

# Leckwith Quays, Cardiff

Outline Travel Plan

Phil Worthing (instructed by Gareth Davies Project Services Ltd)

Project number: 60608933

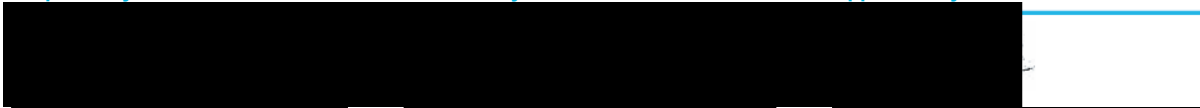
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## Introduction

### 1.1 Introduction

- 1.1.1 This Outline Travel Plan (TP) has been prepared by AECOM on behalf of Phil Worthing (instructed by Gareth Davies Project Services Ltd) in respect of a proposed planning application for the redevelopment of an existing brownfield site for residential uses (circa 250 dwellings) at Leckwith Quays, Cardiff.
- 1.1.2 The location of the site in the context of its local environs is shown on **Figure 1.1**.
- 1.1.3 The site is located in Leckwith, approximately 2.5km to the southwest of the City Centre. It is bounded to the northeast by the Ely River and is otherwise surrounded by woodland. A grade-separated section of the B4267 Leckwith Road intersects the site in a north-south alignment. Capital Retail Park and the Hadfield Road Industrial Estate lie approximately 700m and 1.1km to the northeast/east of the site respectively.
- 1.1.4 The site is situated at the border of the Vale of Glamorgan (VoG) and the City and County of Cardiff (CCC). The part of the site to be developed for residential purposes is within the administrative area of VoG, which is both the Local Planning Authority (LPA) and Local Highway Authority (LHA). Part of the access arrangements and proposed new bridge fall within the administrative area of CCC. The site therefore straddles an administrative boundary and two applications will be necessary to secure planning permission for the development of the site as proposed.
- 1.1.5 The existing site is operational and is currently used for a range of long running commercial/light industrial uses. It is accessed via a junction with the B4267 Leckwith Road, just north of the Ely River. This access also serves the Ely Trail, which is a predominantly off-road walking/cycling route. There is a bridge over the Ely River that connects the site and the access. The B4267 Leckwith Road connects to the A4232 at Leckwith Interchange, approximately 100m to the northeast of the site access.

### 1.2 Purpose of the Travel Plan

- 1.2.1 This document is aimed at facilitating and encouraging sustainable transport and the reduction of single occupancy vehicle use by residents of the proposed development and associated visitors.
- 1.2.2 Following initial planning consent, it is envisaged that the layout of the site will be developed in more detail through reserved matters by a developer/housebuilder to take forward to construction and sales. The document is therefore an interim document which sets out the scope and initial objectives, measures and targets of the TP, and will be developed into a Full TP once the scheme detailed layout progresses.
- 1.2.3 This TP is primarily aimed at future residents at the proposed development; however, facilities such as secure cycle parking will also be available for visitors, within each individual property.
- 1.2.4 TPs are a way of promoting sustainable travel behaviour through a range of mechanisms, initiatives and targets that when combined can help to reduce unnecessary travel and encourage journeys to be undertaken in a more environmentally sustainable way. For new developments, it is important that sustainable travel measures are in place prior to opening of a new development as travel habits in favour of walking, cycling and public transport are more readily established from the outset.
- 1.2.5 It should be noted that a TP is a document that will evolve over time as additional information becomes available and the travel habits of residents change.
- 1.2.6 Benefits of implementing a TP can include:
- Increased travel choice: TPs can increase personal travel choice by promoting existing and providing additional sustainable travel options;
  - Health benefits: Many alternative forms of travel involve an element of physical activity that can help improve the physical health and mental wellbeing of users of a development. For employers, this can also reduce the number of days lost to staff illness;

- Public/environmental responsibility: A decrease in the number of vehicle trips results in cleaner air and eases congestion both in the development and on the local highway network. As a result of the reduced number of car movements, the site may also become more attractive for pedestrians and cyclists;
- Positive publicity: TPs can generate positive publicity and improve the environmental image of an organisation, an area or a development. It demonstrates to residents living in the surrounding areas that the organisation/developer is committed to limiting single occupancy car trips and promoting sustainable travel options; and
- Financial savings: Users of a development can make savings by switching to or encouraging travel by non-car modes. For staff employed on a site, this is primarily related to reduced fuel consumption and vehicle depreciation.

## 1.3 Policy and Guidance

1.3.1 This document has been prepared in accordance with *Technical Advice Note (TAN) 18: Transport*, published by the Welsh Government (WG). TAN 18 sets out technical guidance for the transport related elements of development and also confirms the WG's commitment to sustainable travel via the implementation of TPs for new developments. Reference has also been made to the following:

- VoG *Travel Plan Supplementary Planning Guidance (SPG)*, adopted July 2018;
- CCC *Travel Plan Strategy*, published in September 2008; and
- Information and guidance sheets provided on the CCC 'Keeping Cardiff Moving' website.

### Technical Advice Note 18: Transport

1.3.2 TAN 18 sets out technical guidance for the transport related elements of development and also confirms the WG's commitment to sustainable travel via the implementation of TPs for new developments. TAN 18 states that the WG "*wishes to promote the widespread adoption of travel plans*".

### Vale of Glamorgan Travel Plan Supplementary Planning Guidance

1.3.3 The SPG sets out the thresholds for preparation of a TP and include details on key content, measures and management structures the VoG expects TPs to include.

### City and County of Cardiff Travel Plan Strategy

1.3.4 The need for a sustained behaviour change with regard to transport forms the basis of the CCC *Travel Plan Strategy*.

1.3.5 The CCC defines a TP as follows:

*"A Travel Plan involves the development of a set of mechanisms, initiatives and targets that together can enable an organisation to reduce the impact of travel and transport on the environment, whilst also bringing a number of other benefits to employers and to staff."*

1.3.6 The above can be applied to residential developments. The main objectives of a TP outlined by the CCC involve the promotion of sustainable transport in the city, the reduction in the number of unnecessary, and single occupancy vehicle (SOV) trips, as well as the mitigation of congestion concerns in the city.

### Keeping Cardiff Moving Website

1.3.7 The 'Keeping Cardiff Moving' website provides guidance and advice sheets on TPs, including details of the measures and monitoring strategies that can be included to ensure the success of a TP. While this is primarily aimed at businesses and organisations developing a TP, much of the guidance is also considered relevant to residential developments and has therefore been referred to in the preparation of this TP.

## 1.4 Report Structure

1.4.1 Pre-application consultation has been undertaken with the VoG and CCC in which it was agreed that a TP will be prepared for the proposed development. The TP is structured as follows:

- **Section 2 – Existing Situation and Site Accessibility:** Examines the local transport conditions in the vicinity of the site and makes an assessment on the accessibility of the site to non-car modes of travel;
- **Section 3 – Development Proposals:** Provides a description of the development proposals, including the proposed means of access by all travel modes and parking provision;
- **Section 4 – Scope, Objectives and Implementation:** Sets out the scope and objectives for the implementation of the TP;
- **Section 5 – Measures:** Outlines the measures proposed in order for the TP to meet the objectives detailed in Section 4; and
- **Section 6 – Targets and Monitoring:** Sets out the initial mode share targets for the monitoring period, against which the success of the TP will be measured, and associated procedures for monitoring and evaluation.

## Existing Situation and Site Accessibility

### 2.1 Introduction

- 2.1.1 This section of the TP provides a description of the site location and its existing usage, the local highway network, current safety and traffic conditions, and a review of accessibility to non-car modes of travel.

### 2.2 Site Location and Existing Usage

- 2.2.1 The location of the site in the context of its local environs is shown on **Figure 1.1**.
- 2.2.2 The site is located in Leckwith, approximately 2.5km to the southwest of the City Centre. It is bounded to the northeast by the Ely River and is otherwise surrounded by woodland. A grade-separated section of the B4267 Leckwith Road intersects the site in a north-south alignment. Capital Retail Park and the Hadfield Road Industrial Estate lie approximately 700m and 1.1km to the northeast/east of the site respectively.
- 2.2.3 The site is situated at the border of the Vale of Glamorgan (VoG) and the City and County of Cardiff (CCC). The part of the site to be developed for residential purposes is within the administrative area of VoG, which is both the Local Planning Authority (LPA) and Local Highway Authority (LHA). Part of the access arrangements and proposed new bridge fall within the administrative area of CCC. The site therefore straddles an administrative boundary and two applications will be necessary to secure planning permission for the development of the site as proposed.
- 2.2.4 The existing site is operational and is currently used for a range of long running commercial/light industrial uses. It is accessed via a junction with the B4267 Leckwith Road, just north of the Ely River. This access also serves the Ely Trail, which is a predominantly off-road walking/cycling route. There is a bridge over the Ely River that connects the site and the access. The B4267 Leckwith Road connects to the A4232 at Leckwith Interchange, approximately 100m to the northeast of the site access.

### 2.3 Local Highway Network

- 2.3.1 The local highway network is shown on **Figure 1.1**. The northern extent of the highway network at the signal-controlled crossroads junction between B4267 Leckwith Road, Sloper Road and Broad Street. The study area extends south along the B4267 Leckwith Road, beyond Leckwith Interchange and south of the site. The study area is bounded to the south by the A4055 Cardiff Road/Barry Road, which runs in a southwest-northeast alignment prior to its junction with the A4160 Penarth Road/Cogan Hill. The remainder of this sub-section identifies the key junctions within the study area and connecting highways, commencing from the northern extent of the study area.

