Pell Frischmann

Wales Coast Path Barrier Review

Report

March 2023

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Executive Summary

Scheme Name	Wales Coast Path Access Control Barrier Review
Location	Flintshire

Flintshire County Council (FCC) has appointed Pell Frischmann (PF) to undertake a review of the existing access control measures in place on a section of the Wales Coast Path (WCP) between Chester and Queensferry.

The access control barriers are in place in order to protect users of the study area against the risks posed by illegal vehicle access to the path, and we understand these have been largely effective in preventing illegal access (particularly by motorcycles). However, it has been brought to FCC's attention that the existing chicane and A Frame barriers in particular can cause issues to users of some mobility scooters & unconventional cycles in terms of permeability. Therefore opportunities to amend the existing access control measures to improve permeability have been explored, with potential permeability improvements balanced against any impact of such amendments on illegal vehicle accessibility.

PF have undertaken a site visit to appraise all barriers in situ, and have undertaken a desktop exercise to establish the likely permeability of each barrier by various modes, cognisant of all relevant national and local standards. The results of that appraisal have shown that opportunities exist for improvements to be made to existing measures, or for replacement of existing measures by alternative solutions, to provide enhanced permeability for legitimate users whilst maintaining the existing levels of defence against illegal vehicle ingress.

The report makes recommendations for each individual barrier, and includes a table summarising these recommendations within the concluding section.

1 Introduction

1.1 Introduction

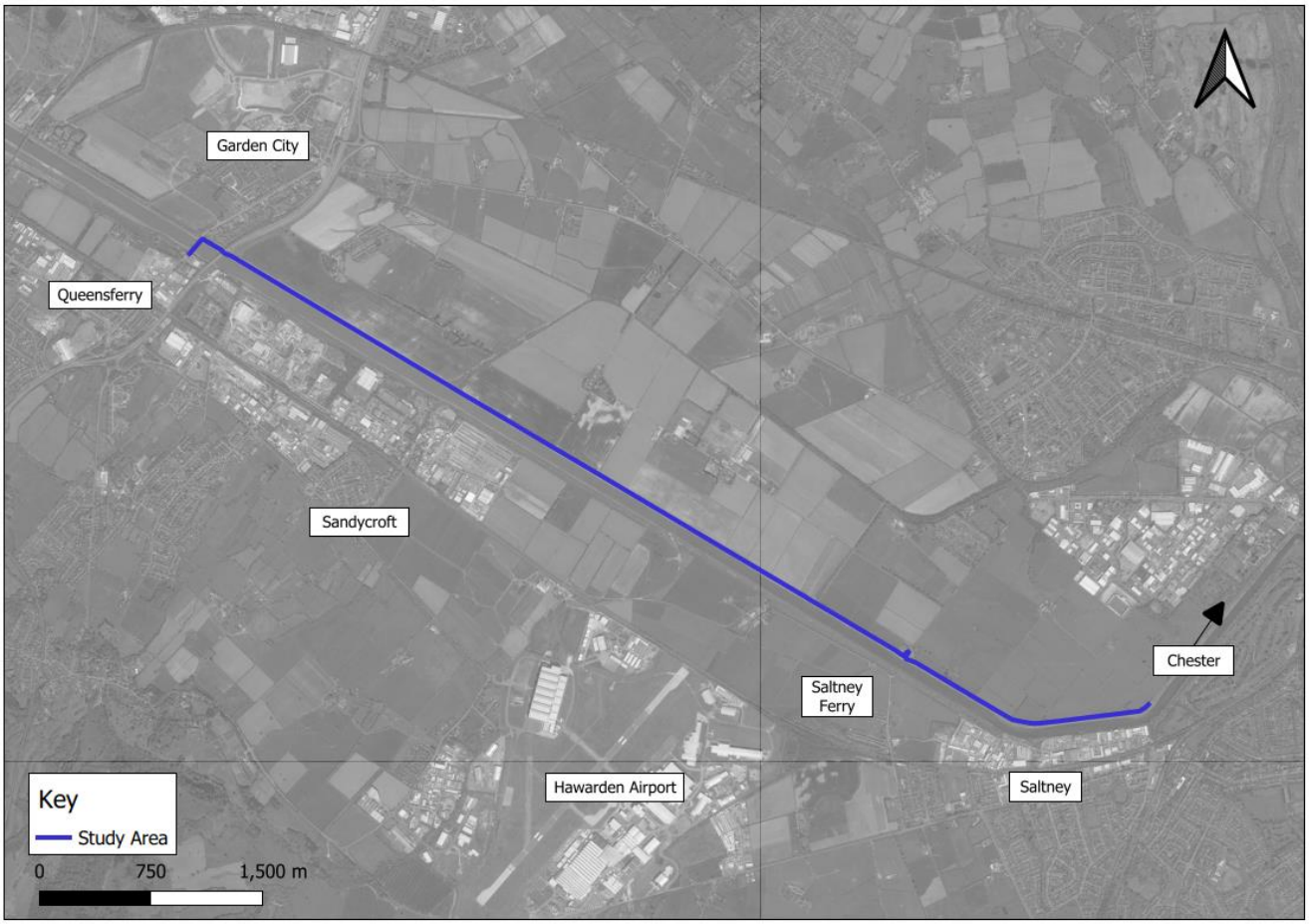
1.1.1 Flintshire County Council (FCC) has appointed Pell Frischmann (PF) to undertake a review of the existing access control barriers on the section of the Wales Coast Path (WCP) between Queensferry and Chester.

1.1.2 The report was commissioned by Flintshire County Council funded by the Welsh Government through the Wales Coast Path scheme as administered by Natural Resources Wales.

1.1.3 The WCP, in the context of Flintshire extends from the border with Chester in the southeast along the northern bank of the River Dee, before crossing the River Dee using the Jubilee Lift Bridge (commonly known as the Blue Bridge) in Garden City. The WCP then routes along the south side of the River Dee, passing through Shotton, Connah's Quay, Flint, Bagillt, Holywell and Mostyn before reaching the northernmost extent of Flintshire at Talacre, The route passes along the coastline with the Irish Sea before passing into Denbighshire between Talacre & Prestatyn. The WCP forms part of the National Cycling Network (NCN) as Route 568.

1.1.4 The study area for this commission is shown in Figure 1-1 below, and consists of the section of the path between the Jubilee Lift Bridge in Garden City, and the Wales/England border, which is located approximately 7.2km to the southeast of the Jubilee bridge. The border is marked by a marker post, which also denotes the border between the FCC and Cheshire West & Chester Council (CWaCC) areas.

Figure 1-1: Study Area



1.2 Study Context

1.2.1 The study area has long been an active route for walking and cycling journeys, however the path has also in the past experienced issues as a result of illegal vehicle types (such as motorcycles / dirt bikes) gaining access to the path and thereby posing a safety risk to legitimate pedestrian and cycle users.

1.2.2 As a result of this, a number of access control measures were installed along the path to restrict access to the path for illegal users such as motorcycles, in order to ensure the safety of legitimate users of the path, and in order to maintain the attractiveness of the route as a walking and cycling facility. A particular issue within the study area has been the illegal use of motorbikes & mopeds on the path, as is evidenced by Figure 1-2 which shows a motorcycle / dirt bike being confiscated by North Wales Police having illegally accessed the study area.

Figure 1-2: Vehicle Seizure from Study Area

1.2.3 A series of A-Frame and Chicane barriers were installed along the path in 2006 to minimise illegal access opportunities, and it is our understanding that the barriers have been effective at reducing instances of illegal ingression within the study area, although such instances have not been prevented entirely. Further details regarding the access control barriers in place within the study area are provided in Sections 4 & 5.

1.2.4 The barriers were designed to be passable by as many legitimate user types as possible (including Class 2 mobility scooters), whilst prohibiting access to larger vehicles.

1.2.5 In addition to the physical access control measures, signs are also in place at access points to the path (see Figure 1-3 below), which serve to make clear that accessing the path using motorised vehicles is an offence under the Police Reform Act 2022.

Figure 1-3: Example of Motor Vehicle Prohibition Signage

1.2.6 Whilst the measures referenced above have been largely effective at restricting illegal use of the path, it is also our understanding that concerns have been raised by user groups relating to the current access control measures within the study area. Those concerns are that the control measures could make the route difficult to access for some legitimate users, or could even exclude certain user types altogether.

1.2.7 Whilst it is the intention for the study area to be as accessible as possible for all legitimate users, this must be balanced against the need for the safety of users to be protected from the risk posed by illegal vehicle access onto the path. Therefore PF have been commissioned to undertake a review of the existing access control measures within the study area with the intention of providing recommendations for providing improvements to the existing measures within the study area in order to improve accessibility for legitimate users whilst still providing effective protection against illegal access.

1.2.8 It is important to note from the outset that improving access for all legitimate users of the path will necessitate the widening of existing openings at access control locations, which in turn reduces the effectiveness of the access control measure in preventing illegal access. As such, it will not be possible for access for all legitimate users to be improved entirely whilst still retaining the same level of access control to prevent use for vehicles such as cars & motorcycles.

1.2.9 In March 2020, Sustrans undertook a review of all existing barriers on the WCP across Flintshire, including those considered within this report. The report considered the dimensions, positioning and condition of each barrier, and assessed their compliance with key relevant guidance & policy, such as that provided in the Active Travel Wales Design Guidance and the Equalities Act 2010.

1.2.10 The purpose of this commission is to review the section of the WCP from Chester to Queensferry, cognisant of the previous 2020 Sustrans Report, and to recommend a strategy for improvement. This report concludes with a number of recommendations, and it is intended that these will be used to undertake a

consultation process with the community and key stakeholders to understand their views on the recommendations.

1.2.11 Pending the outcome of that consultation process, it is envisioned that the recommendations made in this report would be used to implement improvements within the study area. The impact of these improvements in terms of increasing access for many legitimate users, whilst restricting illegal ingress onto the path, will be closely monitored post implementation.

1.2.12 Should the implementations prove successful, then it envisioned that similar improvements could be rolled out on other sections of the WCP within Flintshire in due course.

1.3 Report Structure

1.3.1 Following this introductory section, the report is structured as follows:

- Section 2: sets out the policy & guidance relevant to this commission;
- Section 3: provides details of the likely vehicle and user types which utilise the WCP;
- Section 4: reviews the existing access barrier control types in place within the study area, and sets out a number of potential alternative solutions which have the potential to provide an upgrade when compared to the existing provision;
- Section 5: appraises each of the existing access control barriers within the study area, and makes individual recommendations for each location;
- Section 6: provides a summary of the recommendations made, and identifies potential next steps for the commission.

2 Relevant Policy & Guidance

2.1 Equality Act (2010)

2.1.1 The Equality Act 2010 became legislation on 6th July 2010, and was revised on 1st October 2010. The act provides legal protection to people from discrimination on the basis of a range of characteristics including disability, age, race, sexual orientation.

2.1.2 The Act requires service providers to make reasonable adjustments for disabled persons so as they are not disadvantaged either directly or indirectly from using services and facilities when compared to those without disabilities. Chapter 20 of the Act covers the duty to make adjustment, and states:

> *"(1) Where this Act imposes a duty to make reasonable adjustments on a person, this section, sections 21 and 22 and the applicable Schedule apply; and for those purposes, a person on whom the duty is imposed is referred to as A.*
>
> *(2)The duty comprises the following three requirements.*
>
> *(3)The first requirement is a requirement, where a provision, criterion or practice of A's puts a disabled person at a substantial disadvantage in relation to a relevant matter in comparison with persons who are not disabled, to take such steps as it is reasonable to have to take to avoid the disadvantage.*
>
> *(4)The second requirement is a requirement, where a physical feature puts a disabled person at a substantial disadvantage in relation to a relevant matter in comparison with persons who are not disabled, to take such steps as it is reasonable to have to take to avoid the disadvantage.*
>
> *(5)The third requirement is a requirement, where a disabled person would, but for the provision of an auxiliary aid, be put at a substantial disadvantage in relation to a relevant matter in comparison with persons who are not disabled, to take such steps as it is reasonable to have to take to provide the auxiliary aid."*

2.1.3 Paragraph 4) is pertinent to the WCP in this location, as the access control barriers in place within the study area are physical features which could have the potential to put disabled persons at a disadvantage compared to those without disabilities when making use or wishing to make use of the WCP, particularly if barriers block access to such users.

2.2 Welsh Government Active Travel Act Guidance (July 2021)

2.2.1 The Active Travel Act (first introduced in 2013) establishes the provision of high quality active travel infrastructure as a key priority for meeting Welsh Government's aspirations for sustainable travel, including for 45% of all journeys to be made by walking, cycling and public transport by 2040.

