

4 Description of the Proposed Scheme

4.1 Introduction

The proposed M7 Osberstown Interchange and R407 Sallins Bypass Scheme involves the construction of a grade separated junction on the M7, a regional road comprising the Sallins Bypass and associated link roads and side roads.

4.2 Scheme Objectives

The main design objectives of the M7 Osberstown Interchange and R407 Sallins Bypass Scheme include:

- Provide connectivity between national, regional and local road networks by provision of an interchange of adequate capacity together with a bypass of the town of Sallins.
- Provide a high quality road for the regional R407 Sallins Bypass.
- Alleviate traffic congestion through the towns of Naas and Sallins.
- Alleviate traffic congestion along the national primary route.
- Regulate and reduce journey times for long distance and local traffic.
- Improve safety along the existing roads and junctions.

4.3 Scheme Description

4.3.1 Scheme Overview

The proposed M7 Osberstown Interchange and R407 Sallins Bypass Scheme (i.e. the proposed scheme) is shown on **Figure 1.2 V3** with proposed cross-sections shown on **Figure 4.1a V3** and **Figure 4.1b V3**. The proposed scheme is located to the north of Naas and to the west of Sallins town, refer to **Figure 1.1 V3**.

The grade separated junction, the M7 Osberstown Interchange, will be located between the existing M7 Maudlins and Newhall Interchanges, north and south of Naas respectively. This interchange will provide necessary connectivity between the national road network (M7) and the towns of Naas and Sallins. The interchange will connect to the R407 Sallins Bypass to the north and the existing local and regional road network to the south. The interchange will be a typical dumbbell interchange with capacity to cater for future traffic needs to a design year of 2030.

The R407 Sallins Bypass will be located to the west of Sallins town commencing at the proposed M7 Osberstown Interchange and tying into the existing R407 Clane Road to the north of Sallins town. The bypass will proceed in a north easterly direction from the M7 Osberstown Interchange and will cross under the Dublin to Cork railway line, cross over the Grand Canal, and cross over the River Liffey at two locations before tying into the existing R407 Clane Road. The bypass will be approximately 3.6km in length. Cyclist and pedestrian facilities are proposed on the R407 Sallins Bypass between the railway crossing and the tie-

in at the existing R407 Clane Road. Refer to **Figure 4.2a and 4.2b V3** for all proposed cyclist and pedestrian facilities shown with the overall scheme layout.

An alternative cyclist and pedestrian route is proposed from the railway line to Naas, using existing local roads, to avoid routing cyclists and pedestrians through the M7 Osberstown Interchange. An additional dedicated pedestrian and cyclist connection is also proposed to connect the Canal Road to the Western Distributor Road, where full cyclist and pedestrian facilities exist. This will facilitate a cyclist friendly route/connection between the proposed R407 Sallins Bypass and the employment areas in Millennium Park without the need to negotiate the proposed M7 Osberstown Interchange.

There are two link roads proposed as part of the proposed scheme. The Sallins Link Road will connect the R407 Sallins Bypass to the centre of Sallins town and the Distributor Link Road will connect the M7 Osberstown Interchange to the Western Distributor Road. Provisions for cyclists and pedestrians will be made in both directions on the Sallins Link Road.

The R407 Sallins Bypass will cross the existing local Osberstown Road approximately 200m south of the Dublin to Cork railway line. The Osberstown Road will be realigned horizontally and vertically to accommodate the crossing of the bypass under the local road.

In addition to the above, the proposed R407 Sallins Bypass may facilitate an additional junction in the future, providing an access to a planned 'Public Transport Interchange' as identified by Transport Objective PT5 of the Sallins LAP (refer to Section 2.5.4).

For the purposes of considering environmental impacts, the M7 Osberstown Interchange and R407 Sallins Bypass have been assessed as being constructed concurrently. However, there is the possibility that the interchange may be developed first, with the bypass constructed at a later stage. On this basis, an interim scenario has been developed to assess the potential impacts associated with developing the interchange without the bypass, refer to **Figure 4.3 V3**. This interim scenario is assessed in Section 20.4.

4.3.2 Design Standards

The design of the M7 Osberstown Interchange and R407 Sallins Bypass Scheme has been completed in accordance with the National Roads Authority (NRA) current design standards contained in the Design Manual for Roads and Bridges (DMRB) and Manual of Contract Documents for Road Works (MCRW). In particular, the following standards are relevant to the design:

- NRA DMRB TD 9/12 – Road Link Design.
- NRA DMRB TD 27/11 – Cross-Sections and Headroom.
- UK DMRB TD 22/06 and 2009 NRA addendum – Layout of Grade Separated Junctions.
- UK DMRB TD 16/06 and 2009 NRA addendum – Geometric Design of Roundabouts.
- NRA DMRB HD 25-26/10 – Pavement & Foundation Design.

- NRA DMRB IAN 03/12 – Provision for Cyclists and Pedestrians on Type 2 and Type 3 single carriageway National Road in rural areas.
- UK DMRB HD 33/06 and 2009 NRA addendum – Surface and Sub-surface Drainage Systems for Highways.
- UK DMRB TD 34/07 - Design of Road Lighting for the Strategic Motorway and Trunk Road Network.

In addition to the above design documents further guidance was drawn as necessary from relevant published data.

The design of the Sallins Link Road and Distributor Link Road has been completed in accordance with the Design Manual for Urban Roads and Streets (DMURS) as published by the Department for Transport, Tourism and Sport (DTTAS).

It should be noted that the Design as outlined in this report will be subject to alteration and enhancement as the proposed scheme is progressed through subsequent phases of development. The design for Phase 5 and 6 of the NRA Project Management Guidelines shall be designed in accordance with the NRA and DTTAS design standards current at the time of completion.

4.3.3 M7 Osberstown Interchange

The M7 Osberstown Interchange is designed as a dumbbell layout comprising of two roundabouts with one overbridge across the M7 providing connectivity between the M7 Motorway, proposed R407 Sallins Bypass and proposed Distributor Link Road.

Full connectivity is designed to the M7 from the roundabouts via two merge slip roads and two diverge slip roads. Segregated slip roads are also designed at the top of the four slip roads to provide free flow movements to and from the proposed R407 Sallins Bypass and Distributor Link Road. The merge and diverge slip roads are designed with auxiliary lanes to the M7 Motorway.

The slip road cross-sections are in compliance with the NRA DMRB addendum to UK DMRB TD 22/06 and NRA DMRB TD 27/11. Projected traffic volumes indicate that the cross-sections shown in Table 4.1 will be appropriate for each interchange slip road.

Table 4.1: Slip Road Cross-Sections

Slip Road	Nearside Verge (m)	Nearside Hardstrip (m)	Carriageway (m)	Offside Hardstrip (m)	Offside Verge (m)
Merge	3.0	1.5	1 x 4.0	0.5	3.0
Diverge	3.0	1.0	2 x 3.0	0.5	3.0
Segregated Slips	3.0	1.5	1 x 4.0	0.5	3.0

The auxiliary lane cross-section proposed is a 3.5m carriageway with a 3m hard shoulder and a 3m verge. This cross-section is equal to the width of the adjacent nearside motorway lane and the hard shoulder provision on the motorway in accordance with NRA DMRB TD 27/11.