#### B4267 Leckwith Road/Sloper Road/Broad Street Junction

- 2.3.2 This is a four-arm signal-controlled crossroads junction which forms the northern extent of the study area. The major arm is the B4267 Leckwith Road, with Sloper Road and Broad Street forming the minor arms to the east and west respectively. There are Advanced Stop Lines (ASL) on all arms of the junction and signalised pedestrian crossings on Sloper Road, Broad Street and B4267 Leckwith Road northbound. Yellow boxes marking 'Keep Clear' areas are present on both sides of the B4627 carriageway as well as right-turn storage lanes in both the northbound and southbound direction.

#### B4267 Leckwith Road, between Ninian Park Station and Lawrenny Avenue

- 2.3.3 In this section of the study area the B4267 Leckwith Road comprises two lanes in the northeast-bound direction and one lane in the southwest-bound. On the approach to Lawrenny Avenue, it develops a ghost island right-turn lane in the southwest-bound direction, whilst the northeast-bound carriageway reduces to one lane and contains a yellow box marking traffic exclusion area to allow right-turn movements to Lawrenny Avenue to occur without obstruction. This section of the B4267 Leckwith Road has regular street lighting, is subject to a 30mph speed limit and has a variable carriageway width between 9m and 12m.



### **B4267 Leckwith Road/Ffordd Fred Keenor Junction**

- 2.3.4 This is a three-arm signal-controlled junction which provides the primary access into Cardiff City Football Club (CCFC) Stadium and Leckwith Park & Ride (P&R). The B4267 Leckwith Road is the major arm and consists of three lanes in the southwest-bound direction and four lanes in the northeast-bound direction, with two of these being dedicated to right-turn movements. A yellow box is present on the B4267 Leckwith Road southwest-bound to keep the junction clear and allow for movements into Ffordd Fred Keenor without obstruction. Signalised pedestrian crossings are present on both the B4267 Leckwith Road southwest-bound approach and northeast-bound exit arms, as well as Ffordd Fred Keenor.
- 2.3.5 Ffordd Fred Keenor continues southeast from the junction for approximately 80m where it forms a four-arm roundabout junction. The other arms provide access to the P&R and other parking areas, and CCFC (both entrance and exit of the stadium).

### **B4267 Leckwith Road/Brian Clarke Way/Cardiff International Sports Campus (CISC) Junction**

- 2.3.6 This is a four-arm signal-controlled crossroads junction, comprising the B4267 Leckwith Road as the major arms, with the two minor arms formed by Brian Clarke Way (serving Capital Retail Park) and CISC. The B4267 Leckwith Road has four lanes in both directions. In the northeast-bound direction, the two offside lanes are dedicated to right-turn movements. In the southwest-bound direction, there is a single right-turn filter lane for movements into CISC. There are yellow boxes present on both sides of the main carriageway to allow for turning movements into the minor arms without obstruction. Signalised pedestrian crossings are present across all arms except the B4267 Leckwith Road southwest-bound.

### **Leckwith Interchange**

- 2.3.7 The B4267 Leckwith Road continues southwest as a dual-carriageway before it reaches Leckwith Interchange, a large five-arm signal-controlled gyratory comprising the B4267 Leckwith Road, A4232 northbound and southbound on/off-slips, and Hadfield Road. There are up to four lanes on the gyratory, with yellow boxes prohibiting traffic entering to queue at each approach arm entry. The junction is well-lit and provides toucan crossings at the following locations:
- A4232 northbound and southbound off-slips;
  - B4267 Leckwith Road (northeast-bound and southwest-bound entries);
  - Hadfield Road (entry); and
  - Internal Stop Lines (ISLs) on the circulatory, between the entries/exits of all arms.
- 2.3.8 A single pedestrian/cyclist link, running in a northeast-southwest alignment intersects the central island, and there is an orbital pedestrian/cyclist link to facilitate all movements between arms/crossing locations.
- 2.3.9 The B4267 Leckwith Road southeast-bound approach consists of three lanes. Hadfield Road is a single carriageway road that widens to two lanes on its approach to the junction. Both the B4267 Leckwith Road and A4232 northbound consist of two lanes on their respective approaches. The A4232 southbound off-slip approach consists of four lanes with the two nearside lanes allocated to left-turn movements onto the B4267 Leckwith Road southeast-bound.

### **B4267 Leckwith Road, between Leckwith Interchange and University Hospital Llandough (UHL)**

- 2.3.10 This link primarily serves residential areas west of the A4232. South of Leckwith Interchange, the B4267 Leckwith Road is single carriageway in both directions, has regular street lighting and is subject to a 40mph speed limit. It generally has a carriageway width of 6.5m, widening as necessary to allow for ghost island right-turn lanes. Adjacent and to the north of UHL, the B4267 Leckwith Road has regular street lighting to facilitate walking trips to/from residential areas which border the site, and has a speed limit of 30mph. The average width of the carriageway serving UHL and residential areas is approximately 7m.
- 2.3.11 This section of the B4267 Leckwith Road includes priority junctions with the existing site access and Pen-y-Turnpike Road, located approximately 100m and 1.3km southwest of Leckwith Interchange, respectively.

### B4267 Penlan Road/UHL Junction

- 2.3.12 This is a three-arm signal-controlled junction which provides access to UHL. ASLs are provided on both approaches of the B4267 Penlan Road and there are signalised pedestrian crossings on the UHL access and B4267 Penlan Road northbound arms. The B4267 Penlan Road is subject to a speed limit of 20mph within the vicinity of the junction.

### Merrie Harrier

- 2.3.13 This is a network of junctions that form the south-western extent of the study area. The network comprises the following:
- Three-arm priority T-junction (B4267 Penlan Road/Secondary Access to UHL);
  - Three-arm priority T-junction (B4267 Penlan Road/Corbett Road);
  - Four-arm signal-controlled junction (B4267 Penlan Road/A4055 Barry Road/Andrew Road/A4055 Cardiff Road);
  - Three-arm signal-controlled junction (A4055 Cardiff Road/B4267 Redlands Road); and
  - Bus gate for northeast-bound movements on the A4055 Cardiff Road, located southwest of the junction.
- 2.3.14 ASLs are present on all approach arms of the network, other than Andrew Road which is only accessible by buses. There is a signalised pedestrian crossing on the A4055 Barry Road approach arm. The B4267 Penlan Road, A4055 Barry Road, B4267 Redlands Road and A4055 Cardiff Road all have two lanes on their respective approaches. At the time of writing, the Secondary Access to UHL is closed off.

### A4055 Barry Road, between B4267 and A4160

- 2.3.15 This section of the A4055 Barry Road is subject to a 40mph speed limit, is predominantly dual carriageway and is street lit. The width of the carriageway ranges between 10m and 15m.

### Barons Court

- 2.3.16 This is a four-arm signal-controlled junction which forms the south-eastern extent of the study area. It comprises the A4160 Penarth Road (northern arm), A4055 (eastern arm), A4160 Cogan Hill (southern arm) and the A4055 Barry Road (western arm). ASLs and signalised pedestrian crossings are present on all approach arms of the junction. The A4160 Cogan Hill and both arms of the A4055 have three lanes at the stop line, with an additional left-turn filter lane. The A4160 Penarth Road has two lanes on approach, with an additional filter lane for the left-turn.

## 2.4 Walking and Cycling

- 2.4.1 **Section 2.3** identifies a number of junctions within the local highway network that have suitable provision for pedestrians and cyclists to enable walking and cycling trips to/from the site.
- 2.4.2 The B4267 Leckwith Road is the main walking/cycling link to/from the site. Between Leckwith Interchange and Ninian Park railway station, there are shared footways/cycleways present on both sides of the carriageway and the route is well-lit. There are also a number of uncontrolled pedestrian crossing facilities, which include refuge islands. Additionally, there are safety bollards present in the northeast-bound direction of the B4267 Leckwith Road, for approximately 50m east of Lawrenny Avenue.
- 2.4.3 Immediately northeast of the site, Leckwith Interchange contains a comprehensive network of toucan crossings and links to enable a safe range of movements by foot/cycle. Southwest of Leckwith Interchange, the B4267 largely contains footways on both sides of the carriageway, however in some sections, this is only present in the southbound direction.
- 2.4.4 The nearest National Cycle Route (NCR) is NCR 8 which runs in a north-south alignment through the City Centre. As mentioned above, the B4267 Leckwith Road provides for cycling with shared cycleways in both directions.

2.4.5 The Ely Trail is a predominantly off-road walking/cycling route that stretches approximately 11km between Cardiff Bay and St Fagans (located northwest of Leckwith). The route can be accessed from the B4627 Leckwith Road, immediately adjacent to the site and provides a largely traffic-free journey, giving potential users of the site a safe and convenient option for local travel. Movements between the northern and southern sections of the Ely Trail, across the B4267 Leckwith Road, are currently facilitated via an uncontrolled refuge crossing between the site and Leckwith Interchange.

2.4.6 Walking and cycling facilities on the local network are shown on **Figure 2.1**.

## 2.5 Local Facilities

2.5.1 The environment surrounding the site is largely comprised of leisure amenities and industrial employment. The Institution for Highways and Transportation's (IHT's) *Guidelines for Providing for Journeys on Foot*, published in 2000, identifies that 2km is the preferred maximum distance that people will walk for commuting purposes and journeys to school. Cycling is identified as having the potential to replace car trips for journeys up to 5km, which equates to approximately a 20-minute journey by bicycle. Based on this guidance, there are a number of local facilities in the vicinity of the site which can be considered accessible for pedestrians and cyclists. These are shown in **Figure 2.2**.

