

NEWTON STEWART FLOOD PROTECTION SCHEME

EIA Screening Report

Revised January 2023

(Originally Issued October 2018)



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Sweco
 2nd Floor Quay 2
 139 Fountainbridge
 Edinburgh
 EH3 9QG

+44 (0)131 550 6300
info@sweco.co.uk
www.sweco.co.uk

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Registered Office: Sweco UK Limited, Grove House, Mansion Gate Drive, Leeds, LS7 4DN. Company Registration No 02888385

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EIA SCREENING UPDATE – EXECUTIVE SUMMARY

December 2018

An EIA Screening Report was prepared for the proposed Newton Stewart Flood Protection Scheme by Sweco on behalf of DGC. The report concluded that the proposed scheme was considered to be low impact and would generate no significant adverse impacts through its development or operation. It was considered that the development did not qualify as requiring an EIA.

In compliance with the requirements of Regulation 5 of The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Amendment Regulations 2017, the EIA Screening Request was submitted to the following consultees on the 11th of December 2018.

- SEPA
- SNH
- Scottish Water
- Galloway Fisheries Trust
- DGC Planning Service (submitted on the 12th of December)

The Flood Risk Management Regulations 2017, state that the consultees must give a screening opinion within 4 weeks of either the date of receipt of the request or the date by which further information is provided (the consultees can request further information if they feel they have not been provided with sufficient information to give their opinion and at any time during the 4 week period).

EIA Screening Opinions Received

The following opinions and comments were received following the report being submitted in December 2018.

Galloway Fisheries Trust

An Opinion and advice was received from the Galloway Fisheries Trust by email on 12th December 2018 which stated that *“Therefore, if the above advice is adhered to and included in the development of the Construction Environmental Management Plan, GFT do not believe an EIA would be required for the construction of Newton Stewarts Flood Protection Scheme”*.

SNH

A response and advice was received from SNH by email dated 19th December 2018. The response provided advice in reference to requirements for the CEMP and detailed design stage to address the potential impacts on species and supporting habitat; relating works to avoid sensitive periods and locations; mitigation measures and European Protected Species licensing and confirmed that the report correctly identifies the potential environmental and ecological impacts and receptors from the construction and operation of the flood protection scheme.

SEPA

A response and advice was received from SEPA by email dated 22nd January 2019. The response confirmed that SEPA are supportive in principle of the proposed scheme and have no objection on flood risk grounds. They provided advice in reference to works in the water environment and the regulatory provision of a CEMP. The response also confirmed *“We have considered the information provided and can advise that whether or not an EIA is required we will require sufficient information to be prepared and presented alongside the scheme to describe the effects of the works on flood risk and the water environment”*.

Dumfries & Galloway Council (DGC) Planning Service

A Screening Opinion (Reference 18/1913/SCR) was received from DGC Planning Service by email dated 29th January 2019. The Opinion confirmed that the proposed development was considered unlikely to have significant impacts on the environment and will therefore not require EIA.

Scottish Water

To date, a response is still awaited from Scottish Water.

In summary all responses received were generally supportive of the proposal and agreed that EIA was not required. They did however request that further information would be required to support the Flood Order submission. This included suitable mitigation that was to be included within the CEMP. The CEMP was to be drafted to provide the consultees with sufficient information on the mitigation that would be applied to reduce any effects with particular focus on the water environment during the construction phase.

January 2023 (update)

The project is now looking to commence construction in 2025 and with the time that has passed since the original EIA screening, it was agreed with Dumfries and Galloway Council that this document would be revisited to confirm if the previous conclusions would still stand. Key considerations were whether there have been any significant changes to policy, the proposed scheme design including the proposed erosion protection or the site baseline conditions (with specific considerations regarding biodiversity).

The report has been reviewed and the following conclusions have been made.

Policy and Regulations

There have been no significant updates to the relevant policies or regulations that apply to this proposed scheme. The scheme would still be considered with regards to the 2017 Flood Regulations.

The one change that came in just before the EIA Screening was submitted was in relation to the requirement from SEPA that all large new construction projects from the 1st of September 2018 would require a licence and a Pollution Prevention

plan. Further consultation should be undertaken with SEPA about the requirements to determine what is needed for the proposed scheme.

Design

The design has been developed since the previous EIA Screening was submitted but is not significant changed. The previous EIA Screening had assumed that in river works would be required and had assessed the potential impacts from this. The design process has confirmed that this assumption was correct so no significant changes there. The EIA Screening had recommended suitable mitigation for in river working, this mitigation has been reviewed and would still be applicable and required.

Previous Assessment

The EIA screening considered the following topics Flood Risk, Geology, Ecology, Cultural Heritage, Public Access, recreation and Amenity and Traffic, Air Quality and noise. A review of each and a summary is provided below in Table 1.

Table 1: EIA Screening Conclusions 2018 vs 2023

Topic	2018 Conclusion	2023 Update
Flood Risk	<p>The Water Quality has improved in the River Cree since 2018 and is now classed as Good when using SEPAs water classification tool¹. The anticipated flood risk in the town has remained generally the same. Previous assessment concluded that with appropriate design and mitigation measures incorporated into the proposed scheme, no further assessments are considered necessary.</p>	<p>No significant changes to the baseline environmental conditions. Further information on hydrology and flood risk will be presented in support of the proposed flood order documentation, no further assessment is required.</p>
Geology and Ground Conditions	<p>A factual geo-environmental desk study was prepared by Sweco which assessed the short list of options for the proposed flood protection scheme. An intrusive ground investigation was undertaken to assess the ground conditions as part of the outline design process, which was ongoing when the previous EIA Screening was submitted. It was recommended that a copy of the Ground Investigation Interpretative Report be included with the flood order documentation.</p> <p>The assessments concluded that no further assessments were considered necessary for geology or ground conditions.</p>	<p>No significant changes to the baseline environmental conditions. Suggested mitigation has been considered as part of the overall design and the Ground Investigation Interpretative Report has been completed and will be issued with the Flood Order Documents, no further assessment is required.</p>
Ecology and Nature Conservation	<p>An initial desk based assessment of the ecological conditions and possible constraints to the scheme development was undertaken by Sweco.</p>	<p>A Preliminary Ecology Appraisal was undertaken in September 2022. This appraisal identified and classified the habitats present and assessed ecological constraints to the project.</p>

¹ <https://www.sepa.org.uk/data-visualisation/water-classification-hub>

Topic	2018 Conclusion	2023 Update
	<p>The initial assessment concluded that the potential impact on ecology did not require further assessment, however it did recommend that a Phase 1 Habitat Survey was undertaken to inform the design and the CEMP.</p>	<p>The preliminary ecological appraisal found that the Site has potential to support the following protected species/species groups: nesting birds, badger, bats, great crested newt, otter, water vole, red squirrel and reptiles. Additionally, the invasive species Himalayan balsam, Japanese knotweed and montbretia were recorded on the banks of the River Cree.</p> <p>The proposed scheme overlaps the Lower River Cree Site of Special Scientific Interest which has the potential to be impacted by the proposed works. It is therefore a mandatory requirement that a SSSI assent has been approved by NatureScot prior to the commencement of works. This will be progressed following the submission of the Flood Order.</p> <p>The PEA report has made a number of recommendations and set out mitigation measures that will be included in the CEMP to minimise any impact upon Biodiversity. It also provides recommendations for any further surveys required and protected species licensing needed. The report recommends that further surveys should be undertaken in 2023 including a water vole survey along the banks of the River Cree and a bat emergence survey on the B7079 bridge which crosses the River Cree. The PEA and the CEMP will be submitted with the Flood Order documents to support the wider application.</p> <p>With the PEA completed and its recommendations being taken on board, no further assessment is required.</p>
Cultural Heritage	<p>The assessment identified any designated assets in the local area, none of which were going to be adversely affected by the proposed scheme.</p> <p>With appropriate design and mitigation measures incorporated into the proposed scheme design, no further cultural heritage assessments were considered necessary. It recommended that appropriate construction methods and working practices be prepared as part of the construction work and CEMP.</p>	<p>There are no significant changes to the baseline conditions or the proposed design that would increase impacts upon cultural heritage, no further assessment required.</p>
Public Access, recreation and Amenity	<p>No significant impacts were predicted with regards to public access, recreation and amenity. From a desk based review, there doesn't appear to have been any significant changes with regards to the existing cycle ways, core paths and amenity areas. The key change is that the assessment considered the anticipated impacts from the replacement Sparling Bridge which was still to be built. This has now been constructed and is operational. At the time of writing the previous assessment, the plan was for the replacement Sparling Bridge to have defences built into the new ramps and piers as necessary.</p>	<p>There are no significant changes to the baseline conditions as the replacement Sparling Bridge was considered in the previous assessment. There are no proposed changes to the design that would increase impacts upon public access, recreation and amenity, no further assessment required.</p>

Conclusions

A review of the EIA Screening has not identified any significant changes to the policy/regulations or the proposed scheme design since the previous submission in December 2018. It is therefore considered that the previous assessment conclusions still stand. For ecology, the recently completed PEA has provided the required up to date ecological survey data and mitigation to meet current regulations.

In accordance with the previous consultation responses, the Flood Order will be submitted with the following supporting documents

- This EIA Screening Report (v3)
- The CEMP (including all mitigation)
- The PEA (that specifies the ecological mitigation required to meet current regulations)
- The Ground Investigation Interpretative Report (that was prepared after the previous EIA Screening Report was issued).

The EIA Screening Report below in Chapters 1 – 10 can be read for further information on the scheme and the full previous environmental assessments undertaken for each topic. Please note that the remainder of the document has not been amended.

1 INTRODUCTION

1.1 Purpose

The purpose of this document is to request a formal Screening Opinion from Dumfries and Galloway Council (DGC) Planning Authority, SEPA, SNH, Scottish Water and the Galloway Fisheries Trust on whether an Environmental Impact Assessment (EIA) is required for the proposed flood protection scheme under the following regulation:

- *Regulation 4 (4) of The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Amendment Regulations 2017*

1.2 Background

Sweco were appointed by DGC in March 2017 to appraise and design a flood protection scheme for the town of Newton Stewart and the neighbouring village of Minnigaff.

Newton Stewart has been identified as a Potentially Vulnerable Area in the Solway Local Plan District - Local Flood Risk Management Plan² with an action for DGC to reduce the risk of river flooding to properties in Newton Stewart from the River Cree and the Penkiln Burn.

Since 2001, DGC have recorded eleven fluvial flood incidents from the River Cree and the Penkiln Burn. Newton Stewart experienced severe flooding in 2012 and 2015, which affected road infrastructure and a number of residential and commercial properties. The 2015 flow was the highest ever recorded flow on the River Cree at Newton Stewart.