2.2.2 In relation to access controls (such as barriers), the Active Travel Act Guidance states the following:

> *"15.3.1 Access controls are sometimes placed on off-carriageway routes to prevent access by unauthorised vehicles, particularly motorcycles.*
>
> *15.3.2 Designers should start with a presumption against the use of any form of access control, installing only in response to evidence of actual problems of abuse of cycle and pedestrian facilities, and never simply in response to perceived problems.*
>
> *15.3.3 Access controls can cause difficulties to many legitimate users and can render routes inaccessible to people who rely on mobility aids. Access controls are often ineffective in addressing the issues they are intended to prevent. Restrictive access controls:*
>
> - *are inconvenient, can be unsightly and can actively discriminate against some user groups who have legitimate rights to use a path including disabled people and users of non-standard cycles*
> - *extend the journey time for cyclists and so reduce the utility of a cycle route*

• add another level of cost, and maintenance concern, to a path; and

• are frequently ineffective because fencing along a traffic free corridor is missing, broken or subsequently vandalised so that the access control can be bypassed

15.3.4 There is also a tendency to install access barriers to stop, or slow, cyclists at the end of a path for safety reasons – whether actual, or perceived. This is often inappropriate, and designers should consider other solutions such as clear signing or other means of slowing cyclists such as changing path geometry.

15.3.5 A single bollard, and clear sight lines will be effective in many locations. Double rows of bollards, with a minimum spacing of 1500mm can reduce cycle speeds and prevent motor vehicle access, whilst retaining better permeability for users than chicane barriers."

2.2.3 Therefore, the Active Travel Guidance advises against the use of access control measures such as barriers where possible due to the negative impacts they have upon all types of legitimate users of active travel routes. In particular, the guidance advises against the use of access control measures as a means of slowing cyclists.

2.2.4 However, the Guidance does recognise the need for access controls to be installed in some circumstances in order to provide a safe environment for legitimate users. In such instances, the access control measures selected should provide as least restriction to legitimate users as possible, whilst protecting all users.

2.3 Quality Standards for National Trails and the Wales Coast Path

2.3.1 Natural Resources Wales produced this document setting out the quality standards for nationals trails and the Wales Coast Path in August 2016. The relevant guidance contained in this document with regards to the study area is summarised below:

"Least restrictive access

Everybody involved with managing the National Trails and Wales Coast Path should work to the principles of 'least restrictive access'. This requires that all work makes access as easy as possible for as many people as possible.

Surface & Surroundings Standard S1 – Ease of Passage

Surfaces and surroundings should be unobstructed so that they are readily passable by users.

Users should expect to find, within the limits of the natural landscape and terrain, weather conditions and seasonal variations, a clear unobstructed route which is well defined and allows easy passage. This should not be inconvenienced by:

- *Poor ground condition, including where the path is unduly wet or muddy or is seriously uneven due to ruts, holes etc.*
- *Vegetation encroachment,*
- *Man-made structures*
- *Other obstructions.*

Surface & Surroundings Standard S4 – Wheelchair Accessibility and Other Special Access

The off-road sections of the routes should be as widely accessible as possible and be suitable for wheelchair users wherever practicable and appropriate.

It is important that the routes are managed according to the principles of Least Restrictive Access and in a manner that complies with the requirements of the Equality Act 2010. All work should seek to make access as easy as possible for as many people as possible whilst being sensitive to locations with

particular historic, wildlife or landscape value. Generally, provision that is designed and managed for users with special access needs also benefits other users."

2.3.2 The guidance summarised above makes clear that the study area should be provide as least restrictive access to as many users as possible, which includes managing man-made structures such as access control measures to ensure that these are accessible for wheelchair & special access users in accordance with Equality Act 2010. However, the guidance acknowledges that there are legitimate reasons as to why access control measures need to be in place, as is the case within the study area, and therefore the provision of least restrictive access needs to be viewed in the context of such factors (e.g. the risk of illegal vehicle use within the study area).

2.4 FCC Public Rights of Way (PROW) Policy

2.4.1 FCC as Local Highway Authority are responsible for managing and maintaining PROWs within Flintshire, including the study area.

2.4.2 The section of the WCP considered within this report is a classified as a PROW within FCC's definitive PROW map (https://fccmapping.flintshire.gov.uk/connect/analyst/mobile/#/main?mapcfg=publicrightsofway).

2.4.3 FCC's Policies & Procedures document sets out the roles & powers of the LHA with regard to PROWs, including the following:

"To provide footways by carriageways where necessary or desirable for the safety or accommodation of pedestrians [HA80 s66].

To assert and protect the rights of public to the use and enjoyment of any highway including a duty to prevent, as far as possible, the stopping up or obstruction of highways [HA80 s130; amended CROW2000 s63].

To have regard to the needs of disabled and blind persons in executing street works [HA80 s175A].

To have regard to the needs of people with mobility problems when authorising stiles etc.[CROW2000 s69].*

To provide on a footpath safety barriers for safeguarding persons using the highway [HA80 s66; amended CROW2000 s70].

To require removal or widening of gates [HA80 s145 + s149].

To provide safety barriers on a cycle track [CTA84 s4]."

2.4.4 FCC has also adopted their "Access for All" policy in relation to the PROW network, which states:

*"**Access for All***

In managing and developing the Public Rights of Way network, the needs of all sectors of the community will be considered. In particular the principle of least restrictive access will be implemented, whereby consideration will be given, as appropriate, to replacing stiles with gates, or removing furniture altogether in favour of gaps."

2.4.5 As such, FCC recognise the need for the PROW network to be accessible for all, and therefore seek to adopt a least restrictive access position when adopting access control measures, and where appropriate are open to amending such features when they are affecting legitimate users. However, it is the authority's responsibility to ensure the safety of all users of PROWs, such as the study area, wherever possible. This is the reason the access control measures considered within this report were initially installed, and any alterations to these access controls must not increase risk of potential harm to users posed by illegal vehicle use.

2.4.6 Subsequent sections of this report appraise the existing access control measures within the study area in the context of the policy above, and make recommendations as to how these measures could potentially be improved to enable enhanced access for all users, whilst protecting against illegal vehicle access.

3 Potential User Vehicle Types

3.1 Introduction

3.1.1 This section identifies the various type of vehicle that may be used by those wishing to access the WCP within the study area.

3.1.2 It is important to recognise the study area's role not only as a recreational and leisure active travel route, but also as a potential commuting route for those travelling to and from school & work using active travel modes. This is perhaps especially relevant due to the study area having a relatively level longitudinal gradient. As such, a wide range of vehicle and user types are expected to currently use (or seek to use) the study area.

3.1.3 Section 3.2 sets out the legal vehicle types which can be expected to use the study area, and provides approximate dimensions for those vehicles. These dimensions have then been used to appraise the existing barriers in terms of permeability by different vehicle types in Section 5.

3.1.4 The study area is subject to a Traffic Regulation Order (TRO) prohibiting its use by motorised vehicles including cars, motorcycles and mopeds. Therefore any contravention of this TRO is an offence to be enforced by North Wales Police. Section 3.3 identifies typical vehicle types which could conceivably be used to access the study area illegally, and again approximate dimensions for those vehicle types which have been used in the appraisal of the existing barriers in Section 5.

3.2 Legal User Vehicle Types

Wheelchairs, Pushchairs & Mobility Scooters

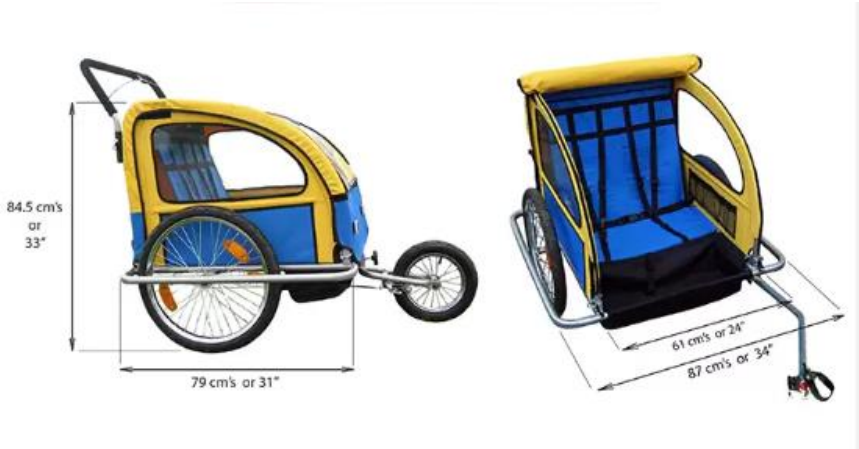
Type		Width (mm)	Length (mm)
Wheelchair		635	1,067
Pushchair		610	970

Double Pushchair		1,050	970
Class 2 Mobility Scooter		600	1,250
Class 3 (road legal) Mobility Scooter		850 (Maximum)	1,690

Source: mobilitysmart.co.uk

Cycles

Type		Width (mm)	Length (mm)
Bicycle		800	1,750
Handcycle		860	2,050
Recumbent Cycle		860	1,800

Cargo Bike		880	2,140
Bicycle with trailer		870	2,150
Bicycle with towed child bicycle		800	3,500

Electric Bike		800	1,750

3.3 Illegal User Vehicle Types

Potential Illegal Users

Type		Width (mm)	Length (mm)
Dirt bike / motocross bike		823	2,100
Motorcycle		770	2,180
Car		1,722	3,950

Moped		680	1,700
Electric Scooter		430	1,180
Quad Bike		1,220	2,135

Mini Quad Bike		640	1,110

4 Access Control Barrier Types

4.1 Introduction

4.1.1 This section of the report identifies the existing access control barrier types in place within the study area and provides an initial analysis of their strengths and limitations. Section 4.3 then identifies some other access control solutions which could potentially offer an improvement to the existing provision.

4.2 Existing Barriers Within the Study Area

4.2.1 The locations of the existing barriers within the study area are shown on Plans 1 & 2 attached at Appendix A.

4.2.2 Barriers are located at all major access points to the path from residential areas & highways along the route, but are focussed on two main areas, firstly in the vicinity of the B5441 Welsh Road and A494 bridges which pass over the WCP, and secondly in the vicinity of the Higher Saltney Ferry footbridge which provides one of the main access points to the WCP.

4.2.3 No access control measures are in place within the study area between Barrier 12 (located approximately 15m to the east of the Higher Saltney Ferry footbridge) and the England / Wales border marker, which forms the easternmost extent of the study area and is located approximately 1.7km to the southeast of Barrier 12.

4.2.4 In addition, there are no physical access control measures in place between the England / Wales border and the next connection to a major highway to the east (A548 Sealand Road) – although prohibition of motor vehicle signage is in place. Whilst this section of the path lies under the control of Cheshire West & Chester Council (CWaCC) rather than FCC, the potential exists for access to the study area to be gained by illegal vehicle types at this location and for those vehicles to then travel unimpeded into the FCC section of the WCP.

4.2.5 Within Flintshire, the WCP is generally between c. 3.00-3.50m wide for the majority of its length, but there are a number of points where the width of the WCP narrows significantly, and in so doing acts as a de-facto access control measure without any additional features being in place. Such locations include the section passing beneath the A494 overbridge, and on the sections of the path passing adjacent to residential properties in the immediate vicinity of the Higher Saltney Ferry footbridge. In both locations the width of the WCP narrows to approximately 1.50m, which is sufficiently narrow to prevent ingression by cars & larger vehicles.

4.2.6 There are two barrier types currently in place within the study area, those being:

- A Frame Barriers (with two different variants of A Frame barriers in place within the study area); and,
- Chicane Barriers.

A Frame Barriers

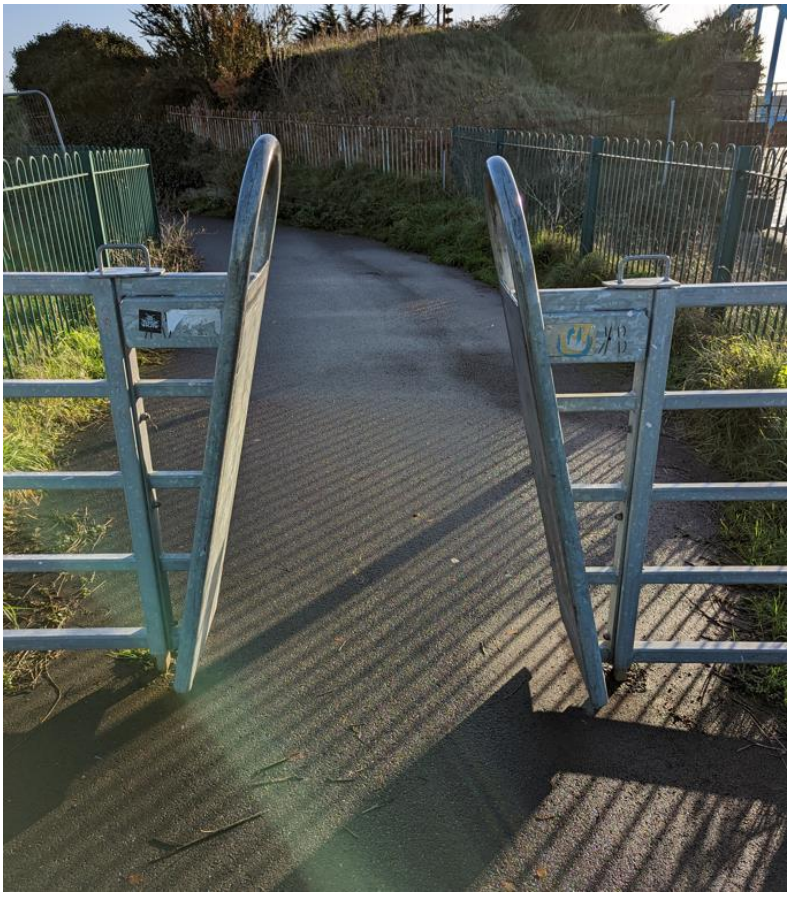
4.2.7 A Frame Barriers are steel access control barriers which block the majority of the width of the path, with the exception of an ‘A’ shaped central gap. The gap is significantly wider at the bottom than at the top, in order to allow bicycles to pass through whilst preventing larger vehicle types from gaining access.