The design speed of the slip roads of the M7 Osberstown Interchange is 70km/h.

The overbridge cross-section proposed is in accordance with the NRA DMRB TD 27/11 Table 3 Type 2 Dual Carriageway and Table 4 Verge Widths on Underbridges refer to Table 4.2.

Table 4.2: Overbridge Cross-section

Road section	Width
Western Verge Width (minimum)	2.0m (including 1.5m raised verge and 0.5m nearside hardstrip)
Western Carriageway Width	7.0m (2 x 3.5m lanes)
Central Reserve Width (minimum)	1.5m (including 2 x 0.5m offside hardstrip)
Eastern Carriageway Width	7.0m (2 x 3.5m lanes)
Eastern Verge Width (minimum)	1.1m (including 1.5m raised verge and 0.5m nearside hardstrip)
Total Width (minimum)	18.6m

The M7 Osberstown Interchange roundabouts shall be designed in accordance with the UK DMRB TD 16/06 and 2009 NRA addendum. They shall be designed with appropriate approach angles ensuring the standards of Entry and Exit Radii and Entry Path Curvature can be achieved.

No dedicated pedestrian or cyclist facilities shall be provided through the M7 Osberstown Interchange.

4.3.4 R407 Sallins Bypass

A Type-1 Single Carriageway is proposed for the section north of Sallins Link Road Roundabout and a Type-2 Dual Carriageway for the section south of the Sallins Link Road Roundabout. The road cross-section proposed for the R407 Sallins Bypass south of Sallins Link Road Roundabout is in accordance with the NRA DMRB TD 27/11 Table 3 Type 2 Dual Carriageway, refer to Table 4.3.

Table 4.3: Type 2 Dual Carriageway Cross-section

Road section	Width
Western Verge Width (minimum)	3.0m (including 0.5m nearside hardstrip)
Western Carriageway Width	7.0m (2 x 3.5m lanes)
Central Reserve Width (minimum)	1.5m (including 2 x 0.5m offside hardstrip)
Eastern Carriageway Width	7.0m (2 x 3.5m lanes)
Eastern Verge Width (minimum)	3.0m (including 0.5m nearside hardstrip)
Total Width (minimum)	21.5m

The road cross-section proposed for the R407 Sallins Bypass north of Sallins Link Road Roundabout is in accordance with the NRA DMRB TD 27/11 Table 3 Type 1 Single (S2), refer to Table 4.4.

Table 4.4: Type 1 Single Carriageway Cross-section

Road section	Width
Western Verge Width (minimum)	3.0m
Western Hard Shoulder	2.5m
Carriageway Width	7.3m (2 x 3.65m lanes)
Eastern Hard Shoulder	2.5m
Eastern Verge Width (minimum)	3.0m
Total Width (minimum)	18.3m

North of the railway line structure to the existing R407 Clane Road connection, the eastern verge width will cater for a combined cyclist and pedestrian facility. The total eastern verge width including the cyclist and pedestrian facility is 4.5m minimum, consisting of a 1.5m segregation verge, 2.5m combined cyclist and pedestrian facility and 0.5m grass verge.

At the River Liffey structures and the Grand Canal structure the western verge width will reduce to 0.6m in accordance with NRA DMRB TD 27/11 Table 6.

A design speed of 85km/h has been calculated for the R407 Sallins Bypass (with a posted speed limit of 80km/h).

4.3.5 Link Roads

4.3.5.1 Sallins Link Road

The carriageway cross-section proposed for the Sallins Link Road is 7.0m, in accordance with Figure 4.55 of the DTTAS DMURS for a link street frequently used by larger vehicles.

The design speed of the Sallins Link Road is 50km/h (with a corresponding posted speed limit of 50km/h).

Both sides of Sallins Link Road will provide for pedestrians and cyclists to accommodate the urban population of Sallins. These have been designed in accordance with the DTTAS DMURS Section 4.3.

A 1.5m wide segregation verge will be provided as a buffer between the carriageway and the pedestrian and cyclist facilities.

A 1.75m wide one-way cycle track facility with a separate 1.8m wide footway, with vertical segregation, will be provided along both sides of the Sallins Link Road. The cycle track facility is designed in accordance with the NTA's National Cycle Manual as detailed in the DTTAS DMURS.

A minimum width of 0.5m grass verge will be provided at the rear of the cycle track to accommodate safety barriers, street furniture or fencing as required.

Therefore the road cross-section proposed for the Sallins Link Road is as described in Table 4.5.

Table 4.5: Sallins Link Road Cross-section

Road section	Width
Northern Verge Width	5.55m minimum (consisting of 1.5m grass verge, 2.0m one way cycle track, 1.8m footpath, 0.5m grass verge)
Carriageway Width	7.0m (consisting of 2 x 3.5m lanes)
Southern Verge Width	5.55m minimum (consisting of 1.5m grass verge, 2.0m one way cycle track, 1.8m footpath, 0.5m grass verge)
Total Width	18.6m minimum

4.3.5.2 Distributor Link Road

The design speed of the Distributor Link Road is 60km/h. The road cross-section proposed for the Distributor Link Road is described in Table 4.6.

Table 4.6: Distributor Link Road Cross-section

Road section	Width
Northern Verge Width	3.0m minimum
Eastern Carriageway Width	6.5m (consisting of 2 x 3.25m lanes)
Central Reserve	2.0m minimum
Western Carriageway Width	6.5m (consisting of 2 x 3.25m lanes)
Southern Verge Width	3.0m minimum
Total Width	21.0m minimum

4.3.6 Side Roads

4.3.6.1 Osberstown Road

A design speed of 70km/h has been calculated for the realigned Osberstown Road (with the existing posted speed limit of 80km/h retained).

The road cross-section proposed for the Osberstown Road is described in Table 4.7.

Table 4.7: Osberstown Road Cross-section

Road section	Width
Northern Verge Width (minimum)	0.25m
Carriageway Width	6.0m (2 x 3.0m lanes)
Southern Verge Width (minimum)	0.25m
Total Width (minimum)	6.5m

4.3.6.2 R407 Clane Road

A design speed of 70km/h has been calculated for the realigned R407 Clane Road. The road cross-section proposed for the R407 Clane Road is as described in Table 4.8.

Table 4.8: Clane Road Cross-section

Road section	Width
Western Verge Width (minimum)	1.5m
Carriageway Width	7.0m (2 x 3.5m lanes)
Eastern Verge Width (minimum)	3.0m
Total Width (minimum)	11.5m

4.3.6.3 Canal Road

A design speed of 60km/h has been calculated for the realigned Canal Road. The road cross-section proposed for the Canal Road is described in Table 4.9.

Table 4.9: Canal Road Cross-section

Road section	Width
Western Verge Width (minimum)	0.25m
Carriageway Width	5.0m
Eastern Verge Width (minimum)	0.25m
Total Width (minimum)	5.5m

4.3.7 Other Design Aspects

This section describes the design of other aspects of the proposed scheme. Reference is made to the relevant guidance on which the design is based. It should be also noted that aesthetics is also an important factor in the development of the design.

