17 SCHEDULE OF MITIGATION MEASURES

17.1 Introduction

This chapter presents a schedule of the key mitigation measures identified within **Chapters 6 to 15** of this EIAR and additional measures contained in the Further Information Response. Mitigation measures have been proposed, where required, in order to avoid, reduce and where practicable remedy significant adverse effects.

Mitigation measures have been incorporated into the design of the proposed Scheme and will be applied during the construction and operation of the proposed development. All mitigation measures are based on the proposed scheme as described in **Chapter 5**, **"*Description of the Proposed Works*"**. A summary of measures is presented in the tables below with reference made to the page numbers of the chapters where mitigation measures is discussed. The mitigation measures for both the construction and operational phases are detailed as appropriate. Individual chapters of the EIAR are referred to for context and detail of the specific mitigation measures.

The appointed Contractor for the Scheme will be required to prepare and agree a detailed Construction Environmental Management Plan (CEMP), in line with ISO 14001 to address all construction activities to be carried out as part of this development prior to construction works commencing on site. The CEMP will include all measures as identified in the EIAR, NIS and associated environmental reports and will include all conditions attached to any planning approval granted for the Project. It will be a contractual obligation that the appointed Contractor implements **all** site management measures and all planning requirements and conditions.

17.2 Schedule of Mitigation Measures

Table 17-1: Arboriculture Mitigation Measures

No.	Description
	Protective fencing (barriers) shall be erected in the positions and alignments as indicated on the Tree Protection Plan Drawing for Tymon Park North of M50, Wainsfort Manor Crescent, St Martin's Drive and Ravensdale Park (See Dwg No 19150_T_103 REV B SEPT 20 Sheets 1-3). This fencing, enclosing the minimum tree protection areas indicated, must be installed prior to any plant, vehicle, or machinery access on site. No excavation, plant or vehicle movement, materials handling or soil storage is to be permitted within the fenced tree protection areas indicated on the plans. Fencing is not to be taken down or re-positioned without written approval of the project Arborist.
	Temporary ground protection measures in the form of specialist ground protection matting or 'Cellweb' will be implemented as required, where proposed works have the potential to have an impact on tree root systems. The ground protection measures will be required in proposed site compound areas as well as any other areas of soil or grass to be tracked by machinery or other equipment (See drawing Dwg 19150-T-103 REV B SEPT 20 Sheet 1 of 3 for Ravensdale Park and Wainsfort Manor Crescent).
	Landscape works and installation of / work to boundary treatments within the Root Protection Area should be undertaken to a specification and method statement in accordance with BS 5837: 2012 - submitted for approval prior to commencement of works, under the supervision of an Arborist and / or Landscape Architect.

No.	Description
	Removal of trees, scrub vegetation and ivy clearance will be performed in winter outside of the bird nesting season. Tree felling will be preceded by a competent assessment as to the presence of any protected wildlife species, where required specialist advice will be sought if necessary.

Table 17-2: Surface Water Management Mitigation Measures

No.	Description
	In general, all works on the riverbank will be subject to a specific method statement agreed in advance with the statutory authority. The method statement will be specific to each construction area but will incorporate the following points: • To avoid excessive silt runoff, site clearance is not to be undertaken during wet conditions, when rainfall of more than 0.5 mm/hour is forecast within the next 24 hours or rainfall of more than 3mm/hour is forecast within the next five days in the River Poddle catchment. • At the riverbank works locations, silt fencing will be installed along the river bank to retain eroded sediments. Catch nets may be used where relevant. • Soil cleared from the site and all materials associated with the building process are to be stored outside the flood zone in designated storage areas. The flood zone will be delineated on the works areas. As far as reasonably practicable, no soil storing will be allowed within 30 m of the open water where sufficent working areas are available within the site boundaries, which is in line with Inland Fisheris Ireland guidelines. • Raw or uncured waste concrete is not to be disposed of within 30m of the river. No washing out of concrete tankers will be allowed on any of the construction areas. • Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents and oils etc.are to be carefully handled to avoid spillage. properly secured against unauthorised access or vandalism, and provided with spill containment. All staff to be trained in management of chemicals and spill response. • As far as reasonably practicable, fuelling and lubrication of equipment is not to be carried out within 100 m to the open water where sufficent working areas are available within the site boundaries. Fueling should only be undertaken in designated areas with spill control measures in place. All fuel storage should be wihin containers with 110 % containment and located on hardstand. This measures are in line with the Inland Fisheris Ireland guidelines. • Weedkillers not be used within 100m of the open water. • Any spillage of fuels, lubricants of hydraulic oils is to be immediately contained and the contaminated soil removed from the site and properly disposed off. • Waste oils and hydraulic fluids is to be collected in leak-proof containers and removed from the site for disposal or re-cycling. • The washing of any plant equipment will be carried out in designated areas to prevent potentially polluting material from contaminating aquifers and soils/subsoils. • Excavations will be backfilled as soon as possible to prevent any infiltration of potentially polluting compounds to the subsurface and the aquifer. • There will be no discharge of effluent to groundwater during the construction phase. All wastewater from the construction facilities will be stored for removal off site for disposal and treatment.