4.2.8 A detailed breakdown of the dimensions of each A frame barrier within the study area is provided in Section 5 of this report, however; most A frame barriers are around 1.5m in height, and vary in width between approximately 1.0m in width at the bottom, and around 0.5m at the top.

4.2.9 There are two variants of the A Frame Barrier in place along the path, firstly fixed A Frame barriers, which cannot be opened and allow no access to larger vehicles, and gated A Frame barriers, which feature an A Frame Barrier either as part of or alongside a steel gate, which can be opened by authorised persons to allow access for maintenance and emergency vehicles.

4.2.10 An example of an existing A Frame barrier within the study area (Barrier 1) is shown in Figure 4-1 below.

Figure 4-1: Example of A Frame Barrier Type (Barrier 1)



4.2.11 A Frame barriers are largely effective at preventing access to motorcycles, mopeds, cars and larger vehicles, however their limited clearance width could make it difficult or even impossible for those using some types of mobility scooter to pass. They can also make it difficult for cyclists and those using unconventional cycles to pass through.

4.2.12 Whilst pedestrians, cyclists using bicycles and Class 2 mobility scooter (and smaller scooter) users are able to pass through A Frame barriers, their presence can still be inconvenient due to cyclists having to slow considerably, or dismount in order to pass through the barrier, whilst manoeuvring through an A Frame barrier using a Class 2 mobility scooter may be challenging in some instances.

4.2.13 The summary table below provides further analysis of the impact that A Frame barriers are likely to have on different user groups. Green ticks indicate that the barrier can be passed by that vehicle type (although some users may face inconvenience when passing through), whereas the red tick indicates that the barrier prevents passage by those vehicle types.

Table 4-1: A Frame Barrier - Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✗
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✗
Double Pushchair User	✗	Electric Scooter	✓
Class 2 Mobility Scooter	✓	Quad Bike	✗
Class 3 Mobility Scooter	✗	Mini Quad Bike	✓
Hand cycle	✗		
Recumbent Cycle	✗		
Cargo Bike	✗		
Bicycle with Trailer	✗		
Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles*	✓ ✗		

* Gated A Frame Barrier only allow access for emergency & maintenance vehicles (when gate is open). Fixed A Frame Barriers exclude these vehicles.

4.2.14 As such, it is clear that A Frame barriers are effective at excluding a number of illegal vehicle types including dirt bikes, cars & quad bikes, and therefore serve a valuable safety purpose, and when gated can also be opened to allow access to emergency and maintenance vehicles. However, they are not entirely effective at excluding all illegal vehicles, with electric scooters, mopeds and certain types of motorcycle still able to access the path.

4.2.15 The A Frame barrier also excludes some legitimate users, including Class 3 mobility scooter users, some unconventional cycle users, and double pushchair users.

Chicane Barriers

4.2.16 Chicane Barriers are sets of steel barriers, used in pairs to control access to traffic-free routes for larger vehicle types. Each barrier covers off a portion of the total path width, leaving a gap for the remainder of the path width. The barriers are set back from each other, with a typical depth of between 1.2-1.5m, and overlap with each other so that the entire path width is covered by both barriers, requiring users to weave between the barriers in order to pass through.

4.2.17 The width of chicane barriers is variable from location to location to suit the overall path width, and thus the required opening width, however the Chicane Barriers within the study area vary in width between c. 1.2-1.5m, and are generally 1.2m in height.

4.2.18 An example of a chicane barrier in place within the study area (Barrier 3) is shown in Figure 4-2 below.

Figure 4-2: Example of Chicane Barrier (Barrier 3)

4.2.19 Chicane barriers enable greater permeability for legitimate users when compared to A Frame barriers, but are however less effective at preventing illegal access, especially if the barriers have a setback distance of 3.0m or greater (as recommended) in order to allow easier navigability for cycle & mobility scooter users.

4.2.20 The summary table below provides further analysis of the impact that chicane barriers are likely to have on different user groups:

Table 4-2: Chicane Barrier - Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✓
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✗
Double Pushchair User	✓	Electric Scooter	✓
Class 2 Mobility Scooter	✓	Quad Bike	✗
Class 3 Mobility Scooter	✓	Mini Quad Bike	✓
Hand cycle	✓		
Recumbent Cycle	✓		
Cargo Bike	✓		
Bicycle with Trailer	✓		

Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles	✗		

4.2.21 Table 4-2 shows that chicane barriers can be designed to be highly accessible for legitimate users, however they are not entirely effective at restricting illegal vehicle access, and are likely to only exclude entirely cars and larger quad bikes. Whilst the chicane barriers do not physically restrict access for other illegal vehicle types, they may provide a certain level of psychological deterrent for such vehicle users.

4.2.22 It should be noted that a minimum set back distance of 3.0m for chicane barriers is recommended. The barriers in place within the study area have a typical set back distance of 1.2-1.5m. As such, the chicane barriers within the study area are likely to prove more challenging for users with larger cycles or mobility scooters to navigate.

4.2.23 The benefit of having a reduced set back in barrier spacing is that the barrier becomes less permeable for motorcycle and moped users. Whilst increasing the barrier spacing provides greater permeability for legitimate users, this also has the same effect for illegal motorcycle / moped permeability.

4.2.24 Fixed chicane barriers do not allow access for maintenance or emergency vehicles.

Existing Barriers Summary

4.2.25 It is evident that whilst being largely effective at restricting access for most illegal vehicle types the A Frame barriers in place do not provide permeability for all legitimate users of the WCP. Chicane barriers have the potential to provide a sufficient level of permeability, however their arrangement within the study area in terms of barrier spacing means that users of larger mobility scooters and cycles/pushchairs could find them difficult to pass.

4.2.26 Fixed A Frame Barriers provide no permeability for maintenance and emergency vehicles, as is also the case for chicane barriers, however gated A Frame barriers can be opened to allow access for such vehicles.

4.2.27 It is considered that alternative solutions for access control should be explored within the study area, which may provide a more effective solution.

4.3 Potential Alternative Solutions

4.3.1 This section sets out a number of potential alternative access control solutions which may offer an upgrade when compared to the existing barriers.

4.3.2 A number of potential alternative solutions have been considered, those being:

- Staggered gates (modified chicane feature);
- Width Adjustable A Frame Barriers;
- Gated A Frame Barriers;
- K Frame Barriers;
- Bollards; and,
- The complete removal of access control.

Staggered Gates

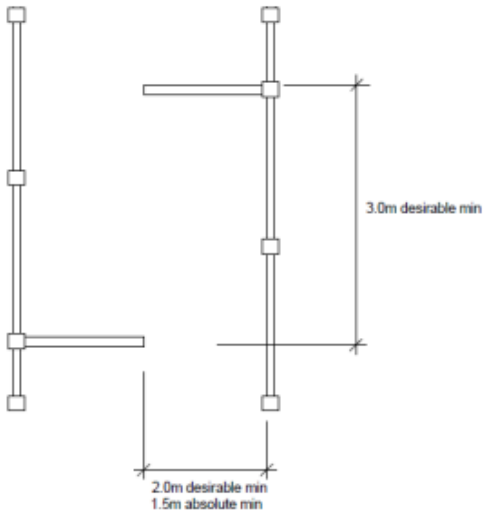
4.3.3 The potential staggered gate solution is similar to the chicane barrier concept already in use within the study area, with the exception that the fixed barriers are replaced by gates which can be unlocked and opened

to leave the entire width of the path unobstructed. This flexibility allows the access control feature to prevent illegal access by cars & larger vehicles when in place, but also allows the access control feature to be opened to enable access for maintenance, emergency & other permissible vehicles.

4.3.4 Whilst this solution would not provide a physical barrier to access for many illegal vehicle types, the staggered gates would provide a psychological barrier to potential illegal users, acting as a “gateway” feature separating the highway (where such vehicles are permissible) from the WCP within the study area (where they are prohibited).

4.3.5 When designed to standard, in that a 1.5m absolute minimum gap between the barrier and edge of path (when the gate is closed) is provided in addition to a desirable minimum depth between the gates of 3.0m, then the feature is comfortably permeable for users with large mobility scooters & cycles. However, the solution as set out above would not prevent motorcycle or moped ingress.

Figure 4-3: Staggered Gate / Chicane Design Geometry



Source: Sustrans Standard Detail SD/24

4.3.6 The solution therefore has the potential to provide an improvement over the existing barriers within the study area through allowing enhanced permeability for users with larger scooters and cycles, and also by offering greater flexibility by effectively allowing access control measures to be temporarily removed when required. The gates could also be fitted with radar locks (similar to those used to access disabled toilets & other facilities) to allow the gates to be opened on demand by key holders, thereby providing greater accessibility for those who require it.

4.3.7 Staggered gates solutions are in place on non-trafficked active travel routes across the UK, including within Flintshire. Figure 4-4 below shows a staggered barrier solution in place in Holywell, Flintshire, whilst Figure 4-5 shows a similar arrangement on the Trans Pennine Trail in Lymm, Cheshire.

4.3.8 The example shown in Holywell also demonstrates that the staggered barrier solution can be designed so as to provide an aesthetic upgrade to the existing barriers in place within the study area. It is envisioned that staggered gates solutions within the study area could incorporate WCP/FCC branding for instance in order to increase the attractiveness and recognition of the route.

4.3.9 The likely impact that the provision of staggered gates as an access control measure could have on different users is summarised in Table 4-3.

Figure 4-4: Staggered Gates Example 1 - Holywell, Flintshire

Figure 4-5: Staggered Gates Example 2 - Trans Pennine Trail, Lymm, Cheshire

Table 4-3: Staggered Gates – Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✓
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✗
Double Pushchair User	✓	Electric Scooter	✓
Class 2 Mobility Scooter	✓	Quad Bike	✓
Class 3 Mobility Scooter	✓	Mini Quad Bike	✓
Hand cycle	✓		
Recumbent Cycle	✓		
Cargo Bike	✓		
Bicycle with Trailer	✓		
Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles	✓		

Width Adjustable A Frame Barriers & K Barriers

4.3.10 Width adjustable A Frame & K Frame Barriers are variants of a standard A Frame barrier as seen within the study area. As their name suggests, width adjustable A Frame barriers can be opened or closed, and have two or more pre-set widths which they can be set to.

4.3.11 For instance, the default position could be set to a width similar to that provided by the existing A Frame barriers within the study area, with a second wider position also provided which could provide permeability for additional users. Therefore, the opportunity exists for adjustable A Frame barriers to be introduced to replace the existing fixed A Frame barriers – however it is not envisioned that adjustable A Frame barriers could be provided which would provide sufficient width to allow all legitimate users to pass whilst still avoiding illegal vehicle ingress. As such, the provision of adjustable A Frame barriers is not likely to provide a significant enhancement when compared to the existing provision.

4.3.12 Whilst the adjustable A Frame barriers can be set to have a wider opening than the existing A Frame Barriers within the study area, it is not expected that the adjustable A Frame barriers could be opened to such an extent to allow permeability to maintenance and emergency vehicles.

4.3.13 An example of an adjustable A Frame Barrier is shown on Figure 4-7.

4.3.14 K Frame barriers are similar to A Frame Barriers but also feature adjustable steel plates on each internal facing side of the barrier. The clearance width between each side of the frame of a K Frame barrier are generally wider than those of an A Frame barrier, but the steel plates which cover only a portion of the total barrier height are used to narrow the clearance width to avoid motorcycle ingress. Therefore, K Frame barriers are in theory

better for cyclists and users of smaller mobility scooters than typical A Frame barriers, however they are still likely to pose an obstacle to those with larger cycles and mobility scooters.

