

Belfield/Blackrock to City Centre Core Bus Corridor Scheme Section 146B Request Engineering Technical Note

Job number 268401-00
Date 12 October 2026

1. Introduction

This Engineering Design Technical Note has been prepared in support of a Proposed Minor Alteration to the approved Belfield / Blackrock to City Centre Core Bus Corridor Scheme (the Approved Scheme), which is being sought by the National Transport Authority pursuant to Section 146B of the Planning and Development Act 2000 (as amended).

The Proposed Minor Alteration relates specifically to the signalised junction at the entrance to Blackrock Clinic on the Rock Road (R118). Following the approval of the Approved Scheme by An Bord Pleanála (as it then was) on 27 March 2024, a separate approved planning permission is being implemented by Blackrock Clinic which has resulted in the recent relocation of Blackrock Clinic's entrance on Rock Road (R118) adjacent to Emmet Square, to a location approximately 60m south adjacent to Phoenix Terrace. The works associated with Blackrock Clinic's separate approved planning permission are ongoing, but the relocated entrance junction is now operational in its new location.

As part of the recent works, Blackrock Clinic has implemented a new right turning lane from the Rock Road (R118) into Blackrock Clinic's new as-built entrance. Accordingly, a revised junction layout has been developed to incorporate the as-built Blackrock Clinic entrance into the Approved Scheme while maintaining the objectives of the Approved Scheme. The modifications included within the Proposed Minor Alteration comprises localised amendments to carriageway alignment, footway and cycle track alignment, traffic signal infrastructure, pedestrian crossing facilities, road markings and landscaping within the vicinity of the junction, over approximately 185m along Rock Road (R118).

The design has been developed to ensure continued provision of high-quality pedestrian, cyclist, bus and general traffic facilities, while facilitating integration with the as-built Blackrock Clinic entrance.

2. Junction Layout

The Proposed Minor Alteration is presented in General Arrangement Drawing BCIDC-ARP-GEO_GA-1415_XX_00-DR-CR-0005 Revision M02 and is centred on the Rock Road (R118) / Emmet Square / Blackrock Clinic junction which formed part of the Approved Scheme.

The design of this junction as part of the Approved Scheme was based on the original location of the Blackrock Clinic entrance. Subsequent works by Blackrock Clinic under their permitted development, resulted in the construction of a new entrance arrangement in a new location, which differs from the arrangement incorporated within the Approved Scheme. This Proposed Minor Alteration, therefore, acknowledges the new as-built access junction to Blackrock Clinic and incorporates it into an altered junction arrangement that achieves the objectives of the Approved Scheme. Drawing BCIDC-ARP-PDV_PD_XX_00-DR-CR-0074-01 illustrates how the Approved Scheme compares to the Proposed Minor Alteration.

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Under the Approved Scheme, the Rock Road (R118) / Emmet Square / Blackrock Clinic junction consisted of a slightly staggered four-arm signalised junction, with toucan crossings provided on both Rock Road (R118) arms of the junction, and signalised pedestrian crossings on the Emmet Square and Blackrock Clinic arms, as presented in General Arrangement Drawing BCIDC-ARP-GEO_GA-1415_XX_00-DR-CR-0005 Revision M01, an extract of which is shown in Figure 1 below:

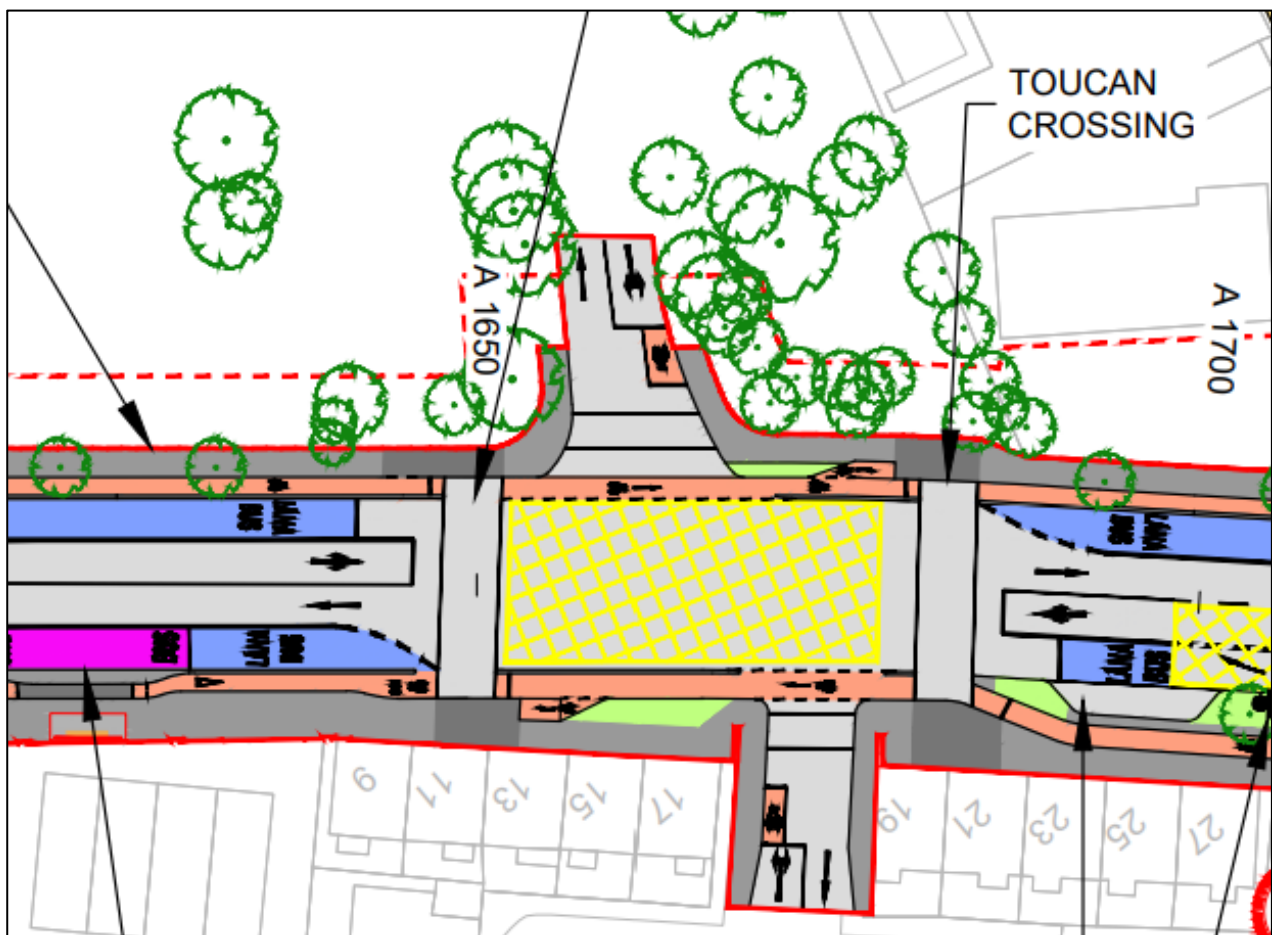


Figure 1: Approved Scheme layout at Rock Road (R118)/Emmet Square/Blackrock Clinic junction

As part of the Proposed Minor Alteration, this junction will remain a signalised junction, however, it is now proposed to be a three-arm signalised junction, as the Blackrock Clinic entrance has been relocated, and will therefore no longer form the western arm of the junction. This revised junction layout is shown in Figure 2 below. Toucan crossings are proposed on both Rock Road (R118) arms of the junction with a signalised pedestrian crossing proposed on the Emmet Square arm. Bus priority will be provided through the junction, as per the Approved Scheme, as will cyclist infrastructure.

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Figure 2: Proposed Minor Alteration layout at Rock Road (R118)/Emmet Square/ Blackrock Clinic junction

Under the Approved Scheme, the Rock Road (R118)/Phoenix Terrace junction consisted of a three-arm priority junction, with priority provided for pedestrians and cyclists continuing along Rock Road (R118) across the Phoenix Terrace arm and 'Stop' control for general traffic, as shown in Figure 3 below.

