

# The Bing, Wallyford





Safer Route to School  
Feasibility Study

East Lothian Council

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# 1. Introduction

East Lothian Council have commissioned AECOM Ltd. (AECOM) to undertake a feasibility study on the provision of a safer route to school in Wallyford, East Lothian. In recent years, Wallyford has been the site of a large amount of development. As part of this development, a new primary school was constructed in 2019. As part of the development, the developer was required to construct a path through The Bing – an area of woodland immediately south-east of Wallyford Industrial Estate. This path was to be a 'safer route to school' for pupils travelling between the primary school and the residential areas to the west and south-west. The path was never constructed.

The purpose of this report is to study the feasibility, and provide an appraisal and costs of various options for the safer route to school.

The project is also to include the assessment of several complementary improvements to paths to the north, east and west of The Bing, as well as looking at active travel improvements to Wallyford Toll roundabout, where a number of existing and proposed routes converge.

The remainder of this report will be structured as follows:

- Section 2 – Background

In section 2, the background to the study is presented, including the existing context and a review of policy and guidance documents.

- Section 3 – Issues, Opportunities and Constraints

The issues, opportunities and constraints associated with the various sites of interest are presented in section 3.

- Section 4 – Options Considered

This section details the various options that were considered to provide a safer route to school.

- Section 5 – Options Appraisal

In section 5, the appraisal of the options that were considered is summarised.

- Section 6 – Complementary Measures

This section details the complementary measures to the safer route to school that have been identified

- Section 7 – Costs

Estimates of the costs of the preferred option at each location are provided in section 7.

- Section 8 – Wallyford Toll Roundabout

A high-level review of Wallyford Toll roundabout and potential options to link the existing and committed active travel infrastructure are presented in section 8.

- Section 9 – Summary and Next Steps

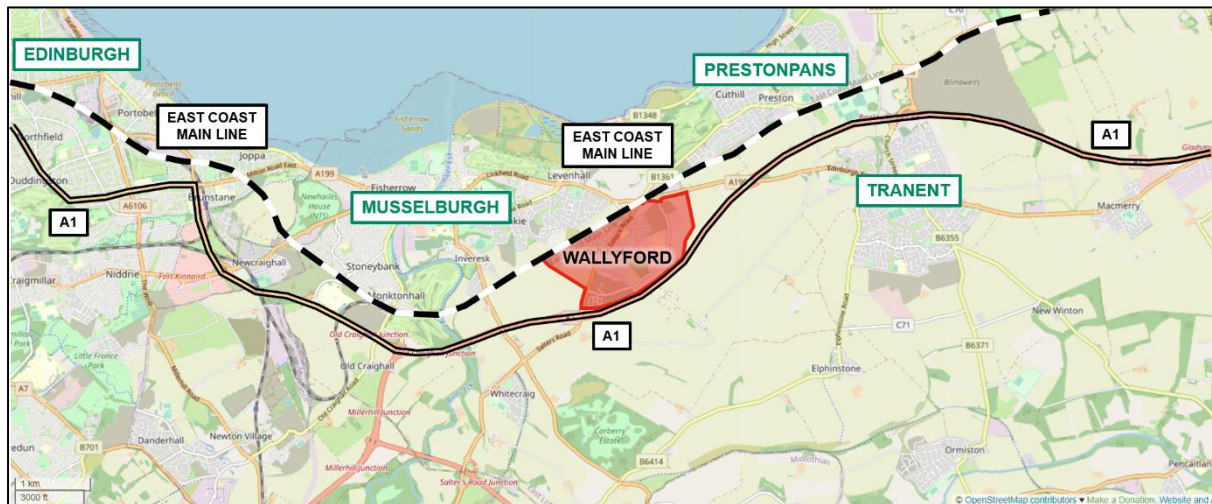
The feasibility study is summarised and section 9, and next steps are suggested.

## 2. Background

Pertinent background information, in the form of the location, existing context, existing infrastructure and Non-motorised User (NMU) provisions, traffic operations and traffic flow and NMU demand, is summarised in section 2.1 to 2.4. Section 2.5 contains a summary of other projects in the area, while section 2.6 contains detail on policy and guidance documents that are relevant to this study.

### 2.1 Location

Wallyford is located in the East Lothian Council local authority area. It lies to the east of Musselburgh, and is bounded to the south-east by the A1 and to the north-west by the East Coast Main Line. This is shown graphically in Figure 2.1.



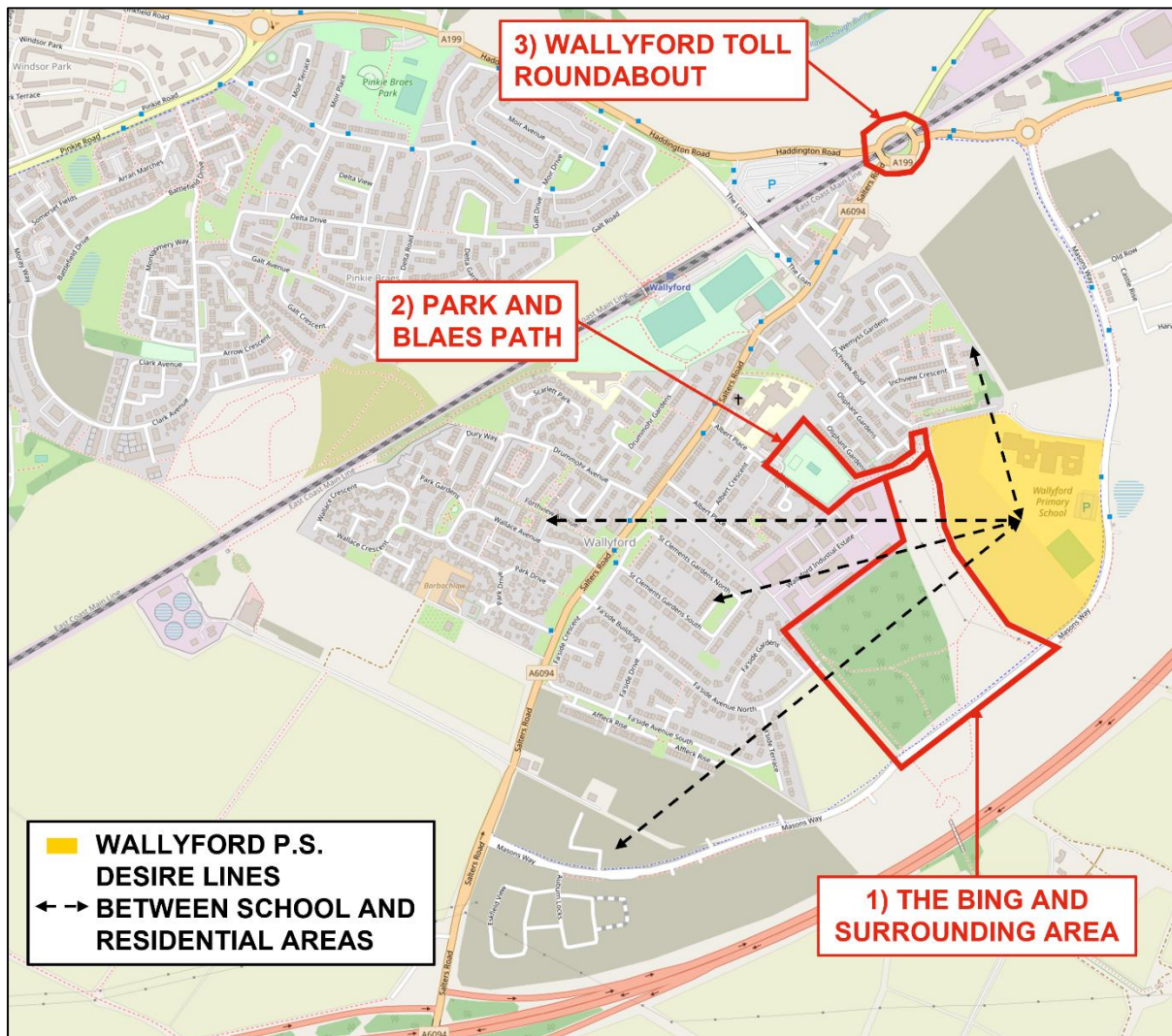
**Figure 2.1: Location - Wider context**

Background mapping source: © OpenStreetMap contributors

Within Wallyford, the areas of interest are as follows:

1. The Bing and surrounding area, including The Bing, Masons Way and the paths on the east and west sides of The Bing;
2. Park between Albert Place and Oliphant Gardens, and blaes path to east of park; and
3. Wallyford Toll roundabout.

The locations of these areas within Wallyford are shown in Figure 2.2.



**Figure 2.2: Location - Areas of interest**

Background mapping source: © OpenStreetMap contributors

The existing context within each of the areas of interest is described in section 2.2.

## 2.2 Existing context

The existing context of each of the areas of interest are described in sections 2.2.1 to 2.2.7.

### 2.2.1 The Bing

The Bing is an existing woodland. The northern part of the wood is particularly dense, and the ground is rutted. This can be seen in figures 2.3 and 2.4.





**Figure 2.3: Northern part of The Bing 1**



**Figure 2.4: Northern part of The Bing 2**

There are existing informal trails through the wood, while there is one formal worn path that runs from east to west. These are shown in figures 2.5 and 2.6.



**Figure 2.5: Existing worn path 1**



**Figure 2.6: Existing worn path 2**

The existing worn path is 1 metre wide, although this varies along its length. It is not sealed and is not lit. At its eastern extent it links to the path that is on a north-south alignment on the east side of The Bing (discussed further in section 2.2.2), while at its western extent it links to the path that is on a north-west / south-east alignment on the west side of The Bing (discussed further in section 2.2.3). The path is bounded on both sides by woodland.

## **2.2.2 Path on east side of The Bing**

The path on the east side of The Bing runs on a north-south alignment, connecting Inchview Road to the north with Masons Way to the south. An access to the primary school is provided towards the north end of the path, as shown in Figure 2.7.





**Figure 2.7: Northern access to Wallyford Primary School**

The path is not sealed and is not lit. It is primarily bounded to the east and west by vegetation, although there are points where the land immediately to the east of the path is Wallyford Primary School playing fields. At the southern end of the path, north of where the path junctions with Masons Way, the land on either side of the path is open.

Figures 2.8 and 2.9 illustrate the typical context along the path on the east side of The Bing.



**Figure 2.8: Path on east side of The Bing 1**



**Figure 2.9: Path on east side of The Bing 2**

### 2.2.3 Path on west side of The Bing

The path on the west side of The Bing runs on a north-west / south-east alignment, connecting the unnamed road that provides access to Wallyford Industrial Estate to the north with Masons Way to the south.



The path is not sealed and is not lit. It is around 3 metres wide, although this varies along the length of the path. It is primarily bounded to the east by The Bing and to west by residences and a development site. During the site investigation work on the development site had not commenced, however during subsequent site walkovers work was underway.

The path continues on the south-east side of Masons Way, where it continues south-eastwards and crosses the A1 via an overbridge.

Figures 2.10 and 2.11 illustrate the typical context along the path on the west side of The Bing.



**Figure 2.10: Path on west side of The Bing 1**



**Figure 2.11: Path on west side of The Bing 2**

## 2.2.4 Masons Way

Masons Way connects the A199 at 'Strawberry Corner' roundabout to the north-east with the A6094 to the south-west. The street is a single carriageway road that is traffic calmed (by road humps / raised crossings). There are footways on both sides of the street and a system of street lighting is in place. The northern footway is wide, at around 3 metres. There are bus shelters along the street, although it is understood that services do not currently run along the street.

At the time of the site visit, the road was closed at the access to the primary school. It is understood that further development is planned in the area (refer to section 2.5.1).

Figures 2.12 and 2.13 illustrate the typical context along Masons Way.



**Figure 2.12: Masons Way 1**



**Figure 2.13: Masons Way 2**



### 2.2.5 Park between Albert Place and Oliphant Gardens

An area of green space is located between Albert Place (to the south-west) and Oliphant Gardens (to the north-east). Wallyford Community Centre is located to the north-west, with Wallyford Industrial Estate located to the south-east. The park contains a playpark and a multi-use games area.

The park is bounded by trees to the north-east and south-east. An access is provided from Albert Place to the multi-use games area, which appears to comprise Grasscrete or similar. The park is not lit, nor is any infrastructure provided for active travel users. A blaes path connects the eastern corner of the park with the path on the east side of The Bing (discussed further in sections 2.2.6 and 2.2.2 respectively).

Figures 2.14 and 2.15 show photographs of the park.



**Figure 2.14: Albert Place / Oliphant Gardens park 1**



**Figure 2.15: Albert Place / Oliphant Gardens park 2**

At the southern corner of the park, two accesses are provided to Wallyford Industrial Estate. These are shown in Figures 2.16 and 2.17.



**Figure 2.16: Access to Wallyford Industrial Estate 1**



**Figure 2.17: Access to Wallyford Industrial Estate 2**

### 2.2.6 Blaes path to east of park

As mentioned in section 2.2.5, a blaes path connects the eastern corner of the park between Albert Place and Oliphant Gardens with the path on the east side of The Bing. This blaes path is around 2.2 metres wide and runs to the southern property boundaries of houses on Oliphant Gardens. The path is not sealed and is not lit.

To the south, the path is bounded by green space / undeveloped land. It is understood that this land is / was intended to be developed into a care home.

Figures 2.18 and 2.19 illustrate the typical context along the blaes path.



Figure 2.18: Blaes path to east of park 1



Figure 2.19: Blaes path to east of park 2

## 2.2.7 Wallyford Toll roundabout

Wallyford Toll is a large, 4-arm priority roundabout. It is the junction of the A199 (eastern and western arms), the B1361 (north-eastern arm) and the A6094 (south-western arm). The roundabout is located above the East Coast Main Line. There is a footway around the outside of the roundabout, which varies in width from around 1.2 metres to around 6.4 metres. The roundabout is large, with an Inscribed Circle Diameter (ICD) of around 70 metres.

All of the approaches to the roundabout are single carriageway roads. The A199 (west) flares out to two lanes at the roundabout, with the nearside lane being marked as a left turn and the offside lane being marked as ahead and right. There is hatching on the A6094 approach, which narrows the width of the carriageway. There are no other road markings on the circulatory carriageway or other approaches, beyond the road markings to Diag. 1003.1, 1004 and turning arrows (TSRGD 2016).

The southern footway is wide, at around 3 metres. This links the southern footway on the A6094 with the 'Strawberry Corner' roundabout. The footway extends to around 100 metres east of the Strawberry Corner roundabout, where it abruptly terminates. It is unclear if this footway is determined as shared / dual use.

There are footways on both sides of each of the arms of the roundabout. No crossing infrastructure is provided at the roundabout, although splitter islands are provided on each arm at the roundabout.

Advisory cycle lanes are provided on the A199 (east and west), although these terminate in advance of the roundabout. No further cycle infrastructure is provided in the immediate vicinity of the junction.

Figures 2.20 to 2.23 illustrate the typical context at the roundabout.





Figure 2.20: Wallyford Toll Roundabout 1



Figure 2.21: Wallyford Toll Roundabout 2



Figure 2.22: Wallyford Toll Roundabout 3



Figure 2.23: Wallyford Toll Roundabout 4

## 2.3 Traffic operations

All of the sites within the area of interest are traffic-free, with the exception of Masons Way and Wallyford Toll roundabout. These are discussed further in sections 2.3.1 and 2.3.2 respectively.

### 2.3.1 Masons Way

As discussed in section 2.2.4, Masons Way was observed to be closed at the entrance to the primary school during the site visit. This appears to be due to ongoing development in the area.

Masons Way is a single carriageway road, with a series of priority junctions along its length. There are no signalised junctions or signalised crossings along its length.

### 2.3.2 Wallyford Toll roundabout

Wallyford Toll is a priority four arm roundabout. Each of the arms are single carriageway roads. There are no banned manoeuvres, and there are no signalised crossings at or immediately adjacent to the roundabout.

## 2.4 Traffic flows and NMU demand

Automatic traffic count data is available on two approaches to Wallyford Toll roundabout on the Department for Transport's Road Traffic Statistics page: the A199 (west) and the A6094.<sup>1</sup>

<sup>1</sup> <https://roadtraffic.dft.gov.uk/>

The Annual Average Daily Flow (AADF) from 2019 (pre-COVID pandemic) were as follows:

**Table 2.1: Annual Average Daily Flows**

Arm	2019 AADF (vehs)
A199 (west)	10042
A6094	11455

It should be noted that the count method for the values in Table 2.1 is 'Estimated from nearby links.

## 2.5 Other projects in area

There are several other projects that are proposed / being implemented within the area of interest, including:

- Ongoing development of Wallyford;
- Musselburgh Active Toun; and
- Wallyford Journey Hub.

These are described in further detail in sections 2.5.1 to 2.5.3.

### 2.5.1 Ongoing development of Wallyford

In recent years there has been large-scale development of Wallyford, and this development is ongoing. In 2018, East Lothian Council's Local Development plan included the following proposals for Wallyford:

- MH9 – circa 1,450 new homes, a local centre and a new primary school;
- MH10 – circa 600 new homes;
- MH11 – new secondary school; and
- MH12 – circa 94 homes and a stadium.

MH9 ('Land at Wallyford') surrounds The Bing on the east, west and south sides, and is therefore most relevant to this study.

The Masterplan for MH9 is shown in Figure 2.24.



**Figure 2.24: Development Masterplan**

During a site walkover, it was noted that construction on the development site to the west of The Bing had commenced. The primary school to the east of The Bing has been constructed and is open.

As noted in section 1, the safer route to school route through The Bing was never constructed.

## 2.5.2 Musselburgh Active Toun

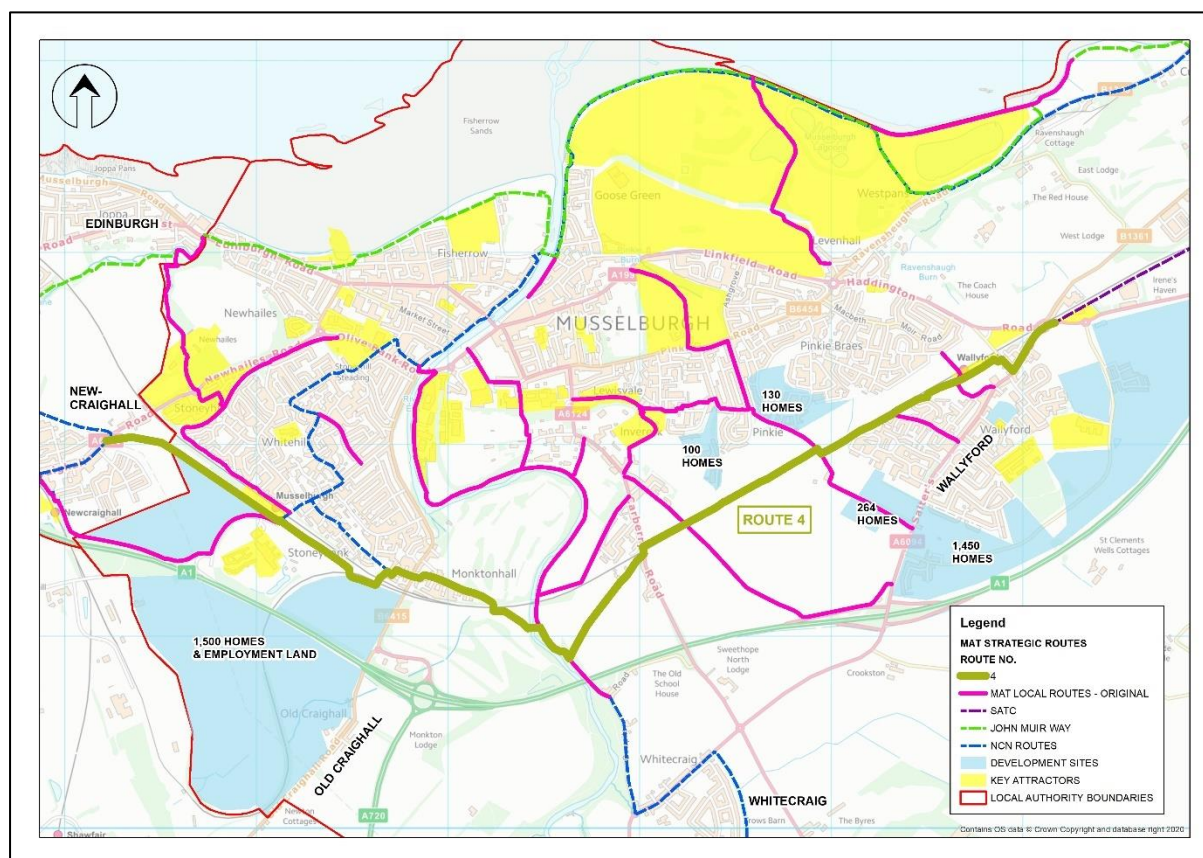
Musselburgh Active Toun (MAT) emerged from the SEStrans funded Future Proofing Musselburgh's Infrastructure for Sustainable Modes of Travel (Musselburgh Masterplan) published in 2018. This study identified that over 50% of trips to work made by Musselburgh's local population are less than 10km long and over 50% of trips to work are made by car. These, and the fact the town has a busy high street and numerous amenities, suggested that walking, wheeling and cycling represent practical choices for everyday journeys for the majority of residents.

The Musselburgh Masterplan identified nine strategic routes that would safely and directly connect the key places that people move between in and around the town and also included key connections into City of Edinburgh and Midlothian. Research and engagement with communities and stakeholders confirmed that these routes connected the places people want to travel to and were important to create the foundation of a wider network.

One of these routes is of particular relevance to the Wallyford area – Strategic Route 4 (Segregated Active Travel Corridor). This route connects Dunbar in the east with Musselburgh to the west. Considering the section of route between Wallyford Toll roundabout and the western extent of Wallyford, the route would run along Salters Road before turning onto The Loan. The route would then turn left, passing Wallyford railway station, and would run alongside the East Coast Main Line along the existing 'Drift' path.

An image of the alignment of the route is shown in Figure 2.25.





**Figure 2.25: MAT Route 4 alignment**

It should be noted that the visioning study for the Wallyford Journey Hub, described in section 2.5.3, has investigated realigning the Segregated Active Travel Corridor via Haddington Road and Wallyford Park & Ride.

The route is intended to be a high-quality active travel corridor and would likely include measures such as segregation on roads that have high traffic volumes and speeds.

The strategic routes are supported by a network of local routes, of which four connect to Wallyford.

The Musselburgh Masterplan report, which contains further information on Route 4, can be viewed at the following link:

[https://www.eastlothian.gov.uk/downloads/download/13321/future\\_proofing\\_musselburghs\\_infrastructure\\_for\\_sustainable\\_modes\\_of\\_travel](https://www.eastlothian.gov.uk/downloads/download/13321/future_proofing_musselburghs_infrastructure_for_sustainable_modes_of_travel)

### 2.5.3 Wallyford Journey Hub

East Lothian Council have the aspiration to create a journey hub at Wallyford Park and Ride. A journey hub is a location that integrates different modes of travel. This can include walking, cycling, travel by public transport, taxis and travel by private vehicle. They are generally located at public transport nodes, allowing users the possibility of taking a journey by multiple modes of transport. They typically include information boards, real time passenger information and cycle racks, and can also include provision for car parking, electric charge points, and hire bike stations.

A visioning study for the Wallyford Journey Hub was completed by Ironside Farrar in March 2022. Within the existing boundary of the park and ride, the emerging concept plan included vehicle charging bays alongside general parking bays.

The emerging concept plan also included the following measures:

- Closure of the existing bus-only link road, with the existing shelters on the link road being moved onto The Loan;
- Conversion of the existing link road to public space, containing a kiosk, public toilets, bike parking and charging, play facilities, sculptural features / seating and an information point;
- Provision of a bus gate on The Loan, with a layby provided on the north-east side of the road. The layby would include charging facilities for electric buses;
- Alterations to the geometry of the junction of Haddington Road and The Loan, to enable large vehicles to turn left from Haddington Road into The Loan;
- Realigning the proposed Segregated Active Travel Corridor from Salters Road via the park and ride and Haddington Road; and
- Possible provision of 3m wide shared use path on the south-west side of The Loan (subject to available carriageway width).


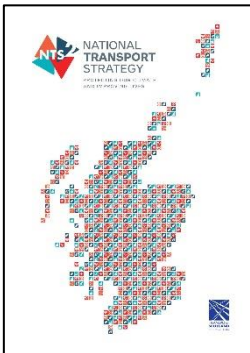
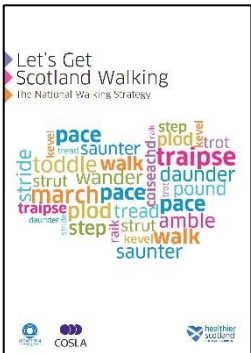
The visioning study can be viewed at the following link:

[https://www.eastlothian.gov.uk/downloads/file/32170/wallyford\\_journey\\_hub\\_visioning\\_study\\_2021](https://www.eastlothian.gov.uk/downloads/file/32170/wallyford_journey_hub_visioning_study_2021)

## 2.6 Policy and guidance

Safer Routes to School projects are aimed at delivering improvements to school routes to make them safer and better places for people to walk and cycle. These are mentioned within the Scottish Government's 'School Transport Guidance 2021', which notes that "*The Scottish Government is committed to a long term vision for active travel that encourages promotes walking, cycling, public transport and car sharing in preference to single occupancy car use for movement of people...*".<sup>2</sup>

The development of walking and cycling is strongly supported in various local and national transport policy documents. The documents shown below are of particular relevance:

Title	Cycling by Design	National Transport Strategy	National Walking Strategy
Year Adopted	2021	2020	2014
			

<sup>2</sup> Scottish Government, 2021. *School Transport Guidance 2021*. [online] p.14. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2021/09/school-transport-guidance-2021/documents/school-transport-guidance-2021/school-transport-guidance-2021/govscot%3Adocument/school-transport-guidance-2021.pdf> [Accessed 3 March 2022].

Title	ELC Local Transport Strategy	ELC Local Development Plan	ELC Local Active Travel Improvement Plan
Year Adopted	2018 	2018 	2018 

The key guidance document for cycling design in Scotland is Cycling by Design (Transport Scotland, 2021). This document provides guidance on the design of cycle infrastructure and has been referenced throughout the development of options at the sites being studied in this report.