4.3.15 An example of a K Barrier is shown on Figure 4-6.

Figure 4-7: Adjustable A Frame Barrier Example – Point of Ayr

Figure 4-6: K Frame Barrier Example

4.3.16 The impacts that the provision of Adjustable A Frame & K Barriers is likely to have on different user groups are summarised in Table 4-4 below:

Table 4-4: Adjustable A Frame Barriers & K Barriers - Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✓
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✗
Double Pushchair User	✗	Electric Scooter	✓
Class 2 Mobility Scooter	✓	Quad Bike	✗
Class 3 Mobility Scooter	✗	Mini Quad Bike	✓
Hand cycle	✓		
Recumbent Cycle	✓		

Cargo Bike	✗		
Bicycle with Trailer	✓		
Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles	✗		

Gated A Frame Barriers

4.3.17 A number of the existing barriers within the study area are Gated A Frame Barriers. These barriers are comprised of two gates, which meet at the midpoint form an A Frame Barrier. These barriers offer additional flexibility compared to fixed A Frame barriers in that they can be opened when required to allow unrestricted access across the entire path width, whilst still providing an effective illegal vehicle access preventative measure when closed.

4.3.18 It is considered that the existing fixed A Frame barriers within the study area could potentially be upgraded to Gated A Frame barriers in order to allow enhanced accessibility for emergency and maintenance vehicles where required. The Gated A Frame barriers could also be fitted with radar locks, which would enable key holders (with keys being readily available online) to open the barriers when required to enable easier access. This could allow all legitimate user types to pass.

4.3.19 If considered appropriate by FCC in the future, the gated system would also allow for some or all barriers of this type to be left open. If issues relating to illegal access arise again then the barriers can simply be closed again to combat the issue.

4.3.20 The impact that the provision of Gated A Frame Barriers would likely have on different user groups is summarised in Table 4-5.

Table 4-5: Gated A Frame Barrier - Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✓
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✗
Double Pushchair User*	✓ ✗	Electric Scooter	✓
Class 2 Mobility Scooter	✓	Quad Bike	✓
Class 3 Mobility Scooter*	✓ ✗	Mini Quad Bike	✓
Hand cycle	✓		
Recumbent Cycle	✓		

Cargo Bike	✓ ✗		
Bicycle with Trailer	✓		
Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles*	✓ ✗		

* Unable to pass when barriers are closed, but could gain access using RADAR key system to open gates.

Bollards

4.3.21 Bollards are a commonly used solution to control access on traffic-free active travel routes across the UK. A single bollard is usually placed centrally on an active travel route, leaving a minimum clearance width of 1.5m on either side of the bollard to enable unrestricted permeability for pedestrians, cyclists and users of mobility scooters to either side.

4.3.22 Bollards should be a minimum of 1.00m in height, and are effective at preventing ingress of cars and larger vehicles. Where paths are sufficiently wide whereby the provision of a single bollard would leave a wide enough gap on one or both sides for cars to pass through, multiple bollards can be used, usually in a staggered formation. This could possibly be required on some sections of the study area where the path width exceeds 3.0m.

4.3.23 Bollards provide no impediment to legitimate users, and when designed in accordance with recommended guidance are effective at preventing motor vehicle ingress. They are however ineffective at excluding other illegal vehicle types such as motorcycles and mopeds, which has been identified as a particular issue within the study area.

4.3.24 Removable and hinged bollard solutions can be used to allow permeability for maintenance and emergency vehicles where required, however it is possible that this would require maintenance staff to physically move the bollards which may not be as attractive as gated solutions which can be opened more easily.

4.3.25 Bollards are fully compliant with Active Travel Wales guidance, and are in adherence with the principles of the Equality Act 2010, however they would provide a less effective illegal access preventive measure when compared to the existing measures.

4.3.26 The summary table below, provides further analysis of the impact that bollards are likely to have on different user groups:

Table 4-6: Bollard - Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✓
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✗
Double Pushchair User	✓	Electric Scooter	✓

Class 2 Mobility Scooter	✓	Quad Bike	✓
Class 3 Mobility Scooter	✓	Mini Quad Bike	✓
Hand cycle	✓		
Recumbent Cycle	✓		
Cargo Bike	✓		
Bicycle with Trailer	✓		
Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles*	✗ ✓		

*Removeable / hinged bollards would be needed to facilitate Emergency & Maintenance Vehicle access.

4.3.27 An example of the use of bollards on a traffic free active travel route is shown on Figure 4-8.

Figure 4-8: Example of Bollard Use on Active Travel Route

Removal of Access Control

4.3.28 Perhaps the most radical option when considering alternative access control measures within the study area would be to remove existing access controls, and to not replace them with an alternative solution.

4.3.29 This would have the effect of providing completely uninhibited permeability for all users of the WCP within the study area. This offers significant benefit for active travel users and those using mobility scooters, however this approach would offer no physical barrier to illegal ingress by prohibited vehicle types, which poses a potential safety risk to users of the path.

4.3.30 Whilst not the primary purpose of the existing access control measures within the study area, they also serve a purpose as speed control measures to further ensure the safety of users, and this needs to be balanced against any betterments achieved by removing any existing measures. It is acknowledged that alternative speed control measures could be provided in their place.

4.3.31 The likely impact that the removal of all access control measures would have on different user groups is summarised in Table 4-7.

Table 4-7: Removal of Access Control - Summary Table

Impact on Legitimate Users		Impact on Illegal Users	
Pedestrians	✓	Dirt / motocross Bikes	✓
Cyclists	✓	Motorcycles	✓
Wheelchair users	✓	Moped	✓
Pushchair User	✓	Car	✓
Double Pushchair User	✓	Electric Scooter	✓
Class 2 Mobility Scooter	✓	Quad Bike	✓
Class 3 Mobility Scooter	✓	Mini Quad Bike	✓
Hand cycle	✓		
Recumbent Cycle	✓		
Cargo Bike	✓		
Bicycle with Trailer	✓		
Bicycle with towed child bicycle	✓		
Electric Bicycle	✓		
Emergency & Maintenance Vehicles	✓		

4.3.32 Making use of the study area using motorised vehicles is an offence enforced by the police, a fact which is well advertised at key access points to the path through clear signage. The existing access control measures act as a physical restriction, and removing them would require a greater level of enforcement of the restrictions by North Wales Police, likely in partnership with Cheshire Constabulary, in order to reduce risk to users of the study area. At the time of writing it is uncertain as to whether resources are available to make this achievable, and whilst formal consultation is yet to take place, it is possible that North Wales Police may have concerns regarding the removal of some or all of the existing access control measures in place within the study area.

4.3.33 As such, it is likely that the retention of existing, or provision of alternative physical barriers will be required in order to substantially mitigate the risk of illegal vehicle types accessing the WCP.

5 Appraisal of Existing Barriers

5.1 Introduction

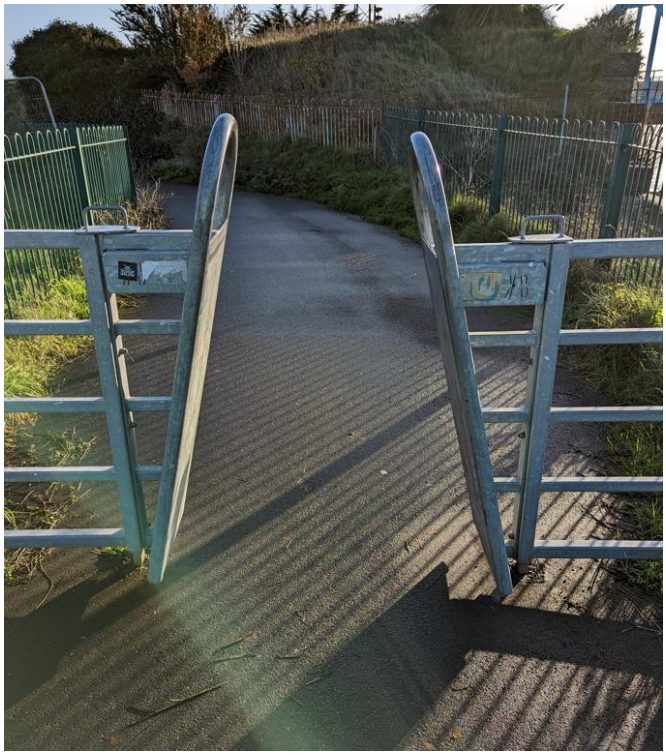
5.1.1 This section sets out an individual appraisal of each barrier within the study area. Each barrier has been measured and observed during a site visit undertaken on Friday 25th November 2022, with the information gathered from that site visit summarised within this section.

5.1.2 For each barrier, an assessment of fit against the key policy and guidance has been undertaken, and the permeability of each barrier by various modes has also been considered. Where alternative solutions offer the potential to improve the existing provision they have been considered, and recommendations have been made for each barrier regarding any potential improvements.

5.1.3 The location and type of each existing barrier is shown on Plans 1 & 2 in Appendix A.

5.2 Barrier 1

Barrier Reference	Location
1	Approximately 62m west of B5441 Welsh Rd



Barrier Type: **Gated A Frame**

Description:

5.2.1 Barrier 1 is a Gated A Frame Barrier located approximately 62m to the west of Welsh Road, in Garden City.

5.2.2 It is our understanding that the barrier serves as both an access control measure and speed control purpose for cyclists on the approach to a bend in the path and on the approach to Welsh Road.

Table 5-1: Barrier 1 - Appraisal

		Comment
Height (mm)	1,500	
Clearance Width Top (mm)	490	
Clearance Width Bottom (mm)	1,050	
Gap to side of barrier	No	Fence covering remaining path width on each side.
Total path width (mm)	3,280	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is below 1.5m.
Compliance with Equality Act?	No	Has the potential to disadvantage disabled users.

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✗	
Bicycle	✓	Large bicycles unable to pass through without dismounting.	Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✗		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✗		Mini Quad Bike	✓	
Hand Cycle	✗				
Recumbent Cycle	✗				
Cargo Bike	✗				
Bicycle with Trailer	✗				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✓				

Potential Alternative Solutions

Table 5-2: Barrier 1 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Radar lock system has the potential to enhance legitimate user permeability, and would allow emergency & maintenance vehicle access.
Staggered Gates	Yes	Would allow accessibility by all legitimate users, but less effective at restricting illegal vehicle access. Would enable maintenance / emergency vehicle access. Potential aesthetic upgrade compared to existing barrier. Potentially unnecessary given presence of Barrier 2 between barrier & highway network.
Adjustable A Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
K Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution. Potentially unnecessary given presence of Barrier 2 between barrier & highway network.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.2.3 It is considered that the upgrade of this barrier to a Radar Lock Gated A Frame Barrier would provide the best solution. This would offer a cost effective solution with the potential for improved accessibility by legitimate users holding a radar key (which are readily available online) whilst still maintaining an effective deterrent to illegal vehicle ingress.

5.2.4 This upgrade would allow flexibility in terms of allowing the barrier to be opened when considered appropriate, and will enable permeability for maintenance and emergency vehicles to the study area.

5.2.5 In order to make the upgrade as effective as possible to legitimate users, promotion of the upgrade to user groups following a thorough consultation process is recommended.

5.2.6 Whilst other alternative solutions are considered to be achievable, such as the staggered gates solution, they would not provide the same level of access control for illegal vehicles when compared to the proposed solution.

5.3 Barrier 2

Barrier Reference	Location
2	Approximately 15m west of B5441 Welsh Rd

Barrier Type: **Chicane**

Description:

5.3.1 Barrier 2 is a chicane barrier located approximately 15m to the west of Welsh Road, in Garden City. The barrier serves as an inhibiter to illegal access to the study area from Welsh Road and also serves a secondary purpose as a speed control measure for cyclists approaching Welsh Road.

Table 5-3: Barrier 2 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,200	
Barrier width (mm)	1,500	
Depth between barriers (mm)	1,300	
Gap to side of barrier	Yes	Fence covering remaining path width on western side but bank present between barrier and Welsh Road to the east, which could be used to gain illegal access to the WCP on motorcycles.
Total path width (mm)	3,100	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is below 1.5m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-4: Barrier 2 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Would allow emergency & maintenance vehicle access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Provision of gates would allow access control to be temporarily removed to allow maintenance vehicles to access path if required.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.3.2 It is recommended that the existing chicane barriers are replaced by a staggered gates solution. This would retain the existing level of permeability for legitimate users (which could be enhanced should the gates be fitted with radar locks which could be opened as required), and would retain the existing level of deterrent to illegal vehicle access.

5.3.3 The gates could be designed to provide a clear gateway feature, demarking the separation of the WCP from the highway network, and could incorporate WCP / FCC branding to provide an aesthetic upgrade compared to the existing solution. The staggered gates solution would also allow the gates to be opened to allow emergency and maintenance access to the study area, something which is not possible in this location currently.

