# Grangemouth Flood Protection Scheme

## Technical Note - Abbots Road and Park Road Flood Defence

B2386100-JEC-S4-C04-ZZZ-TN-C-0005/P04

April 2022

**Falkirk Council**

B2386100

**Document history and status**

| Revision | Date | Description | Author | Checked | Reviewed | Approved |
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| P01 | 07.04.2022 | Initial draft for comment | RM | AJ | AM | AM |
| P02 | 28.04.2022 | Updated following Falkirk Council comments | RM | SS | RM | AM |
| P03 | 18.04.2023 | Final draft | RM | SS | AM | AM |
| P04 | 12.12.2025 | Issued for local hearing | RM | SS | AM | AM |

**Distribution of copies**

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| P01 | 06.04.2022 | 07.04.2022 | Falkirk Council | For initial comment on draft version |
| P02 | 28.04.2022 | 29.04.2022 | Technical Note working | For review by the technical note working group |
| P03 | 18.04.2023 | 18.04.2023 | Falkirk Council | Final draft |
| P04 | 12.12.2025 | 15.12.2025 | Local hearing | Issued for local hearing |

# Grangemouth Flood Protection Scheme

| | |
|---|---|
| Project No: | B2386100 |
| Document Title: | Abbots Road and Park Road Flood Defences |
| Document No.: | B2386100-JEC-S4-C04-ZZZ-TN-C-0005 |
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## Contents

# 1. Guidance to Readers

This Technical Note (TN) has been produced to assist and support the decision-making process during the Outline design of the Grangemouth Flood Protection Scheme (the Scheme). There are multiple TN's for the Scheme and each TN focuses on identifying a recommended design solution for one specific location or area.

TN's are produced where there may be multiple design options for a flood defence solution, each within their own positive and negative impacts in relation to parameters such as Time, Cost, Social or Environmental disturbance, and are a means, within the design process, to help assess and refine those options.

The TN's should not be considered as full option appraisals, or should they have to meet the formal requirements of that process as outlined in "Options appraisal for flood risk management: Guidance to support SEPA and the responsible authorities", published by the Scottish Government in 2016. The TN's have been developed by members of the Technical Workstream and drafted in an open and transparent manner, with the principal focus of the TN being technical aspects. The TN's have been drafted using experience and professional judgement gained from working on other flood protections schemes in Scotland. Within the TN's any comparative assessment in relation to parameters such as 'time' or 'cost' , i.e. Low, Medium or High impacts, for any option, are relative comparisons measured only, unless specifically noted otherwise, against the alternative options contained within that specific TN.

The variation between a 'Low', 'Medium' or 'High' value is typically where the measure being compared is considered to have a difference in quantum which is judged to be significant enough to influence the decision-making process for the options being assessed within each individual TN. There are no overarching threshold trigger levels between these categories which extend to all TN's, and a high-level comparison of these categories between other TN's shouldn't be carried out, what is a high cost option in one TN could very well be a low cost compared to options being considered in another TN.

Each TN has included a 'light touch' Equality Poverty Impact Assessment (EPIA), which is specific to the TN. A full EPIA will be carried out at key project milestones and recorded within Falkirk Council's systems.

Each TN will review the options being considered against the twenty Design Principles which have been developed to record and justify how the flood defence alignment has been determined by the project team. Not all the design principles will be applicable to all the options considered in the TN's, professional judgement will be used to determine which principles should be scoped out.

The recommended option identified for each TN, should be seen as an interim recommendation that will be subject to change once the 'next steps' are completed. Additional checks and reviews will also be undertaken as the outline design process is concluded prior to developing the scheme documents. It should also be noted that once any 'next steps' identified are carried out the TN will be subject to a further review to confirm the continued suitability of the recommended option or otherwise.

# 2. Introduction

This technical note outlines the two alternative options that have been considered for flood defences on Abbots Road and Park Road following feedback on the options presented at the public engagement sessions held in June 2021. Figure 1 outlines the proposed option developed by the project team.


Figure 1 Outlines proposed option developed by the project team

- Alternative Option A – The flood wall is positioned within the carriageway extents of Abbots Road and Park Road, out with the root protection area (RPA) of the trees on the banks of the Grange Burn allowing retention of the trees alongside the Grange Burn and altering the current road network.

- Alternative Option B – The flood wall is positioned parallel to Abbots Road and Park Road, with sufficient space to accommodate on-street parking and one running lane.

This technical note outlines the feedback received from consultation with both Falkirk Council Roads Development Control Team and Scottish Fire and Rescue Service on the above alternative options, as well as outlining some of the technical aspects which have been considered for both.

# 3. Extents of areas considered within the technical note

Figure 2 outlines the location of Abbots Road and Park Road, in Grangemouth and the area considered by this technical note.