1.3 Approach

This EIA Screening Report provides a description of the nature and purpose of the proposed flood protection scheme and has considered the possible effects it could have upon the environment. The report also describes suitable mitigation, that would be implemented to reduce or minimise predicted impacts.

The environmental issues considered include:

- Flood Risk and Water Quality;
- Geology and Ground Conditions;
- Ecology and Nature Conservation;
- Cultural Heritage;
- Public Access, Recreation and Amenity;
- Traffic, Air Quality and Noise; and

² Flood Risk Management (Scotland) Act 2009 Solway Local Plan District - Local Flood Risk Management Plan Published on 22 June 2016 by Dumfries and Galloway Council (Lead Local Authority for the Solway Local Plan District).

- Construction Environmental Assessment.

The study area for each assessment includes any assets within and adjacent to the proposed flood protection scheme to a maximum of 2km from the proposed scheme extents.

Flood Regulations

This EIA Screening Report has been prepared in accordance with Regulation 4 and Schedule 1 of the 2017 Flood Regulations³ (herein after referred to as 'The Flood Regs').

Pre-notice requirements

(<http://www.legislation.gov.uk/ssi/2017/112/regulation/3/made>)

4. – (1) *Before notice is given in relation to a proposed scheme by a local authority under paragraph 1 of schedule 2 of the Act or, as the case may be, the proposed scheme with modifications under paragraph 7(5) or 9(3) of that schedule, the local authority must —*

(a) *determine, in accordance with paragraphs (2) and (3), whether the proposed scheme or, as the case may be, the modified scheme is required to be subject to an environmental impact assessment;*

(2) *Where any of the scheme operations comprise a project described in Annex I of the Directive, the local authority must determine that the scheme is required to be subject to an environmental impact assessment*

(3) *Where paragraph (2) does not apply and any of the scheme operations comprise a project described in Annex II of the Directive, the local authority must determine whether the scheme is required to be subject to an environmental impact assessment—*

(a) *on the basis of the information compiled under paragraph (4); and*

(b) *taking into account the relevant selection criteria specified in schedule 1.*

Selection criteria

(<http://www.legislation.gov.uk/ssi/2017/112/schedule/1/made>)

(4) *The following information must be compiled by the local authority taking into account, where relevant, the available results of any relevant assessment —*

(a) *a description of the location of the scheme, including a plan sufficient to identify —*

(i) *the site which is the subject of the scheme; and*

(ii) *any land that may be affected by the scheme, or over which access may be required;*

(b) *a description of the scheme, including in particular —*

(i) *a description of the physical characteristics of the scheme and, where relevant, of demolition works; and*

(ii) *a description of the location of the scheme, with particular regard to the environmental sensitivity of geographical areas likely to be affected;*

(c) *a description of the aspects of the environment likely to be significantly affected by the scheme; and*

(d) *a description of any likely significant effects (to the extent of the information available on such effects) of the scheme on the environment resulting from —*

(i) *the expected residues and emissions and the production of waste, where relevant; and*

³ The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Amendment Regulations 2017

(ii) the use of natural resources, in particular soil, land, water and biodiversity.

1.4 Structure of Request

The EIA screening request is supported by a high level environmental assessment of the proposed scheme area and is structured as follows;

Chapter 1 – Introduction
Chapter 2 – The Proposed Flood Protection Scheme
Chapter 3 – Flood Risk and Water Quality
Chapter 4 – Geology and Ground Conditions
Chapter 5 – Ecology and Nature Conservation
Chapter 6 – Cultural Heritage
Chapter 7 – Public Access, Recreation and Amenity
Chapter 8 – Traffic, Air Quality and Noise
Chapter 9 – Construction Environmental Assessment
Chapter 10 – Summary

Supporting figures have been prepared for each of the assessments and are included throughout the document for reference and information purposes.

2 THE PROPOSED FLOOD PROTECTION SCHEME

2.1 Site Location

Newton Stewart is a small town located within Dumfries and Galloway with the neighbouring village of Minnigaff located adjacent to the north-east. The Penkiln Burn flows through Minnigaff where it then joins the River Cree which flows through the town of Newton Stewart.

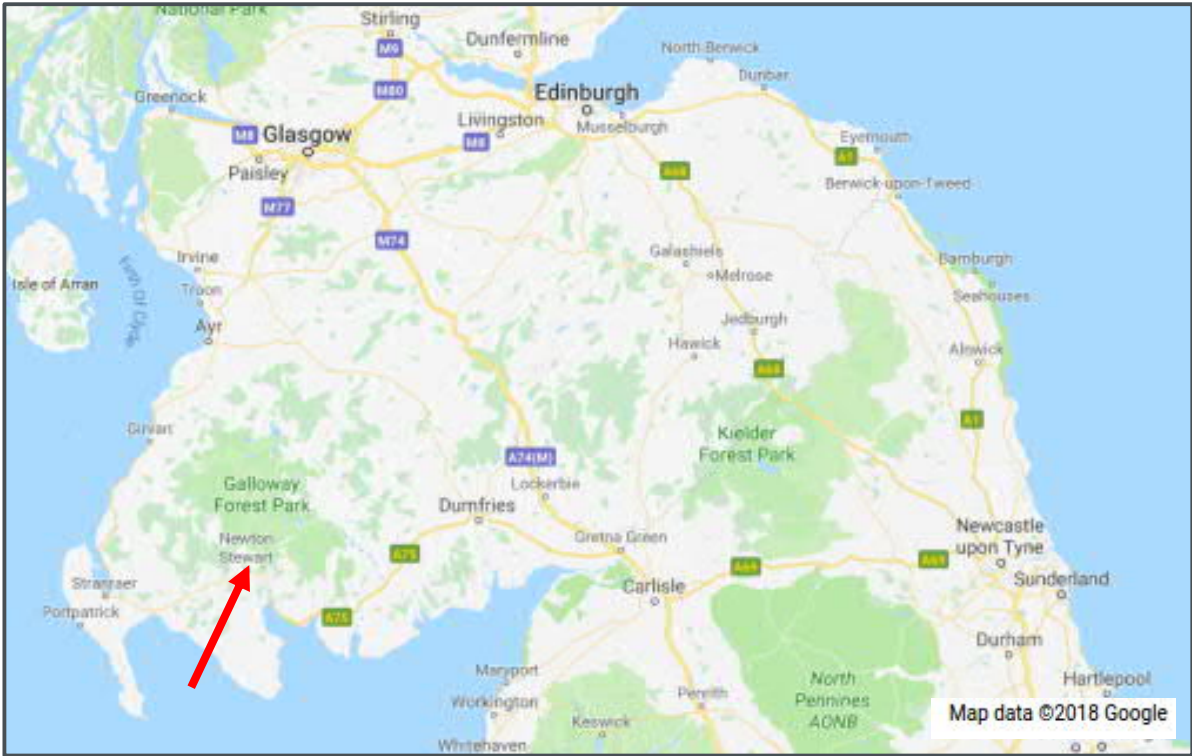


FIGURE 1: SITE LOCATION PLAN

The study area assessed in this Screening Request includes both banks of the River Cree through Newton Stewart and the lower length of the Penkiln Burn flowing through Minnigaff.

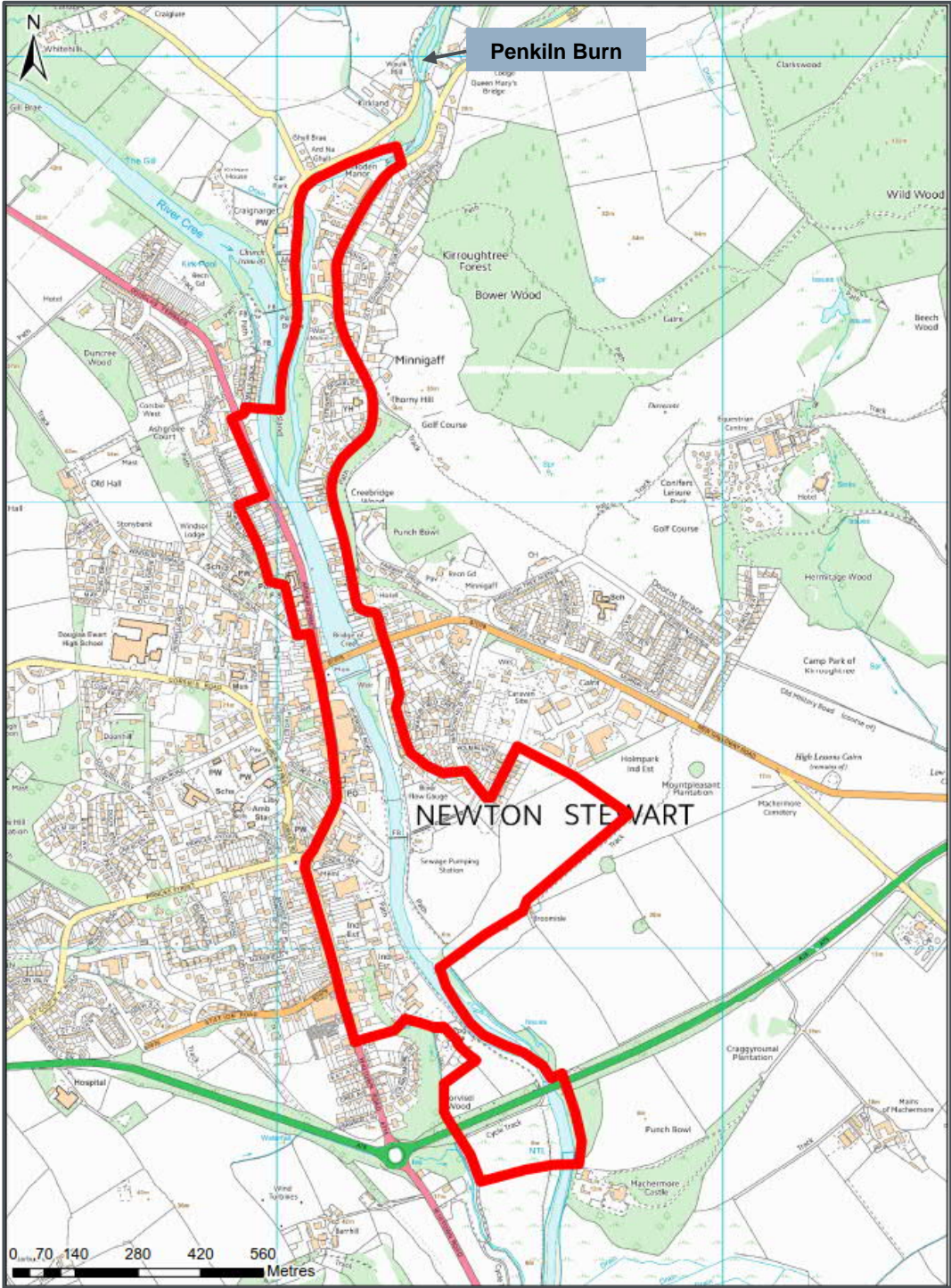


FIGURE 2: REDLINE BOUNDARY

2.2 The Scheme

Previous flooding events from the River Cree and Penkiln Burn has caused widespread damage within Newton Stewart to residential and commercial properties and to local road infrastructure.

