

NFA

11th August 2022

South Dublin County Council
Planning Department
County Hall
Town Centre
Tallaght
Dublin 24

For the attention of Mr Brian Connolly

by email & post

Dear Brian,

**RE: New footbridge from car park of university campus to Airton Close, Tallaght, Dublin 24.
SD21A/0104**

With regards to Condition 7 of the above Grant Permission, please find enclosed 3No. copies of the CEMP which has been completed by the appointed contractor. I trust this meets with your approval.

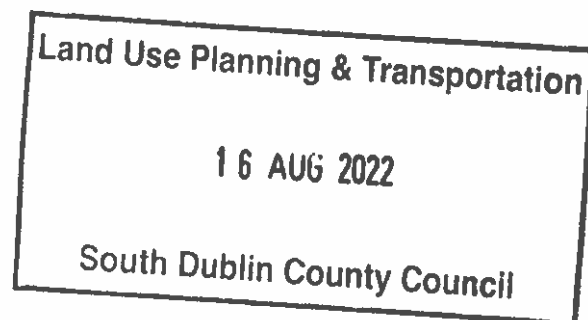
If you have any queries or require further information, please do not hesitate to contact me.

Yours faithfully,



Mark Priestley
For:
Hamilton Architects

Enc.





Construction Environmental Management Plan

TU Dublin- Airton Close Tallaght Pedestrian Footbridge

Version: 01.1
Endorsed By (Name): Cormac Ryan
Endorsed By (Role): HSQE

Signature (Wet Sign): _____

Date: 10/06/2022

TABLE OF CONTENTS

1.	PROJECT DESCRIPTION	3
2.	PROJECT ROLES, RESPONSIBILITIES AND CONTACTS	122
	2.1.1 Contract Project Manager.....	122
	2.1.2 QA Manager.....	122
	2.1.3 Site Agent.....	133
	2.1.4 Senior Engineers.....	133
	2.1.5 Health and Safety Officer	133
	2.1.6 Environmental Officer/Engineer	144
3.	TRAINING, AWARENESS AND COMPETENCY	15
4.	ENVIRONMENT AND HERITAGE RISK MANAGEMENT	15
	4.1 MITIGATION AND CONTROL MEASURES	15
	4.2 SEDIMENT CONTROL.....	17
	4.3 CONSTRUCTION PHASE.....	18
	4.4 RISK ANALYSIS.....	17
5.	RECORD SIGNIFICANT HAZARDS	28

1. PROJECT DESCRIPTION

Overview of the Project:

- The project proposes the construction of a footbridge from the car park within the Tallaght campus of TU Dublin to Airton Close. The footbridge crosses a tributary of the Tymon River and connects the main campus with ancillary university office accommodation at 1 Airton Close.
- An ESB duct is required for a cable diversion, along with minor road works to Airton Close as requested by the Roads Department.
- The topography of the site is generally level however there is a difference of c.750mm between the northern and southern banks of the stream. It is proposed to construct the bridge with a 1 in 25 gradient to address the level difference. Some minor adjustment of levels will be required within the boundary of the university campus to facilitate this gradient and ensure universal access for all users.
- The main site restrictions are as follows: -
 - a. The existing live university campus and car park which will limit location of contractor's compound and approach to phasing.
 - b. Existing industrial/business units on Airton Close requiring unhindered access to all premises.
 - c. Existing live sub-station on the northern bank with underground cables within the confines of the construction site.
 - d. Existing foul sewer which traverses the stream within the confines of the construction site.
 - e. Town centre location therefore normal restrictions apply to construction traffic. Construction entrance is proposed off Belgard Road (R113) which is a dual-lane carriageway and c.18.0m wide.
 - f. Alternative site access is via Airton Road and Airton Close which is a cul-de-sac. Airton Close is c.6.0m wide.

Scope of Construction Works:

The main features of the proposed Project include:

- Installation of new pedestrian footbridge at Airton Close TU Campus Tallaght Co Dublin.
- Installation of ESB Ducting as per construction layout drawings- See Construction Drawings.
- Works will also include the construction of Access and Egress ramps for Footbridge including ramps.
- Installing railings for security of pedestrians on footbridge.
- Upgrading access to the site from the L2005 Kerdiffstown Road required for the Remediation Phase, with provision of footpath, ramps to ensure the safety of all users during Remediation Phase.

Description of the Construction (Disturbance) Footprint:

- The proposed development consists of a new gated footbridge from car park of the university campus to Airton Close at TU Dublin – Tallaght and Airton Close, Dublin 24.
- The proposed development site is located at ITM grid ref 709072, 728128,
- It is proposed to fabricate, supply, and install new pedestrian footbridge and gate to design indicated in planning application Reg. Ref. SD21A/0104.
- Low level landscape and trees to be planted either side of footbridge is proposed. Existing trees will be retained where possible.
- Surface water During the construction phase of the proposed development, surface water is to be collected via existing road gullies in the car park.
- These gullies discharge to the River Poddle. During the operational phase of the proposed development, the construction of the footbridge will include the installation of 150mm ACO drains along the footbridge which will discharge to the River Poddle.



Impacts of the Proposed Project

Air Quality and Dust

Dust emissions from a site can cause a nuisance for neighbours and contribute to air pollution. The principal activities that have the potential to result in fugitive emissions of dust from site construction works are considered to be excavations, earthworks and the movement of site traffic on paved and unpaved roadways. Dust can be spread onto the public highway and along public access paths by vehicles entering and exiting the site.

THM develop a best practice management scheme for the control of dust on site; the elements which may be adapted are outlined below. Issue Control Measure.

Issue	Control Measures
Site planning	<ul style="list-style-type: none"> • Erect solid barriers to site boundary • No bonfires to be present on site • Plan site layout - machinery and dust causing activities should be located away from sensitive receptors • All site personnel to be fully trained • Trained and responsible manager on site during working times to maintain logbook and carry out site inspections • Hard surface site haul routes
Construction traffic	<ul style="list-style-type: none"> • The main site for construction access will be off Belgard Road, which provides the greatest accessibility onto the strategic highway network whilst minimising the impact on local receptors. • All vehicles to switch off engines - no idling vehicles • All vehicles leaving the site will be subjected to a wheel washing and vehicle cleaning procedure that will limit the carriage of mud and dust from the site accumulating on off-site roads. • Materials deliveries report to site office and unload within materials storage area. • All loads entering and leaving site to be covered • All site roads will be swept and sprayed with water in prolonged spells of dry weather to prevent dust causing a nuisance off site No site runoff of water or mud • Minimise movement of construction traffic around site • Hard surfacing and effective cleaning of haul routes and appropriate speed limit around site • Site construction vehicles will be retained on site during the construction period. To minimise noise and emissions, all construction machinery will be switched off when not in use and speed limits imposed on internal roads and across the site.
Earth moving works	<ul style="list-style-type: none"> • Earthworks and stockpiles will be sited and managed to avoid adverse effects from dust and to prevent damage to underlying soil • Minimise dust generating activities • Use water as dust suppressant where applicable

	<ul style="list-style-type: none">• Cover, seed or fence stockpiles to prevent wind whipping • Re-vegetate earthworks and exposed areas
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Noise and Vibration

THM shall at all times apply the principles of Best Practicable Means and carry out all work in such a manner as to reduce any disturbance from noise and vibration to a minimum. Site opening hours will typically be 07:00-18:00 Monday to Friday, 07:00-17:30 Saturday, no work on Sundays and public holidays.