No.	Description
	For in-river works additional mitigation measures are required. Specific method statements are required for approval by the relevant regulator as the measures required will depend on the construction method proposed and the nature of the open water conditions. • Measures to minimise the suspension and mobilisation of sediment downstream of the working area will consider silt barriers and cofferdamming to create dry working areas. • Where feasible, works will allow the river to recover for at least 14 hours on a daily basis meaning that the period of in river work should be about 10 hours maximum. • A dry working area will be created for pouring of concrete. • A Siltbuster concrete washwater will be used where there is insufficient space on site to achieve the required clearance distances between the works and river channel. • In areas of the river where there are alien species, all plant and machinery will be thoroughly washed before moving to another section of the River. • All vehicles will be regularly checked for oil leaks, and ruptured hose pipes.
	All in-stream works will comply with current best practice, notably the Inland Fisheries Ireland Guidelines on protection of fisheries during construction works in and adjacent to waters (IFI, 2016) and Transport Infrastructure Ireland's Guidelines for the crossing of watercourses during the construction of national road schemes (TII, 2008).
	The contractor shall be obliged to ensure no deleterious discharges are released from the sites to the River Poddle during excavation de-watering, testing or washing activities. Throughout the period of works the contractor shall also take account of relevant legislation and best practice guidance including but not limited to the following: • C532 Control of water pollution from construction sites: guidance for consultants and contractors; • C648 Control of water pollution from linear construction projects; • SP156 Control of water pollution from construction sites – guide to good practice; • NRA's 'Guidelines for the Crossing of Watercourses during Construction of National Road Schemes (NRA, 2005); • The Eastern Regional Fisheries Board guidance document 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites' (Murphy, 2004); and • The Southern Regional Fisheries Board guidance document 'Maintenance and protection of the inland fisheries resource during road construction and improvement works' (Kilfeather, 2007).
	At the start of the project the main contractor will hold a series of toolbox talks with the sub-contractors and supervisors to make them aware of the various environmental commitments made in relation to the scheme. It is recommended that responsible personnel and communication lines are agreed in advance of the work starting. These named responsible people shall be documented in an Environmental Operating Plan for the scheme.
	The measures contained in this document and the scheme specific Construction Environmental Management Plan (CEMP) are communicated and set up prior to the work commencing. The Plan will also incorporate waste management, separation, disposal and documentation for wastes generated on-site, and in the contractor's compound. All contractors working on site will be made aware of the CEMP, its requirements and reporting procedures. A nominated person shall be tasked with maintaining the CEMP, ensuring that training is given to all workers and that all records regarding waste handling and disposal, environmental incidents and emergency procedures are kept in the main site office. It is

No.	Description
	recommended that an independent audit of the CEMP is carried out before the work commences. Similarly, a review of the CEMP and SWMP shall be carried out during the construction programme.
	With regard to the Integrated Constructed Wetland (ICW) at Tymon Park, a temporary river water management system will need to be established during the earthworks. To reduce the impact of construction works on the river flow the ICW will first be constructed outside of the river channel and erecting temporary bunds along the existing river route to contain and maintain river flows.
	In relation to the works at Whitehall Park, these will include channel re-aligment, floodplains, tie-ins locations, in-channel Large Wood Structures, a wetland/ blackwater feature and a planting regime. Construction will be conducted 'offline' from river flows, thereby minimising the risk of pollution to the waterbody downstream. If is necessary, the completed design channel could remain 'offline' for sufficient time to allow the channel banks to stabilise through the establishment of native vegetation. Once the vegetation had sufficiently established, the new channel will be connected to the flow, first at the downstream tie-in and then the upstream. This will be conducted in a staged manner, such that a proportion of the flow is initially diverted into the new channel, allowing for a preliminary assessment of the stability of the design before it becomes fully active.
	Prior to construction, a CAT Scan will be undertaken to accurately determine the location of onsite utilities, to ensure that no utilities are impacted by the works.
	The construction will consider a degree of 'field fitting' in order to achieve some variation in physical diversity throughout the new channel, in case it is neccesary due to some unexpected issue that arises. It is recommended that a member of the design/ geomorphology team be present on site at regular intervals during the construction period to supervise the works.
	In relation to planting, installation of seeded coir pallets is recommended to take place during winter months (ideally January/ February) to allow sufficient time for roots to establish/ take hold before any prolonged dry periods.
	The stone baffles and stone weir and are to be installed at the inlet point and outlet points respectively. Weir and stone baffles are to be constructed from material acquired from site where suitable and available, otherwise locally sourced natural stone can be used.
	<u>Control of Suspended Solids</u> The potential for the release of suspended solids to the river during the construction of the storage embankments will be significantly increased during wet weather. Temporary silt fencing is required erected around working areas adjacent to the river to prevent earth-moving equipment or silt laden run-off from encroaching too close to the River or Lake at Tymon when constructing the walls and embankments. The risk of erosion will be minimised where possible by planning the construction and construction routes. Topsoil will be stripped from the footprint of the embankment before the construction starts. This will help to key the embankment to its foundation and to reduce settlement. Where the topsoil is stripped and the subsoil removed, a drainage system will be installed to collect run-off water from the excavated/denuded areas. The water will drain to a temporary settlement tank/ system. The overflows for the settlement system will be to land rather than the River or the Lake where feasible or tested to assess suitability for discharge to open water. Sandbags will be used in denuded areas to attenuate runoff and reduce soil erosion. Stockpiles of soil will be situated a minimum of 30 m from the edge of openwater. Sandbags and or silt fencing will be placed around stockpiles to prevent sediment laden runoff to the river.

No.	Description
	Only certified soil will be used for the construction of the embankments. Wash down areas for vehicles and site equipment will be located away from the riparian zone. Where used, concrete pumps will be emptied and washed out on site to prevent permanent damage from concrete setting within the workings of the pump. A Siltbuster concrete washwater will be used as a pH treatment unit where there is insufficient space on site to achieve the required clearance distances between the works and river channel. The wash water should be directed to the settlement tank/ system. The pouring of the concrete for any instream works or near openwater e.g. the wing walls of the flow control structure will be undertaken in dry weather and the concrete will be allowed to cure for 48 hours minimum. Wash water from the concrete pumps or surplus concrete left in the truck will not be discharged on site.
	<u>Control of Other Pollutants</u> Prior to the storage of any potentially polluting material on site, the site manager will be responsible for ensuring that a material safety data sheet for each product is available for inspection. A copy of all relevant material safety data sheets will be available at storage locations as well as the site office. Best practice methods will be employed at all stages during the construction. Fuel, lubricants, hydraulic oil, repair equipment used on the construction site will be carefully handled to avoid spillage. All tanks, barrels or containers containing hazardous materials (oils, lubricants, sealants etc.) must be stored in a bunded area within the site boundary, the capacity of which will be 110% of the total volume of liquid to be stored. Spill kits will be made available in site compound and in site machinery. In the event that a spillage does occur, adsorbent material will be placed on the material to adsorb it. The contaminated adsorbent will be correctly disposed of as a hazardous waste and brought to a licenced waste handing site by a licenced waste contractor. The Site Manager must retain a copy of any waste transport and disposal documentation. In the event of a larger spillage of oil/hydraulic oil then South Dublin County Council and/or Dublin City Council Environment Sections will be contacted immediately. The Emergency Procedures for the site will have a procedure for dealing with large spillages. All empty diesel/oil/hydraulic oil containers will be drained to a single labelled container. The empty oil containers will be stored in a dedicated labelled totally sealed skip. Waste skips will be collected by a licenced waste carrier and brought to a licenced facility for disposal. All disposal records must be retained at the site offices. The waste from the chemical toilets will be collected by a licenced waste carrier and brought to a licenced treatment facility. A supply of oil booms and soak pads must be maintained within the contractor's area. All machinery will be inspected at the start of each work shift for signs of leaking hydrocarbons. Parking areas will be inspected on a daily basis for evidence of hydrocarbons leaking from machinery. Spills will be cleaned up and corrective action will be taken to prevent future spills.