### 3. Issues, Opportunities and Constraints

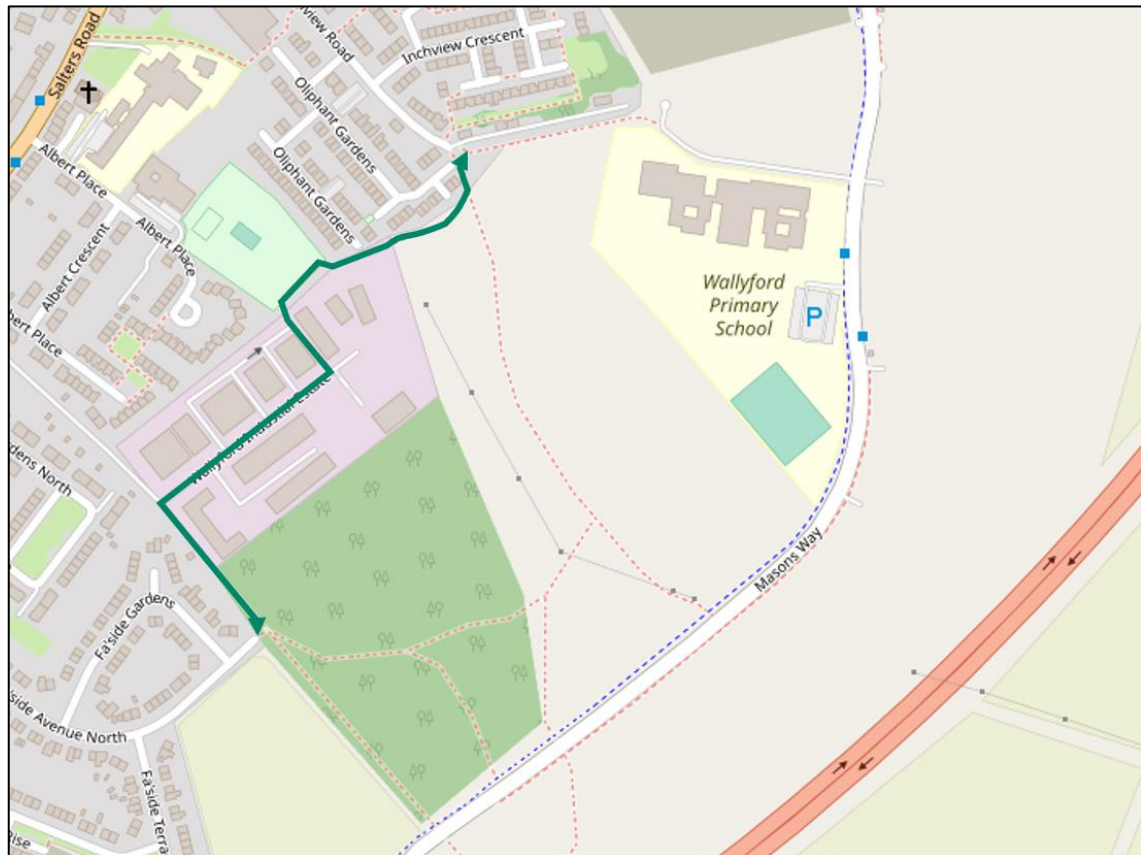
The issues and opportunities within the area of interest are described in section 3.1, while the constraints are described in section 3.2.

#### 3.1 Issues and opportunities

The issues and opportunities associated with the three sites are presented below:

##### The Bing and surrounding area

- There is an existing safety issue associated with school pupils walking through the industrial estate to access Wallyford Primary School. It is understood that the desire line is as shown in Figure 3.1 below:



**Figure 3.1: Desire line**

Background mapping source: © OpenStreetMap contributors

There is the opportunity to provide a safer route that would satisfy the desire line and negate the need for students to walk through the industrial estate.

- The Bing is an existing woodland with many semi-mature trees. Tree roots could prove to be constraints, particularly where trees are more mature.
- During the site investigation it was observed that the ground was rutted over an extensive area within the northern section of The Bing. An example is shown in Figure 2.4 (page 10).
- There are existing sharp gradients at several locations within the area of interest, including at the following locations:
  - On the path on the west side of The Bing (existing gradient = approx. 14 degrees);
  - On the existing path through The Bing (existing gradient = approx. 10 degrees);
  - To the east of The Bing, between the field and the path on the east side of The Bing.
- The existing surface of the path on the west side of The Bing was observed to be uneven, particularly around the manhole adjacent to the steps to Fa'side Avenue North. Several areas were observed where

water was ponding in depressions in the surface. Addressing these surfacing issues would provide a path that would be more comfortable and safer to use.

- Several areas were observed where vegetation has encroached onto the existing infrastructure, which reduces the effective width of the infrastructure. Cutting this vegetation back would increase the effective width of the infrastructure and enhance the look of the area.
- The field to the east of the Bing is very overgrown. It is understood that this is third party land.
- The existing access to the path on the west side of The Bing from Fa'side Avenue North is narrow and may not be suitable for all users. Furthermore, there is no step-free access from Fa'side Avenue North. An image of the access is shown in Figure 3.2.



**Figure 3.2: Access from Fa'side Avenue North**

A similar access control is provide at the northern end of the path on the west side of The Bing. There is the opportunity to improve the accesses and provide a step-free path to the path on the west side of The Bing from Fa'side Avenue North.

- There are several development sites in the immediate vicinity of The Bing. Some of these are discussed further in section 2.5.1. There is a development immediately west of the path on the west side of The Bing, while development is also proposed on the east side of The Bing. Whilst these developments could provide constraints, they also provide the opportunity to introduce further active travel measures, to create a coherent network of paths in the area.

#### Park and Blaes Path

- The existing blaes path terminates where it meets the Albert Place recreation ground. There is the opportunity to extend the path to Albert Place, which would provide a connection to Wallyford Community Centre and onwards to Salters Road.

#### Wallyford Toll

- There is currently no pedestrian crossing infrastructure at the junction, other than an uncontrolled crossing provided around 37 metres from the junction on Salters Road. Pedestrians wishing to cross one of the approach arms have to cross using the existing splitter islands in gaps in traffic. Providing formal pedestrian



crossings would provide safe routes across the junction, including to the bus stops, Strawberry Corner Garden Centre and the development sites.

- The East Coast Main Line runs underneath Wallyford Toll roundabout. This is a key constraint, which controls the geometry of the junction. The railway is bounded by walls on all sides, including on the central island.
- In addition to the walls that bound the railway line, there is a wall to the rear of the northern footway, which extends along the north side of Haddington Road and the B1361
- A shared use footway is provided on the south side of the A199, which terminates suddenly at both ends. This footway is not actually signed as shared use, although it connects to a similar facility within the adjacent development site that is a similar standard and is signed. At its eastern end, it terminates to the east of the new development roundabout access, while at its western end it terminates at the 'Welcome to Wallyford' sign. The termination point at the eastern end is shown in Figure 3.3.



**Figure 3.3: Termination point of footway on south side of A199**

There is the opportunity to link this facility into the wider network of paths proposed in the area, including on the A199 Haddington Road.

- Beyond the shared use footway mentioned above, there is no cycle infrastructure at the junction. Advisory cycle lanes are provided on the A199 on both sides of the junction, but these terminate upstream and commence downstream of the junction.
- A new widened footway has also been provided on the B1361. It is unclear if this footway is intended to be shared use, as no signage was provided at the time of the site visit. Furthermore, no infrastructure was provided to enable cyclists to transition between the carriageway and this facility. As mentioned above for the facility on the A199, there is the opportunity to link this facility into the wider network of paths proposed in the area.
- The existing 'Welcome to Wallyford' sign narrows the effective width of the footway on the south side of Salters Road. Altering / Relocating this feature could enable a better tie-in between the existing shared use footway on the south side of the roundabout and Salters Road.

## 3.2 Constraints

### 3.2.1 Statutory Designated Sites

There are no statutory designated sites within the area of interest.

### 3.2.2 Ecology

An initial ecology site visit was undertaken in December 2021 by an AECOM Ecologist and an ELC Countryside Ranger. The findings of this site visit are provided in Appendix A, with a summary provided below:

- There are no statutory designated sites for nature conservation at or within 1 km of Wallyford Bing.
- The Ancient Woodland Inventory does not indicate that there is any semi-natural ancient woodland or long-established plantation either at Wallyford Bing or within 1 km.
- One stand of Japanese knotweed was identified. No other invasive non-native species were identified during the site visit.
- There is the possibility that features which could support small numbers of roosting bats are present.
- A single active badger sett was recorded during the initial site visit.
- Active nests of numerous common bird species are likely to be present in the breeding season (March to August inclusive) in all trees and shrubs.
- No evidence of other protected species was found during the initial site visit.

### 3.2.3 Water Bodies and Flood Risk

According to the SEPA Flood Maps of the area,<sup>3</sup> the area to the south of Wallyford Toll roundabout is highlighted as having a high likelihood of surface water flooding (10% chance of flooding every year).

An area of the development site to the west of the path on the west side of The Bing (between Fa'side Avenue North and Masons Way) is also highlighted as being at a high likelihood of surface water flooding. A section of the path on the east side of The Bing has a low likelihood of surface water flooding (0.1% chance of flooding every year).

### 3.2.4 Conservation Areas

There are no conservation areas within, or adjacent to, the area of interest.

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<sup>3</sup> <https://map.sepa.org.uk/floodmaps/FloodRisk/Risk>

## 4. Options Considered

A total of six options were initially considered for the Safer Route to School. These were identified during a desktop review of the site and a review of previous proposals and suggestions. The six routes that were considered were as follows:

### 1. New route through The Bing

This option would involve providing a new route through The Bing, to the north of the existing path. It would be roughly parallel to the boundary of Wallyford Industrial Estate, and would be surfaced and lit. The path would be offset from the boundary of Wallyford Industrial Estate by around 20 metres, to ensure that there is a reasonable width of woodland maintained between the path and the industrial estate.

Upon emerging from the east side of the wood, the route would cut across the existing field and connect to the path on the east side of The Bing. As for Option 1, to connect to the north or south entrance to Wallyford Primary School, the path on the east side of The Bing would also have to be upgraded to the same standard. The existing path through The Bing could either be retained or grubbed up.

### 2. Existing route through The Bing

This route would involve the upgrade of the existing route through The Bing, as was originally planned. The route would be widened, surfaced and lit. To connect to the north or south entrance to Wallyford Primary School, the path on the east side of The Bing would also have to be upgraded to the same standard.

### 3. Route through Wallyford Industrial Estate

This option would seek to improve the existing route that some pupils choose to take to and from school. Considering the route from west to east, the route would take cyclists along the southern footway in the industrial estate (which would be widened and determined as shared use), on-road on the north-south road that leads to the access to the park between Albert Place and Oliphant Gardens, and along the south side of the park on a new blaes path. The new blaes path would connect to the existing blaes path to the east, which runs to the northern access to Wallyford Primary School.

A new footway would be provided on the east side of the north-south road within Wallyford Industrial Estate, which would avoid the need for pedestrians to walk on the carriageway.

### 4. Route to rear of Wallyford Industrial Estate

The fifth option that was considered involved utilising the green space to the north of Wallyford Industrial Estate. A shared use path could be provided within this space, which could be connected to the park between Albert Place and Oliphant Gardens. From this point eastwards, the route would be the same as Option 4.

### 5. Route through housing estate.

The final option that was considered utilised the existing paths through the housing estate to the north of Wallyford Industrial Estate. At the east side of the housing estate, the route would connect into the proposed new blaes path through the park between Albert Place and Oliphant Gardens. This path would connect to the existing blaes path to the east, which runs to the northern access to Wallyford Primary School.

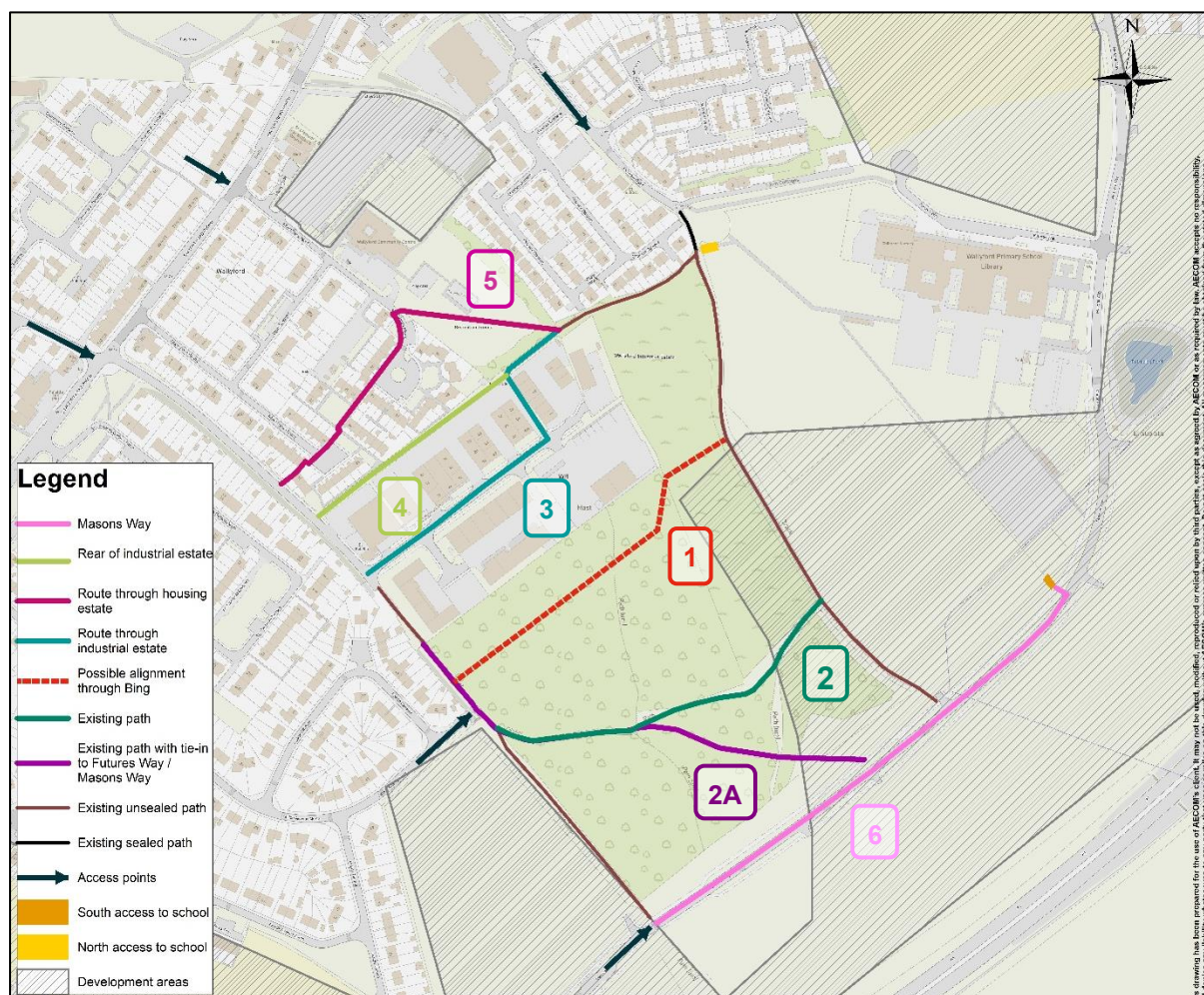
### 6. Masons Way

The third option considered would involve utilising the existing shared footway on the north side of Masons Way. There would be the option to widen the existing shared use footway, which is currently 3 metres wide. To provide a connection to Fa'side Avenue North, the path on the west side of The Bing would also need to be upgraded.

Following a site walkover with Leigh McCrum, an East Lothian Council Countryside Ranger, a seventh route was agreed. Considering the route from west to east, this would follow the existing path through The Bing. At the existing fork in the path, the route would proceed south-eastwards, through the wood. Upon emerging from the wood, the route would cut diagonally across the grassed area and would connect into the northern footway on Masons Way.

These routes are shown graphically in Figure 4.1.





### Figure 4.1: Safer Route to School - Options considered

## 5. Options Appraisal

### 5.1 Appraisal criteria

The options were appraised on a scale of 1 (lowest) to 10 (highest) using the criteria presented in Table 5.1. The option with the highest overall score was deemed to be the preferred option.

**Table 5.1: Appraisal criteria**

Cycle Route Design Objectives	<b>Safety</b>	• be safe and perceived as safe • provide personal security • limit conflict between cyclists and pedestrians and other vehicles • be suitable for unaccompanied school children
	<b>Coherence</b>	• link all potential origins and destinations • be continuous and recognisable • offer consistent standard of protection throughout • be properly signed • include well located cycle parking
	<b>Directness</b>	• be based on desire lines • result in minimal detours or delays • provide a positive advantage in terms of directness and priority over motor traffic
	<b>Comfort</b>	• be smooth, non-slip, well maintained, drained and free of debris • have sufficient width for the level of use • have easy gradients • be designed to avoid complicated manoeuvres • enable cyclists to maintain momentum • minimise impacts of noise, spray and headlight dazzle from other traffic
	<b>Attractiveness</b>	• be attractive and interesting • integrate with and complement their surroundings • contribute to good urban design • enhance personal security • be well maintained
	<b>Deliverability</b>	1 = No prospect of delivery 10 = No challenges to delivery, all required information and agreements in hand
Pedestrian Design Objectives	<b>Safety</b>	• be safe and perceived as safe for those walking • provide personal security • limit conflict between pedestrians, cyclists and other vehicles • provide an appropriate level of provision for the anticipated pedestrian flows • be safe for unaccompanied school children
	<b>Comfort</b>	• Footways should be appropriately wide and free from clutter • appropriate space for waiting at bus stops • appropriate space for people making through trips.
	<b>Inclusive Design and Accessibility</b>	Provide safe access for all vulnerable users, in particular ensure the project meets its obligations under Disability Discrimination legislation. Maximise the accessibility of destinations
	<b>Priority and Connectivity</b>	• Design meets the street user hierarchy and provides pedestrian priority where possible • Provide an appropriate number of crossings so as to enhance how 'crossable' the street(s) is / are
Ecology and Environmental Objectives	<b>Ecological Impact</b>	• Impact of the project on the surrounding ecology
	<b>Environmental Impact</b>	• Impact of the project on the surrounding environment

### 5.2 Summary

A summary of the options appraisal is provided in Table 5.2. The appraisal is presented in its entirety in Appendix D.

As shown in Table 5.2, the preferred option was Option 2A – upgrade of existing path with tie-in to Masons Way.

This option was initially agreed with East Lothian Council's Countryside Access officers before being shared more widely within the Council. Within the feedback that was received there was consensus that this was the right option to pursue. A high-level design of this option has been prepared and is presented in Appendix B.

Table 5.2: Appraisal summary

Design Option		Total Cycle Design Objectives	Cycle Design Objectives Rank	Total Pedestrian Design Objectives	Pedestrian Design Objectives Rank	Total Ecology and Environmental Objectives	Ecology and Environmental Objectives Rank	Total	Rank
THE BING	Summary								
<b>Option 1 - New path through The Bing</b>	<p>Option 1 scored joint highest in the pedestrian design objectives, second in the cycle design objectives and sixth in the ecology and environmental objectives.</p> <p>The route was found to be coherent, direct and comfortable for cyclists and pedestrians. However, the route scored poorly in terms of deliverability (due to a section running through third party land) and with regards to its environmental impact (due to the amount of tree and vegetation clearance being required).</p>	47	2	35	1	8	6	90	2
<b>Option 2 - Upgrade of existing path</b>	<p>Option 2 scored joint highest in the pedestrian design objectives, fourth in the cycle design objectives and last in the ecology and environmental objectives.</p> <p>The route was found to be coherent, direct and comfortable for cyclists and pedestrians. However, the route scored poorly in terms of deliverability and with regards to its ecological impact (due to likely impact on badger setts).</p>	46	4	35	1	6	7	87	3
<b>Option 2A - Upgrade of existing path, with tie-in to Masons Way</b>	<p>Option 2A scored joint highest in the pedestrian design objectives, first in the cycle design objectives and fifth in the ecology and environmental objectives.</p> <p>The route was found to be coherent, direct and comfortable for cyclists and pedestrians. The only objective that scored less than five was environmental impact (score of 4, due to the amount of tree and vegetation clearance being required).</p>	50	1	35	1	9	5	94	1
<b>Option 3 - Route through industrial estate</b>	<p>Option 3 scored joint highest in the ecology and environmental objectives, fourth in the pedestrian design objectives and last in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. The route scored poorly in the cycle design objectives due to possible conflicts with</p>	30	7	29	4	10	1	59	7



Design Option		Total Cycle Design Objectives	Cycle Design Objectives Rank	Total Pedestrian Design Objectives	Pedestrian Design Objectives Rank	Total Ecology and Environmental Objectives	Ecology and Environmental Objectives Rank	Total	Rank
THE BING	Summary								
	vehicles and the fact that some of the works would be on third party land.								
<b>Option 4 - Route to rear of industrial estate</b>	<p>Option 4 scored joint highest in the ecology and environmental objectives, fifth in the pedestrian design objectives and sixth in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. The route scored relatively poorly in the pedestrian and cycle design objectives due to the fact that users may have some personal security concerns, the infrastructure may be sub-standard, and the fact that some of the works would be on third party land.</p>	33	6	24	5	10	1	67	5
<b>Option 5 - Route through housing estate</b>	<p>Option 5 scored joint highest in the ecology and environmental objectives, last in the pedestrian design objectives and fifth in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. The route scored relatively poorly in the pedestrian and cycle design objectives due to the fact that the route would likely be substandard and uncomfortable due to constraints.</p>	36	5	20	7	10	1	66	6
<b>Option 6 - Masons Way</b>	<p>Option 6 scored joint highest in the ecology and environmental objectives, fifth in the pedestrian design objectives and second in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. Route 6 scored highly in the cycle design objectives, as it is considered to be coherent, relatively direct and deliverable.</p>	47	2	24	5	10	1	81	4

## 6. Complementary measures

Complementary measures to the Safer Route to School route have been identified and considered. These are at three locations:

- Accesses to / from Fa'side Avenue North and Wallyford Industrial Estate access road;
- The path on the west side of The Bing; and
- The existing blaes path and the missing link to Albert Place and Wallyford Community Centre.

The complementary measures are discussed in sections 6.1 to 6.3.

### 6.1 Accesses to / from Fa'side Avenue North and Wallyford Industrial Estate access road

As described in section 3.1, the existing access to the path on the west side of The Bing from Fa'side Avenue North is narrow and may not be suitable for all users. Furthermore, there is no step-free access from Fa'side Avenue North. An image of the access is shown in Figure 3.2 on page 22.

At the northern extent of the path, south of where it connects with Wallyford Industrial Estate access road, an access control is also provided. This access may be difficult to negotiate in certain types of bicycles. An image of this access is shown in Figure 6.1.



**Figure 6.1: Access at northern extent of path on west side of The Bing**

It is understood that the northern access is being considered as part of a separate project.

Options have been considered to improve the access to / from Fa'side Avenue North:

1. A 2.5m wide switch-back ramp;
2. A straight ramp to the south; and
3. A straight ramp to the north.

These options are shown in Figure 6.2, Figure 6.3 and Figure 6.4. Drawings of these options are provided in Appendix B.