General Construction Noise

THM shall ensure that all plant has appropriate certification to indicate that it conforms to regulatory limits (where applicable). Generators and other potentially noisy plant will be located away as far from properties as is practical. Noisy plant will be screened as appropriate to prevent nuisance. All appropriate equipment will be fitted with silencers where possible.

Vehicle noise

Vehicles and plant used during construction will be maintained in good and efficient working order. When not in use machinery is to be switched off and not left running. Site vehicles will not be overrevved. All machinery will be properly maintained and silenced according to manufacturer's instructions. Acoustic covers will be fitted to appropriate machinery. All vehicles to observe set speed limits on site and local roads. Toolbox talks will be communicated to site staff and contractors so that they are fully informed of noise and vibration control. Mitigation measures if required will be in accordance with BS5228: Parts 1 and 2.

Ecology, Contaminated Lands

The presence of any significant previously unidentified contamination which becomes evident during the development of the site shall be brought to the immediate attention of the Client and where necessary the appropriate statutory authority, and works in connection with the unsuspected contamination shall cease until such time as a remediation scheme has been submitted to and approved in writing by Council/Department of the Environment, Climate and Communications. The agreed remediation measures shall then be implemented in their entirety and retained and maintained thereafter in accordance with the planning consent for the site.

Ecology

The proposed development consists of a new gated footbridge from car park of the university campus to Airton Close. It is proposed to fabricate, supply and install a new pedestrian footbridge and gates to the design indicated in planning application Ref. SD21A/0104. Low level landscape and trees are to be planted either side of footbridge. Existing trees will be retained where possible. During the construction phase of the proposed development, surface water is to be collected via existing road gullies in the car park. These gullies discharge to the River Poddle. During the operational phase of the proposed development, the construction of the footbridge will include the installation of 150mm ACO drains along the footbridge which will discharge to the River Poddle. Given the nature of the proposed development, it will not generate foul water. Following an examination, analysis, and evaluation of the best available information, and applying the precautionary principle, it can be concluded that the possibility of any significant effects on any European sites, whether arising from the project alone or in combination with other plans and projects, can be excluded. In reaching this conclusion, the nature of the project and its potential relationship with all European sites within the zone of influence, and their conservation objectives, have been fully considered.

Waste

The construction of the development will lead to the generation of waste. The key to minimising the production of waste is to implement the waste hierarchy of Reduce, Reuse, Recycle, and Dispose. Reducing the amount of materials used also has the effect of minimising use of natural resources and reducing costs.

THM shall implement a hierarchy of control measure and strictly adhere to same for duration of this project. appropriate waste facilities will be used, and all waste will be segregated and disposed of in appropriate waste skips on site – General Waste, Recycling, Tar & Cement.

- Clearly identify all wastes that are likely to be produced during construction and classify them as 'controlled' ('general') or hazardous wastes
- Minimise the waste generated
- Reuse or recycle wherever possible
- Collect, separate, store and contain securely and label all wastes
- Allocate responsibility for waste management on site
- Employ suitable licensed waste contractor(s) and audit their licence(s); and
- Monitor and periodically audit the waste management scheme and activities.

Traffic Management

THM shall prepare and implement a Traffic Management Plan (TMP) outlining procedures to follow and prescribed routes when working on the site. The TMP shall incorporate any restrictions imposed by the planning consents, Highways Authorities and/or the Garda Síochána. The TMP will include specific routeing for construction traffic to the site via Belgard Road and restrictions on construction hours. The TMP shall be circulated to all parties who are employed or have a legitimate interest in the works.

THM shall ensure that Construction Traffic Routeing Signs are erected prior to works commencing, and that these are maintained in good and clean condition throughout the duration of the works

Energy Strategy & Sustainability

THM will be pro-active to implement measures to address the procurement of materials, the environmental impact of materials and the sourcing of materials.

- **Timing of Works:** Provide a description of both the total duration of the works and the time of year they will occur. The latter would include consideration of expected climate during this time (e.g., anticipated rainfall / speeds); we envisage there to be no delays due to adverse weather conditions and anticipate that all works will be completed as per Project Programme.

Works are planned to commence 13th June 2022 and will be completed by Aug 31st 2022 – Please see programme of works for project.

- **Site Plan:** The project site plan would clearly show the full extent of the proposed works area of the construction project. This would typically include a map with the full construction boundary and disturbance footprint marked clearly over a current aerial photograph (i.e., including all construction activities, associated laydown areas etc.). It would also include site specific information, for example the location of any important waterways or adjacent vegetation to be protected, national heritage listed areas, or the location of sediment and erosion traps.

Include project Maps and layouts here of the works.

2. PROJECT ROLES, RESPONSIBILITIES AND CONTACTS

2.1.1 Contract Project Manager

The Contractor's Project Manager for the Works reports directly to the Contractor. S/he is responsible for:

- (a) Liaison with Client Project Manager and other authorised Client Agent and Experts.
- (b) The implementation of the Construction Environmental Management Plan.
- (c) Management of the overall Project Programme.
- (d) Co-ordinating the construction teams/contractors.
- (e) Implementing the Contractor's Health and Safety Plan.
- (f) Liaison with the client representative staff.
- (g) Production of construction programmes; and
- (h) Maintaining a project diary.
- (i) Attendance at project management meetings as the contractor's main representative on site.
- (j) Completion of reports on project progress and submission to the client ongoing at agreed intervals.

2.1.2 QA Manager

The Contractor's QA Manager for the Works reports to the Project Manager. S/he is responsible for:

- (a) The implementation of the Construction Environmental Management Plan.
- (b) Management of quality issues relating to the project.
- (c) Ensuring training, competence and awareness compliance of all personnel contract or subcontractor employees while on site.
- (d) Co-ordinating the construction teams.
- (e) Performing ongoing quality audits during the works.
- (f) Investigation of non-conformances and quality issues as they arise ensuring root cause, correction and corrective action is timely enacted.
- (g) Ensuring that method statements are in place.
- (h) Implementing the Contractor's Health and Safety Plan; and
- (i) Liaison with the Client's representative staff.

2.1.3 Site Agent

The Contractor's Site Agent reports to the Project Manager. S/he is responsible for:

- (a) Implementing the Construction Environmental Management Plan.
- (b) Management of the project, particularly in relation to the roadworks.
- (c) Management of all plant and contractor and subcontractor activities relating to the section of works for which he is responsible.
- (d) Implementing the Contractor's Health and Safety Plan.
- (e) Liaison with the client representative staff.
- (f) Production of construction programmes; and
- (g) Maintaining a project diary.