5.3.4 The presence of Barrier 1 to the west, where upgraded A Frame barriers are recommended, would also provide a further restraint against illegal vehicle access to the path.

5.4 Barrier 3

Barrier Reference	Location
3	Approximately 15m south-east of B5441 Welsh Rd

Barrier Type: **Chicane**

Description:

5.4.1 Barrier 3 is a chicane barrier located approximately 15m to the south-east of Welsh Road, in Garden City. Barrier 3 is the first barrier within the study area to the east of Welsh Road and therefore its primary purpose is to prevent illegal vehicle ingression onto the path from Welsh Road.

Table 5-5: Barrier 3 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,700	
Barrier width (mm)	1,500	
Depth between barriers (mm)	1,300	
Gap to side of barrier	No	Barrier abutted immediately by fence to both sides.
Total path width (mm)	3,200	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is above minimum standard of 1.5m, however depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✓	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-6: Barrier 3 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Would allow emergency & maintenance vehicle access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Provision of gates would allow access control to be temporarily removed to allow maintenance vehicles to access path if required.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

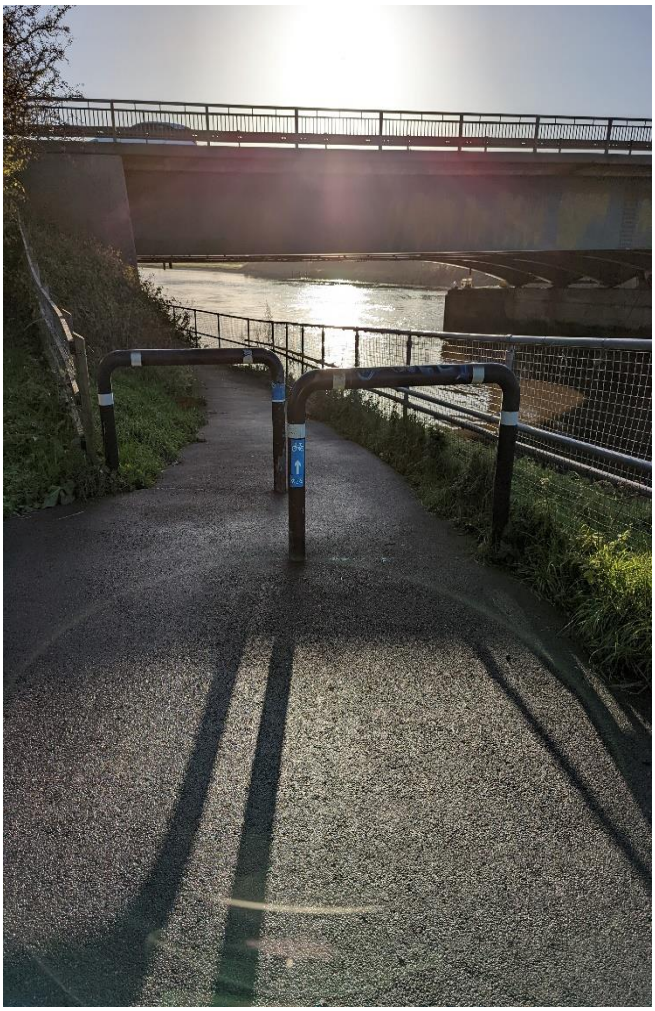
5.4.2 It is recommended that the existing chicane barrier be replaced by a staggered gates solution. This would retain the existing levels of permeability for legitimate users and the same level of restriction to illegal user access when compared to the existing solution, but would offer benefits in terms of allowing emergency & maintenance vehicle access to the path (which is not currently possible in this location), and could be designed to provide an aesthetic upgrade compared to the existing barriers.

5.4.3 Given that this barrier is located immediately to the east of Welsh Road, the design of the staggered gates solution could be designed so as to provide a clear gateway feature, separating the path from the highway network, and therefore providing a psychological access control measure as well as a physical one.

5.4.4 The proposed solution is expected to be permeable by all legitimate user types.

5.5 Barrier 4

Barrier Reference	Location
4	Approximately 50m south-west of Claremont Avenue



Barrier Type: **Chicane**

Description:

5.5.1 Barrier 4 is a chicane barrier located approximately 50m to the south-west of Claremont Avenue. The access control barrier also appears to serve a purpose as a speed control measure for active travel users on the approach to the section of the WCP which passes under the A494. This section of the path narrows significantly to a width of approximately 1.5m.

5.5.2 Barrier 5 is located approximately 45m to the northeast of this barrier, which also serves to prevent motorised vehicle ingression onto the path from Claremont Avenue.

Table 5-7: Barrier 4 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,500	
Barrier width (mm)	1,500	
Depth between barriers (mm)	1,300	
Gap to side of barrier	No	Barrier abutted immediately by fences to both sides.
Total path width (mm)	3,000	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is above minimum standard of 1.5m, however depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✓	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-8: Barrier 4 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Would allow emergency & maintenance vehicle access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Provision of gates would allow access control to be temporarily removed to allow maintenance vehicles to access path if required.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.5.3 It is recommended that the existing chicane barrier in this location be replaced by a staggered gates solution. This will retain the existing level of permeability for legal users, and the same level of restriction to illegal vehicle users, but will be openable to allow access to emergency and maintenance vehicles where required (although it is noted that the narrow path width on the section under the A494 would exclude such vehicles from passing to the east of the A494 from this position). The staggered gates will also act as a psychological barrier against illegal vehicle ingression, and could be a potential aesthetic upgrade.

5.5.4 The existing barrier serves as an important speed control measure in the interest of user safety given the limited visibility and potential high speeds on the approach to the constrained underpass section. It is therefore important that a speed calming feature remains in place in this position. Whilst guidance recommends against the use of access control measures for speed control purposes, it is considered that this measure would serve primarily as a necessary vehicle restraint feature, in order to protect the narrow underpass section of the path, with a secondary purpose as a speed control measure.

5.6 Barrier 5

Barrier Reference	Location
5	Approximately 10m south of Claremont Avenue

Barrier Type: **Gated A Frame Barrier**

Description:

5.6.1 Barrier 5 is a Gated A frame barrier located approximately 10m to the south of Claremont Avenue on a section of off-road cycle route connecting to the WCP. The primary purpose of the barrier appears to be to prevent motorised vehicular access to the path from the WCP, with a secondary purpose to act as a speed control measure for cyclists as they exit the WCP onto the highway network at Claremont Avenue.

5.6.2 Barrier 4 is located approximately 40m to the south-west of this barrier.

Table 5-9: Barrier 5 - Appraisal

		Comment
Height (mm)	1,500	
Clearance Width Top (mm)	350	
Clearance Width Bottom (mm)	900	
Gap to side of barrier	No	Fence covering remaining path width on each side.
Total path width (mm)	3,900	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is below 1.5m.
Compliance with Equality Act?	No	Has the potential to disadvantage disabled users.

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✗	
Bicycle	✓	Large bicycles unable to pass through without dismounting.	Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✗		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✗		Mini Quad Bike	✓	
Hand Cycle	✗				
Recumbent Cycle	✗				
Cargo Bike	✗				
Bicycle with Trailer	✗				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✓				

Potential Alternative Solutions

Table 5-10: Barrier 5 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Radar lock system has the potential to enhance legitimate user permeability.
Staggered Gates	Yes	Would allow accessibility by all legitimate users, but less effective at restricting illegal vehicle access. Potential aesthetic upgrade compared to existing barrier.
Adjustable A Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
K Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.6.3 The existing Gated A Frame barrier provides a good level of restriction against illegal vehicle access, and whilst the barriers can be opened to allow access to emergency & maintenance vehicles, there is no ability for legitimate users travelling in Class 3 mobility scooters or larger unconventional cycles to open the barriers when required to gain access. Therefore, it is recommended that the barrier be adapted to be fitted with RADAR locks.

5.6.4 This would offer a cost effective solution which would improve accessibility by legitimate users holding a radar key (which are readily available online) whilst still maintaining an effective deterrent to illegal vehicle ingress. Promotion of this measure with key user groups following a consultation process is recommended.

5.7 Barrier 6

Barrier Reference	Location
6	Approximately 30m east of the A494 underpass

Barrier Type: **Chicane Barrier**

Description:

5.7.1 Barrier 6 is a chicane barrier located approximately 30m to the south-east of the A494 underpass. The barrier appears to serve as a speed control measure primarily for cyclists travelling in a westbound direction towards the A494 underpass (which narrows to approximately 1.5m in width).

Table 5-11: Barrier 6 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,500	
Barrier width (mm)	1,400	
Depth between barriers (mm)	1,400	
Gap to side of barrier	Yes	Grassed area to the north of existing barrier, which could be used to bypass barrier on motorised two-wheel vehicles.
Total path width (mm)	3,000	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is above minimum standard of 1.5m, however depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✓	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-12: Barrier 6 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Would allow emergency & maintenance vehicle access. Potential for barrier to be bypassed.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Provision of gates would allow access control to be temporarily removed to allow maintenance vehicles to access path if required. Potential for gates to be bypassed.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression. Potential for barrier to be bypassed.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression. Potential for barrier to be bypassed.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution. Potential to be bypassed.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

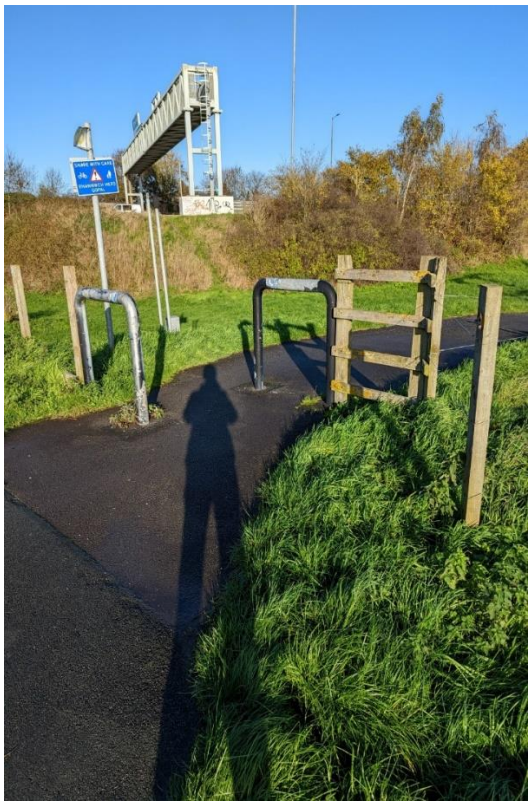
Recommendation:

5.7.2 It is recommended that the existing chicane barrier in this location be replaced by a staggered gates solution in order to retain the existing level of accessibility for legal users, whilst maintaining the same level of restriction to illegal vehicle users. This would also allow access to emergency and maintenance vehicles where required (although it is noted that the narrow path width on the section under the A494 would exclude such vehicles from passing to the west of the A494 from this position). The staggered gates will also act as a psychological barrier against illegal vehicle ingression, and could be a potential aesthetic upgrade.

5.7.3 The existing barrier serves as an important speed control measure in the interest of user safety given the limited visibility and potential high speeds on the approach to the constrained underpass section. It is therefore important that a speed calming feature remains in place in this position. Whilst guidance recommends against the use of access control measures for speed control purposes, it is considered that this measure would serve primarily as a necessary vehicle restraint feature, in order to protect the narrow underpass section of the path, with a secondary purpose as a speed control measure.

5.8 Barrier 7

Barrier Reference	Location
7	Approximately 65m east of the A494 underpass



Barrier Type: **Chicane Barrier**

Description:

5.8.1 Barrier 7 is a chicane barrier located approximately 65m to the east of the A494 underpass. The barrier serves its primary purpose as an access control feature at the connection between the WCP and a separate off-road active travel route which routes to the north, connecting to Sealand Road.

5.8.2 The barrier is abutted by fencing which was damaged at the time that the site visit was undertaken. The fencing serves to remove the possibility of illegal access being gained to the path through bypassing the barrier, and it is our understanding that plans are in place for the fencing to be repaired so as to continue this purpose.

Table 5-13: Barrier 7 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,500	
Barrier width (mm)	1,200	
Depth between barriers (mm)	1,500	
Gap to side of barrier	Yes	Grassed area to the west of existing barrier, which could be used to bypass barrier due to existing fencing being damaged, however it is expected that repair works will be undertaken in due course.
Total path width (mm)	2,900	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is above minimum standard of 1.5m, however depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✓	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-14: Barrier 7 - Potential Alternative Solution

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Would allow emergency & maintenance vehicle access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Provision of gates would allow access control to be temporarily removed to allow maintenance vehicles to access path if required.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.8.3 It is recommended that the existing chicane barrier in this location be replaced by a staggered gates solution. This will retain the existing level of permeability for legal users, and the same level of restriction to illegal vehicle users, but will be openable to allow access to emergency and maintenance vehicles where required. The staggered gates will also act as a psychological barrier against illegal vehicle ingression, and could be a potential aesthetic upgrade.