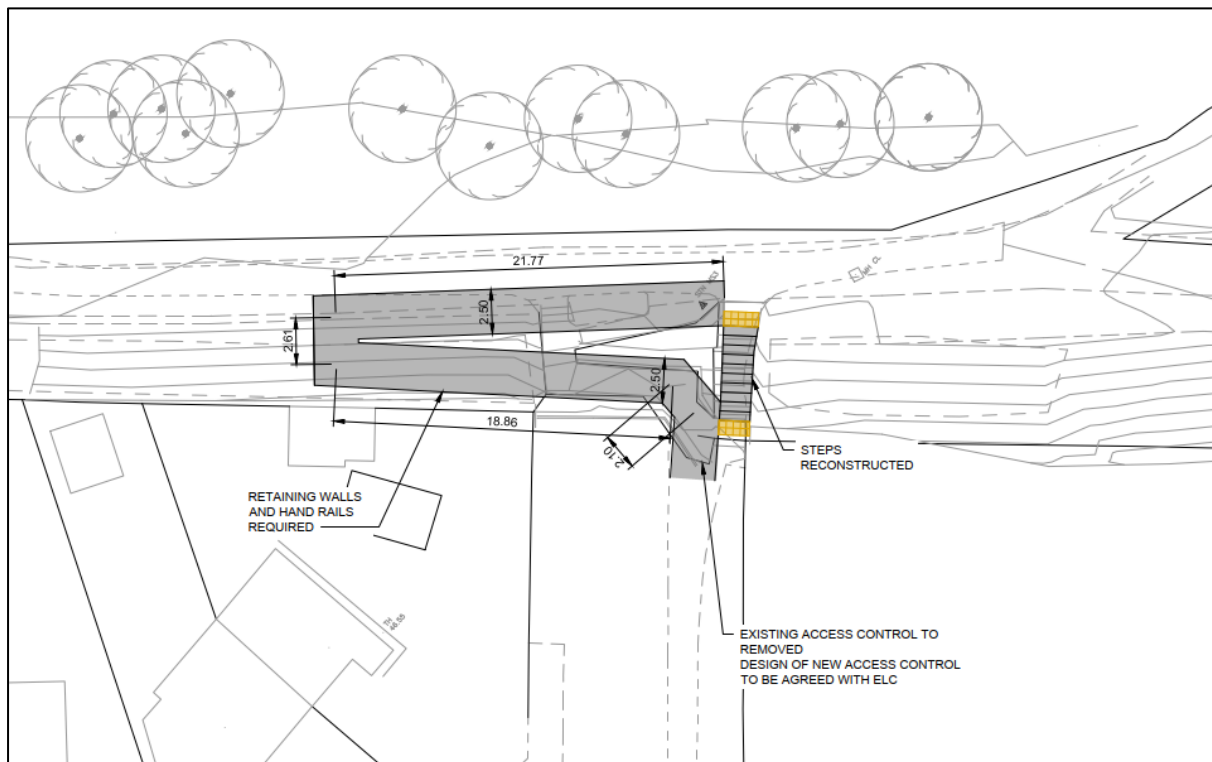


Figure 6.2: Fa'side Avenue North Access - Option 1

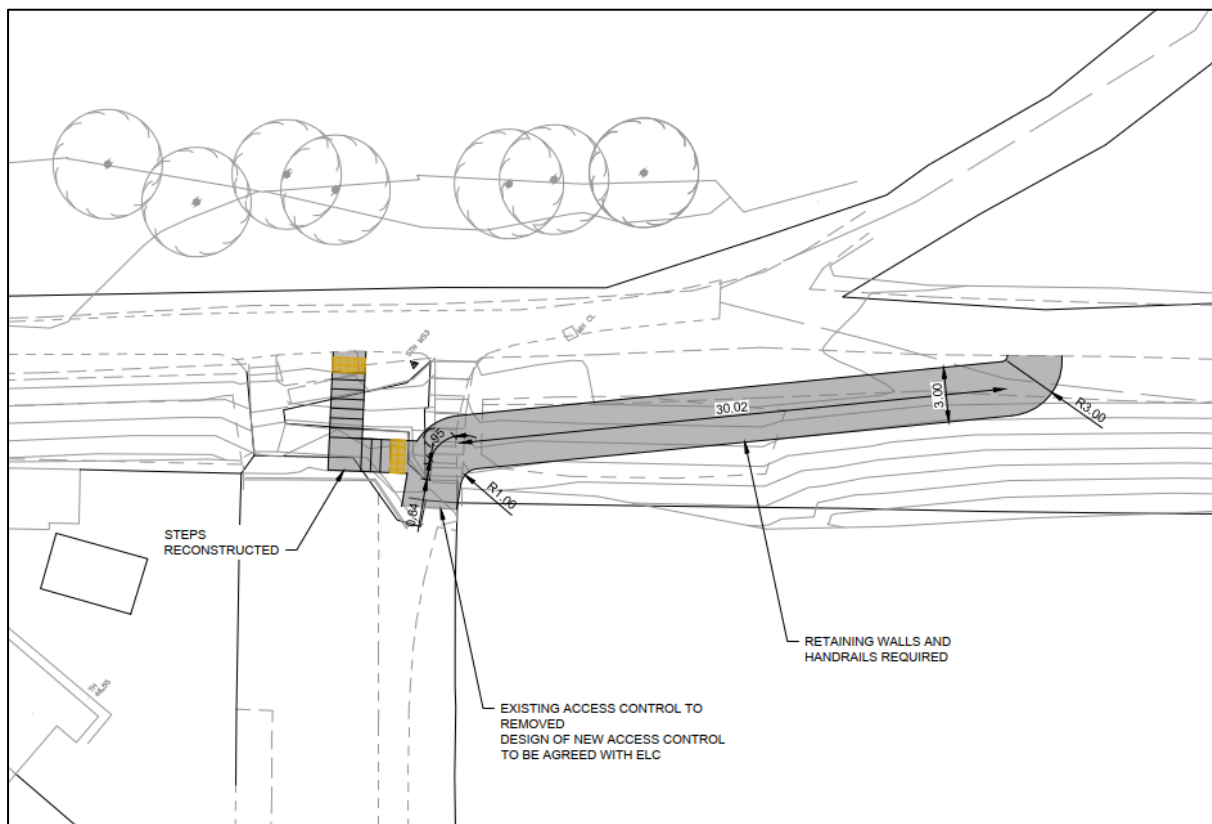
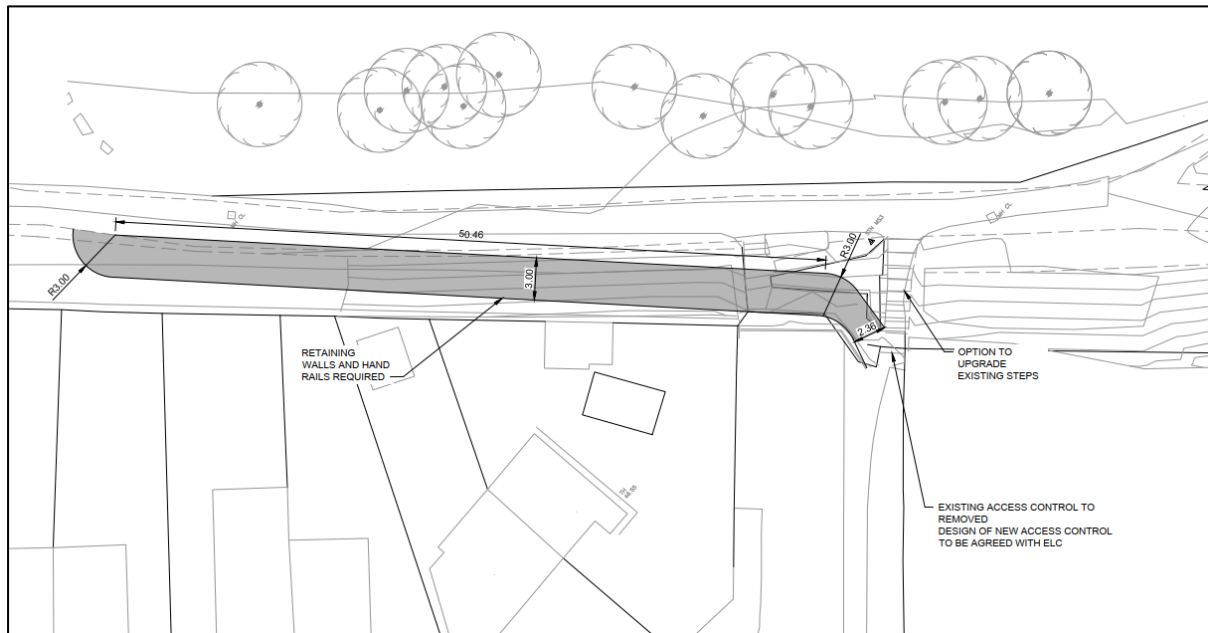


Figure 6.3: Fa'side Avenue North Access - Option 2



**Figure 6.4: Fa'side Avenue North Access - Option 3**

## 6.2 Improvement to path to west of The Bing

As described in section 3.1, the gradient of the path to the west of The Bing immediately north of Masons Way was observed to be very steep. The path was measured as having a maximum gradient of 14 degrees (25%), well above the maximum gradient specified in Inclusive Mobility (1 in 12, or 8%). It should be noted that Cruden Group are developing the land to the west of the path, and part of this development will include re-grading the land to the west of the path. As part of this work, they have altered the level of the path at this location to reduce the gradient. It is unclear what the amended gradient is.

Based on the maximum gradient of 25% and the topographical survey that took place prior to Cruden Group undertaking any works, options for reducing the gradient of the path were sketched. The options that were investigated were as follows:

1. A straight ramp with 1 in 1 earthworks;
2. A straight ramp with 1 in 3 earthworks;
3. A switch-back ramp.

These options are shown in Figure 6.5, Figure 6.6, and Figure 6.7. Drawings of these options are provided in Appendix B.

It should be noted that the area surveyed did not include the land to the east of the existing slope, therefore Option 3 is not drawn completely on a topographical survey.

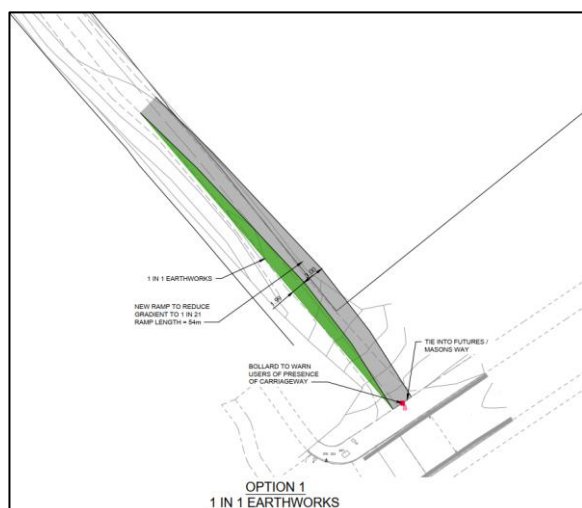


Figure 6.5: Path to west of The Bing - Option 1

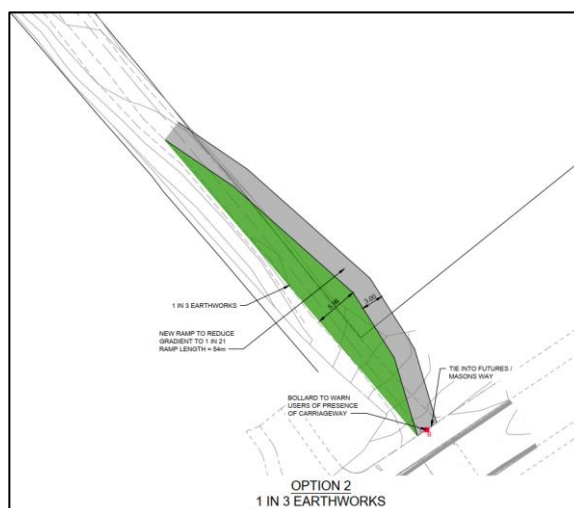


Figure 6.6: Path to west of The Bing - Option 2

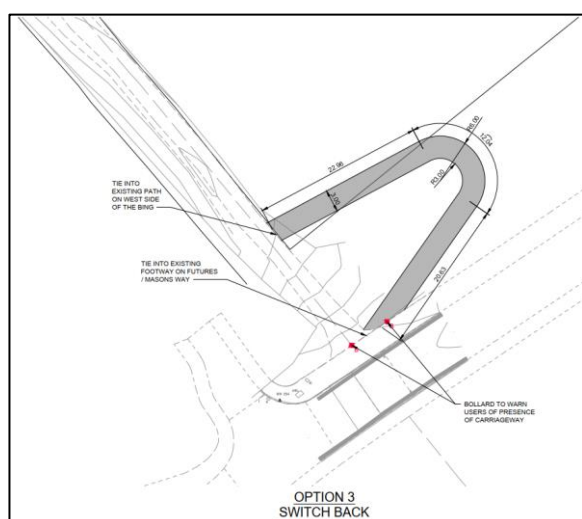


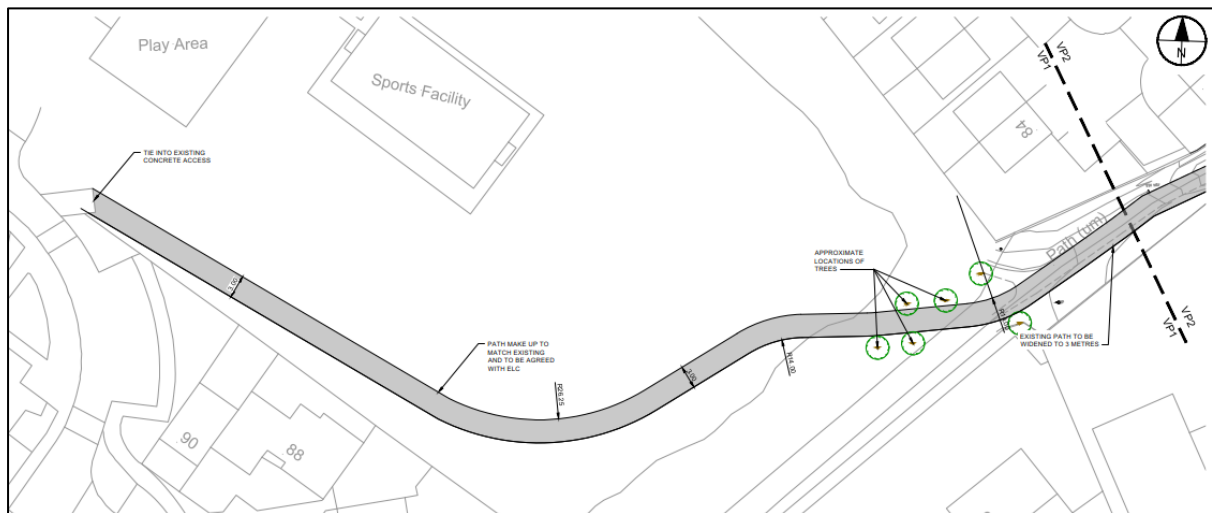
Figure 6.7: Path to west of The Bing - Option 3

### 6.3 Path through park and blaes path

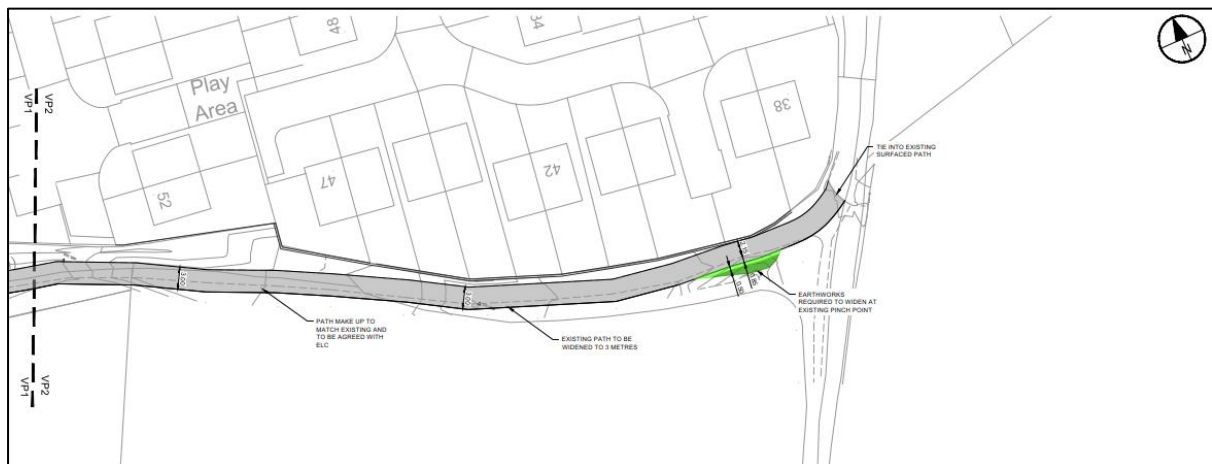
The existing blaes path runs between the south-eastern corner of the Albert Place recreation ground and the northern access to Wallyford Primary School. There is currently no connection across the Albert Place recreation ground to Albert Place, which would provide a connection to Wallyford Community Centre and onwards to Salters Road.

A high-level design is shown in Figs 6.8 and 6.9. A drawing is provided in Appendix B.





**Figure 6.8: Blaes Path - Image 1**



**Figure 6.9: Blaes Path - Image 2**

As shown in the figures above, the path would travel between the existing trees at the southern end of the park and would tie into the existing concrete access leading to Albert Place.

## 7. Costs

Costs have been provided for the preferred Safer Route to School route (Option 2A) and the complementary measures that were identified. These costs are based on rates taken from Spon's 'Civil Engineering and Highway Works Price Book 2022', complemented with rates from similar projects, where appropriate.

The costs are presented in tables 7.1 to 7.4. The cost estimates are provided in full in Appendix C, including the assumptions and exclusions that apply.

**Table 7.1: Safer Route to School path cost estimate**

SECTION	OPTION	DESCRIPTION	COST (incl. OB)
Path through The Bing	-	Preferred option from appraisal	£245,903.41

**Table 7.2: Improvements to path on west side of The Bing cost estimates**

SECTION	OPTION	DESCRIPTION	COST (incl. OB)
Western path	1	1 in 1 earthworks	£ 27,828.45
	2	1 in 3 earthworks	£ 31,551.13
	3	Curved ramp	Not costed due to absence of topographical survey

**Table 7.3: Path through park and blaes path cost estimate**

SECTION	OPTION	DESCRIPTION	COST (incl. OB)
Blaes path	-	-	£ 37,340.23

**Table 7.4: Fa'side Avenue North access cost estimates**

SECTION	OPTION	DESCRIPTION	COST (incl. OB)
Fa'side Avenue North access	1	Switch-back ramp	£140,483.21
	2	Straight ramp to south	£109,944.39
	3	Straight ramp to north	£149,388.90

For all of the costs noted above, the following should be noted:

- Each of the costs include Optimism Bias (OB) of 44% (in line with The Scottish Transport Appraisal Guidance (STAG) Technical Database, Table 13.4 Stage 1 Scheme Development.), an allowance of 10% for preliminaries, and an allowance of 10% for contingency / risk (allowance for known risks, including Brexit and supply chain issues).
- An inflation rate of 10% has been applied to each of the costs. This assumes a start date of Q2 2023.

## 8. Wallyford Toll roundabout

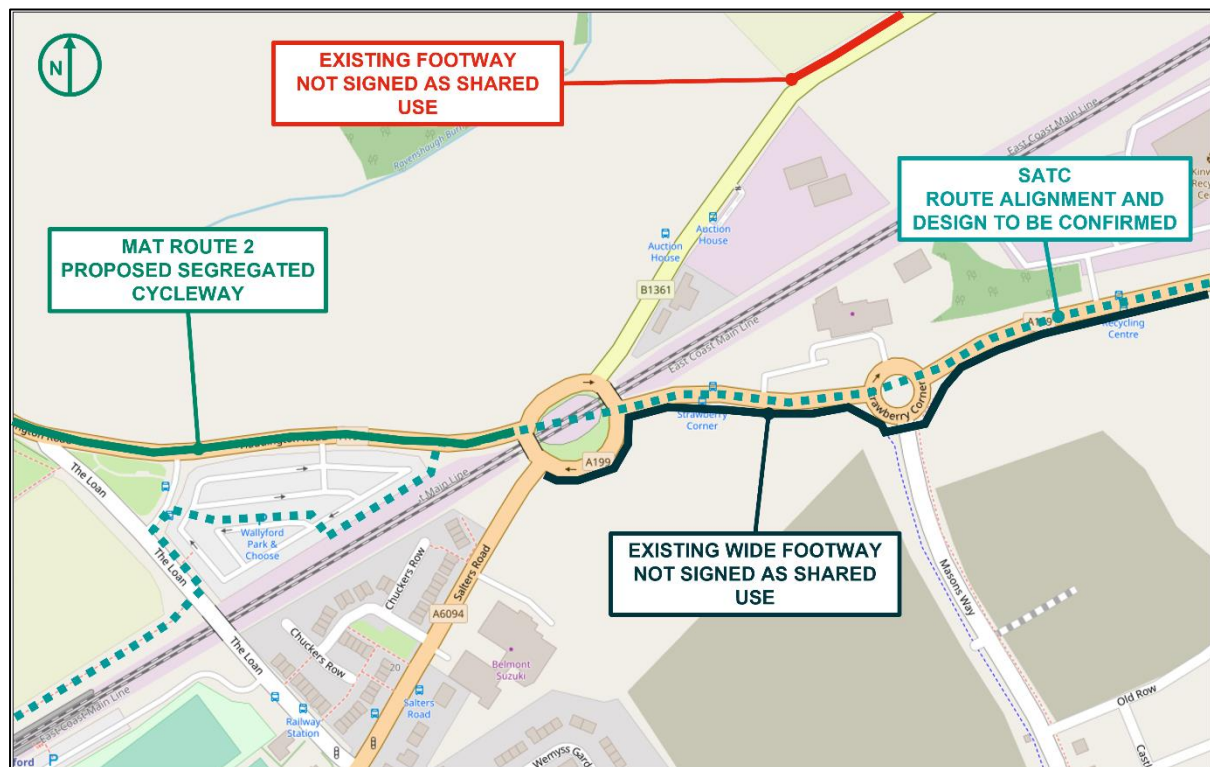
### 8.1 Background

As detailed in section 2.2.7, Wallyford Toll is a large, 4-arm priority roundabout. Advisory cycle lanes are provided on the A199 (east and west), although these terminate in advance of the roundabout. No further cycle infrastructure is provided in the immediate vicinity of the junction.

A new shared use footway has also recently been provided on the B1361, which commences around 240 metres from the roundabout. There is an existing wide footway on the south side of the A199 (east), which extends from around 110 metres east of the roundabout junction between the A199, Masons Way and the access to Strawberry Corner Garden Centre to Salters Road.

As part of Musselburgh Active Toun Route 2, a new segregated cycleway is to be provided on the A199 Haddington Road. The Segregated Active Travel Corridor (SATC), is also proposed to run through this area, connecting the A199 (east) to the west, across Wallyford Toll Roundabout. The current proposal for the route (as described in section 2.5.3) to the west of Haddington Road is for it to connect through Wallyford Park & Ride, before crossing The Loan and continuing westwards towards Wallyford railway station.

The existing and committed infrastructure described above is shown graphically in Figure 8.1.



**Figure 8.1: Wallyford Toll Roundabout - Existing and committed infrastructure**

Background mapping source: © OpenStreetMap contributors

As shown in Figure 8.1, there are several missing links at the roundabout:

- Link from Wallyford Toll roundabout to existing footway on B1361;
- Link between MAT Route 2 (Haddington Road) and other arms of roundabout;
- No cycle infrastructure on the roundabout, beyond an existing wide footway that is not signed as shared use.



## 8.2 Options considered

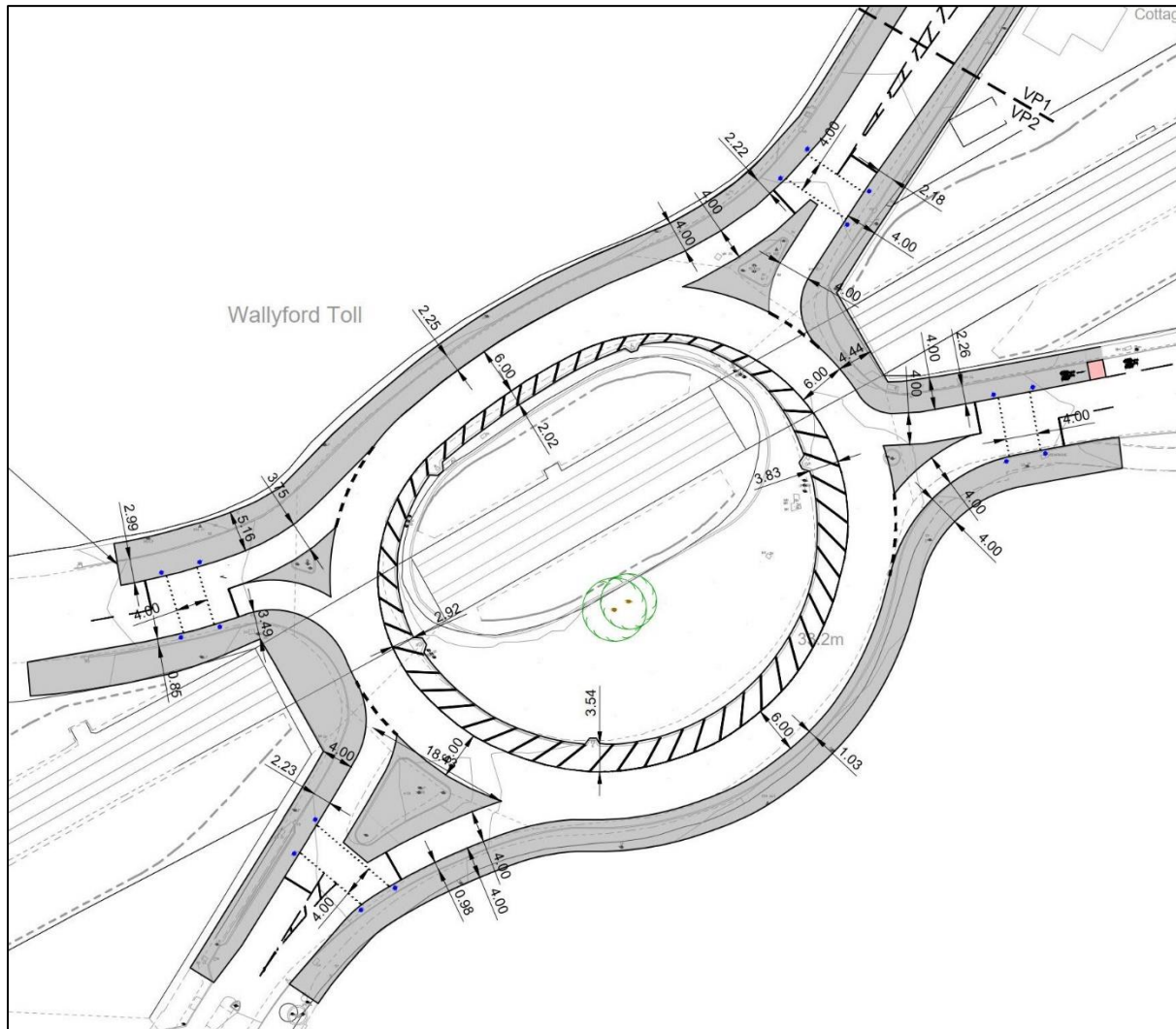
Two options have been considered that would fill these missing links. These are as follows:

- Option 1 – Shared use footways around roundabout; and
- Option 2 – Segregated cycleways around roundabout.

These options are shown in Appendix E and are described in sections 8.2.1 and 8.2.2 respectively.

### 8.2.1 Option 1 – Shared use footways around roundabout

Option 1 is shown graphically in Figure 8.2.



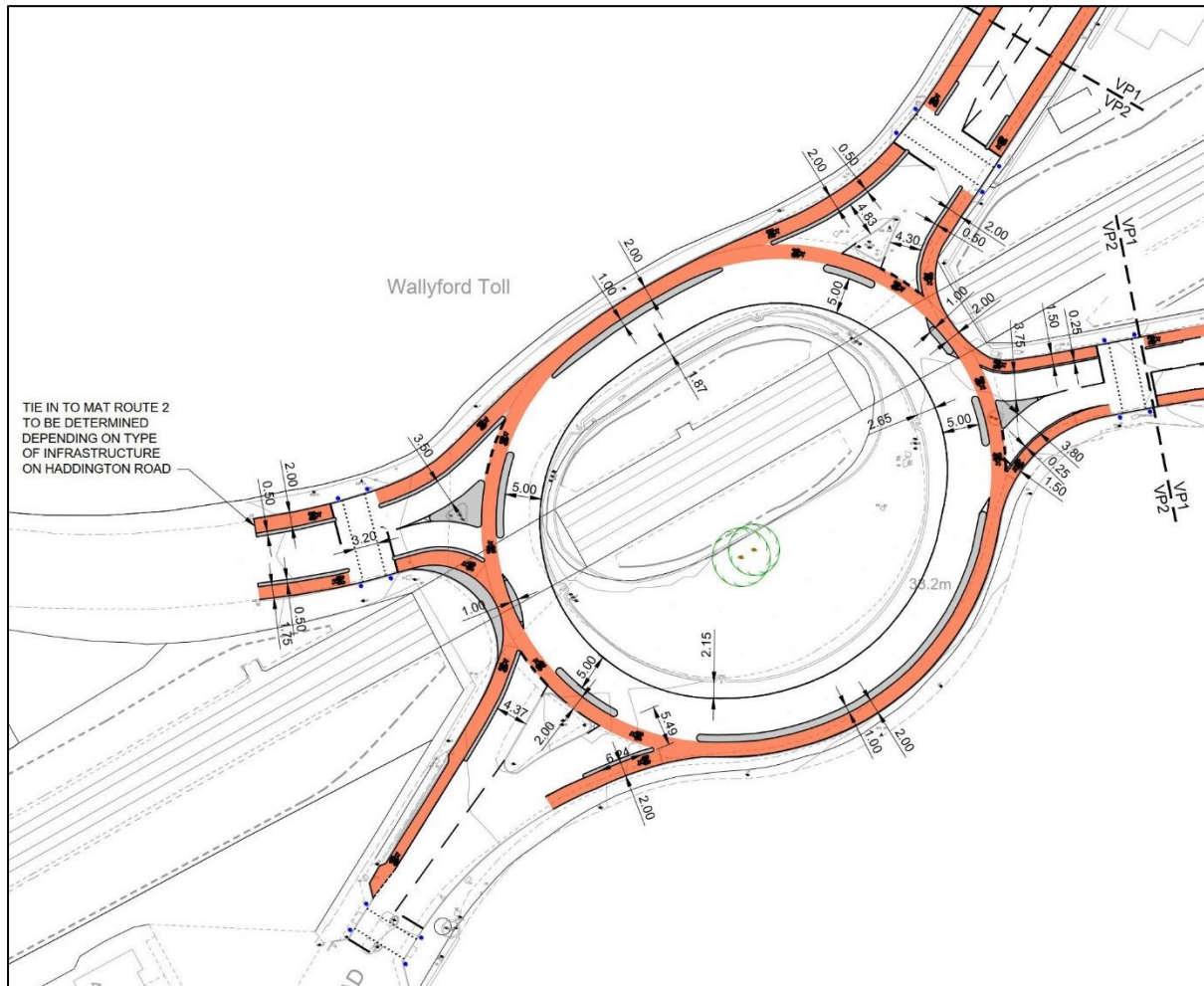
**Figure 8.2: Wallyford Toll roundabout - Option 1**

The option would involve providing four metre wide shared use footways around the roundabout. Toucan crossings would be provided on each arm of the roundabout, set back 15 metres from the circulatory carriageway. The entry arms would be narrowed to a maximum width of 4 metres, and the circulatory carriageway would be narrowed to a width of 6 metres using hatching.