2.1.4 Senior Engineers

The Contractor's Senior Technical Engineers report to the Project Manager. They are responsible for:

- (a) Implementation of the Construction and Environmental Management Plan.
- (b) Materials procurement.
- (c) Design of Temporary Works.
- (d) Administration.
- (e) Programming and planning.
- (f) Implementing the Contractor's Health and Safety Plan; and
- (g) Maintaining a project diary.

2.1.5 Health and Safety Officer

The Contractor's Health and Safety Officer for the Works is appointed by the Contractor and reports to the Project Manager. They are responsible for:

- (a) Carrying out duty of Health and Safety Coordinator as part of the contractor's Project Supervisor Construction Stage responsibilities.
- (b) Safety induction of all staff and personnel on-site.
- (c) Management of the contractor's emergency response planning and drills.
- (d) Investigating accidents, incidents and near misses on site.
- (e) Implementing the Contractor's Health and Safety Plan; and
- (f) Auditing the Site Health and Safety and updating Plan as necessary.

2.1.6 Environmental Officer/Engineer

The Environmental Officer is appointed by the Contractor and reports to the Project Manager. S/he responsible for:

- (a) Implementing the Environmental Requirements of the CEMP and updating it as necessary.
- (b) Management of all environmental aspects of the construction works.
- (c) Liaison with the field biologists, ornithologists, archaeologists, and fisheries experts as required.
- (d) Ensuring there are effective waste management plans documented.
- (e) Ensuring environmental method statements and risk assessments are completed and effectively communicated to all relevant personnel.
- (f) Ensuring all relevant mitigation measures are implemented as required.
- (g) Ensuring all monitoring proposals are implemented as required.
- (h) Reviewing monitoring results.
- (i) Training of staff in all environmental issues.
- (j) Provision of Toolbox talks to contractors as required.
- (k) Carrying out regular Environmental Inspections of the site works ongoing.
- (l) Liaison with the client representative staff.
- (m) Auditing the construction works from an environmental viewpoint.
- (n) Maintaining regular contact and liaison with environmental specialists.
- (o) Producing update reports on environmental compliance.
- (p) Reporting on any environmental non-conformances and ensuring there is effective root cause analysis, correction, and corrective action.

3. TRAINING, AWARENESS AND COMPETENCY

All personnel will have the mandatory required statutory training and inspection relevant to the works undertaken by them during the project such as manual handling, Safe Pass, machine tickets, etc.

In addition to the above, personnel will have project specific environmental training as follows:

- Pre-start client and main contractor kick off meeting.
- Pre-start main contractor and subcontractor meetings.
- Pre-start Environmental Inductions for all personnel coming on site.
- Emergency training and emergency drill practices for all personnel coming on site.
- Daily Safe=Plan of Action reviews.
- Environmental Toolbox Talks.
- EHS audit feedback to all parties on-site.
- Non-conformance response and feedback.

4. ENVIRONMENT AND HERITAGE RISK MANAGEMENT

4.1 Mitigation and Control Measures

To minimise surface water impacts on and off-site, best management practices will be adopted for the construction phase of the Project. A range of techniques will be used to minimise impacts including: -

- Undertaking works in compliance with the approved Construction Environmental Management Plan (CEMP);
- Preparation and implementation of 'Site and Environmental Procedures' for all areas of work.
- Ensuring the design and construction of works do not result in land degradation
- Managing fuels, oil and other chemicals accordingly to appropriate guidelines; and
- Ensuring that the disposal of wastewater is undertaken in compliance with statutory requirements.

There are a number of 'Site and Environmental Procedures' within which the Contractor will be required to contain detailed measures to minimise soil and water impacts. The relevant procedure references are presented below, and will be developed by the Contractor, when appointed. These procedures will form part of the final CEMP, and will be continually updated where necessary: -

- ENV-01 Awareness & Training
- ENV-02 Environmental Emergency Response
- ENV-03 Record Keeping, Auditing and Monitoring
- ENV-04 Erosion Control
- ENV-11 Management of Excavated Material

These procedures can only be amended by improvement with regards to environmental protection and must take cognisance of all mitigation measures recommended by the EIA and associated technical reports.

The following subsections outline the various elements of the preliminary SWMP, and Drainage Strategy proposal as illustrated within the drawing package presented for planning application and described in the EIS.

4.2 Sediment Control

The main construction related potential impact on water quality on site is the release of sediments into existing watercourses. Silt and silt laden water/contaminated water can be caused by various construction related activities, such as dewatering and pumping of excavations, run-off from exposed ground, run-off from spoil storage areas, etc. Where runoff water is contaminated with silt or other pollutants such as oil, this water must not be pumped or allowed to flow directly or indirectly into surface waters or groundwater without treatment.

Sediment control will comprise combination of silt fencing, as well as silt traps and dispersal drain, and the required measures will be specifically outlined in the Site and Environmental Procedure ENV-07 Protection of Water Quality.

Control Measures:

- Silt Socks on all water pump outlets to any watercourse
- Silt Bags at locations of exit into any known watercourses as a result of works on site
- Water Monitoring / Sampling to take place before and after Project Completion to clarify no negative impact on existing watercourses as a result of works undertaken.

The following mitigation measures are proposed to reduce the potential impacts of the proposed development on quality.

4.3 Construction Phase

The main construction related impact of the overall proposed development on water quality at the site is the release of sediments into watercourses. There is also a risk that leakage from site facilities or oils, cements or other construction materials may be discharged to a drain or watercourse. Guidelines regarding low impact construction techniques are set out in the Code of Best Forest Practice document.

The following mitigation measures are proposed to reduce the impacts of construction of the proposed development on water quality: -

- Minimise the total area of disturbance which results from road construction. The total length and average width of the road network should be the minimum required for efficient and safe transportation.
- Construction works will be planned outside of periods when heavy rainfall is expected.
- All roads should be allowed to consolidate, dry out and settle before use, so that they do not become rutted from traffic.
- Where the intended route of a road must pass through waterlogged or impervious soils, these areas should be drained before construction commences. This will stabilise the road bed and reduce the danger of failure during construction and use.
- Maintain all roadside embankments and cuttings and encourage the natural vegetation, in order to improve stability and to improve their visual appearance.
- The condition of roads drains, and road crossings should be assessed prior to and immediately after harvesting and transport operations. Photographic evidence gathered at this stage may assist in any subsequent disputes.
- Where possible, construction activities will be located away from existing

watercourses.