4.3.7.1 Traffic Signs

Scheme signage will be provided to ensure that clear directional and regulatory messages are transmitted to drivers and other road users.

The design of the various traffic signs will be based on the Traffic Signs Manual issued by the Department of the Environment, the legal framework for which is contained in the Road Traffic Acts.

4.3.7.2 Pedestrian and Cyclist Provision

Segregated pedestrian and cyclist facilities will be provided in the eastern verge of the R407 Sallins Bypass to accommodate the urban population of Sallins, (refer to **Figure 4.1a and 4.1b V3** for all pedestrian and cyclist provisions). These facilities will be provided from the proposed tie-in at the existing R407 Clane Road at the northern end to approximately 100 m north of the railway crossing, a total distance of approximately 2 km. A connection will be provided from the R407 Sallins Bypass pedestrian and cyclist facilities north of the Grand Canal to the Grand Canal tow path.

Approximately 100m north of the railway crossing the non-motorised users will then be connected back to the existing local road network with access to the Grand Canal Way Route and access onwards into Naas town.

Facilities are not provided for non-motorised users from a point 100m north of the railway crossing to the M7 Osberstown Interchange or through the M7 Osberstown Interchange.

An additional pedestrian and cyclist facility will be provided between the existing Canal Road and Western Distributor Road to provide a connection for pedestrians and cyclists from the R407 Sallins Bypass, via the local road network without an interface with the M7 Osberstown Interchange, to the south of the M7 Osberstown Interchange.

This dedicated connection will provide an opportunity for commuters from Sallins to access the employment zones in Millennium Park via an attractive cyclist friendly route.

Pedestrian and cyclist facilities will be provided on both sides of the Sallins Link Road to accommodate the urban population of Sallins. The cyclist and pedestrian facilities will extend along both sides of the Sallins Link Road to tie in with the existing facilities on the southern side and to the traffic lights in Sallins Town on the northern side, to ensure a connection to the proposed cyclist route between Naas and Sallins Train Station (refer to Objective STO7) in the Naas Town Development Plan (2011 to 2017).

The cross-section width of the proposed pedestrian and cyclist facilities for the R407 Sallins Bypass and Sallins Link Road are detailed in Section 4.3.4 and 4.3.5.1 above respectively.

4.3.7.3 Fencing and Barriers

Fencing, safety barriers and parapets on the proposed scheme will be provided to meet the requirements of the current NRA standards and guidance documents.

4.3.7.4 Scheme Lighting

The road lighting design shall meet the requirements of BS5489-1, IS EN 13201 and the UK DMRB TD 34-07 and NRA addendum.

It is proposed to provide public lighting at all roundabouts on the proposed scheme for reasons of safety. Lighting shall be provided for the M7 Osberstown Interchange and associated slip roads, the Clane Road Roundabout and the Sallins Link Road Roundabout.

The Sallins Link Road and Distributor Link Road are also proposed to be lit as they are considered to be urban roads.

As there is currently lighting on the R407 Clane Road, it is proposed that Clane Road Roundabout lighting provision be extended to tie into this existing network.

For environmental reasons, and given the rural nature of the surroundings and the predicted traffic flow, no road lighting is considered necessary for the proposed R407 Sallins Bypass, Osberstown Road and Canal Road. Refer to **Figure 1.2 V3** for proposed road lighting extents.

4.3.7.5 Earthworks and Road Surfaces

The aspects relating to earthworks are discussed in Chapter 15 - *Soils and Geology*.

The pavement design for all roads will be carried out considering the appropriate design life and axle loading in accordance with current Volume 7 of the NRA DMRB.

4.3.7.6 Structures

The proposed road development includes a total of seven structures to cross the proposed road development over/under roads, railways and watercourses. These include:

- M7 Interchange Overbridge.
- Osberstown Road Overbridge.
- Sallins Bypass Railway Bridge.
- Grand Canal Underbridge.
- 2 River Liffey Underbridges.
- Sallins Link Road Culvert.

The structural form for each bridge was chosen considering span length, overall cost and construction methodology. Regardless of what the structure carries or crosses, aesthetics is also an important factor in the choice of structural form.

Road Bridges

The M7 Osberstown Interchange overbridge is a two span structure. The form of structure is similar to other interchanges on the M7 Motorway (Refer to **Figure 4.4 V3** for Proposed M7 Interchange Overbridge General Arrangement).

The Osberstown Road overbridge is a single span structure. The structure facilitates the crossing of the Osberstown local road over the R407 Sallins Bypass at Ch.1+054 (Refer to **Figure 4.5 V3** for Proposed Osberstown Road overbridge general arrangement).

Rail Crossing

A structure is required to facilitate the crossing of the proposed bypass beneath the main Dublin-Cork railway line. As the railway line is on an embankment, a twin-cell box structure is proposed which will be constructed off line and jacked beneath the railway line to minimise disruptions (Refer to **Figure 4.6 V3** for Proposed Railway Bridge General Arrangement).

Canal Crossing

The Grand Canal Underbridge is a single span structure. The structure facilitates the crossing of the proposed R407 Sallins Bypass over the Grand Canal at Ch.1+637 (Refer to **Figure 4.7 V3** for Proposed Grand Canal Underbridge General Arrangement).

River Bridges

The proposed R407 Sallins Bypass crosses the River Liffey at Ch.1+975 and Ch.3+050.

The two River Liffey underbridges will be of similar form but with spans as required at each location. The structure at Ch.1+975 is a two span structure (Refer to **Figure 4.8 V3** for Proposed River Liffey Underbridge No.1 General Arrangement). The River Liffey natural channel flows through the southern span and the northern span accommodates potential flooding flows as well as an access track 4.5m wide with 4.5m minimum headroom to the deck soffit.

The structure at Ch. 3+050 is a three span structure, (Refer to **Figure 4.9 V3** for Proposed River Liffey Underbridge No.2 General Arrangement). The River Liffey natural channel flows through the central span and both the northern and southern spans accommodate potential flood flows, as well as access tracks each measuring 4.5m wide with a minimum of 4.5m headroom to the deck soffit.

Culverts

The Sallins Link Road Culvert is a single span structure over an existing channel (Refer to **Figure 4.10 V3** for Proposed Sallins Link Culvert General Arrangement). To minimise the impact the construction activities will have on the area, it is proposed to use precast portal frame units to maintain a natural channel bed and minimise the working time in and adjacent to the channel.

The structure shall maintain hydrological and ecological connectivity.

4.3.7.7 Landscaping

The aspects relating to landscaping are discussed in Chapter 10 *Landscape and Visual*.

4.3.7.8 Drainage

The proposed M7 Osberstown Interchange and R407 Sallins Bypass involves the construction of a new drainage system as well as an assessment of the existing drainage system including extension to existing culverts as necessary.

