Industrie Cartarie Tronchetti

MAKING COMPLEX EASY

Industrie Cartarie Tronchetti SpA (ICT) Group

Paper Mill Facility, Plot C

Airfields, Northern Gateway

Construction Environmental Management Plan for the New Outfall to the River Dee

Final November 2022

Revision Record

Revision Reference	Date of Revision	Nature of Revision	Author	Checked By
1	October 2022	First Draft	Clare Russell	
2	November 2022	Final	Clare Russell	

Report Author	Clare Russell
Report Date	November 2022
Project No.	NP12223
Document Ref.	
Revision	Final

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1. Introduction

General

1.1. This document comprises a Construction Environmental Management Plan (CEMP) for works related to the Paper Mill Facility, Plot C Airfields, Northern Gateway, Flintshire proposed by Industrie Cartarie Tronchetti UK Ltd (ICT) Group (the 'Applicant').

Purpose of the CEMP

1.2. This CEMP has been prepared in response to condition 3 of planning consent ref 063721 for the Erection of a Paper Processing Mill to produce and manufacture tissue paper (B2, B8 use class) with ancillary B1a office space; associated servicing and infrastructure including car parking, HGV parking and vehicle and pedestrian circulation; noise mitigation features; earthworks to create development platforms; creation of drainage features including a new outfall to the River Dee; water treatment plant; and landscaping.

1.3. Planning condition 3 states that a CEMP is required prior to commencement of any phase of development. This CEMP specifically relates to the creation of a new outfall to the River Dee. A separate CEMP will also be submitted relating to works to construct the paper mill on Plot C and will form part of a separate phase of works.

1.4. This CEMP provides a framework of management measures that the developer and their construction contractors will be required to adopt and implement for all construction activities associated with the new outfall works granted permission under application reference 063721. They include strategies, control measures for managing the potential environmental impacts of constructing the proposed development (as outlined in Section 6 of this document) and limiting disturbance from construction activities as far as reasonably practicable. It focuses on the environmental aspects of the construction phase that may affect the interests of residents, businesses, the public and other sensitive receptors near to the Site.

1.5. The purpose of the CEMP is to:

- Provide a means of identifying and monitoring environmental commitments, objectives and targets;

- Provide a framework to ensure that all parties are aware of their responsibilities;
- Describe how construction activities would be undertaken and managed in accordance with the requirements of environmental legislation and policy; and
- Provide detailed Environmental Action Plans for reducing the potential for environmental impact during construction of the project.

Scope of the CEMP

1.6. The scope of the CEMP covers all the environmental impacts during the construction of the new outfall to the River Dee. The term 'construction' in this CEMP includes all site preparation, heavy goods vehicles (HGV) deliveries and all related engineering, construction and restoration activities.

1.7. The CEMP follows on from the Outline CEMP that accompanied the planning application. It includes relevant measures from the CEMP for the Northern Gateway Highway and Infrastructure Works – Road 2 and Road 3 that relate to the outfall works (planning reference 063191). This involves the installation of a cofferdam and the excavation and installation of the new outfall to the River Dee. A plan showing the extents of the headwall works are shown on Figure 1.

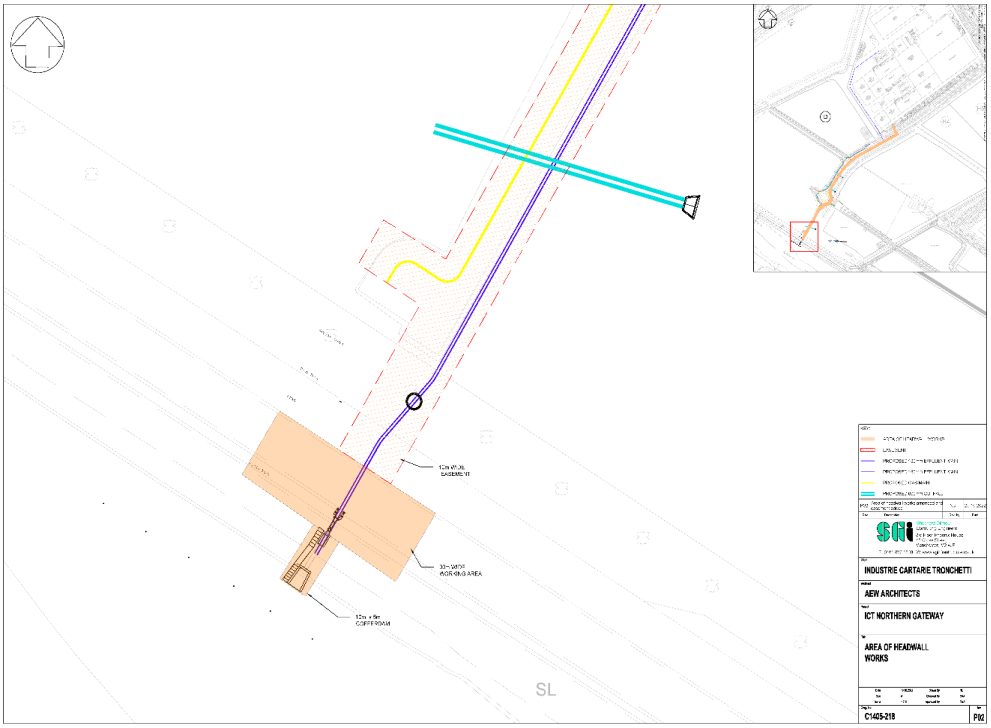

Figure 1: Area of Headwall Works

1.8. This CEMP incorporates legislative requirements, current standards and best practice measures to define the standards of construction practice that the contractors will be required to adopt and implement. However, compliance with this CEMP will not absolve the Applicants and its Principal Contractors or subcontractors from compliance with all legislation and byelaws relating to their construction activities.