- Spoil heaps generated during construction should be deposited on stable areas. They should be levelled out where possible or breached at 20 m intervals and seeded to encourage greening over and stabilisation.
- Soil stockpiles will be kept to a minimum. Where required, sediment control measures shall be implemented at each stockpile. Stockpiles will be surrounded by silt fences to filter sediment from the surface water run-off from excavated material. Sediment control features shall be inspected and maintained regularly to ensure their correct operation. Additional inspections and maintenance will be carried out when required e.g. extreme rainfall events.
- The contractor will include a formal procedure to deal with queries and comments from the general public in his emergency response plan. During the construction period, it is envisaged that a facility to shut off the outfall from the silt traps during an emergency will be provided. This will mitigate for any on site accidental spillage impacting on the watercourses. In addition, appropriate signage should be placed on site outlining the spillage response procedure and a contingency plan to contain silt. Adequate security should be provided on site to prevent spillage because of vandalism. A regular review of weather forecasts of heavy rainfall is required, and the contractor will prepare a contingency plan for before and after such events.
- The contractor shall ensure that all personnel working on site are trained in pollution incident control response.

The construction of roadside drainage channels for access track drainage will follow the natural flow paths on site where possible. Existing overland flow channels will be maintained and cross- drains provided at 50m intervals in the access roads to allow continuity of flow check dams will be provided. This will reduce effective slope, run-off velocities and any consequent potential for erosion.

- The contractor shall ensure that sedimentation control and dispersal facilities are regularly maintained during the construction phase.
- Trafficking on site shall be kept to a minimum and where possible the routes of haul roads kept away from existing watercourses and channels. Where haul roads pass

close to watercourses and channels, silt fencing shall be used to protect existing water quality.

- Where possible new and upgraded lengths of site access tracks shall be surfaced in unbound materials and shall not be hard topped with macadam or concrete. Such road construction methods will ensure that the increase in overall impermeability of the site will be kept to a minimum. Macadam hard top will be required where the slope of the access track is in excess of 10% in order to provide sufficient traction for vehicles on site.
- Any chemicals will be stored in areas away from watercourses in secured bunded sites.
- All maintenance and refuelling operations and machine repairs (if required and practical) should be carried on a dry, elevated site. Prepare and securely store all fuel and machine oils under shelter on a dry, elevated site. Material used for road and crossing construction should also be stored at least 50m from the nearest aquatic zone. All containers, spent oil, machine parts and refuse generated by the operation should be removed from the site for correct disposal.

- Visual examinations of watercourses receiving flows from the proposed development will be carried out during the construction phase.
- The relevant Local Authority and Regional Fisheries Board must be notified immediately of spillages or other accidents during construction which threaten aquatic zones. All operators should have contact telephone numbers onsite for all relevant agencies (Local Authorities, Regional Fisheries Boards, Dúchas The Heritage Service, National Museum of Ireland, Garda Síochána, etc.) in case of accidental damage to aquatic zones, archaeological sites, important wildlife habitats and other environmental features.

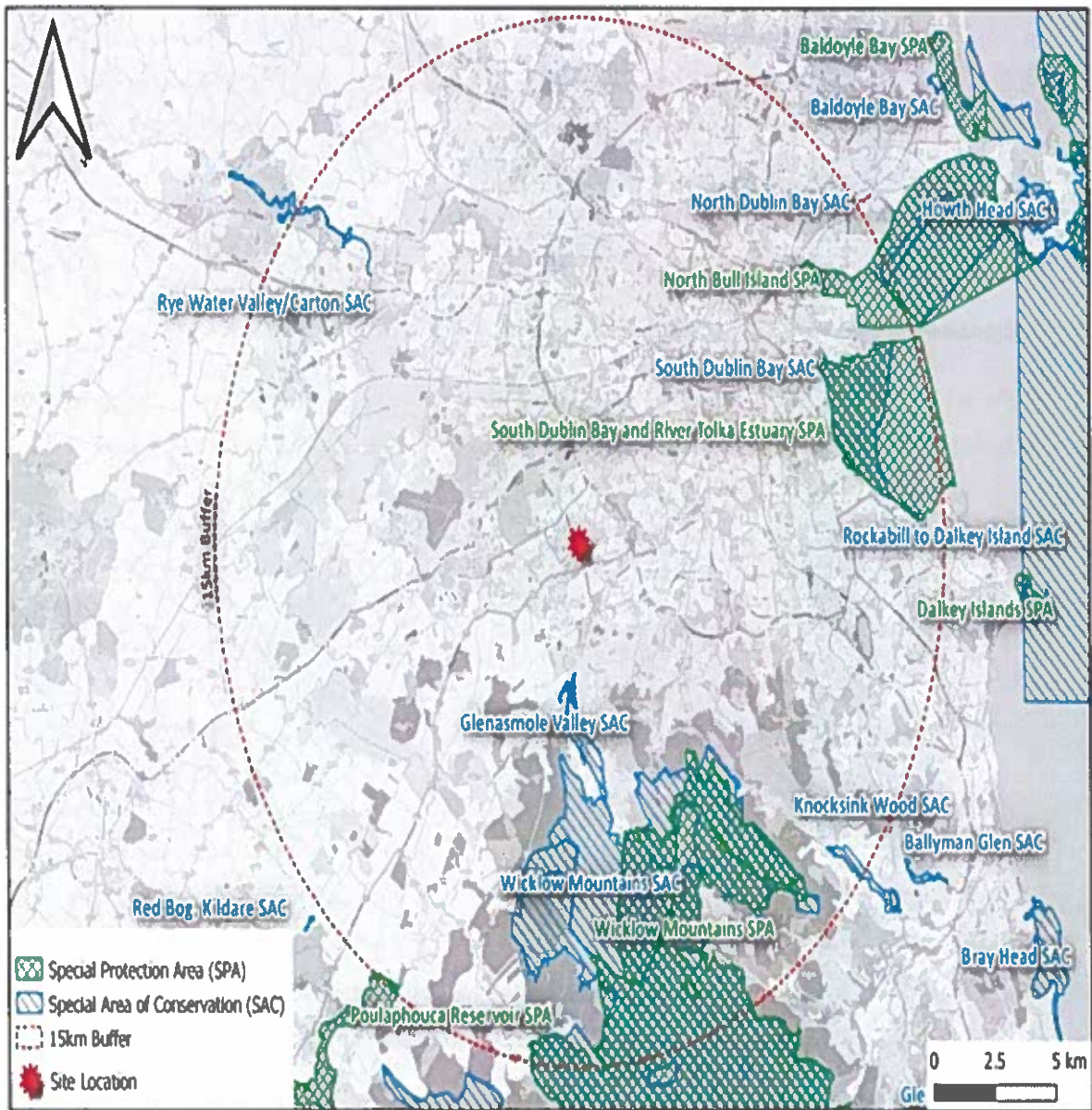
- In advance of any construction works taking place the detailed Surface Water Management Plan shall be agreed with the Inland Fisheries Ireland (IFI).

- Undertake appropriate site rehabilitation and restoration on completion of fellings and extraction operations.
- Temporary blocking of several drains as directed by the Site Ecologist should be carried out if necessary to reduce flows towards the main watercourses.