2.5.2 A range of facilities are within walking and cycling distance from the site, as shown in **Table 2.1**.

**Table 2.1: Local Facilities within Walking/Cycling Distance**

Type	Facility	Distance	Walking Time (minutes)	Cycling Time (minutes)
Education	Ysgol Gymraeg Pwll Coch	1,300	17	5
	Fitzalan High School	1,700	22	6
	Ninian Park Primary School	1,700	22	7
Employment	Capital Retail Park	700	9	3
	Hadfield Road Industrial Estate	1,100	15	4
	Royal Mail Cardiff Delivery Office	1,800	23	7
Health	Lansdowne Surgery	1,700	21	6
	Saltmead Medical Centre	2,500	32	10
Leisure	CISC	800	10	3
	DW Sports Gym	750	10	4
	CCFC	1,100	15	4
	Canton Rugby Football Club	1,200	15	4
Retail	Asda Supermarket with Petrol Station	550	7	2
	Capital Retail Park	700	9	3
	Lidl	900	11	4

*Note: Distances measured from the centre of the residential land use along existing/proposed routes.*

2.5.3 The B4267 Leckwith Road can be used to access the majority of facilities in the surrounding area, with a number of these being within acceptable walking/cycling distance. The site lies adjacent to a large amount of industrial employment space, which can be accessed directly via Leckwith Interchange and Hadfield Road. Overall, this will encourage greater uptake of journeys to essential facilities and services on-foot, as identified at paragraph 2.29 of *Guidelines for Providing for Journeys on Foot*. There are minimal attractors to the south of the site, meaning pedestrian/cyclist desires lines to/from the site will be primarily to/from the northeast.

## 2.6 Public Transport

2.6.1 Existing public transport services operating in the vicinity of the proposed development have been identified with reference to current timetable and routeing information.

## Bus

2.6.2 The IHT's *Guidance for Providing for Public Transport in Developments*, published in 1999, suggests 400m as the 'acceptable' walking distance to a bus stop. However, it states that this does not need to be slavishly adhered to, rather it is more important to provide services that are easy to understand and attractive to use. The nearest stops to the site are the 'Hadfield Road' bus stops located on the B4267 Leckwith Road. These are approximately 400m to the northeast of the location of the proposed site access, although some parts of the site are up to 550m from these bus stops.

2.6.3 **Figure 2.4** shows the locations of nearby bus stops, with the primary services to/from these stops summarised below in **Table 2.2**.

**Table 2.2: Bus Service Information**

Service	Route	Days	First Service	Last Service	Approximate Frequency
95	Barry Island - Heath Hospital via City Centre	Mon-Fri	06:45	21:33	30 minutes
		Sat	06:41	21:18	30 minutes
		Sun	09:45	18:40	Hourly
	Heath Hospital - Barry Island via City Centre	Mon-Fri	06:43	19:49	30 minutes
		Sat	06:48	19:49	30 minutes
		Sun	10:10	17:10	Hourly
95A	Penarth - Cardiff via Leckwith	Mon-Fri	08:08	18:17	30 minutes
		Sat	10:14	17:44	30 minutes
	Cardiff - Penarth via Leckwith	Mon-Fri	08:10	18:01	30 minutes
		Sat	09:59	17:29	30 minutes

### Notes:

1. Timetable information obtained from Cardiff Bus (September 2019).
2. Times for first/last service are the arrival/departure times at/from the 'Hadfield Road' bus stop.
3. All services are operated by Cardiff Bus. The 95A serves the Leckwith P&R.

2.6.4 Local services provide a good level of public transport accessibility to/from the site. Services between the site and the City Centre are frequent and run throughout the day. Average journey times to the City Centre are between 10-15 minutes. Cardiff Bus offer mobile ticket availability via their app, as well as on-board contactless payments and the option of reduced 'Short hop' fares for quick, local journeys.

## Rail

2.6.5 The nearest railway station is Ninian Park, which lies approximately 1.1km northeast of the site, roughly a 14-minute walk or 4-minute cycle using the B4267 Leckwith Road. Grangetown railway station provides an alternative option, located approximately 2.1km to the southeast of the site, which equates to roughly a 28-minute walk or 7-minute cycle via Hadfield Road and Penarth Road.

2.6.6 Facilities provided at Ninian Park and services to/from this station are summarised in **Tables 2.3** and **2.4** respectively.

**Table 2.3: Summary of Facilities at Ninian Park Railway Station**

Facility	Details
Car Parking	No
Disabled Car Parking	No
Taxi Rank	No
Cycle Storage	4 spaces
Staffing and Ticket Office Times	No
Self Service Ticket Machines	Yes
Step Free Access Coverage	Yes

Source: National Rail (December 2019).

**Table 2.4: Summary of Rail Services to/from Ninian Park Railway Station**

Direction	Days	First Service	Last Service	Approximate Frequency
To Cardiff Central	Mon-Fri	07:15	22:47	30 minutes
	Sat	07:15	22:15	30 minutes
From Cardiff Central	Mon-Fri	05:35	22:55	30 minutes
	Sat	07:06	22:55	30 minutes

Source: National Rail (September 2019). All services listed above are direct. Rail service frequencies subject to change.

2.6.7 Cardiff Central is the nearest strategic station for national railway services and is regularly accessible by services to/from Ninian Park. **Table 2.5** provides a summary of services to/from this station.

**Table 2.5: Summary of Rail Services to/from Cardiff Central Railway Station**

Direction	Days	First Service	Last Service	Approximate Frequency
To London Paddington	Mon-Fri	05:15	21:26	30 minutes
	Sat	04:55	20:26	Hourly
	Sun	08:05	20:52	Hourly
From London Paddington	Mon-Fri	05:07	23:30	30 minutes
	Sat	07:45	22:00	Hourly
	Sun	08:34	21:33	Hourly
To Manchester Piccadilly via Birmingham New Street	Mon-Fri	04:35	20:17	30 minutes
	Sat	04:35	20:10	30 minutes
	Sun	08:30	19:45	20-60 minutes
From Manchester Piccadilly via Birmingham New Street	Mon-Fri	05:11	21:36	30-60 minutes
	Sat	05:11	20:30	30-60 minutes
	Sun	08:27	20:30	30-60 minutes
To Swansea	Mon-Fri	05:35	00:54	10-30 minutes
	Sat	05:33	23:08	10-30 minutes
	Sun	09:56	23:58	15-60 minutes
From Swansea	Mon-Fri	03:54	22:32	10-30 minutes
	Sat	03:59	22:20	10-30 minutes
	Sun	07:53	23:31	15-60 minutes

Direction	Days	First Service	Last Service	Approximate Frequency
To Bristol Temple Meads	Mon-Fri	05:15	23:27	30 minutes
	Sat	04:55	22:47	30 minutes
	Sun	08:10	23:07	30 minutes
From Bristol Temple Meads	Mon-Fri	05:20	22:54	30 minutes
	Sat	06:45	22:55	30 minutes
	Sun	08:48	22:49	30-60 minutes

Source: National Rail (September 2019). Rail service frequencies subject to change.

- 2.6.8 In summary, services from Ninian Park to nearby Cardiff Central are regular, with a frequency of two trains per hour and an average journey time of approximately five minutes. Services begin early in the morning and finish late at night, ensuring a good provision to suit a wide range of commuting times. Passengers at Cardiff Central have access to frequent cross-regional services, with trains to London, Manchester, Swansea and Bristol running at least twice every hour on weekdays. Overall, this displays a very good provision of rail services to/from the site and surrounding area.

## 2.7 Summary

- 2.7.1 The site is located in Leckwith, approximately 2.5km to the southwest of the City Centre. It is bounded to the northeast by the Ely River and is otherwise surrounded by woodland. A grade-separated section of the B4267 Leckwith Road intersects the site in a north-south alignment. Capital Retail Park and the Hadfield Road Industrial Estate lie approximately 700m and 1.1km to the northeast/east of the site respectively.
- 2.7.2 The site is situated at the border of the VoG and the CCC. The part of the site to be developed for residential purposes is within the administrative area of VoG. Part of the access arrangements and proposed new bridge fall within the administrative area of CCC.
- 2.7.3 The existing site is operational and is currently used for a range of long running commercial/light industrial uses. It is accessed via a junction with the B4267 Leckwith Road, just north of the Ely River. This access also serves the Ely Trail, which is a predominantly off-road walking/cycling route. There is a bridge over the Ely River that connects the site and the access. The B4267 Leckwith Road connects to the A4232 at Leckwith Interchange, approximately 100m to the northeast of the site access.
- 2.7.4 The site benefits from existing provision for pedestrians and cyclists in the locality, including shared footways/cycleways on both sides of the B4267 Leckwith Road, a comprehensive network of crossing facilities, and neighbouring off-road routes. Employment areas and a range of local facilities are located within walking and cycling distance of the site.
- 2.7.5 Regular bus services are accessible from bus stops located on the B4267 Leckwith Road; whilst parts of the site are slightly beyond the IHT's suggested 'acceptable' walking distance, this is not considered to be a significant barrier given the frequency of services and provision of pedestrian links between the site and the bus stops. Ninian Park railway station is located around 1.1km from the site and provides regular services to Cardiff Central, which in turn provides access to regular services to wider destinations such as London, Manchester, Swansea and Bristol.

## Development Proposals

### 3.1 Introduction

3.1.1 This section of the report provides a description of the development proposals, including the site access strategy.

### 3.2 Overview of Proposals

3.2.1 The indicative site layout is included at **Appendix A**. The proposal is for the redevelopment of an existing brownfield site for residential uses (circa 250 dwellings), and a new bridge that spans over the River Ely and the site itself, along the alignment of the existing B4267 Leckwith Road.