Dumfries & Galloway Council (DGC) commissioned an initial modelling exercise to better understand flood risk to the town and this was carried out by Kaya Consulting. The outcome of this exercise was a suggestion that potential flood defences should be considered.

Following the conclusion of this exercise, Sweco was appointed to the project team and carried out an optioneering exercise. This resulted in a total of 24 options being considered and ranked through a multi-criteria analysis. The criteria for ranking were: technical, economic, environment and social.

Rankings were used in the first instance to screen out options which were technically unfeasible; with the remainder of the options taken to a stakeholder consultation where a short-list of 10 were progressed. These remaining options were studied in further detail, with hydraulic modelling, economic appraisal and geo-environmental desk studies having been carried out. The outcomes of these more detailed investigations were discussed with stakeholders and the preferred scheme was selected at this stage.

The preferred scheme is shown on appended **Drawings 118908-SWECO-SK126 and SK127** and includes the following interventions:

1. Construction of direct defences comprising traditional walls and embankments;
2. Potential reprofiling of land to the south of the pumping station and on the west bank around and under the A75; and
3. Constructing a new Sparling Bridge to tie in with the above interventions.

Further detail on each of these interventions is provided in the sub-sections below.

The detailed design of the scheme is still to be completed; however, it is anticipated that the construction process may include the following.

- Excavations - including excavation of natural and made ground materials;
- Temporary works - including installation of sheet piles and formation of cofferdam structures;
- Working areas / construction within or directly adjacent to the watercourse / river channel;
- Creation of compounds / laydown areas, which would include storage of plant and materials subject to COSHH controls;
- On site production and / or importation of concrete for use within construction;
- Handling of structural and / or construction materials, including transportation to working areas.

It is anticipated that construction will last 24 months, with an expected completion date of 2021. The current red line boundary has been designed to include for all construction and operational needs and it is anticipated that the final locations of the construction compounds will be decided by the appointed contractor. They

will be required to locate these in a suitable location that provides efficient access to the working areas, can be secured effectively and will be located out with the flood plain.

The scheme allows for the highest flood level that is predicted to occur in the town in a 200 year period. The refined flood option indicates that the proposed interventions will reduce the risk of flooding within the town during a 1:200 year event.

Appended Drawings 118908-SWECO-SK126 and SK127 show the proposed red line boundary for the scheme and the indicative locations for the proposed direct defences and potential areas identified for re-profiling.

The scheme proposals include the potential reduction in the level of land in the area of the A75 bridge. This land currently has footpaths and scrubland present and as part of the scheme, these footpaths will be restored and maintained for public access. Access will be severed during construction but this disturbance will be sufficiently signposted both north and south of the existing footpaths.

1. Direct Defences – Traditional Walls and Embankments

Direct defences comprising a series of traditional walls and embankments are proposed along the east and west banks of the River Cree and the eastern bank of the Penkiln Burn. The defence locations predominantly follow the river alignment, with no in-channel work proposed. Some of the proposed defence locations are set back from the river side but the majority will be constructed on the river side.

New earthen embankments are to be constructed as new defence interventions which will typically vary in height between 0.5 - 1.2m. The proposed location of the embankments are shown on appended drawings **118908-SWECO-SK126 and SK127**. Embankments are proposed on the eastern bank of the Penkiln Burn and in this area are set back from the river edge to maximise retention of mature trees.

Embankments will be constructed with an impermeable core to prevent water seeping through and will be covered in earth and grassed, to make them fit in with the existing surroundings. An example of a similar embankment construction is shown in **Photo 1**, with a typical cross section provided in **Figure 3**.



PHOTO 1: TYPICAL EXAMPLE OF AN EMBANKMENT

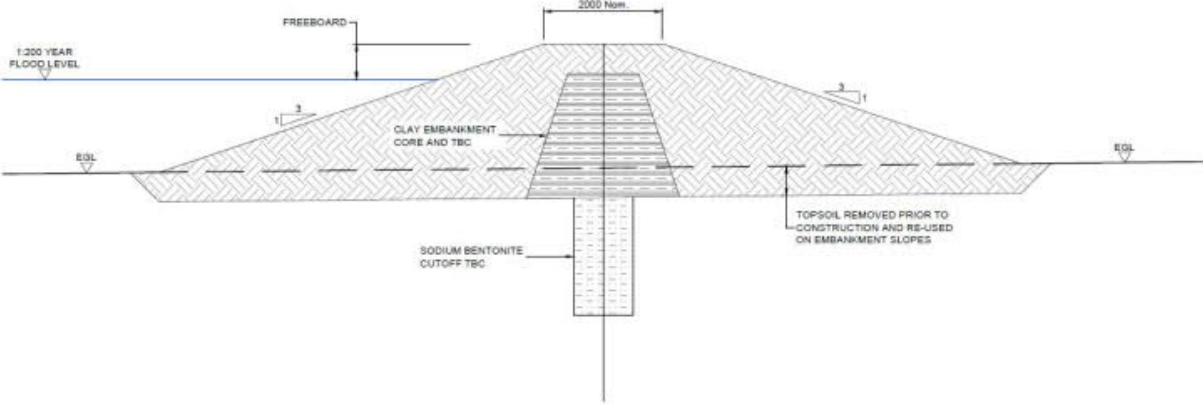


FIGURE 3: TYPICAL EMBANKMENT CONSTRUCTION CROSS SECTION

New walls are proposed for the scheme with existing walls to be raised and/or remediated. **Photo 2** provides a typical example of a brick faced wall structure that could be used.



PHOTO 2: TYPICAL EXAMPLE OF BRICK FACED WALL

The proposed wall heights vary across the scheme but are typically in the range 0.5m to 2.5m. The walls will be constructed with reinforced concrete and typically masonry clad finish.

Some of the wall locations will include top mounted glass and stainless steel flood protection upper panels to permit continued views of the riverside. An example of a glass panel is shown below in **Photo 3**.

The existing flood defence wall on the western bank of the River Cree will be remediated and raised as required (increase in height and extension) with top mounted glass and stainless steel flood protection panels.



PHOTO 3: EXAMPLE OF EXISTING STONE WALL WITH TOP MOUNTED GLASS AND STAINLESS STEEL FLOOD PROTECTION PANELS (RIVER GREAT, KESWICK)

Existing footpaths and access points along the riverside will be maintained by raising the paths as necessary. An example of a stepped access point is shown in **Photo 4**.



PHOTO 4: TYPICAL EXAMPLE OF ACCESS POINT WITHIN A FLOOD WALL

2. Re-profiling

The scheme will also involve potential lowering of land to the south of the pumping station, as shown on **Appended Drawing 118908-SWECO-SK127**. This could provide greater conveyance capacity of the channel during extreme flows. It is also proposed that the scheme will lower the land beneath the A75 bridge so that more flow may pass beneath the bridge and away from the town during a storm event. This should reduce backing-up effect and, hence, reduce peak flood levels within the town.

3. Sparling Bridge

The Sparling Bridge which linked Newton Stewart and Minnigaff was removed in sections following the 2015 flooding event. The bridge acted like a dam during the flood event when debris was washed downstream towards it.

A replacement shared cycleway / footbridge (**Figure 4**) is to be built in conjunction with the proposed flood protection scheme. The new bridge will include defences built into the new ramps and piers as necessary and be located 100m downstream of the former bridge as shown on **Appended Drawing 118908-SWECO-SK127**.

The new footbridge / cycleway will become part of the National Cycle Network (NCN) 73 and will link to the re-aligned existing pedestrian footpath on the eastern bank of the river.

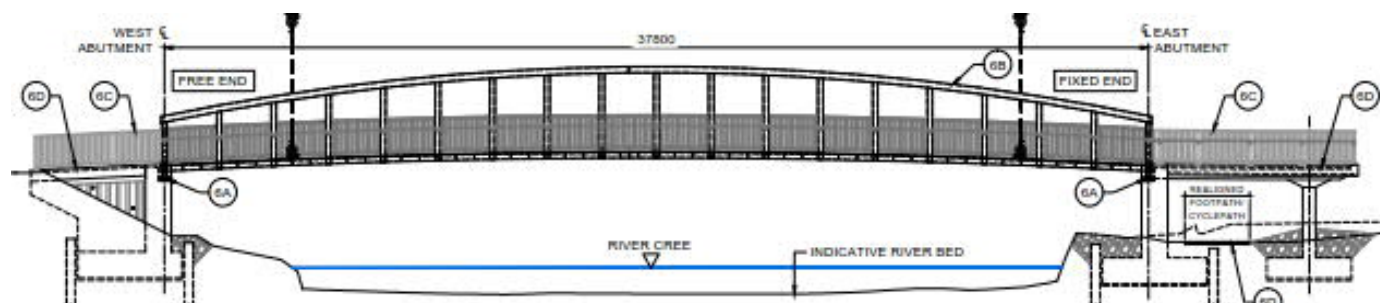


FIGURE 4: PROPOSED SPARLING BRIDGE CROSS SECTION

4. Replacing Gabion Baskets

The gabion baskets along the right bank of the River Cree, from the proposed location of the new Sparling Bridge to the A75 road bridge are showing signs of failure in multiple locations. These will need to be removed as part of the re-profiling of the channel in this section. Due to the high potential for scour in this section, bank protection will still be required for the two-stage channel. Gabion baskets are generally not recommended as, due to their permeability, they are susceptible to failure requiring costly repairs.

A rock-roll protection with coir roll backing is recommended as a replacement for this section of the bank. The resilience of a coir roll, protected by a rock roll is enhanced and the vegetation within the coir roll will migrate into the rock roll over time to fully vegetate the system.

2.3 Flooding Act and Policy Framework

The proposed flood protection scheme will be published in accordance with the Flood Risk Management (Scotland) Act 2009 and the Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Amendment Regulations 2017.