Figure 1: Indicative red line boundary of the proposed development



Figure 2: European sites in the vicinity of the proposed development



Habitats 23 The proposed site is centred on grid reference O 09131 28104.

The proposed site comprises of buildings and artificial surfaces (BL3) consisting of a car park as part of TU Dublin lands and a treeline (WL2) along the northern boundary consisting of unmanaged elm *Ulmus* spp., ash *Fraxinus excelsior* and hawthorn *Crataegus monogyna* along the bank of the drainage ditch. The footbridge will cross the River Poddle.

Flora and Fauna Species

A data search of a custom polygon of approx. 2km radius from the proposed development site returned the following records of qualifying/special conservation interest fauna species.

- Common kingfisher *Alcedo atthis*
- European golden plover *Pluvialis apricaria*
- Hen harrier *Circus cyaneus*
- Merlin *Falco columbarius*
- Whooper swan *Cygnus cygnus*
- European Otter *Lutra lutra*

The nearest European sites for which common kingfisher is a species of special conservation interest is located c. 40km north-west of the proposed development site in River Boyne and River Blackwater SPA. Given the distance between this SPA and the proposed development site, and given kingfisher territories end to cover at least 1km of river, but may extend over 3/5 km⁶, any kingfisher present within the local area would not form part of or provide a supporting role to any SPA population.

The nearest European sites for which European golden plover is a species of special conservation interest is located c. 11km east in South Dublin Bay and River Tolka Estuary SPA. The core range of golden plover is 3km, with maximum range of 11km⁷. While the proposed development site is in range of the South Dublin Bay and River Tolka Estuary SPA, given the proposed development is located over a narrow, shallow section of the river which is culverted to the east and to the west, linking a car park to an adjacent area of hard surfaces and buildings, it is unsuitable to support golden plover

The nearest European sites for which hen harrier is a species of special conservation interest is located c. 75km west of the proposed development site in Slieve Bloom Mountains SPA. Given the distance between this SPA and the proposed development site, and given the core foraging

range from nest site during the breeding season of hen harrier is 2km, with maximum range of 10km, and generally within 1km distance between alternative nest sites⁷, any hen harrier present within the local area would not form part of or provide a supporting role to any SPA population. Additionally, the proposed development is located over a narrow, shallow section of the river which is culverted to the east and to the west, linking a car park to an adjacent area of hard surfaces and buildings, it is unsuitable to support hen harrier.

The nearest European sites for which merlin is a species of special conservation interest is located c. 7.4km south-east of the proposed development site in the Wicklow Mountain SPA. Given the distance between this SPA and the proposed development site, and given the foraging range from nest site during breeding season in within 5km and distance between alternative nest sites are generally within 500m, but can be up to 1.5km⁷, any merlin present within the local area would not form part of or provide a supporting role to any SPA population. Additionally, the proposed development is located over a narrow, shallow section of the river which is culverted to the east and to the west, linking a car park to an adjacent area of hard surfaces and buildings, it is unsuitable to support merlin.

The nearest European sites for which whooper swan is a species of special conservation interest is located c. 73km north-west of the proposed development site in Lough Derravarragh SPA. Given the distance between this SPA and the proposed development site, and given whooper swan foraging range from night roost during winter season has a core range of less than 5km⁷, any whooper swan present within the local area would not form part of or provide a supporting role to any SPA population. Additionally, the proposed development is located over a narrow, shallow section of the river which is culverted to the east and to the west, linking a car park to an adjacent area of hard surfaces and buildings, it is unsuitable to support whooper swan.

The nearest European sites for which European otter is a qualifying interest is located c. 6.1km south of the proposed development site in the Wicklow Mountains SAC. Otter territories are within the range of c. 7.5km for females and can reach up to 21 km for males via hydrological pathways⁸. The River Dodder and Liffey Estuary provide the key pathway to Wicklow Mountains SAC, whereas the proposed development will discharge into the River Poddle. Wicklow Mountains SAC is located within a different sub-catchment (Dodder_SC_010) to the proposed development (Poddle_SC_10). As such, the hydrological pathway between the Wicklow Mountains SAC and the proposed development site is c. 36km meaning any populations of otter within the footprint of the proposed development site would not form part of or provide a supporting role to the SAC population. Additionally, the proposed development is located over a narrow, shallow section of

the river which is culverted to the east and to the west, linking a car park to an adjacent area of hard surfaces and buildings and is unsuitable to support European otter.

The NBDC database search returned records of the following non-native invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended): • American skunk-cabbage *Lysichiton americanus* • Giant hogweed *Heracleum mantegazzianum* • Japanese knotweed *Fallopia japonica* • Three-cornered garlic *Allium triquetrum*

There were no records for invasive flora species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) within the indicative redline boundary of the proposed development site or within 1km of the proposed development site.

THM Environmental Risk Assessment Register		Risk Assessment No: RA 001
TASK: Special Areas of Conservation. (SAC)	PROCESS: Construction works in SACs	Locations: All site works

THM Environmental Risk Assessment Register		Risk Assessment No: RA 001
TASK: Special Areas of Conservation. (SAC)	PROCESS: Construction works in SACs	Locations: All site works

4.4 Risk Analysis

5. <u>RECORD</u> <u>SIGNIFICANT</u> <u>HAZARDS</u>	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	Legislation or other relevant documents	
Special areas of conservation are so designated because of sensitive ecosystems, rare flora and fauna, raised bogs and other requirements under the Habitats Directive.	THM personnel and any THM managed subcontractors working in the areas.	Destruction of rare flora by construction works excavating them or covering them with debris, destruction of fauna nesting sites and fisheries by construction works impacts. Pollution of soils and watercourses with chemicals and lubricants and fuel oils from works.	3	3	9	At tender and pre-contract stages of works THM EHS personnel in conjunction with THM Contracts managers and client specialists must clearly identify any SACs and controls required so same for the duration of the works. A suitable environmental management plan must be developed and issued to the client environmental specialist for approval before works commence. The primary objectives in all such works is to have no impact on the SAC - so it is fully barriered off and marked up, so all personnel are aware of the risks associated with the SAC and its boundaries. All personnel working on the site are given a formal induction on SAC and the requirements and controls to preserve it. Where works will impact on a SAC these are in full compliance with the planning regulations for the site and all such planning regulations must be communicated to all staff.	3	1	3	Habitats Directive 92/43/EC

THM Environmental Risk Assessment Register

Risk Assessment No: RA 001

TASK: Special Areas of Conservation. (SAC)