2. Construction Method Statements

2.1. The following activities will be undertaken as part of the outfall construction:

- Establish work area
- Crane mat formation – a crane mat will be constructed in accordance with a temporary works design to protect BT cables whilst the works are carried out.
    - Bog mats will be laid on the existing road and sub base place dove them.
    - Mats will also be placed over the route of the BT to protect the cables.
    - Sub base will be laid in layers and compacted in accordance with the temporary works design up to the required depth.
    - The slope off the ramp is not to exceed 45 degrees
- Sheet piling
- Excavate cofferdam and install frames
    - Install sheets using a Movax attachment on an excavator.
    - Crane to be sat on a crane mat upon the existing road
    - Excavate as required and install the frame
    - Access for ops to assist with installing the sheets will be using a cherry picker.
    - Set up pumps in the corner of the cofferdam to control groundwater. The ground water will be pumped through settlement tanks and discharged to swales within the site boundaries
- Headwall installation
    - On completion of the excavation works, the internal pipework will be set up on pipe bedding and concreted into position.
    - Pre-cast headwalls will be used for both the lower and upper headwalls.
- Precast stairs
- Pipework
- Backfill
- Remove cofferdam.

2.2. The activities will be undertaken in accordance with the method statements prepared by D Morgan plc and documented in MS03 – Risk Assessments and Method Statement – Effluent Main Tie in at River Dee (see Appendix 1).

2.3. These method statements align with the Outline Construction Method Statement for the sheet piled cofferdam, which appended the Outline Construction Ecological Management Plan for the Paper Mill (March 2022) – see Appendix 2.

Plant/tools

2.4. The construction of the new outfall will use the following equipment:

- Tracked Excavators (5t to 49t)
- ADT Dump Trucks up to 30t
- Rollers
- Dozers
- Forward tipping dumper
- JCB 3CX
- Mechanical kerb lifter
- Pickup
- Stihl saw
- Wacker plate
- CAT & Genny

2.5. The following materials will be used in the construction of the new outfall:

- Site won material of various grades
- Stockpiled material

- Safety Fencing & Signage (Incl. Social Distancing)
- Warning signs / Netlon fencing
- Overhead Powerline Protection Measures
- Welfare / Cleaning Products & Hand Sanitiser
- Imported Material
- Capping - 6F2
- Type 1 MOT
- Topsoil
- Debris Netting & Heras Fencing

Other Activities

2.6. For those activities, which are not covered by method statements, the principles and measures of the CEMP will be implemented through general working practices as directed by the Principal Contractor. These activities may include:

- General Duties - Fencing installation / refuelling pumps / Tractor Duties / Trial Holes
- Vegetation clearance, covered under specialist

2.7. All construction staff will be required to follow the CEMP and implement the measures to control the environmental impacts during construction. The requirement to comply with the procedures of the CEMP (as agreed with Flintshire County Council) would be included in the contract conditions for each element of the works, including the supply chain, as appropriate.

Training and Competence

2.8. All construction staff would receive training on their responsibilities for minimising the risk to the environment and implementing the measures set out the CEMP as agreed with Flintshire County Council.

2.9. The Principal Contractor will ensure that contractors employ an appropriately qualified and experienced workforce. The Principal Contractor will also be responsible for identifying the training needs of their personnel to enable appropriate training to be provided. Training will include site briefings and toolbox talks to provide the necessary knowledge on health, safety and environmental topics, and the relevant environmental control measures pertinent to the construction activities to be carried out that day. All operatives and operators will produce valid CSCS / CPCS cards or Certificates of Competency, prior to starting work.

2.10. The briefings will be attended by all personnel working on the site at the time involved in the activities concerned

3. Approach to Construction

Construction Principles

3.1. The proposed outfall works will be constructed in an environmentally sensitive manner and will meet the requirements of all relevant legislation, codes of practice and standards as identified in the ES and any updates to legislation or standards adopted at the time of construction to limit the adverse impacts on the local community and environment as far as reasonably practicable.

3.2. The Principal Contractor will be required to sign up to, and implement, the Considerate Contractors' Scheme (CCS). The scheme is a voluntary Code of Considerate Practice which seeks to minimise disturbance caused by construction sites to the immediate neighbourhood.

Environmental Management

3.3. The Principal Contractor is required (as a minimum) to have an environmental policy and ensure the following measures in place:

- Procedures to be implemented to monitor compliance with environmental legislation and measures in this CEMP;
- Staff competence and training requirements; and
- Record-keeping arrangements.

3.4. The Principal Contractor would be required to plan their works in advance to ensure that commitments set out in the CEMP and the Environment Statement are complied with. This is documented in the method statements for the key construction activities.

Legal and Regulatory Requirements

3.5. Construction staff are required to comply with all legislative and regulatory requirements. Key requirements will set out in the method statements and will be included in the site training and tool box talks.

3.6. Specific construction-related activities may be subject to regulatory controls through the provision of consents, licences or permits. These are likely to include:

- Protected Species Licence;
- Mobile Plant Licence;
- Flood Risk Activity Permit.

