challenges / Objectives / Priorities
Population and Human Health	Human Health: The primary driver for the project relates to human health on the basis of reducing the likelihood of a flood event on residents and businesses in the Lliswerry area of Newport. By reducing flood risk to the 1,117 residences modelled as at risk, in addition to the 1,016 non-residential properties (during a 1 in 200 year tidal flood event with an allowance for effects of climate change), the project is considered to lead to positive effects on human health. A flood event can bring foul water into contact with homeowners, the public and workers within affected industrial units. The effects of flooding on health are extensive and significant, ranging from death from drowning and injuries from accident, to infectious diseases and mental health problems (short and long term). Recreation and Public Access: The crest of the existing Stephenson Street Embankment is a public footpath which also forms part of the Wales Coast Path, refer to Figure 1. The Wales Coast Path shall be managed by Natural Resources Wales using the following route criteria: 1. There should be a continuous route around the coast of Wales. 2. The public should have a permanent right of access. 3. The route should be physically available at all times. 4. The route should be as close to the sea as practicable and desirable. In addition: • Public roads which are shared with motor vehicles should only be utilised if there is no practical alternative - especially if there is no pavement or verge suitable for users. • The Wales Coast Path is to be continuously available and the needs and enjoyment of users must be considered at all stages. • Public access is effectively restricted from Stephenson Street to the north as access to Corporation Road beyond Bird Port is restricted by active industrial use. This does not easily permit a through route and is not likely to be used as a circular route by either cyclists or pedestrians. • This section of the Wales Coast Path is a public footpath with right of access for pedestrians only. The available path width on this section should be a minimum of 1.2m to allow two people to walk side by side. The current crest width of circa 1m does not currently meet requirements for pedestrian use. The northernmost section of the site lies adjacent to Coronation Park, a large area of amenity and recreation space located along Stephenson Street. Although no formal linkage between the embankment and the park exists, informal paths have been created as users short-cut between the two. Recreational use of the embankment is deemed to be moderate, a mix of people using the Wales Coast Path as a longer route, and others walking dogs more locally, whilst the park supports regular community events; e.g. seasonal football training and competitions.	Principal design challenges included: [1] Requirement for minor realignment of the Wales Coast Path / PRoW on the bund. [2] Provision of Equality Act compliant[2] infrastructure where possible with amenity / interpretation enhancements, whilst maintaining natural views and not encouraging anti-social behaviour. [3] Managing design against existing constraints: fenced dog compound and recreational training pitches. [4] Investigating opportunities to design improved access over the conveyor belt as a potential enhancement. [6] Designing pedestrian access over the flood gate. Key objectives were: [1] Ensuring SMNR is integrated throughout design development. [2] To design the flood wall height in consultation with NCC in order to retain open views without compromising flood risk. [3] Widen and improve the Wales Coast Path / PRoW. [4] Encourage and enhance access between the flood bund and Coronation Park. [5] Ensure equality and inclusion considerations are integral to design development. [6] Potential opportunity to improve access at the conveyor belt section of Stephenson Embankment as an enhancement to the scheme. Priorities include: [1] Ensure flood levels are sufficient to protect at risk properties (taking climate change into account), whilst managing visual effects and aiming to retain oversight of sheet pile walls for children and wheelchair users. [2] Formally agree (Right of Way Diversion Order submitted) with NCC the permanent minor realignment of the Wales Coast Path / PRoW. [3] Agree operational access and refuse collection requirements with NCC and NRW operational teams. [4] Support local Well-Being plans, both NRW Well-Being Goals and Newport's Well-Being Plan[3] through active consultation. [5] Developing the sheet pile wall design following agreement with NCC regarding provision of a 0.8m upstand and no hand railing, to maintain views whilst delivering flood protection and a safe design. [6] Designing the bund section to be Equality Act compliant where possible, which must improve accessibility. [7] Provide amenity and viewpoint areas with signage and litter, recycling and dog waste bins where appropriate. The widened path and the addition of passing / resting places could also help provide social distancing in reference to the Covid-19 pandemic. [8] Progress a formal PRoW diversion order where the bund section in Coronation Park is realigned slightly. [9] Any temporary diversion required during construction works would be agreed with the Council, available 24 hours a day and would be clearly signed in accordance with Wales Coast Path standards.

[2] Including consideration of: By All Reasonable Means, NRW 2017; BS 8300-1: 2018; Access for All Design Guide; Environment Agency 2012.
[3] http://onenewportlsb.newport.gov.uk/documents/One-Newport/Local-Well-being-Plan-2018-23-English-Final.pdf

Topic	Summary of Baseline	Challenges / Objectives / Priorities
		[10] Allowing vegetation clearance to naturally regenerate, maintaining the rural feel to this section which is a welcome contrast to the urban sections to the north and south. Design a planting scheme to maintain the current 'enclosed' feel along the path and screen the industrial units to the rear.
Biodiversity and Nature Conservation	Desk and field survey in accordance with CIEEM standards have informed the biodiversity baseline for the proposals. A Preliminary Ecological Appraisal (PEA) including Extended Phase 1 Habitat Survey and species-specific surveys were undertaken between March and October 2018. Further Extended Phase 1 Habitat surveys and relevant species-specific surveys comprising secondary flood defence and ancillary infrastructure culminated in a series of additional Preliminary Ecological Appraisal (PEA) reports for: ground raising north of the transporter bridge, the updated Stephenson Street Embankment proposals including the Felnex and Marshalls Estates proposals, the Railway Wall, Railway Wall Access Route and Nash Wall including the Nash Access Route. Two National Vegetation Classification (NVC) Reports prepared by Sturgess Ecology were also undertaken to identify sensitive habitats and flora along the Stephenson Street Embankment and north of the Transporter Bridge. Environmental Constraints and Opportunities Plans (ECOPs) for each area are provided in Appendix B. The River Usk SAC and River Usk (Lower Usk) SSSI boundary extends from the river approximately 40m across upper saltmarsh to the crest of the embankment. A number of SAC features are not present in the SSSI Management Unit related to the works and no pathway for effect has been identified. Shad (*Alosa* spp.), a vibration-sensitive fish, are present within the River Usk during their migration season (Apr-Jul inclusive). The embankment is notified as a Site of Importance to Nature Conservation (SINC), the Marshalls SINC, notified for its mosaic of habitat including scrub and tall ruderal. Much of the scrub habitats within the industrial estate to the rear of the embankment have been cleared during the past five years. The Railway Wall, Railway Wall access and Nash Wall are located outside but adjacent to the Solutia SINC and Alpha Steel SINC. Coronation Park lies at the north-east of the Stephenson Street Embankment, a large area of amenity grassland dominated by commonly occurring species typical of this grassland type. It is actively managed by mechanical mowing and is used for recreational activities, maintains a fenced dog exercise compound and sports pitches / playing fields. Records indicate a number of protected species in the area including, among others: breeding birds, Schedule 1 birds (e.g. Cetti's warbler), otter, bats and barn owl. The Extended Phase 1 Habitat Surveys identified potential habitat for: otter, water vole, dormouse, badger, reptiles, bats and great crested newt. Extensive species-specific surveys confirmed the likely absence of protected species (otter, badger, water vole, reptiles and great-crested newts) from the Stephenson Street Embankment area. Refer to PEA Reports for details. Species-specific surveys were undertaken for the secondary defences and ancillary works. Otters – <u>All Sections</u> - Habitat suitability of all waterbodies across the entire site was low. <u>Stephenson Street Embankment</u> - extensive surveys including monthly searches	Key Challenges include: [1] Designing a structurally sound and efficient solution that does not result in direct loss of protected sites or significantly affect their respective features; particularly during operation. [2] Ensuring vibration effects from construction do not affect vibration sensitive fish species in the River Usk. [3] Developing feasible mitigation and enhancement opportunities. [4] Ensuring habitat connectivity is retained. Principal Objectives include: [1] Ensuring SMNR is integrated throughout design development. [2] Avoid permanent loss of important protected site area as far as practicable and minimise temporary loss or disturbance. [3] Aim for a net gain approach to biodiversity. [4] Promote awareness and enhancement of existing habitats and species. Priorities include: [1] Ensuring a robust Ecological Appraisal and HRA are undertaken [2] Integrating biodiversity requirements into design to ensure no permanent (and ideally no temporary) effects on the SAC / SSSI. [3] Deliver enhancements to benefit local biodiversity; focus on the SAC, SSSI and SINC in addition to locally important biodiversity. [4] Eradication of Invasive Non-Native Species (INNS) from the scheme footprint.

Topic	Summary of Baseline	Challenges / Objectives / Priorities
	for holts, resting places, signs of presence and camera traps concluded likely absence of otter. No signs of otter presence (i.e. no footprints, scat, scent marking, slides, nor resting areas, etc.) were recorded to the rear of the Stephenson Street Embankment throughout any of the surveys; no foraging or commuting otter are considered to use this area. Railway Wall - footprints were recorded along the western edge of waterbody 10 and a spraint recorded on a culvert crossing a stream to the south of waterbody 11; approximately 500m southeast of the Railway Wall. Cameras on a raft at the eastern bank of the sludge lagoon (c. 300m east of the Railway Wall) returned three otter recordings. Any presence is considered to be limited to foraging and or commuting otter, travelling through the site. No permanent resting / breeding places were recorded within 200m. Refer to PEA Reports for details. Bats - Habitats within the Site are likely to provide a foraging resource and commuting corridors to a range of bat species, that occur in the local area. Three trees (TN8 and TN10: Railway Wall Access and TN14: Nash Wall – refer to Appendix B: ECOPs and Ecological Appraisal Report 274580-ARP-XX-NW-RP-EN-0004) were identified as Moderate Bat Roost Potential. TN8, TN10 and TN14 were assessed in more detail in May 2021 comprising thorough assessments including endoscope inspection where appropriate and possible. TN8 was a hazard beam and tear out in a crack willow that has since been lost to storm damage and TN14 was identified as the start of a woodpecker hole; both features have been reassessed as negligible to low bat roost potential. TN10 remains as a moderate potential bat roost with possible bat urine staining at the entrance to the hole. Several attempts were made to endoscope the hole, but efforts could not fully confirm likely presence / absence due to the height of the feature and its location adjacent to a waterbody. Great Crested Newts (GCN) – All permanent waterbodies produced unsuitable Habitat Suitability Index (HSI) scores. However, presence / absence and eDNA surveys were undertaken on all permanent waterbodies regardless of HSI score. A further two surveys were undertaken on waterbody 4 (positive eDNA result) and waterbody 3 (connecting habitat), but no evidence of GCN was recorded. The eDNA score was 1 / 12 (1 out of 12 tests scoring positive), indicating low confidence in the result and is considered to represent a false positive; particularly considering the abundance of fish in waterbody 4, which makes the presence of GCN unlikely. Two further waterbodies were assessed for eDNA in May 2021 following an NRW Pre-Application Consultation response request. Both waterbodies were sampled and provided negative results for great crested newt presence. Neither waterbody was suitable for full survey as both were too shallow for bottle trapping and did not maintain vegetation suitable for egg searches, TN4 (274582-ARP-XX-XX-RP-EN-0011 North of Transporter Bridge PEA) was polluted and TN6 (274586-ARP-XX-XX-RP-EN-0015 Railway Wall Access PEA) was covered with a layer of pondweed (*Lemna* spp.) that would have prohibited torch survey. Refer to Ecological Appraisal Report (274580-ARP-XX-NW-RP-EN-0004) and PEA Reports for details. Dormice – The brambles and scrub on Site provide suitable foraging and nesting habitats for dormice. However, fragmentation from other potential dormouse habitat including those with dormouse records within the wider area due to barriers such as roads, rivers and rail means dormouse are considered unlikely to occur within the Site and therefore are not considered to be a constraint to the proposed works.	

Topic	Summary of Baseline	Challenges / Objectives / Priorities
	Water Vole - water voles have been recorded in connecting habitat, with records at Pye Corner approximately 1km east. The Habitat Suitability Assessment and presence/absence survey produced negative results for all waterbodies, except potential presence at waterbody 11 (eastern bank of sludge lagoon). Likely water vole droppings and likely feeding remains (potentially bank vole) were recorded at various locations in reedbeds along eastern and northern margins of the waterbody, the closest of which was approximately 280m southeast of the proposed works. The waterbodies that are closer than 280m to the proposed works are unsuitable for water vole and therefore it is unlikely that signs of water vole will be present any closer to the works. Final surveys in January 2020 did not find evidence of water vole. No burrows or nests were recorded. Badgers – Evidence of badger activity recorded during surveys, suggests that badgers use the site for foraging / commuting. No setts have been recorded although there are records of setts in connecting habitat, and habitats within the site offer suitable habitat for sett construction. Reptiles – monthly presence / absence surveys provided negative results; likely absence of reptiles was concluded. Schedule 1 Birds – Cetti's warbler are associated with reedbed within the Marshall's SINC. Breeding Birds – habitats on site provide suitable habitats for breeding birds. Amphibians - The waterbodies across the Site provide suitable breeding habitat for common amphibian species, e.g. common frog (*Rana temporaria*), common toad (*Bufo bufo*), palmate newt (*Lissotriton helveticus*) and smooth newt (*Lissotriton vulgaris*). Section 7 Species - West European hedgehog may be present. One of only five remaining populations of shrill carder bee (*Bombus sylvarum*) are known to be present within the Gwent Levels and parts of Newport and south Cardiff. No evidence of shrill carder bee was identified during surveys. Fish – No species survey was undertaken for fish species present within the River Usk or Severn Estuary as part of this assessment. Presence is assumed in the River Usk at the relevant times of year for each species due to the River Usk and Severn Estuary designations for: sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*), allis shad (*Alosa alosa*), twaite shad (*Alosa fallax*), European eel (*Anguilla anguilla*) and Atlantic salmon (*Salmo salar*). The River Usk SAC Core Management Plan confirms two species are not present within the locality of the Site (SSSI Management Unit 1); absent species include: bullhead (*Cottus gobio*) and brook lamprey (*Lampetra planeri*). None of these fish species are considered likely to be present in any watercourses affected by the proposals. Invasive and Non-Native Species – Stands of Japanese knotweed (*Fallopia japonica*) located in the south-west corner of Coronation Park, along the main embankment and were treated in 2018, 2019 and 2020. However, additional stands were recorded within the Felnex Estate southwest of the proposed horseshoe raised highway. Refer to ECOPs for locations; Appendix B. Subsequent survey identified giant hogweed	

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	(*Heracleum mantegazzianum*) in the watercourse away from the Nash Wall site; refer to Ecological Appraisal Report (274580-ARP-XX-NW-RP-EN-0004), TN11, Appendix E4. All ecological surveys were undertaken in accordance with relevant best practice guidance; refer to individual reports within the planning application for details.	
Ecosystem Services / Natural Resources	The Study Area includes the following broad ecosystem types: River and Intertidal (Coastal Margins), Ditches and Pools (Freshwater, wetlands and floodplains), Dense Scrub and Tall Ruderal, Amenity Grassland / Urban; the following Provisioning, Regulating, Cultural and Supporting Services: Food, Natural fluxes of energy, Climate regulation (local & global), Water regulation (quantity), Regulation of water, air and soil quality, Hazard regulation (erosion control), Pollination, Noise regulation, Natural settings – landscape and seascape, Accessible green space, Recreation and tourism, Nature and wildlife (appreciation of), Tranquillity, Historic and cultural heritage, Soil formation, Primary production, Nutrient cycling, Provision of habitat.	The principal challenge is to balance the conflicting requirements of engineering, environmental and social aspects of the project, which will be promoted by adopting the SMNR approach and working inclusively throughout the project. The primary objective remains to support and enhance ecosystem services wherever practicable and minimise the use of material resources whilst providing a functional and effective solution to managing flood risk. The priority of the project is to manage flood risk, whilst integrating climate change considerations in lieu of current guidance[4] and promoting ecosystem services.
Land	Newport's Local Development Plan (2011-2026) proposes a sustainable development strategy with a focus on regeneration, building on the culture and heritage of the City, seeking to maximise the use of previously developed brownfield land. The overall goal of achieving the vision of the Plan can only be reached by the delivery of a number of objectives which seek to address key issues facing Newport, including flood risk and climate change. Opportunities for development in the following cells: employment land EM1 (iv) and EM1 (ii), leisure land H1 (23), and housing H1(38) and H1(45) can potentially be hindered by the current flood risk presented by the Stephenson Street embankment poor condition and low standard of protection. The proposed works will be constructed partly in areas of open space (Coronation Park), along the existing embankment adjacent to industrial units and within an active industrial unit (Bird Port). No important geological resources (Geological SSSI or RIGS) are present in the Study Area; similarly, the LDP does not identify any important mineral resources within the study area. Whilst the LDP Constraints Plan includes the M4 Relief Road Protected Corridor within the boundary, at this time, the proposed highway is not planned to progress. Welsh Government have confirmed that Stephenson Street can progress in isolation from the proposed relief road.	The challenge will be delivering a solution that protect Newport from flood risk now and in the future, whilst avoiding sensitive habitats (SAC, SSSI, SINC), the protected mineral wharves and the Environmental Spaces ('green spaces') identified in the LDP. The primary objective and project priority is to achieve a design basis that provides active protection to the current and proposed development areas. Progressing the proposed works is not considered to have an effect on NCC proposals and baseline land use; however, the risks of not progressing the works will potentially result in significant land use and socioeconomic effects. Consultation to be undertaken with Sport Wales regarding protection of the sports pitches.
Soil	The site is located to the south of the main centre of Newport in a primarily industrial and commercial area. Geotechnical desktop studies indicate that due to the historic and current industrial use of the site, it is likely that the ground will have been impacted by contaminants associated with these industries, particularly in the southern section of the project. In addition, a number of other potential sources of contamination were identified from the historic OS maps including refuse and slag heaps in the southern part of the project. Details of all ground conditions and contamination assessments are provided in the Ground Investigation Report.	Challenges include avoiding contamination in an industrial area and avoiding remobilisation of any contaminants whilst prioritising containment of any identified contamination and precluding pollution affecting protected sites. The principal objective will be to undertake appropriate ground investigation and supportive desk study to understand the risk and mitigate design and construction accordingly. Similarly, the design will need to consider the cut-and-fill balance of the proposals, maximise the reuse of appropriate materials and minimise imports acknowledging that soil is a finite and important resource.

[4] Planning Policy Wales (PPW) (Edition 10, December 2018) and Technical Advice Note 15 (TAN 15) – Development and Flood Risk (July 2004) (as amended).

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	Ground conditions throughout the site typically consisted of Topsoil and Made Ground overlying Tidal Flat Deposits and Glaciofluvial Deposits with the Mercia Mudstone Group bedrock encountered at depth. Where the embankment is present, increased thicknesses of Made Ground were encountered. With the exception of the Made Ground itself, no visual or olfactory evidence of contamination was observed during the ground investigation. Made Ground samples were tested for a range of dry weight chemical determinants; including: metals, pH, asbestos, PCBs, phenol, total petroleum hydrocarbons and polycyclic aromatic hydrocarbons. Samples were also analysed for a suite of leachable contaminants including: metals, pH, PAHs, sulphate, and phenol in order to identify any potential risks posed to controlled water receptors. The leachate analyses results have been compared to current Environmental Quality standards for freshwater environments, in the absence of which UK DWS and WHO standards have been used for comparative purposes. A review of the chemical analysis results has not identified significant or widespread contamination of the subsurface. No unacceptable risks have been identified with respect to human health; either of construction workers or site end users. Metals and organics (polycyclic aromatic hydrocarbons) have been identified at leachable concentrations within the made ground in excess of applied assessment criteria. It is considered that the nature of the Made Ground is the general source of the concentrations of leachable contaminants recorded; in particular where coal is present. In the absence of groundwater samples, it cannot be confirmed as to whether these leachable contaminants have impacted any groundwater present beneath the site. The Agricultural Land Classification (ALC) does not record any high value soil parcels, with predominantly 'urban', 'non-agricultural' and Grade 4 land; the latter associated with the embankment and Coronation Park. No high carbon content or sequestering soils have been identified that are likely to be impacted by proposals. Of note, to the east of the Railway Wall site, are sludge lagoons bunded within an enclosure that the proposed wall will tie-in to; no effect on the sludge lagoon is anticipated.	The underlying natural superficial strata beneath the site is not considered particularly sensitive with respect to leachable contaminant concentrations. However, due to the sensitivity of the location, within a protected site further risk assessments and sampling will be required during detailed design to ensure any material arisings are acceptable for any intended re-use and will not pose a risk to sensitive surface water receptors, i.e. the River Usk; appropriate mitigation measures will be integrated as required. A number of mature trees were felled from on top of the existing embankment around 2015, with the stumps remaining in situ. This could cause issues for the new bund as when these stumps are removed, the drier soil around the base has the potential to subsequently fully hydrate and swell. Whilst the risk to the embankment infrastructure is low, it is feasible that some maintenance could entail. This may be accommodated in the final design by removing larger areas of soil around the root bowl.
Water	Water Framework Directive (WFD): A WFD Compliance Assessment was undertaken as a part of this study (274580-ARP-XX-XX-RP-EN-0003). The site is located along the River Usk (Transitional Waterbody GB530905415404), which is classified as a Heavily Modified Water Body (HMWB) with a current overall status of Moderate Ecological Potential. Data from 2015 received from NRW indicates that failure to achieve Good Ecological Potential (GEP) is linked to the lack of measures to mitigate the effects of flood protection. Geomorphology: The Geomorphology Assessment (appended to WFD Report; 274580-ARP-XX-XX-RP-EN-0003) provides a description of the baseline water environment and an assessment of potential geomorphological risks. The embankment is set back from the main channel of the River Usk by a distance of approximately 40m. Desk study and site observations indicate that the floodplain and its features including lateral channels and gullies are relatively stable (i.e. no signs of significant active erosion or large deposits of fine sediment). While sediment transport processes are certainly active across the site, they appear to vary spatially and temporarily, with some areas experiencing mild erosion and others mild deposition at any one time such that overall risk to the embankment is considered relatively low.	The challenge from a Water perspective is to comply with SAB Consent requirements for green infrastructure and support WFD mitigation actions, which encourage enhancement of marginal and aquatic vegetation habitats without affecting SAC / SSSI habitat and features; particularly, the saltmarsh located between the embankment and the river. This is particularly challenging noting the physical separation of the embankment from the River Usk and Mean High Water Springs (MHWS) mark; c. 40m separation, precluding provision of intertidal / riverine habitats. Increasing favourable conservation status of existing habitat will be the priority. During detailed design the WFD Assessment was reviewed and updated. The priority is the retention of key habitat and / or sensitive management where construction effects cannot be avoided. Similarly, preventing any new potential groundwater contamination from leaching into the protected site and watercourses and aim to block any identified flowpaths where practicable. Where infrastructure is required