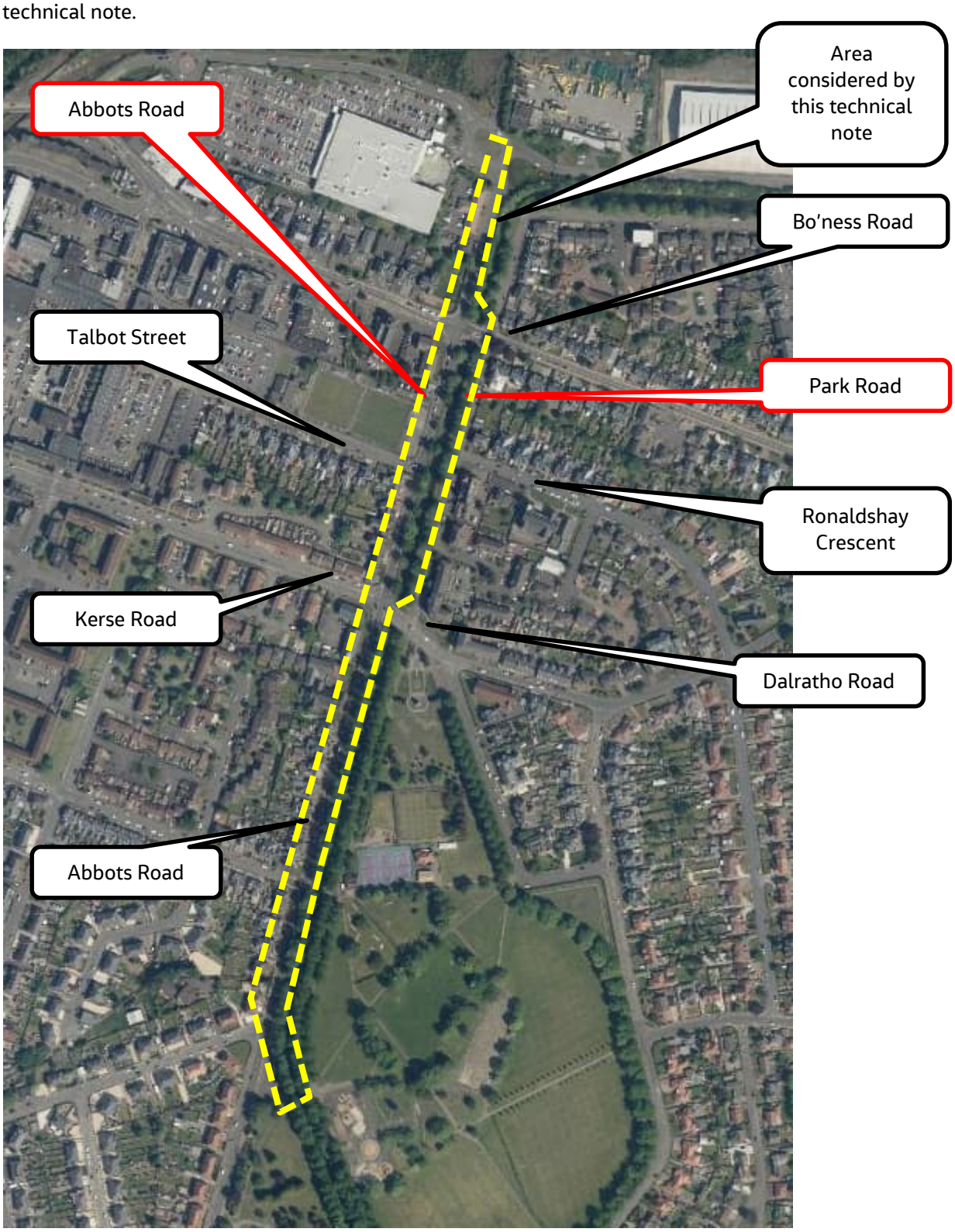



Figure 2 Location of Abbots Road and Park Road and area considered by this technical note

# 4. Alternative Option A – Flood wall offset from the top of bank, edge of carriageway to retain existing trees

This option positions the flood wall out with the root protection area (RPA) of the trees parallel to Abbots Road and Park Road. Falkirk Council commissioned Caledon Tree Consultants Ltd in 2019 to carry out a tree survey in accordance with BS5837. As part of this survey the RPA for each surveyed tree was identified. The British Standard that defines the RPA was created by the UK's national standards body. In the British Standard, an RPA is called a 'layout design tool'. It suggests the minimum area around a tree that holds enough roots and rooting volume to maintain the tree's viability. Any encroachment into the RPA through the construction of flood defences could compromise the viability of the tree. Given the size, height and location of trees relative to existing properties and roads it would be unwise to assume that construction works which disturb a significant amount of the RPA are not going to compromise the tree, and therefore it would be prudent to fell those impacted trees to minimise any future safety risks from trees falling, (i.e. during high winds) as a result of severed roots reducing the stability of the tree.

Positioning the flood defence wall out with the majority of RPA's identified by Caledon would result in the wall on Abbots Road being located approx. 4m into the existing carriageway (approximately centre of road), meaning Abbots Road would need to be become a one-way (single direction) road with no space to accommodate stopping or on street parking. Even with the flood defence positioned in the centre of the existing road, there are still some locations where the flood defence would be within the RPA and require trees to be felled.

Figure 3 and 4 show a typical plan and X-section of the alternative option A. It is possible for a new foot way/cycle way to be installed on the wet side of the flood defence wall, this would require access points, with flood gates installed, in the wall to provide a means of entering and leaving the footway/ cycle way, Appendix A contains plans which outline alternative option A along the full length of Abbots Road.

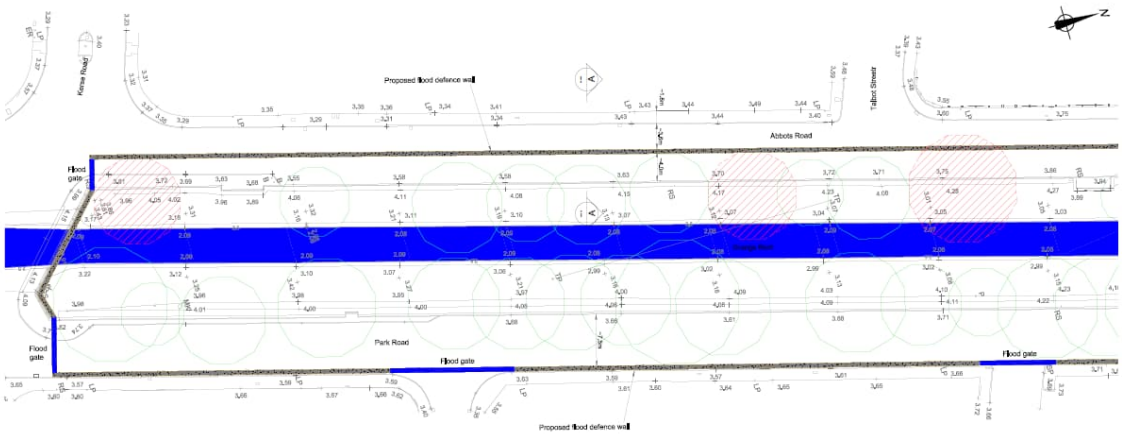
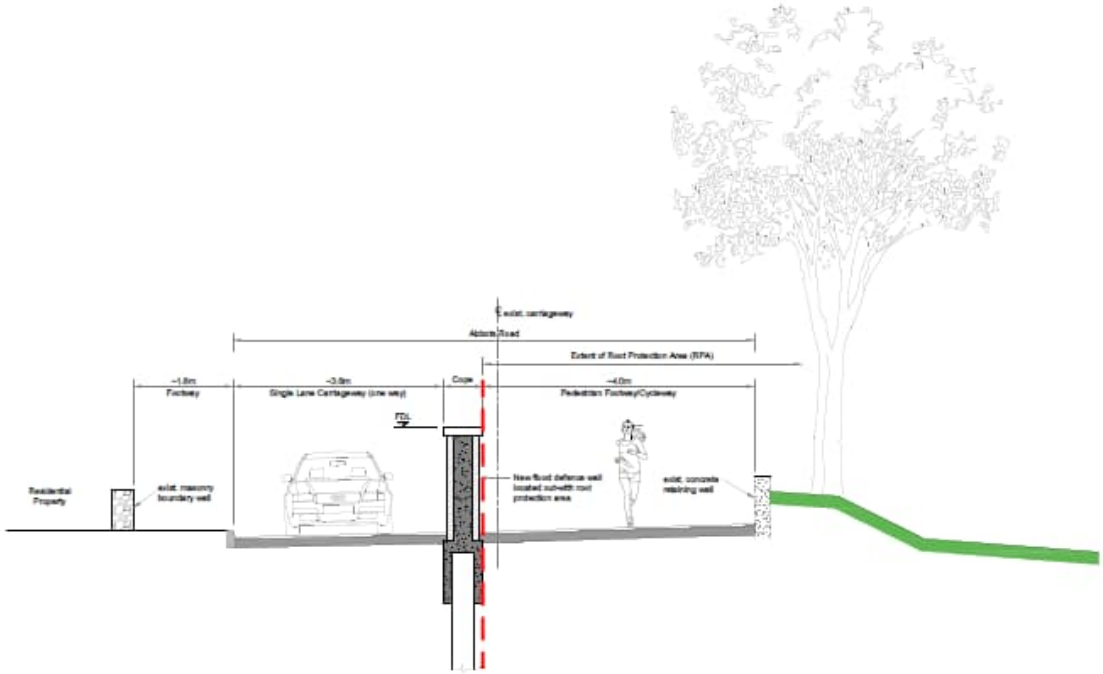