Table 17-3: Population & Human Health Mitigation Measures (Chapter 6, Page 6-8)

No.	Description
6.1	Impacts associated with construction – such as noise, dust, the passage of heavy works vehicles *etc*., will be short-term effects that will end once the project is operational. The appropriate management of construction activities and traffic will mitigate against significant impacts, as set out in various sections of the EIAR.
6.2	Techniques to minimise the generation of dust before during and after the works and to protect receptors from dust and noise during construction and construction traffic have been dealt with in the following sections.

Table 17-4: Biodiversity Mitigation Measures (Chapter 7, Pages 7-35 – 7-38)

No.	Description
7.1	The contractor shall employ an Ecological Clerk of Works (ECoW) to oversee the implementation of the mitigation measures outlined below. The ECoW shall be required to provide reports and written correspondence to the Employers' Representative as requested, in order to demonstrate compliance with the measures outlined in this report. The ECoW will carry out a series of ecological surveys prior to the commencement of construction works, to review any changes in the baseline environment. These surveys will provide an updated baseline for future monitoring.
7.2	The contractor shall be required to employ an Environmental Manager and ECoW to assist with preparing a detailed CEMP and its implementation, and to advise on all works in close proximity to the river.
7.3	All work within 50m of the river corridor shall be planned in accordance with the contractor's ECoW and recorded in a method statement. The ECoW shall give a toolbox talk in advance of works, and all working areas shall be marked out clearly in advance of work.
7.4	Pollution prevention measures shall be adhered to as follows: • Silt-management measures shall be implemented for all groundworks in order to prevent the release of suspended solids into the watercourse; • The main site compound at Tymon Park shall include a bunded area for the storage of pollutants, with additional areas for the stockpiling of materials, and drainage control for the washing area; • Hazardous materials (*e.g*. fuel, cement, etc.) shall be stored at least 50m from the river; • Vehicles shall be refuelled over drip trays; • Spill kits shall be kept in the site compound and all mobile vehicles; and • Any concrete required for construction work shall be ordered ready-mixed. Vehicles shall be cleaned off site. Further details are provided in **Table 17-2: Surface Water Management Mitigation Measures**
7.5	All in-stream works shall comply with current best practice, notable the Inland Fisheries Ireland *Guidelines on protection of fisheries during construction works in and adjacent to waters* (IFI, 2016) and Transport Infrastructure Ireland's *Guidelines for the crossing of watercourses during the construction of national road schemes* (TII 2008).

No.	Description
7.6	Impacts on habitats shall be compensated by re-instating disturbed areas with an equivalent habitat type, *e.g*. species-rich dry meadow or a treeline. The majority of new tree and shrub planting shall be of native species, complemented by some common ornamental species, *e.g*. beech, chestnut, walnut, cherries and limes.
7.8	Species-rich dry meadow shall be re-instated on the surface of new embankments in Tymon Park, and in the footprint of the temporary construction compound.
7.9	New specimen trees shall be planted in Tymon Park, Ravensdale and St Martins Drive, accounting for twice the number of trees that will be removed.
7.10	To ensure the protection of the recorded rare plant species, the following mitigation measures shall be adhered to: • At the outset of construction works, the contractor's ECoW shall survey the affected areas in order to map all individual plants of flowering rush and broad-leaved helleborine. The survey should be carried out during the growing season for these species (May to September, inclusive) • The ECoW shall review the proposed working areas with the contractor, in order to determine whether the rare plants will be disturbed • Where possible, plants shall be left in-situ and protected during construction works. Robust measures shall be taken to protect the plants, including the use of temporary fences or other similar measures • Where such impacts are unavoidable, the plants shall be translocated to a similar habitat nearby (*e.g*. shallow flowing water for flowering rush, or broadleaf woodland for broad-leaved helleborine). The ECoW should liaise with a landscape contractor regarding suitable techniques for translocation, in order to maximise chances of survival. The ECoW shall also consider options for the collection and dispersal of seed if any plants are in flower
7.11	To control the spread of Nuttall's waterweed, a third schedule invasive species, the following mitigation measures shall be adhered to: • Prior to the commencement of construction, the contractor's ECoW shall survey the affected section of channel to map the distribution of Nuttall's waterweed. • If any waterweed is observed in the footprint of works, the ECoW shall prepare an Invasive Species Management Plan, which shall set out the contractor's strategy to ensure compliance with the law during construction works. The plan should include measures to avoid the accidental spread of waterweed plants during construction works, and to manually remove (and dispose of) any plants within or adjacent to the proposed working area. A derogation licence will be required from the Department of Culture, Heritage and the Gaeltacht.
7.12	Tree and shrub removal will be carried out between September and February (inclusive), in order to avoid the disturbance of nesting birds or breeding mammals
7.13	Tree protection zones shall be marked out for all retained trees and hedgerows in the vicinity of working areas.
7.14	In recognition of the risk to nesting birds in Tymon Lake (which will be used for flood storage), two floating nest platforms shall be installed on the Lake. It is intended that the nesting platforms will be approximately 1m x 1m in size and surfaced with sods of grass or reeds. They will be constructed on stable, floating platforms, but anchored to the ground to prevent them from drifting. Advice will be sought from specialists in the design of the rafts in order to maximise the likelihood of their success.
7.15	Artificial nesting sites for sand martins and kingfisher shall be provided as an ecological enhancement measure. The following sites are suitable:

