



Chapter 23.0

Onshore Transport

23.0 Onshore Transport

23.1 Overview of existing situation

23.1.0.1 The existing transport situation has been summarised by highway network, public transport links and walking / cycling links for each of the potential landfall locations. The east and west landfall locations have been set out separately. At this stage, the landfall locations are approximate and a review has been undertaken of the likely routes which would be used to access the approximate landfall locations.

23.1.0.2 The approximate landfall location plans are shown in Figures 23.1 and 23.2 along with the potential route options to each of these locations. These are options at this stage and a detailed access route study would be undertaken for each site location at the earliest opportunity which would set out the constraints and solutions for each of the proposed routes.

Western Landfall Location, Port of Cardiff

23.1.0.3 The western landfall location is within the docks area of Cardiff. There are two potential main access routes to the site via Rover Way from the east and the A4232 from the west following the implementation of the proposed Eastern Bay Link. The routes are indicated in Figure 23.1. Both of these routes currently accommodate significant levels of HGV traffic and are not environmentally sensitive routes. As such the routes are both suitable for accommodating two-way HGV movements to and from the strategic highway network. Rover Way links to the A48 dual carriageway at a grade-separated junction and the A4232 is dual carriageway and links to the M4 at J33.

23.1.0.4 The Wales Coast Path public right of way (PRoW) crosses Rover Way within the vicinity of the docks to the east of the Ocean Way roundabout. There is no existing crossing facility for the route.

23.1.0.5 The Project is unlikely to have a significant environmental effect on routes which already carry high volumes of traffic and HGVs however capacity at the key junction of the Port Access and Rover Way would be considered.

Eastern Landfall Location, St Brides

23.1.0.6 The eastern landfall location is situated to the east of St Brides Wentlooge and is likely to be accessed from the B4239. There are a number of potential locations from the B4239 whereby possible access to the site could be obtained. Two of these locations are to the northeast of Beach Road. A further access could be obtained from Beach Road itself. The options for access to the site area will be confirmed once feasibility analysis has been undertaken. All of these routes would require off-carriageway access road improvements.

23.1.0.7 The B4239 routes to the north through Duffryn to the Southern Distributor Road in Newport and is approximately 6 metres in width along the majority of its length

(to the north). The carriageway narrows to 4 metres in width on the railway bridge and also crosses over the alignment of the proposed M4 Corridor around Newport just to the south of the railway bridge. To the east of Beach Road there is a bend with a tight corner radii which reduces the available carriageway width and would not allow a HGV and car to pass, as such obtaining access prior to this bend would assist with the safe movement of HGV traffic.

- 23.1.0.8 The route to the north passes close to Duffryn High School and also within the vicinity of residential areas and has a number of pedestrian movements along footpaths within the urban areas.
- 23.1.0.9 The B4239 to the west passes through St Brides Wentlooge village and would require access either through Marshfield or linking to Lamby Way in the west. These two routes would not be ideal for HGV traffic as they are narrow in places and travel past residential areas (particularly through Marshfield). It is considered that the route to the north on the B4239 would be preferential for HGV access.
- 23.1.0.10 Beach Road links onto the B4239, narrows to 4.5 metres and has a number of residential properties along its route. It provides access to the Lighthouse Park caravan park at its southern end. This road is not suitable for accommodating two-way HGV movements without improvements and as such it is not considered to provide a suitable access to the site.
- 23.1.0.11 A further option for access would be to access via an existing industrial route from Coedkernew (shown as Option 3 on Figure 23.2). This would require significant upgrades to existing rural tracks and either a bridge or level crossing improvement over the railway line. This route would then adjoin the B4239 and reduce the impact of vehicles through the existing Duffryn area and also reduce the number of vehicles passing on the existing narrow railway bridge on the B4239 to the north.
- 23.1.0.12 The Wales Coast Path would cross any potential access route to the site and therefore this would need to be considered within the design. The B4239 to the north also travels through residential areas with footways on both sides of the carriageway and pedestrian crossings and as such the effect of HGVs on pedestrians would be considered.