Figure 3, Extract from plans contained in Appendix A





Abbots Road - Street View Looking North
Scale 1:100

Figure 4 Typical X-Section

On Park Road the RPA's extend across the whole carriageway and would require the flood defence to be located on the kerb line between carriageway and footway on the east side of the road with flood gates to be installed at either end of Park Road and at the junction with Ronaldshay Crescent and the entrance to Grange Place and Brown Court.

Both Grange Place and Brown Court have no alternative vehicular access and would be cut-off if the flood gates on Park Road were closed. Pedestrian access would be maintained via the existing footway on the dry side of the wall. Parking on Park Road could remain, however any vehicles that are not removed prior to the closure will have to remain in-situ until the demountable/temporary flood defences have been removed and therefore will be at risk of damage/loss during a flood event, see Figure 5

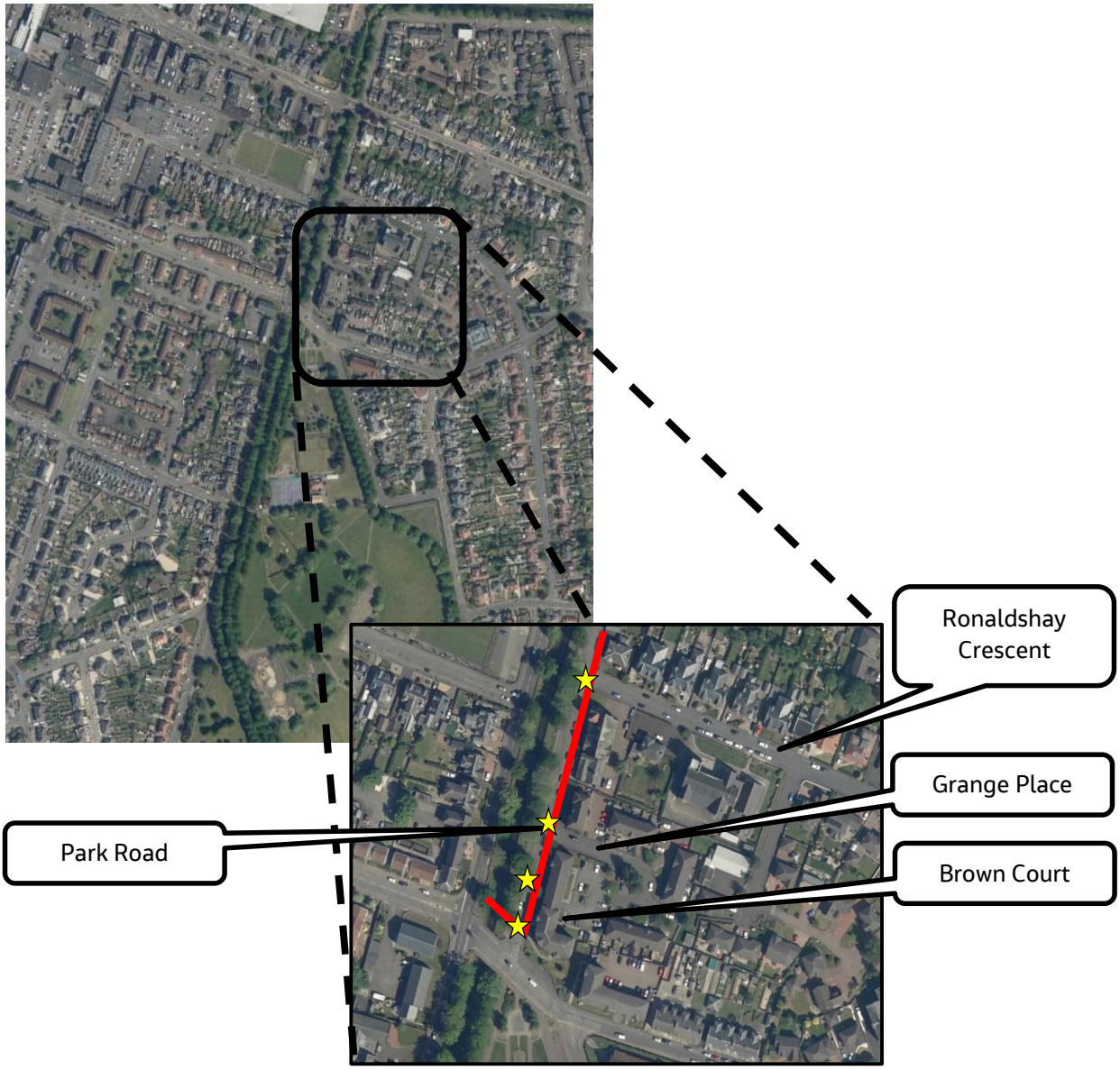



Figure 5 Illustrates the restricted access off Park Road, the flood wall position is shown in red and flood gates shown as yellow stars

# 5. Alternative Option B - flood wall constructed parallel to Abbots Road and Park Road

This option would retain a sufficient width of carriageway to permit on street parking and also a one-way running lane i.e. a width of around 6m, see Figure 6 and 7.