3.2.2 The layout shows that the site comprises two development parcels on the west side of the river, either side of the B4267 Leckwith Road. The north-western parcel of the developed proportion of the proposed site is intended to contain up to around 80 dwellings, and the south-eastern parcel up to 170 dwellings.

3.2.3 The internal site layout and housing mix will be the subject of a reserved matters application. **Table 3.1** summarises the indicative housing mix in the Design and Access Statement (DAS) (included in the planning submission) on the two development parcels. This is indicative at this current time and all assessments carried out are robust.

**Table 3.1: Indicative Housing Mix in Design and Access Statement**

Development parcel	Dwelling Type	No of Dwellings
Northwest	2-bed apartment	68
	3-bed house	19
	<b>Sub Total</b>	
Southeast	2-bed apartment	45
	2-bed duplex	28
	3-bed duplex	32
	3-bed house	29
	4-bed house	7
	<b>Sub Total</b>	
		<b>Total</b>

### 3.3 Access Strategy

3.3.1 The proposed access strategy is shown at **Appendix B**.

3.3.2 The proposals include the realignment of the B4267 Leckwith Road and construction of a replacement bridge over the Ely River. This is required to not only provide access to the site, but also to maintain a key highway link between VoG and CCC. The existing bridge is reaching the end of its service life and, without a replacement, a link to Leckwith Interchange cannot be maintained.

3.3.3 Non-provision of a replacement bridge and closure of this link to Leckwith Interchange would inevitably result in a significant reassignment of traffic across the network. Whilst this could have a benefit to Leckwith Interchange, it would likely have significant detrimental performance implications for other junctions in the VoG and CCC, such as Merrie Harrier, Barons Court and Culverhouse Cross. A replacement bridge, which can be secured as part of the proposed development, is therefore crucial to maintaining this key highway link and network performance.

- 3.3.4 The access strategy involves the provision of a new signal-controlled crossroads junction, to be located on the realigned B4267 Leckwith Road. This will provide access for vehicles, pedestrians, and cyclists associated with both development parcels. The proposed access arrangements have been prepared in conjunction with the replacement bridge by the highway designer (WSP) following consultation with the VoG, and a comprehensive options assessment.
- 3.3.5 Both approach arms of the B4267 Leckwith Road will provide a one lane approach, which includes flaring to two lanes at the stop line. The nearside lanes will provide for ahead and left-turn movements, and the offside lanes will provide right-turn storage to facilitate movements to the site access arms. The site access arms will have one lane for all movements at the stop line. All arms will provide ASLs for cyclists.
- 3.3.6 The replacement bridge over the Ely River will be required in the short term to ensure that a connection to Leckwith Interchange is maintained. A 3.5m shared footway/cycleway is proposed to be provided on the northern side of the carriageway, between the proposed site access junction and the Ely Trail, and will continue northeast to tie-in with provision at Leckwith Interchange. A 2m footway will be provided on the southern side, between the proposed site access junction and the Ely Trail. Northeast of this, the footway will widen to 3.5m to provide a shared footway/cycleway to tie-in with the existing provision at Leckwith Interchange. These design features maximise opportunities for pedestrian/cyclist provision/connections within the constraints of the realignment and bridge construction, and will ensure that existing links between Leckwith Interchange and the Ely Trail are maintained and new provision is an improvement for all modes of travel including buses, cyclists and pedestrians.
- 3.3.7 A toucan crossing facility will be provided where the Ely Trail meets the B4267 Leckwith Road, therefore allowing for controlled crossing movements between the northern and southern sections of the Ely Trail. This will represent a significant betterment over the existing provision, which comprises an uncontrolled, refuge crossing.
- 3.3.8 The existing listed bridge, which currently provides vehicular access to the site, is proposed to become a pedestrian/cycle link, connecting the south-eastern development parcel with the Ely Trail. This will provide convenient, off-carriageway connections to the Ely Trail and Leckwith Interchange, and will also provide the opportunity for southbound through-movements to be undertaken off-carriageway.
- 3.3.9 South of the proposed site access junction, the realigned section of the B4267 Leckwith Road is proposed to provide a 3.5m shared footway/cycleway on the eastern side of the carriageway; this will extend south from the site access arm (serving the south-eastern development parcel) for a distance of approximately 300m, where it will tie-in with the existing footway. A 2m footway will be provided on the western side of the carriageway; this will extend south from the site access arm (serving the north-western development parcel) for a distance of approximately 250m, where it will tie-in with the existing footway.
- 3.3.10 The proposals for the shared footway/cycleway south of the proposed site access junction, combined with those listed above, provides the opportunity for through movements by southbound cyclists to be undertaken off-carriageway (via the pedestrian/cycle link using the listed bridge). However, it is recognised that some southbound cyclists may wish to take the direct on-carriageway route through the junction. The design includes provision for this through the following:
- Dropped kerb where the shared footway/cycleway between the Leckwith Interchange and Ely Trail becomes a footway (on the south side of the replacement bridge), allowing southbound cyclists to drop onto the carriageway; and
  - Dropped kerb south of the proposed site access junction, allowing southbound cyclists routeing on-carriageway through the junction to join the new section of shared footway/cycleway.
- 3.3.11 The access strategy provides the following in terms of pedestrian/cyclist crossing provision at the proposed site access junction:
- Uncontrolled refuge crossings on both arms of the B4267 Leckwith Road, therefore allowing crossing movements to be undertaken in two stages. The width of the refuge on the north-eastern arm is sufficient to accommodate pedestrians, but not cyclists, which will be accommodated by a wider refuge on the south-western arm; and



- Uncontrolled crossings on both site access arms, set back within the development. This will be appropriately spaced from the junction and will incorporate a raised table to indicate pedestrian/cyclist priority as well as a traffic calming feature on entry into the development.

3.3.12 The rationale for this level of provision is as follows:

- To the south of the junction, locations within walking distance of the site are limited to occasional dwellings rather than major generators/attractors. Crossing demand on the site access arms and across the B4267 (Southwest) arm is therefore likely to be limited. Residents routeing south will likely follow the footway on the corresponding side of the site access (removing the need to cross), rather than crossing to the opposite side of the carriageway; and
- Pedestrian/cyclist movements between the two development parcels are likely to be small/occasional. Whilst there will be cyclist demand between the north-western development parcel and the Ely Trail, the connection via the proposed shared footway/cycleway on the north side of the replacement bridge is viewed as far more direct and is therefore likely to be the preferred route.

3.3.13 It is considered that the above provision, in combination with the features identified in paragraphs 3.3.1 to 3.3.10, ensures an access strategy that sufficiently accommodates key pedestrian/cyclist desire lines without compromising performance of the Leckwith Interchange.

### 3.4 Internal Site Layout

3.4.1 The internal site layout will be the subject of a reserved matters application. This will be designed in a manner which facilitates walking and cycling and provides for disabled users. The DAS included with the planning submission sets out a clear hierarchy of streets to create a legible road and path network. From the proposed site access junction, the primary residential roads (measuring 5.5m wide in the vicinity of the junction) distribute traffic and pedestrians into the development, and accommodate several different dwelling and parking types, before branching off to secondary residential roads to access further dwellings. The two site parcels are essentially cul-de-sacs and the layout will ensure that appropriate slow speed vehicle circulation is inherent in the design. Separated pedestrian and cycle routes run along a riverside walkway, as well as alongside the main vehicular routes. Shared surfaces are proposed to encourage low vehicle speeds and to infer priority to pedestrians and cyclists.

### 3.5 Parking Provision

3.5.1 Proposed car, motorcycle and bicycle parking will be set out at the time of the reserved matters applications. **Table 3.2** summarises the current adopted car parking standards for both the VoG and CCC (as discussed at **Section 4**) applied to the indicative housing mix at **Table 3.1**. Standards are expressed as a 'maximum'.

**Table 3.2: Maximum Parking Provision based on Adopted Standards**

Authority	Category	Standard	Indicative Housing Mix
VoG	Standard	One space per bedroom up to a maximum of three spaces per dwelling	543 spaces
	Visitor	One space per five dwellings	46 spaces
	<b>Total</b>		<b>589 spaces</b>
CCC	Standard	One space per bedroom up to a maximum of two spaces per dwelling	456 spaces
	Visitor	No specific requirement	-
	<b>Total</b>		<b>456 spaces</b>

3.5.2 **Table 3.2** suggests a maximum car parking provision of 456 spaces (CCC standards) to 589 spaces (VoG standards).