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	Groundwater: Groundwater was encountered in eight of the exploratory holes within the tidal flat deposits, typically at depths of 2.1m to 3.3m. Three groundwater monitoring instruments were installed as part of the works. Superficial deposits beneath the site are classed as unproductive strata, while bedrock strata is classed as a secondary B aquifer. The site does not lie within a source protection zone. Flood Consequences Assessment and Flood Risk Activity Permit: The modelling results for the proposed works demonstrate a vital improvement to the flood defences and reduction in flood risk across the Spytty area of Newport. Despite this, new or modified flood defences can divert flood water and potentially affect locations further afield. This was considered as part of the modelling to support the outline design with 'detriment modelling' undertaken to validate potential risks associated with the proposals. Additional elements have been added to the design to account for potential detriment risks. A number of drainage ditches interact with the design and require design consideration to ensure continuity of drainage during operation.	at / near ordinary watercourses, maintaining extant flowpaths are crucial. SAB[5] Consent will be submitted where applicable. Groundwater: The existing ponds adjacent to the embankment could be a potential source of contamination. Like many industrial estates there are a number of drainage misconnections in the area and this has caused a number of pollution incidents to the Usk in the past. No works are currently proposed to the ponds, but drainage pathways are to be considered during detailed design and construction. WFD mitigation measures include: • Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone. This measure applies to all hard defence structures within the tidal reaches of the River Usk and requires the installation of features to enhance the habitat value of hard defences; and • Retain marginal aquatic and riparian habitats. This measure applies to earth embankments, including existing embankments that require reconstruction, and specifically refers to the use of bioengineering in embankment design. The project involves the introduction of sheet piling which will form a new hard element to the existing embankment. The impacts of this could potentially be mitigated by incorporating measures to enhance the riparian environment above Highest Astronomical Tide level where the piling will be exposed. However, it was eventually concluded that the pile is set back too far from the river for this to be successful. Other mitigation for WFD was considered such as INNS management, vegetation re-colonisation and exclusion of hard revetment in the design. See WFD report for future details. Flood Consequences Assessment (274580-ARP-XX-XX-RP-XX-0001) and Flood Risk Activity Permit: To ensure that all aspects of flood risk have been taken into account and determined against the final design, a flood consequences assessment will be undertaken to support the detailed design and the associated planning application. Since works will be undertaken to improve a flood defence asset, the proposed works will be supported by a Flood Risk Activity Permit, which will allow works in, over, under or near to a main river or flood defence. An application will be submitted for permanent and temporary works in due course. No works are proposed within the tidal River Usk; as such, submission of a Marine Licence application is not required.
Air	The proposed works are not located within an Air Quality Management Area (AQMA) and are not considered likely to lead to any significant construction or operational odour effects. The nearest AQMA is at Chepstow Road, Newport circa 2.5km north of Coronation Park; the AQMA is declared for nitrogen dioxide sourced from road transport.	There is considered to be limited scope for air quality effects from the proposals, such that there is limited challenge. Air quality will be considered during design, largely relating to construction traffic and dust suppression. The proposed works are not anticipated to generate any significant construction effects relating to air quality and no operational concerns would be attributed to the proposed improvement works. Sheet piling is not expected to generate any air quality nuisances, whilst any air quality effects generated from the construction of the bund would be limited

[5] SuDS (Sustainable Drainage Systems) Approval Body [Newport City Council Drainage Officer]

Topic	Summary of Baseline	Challenges / Objectives / Priorities
		temporally and spatially. Further consideration to the mitigation required will be applied at detailed design and standard best practice mitigation applied if relevant; dust suppression, etc.
Climate	The purpose of the project is to ensure that the flood defences protecting the Spytty area of the Lliswerry ward are adequately protected in the short and long-term, considering current climate change implications. The Severn Estuary Flood Risk Management Strategy requires consideration of a 1:200 year tidal event with sea level rise for flood defences such as Stephenson Street Embankment. Accordingly, the project has accounted for 50 years of climate change to meet the future baseline, accounting for sea level rise and predicted increases in volume and intensity of rainfall events.	Detailed design will include consideration of climate change resilience to ensure the longevity and continued functionality of the defence; this will take into account the most up-to-date guidance. The carbon footprint of the project will be considered at detailed design stage with an aim to reduce material resource use through design and construction.
Material Assets	The presence of an existing embankment reduces the need for significant material resources. Good highway links are present connecting the main site, which is located near major arterial routes facilitating transport of construction materials. The Railway Wall and North of Nash WwTW sites will require tie-in to an existing railway line embankment. Adjacent industrial facilities have been engaged throughout design to ensure compatibility between flood protection and their operations.	The principal objective will be to reduce material use wherever practicable through design development and appropriate construction methods. Consultation will be undertaken with Network Rail and relevant landowners / tenants on proposed investigations and design and construction requirements. Objectives and design priorities include designing safe and efficient access for maintenance across network rail infrastructure. All proposed works will be offline from the highway network and so are not considered to have any relevant effect on the traffic and transport receptor. A site compound is likely to be set up in Coronation Park with access from Stephenson Street to the north. No effects are predicted upon traffic regimes, but consideration will be undertaken at detailed design to account for site access and any implications on traffic along Stephenson Street; particularly with respect to traffic accessing the Transporter Bridge. Access to the southern section at Corporation Road will be within Bird Port with arrangements to be confirmed at detailed design. To maintain operational requirements at the port it is likely that works here will be undertaken through the night to avoid disruption to the port. Detailed design has confirmed that the proposed works will not affect the existing wharves infrastructure nearby (i.e. conveyor belt and Bird Port) therefore the proposed works do not have an effect on the viability of the transportation of aggregates.
Cultural Heritage (including architectural and archaeological aspects)	An Archaeological Desk-Based Assessment (DBA) was undertaken by Archaeology Wales in March 2019 and updated in April 2020. The DBA determined that the proposed development does not lie within, or affect, any Scheduled Monuments, Registered Historic Landscapes, Historic Parks and Gardens or Conservation Areas. Within a 1km search area, there are fourteen listed buildings, three of which are different parts of the Grade I Newport Transporter Bridge (17414, 17415, 3076), which is located adjacent to the proposed development; some of the works are likely to occur within the area of the listed structure. 24 Historic Environment Records (HERs) are recorded within a 1km search area. No recorded site will be directly affected by the proposed scheme area but there is considerable potential for encountering unknown sites as river deposits have the potential to contain preserved archaeological remains of prehistoric, Roman and Medieval times.	The primary challenge is developing design solutions within an archaeologically sensitive area with the potential for unknown archaeology. Also, works are proposed adjacent to the Grade 1 Listed Newport Transporter Bridge. To date all investigations have been undertaken under an archaeological watching brief and no heritage interest has been encountered. While both desk-based and intrusive site investigations have found no evidence of any archaeological remains, it is not possible to completely exclude the risk that previously unknown archaeological features would be present. The riverside location of the proposed works, which includes an historic ‘pill’ in the line of the bank where a tributary stream would have joined the main river, means that there is a risk that the buried remains of a boat, or other riverside structures could be present. The waterlogged conditions mean that organic preservation is likely to be high and remains of this type can pose a considerable financial risk if encountered during construction. However, works will be >40m from the riverbank, comprise non-excavation methods (pile installation and bund raising) and predominantly within the footprint of the existing defence.

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	Archaeological monitoring has taken place during the excavation of Ground Investigation (GI) test pits throughout the works area, including along the footprint of the existing embankment where sheet pile installation is proposed (2015) and subsequent GI around Corporation Road and the Railway Wall (2019 and 2020). No archaeological features or artefacts were identified or suspected. Each Written Scheme of Investigation (WSI) is appended to the Archaeological DBA (274580-ARP-XX-XX-RP-EN-0007). Cadw have advised during a consultation response and follow up meeting (October 2020) on two areas that are highest risk for unknown archaeology.	Project objectives and design priorities are to avoid potential effects on known heritage features and manage the risk of any unknown archaeology proportionately. The Grade 1 Listed Newport Transporter Bridge is located at the north of the primary Stephenson Street Embankment works and road raising is required within the immediate vicinity of the structure. As such, physical and visual effects of the proposed works require consideration. Consultation with Cadw, GGAT and Newport City Council's Historic Building Conservation Officer have indicated that the proposed changes are not likely to lead to any significant effect. The Transporter Bridge is due to undergo a large project of restoration, and NRW have been in discussions with the project team regarding the interaction of the two projects.
Landscape and Visual	The site is generally visually exposed due to low vegetation and low buildings. However, given the low topography of the site (up to 8/9m AOD), it is only well visible from nearby locations and only from few elevated key points in the surroundings. Nine viewpoints were visited from which eight were selected, four of them localised in the extended study area and the other four localised in the immediate study area. The list of potential viewpoints was sent to Newport County Council via email on the 18th November who confirmed that "the locations would generally be appropriate to undertake a landscape and visual appraisal". Designations: The study area does not lie within an area that is designated for its landscape. However, within and extended study area of approx. 3km buffer from the core study area, the following landscape designations were found: • The Gwent Levels Historic Landscape of Outstanding Historic Interest in Wales. Due to the visually enclosed nature of the landscape surrounding the site, there is no perceptual connection with the site, therefore this designation is not appraised as a landscape receptor. • Historic parks and Gardens: Llanwern Park, Newport (Nos 15 and 17, Sto Park Circle), Tredegar Park. • The Newport Transporter Bridge (Grade I Listed Building) is located directly adjacent to the scheme. The development effects on significance and setting of the Transporter Bridge are covered in the Archaeological DBA (Doc. Ref.: 274580-ARP-XX-XX-RP-EN-0007) and Heritage Assessment in Table 6 and the visual setting will be considered within the Landscape and Visual Appraisal (LVA). • The Wales Coast Path. Potential effects on this route relate mainly to its visual setting and therefore it is not considered further as a landscape receptor but is included as a visual receptor below. Landscape Character: The study area lies within the Gwent Levels National Landscape Character Area (NLCA). NRW Gwent Levels (NLCA34) summary: "*this is a distinctive, flat, lowland landscape with a geometric patchwork of watercourses that run between fertile fields. It is remarkable for having been created by reclaiming marshland and inter-tidal areas during successive periods going back to Roman times. In parts, the older patterns have changed almost beyond recognition over the past 150 years, sections having been built over by a major railway line, two motorways, a large steelworks, and a power station. Key characteristics: Alluvium, Reclaimed landscape,*	The main challenge will be to retain views over the proposed sheet pile wall whilst providing an adequate flood defence. NCC agreed with the NRW design preference for a 0.8m high pile upstand (the part of the flood defence above ground). This will mean no requirement for hand railings and therefore that the design would maintain views whilst delivering the flood protection objective. Potential visual effects of the flood defence have been considered further and attaining the balance (i.e. between pile height, path width and the need for railings) is a design objective and project priority. Similarly, designing an attractive scheme that blends well with the local landscape context and provides enhancement to increase the visual aesthetic. The main landscape objectives are identified in the Landscape and Visual Appraisal: • Maximise amenity opportunities that the proposed flood defence could bring and integrate this important infrastructure with the landscape character to minimise its visual impact. • Improve accessibility to Coronation Park and the Wales Coast Path (WCP). • Opportunities to transform Coronation Park into a destination for residents and visitors, with a better use of the space. • Opportunities to improve the experience along the WCP. More accessible and safer for all users. • Opportunities for heritage and ecology interpretation. • Opportunity to soften and integrate Newport City Dogs Compound fencing. • Opportunities to complement the proposed work on the Transporter Bridge Heritage Lottery Fund project. • Opportunities to engage with existing stakeholders and community groups; i.e. Living Levels. • Opportunities for biodiversity gain and habitat conservation; e.g. otters, pollinators and birds. • Opportunity to embrace NRW Sustainable Management of Natural Resources (SMNR) Objectives • Opportunities to fulfil NRW Wellbeing Goals, Well-being of Future Generations Act Goals and UN Sustainable Development Goals. Preliminary Landscape Vision:

Topic	Summary of Baseline	Challenges / Objectives / Priorities
	Divided by the Usk estuary, Reens and willows or hedgerows, Flood embankment to the sea, Fertile soils and agriculture, Wet pasture, Archeologically important, Comparatively little settlement, Open views between hills in Wales and England, Major developments on fringes." LANDMAP: The study area predominantly lies within: the Eastern Usk Industrial Area (NWPRTVS041), the Docks and Level of Mendalgrief (NWPRTVS040), the Usk Built Urban Corridor (NWPRTVS042), the Lower River Usk (NWPRTVS010) and a small section of the study area also falls within Newport West (NWPRTVS056). The Lower River Usk is characterised as "Water" and all the other aspect areas are characterised as urban. Refer to LVA (274580-ARP-XX-XX-RP-LA-0002) for details.	THE LOOP: Access to the park should be enhanced at various points, with a more welcoming experience. There is an opportunity to improve Coronation Park's spatial arrangement, defining better spaces with improved and new footpaths. But the main opportunity would be to inclusively link the park with the flood bund, allowing users to navigate a full loop. THE TRAIL: Active engagement would be delivered by the enhanced Wales Coast Path experience where users would be able to experience a better and safer environment. Self-reflection would be delivered through intimate and tranquil spaces designed to reconnect with nature, but also to socialise with other users. THE HIDDEN WALL: The section where the flood defence departs from the Wales Coast Path is less sensitive but effects on key views will be considered. The setting of the proposed flood defence solution along these sections should be integrated through the use of screening planting. Design Development: The proposed flood defence changes in height and character (from an earth bund to a sheet pile) and therefore the proposed landscape needs to respond to this. Keeping the views towards the River Usk was initially a challenge on some areas, whereas others were easier to integrate. Resting places and areas of interest at regular intervals could reflect on the objectives set out in current accessibility guidance including BS3800 *Design of an accessible and inclusive built environment* and *By All Reasonable Means* (NRW). Better access from and into Coronation Park was one of the main objectives from the outset. An opportunity was identified to include a fully inclusive loop walk that connected the park and the flood embankment. To achieve this and deal with the change in level, special measures are required such as new ramps, steps and enhanced entrances into the park. At the same time the existing embankment itself offers opportunities for amenity and access. The Transporter Bridge and its industrial heritage is a focal and dominating vertical element of the visual setting. There is an opportunity to respond to this and create a theme that runs through the site This could provide identity and character making the space read as a whole as well as make it easier to navigate.
Cumulative Effects	The Newport CC planning portal was reviewed [June 2021] for potential planning applications within the last three years and a radius of 1km that may have potential cumulative effects with the Proposed Development; the following planning applications were identified within the vicinity: • Planning App 21/0290 EIA Screening opinion request for proposed B1/B2/B8 development together with associated works | Orb Works Stephenson Street Newport South Wales NP19 0RB. Awaiting Decision. Date TBC. 50m east. • Planning App 21/0431 | EIA Screening opinion request for proposed construction of a concrete products manufacturing facility including replacement offices and amenities, a bunker house, extension of the aggregates storage bays, new gate and associated works | Marshalls Mono Ltd Eastern Dry Dock Corporation Road Newport South Wales NP19 4RE. Awaiting Decision. Date TBC. Overlapping boundaries.	No challenges are anticipated from cumulative development following the cancellation of the M4 CaN. The project priority will be to remain vigilant for new development that could interact with the potential effects of the scheme. One such scheme is the proposed visitor centre and bridge repairs at the Newport Transporter Bridge that has recently received planning permission and Listed Building Consent. Our objective will be to maintain close links with the proposers and ensure that potential cumulative effects are avoided or minimised and managed in a coordinated approach. An assessment of cumulative effects will be undertaken at the detailed design stage when more detail is known about both projects.

Topic	Summary of Baseline	Challenges / Objectives / Priorities
	• Planning App 20/0750 Prior notification for 20m high phase B telecommunications monopole and associated equipment. Land South of Unit B1 The Newport Business Centre Corporation Road Newport South Wales. Prior Approval not Required 09/10/2020. 415m ESE. • Planning App 20/0748 Erection of silos and de-dusting building, extension to rail unloading facility, new above ground conveyors and ancillary development. Uskmouth Power Station West Nash Road Nash Newport South Wales NP18 2BZ. Awaiting Decision. Date TBC. 420m WSW. • Planning App 21/0021 Screening opinion for proposed 132kv cable to be buried between Uskmouth power station and Imperial Park. Uskmouth Power Station West Nash Road Nash Newport South Wales NP18 2BZ. Awaiting Decision. Date TBC. 850m WSW. • Planning App 19/1182 Hazardous substance consent for the storage and use of 150 tonnes of lead oxide. Enersys Ltd Stephenson Street Newport NP19 4XJ. Granted with Conditions 07/05/2020. 125m north. • Planning App 18/1088 Partial demolition of existing rail freight depot and construction of replacement extension and repositioning of access ramp. Freight Terminal Corporation Road Newport Granted with Conditions 31/07/2019. 180m SE Corporation Rd wall. • Planning App 19/0034 Installation of roof cladding resulting in 300mm increase in height of building. Hasbro Bradley (UK) Ltd Caswell Way Reevesland Industrial Estate Newport NP19 4YH. Granted with Conditions 21/03/2019. 483m NE of Felnex flood wall. • Planning App 20/0059 Erection of raised ramp structure and handrail and associated works for formalisation of cycle/pedestrian pathways affecting PRoW 386/4/1. Land to South of Monkey Island Redshank Walk Newport. Granted with Conditions. 28/07/2020. 410m distant. • Planning App 18/0016 Enclosure of area of park and erection of fencing for provision of dog exercise/play area to serve existing kennels. Coronation Kennels Stephenson Street Newport NP19 0RB. Granted with Conditions 09/03/2018. Adjacent to Stephenson Street Embankment; part of baseline scenario. • Planning App 18/1016 EIA Screening Opinion for proposed development of fuel storage silos, conveyor systems and access together with conversion of replacement of equipment within existing building envelopes to enable combustion or pelletised waste delivered fuel and other biomass fuel at Uskmouth B Power Station. Uskmouth Power West Nash Road Nash Newport. ES Required 29/10/2018. 650m southwest to Nash Wall. • Planning App 19/0041 construction of new acid mixing slab and bund with canopy. Granted with Conditions 03/04/2019. 120m north of Felnex flood wall. • Planning App 19/1164[6] repair and restoration of Newport Transporter Bridge, demolition of existing visitor centre, provision of new expanded visitor facilities, new lighting scheme and associated landscaping works. Conservation of the engineering structure of the bridge, plus the restoration of ancillary elements	

[6] http://planning.newport.gov.uk/swift/apas/run/WPHAPPDETAIL.DisplayUrl?theApnID=19/1164&backURL=Search Criteria > Search Results

Topic	Summary of Baseline	Challenges / Objectives / Priorities
	including the gondola, motor house, anchor houses and anchor cables. Design work including the analysis of the structure and the specific action of repairs to the structure and ancillary components. Affecting public right of way Newport Coastal Path 403/2/1. Granted with Conditions. • Planning App 19/1165 Listed Building Consent for repair and restoration of Newport Transporter Bridge, demolition of existing visitor centre, provision of new expanded visitor facilities, new lighting scheme and associated landscaping works. Conservation of the engineering structure of the bridge, plus the restoration of ancillary elements including the gondola, motor house, anchor houses and anchor cables. Design work including the analysis of the structure and the specific action of repairs to the structure and ancillary components. Affecting public right of way Newport Coastal Path 403/2/1. Decision Pending - Registered Application. • Planning App 19/0046 prior notification of proposed demolition of a group of office and workshop buildings at 12, East Way Road, Alexandra Docks, Newport, NP20 2NP, 340m from the Proposed Scheme boundary, for which a delegated decision was made that an application was required. • Planning App 19/0703 demolition of existing industrial units and construction of new industrial units at Storage Land the Newport Business Centre, Corporation Road, Newport, NP19 4RF, 320m from the Proposed Scheme boundary, decision unknown. • Planning App 18/1230 change of use of existing vacant industrial unit to a physical adventure problem solving activity centre and training centre (D2) at 4E, Mariner Way, Felnex Industrial Estate, Newport, NP19 4PQ, 220m from the Proposed Scheme boundary, was granted with conditions. • Planning App 18/0210 proposed change of use of industrial unit to a personal strength and conditioning facility at Unit 4D, Mariner Way, Felnex Industrial Estate, Newport, 335m from the Proposed Scheme boundary, which was granted with conditions. • Planning App 18/0157 retention of 3.6m and 4.7m high site boundary screening wall at Plot 11, East Bank Road, Felnex Industrial Estate, Newport, 20m from the Proposed Scheme boundary, which was granted with conditions. • Planning App 18/0771 scoping opinion for proposed port relocation proposal, 320m from the Proposed Scheme boundary. development primarily consisting of: relocation of various buildings in northern end of dock to land at south dock, new ABP central workshops, stores and medical centre, new cargo storage areas, reconfiguration of existing premises in docks, new quay works consisting of 303m of new quay on north side of south dock, dredging and disposal of material, repurposing of 250m of existing quay in south side of south dock, construction of new swing bridge, provision of utility infrastructure and access roads at Newport Docks. NCC provided an EIA Scoping Opinion where the Local Authority detailed what they expected to be included within the EIA. • The M4 proposals have not been considered in the assessment of this project.	