PROCESS: Construction works in SACs

Locations: All site works

5. <u>RECORD</u> <u>SIGNIFICANT</u> <u>HAZARDS</u>	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
						Where possible photographic records of works and controls are maintained for the duration of the works. Construction works are carried out such that minimal damage is impacted on the SAC and where possible works are carried out in such a way that the reinstatement works at the end of the projects impact positively on the area. For example, excavations remove the top screed of soil with local vegetation and it is stored separately while works are underway, so it can be returned as the top of soil at the end of works to allow for the fastest regrowth of the local vegetation as soon as possible post works. Where protection systems such as silt traps, culverts are to be used to protect water courses etc. these are approved by the client environmental personnel before any works can commence. Suitable emergency plans are documented, trained out and put in place for spill, fire management and other emergencies prior to any works starting and these are approved by client environmental personnel prior to works being initiated. All environmental issues and incidents no matter how minor impacting the SAC are reported as soon as it is safe to do so to the client environmental personnel. Where serious environmental issues occur the emergency response plan is put in place to immediately control the hazard and to minimise any further risk or damage and to				

THM Environmental Risk Assessment Register		Risk Assessment No: RA 001
TASK: Special Areas of Conservation. (SAC)	PROCESS: Construction works in SACs	Locations: All site works

5. <u>RECORD</u> <u>SIGNIFICANT</u> <u>HAZARDS</u>	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
						contain the hazard until environmental specialists can be got to site to determine the best course of action. No deviations from agreed method statements, site works, and emergency plans can be undertaken by THM without formal approval from the client environmental specialists.				

THM Environmental Risk Assessment Register		Risk Assessment No: RA 002	
TASK: Tree and Hedge Cutting		Locations: All site works	
PROCESS: Management of trees and hedges in Construction Works			

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Cutting of Trees and Hedges	THM Personnel and subcontractors working for THM on site works.	Damage to hedgerows and nesting sites for birds and animals, damage to protected species of flora, cutting of invasive species which further enhance their spread.	3	3	9	Cutting of hedgerows and trees is restricted from the 1 st of March to 31 st of August annually to protect breeding birds and animals in hedgerows. It is also the responsibility of THM personnel to clarify with client environmental personnel if there are any invasive species such as Japanese Knotweed in the hedgerow areas shoes accidental cutting may lead to their further spread and growth. THM must also clarify with the client if there are any planning restrictions on the cutting back of trees or hedgerows adjacent to any works being performed which may be prescribed within the planning the permission. Where there are designated restrictions on cutting of trees or hedgerows adjacent to works this must be clearly stated in works related RAMS, where possible the areas should be barriered off and all personnel on the works should have this information formally communicated to them in the pre start site induction. It is critical that all health and safety compliances for personnel are complied with when working on cutting down bushes, hedgerows and trees adjacent to works ongoing.	3	1	3	Wildlife Act 1976 as amended by the Wildlife (Amendment) Act 2000 & the Heritage Act 2018.

THM Environmental Risk Assessment Register		Risk Assessment No: RA 003
TASK: Archaeology	PROCESS: Management of Monuments and Archaeology in Construction Works.	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Finding of sites of archaeological interest on works.	THM personnel or their subcontractors working on sites.	Damage to National Monuments or archaeological sites, failure to preserve an unknown archaeological site for review by government personnel to determine the preserve in situ or record same, failure to report archaeological finds and positioning.	3	3	9	Where there are agreed sites of archaeological interest on sites the preferred method of control is for these to be clearly identified and barred off for the duration of works to protect the area from any inadvertent damage. In all cases where there is either existing or potential archaeological interest in a location THM must ensure this is identified in the pre-start induction and communicated to all personnel. The primary responsibility to report any archaeological findings on any works rest with THM so where such findings arise works should cease immediately, and the location be made safe and the main client representative should be communicated with to inform them of the findings and allow for expert assessment of the findings. Now works should be continued at or near the finding until it is assessed by government heritage experts or their representatives. Where there is any doubt about a potential archaeological site THM must always err on the side of getting expert opinion so while a client plan for the project may indicate there is no evidence of archaeological interest in the location THM must report any findings and report the exact location and bring works to a halt.	3	1	3	National Monuments Acts 1930-1964 & Planning and Development Act 2001

THM Environmental Risk Assessment Register		Risk Assessment No: RA 004
TASK: Fisheries	PROCESS: Management of Fisheries Adjacent to Construction Works	Locations: All sites works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Working in areas adjacent to fisheries	All THM personnel and subcontractors working on behalf of THM.	Chemical or other hazardous material pollution leading to fish kills, damage to flows of streams/rivers or damage to banks, weirs etc preventing fish returning to natural spawning areas. Mechanical killing of fish with pumps and filter systems used in water works. Removal of gravel from stream and river beds, impacts on shrubs, flora and aquatic plants, impact and destabilising river and stream banks, introduction of silt, chemicals, cement or oils which may impact on river life and ecosystems, altered flows, profiles, depths or currents.	3	3	9	It is incumbent on the client to have contacted Inland FISHERIES Ireland prior to any works which impacts on bridges over rivers, installation of culverts, pipework over or under river beds etc to get clearance for such works and potential methods. Where there are designated fisheries areas these must be specified by the client in relevant project design plans so THM can implement effective controls in working these areas. Where there are specialist fisheries areas designated THM must have these noted in their construction phase plan for the works and communicated to all personnel prior to works starting. Suitable controls must be place for all chemicals to be used on the works with bunding and secure methods of decanting any chemicals required on the works. A suitable emergency response plan to a chemical spill with the required equipment at each location where chemicals are present, and personnel trained within the last 12-month cycle in emergency response to chemical spills. Where traversing a river or stream is required in works the preferred structure is a semi-permanent or permanent steel structure engineered from bank to bank with no impact on the river if possible and with structure where it has to sit in the river/river bed not impacting on current or existing fish travel routes. All works must be completed July-September except with special permits from IFI to minimise impact on spawning and breeding fish. Where pipework, culverts or other diversions are used to divert streams there must suitable	3	1	3	Relevant Inland Fisheries Acts.

THM Environmental Risk Assessment Register		Risk Assessment No: RA 004
TASK: Fisheries	PROCESS: Management of Fisheries Adjacent to Construction Works	Locations: All sites works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
			S	L	R	ways for fish to continue to move through the river. Banks where excavated can be rock armoured with suitable rock types dug to a depth that ensures they are stable. Gabions are not suitable as they are easily vandalised and when damaged do disintegrate with adverse impacts on the rivers. Any stream diversion, damming or other blockages should be reviewed with OPW from a point of view of flood risk. Where concrete bridges or pipes are to be used precast is the preferred method so the concrete is fully cured prior to insertion in the river, expert approval from IFI must be sought for any planned application of fresh concrete into waterways so the risk of PH imbalance etc can be fully negated. All pumps and filters used on works must be suitable guarded so as to prevent any damage to fish. All pneumatic fittings must be leaked tested prior to being set up on any works and there must be suitable drips trays and bunding as well as weekly inspections as minimum. Where there is high level of machinery works and high levels of risk of oil spills a plan for monitoring water courses for oil firms should be in place and as well as visual inspection and recording testing of water samples may be required at high risk times. Where silt traps are to be set up these must be of suitable material to control silt sizes and must not impact on river or stream flows excessively so they must be sized for the works. Where local plants, gravels etc are removed at stages in works these must be suitably stored for return to works area to aid return to natural habitat and condition as quickly as possible post works.	S	L	R	

