

Luas Finglas

Environmental Impact Assessment Report 2024

Appendix A6.4: Surface Water Management Plan

Luas Finglas Preliminary Design & Statutory Process



EIAR Appendix 6.4. Surface Water Management Plan

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GLOSSARY OF FREQUENTLY USED TERMS

Term	Definition
DCC	Dublin City Council
DEHLG	Department of the Environment, Heritage and Local Government (now the Department of Housing, Local Government and Heritage)
FCC	Fingal County Council
ICW	Integrated Constructed Wetland
NHA	Natural heritage Area
pNHA	Proposed NHA
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SPA	Special protection Area
SuDS	Sustainable Urban Drainage Systems
TII	Transport Infrastructure Ireland
WFD	Water Framework Directive

SECTION 1: SURFACE WATER MANAGEMENT PLAN

1.1 Introduction

1.1.1 Objectives

This Surface Water Management Plan (hereafter referred to as the SWMP) for the proposed Scheme details the control and management measures for avoiding, preventing, or reducing any significant adverse impacts on the surface water environment during the Construction Phase.

The control and management measures are best practice approaches that can be used to protect surface water during the Construction Phase of the proposed Scheme.

1.1.2 Guidance

The SWMP and the control and management measures relating to surface water management have been prepared with regard to the following guidance documents, where relevant:

- Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532) (Construction Industry Research and Information Association) (CIRIA)2001);
- Best Practice Guide BPGCS005 – Oil Storage Guidelines (Enterprise Ireland 2003);
- PUB C650 Environmental Good Practice on Site, 2nd Edition (CIRIA 2005);
- Control of Water Pollution from Linear Construction Projects. Technical Guide (C648) (CIRIA 2006a);
- Control of Water Pollution from Linear Construction Projects. Site Guide (C649) (CIRIA 2006b);
- Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes (NRA 2006a);
- Safety, Health and Welfare at Work (Construction) Regulations 2013 – S.I. No. 291 of 2013;
- Design Manual for Roads and Bridges Part 3 DN-DNG-03022 (NRA HD 33/15) (Including Amendment No. 1) (TII 2015a);
- Road Drainage and the Water Environment DN-DNG-03065 (TII 2015b);
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (Inland Fisheries Board (IFP) 2016); and
- Planning for watercourses in the urban environment, IFI.

1.1.3 Scope

Table 1 provides the content of the SWMP, and where details can be found in this document.

Table A6 4.1: SWMP Contents

Content	Section of SWMP
Introduction	1.1
Roles and Responsibilities	1.2
Environmental Incident Response Plan	1.3
Control and Management Measures	1.4
General Control measures	1.4.1
Construction Compounds	1.4.2
Control of Sediment	1.4.3
Use of Concrete	1.4.4
Vehicles and Plants	1.4.5
Monitoring of Water Bodies	1.5

1.1.4 Potential Sources of Water Pollution

The main activities / areas where sediment and surface water runoff and pollution generation have the potential to arise include the following:

- Earthworks – including planing, excavation and processing, transportation of materials (within and outside of the proposed Scheme), and deposition of materials and temporary stockpiling (if required). The most significant area of concern regarding sediment control for the proposed Scheme is when existing low porosity surfaces (existing roads and footpaths) are removed, and the underlying granular layers are disturbed and exposed. Typically, these surfaces are likely to be exposed during the following activities associated with the proposed Scheme:
 - The preparatory and site clearance works, particularly topsoil stripping;
 - Tracking of machinery; and
 - Location of historic landfills (e.g. Tolka Valley Park).
- Concrete activities – concrete, grout and other cement-based products which would typically be used in the carriageway and pavement works are highly alkaline and can generate very fine, highly alkaline silt (11.5 pH);
- Watercourse crossings – there is a higher likelihood of impacts on water quality when construction is taking place over or near surface waters (e.g., at Royal Canal, River Tolka, Bachelors Stream, Finglaswood Stream);
- Drainage Systems – There is a potential for disrupting local drainage systems due to diversions required to accommodate the construction works; and
- Construction compound and machinery re-fuelling areas.