Upon confirmation of the scheme, deemed planning consent will be sought from the Scottish Ministers.

The Newton Stewart scheme falls within the remit of the Solway Local Plan District – Local Flood Risk Management Plan (2016)⁴ and the Solway Flood Risk Management Strategy⁵. These documents are published in accordance with the Flood Risk Management (Scotland) Act 2009 to implement the management of flood risk and flood impact regionally.

⁴ Flood Risk Management (Scotland) Act 2009 Solway Local Plan District - Local Flood Risk Management Plan Published on 22 June 2016 by Dumfries and Galloway Council (Lead Local Authority for the Solway Local Plan District)

⁵ Flood Risk Management Strategy – Solway Local Plan District, SEPA

Within the Solway Local Plan District - Local Flood Management Plan, Newton Stewart was identified as a potentially vulnerable area which required assessment to reduce the risk of river flooding in the town.

2.4 Planning Policy

Scottish Planning Policy (SPP)⁶ has sought to address flood risk from all sources (taking account of climate change), and this is further supported through the Flood Risk Management (Scotland) Act 2009 which requires local authorities to co-ordinate with the Responsible Authorities (defined in the Act as Local Authorities, Scottish Water, and such other public bodies and office-holders as the Scottish Ministers may designate by order – considered to include Scottish Natural Heritage (SNH), SEPA, and Historic Environment Scotland), and consult with the general public.

In accordance with SPP, DGC have consulted with both statutory and non-statutory stakeholders and the public throughout the design and assessment of the scheme including two separate public exhibition events (30th November – 2nd December 2017 and 21st – 23rd June 2018). Comments received from the attendees have been welcomed and addressed as part of the design process where appropriate - full details of consultation undertaken and its impacts upon the design will be provided with the flood order documentation.

Local planning policy comprising DGC current Local Development Plan 2014 and the proposed Local Development Plan 2 Proposed Plan (January 2018) follows the policy approach for flooding and development as per SPP. The proposed scheme will help to underpin the individual development policies in these documents regarding minimising flooding risk to local communities and for future developments.

⁶ Scottish Government (2014). Scottish Planning Policy.

3 FLOOD RISK AND WATER QUALITY

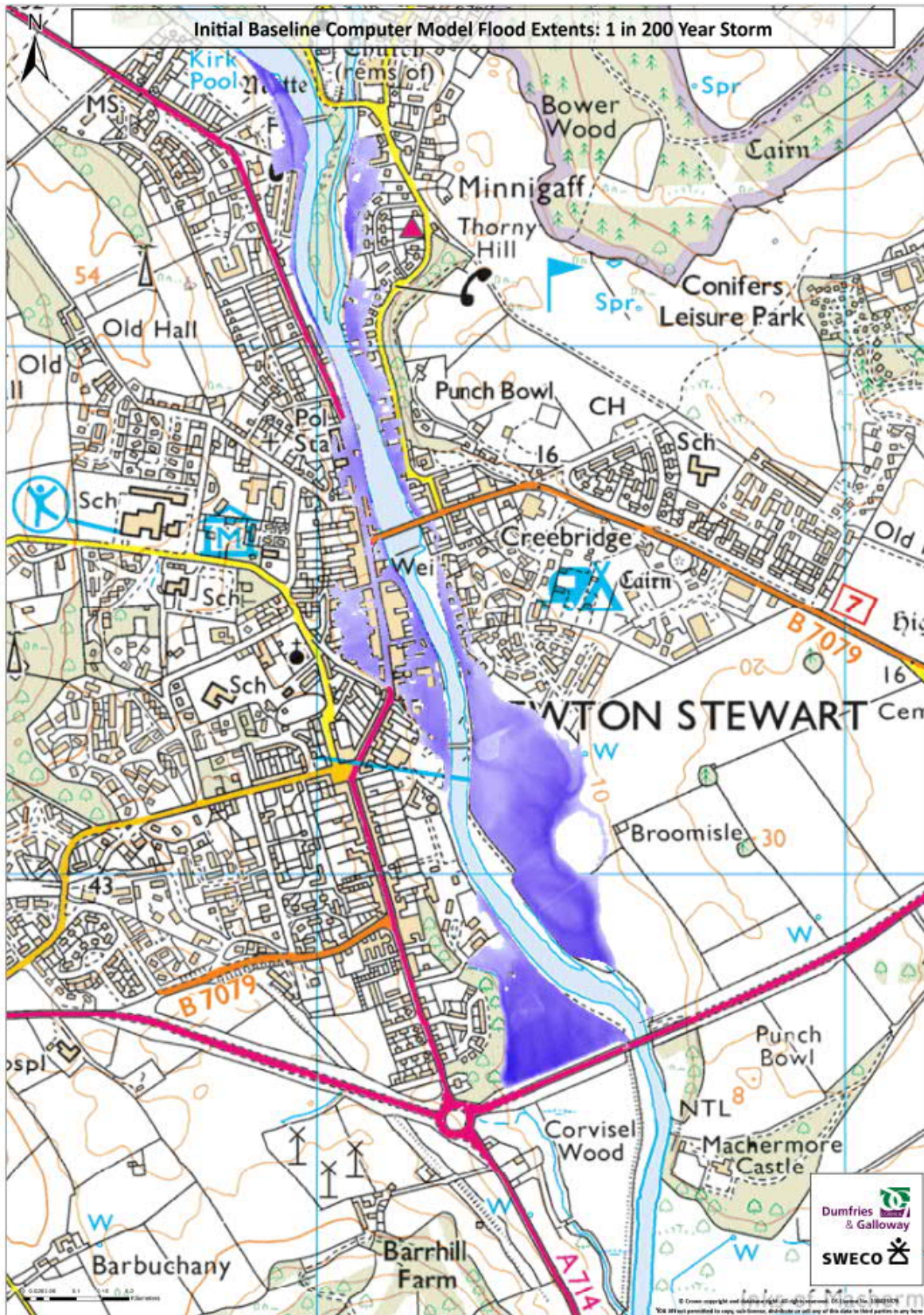


FIGURE 5: INITIAL BASELINE COMPUTER MODEL FLOOD EXTENTS: 1 IN 200 YEAR STORM

3.1 Introduction

There are two watercourses within the study area:

- River Cree, which flows south through the centre of Newton Stewart
- Penkiln Burn, a tributary to the River Cree, which flows south-west through Minnigaff where it joins the River Cree.

3.2 Flood Risk

The preliminary and outline flood management options were reviewed and refined by Sweco to develop a viable and sustainable flood mitigation option which could be implemented in the town. The review has considered different scenarios for flood level protection and potential effects of climate change.

A flood risk assessment, which includes the results of the hydraulic modelling and secondary flood analysis, will be submitted as part of the flood protection order documents. Details of these are provided below.

Hydraulic Modelling

Hydraulic modelling for the proposed flood protection scheme has been undertaken by Kaya Consulting. A hydraulic model is being developed for the two rivers within the study area and is being used to determine baseline maximum flood depths and extents within the town, for the 1 in 200 year flood event, including potential climate change effects. These results are used to inform the design height of the direct defences. Additionally, the hydraulic model is used to test the effectiveness of the proposed flood protection scheme.

Secondary Flooding

Secondary flooding, resulting from the proposed flood defences blocking the typical drainage pathways for runoff from the town, was analysed using a pluvial and network model. Areas of secondary flooding were identified and are shown on **Appended Drawings 118908-SWECO-SK126 and SK127**. Mitigation measures have been included in the outline design to aid in draining the areas of secondary flooding. These have been tested in the network and pluvial model to ensure they are sufficient to significantly reduce or eliminate the risk of secondary flooding. These mitigation measures include the following:

- Installation of flap valves in the flood walls
- Installation of new drainage channels, drainage pipes and outfall pipes
- New pumping stations
- Provision of storm water storage facilities

3.3 Water Quality

SEPA's water classification tool⁷ was used to confirm the water quality of the watercourses located within the study area. The overall status of the River Cree was classified as Moderate in 2016 (most recent published data) and Good for

⁷ <https://www.sepa.org.uk/data-visualisation/water-classification-hub>

the Penkiln Burn. The lower stretch of the River Cree – ‘Cree Estuary’ was classified as High in 2016.

The Groundwater Vulnerability Map of Scotland (1:625,000 scale) indicates that the site is underlain by a weakly permeable aquifer that does not widely contain groundwater in extractable quantities.

3.4 Potential Effects and Mitigation

Construction

Construction activities during the development of the proposed flood protection scheme have the potential to cause release of pollutants (e.g. sediment run-off, fuel or oil spillage etc.) into the rivers in the study area.

This will be mitigated through the implementation of a Construction Environmental Management Plan (CEMP) which will employ best practice measures to reduce the risk of releasing pollutants. This will include (but not be limited too):

- Construction near the riverbanks will be undertaken out with seasonal restrictions (e.g. outwith fish spawning, hatching and migration periods)
- Construction methods will aim to avoid disturbance of the river.
- Walls and embankments will be placed back from the river’s edge.
- Where possible, the defences will make use of existing walls
- No sheet piles will be used within the river
- Access to the river for construction will be undertaken either from above via a roadside scaffold, or using temporary bunding (e.g. one ton sand bags) to allow a scaffold from the riverside.
- No defences will be located within the River Cree SSSI, therefore it will not be disturbed during construction
- Material removed during excavation works will be stored on site for re-use on site or disposed of appropriately following geotechnical testing and/or waste classification assessment
- Construction compounds will be located out with the 1 in 10 year flood zone

Operation

The proposed scheme has been designed to provide an adequate level of flood protection to the town of Newton Stewart whilst protecting the water bodies and banks. Direct flood defences will protect people and properties, and reprofiling of land around the pumping station could provide more accessible flood plain area. It is therefore considered that the scheme will have a positive impact in terms of flood risk and water quality once completed.

3.5 Recommendation

With appropriate design and mitigation measures incorporated into the proposed scheme, no further assessments are considered necessary.

Further information on hydrology and flooding will be presented in support of the proposed flood order documentation.