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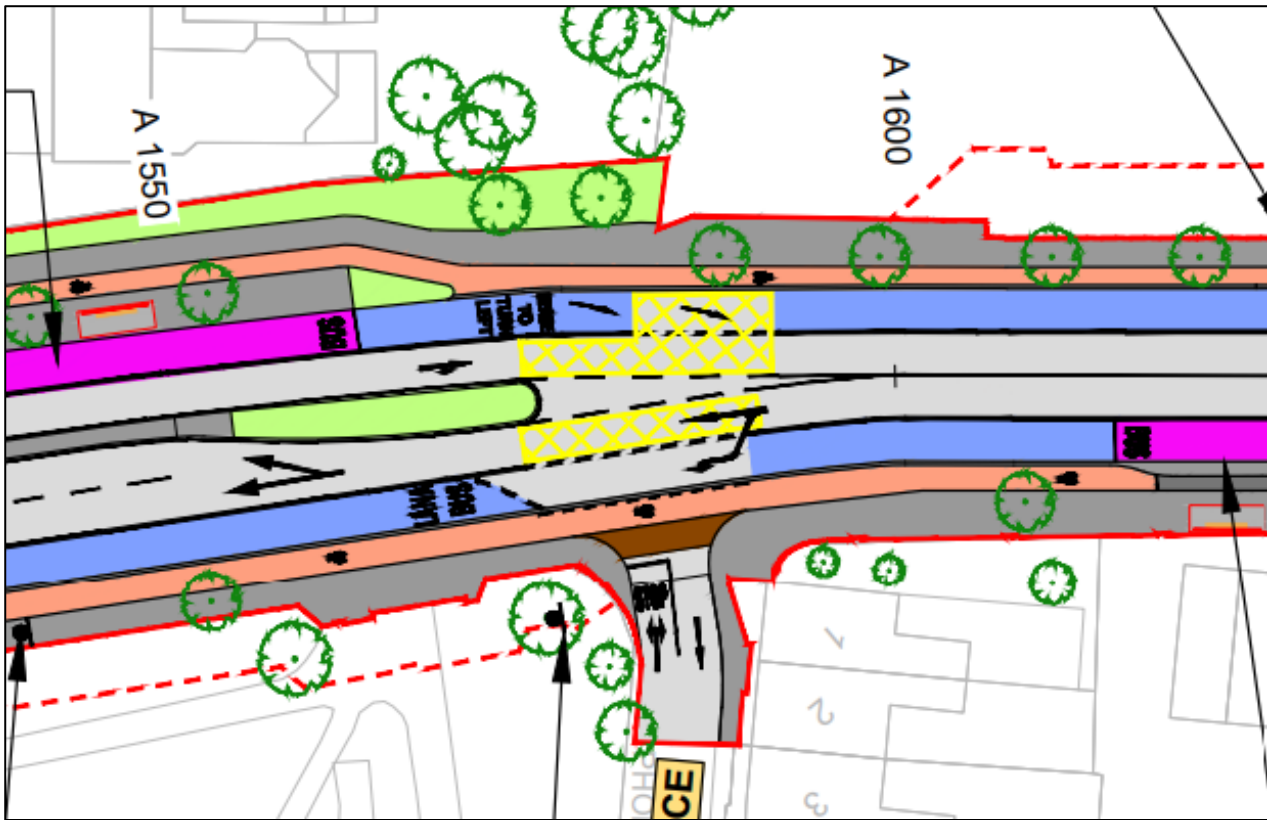


Figure 3: Approved Scheme layout at Rock Road (R118)/Phoenix Terrace

As part of the Proposed Minor Alteration, it is proposed to provide a four-arm signalised junction in this location, which incorporates the new as-built Blackrock Clinic entrance. Protection for cyclists is proposed at the junction, in line with layout TL503 from the NTA Cycle Design Manual and the principles of the BusConnects Preliminary Design Guidance Booklet. Separate pedestrian crossings are proposed on all arms of the junction. A dedicated right turn lane for southbound traffic entering Blackrock Clinic is proposed, to connect to the new as-built Blackrock Clinic entrance. A dedicated right turn lane for northbound traffic entering Phoenix Terrace has also been provided. There is a minor stagger between the Phoenix Terrace and new Blackrock Clinic arms of the junction, which this Proposed Minor Alteration will not change. The junction layout proposed as part of the Proposed Minor Alteration is shown in Figure 4 below.