Section 1.4 details mitigation measures which will be implemented where practicable to reduce the likelihood of the pollution events occurring during the Construction Phase.

1.2 Roles and Responsibilities

The roles and responsibilities of key stakeholders are discussed in Section 1. The Environmental manager (EM), or equivalent, will ensure the successful development, implementation, and maintenance of the SWMP.

1.3 Environment Incident Response Plan

An Environmental Incident Response Plan (EIRP) has been prepared as Appendix 6.6 for the CEMP to ensure that, in the unlikely event of an incident, response efforts are prompt, efficient, and suitable for the particular circumstances. The EIRP includes measures to address surface water related incidents such as accidental spillages of noxious substances e.g., oil and significant releases of sediment or concrete washings. The EIRP details are not repeated in this section of the CEMP; however, it should be read in conjunction with the general measures set out in the SWMP.

1.4 Control and Management Measures

1.4.1 General

As identified in Chapter 9 (Biodiversity) of this EIAR and the SWMP, and in order to protect surface water, groundwater and air quality throughout the proposed Scheme site, the construction contractor will be required to develop and implement a Surface Water Management Plan with the minimally required list of mitigations measures outlined below to be incorporated into this plan.

In order to safeguard the local surface water network, and in turn the local groundwater network, from surface water-based pollution events, the following must be strictly adhered to:

- The contractor will ensure compliance with environmental quality standards specified in the relevant legislation, namely European Communities (Environmental Objectives (Surface Waters)) Regulations, 2009 (S.I. No. 272 of 2009 and amendments), and the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988);
- Oil booms and oil soakage pads should be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge. These shall be disposed of correctly and records will be maintained by the environmental manager of the used booms and pads taken off site for disposal;
- Management of silt-laden water on-site, including procedures for accidental leaks / spills to ground, as well as water quality monitoring to ensure compliance with environmental quality standards specified above;
- At no point during the Construction Phase will treated water be discharged to local surface water network without the water quality meeting the statutory limits as set under the environmental quality standards specified above;
- Fail-safe site drainage and bunding through drip trays on plant and machinery will be provided to prevent discharge of chemical spillage from the sites to surface water;
- To prevent the spread of any accidental discharge into the surface water network, oil booms will be on hand when construction activities are located beside aquatic habitats in order to control and minimise the spread of the spill;
- Washout of concrete plant will occur at a designated impermeable area with waste control facilities;
- Wherever reasonably possible, pre-cast concrete bridge features should be utilised to minimise the risk of a concrete-based pollution event;
- Concrete delivery, concrete pours and related construction methodologies will be part of the procedure agreed with the contractor to mitigate any possibility of spillage or contamination of the local environment. Particular attention will be paid during the pouring process in order to avoid leakages or spills of concrete;
- Temporary stockpiles will be monitored for leachate generation. These stockpiles will be placed within designated areas and not located within the vicinity of watercourses, wetlands or artificial surface water drainage features;
- Excavated contaminated soils (most likely present in Tolka Valley Park) will be segregated and securely stored in a designated area where the possibility of runoff generation or infiltration to ground or surface water drainage has been eliminated through bunding and imperviable geotextile linings. The contaminated soils will then be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC. Furthermore, the contractor will ensure that no cross-contamination with clean soils happens elsewhere throughout the development site;
- Silt fencing will be installed prior to the commencement of any construction works in order to enhance the protection of identified water features (River Tolka, Tolka Valley Park wetlands and Royal Canal). Shallow interceptor trenches will be installed in front of these silt fences where possible, as there are space and depth constraints within certain areas of Tolka Valley Park. An Ecological Clerk of Works (ECoW) will be present during the installation of these protective measures to ensure that they are installed to best practice standard and correctly located in their assigned areas. The following sub-sections will provide greater detail on specific locations of these silt fence / trench sections; and
- Silt fences will be repaired and/or replaced as necessary by the principal contractor as part of the on-going environmental monitoring programme.