No.	Description
	• The western edge of Tymon Lake, on the steep section of bank between the two streams • The southern bank of the river downstream of Tymon Lake, immediately opposite the ICW • The north bank of the realigned section of watercourse at Whitehall Park. Artificial nesting banks can be created from concrete and clay / polyethylene pipes, or purchased as pre-fabricated wooden boxes. Nesting sites will be located on or beside the river bank, with a minimum height of 1.5m above water level, and a length of at least 5m.
7.16	Artificial bat boxes will be installed in all working areas. Bat boxes will be of robust design (*e.g*. woodcrete) and designed for crevice-dwelling bats, *e.g*. Schwegler type 1FF and 2F models. At least ten boxes will be installed in each of Tymon North and Tymon Park, and at least four boxes in each of Whitehall (to be installed on walls), Wainsfort Manor, Fortfield Road, Ravensdale Park, St Martins Drive and Mount Argus Close. Bat boxes will not be installed in the areas for manhole rehabilitation / replacement, *e.g*. Saint Teresa's Gardens, Donore Road or the National Stadium. The ECoW will identify appropriate locations for bat boxes, in association with key stakeholders from DCC and SDCC. The ECoW will also supervise the installation of bat boxes and supervise their installation. They will be installed on the trunks of existing trees (or if unavailable, on walls) at a height of at least 3m above ground level, with clear space (*i.e*. no branches) in front of the entry point. They will be firmly attached to the trees / walls to protect from high winds and vandalism. The boxes at each location will be placed at a range of aspects (*i.e*. four boxes facing north, south, east and west) in order to provide a range of roosting conditions.
7.17	All working areas shall be surveyed in the years following construction in order to assess the re-establishment of vegetation. If any areas are found not to be revegetating or are found to be susceptible to localised bank erosion, additional landscaping work shall be carried out. If any replanted trees or shrubs fail to establish, they shall be replaced with a suitable alternative.
7.18	Following the completion of construction works, the monitoring of ecological mitigation and enhancement measures will continue. There will be annual inspections for the first three years, followed by two further inspections at intervals of two and three years, *e.g*. Years 1, 2, 3, 5 and 8. Surveys for some ecological features are seasonal (*e.g*. rare flora should be surveyed in mid-summer, otters in winter), so the yearly monitoring programme will involve surveys at more than one time of the year. As above, the results will be shared with key stakeholders, and the ecologist will liaise with the Heritage / Biodiversity and Parks departments of each local authority.
7.19	Mitigation measures for otters Pre-construction survey Surveys of the holt will be carried out in the winter of 2020 / 2021 to confirm its status and activity levels. This will include methods from the recent Dublin City Otter Survey, including the River Hydromorphological Assessment Technique and assessment of human disturbances. Based on the information collected in these surveys, the otter holt in Tymon North will be surveyed by the Ecological Clerk of Works (ECoW) who will re-assess the holt before and during construction works to determine whether it is in use at that time. The monitoring would involve the installation of trail cameras near the entrance for a period of at least one week. This must be carried out by a suitably qualified and experienced ecologist.

No.	Description
	Avoidance / mitigation measures Pre-construction surveys will establish whether the holt is active, and if so, whether it is used by breeding or non-breeding otters. Depending on the results, the ECoW will determine appropriate measures with reference to Transport Infrastructure Ireland Guidelines, as follows: • No works shall be undertaken within 150m of any holts at which breeding females or cubs are present. Following consultation with NPWS, works closer to such breeding holts may take place, provided appropriate mitigation measures are in place, *e.g*. screening and/or restricted working hours on site • No wheeled or tracked vehicles (of any kind) shall be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance shall not take place within 15m of such holts, except under licence • The prohibited working area associated with otter holts shall be fenced with temporary fencing prior to any possibly invasive works. Fencing shall be in accordance with Clause 303 of the NRA's Specification for Roadworks (National Roads Authority). Appropriate awareness of the purpose of the enclosure shall be conveyed through notification to site staff and signage. • All contractors or operators on site shall be made fully aware of the procedures pertaining to each affected holt • Works in the vicinity of the holt shall be programmed to occur during the hours of daylight only • Any temporary trenches or excavations shall be capped in such a way as to prevent otters gaining access, as may happen when contractors are off-site • Flood-lighting shall be avoided in the vicinity of the holt It is noted that the construction of the proposed embankment will be approx. 50 – 100 m from the holt. The above guidance notes that "*no works shall be undertaken within 150 m of any holts at which breeding females or cubs are present*". Therefore, if breeding otters are present, works in the area will be delayed until the breeding event is complete (*i.e*. cubs have reached maturity and dispersed). After that time, the holt will be classed as a non-breeding holt, and the exclusion zone can be reduced to 20m, thus allowing the embankment to be constructed without disturbance of otters. If an otter is actively using the holt, the ECoW will determine an appropriate mitigation strategy, in liaison with the contractor. The mitigation strategy may involve seasonal restrictions on works, or as a last resort, the exclusion of otters from the holt. The ECoW will liaise with the National Parks and Wildlife Service and other key stakeholders (*e.g*. SDCC Heritage Officer) during the planning of these measures. Any such work would The ECoW will also determine whether the works require a derogation licence from the under the EC (Birds and Natural Habitats) Regulations 2011 (as amended). Provision of artificial otter holts In a consultation letter dated 30 June 2020, the Development Applications Unit (representing the National Parks and Wildlife Service) requested "*that artificial otter holts would be provided on or near the ponds in the two parts of Tymon Park on either side of the M50*", and also "*in the vicinity of Whitehall Park and/or Poddle Park depending on space and design constraints*". These artificial otter holts are now proposed as artificial enhancement measures for the project. The exact locations and designs of these ecological enhancement measures will be confirmed at the Detailed Design Phase, in association with the Ecological Clerk of Works. However, indicative locations are discussed in the Response to Request for Further Information document.

Table 17-5: Hydrology and Hydromorphology Mitigation Measures (Chapter 8, Pages 8-16 – 8-20)