On Haddington Road, the shared use footway would connect to the proposed segregated cycleway, providing a transition between the two types of infrastructure. On the B1361, the shared use footway would extend north-eastwards to the existing footway that has been recently widened. On the A199 (east), the shared use footway would connect to the existing wide footway on the south side of the road. On the north side of the road, cyclists would have the option of transitioning from the shared use footway onto the existing cycle lane on the carriageway. On Salters Road, users would transition between the carriageway and shared use footway via dropped kerbs.

### 8.2.2 Option 2 – Shared use footways around roundabout

Option 2 is shown graphically in Figure 8.3.



**Figure 8.3: Wallyford Toll roundabout - Option 2**

The option would provide segregated cycleways on each of the approaches to the roundabout, as well as on the circulatory carriageway. Signalised pedestrian crossings would be provided on each arm of the roundabout, set back at least 15 metres from the circulatory carriageway. The entry arms would be narrowed, and the circulatory carriageway would be narrowed to a width of 5 metres using hatching and the cycle infrastructure.

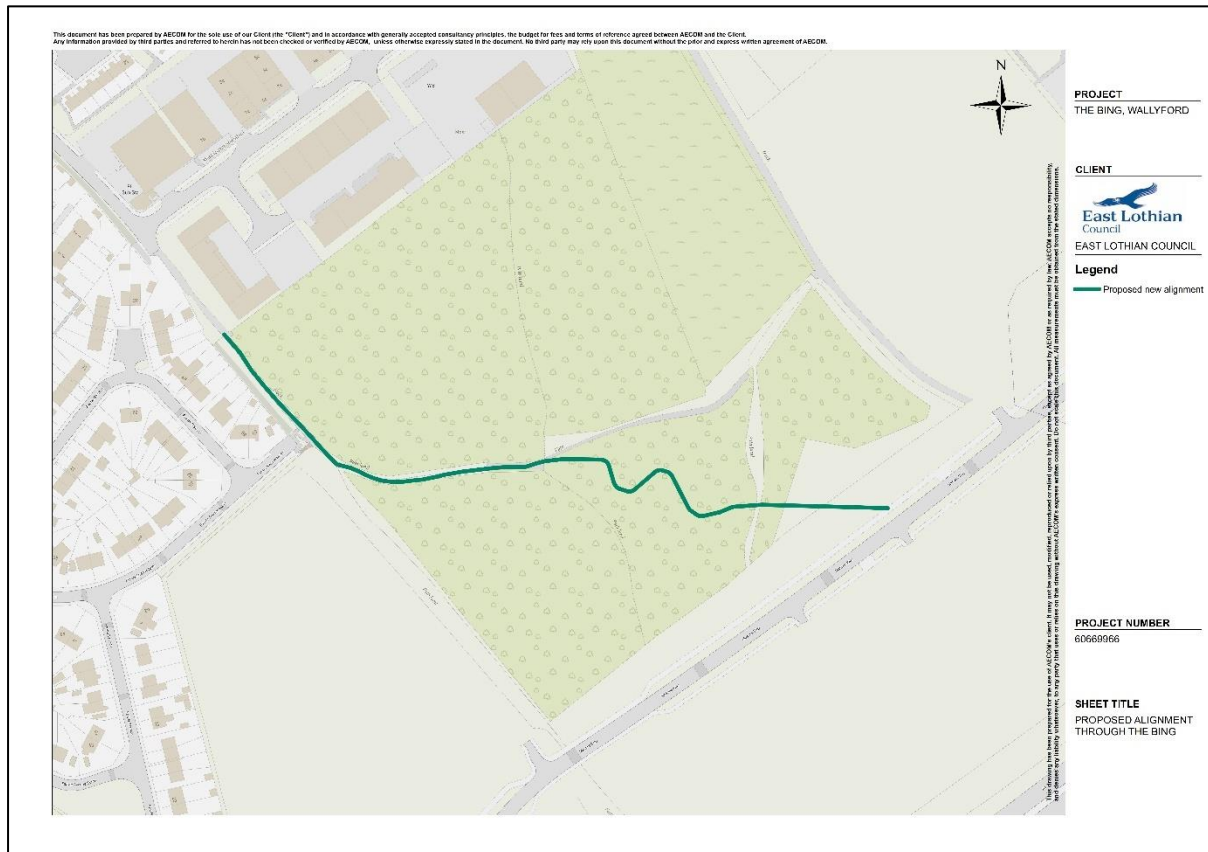
On Haddington Road, the segregated cycleways would connect to the proposed infrastructure on Haddington Road, with the tie-in being dependent on whether the infrastructure on Haddington Road is bi-directional or with-flow. On the B1361, cycle lanes would be provided to link the roundabout with the existing footway that has been recently widened to the north-east. On the A199 (east), the segregated cycleways would connect to the existing on-road cycle lanes. On Salters Road, the infrastructure would commence / terminate to the south of the roundabout.

On the roundabout, the cycleway would be uni-directional and 2m wide. A 1m wide segregation strip would be provided. On the arms of the roundabout, the width of the cycleway and segregation strip would vary according to the available carriageway width.

## 9. Summary and Next Steps

### 9.1 Summary

This report has assessed the feasibility of a safer route to school and has appraised the identified alignment options. Seven options were appraised, with the preferred alignment being Option 2A - upgrade of existing path with tie-in to Masons Way. The alignment of this route is presented in Figure 9.1 below:

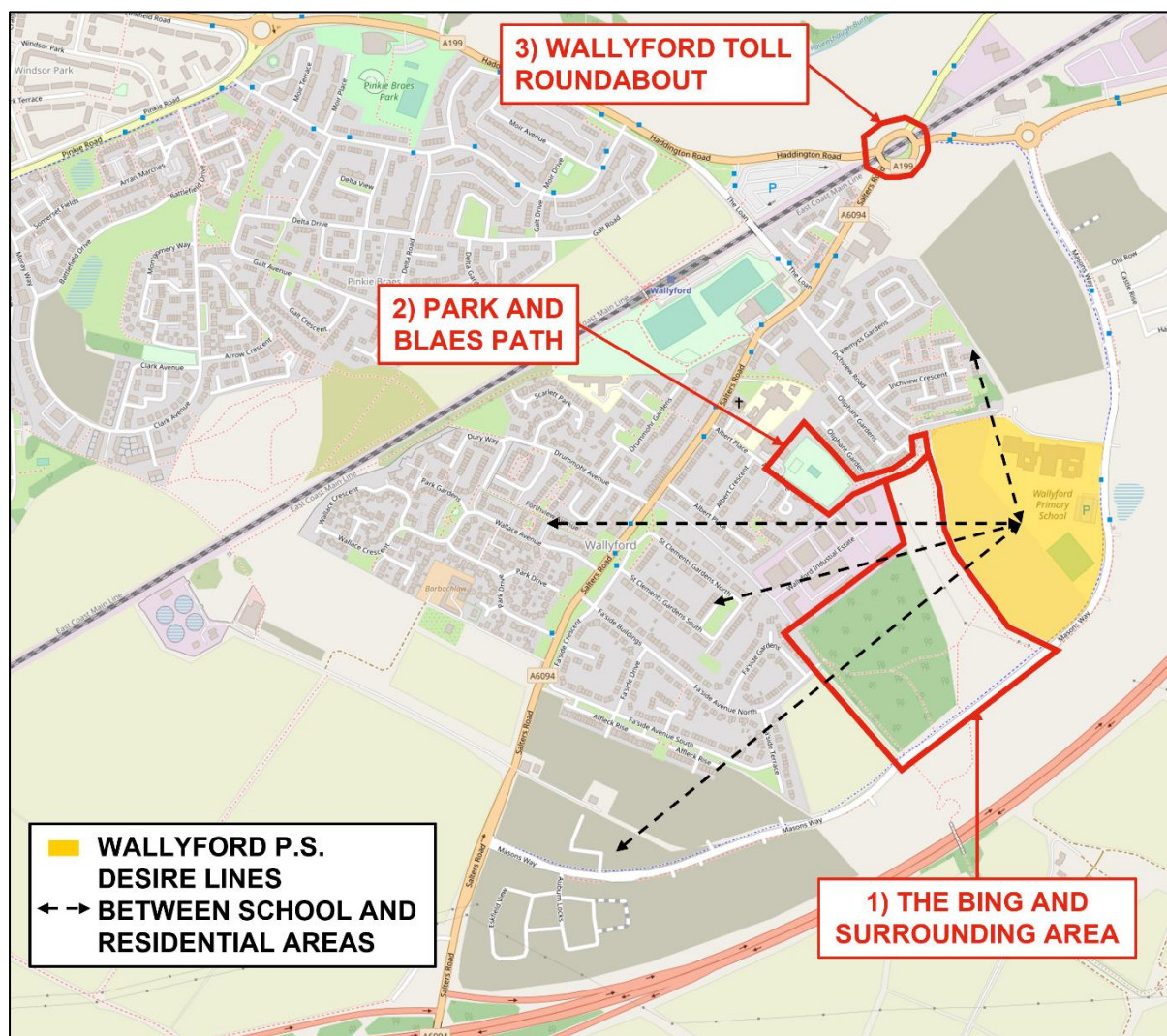


**Figure 9.1: Preferred Safer Route to School alignment - Option 2A**

A high-level design of this option has been prepared and is presented in Appendix B.

Several complementary improvements to paths to the north, east and west of The Bing were investigated. This included the access from Fa'side Avenue North to The Bing, the path to the west of The Bing, and the blaes path to the north of The Bing. The locations of these sites are shown in Figure 9.2.





**Figure 9.2: Location of complementary measures**

Three options were presented for the path on the west side of The Bing and the Fa'side Avenue North access, with one option being presented for the path through the park and blaes path.

Cost estimates were prepared for the preferred option for the safer route to school and the identified complementary measures. A summary of these costs is provided in Table 9.1 below:

**Table 9.1: Summary of costs**

SECTION	OPTION	DESCRIPTION	COST (incl. OB)
Fa'side Avenue North access	1	Switch-back ramp	£ 140,483.21
	2	Straight ramp to south	£ 109,944.39
	3	Straight ramp to north	£ 149,388.90
Blaes path	-		£ 37,340.23
Path through The Bing	-		£ 245,903.41
Western path	1	1 in 1 earthworks	£ 27,828.45
	2	1 in 3 earthworks	£ 31,551.13
	3	Curved ramp	Not costed due to absence of topographical survey

This report also investigated active travel improvements at Wallyford Toll roundabout, where a number of existing and proposed routes converge. Two options were identified:

- Option 1 – Shared use footways around roundabout; and
- Option 2 – Segregated cycleways around roundabout.



The designs of each of these options are presented in Appendix E.

## 9.2 Next Steps

The following next steps are recommended:

- Ecology surveys

Ecology surveys for the safer route to school route are being undertaken in June 2022. It is recommended that these surveys are completed and that any identified actions are suitably progressed.

- Complementary measures

Three options have been identified for the Fa'side Avenue North access and the path to the west of The Bing. It is recommended that a preferred option is concluded for each of these sites. Regarding the path to the west of The Bing, this may require a further site investigation, and potentially a further topographical survey, due to the works undertaken by Cruden Group (described in section 6.2).

- Funding

It is recommended that relevant funding opportunities and delivery partners are explored to develop the measures as soon as possible. It is understood that funding is available for the safer route to school route through The Bing. Funding opportunities for the complementary measures and for the upgrade of Wallyford Toll roundabout should be explored.

- Engagement

Limited engagement has taken place on the measures identified in this report. Wallyford Primary School Parent Council were engaged following the completion of the appraisal, while representatives from East Lothian Council were engaged throughout the development of the safer route to school route through The Bing (including Countryside Access Officers, a Tree Officer, Planning, and wider members of ELC's Roads team).

It is recommended that further engagement is undertaken on the proposals in order to raise local awareness of them, to explain the reasons for the project and to outline the project timeline. There may be opportunities to involve local people in the design, such as in landscaping themes or the design of signage.

- Development of designs

In order to progress the proposed measures to construction, the designs will need to be progressed through the subsequent design stages (concept design, developed design, technical design). This is likely to involve 3D design, development / investigation of drainage proposals, street lighting design, ground investigation, and the production of tender drawings and a specification. Due to the size / nature of the works, it may be possible to combine design stages.

Engagement with the local community would be beneficial throughout the development of the designs.

## Appendix A Initial Ecology Site Visit

# The Bing, Wallyford: Summary of Initial Ecology Site Visit

## Introduction

This is a summary of the findings of an initial site visit to Wallyford Bing, Wallyford made on 13 December 2021 to investigate two proposed footpath routes and the surrounding habitat. The proposed routes options are:

- construction of a new path along the northern edge of the woodland adjacent to the industrial estate (hereafter described as the 'Northern proposed route'); and,
- upgrades to the existing dirt path which runs through the centre of the woodland (hereafter described as the 'Central proposed route').

The site visit included a brief walkover, accompanied by the East Lothian Council Countryside Ranger, where general notes were made on ecological features to the extent possible during the brief visit, including invasive species, bat roost suitability and potential for other protected species. Additionally, a very brief review was made of online sources for designated nature conservation sites and ancient woodland.

See the attached Figure 1 for locations of the two proposed routes and relevant ecological features (excluding a confidential badger sett location).

## Site description

Wallyford Bing comprises a roughly 230 m x 270 m area of woodland, grassland, tall ruderal vegetation and scrub. The woodland comprises a plantation of tall, spindly immature and semi-mature broadleaved trees. Adjacent to the woodland to the north-east is an area of dense scrub and rosebay willowherb *Chamaenerion angustifolium*, and to the south-east there is rank neutral grassland. Several informal paths cut across the woodland, the largest of which aligns with the Central proposed route option.

The dominant tree species in the plantation woodland on Wallyford Bing are sycamore *Acer pseudoplatanus* and ash *Fraxinus excelsior* with occasional wych elm *Ulmus glabra*, alder *Alnus glutinosa* and apple *Malus* sp., and locally abundant birch *Betula* sp. and beech *Fagus sylvatica*. The ground flora was sparse at the time of survey (winter) and dominated by brambles *Rubus fruticosus* and neutral grasses, with frequent wood avens *Geum urbanum* and occasional nettle *Urtica dioica* and cleavers *Galium aparine*. Hawthorn *Crataegus monogyna*, elder *Sambucus nigra* and blackthorn *Prunus spinosa* are also occasionally present in the shrub layer. Although the initial site visit was in winter, this type of immature plantation woodland is highly unlikely to support any notable plant species.

## Potential constraints

### Designated sites

There are no statutory designated sites for nature conservation at or within 1 km of Wallyford Bing. Given the minor nature of the proposal (a footpath), the absence of water features, and the locational context (with parts of the settlement of Wallyford on all or parts of the west, north and east sides of Wallyford Bing and the busy A1 road shortly to the south), there is no realistic possibility of any indirect effect on designated sites for nature conservation, including European sites.

The Ancient Woodland Inventory does not indicate that there is any semi-natural ancient woodland or long-established plantation either at Wallyford Bing or within 1 km.

It is not known if the Bing is a Local Biodiversity Site or a key green infrastructure component, which would require further desk study, however it constitutes a significant area of broadleaved woodland in the local area, which is dominated by intensive agriculture with little woodland.

## Invasive non-native species

The site visit was carried out during a sub-optimal season (winter) for identification of invasive non-native species, and detailed survey for invasive non-native species was not carried out.

During the site visit one stand of Japanese knotweed *Reynoutria japonica* was identified, located approximately 8 m south of the Northern proposed route (see Figure 1). This stand is approximately 10 m long by 5 m wide and there was no evidence of herbicide application (although the season made this more difficult to detect) or other management.

In addition, the Countryside Ranger mentioned that giant hogweed *Heracleum mantegazzianum* was previously present to the south-east of the Central proposed route, but had been recently covered by spoil during construction of the housing south of the wood. No exact location of this was available, but a very approximate location is marked on Figure 1.

No other invasive non-native species were identified during the site visit.

## Protected species

### Bats – trees with bat roost suitability

A brief visual inspection of the woodland as a whole was carried out to determine the likelihood of individual trees having suitability for roosting bats. A full inspection to determine bat roost suitability of all trees within the potentially affected areas could not be carried out during the brief initial site visit.

Trees within the woodland are overwhelmingly semi-mature or immature and are generally too small and healthy to support potential roost features for bats. However, bats are able to roost in extremely small crevices such as those created by lifted bark and knotholes. Thus there is the possibility that features which could support small numbers of roosting bats are present. Trees with such features are likely to be classified as having Low bat roost suitability (in accordance with the definition provided by the Bat Conservation Trust (BCT<sup>1</sup>) (Collins, 2016)). It is possible, though considered unlikely given the immaturity of the trees, that Moderate or High suitability trees with more significant potential roost features may also be present in potentially affected areas.

The buildings on the industrial estate adjacent to the Northern proposed route are modern and well-sealed metal constructions and have Negligible suitability for roosting bats.

### Badger

A full badger survey of the woodland/scrub could not be carried out during the brief initial site visit.

However, a single active badger sett was recorded during the initial site visit. The standard works exclusion distance to prevent disturbance to badger is 30 m, except for particularly-disturbing works such as impact piling or similar for which disturbance at 100 m or more may be possible. The known sett is located well beyond these distances, at over 150 m from the Northern proposed route, but works for the Central proposed route (using the current alignment) would affect it. Due to the confidential nature of badger sett records, as a result of vulnerability to persecution, the exact location of the sett is not described here or shown on Figure 1.

The sett comprised two entrance holes within 2 m of each other, one of which led to tunnels leading off in two directions. Both entrances appeared well-used given that they were clear of leaves and with a small amount of fresh spoil. A guard hair was found at the entrance nearest the Central proposed route, and potential snuffle holes were found within 20 m of the sett.

The woodland is generally flat and open and thus not the most favourable for sett creation, however, there is potential for further setts to be present in particular at the sloping area of scrub/ruderal vegetation to the north-east. Badgers may also forage throughout the wood and adjacent grassland.

### Nesting birds

Active nests of numerous common bird species are likely to be present in the breeding season (March to August inclusive) in all trees and shrubs. Areas of dense blackthorn hedge adjacent to the Central proposed route are especially suitable for smaller species. The Countryside Ranger also mentioned that a communal rook *Corvus frugilegus* nesting area had been present in trees along the Northern proposed route in previous years, although no nests were recorded during the site visit.

---

<sup>1</sup> Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd Edition. The Bat Conservation Trust, London.



### Other protected species

No evidence of other protected species was found during the initial site visit. There appear to be no water features within 500 m, therefore otter *Lutra lutra*, water vole *Arvicola amphibius* and great crested newt *Triturus cristatus* are considered likely absent. The likelihood of red squirrel *Sciurus vulgaris* or pine marten *Martes martes* using the woodland is low given its small size and significant degree of isolation from other woodland, the surrounding area comprising the built-up area of Wallyford and intensive agricultural fields. Other protected species not already mentioned above are very unlikely to occur in this area.

## Recommendations

### Invasive non-native species

A detailed survey for invasive non-native plants should be carried out during the growing season (April to September inclusive) to thoroughly inspect the relevant areas and to identify any plants that may not have been visible during the initial site visit (including any additional stands of Japanese knotweed) and to determine the status of the giant hogweed (if the Central proposed route is chosen or maintained as an option).

The Japanese knotweed is sufficiently distant from the Central proposed route so as not to pose a constraint should this option be taken forward. For the Northern proposed route, it will be necessary to assess whether the works will actually impact the Japanese knotweed (see the location on Figure 1). Despite the short distance (8 m) from the Northern proposed route, it may be that works will be outside this from knotweed stand and the zone of root spread. Upon completion of an invasive species survey in the growing season, and pending refinement of the route alignment and details of the required works, an ecologist should be consulted to prepare an appropriate management plan.

### Protected species

#### Bats – trees with bat roost suitability

A detailed bat roost suitability survey should be carried out to identify all trees in the affected areas with suitability for roosting bats. Trees with Moderate or High bat roost suitability (as defined by BCT) are unlikely to be present given the immaturity of the trees. Trees with Low bat roost suitability, if identified, do not require any further survey. However, if felling or lopping of such trees is necessary, then sectional felling of the relevant part(s) under ecologist supervision would be advised.

Additionally, lighting should preferably be designed so that it does not result in increased light levels at any trees with bat roost suitability.

In the unlikely event that trees with Moderate or High bat roost suitability will be lost or affected (pending completion of a full bat roost suitability survey), further bat surveys may be required. In the event that any tree with any degree of bat roost suitability is to be lost or adversely affected (for example, by lighting), it is recommended that compensatory bat boxes be installed in suitable locations around and/or within the woodland.

#### Nesting birds

If removal or lopping/trimming of trees/shrubs is required, this should ideally be conducted outside the breeding bird season (taken to be March to August, inclusive). If this is not possible, an ecologist should be appointed to carry out checks for active nests prior to vegetation clearance, but note that this is difficult to do for large areas of woody vegetation and is liable to cause project delays or complications where active nests are found (which would require exclusion zone(s) to be established around the nest(s) until breeding is finished).

#### Badger

A full badger survey should be carried out to identify any additional badger setts which may be present within possible disturbance distance of the route options.

If the Central proposed route option is chosen, and depending on finalised layout, the construction works may cause disturbance of at least one badger sett, which may therefore require acquisition of a derogation licence for badger from NatureScot. The Northern proposed route is sufficiently distant from the sett that sett disturbance is unlikely, pending completion of a full badger survey to check for other setts.

## Summary

The Northern proposed route option is preferable ecologically because it will likely have less effect on badgers, and will incur less lighting within the woodland and associated existing informal paths and consequently a likely reduced adverse effect on bats.

The recommended next actions are:

- carry out a full invasive non-native species survey in the growing season (April to September inclusive; carrying out the survey earlier carries greater risk of missing small stands or underestimating their extent);
- carry out a full survey for bat roost suitability of trees (ideally in winter or spring before trees are in leaf);
- carry out a full badger survey (this can be carried out in any season, but preferably not in summer when vegetation is most dense);
- produce a report detailing the results of the above surveys, and setting out any additional actions that may be required and recommended mitigation;
- produce a management plan for invasive non-native species (following completion of the full invasive non-native species survey); and,
- plan for vegetation clearance outside the breeding bird season,

Note that in order to more accurately assess the degree of impact of the works, including the possible requirement for licensing disturbance of protected species, refined route alignments would be needed, as well as further information on the likely construction works and the lighting scheme.

With further regard to lighting, the lighting scheme should be designed with cognisance of best practice guidelines published by the BCT and the Institution of Lighting Professionals (ILP)<sup>2</sup>. In particular, the illumination of retained woodland/scrub should, as far as possible, not exceed 1 lux. Other recommended design features include:

- lighting units should not use ultraviolet (UV) elements;
- where possible, LED luminaires should be used;
- lights which emit in the red spectrum should be used in preference to those which emit white light;
- the use of motion-activated or timed lighting should be considered;
- the use of low-level or bollard lighting units should be considered, or column height minimised to reduce light spill; and,
- accessories such as baffles, hoods or louvres should be used, where necessary, to reduce light spill.

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<sup>2</sup> BCT and ILP (2018). Guidance Note 08/18. *Bats and artificial lighting in the UK*. Bats and the Built Environment series. The Institution of Lighting Professionals, Rugby.





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PROJECT

The Bing, Wallyford

CLIENT

East Lothian Council

LEGEND

Proposed route options

Japanese knotweed

Note - The badger sett described in the Initial Ecology Visit Summary is not shown on this map.