1.4.2 Construction Compound

There will be a number of construction compounds and working areas of various scales along the whole proposed Scheme. These will include areas along track areas, construction areas at bridge locations and for other surface features. The construction compound will include installation of the necessary facilities including the site office, welfare facilities, etc.

Further details on the construction compound, including the construction compound layout, are provided in section 6.8 of Chapter 6 (Construction Activities) of this EIA/R.

1.4.2.1 Site Establishment

As some of the construction compounds are located on a greenfield site, the appointed contractor will be required to provide a temporary geogrid mattress overlain in stone for trafficking within the construction compound. All surface water runoff will be intercepted and directed to appropriate treatment systems (settlement facilities and oil trap) for the removal of pollutants prior to discharge.

1.4.2.2 Security

Controlled access to the construction compound will be implemented, fencing will be erected, and lighting will be installed. The construction compound will be secured with Closed-Circuit Television (CCTV), to ensure safe storage of all material, plant and equipment.

1.4.2.3 Welfare and Sanitary Facilities

The construction compound will be engineered with appropriate services as discussed in section 6.8 of Chapter 6 (Construction Activities) of this EiAR. Water and wastewater disposal etc. will be organized by the appointed contractor. In work areas of the proposed Scheme, where permanent provisions (for the duration of the construction programme) are not practicable, appropriate temporary provisions will be made. Temporary welfare facilities will need to be used: for example, portable toilets in the vicinity of works. Welfare facilities will discharge wastewater either to an existing sewer, with the permission of the sewerage undertaker, or wastewater will be collected and disposed of in an appropriate manner to a suitably-licensed facility offsite to prevent water pollution and in accordance with the relevant statutory requirements.

1.4.2.4 Fuel Storage

- All hydrocarbons used during the Construction Phase will be appropriately handled, stored, and disposed of in accordance with recognised standards as laid out by the EPA;
- All chemical and fuel filling locations will be contained within signposted, designated bunded areas, a minimum of 10m from any surface water drain;
- At the construction compound, where the site is pervious, an area of hard standing will be installed in a demarcated area for refuelling, and vehicle / plant cleaning and service areas. This area will be drained via a hydrocarbon interceptor trap to a soakaway if possible, or to local surface water drains, with the permission of the asset owner;
- The retained contents of the separators will be collected for disposal by a licensed operator to a licensed waste disposal / recovery facility;
- Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances (for example, chainsaws and jerry cans) including:
 - Each container or piece of equipment will be stored in its own drip tray made of a material suitable for the substance being handled;
 - Spill kits and drip trays will be provided for all equipment and at locations where any liquids are stored and dispensed, and staff will be trained on the procedures to be followed; and
 - Containers and equipment will be stored on a firm, level surface.
- Procedures and contingency plans will be in place at each work area to address cleaning up small spillages as well as dealing with an emergency incident. See Volume 2 - Chapter 5 (Description of the Scheme) of this EiAR. A stock of absorbent materials such as sand, spill granules, absorbent pads and booms will be kept at each work site, on plant working near water and particularly at refuelling areas and where fuel or oil is stored;
- The storage of fuels, other hydrocarbons and other chemicals within the construction compound shall be in accordance with relevant legislation and with best practice. In particular:
 - Fuel tanks, drums, and mobile bowsters (and any other equipment that contains oil and other fuels) will be housed within a bund of at least 110% capacity of the fuel tank itself or at least 25% of the total volume of the containers, whichever is greatest. The fuel tank will be double skinned. There will be no passive drainage from the bund; any water collected within it will be pumped out and removed off site for disposal; and