4 GEOLOGY AND GROUND CONDITIONS

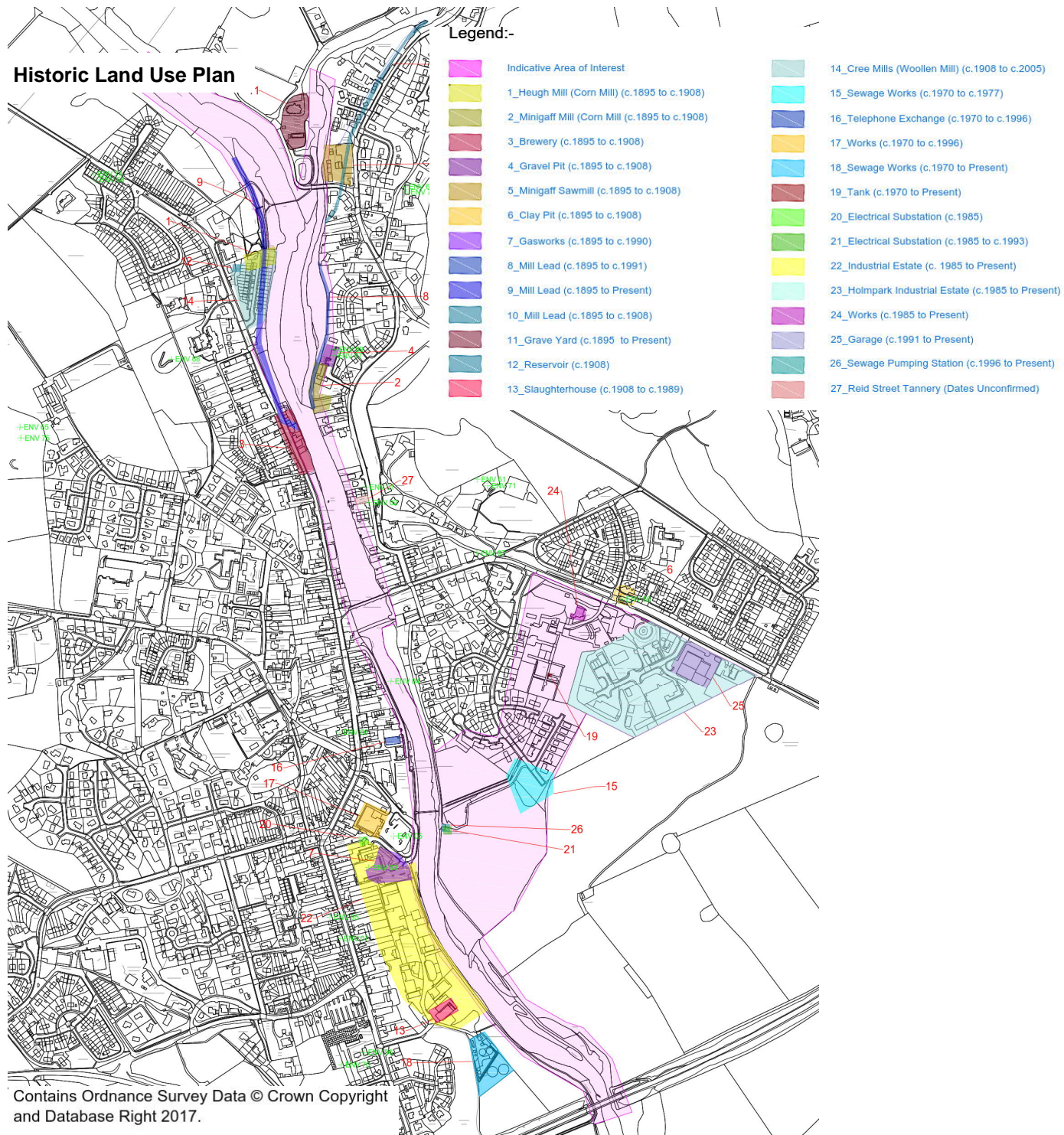


FIGURE 6: HISTORIC LAND USE PLAN

4.1 Introduction

A desk based assessment of the superficial and solid geology has been undertaken by Sweco. The findings of the desk based assessment informed the design and scope of intrusive ground investigations, carried out within the scheme area.

4.2 General

There are no designated geological sites or designated geohazards which would be affected by the proposed flood protection scheme.

Review of the BGS online mining plan portal and The Coal Authority online interactive map indicates that the site does not fall within a coal mining area, and no non-coal mining activities within influencing distance of the site were reported.

4.3 Geo-Environmental Studies

A factual geo-environmental desk study has been prepared by Sweco which assessed the short list of options for the proposed flood protection scheme. The desk based review considered the site history, ground conditions and environmental information available. The review identified potentially contaminative historical land uses and potential geotechnical constraints which required further intrusive ground investigation.

A copy of the Factual Geo-Environmental Desk Study is appended for reference (**Appendix A**).

The intrusive ground investigation was undertaken to assess the ground conditions as part of the outline design process. The ground investigation works were managed by Sweco on behalf of DGC. The works were phased, with the initial works targeting Newton Stewart undertaken over the period December 2017 to March 2018. Subsequently, works targeting Minnigaff were carried out from June 2018, and these are currently ongoing.

A copy of the Ground Investigation Interpretative Report will be included with the flood order documentation.

Geo-environmental Summary

A total of 22 soil samples of Made Ground and natural strata were submitted for geochemical analysis from a spread of locations across the scheme area as part of the first phase ground investigation.

Geochemical testing was targeted at Made Ground with some analysis of natural soils to assess for potential impacts from Made Ground.

Marginally elevated concentrations of Lead were recorded in three soil samples taken from Made Ground in the Cree Bridge area, and elevated concentrations of individual PAHs recorded in one soil sample taken from shallow Made Ground in the Sparling Bridge area. However, the marginal nature of the exceedances indicates that there is only a very low risk to human health.

Amosite asbestos fibres were detected in one soil sample taken from shallow Made Ground in the Sparling Bridge area. Although a very low quantity of asbestos was recorded, the potential for exposure to site users and site workers during ground disturbance works should be communicated to the contractor.

Geo-environmental analysis of the Minnigaff GI works is ongoing at the time of writing.

Geotechnical Summary

With regards to the ground conditions in Newton Stewart, the majority of the flood wall defences will be founded on natural strata, comprising granular alluvium (sands and gravels). Locally, made ground and cohesive (compressible) strata is also present in situ.

Excavation will be required to achieve a suitable founding stratum. Over excavation and replacement with a suitable structural fill may also be required to achieve consistent conditions across the foundation, where unsuitable strata (made ground/ soft clays etc) are present at formation level

Inspection and in situ confirmatory testing will be required to ensure the formation strata is suitable, and provides the requisite geotechnical properties required for the design.

It is considered likely that temporary works, including but not limited to sheet piling works and / or formation of cofferdams may be required, depending on the nature of the construction and its location in relation to the watercourse.

Geotechnical analysis of the investigations in Minnigaff is ongoing at the time of writing and the results of this will be included in the Ground Investigation Interpretative Report that will be submitted with the flood order documents.

4.4 Materials and Waste Management

In the event that made ground is present, materials may not be suitable for incorporation within the proposed construction. Such materials may be classified as wastes and subject to waste management regulations where these are excavated, re-used or sent for off-site disposal.

The scheme design seeks to reduce waste where possible whilst promoting re-use of materials. Any excavated material from reprofiling land, where geotechnically and environmentally fit for use, will be re-used as part of the embankment construction and used for any re-instatement work across the proposed scheme.

If the material is deemed unsuitable for re-use on site, a waste characterisation assessment of the material will be undertaken to determine the most appropriate disposal method off-site.

It is expected that topsoil will be stripped and stored in stockpiles for re-use on the completed earthwork slopes.

Appropriate testing for both geotechnical and environmental properties will be undertaken and included as a requirement within the Construction Environmental

Management Plan (CEMP) before any re-use of materials is confirmed acceptable on site.

4.5 Potential Effects

Construction

No significant effects upon sensitive receptors have been identified as part of this assessment as long as suitable mitigation measures are in place throughout the construction phase.

Best practice measures informed by the results of the intrusive ground investigation will be incorporated into the CEMP to be implemented by the Contractor.

In addition, detail of specific ground risks arising from the ground investigation will be provided to the Contractor. The Contractor will be informed of the detected levels of Asbestos to inform measures to protect workers and ensure that the works are carried out in a safe manner.

Other specific mitigation measures for construction and earthworks will include, (but not be limited to):

- Adopt best practice in the control of groundwater, to mitigate impacts to environmental receptors (water environment, ecological receptors);
- Adopt best practice measures to protect environmental receptors during temporary works and construction;
- Adopt best practice measures to exclude the public from working areas;
- Adopt best practice to ensure safe working in proximity to water courses;
- Adopt appropriate site controls for construction works;
- Appropriate provision of suitable Personal Protective Equipment (PPE) for workers,
- Contractor awareness training for identification of asbestos,
- Adopt suitable dust suppression and control measures;
- Appropriate environmental controls with regards plant usage, including use of bunded wash down area
- Plan and provide risk assessment for plant and traffic movement within the town, and between working areas.

Operation

The outline design of the proposed flood protection scheme has taken account of the ground information obtained to date during the intrusive ground investigation and it is considered that there will be no significant impacts on geology or ground conditions as a result of the scheme. The scheme has been designed using actual ground condition data from site which provides a reasonable judgement of the significance of impact as low.

4.6 Recommendations

With the information already obtained from the intrusive ground investigation together with appropriate design and mitigation measures incorporated into the proposed scheme (e.g. foundation requirements, concrete assessment, appropriate testing for geotechnical and environmental properties for assessment of re-use and/or disposal off materials on site during earthworks and construction), no further assessments are considered necessary for geology or ground conditions.

5 ECOLOGY AND NATURE CONSERVATION



FIGURE 7: ECOLOGICAL POINTS OF INTEREST

5.1 Introduction

An initial desk based assessment of the ecological conditions and possible constraints to the scheme development have been undertaken by Sweco. An otter and nesting bird assessment was carried out by Sweco, and reported upon (in a separate report) in April 2018.

5.2 General Description

The work site runs along the banks of the River Cree. The river itself is a large fast flowing river that sustains good populations of fish including Atlantic salmon, smelt, and trout. The river may also support otters, although potentially not through the town centre where works are planned.

The bankside has been altered in places through the town where buildings, and gardens back onto the river. However, there are still considerable stretches of more natural bankside habitats including significant broad-leaved woodland towards the north end of the town and patches immediately south of the weir and adjacent to the A75 bridge. Other habitats adjacent to the river are predominantly gardens, parks and fields.

5.3 Nature Conservation Designations

The Lower River Cree located within the scheme boundary and stretching south for 9km of the River Cree is a designated Site of Special Scientific Interest (SSSI). The site is designated for its presence of sparring (smelt) fish. This is one of only three populations of smelt still known in Scotland. The fish migrate from the estuary into freshwater in the spring to spawn, aiming for the rocky and gravel areas around the upper limit of tidal influence.

The Cree Estuary SSSI further downstream from the proposed scheme also includes smelt within its' designation description.