Best Practice Guidance

3.7. Construction activities would be undertaken in accordance with the following best practice guidelines:

- British Standard BS 10175 (British Standards Institution (BSI), 2011 and amended 2017)
- Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (Department for Environment, Food and Rural Affairs (Defra), 2012);
- Groundwater Protection Position Statements (Environment Agency, 2017 and amended 2018);
- Land Contamination: Risk Management (Environment Agency, 2019);
- CIRIA (2015) C741 Environmental Good Practice on Site;
- Institute of Air Quality Management (2014) Assessment of dust from demolition and construction.
- British Standards Institution (BSI) (2014) British Standard 5228: Code of practice for noise and vibration control on construction and open site. Part 1: Noise +A1:2014; and
- British Standards Institution (BSI) (2014) British Standard 5228: Code of practice for noise and vibration control on construction and open site. Part 2: Vibration.

4. General Site Operations

Construction Programme

4.1. The construction programme is expected to commence

Working Hours

4.2. Core working hours for construction are as follows:

- Monday To Friday: 08:00 – 18:00 hours;
- Saturday: 08:30 – 13:00 hours; and
- No Sunday, bank holiday or night working, with certain exceptions detailed below.

4.3. No construction activities will be undertaken between one hour after sunset and one hour before sunrise.

4.4. Up to an hour before and after the core working hours, the contractor may undertake the following activities:

- Arrival and departure of the workforce at the site and movement around the development site;
- Site inspections and safety checks, site meetings; and
- Site housekeeping that does not require the use of plant.

4.5. Deliveries to the development site will occur during the core working hours unless otherwise agreed in writing.

Activities Outside Core Working Hours

4.6. In certain circumstances, when work is required to be undertaken at specific times to maintain the construction programme or address particular logistical, construction or environmental

constraints work may be undertaken outside of the core working hours. For example, abnormal loads/construction plant delivery.

4.7. Non-noisy activities may be undertaken outside those hours where these would not cause disturbance off-site.

4.8. It is possible that certain construction activities that cannot be interrupted, such as a continuous concrete pour, may be required.

4.9. Activities outside of the core working hours will be agreed with the Flintshire County Council Environmental Health Officer (EHO) in consultation with relevant stakeholders (e.g. third-party asset owner) as required.

Temporary Construction Areas

4.10. The construction site office and laydown areas will be within the Site boundary and outside any landscape and ecological mitigation areas.

4.11. All personnel attending site will be required to access via the main entrance off the Welsh Road, Deeside, Flintshire, CH5 2RD. (Access to the site is available along the previously constructed road which is accessed from the B5441 to the east of the site).

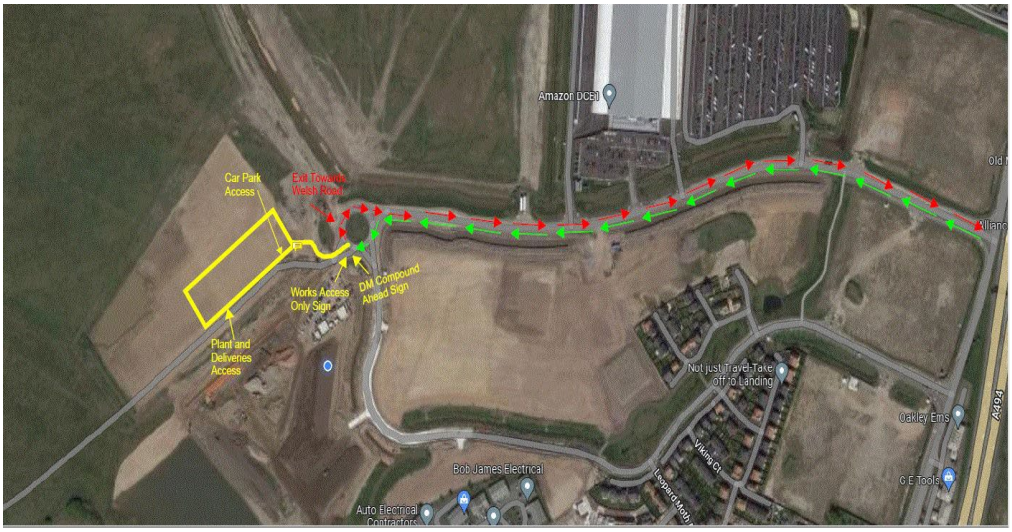

Figure 2: Construction compound and access

4.12. A section of the footpath that runs alongside the River Dee (reference 309/1/20) will be closed to the public from 5 December 2022 for 21 weeks. An application to temporarily close the footpath has been submitted to Flintshire County Council. The existing footpath over Hawarden Rail bridge and the embankment will be used as the diversion during the closure. Notice of the temporary closure and diversion will be advertised in the local press and appropriate signage will be put in place.

Good Housekeeping

4.13. A good housekeeping policy will be applied to the construction areas at all times. As far as reasonably practicable the following principles will be applied:

- All working areas will be kept in a clean and tidy condition;
- Adequate welfare facilities will be provided for construction staff;
- Smoking areas at site offices/compounds or work sites will be equipped with containers for smoking wastes – these will not be located at the boundary of working areas or adjacent to neighbouring land;
- Wheel washing facilities will be cleaned frequently;
- Open fires will be prohibited at all times;
- All necessary measures will be taken to minimise the risk of fire and the contractor will comply with the requirements of the local fire authority;
- Waste from the construction areas will be stored securely to prevent wind blow; and
- Waste (particularly food waste) will be removed from the welfare facilities at frequent intervals.