PART B Environmental Appraisal

1.9 EIA Screening

The most recent EIA Screening Opinion Request was submitted to Newport City Council Planning Department on 19th March 2020, setting out the updated flood defence solution, environmental baseline and key receptors, and initial consideration of likely significant effects. A Screening Opinion was received from Newport City Council on 22nd May 2020 confirming that the project was not EIA Development and that an Environmental Statement would not be required; NCC Ref. 20/0305. This supports two previous negative EIA Screening Opinions at earlier stages of the project; NCC Ref. 16/0171 and NCC Ref. 18/0532.

Consultation was undertaken on the Part A (Baseline and Potential Effects) stage of the ECOR in July 2020 and Part B in April 2021 as part of the Pre-Application Consultation. The Consultation Record is available in Appendix D. One of the purposes of this consultation exercise was to seek agreement with the planning authority, statutory agencies and stakeholders on the approach taken so that potential environmental risks of the proposed scheme are appraised, and appropriate mitigation can be integrated and secured.

In 2018, Newport City Council provided pre-application advice to NRW including an indication of the main issues that should be addressed in a formal application.

1.10 Environmental Appraisal

Despite the project being determined non-EIA Development, NRW Operational Guidance Note (OGN) 087: *Undertaking Environmental Assessment of Internal Projects* requires a non-statutory environmental appraisal (the ECOR) to demonstrate compliance and adoption of the principles of SMNR. The ECOR describes the environmental assessment work undertaken throughout development of the project and ensures that potential effects of NRW projects are managed effectively and understood by decision makers, and that benefits are maximised. OGN87 requires consultation with key stakeholders to ensure the relevant potential environmental risks are considered in the environmental appraisal and that local knowledge is embedded into project development.

The environmental appraisal considers potential construction and operational phase environmental risks and opportunities. However, decommissioning phase impacts are not considered given that the flood risk management measures proposed would be required in perpetuity.

1.11 Content of the Environmental Appraisal

The environmental appraisal considers the environmental risks identified during the Part A stage of the ECOR, taking into account consultation responses, and any additional issues highlighted during detailed design. Where potential risks have been identified, the mitigation hierarchy has been implemented to ensure that avoidance, reduction or offsetting measures were identified and either designed out or secured through the

Environmental Action Plan (EAP - 274580-ARP-XX-XX-RP-EN-0006). Initial consideration of the risks and what mitigation is required, identified a number of receptors / topics that required more detailed consideration, these are identified in Table 4 below.

Table 3 – Potential Environmental Risks, Mitigation and Further Assessment

Topic	Potential Environmental Risks	Mitigation (for topics screened out)
Population and Human Health	Potential risks include: • Temporary access restriction / temporary diversion to the Wales Coast Path / PRoW during construction. • Formal diversion of the Wales Coast Path / PRoW along the upgraded and realigned bund section. • Managing access for pedestrians over the sheet pile wall at the conveyor section and via the flood gate at Corporation Road. Ruled out - no flood defence improvements proposed at this section following refinement of the design, but enhancements are still considered. • Potential encroachment with fenced dog compound and recreational training pitches. • Creating areas / features that may attract anti-social behaviour. • Various enhancements could be integrated into the project to deliver long-term benefit to the embankment and park.	Topic scoped in for further assessment – refer to Table 6.
Biodiversity and Nature Conservation	Piling Disturbance on SAC Feature – shad (*Alosa fallax*) - migratory fish, including vibration sensitive species such as shad (*Alosa spp*.) can be affected by piling, but are not considered to be at risk providing advice from NRW is applied. This required that no piling was to take place within 30m of the watercourse during the shad migration period, or operations will be restricted to piling only during the falling tide of the river (high tide plus one hour and low tide minus one hour). Since piling will occur >40m from the River Usk and MHWS mark, no effect is predicted. Temporary Construction Plant Access (SAC / SSSI) - the base of the embankment (wet-side) has been historically used for maintenance access. Historically, this has produced rutting that has led to a more diverse floral assemblage than previously present. Construction access via the bund is not possible, as such access via the base of the embankment is necessary. Project Team to agree with the ECI Contractor feasible construction access options. Landscape / Amenity Design within SAC / SSSI – all amenity enhancements would be delivered within the footprint of the existing bund; however, a viewing platform will encroach slightly into the SSSI to provide a connection with the natural habitats and alternative views / perspectives. Maintenance Mowing / Access - operational mowing of the embankment and potentially a 1m strip on the wet-side of the embankment (soil bund section only) to allow inspection and maintain structural integrity of the flood embankment. NRW Environment Team Officer recommended evidencing the need as a standard practice and referencing wider projects following the same standard practice. Construction Disturbance - potential disturbance of waders associated with the Severn Estuary European Marine Site. Historic data suggests very low usage, typically low and infrequent usage by redshank (one incidental sighting north of transporter bridge). Current design should reduce disturbance to the SAC / SSSI habitat by restricting dogs and disturbance and trampling by visitors. Potential for restoration (reseeding) to affect the SSSI floral composition. Otter Access to rear of Embankment - otter surveys (monthly field sign surveys and camera traps) provided no evidence of otter use behind the embankment. NRW Species Team advised that no specific mitigation was required for otter to access over the sheet pile wall. Disturbance is predicted to reduce during the operational phase, as the sheet pile wall will act as a barrier, restricting access to the foreshore for recreational users, dogs and potentially damaging operations; a long-term benefit is predicted. Should local otter population commence utilising the habitats to the rear of the embankment in the future, access will still be possible via the Hanson's conveyor belt section and following the masonry wall, c. 70m to gain access to the pond and scrub habitats behind the flood defence. Furthermore, the detailed design removes the OBC	Topic scoped in for further assessment – refer to Table 6.

Topic	Potential Environmental Risks	Mitigation (for topics screened out)
	proposal to include sheet pile wall along the full extent of the Stephenson Street embankment. This change maintains access to any otter that may wish to access the southerly habitats and the 'main' pond in this vicinity (Waterbody 4 - 274581-ARP-XX-XX-RP-EN-0010 Stephenson Embankment PEA). Enhancement within the SAC / SSSI – the project aims to deliver enhancements, which may inadvertently affect the protected site. NVC results demonstrate an extensive monoculture of low biodiversity SM24: Sea Couch - *Elytrigia atherica* saltmarsh. As for the historic rutting that produced the florally diverse habitats, further structural heterogeneity would benefit wider SSSI flora and further increase biodiversity within the SSSI. Potential provision of scrapes for waterbird resting and foraging within the SSSI (if viable long-term), provided there was no significant loss of saltmarsh. NRW have also advised SSSI flora may be present; e.g. marsh-mallow, dittander. INNS – potential to spread Invasive Non-Native Species during construction. Stands of Japanese knotweed (*Fallopia japonica*) located in the south-west corner of Coronation Park, along the main embankment and were treated in 2018, 2019 and 2020. However, additional stands were recorded within the Felnex Estate southwest of the proposed horseshoe raised highway. Vegetation clearance - elements of the scheme require vegetation removal to permit construction access; potential disturbance to breeding birds. NCC advised that there are records of small blue butterflies in the area therefore any vegetation clearance works will aim to avoid the larval food plant which is kidney vetch. Pollution Incident – potential water quality effects on supporting habitats in the event of a pollution incident; including sediment release. Protected Species – although surveys confirmed likely absence of protected species across the Stephenson Street Embankment, distributions and ranges may change in the interim.	
Ecosystem Services / Natural Resources	An Ecosystem Services Assessment supported project development and option selection to inform the Outline Business Case (OBC, Appendix K). It shows how NRW are taking into account the range of benefits provided by ecosystems into the assessment and applying the principles of sustainable management of natural resources set out in the Environment (Wales) Act. The ecosystem services scoped in for further assessment include: • Water Regulation (+ +): Flood protection to the Spytty area of the Lliswerry Ward in Newport. • Recreation (+ +): The Wales Coast Path and a Public Right of Way runs from Stephenson Street to Corporation Road; it crosses Bird Port and enters Eastman's.	The Ecosystem Services Assessment has been reviewed during detailed design to include wider project scope and integrate SMNR approach into the final solution.
Land	• Progressing the proposed works is not considered to have an effect on NCC proposals and baseline land use; however, the risks of not progressing the works will potentially result in significant land use and socioeconomic effects	The proposed works will improve flood protection in the Spytty area of the Lliswerry Ward in Newport. This ultimately provides benefit to property, infrastructure and agricultural land.
Soil	• Historic and current industrial use of the site means it is likely that the ground will have been impacted by contaminants associated with these industries, • It is considered that the nature of the made ground is the general source of the concentrations of leachable contaminants recorded; in particular where coal is present. In the absence of groundwater samples, it cannot be confirmed as to whether these leachable contaminants have impacted any groundwater present beneath the site. • Risk to the embankment infrastructure from the removal of old tree stumps.	Topic scoped in for further assessment – refer to Table 6.
Water	• The site is located along the River Usk (Transitional Waterbody GB530905415404), which is classified as a Heavily Modified Water Body (HMWB) with a current overall status of Moderate Ecological Potential. Data indicates that failure to achieve Good Ecological Potential (GEP) is linked to the lack of measures to mitigate the effects of flood protection.	• The WFD Compliance Assessment (274580-ARP-XX-XX-RP-EN-0003) concluded that with mitigation in place, neither temporary nor operational phase effects would affect the current status for the various WFD

Topic	Potential Environmental Risks	Mitigation (for topics screened out)
	• Pollution Incident – potential water quality effects on supporting habitats in the event of a pollution incident; including sediment release.	elements or prevent this or any other water body from reaching GEP (or Good Ecological Status). • Culverts with flap valves to be integrated into Railway Wall and Nash Wall designs to maintain drainage function of associated ditches. Surface water drainage outfall and Liberty Steel and Marshalls culverts to include non-return valves to block potential flood conduits. • Submit Permanent and Temporary Flood Risk Activity Permit (FRAP) Consent applications to NRW. • Submit Ordinary Watercourse Consents (OWC) to NCC. • Pollution Incident – EAP includes best practice pollution prevention measures; e.g. GPP5, CIRIA, etc. • An application will be made to the SuDS Approval Body integrating best practice and any associated mitigation measures.
Air	• No permanent effects on air quality. • Possible temporary construction stage effects from routine construction operations (can be managed through standard construction management procedures).	Mitigation during construction secured through EAP.
Climate	The scheme aims to improve the flood protection to the Spytty area of the Lliswerry Ward in Newport. In this way, flood management will be significantly improved by adopting the proposals as they will protect the area up to a 1 in 200 year flood event plus climate change.	• Detailed design included consideration of climate change resilience to ensure the longevity and continued functionality of the defence. Reducing the effect on the environment was a key consideration in the selection of the preferred design solution, particularly given the close proximity to the designated sites. • The carbon footprint of the project will be considered throughout detailed design and construction to reduce carbon demand as far as practicable.
Material Assets	The presence of an existing embankment reduces the need for significant material resources.	• Effective engagement with owners / operators of businesses and recreational amenities through design development and construction phases. • Any required mitigation during construction to be controlled through EAP.
Cultural Heritage (including architectural and archaeological aspects)	• Potential setting effects on Grade I Newport Transporter Bridge (17414, 17415, 3076), which is located adjacent to the proposed development. • No recorded site will be directly affected by the proposed scheme area but there is considerable potential for encountering unknown sites as river deposits have the potential to contain preserved archaeological remains of prehistoric, Roman and Medieval times. • Potential for effects on unknown archaeology to be considered further.	Topic scoped in for further assessment – refer to Table 6.
Landscape	Potential visual impacts during construction: • Temporary visual impact of construction activities including presence of heavy machinery, equipment and construction compounds. • Impact on existing vegetation. • Temporary effects on sensitive visual receptors such as the setting of the Grade I Listed Transporter Bridge, Public Open Space and Public Right of Way (Public footpath and Wales Coast Path). Potential effects during operation: • A slightly altered experience for users of the Wales Coast Path along the sheet pile wall section of the embankment.	Topic scoped in for further assessment – refer to Table 6.

Topic	Potential Environmental Risks	Mitigation (for topics screened out)
	• Slightly different views of the embankment from the Transporter Bridge • The scope of the Landscape and Visual Appraisal is to include: The Landscape and Visual Appraisal will be in accordance with the GLVIA3 methodology and the assessment will include an analysis of all 5 layers of LANDMAP, along with relevant Newport Council guidance. • Baseline description and evaluation of the existing landscape character and quality found within the study area using LANDMAP and fieldwork analysis. • Assessment to determine potential effects on landscape character and visual amenity within the study area, as a result of the proposed works. This will be based on published guidance and best practice. • The appraisal will cross-reference to the Historic Environment section to consider potential effects on the Gwent Levels Landscape of Outstanding Historic Interest. • Assessment to determine the potential cumulative effects on visual amenity, as a result of existing proposed development within the study area. This will be, based on published guidance and best practice. • The visual appraisal will assess the key views of the proposed development from the neighbouring environment, namely the Transporter Bridge and Wales Coast Path. Key viewpoints will be agreed with Newport Council to ensure coverage of both of the key design types (earth bund and sheet pile wall), and views from the Transporter Bridge, Coast Path and Coronation Park.	
Cumulative Effects	• None of the adjacent planning applications are anticipated to impact upon the construction or operation of the Proposed Development, except the Transporter Bridge Visitor Centre and Restoration project. • Two EIA Screening Opinion requests have been issued to Newport CC that are both adjacent to the proposed flood defence improvements. Decisions are pending for both applications and no documents are publicly available to allow a cumulative impact assessment. It is incumbent upon the applicants of the pending decisions to consider the potential cumulative effect with the NRW flood defence project. No further assessment is proposed or possible at the time of writing. • Potential interaction with the Transporter Bridge Visitor Centre and Restoration project will be closely managed by the Project Team.	Topic scoped in for further assessment – refer to Table 6.

1.12 Consenting Route

The proposed flood defence improvements are anticipated to be consented as a Major Planning Application, since the area of works exceeds one hectare. This triggers the Pre-Application Consultation (PAC) procedure requiring consultation of a draft application file for a minimum of 28 days.

The statutory pre-application consultation was undertaken from Monday 22 March to Tuesday 20 April 2021. The PAC made the draft planning application, including supporting documents, available for public and stakeholder review and comment. The responses received during the PAC have been taken into account in finalising the planning application documents. Full details of the PAC process are available in the PAC Report (274580-ARP-XX-XX-RP-PL-0006).

The following topics did not require further consideration and the mitigation for those topics is set out in Table 6 and secured within the EAP where necessary: Ecosystem services / natural resources, Land, Water, Air, Climate, Material Assets.

A summary of further technical work and surveys undertaken to inform the design and construction method for the proposed scheme and consideration of environmental risks and opportunities is included in Table 5 below.

Table 4 - Summary of topics needing further consideration in Part B Assessment.

Environmental Topic	Actions Required during Part B Assessment
All Topics	Development of an EAP to describe mitigation and control measures required to protect the environment.
Population and Human Health	Ongoing consultation with NCC and NRW Appraise standard of existing footpath surfaces / amenity / accessibility to inform opportunities for enhancements; re. Access and Recreation Audit[7]. Identify patterns of use of local amenities, roads and PRoWs, and consult with Public Right of Way Officer and Highways Authority (NCC) to inform design of the scheme and also programming of the works, routes of diversions etc.
Biodiversity and Nature Conservation	HRA: Stage 1: Screening and Stage 2: Appropriate Assessment Ecological Appraisal Pre-Construction Protected Species Survey Ecological Watching Brief (vegetation clearance works)

[7] NRW. Stephenson Street FAS. Access and Recreation Audit. June 2020. 274580-ARP-XX-XX-RP-LA-0001

Environmental Topic	Actions Required during Part B Assessment
	Integrated development of enhancements with active stakeholder consultation.
Soil	Additional Ground Investigation (GI) Contamination testing if reuse of material proposed. Review impact of final design and construction methodology on groundwater and potential pollution pathways. Drainage from ponds to be reviewed and monitored as potential pollution pathway to SAC.
Cultural Heritage (including architectural and archaeological aspects)	Archaeological Watching Brief (invasive works; e.g. GI) Assessment of effects on Listed structures applying the principles of Heritage Impact Assessment. Update Desk Based Assessment to include wider scope.
Landscape	Landscape and Visual Appraisal. Landscape Masterplan. Enhancement outline design. Arboriculture Survey, Arboricultural Impact Assessment
Cumulative Effects	Assessment of potential cumulative effects with the Transporter Bridge Visitor Centre. As noted above, the pending decisions on the adjacent EIA Screening applications do not permit cumulative impact assessment at this time; documents are not publicly available.

1.13 Assessment, Evaluation and Mitigation

This section includes a summary of mitigation and residual effects for those topics where an environmental risk was identified.

Table 6: Summary of Environmental Appraisal

Topic	Summary of Assessment	Mitigation and Monitoring Required
Population and Human Health	• Health – improvement of the flood defences will extend benefits to a wider population, safeguarding residents and businesses over a wider area and managing health implications of flood events. By reducing flood risk to the 1,117 residences modelled as at risk, in addition to the 1,016 non-residential properties (during a 1 in 200 year tidal flood event with an allowance for effects of climate change), the project is considered to lead to a permanent beneficial effect on human health. • Noise & Vibration - The potential for noise and vibration effects on local residents and businesses during sheet pile wall installation has been avoided by specification of a sensitive 'silent' piling technique. During construction of the sheet pile wall, 'silent-piling' using a hydraulic Giken piling rig will be used to reduce potential noise and vibration effects to negligible and short-term. This avoids the use of percussive or vibro-piling techniques; although vibro-piling may be required to install the initial few piles and would be of very short duration. Further management of construction	• Health – No mitigation required; deliver to modelled design levels. • Noise & Vibration – General construction noise and vibration will be controlled through the project EAP. Piling noise and vibration has been reduced to negligible through specification of 'silent' piling. Consultation with local residents and businesses will be undertaken in advance of and throughout construction. • Access - Construction Phase: All Sections - The alignment of the temporary PRoW / Wales Coast Path diversion during the construction phase will be agreed with NCC and NRW in advance of works and will likely follow the paved access from the PRoW at the southern extent of Corporation Road (NGR: ST 33169 85468) to link with the PRoW at Stephenson Street. Railway Wall – A Construction Traffic Management Plan (CTMP - 274580-ARP-XX-RW-RP-PL-0002) includes measures for pedestrian safety during upgrade and trafficking of materials along the PRoW / Wales Coast Path / National Cycleway; alternatively, a temporary closure application will be submitted to NCC. • Access - Construction Phase: Corporation Road Flood Gate - Temporary pedestrian access will be provided during installation to allow access to industrial units only. PRoW users are to use the temporary diversion along Corporation Road.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	noise and vibration will be controlled through the project EAP. • Access - An Access and Recreation Audit (274580-ARP-XX-XX-RP-LA-0001) has been undertaken, which identified access improvements on PRoW to inform detailed design. The Audit was undertaken in accordance with the Equality Act 2010, NRW's *By All Reasonable Means* guidance and British Standard 'BS 8300-1:2018 - *Design of an accessible and inclusive built environment (Part 1 – External Environment)*'. • Access - Construction Phase: All Sections – There would be a minor short-term effect on users of the Wales Coast Path during construction necessitating a temporary diversion of the PRoW / Wales Coast Path. The upgraded access to the Railway Wall will require Traffic and Pedestrian Management or will be undertaken via a temporary closure as agreed with NCC. Access to the low spots north of the Transporter Bridge will use existing roads within the adjacent industrial estate. • Access – Construction Phase – Nash: the existing access via the Nash wastewater treatment works will be utilised to reduce access track	• Access - Operational Phase: Flood Bund - The realigned bund section, including the improved metal stepped access spanning the Hanson Conveyor Belt, will progress under a formal Diversion Order (submitted). Landscape and recreation improvements will be delivered as detailed in the Planning Drawings within the Planning Application Pack.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	construction and avoid access via the railway line. No public access will be affected by the construction access. • Access - Operational Phase: <u>Flood Bund, Sheet Pile Wall and Flood Gate</u> – Equality and inclusion has been integral to detailed design development enabling access By All Reasonable Means throughout the main embankment sections. Access along the Wales Coast Path will be improved through resurfacing and path widening to allow two people to walk side-by-side, upgrading signage and gates, ramped access to Coronation Park from the Wales Coast Path and stepped access at the flood gate at the Corporation Road Railway Bridge. Following agreements with NCC, a sheet pile will be constructed delivering a 0.8m upstand with no requirement for hand railing. This will maintain open views over the wall for wheelchair users and younger walkers whilst managing flood protection. Minor loss from the western edge of the Newport City Dogs Compound to accommodate the enlarged flood bund. An improved new metal stepped access spanning the Hanson Conveyor Belt will be constructed to provide continuity of the Wales Coast Path following installation of the sheet pile wall. The	

Topic	Summary of Assessment	Mitigation and Monitoring Required
	Planning Drawings within the Planning Application Pack demonstrate how linkages are formalised between the embankment and Coronation Park creating defined, accessible and safe access for all users. Amenity enhancements provide seating, informative resources and screens for wildlife viewing whilst minimising potential for anti-social behaviour. • Access: Operation – Flood Bund – consultation with NCC has confirmed that a formal Diversion Order is required to realign the upgraded flood defence bund. • Access - Operational Phase: Flood Gate – consultation with NCC has confirmed that a formal Diversion Order is not required for the installation of the flood gate at the Corporation Road Railway Bridge. • During operation there would be permanent positive effects on health and the local community from scheme delivery supporting flood protection and improvements to the PRoW / Wales Coast Path and local aesthetics and character.	
Biodiversity and Nature Conservation	Protected Sites: • Where works are within protected sites; i.e. the River Usk SAC, River Usk (Lower	• Toolbox Talks will be provided by a suitably experienced ecologist to all site personnel to inform them of sensitive ecological features at the Site.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	Usk) SSSI, and Marshall's SINC, the potential for habitat loss and disturbance / degradation was identified at outline design. There is the potential for direct effects to the habitats within these sites, through physical disturbance during the construction of the new flood defences. Potential exists for indirect effects through pollution incidents and or mobilisation of sediment into the river. • Specification of the 'silent' piling Giken rig avoids the need for a temporary access track at the river-side toe of the embankment and avoids the need to encroach into the Marshalls SINC during sheet pile installation beyond the existing footprint of the embankment. This eliminates encroachment and direct effects on the River Usk SAC, River Usk (Lower Usk) SSSI, and Marshall's SINC. As such, mitigation has been delivered by design and avoids direct effects. • Coastal Squeeze – the proposals are located within Shoreline Management Plan Policy Unit 'NEW5'. NRW have confirmed that '*no coastal squeeze*	• All works will be undertaken in accordance with the Environmental Action Plan (EAP - 274580-ARP-XX-XX-RP-EN-0006) that will be maintained by the contractor. The EAP will include site-specific methods to ensure that all activities in proximity to watercourses and waterbodies are controlled and are in accordance with relevant legislation and undertaken in compliance with the relevant Guidance for Pollution Prevention (e.g. GPP5[8],) and industry best practice (CIRIA[9]; CIRIA C741[10]). Silt management measures such as silt fencing, sediment retention ponds (or silt busters where space is constrained), surface roughening, containment, rock check dams and highway control measures will be implemented to prevent silt or contaminants from being released into connecting watercourses; indicative sketches of silt management measures are provided in the EAP, Appendix D. • Disturbance: Lighting - If any task lighting is required outside daylight hours (typically 30 minutes after sunrise and up to 30 mins before sunset), directional lighting (towards the ground) with minimal upward spill will be implemented, to avoid light spill into adjacent habitats to avoid

[8] Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA), Scottish Environment Protection Agency (SEPA) (2018). Guidance for Pollution Prevention – Works or maintenance in or near water: GPP5 v1.2 Feb 2018. http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf

[9] CIRIA (2018) CIRIA http://www.ciria.org

[10] CIRIA C741[10] 'Environmental Good Practice on Site'; Fourth Edition (2015).