No.	Description
8.1	In general, all works on the riverbank shall be subject to a specific method statement agreed in advance with the statutory authorities. The method statement shall incorporate the following points: • To avoid excessive silt runoff, site clearance is not to be undertaken during wet conditions, when rainfall of more than 0.5 mm/hour is forecast within the next 24 hours; • To avoid contamination of the river water during an extreme flood event, no works likely to generate soiled water are to be carried out when rainfall of more than 3 mm/hour is forecast within the next five days in the River Poddle catchment; • At the riverbank works locations, eroded sediments are to be retained with silt fences; • Soil cleared from the site and all materials associated with the building process are to be stored outside the flood zone in designated storage areas; • Works adjacent to the riverbank shall have catch-nets and silt traps to prevent debris from falling into the river; • Raw or uncured waste concrete is not to be disposed of within 30m of the river; • Fuels, lubricants and hydraulic fluids for equipment used on the construction site, as well as any solvents and oils *etc.*, is to be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment; • Fuelling and lubrication of equipment is not to be carried out close to the riverbank or lake shore; • Any spillage of fuels, lubricants of hydraulic oils is to be immediately contained and the contaminated soil removed from the site and properly disposed of; • Waste oils and hydraulic fluids is to be collected in leak-proof containers and removed from the site for disposal or re-cycling; • Hydrocarbon/grit interceptors of suitable size are to be placed on the runoff discharge from the car park at the abstraction point and must be maintained by a person or persons designated to carry out this maintenance;
8.2	Best practice mitigation measures shall be employed for this Scheme as contained in the following guidance documents and best practice UK CIRIA guidance which includes but not limited to the following: • C532 Control of water pollution from construction sites: guidance for consultants and contractors; • C648 Control of water pollution from linear construction projects; • SP156 Control of water pollution from construction sites – guide to good practice • NRA's 'Guidelines for the Crossing of Watercourses during Construction of National Road Schemes (NRA, 2005); • the Eastern Regional Fisheries Board guidance document 'Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites' (Murphy, 2004); and • the Southern Regional Fisheries Board guidance document 'Maintenance and protection of the inland fisheries resource during road construction and improvement works' (Kilfeather, 2007).
8.3	For in-river works the following mitigation measures are recommended: • Measures to minimise the suspension and mobilisation of sediment downstream of the working area shall consider silt barriers and cofferdamming to create dry working areas; • Works will allow the river to recover for at least 14 hours on a daily basis meaning that the period of in river work shall be about 10 hours maximum; • A dry working area shall be created for pouring of concrete;

No.	Description
	• In areas of the river where there are alien species, all plant and machinery shall be thoroughly washed before moving to another section of the river; • All vehicles shall be regularly checked for oil leaks, and ruptured hose pipes.
8.4	Best practice measures shall be adhered to during in stream works and any diversions of the river during construction shall follow the NRA's 'Guidelines for the Crossing of Watercourses during Construction of National Road Schemes (NRA, 2005).
8.4	Best practice methods shall be employed at all stages during the construction. It is recommended that the contractor's compound is situated as far as is practicable from the river.
8.5	Fuel, lubricants, hydraulic oil, repair equipment used on the construction site shall be carefully handled to avoid spillage.
8.6	All tanks, barrels or containers containing hazardous materials (oils, lubricants, sealants *etc.*) must be stored in a sufficiently sized bunded area.
8.7	Spill kits shall be made available in site compound and in site machinery. In the event that a spillage does occur, adsorbent material shall be placed on the material to adsorb it. The contaminated adsorbent shall be correctly disposed of as a hazardous waste and brought to a licenced waste handing site by a licenced waste contractor. The site manager must retain a copy of any waste transport and disposal documentation. In the event of a larger spillage of oil/hydraulic oil then South Dublin County Council and/or Dublin City Council Environment Sections shall be contacted immediately. The Emergency Procedures for the site shall have a procedure for dealing with large spillages.
8.8	All empty diesel/oil/hydraulic oil containers shall be drained to a single labelled container. The empty oil containers shall be stored in a dedicated labelled totally sealed skip. Waste skips shall be collected by a licenced waste carrier and brought to a licenced facility for disposal. All disposal records must be retained at the site offices.
8.9	The waste from the chemical toilets shall be collected by a licenced waste carrier and brought to a licenced treatment facility.
8.10	A supply of oil booms and soak pads must be maintained within the contractor's area.
8.11	A robust programme of maintenance shall ensure that culvert screens and channels are kept clear of debris to ensure the flood alleviation scheme functions correctly during a storm event. This includes carrying out repair works on existing walls and instituting a robust maintenance programme to ensure that debris that has accumulated in the channel is removed and vegetation cleared in order to prevent blockages in the future. These measures shall be undertaken by each Council (South Dublin County Council and Dublin City Council) as part of a regular maintenance programme. The existing culverts and screens at Wainsfort Manor, Lakelands and Gandon Close have CCTV cameras and level alarms and are currently checked and cleared by the responsible local authority in advance of forecast rainfalls.
8.12	In addition to the above maintenance an asset register of the flood defences for the River Poddle shall be prepared for SDCC/DCC to be incorporated into the Development Plans for both authorities to ensure that defences that are erected shall not be removed as part of any future development either by a local resident or as part of a planning submission.
8.13	The embankment structures shall be kept clear of tree planting to maintain structural integrity and the flow control structure and embankment at Tymon Lake shall undergo periodic checks by an All Panel Reservoir Engineer to ensure that the structural condition of the embankment is in order and there is no change or obstruction to the operation of

No.	Description
	the emergency overflow spillway that would inhibit the secure overflow of embankment for events greater than 1% AEP.

Table 17-6: Soils, Geology & Hydrogeology Mitigation Measures (Chapter 9, Pages 9-5 – 9-7)

No.	Description
9.1	Any soil imported to site shall be subject to assessment to identify any invasive alien species present by a suitably qualified Ecologist. Any soils stored on site shall be seeded and periodically topped. Such stores shall be subject to on-going monitoring.
9.2	If invasive plant species are present at any of the sites, machinery and equipment including footwear and tools shall be cleaned appropriately (as per species requirements) between infested sites.
9.3	An estimated 5,000m^3 of material is to be excavated and reused elsewhere on site or locally. The excess material from the excavation works shall be used as bulk fill, embankments or landscaping where possible. It is estimated that 50% of the material shall be required for the embankments and landscaping and the remainder shall be taken off site for disposal at an agreed licensed area. All material removed from site shall be disposed of in accordance with relevant waste management legislation. Where material cannot be reused on site, it shall be exported to co-ordinate deliveries of imported fill with a load of unsuitable material requiring removal from site in order to minimise traffic movements.
9.4	The top layer of soil (approximately 200m depth) contains valuable ecological material that shall be saved separately from subsoils and shall be used to reinstate the parks and green areas and allow for natural restoration and establishment of plants. Stockpiles of this material are to be stored in banks no more than 1m high.
9.5	All materials excavated from the works areas shall be stockpiled as close to the area where they are to be re used in landscape restoration in order to minimise on-site haulage and double handling. Areas for material storage have been assigned in consideration of sensitive habitats and ecological features and use of the parks and green spaces in the Scheme. Stockpiles of other material shall be formed no more than 2m in height and shall be sealed using the back of an excavator bucket or tracked upon by a tracked excavator to ensure the stockpile does not become saturated and therefore difficult to handle when being reinstated into the works. All stockpiles shall be clearly defined, fenced and signed to ensure no cross contamination of other materials to be stockpiled.
9.6	The contractor obliged to ensure no deleterious discharges are released from the sites to the River Poddle during excavation de-watering, testing or washing activities. Throughout the period of works the contractor will also take account of relevant legislation and best practice guidance including but not limited to the following: • C532 Control of water pollution from construction sites: guidance for consultants and contractors; • C648 Control of water pollution from linear construction projects; • SP156 Control of water pollution from construction sites – guide to good practice.
9.7	The contractor's construction method statements will also indicate how management, monitoring, interception, removal and/or treatment of silt run-off shall prevent contamination of ground or surface waters by mobilisation of soil particles.