THM Environmental Risk Assessment Register		Risk Assessment No: RA 004
TASK: Fisheries	PROCESS: Management of Fisheries Adjacent to Construction Works	Locations: All sites works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
			S	L	R	Any grouting to the base of bridges etc must be done with suitable diversions minimising risk of concrete contamination of waterways. Where animal barriers are installed to protect construction works these must impact on fish movements in the stream or rivers. When piping near existing streams under the stream or river is preferable by direct drilling or some such method, where the pipe work must be laid over the stream the fixing mechanism must be such as not to create concrete or silting risks.	S	L	R	

THM Environmental Risk Assessment Register		Risk Assessment No: RA 005
TASK: Oil Spillages	PROCESS: Use of lubricant oils etc on works	Locations: Site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Use of oils and lubricants on works	THM personnel or subcontractors working for THM	Fish kills, killing of other flora and fauna in rivers and stream areas, distortion of PH and chemical oxygen demand in rivers and streams.	3	3	9	THM will have completed a COSSH assessment on all chemicals to be used on works. The lowest hazard chemical possible will be selected for use on works which effectively allows machinery to work. Copies of MSDS will be retained at site for all chemicals on works. Where feasible there will be no decanting of oils into machines at site works locations - machinery will be filled prior to being delivered to site into secure sealed and where possible lockable oil or fuel reservoirs. All hydraulic machinery hoses and fittings will be leak tested and inspected prior to delivery to site works locations. Suitable bunding and drip trays will be put in place under all tanks, machinery and oil drums or stores. Designated refuelling locations and refuelling equipment pumps and systems which have been checked for leaks etc prior to being brought to site will be in place. Spill kits of suitable type and size to the nature and volume of oils stored at the site works area either in machinery or oil drums etc will be on site. All personnel on the works will have spill response training and will have had a refresher in same in the last 12 month working cycle. In critical locations a visual inspection and recording system will be in place to monitor water courses for oil films. In very high-risk areas a programme of water sampling and testing for contaminants will be implemented with suitable laboratories and agreed testing points.	3	1	3	2008 Chemical Act as amended 2010 REACH Directive 1907/2006EU and CLP Regulations 1272/2008

THM Environmental Risk Assessment Register		Risk Assessment No: RA 005
TASK: Oil Spillages	PROCESS: Use of lubricant oils etc on works	Locations: Site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
						All spills irrespective of how minor must be recorded fully and reported the client representative and IFI representative immediately. THM EHS management will ensure there is adequate welfare facilities- first aid hand washing etc. in place for management of the oils used on site works. THM will ensure there is appropriate PPE to the nature and scale of oils on the works.				

THM Environmental Risk Assessment Register		Risk Assessment No: RA 006
TASK: CHEMICAL HAZARDS	PROCESS: Use of chemicals on works	Locations: Site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk – employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Use of chemicals on works	THM personnel or subcontractors working for THM	Fish kills, killing of other flora and fauna in rivers and stream areas, distortion of PH and chemical oxygen demand in rivers and streams.	3	3	9	THM will have completed a COSSH assessment on all chemicals to be used on works. The lowest hazard chemical possible will be selected for use on works which effectively allows machinery to work. Copies of MSDS will be retained at site for all chemicals on works. Where feasible there will be no decanting of chemicals at the works site – chemicals will be brought in pack sizes suitable for use or ready diluted for use. Suitable bunding and drip trays will be put in place under chemical stores and reservoirs. Spill kits of suitable type and size to the nature and volume of chemicals stored at the site works area. All personnel on the works will have spill response training and will have had a refresher in same in the last 12 month working cycle. All spills irrespective of how minor must be recorded fully and reported the client representative and IFI representative immediately. The THM EHS manager will ensure there are adequate welfare facilities for all chemicals used on site hand washing, first aid etc. THM will ensure there is appropriate PPE suitable to the nature and scale of chemicals on site.	3	1	3	2008 Chemical Act as amended 2010 and REACH Directive 1907/2006EU and CLP Regulations 1272/2008

THM Environmental Risk Assessment Register		Risk Assessment No: RA 007
TASK: INVASIVE SPECIES MANAGEMENT		Locations: All site works
PROCESS: Management of invasive species on site works		

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk — employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Invasive species especially those with no natural predators or those which subsume the natural area around them at the expense of local flora and fauna must be controlled	All THM personnel and subcontractors.	Flora such as Japanese Knotweed can be being cut and pulled further proliferate through underground rhizome systems and Zebra Mussels and other crustaceans can be transfer from one water course to another by poor environmental management impacting on the local habitats	3	3	9	Where invasive species are identified by the main client in any project plans THM EHS management team must identify them in site works plans, must document the best methods of controls and must communicate same to all personnel in site inductions. Pictures and other identifying documentation should be provided to site personnel so they know what they are dealing with. Good operational procedures should be implemented for example all Japanese knotweed should where feasible be sign posted so it is not cut, excavated or damaged during works which can lead to it further proliferating across the local habitat. With certain invasive species like Zebra mussels it is critical that tools and equipment are cleaned post works to ensure there is no transfer of the species from one watercourse to another on contaminated plant and machinery. Programmes can be implemented on specific projects to eliminate the invasive species for example by deep excavation and burial, stirming or chemical treatments. Where this agreed, it will be on the advice of zoological and botanical specialists who will advise on the correct means of dealing with the species to eliminate any risk of exacerbating the problem.	3	1	3	EU Invasive Alien Species Directive and Habitats Directive

THM Environmental Risk Assessment Register		Risk Assessment No: RA 007
TASK: INVASIVE SPECIES MANAGEMENT	PROCESS: Management of invasive species on site works	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Effective Management of Waste on site works	All THM personnel and subcontractors.	Ensuring effective segregation of hazardous and non-hazardous waste streams, ensuring segregation of waste by EWC code and ensuring waste streams are suitably segregated from all site works to maximise recycling and minimise or eliminate landfilling of any waste.	3	3	9	THM EHS management personnel will identify and document all waste streams from site works by EWC code and will ensure suitable waste stream plans are put in place to manage the waste. The EHS manager will ensure there are appropriate waste skips and bins on site for each waste type and these are clearly labelled. Site works personnel will be trained in waste identification and waste segregation methods to ensure waste is correctly segregated on site. The hierarchy of control will be effectively implemented with Reduce, Reuse, Recycle, retrieve energy and landfill the priority in waste management or the controls applied in preferred order. For recyclable waste it will be fully segregated to minimise risk of contamination and allow for 100% recycling retrieval. For hazardous waste the EHS manager will ensure that personnel are given appropriate training in identification and control of hazardous waste by type. Suitable hazardous waste packaging will be held on site such as sharps bins, asbestos waste bins or skips. All hazardous waste will be held in double lined bins and bags to eliminate risk of dissemination and all hazardous waste will be in sealed containers or storage devices. THM EHS will retain the current waste haulier permits for all wastes generated by site works as well as the permit for waste processing facility for any waste removed from site. Hazardous waste can only be removed from site by approved licensed vendors for that	3	1	3	Litter Pollution Act 1997. Waste Management Directive 1996. Waste Framework 2006/12EC