Topic	Summary of Assessment	Mitigation and Monitoring Required
	impacts are identified for the Severn or River Usk SACs and therefore a coastal squeeze impact assessment is not needed for this scheme'. • Marshalls SINC - The proposed elevated road alignment that provides a flood defence within the Felnex Estate will avoid effects on the Marshall SINC. European Site Mobile Species: • Fish: Twaite Shad (*Alosa fallax*), Allis Shad (*Alosa alosa*) and Atlantic Salmon (*Salmo salar*) - Specification of silent piling technique, in addition to undertaking activities beyond the requisite 30m buffer zone, complies with NRW Fisheries Team advice to avoid potential effects on vibration-sensitive fish. No project-specific mitigation is required. • Severn Estuary Waterbird Features - SEWBReC data records the nearest waterbird species features of the Severn Estuary European Marine Site (EMS) 1.5km south of the proposed works; these records include: gadwall, redshank and shelduck. Only one incidental record of redshank was identified just north of the Transporter Bridge. The likely absence of waterbirds associated with the Severn Estuary EMS suggests a	disturbance to commuting and foraging protected species. • Disturbance: Noise & Vibration – General construction noise and vibration will be controlled through the project EAP. Piling noise and vibration has been reduced to negligible through specification of 'silent' piling. • Excavations: Good practice working methods will be adhered to which prevent any adverse effects to commuting mammals. Materials or plant will not be left overnight in an area that may prohibit access for commuting mammals and excavations will not be left uncovered overnight. If any excavations are required to be left open overnight, a ramp will be provided to allow any animals to escape. • Vegetation Clearance: Breeding Birds - vegetation clearance within the breeding bird season (March-August inclusive) should be avoided to prevent damage or destruction of occupied nests or harm to breeding birds. If this cannot be achieved, works within the core bird nesting season will require an inspection for breeding birds and their occupied nests by a suitably experienced ecologist no more than 24 hours prior to any works commencing. If nesting birds are found during the pre-construction checks, a buffer around the nest will be implemented of at least 5 metres as agreed with the ecologist and further work within the immediate and surrounding area will be delayed until young

Topic	Summary of Assessment	Mitigation and Monitoring Required
	negligible short-term effect; project-specific mitigation is not considered necessary. • Otter - Otter are a feature of the River Usk SAC and River Usk (Lower Usk) SSSI. Stephenson Street Embankment - Extensive surveys for otter along the Stephenson Street Embankment including monthly searches for holts, resting places, signs of presence and camera traps concluded likely absence of otter. No foraging or commuting otter are considered to use the habitats to the rear of the embankment. NRW Species Team confirmed that in light of the negative results, specific mitigation to retain access over the sheet pile wall was not warranted. Provision of otter access was considered at the south-west corner of Coronation Park through the fence into the scrub of the Felnex Estate. However, this was discounted due to the risk of dogs within Coronation Park escaping into the industrial estate through any new access provided. Similarly, to retain flood defence integrity, accesses through the sheet pile and masonry wall were also discounted. Access to habitats to the rear of the embankment will be maintained at the Hanson's conveyor belt, should otter commence using these habitats in the future, by accessing around the masonry	have fledged and left the nest, and the nest is no longer in use. • Vegetation Clearance: Section 7 Species and Amphibians - clearance of vegetation suitable for smaller species (long grass, hedges and scrub) will be avoided or kept to a minimum during the active season (March to October). If required during this time, clearance will be subject to a Toolbox Talk and Precautionary Methods of Working written and overseen by a suitably experienced ecologist. This is likely to include two-staged directional strimming towards retained habitat. • Invasive and Non-Native Species (INNS): All equipment and footwear will be cleaned thoroughly before entering the site with a suitable disinfectant. In addition, all equipment and footwear will be thoroughly cleaned and disinfected when leaving site. No works will be undertaken within 7m of any INNS, where this is unavoidable INNS management as per the EAP will be required. Health and safety measures relating to any management of giant hogweed will be implemented in full as per the EAP noting the risk of severe burns from the plant's sap. • Expert Advice: If any protected species or signs of protected species such as a badger sett, or INNS (other than rhododendron) are encountered during the works, all work in the vicinity is to stop immediately and a suitably qualified ecologist contacted as soon as possible for advice.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	wall (c. 70m) to gain access to the pond and scrub habitats behind the flood defence. Furthermore, the detailed design removes the OBC proposal to include sheet pile wall along the full southerly extent of the Stephenson Street embankment. This change maintains access to any otter that may wish to access the southerly habitats and the 'main' pond in this vicinity (Waterbody 4 - 274581-ARP-XX-XX-RP-EN-0010 Stephenson Embankment PEA). Reedbed planting of the attenuation pond and bioretention swales provides additional connectivity following past vegetation clearance along this section. <u>All Sections</u> - Habitat suitability of all waterbodies was low. Footprints were recorded along the western edge of waterbody 10 and a spraint recorded on a culvert crossing a stream to the south of waterbody 11; approximately 500m southeast of the Railway Wall. Otter cameras on a raft at the eastern bank of the sludge ponds (c. 300m east of the Railway Wall) returned three otter recordings. Any presence is considered to be limited to foraging and or commuting otter, travelling through the site. No permanent resting / breeding places were recorded. Standard best practice construction techniques will be	• Access to the working areas will be via designated access routes only, and storage of materials will be at pre-agreed locations. Habitats: • SSSI – installation of the SUDS-compliant new highway surface water outfall will seek to minimise working areas and erect suitable fencing to delineate the works area and avoid tracking over adjacent saltmarsh where practicable and safe to do so. Should SSSI or locally important flora - *Lepidium latifolium* (dittander), *Althea officinalis* (marsh-mallow), *Lathyrus sylvestris* (narrow-leaved everlasting pea) - be recorded within the works area, efforts will be made to translocate individual plants to appropriate areas under the guidance of a suitably qualified ecologist. • Newly created habitats, as detailed in the Planning Drawings within the Planning Application Pack, will be subject to long-term management measures, to encourage species diversity; for example, annual or bi-annual cutting of wildflower areas and removal of arisings. The flood bund and sheet pile wall embankments should be cut once annually to prevent scrub encroachment or as required to facilitate inspection and maintenance. • Where appropriate, habitats will be re-planted using native tree, shrub and wildflower species of local provenance avoiding species at risk of prevalent disease; e.g. ash die-back, *Phytophthera*, etc. Plant

Topic	Summary of Assessment	Mitigation and Monitoring Required
	implemented (providing an escape from excavations, potential commuting routes kept open, directional task lighting, etc.) through the EAP. Species: • Bats - Habitats within the Site are likely to provide a foraging resource and commuting corridors to a range of bat species that occur in the local area. One tree (TN10 – Railway Wall Access) has been recorded as having moderate bat roost potential; further survey is required in the appropriate survey season (May to September). TN10 may require removal or experience disturbance during construction works. Construction activities and associated noise and lighting could also disturb foraging bats, and or roosting bats, if present. No lighting is proposed during operation, and it is considered that there will be no other effects to bats post-construction. • Badger - Evidence of badger activity recorded during surveys, suggests that badgers use the site for foraging / commuting. No setts have been recorded although there are records of setts in connecting habitat, and habitats within the site offer suitable habitat for sett construction. As such the presence of badger setts at the time of construction,	health requirements will be implemented as per the EAP. • Adjacent habitats and root protection zones of trees to be retained / protected during the works, should be demarcated during construction using temporary fencing (i.e. Heras fencing). <u>Protected Species:</u> • Otter - Pre-clearance / construction checks will be undertaken, in accordance with best practice survey guidance, for otter resting / breeding places, within 50m of the works. If any otter breeding / resting areas are found during pre-construction checks, further survey work and mitigation measures may also be required, in addition to a European Protected Species licence which would be obtained from NRW. • Bats – A tree climbing inspection survey to assess TN10 (Railway Wall Access - Appendix E2a) is not considered viable due the feature's location over water and a tree species (willow) that is not conducive to climbing for safety reasons. Since neither tree climbing nor endoscope inspection are feasible, two full emergence surveys would be required to confirm the status of the roost between May and September in line with good practice survey guidelines[8]. TN10 is located adjacent to a rough camp and area of known anti-social behaviour. As such, health and safety prevented emergence surveys at the location. NRW Species Team have confirmed that works within the vicinity

Topic	Summary of Assessment	Mitigation and Monitoring Required
	cannot be ruled out. Construction activities and associated noise and lighting could also disturb badgers, should their range expand prior to construction. No lighting is proposed during operation, and it is considered that there will be no other effects to badger post-construction. • Water Vole – water voles have been recorded in connecting habitat, with records at Pye Corner approximately 1km east. The Habitat Suitability Assessment and presence/absence survey produced negative results for all waterbodies, except potential presence at waterbody 11 (eastern bank of sludge lagoon). Likely water vole droppings and likely feeding remains (potentially bank vole) were recorded at various locations in reedbeds along eastern and northern margins of the waterbody, the closest of which was approximately 280m southeast of the Railway Wall. The waterbodies that are closer than 280m to the proposed works are unsuitable for water vole and therefore it is unlikely that signs of water vole will be present any closer to the works. Final surveys in January 2020 did not find evidence of water vole. No burrows or nests were recorded.	of TN10 can be undertaken under a Precautionary Method of Working, to be agreed with NRW Species Team prior to construction, with appropriate bat mitigation and enhancement measures in place. • Badger - A pre-construction (including enabling works) inspection of suitable habitat for badger, within 50m of the works, will be carried out to ascertain whether the badger's home range has expanded, and any setts are present. Further monitoring will be undertaken in accordance with best practice survey guidelines, as required pending the initial pre-construction assessment. A badger licence will be obtained from Welsh Government (WG) if any setts will be disturbed or lost by the works. • Water Vole - Pre-clearance / pre-construction checks, in accordance with best practice survey guidance will be undertaken for water vole resting / breeding places, within 50m of the works. If any water vole breeding / resting areas are found during pre-construction checks, further survey work and mitigation measures may also be required, in addition to a Protected Species licence which would be obtained from NRW. <u>Monitoring</u> Monitoring will be required to ensure habitat establishment is successful. Specifically monitoring will require:

Topic	Summary of Assessment	Mitigation and Monitoring Required
	• Dormice - The brambles and scrub on Site provide suitable foraging and nesting habitats for dormice. However, fragmentation from other potential dormouse habitat including those with dormouse records within the wider area due to barriers such as roads, rivers and rail means dormouse are unlikely to occur within the Site and therefore are not considered to be a constraint to the proposed works. • Invertebrates – Areas of wetland and woodland within the Site are likely to support at least a moderate range of invertebrate species, potentially including Section 7 species. No important habitats will be lost, and replacement planting will ensure no residual effects on local terrestrial invertebrate populations. An opportunity to enhance the local shrill carder bee (*Bombus sylvarum*) population could be delivered through provision of preferential food plant provision within sowing mixes. • Fish – no watercourses will be affected, and standard pollution prevention measures are embedded into the EAP. • Amphibians – following extensive great crested newt surveys (presence /	• Monitoring for signs of scrub colonisation and encroachment into wetland and grassland areas. Where there is encroachment, scrub should be cleared sensitively and removed from the SAC / SSSI. • Monitor the establishment of new tree planting and replace any that fail or are damaged within the first five years. • Ensuring no Invasive Non-Native Species colonise the area including Japanese knotweed. If these species or any other which are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) are recorded they will be removed immediately in line with guidance from the Department for Environment, Food and Rural Affairs (Defra, 2003)[11]. • SSSI Saltmarsh – annual monitoring of the saltmarsh in the vicinity of the SUDS-compliant new highway surface water outfall will be undertaken following a pre- and post-works baseline assessment of the composition and condition of the adjacent saltmarsh habitat for a period of three years. The survey will be undertaken to NVC standards to provide the requisite detail. This will include the erosion protection (gabion mattress) post-construction, which is anticipated to become vegetated over time.

[11] https://www.gov.uk/guidance/prevent-the-spread-of-harmful-invasive-and-non-native-plants (accessed on 21.01.2019)

Topic	Summary of Assessment	Mitigation and Monitoring Required
	absence survey and eDNA), no evidence of GCN was recorded within the site. One presumed false positive eDNA result was obtained from waterbody 4 (refer to Table 3: Biodiversity), but population assessments surveys were negative. Commonly occurring amphibians were recorded, no associated waterbodies will be affected, and standard pollution prevention measures are embedded into the EAP. • Reptiles – monthly presence / absence surveys provided negative results; likely absence of reptiles was concluded. • Schedule 1 Birds – Cetti's warbler are associated with reedbed within the Marshall's SINC. No reedbed will be lost and hydraulic piling will minimise potential disturbance and avoid encroachment. • Section 7 Species - West European hedgehog may be present. Sensitive vegetation clearance and replacement planting will avoid any effects on hedgehog. • Invasive Non-Native Species (INNS) - Stands of Japanese knotweed (*Fallopia japonica*) located in the south-west corner of Coronation Park, along the main embankment and were treated in	

Topic	Summary of Assessment	Mitigation and Monitoring Required
	2018, 2019 and 2020. However, an additional stand was recorded within the Felnex Estate west of the proposed horseshoe section of the raised highway. Currently this is not anticipated to be affected (refer to ECOP; Appendix B3) by the proposed works; however, should any works be located within 7m of the stand INNS management will be required as specified in the EAP. As an enhancement measure, it is recommended that the identified stand is treated prior to / during construction to prevent further spread. Subsequent survey identified giant hogweed (*Heracleum mantegazzianum*) in the watercourse near the Nash Wall site; refer to Ecological Appraisal Report (274580-ARP-XX-NW-RP-EN-0004), TN11, Appendix E4. This stand of giant hogweed is not likely to be impacted under current proposals; however, should this change an effective management plan will be required noting the species' health and safety (toxic sap that causes serious skin burns) and disposal requirements.	
Soil	Ground investigation has been undertaken throughout the scheme. Where Made Ground was encountered, this was sampled and subject to chemical analysis to identify potential elevated contaminants which could	An earthworks specification will be produced for the construction of the scheme which will include chemical limits to ensure soils do not pose a risk to the environment or site end users. This will be verified through regular sampling and laboratory testing of soil

Topic	Summary of Assessment	Mitigation and Monitoring Required
	pose a risk to the environment or site end users. Throughout the scheme the site is underlain by some 12m to 15m of Tidal Flat Deposits, which comprises a low permeability silty clay. As such, the Tidal Flat Deposits provide an effective barrier to the leaching of contaminants into the ground and groundwater body in the River Usk SAC and River Usk (Lower Usk) SSSI. Along the foreshore where the existing bund is present, the ground investigation did not identify any significant or widespread contamination of the subsurface. Through Coronation Park, the existing bund will be raised using predominantly imported soils. For the remaining section of the existing bund, it will be raised by installation of sheet piles. The sheet pile will only be installed part way into the Tidal Flat Deposits and therefore will not introduce a potential leachate pathway through this material. Through the Felnex industrial estate where a reinforced concrete wall is proposed, a thin layer of Made Ground (circa 1m to 1.5m) was encountered during the ground investigation. The Made Ground is highly variable in nature and demonstrated visual and olfactory evidence of contamination.	samples. This will apply to both imported soils and any excavated soils to be reused on site. Aim to use a core of site won materials to reduce material imports for bund construction. Any soils which do not meet the limits of the earthworks specification will be taken off site to a licensed waste disposal or soil recycling facility. Any material encountered during the construction displaying visual or olfactory evidence of contamination will be safely stockpiled to ensure there is no leaching of contamination to other areas prior to appropriate disposal.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	Laboratory testing of samples of the Made Ground identified elevated contaminants. Further assessment of the chemical testing of the soil samples will be undertaken during pre-construction works to inform its suitability for reuse.	
Cultural Heritage	• A Historic Environment Desk-Based Assessment (DBA) (Archaeology Wales, 2019) was carried out to identify potential effects from the scheme on heritage assets. This identified the potential for setting effects to the Grade I Listed Transporter Bridge (Ref.: 17414, 17415, 3076). • The project is located within NCC's Archaeologically Sensitive Area and recognition of significant finds in the area (the Newport Ship) are acknowledged. As such, the potential for construction to affect previously unrecorded archaeological remains is recognised. To date, all investigation activities have been undertaken with an Archaeological Watching Brief in accordance with an agreed Written Scheme of Investigation (WSI); no finds have been identified to date. • The Transporter Bridge is internationally significant – one of only a handful of surviving structures of its type, and one	• It is not typically possible to mitigate effects arising from changes to the setting of heritage assets. As such, and reflecting the negligible significance of effect, no mitigation is proposed in relation to the improvement works at the Transporter Bridge. Interpretation boards are proposed as detailed in the Planning Drawings within the Planning Application Pack to provide education and awareness of the importance of the Transporter Bridge. • An archaeological watching brief will be undertaken following an approved Written Scheme of Investigation (WSI) for all works requiring excavation >1m depth. This is considered to mitigate potential effects on previously unrecorded archaeological remains, if present. This would ensure that any archaeological remains are appropriately recorded. Where archaeological mitigation is not possible (i.e. installation of sheet piling), procedures will be put in place through the EAP to ensure that, should the construction methodology change, a watching brief will be put in place. Although recording (preservation by record) cannot fully mitigate the effect of removing

Topic	Summary of Assessment	Mitigation and Monitoring Required
	of only two functioning major transporter bridges in the UK. Its significance is reflected in its Grade I Listing. It has historical value as a structural representation of Newport's industrial past, which also contributes to its communal value through its symbolic nature. It is an important work of engineering and as one of only a small number of survivors, its physical structure is of evidential value. It is also of high aesthetic value. Its setting is formed by the largely industrial surroundings on the River Usk and its considerable height indicates that it has expansive views over Newport and its surroundings. The setting is an important element of how the bridge is understood and contributes to its historical and aesthetic value. • The proposed FDS would make only very minimal change to the character of the bridge's setting, although the ground raising on the eastern banks of the River Usk and the public realm and landscaping improvements in Coronation Park would be visible from it. The transporter bridge is a heritage asset of very high sensitivity but any setting risk is considered to be very low or beneficial such that setting risk is negligible.	archaeological remains, it does reduce the magnitude. While the importance of any remains present is unknown, the risk will be managed by implementing an archaeological watching brief in the event that piling is impeded and requires excavation of obstructions. These requirements are secured within the EAP (274580-ARP-XX-XX-RP-EN-0006).