- Any designated area or areas for oils, fuel, chemicals, hydraulic fluids, etc. storage and refuelling will be set up at least 10m from any surface water drains (as per CIRIA guidance listed in Section 1.1.2) and the storage location within the Construction Compound shall be organised so as to be as far away from surface water drains as is practicable to minimise risks from leaks and spills.
- Storage areas will be covered, wherever possible, to prevent rainwater filling the bunded areas;
- Fuel fill pipes will not extend beyond the bund wall and will have a lockable cap secured with a chain;
- Where fuel is delivered through a pipe permanently attached to a tank or bowser:
 - The pipe will be fitted with a manually operated pump or a valve at the delivery end which closes automatically when not in use;
 - The pump or valve will be fitted with a lock;
 - The pipe will be fitted with a lockable valve at the end where it leaves the tank or bowser;
 - The pipework will pass over and not through bund walls;
 - Tanks and bunds will be protected from vehicle impact damage;
 - Tanks will be labelled with contents; capacity information and hazard warnings; and
 - All valves, pumps and trigger guns will be turned off and locked when not in use. All caps on fill pipes will be locked when not in use.

1.4.3 Construction Phase Haul Road Mitigations

Through grassed areas, shallow land drains will be provided adjacent to haulage roads. The land drains will be provided with check dams which will allow infiltration of the collected surface water to ground. These will not be provided in the vicinity of the historical landfill in Tolka Valley Park, where runoff from haulage roads, will be allowed to runoff onto adjacent lands.

Silt screens will be provided running alongside the haulage roads through grassed areas to prevent silt and fines from impacting on the adjacent landscape.

Procedures and contingency plans will be in place at each work area to address cleaning up small spillages as well as dealing with an emergency incident.

1.4.4 Control of Sediment

There are a number of sources of sedimentary or silt-laden water on a construction site, including silty 'runoff' from stripped soils; and the stockpiling of soils. Control measures for each of these are to be provided. Area specific measures are identified below.

1.4.4.1 Area 31 - S31.1: Broombridge to Tolka Valley Park (including Rail Overbridge)

In addition to the standard guidance the Broombridge to Tolka Valley Park (including Rail Overbridge), section requires specific surface water run-off control measures to ensure that pollutants do not enter the surface water pathway connecting the site to the Natura 2000 sites during site enabling and bridge construction works.

This section will require the installation of geotextile sandbag barriers to protect the Royal Canal and its bankside vegetation. See Figure A6 4.1 and Figure A6 4.2 below for the indicative locations of these proposed geotextiles sandbag barriers, the locations of which may be relocated provide there is acceptable rationale backing the relocation, as well as assurance that the functional integrity of the mitigation measures is not compromised.

The indicative location of this section's site compound north of the canal is indicated away from the canal. The local topography will help ensure no surface water from the compound reaches the canal.