THM Environmental Risk Assessment Register		Risk Assessment No: RA 007
TASK: INVASIVE SPECIES MANAGEMENT	PROCESS: Management of invasive species on site works	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
						<p>specific hazardous waste and to a designated licensed waste handling centre for that waste.</p> <p>Waste tickets will be held for all hazardous waste generated and disposed of by THM on site for reconciliation at the end of the works with the levels of waste generated and disposed of to ensure compliance with waste regulations.</p> <p>All incidents, spills and emergencies with hazardous and non-hazardous waste must be reported to the client representative immediately.</p> <p>The THM EHS manager will ensure there are appropriate welfare facilities hand washing, first aid etc for handling of hazardous and non-hazardous waste on site works.</p> <p>All personnel must wear appropriate PPE for the handling of all waste hazardous and non-hazardous.</p>				

THM Environmental Risk Assessment Register		Risk Assessment No: RA 008
TASK: Noise	PROCESS: Management of Construction Works Noise	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM		Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L		R	S	L	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	Legislation or other relevant documents
Noise from works including piling, rock breaking, compressors generators	All THM personnel and subcontractors, fauna and neighbouring personnel.	Noise can have immediate impacts on persons working on the site from a health and safety point of view however noise can also have negative impacts on site personnel, neighbouring personnel and fauna including birds and animals living in the works area or adjacent to same ongoing.	3	3	The initial controls are implemented by having approved machinery with noise dampening facilities on same. Ongoing effective maintenance of all machinery to ensure it is fit for purpose and in condition suitable for purpose to minimise noise impacts ongoing from machinery. Planning control on times and days of works - there are fixed daily working hours and fixed days of working weekly. There will be noise monitoring implemented at the site perimeters at fixed points and with fixed times of measurement during peak construction to determine maximum noise values. Where particular fauna such as badgers etc. are noted during periods of noise such as piling or rock breaking there will be stoppages to allow animals to peacefully make their way away from the work zones.	3	1	3	EU Habitats Directive

THM Environmental Risk Assessment Register		Risk Assessment No: RA 008
TASK: Management of Badgers on site	PROCESS: Management of Construction Works	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S	L	R	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S	L	R	Legislation or other relevant documents
Badgers are protected species	All badgers in works and adjacent to construction area.	Noise, vibration, construction works damaging setts and ecosystems	3	3	9	A pre-construction survey should be undertaken prior to the commencement of construction to identify active badger setts occurring within the site. In the event of badger setts being identified within proximity to the proposed works area, the following mitigation measures are proposed to ensure no disturbance of the local badger population during the construction phase of the proposed works A buffer distance of 10m from sett entrances should be employed in instances where light works such as digging by hand or in the event of scrub clearance. A buffer distance of 20m from Badger sett entrances should be incorporated where light machinery (generally wheeled vehicles) are in operation within the site. A buffer distance of 30m from Badger setts should be employed where heavy machinery is in operation within the site. None of the above activities should be undertaken within 50m of active setts during the breeding season (1st December to 31st June inclusive). In the unforeseen event that the project requires works to be undertaken within the recommended buffer distances outlined above, further measures as outlined in NRA (2009) will be adopted in liaison with local NPWS staff.	3	1	3	EU Habitats Directive

THM Environmental Risk Assessment Register		Risk Assessment No: RA 007
TASK: Minimise of Impact on Bats	PROCESS: Management of Construction Works	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
Detail the hazard and the risks involved.	Identify who is at risk - employee /contractor etc	Detail effects of the hazard on personnel or equipment and property on site	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	Detail additional control measures needed to eliminate hazard completely or minimise risk to acceptable level.	S - Severity L - Likelihood R - Risk	S - Severity L - Likelihood R - Risk	Legislation or other relevant documents	
Bats are protected species	All bats in works and adjacent to construction area.	Noise, vibration, construction works damaging nesting and ecosystems	3	3	9	Bats commuting and foraging along onsite forest edge, tree lines and hedgerows should be safeguarded by providing a 50m minimum distance buffer zone between the rotors of the planned turbines and the nearest vegetation to reduce the risk of collision and/or barotrauma. This is in line with present best practice guidelines (Carlin and Mitchell-Jones 2012) and should prevent impacts to bats that mainly fly low along such linear features e.g. the pipistrelles. Any mature broadleaved trees that are to be removed, should first be surveyed for bat presence by a suitably experienced specialist. If bats are found, an application for a derogation licence should be made to the National Parks and Wildlife Service to allow its legal removal. Such trees should ideally be felled in the period late August to late October, or early November, in order to avoid disturbance of any roosting bats as per National Roads Authority guidelines (NRA 2006a and 2006b) and also to avoid the bird breeding seasons. Tree felling should be completed by mid-November at the latest as bats roosting in trees are very vulnerable to disturbance during their hibernation period (November - April). Trees with ivy Hedera helix cover, once felled, should be left intact onsite for 24 hours prior to disposal to allow any bats beneath foliage to escape overnight. Should the removal of mature broadleaved trees be unavoidable, it is recommended that 2 bat boxes for each felled mature broadleaved tree shall be attached to suitable alternative trees in order to compensate for the loss of potential roosting	3	1	3	EU Habitats Directive

THM Environmental Risk Assessment Register		Risk Assessment No: RA 007
TASK: Minimise of Impact on Bats	PROCESS: Management of Construction Works	Locations: All site works

Record Significant Hazards	Person(s) at Risk	Effects of the hazard on personnel or equipment and property	Initial Risk Rating With ECM			Additional Control Measures (ACM)	Residual Risk Rating With ACM			Additional Information
			S	L	R		S	L	R	
						<p>The principal recommended type is the Schwegler 2F bat box as these are general boxes that are suitable for most bat species. 2F bat boxes may be erected in pairs and all boxes must be placed in sites that will be protected from disturbance. Bat boxes must be no less than 2 metres from the ground and facing south. Bat boxes must be clear of scrub and away from ivy encroachment as well as lighting and traffic. These boxes must be away from any felling or trimming to ensure that they are not accidentally damaged or removed. Several species of bats roost in trees. Where possible, tree lines and mature trees that are located immediately adjacent to the line of proposed haul roads or are not directly impacted should be avoided and retained intact. Overall impacts on these sites should be reduced through modified design and sensitivity during construction. Any trees and tree lines along approach roads and planned site access tracks should be retained where possible. Retained trees should be protected from root damage by machinery by an exclusion zone of at least 7 metres or equivalent to canopy height. Such protected trees should be fenced off by adequate temporary fencing prior to other works commencing.</p>				