The position of the flood defence wall to retain 6m carriageway width would result in the majority of RPA's being intersected by the flood defence wall. As described in alternative option A any encroachment into the RPA would require the existing trees on the banks of the Grange Burn parallel to Abbots Roads to be felled. New semi-mature trees would be planted on the bank of the Grange Burn once construction works are completed. This would provide a visual screen and allow a more diverse range of trees to be planted which would become more resilient to disease and encourage long term health of existing trees. Planting younger trees, will also help maintain the future tree coverage by introducing a staggered planting and growth range.

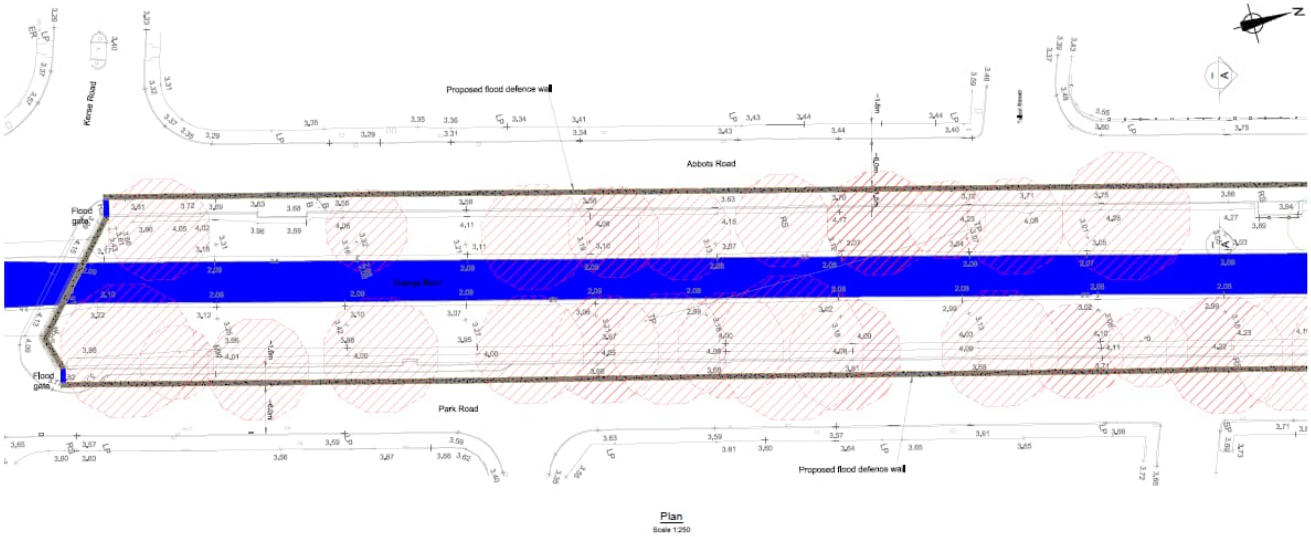



Figure 6 Extract from Appendix B, showing the wall position on Abbots Road and typical detail


Figure 7 Typical X-Section

On Park Road the flood wall would be positioned 1.2m to 1.6m offset from the existing small retaining wall in the existing carriageway. As with Abbots Road this would still result in the flood defence wall encroaching well into the RPA's requiring most of the trees to be felled.

# 6. Comments from Falkirk Council Roads Team

Falkirk Council's Roads Development Control Team were approached and asked to comment on the proposals seeking input where necessary from other teams, Appendix C has a copy of the emails received from them.

## 6.1 Alternative Option A

This option would require Abbots Road to become one way with no on-street parking allowed. A wheel rubbing zone would need to be installed directly in front of the wall (on the dry side). The wheel rubbing zone would require a kerb to be installed 0.3m-0.5m in front of the wall. The wheel rubbing zone would be installed to reduce the chances of a vehicle hitting the wall or damaging the vehicle. Having a wheel rubbing zone would reduce the proposed footway width by up to 0.5m.

### 6.1.1 Abbots Road

Abbots Road is classified by Falkirk Council as a 'Secondary Distributor Road' and provides an alternative main access route to the Port of Grangemouth and the petrochemical plant that is required as part of contingency plans should other access routes in the area become compromised. Abbots Road is one of the main routes to Grangemouth town centre and the ASDA supermarket.

### 6.1.2 Park Road

The geometry of Park Road does not change, the carriageway is on the wet side of the flood wall and therefore at risk of flooding. At least six vehicular flood gates would be required to maintain access to surrounding roads and driveways.

### 6.1.3 General Overall Consensus

Option A would have a significant impact on Abbots Road and the surrounding area, through loss of onstreet parking, reduce capacity on the carriageway and introduction of a one-way system. The overall flood protection scheme will provide flood protection to communities in Grangemouth and the surrounding areas; however, this option is unlikely to provide a positive impact on communities in Grangemouth.

## 6.2 Alternative Option B

This option would require Abbots Road to become one way with on-street parking,

### 6.2.1 Abbots Road

Like the comments in section 6.1.1, if Abbots Road was one-way, it would have implications on the surrounding Road network. The swept path of vehicles using the driveways on Abbots Road would need to be further investigated.

### 6.2.2 Park Road

The carriageway width is sufficiently large enough to allow for two-way traffic and on-street parking to be maintained if a flood wall was constructed at the edge of the existing carriageway.

# 7. Comments from Scottish Fire and Rescue Service

## 7.1 Alternative Option A

### 7.1.1 Abbots Road

Reducing the carriageway width down to approx. 3.6m would result in Abbots Road being unable to accommodate some appliances used by Scottish Fire and Rescue which have out-riggers that would need to be positioned on the footway or within private drives/ gardens. It is not good practice for appliance out-riggers to be positioned outwith the carriageway, due to the reduced structural make-up of the footway and being unable to accommodate the pressure exerted on the outrigger feet.

### 7.1.2 Park Road

Access to Brown Court and Grange Place would be compromised if the flood barriers across Park Road were closed. Scottish Fire and Rescue recommend that an appliance can access a location that is no more than 10m from a property. With option A, an appliance would be positioned on Dalratho Road, Ronaldshay Cresent or Peddie Place over 50m away.