5.8.4 It is noted that the grassed area immediately adjacent to this barrier could potentially be used to bypass the barrier currently due to the existing fencing being in a state of disrepair. It is therefore recommended that this is repaired as soon as possible to minimise this risk.

5.9 Barrier 8

Barrier Reference	Location
8	Approximately 65m south-west of Ferry Lane

Barrier Type: **Chicane Barrier**

Description:

5.9.1 Barrier 8 is a chicane barrier located approximately 65m to the south-west of Ferry Lane. The barrier forms an access control measure and also acts as a speed calming feature for users of the path approaching a bend as the WCP meets Ferry Lane.

5.9.2 Barrier 9 is located approximately 35m to the east of Barrier 8, with Barrier 9 acting as the primary vehicular access control measure between the WCP to the west of Ferry Lane, and Ferry Lane itself.

Table 5-15: Barrier 8 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,500	
Barrier width (mm)	1,500	
Depth between barriers (mm)	1,300	
Gap to side of barrier	Yes	Barrier abutted by a residential property fence to the north and by a small wall to south, however the wall measures only approx. 300m in height and so potential exists for smaller motorcycles to be lifted over this wall in order to gain illegal access to WCP through bypassing the barrier.
Total path width (mm)	3,000	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is above minimum standard of 1.5m, however depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✓	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-16: Barrier 8 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Would allow emergency & maintenance vehicle access. Potential bypass issue would still exist.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Provision of gates would allow access control to be temporarily removed to allow maintenance vehicles to access path if required. Potential bypass issue would still exist.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression. Potential bypass issue would still exist.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression. Potential bypass issue would still exist.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution. Potential bypass issue would still exist.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

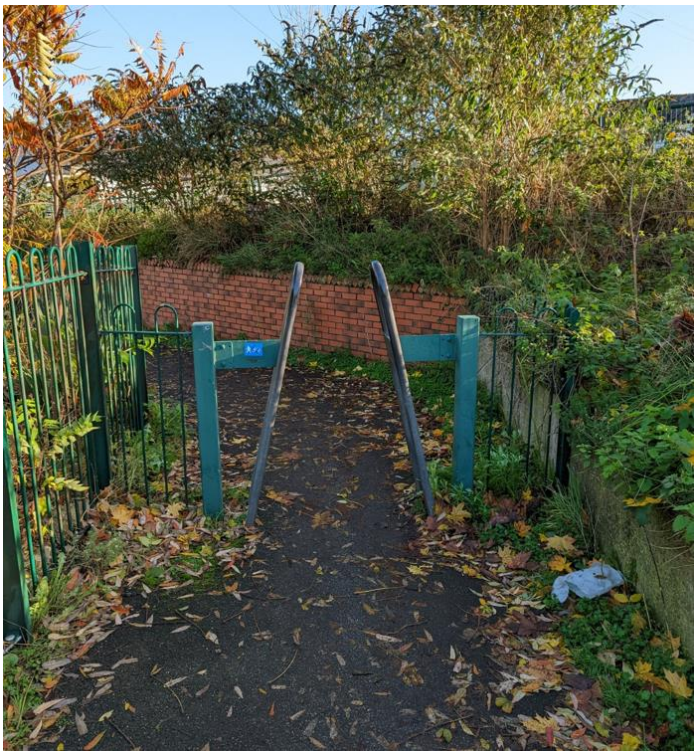
5.9.3 It is recommended that the existing chicane barrier is replaced by a staggered gates solution. This will retain the existing level of permeability for legal users, and the same level of restriction to illegal vehicle users, but will be openable to allow access to emergency and maintenance vehicles where required. The staggered gates will also act as a psychological barrier against illegal vehicle ingression, and could be a potential aesthetic upgrade.

5.9.4 It is considered that the proposed staggered gates solution in this location would provide a very effective vehicle restraint measure working in combination with the nearby Barrier 9, whilst offering enhanced permeability for some legitimate user types through the proposed implementation of a radar lock system, which will enable both Barriers 9 and 10 to be opened when required.

5.9.5 It should also be noted that the grassed area/river bank immediately adjacent to this barrier could potentially be used to bypass the barrier when using powered two-wheel vehicles if these can be lifted over a small wall. This could potentially be addressed by either increasing the wall height or adding an additional feature such as a short section of fencing in this location.

5.10 Barrier 9

Barrier Reference	Location
9	Approximately 30m south-west of Ferry Lane



Barrier Type: **Fixed A Frame Barrier**

Description:

5.10.1 Barrier 9 is a fixed A frame barrier located approximately 30m to the south-west of Ferry Lane. The barrier is located on a bend in the WCP as the route diverts away from its general NW-SE orientation in order to connect with Ferry Lane. The main purpose of the barrier appears to be to provide an access control measure to prevent motorised vehicles accessing the WCP from Ferry Lane.

5.10.2 Immediately adjacent to the existing A Frame barrier is a kissing gate which provides pedestrian access to the study area.

Table 5-17: Barrier 9 - Appraisal

		Comment
Height (mm)	1,500	
Clearance Width Top (mm)	360	
Clearance Width Bottom (mm)	900	
Gap to side of barrier	No	Fences covering remaining path width on each side.
Total path width (mm)	2,800	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is below 1.5m.
Compliance with Equality Act?	No	Has the potential to disadvantage disabled users.

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✗	
Bicycle	✓	Large bicycles unable to pass through without dismounting.	Motorcycle	✗	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✗		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✗		Mini Quad Bike	✓	
Hand Cycle	✗				
Recumbent Cycle	✗				
Cargo Bike	✗				
Bicycle with Trailer	✗				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-18: Barrier 9 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Gated radar lock system has the potential to enhance legitimate user permeability & would enable emergency / maintenance vehicle access.
Staggered Gates	Yes	Would allow accessibility by all legitimate users, but less effective at restricting illegal vehicle access. Potential aesthetic upgrade compared to existing barrier.
Adjustable A Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
K Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution. Limited path width in this location may not allow standard 1.5m opening to be provided on each side of the bollard in the location of the existing barrier.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.10.3 The existing fixed A Frame barrier provides a good level of restriction against illegal vehicle access, but cannot be opened to allow access to emergency & maintenance vehicles, there is no ability for legitimate users travelling in Class 3 mobility scooters or larger unconventional cycles to open the barriers when required to gain access. Therefore, it is recommended that the barrier be upgraded to a gated A Frame barrier compatible with RADAR locks & keys.

5.10.4 This would offer a cost effective solution which would improve accessibility by legitimate users holding a radar key (which are readily available online) whilst still maintaining an effective deterrent to illegal vehicle ingress. Promotion of this measure with key user groups following a consultation process is recommended.

5.10.5 It is recommended that the existing pedestrian kissing gate be retained as existing, as this provides good access for pedestrians whilst restricting illegal ingress to the study area.

5.11 Barrier 10

Barrier Reference	Location
10	Between Ferry Lane & Higher Saltney Ferry Footbridge

Barrier Type: **Chicane Barrier**

Description:

5.11.1 Barrier 10 is a chicane barrier located on the Wales Coast Path between Ferry Lane and the Higher Saltney Ferry Footbridge. The barrier is located at the north-eastern end of the footbridge, and appears to serve as a means of both access and speed control.

Table 5-19: Barrier 10 - Appraisal

		Comment
Height (mm)	1,000	
Minimum Opening Width (mm)	1,200	
Barrier width (mm)	1,300	
Depth between barriers (mm)	1,300	
Gap to side of barrier	No	Barrier abutted by fence on both sides.
Total path width (mm)	2,600	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width below minimum standard of 1.5m, and depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-20: Barrier 10 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Potential to allow maintenance / emergency vehicle access, however the limited footbridge width / weight restriction likely to prohibit their access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Would allow maintenance / emergency vehicle access, however the limited footbridge width / weight restriction likely to prohibit their access.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

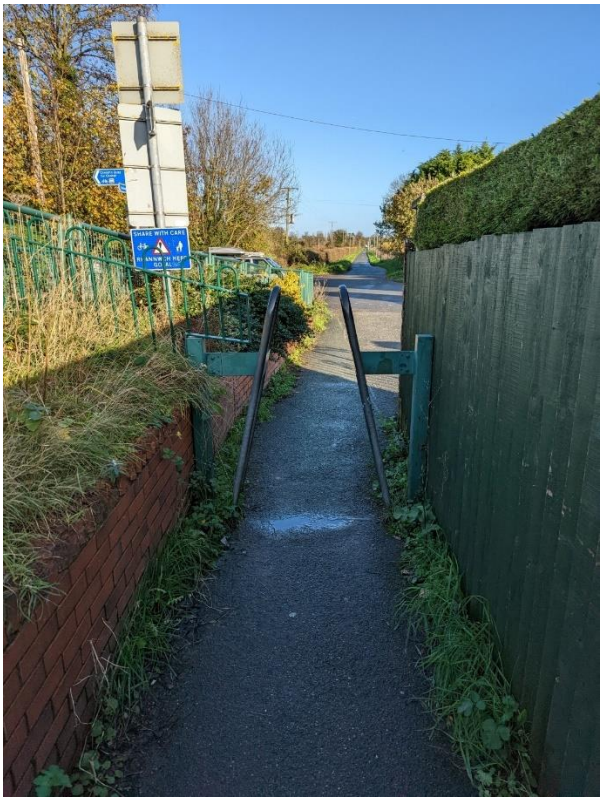
5.11.2 It is recommended that the existing chicane barrier be replaced by a staggered gates solution. This will retain the existing level of permeability for legal users, and if the proposed solution is provided with the recommended 3.0m setback distance between gates would provide easier navigation compared to the existing solution.

5.11.3 The gates would also restrict illegal ingress in the same way as the existing barriers, but it is recommended that the gates be fitted with radar locks to allow key holders to open the gates for easier access where required. The gates could also be opened to allow emergency / maintenance vehicle access, however it is expected that the restricted width and weight bearing capacity of the footbridge would rule out such movements.

5.11.4 The staggered gates will also act as a psychological barrier against illegal vehicle ingression, and could be a potential aesthetic upgrade compared to the existing barriers, and could feature FCC/WCP branding. In addition, the gates would also serve a secondary purpose as a speed control measure to reduce risk to users of the path and footbridge.

5.12 Barrier 11

Barrier Reference	Location
11	Approximately 20m south-east of Ferry Lane



Barrier Type: **Fixed A Frame Barrier**

Description:

5.12.1 Barrier 11 is an A frame barrier located approximately 20m to the south-east of Ferry Lane. The barrier serves a purpose as both an access control and speed control measure at a point where the WCP meets Ferry Lane.

Table 5-21: Barrier 11 - Appraisal

		Comment
Height (mm)	1,450	
Clearance Width Top (mm)	350	
Clearance Width Bottom (mm)	960	
Gap to side of barrier	No	Walls covering remaining path width on each side.
Total path width (mm)	1,660	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is below 1.5m.
Compliance with Equality Act?	No	Has the potential to disadvantage disabled users.

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✗	
Bicycle	✓	Large bicycles unable to pass through without dismounting.	Motorcycle	✗	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✗		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✗		Mini Quad Bike	✓	
Hand Cycle	✗				
Recumbent Cycle	✗				
Cargo Bike	✗				
Bicycle with Trailer	✗				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-22: Barrier 11 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Gated radar lock system has the potential to enhance legitimate user permeability & would enable emergency / maintenance vehicle access (however constrained path width likely to rule out this location as emergency access point).
Staggered Gates	Yes	Would allow accessibility by all legitimate users, but less effective at restricting illegal vehicle access. Potential aesthetic upgrade compared to existing barrier. Limited path width may require minor repositioning of control measure.
Adjustable A Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
K Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution. Limited path width in this location may not allow standard 1.5m opening to be provided on each side of the bollard in the location of the existing barrier.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.12.2 It is recommended that the existing fixed A Frame barrier be replaced by a gated A Frame barrier alternative to feature radar lock functionality, to allow the barrier to be opened for easier access by key holders (which can be purchased online). Given the constrained position of the existing barrier on a relatively narrow section of the path, it may be appropriate to reposition the proposed barrier slightly further north where the path is less constrained.

5.12.3 Promotion of this measure with key user groups following a consultation process is recommended.

5.13 Barrier 12

Barrier Reference	Location
12	Approximately 50m south-east of Ferry Lane

Barrier Type: **Chicane Barrier**

Description:

5.13.1 Barrier 12 is a chicane barrier located approximately 70m to the south-east of Ferry Lane. The barrier is an access control measure but also appears to serve a purpose as a speed control measure for users approaching a sharp bend in the path on the approach to Ferry Lane. At a point approximately 20m to the west of Barrier 12 the WCP narrows to approximately 1.6m in width, and therefore there is no potential for cars or larger vehicles to gain access to this section of the WCP from Ferry Lane.