Wigtown Bay Local Nature Reserve (LNR) is located approximately 6km downstream from the scheme extent. Wigtown Bay is the largest LNR in Scotland and comprises a large area of salt marsh and mudflats with a variety of species present.

5.4 Woodland and Trees

The entire area is located within the South Scotland Forestry Commission Scotland (FCS) Conservancy Area and within the Galloway and Southern Ayrshire Biosphere Reserve.

The Galloway and Southern Ayrshire Biosphere Reserve covers an area of 5,628km² and is based on the Galloway Hills catchment. The designation is an initiative with UNESCO and is given due to a combination of special wildlife areas, cultural heritage and to communities that care about their environment.

DGC have confirmed that there are no trees located within the scheme extents which are protected with a Tree Protection Order (TPO).

5.5 Protected Species Records

There are records of the following protected species that have the potential to be impacted by the works, within 2km of Newton Stewart:

- otter
- bats (Leisler's and Pipistrelle)
- badger
- red squirrel
- great crested newt
- palmate newt
- kingfisher

5.6 Invasive Species

A non-intrusive invasive weed survey was undertaken by KleerKut Ltd in March 2018. This survey covered the area of the proposed replacement Sparling Bridge and was undertaken on behalf of Sweco. The walkover survey was limited to visual inspection and confirmed the presence of Japanese knotweed. Localised stands of Japanese knotweed were identified and mapped along the eastern and western banks of the River Cree in the centre of Newton Stewart. No evidence of giant hogweed or Himalayan Balsam was found.

Japanese knotweed is an invasive non-native species (INNS) and it is an offence under the Wildlife and Natural Environment (Scotland) Act 2011 to allow it to spread. In addition, there are controls on how the plant or contaminated soil may be disposed of.

5.7 Potential Effects

Construction

With appropriate mitigation measures implemented during construction, it is considered that there will be no significant effects on ecology.

Best practise measures to limit any pollution nuisance (sediment run-off, fuel / oil spillage etc.) would be employed during construction through the implementation of a Construction Environmental Management Plan (CEMP).

Methodologies for the treatment of and safe working in, areas with Japanese knotweed will be provided and biosecurity measures to prevent the inadvertent spread will be provided within the CEMP. All contractors will be made aware of the localities where Japanese knotweed has been identified and any further requirements to map invasive species will be assessed.

Seasonal restrictions on the construction and earthworks programme will be implemented to ensure the fish within the lower River Cree are not affected during the spawning period (typically November – May) or migration periods with appropriate mitigation and working practice implemented to ensure no silting of the water occurs during the construction and earthworks programme.

The protection of the watercourse will be paramount to the construction methodology applied on site. Ongoing consultation with SEPA and SNH will be required.

Operation

With appropriate mitigation measures implemented during construction, it is considered that there will be no significant effects on ecology resulting from the operation of the proposed scheme. With the reduction in flood events, this should also provide a benefit to the flora and fauna within the town.

5.8 Recommendations

It is not considered that the potential impact on ecology requires further assessment, however the following ecological surveys are recommended as part of the detail design stage.

- A Phase 1 Habitat Survey to inform the CEMP. The survey will confirm the initial understanding of the existing habitats present within and around the proposed scheme. and be taken into account within the detail design.

6 CULTURAL HERITAGE

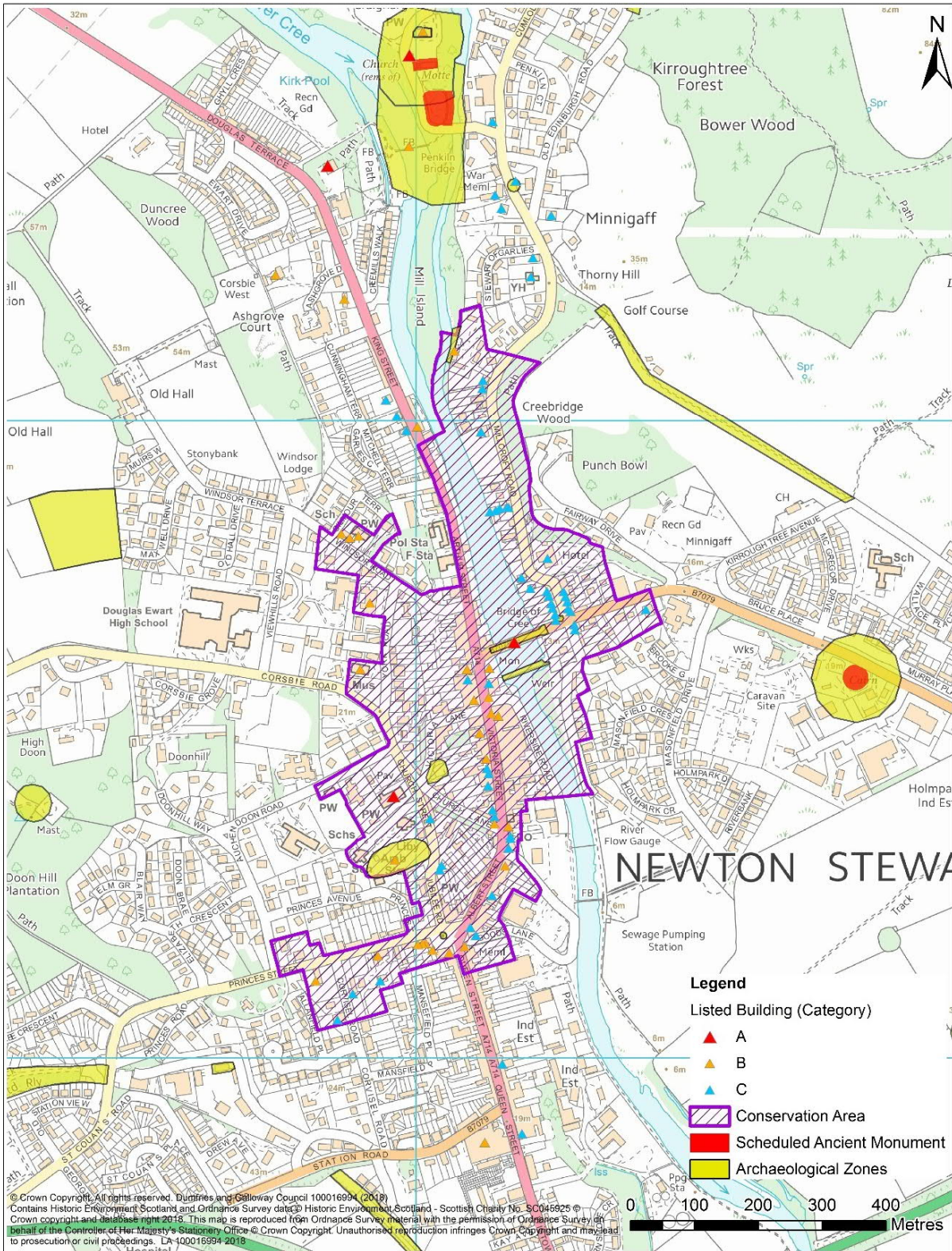


FIGURE 8: CULTURAL HERITAGE LISTED BUILDINGS AND DESIGNATIONS

6.1 Introduction

A high level review of the potential impact on cultural heritage as a result of the scheme proposals has been undertaken by using publicly available information.

An overview of the baseline cultural heritage assets for the scheme are provided below. This includes designations identified within the boundary and adjacent to the scheme extents.

Data has been obtained using the following sources:

- DGC website utilising the Historic Environment Viewer⁸
- Historic Environment Scotland website utilising the Heritage map search⁹ and Canmore database¹⁰
- Scotland's Environment website utilising Scotland's environment map search¹¹

6.2 Summary of Existing Baseline

Scheduled Ancient Monuments

A Scheduled Ancient Monument of national importance, Minnigaff, old church, is located between the River Cree and the Penkiln Burn.

Given that the monument is located on raised land between the Penkiln Burn and River Cree and that it is screened with mature trees on the bank side which will not be removed, there will be no adverse or significant impact on the setting of this designated feature.

Listed Buildings

There are many Category A, B and C listed buildings within the wider study area, however no listed building is within the footprint of the proposed defence structures.

- **Category A Listed Buildings**

- The Cree Road Bridge was designated by DGC in July 1972.

The description on the Historic Environment Scotland website database describes it as a "*John Rennie, engineer, built 1813. 5-span stone bridge spanning river Cree at Newton-Stewart Minnigaff boundary. 5 depressed-arch spans with bull-nosed cutwater buttresses rising to semi-hexagonal pedestrian refuges. All ashlar masonry with bold voussoirs; polished red sandstone parapet. Slightly humpbacked carriageway, splayed embrasures. Pair of cast-iron lampbrackets to centre.*"

⁸ <https://info.dumgal.gov.uk/mapviewers/Archaeology.aspx>

⁹ <http://portal.historicenvironment.scot/>

¹⁰ <https://canmore.org.uk/>

¹¹ <https://map.environment.gov.scot/sewebmap/>

- Heron Monument at Monigaff Parish Church Graveyard designated by DGC in November 1971

The description on the Historic Environment Scotland website database describes it as a “1761 (dated). *Classical monument and burial enclosure, in memory of the Heron family. Situated to the W in the Graveyard of Monigaff Parish Church. Red sandstone. MONUMENT: modillioned pediment, with surmounting die and urn, supported on paired Corinthian columns; decorated frieze. Paired Corinthian pilasters, flanking central panel; shouldered architrave to inscription panel, dated 1761; armorial panel above; egg and dart moulding. Massive flanking consoles. ENCLOSURE: balustraded walls. Corniced and channelled piers to E; wrought-iron gate.*”

- **Category B Listed Buildings**

- 23 King Street (former brewery house)
- The Monument to the 9th Earl of Galloway, Victoria Street (commemorative monument)
- 69-73 Victoria Street and 77-79 Victoria Street (Old Town Hall)
- The Galloway Arms Hotel, Victoria Street
- Penkiln Suspension Footbridge
- Monigaff Parish Church Graveyard and Graveyard Walls
- Minnigaff Mill, Millcroft Road, Minnigaff

- **Category C Listed Buildings**

- 38 King Street (“The Beeches”)
- 36-38 Victoria Street
- 32 King Street
- Victoria Street Clydesdale Bank

It is considered that as no listed building lies within the footprint of the proposed locations of the flood wall and embankment defences, there will be no adverse or significant impact on listed buildings in the area.

The listed buildings and conservation area status has been accounted for in the overall scheme design which limits any potential impact on the visual setting of the listed buildings.

Archaeological Records

DGC Archaeology map viewer webtool¹² was used to identify any archaeological sites/zones recorded by the council.