The proposed road development has been designed such that surface water drainage and sub-surface drainage will be provided for the proposed interchange

and bypass carriageway and all new sections of local and regional roads. All new surface water collected by the carriageway drainage system will be discharged to watercourses crossed by, or adjacent to, the proposed scheme. Attenuation measures will be provided at outfalls to watercourses, along the length of the proposed scheme, to ensure discharge does not cause any adverse effects upstream or downstream of the receiving watercourse. Pollution control measures will be provided on all networks prior to outfalling to receiving watercourses to ensure that receiving watercourses are not contaminated by runoff from the proposed road development.

The following procedures have been adopted for drainage of the proposed road development in accordance with current National Roads Authority standards, guidance documents and best practice methods.

Watercourses

The proposed scheme crosses three existing watercourses, the River Liffey, the Naas Stream and the Osberstown Stream. These watercourses will require structures and culverts to carry their flow under the proposed scheme.

There are two River Bridges required to cross the River Liffey as outlined in Section 4.3.7.6.

The Naas Stream crosses under the existing M7 via a 750mm diameter pipe culvert. This culvert will be extended to carry the stream under the auxiliary lanes of the proposed M7 Osberstown Interchange as part of this road development.

Three existing M7 culverts east of the Naas Stream carry water flow under the M7 motorway. The flow from these three M7 culverts converges downstream into the Osberstown Stream which then converges with the Naas Stream further downstream. The three existing M7 culverts, associated land drains and Osberstown Stream will be extended and diverted as required to carry water flow under the proposed M7 Osberstown Interchange slip lanes as part of this proposed road development.

Interceptor Ditches

Interceptor ditches will be required to collect over land flow (both during construction and the operational phases) and to prevent ponding of water adjacent to embankments. The use of interceptor ditches is to prevent drainage from the road curtilage running onto adjacent lands and vice-versa.

The interceptor ditches will be required at the top of the cutting or the base of the embankment where land falls towards the road to collect surface water run-off. Where possible, the volume of water will be directed to the nearest watercourse. All land drains that are intercepted by the new works will be crossed beneath the proposed road development or discharged into an interceptor ditch.

Cross-drains will be provided to convey flow in the interceptor ditches and existing land drains beneath the proposed road development.

The Sallins Link Road crosses the Canal pNHA at Ch.0+320. The Canal pNHA at this location is the area of the originally proposed Grand Canal route and currently comprises of a land drain with low flow. However, to ensure the connectivity of ecology and to minimise the footprint of the proposed scheme on

the area a structural box culvert is proposed. Refer to section 4.3.7.6 for the structure details.

In certain circumstances soakaways/infiltration areas may be provided where the predicted flow from the intercepting ditch is considered to be minimal and the nearest watercourse is a considerable distance from the proposed road development; however, the area shall not be susceptible to karst features or form part of an aquifer.

Carriageway Drainage

In areas of cutting and on embankments lower than 1.5 metres in heights, combined filter drains will generally be used. These filter drains will discharge to an outfall, a carrier drain or swale once the capacity of the maximum allowable size of filter drain has been reached. Where groundwater vulnerability is high, for example in cuttings in gravels in the vicinity of aquifers, a closed drainage system with fin/narrow filter drain or a lined combined filter drainage system will be adopted. This permits free drainage of the cuts and road surface without allowing the run-off to percolate into the groundwater, thus eliminating a potential pollution hazard.

Surface water runoff from new pavement constructed on embankments higher than 1.5 metres but lower than 6.0 metres will generally be drained using over-the-edge drainage. Surface water will be allowed to shed off the carriageway, across the verge and down the embankment to a swale or ditch at the foot of embankment.

Over-the-edge drainage may not always be appropriate for roads on embankment, for example in areas where the topography in the area leads to short sections of over-the edge drainage, or where the groundwater vulnerability is high. In these areas kerbs (with gullies) and combined filter drains will be considered.

Runoff from roads on embankments higher than 6.0 meters will be drained using surface water channels with narrow filter drains or kerbing (with gullies) with a closed drainage system.

Link Road and Side Road Drainage

The side roads as part of the proposed scheme include the Clane Road, Osberstown Road, Sallins Link Road and Distributor Link Road. These roads require kerbs at locations such as at bridge or junction locations or where footways are required and will therefore be drained using gullies with carrier drains or combined filter/carrier drains. Piped drains will discharge to an outfall, a sealed drain, or swale or to the mainline drainage system.

Side roads that do not require kerbs will be drained using either over-the edge drainage or combined filter drains where appropriate in accordance with the principles described above. The swales or filter drains will discharge to an outfall, a sealed drain, a swale or to the mainline drainage system.

Outfalls and Attenuation Ponds

Surface water collected by the carriageway drainage system will be discharged into watercourses crossed by, or adjacent to, the proposed scheme. In order to prevent discharge from the road increasing the peak flow rate of water within many of the watercourses, which may compound any flooding downstream of the

proposed road development, attenuation is proposed. Various attenuation options are available in the form of underground storage tanks, oversize drainage pipes and attenuation ponds. From an environmental and sustainable perspective, underground storage tanks do not add any environmental value but create large environmental disturbance during construction. Oversize drainage pipes are only an option where areas are relatively small. Equally, both the underground storage tanks and the oversize pipes require a carefully managed maintenance regime to ensure continued operational efficiency. The most sustainable option is the use of attenuation ponds which become a feature of the landscape in time, as is the case in the Osberstown Attenuation pond, and is in line with current best practice guidelines.

To reduce the risk of receiving waters being contaminated by runoff from the proposed road development, pollution control measures will be provided as detailed in the following section.

Attenuation ponds will cater for an inflow of a 1 in 30 year storm event. Discharge will be provided at the greenfield runoff rate. Where attenuation ponds are located in areas liable to flooding, e.g. the floodplain of the River Liffey, ponds will be designed for a 1 in 100 year return period. Furthermore, an assessment of the impact of the pond on the hydraulic regime of the watercourse shall be undertaken and the pond bunded to a level 500mm above the adjacent 1 in 100 year flood level. An overflow discharge facility will be provided for storms in excess of 1 in 100 year return periods.

Attenuation ponds will be designed to have a permanent pool depth of 300mm where feasible.

Five proposed outfalls, with proposed attenuation ponds, have been chosen at appropriate locations along the route, typically as close as possible to an existing watercourse.

The surface water collected from the M7 Osberstown Interchange, including the Distributor Link Road and the eastern end of the Sallins Link Road will discharge to the adjacent watercourses via swales catering for an inflow of a 1 in 30 year storm event. Discharge will be provided at the greenfield runoff rate.

Where the drainage system outfalls to a watercourse the final outfall level (after any attenuation or treatment measures) shall be set above the 1 in 5 year flood level of the watercourse.

An outfall is proposed in the vicinity of the proposed railway crossing. This outfall will discharge to the River Liffey; via a pumping station, when required, to ensure the outfall level is above a 1 in 5 year storm event.

The existing Osberstown Attenuation pond will be resized to accommodate the proposed M7 Osberstown Interchange westbound diverge slip lane.

Proposed outfalls and attenuation measures are shown on **Figure 4.11 V3**.