Table 5-23: Barrier 12 - Appraisal

		Comment
Height (mm)	1,200	
Minimum Opening Width (mm)	1,200	
Barrier width (mm)	1,500	
Depth between barriers (mm)	1,200	
Gap to side of barrier	No	Barrier abutted by walls on both sides.
Total path width (mm)	3,000	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width below minimum standard of 1.5m, and depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-24: Barrier 12 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Potential to allow maintenance / emergency vehicle access, however the limited path width to west of barrier likely to prohibit their access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Would allow maintenance / emergency vehicle access, however the limited path width to west of barrier likely to prohibit their access.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.13.2 It is recommended that the existing chicane barrier in this location be replaced by a staggered gates solution in order to improve the existing level of accessibility for legal users, (if constructed with the recommended 3.0m setback distance) whilst maintaining the same level of restriction to illegal vehicle users.

5.13.3 The gates would allow access to emergency and maintenance vehicles where required (although it is noted that the narrow path width immediately to the west of the barrier would exclude such vehicles from passing to the west of this position). The staggered gates will also act as a psychological barrier against illegal vehicle ingression, and could be a potential aesthetic upgrade.

5.13.4 The existing barrier serves as an important speed control measure in the interest of user safety given the limited visibility and potential high speeds on the approach to a bend. It is important that a speed calming feature remains in place in this position.

5.14 Barrier 13

Barrier Reference	Location
13	South side of Higher Saltney Ferry Footbridge – approx. 50m north of B5129

Barrier Type: **Fixed A Frame Barrier adjacent to Gate**

Description:

5.14.1 Barrier 13 is a fixed A frame barrier located at the southern end of the Higher Saltney Ferry Footbridge at a point approximately 50m to the north of the B5129. The barrier acts as both an access and speed control measure at a point where the WCP meets the footbridge and the access to the B5129.

5.14.2 A gate sufficiently wide to enable vehicular access is located immediately adjacent to the A Frame Barrier, however at the time the site visit was undertaken, the gate was locked closed with a padlock.

5.14.3 It is our understanding that the barrier and gate were initially installed on behalf of the Environment Agency Wales (now Natural Resources Wales) as an access control measure which enables access when required for maintenance vehicles.

Table 5-25: Barrier 13 - Appraisal

		Comment
Height (mm)	1,470	
Clearance Width Top (mm)	350	
Clearance Width Bottom (mm)	1,000	
Gap to side of barrier	No	Abutted by fencing on both sides.
Total path width (mm)	4,750	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width is below 1.5m.
Compliance with Equality Act?	No	Has the potential to disadvantage disabled users.

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✗	
Bicycle	✓	Large bicycles unable to pass through without dismounting.	Motorcycle	✗	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✗		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✗		Mini Quad Bike	✓	
Hand Cycle	✗				
Recumbent Cycle	✗				
Cargo Bike	✗				
Bicycle with Trailer	✗				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✓				

Potential Alternative Solutions

Table 5-26: Barrier 13 - Potential Alternative Solutions

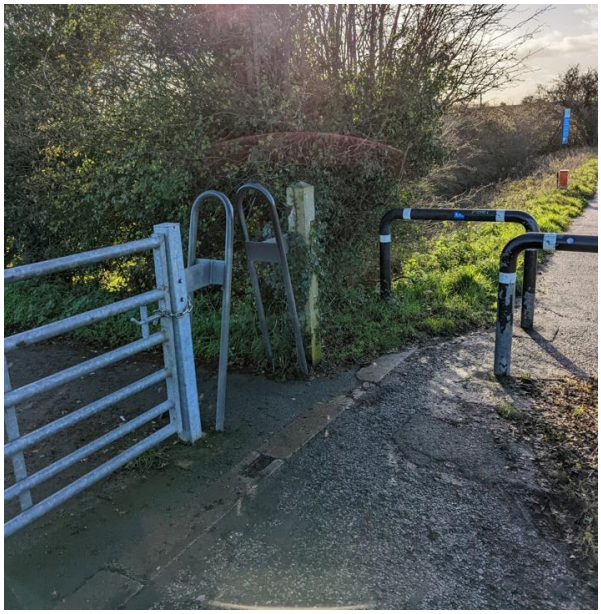
Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Gated radar lock system has the potential to enhance legitimate user permeability. Better solution may be to convert existing gate to radar lock system (subject to NRW approval).
Staggered Gates	Yes	Would allow accessibility by all legitimate users, but less effective at restricting illegal vehicle access. Potential aesthetic upgrade compared to existing barrier. Would require removal of existing gate.
Adjustable A Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles. Would require removal of existing gate.
K Frame	Yes (not recommended)	Would not significantly improve accessibility for all legitimate users or increase resilience against illegal vehicle ingress. Would not allow access for maintenance / emergency vehicles. Would require removal of existing gate.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution. Would require removal of existing gate.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.14.4 As the most cost effective solution, it is recommended that the existing A Frame barrier is retained, but that the adjacent gate is upgraded to work with radar locks, which would enable key holders the ability to open the gate when they are unable to pass through the A Frame barrier. However, the feasibility of this solution would need to be explored through liaison with Natural Resources Wales, and their access to the study area would need to be retained by any solution.

5.15 Barrier 14

Barrier Reference	Location
14	South side of Higher Saltney Ferry Footbridge – approx. 50m north of B5129



Barrier Type: **Chicane Barrier**

Description:

5.15.1 Barrier 14 is a chicane barrier located at the southern end of the Higher Saltney Ferry Footbridge at a point approximately 50m to the north of the B5129. The barrier acts as both an access and speed control measure at a point where the WCP meets the footbridge and the access to the B5129.

Table 5-27: Barrier 14 - Appraisal

		Comment
Height (mm)	1,100	
Minimum Opening Width (mm)	1,100	
Barrier width (mm)	1,300	
Depth between barriers (mm)	1,300	
Gap to side of barrier	No	Barrier abutted by fences on both sides.
Total path width (mm)	2,650	
Compliance with Sustrans Design Guidance?	No	Minimum clearance width below minimum standard of 1.5m, and depth between barriers is below desirable minimum standard of 3.0m.
Compliance with Equality Act?	Yes	

Legal User Types		Comment	Illegal User Types		Comment
Pedestrian	✓		Dirt / Motocross Bikes	✓	
Bicycle	✓		Motorcycle	✓	
Wheelchair	✓		Moped	✓	
Pushchair	✓		Car	✗	
Double pushchair	✓		Electric Scooter	✓	
Class 2 mobility scooter	✓		Quad Bike	✗	
Class 3 mobility scooter	✓		Mini Quad Bike	✓	
Hand Cycle	✓				
Recumbent Cycle	✓				
Cargo Bike	✓				
Bicycle with Trailer	✓				
Bicycle with Towed Child Bicycle	✓				
Electric Bicycle	✓				
Emergency & Maintenance Vehicles	✗				

Potential Alternative Solutions

Table 5-28: Barrier 14 - Potential Alternative Solutions

Alternative Solution	Feasible?	Comment
Radar Key Gated A Frame Barrier	Yes	Would reduce permeability for legitimate users who do not hold radar key (when gates closed). Potential to allow maintenance / emergency vehicle access.
Staggered Gates	Yes	Level of permeability for both legal and illegal vehicle types would remain as existing. Would allow maintenance / emergency vehicle access.
Adjustable A Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
K Frame	Yes (not recommended)	Not compliant with ATW & Sustrans guidance. Would not improve accessibility for all legitimate users & would not physically prevent moped / motorcycle ingression.
Bollard	Yes	Would allow accessibility by all legitimate users, but would provide less effective illegal ingress solution.
Removal of access control	Yes	Would allow accessibility by all legitimate users. Would not physically prevent moped, motorcycle or car ingression. Greater level of police enforcement required.

Recommendation:

5.15.2 It is recommended that the existing chicane barrier is replaced by a staggered gates solution. This would provide the same level of permeability for legitimate users, and would allow maintenance and emergency vehicle access to the path whilst still blocking access for other vehicles.

5.15.3 The proposed access control measure could be located slightly further to the south when compared to the existing solution in order to increase separation from the existing infrastructure in place at the end of the footbridge so as to reduce clutter in that location whilst maintaining a level of access control.

6 Summary of Recommendations & Recommended Next Steps

6.1 Recommendation Summary Table

6.1.1 Table 6-1 below provides a summary of the recommendations made within the report, which are also shown on Plans 3 & 4 in Appendix A.

Table 6-1: Summary of Recommendations

Barrier Reference	Existing Barrier Type	Recommendation	Recommended Solution
1	Gated A Frame	Upgrade Existing Access Control Measure	Gated A Frame Barrier with Radar Lock Capability
2	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
3	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
4	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
5	Gated A Frame	Upgrade Existing Access Control Measure	Gated A Frame Barrier with Radar Lock Capability
6	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
7	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
8	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
9	Fixed A Frame	Upgrade Existing Access Control Measure	Gated A Frame Barrier with Radar Lock Capability
10	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
11	Fixed A Frame	Upgrade Existing Access Control Measure	Gated A Frame Barrier with Radar Lock Capability
12	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates
13	Fixed A Frame / Vehicle Gate	Retain / Upgrade Existing Access Control Measure	Retain existing A Frame Barrier & fit adjacent vehicle gate with Radar Lock Capability (subject to necessary approvals)
14	Chicane	Replace Access Control Measure with Alternative Solution	Staggered Gates

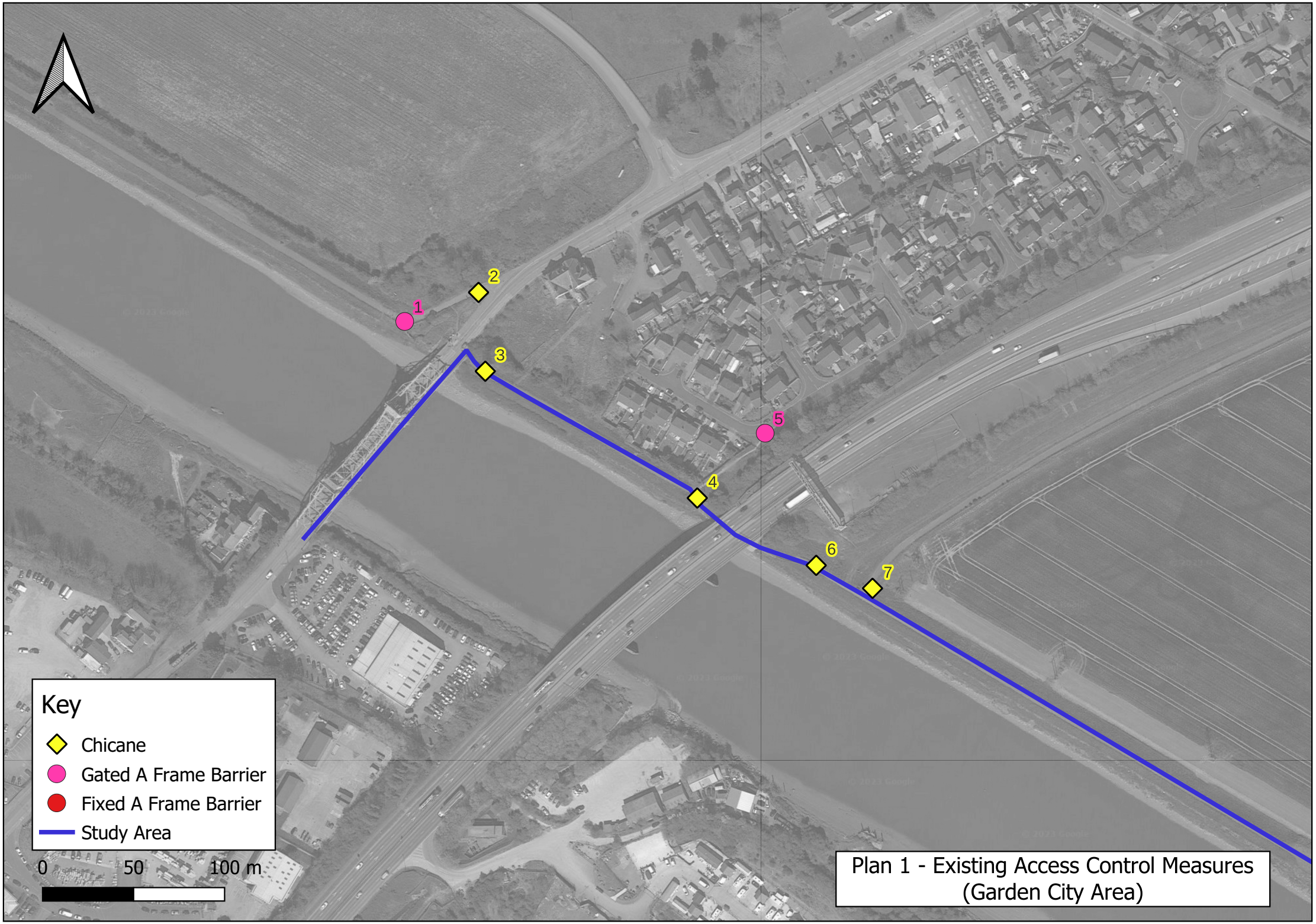
6.2 Recommended Next Steps

6.2.1 It is anticipated that following further discussions regarding the recommendations of this report with FCC officers, a wide-ranging consultation exercise will be undertaken with key stakeholders.