- 3.5.3 The indicative layout provides for 300 car parking spaces, of which 249 are allocated and 51 are unallocated/for visitors. The DAS states that every dwelling within the proposed development will have at least one allocated parking space, accommodated in a combination of private driveways, integrated garages, on-street parking, and undercroft parking courts. Larger dwellings will have two allocated parking spaces. The level of provision shown is therefore within the 'maximum' provision allowed by standards. Whilst the indicative provision equates to only 50-65% of the 'maximum', this will serve to discourage excessive car ownership. Furthermore, it should be noted that, due to the location of the site on the edge of a highly sustainable location, in its scoping response, the CCC stated that *"would support the use of reduced car parking standards to deter the potential for car-borne traffic being used to access Cardiff."*

## 3.6 Summary

- 3.6.1 This chapter has provided a description of the development proposals, including the site access strategy.
- 3.6.2 The proposal is for the redevelopment of an existing brownfield site for residential uses (circa 250 dwellings), spread across two development parcels, either side of the B4267 Leckwith Road, and a new bridge along largely the alignment of the existing B4267 Leckwith Road. The north-western parcel of the developed proportion of the proposed site is intended to contain up to around 80 dwellings, and the south-eastern parcel up to 170 dwellings. The current masterplan layout is indicative, and the level of development set out is considered robust.
- 3.6.3 The proposals include the realignment of the B4267 Leckwith Road and construction of a replacement bridge over the Ely River. This is required to not only provide access to the site, but also to maintain a key highway link between VoG and CCC. The existing bridge is reaching the end of its service life and, without a replacement, a link to Leckwith Interchange cannot be maintained. Non-provision of a replacement bridge and closure of this link to Leckwith Interchange would inevitably result in a significant reassignment of traffic across the network. Whilst this could have a benefit to Leckwith Interchange, it would likely have significant detrimental performance implications for other junctions in the VoG and CCC. A replacement bridge, which can be secured as part of the proposed development, is therefore crucial to maintaining this key highway link and network performance.
- 3.6.4 The access strategy involves the provision of a new signal-controlled crossroads junction, to be located on the realigned B4267 Leckwith Road. This will provide access for vehicles, pedestrians, and cyclists associated with both development parcels. The proposed access arrangements have been prepared in conjunction with the replacement bridge by the highway designer (WSP) following consultation with the VoG and a comprehensive options assessment. Two options of the design have been prepared and tested; the design which is proposed (Option 2) provides a design that does not adversely affect the operation of Leckwith Interchange, whilst ensuring that there is an appropriate level of provision for pedestrian/cyclist movements.
- 3.6.5 The internal site layout will be the subject of a reserved matters application. The DAS included with the planning submission sets out a clear hierarchy of streets to create a legible road and path network. The development has been designed as a walkable neighbourhood; the network of footways on-site and network of footways/cycleways created as part of the access arrangements will create a range of travel options both on-road and as traffic free routes. Footways and cycleways alongside the carriageway will be provided at high quality with clear spaces for non-motorised travel. The layout and design of the site has focused on the strength of its sustainable location, the proposals include re-purposing the existing listed bridge for a walking and cycling route. In addition to this the proposals fully exploit the site's position adjacent the Ely Trail and includes enhancements which make pedestrian and cyclists crossings safer and more convenient.
- 3.6.6 Parking will also be set out at the reserved matters stage; the potential level of car parking identified by the DAS falls within the 'maximum' standards specified by the DAS.

## Action Plan

### 4.1 Introduction

4.1.1 **Section 3** summarises the physical measures that are to be provided by the developer as part of the residential build out and the overall masterplan for the site. In addition to the hard measures to be put in place, the developer will also fund the role of a Travel Plan Coordinator (TPC) as well as a number of upfront sustainable travel initiatives.

4.1.2 Further details of the sustainable travel measures and initiatives are set out in this section.

### 4.2 Travel Plan Coordinator

4.2.1 The TPC has a critical role in ensuring that the TP is implemented, managed, monitored and reviewed over time. The TPC will coordinate the ongoing development and management of the TP, including further measures, raising awareness, monitoring and review.

4.2.2 The TPC will be appointed a minimum of six months prior to first occupation of the development. Contact details of the TPC will be provided to the VoG/CCC immediately upon appointment. The TPC will have appropriate knowledge of TPs and the principles of promoting sustainable travel.

4.2.3 The role of the TPC will include:

- Acting as a point of contact;
- Marketing and promoting the TP;
- Providing sustainable travel information to residents;
- Monitoring and reviewing the TP;
- Liaison with the VoG/CCC, transport operators and specialist groups; and
- Arranging for travel surveys to be undertaken of residents on the site.

4.2.4 The role of the TPC will be in place for a period of up to five years following completion of the development.

### 4.3 Sustainable Travel Measures

#### Travel Information Pack

4.3.1 A Travel Information Pack (TIP) will be prepared by the TPC prior to first occupation of the development. It will include information on alternative modes to SOV use. It will also explain the accessibility to surrounding areas and facilities including those provided as part of the development.

4.3.2 The TPC will keep the TIP up to date to reflect changes, for example when revised bus timetables are issued, and maintain records of distribution. TIPs will be provided to new residents prior to moving in. It is widely recognised that the best time for people to change their travel habits is key life change events such as when moving house or job. By giving all new residents a TIP before their relocation, there is an opportunity to encourage sustainable travel choice prior to travel patterns becoming ingrained.

4.3.3 As a minimum, the TIP will include:

- Local facilities map;
- Maps and information on local walking and cycling routes;
- Details of the most recent bus and rail timetables;
- Details of public transport discounted fares/season tickets;
- Information on local taxi and hire car companies;
- Information on the availability of Car Club cars in the local area;

- Delivery services by local retailers;
- Car sharing initiatives;
- Information on marketing and promotional events at a national and local level; and
- Links to smarter travel websites such as Traveline Cymru.

### Community Notice Board

- 4.3.4 A Community Notice Board (CNB) providing travel and community information to residents will be provided at a prominent location(s) within the residential development. This will display similar information to that contained within the TIP and promote any forthcoming travel initiatives or events. It will also include the contact details of the TPC.
- 4.3.5 The CNB will act as a point of reference for all residents on all aspects of the TP and will be updated by the TPC to coincide with updates to the TIP, thus ensuring that all information provided to residents is up to date.

### Walking and Cycling

- 4.3.6 The TIP will include details of and links to walking and cycling routes, local walking and cycling clubs, and cycle training. It will also include links to online journey planners such as Traveline Cymru to allow residents to make informed choices of the most appropriate mode for their journey.
- 4.3.7 Providing residents with information on the health benefits of walking can serve to encourage more people to actively engage in this initiative. 'Walking for Health Cardiff' ([www.cardiffwalkingforhealth.org](http://www.cardiffwalkingforhealth.org)) has been identified as a useful resource that will be provided to residents via the TIP.
- 4.3.8 Promoting national events such as 'National Walking Month' and 'National Bike Week' can act as a catalyst for those who have considered walking and cycling. The combination of other initiatives with these events can create a multiplier effect.
- 4.3.9 The TPC will also liaise with the VoG/CCC to establish if there are any events or disruption caused by ongoing development work on the site which may affect pedestrian and cyclist movements.

### Public Transport

- 4.3.10 The proximity of the local bus stops and railway station offers a significant opportunity for the increase in mode share for public transport. There are a number of measures which could help to achieve this.
- 4.3.11 Traveline Cymru offers an effective journey planning tool for bus, coach and train journeys across Wales. Similar services are provided by Cardiff Bus ([www.cardiffbus.com](http://www.cardiffbus.com)) and National Rail ([www.nationalrail.co.uk](http://www.nationalrail.co.uk)) as well as information on any service changes or disruptions. Useful links will be included via the TIP.
- 4.3.12 The TPC will promote the Cardiff Bus IFF app via the TIP and CNB. The app allows passengers to pre-pay for their bus ticket, so they do not have to carry the correct change. The app is available on both iPhone and Android smartphones.

### Car Sharing

- 4.3.13 The most unsustainable mode of transport is the single occupied car. Car sharing, when two or more people share a car and travel together, can result in considerable cost savings and other benefits. Car sharing not only reduces an individual's transport costs, by fuel costs being shared, but also reduces the number of cars on the roads, provides a real solution to transport problems of rural areas and reduces the need for a private car.
- 4.3.14 Details of local car share schemes such as 'Share to Cardiff' ([www.carshare2cardiff.com](http://www.carshare2cardiff.com)) could be provided to residents via the TIP and CNB. Participation in this scheme as well as other car share initiatives would be measured and reviewed by the TPC through mode share targets. The TPC could also set up a private group for residents within the 'Share to Cardiff' website.

### Working from Home

- 4.3.15 Working from home can reduce the need to travel but requires agreement of the employer and the required facilities in place in the home. In order to encourage working from home, the developer will ensure that each dwelling is provided with the potential to connect to local internet infrastructure.

## Targets and Monitoring

### 5.1 Introduction

- 5.1.1 This section sets out initial targets for the TP including the monitoring strategy. The setting of targets and monitoring is important to establish whether the initiatives of the TP are proving successful.

### 5.2 Mode Share and Targets

- 5.2.1 Mode share targets are used to evaluate the success of the TP and to identify areas on which further measures should be focused to drive travel behaviour change. In order to set targets, a valid baseline needs to be established.
- 5.2.2 The mode share has been calculated using the 2011 Census 'Method of travel to work' dataset for the 'Cardiff 040' and 'The Vale of Glamorgan 006' Middle Super Output Areas (MSOAs); these MSOAs comprise the site/existing residential development neighbouring the site and are therefore considered to provide a good indication of the mode share of the proposed residential development. However, this only covers trips for employment purposes. Trips for other purposes are likely to be more local and therefore have a higher share of sustainable modes such as walking. Further analysis has therefore been undertaken of the National Travel Survey (NTS), which identified a significantly lower proportion of people 'driving a car or van'. This is potentially due to the inclusion of larger conurbations within the dataset where levels of walking, cycling and public transport are higher. An average of the two datasets has been calculated, as shown in **Table 5.1**, resulting in a mode share of 51% for 'driving a car or van'.

**Table 5.3: Weekday Mode Share**

Mode	Mode Share		
	Census	NTS	Average
Public transport	14%	8%	11%
Taxi	0%	1%	1%
Motorcycle, scooter or moped	1%	0%	0%
Driving a car or van	62%	40%	51%
Passenger in a car or van	5%	21%	13%
Bicycle	4%	2%	3%
On foot	13%	27%	20%
Other	0%	1%	1%
<b>Total</b>			

**Notes:**

1. Summation errors due to rounding.
2. 2011 Census mode shares based on average of the 'Cardiff 040' and 'The Vale of Glamorgan 006' MSOAs.
3. NTS mode shares based on Table NTS0303 of the NTS, 2018.