## 7.2 Alternative Option B

### 7.2.1 Abbots Road

The carriageway width would be sufficient for appliance out-riggers to be contained to the carriageway subject to no parked vehicles.

### 7.2.2 Park Road

The carriageway width would be sufficient for appliance out-riggers to be contained to the carriageway subject to no parked vehicles

# 8. Opportunities and Constraints Table

| Alternative Options | Economic | Social | Environmental | Access | Comment |
|---|---|---|---|---|---|
| A - Abbots Road | High – due to cost of constructing a wall and installing a new footway and possibly needing to undertake upgrade work on other roads in the area as Abbots Road would be one-way. | High - Reduced access to Abbots Road, due to one-way system; potential to increase congestion both in Abbots Road and in other parts of Grangemouth.<br><br>No on-street parking or facility for stopping on Abbots Road<br><br>With Abbots Road being one-way there would be a significant impact on public transport as bus routes would need to alter<br><br>Fire & Rescue Services may not be able to access properties in an emergency. | Low – majority of existing trees on the banks of Grange Burn are retained and new footway could be created. | High - Removing on-street parking and making Abbots Road one way is likely to have a negative impact on people in the area. Less mobile people would be disadvantaged. | Changes how Abbots Road functions and the streetscape. Requires flood gates/barriers at the ends of the footway, access to riverbank and at pedestrian crossings. All flood gates will need to be maintained and operated |
| B – Abbots Road | Medium – due to the cost of constructing a wall and planting new semi-mature trees | Medium - Reduced access to Abbots Road, due to one-way system; potential to increase congestion both in Abbots Road and in other parts of Grangemouth.<br><br>With Abbots Road being one-way there would be a significant impact on public transport as bus routes would need to alter | Medium – the short-term impact of felling the trees would be off-set by the planting of large specimen trees that would future proof the existing tree stock, be resilient to disease and more diverse enhancing biodiversity | Medium - Whilst on-street parking and stopping is retained, making Abbots Road one way is likely to have a negative impact on people in the area due to changes in public transport routes. Less mobile people would be disadvantaged. | Abbots Road retains its current function and overtime the avenue of trees will become re-established. Flood gates are only required to access the riverbank |

| Alternative Options | Economic | Social | Environmental | Access | Comment |
|---|---|---|---|---|---|
| A – Park Road | High- due to the cost of constructing a wall and resurfacing part of Park Road and installing, maintaining and operating several flood gates | High - Reduced access from Park Road to Ronaldshay Crescent and Grange Place and Brown Court when flood gates are closed. potential to increase congestion on surrounding roads. Cars parked on Park Road would be at risk of being damaged from flood water if the flood gate is closed whilst car are parked on the street.<br><br>Fire & Rescue Services may not be able to access properties in an emergency. | Low – majority of existing trees on the banks of Grange Burn are retained and new footway could be created. | High - On-street parking is possible, but vehicles are exposed to flood damage if the flood gates are closed. Less mobile people would be disadvantaged as vehicle access to properties not possible during a flood event. | Changes how Park Road functions and would potentially leave vehicles at risk of being damaged during a flood event Requires flood gates at both ends of Park Road and al junctions. Once the gates are closed vehicle access to Grange Place and Brown Court would be restricted. |
| B – Park Road | Medium – due to the cost of constructing a wall and planting new semi-mature trees. | Low – Park Road remains in its current condition (two-way traffic), on street parking and does not impact other parts of Grangemouth. | Medium – the short-term impact of felling the trees would be off-set by the planting. large specimen trees that would future proof the existing tree stock, be resilient to disease and more diverse enhancing biodiversity | Low - Access to the Grange Burn would be possible through flood gates. | Park Road retains its current function and overtime the avenue of trees will become re-established. Requires flood gates to access the riverbank. |

Table 1 Opportunities and Constraints Table

# 9. Recommendations

Neither alternative option A or B are taken forward to the outline design stage:

- Option A – is not considered practical option due to the reduced carriageway width,
- Option B – offers no advantage over the current proposed alignment
- The current proposed alignment has the wall on the top of the bank, close to the carriageway edge. The current carriageway dimensions are maintained.
- Access to Abbots Road for Scottish Fire and Rescue is maintained and appliance out-riggers can be positioned on the carriageway,
- Access to Park Road is maintained with Scottish Fire and Rescue appliances able to access Grange Place and Brown Court from Park Road,
- Abbots Road and Park Road remain as two-way roads, some parking restrictions may need to be implemented on Abbots Road, depending if a new footway is installed on the east side of Abbots Road,
- No vehicular flood gates are required,
- The condition of some trees on the banks of the Grange Burn is poor (low quality) and are showing symptoms of Ash Dieback disease and are likely to need to be removed in the future,


Figure 8 Extract from Grangemouth Flood Protection Scheme website

- New semi-mature trees can be planted once the construction works are completed, when planting new trees, a range of species can be planted which would allow the trees to be more resilient to disease and potentially have a positive effect on biodiversity. When established having a younger treestock will reduce the risk of loss due to a single specific disease but many of the existing aging trees are prone to wind damage which Falkirk Council are responsible for. Having a range of young mixed species trees will

have positive effects on biodiversity, the long-term disease management and Carbon uptake compared to the existing trees.

# 10. Equality Poverty Impact Assessment

An equality poverty impact assessment (EPIA) is being undertaken at key project milestones. The EPIA contained within this technical note, will feed into the over EPIA for the project. The EPIA (Table 2) is high-level assessment that is bespoke to this technical note and to the current proposed (flood wall at the edge of the existing carriageway), which has been recommended as the option that should be progressed beyond the outline design stage. Table 2 outlines the EPIA for the recommended option.

| Protected Characteristic | Neutral Impact | Positive Impact | Negative Impact | Evidence of impact on protected characteristic |
|---|---|---|---|---|
| Age | | | | Positive impact – reduces flood risk to communities in the Grangemouth area and allows people to enjoy community spaces. Does not alter the current road layout on Abbots Road and Park Road |
| Disability | | | | Positive impact – reduces flood risk to communities in the Grangemouth area and allows people to enjoy community spaces. Does not alter the current road layout on Abbots Road and Park Road |
| Sex | | | | No impact |
| Ethnicity | | | | No impact |
| Religion/belief | | | | No impact |
| Sexual Orientation | | | | No impact |
| Transgender | | | | No impact |
| Pregnancy/maternity | | | | No impact |
| Marriage/Civil Partnership | | | | No impact |
| Poverty | | | | Positive impact - Grangemouth has high indices of multiple deprivation and will protect those less readily able to prepare, protect and recover from flooding. The scheme will provide flood protection to communities in Grangemouth, which aims to stimulate economic growth and generate additional employment opportunities. |
| Health/community justice | | | | Positive impact – by protecting communities from flooding which will allows people to enjoy open spaces more and has positive health benefits. |