23.2 Scope of potential impact to be assessed

- 23.2.0.1 The assessment will consider the onshore transport and access effects resulting from construction, operation and decommissioning of the Project. The assessment will be focused on the access routes to and from the landfall locations at each end of the lagoon, and the trip generation at each site location and between landfall locations. There will be no abnormal indivisible load deliveries via road, all these deliveries would arrive via sea.
- 23.2.0.2 The majority of bulk material for the construction of the breakwater will be imported by sea. However, some raw materials such as for concrete production, steel reinforcement, turbine components and other elements of the Project may

have to be imported by road. The number of goods vehicle deliveries is not known at present. Construction would take place at both landfall locations and therefore there will be construction worker trips to each site, although the split of vehicle movements between the sites is yet to be confirmed.

- 23.2.0.3 Traffic associated with the operation and maintenance of the lagoon is anticipated to be minimal but any ongoing activities associated with the lagoon will be set out in full within the ES.
- 23.2.0.4 The likely adverse environmental effects would result from an increase in HGV traffic and construction worker traffic to and from each site location. The adverse effects would be assessed against key criteria such as driver and pedestrian delay, community severance, road safety, and pedestrian amenity, fear and intimidation. Groups that could be affected would be pedestrians, cyclists, equestrians and public transport users. Detailed assessments would be undertaken to establish the magnitude of the effects and the sensitivity of receptors and as such whether the likely effects of transport would be adverse and significant.
- 23.2.0.5 If the assessments demonstrate that the adverse effects of transport would be significant than measures would be proposed to mitigate these effects. The residual effects of traffic would then be assessed following the implementation of mitigation measures.

23.3 Existing baseline data, consultation and need for survey

- 23.3.0.1 Existing baseline traffic data for all local roads forming part of the access routes will be sought from the Highways departments of the City of Cardiff Council and Newport City Council. Traffic data for the trunk road network will be obtained from the Department for Transport count point data or the Welsh Government. If suitable traffic flow data is not available, we would seek to obtain suitable traffic flows through commissioning traffic survey specialists to undertake surveys during periods agreed with the relevant local highway authority. Traffic survey data used within the assessment would be less than three years old.
- 23.3.0.2 As part of this study we would also obtain accident data along each of the routes, between the site and the strategic highway network. This data would be obtained for the most recent five year period from the relevant authority.
- 23.3.0.3 Where new access routes will need to be constructed as part of the route from the site to the highway, highway boundary data will be obtained in order to establish the extent of highway ownership.
- 23.3.0.4 At each site location a detailed study would be undertaken of the effects on PRow. Surveys would be undertaken of the usage of PRow and of the quality of non-motorised user routes, such as footpaths and bridleways, which could potentially be affected by the construction of the scheme and new access routes.

- 23.3.0.5 No site-specific transport survey work is proposed with the exception of the PRow surveys, to the extent that sufficient data is available.

23.4 Proposed assessment methodology

- 23.4.0.1 It is anticipated that the proposed assessment methodology would broadly comprise the following:

- i. Establish baseline conditions – walking, cycling, equestrians, public transport, traffic flows, road safety for surrounding network and key routes to and from each landfall site;
- ii. Undertake detailed access route analysis. Identification of horizontal and vertical constraints as well as any weight or height issues on bridges and any new construction roads which may be required;
- iii. Estimate vehicle trip generation on the network during construction, operation and decommissioning phases by light vehicles and heavy goods vehicles;
- iv. Quantify percentage increases in traffic against relevant significance and magnitude criteria as outlined separately below;
- v. Undertake detailed assessments of those routes where percentage increases are likely to be significant against key environmental assessment criteria;
- vi. Set out mitigation measures through identification of constraints on the network routes and where increases in traffic are likely to have significant effects;
- vii. Set out residual effects of transport following implementation of mitigation measures;
- viii. Undertake cumulative effects analysis. These assessments will need to consider the combined effects of projects and new infrastructure including the M4 Corridor around Newport and possibly the electrification of the Great Western railway (along with any other identified committed or strategic development which may have an effect).

Significance Criteria

- 23.4.0.2 The Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Management and Assessment (IEMA), 1993) suggest two rules for the assessment of traffic effects on road links, which are as follows:

- I. Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- II. Rule 2: Include any other specifically sensitive areas where traffic flows will increase by 10% or more.