No.	Description
9.8	The contractor's methodology statement will be reviewed and approved by a suitably qualified geotechnical engineer prior to site operations.
9.9	Excavations shall be backfilled as soon as possible to prevent any infiltration of potentially polluting compounds to the subsurface and the aquifer.
9.10	Prior to the storage of any potentially polluting material on site, the site manager shall be responsible for ensuring that a material safety data sheet for each product is available for inspection. A copy of all relevant material safety data sheets shall be available at storage locations as well as the site office.
9.11	The majority of new material brought to site shall be used immediately or shall be stored within the site boundary. Other materials such as asphalt or concrete shall be brought directly to the construction site when required and immediately placed.
9.12	All potentially polluting materials shall be stored in bunded areas, the capacity of which shall be 110% of the total volume of liquid to be stored. Any machinery refuelling that takes place on site shall be carried out by competent personnel at a single designated location within the site boundaries, close to the site entrance.
9.13	Spill kits shall be stored at the machinery refuelling area. The spill kits shall comprise suitable absorbent material, refuse bags, *etc*. to allow for the appropriate clean-up and storage of contaminated material in the event of a spillage or leak occurring.
9.14	The washing of any plant equipment shall be carried out in designated areas to prevent potentially polluting material from contaminating aquifers and soils/subsoils.
9.15	There shall be no discharge of effluent to groundwater during the construction phase. All wastewater from the construction facilities shall be stored for removal off site for disposal and treatment.
9.16	Any potentially contaminated groundwater that may be pumped from excavations shall be tested and discharged appropriately.
9.17	All machinery shall be inspected at the start of each work shift for signs of leaking hydrocarbons. Parking areas shall be inspected on a daily basis for evidence of hydrocarbons leaking from machinery.
9.18	All materials required for the maintenance of the sites shall be stored according to good practice and in areas either off-site or in bunded areas with impermeable floors. A programme of inspection and maintenance of the site drainage shall ensure that any damage, blockages, *etc*. are identified and remedied.

Table 17-7: Landscape and Visual Mitigation Measures (Chapter 10, Pages 10-46 to 10-48)

No.	Description
10.1	Landscape Effects Mitigation Measures - General Landscape Effects range from Not Significant to Moderate/Significant, adverse effects. Landscape Mitigation plans are proposed for Ravensdale Park, as well as parts of Tymon Park. A tree planting plan is also included for St. Martin's Drive. Mitigation and avoidance measure were incorporated into the project design, and some of the measures taken and incorporated into the design are as follows: • One of the project aims is to minimise tree removal. Consideration of alternative construction methods in all locations where walls proposed to minimise vegetation loss, and to ensure retention of trees. Where this is deemed necessary as a result of the proposed works, replacement tree planting is proposed as required by the relevant Council's trees policies. Replacement tree planting is proposed where trees are to be removed. Information on the number of trees and tree groups to be removed is provided in Section 3 of the Tree Survey Report.
10.2	Landscape Effects Mitigation Measures -Ravensdale Park • Consideration of alternative design solutions in Ravensdale Park including retention of the current river alignment, and retention of path alignment from Kimmage Lower entrance to minimise disruption to trees. • Earlier design proposals would have necessitated extensive tree removal and the design was modified to greatly reduce tree removal with the result that very few trees will be removed. The river channel is not realigned, wall height was reduced through the design process, and high walls surrounding the park were modified, resulting in a lower wall height to the west of the park and a lower wall which doubles as a seating area, in the centre of the park adjacent to the path. It should be noted that a wall impounding the proposed attenuation area was the least impacting solution on the park. • It should be noted that 'soft' landscape measures which were considered, involved creating earth bunds which required a larger footprint, and ultimately would have resulted in extensive tree removal. The proposals for the park can be seen in the Landscape Mitigation Plan (19110-1-111) in Volume 3) • Regarding trees along Ravensdale Drive, the design was amended to avoid these trees. The existing retaining wall to the riverbank is retained and the new wall built in front of it. The "toe" of the retaining wall is beneath the channel rather than behind the wall. Construction access is generally from the streamside. • As stated in Chapter 5, Section 5.4 of the EIAR, replacement planting may not occur in the affected locations due to space constraints but shall be planted as closely as possible in nearby green spaces to benefit the local communities. The locations for replacement tree and woodland planting will be agreed with SDCC and DCC at detailed design stage.
10.3	Landscape Effects Mitigation Measures - St. Martin's Drive • St. Martin's Drive: A tree planting plan (Drawing 19110-1-120 in Appendix 3) is proposed to reduce the effects of tree removal. Proposed replacement planting includes fast growing species and includes tree specification which ranging from 14-16 cm girth to 25-30cm girth. • Tymon Park: The design process for this area included consideration of alternative pathways in Tymon Park to maintain connectivity as a result of the re-grading of certain areas. Tree removal in Tymon Park was minimised. Proposed grass embankments and path re-grading are tied into the contours where possible.