Table 2, Equality poverty impact assessment for the proposed current flood defence alignment

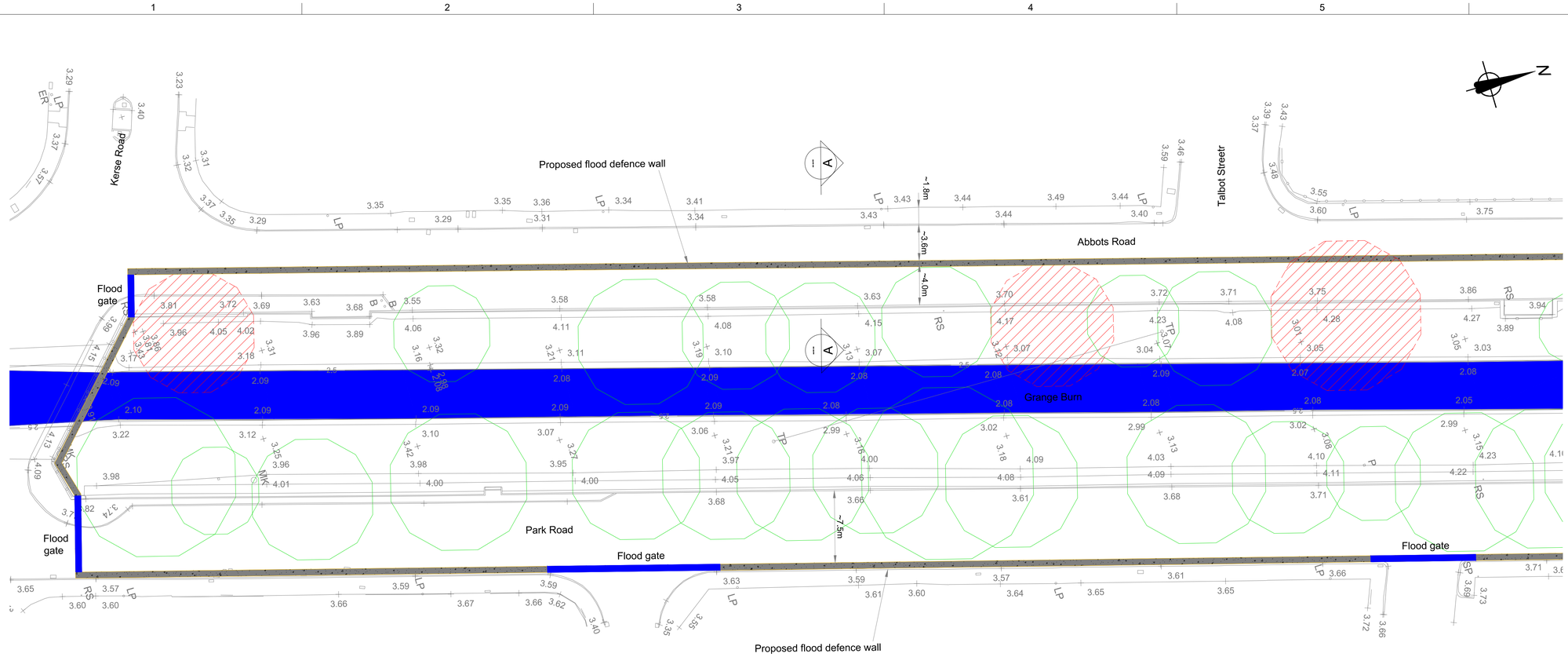
# 11. Design Principals

Table 3 outlines the scheme design principals, which have been developed to help the design team determine the alignment of flood defences. The proposed alignment has been considered with the two alternative alignment options in this technical note.