Topic	Summary of Assessment	Mitigation and Monitoring Required
	• Unknown Archaeology - The significance of previously unrecorded archaeological remains, if present, is unknown. However, given the riverside location it is unlikely that substantial settlement remains or other features of potentially national or international significance would be uncovered. This would mean that the removal of any archaeological remains (likely to be a very high or high magnitude of effect, depending on the amount of a feature impacted), would most likely result in a minor or moderate effect of significance. Archaeological Watching Briefs implemented during ground investigation works have not recorded any potential archaeological features across the site. • Unknown Archaeology: Soil Bund - Widening of the soil bund in Coronation Park does not require invasive works and as such preserves any unknown archaeology *in situ* below the existing structure or below the extension into Coronation Park. This also applies to the infilling of low-spots in the existing defence to the north or the Transporter Bridge. • Unknown Archaeology: Sheet Pile Wall – While no archaeological features have been identified along the line of the sheet	

Topic	Summary of Assessment	Mitigation and Monitoring Required
	pile wall, the riverside location means that there remains the potential for a feature such as a sunken boat, buried by alluvium, similar to the Newport Ship, to be present. Such remains could be of high sensitivity and, despite both desk-based and intrusive investigations, it is not fully possible to exclude the possibility that such remains are present. The proposed works potentially impacting remains deeply buried in alluvium involve the installation of sheet piles, which have been designed to have as minimal an impact as possible. It is likely that the sheet pile would go through any wooden structures within the alluvium, truncating the feature but leaving it mostly intact. A watching brief is not proposed for sheet pile installation. However, should excavation of obstructions be required, archaeological monitoring would be necessary. These requirements are secured within the EAP (274580-ARP-XX-XX-RP-EN-0006). • Unknown Archaeology: Railway Wall and Nash Wall – No archaeological features have been identified; however, due to the archaeological sensitivity of the wider area, an archaeological watching brief under an agreed Written Scheme of	

Topic	Summary of Assessment	Mitigation and Monitoring Required
	Investigation is secured through the EAP for any excavation >1m depth. • Temporary works – minor and localised topsoil strip and or excavation is likely to be required for installation of the stanchions for the new metal stepped access over the Hanson's Conveyor Belt, for installation of the surface water outfall erosion protection and the emergency / maintenance access ramp adjacent to the Transporter Bridge. These elements will require archaeological supervision.	
Landscape and Visual	A Landscape and Visual Appraisal (LVA - 274580-ARP-XX-XX-RP-LA-0002) has been prepared to provide an appraisal of effects that would arise as a result of the construction and operation of the proposed flood defence scheme. Landscape receptors that may receive direct effects - The landscape features, characteristics, and the overall character of the local landscape of the visual and sensory LANDMAP aspect area Eastern Usk Industrial Area (NWPRTVS041) within which the site lies. Landscape receptors which may receive indirect effects: [1] The character of the local landscape including the visual and sensory LANDMAP aspect area Lower River Usk (NWPRTVS010) within which the	The following mitigation measures will help to provide a development that is sympathetic and sensitive to the immediate site setting and retain key features and views of the site. Refer to the Planning Drawings within the Planning Application Pack and Planting Schedule (Appendix C) for details. Landscape Mitigation: Proposed mitigation measures include: proposed wildflower re-seeding of the embankments of the raised flood defence, new surface treatment, trees and shrubs planting along raised embankment and at Coronation Park, woodland (urban forest) planting at Coronation Park. These measures will help in blending and integrating the proposed works within the Visual and Sensory Aspect Area aiming to keep and enhance its key characteristics. The proposed mitigation measures will have a positive effect on the views and the perception of the landscape within the Visual and

Topic	Summary of Assessment	Mitigation and Monitoring Required
	site lies. [2] The wider LANDMAP landscape character areas: Docks and Level of Mendalgrief (NWPRTVS040), Usk Built Urban Corridor (NWPRTVS042) and Newport West (NWPRTVS056). Due to the nature of the proposed development and the limited potential for significant indirect landscape effects, on the setting of these wider character these are grouped and assessed as a single receptor. The overall evaluation of the five LANDMAP Aspect Areas of the site is low to moderate. As the site is not located within an area designated for landscape it is recognised that its character is considered to be valued at a local level. The landscape is robust and considered able to absorb development of this type. It is therefore judged to have a low susceptibility to change. Combining the low to moderate local value with a low susceptibility to change, the sensitivity of the landscape character of the LANDMAP Areas to change of the type proposed is low. Visual Receptors - users of the Public Right of Way network, users of public rights of way especially the Wales Coast Path, users of Coronation Park and the network of informal footpaths, users and visitors of the Grade I Listed Transporter Bridge and	Sensory Aspect Area. At Year 5 the planting will be establishing and more integrated in the landscape. The proposed species-rich grass seeding mix for SSSI enhancement on the westside of the new embankment is expected to reduce the effects of the works and blend in with the existing planting with a medium positive effect. Visual Mitigation: The proposed planting mitigation measures (scrub planting, species-rich grass seeding, tree planting and woodland planting) will be establishing and therefore will have a positive effect on the view and will help in blending the Proposed Works with the existing landscape. Refer to LVA (274580-ARP-XX-XX-RP-LA-0002) for details. Specific Mitigation Measures: • The minor ground raising proposed by the Orb Works riverbank will be seeded with shade resistant amenity grass mix. • The highway works on Stephenson Street and the ground raising to the north will incorporate the planting of 10 trees - one either side of the highway with another 8 located along the verge to the north which will also include additional ornamental shrubs and grasses planting mix. • Coronation Park embankment enhancements include wildflower re-seeding of the embankments of the raised flood defence, an improved and widened pathway with new surface treatment, the planting of 31 trees, and shrub planting along the

Topic	Summary of Assessment	Mitigation and Monitoring Required
	users of the small industrial site opposite the site. Construction Effects: Landscape Receptors - Slight negative landscape effects at Eastern Usk Industrial Area NWPRTVS040 and Lower River Usk (NWPRTVS010) during construction. The rest of the landscape receptors will only receive negligible effects. Visual Receptors - Visual receptors that are receiving large or moderate effects (detriment) are: Viewpoint 1, Viewpoint 3 and Viewpoint 4. The rest of the visual receptors receive effects that are slight or negligible. Early Operation Effects: Landscape Receptors - Landscape receptors that are receiving moderate effects (detriment) are: Eastern Usk Industrial Area NWPRTVS040. The rest of the landscape receptors receive effects that are slight or negligible. Visual Receptors - Visual receptors that are receiving moderate effects (detriment) are: Viewpoint 1 and Viewpoint 4. The rest of the visual receptors receive effects that are slight or negligible.	raised embankment. Two seating areas will also be installed for public use which will include interpretation boards. • Running north south through the center of Coronation Park will be a strip of ornamental shrubs and grasses planting mix, with 21 trees and a public seating area. • The southern end of Coronation Park will include the planting of 3 areas of urban forest / native woodland planting with understory mix and the inclusion of several seating areas. Reedbed planting mix – meadow mixture for wetlands will be incorporated to the south with 12 trees planted, and grassland with biodiverse wildflower planting mix / standard general-purpose meadow mix. • The sheet pile wall embankment will incorporate 9 trees with areas of soft landscaping to include shrubs and grasses. • Additional landscaping to be incorporated into the East Bank Road extension. Arboriculture: • Retained trees - will be protected during development by establishing a Construction Exclusion Zone (CEZ) around their Root Protection Areas (RPAs). RPAs are a layout design tool, indicating the minimum area around a tree deemed to contain sufficient roots and soil to maintain the tree's viability. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, the storing of

Topic	Summary of Assessment	Mitigation and Monitoring Required
	Residual Effects: Landscape Receptors - Landscape receptors that are receiving moderate effects (enhancement) are: Eastern Usk Industrial Area NWPRTVS040. The rest of the landscape receptors receive effects that are slight or negligible. Visual Receptors - Visual receptors that are receiving moderate effects (enhancements) are: Viewpoint 3. The rest of the visual receptors receive effects that are slight or negligible. At year 5, when the mitigation measures would have been fully established, the expected effects on the landscape and visual receptors are either negligible or result in a slight to moderate enhancement. Arboriculture – General: Much of the site is characterised by areas of dense self-seeded and unmanaged scrub and woodland. The majority of trees are defined by the JNCC Extended Phase 1 Habitat Survey methodology as scrub rather than trees; e.g buddleia, elder, goat willow, hawthorn, blackthorn, etc. As such, the value of most tree groups is considered to be low. The lack of management that has led to an excess of self-seeded (stunted) trees is considered to	materials, ground level changes and other construction activity are likely to cause damage to trees and should therefore be excluded. This CEZ can be achieved by the erection of barriers at the locations shown on the Tree Protection Plan in the AIA (274580-ARP-XX-XX-RP-EN-0005). Tree protection barriers must be installed before any demolition or construction works start, and, unless approved by the Local Planning Authority or by an arboriculturist approved by them, should remain in place until all construction activity has been completed. • The type of barriers should match the level of activity around the retained trees. Where a high level of construction activity is expected, fencing must be braced to be robust to vehicular impact and to prevent it from being easily repositioned; a specification similar to Drawing 3 in BS 5837:2012 (refer to AIA) will be suitable. In areas away from the main construction activity and vehicle movement, it may be appropriate to install a lower specification fencing, examples of which are given in the AIA. • All protection fencing should carry identifying signs that state its purpose and proscribe its removal until all demolition and construction work is complete. An example sign is provided in the AIA. • The locations of the ground protection are shown hatched light blue on the Tree Protection Plan.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	exaggerate the number of trees likely to be affected. An Arboricultural Impact Assessment (AIA - 274580-ARP-XX-XX-RP-EN-0005) has been prepared by TreeWork Environmental Practice in accordance with BS5837: 2012. 121 tree features (trees, groups or woodlands) were surveyed to inform the AIA, comprising 66 individual trees, 10 hedgerows, 35 tree groups, 9 woodlands and 1 shrub. Trees within the groups and woodlands are mostly self-set and individually of low quality as they have not been managed; the majority would benefit from silvicultural thinning exercises, in order to develop better mature forms. Where practicable, tree impacts have been avoided through design and or specification of construction techniques; e.g specification of no dig geocellular access at the Nash site to avoid impacts on valued Category B trees. Five sections of woodland and seven sections of tree groups have been identified for removal to facilitate the flood defence improvements, of which three of the woodland groups and two tree groups are Category B and two of the areas of woodland groups and five tree groups are Category C.	• An Arboricultural Consultant should review any landscape operations that involve any work within the RPAs of retained trees and input additional site-specific methodology where necessary. • Updated Tree Protection Plans and an Arboricultural Method Statement will be prepared following the appointment of a Contractor and will be informed by construction method statements. The Contractor will be required to implement arboricultural requirements in full in full during construction. • <u>Tree Management</u> - No tree pruning works are anticipated to enable the proposed development, other than the removal of the trees listed in the AIA. However, where better specimen trees are found on the margins of the working areas, every effort will be made to retain these trees, and this may include some facilitation pruning where necessary. <u>Arboriculture - Replacement Planting:</u> • 84 saplings will be planted in Coronation Park and along the Stephenson Street Embankment. Species are proposed to combine both amenity and biodiversity value at appropriate planting ratios and spatial separation relative to the low value, unmanaged, self-seeded trees and scrub that will be lost to the flood defence improvements. Replacement planting includes 12 alder (*Alnus incana* 'Laciniata'), 11 silver birch (*Betula pendula*), 12 pin oaks (*Quercus palustris*), 11 aspen (*Populus tremula*), 10 Scots pine (*Pinus sylvestris*), 13

Topic	Summary of Assessment	Mitigation and Monitoring Required
	No Category A trees will be affected by the proposals; all recorded Category A trees (*Tilia* sp. / lime trees in Coronation Park) will be retained. Only two of the nine recorded Category B tree groups and three of the five woodland sections require removal to permit access to the Railway Wall and Nash Wall sites. None of the 30 Category B trees will be removed. 98 Category B trees may be lost comprising the following scrub and tree species: goat willow, silver birch, grey poplar, common oak, ash, alder, hawthorn and blackthorn. Five of the 26 Category C tree groups and two of four woodland sections require removal to accommodate the flood defence improvements in north of Coronation Park, Felnex Industrial Estate, Railway Wall and associated access and Liberty Steel culvert access. None of the 25 Category C trees nor the 10 Category C hedges will be removed. Approximately 500 Category C trees may be lost comprising the following scrub and tree species: buddleia, elder, goat willow, aspen, cherry, field maple, silver birch, ash, alder, hawthorn and crack willow.	'snowy mespil' (*Amelanchier lamarckii*), 9 West Himalayan birch (*Betula jacquemontii*) and 6 paperbark maple (*Acer griseum*). • Three densely planted urban forest areas are also proposed to provide biodiversity and visual benefits. Species proposed include: hazel, hawthorn, goat willow, honeysuckle, elder and holly in groups at 1m centres for the understorey and common whitebeam, field maple, common alder and common oak comprising the canopy species planted in groups of 10 at 1m centres. Approximately 1,600 trees (1 canopy tree and one understorey tree per m^2 over 800m^2) are proposed within the urban forests. • Replacement planting will be provided at a ratio of 2.6:1 replacement: lost, using a cohort of trees providing both amenity and biodiversity value.

Topic	Summary of Assessment	Mitigation and Monitoring Required
	All Category U trees are recommended for removal due to their poor condition and their unsuitability in their current context. Nine trees, one shrub and five tree groups have been recorded as Category U. The remaining trees within all groups and woodlands, in addition to the individual trees will be retained and protected where necessary throughout the project construction period. The number of trees affected must be taken in the context of the large and linear extent of the flood defence improvements and the inaccessible location requiring access to block secondary flood pathways. Arboriculture – Ground Raising north of Transporter Bridge: To allow for minor ground raising to take place immediately north of Stephenson Street, 12 Category C trees (G56) will need to be removed. Arboriculture – Felnex Flood Wall: The flood wall, ramped access road and SUDs will require the removal of tree group G68 - 319 Category C trees, with the flood wall at the north west end of Marshalls requiring the removal of 17 Category C trees (G77). Arboriculture – East Bank Road (raised highway): To allow for the extension of East	

Topic	Summary of Assessment	Mitigation and Monitoring Required
	Bank Road tree groups G79 (129 Category C trees) and G80 (53 Category C trees) will need to be removed to accommodate the new highway and associated SUDs. Arboriculture – Railway Flood Wall and Access: Woodland W57, comprised of 19 Category C trees, will need to be removed to facilitate access to the railway flood wall, with a further 46 Category B trees required to be removed for access (W58 - 36 trees) and installation of the flood wall (W59 – 10 trees). Arboriculture – Liberty Steel Railway Embankment Culvert and Access: Woodland W62 will require the removal of 6 Category C trees so allow the installation of an access and culvert remediation. Arboriculture – Nash Retaining Wall and Access: Tree groups and woodland G82 (3 Category B trees), W83 (46 Category B trees), and G120 (3 Category B trees) will need to be removed to allow access from Nash WwTW to the site where the construction of the Nash flood wall will take place.	
Cumulative Effects	Transporter Bridge Visitor Centre [Planning App 19/1164]: potential effects of the Transporter Bridge Visitor Centre that could	• Pollution Incident - Both projects secure best practice construction measures including adherence to relevant Guidelines for Pollution

Topic	Summary of Assessment	Mitigation and Monitoring Required
	act cumulatively with the flood defence improvements include: • Pollution Incident. • Disturbance to otter (lighting and noise). • Entrapment of otter. • Contamination. A further search of current and recently determined planning applications was undertaken using Newport City Council's online planning services[12] to capture any applications which could result in cumulative effects. No additional applications have been identified, with publicly available information, for consideration.	Prevention, including GPP5: works or maintenance in or near water. Application of the GPPs is considered sufficient to manage potential effects. As such, cumulative effect is considered to be short-term negligible adverse. • Disturbance – both projects secure ecological mitigation to avoid excessive light spill on key habitats. Piling noise has been avoided from the flood defence project through specification of hydraulic piling, whilst conditions are secured for the Visitor Centre to control noise. As such, cumulative effect is considered to be short-term negligible adverse. • Entrapment - both projects secure ecological mitigation to avoid potential entrapment of otter having secured provisions to provide a means of escape. As such, cumulative effect is considered to be short-term negligible adverse.

[12] https://licensing.newport.gov.uk/online-applications (last accessed May 2021)

Delivery of Enhancements

1.14 Enhancement Proposals

NRW is required to deliver enhancements / multiple benefits, as required by the:

- Environment Act (Wales) 2016 – Section 4 SMNR Principals and Section 6 Biodiversity Duty;
- Wellbeing of Future Generations (Wales) Act 2015 and NRWs well-being objectives that derive from this; and
- Water Framework Directive – statutory duty to secure compliance and protect and enhance the water environment.

There are also a number of other drivers such as Core Management Plans for Protected Sites (and Prioritised Improvement Plans), local Well-being Plans and other specific locally led plans.

Potential environmental enhancements were identified and disseminated for consultation with key stakeholders. These have now been developed further and are outlined below.

The following includes a summary of the core enhancement proposals:

Community / Amenity Enhancement:

- Wales Coast Path Improvements - available path width designed to a minimum of 1.2m to allow two people to walk side-by-side, with wider sections to allow ‘spreading room’ and social distancing. Improved surfacing on bunded section and piled sections. Provision of seating, information boards, enhanced access points and passing places along the Wales Coast Path to add variety and interest. 'Least restrictive access' principle integrated into the design principles. Sheet pile wall height managed to retain open views of the river.
- Resurfacing works will continue beyond the development footprint; i.e. south of the Hanson’s Conveyor Belt, ensuring continuity of enhancement throughout the riverside sections of the Wales Coast Path.
- The natural feel of the Wales Coast Path has been preserved and enhanced along the improved bund and sheet pile wall sections with enhanced planting.
- Waste Removal - Accumulations of tidal litter along the foreshore of Stephenson Street Embankment, including a substantial proportion of plastic waste, will be removed during the construction phase; particularly larger items that cannot be removed by volunteer groups – barrels, tyres, etc.

Cultural Heritage Enhancement:

- Enhanced transition between Stephenson Street and the Transporter Bridge including additional planting, pedestrian safe zones and seating areas.

- Interpretation boards are proposed as detailed in the Planning Drawings within the Planning Application Pack to provide education and awareness of the importance of the Transporter Bridge.

Biodiversity Enhancement:

- Provision of reedbed habitat and three areas of densely planted urban forest in the south of Coronation Park; refer to the Planning Drawings within the Planning Application Pack. Reedbed habitat will comprise a river floodplain / water meadow mix including: S3 - *EM8 meadow mixture for wetlands*[13]*, Hemerocallis sp., Iris pseudacorus, Juncus effusus*. Feasibility of *Phragmites australis* (common reed) reedbed is being explored to add additional structure and Cetti's warbler habitat. The density of the urban forest planting will provide suitable foraging habitat, shelter and resting places for birds, amphibians and mammals. Key species include: hazel, hawthorn, goat willow, honeysuckle, elder and holly for the understorey and common whitebeam, field maple, common alder and common oak comprising the canopy species.

- Planting of 84 trees, including species of high biodiversity value, will also be planted along the Stephenson Street Embankment and within Coronation Park that will support connectivity along the river and reinforce the Marshall's SINC.

- Wildflower planting on the rear (dry side) of the bund and within Coronation Park will support Newport City Council's BeeLine Cymru: *Newport's in the Corridor* initiative to support pollinators; comprising: S1 - MG8 seed mix[14] and three key SSSI floral species (seeds to be collected locally): *Lepidium latifolium* (dittander)*, Althea officinalis* (marsh-mallow) and *Lathyrus sylvestris* (narrow-leaved everlasting pea) on the riverside bund. EM2 seed mix[15] to include *Anthyllis vulneraria* (kidney vetch) to the rear of the bund and in Coronation Park. Due to the local presence of small-blue butterfly (*Cupido minimus*), a Schedule 7 Priority and UK BAP species, kidney vetch and narrow-everlasting pea have been integrated into the Planting Schedule (Appendix C) to support this species as larval foodplants. Similarly, a mowing regime is proposed that retains wildflowers until seeds have set and been distributed, encouraging a seed bank and extending the period of use by pollinators.

- Interpretation boards will provide local biodiversity information along the Stephenson Street Embankment, educating and raising awareness of the River Usk SAC / SSSI, locally important species and habitats and encourage responsible behaviours that will benefit local biodiversity.

- Viewing platforms will be provided that will support local residents and visitors to connect with the natural heritage and appreciate the important riverine habitats. The provision of bins will reduce litter and dog waste, whilst the sheet pile wall restricts access to the SAC / SSSI reducing disturbance and physical damage.

- Promote the development of a healthy saltmarsh sward through periodic litter collections. Provision of formal access via the upgraded access ramp at the Transporter Bridge will facilitate the collection of large debris deposited by the river on to the saltmarsh. During construction, the appointed contractors will also

[13] https://wildseed.co.uk/mixtures/view/9/meadow-mixture-for-wetlands
[14] https://germinalamenity.com/re3-river-floodplain-water-meadow-mg8-grassland
[15] https://wildseed.co.uk/mixtures/view/3

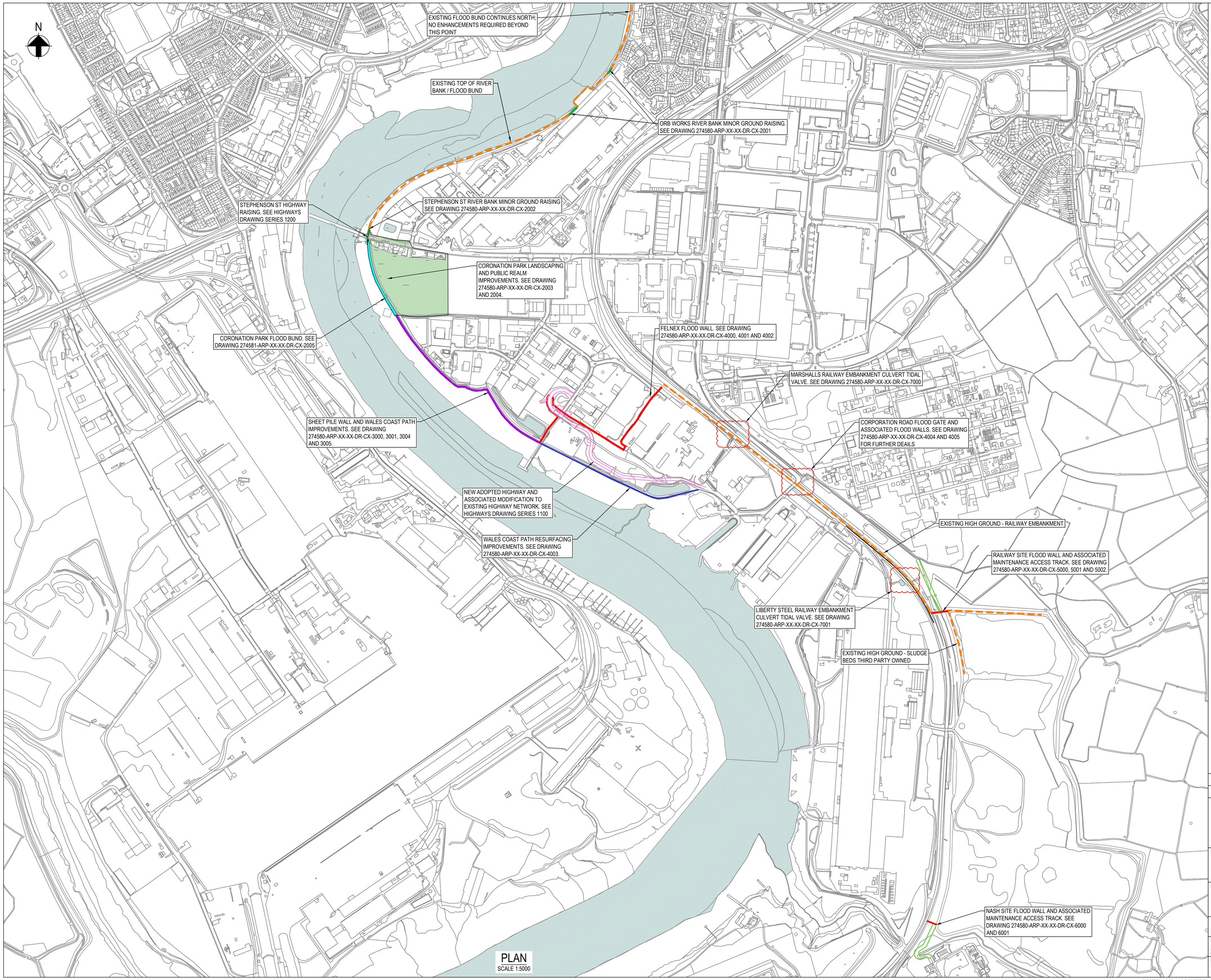
instigate a collection of large debris from the saltmarsh, which is typically too heavy for volunteer removal. Any debris removed will be disposed of appropriately.