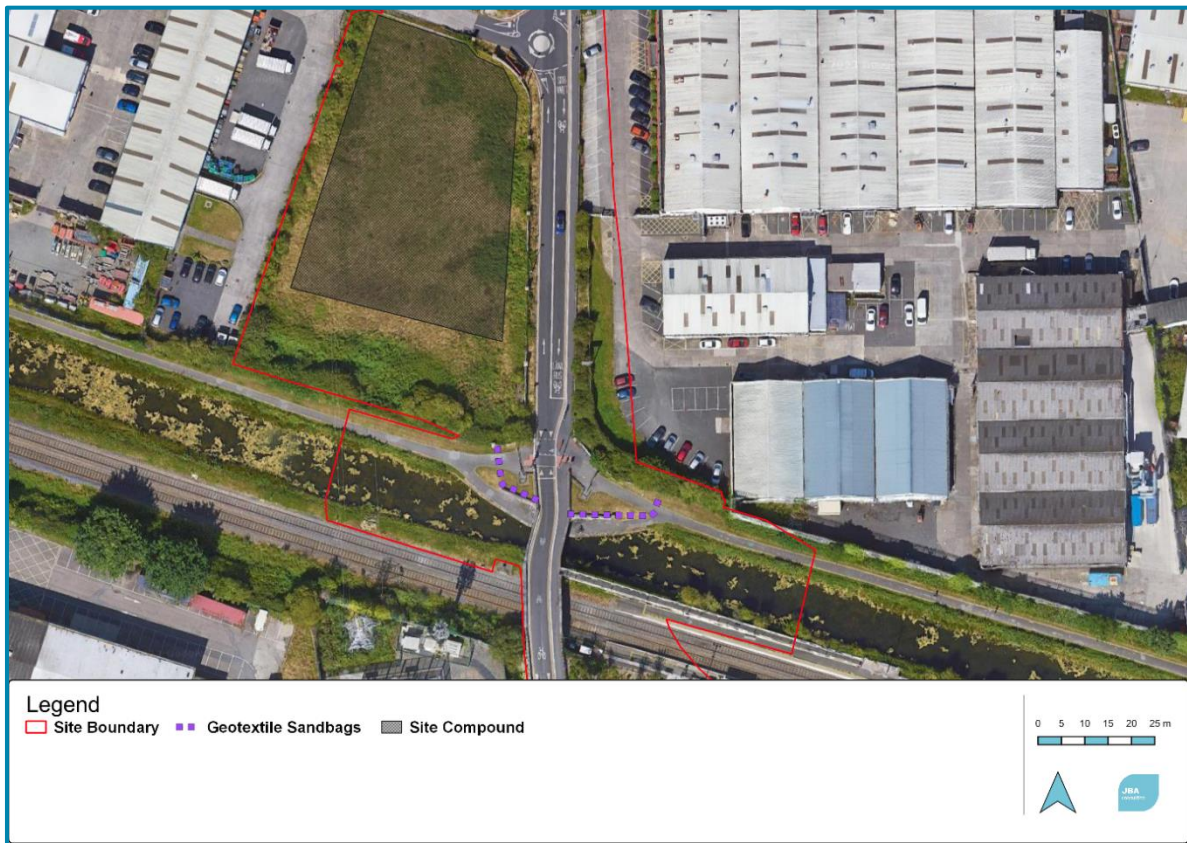


Figure A6 4.1: Indicative locations sandbag barriers and site compound (Royal Canal)