Site Induction

4.14. The construction of the generation plant will require all personnel working on site to have a site induction that includes an environmental protection and good practice component. Prior to commencing work on site, personnel must attend the site induction.

4.15. Site inductions will include reference to compliance with relevant planning / licence conditions, environmental requirements, environmental management structure and contacts, site specific environmental sensitivities, waste management arrangements, water and wastewater management, hazardous material management, fuel, oil and chemical management; spill contingency and environmental emergency response, reporting of incidents and complaints. More specific information will be provided to staff according to their role.

Site Security, Screening and Fencing

4.16. The construction compound(s) will be secured to minimise the opportunity for unauthorised entry. All working areas will be sufficiently and adequately fenced off from members of the public and to prevent animals from straying onto the construction areas.

4.17. All boundary fences/screens will be maintained in a tidy condition throughout the construction period to ensure they are fit for purpose.

4.18. Where possible, access to construction areas will be limited to specified entry points and all personnel entries/exits will be recorded for security and health and safety purposes. Adequate security will be provided by contractors to protect the public and staff, prevent theft from or damage to the works, and prevent unauthorised entry to or exit from the site. Site gates will be closed and locked when there is no site activity and appropriate security measures will be implemented.

4.19. All temporary screening and fencing will be removed as soon as reasonably practicable after completion of the construction works.

Construction Lighting

4.20. External lighting of the construction site will be designed and positioned to manage emissions form artificial light in accordance with good practice, whilst maintaining safety and security obligations.

4.21. Site lighting will be positioned and directed to minimise nuisance to footpath users, residents, to minimise distractions to passing drivers on adjoining public highways and to minimise skyglow, so far as reasonably practicable. Lighting spillage will also avoid or minimise impacts on ecological resources, including nocturnal species. Between the hours of sunrise and sunset no illumination will be provided in construction areas within 30m of the dark zone (as indicated in the Otter Conservation Plan – see Appendix 2).

4.22. Lighting during construction will take into account the requirements set out in BS EN 12464-2:2014 (British Standards Institution (BSI), 2014a). Lighting units will be designed to minimise illumination outside the construction works area (e.g. will be directional, task orientated and where possible, fully shielded). Further details regarding lighting during the construction phase will be developed post consent.

Noise

4.23. Construction works, would be carried out in accordance with 'best practicable means' (BPM) of Section 72 of the Control of Pollution Act 1974 to minimise noise effects. Measures would follow guidance provided in BS 5228:2009+A1:2014 Part 1 including:

- The use of quieter alternative methods, plant and equipment, where reasonably practicable);
- Siting the construction compound (in particular plant, equipment, site offices and storage areas) away from existing noise sensitive receptors, where reasonably practicable;
- Timing of operations;
- The use of hoardings or portable acoustic enclosures/screens, where necessary;

- Maintaining and operating all vehicles, plant and equipment in an appropriate manner, to ensure that extraneous noise from mechanical vibration, creaking and squeaking is kept to a minimum.

Pest Control

4.24. The risk of pest/vermin infestation will be reduced by ensuring any waste which is liable to decay is stored appropriately and regularly collected from the construction areas, and effective preventative pest control measures are implemented. Any pest infestation will be dealt with promptly and notified to the relevant local authority as soon as practical.

Clearance of Site and Reinstatement on Completion

4.25. The construction compound(s) will be cleared on completion of construction works and all plant, temporary buildings or vehicles will be removed.

4.26. If works are delivered in phases, temporary construction compounds will be removed on completion of construction work associated with that phase unless otherwise approved by the local planning authority.

Emergency Planning and Procedures

4.27. Emergency procedures are set out in the D Morgan RAMS and are summarised below:

- Follow normal site rules (displayed in site offices) and make immediate contact with the site supervisor below if any accident or dangerous occurrence happens whilst on site. If any damage occurs to services, no matter how minor it may appear, this must be reported to the site supervisor immediately.
- All personnel will make their way to the site office or nearest muster point as soon after the incident as possible, unless involved in the emergency dealing with a casualty or keeping persons away from danger.
- The site management will liaise with Fire & Medical Services during any emergency at the site entrance.

- DM Contracts Manager Tony Brown 07803 291 600
- DM Site Manager Miles Germany 07803 291 631
- DM Snr Quantity Surveyor Liam Parry 07803 291 618
- DM Snr Engineer Jimmy Greeves 07837 845 069

4.28. The nearest A&E hospital is approximately 6.1 miles from the site – Countess of Chester Hospital, The Countess of Chester Health Park, Liverpool Rd, Chester, Cheshire CH2. Route maps will be located on the Site Notice Boards.

4.29. The procedure in response to a fire is as follows:

- All operatives will evacuate to the assembly point, call 999 and wait until the emergency services arrive.
- If the fire is able to be put out by the site fire extinguishers or soils to snuff out using plant (without placing operatives or equipment in jeopardy.
- The Site Manager/Supervisors should be summoned immediately in the event it cannot be controlled.

Pollution Incident Control

4.30. In response to an environmental incident, the following procedure will be followed:

- Spillages should be contained to the immediate area by the use of soils and spill kits should be deployed to absorb the spillage where possible. The Site Manager/Supervisors should be summoned to advise on the appropriate course of action to clear the spillage and arrange for the contaminated material to be correctly disposed of.