- All invasive and non-native species identified throughout the site will be treated to ensure their removal. Four stands of Japanese knotweed have already been treated, the remainder will be treated prior to or during the construction phase.
- An artificial otter holt(s) will be provided in suitable habitat, connecting to the River Usk, as identified by the ECoW in consultation with NRW, to provide a suitable breeding site for otters due to the presence of foraging / commuting otter in this area. The provision of small areas of rock armour in degraded areas of grassland / saltmarsh habitat to provide additional resting places for otter.
- A range of bat boxes (at least 5) will be provided on mature trees within the Site, and or adjacent habitats (subject to landowner agreement). The number and location will be selected by the ECoW and would be informed by the number of appropriate trees within / adjacent to the Site. These should be of woodcrete construction, such as Schwegler (or similar) models, which are more durable and require minimal maintenance.
- A range of bird boxes (at least five styles) will be provided on mature trees, and where possible buildings and bridge structures, within the Site, and or adjacent habitats (subject to landowner agreement). The number and location will be selected by the ECoW and will be informed by the number of appropriate within / adjacent to the Site. Similar to bat boxes, these should be of woodcrete construction, such as Schwegler (or similar) models, which are more durable and require minimal maintenance.
- At least three artificial reptile refugia, which provide shelter to hibernating and active reptiles, will be created using materials available post site clearance / construction such as timber logs, brash, grubbed up tree roots, inert hardcore, bricks or building rubble. Hedgehog boxes could be integrated into the brash piles. The number and location will be selected by the ECoW and will be informed by available suitable habitat and scrub / tree clearance requirements.
- Woodland Management – thinning and tree removal of self-seeded trees, under arboricultural supervision, throughout the site to promote healthy growth of scrub / woodland areas. Reduction in density will encourage vigorous growth and healthier habitats benefiting woodland and biodiversity alike.
- Shrill Carder Bee – the seed mix and management regime may be amended to incorporate specific forage plants and habitat types that support nest development into the operational phase of the development.

Appendices

Appendix A - Design Solution Drawing

Detailed drawings available in the Planning Drawings within the Planning Application Pack.



PLAN
SCALE 1:5000

A1

GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS. NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCIES.
2. ALL DIMENSIONS IN MILLMETERS AND ALL LEVELS IN METERS ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
3. DO NOT SCALE FROM DRIWING.

LEGEND:

- EXISTING HIGH GROUND
- GROUND RAISING
- BUND
- SHEET PILE WALL
- REINFORCED CONCRETE WALL
- WALES COASTAL PATH RESURFACING
- MAINTENANCE ACCESS TRACKS
- ADOPTED HIGHWAY
- LANSCAPING AND PUBLIC REALM ENHANCEMENTS

0 50 100 200 Metres
Scale 1:5000

Rev.	Description	Drawn	Chkd.	Appd.	Issue Date
P01	DRAFT FOR COMMENT	SG	JL	RC	19.02.21

Cyfoeth Naturiol Cymru Natural Resources Wales

ARUP

Project Name.
STEPHENSON ST FLOOD DEFENCE SCHEME

Drawing Title.
SCHEME KEY PLAN

Suitability.	Suitability Code.
DRAFT FOR COMMENT	S2

Internal Project Number.	Scale.	Rev.
274580	AS SHOWN	P01

Drawing Number.
274580-ARP-XX-XX-DR-CX-2000

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Appendix B – Environmental Constraints and Opportunities Plans (ECOPs)

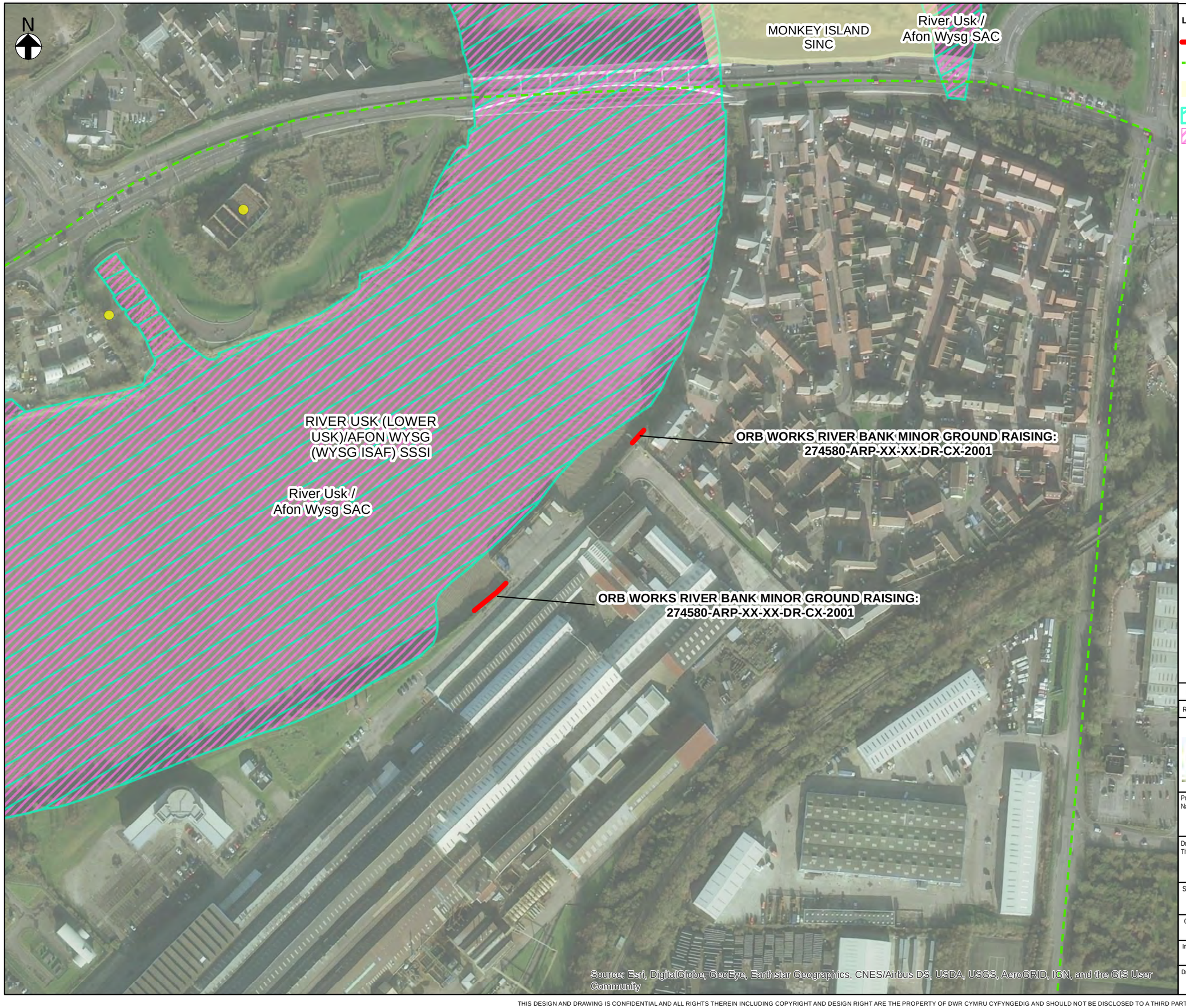
Appendix B1 – Orb Works Ground Raising ECOP.

Appendix B2 – Stephenson Street Bund, Minor Ground Raising, Enhancements and Sheet Pile Wall ECOP.

Appendix B3 – Sheet Pile Wall, Felnex Flood Wall and Raised Highway ECOP.

Appendix B4 – Railway Wall and Access, Marshals and Liberty Steel Culverts and Corporation Road Flood Gate ECOP.

Appendix B5 – Nash Flood Wall and Access ECOP.



A3

LEGEND

- Proposed Works
- Wales Coast Path
- Site of Importance for Nature Conservation (SINC)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Listed Buildings

ARUP

0 12.5 25 50 75 100 Metres

Rev.	Date.	Drawn	Description.	Chkd.	Appd.	Date.
F1	2021-02-16	IM	For Issue	GM	GM	2021-02-24

Cyfoeth Naturiol Cymru
Natural Resources Wales

Project Name.
STEPHENSON STREET
FLOOD DEFENCE SCHEME

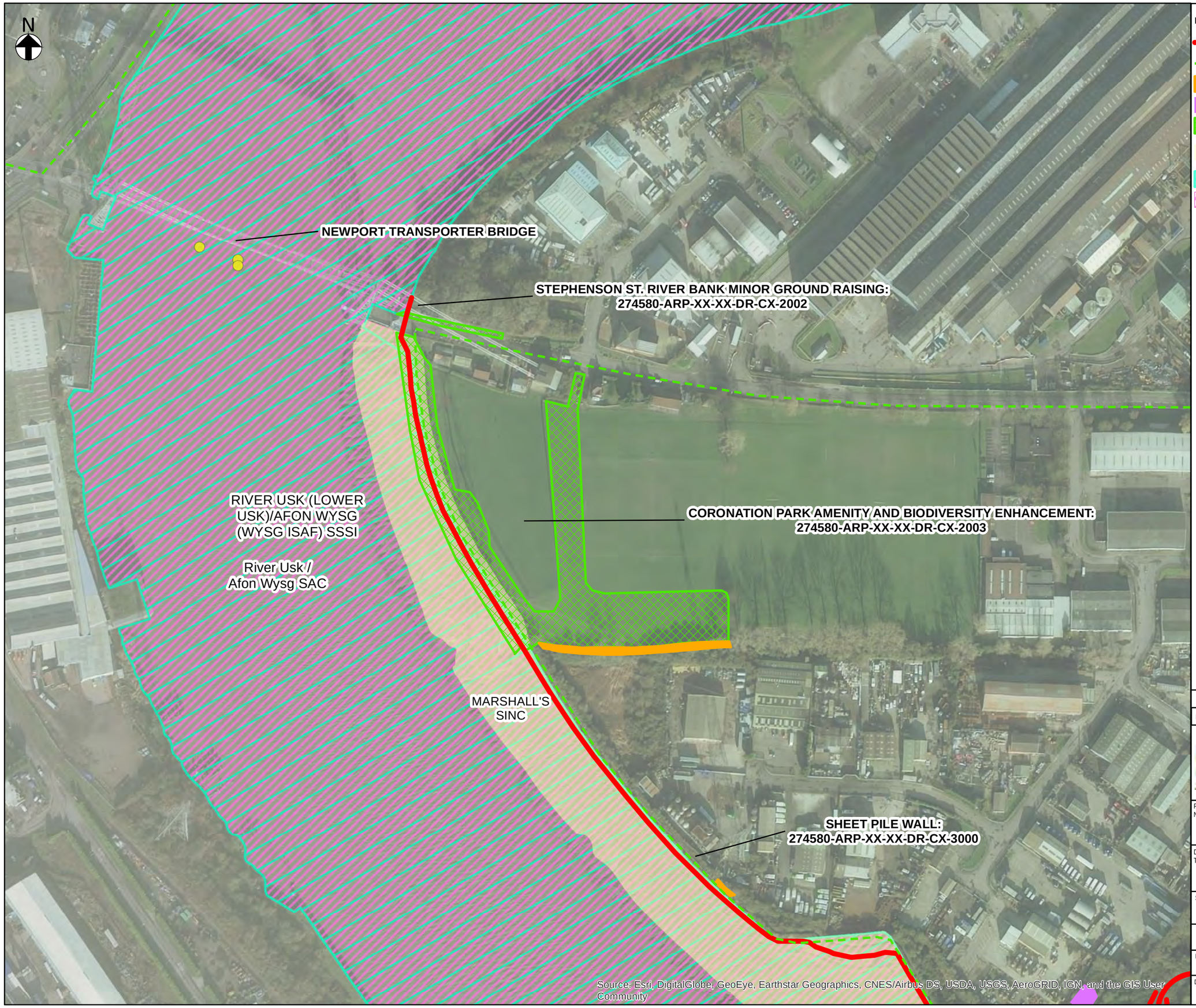
Drawing Title.
ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES PLAN
APPENDIX B1 - ORB WORKS GROUND RAISING

Suitability.	Suitability Code.
For Issue	2021-02-16

Originator	Designer	Date.
IM	GM	2021-02-16

Internal Project Number	Scale	Rev.
245404	1:2,500	F1

Drawing Number.
005



A3

LEGEND

- Proposed Works
- Wales Coast Path
- Japanese Knotweed (Treated)
- Japanese Knotweed
- Amenity and Biodiversity Enhancement
- Site of Importance for Nature Conservation (SINC)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Listed Buildings

ARUP

0 12.5 25 50 75 100 Metres

Rev.	Date.	Drawn.	Description.	Chkd.	Appd.	Date.
F1	2021-02-16	IM	For Issue	GM	GM	2021-02-24

Cyfoeth Naturiol Cymru
Natural Resources Wales

Project Name.
STEPHENSON STREET
FLOOD DEFENCE SCHEME

Drawing Title.
ECOP
APPENDIX B2 - STEPHENSON STREET BUND, MINOR GROUND RAISING, ENHANCEMENTS & SHEET PILE WALL

Suitability. For Issue
Suitability Code. 2021-02-16

Originator	Designer	Date.
IM	GM	2021-02-16

Internal Project Number	Scale	Rev.
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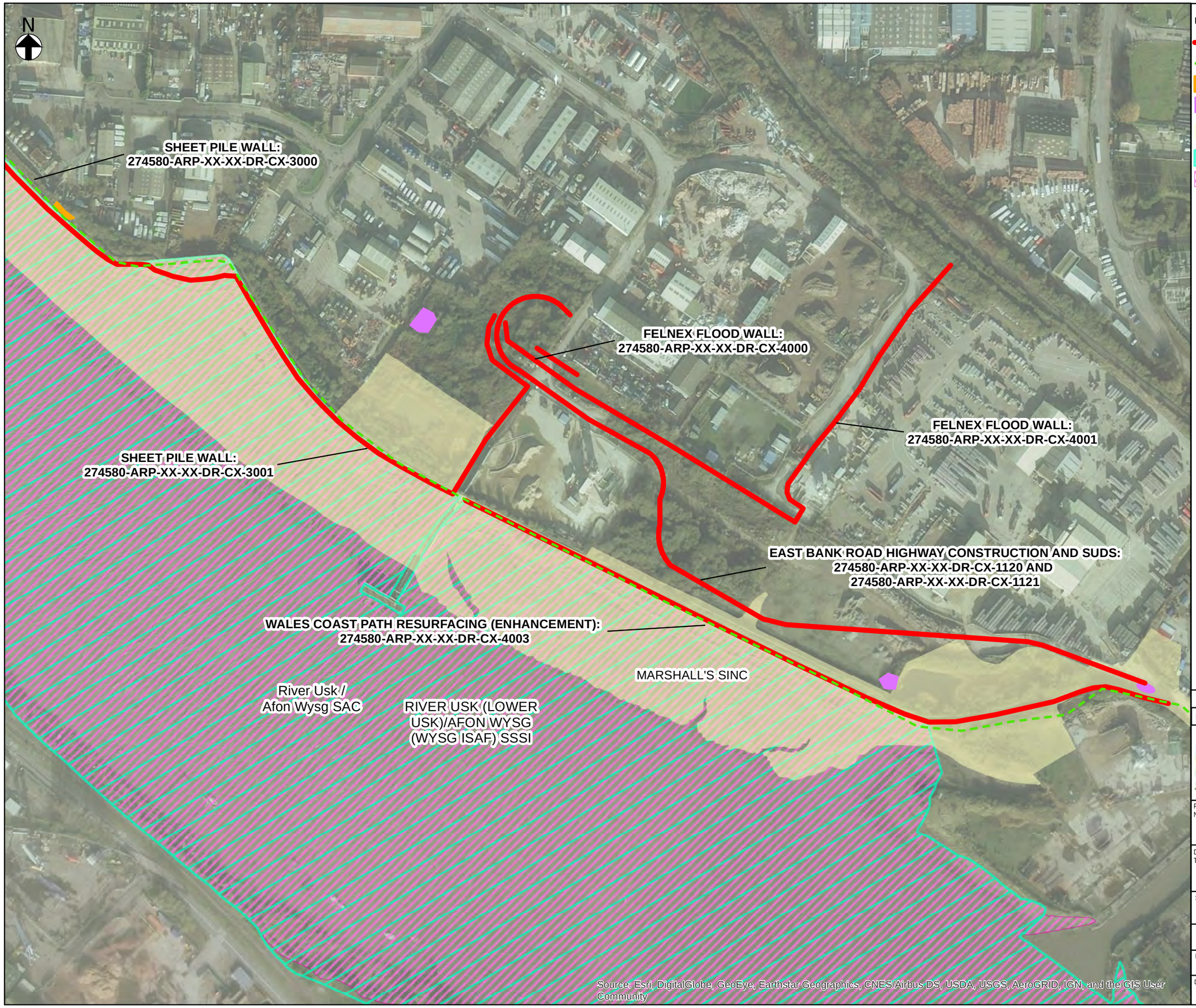
Drawing Number. 006



A3

LEGEND

- Proposed Works
- Wales Coast Path
- Japanese Knotweed (Treated)
- Japanese Knotweed
- Site of Importance for Nature Conservation (SINC)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)

ARUP

0 12.5 25 50 75 100 Metres

Rev.	Date.	Drawn.	Description.	Chkd.	Appd.	Date.
F1	2021-02-16	IM	For Issue	GM	GM	2021-02-24

Cyfoeth Naturiol Cymru
Natural Resources Wales

Project Name.
STEPHENSON STREET
FLOOD DEFENCE SCHEME

Drawing Title.
ECOP
APPENDIX B3 - SHEET PILE WALL, FELNEX FLOOD WALL & RAISED HIGHWAY

Suitability.	Suitability Code.
For Issue	2021-02-16

Originator	Designer	Date.
IM	GM	2021-02-16

Internal Project Number	Scale	Rev.
245404	1:2,500	F1

Drawing Number.
007

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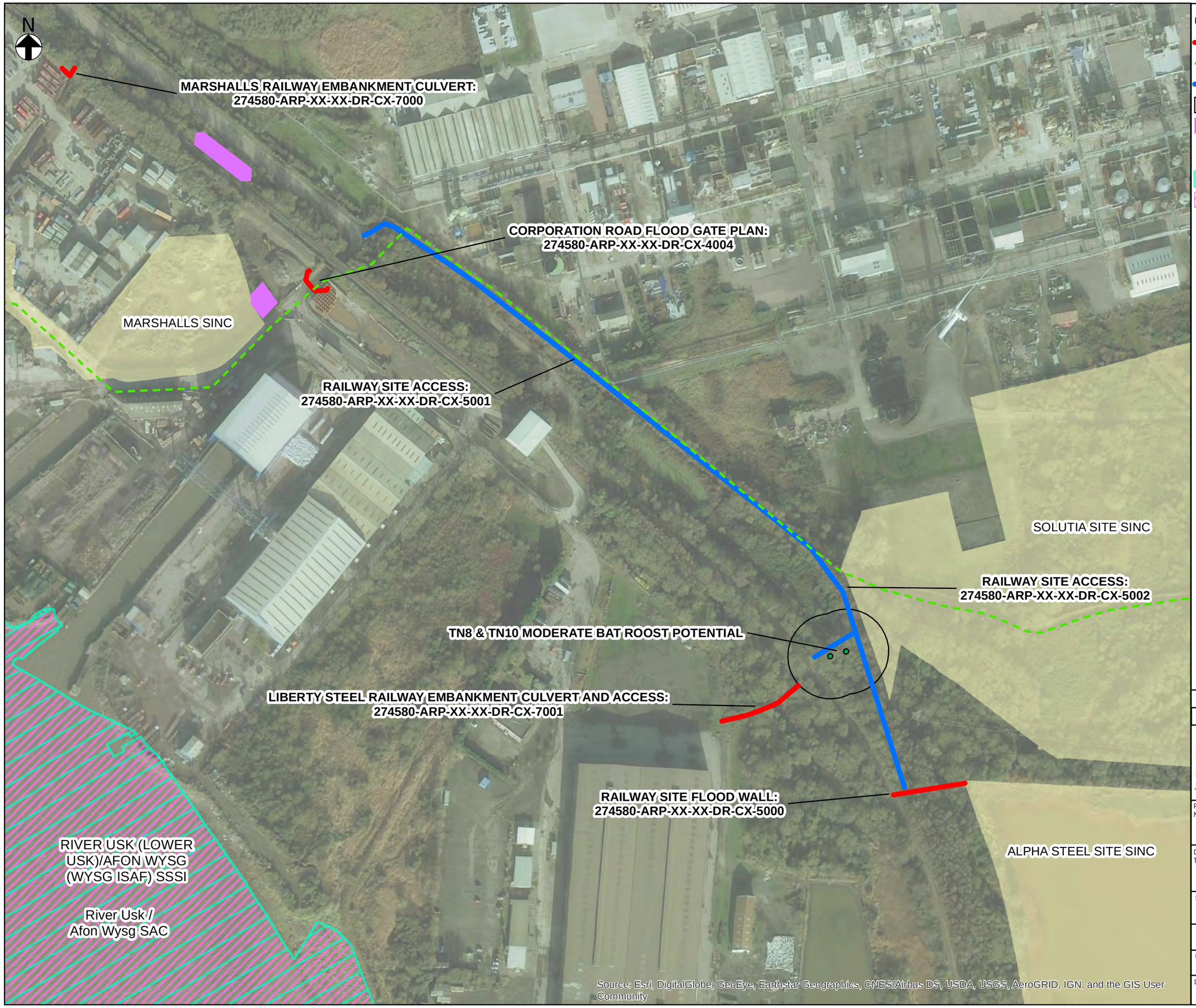