The traffic signal design has been carried out in accordance with the design principles that were applied in designing the Approved Scheme. Cantilever traffic signal poles will be provided at both junctions in order to provide the required visibility to traffic signal heads.

The Rock Road (R118)/Phoenix Terrace/Blackrock Clinic junction will operate with 5 traffic signal stages, including a dedicated pedestrian stage. Cycle facilities at this junction will include cycle traffic signal aspects, adopting the Protected Junction principles from the NTA Cycle Design Manual and the principles of the BusConnects Preliminary Design Guidance Booklet.

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The layouts of both junctions proposed as part of the Proposed Minor Alteration will not result in any impacts beyond those assessed and reported in the EIAR for the Approved Scheme, and there are no changes to the overall conclusions and significance of effects across the traffic and transport receptors as a result of the Proposed Minor Alteration.

4. Geometric Design

The geometric design of the Proposed Minor Alteration has been developed to integrate the new as-built Blackrock Clinic entrance while maintaining consistency with the geometry of the Approved Scheme.

The geometric design principles include:

- Maintaining consistency with the cross-section applied as part of the Approved Scheme, while incorporating necessary elements of the new as-built Blackrock Clinic entrance (e.g. the new as-built dedicated right turn lane for southbound traffic entering Blackrock Clinic).
- Maintaining approved carriageway widths.
- Maintaining approved pedestrian and cycle facility widths.
- Minimising impacts on adjacent land ownership.
- Accommodating vehicle turning movements into and out of the new as-built Blackrock Clinic entrance.

The revised geometry proposed as part of the Proposed Minor Alteration requires a localised adjustment of the corridor boundary adjacent to the Blackrock Clinic car park and includes modifications to kerb alignments and verge arrangements within the immediate junction area.

To achieve the objectives of the Approved Scheme as well as incorporating Blackrock Clinic's new as-built right turn lane, the Rock Road (R118) will have to be widened and the recently constructed new boundary wall in front of Blackrock Clinic will have to be relocated further west within Blackrock Clinic's lands. The set-back of this wall will be from 2 to 4m between the old and the new entrance junctions to Blackrock Clinic. No trees are impacted by the Proposed Minor Alteration.

5. Vehicle Tracking

Vehicle tracking assessments have been undertaken to ensure that the revised junction arrangement can safely accommodate the design vehicle movements expected at the junction. The design assessment confirms that vehicle turning paths remain compatible with the revised kerb geometry and signal layout. The resulting layout is considered operationally equivalent to the Approved Scheme from a vehicle tracking perspective.

6. Pedestrian and Cyclist Arrangements

The Proposed Minor Alteration provides high-quality facilities for pedestrians and cyclists, which is aligned with the Approved Scheme. Toucan crossings are proposed across the Rock Road (R118) at its junction with Emmet Square, while a protected junction layout in line with the Cycle Design Manual is proposed at the Rock Road (R118)/Phoenix Terrace/Blackrock Clinic junction, providing a high level of service for pedestrians and cyclists at this location.

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The signalisation of Rock Road and Phoenix Terrace Junction and the provision of protected dedicated infrastructure and signal phasing for pedestrians and cyclists will further improve the Level of Service (LoS) for pedestrians at this junction. In the Proposed Alteration the signalisation of Rock Road and Emmet Square Junction and the provision of two toucan crossings for pedestrians and cyclists are retained, which also improves the LOS. The Proposed Minor Alteration will provide a the same or a better level of service as the Approved Scheme.