Communication Plan

4.31. The Applicant and Principal Contractor would adopt a proactive approach to communications and would develop a communications plan that would be implemented prior to construction

commencing. The Applicant or the Principal Contractor would be responsible for providing a dedicated point of contact to manage contacts with local residents, schools, emergency services and the local authority, and for responding to general construction works issues. The communication plan would include the following:

- A site notice board would be erected setting out key facts about the construction programme, where further information could be found and the contact details for the Proposed Development;
- Information regarding the project (including key information on the construction programme and areas of works) would be added to website for the Proposed Development;
- Advance notice would be given of any construction works that would restrict access for residents/local businesses etc and where practicable, alternative access would be provided prior to works commencing;
- Occupiers of nearby properties would be informed of particularly noisy construction activities or works undertaken outside the normal working hours;
- Local residents or businesses would be given advance notice of temporary disruption to services and closure of the footpath along the River Dee; and
- A 24-hour help line would be set up to provide information on the project and would be used to record complaints from members of the public. Details of the help line would be promoted on notice boards at the site and on the website.

4.32. All complaints will be logged and the action taken to resolve the complaints would be recorded. This information would be shared with Flintshire County Council on request.

5. Environmental Aspects Register

5.1. The table below provides an outline Environmental Aspects and Impacts register. The register identifies sensitive receptors and the potential impacts or key issues of the proposed construction works based on the information provided in the Environmental Statement.

5.2. Commitments and agreements to mitigate these impacts are set out in the Environmental Statement and are discussed in the Environmental Control Plans within this CEMP. The register would be updated as required during detailed design and would provide a tool for the construction teams when preparing their method statements.

Environmental Topic	Sensitive Receptors	Potential Impacts during Construction
Geology and Ground Conditions	Secondary A Aquifer River Dee SSSI, SAC and Ramsar, Shotwick Brook and Northern Drain	Contamination from fuel storage, Mobilisation of contamination from storage of soils, installation of foundations, enabling works, civil engineering for foundations and drainage.
Traffic and Transport	Local residents at Garden City and Welsh Road Local highway users including pedestrians, cyclists, and vehicles Open Space	Increase in HGV traffic flows may impact on driver delay due to construction traffic. The HGVs associated with the construction process may result in increased dust and dirt. Increase in HGV traffic flows on the local highway network may impact on severance, driver delay, pedestrian amenity, fear and intimidation, and road safety. The construction of the Site will create a number of construction jobs over a number of years.
Water Environment	River Dee, Shotwick Brook, Northern Drain,	Water Quality – pollution with silt, oils, hydrocarbons, concrete, cement residues and other construction materials/wastes. Increased rates/volumes of rainfall runoff from additional impermeable areas. Pollution from temporary sanitary facilities. Increased tidal and fluvial flood risk due to creating raised development platform
Landscape and Visual Impact	Residents, users of local Public Rights of Way	Temporary change in views as a result of construction activities.

Environmental Topic	Sensitive Receptors	Potential Impacts during Construction
Ecology and Nature Conservation	River Dee & Lake Bala SAC and SSSI, The Dee Estuary SAC, SPA, Ramsar and SSSI. River Dee County Wildlife Site, Shotton Brook CWS Habitats – watercourse, woodland Protected species – birds, bats	Adverse changes to water quality within the River Dee which subsequently impacts on qualifying criteria. Noise disturbance to concentrations of qualifying bird species using known feeding, roosting or breeding areas resulting in reduced feeding / breeding from bird populations. Disturbance to migrating salmon as a result of sheet piling works associated with flood defence works. Changes to habitats and species within the Wildlife Site as a result of dust and NO_x deposition altering the nature of the habitats
Noise and Vibration	Residential noise sensitive receptors	Construction noise impacting on existing noise sensitive receptors. Construction traffic noise impacting on existing noise sensitive receptors
Air Quality, Odour and Dust	Adjacent businesses and residential properties	Deposition of dust affecting habitats Potential dust nuisance to businesses Deposition of construction dust on nearby roads

Table 5.1: Environmental Aspects Register

6. Environmental Control Plans

Geology and Ground Conditions

6.1. A number of measures will be implemented to minimise the potential for the mobilisation of contaminants including:

- avoiding stockpiling of contaminated materials where practicable. Where it is necessary, stockpiles would be located on areas of hard-standing or plastic sheeting to prevent contaminants infiltrating into the underlying ground.
- the implementation of dust suppression measures during construction to minimise nuisance dust emissions during the works.
- Where significant unforeseen contamination is identified (e.g. hydrocarbons, fibrous asbestos) during the course of the work, work will stop, and further investigation will be undertaken to establish the nature and level of contamination and the risks posed to human health and controlled waters. Where remediation is required, appropriate on-site treatment, measures will be carried out wherever practicable.
- Suitable management and control of shallow groundwater during excavation works to minimise the potential for the spread of contamination contained within the water
- Appropriate PPE will also be provided for construction staff.
- Piling for the cofferdam will be undertaken in accordance with the D Morgan risk assessment and will implement measures to minimise the potential for the downward migration of any contamination into the Secondary A aquifers.
- If asbestos fibres are identified within any Made Ground deposits then additional dust control measures, such as burying impacted soil at depth, may be required to prevent asbestos fibres being generated. These type of control measures will be in line within CIRIA 733 Asbestos in soil and made ground: a guide to understanding and managing risks. Additional measures such as boundary dust

monitoring may be completed to demonstrate that dust/fibres have not been released or that additional dust suppression is required.