- 23.4.0.3 The study area will therefore include any highway links which could see increases in traffic or HGV flows of above 10%.
- 23.4.0.4 Sensitive areas associated with Rule 2 are defined by the presence of sensitive receptors using the criteria recommended in paragraph 2.5 of the IEMA Guidelines. This includes receptors such as congested junctions, hospitals, community centres, conservation areas, schools or colleges within close proximity to highway links.
- 23.4.0.5 Table 2.1 of the IEMA Guidelines sets out environmental criteria against which the significance of transport effects should be assessed. Those relevant to this development and which would be considered include:
- i. Noise and vibration (covered in Chapter 20 Marine Noise and Vibration and Chapter 21 Terrestrial Noise and Vibration – these may follow another methodology and not IEMA Guidelines)
 - ii. Visual effects (covered in Chapter 17 Seascape and Landscape – this will follow another methodology and not IEMA Guidelines)
 - iii. Severance
 - iv. Driver delay
 - v. Pedestrian delay
 - vi. Pedestrian amenity, fear and intimidation
 - vii. Accidents and safety
 - viii. Hazardous loads
 - ix. Air Pollution including Dust and Dirt (covered in a Chapter 22 Air Quality - this will follow another methodology and not IEMA Guidelines)
- 23.4.0.6 The significance of effect for each section of the highway network within the study area will be determined taking into account whether increases in traffic exceed Rule 1 or Rule 2. The effects will be considered against the relevant environmental criteria to establish the overall significance of effect on the highway links. This would consider the following:
- i. **Magnitude of the impact** based on the forecast traffic generations associated with the Development, in terms of percentage increases in total traffic and increases in HGV flows. For the purposes of this assessment above a 30% increase in traffic would equate to 'minor' in magnitude, above a 60% increase would equate to 'moderate' in magnitude and above a 90% increase would equate to 'major' in magnitude;
 - ii. **Sensitive receptors** identified using the criteria recommended in paragraph 2.5 of the IEMA Guidelines;
 - iii. **Duration of increased traffic volumes** associated with the Development – for example, whether the impact occurs during a single short period or throughout the construction programme;



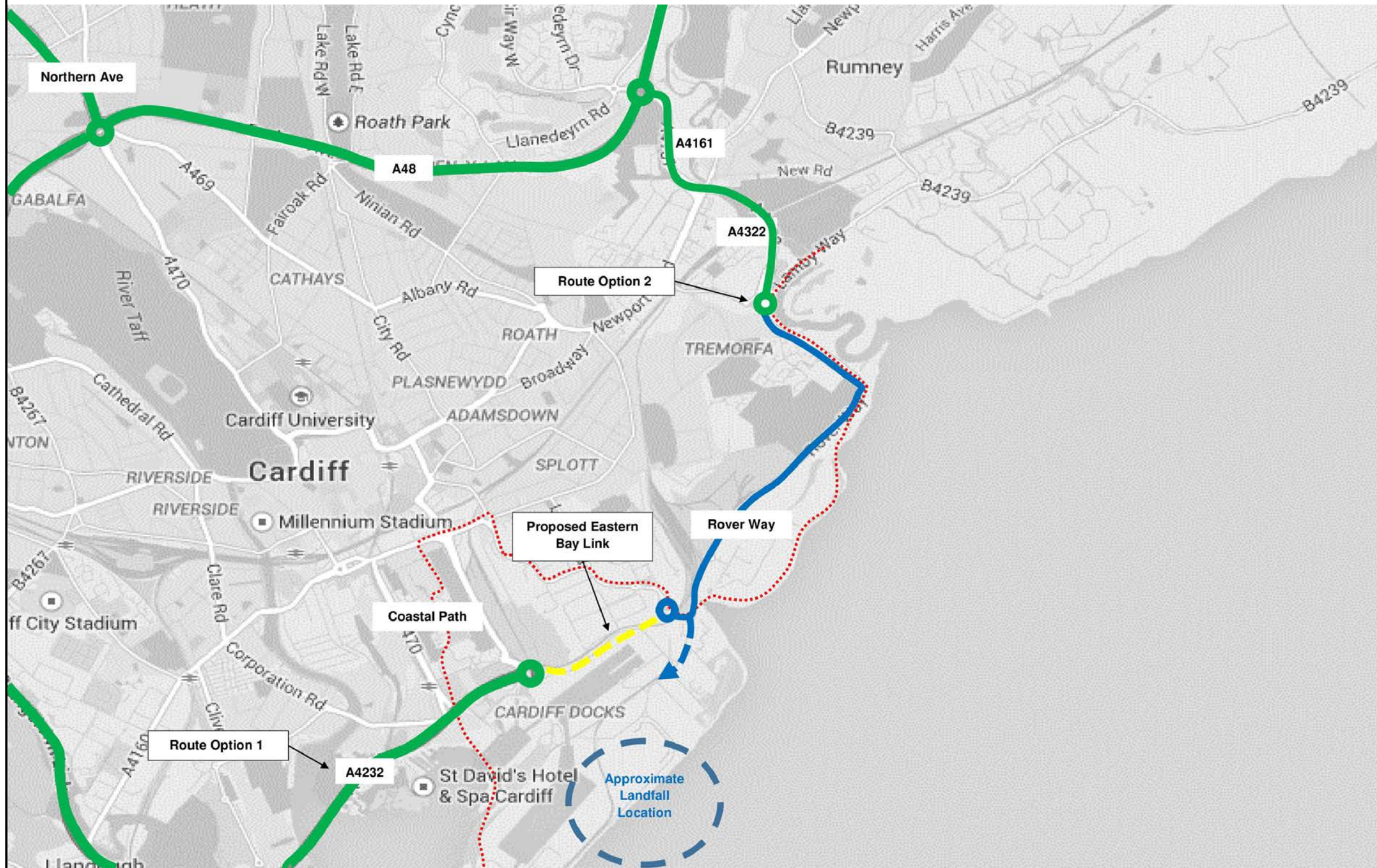
- iv. **Reversibility of the effect** of traffic associated with the Development; and
- v. **Highway characteristics** including road classification, existing traffic flows and road geometries of the highway sections.