Pollution Control

The two main watercourses in the vicinity of the proposed road development, the River Liffey and Naas Stream, are of interest to fisheries. Pollution control measures are proposed prior to each outfall from the carriageway to reduce the

risk of these watercourses being contaminated by runoff from the proposed road development. A range of pollution control measures will be adopted along the length of the proposed road development which can include combined filter drains, attenuation ponds, swales, petrol and oil interceptors, reed beds, wetlands and infiltration trenches/ponds.

Combined filter drains will form the first line of defence against pollutants making their way into surrounding watercourses. When the road is in cutting or on embankment less than 1.5m high combined filter drains will be provided. Combined drains can reduce the release of pollutants. The filter material will trap suspended solids and other contaminants thus reducing downstream pollution risk.

Where the road carriageway runoff will drain into swales, the slow moving flow through shallow swales will allow for the processes of sedimentation and adsorption to take place while carrying the runoff to the outfall.

Attenuation ponds located at each outfall will also treat runoff as well as attenuating storm flows. The ponds will be designed as “wet ponds” where feasible which will increase settlement and further dilute any pollutants that do enter the pond. Attenuation ponds will incorporate silt traps and reed beds could also be employed. They allow the settlement of silts, adsorption of any potential remaining pollutants and will also act as a natural flow attenuation mechanism, while promoting ecology to some degree. The slow flow through the attenuation ponds and reed beds gives time for further adsorption and sedimentation to take place and will also allow for a range of natural processes (including biodegradation and volatilisation) that remove waterborne pollutants to take place.

Run-off pollutants shall be assessed at all outfall locations and appropriate methods of treatment shall be applied in accordance with the NRA requirements. SuDs systems are to be considered in the first instance and only where there is insufficient space may other conventional methods such as priority systems be used.

A minimum emergency spill containment volume of 50m³ will be provided at all outfall locations from the M7 Osberstown Interchange, R407 Sallins Bypass, Side Roads and Link Roads as per NRA standards.

4.3.7.9 Utilities

The infrastructure of a number of service providers is impacted by the proposed M7 Osberstown Interchange and R407 Sallins Bypass Scheme. The provision of the proposed scheme shall ensure there are no permanent disruptions to services provided by these bodies and that all temporary disruptions must be kept to a minimum. Where service diversions are required all design works and construction works must be carried out in co-ordination with the relevant statutory bodies and service providers.

Furthermore, these services are being developed and expanded on an on-going basis. In order to avoid trenching in the new road for services after completion, provision must be made at construction stage for future crossing by services where agreed with Kildare County Council.

The following statutory bodies and service providers were consulted to identify conflict areas between their services and the proposed road development:

- Kildare County Council – Watermain, Drainage, Foul Sewer, Traffic.
- Eircom.
- Electricity Supply Board (ESB).
- Bord Gáis – Transmission and Distribution.
- E-Net.
- UPC/Chorus.
- BT Ireland.
- Inland Fibre Telecom Ltd.
- O2 Ireland.
- Vodafone.
- Meteor.

The locations of potential impact on the different services and the provisional general measures necessary to be undertaken as part of the proposed scheme have been identified in agreement with the respective service providers.

4.3.7.10 Noise Barriers

The aspects relating to noise are discussed in Chapter 11 - *Noise and Vibration*.

4.3.7.11 Land and Property Requirements

Kildare County Council, together with Arup undertook a series of meetings with directly affected landowners. Requests made by the impacted landowners and the general public during the Design were evaluated and included where they were deemed beneficial to the overall proposed scheme.

The accommodation works proposed will be introduced to serve the landowners in the following ways:

- To ensure landowners are given access to the local road network in the area, and that access can be gained between the local road and primary road networks; and
- To provide access between severed and separated land parcels.

The accommodation works include access roads to allow access to land severed by the proposed scheme. These access roads are 4.0m wide with 1.0m grass verges on either side.

The accommodation underpasses will have a minimum width of 3.0m and headroom clearance of 3.0m for the movement of animals and a maximum width of 4.5m and headroom clearance of 4.5m where access is also required for large farm machinery.

A review of the requirements for accommodation underpasses has identified the need for such structures along the length of the route.

The following is a list of proposed accesses identified. Refer to **Figure 4.12 V3** for plot locations and proposed accesses identified.

Table 4.10: Entrances, Access Roads and Underpasses

Location		Plot ID / Landowner Reference	Comments
Approx. Chainage	Description		
1+000	Entrance	109	New access required off the Osberstown Road for land parcels severed.
1+100	Entrance	117	New access required to Osberstown Road for land parcels south of the railway line.
1+570	Entrance	117	New access required to Canal Road for land parcels north of the railway line.
1+600	Entrance	104	New access required to Canal Tow Path to replace existing access.
1+970	Underpass	103	Access track under the river bridge required to provide machinery, pedestrian and animal access to land parcels severed by the proposed scheme.
3+020	Underpass	102	Access track under the river bridge required to provide machinery access to land parcels severed by the proposed scheme.
3+050	Underpass	101	Access track under the river bridge required to provide access for machinery, pedestrians and animals to land parcels severed by the proposed scheme.
0+030 R407 Clane Road North	Entrance	101	New access and driveway to be provided to replace existing access to R407 Clane Road.
0+400 & 0+650 & 0+950 Sallins Link Road	Entrance	112	Three new accesses required for land parcels severed by the proposed scheme.
1+000 Sallins Link Road	Entrance	113	New access road required for Millbank Estate with new cul-de-sac and turning head required off new access road. New access also required off the Sallins Link to the north.
0+100 Realigned Osberstown Road	Entrance	108	New access and driveway to be provided to replace existing access to Osberstown Road.
0+390 Realigned Osberstown Road	Entrance	119	New access required to replace existing entrance to Osberstown Road.
R407 Clane Road	Entrance	118	New access required off Clane Road, south of Clane Road Roundabout, to replace existing access.

4.3.8 Demolitions and Acquisitions

It is proposed that six structures will be demolished in order to construct the proposed road development. These structures comprise one shed located on the proposed R407 Sallins Bypass at Ch.1+610, three sheds located on the Osberstown Road at Ch.0+370, one dwelling on the Canal Road (plot 120) and the existing accommodation overbridge on the M7 will be demolished as part of the proposed scheme. One dwelling on Canal Road will be acquired as an adequate entrance cannot be constructed to the property with the new road alignment.

4.3.9 Planning Permission Modifications

The proposed route does not impact on any current planning applications or permissions granted.

4.4 Scheme Construction

4.4.1 Introduction

This section provides an outline of the general activities and issues associated with the construction of the proposed scheme including:

- Contract form and duration of works.
- Construction constraints.
- Temporary road closures.
- Construction programme, staging and working hours.
- Construction compounds.
- Generation, reuse and disposal of excavated material.
- Material requirement and source of material.
- Construction traffic and access.
- General Construction Methods.

4.4.2 Duration of the Works

As the construction of the scheme is dependent on funding, a final decision has not yet been made on the exact contractual arrangements for the construction of the proposed M7 Osberstown Interchange and R407 Sallins Bypass Scheme. It may be that the construction of the proposed road development will be progressed as two separate construction contracts. The M7 Osberstown Interchange may be progressed with the adjacent M7 Naas to Newbridge By-Pass Upgrade Scheme, or the M7 Osberstown Interchange may be constructed first in time on its own after the M7 Naas to Newbridge By-Pass Upgrade Scheme and the R407 Sallins Bypass may follow at a later stage.