PROJECT NUMBER

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FIGURE TITLE

Initial Ecology Visit Results

FIGURE NUMBER

Figure 1

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## Appendix B Option Designs



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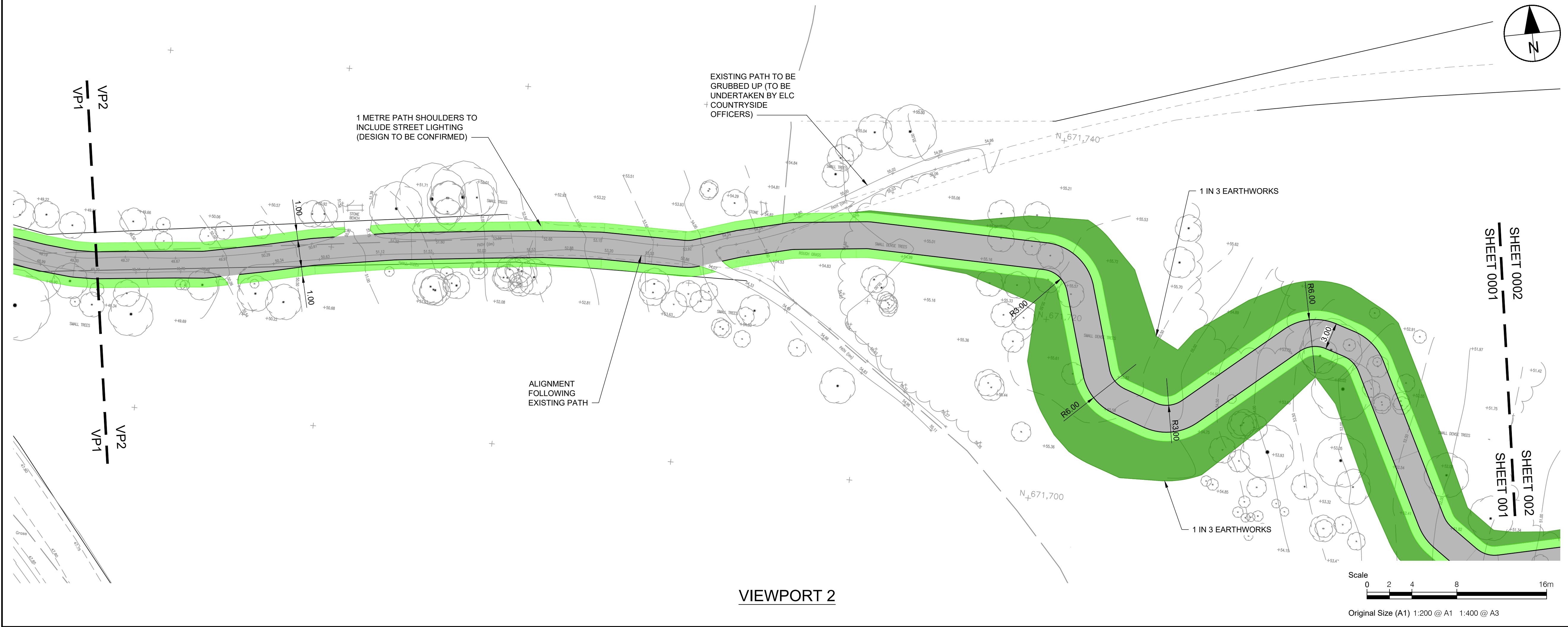
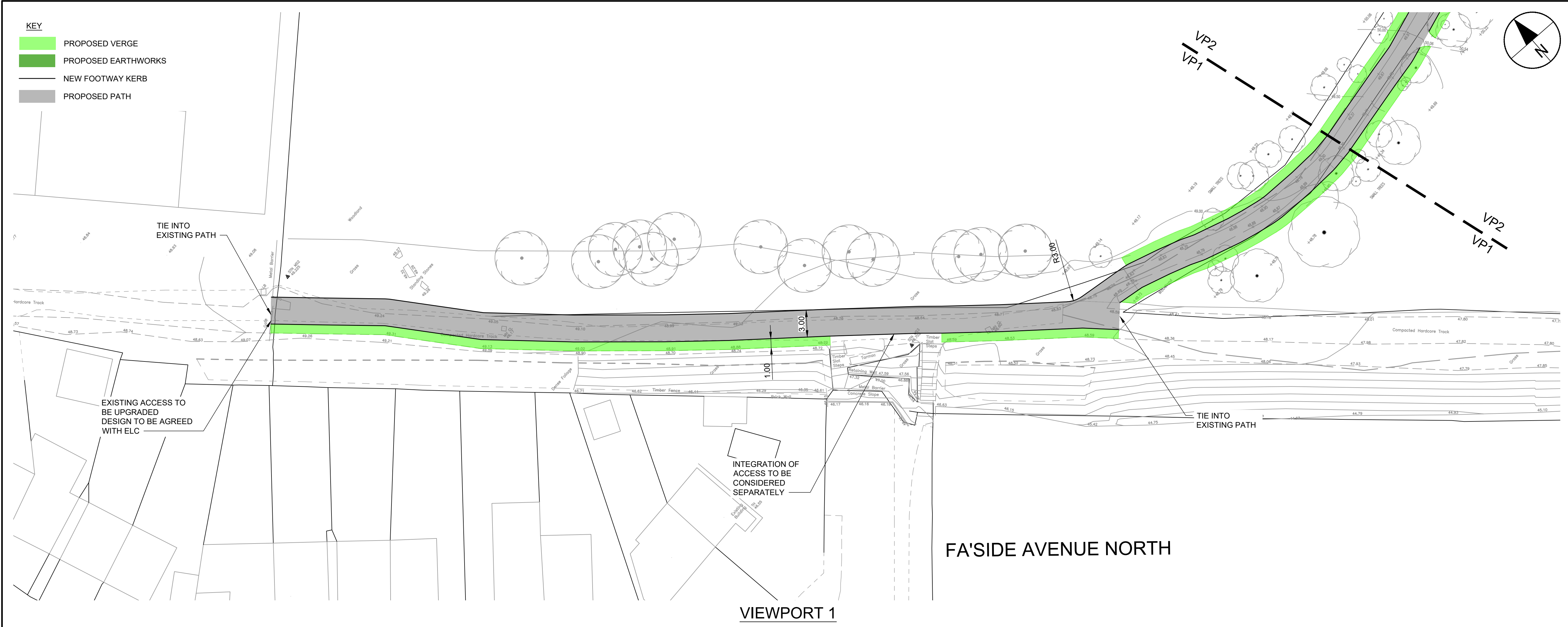
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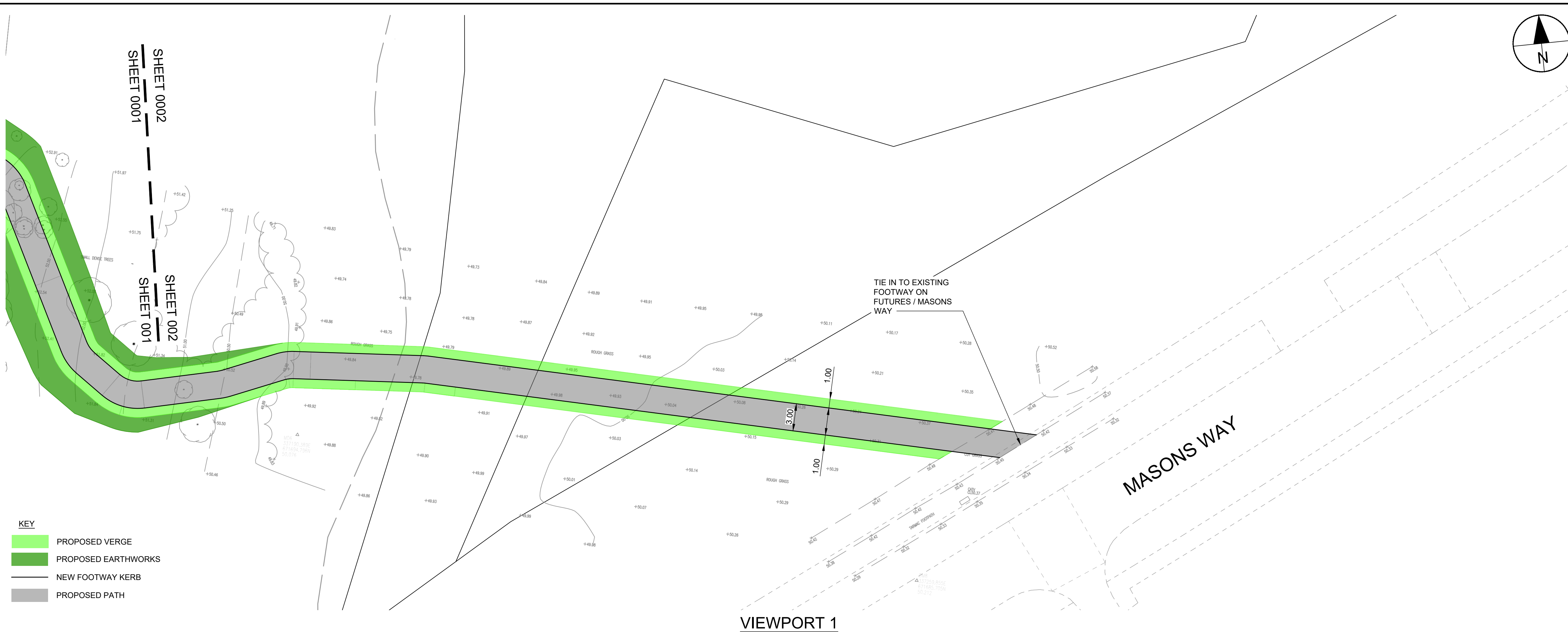
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SAFE ROUTE TO SCHOOL  
SHEET 1 OF 2

SHEET NUMBER

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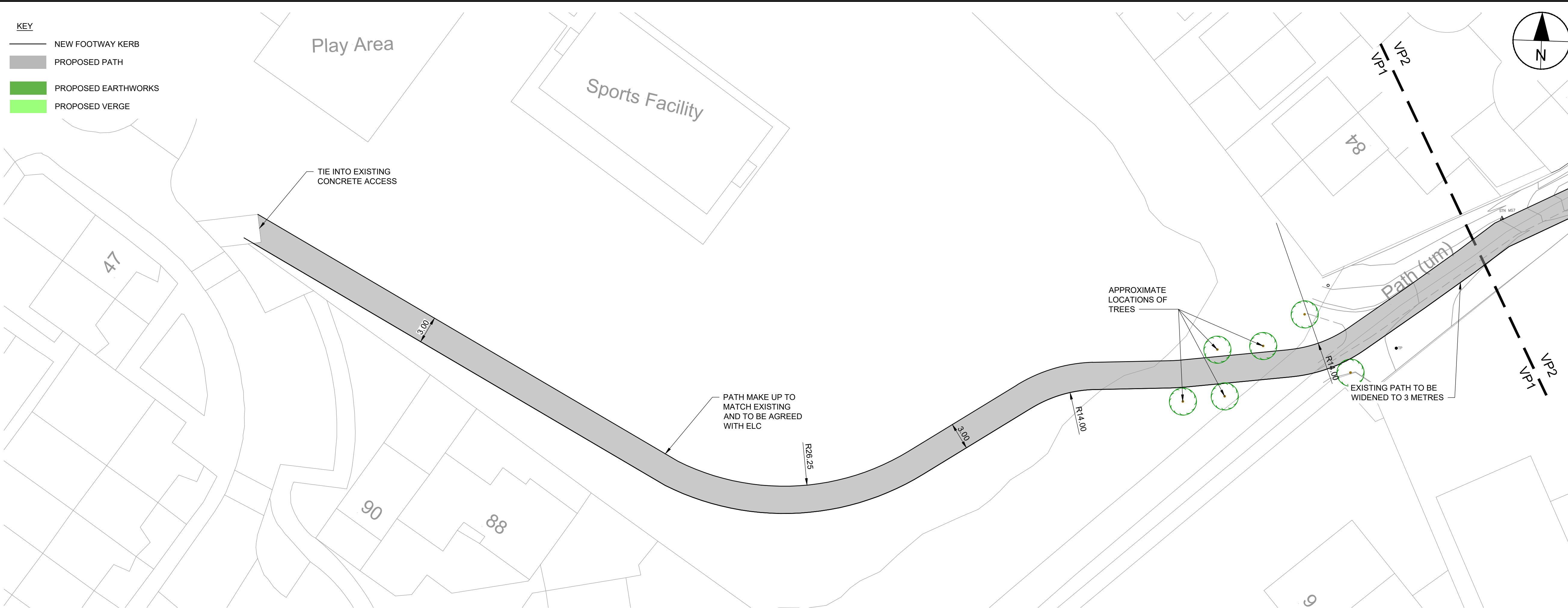




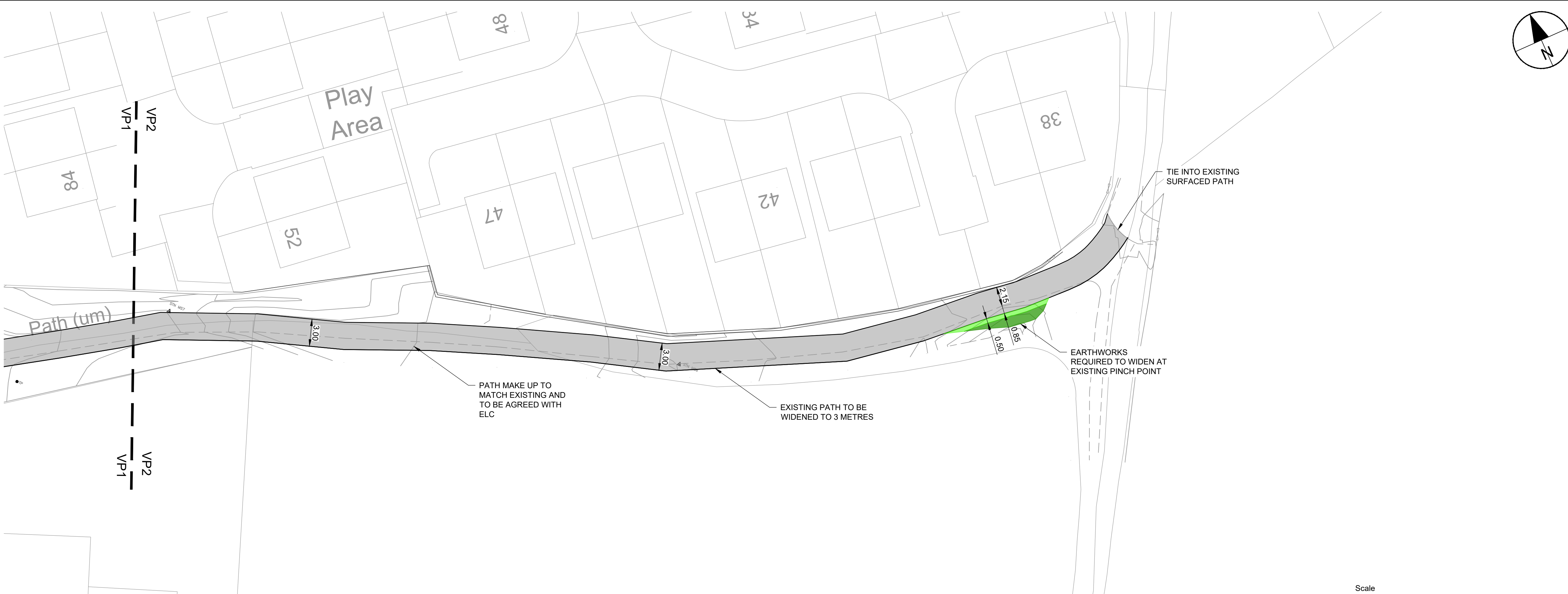


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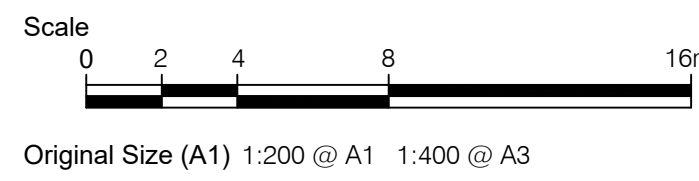
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VIEWPORT 1



VIEWPORT 2



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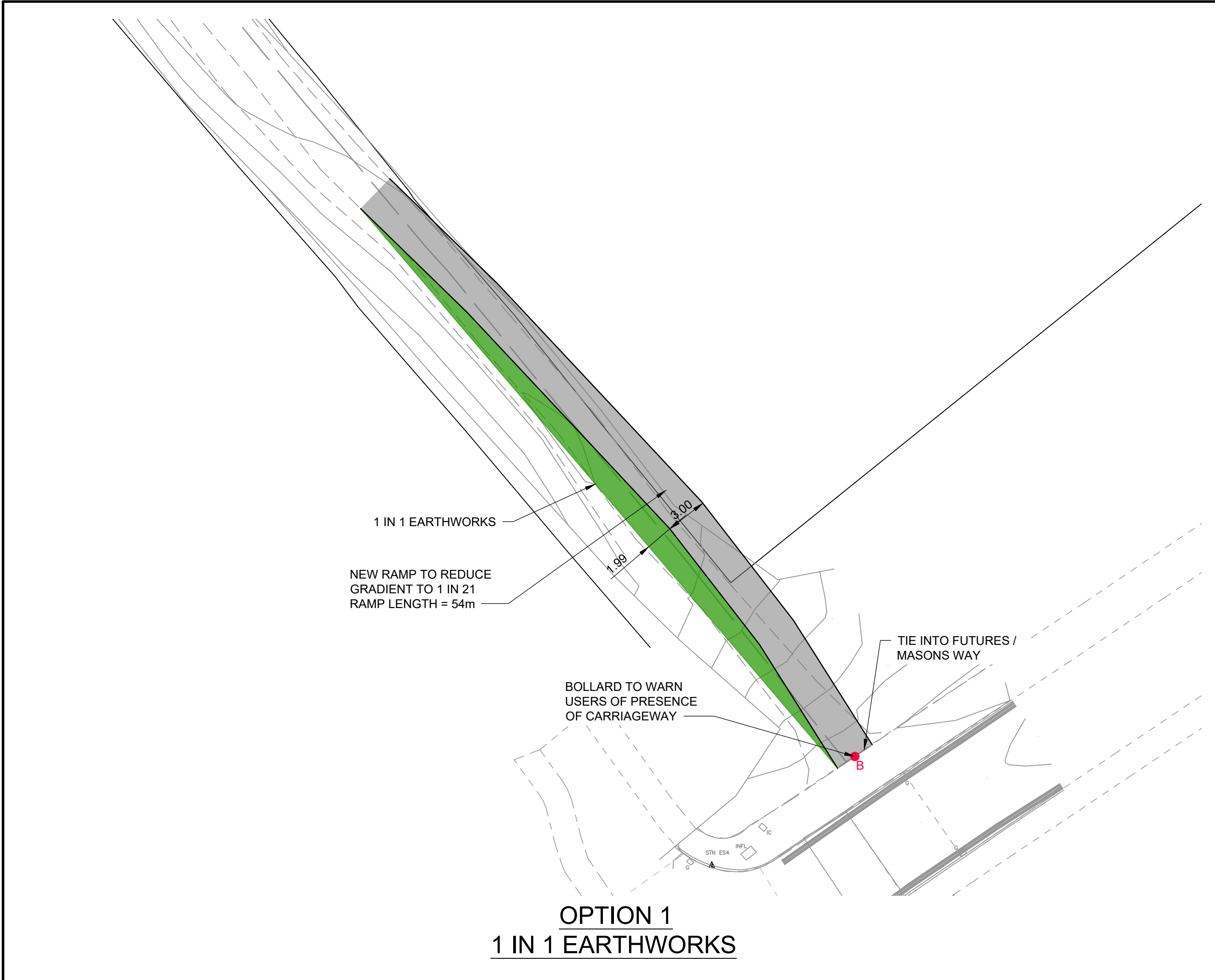
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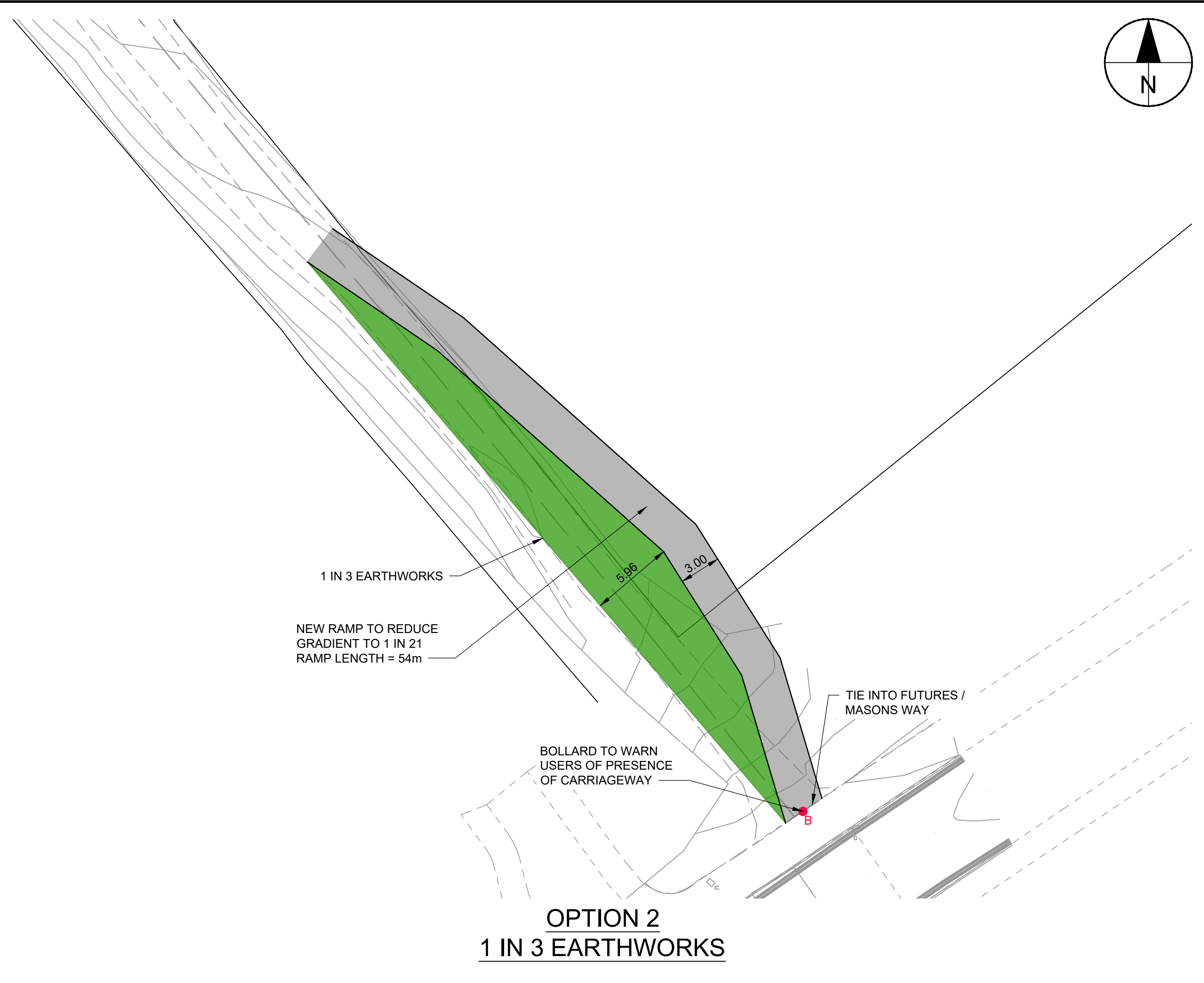
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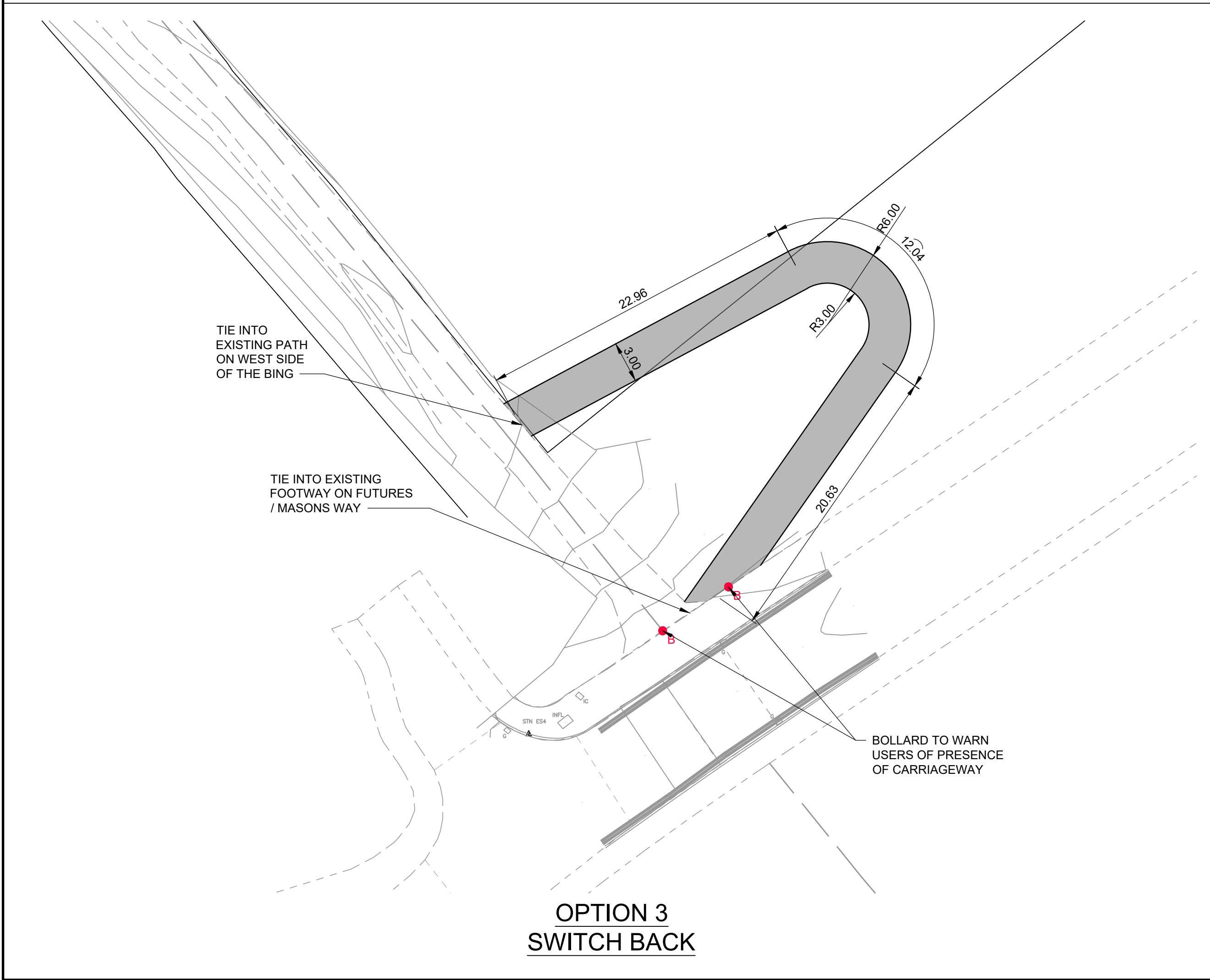