No.	Description
	Embankments to be seeded with species rich grassland where necessary. Trees which are to be removed shall be replaced. • An Integrated Constructed Wetland (ICW) is proposed as an enhancement measure for Tymon Park. This is located northeast of Tymon Lake and includes marginal planting and is expected to enhance the area and assist in improving water quality.
10.4	Visual Effects Mitigation Measures – General A number of mitigation measures were included in the scheme design and in the Landscape Mitigation Plans. Many of the landscape mitigation measures above are also relevant to visual effects - including those relative to tree removal and the change of character of an area. • Consideration of alternative construction methods in all locations where walls proposed to minimise vegetation loss, and to ensure retention of trees to reduce adverse visual effect. • Replacement tree planting is proposed where trees are to be removed. Information on the number of trees and tree groups to be removed is provided in Section 3 of the Tree Survey Report. Refer to section 10.7.1 above for comments regarding exact location of replacement trees. Ravensdale Park • Consideration of alternative design solutions in Ravensdale Park including retention of the current river alignment, and retention of path alignment from Kimmage Lower entrance to minimise disruption to trees. • Earlier design proposals would have necessitated extensive tree removal and would have resulted in considerable adverse visual effects in the park. Wall height and location was reduced through the design process, and high walls surrounding the park were modified. It should be noted that a wall impounding the proposed attenuation area was the least impacting solution on the park. • Regarding trees along Ravensdale Drive, the design was amended to avoid these trees. The existing retaining wall to the riverbank is retained and the new wall built in front of it. The "toe" of the retaining wall is beneath the channel rather than behind the wall. Construction access is generally from the streamside. • Walls vary in height, but are predominantly low enough to and allow for views into and out of the park, though these are restricted in some areas. The retaining wall to the west of the park reaches a to a maximum of 1.5 metres in the northwest corner, but reduces to the south of the park to a height of 1.1 metres. The wall in the centre of the park ranges from 1.35m metres in the north, to 0.7 metres. at the southern end. All heights are below 1.65 metres which is the average adult eye height. The proposals for the park can be seen in the Landscape Mitigation Plan (Drawing 19110-1-111 in Volume 3).
10.5	Visual Effects Mitigation Measures - St. Martin's Drive: • A tree planting plan is proposed to reduce the effects of tree removal, which would remove all trees to the south of the green space at St Martin's Drive, resulting in a change of character and visual quality. • Tymon Park: The design process for this area included minimising tree removal. Proposed grass embankments and path re-grading are tied into the contours where possible. Embankments to be seeded with species rich grassland where necessary. Trees which are to be removed shall be replaced.
10.6	An Integrated Constructed Wetland (ICW) is proposed as an enhancement measure for Tymon Park. This is located northeast of Tymon Lake and includes marginal planting and is expected to enhance the visual amenity of the area.
10.7	Throughout the scheme, consideration was given to alternative wall materials and wall design including to allow visual permeability and passive surveillance.

Table 17-8: Archaeological, Architectural and Cultural Heritage Mitigation Measures (Chapter 11, Page 11-26 – 11-27)

No.	Unique ID	Description	Proposed mitigation
11.1	DU022-007	Zone of notification for castle – tower house	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.2	DU018-043003	Weir	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.3	DU018-043004, DU022-003, and DU018-043002	Zone of notification for the City watercourse	Where it is proposed to divert the watercourse, a wade survey shall be carried out along the existing stretch of the Poddle prior to commencement of construction activities under licence from the National Monuments Service of the DoCHG. Archaeological monitoring of any excavation works along the course of the city watercourse shall be carried out during construction. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.4	DU022-078	Zone of notification for a windmill	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.5	DU018-047001	Zone of notification for the site of Donore Castle	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.6	DU018-020	Zone of archaeological potential for Dublin City	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as

No.	Unique ID	Description	Proposed mitigation
			preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.7	CH 01 and CH 06	Ravensdale Mills and its mill pond	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.8	CH 03	Cutlers Mill	Archaeological testing in the first instance. This shall be carried out by an archaeologist under licence from the DoCHG. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.9	CH 04	Cutlers mill race	Archaeological testing in the first instance. This shall be carried out by an archaeologist under licence from the DoCHG. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.
11.10	n/a	Greenfield areas	Archaeological monitoring of any excavation works. If any features of archaeological potential are discovered during the course of the works, further archaeological mitigation may be required, such as preservation in-situ or by record, along with archaeological monitoring. Any further mitigation shall require approval from the National Monuments Service of the DoCHG.

Table 17-9: Noise and Vibration Mitigation Measures (Chapter 12, Page 12-20 – 12-21)

No.	Description
12.1	The contractor shall be required to implement the control measures recommended in BS 5228 and apply the appropriate measures where applicable.
12.2	Working hours during site construction operations shall be restricted to daytime hours from 07:30 hours to 16:30 hours (Monday to Friday) and, as may be required, from 08.00 hours to 13.00 hours (Saturdays). This excludes movement of construction traffic which may occur outside these hours. Evening and night-time work is not expected to take place although it is possible that limited 24 hours working may be required to take place on occasion. This shall only take place with the prior agreement of SDCC and DCC.

No.	Description
12.3	An on-site speed limit shall be enforced for all traffic. Drivers of vehicles shall be advised of the speed limits through the erection of signs *i.e.* a typically recommended on site speed limit is 10 km/hr.
12.4	Where practicable, the use of quiet working methods and the most suitable plant shall be selected for each activity having due regard to the need for noise control.
12.5	Best practicable means shall be employed to minimise noise emissions and shall comply with the general recommendations of BS 5228, 1997. To this end operators shall use "*noise reduced"* plant and/or shall modify their construction methods so that noisy plant is unnecessary.
12.6	By positioning potentially noisy plant as far as possible from noise sensitive receivers the transmission of sound can be minimised. Earth mounds and/or stockpiles of material or perimeter hoarding on site can be used as a physical barrier between the source and the receiver.
12.7	Mechanical plant used on site shall be fitted with effective exhaust silencers. Vehicle reverse alarms shall be silenced appropriately in order to minimise noise breakout from the site while still maintaining their effectiveness.
12.8	All plant shall be maintained in good working order. Where practicable, machines shall be operated at low speeds and shall be shut down when not in use.
12.9	Compressors shall be of the "noise reduced" variety and fitted with properly lined and sealed acoustic covers. Pumps will be installed in acoustic enclosures to ensure that the night-time noise threshold level of 45 dB LAeq, 8 Hour at the façade of the nearest residential properties will be achieved.
12.10	In all cases engine and/or machinery covers shall be closed whenever the machines or engines are in use.
12.11	All pneumatic percussive tools shall be fitted with mufflers or silencers as recommended by the equipment manufactures. Where practicable, all mechanical static plant shall be enclosed by acoustic sheds or screens.
12.13	Employees working on the site shall be informed about the requirement to minimise noise and shall undergo training on the following aspects: • The proper use and maintenance of tools and equipment. • The positioning of machinery on-site to reduce the emission of noise to the noise sensitive receptors. • Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment. • The use and maintenance of sound reduction equipment fitted to power pressure tools and machines.
12.14	Cognisance shall also be taken of the *Environmental good practice site guide* 2005 compiled by CIRIA and the UK Environment Agency. This guide provides useful and practical information regarding the control of noise at construction sites.
12.15	Where excessive noise levels are recorded, further mitigation measures shall be employed which may include temporary wooden hoarding / acoustic screening to be installed to a height of no less than 2m around areas of construction where loud noise levels occur.
12.16	The contractor shall ensure that the TII Guidelines which identify limits for protection against cosmetic damage as a function of vibration frequency are not exceeded through the use of the selected low vibration piling method.
12.17	Responsible Person –The Contractor shall appoint a responsible and trained person who shall be present on site and who shall be willing to answer and act upon complaints and queries from the local public.