- 5.2.3 The target will be to reduce the 'car driver' mode share by 10% (from 51% to 41%) over five years, consistent with Smarter Choices' report *Changing the way we travel* (2004). Following the baseline travel survey this target can be confirmed or adjusted as appropriate, following discussion between the TPC and the VoG/CCC.

### 5.3 Travel Plan Monitoring

- 5.3.1 Monitoring of the TP will be required for five years following a level of occupancy to be agreed with the VoG/CCC.

- 5.3.2 Prior to occupation of the development the actual travel patterns of residents are not known. This will be determined by a baseline travel survey to be undertaken following full occupancy. Monitoring surveys will be undertaken for a five-year period from the date of the baseline travel survey. They will be undertaken one, three and five years after the date (or close to the date) of the baseline travel survey. However, the TPC will aim to avoid undertaking the surveys during sustained periods of inclement weather or when there is significant disruption to the local road or rail network.
- 5.3.3 The survey will be undertaken using an online questionnaire to be completed by residents to establish the reasons for travel choice and potential measures to encourage consideration of alternatives. The results of the travel surveys will be analysed and the factors influencing travel behaviour will be investigated by the TPC. An incentive could be offered to residents in order to achieve a reasonable response rate, to be agreed with the VoG/CCC. The survey will be primarily web based but paper copies will also be made available to those residents should they prefer. The content of the survey will be agreed with the VoG/CCC.
- 5.3.4 The results of the surveys will form the basis of monitoring reports identifying the success of the procedures implemented in achieving the targets agreed with the VoG/CCC. The reports will be provided to the VoG/CCC for comment. The results will also be reported to residents via TIP update notes.

## 5.4 Remedial Measures

- 5.4.1 In the event that the TP is shown to be underachieving during the monitoring period, a remedial strategy needs to be outlined, which considers measures to help get the TP 'back on track'. Remedial measures are intended to achieve mode shift and mitigate the impact of any under achievement in meeting targets.
- 5.4.2 A set of potential remedial measures, to be triggered in the event that measures mentioned above fail to meet the required TP targets, could include the following:
- Extend appointment of TPC and monitoring for up to a further five years;
  - More active marketing and promotion of sustainable travel information;
  - Offer Personal Travel Planning to residents; and
  - Liaise with the VoG/CCC and bus operators on a potential bus voucher scheme for new residents.
- 5.4.3 The remedial measures are different to the TP measures, and the exact nature of what, if any, remedial measures are required will be identified through the monitoring and review process in conjunction with the VoG/CCC.

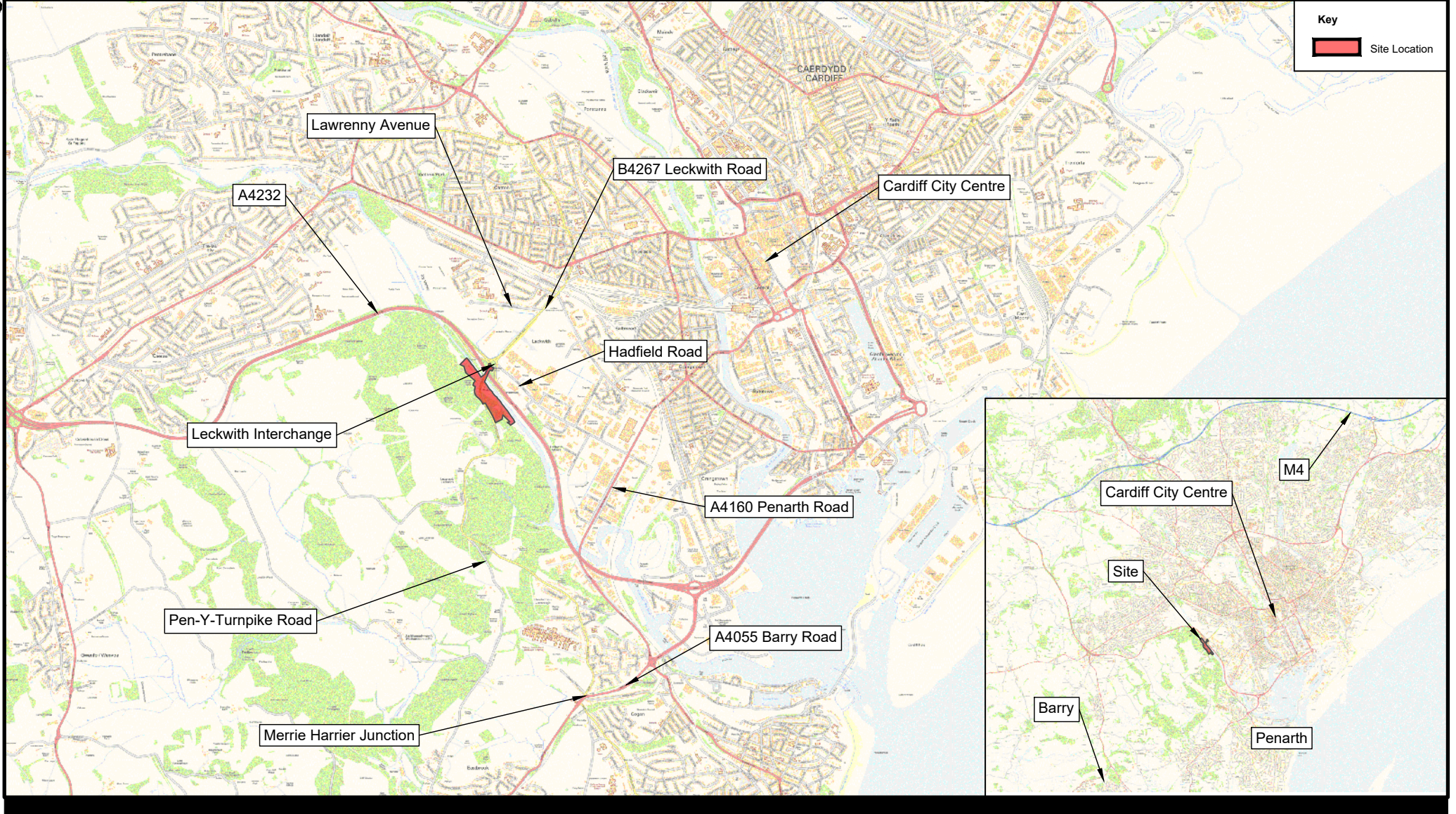
## 5.5 Overall Summary and Conclusions

- 5.5.1 This Outline TP relates to a proposed development of up to 250 dwellings. It will be developed into a Full TP once the scheme layout detail progresses. It has been prepared in accordance with both national and local government guidance. It has set out a package of measures to encourage the use of sustainable travel modes in favour of SOV use. These comprise physical measures that are to be provided by the developer as part of the scheme construction, as well as a number of sustainable travel initiatives. Appropriate targets have been established and a strategy put in place to monitor the success of the TP.