A3

LEGEND

- Proposed Works
- Wales Coast Path
- Access
- 30m Buffer
- Japanese Knotweed
- Site of Importance for Nature Conservation (SINC)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Bat Roost Potential

ARUP

0 12.5 25 50 75 100 Metres

Rev.	Date.	Drawn.	Description.	Chkd.	Appd.	Date.
F1	2021-02-16	IM	For Issue	GM	GM	2021-02-24

Cyfoeth Naturiol Cymru
Natural Resources Wales

Project Name.	STEPHENSON STREET FLOOD DEFENCE SCHEME
Drawing Title.	**ECOP - APPENDIX B4 - RAILWAY WALL & ACCESS, MARSHALLS & LIBERTY CULVERTS & CORPORATION RD FLOOD GATE**
Suitability.	For Issue
Suitability Code.	2021-02-16
Originator	IM
Designer	GM
Date.	2021-02-16
Internal Project Number	245404
Scale	1:2,500
Rev.	F1
Drawing Number.	008

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A3

LEGEND

- Proposed Works
- Access
- 30m Buffer
- Site of Importance for Nature Conservation (SINC)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Bat Roost Potential

ARUP

0 10 20 40 60 80 Metres

Rev.	Date.	Drawn.	Description.	Chkd.	Appd.	Date.
F1	2021-02-16	IM	For Issue	GM	GM	2021-02-24

Cyfoeth Naturiol Cymru Natural Resources Wales

Project Name. STEPHENSON STREET FLOOD DEFENCE SCHEME

Drawing Title. ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES PLAN **APPENDIX B5 - NASH WALL & ACCESS**

Suitability.	Suitability Code.
For Issue	2021-02-16

Originator	Designer	Date.
IM	GM	2021-02-16

Internal Project Number	Scale	Rev.
245404	1:2,227	F1

Drawing Number. 009

Appendix C – Planting Schedule

STEPHENSON STREET PLANT SCHEDULE

Client:	Natural Resources Wales	Date:	30/06/2021
Project:	Stephenson Street	Created by:	AF/JD
Location:	Newport	Approved by:	BO
Drawing ref.:	274580-ARP-XX-XX-DR-CX-8000		
Revision:	I03	Suitability:	FOR PLANNING

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Abbrev.	Name	Girth/Dia. cm	Height cm	Root Zone	Specification	No.
T1 - Specimen Deciduous Trees						
AinL	Alnus incana 'Laciniata'	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 4 breaks	12
Bp	Betula pendula	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 4 breaks	11
Qp	Quercus palustris	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 4 breaks	12
Pxc	Populus tremula	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 4 breaks	11
					Sub-totals	46
T2 - Specimen Feature Conifer Trees						
PsP	Pinus sylvestris Scots Pine	35-45L		ContaineR Grown	1150-175 Leader with laterals, feathered to base	10
					Sub-totals	10
T3 - Feature Feathered Trees						
Al	Amelanchier lamarckii	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 5 breaks	13
Bp-f	Betula jacquemontii	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 5 breaks	9
Ag	Acer griseum	10-12		RB	2x; Selected Standard; clear stem 175-200cm; 5 breaks	6
					Sub-totals	28
					Grand Totals	84
P1- Perennials, wildflowers and bulbs planting mix						
Aat	Allium atropurpureum				Grade 10/+	
Ac	Allium caeruleum				Grade 10/+	
Rf	Rudbeckia fulgida			9cm	Full pot	
Pbs	Persicaria bistorta 'Superba'			9cm	Full pot	
Lsp	Liatris spicata 'Alba'			9cm	Full pot	
Cla	Camassia leichtlinii 'Alba'			9cm	Full pot	
Np	Narcissus pseudonarcissus				Grade 10/+	
Vr	Verbena rigida			9cm	Full pot	
O1- Ornamental shrubs and grasses planting mix						
Ac	Allium caeruleum				Grade 10/+	
Cs	Carex secta			9cm	Full pot	
Cb	Carex buchannanii			9cm	Full pot	
Cla	Camassia leichtlinii 'Alba'			9cm	Full pot	
Pbs	Persicaria bistorta 'Superba'			9cm	Full pot	
Ca	Calamagrostis x acutiflora 'Karl Foerster'			9cm	Full pot	
Msi	Miscanthus sinensis			9cm	Full pot	
Ef	Euonymus fortunei 'Emerald 'n' Gold'			9cm	Full pot	
Lniv	Luzula nivea			9cm	Full pot	
Lfo	Libertia formosa			9cm	Full pot	
Sch	Santolina chamaecyparissus			9cm	Full pot	
St	Stipa tenuifolia			9cm	Full pot	
Vat	Veronica austriaca teucrium ' Royal Blue'			9cm	Full pot	
U1 - Urban forest/native woodland planting with understorey mix						
Native woodland mix planted in groups of 10 at 1m centres						
Fs	Sorbus aria	10 - 12	150-175	B	2+2, Feathered whip	
Ac	Acer campestre	10 - 12	150-175	B	2+2, Feathered whip	
Ag	Alnus glutinosa	10 - 12	150-175	B	2+2, Feathered whip	
Qr	Quecus robur	10 - 12	150-175	B	2+2, Feathered whip	
Understorey mix Planted in groups at 1m centres						
Ca	Corylus avellana	08 - 10	125-150	B	1+2, Transplant- seed raised	
Cm	Crataegus monogyna	08 - 10	125-150	B	1+2, Transplant- seed raised	
Sc	Salix caprea	08 - 10	125-150	B	1+2, Transplant- seed raised	
Lp	Lonicera periclymenum	08 - 10	100-125	B	1+2, Transplant- seed raised	
Sc	Sambucus nigra	08 - 10	100-125	B	1+2, Transplant- seed raised	
Ia	Ilex aquifolium	08 - 10	100-125	B	1+2, Transplant- seed raised	
S1 - Species rich grass seeding mix for SSSI enhancement and conservation						
RE3	River Floodplain / Water Meadow (MG8 Grassland)		Seed Mix	Sowing rate 5g/m2	https://germinalamenity.com/re3-river-floodplain-water-meadow-mg8-grassland	
SSSI enhancement and conservation mix (if local seed population available)	Lepidium latifolium		Seed Mix	Sowing rate 1g/m2	Local collection of seeds from Newport and Gwent Levels areas.	
	Althaea officinalis					
	Lathyurus sylvestris					
S2 - Grassland with biodiverse wildflower planting mix						
EM2	Standard general purpose meadow mixture		Seed Mix	Sowing rate 4g/m2	https://wildseed.co.uk/mixtures/view/3	
Av	Anthyllis vulneraria		Seed Mix	Sowing rate 1g/m2		
S3 - Reedbed planting mix						
EM8	Meadow mixture for wetlands		Seed Mix	Sowing rate 4g/m2	https://wildseed.co.uk/mixtures/view/9/meadow-mixture-for-wetlands	
Hst	Hemerocallis 'Stafford'			9cm	Full pot	
Ip	Iris pseudacorus			9cm	Full pot	
Je	Juncus effusus			9cm	Full pot	
Pa	Phragmites australis			9cm	Full pot	

Appendix D - Consultation Record

Consultee	Date	Summary of Response	Action Taken
NRW DPAS – PAC Response	17/05/2021	Requirement 1: Marine Water Quality – we request additional details on silt management measures. Requirement 2: Marine Water Framework Directive - We advise that it must be made clear which classifications are being used for the information from Water Watch Wales. Requirement 3: European Protected Species - We continue to advise that a robust mitigation scheme to avoid permanent habitat fragmentation by the new flood defence structures for all protected species potentially be present and affected should be devised. Requirement 4: European Protected Species - We seek clarification on how connectivity from the River Usk to suitable foraging habitat along the entire scheme is to be retained post-development. We seek clarification of any amended otter passage proposals at the Hanson Conveyor site, where previously a ramp structure was proposed. Requirement 5: European Protected Species - We advise that further information is provided on whether a water vole conservation licence is likely to be required, and if so, the measures that will be put in place to ensure a conservation benefit to the species. Requirement 6: European Protected Species - We advise that eDNA survey of the above waterbodies is undertaken, and, should a positive result be returned, further surveys to determine population size will be required. The surveys must accord with best practice guidelines. Furthermore, we seek clarity that all other waterbodies (including those with a poor HIS score) along the scheme length have been subject to eDNA surveys, and recommend that a map/drawing showing the location of each water body, along with a HIS score and eDNA result, is submitted as part of the full application. Requirement 7: Protected Sites – River Usk Special Area of Conservation (SAC) - It is recommended that information is supplied for all matters where impact pathways are possible. If no pathway is present, then information to support this should be provided. For example, the Orb Works to raise ground are listed as being within c6 and c30 of the SAC boundary (significantly nearer than some matters included in further assessment). Requirement 8: Protected Sites – River Usk Special Area of Conservation (SAC) - Reconsideration to be given to whether Water Quality during operational period with regard to surface water drainage system for the new highway located within the Felnex	Requirement 1: indicative details on silt management measures provided within EAP, Appendix D. Requirement 2: WFD Compliance Assessment updated accordingly. Requirement 3: further justification is provided in the ECOR to demonstrate spatial separation and lack of supporting habitats in the vicinity of proposed works. Requirement 4: the ECOR clarifies the otter survey results for the habitats to the rear of the Stephenson Street Embankment, stating that commuting and foraging otter are not considered to be present. The ECOR also reiterates that access will be retained to habitats behind the Stephenson Street Embankment, should otter commence using these habitats in the future. Requirement 5: The EAP confirms that should water vole presence, or any other protected species, be identified, the requisite

Consultee	Date	Summary of Response	Action Taken
		and Marshalls Estate should be screened out. It is unclear whether the design and/or the control mechanisms within this part of the project are compliant with the 'People over Wind' ruling and you may wish to reconsider this matter. In doing so, it may be helpful to refer to the NRW guidance on this matter. Reconsideration may lead to this matter being "screened in" and therefore being taken to the next stage. Requirement 9: Protected Sites – River Usk Special Area of Conservation (SAC) - It is unclear if it is deemed that these matters are capable of impacting upon the integrity of the identified SAC with or without control measures and it is recommended that these matters and any potential impacts pathways that may be associated with these are addressed fully as part of the assessment.	protected species licence application will be submitted to NRW. Requirement 6: eDNA sampling for great crested newt was undertaken in waterbodies TN4 (North of the Transporter Bridge) and TN6 (culvert adjacent to the Railway Wall Access) as requested by NRW. Sampling for both ponds returned negative results; neither waterbody was in a suitable condition for further survey, both were shallow, one polluted and both lacked suitable vegetation for egg laying. Requirement 7, 8, 9: the Habitats Regulations Assessment (HRA) was updated accordingly to provide the requested details. Further information on silt control measures was included, clarity on potential impacts including operational surface water outflows and the appropriateness and efficacy of SAB-compliant SUDS schemes.
NRW Species Team – PAC Response	27/05/21	Re. Survey of Moderate Potential Bat Roost – TN10. Taking into account the considerable constraints on survey of T10, and as the possible tree roost will not be lost or damaged as a result of the proposals, I confirm that Species Team are satisfied with the proposed precautionary approach.	Project Team to prepare Precautionary Method of Working and seek NRW agreement prior to construction.

Consultee	Date	Summary of Response	Action Taken
NRW Plant Health / NRW Landscape Architect	27/05/21	All tree and shrub planting must be UK grown and planted at an appropriate time of year. No large specimen trees are permitted to reduce potential for importing pathogens to site and maximise resilience of developing trees. The planting schedule is to be amended to ensure that the size of proposed trees is <6cm @1m height at the time of planting.	Planning Statement, ECOR, Landscape and Visual Assessment, Planting Schedule, Visualisations and EAP updated accordingly. EAP updated with detailed plant health requirements.
Bumblebee Conservation Trust – PAC Response	29/04/21	It appears that there may be substantial opportunities for incorporation of habitat creation for Shrill carder bee at the site. Gwent Levels and parts of Newport and south Cardiff support one of only 5 remaining populations of Shrill carder bee – the rarest and most threatened bumblebee species in England and Wales. It may be advisable to incorporate surveys for Shrill carder bee during July and August into any ecological surveys that may be planned this year. It would be great if we could incorporate some habitat and interpretation for Shrill carder bee at the site.	The seed mix and management regime in the landscaping proposals may be amended to incorporate shrill carder bee specific forage plants and habitat types that support nest development.
Newport City Council – Environment & Leisure – PAC Response	05/05/21	Improvements to park entrances – request to retain formal robust access infrastructure, rather than bollard-only designs. Replacement of existing or field gate and suitable kissing-gate design recommended.	Design amended to reflect NCC preferences to enhance security and reduce unwarranted vehicular access.
NCC Tree Officer – PAC Response	11/05/21	Request for Arboricultural Method Statement and Arboricultural Watching Brief for certain areas. Appropriate soil storage required during construction. Consider use of Turkish hazel rather than birch in planting schedule, better able to cope on exposed wetter soils.	Arboricultural Method Statement and Arboricultural Watching Brief to be submitted to and agreed by NCC prior to construction in certain areas. Review landscape planting schedule in light of NCC comments.
Glamorgan-Gwent Archaeological Trust Ltd – PAC Response	09/04/21	The assessment proposes several mitigation measures, including an archaeological watching brief during ground-intrusion works (excluding piling). Such an approach is appropriate and should a similar application be submitted, we would likely recommend a condition requiring the submission of a Written Scheme of Investigation (WSI) be attached to any consent. The WSI would provide a detailed methodology for the mitigation works, including the scope of the watching brief.	No action required.
Sport Wales - PAC Response	13/04/21	Sport Wales was given advance notice of the plans back in December and we had no significant concern as the existing pitches would not be affected, and now being satisfied that the area proposed for the new pathways and planting to the south of the central pitch is not used for training or other sporting activities, we agree that that the proposed changes, particularly the new pathways and planting, would enhance the park and Sport Wales have no objection.	No action required.

Consultee	Date	Summary of Response	Action Taken
Cadw – PAC Response	14/04/21	We agree with the conclusions of the assessments and that the proposed measures to deal with unknown archaeological features are appropriate.	No action required.
Coal Authority – PAC Response	23/03/21	I have reviewed the plans submitted in support of this scheme and can confirm that as the site falls outside the defined coalfield area, the Coal Authority has no specific comments or observations to make on the Stephenson Street Flood Defence Scheme.	No action required.
NRW - Geomorphology – Anne Lewis	28/07/20	The proposed scheme is below the tidal limit and I do not anticipate any significant upstream impacts. As a fluvial geomorphologist I therefore have no comments to offer on the scheme. The impacts on geomorphology should be address by the marine and tidal waters team.	No action required.
NRW - WFD – Jeremy Tanner	29/07/20	Under WFD the Usk estuary is a Heavily Modified Water Body precisely because of its flood defences. It is not currently meeting the target of Good Ecological Potential (GEP) as all potential mitigation measures have not been deemed to be in place, and this is exactly the sort of scheme that should be considering each and every one of the potential mitigation measures that could apply and looking to implement them where possible in order to move us towards GEP. I strongly recommend that the WFD Report includes potential WFD improvements as part of the scheme.	WFD improvements included within WFD Compliance Assessment.
NRW - Marine Fish and Fisheries – Alexander Scorey	31/07/20	Updated response [25/08/20]: The use of non-vibratory methods sounds really promising if they can be secured. I'm happy that the >30m separation distance would mitigate for impacts on the diadromous species in the Usk from vibratory piling activities, but I wasn't clear from the ECOR whether the separation distance was proposed to be an absolute constraint to all piling works for the whole year. Should vibratory piling be used within 30m of the river, then an impact pathway would remain for all diadromous fish species in the Usk that would need to be assessed in the HRA. My original comments below on the scope of the HRA would then apply. Whilst shads are most sensitive, they migrate at different times to salmon and lampreys so a seasonal application of the mitigation in March-June would not benefit key migratory lifestages of the other species. Furthermore, the downstream post-spawning migration of adult twaite shad, and the downstream migration of juvenile shads happens later in the year (through to October/November). Initial Response [31/07/20]: Key Issues Overall, the process for determining the presence of impact pathways or effects upon the diadromous fish features of the River Usk SAC is not set out within this document. We	Confirmation that hydraulic piling has been specified. Clarification that all piling works will be undertaken >30m from Mean High Water Springs. Secured within the EAP. Confirmation that all diadromous fish species are considered within the HRA.

Consultee	Date	Summary of Response	Action Taken
		acknowledge that this process may be set out in the HRA which we have not seen yet, and so we request to be consulted on the HRA when it is available. Our detailed comments below are made to inform the HRA. Page 11 Table 3 Biodiversity and nature conservation The document states: "A number of SAC features are not present in the SSSI Management Unit related to the works and no pathway for effect has been identified. Shad (Alosa spp.), a vibration-sensitive fish, are present within the River Usk during their migration season (Apr-Jul inclusive)." And: "[2] Ensuring vibration effects from construction do not affect vibration sensitive fish species in the River Usk." It is not clear which SAC features are referred to by these statements, and if the current scope of the HRA only includes for assessment of twaite shad and allis shad features of the River Usk SAC? Page 24 Table 4 Biodiversity and nature conservation The document states: "This [NRW Advice] required that no piling was to take place within 30m of the watercourse during the shad migration period, or operations will be restricted to piling only during the falling tide of the river (high tide plus one hour and low tide minus one hour). Since piling will occur >40m from the watercourse, no effect is predicted." Will all piling occur out of water and >40m from the watercourse, even at high tides? Or will this criteria be met only during April-July? General comment to inform HRA Within the HRA, it is advised that the process to identify impact pathways from the scheme to all the designated diadromous fish features of the River Usk SAC (sea lamprey, river lamprey, twaite shad, allis shad and Atlantic salmon) is documented and justified as these species migrate past the location of the scheme. It is advised that impact pathways of noise and vibration caused by piling and other construction activites, any artificial lighting, and the risk of pollution events or other water quality effects from site run-off are considered. These impact pathways, if present, could affect individuals as they are migrating through the estuary as either juveniles or adults. It is advised that the assessment discusses the timing of construction activities in relation to the timing of migration of the diadromous fish features. It is also advised that the assessment discusses the location of construction activities relative to the estuary, at high tide and low tide. If all activities are to be conducted at tidal states when the water level is >40m from the embankment then it is advised that this is secured by the EAP. Finally, it is advised that the magnitude and duration of the impacts generated by the construction activities (including piling methods, piling sound source levels, pile numbers and piling duration) is considered if an impact pathway is present.	
NRW - Marine Ecology – Ben Wray	05/08/20	No specific marine benthic ecology issues as I would consider this a riverine proposal (despite the tidal influence) and therefore should be dealt with by a relevant specialist in	No action required.

Consultee	Date	Summary of Response	Action Taken
		the environment team. That said, there may be some water quality and potential migratory fish, bird considerations. I would also suggest that a full biosecurity risk assessment should be undertaken if any of the works are to be undertaken using marine vessels/equipment (which I could review in that instance), and there also might be options for biodiversity enhancement of any new artificial infrastructure. But again, one of the specialists in the environment team would be better placed to advise on potential biodiversity interventions.	
NRW - Marine – Lucie Haines	05/08/20	Updated Response [20/08/2020]: Many thanks for highlighting the additional information that has been provided to us for review. Following review of these documents, including the "Ecological Appraisal" for the scheme and the "Design Freeze ECI Review", I can confirm that the initial comments I provided remain unchanged; neither of these documents address our concerns in relation to WFD and we have not been given the opportunity to review of the "OBC Design WFD Assessment" which is referred to in the "Environmental Constraints and Opportunities Record", upon which our initial comments are based. We advise that a WFD Assessment is required for the project in its entirety – including works associated with Phase 1 and 2 of the project, in order to determine if the project is compliant with the Directive. Initial Response [05/08/2020]: Key Issues Both construction and operational phase effects on water quality have been screened out and the document states that "The OBC Design WFD Assessment concluded that with mitigation in place, neither temporary nor operational phase impacts would affect the current status for the various WFD elements or prevent this or any other water body from reaching GEP (or Good Ecological Status)".We have not been consulted on this document however and given the large scale and tidal location of the proposed scheme, we strongly advise the scoping out of water quality aspects is incorrect and that water quality will need to be scoped in for further consideration as part of the detailed WFD Assessment. We strongly advise that all elements of the WFD will need to be scoped in where a pathway for effect arising from the project exists. We advise this is likely to include, but not necessarily limited to, hydromorphology, biology: fish and water quality. Please refer to OGN72 for further information in this regard. Mitigation should not be utilised at the scoping stage to reduce the magnitude of effect; activities where potential pathways for effect on receptors exist should be scoped in for further assessment and then mitigation applied after a detailed assessment of potential effects has been carried out. Detailed Comments	WFD Compliance Assessment completed for all stages of the project. Screening assessment undertaken in the absence of mitigation measures; requisite mitigation considered in formal assessment. Best practice construction techniques (GPP and CIRIA) to protect water quality and biosecurity measures are secured within the EAP. WFD improvements included within WFD Compliance Assessment. All diadromous species included within WFD Assessment.