OPTION 1  
1 IN 1 EARTHWORKS

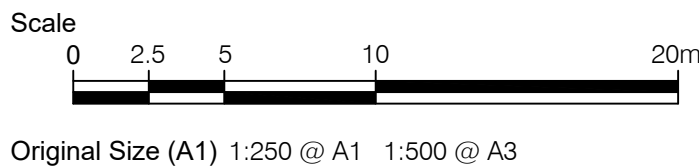


OPTION 2  
1 IN 3 EARTHWORKS



OPTION 3  
SWITCH BACK

- KEY
- B PROPOSED BOLLARDS
  - PROPOSED EARTHWORKS
  - NEW FOOTWAY KERB
  - PROPOSED PATH



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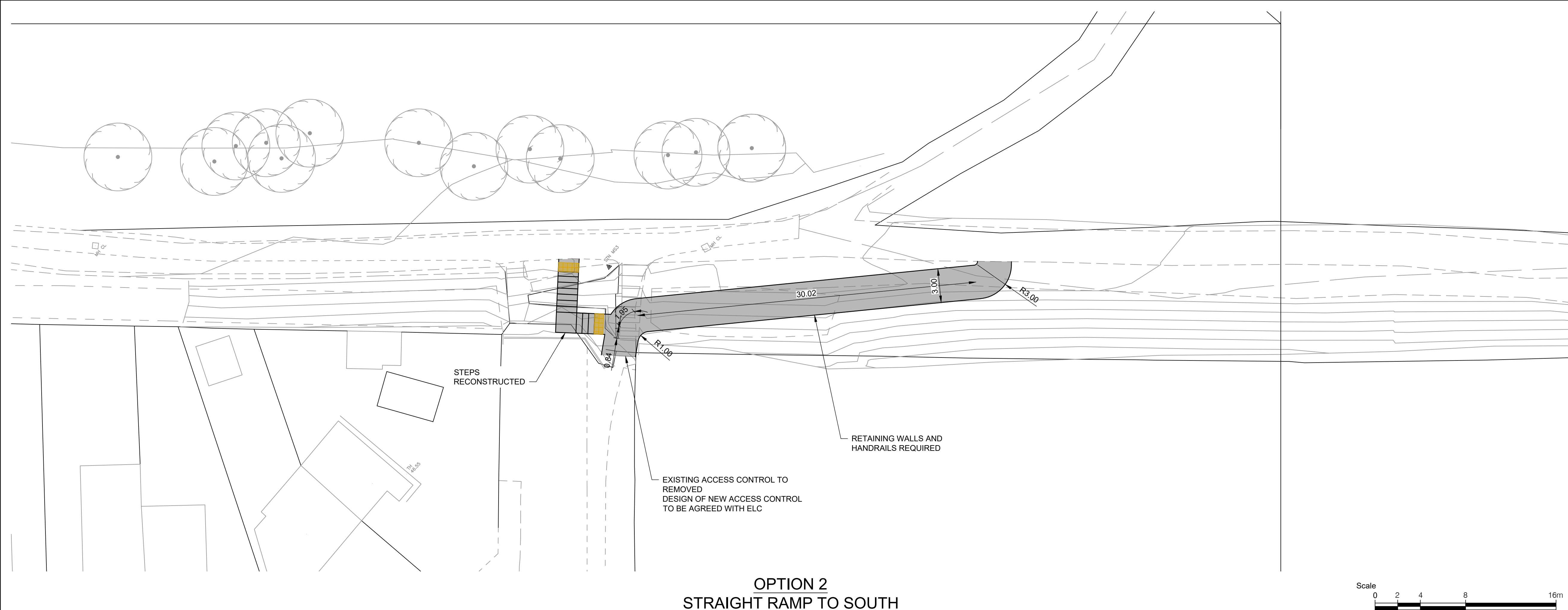
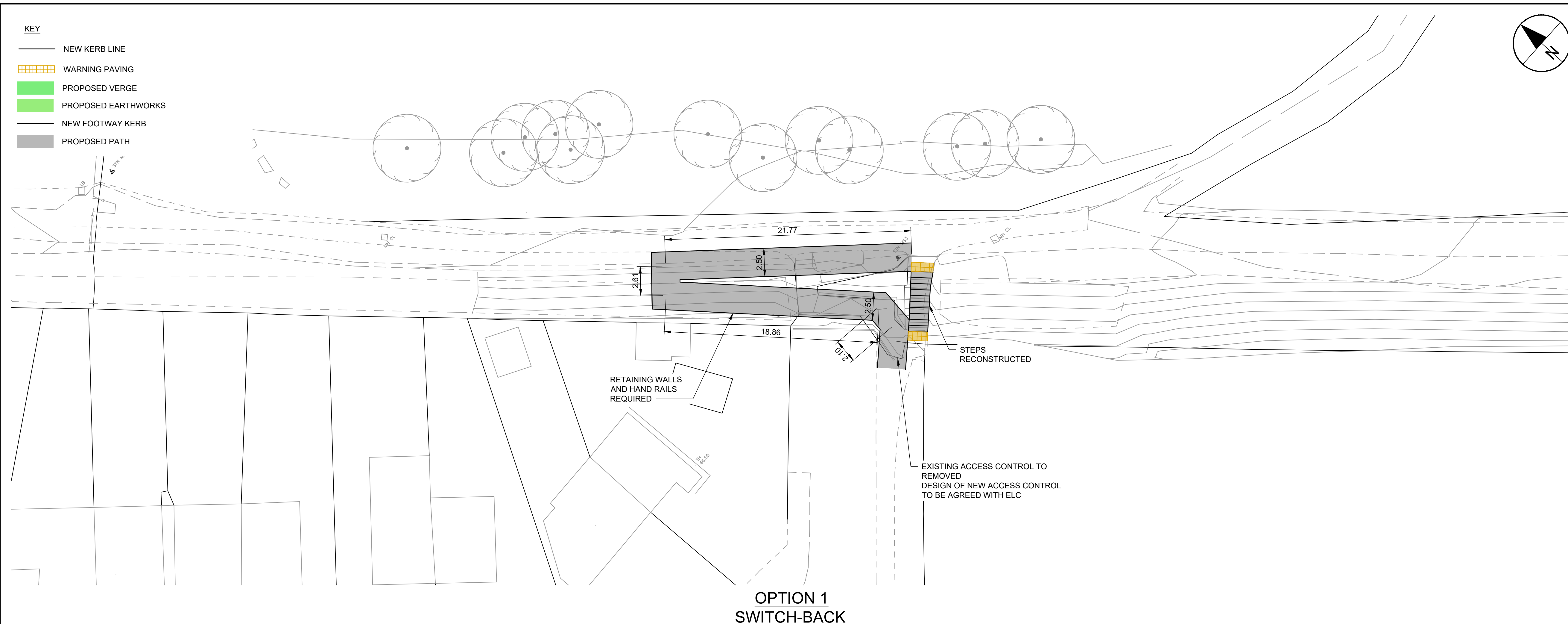
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PATH TO WEST OF THE BING  
OPTIONS 1 TO 3

SHEET NUMBER

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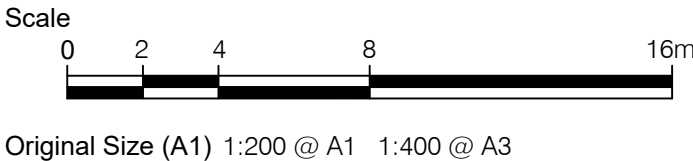
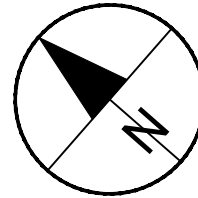
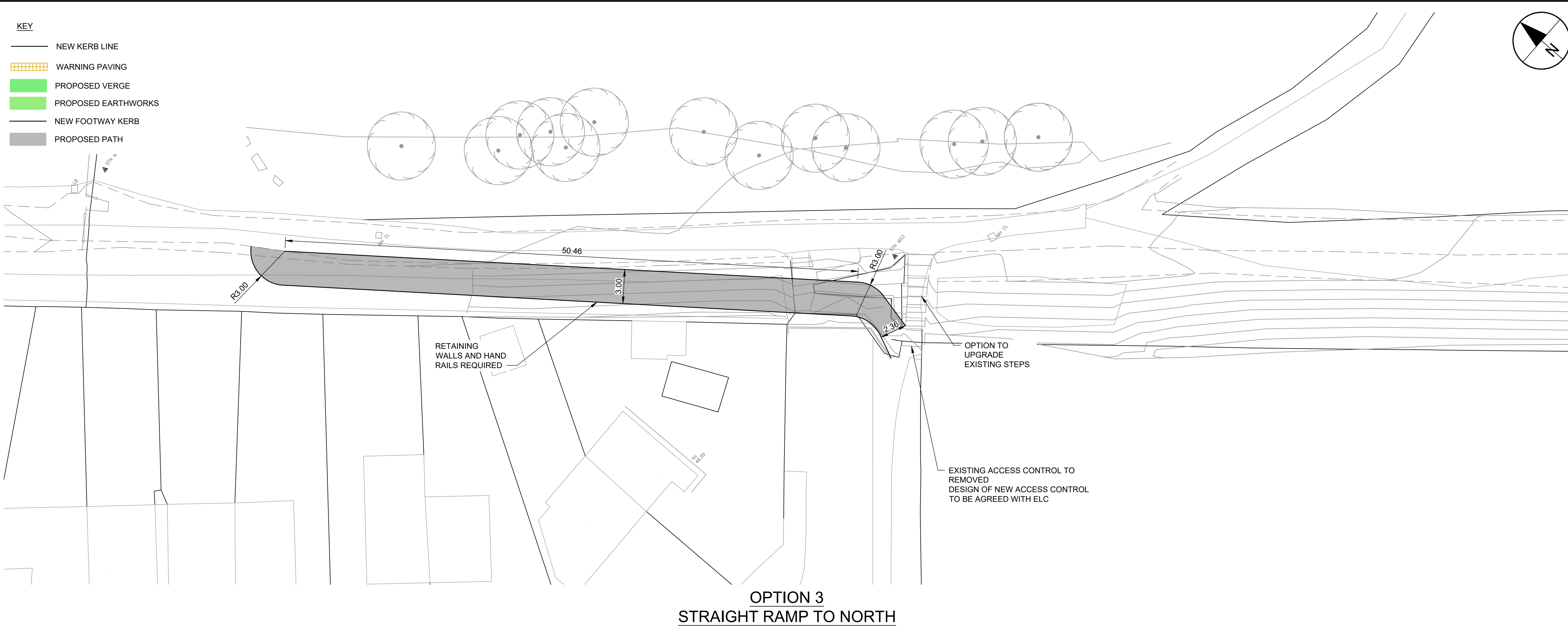






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1. ALL WORKS TO BE EXECUTED IN ACCORDANCE WITH THE SPECIFICATION FOR HIGHWAY WORKS - THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, DESIGN MANUAL FOR ROADS AND BRIDGES, TRAFFIC SIGNS MANUAL AND LOCAL COUNCIL GUIDELINES.
2. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE. ALL LEVELS ARE IN METRES AND RELATE TO ORDNANCE DATUM.
3. DO NOT SCALE FROM ANY DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSION ARE TO BE REFERRED TO THE DESIGNER BEFORE WORK IS PUT TO HAND.
4. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.
5. ALL WORKS BY THE CONTRACTOR MUST BE CARRIED OUT IN SUCH A WAY THAT ALL REQUIREMENTS UNDER THE HEALTH AND SAFETY AT WORK ACT ARE SATISFIED.
6. ALL WORK IS TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF THE STATUTORY AUTHORITIES AND CONSTRUCTION DESIGN AND MANAGEMENT REGULATIONS.
7. DRAWING BASE RECEIVED FROM OTHERS. AECOM CANNOT GUARANTEE THEIR ACCURACY. CONTRACTOR TO SATISFY THEMSELVES AS TO THE ACCURACY OF SUCH INFORMATION.
8. SERVICE INFORMATION IS INTERPOLATED FROM INFORMATION RECEIVED FROM THE UTILITY PROVIDERS, AND AS SUCH NO GUARANTEE OF THEIR ACCURACY CAN BE GIVEN. CONTRACTOR TO SATISFY THEMSELVES AS TO THE ACCURACY OF SUCH INFORMATION.

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60669966

SHEET TITLE

FA'SIDE ACCESS  
OPTION 3  
SHEET 2 OF 2

SHEET NUMBER

60669966-SKE-C-FAN-0002

## Appendix C Costs

**THE BING - COSTS SUMMARY**

SECTION	OPTION	DESCRIPTION	COST
Fa'side Avenue North access	1	Switch-back ramp	£ 140,483.21
	2	Straight ramp to south	£ 109,944.39
	3	Straight ramp to north	£ 149,388.90
Blaes path	-		£ 37,340.23
Path through The Bing	-		£ 245,903.41
Western path	1	1 in 1 earthworks	£ 27,828.45
	2	1 in 3 earthworks	£ 31,551.13
	3	Curved ramp	£ -



## THE BING - RATES

## PATH THROUGH THE BING

## 1) New path construction, west side of The Bing

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path with 1m verge on west side	General site clearance, open field site	ha	£ 2,170.11	£ 0.87	SPONS p395	m	£ 179.53
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 3.33	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 22.60	SPONS p436, assumed haul distance of 5 miles		
	Precast concrete flat top edging 50mm x 150mm to Standard Drawing 11202, laid straight or curved exceeding 12 metres radius	m	£ 5.19	£ 10.38	SPONS p460		
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 22.05	SPONS p461		
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	£ 65.22	SPONS p453		
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	£ 47.04	SPONS p453		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	8.04	8.04	SPONS p443		
	Street lighting	no	£ 3,000.00	£ 100.00	Assumed rate of £3,000 per column, including ducting, supply, installation etc., and assumed spacing of 30 metres		

## THE BING - RATES

## 2) Existing path section through The Bing

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path with 1m verge on both sides	General site clearance, open field site	ha	£ 2,170.11	£ 0.65	SPONS p395	m	£ 245.88
	General site clearance, medium density wooded	ha	£ 4,512.83	£ 0.90	SPONS p395		
	Remove trees, girth 500 mm–1 m	nr	£ 53.00	£ 53.00	SPONS p191		
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 3.93	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 26.63	SPONS p436, assumed haul distance of 5 miles		
	Precast concrete flat top edging 50mm x 150mm to Standard Drawing 11202, laid straight or curved exceeding 12 metres radius	m	£ 5.19	£ 10.38	SPONS p460		
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 22.05	SPONS p461		
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	£ 65.22	SPONS p453		
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	£ 47.04	SPONS p453		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	8.04	16.08	SPONS p443		
	Street lighting	no	£ 3,000.00	£ 100.00	Assumed rate of £3,000 per column, including ducting, supply, installation etc., and assumed spacing of 30 metres		

## 3) Existing path section through The Bing to be grubbed up

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path with 1m verge on both sides	General site clearance, open field site	ha	£ 2,170.11	£ 0.43	SPONS p395	m	£ 18.90
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 1.19	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 1.19	SPONS p436, assumed haul distance of 5 miles		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	8.04	16.08	SPONS p443		

## THE BING - RATES

## 4) New path section between junction and greenspace

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path with 1m verge on both sides, with earthworks required	General site clearance, heavy density wooded	ha	£ 7,026.63	£ 7.84	SPONS p395	m	£ 603.62
	Remove trees, girth 500 mm–1 m	nr	£ 53.00	£ 106.00	SPONS p191		
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 40.24	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 272.68	SPONS p436, assumed haul distance of 5 miles		
	Precast concrete flat top edging 50mm x 150mm to Standard Drawing 11202, laid straight or curved exceeding 12 metres radius	m	£ 5.19	£ 10.38	SPONS p460		
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 22.05	SPONS p461		
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	£ 65.22	SPONS p453		
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	£ 47.04	SPONS p453		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	8.04	16.08	SPONS p443		
	Imported natural material other than topsoil or rock; subsoil, Filling 150 mm thick	m²	6.51	16.08	SPONS p206		
	Street lighting	no	£ 3,000.00	£ 100.00	Assumed rate of £3,000 per column, including ducting, supply, installation etc., and assumed spacing of 30 metres		

## THE BING - RATES

## 5) New path construction through greenspace

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path with 1m verge on both sides	General site clearance, open field site	ha	£ 2,170.11	£ 1.09	SPONS p395	m	£ 188.38
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 3.93	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 22.60	SPONS p436, assumed haul distance of 5 miles		
	Precast concrete flat top edging 50mm x 150mm to Standard Drawing 11202, laid straight or curved exceeding 12 metres radius	m	£ 5.19	£ 10.38	SPONS p460		
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 22.05	SPONS p461		
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	£ 65.22	SPONS p453		
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	£ 47.04	SPONS p453		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	8.04	16.08	SPONS p443		
	Street lighting	no	£ 3,000.00	£ 100.00	Assumed rate of £3,000 per column, including ducting, supply, installation etc., and assumed spacing of 30 metres		



THE BING - RATES

BLAES PATH

1) New path construction, through park

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path	General site clearance, open field site	ha	£ 2,170.11	£ 0.65	SPONS p395	m	£ 106.89
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 2.38	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 16.14	SPONS p436, assumed haul distance of 5 miles		
	Precast concrete flat top edging 50mm x 150mm to Standard Drawing 11202, laid straight or curved exceeding 12 metres radius	m	£ 5.19	£ 10.38	SPONS p460		
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 22.05	SPONS p461		
	Geotextile	m²	£ 3.90	£ 11.70	SPONS p440		
	Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal	m²	£ 14.53	£ 43.59	SPONS p462		

## THE BING - RATES

## 2) Widening of existing path

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide path	General site clearance, open field site	ha	£ 2,170.11	£ 0.65	SPONS p395	m	£ 47.33
	Take up or down and remove to tip off site timber edgings	m	£ 6.38	£ 12.76	SPONS p395		
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 0.58	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 3.96	SPONS p436, assumed haul distance of 5 miles		
	Precast concrete flat top edging 50mm x 150mm to Standard Drawing 11202, laid straight or curved exceeding 12 metres radius	m	£ 5.19	£ 10.38	SPONS p460		
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 5.41	SPONS p461		
	Geotextile	m²	£ 3.90	£ 2.87	SPONS p440		
	Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal	m²	£ 14.53	£ 10.70	SPONS p462		

## 3) Earthworks and verge for widening of existing path

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
0.5m verge and 1 in 1 earthworks	General site clearance, open field site	ha	£ 2,170.11	£ 0.22	SPONS p395	m	£ 53.15
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 4.74	SPONS p435		
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 32.11	SPONS p436, assumed haul distance of 5 miles		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	8.04	16.08	SPONS p443		

## THE BING - RATES

## WESTERN PATH

## 1) New ramp with 1 in 1 earthworks

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide ramp with earthworks required	General site clearance, open field site	ha	£ 2,170.11	£ 1.16	SPONS p395	m	£ 283.70
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 183.75	SPONS p461		
	Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal	m²	£ 14.53	£ 54.49	SPONS p462		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	£ 8.04	£ 9.45	SPONS p443		
	Imported natural material other than topsoil or rock; subsoil, Filling 150 mm thick	m²	£ 6.51	£ 34.86	SPONS p206		
	Bollard	nr	£ 219.50		SPONS p470		

## 2) New ramp with 1 in 3 earthworks

	Breakdown	Unit	Rate	Conversion	Source	Item Unit	Item Rate
3m wide ramp with earthworks required	General site clearance, open field site	ha	£ 2,170.11	£ 2.13	SPONS p395	m	£ 326.18
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	£ 183.75	SPONS p461		
	Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal	m²	£ 14.53	£ 54.49	SPONS p462		
	Topsoiling 150 mm thick to surfaces at 10° or less to horizontal	m²	£ 8.04	£ 9.45	SPONS p443		
	Imported natural material other than topsoil or rock; subsoil, Filling 150 mm thick	m²	£ 6.51	£ 76.36	SPONS p206		
	Bollard	nr	£ 219.50		SPONS p470		



## THE BING - RATES

## FA'SIDE ACCESS

## 1) Switch-back ramp

	Breakdown	Unit	Rate	Quantity	Cost	Source	Item Rate
2.5m wide ramp	General site clearance, open field site	ha	£ 2,170.11	0.01353	£ 29.36	SPONS p395	£ 77,873.17
	Site clearance - barrier	m	£ 8.34	33.1	£ 276.05	SPONS p396	
	Site clearance - wooden slats	m	£ 18.87	37.482	£ 707.29	SPONS p396	
	Site clearance - PCC slabs	m²	£ 8.34	11.2	£ 93.41	SPONS p396	
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 48.75	£ 193.54	SPONS p435	
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 48.75	£ 1,311.38	SPONS p436, assumed haul distance of 5 miles	
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	122.95	£ 903.68	SPONS p461	
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	122.95	£ 2,672.93	SPONS p453	
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	122.95	£ 1,927.86	SPONS p453	
	Retaining wall	m²	£ 242.90	191	£ 46,393.90	SPONS p449	
	Staircase	nr	£ 5,690.00	1	£ 5,690.00	SPONS p125	
	Tactile paving	m²	£ 19.77	2.94	£ 58.12	SPONS p463	
	Handrail	m	£ 192.78	91.377	£ 17,615.66	SPONS p463	

## THE BING - RATES

## 2) Straight ramp to south

	Breakdown	Unit	Rate	Quantity	Cost	Source	Item Rate
3m wide ramp	General site clearance, open field site	ha	£ 2,170.11	0.0128132	£ 27.81	SPONS p395	£ 60,944.78
	Site clearance - barrier	m	£ 8.34	33.1	£ 276.05	SPONS p396	
	Site clearance - wooden slats	m	£ 18.87	37.482	£ 707.29	SPONS p396	
	Site clearance - PCC slabs	m²	£ 8.34	11.2	£ 93.41	SPONS p396	
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 47.18	£ 187.28	SPONS p435	
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 47.18	£ 1,269.01	SPONS p436, assumed haul distance of 5 miles	
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	111.504	£ 819.55	SPONS p461	
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	111.504	£ 2,424.10	SPONS p453	
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	111.504	£ 1,748.38	SPONS p453	
	Retaining wall	m²	£ 242.90	140.422	£ 34,108.50	SPONS p449	
	Staircase	nr	£ 5,690.00	1	£ 5,690.00	SPONS p125	
	Tactile paving	m²	£ 19.77	2.94	£ 58.12	SPONS p463	
	Handrail	m	£ 192.78	70.211	£ 13,535.28	SPONS p463	

## 3) Straight ramp to north

	Breakdown	Unit	Rate	Quantity	Cost	Source	Item Rate
3m wide ramp	General site clearance, open field site	ha	£ 2,170.11	0.02007	£ 43.55	SPONS p395	£ 82,809.81
	Site clearance - barrier	m	£ 8.34	33.1	£ 276.05	SPONS p396	
	Site clearance - wooden slats	m	£ 18.87	37.482	£ 707.29	SPONS p396	
	Site clearance - PCC slabs	m²	£ 8.34	11.2	£ 93.41	SPONS p396	
	Excavation of acceptable material Class 5A	m³	£ 3.97	£ 113.44	£ 450.35	SPONS p435	
	Disposal of acceptable material Class 5A	m³	£ 26.90	£ 113.44	£ 3,051.47	SPONS p436, assumed haul distance of 5 miles	
	Granular Type 1 unbound mixture subbase 150mm thick in footway or paved area, surfaces sloping at 10° or less to the horizontal	m²	£ 7.35	170.1	£ 1,250.24	SPONS p461	
	DBM binder to DfT Clause 903 - 50mm deep	m²	£ 21.74	170.1	£ 3,697.97	SPONS p453	
	Rolled Asphalt Surface Course to DfT Clause 905 40mm deep	m²	£ 15.68	170.1	£ 2,667.17	SPONS p453	
	Retaining wall	m²	£ 242.90	208	£ 50,523.20	SPONS p449	
	Handrail	m	£ 192.78	104	£ 20,049.12	SPONS p463	

THE BING - PATH THROUGH THE BING

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Path on west side of The Bing	95	£ 179.53	£ 17,055.24	All excavated material is Class 5A, no tree clearance required, allowance for street lighting on one side of path at 30 metre intervals
Existing path section through The Bing	98	£ 245.88	£ 24,187.70	All excavated material is Class 5A, assumes removal of 1 trees per metre (one on each side of path), allowance for street lighting on one side of path at 30 metre intervals
Existing path section through The Bing to be grubbed up	185	£ 18.90	£ 3,496.90	All excavated material is Class 5A
New path section between junction and greenspace	135	£ 603.62	£ 81,615.27	All excavated material is Class 5A, assumes removal of 2 trees per linear metre, allowance for street lighting on one side of path at 30 metre intervals
New path construction through greenspace	80	£ 188.38	£ 15,098.77	All excavated material is Class 5A, allowance for street lighting on one side of path at 30 metre intervals
Sub Total (without OB)			£ 141,453.87	
Optimism Bias (44%)			£ 62,239.70	
Preliminaries (10%)			£ 14,145.39	
Contingency / Risk (10%) - allowance for known risks, including Brexit,			£ 14,145.39	
Sub-total (incl. OB)			£ 231,984.35	
Inflation (10%)			£ 13,919.06	
Total cost			£ 245,903.41	

Assumptions

Inflation based on CPI inflation to Q2 2023 - assumed inflation rate of 10% p/annum (including additional market risk factor)

A traditional single stage procurement strategy has been assumed, the following allowances have been made for on-costs:-  
- Optimism Bias 44.0% for Civils Works;

- Professional Fees Excluded; and  
- Design, Reserve and Construction Contingencies Excluded.

Costs have been based upon utilising rates from SPON's 2022 and recent benchmark data/similar projects with due allowance for assumed specification and scope of works

All materials associated with cycling infrastructure and quiet road treatments are standard (DMB surfacing; pre-cast concrete kerbing), unless otherwise noted.

No allowance is currently included to cover phasing of the works and any associated temporary works that may be necessary on the basis that the works are carried out in one continuous sequence.

Optimism bias (OB) of 44% has been applied to the total costs in accordance with The Scottish Transport Appraisal Guidance (STAG) Technical Database, Table 13.4 Stage 1 Scheme Development.

Street lighting rate based on assumed rate of £3,000 (taken from previous project) per column, including ducting, supply, installation etc., and assumed spacing of 30 metres

Assumed drainage would take form of drainage ditches. No allowance for positive drainage.