7. Road Safety Considerations

Road safety has been a primary consideration throughout the development of the Proposed Minor Alteration. The Proposed Minor Alteration has been designed in accordance with design standards and guidance to provide a safe and accessible environment for all road users. Provision for vulnerable road users has been prioritised through:

- Direct crossings, aligned with desire lines at junctions,
- Dedicated facilities for cyclists at junctions,
- Appropriate tactile paving.

The retention of the Rock Road (R118)/Emmet Square as a signalised junction maintains road safety due to the enhanced pedestrian & cyclist crossing facilities. In addition, the visibility splays for drivers existing Emmet Square are restricted due to adjacent wing walls, railings close to the carriageway edge. The retention of this junction as a signalised junction, therefore, is justified on safety grounds.

8. Integration with the new as-built Blackrock Clinic entrance and the Approved Scheme

The Proposed Minor Alteration has been specifically developed to ensure compatibility with both (i) the Approved Scheme and (ii) the new as-built Blackrock Clinic entrance.

The Proposed Minor Alteration:-

- Is confined to a 185m stretch of the Approved Scheme in the immediate vicinity of Blackrock Clinic.
- Is aligned with and supports the objectives of the Approved Scheme.
- Retains the active travel, accessibility and public transport benefits provided by the Approved Scheme.
- Maintains the function and operation of the overall corridor of the Approved Scheme.
- Requires only small localised updates to land acquisition and construction extents.

The Proposed Minor Alteration also reflects the current physical environment created by the new as-built Blackrock Clinic entrance works and therefore provides a deliverable solution which is coordinated with the Blackrock Clinic entrance and the Approved Scheme.

The Proposed Minor Alteration will not materially change operational traffic conditions, accessibility, junction performance, bus operations, pedestrian movement or cyclist provision when

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compared with the Approved Scheme, and will not give rise to any significant adverse effects not previously assessed.

9. Proposed Land Take and Impact on Parking

New temporary and permanent land take has been proposed to enable the construction of the permanent works associated with the Proposed Minor Alteration as well as to maintain the internal traffic management routing proposed as part of Blackrock Clinic's permitted development. As explained in more detail in the Cover Letter and Planning Report submitted as part of this application, the NTA will shortly be lodging an application for confirmation of a limited Compulsory Purchase Order so that (subject to the Commission confirming same) the NTA can acquire the lands necessary for the Proposed Minor Alteration. The new temporary and permanent land take proposals are illustrated on the General Arrangement Drawing BCIDC-ARP-GEO_GA-1415_XX_00-DR-CR-0001_M02-05.

Figure 5 below illustrates the combined total permanent and temporary land take required for the Approved Scheme incorporating the Proposed Minor Alteration. These lands do not include lands previously acquired for the Approved Scheme which are now not required.