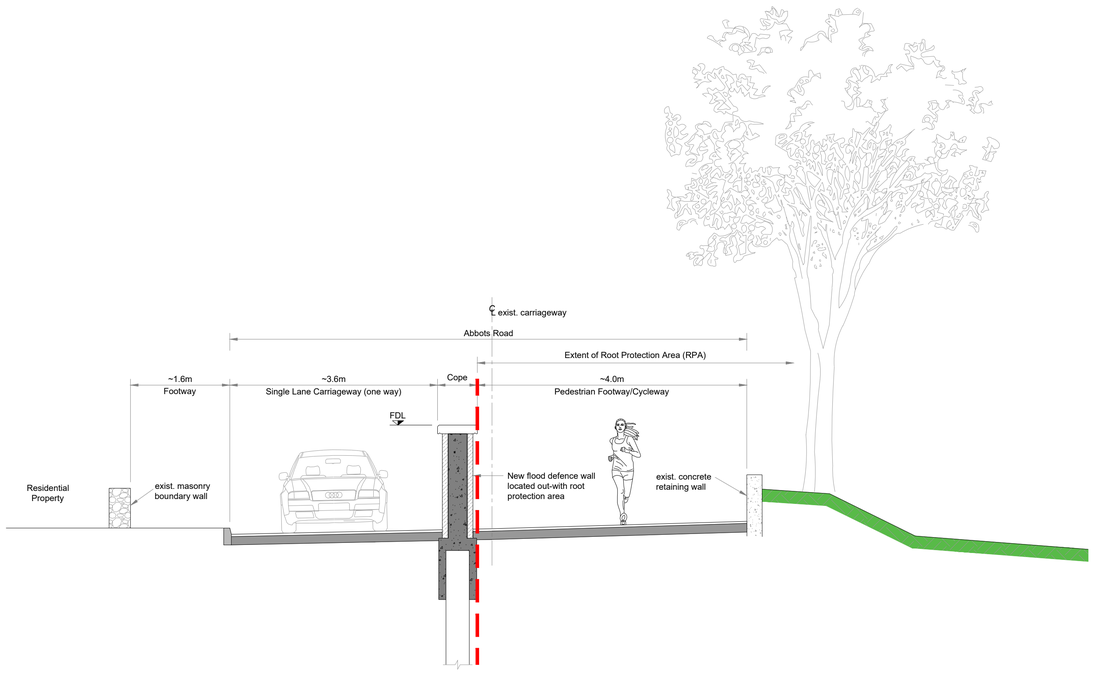
| Alignment Principles | | Alignment Options | | |
|---|---|---|---|---|
| | | Proposed alignment | Alternative Option A | Alternative Option B |
| 1 | Protect existing buildings and infrastructure | ✓ | ✗ | ✓ |
| 2 | Avoid encroachment into sensitive environmental sites | ✓ | ✓ | ✓ |
| 3 | Minimise disturbance of existing riverbanks and coastline | ✓ | ✓ | ✓ |
| 4 | Retain existing undeveloped land/ flood plains | ✗ | ✓ | ✗ |
| 5 | Avoid in water working | ✓ | ✓ | ✓ |
| 6 | Avoid utility diversions | ✗ | ✗ | ✗ |
| 7 | Locating flood defence adjacent to residential properties and outside the residential property boundary to reduce the loss of private garden | ✓ | ✗ - | ✓ - |
| 8 | Locating flood defences out-with the operation areas of the petrochemical site | N/A | | |
| 9 | Retain passive resistance to embedded walls to reduce pile lengths | ✓ | ✓ | ✓ |
| 10 | Consider Loading, Form of Defence and Land Take | ✓ | ✓ | ✓ |
| 11 | Adopt solutions that minimise disturbance of contaminated soils | ✓ | ✓ | ✓ |
| 12 | Maintain a straight alignment where possible e.g., avoid frequent changes in direction | ✓ | ✗ | ✗ |
| 13 | Minimise the use of floodgates and demountable defences | ✓ | ✗ | ✗ |
| 14 | Maintain a consistent standard of protection | ✓ | ✓ | ✓ |
| 15 | Avoid tree felling and vegetation clearance | ✗ | ✓ | ✗ |
| 16 | Consideration of future maintenance and access requirements | ✗ | ✓ | ✓ |
| 17 | Ensure the residual pluvial flood risk is appropriately mitigated | ✗ | ✗ | ✗ |
| 18 | Ensure key transport arteries are resilient to a 200yr event | ✓ | ✗ | ✓ |
| 19 | Minimise impact on the road network | ✓ - | ✗ - | ✓ - |

| Alignment Principles | | Alignment Options | | |
|---|---|---|---|---|
| | | Proposed alignment | Alternative Option A | Alternative Option B |
| 20 | Minimise impact on cultural heritage sites | N/A | | |

# Appendix A – Plans of Alternative Option A




## Plan
Scale 1:250




## Section A-A
(Typical Section on Abbots Road)
Scale 1:50


## Abbots Road - Street View Looking North
Scale 1:100



## KEY PLAN

## GENERAL NOTES

1. This plan is provided in accordance with the requirements of the Flood Risk Management (Scotland) Act 2009 Section 60 and Schedule 2.
2. These drawings are for information purposes only.
3. All dimensions in meters unless stated otherwise.
4. Where required a surface water drain will be installed on the dry-side of the proposed flood defences.

## LEGEND

Existing tree NOT affected by construction of flood defence

Existing tree affected by construction of flood defence

| REV | SUIT | DATE | DESCRIPTION | BY | APP |
|---|---|---|---|---|---|
| | | | | | |

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GRANGEMOUTH FLOOD PROTECTION SCHEME
CELL 4 - ROOT PROTECTION AREA
FLOOD DEFENCE OPTION 1
RETAIN MAJORITY OF TREES