If the proposed road development is progressed as a single construction contract, it is currently anticipated that the proposed scheme construction phase will extend

over a period of approximately 18 months. If the construction phase is split over two construction contracts, it is likely that each of the individual contracts will extend over a period of 18 months.

As the location of the split of the construction projects is immediately adjacent to the M7 motorway with access for that construction from the motorway for the interchange construction, the individual receptors along the proposed scheme will experience the impacts of construction traffic for a total duration of 18 months regardless of whether the proposed scheme is split into two separate construction projects or not.

Potential cumulative construction impacts have also been considered within this EIS. In order to assess a worst-case scenario, it is assumed that both the M7 Widening and M7 Osberstown Interchange and R407 Sallins Bypass Scheme will be constructed concurrently. Construction traffic generated for this scenario has been computed and the associated air quality and noise impacts assessed.

Should the proposed scheme be progressed as two separate construction contracts, with the interchange constructed first, an interim scenario has been developed to assess the potential environmental impacts associated with developing the interchange without the bypass in place. There are no anticipated additional construction traffic impacts arising from the possible interim scheme.

4.4.3 Potential form of Contract

Whilst a decision on the exact contractual arrangements for the construction of the M7 Osberstown Interchange and R407 Sallins Bypass Scheme has not yet been made, the proposed scheme is suitable for development as a Design and Build (D&B) Scheme.)

Regardless of the form of contract, the contractor for the works will be contractually bound within the contract by any conditions arising from the site constraints, the recommendations of the EIS, the Employer's Requirements for the project, any modifications that may be imposed on the proposed scheme by An Bord Pleanála and all Statutory Regulations. Prior to construction a Construction Management Plan will be required to be prepared by the contractor and approval received from Kildare County Council.

4.4.4 Construction Constraints

Construction of the proposed scheme can be divided into a number of sub-sections. The dividing line between subsections is either a major physical barrier such as the motorway, major rivers, the railway or the proposed scheme terminus. The subsections identified are as follows:

- Section 1: M7 Osberstown Interchange including the Distributor Link Road and the on (merge) and off (diverge) slip roads and auxiliary lanes from the M7 mainline.
- Section 2: R407 Sallins Bypass from motorway crossing (Ch. 0+000) to the railway crossing (Ch. 1+250), including the Osberstown Road realignment.
- Section 3: R407 Sallins Bypass from railway crossing (Ch. 1+250) to the Grand Canal crossing (Ch. 1+580).

- Section 4: R407 Sallins Bypass from Grand Canal crossing (Ch. 1+580) to the southern River Liffey crossing (Ch. 1+980) and including the construction of Sallins Link Road.
- Section 5: R407 Sallins Bypass from southern River Liffey crossing (Ch. 1+980) to northern River Liffey crossing (Ch. 3+050).
- Section 6: R407 Sallins Bypass from northern River Liffey crossing (Ch. 3+050) to existing R407 Clane Road (Ch. 3+650).

4.4.5 Temporary Road Closures

The proposed scheme will be constructed in a manner which will minimise, as much as possible, any disturbance to the local residents and road users. To minimise inconvenience to the road user, two lanes of traffic flow will be maintained along the M7 in both directions between 6am and 10pm and traffic movements in the vicinity of the proposed scheme will be facilitated by a temporary traffic management scheme. If the M7 Naas to Newbridge By-Pass Upgrade Scheme is advanced ahead of the proposed scheme, then there will already be three lanes available on the M7. Localised single lane operation will be permitted from 10pm to 6am along the M7 in both directions.

Construction of the merge and diverge auxiliary lanes and ramps adjacent to the M7 mainline is likely to result in traffic management measures on the M7 Motorway with a barrier erected to segregate the construction plant from the mainline traffic to complete the works. The use of night-time working may be required to complete these works.

Construction of the realigned Osberstown Road is likely to result in a temporary parallel road diversion with single lane traffic in operation for a period of up to four months. This is to allow the construction of the embankment and bridge on the line of the final road alignment.

Requirements for temporary traffic management during the construction of the proposed scheme will be explicitly written into the Employer's Requirements and tenderers will have to demonstrate compliance with these requirements during the tender process.

In order to minimise the impact on local residents, landowners and the public, access to existing residential areas, business premises and public facilities must be maintained during construction. Construction methods and phasing will also be constrained to minimise noise, air quality and other impacts on the community. Construction works will also be undertaken in a manner which will minimise impact on the environment including waterways, flora and fauna habitat and archaeological and architectural sites.

4.4.6 Construction Programme, Staging and Working Hours

Pending approval for the proposed scheme to proceed and any further conditions imposed, it is estimated that construction of the proposed scheme will take approximately 18 months to complete.

Construction of the grade separated interchange will take place in stages to satisfy the temporary traffic management requirements of the proposed scheme and to minimise disruption to road users.

The timing of construction activities, working hours and the rate of progress of construction works are a balance between efficiency of construction and minimising the impact on local residents and road users. Constraints will be specified in the contract documents restricting working hours on the proposed scheme.

However, the installation of precast or fabricated bridge components over the M7 Motorway and the installation of the railway structure will have to take place during off-peak traffic periods and thus some limited night-time working is envisaged. Otherwise, night time working will generally be prohibited.

4.4.7 Construction Compounds

Temporary construction compounds will be located within the lands being made available to the contractor. **Figure 4.13V3** indicates the potential locations of the proposed compound in the vicinity of the interchange and in the vicinity of the Sallins Link Road, which are selected due to ease of access from an existing major road and proximity to proposed structures. If the contractor requires additional storage, he will locate this at a facility with suitable permissions for such a use.

The construction compounds will be fully engineered with appropriate services and will be fenced off for security purposes. Access to the compound will be restricted to site personnel and authorised visitors only. Any storage of hydrocarbons or any chemicals within the compounds will not be within 100m of a watercourse. All fuel storage area will be bunded to 110% of storage capacity to prevent spills. Following completion of construction, these areas will be cleared and reinstated.

As with the main scheme construction works, materials and equipment storage will be subject to restrictions on the nature and timing of operations so that they do not cause undue disturbance to neighbouring residential and community properties.

4.4.8 Generation, Reuse and Disposal of Excavated Materials

The proposed scheme construction will involve some excavation and disposal of materials and importation of construction materials for scheme embankments and road construction.

Overall, it is estimated that approximately 76,000m³ of material will be excavated during the construction period which is not considered a significant volume and the bulk of this material will be reutilised on site.

The issues relating to earthworks and waste are discussed in Chapter 15 - *Soils and Geology* and Chapter 18 - *Resource and Waste Management* respectively.

4.4.9 Material Requirement

The proposed scheme will have a requirement for imported materials, primarily comprising of high standard fill and stone for embankment construction, concrete for road kerbs and the bridge construction, and asphalt for the road pavement construction.