1.4.4.2 Area 31 - S31.2: Tolka Valley Park Bridge

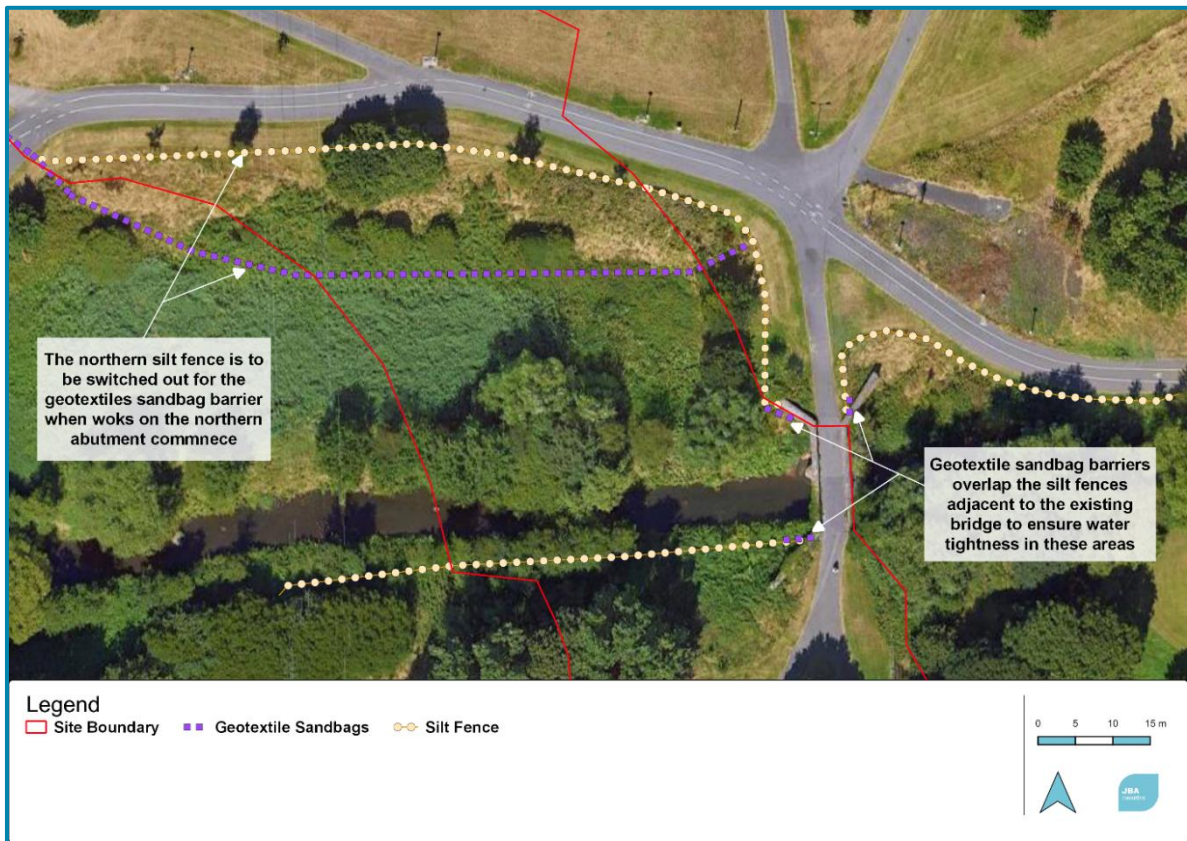


Figure A6 4.2: Indicative locations of silt fences and sandbag barrier (Tolka Valley Park Bridge)

1.4.4.3 Area 31 – S31.3: Tolka Valley Park to Tolka Valley Road

Following the treatment and removal of the invasive species from this section of the works, this section will require the installation of silt fences and geotextile sandbag barriers to protect the Tolka Valley Park ICWs and Pond, and the River Tolka. See Figure A6 4.3 below for the indicative locations of these proposed silt fences and geotextiles sandbag barriers, the locations of which may be relocated provide there is acceptable rationale backing the relocation as well as assurance that the functional integrity of the mitigation measures is not compromised.

An ECoW will be present throughout the enabling and construction works in this section given the sensitivity of the habitats and species in this location, and the River Tolka's status as a surface water pathway to the Dublin Bay-based designated sites. The ECoW will be key overseer for when the surface water barriers (silt fences and geotextile sandbag barriers) are adjusted for the works on the creation of the bridge abutments; and the construction of the bridge's temporary falseworks.



Figure A6 4.3: Indicative locations of silt fences and sandbag barriers (Tolka Valley Park)

1.4.5 Use of Concrete

- Weather conditions will be taken into account when planning construction activities which require the use of wet concrete to minimise the risk of the runoff of concrete 'washout' from site;
- Where on-site batching is proposed by the appointed contractor this activity will be carried out at least 10m from surface water drains. Washout from such mixing plant will be carried out only in a designated contained impermeable area;
- Batching and mixing activities and material storage areas will be located at least 10m (as per CIRIA guidance listed in Section 5.4.1.2) away from surface water drains;
- Chute washout will be carried out at designated locations only, at least 10m from surface water drains. These locations will be signposted throughout the construction works areas. Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks;
- The clear water from the settlement tanks shall be pH-corrected prior to discharge to any surface water drains;

- There will be no hosing of concrete, cement, grout, or similar material spills into surface water drains. Such spills shall be contained immediately, and runoff prevented from entering the watercourse; and
- Discharge of washout water to wastewater (foul) sewer will only be carried out with the express permission of the sewerage undertaker and will be treated to the standard required; for example, because of its high pH (alkalinity), washout water may need treatment before disposal to the foul sewer.