Disposal rates assume a haul of 5 miles

Exclusions

1) Site acquisition fees/costs and other third party compensation settlements

2) Client finance costs  
3) Legal advice and associated fees

4) Sustainable construction strategies (wind turbines, boreholes, photovoltaic cells, ground source cooling/heating and the like)

5) Local and statutory authority fees / charges

6) Value Added Tax (VAT)

7) Utilities connections and diversions etc

8) Infrastructure alterations / improvements outwith the proposals

9) Abnormal ground conditions / remediation measures (including consequential costs arising)

10) Inflation beyond Q2 '23

11) Public artwork and sculptures  
12) Road Closures  
13) Local and statutory authority fees / charges

THE BING - BLAES PATH

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
New path construction, through park	130	£ 106.89	£ 13,896.09	All excavated material is Class 5A, no tree clearance required, no allowance for street lighting and associated infrastructure Path make up assumed to be similar to 'Granite Dust Path' ( <a href="https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf">https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf</a> ) Assumes subbase is Type 1 150mm thick and surface cost based on 'Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal'
Widening of existing path	130	£ 47.33	£ 6,152.43	All excavated material is Class 5A, no tree clearance required, no allowance for street lighting and associated infrastructure Path make up assumed to be similar to 'Granite Dust Path' ( <a href="https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf">https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf</a> ) Assumes subbase is Type 1 150mm thick and surface cost based on 'Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal'
Earthworks and verge for widening of existing path	12	£ 53.15	£ 650.05	All excavated material is Class 5A, no tree clearance required Assumed excavation depth of 1.1m, 0.5m verge next to path and 1 in 1 earthworks
Sub Total (without OB)			£ 20,698.57	
Optimism Bias (44%)			£ 9,107.37	
Preliminaries (10%)			£ 2,069.86	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ 2,069.86	
Sub-total (incl. OB)			£ 33,945.66	
Inflation (10%)			£ 3,394.57	
Total cost			£ 37,340.23	

Assumptions

Inflation based on CPI inflation to Q2 2023 - assumed inflation rate of 10% p/annum (including additional market risk factor)  
A traditional single stage procurement strategy has been assumed, the following allowances have been made for on-costs:-  
- Optimism Bias 44.0% for Civils Works;

- Professional Fees Excluded; and  
- Design, Reserve and Construction Contingencies Excluded.  
Costs have been based upon utilising rates from SPON's 2022 and recent benchmark data/similar projects with due allowance for assumed specification and scope of works  
All materials associated with cycling infrastucture and quiet road treatments are standard (DMB surfacing; pre-cast concrete kerbing), unless otherwise noted.  
No allowance is currently included to cover phasing of the works and any associated temporary works that may be necessary on the basis that the works are carried out in one continuous sequence.  
Optimism bias (OB) of 44% has been applied to the total costs in accordance with The Scottish Transport Appraisal Guidance (STAG) Technical Database, Table 13.4 Stage 1 Scheme Development.  
Assumed that positive drainage is not required.  
Disposal rates assume a haul of 5 miles

Exclusions

- 1) Site acquisition fees/costs and other third party compensation settlements
- 2) Client finance costs  
3) Legal advice and associated fees
- 4) Sustainable construction strategies (wind turbines, boreholes, photovoltaic cells, ground source cooling/heating and the like)
- 5) Local and statutory authority fees / charges
- 6) Value Added Tax (VAT)
- 7) Utilities connections and diversions etc
- 8) Infrastructure alterations / improvements outwith the proposals
- 9) Abnormal ground conditions / remediation measures (including consequential costs arising)  
10) Inflation beyond Q2 '23  
11) Public artwork and sculptures  
12) Road Closures  
13) Local and statutory authority fees / charges



THE BING - WESTERN PATH

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Option 1 - 1 in 1 earthworks	54	£ 283.70	£ 15,425.97	All excavated material is Class 5A, no tree clearance required, no allowance for street lighting and associated infrastructure Path make up assumed to be similar to 'Granite Dust Path' ( <a href="https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf">https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf</a> ) Assumes subbase is Type 1 150mm thick and surface cost based on 'Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal' Assumes earthworks required on both sides of path
Sub Total (without OB)			£ 15,425.97	
Optimism Bias (44%)			£ 6,787.43	
Preliminaries (10%)			£ 1,542.60	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ 1,542.60	
Sub-total (incl. OB)			£ 25,298.59	
Inflation (10%)			£ 2,529.86	
Total cost			£ 27,828.45	

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Option 2 - 1 in 3 earthworks	54	£ 326.18	£ 17,489.54	All excavated material is Class 5A, no tree clearance required, no allowance for street lighting and associated infrastructure Path make up assumed to be similar to 'Granite Dust Path' ( <a href="https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf">https://www.satinonline.org/Documents/85-Granite-Dust-Path---Standard-Detail-Drawing-and-Specification-Details.pdf</a> ) Assumes subbase is Type 1 150mm thick and surface cost based on 'Ennstone Johnston Golden gravel; graded 13 mm to fines; rolled wet Paved area 50 mm thick; single layer sloping not exceeding 10° to the horizontal' Assumes earthworks required on both sides of path
Sub Total (without OB)			£ 17,489.54	
Optimism Bias (44%)			£ 7,695.40	
Preliminaries (10%)			£ 1,748.95	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ 1,748.95	
Sub-total (incl. OB)			£ 28,682.84	
Inflation (10%)			£ 2,868.28	
Total cost			£ 31,551.13	

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Option 3 - Curved ramp				Cost could not be determined for this option due to absence of information. Topo not available for this section, so gradient and earthworks that may be required are unclear.
Sub Total (without OB)			£ -	
Optimism Bias (44%)			£ -	
Preliminaries (10%)			£ -	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ -	
Sub-total (incl. OB)			£ -	
Inflation (10%)			£ -	
Total cost			£ -	

Assumptions

Inflation based on CPI inflation to Q2 2023 - assumed inflation rate of 10% p/annum (including additional market risk factor)  
A traditional single stage procurement strategy has been assumed, the following allowances have been made for on-costs:-  
- Optimism Bias 44.0% for Civils Works;

- Professional Fees Excluded; and  
- Design, Reserve and Construction Contingencies Excluded.  
Costs have been based upon utilising rates from SPON's 2022 and recent benchmark data/similar projects with due allowance for assumed specification and scope of works  
All materials associated with cycling infrastucture and quiet road treatments are standard (DMB surfacing; pre-cast concrete kerbing), unless otherwise noted.  
No allowance is currently included to cover phasing of the works and any associated temporary works that may be necessary on the basis that the works are carried out in one continuous sequence.  
Optimism bias (OB) of 44% has been applied to the total costs in accordance with The Scottish Transport Appraisal Guidance (STAG) Technical Database, Table 13.4 Stage 1 Scheme Development.  
Assumed that positive drainage is not required.  
Disposal rates assume a haul of 5 miles

Exclusions

- 1) Site acquisition fees/costs and other third party compensation settlements
- 2) Client finance costs  
3) Legal advice and associated fees
- 4) Sustainable construction strategies (wind turbines, boreholes, photovoltaic cells, ground source cooling/heating and the like)
- 5) Local and statutory authority fees / charges
- 6) Value Added Tax (VAT)
- 7) Utilities connections and diversions etc
- 8) Infrastructure alterations / improvements outwith the proposals
- 9) Abnormal ground conditions / remediation measures (including consequential costs arising)  
10) Inflation beyond Q2 '23  
11) Public artwork and sculptures  
12) Road Closures  
13) Local and statutory authority fees / charges

THE BING - FA'SIDE ACCESS

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Option 1 - Switch-back ramp			£ 77,873.17	
<b>Sub Total (without OB)</b>			<b>£ 77,873.17</b>	
Optimism Bias (44%)			£ 34,264.20	
Preliminaries (10%)			£ 7,787.32	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ 7,787.32	
<b>Sub-total (incl. OB)</b>			<b>£ 127,712.01</b>	
Inflation (10%)			£ 12,771.20	
<b>Total cost</b>			<b>£ 140,483.21</b>	

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Option 2 - Straight ramp to south			£ 60,944.78	
<b>Sub Total (without OB)</b>			<b>£ 60,944.78</b>	
Optimism Bias (44%)			£ 26,815.70	
Preliminaries (10%)			£ 6,094.48	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ 6,094.48	
<b>Sub-total (incl. OB)</b>			<b>£ 99,949.45</b>	
Inflation (10%)			£ 9,994.94	
<b>Total cost</b>			<b>£ 109,944.39</b>	

SECTION	LENGTH	RATE	COST	ASSUMPTIONS
Option 3 - Straight ramp to north			£ 82,809.81	
<b>Sub Total (without OB)</b>			<b>£ 82,809.81</b>	
Optimism Bias (44%)			£ 36,436.32	
Preliminaries (10%)			£ 8,280.98	
Contingency / Risk (10%) - allowance for known risks, including Brexit, supply			£ 8,280.98	
<b>Sub-total (incl. OB)</b>			<b>£ 135,808.10</b>	
Inflation (10%)			£ 13,580.81	
<b>Total cost</b>			<b>£ 149,388.90</b>	

**Assumptions**

Inflation based on CPI inflation to Q2 2023 - assumed inflation rate of 10% p/annum (including additional market risk factor)  
A traditional single stage procurement strategy has been assumed, the following allowances have been made for on-costs:-  
- Optimism Bias 44.0% for Civils Works;

- Professional Fees Excluded; and  
- Design, Reserve and Construction Contingencies Excluded.

Costs have been based upon utilising rates from SPON's 2022 and recent benchmark data/similar projects with due allowance for assumed specification and scope of works

All materials associated with cycling infrastructure and quiet road treatments are standard (DMB surfacing; pre-cast concrete kerbing), unless otherwise noted.

No allowance is currently included to cover phasing of the works and any associated temporary works that may be necessary on the basis that the works are carried out in one continuous sequence.

Optimism bias (OB) of 44% has been applied to the total costs in accordance with The Scottish Transport Appraisal Guidance (STAG) Technical Database, Table 13.4 Stage 1 Scheme Development.

Assumed that positive drainage is not required.  
Disposal rates assume a haul of 5 miles

**Exclusions**

1) Site acquisition fees/costs and other third party compensation settlements

2) Client finance costs  
3) Legal advice and associated fees

4) Sustainable construction strategies (wind turbines, boreholes, photovoltaic cells, ground source cooling/heating and the like)

5) Local and statutory authority fees / charges

6) Value Added Tax (VAT)

7) Utilities connections and diversions etc

8) Infrastructure alterations / improvements outwith the proposals

9) Abnormal ground conditions / remediation measures (including consequential costs arising)  
10) Inflation beyond Q2 '23  
11) Public artwork and sculptures  
12) Road Closures  
13) Local and statutory authority fees / charges

## Appendix D Appraisal

SUMMARY

Design Option									
THE BING	Summary	Total Cycle Design Objectives	Cycle Design Objectives Rank	Total Pedestrian Design Objectives	Pedestrian Design Objectives Rank	Total Ecology and Environmental Objectives	Ecology and Environmental Objectives Rank	Total	Rank
Option 1 - New path through The Bing	<p>Option 1 scored joint highest in the pedestrian design objectives, second in the cycle design objectives and sixth in the ecology and environmental objectives.</p> <p>The route was found to be coherent, direct and comfortable for cyclists and pedestrians. However, the route scored poorly in terms of deliverability (due to a section running through third party land) and with regards to its environmental impact (due to the amount of tree and vegetation clearance being required).</p>	47	2	35	1	8	6	90	2
Option 2 - Upgrade of existing path	<p>Option 2 scored joint highest in the pedestrian design objectives, fourth in the cycle design objectives and last in the ecology and environmental objectives.</p> <p>The route was found to be coherent, direct and comfortable for cyclists and pedestrians. However, the route scored poorly in terms of deliverability and with regards to its ecological impact (due to likely impact on badger setts).</p>	46	4	35	1	6	7	87	3
Option 2A - Upgrade of existing path, with tie-in to Masons Way	<p>Option 2A scored joint highest in the pedestrian design objectives, first in the cycle design objectives and fifth in the ecology and environmental objectives.</p> <p>The route was found to be coherent, direct and comfortable for cyclists and pedestrians. The only objective that scored less than five was environmental impact (score of 4, due to the amount of tree and vegetation clearance being required).</p>	50	1	35	1	9	5	94	1
Option 3 - Route through industrial estate	<p>Option 3 scored joint highest in the ecology and environmental objectives, fourth in the pedestrian design objectives and last in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. The route scored poorly in the cycle design objectives due to possible conflicts with vehicles and the fact that some of the works would be on third party land.</p>	30	7	29	4	10	1	59	7
Option 4 - Route to rear of industrial estate	<p>Option 4 scored joint highest in the ecology and environmental objectives, fifth in the pedestrian design objectives and sixth in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. The route scored relatively poorly in the pedestrian and cycle design objectives due to the fact that users may have some personal security concerns, the infrastrucutre may be sub-standard, and the fact that some of the works would be on third party land.</p>	33	6	24	5	10	1	67	5
Option 5 - Route through housing estate	<p>Option 5 scored joint highest in the ecology and environmental objectives, last in the pedestrian design objectives and fifth in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. The route scored relatively poorly in the pedestrian and cycle design objectives due to the fact that the route would likely be substandard and uncomfortable due to constraints.</p>	36	5	20	7	10	1	66	6
Option 6 - Masons Way	<p>Option 6 scored joint highest in the ecology and environmental objectives, fifth in the pedestrian design objectives and second in the cycle design objectives.</p> <p>The route scored relatively higher in the ecology and environmental objectives due to its minimal impact on ecology and the environment. Route 6 scored highly in the cycle design objectives, as it is considered to be coherent, relatively direct and deliverable.</p>	47	2	24	5	10	1	81	4



Design Option THE BING	Cycle Route Design Objectives				Pedestrian Design Objectives				Ecology and Environmental Design Objectives				Total Cycle Design Objectives Rank	Total Pedestrian Design Objectives Rank	Total Ecology and Environmental Objectives Rank	Ecology and Environmental Objectives Rank	Total	Rank		
	Safety	Coherence	Directness	Comfort	Attractiveness	Deliverability	Safety	Comfort	Inclusive Design and Accessibility	Priority and Connectivity	Ecological Impact	Environmental Impact								
	<ul style="list-style-type: none"><li>• be safe and perceived as safe: provide personal security - limit conflict between cyclists and pedestrians and other vehicles - be safe for unaccompanied school children</li></ul>	<ul style="list-style-type: none"><li>• link all potential origins and destinations - be continuous and recognisable - offer consistent standard of protection throughout</li><li>• be properly signed - include well located cycle parking</li></ul>	<ul style="list-style-type: none"><li>• be based on desire lines - result in minimal detours or delays - provide a positive advantage in terms of directness and priority over motor traffic</li></ul>	<ul style="list-style-type: none"><li>• be smooth, non-slip, well maintained, drained and free of debris - have sufficient width for the level of use - have easy gradients - be designed to avoid complicated manoeuvres - enable cyclists to maintain momentum - minimise impacts of noise, spray and headlight dazzle from other traffic</li></ul>	<ul style="list-style-type: none"><li>• be attractive and interesting - integrate with and complement their surroundings - contribute to good urban design - enhance personal security - be well maintained</li></ul>	<ul style="list-style-type: none"><li>1 - No prospect of delivery</li><li>10 - No challenges to delivery, all agreed information and requirements in hand</li></ul>	<ul style="list-style-type: none"><li>• be safe and perceived as safe for those walking - provide personal security - limit conflict between pedestrians, cyclists and other vehicles - provide an appropriate level of provision for the anticipated pedestrian flows - be safe for unaccompanied school children</li></ul>	<ul style="list-style-type: none"><li>• Footways should be appropriately wide and free from clutter - appropriate space for waiting at bus stops - appropriate space for people making through trips.</li></ul>	<ul style="list-style-type: none"><li>Provide safe access for all vulnerable users, in particular ensure the project meets its obligations under Disability Discrimination legislation. Maximise the accessibility of destinations</li></ul>	<ul style="list-style-type: none"><li>• Design meets the street user hierarchy and provides pedestrian priority where possible</li><li>• Provide an appropriate number of crossings so as to enhance how 'crossable' the street(s) / are</li></ul>	<ul style="list-style-type: none"><li>• Impact of the project on the surrounding ecology</li></ul>	<ul style="list-style-type: none"><li>• Impact of the project on the surrounding environment</li></ul>								
Option 1 - New path through The Bing	<ul style="list-style-type: none"><li>• May be some personal security concerns for users, particularly during hours of darkness. This would be mitigated by street lighting, but there would still be places where people could hide.</li><li>• Path would be wide and entirely off-road, which should limit conflicts between different users and between users and vehicles.</li><li>• Alignment would depend on final design, but should be reasonable forward visibility to potential hazards.</li></ul>	<ul style="list-style-type: none"><li>• Path would tie into path at eastern end, which would be upgraded to be suitable for shared use. Standard of provision would therefore be consistent</li></ul>	<ul style="list-style-type: none"><li>• Route would be most direct between Fa'side Avenue North and north access to school (around 490 metres).</li><li>• Cyclists would not have to give way to vehicles at any point.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and to avoid complicated manoeuvres.</li><li>• To the east of The Bing, at the junction of where the proposed path would meet the path that runs on a north-south alignment, there is an existing level difference. This would have to be re-graded to achieve a maximum gradient of 5 degrees.</li></ul>	<ul style="list-style-type: none"><li>• Path would likely be attractive and could integrate with surrounding wood.</li><li>• Path would enhance personal security with respect to current arrangement, but some users would likely still feel uncomfortable.</li></ul>	<ul style="list-style-type: none"><li>• Ground is rutted and several significant trees were observed (&gt;300mm). Gradient on existing path of between 7 and 10 degrees towards middle section.</li><li>• Likely to impact on badger sets identified near to existing path.</li><li>• Significant tree and vegetation clearance would be required.</li><li>• No-dig solution may be required through The Bing.</li><li>• Delivery of route would require upgrade to section of path to east of The Bing (around 175 metres).</li><li>• Route would travel through third-party land at the eastern end. Providing a route through this land is not deemed to be feasible.</li></ul>	<ul style="list-style-type: none"><li>• May be some personal security concerns for users, particularly during hours of darkness. This would be mitigated by street lighting, but there would still be places where people could hide.</li><li>• Path would be wide, which should limit conflicts between different users.</li><li>• No road crossings would be required.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and would be suitably wide to be determined as shared use.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• Gradient at junction with existing path on east side of The Bing may need to be around 5 degrees. This may cause challenges to some users.</li></ul>	<ul style="list-style-type: none"><li>• Route is traffic-free and provides a direct route for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>• Lighting could impact upon wildlife. No concerns noted during initial site walkover. Further surveys would be required to confirm this.</li></ul>	<ul style="list-style-type: none"><li>• Tree clearance over an area of ~1,740 sqm (L=290m, W=6) would be required to construct path.</li></ul>	47	2	35	1	8	6	90	2
Option 2 - Upgrade of existing path	<ul style="list-style-type: none"><li>• May be some personal security concerns for users, particularly during hours of darkness. This would be mitigated by street lighting, but there would still be places where people could hide.</li><li>• Path would be wide and entirely off-road, which should limit conflicts between different users and between users and vehicles.</li><li>• Some bends in path, but should be reasonable forward visibility to potential hazards.</li></ul>	<ul style="list-style-type: none"><li>• Path would tie into path at eastern end, which would be upgraded to be suitable for shared use. Standard of provision would therefore be consistent</li></ul>	<ul style="list-style-type: none"><li>• Route would be slightly longer than the Option 1 alignment (between Fa'side Avenue North and north access to school), at 610 metres. Assuming a speed of 15kph, increased journey time is 30 seconds.</li><li>• Cyclists would not have to give way to vehicles at any point.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and to avoid complicated manoeuvres.</li><li>• There is a section of the existing path where the gradient is around 10 degrees, which would have to be re-graded to achieve a maximum gradient of 5 degrees.</li></ul>	<ul style="list-style-type: none"><li>• Path would likely be attractive and could integrate with surrounding wood.</li><li>• Path would enhance personal security with respect to current arrangement, but some users would likely still feel uncomfortable.</li></ul>	<ul style="list-style-type: none"><li>• Some significant trees were observed (&gt;300mm). Gradient on existing path of between 7 and 10 degrees towards middle section.</li><li>• Likely to impact on badger sets identified near to existing path.</li><li>• Significant tree and vegetation clearance likely to be required.</li><li>• No-dig solution may be required through The Bing.</li><li>• Delivery of route would require upgrade to section of path to east of The Bing (around 232 metres).</li></ul>	<ul style="list-style-type: none"><li>• May be some personal security concerns for users, particularly during hours of darkness. This would be mitigated by street lighting, but there would still be places where people could hide.</li><li>• Path would be wide, which should limit conflicts between different users.</li><li>• No road crossings would be required.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and would be suitably wide to be determined as shared use.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• Gradient of existing path in middle section may be 5 degrees. This may cause challenges to some users.</li></ul>	<ul style="list-style-type: none"><li>• Route is traffic-free and provides a direct route for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>• Likely to impact on badger sets identified near to existing path. Lighting likely to impact upon wildlife.</li></ul>	<ul style="list-style-type: none"><li>• Tree and vegetation clearance over an area of ~1,450 sqm (L=290m, W=5) would be required to construct path (not including associated works required)</li></ul>	46	4	35	1	6	7	87	3
Option 2A - Upgrade of existing path, with tie-in to Masons Way	<ul style="list-style-type: none"><li>• May be some personal security concerns for users, particularly during hours of darkness. This would be mitigated by street lighting, but there would still be places where people could hide.</li><li>• Path would be wide and entirely off-road, which should limit conflicts between different users and between users and vehicles.</li><li>• Some bends in path, but should be reasonable forward visibility to potential hazards.</li></ul>	<ul style="list-style-type: none"><li>• Path would tie into Masons Way at eastern end, which is an existing shared use footway. Standard of provision would therefore be consistent</li></ul>	<ul style="list-style-type: none"><li>• Route would be slightly longer than the Option 1 alignment (between Fa'side Avenue North and south access to school), at 540 metres. Assuming a speed of 15kph, increased journey time is 12 seconds.</li><li>• Cyclists would not have to give way to vehicles at any point.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and to avoid complicated manoeuvres.</li></ul>	<ul style="list-style-type: none"><li>• Path would likely be attractive and could integrate with surrounding wood.</li><li>• Path would enhance personal security with respect to current arrangement, but some users would likely still feel uncomfortable.</li></ul>	<ul style="list-style-type: none"><li>• Significant tree and vegetation clearance likely to be required.</li><li>• No-dig solution may be required through The Bing.</li></ul>	<ul style="list-style-type: none"><li>• May be some personal security concerns for users, particularly during hours of darkness. This would be mitigated by street lighting, but there would still be places where people could hide.</li><li>• Path would be wide, which should limit conflicts between different users.</li><li>• No road crossings would be required.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and would be suitably wide to be determined as shared use.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• Gradient of new path to south-east may be 5 degrees. This may cause challenges to some users.</li></ul>	<ul style="list-style-type: none"><li>• Route is traffic-free and provides a direct route for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>• Lighting likely to impact upon wildlife.</li></ul>	<ul style="list-style-type: none"><li>• Tree and vegetation clearance over an area of ~1,075 sqm (L=215m, W=5) would be required to construct path (not including associated works required)</li></ul>	50	1	35	1	9	5	94	1
Option 3 - Route through industrial estate	<ul style="list-style-type: none"><li>• Southern footway on east-west section could be widened to around 4 metres to create a shared use footway.</li><li>• Footway could be created on east side of north-south section, but cyclists would be on carriageway and could come into conflict with vehicles.</li><li>• Access between industrial estate and park would have to be upgraded.</li></ul>	<ul style="list-style-type: none"><li>• Route would tie into shared use path through park at eastern end.</li><li>• Route would predominantly comprise shared use paths / footways, although there would be short sections of on-road cycling.</li></ul>	<ul style="list-style-type: none"><li>• Route would be slightly longer than the Option 1 alignment (between Fa'side Avenue North and north access to school), at 580 metres. Assuming a speed of 15kph, increased journey time is 22 seconds.</li><li>• Cyclists may have to give way to vehicles when accessing industrial estate and when crossing from shared footway back onto carriageway.</li></ul>	<ul style="list-style-type: none"><li>• Southern footway on east-west section could be widened to around 4 metres to create a shared use footway.</li><li>• Some on-road cycling would be required, which could make some users feel uncomfortable.</li><li>• Path on west side of The Bing is not lit and surface is not sealed.</li></ul>	<ul style="list-style-type: none"><li>• Route is unlikely to be attractive nor interesting.</li><li>• Route is overlooked, but industrial estate may be quiet outwith business hours.</li></ul>	<ul style="list-style-type: none"><li>• Some works would be required on third party land.</li><li>• May be impact upon utilities due to widening into verge / construction in verge. Detail not known at this stage.</li><li>• Telegraph pole may need to be moved.</li><li>• Delivery of route would require upgrade to existing path to north of industrial estate (included within feasibility study).</li></ul>	<ul style="list-style-type: none"><li>• Pedestrians would have to cross road in industrial estate to transition between the existing and proposed footway.</li><li>• May be some personal security concerns during the hours of darkness.</li></ul>	<ul style="list-style-type: none"><li>• Proposed shared use footway would be sufficiently wide.</li><li>• May be pinch points / constraints on proposed new footway.</li><li>• Access between industrial estate and park would have to be upgraded.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• Access between industrial estate and park would have to be upgraded.</li></ul>	<ul style="list-style-type: none"><li>• At least two crossings would be required. May be possible to provide pedestrian priority on one.</li><li>• Crossings are unlikely to change nature of streets.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on ecology.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on environment.</li></ul>	30	7	29	4	10	1	59	7
Option 4 - Route to rear of industrial estate	<ul style="list-style-type: none"><li>• Shared use footway could be created in space to rear of industrial estate. Path would be between houses and industrial estate.</li><li>• Achievable path width unknown due to level difference and existing constraints.</li><li>• Short section of on-road cycling would be required to reach access to path.</li><li>• Access between industrial estate and park would have to be upgraded.</li></ul>	<ul style="list-style-type: none"><li>• Path would tie into new path through park at eastern end, which would be determined as shared use. Short section of on-road cycling would be required between route to rear of industrial estate and path on west side of The Bing</li></ul>	<ul style="list-style-type: none"><li>• Route would be slightly longer than the Option 1 alignment (between Fa'side Avenue North and north access to school), at 580 metres. Assuming a speed of 15kph, increased journey time is 22 seconds.</li><li>• Cyclists may have to give way to vehicles when accessing path.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to an appropriate specification, and to avoid complicated manoeuvres.</li><li>• Some challenges with gradients, which may impact upon width that could be achieved.</li><li>• Path on west side of The Bing is not lit and surface is not sealed.</li></ul>	<ul style="list-style-type: none"><li>• Route is unlikely to be attractive nor interesting.</li><li>• Route is overlooked, but industrial estate may be quiet outwith business hours.</li></ul>	<ul style="list-style-type: none"><li>• Route would be constructed within land that is privately-owned.</li><li>• Would require a section of boundary fence to be removed.</li><li>• Some challenges with gradients, which may impact upon width that could be achieved.</li><li>• Delivery of route would require upgrade to existing path to north of industrial estate (included within feasibility study).</li></ul>	<ul style="list-style-type: none"><li>• Pedestrians would have to cross road to access path to rear of industrial estate.</li><li>• May be some personal security concerns during the hours of darkness.</li><li>• Access between industrial estate and park would have to be upgraded.</li><li>• If path is of sub-standard width, is unlikely to be comfortable for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• May be some personal security concerns during the hours of darkness.</li><li>• Access between industrial estate and park would have to be upgraded.</li><li>• Depending on achievable path width, width could cause issues for users with mobility aids, such as wheel chairs.</li></ul>	<ul style="list-style-type: none"><li>• Route is traffic-free and provides a direct route for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on ecology.</li></ul>	<ul style="list-style-type: none"><li>• Route would result in a loss of some green space, although this is of little value.</li></ul>		33	6	24	5	10	1	67	5
Option 5 - Route through housing estate	<ul style="list-style-type: none"><li>• There are existing constraints due to property boundaries. Path widths are likely to be substandard for designating as shared use.</li><li>• Paths would pass property accesses.</li><li>• Some on-road cycling would be required, although it is anticipated that traffic volumes would be low.</li><li>• Risk of conflict between different path users due to widths, and between path users and people entering / exiting properties.</li></ul>	<ul style="list-style-type: none"><li>• Route would tie into shared use path through park at eastern end.</li><li>• Route would comprise shared use paths / footways and sections of on-road cycling.</li></ul>	<ul style="list-style-type: none"><li>• Route would be slightly longer than the Option 1 alignment (between Fa'side Avenue North and north access to school), at 540 metres. Assuming a speed of 15kph, increased journey time is 36 seconds.</li><li>• Cyclists may have to give way to vehicles when accessing housing estate, and when transitioning to / from shared footways and carriageway.</li></ul>	<ul style="list-style-type: none"><li>• Route is unlikely to be comfortable due to constraints, layout and possible conflicts.</li><li>• Path on west side of The Bing is not lit and surface is not sealed.</li></ul>	<ul style="list-style-type: none"><li>• Route is unlikely to be attractive nor interesting.</li><li>• Route is overlooked and would give users a sense of personal security</li></ul>	<ul style="list-style-type: none"><li>• Route would be deliverable, but is unlikely to be to standard.</li><li>• Likely to be a more economical option.</li><li>• Delivery of route would require upgrade to existing path through park and to north of industrial estate (included within feasibility study).</li></ul>	<ul style="list-style-type: none"><li>• Risk of conflict between pedestrians and cyclists due to substandard path width.</li><li>• Pedestrians would have to cross the road at either end of the route to continue their onward journey.</li></ul>	<ul style="list-style-type: none"><li>• Route is unlikely to be comfortable due to constraints, layout and possible conflicts.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• Width constraints could cause issues for users with mobility aids, such as wheel chairs, particularly as path is shared.</li></ul>	<ul style="list-style-type: none"><li>• At least two crossings would be required. May be possible to provide pedestrian priority on one.</li><li>• Crossings are unlikely to change nature of streets.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on ecology.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on environment.</li></ul>	36	5	20	7	10	1	66	6
Option 6 - Masons Way	<ul style="list-style-type: none"><li>• Footway on north side of Masons Way is 3m wide and could be converted to a shared use footway.</li><li>• Footway is lit and is adjacent to a carriageway.</li><li>• No frontage properties but surrounding land may be developed.</li><li>• Path width could cause conflicts between pedestrians and cyclists, if not widened.</li><li>• Path on west side of The Bing is not lit.</li></ul>	<ul style="list-style-type: none"><li>• Route would be coherent, as path on west side of The Bing would tie into shared use footway on north side of Masons Way. Standard of provision would therefore be consistent</li></ul>	<ul style="list-style-type: none"><li>• Route would be slightly longer than the Option 1 alignment (between Fa'side Avenue North and south access to school), at 642 metres. Assuming a speed of 15kph, increased journey time is 38 seconds.</li><li>• Cyclists would not have to give way to vehicles at any point.</li></ul>	<ul style="list-style-type: none"><li>• If not widened, shared use footway would only be 3 metres wide, which could make it uncomfortable for some users.</li><li>• Footway is adjacent to road, so there is a risk of spray and headlight dazzle.</li><li>• Path on west side of The Bing is not lit and surface is not sealed.</li></ul>	<ul style="list-style-type: none"><li>• Route is not currently overlooked by frontages, but is next to a road. Over time, surrounding land may be developed.</li></ul>	<ul style="list-style-type: none"><li>• Route would require an upgrade of the path on the west side of the Bing, which has a significant gradient where it junctions with Masons Way.</li><li>• No complementary measures would be required.</li><li>• Otherwise, few deliverability challenges are anticipated.</li></ul>	<ul style="list-style-type: none"><li>• May be some personal security concerns for users on path to west of The Bing, particularly during hours of darkness.</li><li>• Relatively narrow shared use footway width could result in headlight dazzle.</li><li>• If shared use footway were not to be widened, with constraints could cause issues for users with mobility aids, such as wheel chairs.</li></ul>	<ul style="list-style-type: none"><li>• If not widened, shared use section is unlikely to be comfortable.</li></ul>	<ul style="list-style-type: none"><li>• Path would be designed to meet all obligations under Inclusive Mobility.</li><li>• Gradient on path to west of The Bing would have to be reduced to make it suitable.</li><li>• If shared use footway were not to be widened, with constraints could cause issues for users with mobility aids, such as wheel chairs.</li></ul>	<ul style="list-style-type: none"><li>• Route is traffic-free and provides a direct route for pedestrians.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on ecology.</li></ul>	<ul style="list-style-type: none"><li>• Unlikely to have a major impact on environment.</li></ul>	47	2	24	5	10	1	81	4
	6	10	9	7	7	8	4	4	6	10	5									