23.5 References

Institute of Environmental Management and Assessment (IEMA) (1993) Guidelines for the Environmental Assessment of Road Traffic.



Figures



01	PRELIMINARY ISSUE	10 FEB 15
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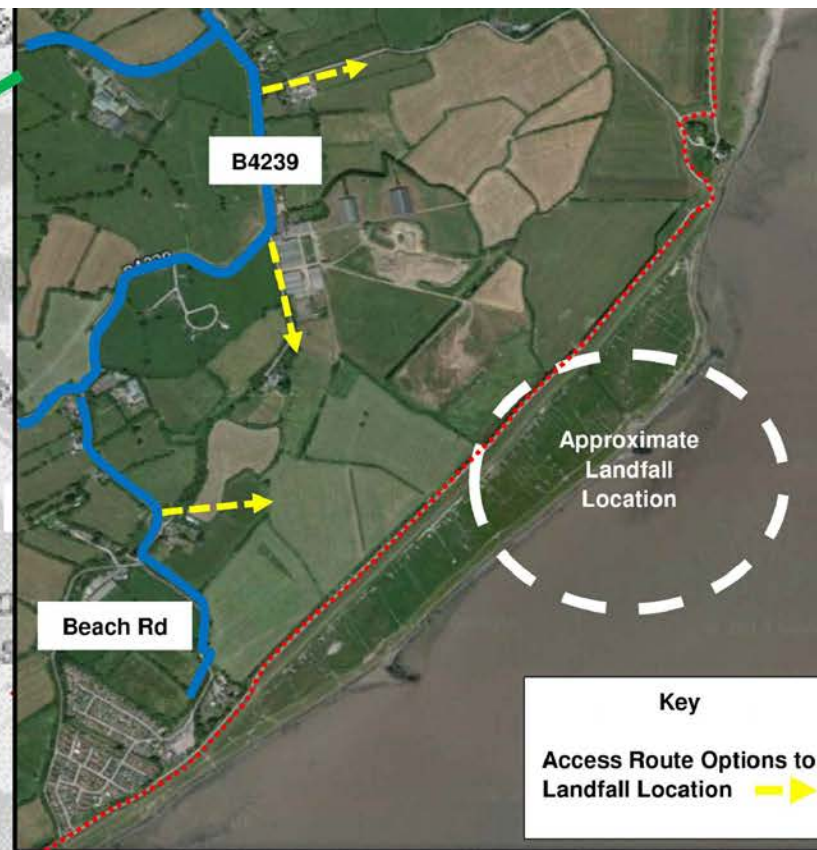
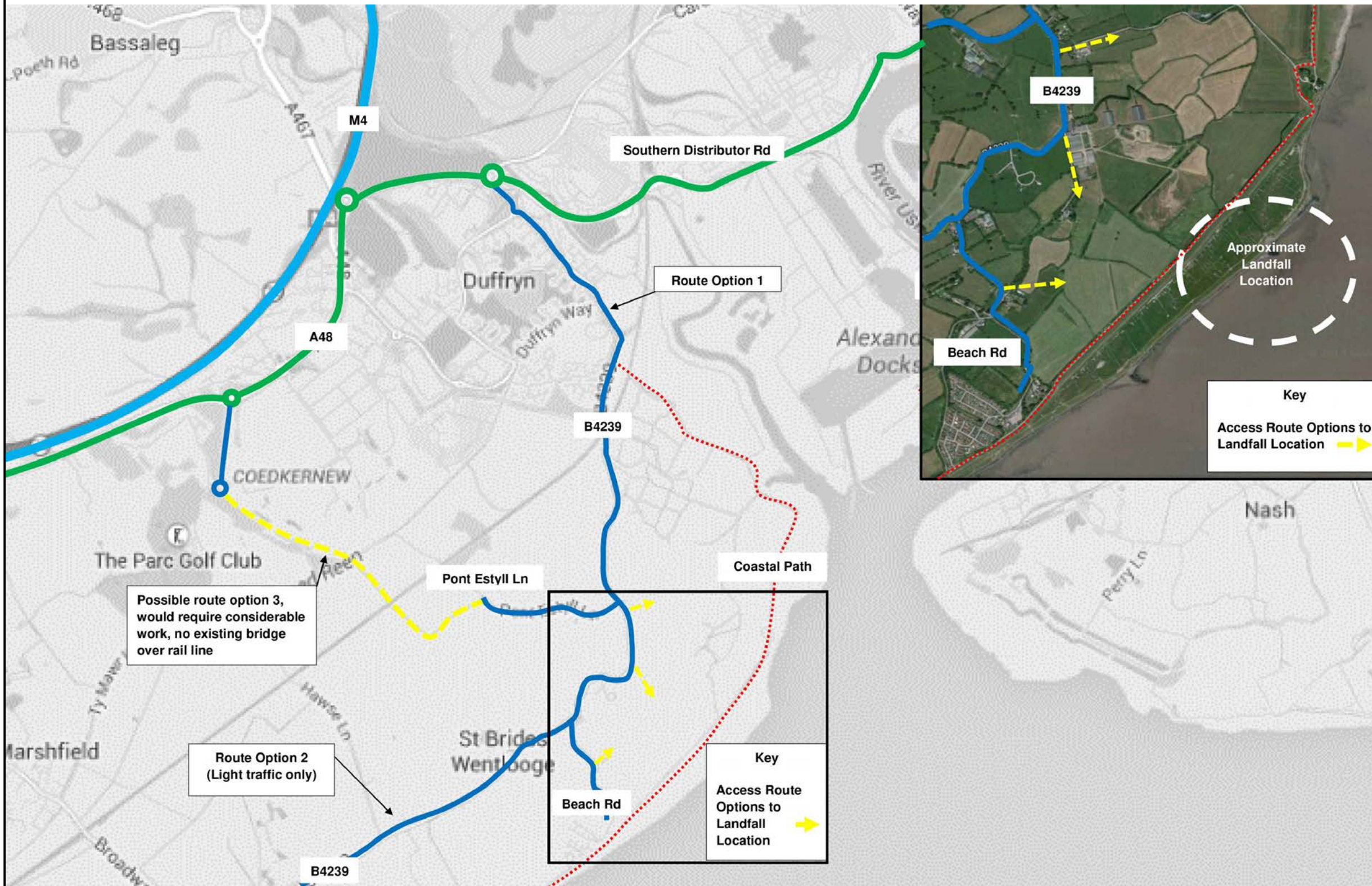
Project
CARDIFF TIDAL LAGOON

Title
WESTERN LANDFALL LOCATION PORT OF CARDIFF

Drawing No.	Project No.	Issue
FIG 23.1	UA007480	01

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Possible route option 3, would require considerable work, no existing bridge over rail line

Route Option 2 (Light traffic only)

Key
Access Route Options to Landfall Location

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Project
**CARDIFF
TIDAL LAGOON**

Title
**EASTERN LANDFALL
LOCATION ST BRIDES**

Drawing No.	Project No.	Issue
FIG 23.2	UA007480	01

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