Historic Environment Record (HER) archaeological sites/zones are *areas which have been recorded as having archaeologically and /or historically important finds reported or are known or suspected archaeological or historical sites.*

¹² <https://info.dumgal.gov.uk/mapviewers/Archaeology.aspx>

HER archaeological zones have been identified within the scheme extents at the following locations:

- The Bridge of Cree
- The weir within the River Cree
- Minnigaff Mill (Watermill)
- Monigaff Old Parish Church and graveyard, Minnigaff Motte and cross-slabs

Given that there are areas of archaeological zones within and around the scheme, DGC's Archaeologist was consulted with regards to the scope of the ground investigation with no requirement for archaeological monitoring confirmed. Hand-dug trial pits adjacent to the Bridge of Cree during the 2018 ground investigation and key areas around Minnigaff, identified nothing of archaeological importance with no features or finds reported.

It is considered that given the locations of the proposed flood wall and embankment defences and that nothing was observed during previous investigation and excavations, there will be no adverse or significant impact on archaeological records.

6.3 Conservation Area

Part of Newton Stewart town centre is within a designated conservation area. The area was designated by DGC in September 1977 for its special architectural and historical interests.

DGC Conservation Area Guidance confirms that "*Development in conservation areas needs to be carefully focused to ensure that there is a balance between good conservation practice and a realism that recognises modern needs and pressures.*"

DGC Local Development Plan (September 2014) Policy HE2: Conservation Areas confirms that "*New development, within a conservation area, should maintain or enhance the special character and appearance of the conservation area and its setting.*"

This policy remains in DGC proposed Local Development Plan 2 currently under Council review.

6.4 Potential Effects

Construction

It is considered that the proposed scheme will not adversely affect the identified designated heritage assets during construction. Best practise measures to limit impacts on the heritage assets would be employed during construction through the implementation of a Construction Environmental Management Plan (CEMP). This will include measures to ensure the known heritage assets are protected if necessary during construction works and that any excavations in known locally important areas are recorded appropriately.

Operation

It is considered that the heritage assets will not be adversely impacted by the operation of the proposed scheme. There may be a slight effect visually on the conservation status of the town however, this has been fully considered within the outline design and will continue to be considered during the detailed design stage.

The design takes account of the visual setting and conservation status of the surrounding area.

6.5 Recommendation

With appropriate design and mitigation measures incorporated into the proposed scheme design, no further cultural heritage assessments are considered necessary. Appropriate construction methods and working practices will be prepared as part of the construction work and CEMP.

7.1 Introduction

A review of the potential impact on public access, recreation and amenity has been undertaken.

7.2 Public Access

A review of public access using DGC outdoor access webpage¹³ has identified the presence of core paths within the wider study area. There are also National Cycle Network routes present in the study area.

Newton Stewart

The 2.2km Riverside Walk is a designated core path (path no. 427) which follows the eastern side of the River Cree from the Cree Bridge down to the A75 Road and back up the western side of the River Cree up to Goods Lane. National Cycle Network Route 73 uses part of the core path on the western side of the River Cree.

'The River Cree and the Lochs' and *'The Cree Estuary'* are other walking and cycling routes promoted by the Council which use part of the core path 427.

Core path no. 427 will require a temporary closure and/or diversion during construction works in the local area. The works proposed in the area of core path no. 427 include the lowering of ground level adjacent to the River Cree and retaining the core path in its original location, albeit at a lower topographical level. There are also areas where the path will be raised along the route of the proposed wall.

National Cycle Network Route 7 links Sunderland and Inverness and the *'Lochs and Glens (South)'* section of the route passes through Newton Stewart. The route is predominantly located on the eastern side of the River Cree.

Minnigaff

The 362m Minnigaff Suspension Bridge walk (path no. 397) crosses the River Cree using the Penkiln Suspension Bridge (Category B listed bridge). This walk will not be directly impacted as a result of the proposed flood protection scheme.

Wild Wood & Torwhinnoch Hill (path no. 390) is an 8.8km circular path walk using a network of paths through forestry, parkland and rolling rough landscape. This core path is located to the east of the Penkiln Burn and will not be directly impacted as a result of the proposed flood protection scheme.

Proposed Replacement Sparling Bridge

A new shared footbridge / cycleway is to be built as part of the proposed flood protection scheme and will include defences built into the new ramps and piers as necessary. The new replacement bridge will be located 100m downstream of the former bridge.

¹³<http://www.dumgal.gov.uk/article/15303/Outdoor-access-and-paths>

The new footbridge / cycleway will become part of the National Cycle Network (NCN) 73 and will link to the existing pedestrian footpath on the eastern bank of the river. The existing footpath will be re-aligned as part of the re-profiling works in this area as shown on **Appended Drawing 118908-SWECO-SK127**.

Planning approval for the proposed bridge was granted with conditions in April 2018.

7.3 Recreation and Amenity

Public access routes and greenspace areas on and around the River Cree and Penkiln Burn are used for many recreational purposes including walking, dog-walking and cycling. As per DGC's Current Local Development Plan and Proposed Local Development Plan 2, some of these greenspace areas are protected areas of open space.

Adjacent to the Cree Road Bridge on the western side of the River Cree is an open space with a commemorative monument to the 9th Earl of Galloway. The gardens in this location are well kept and maintained by the Council and the location well used locally.

The wider River Cree catchment is also used for salmon and trout fishing and canoeing. There is a fishermen's step access point to leading to the western bank of the River Cree which will be maintained as part of the proposed flood protection scheme (as shown in **Photo 5** below).



PHOTO 5: EXISTING FISHERMAN'S ACCESS STEPS LEADING TO RIVERSIDE

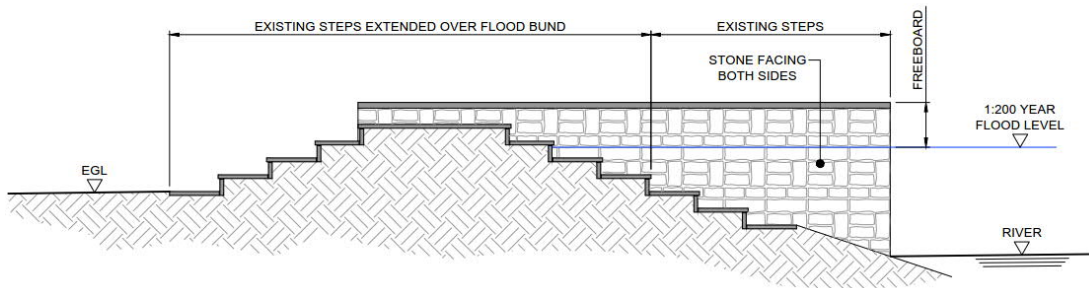


FIGURE 10: INDICATIVE ACCESS STEPS DETAIL

The recreational areas and existing access points have been considered within the proposed outline design and access to recreational areas will be maintained through the construction and the operation phase of the scheme using appropriate mitigation such as planned diversions. On this basis, it is considered that the proposed scheme will not significantly impact recreational activities or the access of recreation in the local area.

7.4 Landscape Setting

The proposed flood defence walls and embankments have been designed considering the visual setting and any potential resultant impact. The method of construction for external appearance including type of stone / cladding is in accordance with the conservation designation for Newton Stewart.

Top mounted glass and stainless steel panels have been proposed along the riverside to maintain viewpoints of the river and town where possible (as shown in **Photo 3, Page 12**).

Landscape 3D visualisations of the proposed outline design will be presented as part of the supporting documentation for scheme publication.

7.5 Potential Effects

Construction

There will be potential impacts to public access, recreation and amenity during the construction and earthworks phase of the scheme, however these will be temporary in nature and can be appropriately managed.

Forward planning for these potential construction impacts including (but not limited to) maintaining public access with clearly signposting diversions and phased programmes of work which should be included in the supporting Construction Environmental Management Plan (CEMP). These measures will be employed in accordance with the Councils Access Officers and will include timely social media communications and updates on the Councils proposed flood scheme project website¹⁴.

The significance of impact on public access, recreation and amenity as a result of the scheme proposals is defined as **low** and further assessment is not required.

¹⁴ <http://www.dumgal.gov.uk/article/17004/Newton-Stewart-Flood-Protection-Scheme>

Operation

It is considered that there will not be significant impacts to the recreational function of the area as a result of the proposed flood protection scheme. The purpose of the scheme is to protect residential and non-residential properties and road infrastructure from flood risk but has been designed to maintain and improve where possible access to public areas within the scheme extents including provision of the new Sparling footbridge/cycleway.

The replacement bridge will provide a new pedestrian and cycleway link across the River Cree following the removal of the former Sparling bridge in 2016. The existing footpaths either side of the River Cree which will link to the new bridge will be upgraded and improve access for all in the area. It is considered that the scheme will therefore be beneficial for local public access.

7.6 Recommendation

No significant impact is predicted with regards to public access, recreation and amenity and therefore no further assessment is considered necessary.

8 TRAFFIC, AIR QUALITY AND NOISE

8.1 Traffic

Newton Stewart has the local road and public access arrangements associated with a small size town, it is served by two main roads which pass through the town centre – the A714 and the A712. The main trunk road (the A75) is located to the south of the town.

Due to the nature of the proposed scheme, no increase in road traffic on the wider road network is anticipated during operation. A potential increase in traffic may be observed during the construction period, however this will be temporary in duration and any potential impacts shall be controlled through the Construction Environmental Management Plan (CEMP).

Measures to be detailed in the CEMP may include traffic management controls and traffic route restrictions during works. Pedestrian safety and protection of surrounding infrastructure will be a key element of any traffic management proposals. The CEMP will be prepared and implemented by the appointed Contractor for the duration of the construction works.

Opportunities to reduce construction traffic and/or using the local transport network during peak hours and any maintenance and access diversions which could be implemented as part of the construction works would be detailed within the CEMP.

Specifically for the Sparling Bridge works, a Traffic Management Plan (TMP) was completed by Sweco (issued as a separate report) in July 2018.

8.2 Air Quality

A review of the potential impact upon air quality has been undertaken.

Newton Stewart is not within a declared Air Quality Management Area. Air quality is considered generally good in the area.

There may be temporary impacts on air quality during construction and earthworks (e.g. construction dust and/or construction traffic emissions). It is considered that these impacts could be appropriately mitigated against using construction best practise guidance which will be detailed in a supporting CEMP.

The sensitivity of the area is deemed to be low and therefore the limited potential impact of construction upon air quality is defined as **low to negligible** and further assessment of air quality is deemed not required.

Due to the nature of the proposals, it is considered that the proposed scheme will not have a significant impact on air quality during operation.