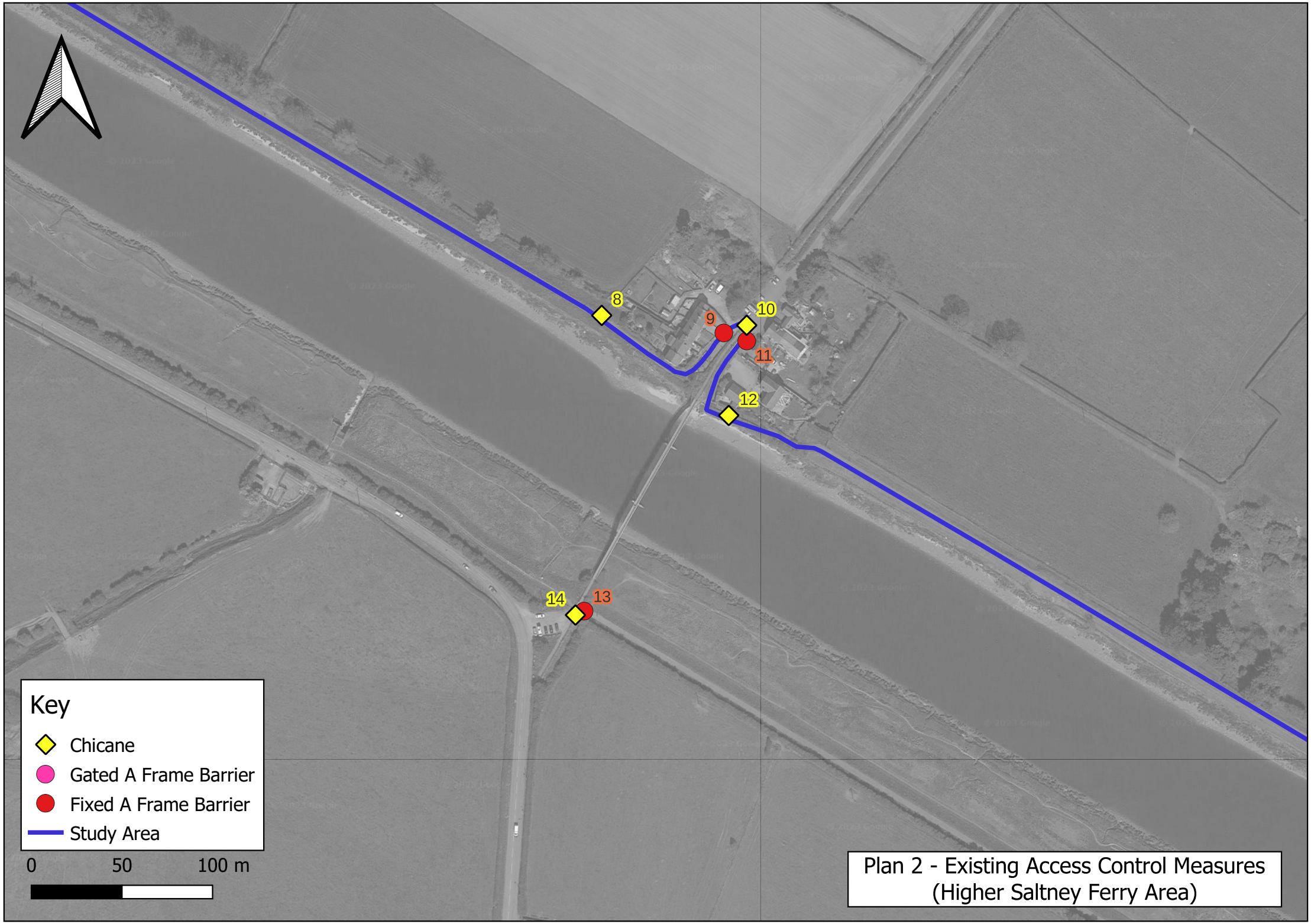
6.2.2 PF will be guided by FCC with regard to the consultation process, but will assist FCC officers with the delivery and organisation of that consultation exercise.

6.2.3 Following the consultation process, any comments from key stakeholders will be addressed and if suitable, used to refine the recommendations made in this report. Following this, it is anticipated that the recommended changes will be agreed with FCC, with a view to those changes being implemented within the study area in the near future.

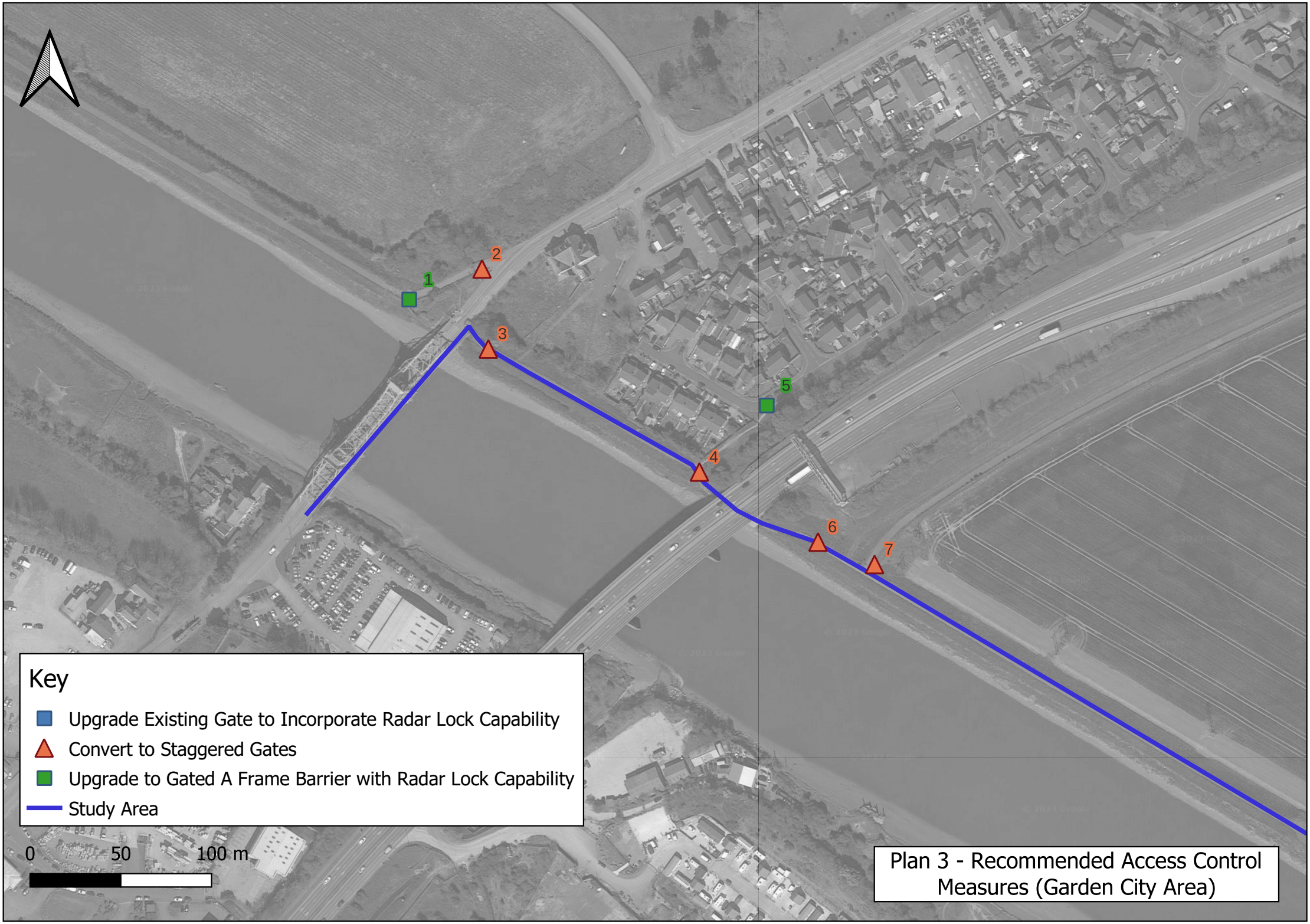
Appendix A - Plans



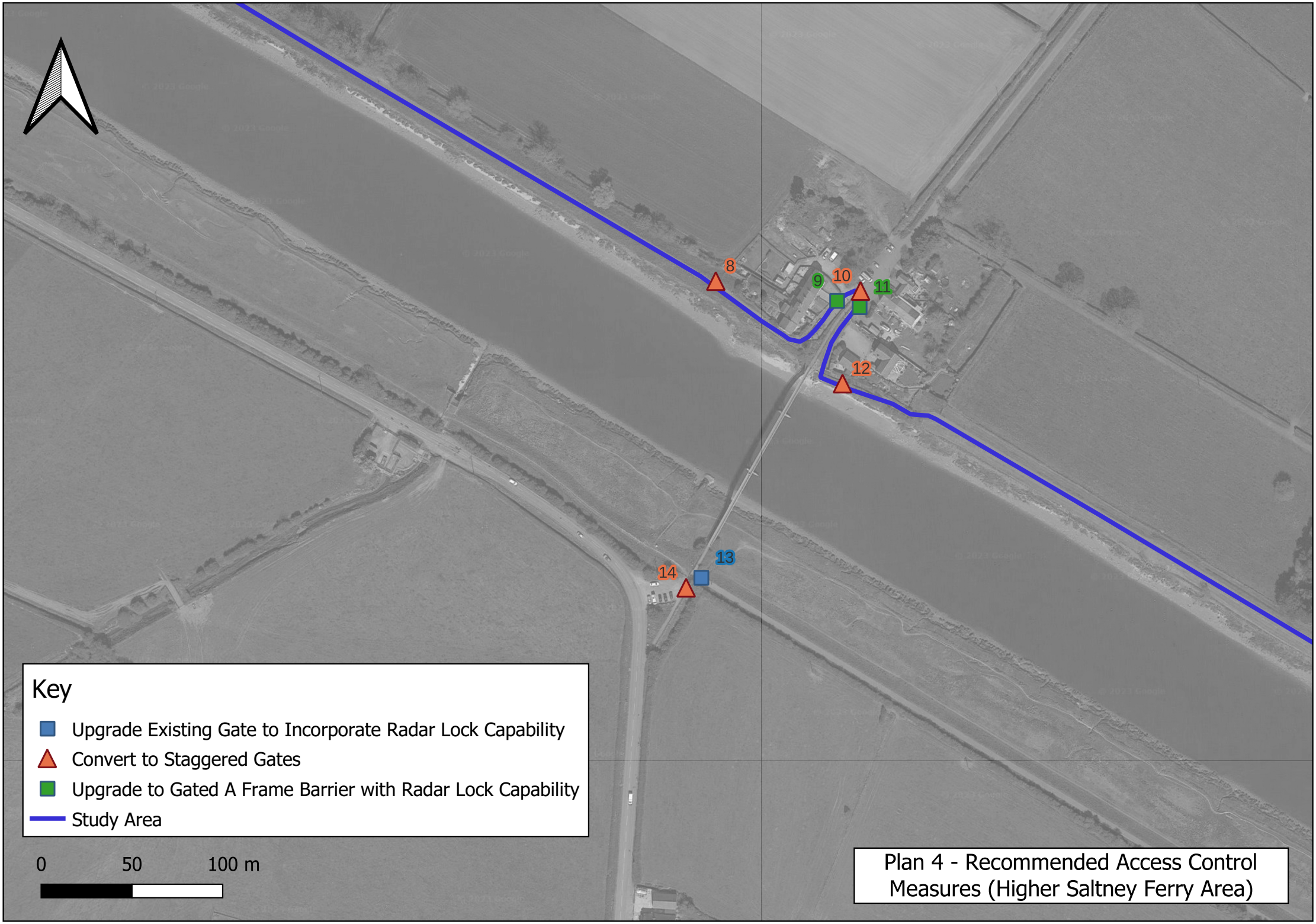
Plan 1 - Existing Access Control Measures
(Garden City Area)



Plan 2 - Existing Access Control Measures
(Higher Saltney Ferry Area)



Plan 3 - Recommended Access Control Measures (Garden City Area)



Plan 4 - Recommended Access Control Measures (Higher Saltney Ferry Area)