It is estimated that the following approximate quantities of materials will be brought in for the construction contract:

- Structural Fill : 703,000m³
- Asphalt : 43,000m³
- Roadstone : 29,000m³
- Drainage Pipe : 12,000m
- Reinforcement Steel : 500t
- Structural Concrete : 5,000m³

4.4.10 Source of Materials

In line with the principles of sustainable development, the proposed scheme will seek to minimise the amount of materials brought into the construction site. This will be achieved by re-using as much of the materials generated during construction as possible, provided that they satisfy the specified engineering standards.

The majority of new materials brought to site, such as earthwork materials and drainage pipes will be used immediately or will be stored on site within the site boundary. Other materials such as asphalt or concrete will be brought directly to the construction site from the relevant batching plant as and when required, and immediately placed.

Construction vehicle activity has been quantified using the required volumes of materials in Section 4.4.9 above and locating suitable sources for same as close to the proposed scheme. The impact of these additional construction vehicle movements along the road network is covered in 4.4.11 below.

4.4.11 Construction Traffic and Access

4.4.11.1 Traffic Generation

The activities associated with construction of the proposed scheme are anticipated to have an environmental effect as a result of both construction traffic and temporary traffic diversion in the vicinity of the works. Construction traffic would be generated by:

- Material supply and disposal.
- Movement of site equipment.
- Site workers.

- Supply, service vehicles and visitors.

The assumptions which were made for the estimation of construction traffic impact are as follows:

- The M7 Osberstown Interchange and R407 Bypass Scheme will be constructed in one phase (worst case scenario in terms of construction traffic).
- The construction traffic for each section is distributed over the construction period.
- It is based on a 6 day working week.
- The construction traffic is based on one empty, one full movement.
- The traffic disperses along existing roads that are appropriate for construction traffic.

Estimated construction traffic on the affected routes is provided in Table 4.11 below.

Table 4.11: Estimated Construction Traffic

Section of Mainline	Movements	Roadway for Comparison	Existing AADT	HGVs	Increase in AADT	% increase in AADT (Total)	% increase in AADT (HGV)
Section 1: M7 Osberstown Interchange	68,800	M7	56,400	6,204	221	<1	4
Section 2 to Section 3: Sallins Bypass from Motorway Crossing (Ch. 0+000) to Grand Canal Bridge (Ch. 1+580) including Osberstown Road overbridge	33,100	Western Distributor Road	10,900	545	106	1	19
Section 4 to Section 5 to Section 6: Grand Canal Bridge (Ch. 1+580) to Existing R407 Clane Road (Ch. 3+650) including Sallins Link Road	91,600	R407 Clane Road	18,700	1,122	235	1	21

Overall there is an increase in HGVs of approximately 21% for the 18 months duration of construction on the existing road network. This is considered and assessed in terms of noise and air quality within this EIS.

4.4.11.2 Site Access and Access Routes

Site access is likely to be required at a number of points along the length of the proposed scheme. It is envisaged that access and egress points for delivery and removal of the majority of site materials will be from the Western Distributor Road, the M7 and the existing R407.

During the construction of the approach embankments and the bridge structure at the proposed M7 Osberstown Interchange, access and egress points will be adopted to enable the contractor to access and depart from the site primarily onto the M7.

The existing accommodation bridge will be used to facilitate construction traffic movements between the south and north sides of the M7 mainline initially until such time as this bridge will be demolished. This arrangement will minimise traffic movements on the local road network to the north of the proposed scheme.

Access to Sections 1 and 2 of the proposed scheme will be from the M7 and the Western Distributor Road respectively initially, which will allow construction traffic to advance north to the proposed railway structure within the lands made available without using any of the local road network.

There will be a requirement to use the local road to access the area to the north of the railway and to the south of the canal for the purposes of constructing the foundations for the temporary supports to the railway track. This will be restricted to construction traffic exiting the site onto the local road to utilise the existing road under the railway bridge and then re-entering the site immediately north of the railway bridge to facilitate the construction of the railway temporary supports. These temporary supports are required from the outset to facilitate the construction of the bypass under the railway track. Once the supports are in place, the bypass will be constructed under the railway line and there is no further requirement for any site traffic to use the local roads. Use of the local road will be restricted to the extents under the railway with a connection from the site on either side of the railway crossing. This will also allow access to Section 3 of the proposed scheme between the railway crossing and the south side of the canal crossing along the lands made available.

As there is a height restriction on the existing crossing under the railway, the contractor will be limited to the use of smaller concrete trucks and machinery to construct the foundations for the temporary supports for the railway track at the railway crossing, and the southern substructure for the canal crossing.

Access to Section 4 of the proposed scheme will be from the signalised junction in the middle of Sallins town initially along the route of the proposed Sallins Link Road. This will allow construction traffic to access the north side of the canal crossing and the southern side of the Liffey crossing at Ch. 1+980.

Access to Section 5 of the proposed scheme is limited as the lands are constrained by the River Liffey and the Grand Canal. Access for the initial construction traffic to construct the foundations, abutments and piers of the proposed structures over the River Liffey will be limited to the southern side of the southern River Liffey crossing and northern side of the northern River Liffey crossing. Therefore, a temporary crossing constructed from one side may be required for construction of the permanent structures.

Exact details of the temporary structure will be determined at detailed design stage; however, no permanent works within the river are permitted. Once the structures are constructed, access will be via the lands acquired for the construction of the proposed scheme.

In order to minimise disruption to existing traffic, a Traffic Management Plan for construction traffic will be developed whereby construction vehicles would be confined to appropriate roads and safe access and egress points would be identified along the extent of the proposed scheme.

4.4.11.3 Traffic Safety

All construction works will be undertaken in a clearly delineated site area which will have specific entry and exit points for construction related traffic onto the public road network.

Boundary treatment in the form of a fence will be erected prior to the commencement of construction and will define the extent of the construction site.

Where works are to be undertaken adjacent to the existing road, temporary traffic barriers will be erected to separate the construction works from the public, to

create a safe working space for the contractor and to clearly define the areas within which construction will be undertaken.

As has been stated above, traffic management will be required on the M7 motorway during the construction of the interchange bridge and the merge and diverge slip lanes. The contractor will be required to ensure safe operation of two lanes of traffic in each direction during the daytime for the duration of the construction phase.

4.4.12 General Construction Methods

4.4.12.1 Earthworks

Topsoil and subsoil will be excavated and replaced with road construction. All stripped topsoil and subsoil will be stored on site or nearby and reused. Materials will be transported to and from the site using the existing road network. Excavation and filling will be carried out using mechanical plant.

Road embankments will be constructed using excavated material or, where necessary, imported fill material and will generally be compacted using static and vibrating rollers or similar equipment.

The embankments will be constructed for the majority from self-supporting fill material. Where during the detailed design the requirement for soil retention is identified this shall be provided by using steepened earthworks which shall have a vegetated finish or reinforced soil or reinforced concrete retaining walls with a specified range of acceptable finishes to the exposed faces.

The requirements for the aesthetic appearance of the exposed faces will be specified in the contract documents.

4.4.12.2 Pavement Works

Bituminous paving will be undertaken throughout the extent of the proposed scheme. The thickness of the road pavement will be determined at detailed design stage but on this type of road, a new blacktop thickness of 350mm could be anticipated.