| DESIGN: | DRAWN: | CHK: | APP: |
|---|---|---|---|
| SJF | SJF | RM | AM |

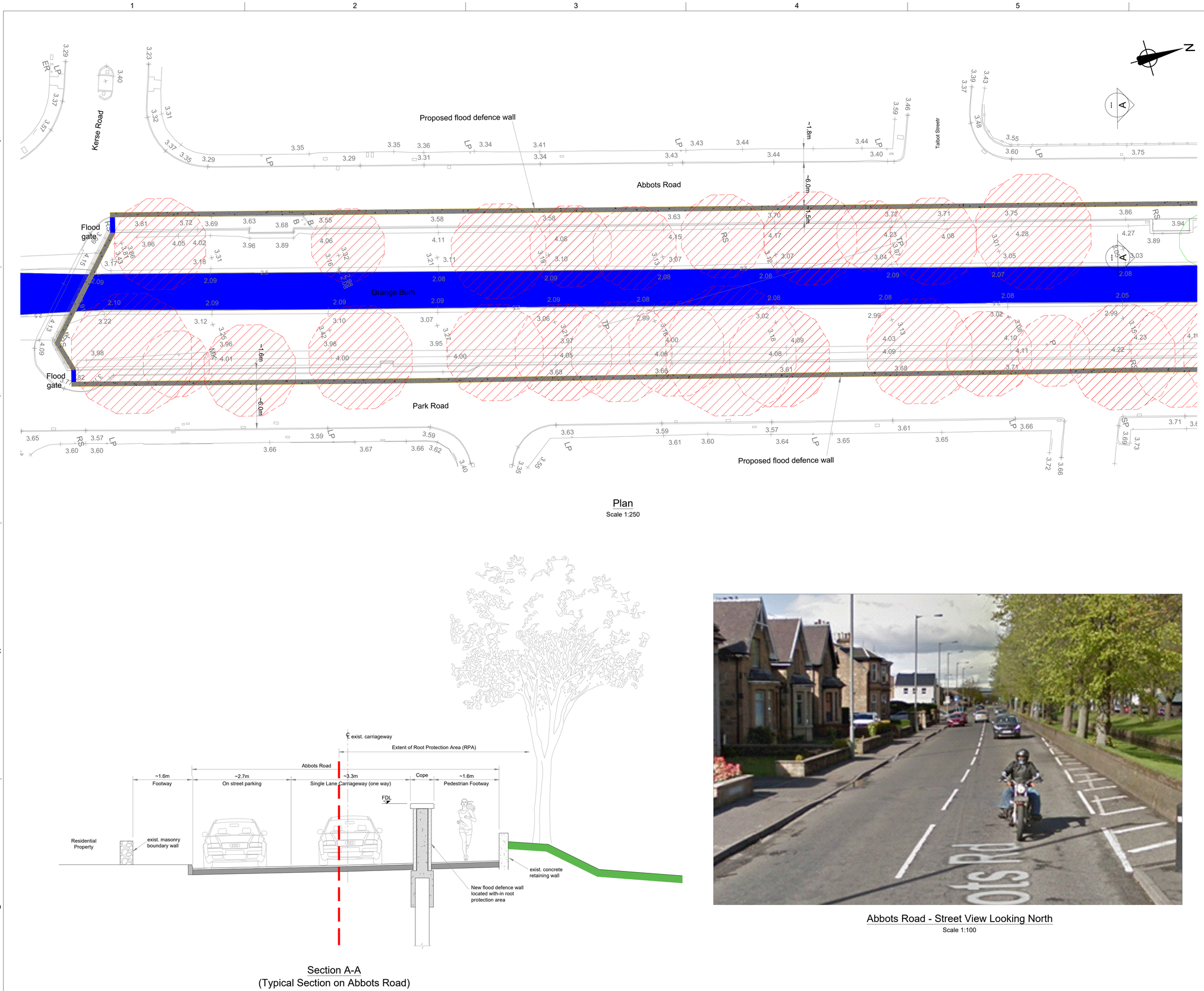
As Shown @ A1

DATE: June 2021
PROJ: B2386100
DWG: B2386100-JEC-C04-XXX-SK-C-0004
SHEET: 4 of 11 | REVISION: P01 | SUITABILITY: S0



B2386100-JEC-000-ZZZ-DR-GEN-0001

# Appendix B – Plans of Alternative Option B




## Plan
Scale 1:250




## Section A-A
(Typical Section on Abbots Road)
Scale 1:50




## Abbots Road - Street View Looking North
Scale 1:100



## KEY PLAN

## GENERAL NOTES

1. This plan is provided in accordance with the requirements of the Flood Risk Management (Scotland) Act 2009 Section 60 and Schedule 2.
2. These drawings are for information purposes only.
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4. Where required a surface water drain will be installed on the dry-side of the proposed flood defences.

## LEGEND

Existing tree NOT affected by construction of flood defence

Existing tree affected by construction of flood defence

| REV | SUIT | DATE | DESCRIPTION | BY | APP |
|---|---|---|---|---|---|
| | | | | | |

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GRANGEMOUTH FLOOD PROTECTION SCHEME

# CELL 4 - ROOT PROTECTION AREA FLOOD DEFENCE OPTION 2 WITH ON STREET PARKING

| DESIGN: | DRAWN: | CHK: | APP: |
|---|---|---|---|
| SJF | SJF | RM | AM |

As Shown @ A1

DATE: June 2021
PROJ: B2386100
DWG: B2386100-JEC-C04-XXX-SK-C-0023
SHEET: 4 of 11 | REVISION: P01 | SUITABILITY: S0



B2386100-JEC-000-ZZZ-DR-GEN-0001

# Appendix C – Falkirk Council Roads Team Comments

Outlook

# [EXTERNAL] FW: GFPS - Abbots Road, Park Road, Grangeburn Road - Defence Alignment Option 1 and 2

**From** Sharon Agnew <sharon.agnew@falkirk.gov.uk>
**Date** Mon 11/29/2021 5:34 PM
**To** Meeson, Richard <Richard.Meeson@jacobs.com>
**Cc** McGowan, Alan <Alan.McGowan@jacobs.com>

Richard

Craig forwarded drawings on for consultation as below,

Grahame,

Please see email below and attachments re GFPS, option 2 will follow shortly. My immediate thoughts are:

1. Traffic modelling would be required to determine the impact of converting Abbots Road to single lane
2. Swept path layouts would be required to demonstrate minor road traffic could still enter and exit Abbots Road
3. Access arrangements for utilities on the non-road side of the wall
4. Implications for maintaining the narrowed carriageway – suitable diversion routes available?

Can you review please and reply to Sharon as appropriate?

Thanks,
Craig.

Response from Grahame below apologies as I had issues sending due to the size of the drawings which were attached to emails.

Sharon

---

**From:** Grahame Crawford <grahame.crawford@falkirk.gov.uk>
**Sent:** 29 November 2021 15:41
**To:** Sharon Agnew <sharon.agnew@falkirk.gov.uk>
**Cc:** Russell Steedman <russell.steedman@falkirk.gov.uk>; Gavin Davie <gavin.davie@falkirk.gov.uk>; Gary Neill <gary.neill@falkirk.gov.uk>; Craig Russell <craig.russell@falkirk.gov.uk>; Stuart Menzies <Stuart.Menzies@falkirk.gov.uk>
**Subject:** GFPS - Abbots Road, Park Road, Grangeburn Road - Defence Alignment Option 1 and 2

Sharon,

I have reviewed the drawings provided for the above options and would make the following comment:

1. Grangemouth Docks and Refinery are strategic locations in every form and for that reason as a Roads Authority, Falkirk Council must maintain appropriate unobstructed access to these areas at all times. Part of the reason the Grangemouth Flood Prevention Scheme has come about.

2. The B9132 Newlands Road/Abbots Road from Beancross Road to the Roundabout at Shore Road are classed as a Secondary Distributor Roads in the Falkirk Council Adopted Public Roads Hierarchy, they form an alternative main access route to the docks and refinery that is required in contingency plans should any other dock access be compromised. They are also one of the main routes for customers attending Grangemouth Town Centre and the ASDA store and support local on street housing.

3. Grangeburn Road is a 7.3m wide single sided residential street facing on to the Grange burn with the existing flood defence bund on the north verge. Most of the dwellings rely on on-street parking and the 7.3m wide road allows free flow with the parking.

4. The proposals appear to be putting a flood defence wall down the middle of both roads, making the roads into one way single carriageway with no potential for on street parking and insufficient room for vehicles to enter and exit off street parking.

5. Newlands Road, Abbots Road and Grangeburn Road, would lose any on street parking where there are no driveways and the restriction in width would not leave a reasonable swept path to enter or exit any existing driveways.

6. On both roads, the existing flood prevention scheme is off road to one side of the road, I understand the wish to retain trees, particularly within a tree preservation area, however, the Grangemouth Flood Prevention Scheme is for the greater good of the whole community and I do not see any reason not to enhance or rebuild these flood defences, even if that requires removing trees..

With the foregoing in mind, I would conclude that it would be inappropriate to construct flood defences on any of the roads as it compromises existing emergency contingency plans, local roads network and would disrupt households on the roads to an unacceptable level.

Grahame Crawford
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