6.2. Storage areas of hazardous substances (including oils and chemicals) will be bunded to minimise the risk of hazardous substances entering the drainage system or the local watercourses. Additionally, the bunded areas will have impermeable bases to limit the potential for migration of contaminants into groundwater following any leakage/spillage. The bunding systems for oil/chemical storage will have a capacity of 110% of the oil/chemical volume stored and ideally will be covered to prevent ingress of rainwater. Oil/chemical storage areas will be visually inspected on a daily basis.

Traffic and Transportation

6.3. To mitigate against increased traffic movements related to the construction activities, the following measures will be implemented:

- In relation to construction workers, sustainable transport choices will be encouraged so that the number of cars is kept to minimum. Where workers do travel by car, dedicated car parking facilities will be provided so that vehicles do not park on the public highway;
- Dust impacts from construction traffic will be mitigated via considerate construction practices and road/vehicle cleaning facilities;
- Existing materials on-site will also be re-used wherever possible to reduce the need to deliver new materials to the Site and also dispose off-site minimising the number of HGV movements on the local highway network;
- Co-ordinate on-site construction movements via a Site Logistics Plan. This will be prepared at a later date once a contractor is appointed. It will set out how the construction site will be set up and operated;
- Work to specified hours only to minimize disruptions;

- Co-ordinate Pedestrian Routes and manage conflicts between pedestrian/cycle traffic and construction traffic and include the use of designated walkways, crossing points, and barriers;
- Construction Access Strategy setting out the following;
    - Introduction of route management strategies to ensure that HGVs travel outside of peak periods where possible and avoid sensitive residential areas, notably Welsh Road through Garden City
    - Parking provisions within the Site;
    - Monitoring of the condition of the local highways to identify if any damage has arisen as a result of the construction activities and ensure remedial work will be carried out;
    - Implementation and enforcement of safe speed limits within the work Site;
    - Entrance and egress to and from the site should be controlled via a gateman located within a cabin next to the entrance point;
    - Maintaining access for emergency services;
    - Signage Requirements;
    - Banksman Requirements;
    - Notification of public and local businesses;
    - Delivery requirements and procedures; and
    - Prevention of silt and solids being tracked onto Public Highways.

Water Quality, Flood Risk and Drainage

6.4. The principal means of mitigating the effects of the Proposed Development on the water quality attributes of the watercourses within the study area is through implementation of good working practices and pollution prevention techniques that are routinely adopted at

construction sites. The measures will be in accordance with Guidance for Pollution Prevention 5 'Works and maintenance in or near water (NRW, 2018).

- No water from foundation excavations will be discharged directly into a watercourse. Any dewatering works will take place prior to the placement of concrete and no subsequent dewatering will occur until any concrete has sufficiently cured to prevent runoff of cement grout, unless the discharge is appropriately treated.

- If samples of water from excavations are unnaturally discoloured or have an unusual odour the water will be pumped to suitable containers, or removed by vacuum tanker, and then taken to a licensed waste disposal site. Criteria for 'unnaturally discoloured' water include a surface sheen or scum/foam; any unusual colouring; or the 'rainbow' effect indicative of oil or hydrocarbon pollution. All staff involved in the dewatering and out pumping of water from excavations will be briefed on these criteria via tool box talks and the precautionary principle will be advocated. If any signs of pollution are noted, the waters will be pumped out into a contained area or tank and either treated prior to discharge or removed from site for treatment and disposal. Observations of where unusual odour or colouration of water is encountered will be recorded together with the action taken.

- Water that is discoloured due to sedimentation will also be classified as 'polluted' and will be subject to settlement or be passed through a suitable silt trap or filtration system before discharge to any drain or watercourse.

- Refuelling, repair and maintenance of plant and vehicles will be carried out within a bunded area with drip trays placed under standing machinery whilst refuelling to avoid pollution from spillages and leaks.

- Machinery will be refuelled using a transfer hose and will be locked when unattended. A suitable supply of spill absorbent material will be retained on site as part of an emergency spillage control kit.

- A designated area will be used for any washing down or equipment cleaning, away from the surface water drainage system.

- Any temporary storage facilities for wastewater will comply with best practice guidelines and will be provided to suit the scale of construction and the construction phasing. Options to be considered, subject to agreement with DCWW and NRW, are a temporary connection to the existing sewer network, provision of standalone facilities that will be removed from site to a treatment works subject to DCWW agreement, or onsite treatment.

- A full time wheel wash will be constructed in order to mitigate transport of mud from the site during deliveries and removal of materials. This will use recycled water collected from surface run-off in a sustainable manner.

- During prolonged periods of dry weather, damping-down will be undertaken using recycled site run-off water to prevent excess generation of dust.

- Stores of construction materials will be sited on impervious bases and surrounded by impervious bund walls.

- Excavated materials will be stored in association with DEFRA Good Practice Guidance for Handling Soils to prevent the generation of silty runoff. Where possible material on site will be reused to minimise the volume of imported fill material required.

- Coffer dams will be installed to keep water out of the working area when works in the river channels are required, (see Appendix 1).

6.5. Work site drainage will be managed appropriately during construction, and wastewater generated from construction compounds would be disposed of via appropriate means, for example, pumped out and removed from site by tanker.

6.6. The contractor will sign up for NRW flood warnings (for coastal/tidal events) during construction.

Landscape and Visual Impact

6.7. To minimise the visual impact of the construction site, lighting will be kept to a minimum. Focused lighting will be used where illumination is required (e.g. task lighting and security

lighting). Night-time construction works will be limited to a minimum and only conducted where necessary. Site hoardings will be considered in key locations to limit the views of the construction activities from nearby receptors.