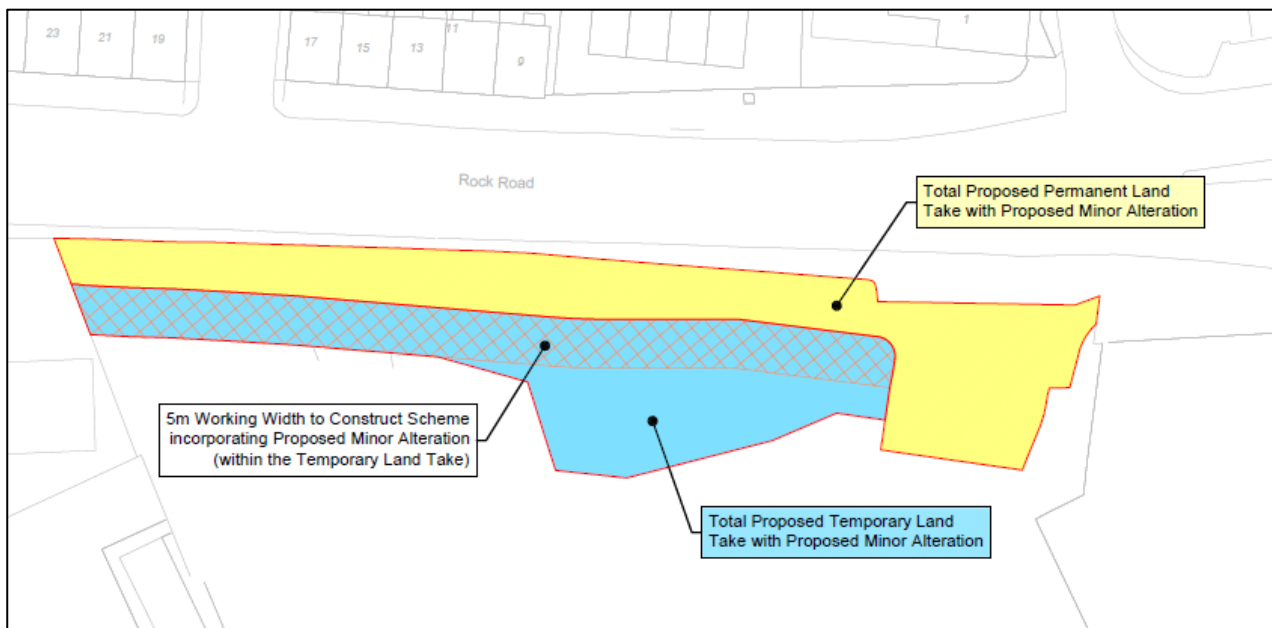


Figure 5: Total Permanent and Temporary Land Take for Approved Scheme and Proposed Minor Alteration

Table 1 below summarises the revised permanent and temporary land take requirements for the Approved Scheme incorporating the Proposed Minor Alteration.

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Table 1: Summary of Revised Permanent and Temporary Land Requirements

	Land Requirement	Area Acquired under Approved Scheme	Area Acquired with Proposed Minor Alteration in Place
1	Permanent land take	460.5m2	749.4m2
2	Temporary Acquisition Needed for Construction*	450.9m2	416.2m2
3	Temporary Acquisition to reconfigure existing car park to facilitate construction**	N/A	293.5m2

*The parcel of land at Blackrock Clinic's former entrance would remain required temporarily during construction

**This land will be temporarily occupied at the initial stage of construction to reconfigure the part of the car park remaining following the fencing off of the construction corridor. On completion of the scheme, this land will be reinstated with the rest of the temporarily acquired land in agreement with the land owner.

Figure 6 below presents an extract from Drawing BCIDC-ARP-PDV_PD_XX_00-DR-CR-0073-01 and shows typical 5m offset from the proposed site boundary line to enable the construction of the permanent boundary treatment. The area of perpendicular parking along the recently constructed new boundary of Blackrock Clinic shall be relocated to along the future boundary of the Proposed Minor Alteration, requiring the temporary loss of this car parking area during construction.

The remaining temporary land take area is required to carry out any short duration accommodation works necessary to the Blackrock Clinic car parking area to facilitate the construction of the Proposed Minor Alteration. The operation of the remainder of the future car park in Blackrock Clinic can be maintained through minimal and short term civil works such as re-marking of the car park road markings, relocating concrete upstands, relocating signage, etc, all within the proposed temporary land take line and in consultation with Blackrock Clinic.