DESIGN APPRAISAL CRITERIA

Score	Description
10	Excellent positive impact
8	Strong positive impact
6	Positive impact
5	Moderate impact
4	Moderate to poor impact
1	Poor level of impact

Cycle Route Design Objectives		Pedestrian Route Design Objectives		Ecology Design Objective	
Attractiveness	• be attractive and interesting • integrate with and complement their surroundings • contribute to good urban design • enhance personal security • be well maintained	Safety	• be safe and perceived as safe for those walking • provide personal security • limit conflict between pedestrians, cyclists and other vehicles • provide an appropriate level of provision for the anticipated pedestrian flows • be safe for unaccompanied school children	Ecological Impact	• Impact of the project on the surrounding ecology
Coherence	• link all potential origins and destinations • be continuous and recognisable • offer consistent standard of protection throughout • be properly signed • include well located cycle parking	Comfort	• Footways should be appropriately wide and free from clutter • appropriate space for waiting at bus stops • appropriate space for people making through trips.		
Comfort	• be smooth, non-slip, well maintained, drained and free of debris • have sufficient width for the level of use • have easy gradients • be designed to avoid complicated manoeuvres • enable cyclists to maintain momentum • minimise	Inclusive Design and Accessibility	Provide safe access for all vulnerable users, in particular ensure the project meets its obligations under Disability Discrimination legislation. Maximise the accessibility of destinations		
Directness	• be based on desire lines • result in minimal detours or delays • provide a positive advantage in terms of directness and priority over motor traffic	Priority and Connectivity	• Design meets the street user hierarchy and provides pedestrian priority where possible • Provide an appropriate number of crossings so as to enhance how 'crossable' the street(s) is / are		
Safety	• be safe and perceived as safe • provide personal security • limit conflict between cyclists and pedestrians and other vehicles • be safe for unaccompanied school children				

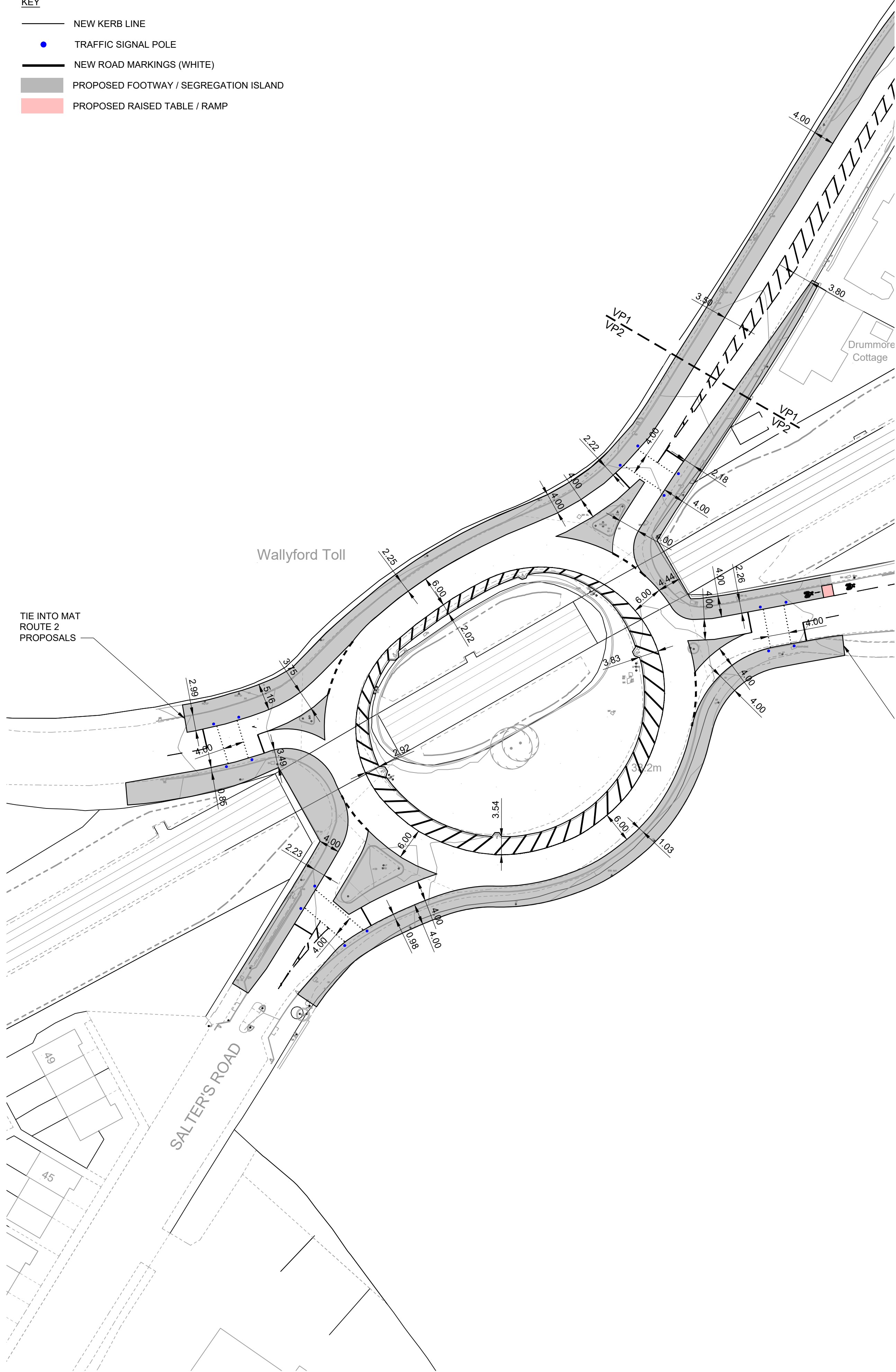
Deliverability

Score	Description
10	No challenges to delivery, all required information and agreements in hand.
7	Some challenges to delivery, with potential for mitigation.
	May also include absence of some required information.
4	Serious challenges to implementation, risk of failure to delivery.
1	No prospect of delivery.

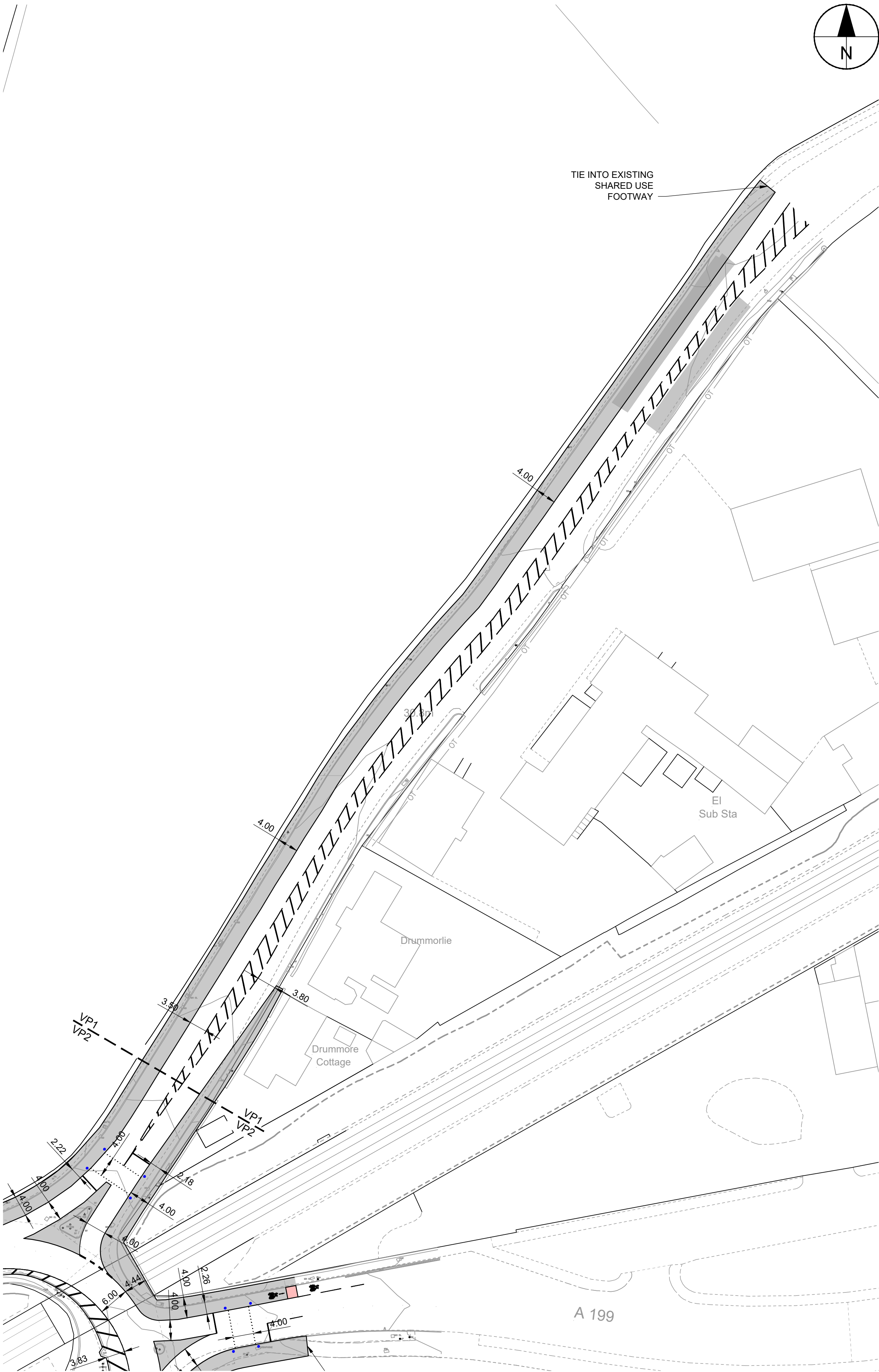
## Appendix E Wallyford Toll Roundabout



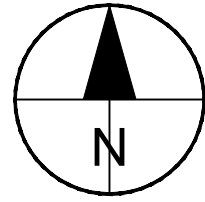
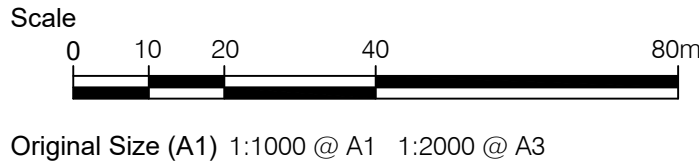
- KEY
- NEW KERB LINE
  - TRAFFIC SIGNAL POLE
  - NEW ROAD MARKINGS (WHITE)
  - PROPOSED FOOTWAY / SEGREGATION ISLAND
  - PROPOSED RAISED TABLE / RAMP



VIEWPORT 1  
WALLYFORD TOLL ROUNDABOUT



VIEWPORT 2  
B1361



AECOM

PROJECT

THE BING,  
WALLYFORD SRS

CLIENT



CONSULTANT

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NOTES

- ALL WORKS TO BE EXECUTED IN ACCORDANCE WITH THE SPECIFICATION FOR HIGHWAY WORKS - THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, DESIGN MANUAL FOR ROADS AND BRIDGES, TRAFFIC SIGNS MANUAL AND LOCAL COUNCIL GUIDELINES.
- ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE. ALL LEVELS ARE IN METRES AND RELATE TO ORDNANCE DATUM.
- DO NOT SCALE FROM ANY DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSION ARE TO BE REFERRED TO THE DESIGNER BEFORE WORK IS PUT TO HAND.
- ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.
- ALL WORKS BY THE CONTRACTOR MUST BE CARRIED OUT IN SUCH A WAY THAT ALL REQUIREMENTS UNDER THE HEALTH AND SAFETY AT WORK ACT ARE SATISFIED.
- ALL WORK IS TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF THE STATUTORY AUTHORITIES AND CONSTRUCTION DESIGN AND MANAGEMENT REGULATIONS.
- DRAWING BASE RECEIVED FROM OTHERS. AECOM CANNOT GUARANTEE THEIR ACCURACY. CONTRACTOR TO SATISFY THEMSELVES AS TO THE ACCURACY OF SUCH INFORMATION.
- SERVICE INFORMATION IS INTERPOLATED FROM INFORMATION RECEIVED FROM THE UTILITY PROVIDERS, AND AS SUCH NO GUARANTEE OF THEIR ACCURACY CAN BE GIVEN. CONTRACTOR TO SATISFY THEMSELVES AS TO THE ACCURACY OF SUCH INFORMATION.

ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60669966

SHEET TITLE

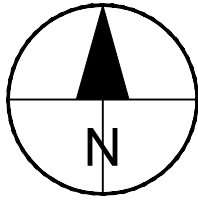
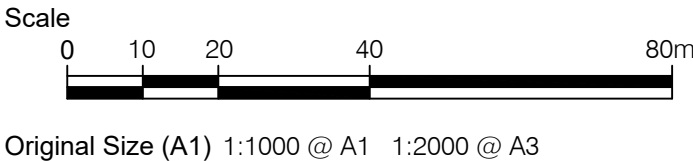
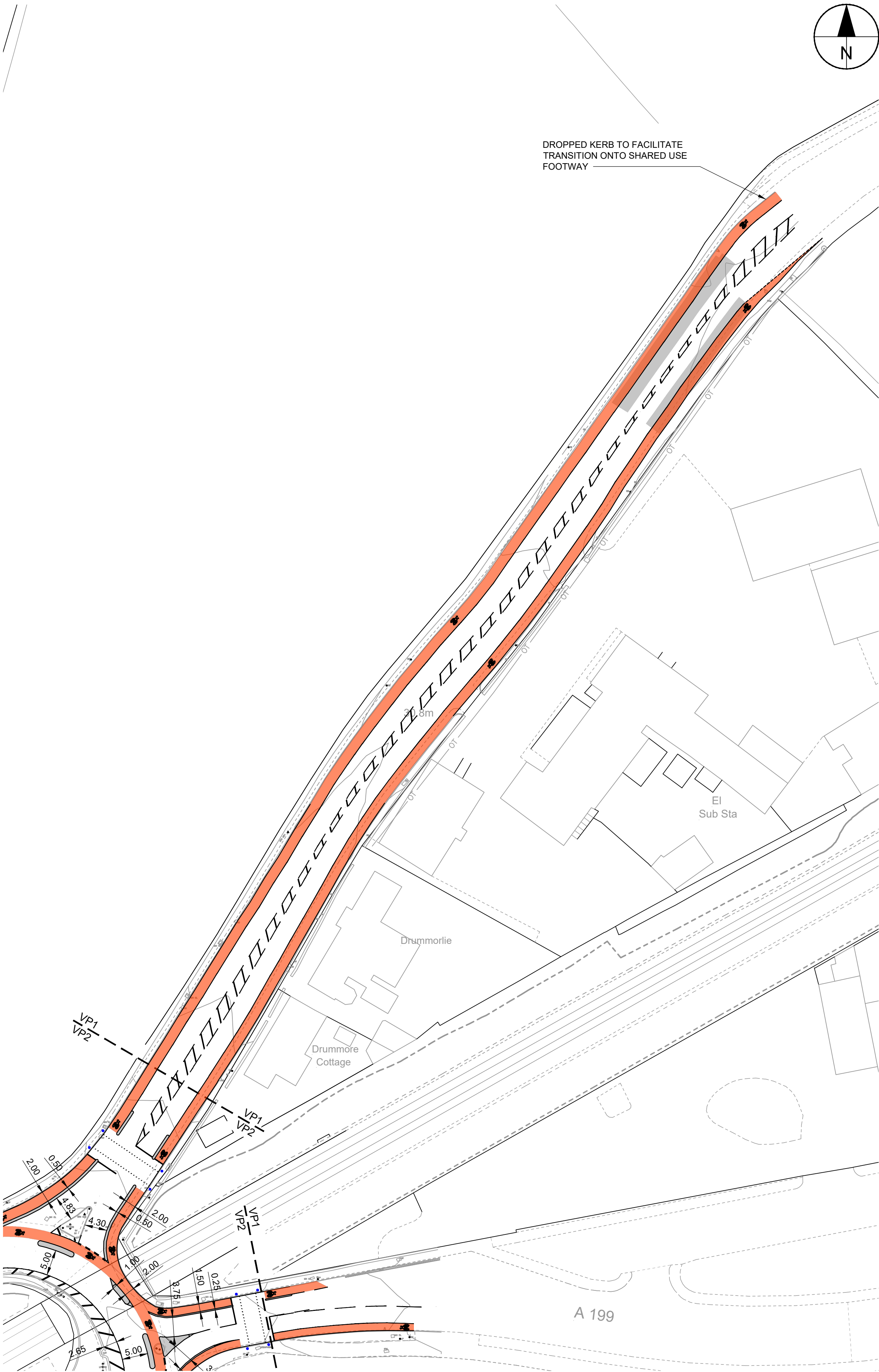
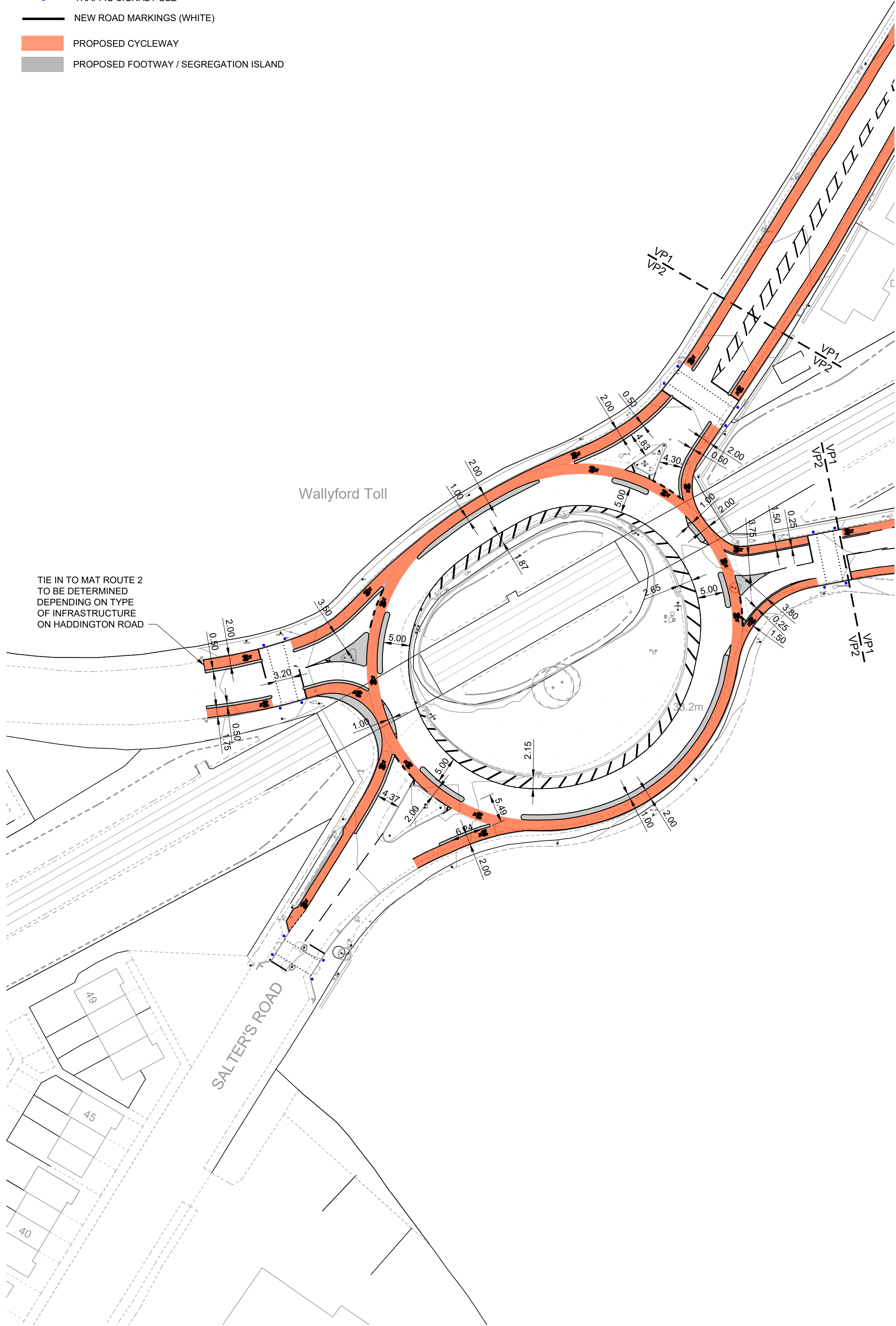
WALLYFORD TOLL ROUNDABOUT  
OPTION 1  
SHARED USE FOOTWAYS

SHEET NUMBER

60669966-SKE-C-WTR-OPT1-0001



- KEY
- NEW KERB LINE
  - TRAFFIC SIGNAL POLE
  - NEW ROAD MARKINGS (WHITE)
  - PROPOSED CYCLEWAY
  - PROPOSED FOOTWAY / SEGREGATION ISLAND



AECOM

PROJECT

THE BING,  
WALLYFORD SRS

CLIENT



CONSULTANT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60669966

SHEET TITLE

WALLYFORD TOLL ROUNDABOUT  
OPTION 2  
SEGREGATED CYCLEWAYS

SHEET NUMBER

60669966-SKE-C-WTR-OPT2-0001