Ecology and Nature Conservation

General

6.8. The following general measures outlined below are proposed as best-practice working methods to avoid adverse impacts on mammals badgers, rabbits, foxes Etc.) and herptiles (i.e. reptiles, frogs and toads):

- All excavations to be ramped over-night to allow any animals that fall in the chance to escape;
- All pipework to be capped overnight to prevent animals from entering pipes and becoming stuck or otherwise injured;
- All site materials to be stored in skips and/or off the ground on pallets to prevent amphibians/reptiles from seeking refuge;
- All stockpiles to be compacted and monitored to reduce the risk of rabbits, foxes or badgers excavating burrows/setts;
- All chemicals to be stored in secure compounds;
- All vegetation arisings to be removed from the site immediately to prevent amphibians and/or reptiles from seeking shelter within
- No night-time works to be allowed unless otherwise agreed;
- Dust-suppression methods to be employed at all times comprising daily watering of the site in dry periods;
- Noise-suppression methods to be employed at all times, including; compressors to be silenced and pneumatic tools to be fitted with silencers.

Habitats

6.9. The newly created habitats adjacent plot C and existing retained adjacent habitat features such as the hedge H1, woodland W1 and riverbank beyond the construction zone for the pipeline would be protected by suitable fencing which, where applicable to areas containing trees, will be detailed in Arboricultural Method Statement.

6.10. Prior to the commencement of construction, fencing will be provided around the trees: storage of construction equipment and materials will not be permitted within the fenced areas. Where appropriate, fencing will also be provided around individual trees to be retained to protect tree roots from compaction. Fencing will meet the requirements of British Standard 5837:2012 'Trees in relation to design, demolition and construction' and will remain in place until construction within the area has been completed.

Protected Species

Nesting Birds

6.11. All vegetation clearance will take place outside of the bird nesting season, as far as practicable. The clearance works will be undertaken between October and mid-February to ensure nesting birds are not disturbed. If any clearance is required outside of the period, the relevant areas will be inspected by a suitably experienced ecologist to check for the presence of nesting birds prior to any vegetation clearance. If an active nest is present, an exclusion zone (commensurate the level of disturbance risk) will be set up around the nest and the vegetation (or built structure) and works will avoid the exclusion zone until it has been confirmed by a suitably qualified ecologist that the young birds have fledged.

6.12. If the nest proves to be a species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) advice from the inspecting ecologist regarding suitable distances to avoid disturbance will be sought and agreed with the contractor. These buffers will remain in place until the young birds have fledged and left the nest.

Wintering Birds

6.13. Where possible, works associated with the River Dee, including movements of machinery generating noise exceeding 70dB (at source) will be timed to occur between April and September to avoid the passage and wintering period. Where this is not possible, weekly monitoring of works associated with the River Dee will be undertaken by a suitably qualified ecologist to ascertain if there is disturbance. Where necessary, remedial action will be

implemented such as the erection of hoarding to shield the riverbank from visual disturbance arising from the movement of machinery and associated noise.

Otter

6.14. To avoid disturbance to otters using the River Dee as a foraging and commuting resource, no construction works will take place along the riverbank after sunset and before sunrise and there will be no light spill onto the River Dee and the bankside habitat.

Migratory Fish

6.15. To avoid the risk of disturbance/injury to fish from increased noise from piling, an outline method statement has been prepared for the construction of the cofferdam as part of the works to the headwall to the River Dee is summarised in the Outline Ecological Construction Environmental Management Plan (Appendix 2).

Bats

6.16. Lighting outside the standard construction working hours will be restricted to that necessary for individual tasks and will be directional to avoid light spill onto areas where lighting is not required. Construction lighting will be designed and positioned to endure there will be minimal artificial light spill onto the railway corridor during the period when bats will be foraging/commuting.

Invasive Species

6.17. Measures to avoid the spread of invasive species will be implemented in accordance with the Outline Ecological Construction Management Plan (see Appendix 2).

Noise and Vibration

6.18. The main contractor will be committed to following Best Practicable Means (BPM) to minimise the noise and vibration impact on nearby noise sensitive properties. Such measures include the following:

- All construction plant and equipment will comply with EU noise emission limits.
- Machines in intermittent use will be shut down in the intervening periods between work or throttled down to a minimum.

- The sheet pile installation works will be carried out at low tide to mitigate the risk of noise and vibration in the water.

- Proper use of plant with respect to minimising noise emissions and regular maintenance. All vehicles and mechanical plant used for the purpose of the works will be fitted with effective exhaust silencers and will be maintained in good efficient working order.

- Selection of inherently quiet plant where appropriate. All major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.

- Plant and equipment such as flatbed lorries, skips and chutes will be lined with noise attenuating materials. Materials should be handled with care and be placed, not dropped.

- Care will be taken when erecting or striking scaffolds to avoid impact noise from banging steel. All operatives undertaking such activities will be instructed on the importance of handling the scaffolds to reduce noise to a minimum before access is possible.

- All ancillary plant such as generators, compressors and pumps will be positioned so as to cause minimum noise disturbance. If necessary, localised screens and enclosures will be used to reduce noise from particular noisy, static operations.

- Wherever possible, the use of hydraulic attachments or other means of crushing concrete and hard materials will be used in preference to pneumatic breakers. Where the use of impact hammers is necessary, their attachment to larger and heavier excavators often can reduce the level of vibration.