No.	Description
12.18	Night-time Working - If there are items of plant (*e.g.* dewatering pumps and similar) in use during night-time hours they shall be chosen, sited and enclosed such that levels at the nearest properties do not exceed the measured background noise levels.
12.19	Where deemed necessary due to excessive impact or complaints received, noise monitoring shall be undertaken during construction works to determine noise levels at noise sensitive receivers. On the basis of the findings of such noise monitoring, appropriate noise mitigation measures shall be implemented to reduce noise impacts.
12.20	The contractor shall conduct continuous monitoring of vibration levels during any piling that may have the potential to result in a vibration impact at nearby properties.

Table 17-10: Air Quality and Climate Mitigation Measures (Chapter 13, Page 13-12 – 13-15)

No.	Description
13.1	The site manager has the overall responsibility for ensuring that operations comply with the requirements of any planning authorisation.
13.2	The site shall have at its disposal a suitable water bowser and associated water supply to allow for dampening down of areas of the site works when windblown dust arises. The occurrence of potential wind-blown dust is very much weather dependent but suitable facilities shall be available to minimise windblown dust from the site surfaces.
13.3	Construction activities shall take place Monday to Friday, between 07:30 and 16:30, and as may be required on Saturdays from 08.00 hours to 13.00 hours. This excludes movement of construction traffic which may occur outside these hours. Evening and night-time work is not expected to take place, although it is possible that limited 24 hours working may be required to take place on occasion. This shall only take place with the prior agreement of SDCC and DCC.
13.4	Regular attention shall be paid to cleaning dust material from all roadways, hard surfaced areas and working areas of the construction site. Dust from clean-up shall be re-incorporated into stockpiles within the construction compound and adjacent to working areas. This shall be done at appropriate intervals during the day and at the end of each working period.
13.5	Roadways and other areas within the construction compound where vehicles are regularly moving shall be kept clean, by sweeping or by wetting.
13.6	When loading vehicles within the construction compound and overall construction site, the following procedures shall be adhered to: • No overloading of vehicles or containers resulting in either peaks of cargo or overspill onto the working areas or roadways. • Keep fall heights of the material into the transport vehicles to a minimum.
13.7	Strictly applied, suitable on-site speed limits shall be set, displayed and observed for the movement of all vehicles (10 mph)
13.8	Mandatory use of the wheel wash provided.
13.9	Stockpiling shall be co-ordinated in such a way as to minimise the potential for double handling of material and carefully planned to ensure minimum exposure to winds, thereby reducing dust emission to air.
13.10	Stockpile areas shall be clearly and physically delineated to deter vehicles from running over extracted material at the stock edge.
13.11	Stockpiles shall be managed to ensure that the profile of material shall be no higher than 2m which will minimise wind whipping.
13.12	During embankment construction and any stockpiling, embankments and stockpiles shall be profiled and compacted by flattening out peaks and ridges and when partially worked, shall be re-contoured to prevent ridges or overhanging falls.

No.	Description
13.13	Whenever possible, embankments and stockpiles shall not be broken into when the wind is likely to lift newly exposed dry dust. When this is unavoidable, effective dust control methods shall be implemented.
13.14	Prior to carrying out any stockpile handling operations, the dust suppression equipment shall be checked to ensure that it is working properly.
13.15	A high standard of housekeeping shall be maintained on site.
13.16	Contingency plans shall be made to provide dust control in the event of equipment malfunction, whether by loan, hire or other arrangements.
13.17	Systems for monitoring processes, responding to and reporting pollution incidents shall be devised. This information shall be kept in a logbook, together with information regarding equipment failure, periods of significant dust emissions off-site and the inspection of roadways, together with any remedial action taken.
13.18	Any complaints received from neighbouring properties shall be logged and appropriate actions taken to reduce the potential for further complaint.
13.19	The Dust Management Plan (as per **Table 13-4**, **Section 13.6.3, Chapter 13**) shall be implemented by the contractors at all times and special importance shall be placed on these actions on high wind days.

Table 17-11: Traffic and Transport Mitigation Measures (Chapter 14, Pages 14-20 to 14-22)

No.	Description
14.1	A Traffic Management Plan (TMP) shall be agreed between the Contractor and the Clients Representative.
14.2	Minimise construction, maintenance and ancillary vehicle movements to site during peak times such as rush hour.
14.3	Daily construction programs shall be planned to minimise the number of disruptions to surrounding roads by staggering HGV movements to avoid site queues.
14.4	Provide wheel and vehicle body washing facilities, use water bowsers, dust suppression or similar apparatus and street sweepers in order to keep construction routes free from vehicle deposits and debris.
14.5	Provide appropriate information and signage along the construction routes and on approach roads to the site.
14.6	Mitigation measures may also be proposed following consultation with the local roads authority and public transport operators. It is recommended that the roads authority and public transport operators are consulted in order to address any concerns they may have regarding accidents and road safety along the proposed route.

Table 17-12: Material Assets Mitigation Measures (Chapter 15, Pages 15-11 to 15-12)

No.	Description
15.1	Information and signage shall be provided at the car parks and access points from residential areas adjacent to the Parks to inform residents and Park users of closures or alternative access routes during the works at Tymon Park and Ravensdale Park.
15.2	All utilities and services shall be recorded and incorporated to the detailed design for the Scheme, and the contractors shall be informed of the locations of all services. Diversions shall be undertaken under the supervision of the relevant utility provider. Advance notice shall be given to local residents and businesses of any disruptions to services.
15.3	A CEMP and a project specific Waste Management Plan shall be implemented for the project.