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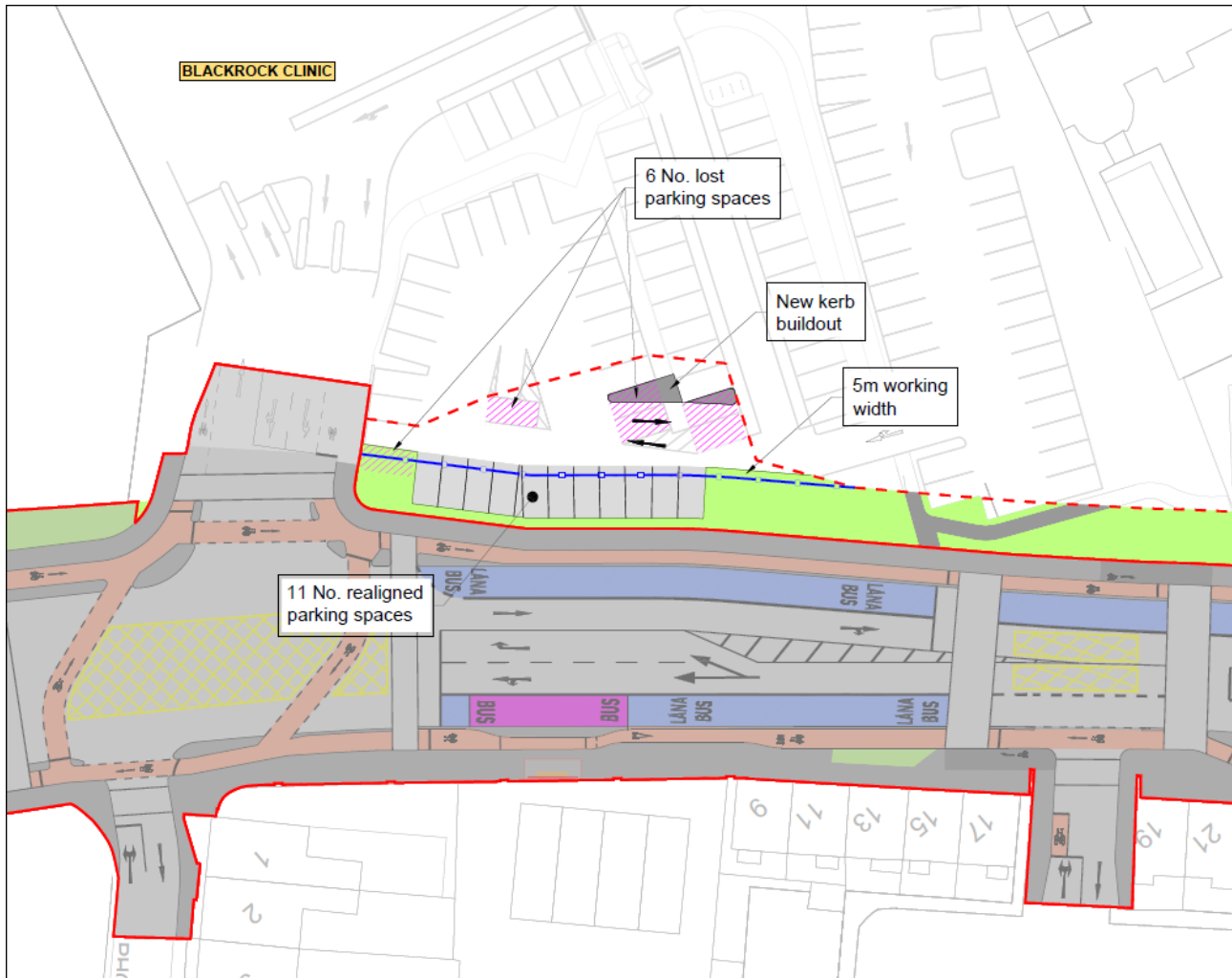


Figure 6: Temporary Land take for the Proposed Minor Alteration illustrating the short duration works to the car park

Once the Proposed Minor Alteration is completed and operational as part of the Approved Scheme as altered, there will be a loss of 6 no. car park spaces within Blackrock Clinic's proposed car park. The provision of the Approved Scheme would have resulted in the permanent net loss of 6 car parking spaces from the Blackrock Clinic car park. The Proposed Minor Alteration is also envisaged to result in the permanent net loss of 6 no. car parking spaces (i.e., the same number of car parking spaces as under the Approved Scheme). While it is acknowledged that the recently constructed new Blackrock Clinic entrance and new right turn lane has resulted in the Blackrock Clinic's permitted development having an impact on its own car park layout and quantum of car parking spaces, the Proposed Minor Alteration results in no greater loss of car parking spaces in comparison to the Approved Scheme.