All new blacktop material will be transported to site in trucks designed for the transportation of materials at high temperatures. The material shall be transferred directly to paving machines, which spreads the blacktop onto the road in layers. The spread material is then compacted using rollers.

4.4.13 Environmental Management

Every reasonable effort will be made to ensure that any damaging environmental effects will be minimised during the construction phase of the proposed scheme. The construction planning will be geared towards keeping disruption and nuisance to a minimum.

Environmental impacts during construction will be mitigated or reduced where possible (refer to the individual chapters in this EIS for specific mitigation measures).

In this regard, during the construction stage, an Environmental Operating Plan (EOP) will be drawn up by the main contractor using the NRA's 'Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan'. Adherence to this plan will be a contract requirement and this will ensure good working practices are followed so as to minimise and manage any significant, negative environmental impacts arising from construction. The contractor will be required to produce an environmental management plan prior to commencing any works on site. This plan will deal with issues such as noise and dust mitigation measures, hours of operation, traffic management, waste management, environmental management (including debris from construction traffic, noise, dust and air quality and any other relevant matters), demolition, protection of trees, etc.

4.5 Associated Developments

Kildare County Council, in conjunction with Kildare National Roads Office and Roughan O'Donovan, are currently progressing the M7 Naas to Newbridge By-Pass Upgrade Scheme (referred to as the M7 Naas to Newbridge By-Pass Upgrade Scheme).

This scheme provides a third lane along the M7 motorway between the M7 Maudlins Interchange to the north of Naas and the M7/M9 Interchange at Greatconnell, to the south of Naas, a total distance of 13km. This scheme also includes an upgrade to the Newhall Interchange.

As the M7 Osberstown Interchange is located in between the M7 Maudlins and Newhall Interchanges, there is an immediate interface between the two schemes. The M7 Naas to Newbridge By-Pass Upgrade Scheme will involve the construction of a third lane in the existing median through the proposed M7 Osberstown Interchange area. The proposed M7 Osberstown Interchange and R407 Sallins Bypass Scheme will involve the addition of an auxiliary lane to the M7 on the verge side over the extents of the proposed M7 Osberstown Interchange area, in addition to the construction of a bridge over the M7. Therefore, from a construction perspective there is an interface between the two schemes as they are located on the same stretch of the existing M7 over the extents of the interchange construction area.

There is also an interface between the two schemes from a traffic perspective as the construction of the M7 Osberstown Interchange and R407 Sallins Bypass Scheme affects traffic patterns on the M7. The necessity to upgrade the M7 Naas Bypass to dual-three lane standard in advance of the proposed M7 Osberstown Interchange and R407 Sallins Bypass Scheme has been determined based on a traffic assessment as outlined in *Chapter 5 Transportation*. On this basis, the proposed Kildare County Council 'M7 Naas to Newbridge By-Pass Upgrade Scheme' is included as part of the scheme 'do-minimum' scenario for the M7 Osberstown Interchange and R407 Sallins Bypass Scheme.

4.6 Sustainability

4.6.1 Introduction

The widely accepted definition of sustainable development, is that outlined in the World Commission on Environment and Development report Our Common Future (1987), *'humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs'*. Sustainable development is not a fixed state of harmony, but rather *'a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs'*. The importance of implementing more sustainable design in construction has been identified as a key part of supporting more sustainable development overall. The drivers for this change are well established in global and regional treaties, underpinned by national programmes and local practice.

As part of an integrated transport system, a national road network is critical for raising the quality of life, allowing free movement of people and goods and enabling access to services and opportunities.

An assessment of the Smarter Travel – A Sustainable Transport Future: A New Transport Policy for Ireland 2009-2020 is contained in Section 2.4 of this EIS.

Issues surrounding sustainability are generally recognised as being categorised into three themes environmental, economic and social.

4.6.2 Environment

From an environmental perspective, European, National and Local legislation requires that the environmental impacts associated with major roads projects are identified and measures taken to avoid, minimize or mitigate these impacts.

Refer to individual Sections of this EIS for an in depth discussion of potential environmental impacts and details of how these will be avoided, minimised and mitigated.

4.6.3 Economy

The proposed scheme will be of economic benefit. In its construction phase a profitable business opportunity will be provided for contractors and suppliers.

The proposed scheme will bring with it benefits to business and public facilities in Sallins by reducing noise and air pollution in the town. Accessibility to businesses and community facilities in Sallins and the Millennium Business Park will be better facilitated by the proposed scheme and the resulting reduction in congestion.

The proposed scheme will provide a high quality roadway asset designed in accordance with current National Roads Authority design standards and guidance.

4.6.4 Society

A detailed analysis of the impact of the proposed road development on society is presented in Chapter 7 - *Human Beings*.

The proposed scheme will result in transfer of a large volume of traffic from Sallins town centre and the Monread Road in Naas. This will reduce congestion, lower collision rates and improve pedestrian safety in these locations. Cyclist and pedestrian facilities are incorporated within the proposed development to facilitate a cyclist friendly route/ connection between the proposed R407 Sallins Bypass and the employment areas in Millennium Park without the need to negotiate the proposed M7 Osberstown Interchange.

The M7 Osberstown Interchange will provide enhanced connectivity between the National Motorway Road Network (M7) and the towns of Naas and Sallins.

In addition the construction work will provide primary employment. There will also be secondary employment provided to the suppliers of materials on site related to the construction.

All reasonable measures to provide a safe and healthy site (during both the construction and operational phase), both for the workers on the site, and also any visitors to the site will be implemented.

4.7 References

Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects, DoEHLG and National Construction & Demolition Waste Council (NCDWC)

BS5489-1, ISEN13201 Code of Practice for the Design of Road Lighting, Part 1: lighting of Roads and Public Amenity Areas

Department of Environment, Traffic Signs Manual, 2010

Department of Transport, 2009, Smarter Travel – A Sustainable Transport Future

Design Manual for Urban Roads and Streets (DMURS), Department for Transport, Tourism and Sport (DTTAS).

Kildare County Council, Naas Town Development Plan, 2011-2017

National Roads Authority Design Manual for Roads and Bridges TD 9/12 – Road Link Design;

NRA DMRB HD 25-26/10 – Pavement & Foundation Design;

NRA DMRB IAN 03/12 – Provision for Cyclists and Pedestrians on Type 2 and Type 3 single carriageway National Road in rural areas; and

NRA DMRB TD 27/11 – Cross-Sections and Headroom;

NRA, Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan.

National Transport Agency, National Cycle Manual 2007;

UK DMRB HD 33/06 and 2009 NRA addendum – Surface and Sub-surface Drainage Systems for Highways.

UK DMRB TD 16/06 and 2009 NRA addendum – Geometric Design of Roundabouts;

UK DMRB TD 22/06 and 2009 NRA addendum – Layout of Grade Separated Junctions;

UK DMRB TD 34/07 - Design of Road Lighting for the Strategic Motorway and Trunk Road Network.

United Nations, Report of the World Commission on Environment and Development: Our Common Future, 1987