8.3 Noise and Vibration

A review of the potential impact of noise has been undertaken.

No significant existing sources of noise nuisance have been identified in the scheme area or wider study area.

The nature of the scheme proposals will not have a long term impact on noise and no additional or new noise sources will be created.

There may be temporary impacts of noise and vibration effects during construction works, however it is considered that any noise and vibration effects associated with construction works will be temporary in duration and can be appropriately mitigated with construction best practice which will be detailed in the supporting CEMP (e.g. restricted construction operational hours, traffic management etc) which will be submitted as part of the flood order documentation.

Due to the nature of the proposed scheme, no permanent noise and vibration effects are anticipated during operation.

The significance is defined as **low** and further assessment of noise and vibration is deemed not required.

8.4 Recommendation

No significant traffic, air quality or noise impacts are predicted during construction or operation and therefore no further impact assessment is considered necessary with respect to an Environmental Impact Assessment.

Standard best practise construction procedures should be followed during construction works on site in accordance with a CEMP which should be prepared in advance of the construction works.

9 CONSTRUCTION ENVIRONMENTAL ASSESSMENT

As detailed in the preceding chapters, a site specific Construction Environmental Management Plan (CEMP) will be in place and used during construction works.

Best practice advice developed by The Highland Council (in conjunction with industry and other key agencies) on the Construction Environmental Management process will be used as the basis for the CEMP which will include mitigation measures for the control of noise, vibration and dust etc. identified as potential impacts during the construction period.

The CEMP will cover mitigation and working practices to be adopted as per those issues discussed in the preceding chapters.

The proposed construction and earthworks will be designed and managed to provide minimum disruption to local residents and to protect the waterbodies and banks.

Detailed method statements will be provided by the appointed Contractor and submitted to DGC for approval prior to works commencing on site. These method statements will be prepared to adhere with appropriate guidance and legislation including the most relevant Pollution Prevention Guidelines (PPGs) and the replacement guidance series Guidance for Pollution Prevention (GPPs).

10 SUMMARY

The purpose of this report is to request a formal Screening Opinion from DGC Planning Authority, SEPA, SNH, Scottish Water and the Galloway Fisheries Trust on whether an EIA is required for the proposed flood protection scheme.

The proposal falls within Annex II (Projects referred to in Article 4(2)) of the Directive 2011/92/EU of the European Parliament and of the Council, the local authority must determine whether the scheme is required to be subject to an Environmental Impact Assessment. The screening process undertaken and presented in this report has been completed by way of high level assessment in accordance with the requirements of Schedule 1 of the Flood Regs¹⁵.

In accordance with the requirements of Schedule 1, it is considered that based on the assessments presented, this screening study has demonstrated the following:

10.1 Characteristics of Scheme

The purpose of the scheme is to provide a sustainable flood protection scheme for the town of Newton Stewart and neighbouring Minnigaff which provides an adequate level of protection during predicted storm events (and with climate change considerations).

Given the nature of the proposals and scale of the scheme proposed, it is considered that there will be no significant adverse environmental impacts in terms of:

1) size and design of the scheme;

The scheme presented for consideration within this report is an outline design which is being progressed to detailed design. The red line boundary and the locations of the direct defences are not expected to change greater than those presented herein. The detail design will clarify the wall heights and re-profiling proposals presented.

A constraints plan was produced as part of the high level environmental assessment supplemented with ground investigation data for consideration by the design team (appended as **Drawings 118908-SWECO-SK126 and SK127**).

The constraints plan has been used positively to ensure that the proposed flood protection scheme accounts for and appropriately mitigates any potential environmental impact identified, including but not limited to:

- maintaining the public rights of way and core paths and ensuring public access to the river is not denied;
- ensuring the SSSI is sufficiently protected and not harmed;
- ensuring protected open spaces as per the LDP are maintained; and
- taking account of geotechnical constraints informed from the ground conditions encountered on site during the ground investigation works.

¹⁵ The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Regulations 2010 and The Flood Risk Management (Flood Protection Schemes, Potentially Vulnerable Areas and Local Plan Districts) (Scotland) Amendment Regulations 2017

2) cumulative impact;

There are no other developments (existing and/or proposed) which would create significant cumulative impacts with the scheme.

There is an active conditioned planning consent in place for the proposed replacement Sparling Bridge, however this is to be constructed as part of the proposed flood protection scheme and so no cumulative impact is anticipated.

There is an allocated mixed use site in the Local Development Plan located adjacent to the sewage pumping station but there are no proposals currently in place to progress a development at this time. It is considered that due to the uncertainty of any development, it is not considered further.

Cumulative impact is therefore not anticipated and the proposed flood protection scheme proposals will be beneficial in the long term.

3) the use of natural resources (land, soil, water and biodiversity) and the production of waste;

The proposed scheme comprises a mixture of defence walls and embankments. The construction of the proposed walls will require additional resources including concrete, steel and glass. The proposed embankments will seek to use natural resources wherever possible.

A sustainable approach of reduce, re-use, recycle will be adopted on site. Construction will seek to minimise the production of waste and re-use material on site with cut and fill assessments undertaken during design reviews to ensure a neutral material balance is achievable.

Any material excavated during the re-profiling of land to the south of the pumping station will be re-used if the material is deemed suitable for re-use in the construction of the proposed embankments and for any re-instatement works required across the proposed scheme.

4) pollution and nuisances;

Emissions related to construction and earthworks of the proposed scheme are anticipated however these will be temporary in duration. Standard industry practice and guidance will be followed to minimise the risk of pollution and nuisance. It is considered that any potential risk during construction works can be appropriately mitigated against thus reducing the significance of potential impact.

A Construction Environmental Management Plan (CEMP) will be prepared which will detail the proposed mitigation and construction methodologies to be adopted on site. It will demonstrate the Councils commitment to effective and managed site works.

The CEMP will include measures as a minimum to ensure the protection of the River Cree and Penkiln Burn in compliance with guidance from SEPA, SNH and the local fisheries trust. Ongoing consultation with these bodies will continue during the scheme process.

5) major accidents and/or disasters;

The risk of major accidents and/or disasters which are relevant to the scheme, including those caused by climate change have been considered during the initial design stage with emphasis on flood risk and climate change.

The proposed scheme has been designed to a 1 in 200 year flood event considering potential for climate change and with an adequately designed freeboard to ensure suitable protection of the town.

The defence walls and embankments have been designed using actual ground condition data encountered on site and geotechnical testing of ground samples from site to ensure that appropriate construction methodologies can be applied.

6) the risk to human health

There is no anticipated risk to human health as a result of the proposed flood protection scheme. The purpose of the scheme is to reduce the risk of flooding to properties and infrastructure within the town.

With respect to lifestyle, the potential loss of viewpoints and restrictions to river side views that will occur, have been considered within the design. The option of glass top mounted panels on the flood walls to maintain viewpoints is considered a beneficial addition to the proposed flood protection scheme in terms of human health.

The risk of contaminated soils encountered during construction and earthworks has been assessed and with appropriate mitigation and construction methodology applied, the risk has been assessed as low to negligible. This will be reviewed and managed as part of the CEMP.

Impacts including increased noise emissions (construction traffic and works) and potential dust emissions will be encountered during construction and earthworks however, with appropriate mitigation, these can be managed appropriately and the impacts will be temporary in nature and duration.

It is considered that the proposed flood protection scheme will provide overall beneficial impacts to the community and residents of Newton Stewart and Minnigaff.

10.2 Location of Scheme

The scale and nature of the development is in keeping with the existing land use. The outline design of the scheme has also aimed to maintain and improve where possible, existing land use under environmental enhancement responsibilities (e.g. inclusion of new footbridge/cycleway, maintaining and improving core paths and compensatory planting will be considered as part of detailed design).

The design of the direct defences (walls and embankments) has been carefully selected to ensure that the structures do not impede on the surrounding environment in terms of visual impact and public access restrictions.

The natural environment, protected sites, landscapes and sites of historical, cultural or archaeological significance have been fully considered and accounted

for during design of the scheme. Minimising tree loss has been a key design consideration for the outline design process.

The outline design process has involved and taken account of stakeholder opinions as part of a series of value management (VM) presentations and workshops hosted by DGC and Sweco with key stakeholders in attendance. Two public exhibitions have also been held locally to provide information on the proposed flood prevention scheme to the community and to answer any questions or address issues raised about the scheme during the process.

DGC also have set up a project website providing regular updates and information on the scheme including links to VM workshop presentation slides and public exhibition presentation boards.¹⁶

It is considered that the proposed flood protection scheme will provide long term and positive benefits to the local area and communities in terms of reducing flood risk and that the location of the scheme has been a key design consideration.

10.3 Characteristics of the Potential Impact

High level assessments of the potential impacts have been undertaken for environmental issues considered appropriate to this proposed flood scheme.

Further detailed assessments will be submitted in support of the scheme as part of the flood order documentation including:

- Illustrative 3D visualisations
- Hydrology and Hydraulic Report
- Factual Geo-Environmental Desk Study Report, Sweco, January 2018 (**Appendix A**)
- Ground Investigation Interpretative Report

10.4 Requirement for an EIA

The proposed scheme is considered to be low impact and will generate no significant adverse impacts through its development or operation. In fact, it will bring positive benefits to both the local community and the environment by reducing flood risk. The development would not result in any possible significant adverse effects in terms of population and human health, bio-diversity, land, soil, air, water or climate or material assets, cultural heritage and the landscape on its own or cumulatively within the Newton Stewart or the wider area.

As outlined above, the site of the development has been selected to ensure an effective flood prevention scheme is installed and it has avoided the environmentally sensitive locations and as such there are no issues related to the natural environmental ability to accommodate the development. Based on the above, and the supporting detail, it is considered that the **development does not qualify as requiring an EIA under Schedule 1 of the Flood Regs.**

¹⁶ <http://www.dumgal.gov.uk/article/17004/Newton-Stewart-Flood-Protection-Scheme>

APPENDICES

**Appendix A – Factual Geo-Environmental
Desk Study Report, Sweco, January 2018**

Appendix B – EIA Screening Responses

DRAWINGS

**Drawing Ref 118908-SWECO-SK123 Geo-Environmental Constraints
Sheet 1 of 2**

**Drawing Ref 118908-SWECO-SK124 Geo-Environmental Constraints
Sheet 2 of 2**

**Drawing Ref 118908-SWECO-SK126 New Flood Defences Constraints
Sheet 1 of 2**

**Drawing Ref 118908-SWECO-SK127 New Flood Defences Constraints
Sheet 2 of 2**