## Figures



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# Leckwith Quays, Cardiff

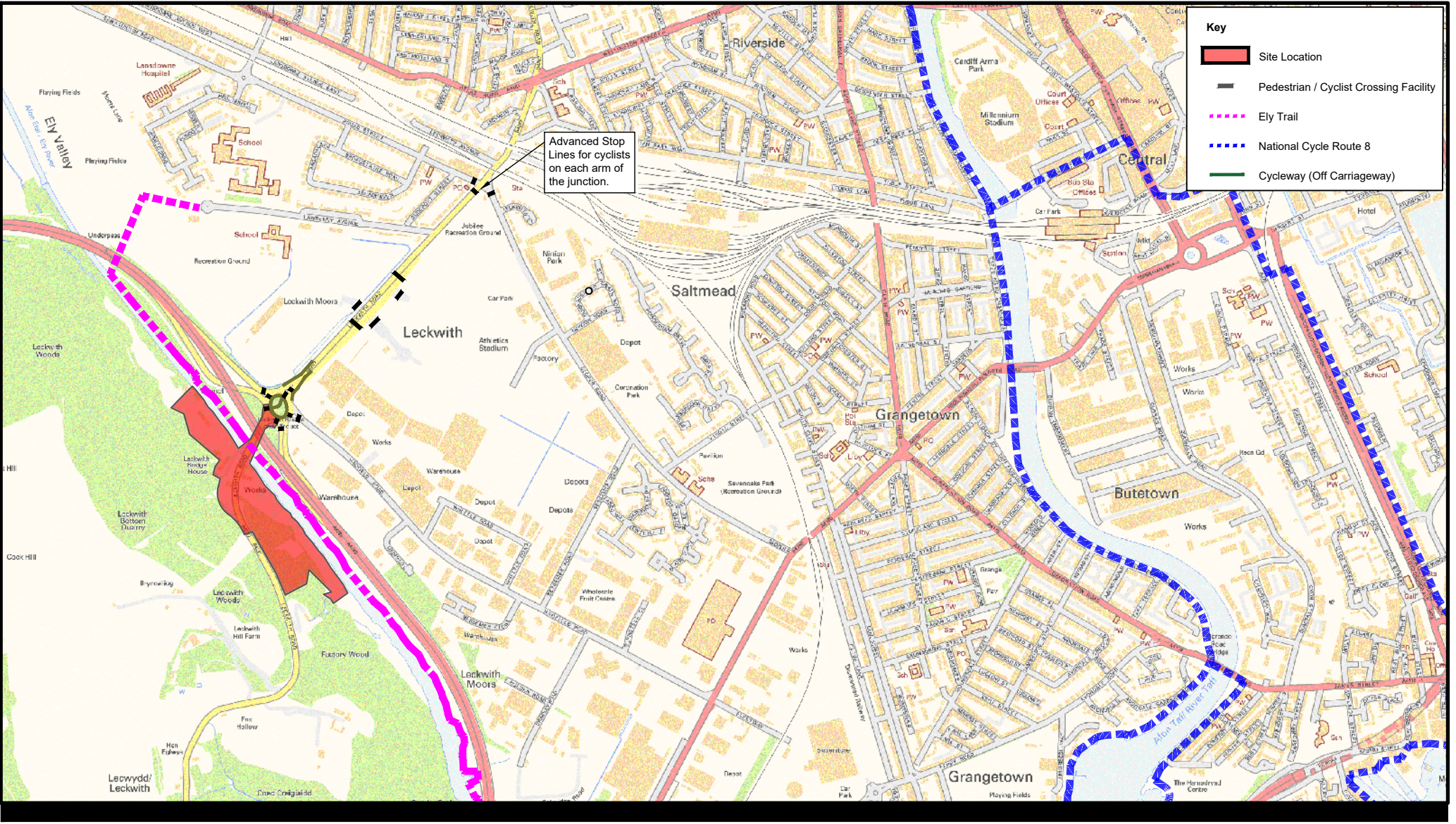
## Outline Travel Plan

Figure 1.1: Location Plan and Local Highway Network



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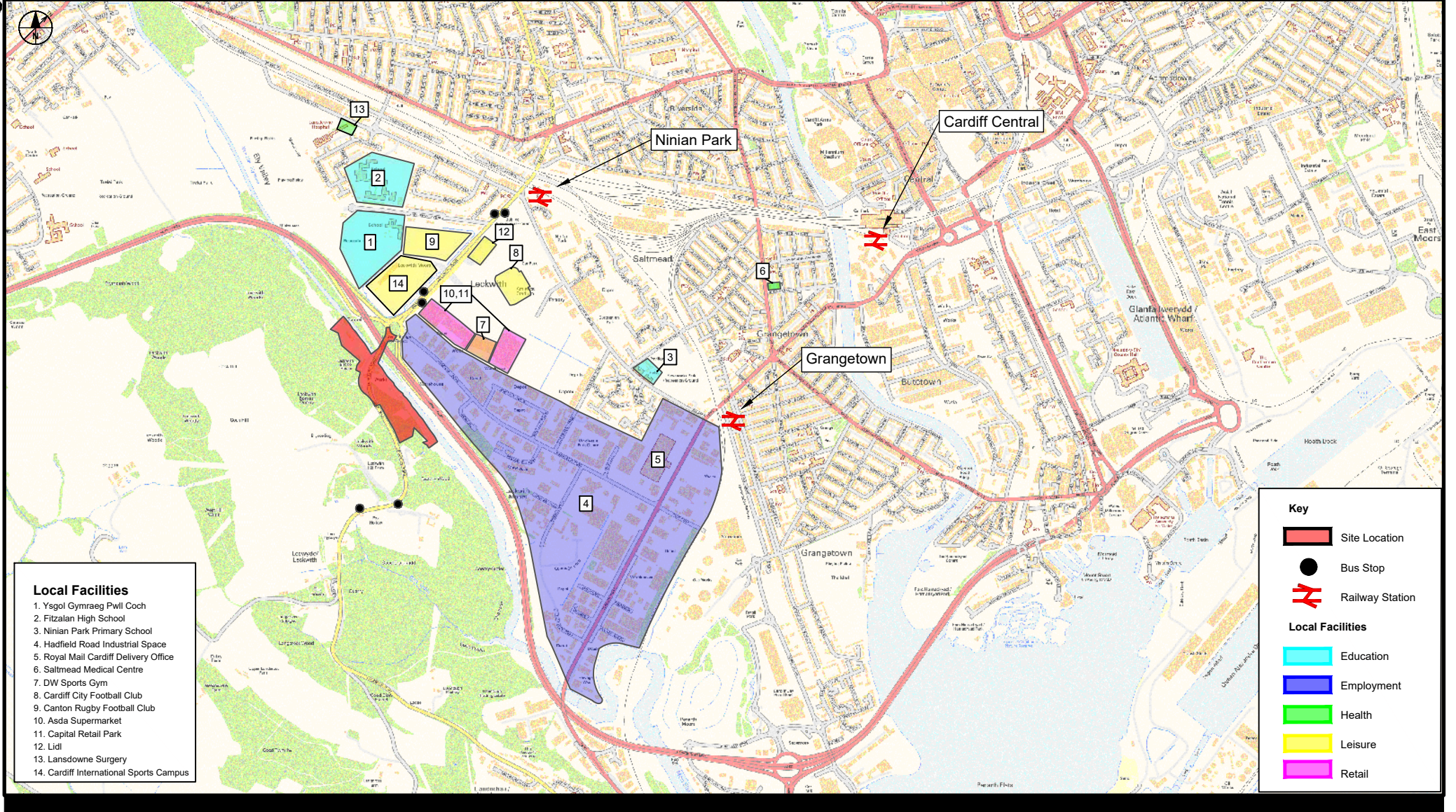
# Leckwith Quays, Cardiff

## Outline Travel Plan

Figure 2.1: Walking and Cycling Facilities



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# Leckwith Quays, Cardiff

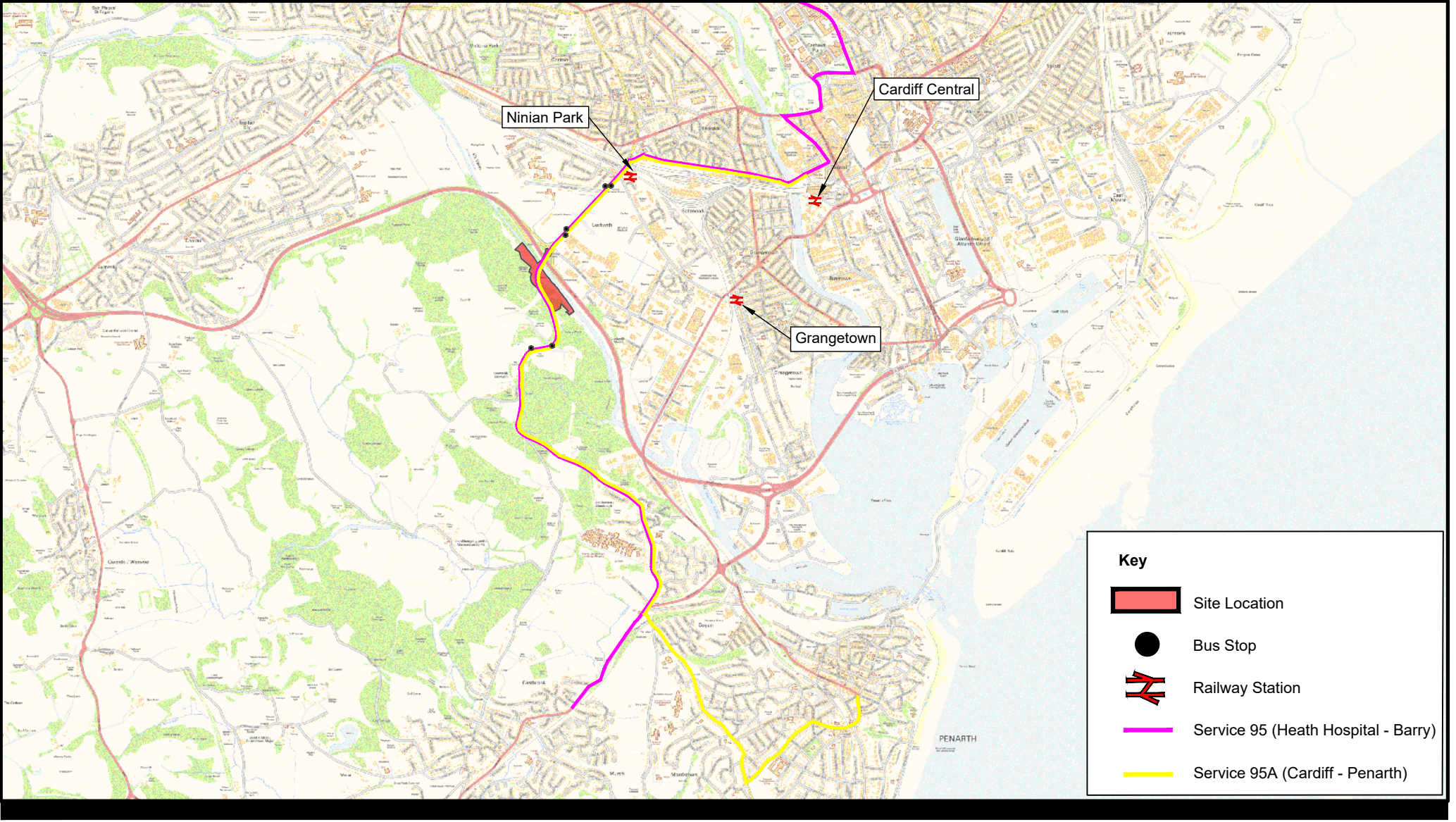
## Outline Travel Plan

Figure 2.2: Local Facilities Plan



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# Leckwith Quays, Cardiff

## Outline Travel Plan

Figure 2.3: Bus Services Plan



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## Appendix A: Site Layout

- BLOCK A  
50no. 2B 4P apartments  
Dwelling size average: 70m<sup>2</sup>
- BLOCK B  
19no. 3B 5P houses (HOUSE TYPE B)  
Dwelling size average: 116m<sup>2</sup>  
18no. 2B 4P duplex (Duplex Dwelling Type 7)  
Dwelling size average: 73m<sup>2</sup>
- BLOCK C  
31no. 2B 4P apartments  
Dwelling size average: 70m<sup>2</sup>
- BLOCK D  
28no. 2B 4P duplex  
(Duplex Dwelling Types 1 + 2)  
Dwelling size average: 94m<sup>2</sup>
- BLOCK E  
18no. 3B 5P duplex (Duplex Dwelling Types 3 + 4)  
Dwelling size average: 113m<sup>2</sup>
- BLOCK F  
14no. 2B 4P duplex  
(Duplex Dwelling Type 5)  
Dwelling size average: 81m<sup>2</sup>  
14no. 3B 5P duplex  
(Duplex Dwelling Type 6)  
Dwelling size average: 118m<sup>2</sup>
- HOUSE TYPE A  
7no. 3B 5P houses  
Dwelling size average: 125m<sup>2</sup>
- HOUSE TYPE C  
8no. 3B 5P houses  
Dwelling size average: 96m<sup>2</sup>
- HOUSE TYPE D  
7no. 4B 7P houses  
Dwelling size average: 165m<sup>2</sup>
- HOUSE TYPE E  
14no. 3B 5P houses  
Dwelling size average: 178m<sup>2</sup>