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There is the potential that the proposed perpendicular parking along the new boundary can be extended, meaning the net loss of car parking spaces within Blackrock Clinic's proposed car park could be reduced further.

10. Proposed Trees

No trees are impacted by the Proposed Minor Alteration. There are approximately 12 no. proposed trees (that were proposed as part of the Approved Scheme in the vicinity of the old entrance junction to Blackrock Clinic), that fell within the temporary land take of the Approved Scheme.

As the old entrance to Blackrock Clinic has been relocated approximately 60m to the south (under its consented planning application), this Proposed Minor Alteration will amend the layout of the temporary land take necessary in the vicinity of the old entrance to Blackrock Clinic. As a result, these 12 no. proposed trees can no longer be planted as per the General Arrangement drawing for the Approved Scheme. Of these 12 no. proposed trees, there are 3 no. trees which will now fall outside of the proposed temporary land take of the Proposed Minor Alteration, 3 no. which fall too close to either the new boundary wall / temporary land take line, and 1 no. which clashes with the proposed new internal footpath of Blackrock Clinic's permitted development. The same quantum of trees is proposed locally in this area under the Proposed Minor Alteration. This will be delivered by redistributing locally within the updated temporary land take.

11. Summary

The Proposed Minor Alteration relates to a small section of the Approved Scheme on the Rock Road (R118) adjoining the Blackrock Clinic, including the junctions with Phoenix Terrace and Emmet Square.. Following approval of the Approved Scheme by An Bord Pleanála (as it then was) on 27 March 2024, a separate planning permission is being implemented by Blackrock Clinic which has resulted in the relocation of Blackrock Clinic's entrance on Rock Road (R118) adjacent to Emmet Square, to a location 60m south adjacent to Phoenix Terrace. The works associated with Blackrock Clinic's separate approved planning permission are ongoing, but the relocated entrance junction is now operational in its new location.

As part of the recent works, Blackrock Clinic has implemented a new right turning lane from the Rock Road (R118) into Blackrock Clinic's new as-built entrance. Accordingly, a revised junction layout has been developed to incorporate the new as-built Blackrock Clinic entrance into the Approved Scheme while maintaining the objectives of the Approved Scheme. The modifications included within the Proposed Minor Alteration comprise localised amendments to carriageway alignment, footway and cycle track alignment, traffic signal infrastructure, pedestrian crossing facilities, surface drainage, road markings and landscaping within the vicinity of the junction, over approximately 185m.

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The design has been developed to ensure continued provision of high-quality pedestrian, cyclist, bus and general traffic facilities while facilitating integration with the new as-built Blackrock Clinic entrance.

New temporary and permanent land take has been proposed to enable the construction of the permanent works associated with the Proposed Minor Alteration as well as to maintain the internal traffic management routing proposed as part of Blackrock Clinic's permitted development.

Traffic Signals and Overhead gantry signals are proposed to integrate with the new as-built entrance to Blackrock Clinic.

Road Safety has been an important factor in the development of the Proposed Minor Alteration, which will achieve the objectives of the Approved Scheme whilst incorporating the new as-built entrance to Blackrock Clinic.

Once the Proposed Minor Alteration is completed and operational as part of the Approved Scheme as altered, there will be a loss of 6 no. car park spaces within Blackrock Clinic's proposed car park. The provision of the Approved Scheme would have resulted in the permanent net loss of 6 car parking spaces from the Blackrock Clinic car park. The Proposed Minor Alteration is also envisaged to result in the permanent net loss of 6 no. car parking spaces (i.e., the same number of car parking spaces as under the Approved Scheme). While it is acknowledged that the recently constructed new Blackrock Clinic entrance and new right turn lane has resulted in the Blackrock Clinic's permitted development having an impact on its own car park layout and quantum of car parking spaces, the Proposed Minor Alteration results in no greater loss of car parking spaces in comparison to the Approved Scheme.

There is no impact on trees as part of the Proposed Minor Alteration. The same quantum of trees is proposed locally in this area under the Proposed Minor Alteration. This will be delivered by redistributing locally within the updated temporary land take.