Consultee	Date	Summary of Response	Action Taken
		The document has correctly identified the Usk transitional WFD water body as being designated as heavily modified; currently failing to achieve its objective of good ecological potential (GEP) due to some of the water body mitigation measures being “not in place”. It should be emphasised that the water body is designated as Heavily Modified for flood protection use and that its mitigation measures relate to this use. We welcome that the project will aim to support the water body mitigation measures. In relation to the information provided in Table 4 on shad; other migratory fish species will need to be scoped into the assessment of potential effects and considered in the WFD assessment; currently only shad are mentioned. While the information provided in Table 4 of the WFD assessment in relation to preliminary mitigation is helpful, mitigation should not be utilised at the scoping stage to reduce the magnitude of effect; activities where potential pathways for effect on receptors exist should be scoped in for further assessment and then mitigation applied after a detailed assessment of potential effects has been carried out. Please refer to NRW’s internal guidance document, OGN72, for guidance on how to carry out a WFD assessment. We welcome inclusion of GPP5 to manage works in or near water and a Biosecurity Risk Assessment for appropriate management to reduce the risk of introduction and spread of INNS. Both construction and operational phase effects on water quality have been screened out and the document states that “The OBC Design WFD Assessment concluded that with mitigation in place, neither temporary nor operational phase impacts would affect the current status for the various WFD elements or prevent this or any other water body from reaching GEP (or Good Ecological Status)”. This approach to scoping must be revisited. I have not been provided with the OBC Design WFD Assessment for review as part of this or any other consultation on this project so I cannot concur I agree with this conclusion and that any potential effects of the project on water quality can be scoped out. I strongly advise this is not likely to be the case however, given the scale of the scheme and the nature of the works, I would consider this likely to require potential effects to water quality to be scoped in and a WFD Assessment to be provided in support of the proposed works, which will need to be reviewed and agreed prior to commencement of the works. We welcome the suggestion that the project will endeavour to incorporate enhancements into its design and welcome further discussion in this regard.	
NRW - Health and Wellbeing – Bronia Bendall	05/08/20	We suggest that it would be useful to add population, demographical data on the area – there is a little bit of this when talking about the size of the population but no detail on demographics. Having more detail on the breakdown of the demographics, will help to frame the impacts on certain populations when considering options and may provide more support towards one of the alternatives. Data could include the age range of the local community, information on activity levels, service access and or levels of socioeconomic status.	Health Impact Assessment (NRW, 2021) included.

Consultee	Date	Summary of Response	Action Taken
		Throughout the document, where health is mentioned – reference should be given to the wider determinants of health where possible. Impacts on health should also be considered as positive, negative and/or an unintended consequence. These impacts should then include a degree of scale (i.e. minimal – significant) and a time frame of how long they are expected to last, e.g. short-term disruption in construction (e.g. noise, dust, etc.) will make way for longer lasting impacts if new infrastructure was brought to the area which brought increased community access, connectivity, physical activity opportunities, etc. We suggest that, in order to gain insight on the impacts to human health of this project and enhanced consideration of the impact to people from the wider community, a Health Impact Assessment (HIA) be carried out.	
NRW - Marine Geomorphology and Physical Processes – Emmer Litt	06/08/20	Updated Response [02/09/20]: The project falls within 'NEW5' policy unit. No coastal squeeze impacts are identified for the Severn or Usk SACs and therefore a coastal squeeze impact assessment is not needed for this scheme. Initial Response [06/08/20]: Key Issues 1. No direct footprint losses have been calculated although it is not clear at present whether this will be a factor. If direct losses are identified, further discussion will be needed. Detailed comments 3. We would recommend further detail is provided on the construction methodology, at present it is difficult to understand if further geomorphological or physical process assessment will be needed. There is little baseline characterisation on the River Usk/Severn to understand how this project may interact with the physical characteristics. 4. Concern is raised around using an aggregate based solution as a temporary track, further information will be required. A stone track sounds large, industrious and potentially hard to ensure all is removed. The stone could become trampled into the saltmarsh and buried, depending on the size fraction, and at the very least cause depressions potentially in a linear feature. The removal method would need detailing as well. Bog mats are recommended alongside a slow driving speed. 5. Further information is required about re-seeding of the SSSI as mentioned on page 24. 6. Appendix B Enhancement Opportunities It is unclear what is meant by line 13 on geoengineering: Bioengineering techniques to promote further colonisation of erosional features / mudflats: reedbed creation, coir roll / pallet installation, etc. Need to confirm constructability, resilience (i.e. flood may wash structure away) and need versus SAC management. All the above mentioned measures will need further design and consideration.	Clarified that proposals act to Hold the Line (HTL) in accordance with the SMP2. No change in physical characteristics. Defence level formally retreats in the southern end of the Stephenson Street Embankment section to new raised road alignment. Temporary access track at the toe of the Stephenson Street Embankment to enable sheet pile installation no longer required following specification of hydraulic piling. No reseeding within the SSSI is proposed. Seed mix on riverside bank of the bund agreed with NRW. Bioengineering techniques to encourage saltmarsh expansion no longer considered viable.

Consultee	Date	Summary of Response	Action Taken
NRW - Marine Ornithology – Nia Stephens	08/09/20	Having read the preliminary HRA I can confirm that it won't be necessary to undertake bird counts or any further survey work and that the existing survey data and information from the desk study will be sufficient for use in the HRA.	No action required.
NRW - Geoscience – Matthew Llewhellin	10/08/20	We have reviewed the 'soil' and 'water' sections of the Arup ECOR report and would broadly agree with the constraints identified and the proposed approach of undertaking an appropriate desk study and ground investigation which Geoscience can review as and when submitted. We note the reference to potentially re-using material arisings onsite and would advise the following - Informative/ advice to applicant: The treatment and disposal of contaminated soils and groundwater is regulated by waste legislation and requires an environmental permit. Excavated materials that are recovered via a treatment operation can be re-used on-site under the CL:AIRE Definition of Waste: Development Industry Code of Practice. This voluntary Code of Practice provides a framework for determining whether or not excavated material arising from site during remediation and/or land development works are waste. Developers should ensure that all contaminated materials are adequately characterized both chemically and physically, and that the permitting status of any proposed on-site operations are clear. If in doubt, Natural Resources Wales should be contacted for advice at an early stage to avoid any delays.	Clarification that the CL:AIRE Definition of Waste: Development Industry Code of Practice will be implemented where re-use is proposed.
NRW - Newport, Blaenau Gwent and Caerphilly Environment Team – Nick Hudson, Tamarind Falk and Richard Sheppard	11/08/20	Updated Response [10/09/20] – Nick Hudson: The updated method using a Giken push piler as set out in Design Freeze ECI Review appears to be a preferable option, which on the current information I support as the preferred approach on the basis that it removes the need for significant operations within the SSSI. Re the HRA, if this method is the intended approach and can be secured it appears reasonable to base the assessment on this. However, if unavailable re-assessment will be necessary. Initial Responses [11/08/20]: Conservation Officer (Nick Hudson) - Protected Sites – Severn Estuary/Mor Hafren SPA, Severn Estuary/Mor Hafren Ramsar, Severn Estuary/ Mor Hafren SAC, River Usk / Afon Wysg SAC, River Usk (Lower Usk)/Afon Wysg (Wysg Isaf) SSSI. I support the comments made by the Specialist Advisor - Marine and Coastal Physical Processes, with regard to matters relevant to the above European Protected Sites and the River Usk SSSI. The project has stated that the works have to be carried out on the seaward side of the seawall, within the SSSI/SAC. The saltmarsh feature of the SSSI is present within the proposed footprint of the works. Two options of construction access are discussed within the ECOR document - bog mats (temporary ground covering) or a temporary stone track.	Giken hydraulic piling method secured within design and specified within the EAP. An access track will no longer be required at the riverside toe or the Stephenson Street Embankment. Minor encroachment onto the riverside of the embankment were discussed and agreed as acceptable with the Environment Team. No saltmarsh habitat would be affected by the proposed amenity enhancement

Consultee	Date	Summary of Response	Action Taken
		The use of bog mats to carry out the works would likely lead to some low-level disturbance of the saltmarsh in the handling, moving and storage of these items. It is likely that due to the nature of bog matting it would be left in situ for relatively short time periods. This is the preferred option. The other option is a temporary stone track. No information has been supplied regarding the type and construction of track, the method of installation, any soil handling/storage method, material/s to be used, the removal and restoration, or overall working footprint. Whilst it is not certain that this option would cause long-term damage to the saltmarsh feature, it is also not clear what the outcomes would be. This option is carries a higher risk of detrimental impact on the SSSI due to the uncertainties involved and is not recommended (unless information/evidence can reasonably demonstrate that disturbance levels can be kept within acceptable limits). Environment Officer (Tamarind Falk) - Welcome the FAS ECOR Part A document (p. 25) states: 'Pollution Incident – EAP to include best practice; e.g. GPP5, CIRIA, etc. Any further mitigation required during construction to be controlled through EAP'. Support Jeremy Tanner's comment on WFD and back up his comment. Fisheries Officer (Richard Sheppard) - The project needs to comply with The Eels (England and Wales) Regulations 2009.	Best practice pollution prevention secured within EAP. Clarified that no waterbodies will be impacted by the proposals during construction or operation that could prevent compliance with the Eels Regulations.
NRW - Marine Water Quality - Eleanor Howlett	17/08/20	What the rationale is for comparing contaminants to freshwater values when the River Usk water body is a transitional one (see the Soil row of Table 3). The Ecological Appraisal shows the site is quite close to the mouth of the Usk. Has the salinity been examined to ensure it is freshwater? I would expect saline quality standards to be used if the site proves to be saline. We need to ensure the correct standards are used to protect the biota in the estuary of the Usk. The Water row of Table 3 does not mention what the risk of suspended sediment release is – this should be considered in the WFD compliance assessment. I agree that mitigation measures (section 5.1 of the Ecological Appraisal, paragraphs 9-10) should be considered at Appropriate Assessment stage. Note that the WFD compliance assessment should also consider these at the Detailed Assessment stage, rather than screening out earlier.	WFD Compliance Assessment reviewed and updated accordingly.
NRW - Protected Species - Annina Kortesniemi	20/08/20	We have reviewed the following reports by Arup: • Stephenson Street Embankment: Flood Alleviation Scheme - Environmental Constraints and Opportunities Record, July 2020 • Stephenson Street Embankment Ecological Appraisal Rev A, 8 October 2018 • Stephenson Street Embankment Preliminary Ecological Appraisal Addendum (Railway Wall) V2, 2 March 2020 • Stephenson Street Embankment Preliminary Ecological Appraisal Addendum - Transporter Bridge, 12 September 2019	ECOR and Ecological Appraisal Report updated with requested specificity.

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		• Stephenson Street Embankment Preliminary Ecological Appraisal Addendum (Nash), 12 September 2019 We welcome the fact that biodiversity and nature conservation have been scoped in during both construction and operation. We note the Summary of baseline section of Table 3 – Baseline: challenges and opportunities within the ECOR states that species-specific surveys confirmed the likely absence of protected species (otter, badger, water vole, reptiles and great-crested newts) from the study area and refers to the Preliminary Ecological Appraisal for details. However, the same section indicates that "Subsequent camera traps located within the sludge lagoon near the Railway Wall site did record otter and water vole; however, no signs of presence or resting / breeding areas were identified near the proposed works areas." We would wish to see further robust justification for any assumption of absence of otter and water vole from the area of works, especially where habitat suitable for the species is to be lost to or fragmented by the proposals, and where this loss or disconnect is proposed to go unmitigated. It is somewhat unclear from the information provided whether the initial recommendations for further survey of pond 4, in which great crested newt eDNA was found, or pond 3, which is connected to pond 4, were adhered to. The initial Ecological Appraisal document dated 8 October 2018 states that "Six GCN population surveys will be carried out on waterbody 4 between mid-March and mid-June 2019, with at least three surveys being undertaken between mid-April and mid-May. Four surveys will be carried out on waterbody 3 and associated ditch, with two between mid-March and mid-June 2019. If newts are recorded within the first four surveys, an additional two surveys will be carried out to assess the population size as per the method above." Preliminary Ecological Appraisal Addendum (Railway Wall) dated 2 March 2020 instead states that the survey effort of the above ponds "…comprised four surveys between mid-March and mid-June, with at least two surveys being between mid-March and mid-May 2019." Discounting the discrepancy between the recommended and eventual survey effort, no great crested newts were found during the presence/ absence surveys in any of the water bodies studied. The reports thus conclude likely absence of GCN in the ponds studied, as well as the wider site. However, no attempt is made to explain why eDNA was found to be present in pond 4 during initial sampling. We would therefore wish to see justification for ruling out GCN presence altogether, despite the eDNA evidence. In addition, we would wish to see a robust mitigation scheme to avoid permanent habitat fragmentation by the new flood defence structures for all protected species potentially present and affected (otters, GCN, water voles), as well as avoiding light spill on commuting/ foraging habitat during construction, which could affect all the above species, plus bats. Diurnal and seasonal timing of all operations must be clearly stipulated, as well as the need for any European Protected Species licences required for the works to	

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		proceed legally. Following justification of any assumption of absence of protected species from the area of works, the recommendations as presented in the Ecological Appraisal, the subsequent addenda, and the Preliminary mitigation column of Table 4 - Environmental topics scoped-in /-out of Environmental Assessment within the ECOR document, would be likely to form a suitable basis for a mitigation scheme for the species likely to be affected. Finally, we note and support the recommendation of updated walkover survey, should the start of the works be significantly delayed from the timescale proposed, to ensure the baseline conditions of the site have not changed. Should that delay be significant, we advise that further targeted protected species survey may become necessary.	
NRW - Development and Flood Risk – Gary Purnell	27/08/20	I have considered the details and they have included reference to the FCA and FRAP from a flood risk perspective, so I'm happy with the content of the ECOR for this scheme.	No action required.
RSPB Wales	23/07/20	No comment.	N/A
Newport City Council: Regeneration Investment and Housing - Principal Planning Officer: Geraint N. Roberts	30 July 2020	I am in receipt of the above document which I have taken to be a request for a 'Scoping Opinion' by the Council on an EIA development. You will note that the application has been screened for EIA purposes under application 20/0305. I enclose that scoping opinion for ease of reference. The screening concluded that the development was not EIA development for the purposes of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. This was consistent with similar decisions in relation to other proposed flood alleviation schemes in this location. The document that has now been submitted to the Council for its opinion seems to acknowledge significant environmental effects being caused by the scheme in relation to the following topic areas: 1. Population & Human Health Construction and Operation 2. Bio-diversity & Nature Conservation Construction and Operation 3. Soil Construction and Operation 4. Cultural Heritage Construction 5. Landscape Construction and Operation 6. Cumulative Effects Operation The following are scoped out entirely i.e. no significant effects are anticipated: 1. Ecosystem Services 2. Land 3. Water	Clarification provided to NCC that the ECOR Part A is not request for a Scoping Opinion. Clarification of NRW ECOR process, potential and residual effects clarified in the non-statutory ECOR. This document is not intended to be an Environmental Statement and assesses non-significant environmental effects.

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		4. Air 5. Climate 6. Material Assets The Council's EIA screening identified the following topic areas as matters of concern: • Construction Noise and Vibration (Bio-diversity & Nature Conservation) • Contamination mobilisation (Soils / Bio-diversity & Nature Conservation • Risks to River Usk SAC / SSSI (Bio-diversity & Nature Conservation) via disturbance to key species, habitat losses (scrub clearance) and risk of mobilisation of sediments and chemical contaminants. • Landscape and Visual amenity via the construction of hard engineered forms adjacent to the river which has high amenity value (All Wales Coastal Path) and generalised recreation (Coronation Park) and general visibility to the urban population. • Risks to buried archaeology (Cultural heritage) • Risks to Listed Buildings – the Transporter Bridge (Cultural heritage) • Impact on flood regime (Water) The Council would anticipate these topics being addressed in any Environmental Statement that may be submitted with an application for this development. I would note that the covering letter submitted with the request for a screening opinion concluded the following in relation to the proposed development: Consequently, no significant environmental effects are anticipated from the proposed flood alleviation scheme. This appears to be in marked contrast to the document recently submitted for a scoping comment which states: The Environmental Assessment will identify any likely significant environmental impacts (both positive and negative) of the proposed scheme and report these within Part B of this document at a later date. At this point it appears that CNC/NRW are acknowledging that the proposed scheme will have significant environmental effects and is therefore EIA development that must be accompanied by an Environmental Statement that meets all the relevant statutory requirements for such a document. If any application that is submitted to us is accompanied by an ES then the Council will register and process it as an EIA development with the relevant publicity and timescales for determination being applied.	
South Wales Fire and Rescue Service - Station Manager: Tony Jackson	11/08/20	I have coordinated a response to the proposals on behalf of South Wales Fire & Rescue Service (SWFRS) in consultation with the Group Manager and Station Commanders representing the Fire & Rescue Stations in the Newport area.	Access ramp improved to retain access to the River Usk for emergency response. Access keys will be made

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		Firstly, it is very pleasing to see significant investment in flood protection infrastructure to contribute to protecting the communities of Newport for the future. Secondly, is this an opportunity to create access to the river Usk to maximise the effectiveness of the emergency services response to rescues involving persons in the water. SWFRS main points – • Ensure that emergency services have access keys to any NRW barriers that are put in place – as per other locations along the coast • The proposal of a new highway – are there any requirements for hydrants or access to water sources for any buildings along the proposed route? • Emergency vehicle access to Sea wall area and rail infrastructure maintained/improved. • Looking at the proposals and the plan of works, there could be a potential for a slipway where the work is carried out north of the transporter bridge. This may attract an additional cost for the works but would significantly contribute to improved river access for emergency services rescue boats. Currently the access is very limited with long travel distances from the emergency service stations.	available to emergency services.
Cadw - Protection and Policy - Jenna Arnold	10/08/20	Cadw, as the Welsh Government's historic environment service, has assessed the characteristics of this proposed development and its location within the historic environment. In particular, the likely impact on designated or registered historic assets of national importance. In assessing if the likely impact of the development is significant Cadw has considered the extent to which the proposals affect those nationally important historic assets that form the historic environment, including scheduled ancient monuments, listed buildings, registered historic parks, gardens and landscapes. These views are provided without prejudice to the Welsh Government's consideration of the matter, should it come before it formally for determination. The total length of the flood defence improvement works proposed, as per the above, is approximately 1,600m. The proposed working area is currently considered to be circa 2.5 hectares. An initial archaeological desk-based assessment has been prepared for the project by Archaeology Wales. A copy of this report has not been sent to Cadw and there are concerns that it may not highlight fully the potential impact of the discovery of a previously unrecorded internationally/nationally important heritage asset, such as the Newport Medieval Ship that was found on the bank of the River Usk some 1.3km from the proposed development. Such a discovery would lead to considerable costs to the project not only in funding the required archaeological investigations but also in delays to the construction programme.	Clarification that all ground investigation and excavation works >1m depth has been and will be conducted under an archaeological watching brief. Archaeological DBA shared with Cadw and updated accordingly. The impact of the proposed works on the setting of the Grade I Listed Newport Transporter Bridge have been assessed by a competent and qualified expert in accordance with the methodology outlined in the Welsh Government's best-practice guidance Setting

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		It is therefore recommended that not only should all ground investigations being carried out for the project to be the subject of archaeological monitoring, but that all core samples should also be inspected by an archaeologist. It may also be necessary for archaeological evaluation pits or boreholes specifically targeted at potential archaeological horizons to be carried out as part of the project, especially in the area close to the end of Broad Quay Road where the shape of the current flood defences suggest that a historic pill, which may have been a site for mooring boats could be located. The ECOR correctly identifies that the proposed works could have an impact on the setting of the grade I listed Newport Transporter Bridge; therefore the impact of any proposed works on the setting of the bridge should be assessed by a competent and qualified expert in accordance with the methodology outlined in the Welsh Government's best-practice guidance Setting of Historic Assets in Wales (2017).	of Historic Assets in Wales (2017). Unknown archaeology and setting impacts discussed with Cadw and GGAT; both issue updated in the ECOR.
Newport City Council - Tree Officer: Shona Carle	27/07/20	Can you please advise me on the number of Council owned trees/hedges (and their locations) that will be affected by the proposals i.e. that need to be felled/removed and the compensation /mitigation proposed.	Details of unavoidable tree removals and replacement planting summarised in the ECOR and detailed in the Planning Drawings within the Planning Application Consultation Pack.
Stakeholder - Steve Preddy	08/09/20	I'm commenting from two perspectives. First, I co-ordinate a programme of work in Newport involving various organisations and individual volunteers on removal of litter and other waste from the environment. The stretch of the River Usk adjacent to the proposed scheme is one of the areas in the city where volumes of waste buildup are highest, as it is one of the stretches of riverbank where at high tide, currents deposit large amounts of waste which have been circulating in the river system onto the banks. The topography of the banks facilitates the collection of deposited material as there are depressions at the landward side of the site, just below the coastal path: waste concentrates here following the very highest tides, and is not washed back into the river again. Also, because there are many access points from the coastal path, volunteer groups can easily collect the material. I would be interested in understanding whether the scheme will propose any changes to these two features of the site (the shallow depressions which collect the waste, and access down onto these to enable volunteers to collect it). Ideally the answer would be no - if the depressions are removed this could increase the likelihood of waste re-entering the river, but if access for removal is difficult, it will build up and become an unsightly aspect of the site for coast path users.	Access to enable refuse collection and removal of debris deposited during high tides will be maintained. Various waste bins will be provided adjacent to the proposed amenity areas; as detailed in the Planning Drawings within the Planning Application Consultation Pack. Biodiversity, including Cetti's warbler, were recorded during the Extended Phase 1 Habitat Surveys and species-specific surveys undertaken to establish the baseline. All receptors are assessed accordingly within the

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		Second, as an individual 'recreational' user of the site with a background in ecology, I'd be interested to know about some specific biodiversity conservation aspects of the scheme. The current coast path is flanked by species-rich scrub on both sides, has some floristically diverse patches of grassland / rank vegetation between the scrub patches, and has areas of bare soil on some of the steep banks, all three of which habitats support populations of invertebrates, which, given the proximity to various coastal/wetland habitats, may include species of conservation value. In addition the scrub is used by nesting birds (there are three territories of Cetti's Warbler, which is on Schedule 1 of the Wildlife & Countryside Act, and so will require special consideration). Could you let me know if any invertebrate surveys and breeding bird territory mapping have been carried out? Could you also tell me which of the features of ecological interest along the route of the proposed defence will be retained, and if any mitigation / compensation is proposed for any features being lost?	supporting Ecological Appraisal Report. Mitigation is provided within the EAP. Include stakeholder in the pre-app consultation direct email.

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