DWELLING MIX:

Apartments	95
Duplex Dwelling	78
Houses	55
<b>TOTAL</b>	<b>228</b>

PAC SUBMISSION

1844/S.102

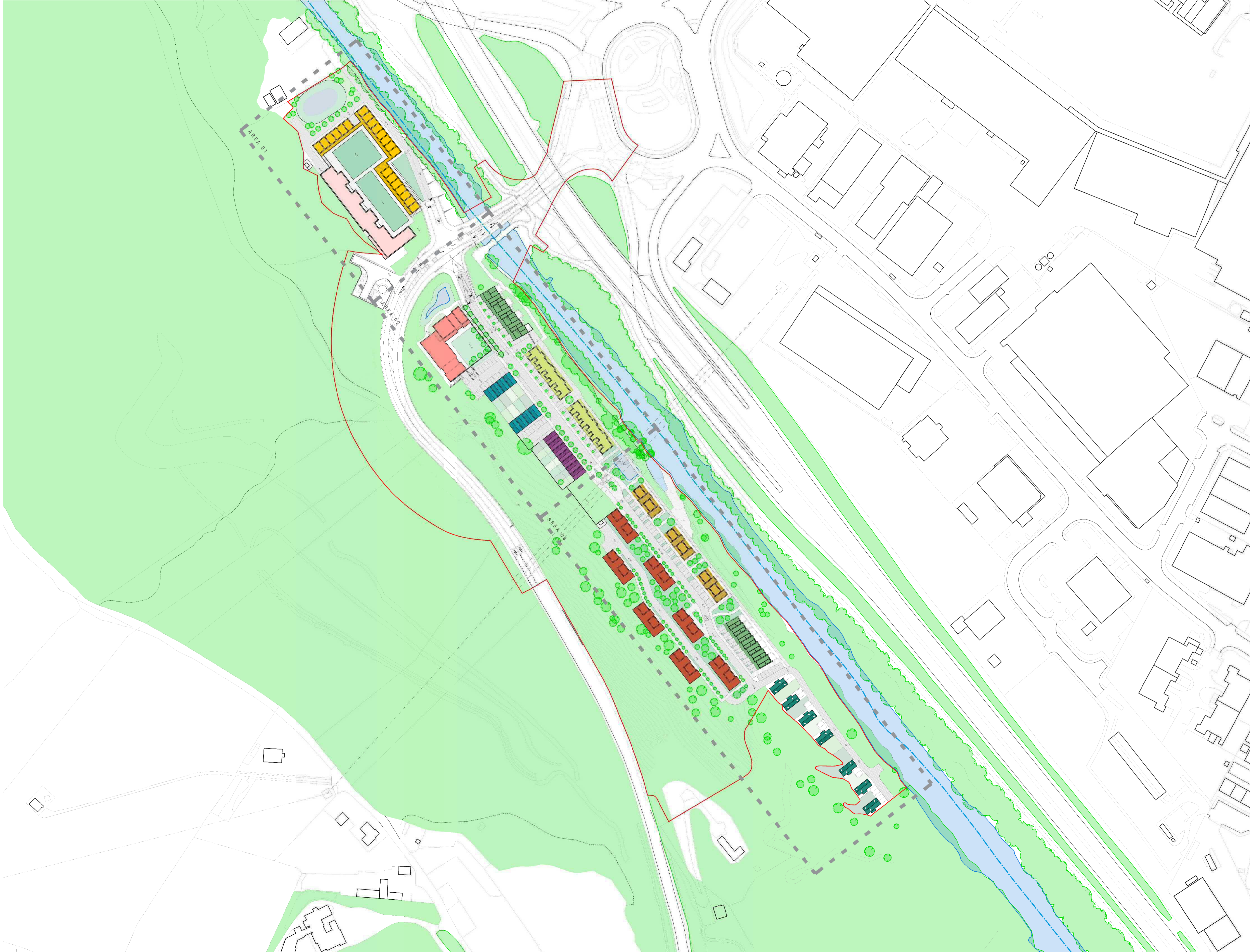
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PROPOSED MASTERPLAN

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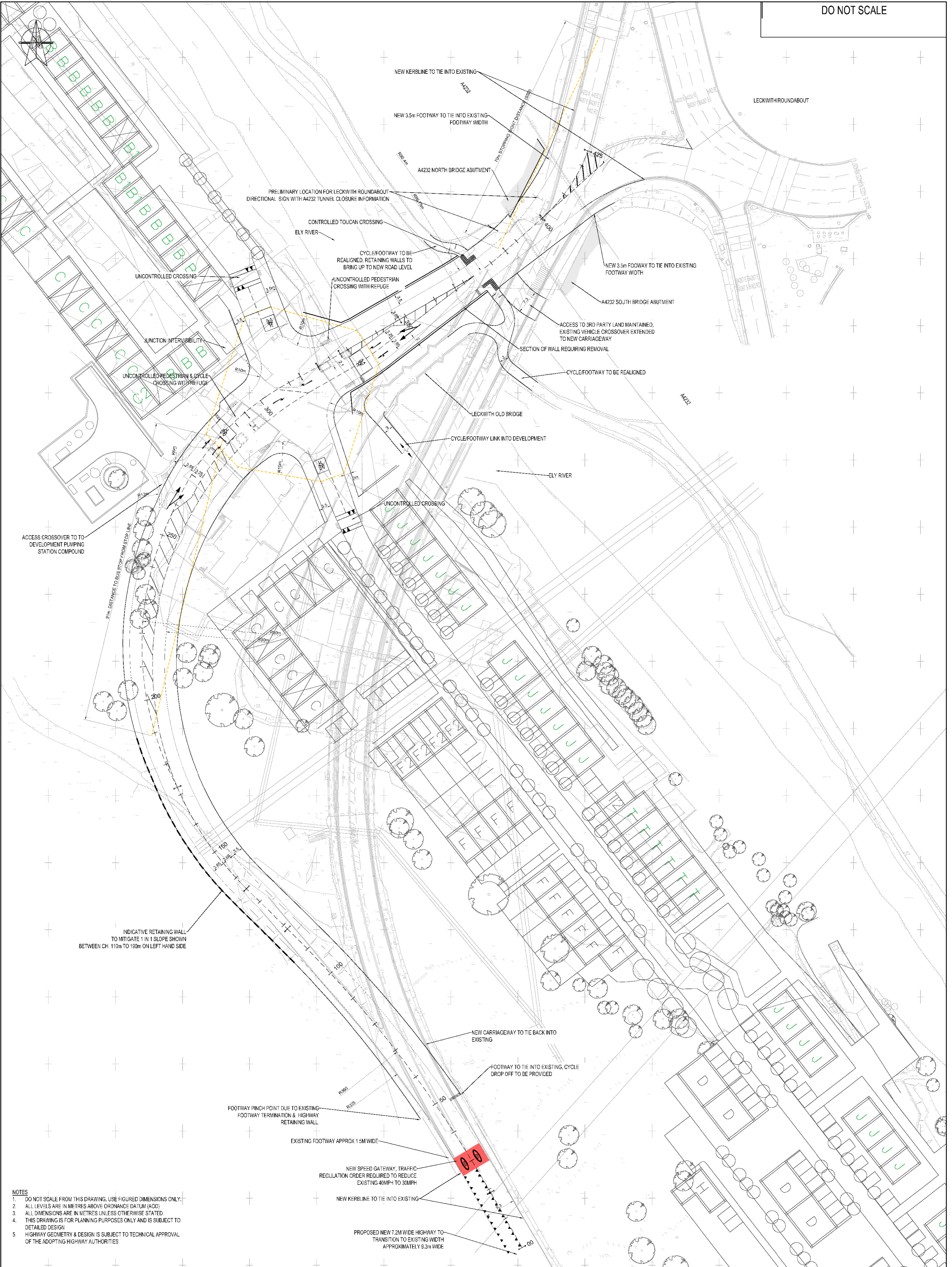
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## **Appendix B:**

### **Site Access – Proposed Design (Option 2)**



- NOTES**
1. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
  2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (AOD).
  3. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
  4. THIS DRAWING IS FOR PLANNING PURPOSES ONLY AND IS SUBJECT TO DETAILED DESIGN.
  5. HIGHWAY GEOMETRY & DESIGN IS SUBJECT TO TECHNICAL APPROVAL OF THE ADOPTING HIGHWAY AUTHORITIES.

DRAWING STATUS: **DRAFT - FOR PLANNING**



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PROJECT: **LECKWITH QUAYS**

TITLE: **HIGHWAY GENERAL ARRANGEMENT  
OPTION 2**

SCALE @ A1: 1:500	CHECKED: AW	APPROVED: GW
PROJECT NO: 70053561	DESIGNED: SID	DATE: September 19
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