1.4.6 Vehicles and Plants

- Vehicles and plant provided for use on the proposed Scheme will be in good working order to ensure optimum fuel efficiency, and will be regularly inspected to ensure they are free from leaks and are promptly repaired when not in good working order;
- Spill kits will be carried on all vehicles;
- Vehicles and plant will not park near or over drains;
- Refuelling of vehicles and plant will be carried out on hard standing surfaces, using drip trays to ensure no fuel can contaminate the ground outside of the bunded areas;
- For deliveries and dispensing activities, the appointed contractor will ensure that:
 - Site-specific procedures are in place for bulk deliveries;
 - Delivery points and vehicle routes are clearly marked; and
 - Emergency procedures are displayed, and a suitably sized spill kit is available at all delivery points, and staff are trained in these procedures and the use of spill kits.
- The appointed contractor will provide wheel washing facilities, and any other necessary measures to remove mud and organic material from vehicles, at the Construction Compound, where necessary. These will be located at least 10m away from any surface water drains;
- The cleaning of delivery trucks shall be carried out at the Construction Compound and shall not be undertaken at the works areas;
- The surface run-off from vehicle washing areas will be directed to an on-site treatment system where possible; this also increases the potential for reusing the water. Such a treatment system would typically include:
 - A settlement lagoon to remove suspended solids such as mud and silt;
 - Catchpits or silt traps on drains and ensure that they are in place during cleaning. Empty them at regular intervals; and
 - Removal of oil, grease, petrol, and diesel from wash water by passing it slowly through an appropriately sized oil separator.
- The use of detergents in the cleaning process will be minimised; where required, biodegradable and phosphate-free detergents will be used;
- If detergents are used in the washing process, the wash water will not be directed through the oil separator as this will prevent it from working. It will be contained and disposed of off-site using a suitable licensed waste disposal operator, or if a foul or combined sewer is nearby, the surface runoff could be directed to it, with the permission of the sewerage undertaker; and
- To further minimise water used for washing vehicles, trigger-operated spray guns will be used, with an automatic water supply cut-off.

1.5 Monitoring of Water Bodies

The appointed contractor shall carry out visual monitoring of surface water control measures (settlement tanks, silt fences, fuel storage areas etc.) on a daily basis. In addition, weekly visual inspections of the Royal Canal and the River Tolka will be carried out.

Furthermore, Surface water quality sampling will be undertaken at four locations: at stream outlets of the Finglaswood Stream, St. Margaret's Stream, and at the River Tolka, and Royal Canal. Four rounds of sampling will be undertaken – 1st round on commencement of the Geotechnical Ground Investigation works,

and at intervals of 2/ 3 months thereafter. Indicators that water pollution may have occurred include the following:

- Change in water colour;
- Change in water transparency;
- Increases in the level of silt in the water;
- Oily sheen to water surface; and
- Floating detritus, or scums and foams.

If hydrocarbons are observed or other water quality parameters are suspected to have been exceeded, an investigation will be carried out to determine whether any element of the construction of the pScheme could be causing the contamination. If any potential sources of contamination are observed, appropriate actions will be taken (depending on the source and nature) to prevent further contamination and the incident shall be recorded and investigated in more detail to prevent a recurrence. If required, the relevant regulatory authorities will be informed.

1.6 References

Best Practice Guide BPGCS005 – Oil Storage Guidelines (Enterprise Ireland 2003)

Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors (C532) (Construction Industry Research and Information Association) (CIRIA)2001)

Control of Water Pollution from Linear Construction Projects. Technical Guide (C648) (CIRIA 2006a)

Control of Water Pollution from Linear Construction Projects. Site Guide (C649) (CIRIA 2006b);

Design Manual for Roads and Bridges Part 3 DN-DNG-03022 (NRA HD 33/15) (Including Amendment No. 1) (TII 2015a)

Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes (NRA 2006a)

Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (Inland Fisheries Board (IFB) 2016)

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Road Drainage and the Water Environment DN-DNG-03065 (TII 2015b);

Safety, Health and Welfare at Work (Construction) Regulations 2013 – S.I. No. 291 of 2013

Directives and Legislation

EC Council Decision 2003/33/EC

European Communities (Environmental Objectives (Surface Waters)) Regulations, 2009 (S.I. No. 272 of 2009 and amendments), and the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988)