- Deliveries will be programmed to arrive during daytime hours wherever practicable. Care should be taken when unloading vehicles to minimise noise. Delivery vehicles should be routed so as to minimise disturbance to local

residents. Delivery vehicles will be prohibited from waiting on the highway or within the site with their engines running.

Air Quality, Odour and Dust

6.19. The following 'highly recommended' measures from the Institute of Air Quality Management guidance will be implemented to mitigate potential dust impacts:

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on Site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager/engineer or the site manager'.
- Display the head or regional office contact information.
- Dust Management Plan
- Develop and implement a Dust Management Plan (DMP) (which may include measures to control other emissions), approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off- Site, and the action taken to resolve the situation in the log-book.

- Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the site boundary, with cleaning to be provided if necessary.

- Where appropriate, carry out regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

- Where appropriate, agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. A shorter monitoring period or concurrent upwind and downwind monitoring may be agreed by the local authority.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Use screening intelligently where possible – e.g. locating site offices between potentially dusty activities and the receptors.

- Erect solid screens or barriers around the site boundary.

- Fully enclosure site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site run-off of water or mud.
- Keep site fencing, barriers and scaffolding clean.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover.
- Depending on the duration that stockpiles will be present and their size - cover, seed, fence or water to prevent wind whipping.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.

Construction Activities

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible.

- Use enclosed chutes, conveyors and covered skips, where practicable.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

Measures specific to Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

Measures specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.

7. Reporting

7.1. Monitoring records would be prepared to demonstrate compliance with relevant permits/consents and the measures set out in this CEMP. Performance results would be reported at regular intervals in accordance with contract requirements.

7.2. Reports may include test results, progress reports, inspection records and internal audits. Inspection and monitoring carried out by the construction team would be recorded and actioned within reasonable timescales and be formally closed out detailing the action taken and by whom. Where non-conformances are identified, procedures would be reviewed and amended to minimise the risk of further non-compliances.

Appendices

Appendix I

PROJECT METHOD STATEMENT

MS03 - RISK ASSESSMENTS & METHOD STATEMENT

NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS

EFFLUENT MAIN TIE IN AT RIVER DEE

This Project Method Statement is to be used in conjunction with other Task Sheets produced for additional activities being undertaken.

FOR
DEPARTMENT FOR ECONOMY & TRANSPORT
WELSH GOVERNMENT

NAME	POSITION	APPROVED (signature required)	DATE
Adam Onyett	SHEQ & Preconstruction Director		
Lee Davies	SHEQ Manager		
Patrick Sarjeant	SHEQ Coordinator		
Robbie Evans	Operations Manager		
This document **MUST** be **SIGNED OFF** by at least **2** of the **ABOVE BEFORE USE** when **working at height, deep drainage or other high-risk activities.**			

PROJECT MANAGEMENT TEAM			
Tony Brown	Contracts Manager		
Miles Germany	Site Manager		
Jimmy Greeves	Senior Engineer		

THE MEMBERS OF THE PROJECT MANAGEMENT TEAM HAVE BEEN FULLY BRIEFED IN THE CONTENT OF THIS DOCUMENT, IN ORDER TO EXECUTE THEIR RESPECTIVE ROLES AND RESPONSIBILITIES IN DELIVERY OF THIS METHOD STATEMENT IN A SAFE MANNER.

THINK SAFETY – ACT SAFELY

PROJECT METHOD STATEMENT

1.0 GENERAL INFORMATION

Contract: Northern Gateway Highway & Infrastructure Works – Road 2 & Road 3	**Description of Works / Activity:** Dee tie in works
RA / MS Reference No: MS03	**Location:** Effluent tie-in at River Dee
Prepared by: A Brown **Date: 03/11/2022**	**Approved By:** Lee Davies **Date:**
Distribution: Site, Client	**Client:** Welsh Government

2.0 DOCUMENT OVERVIEW

- This 'Project' Method statement provides the generic methods to be adopted across the project and method of works for this specific work area only and includes a review of the identified key risks associated with the known works occurring on this project. **Supporting activity specific task sheets can also be used for a particular activity and act as short briefings for a particular element of works.**

- **Where activities are not listed within this Method Statement, this document will be used in conjunction with activity specific task sheets issued to the site operatives undertaking specific works at a location**. There may be multiple task sheets for different activities at any given location. The task sheets will include task specific risk assessments and the task sheets will be reviewed with the work force before the commencement of any works.

- Alternatively, as further works become known, this can be added to this document as part of the review and revision process.

- If site/work conditions change the works will stop be reassessed for risk and method re-agreed inducted and implemented (By amending to this document or by producing a supporting activity specific task sheet). If works can be carried out in a more efficient/safer manner then the working procedure may be altered providing the site supervisor has authorised the change in working procedure.

- It is a requirement that all operatives and supervisory staff; are aware of the contents of this method statement and the working procedure to be followed. This is achieved by the Project Management Team signing the cover sheet and other site personnel signing the Method Statement briefing register.

PROJECT METHOD STATEMENT

3.0 REVIEW & REVISION DETAILS

This Project Method Statement shall be **reviewed** in operation, **at least fortnightly** and where there is a significant change or unintended event to the activity/task. If at any point something changes which requires amendments to the following procedure, work must be stopped and the risk assessment reviewed, methodology rewritten and briefed. Under no circumstances must work be carried on outside of this procedure. **If this document is supported by a Task Sheet. The Task Sheet reference number and details should be included on the below.**

No changes to working methods are accepted on site unless contained in a revised method statement.

Revision	Date of last review	Amended (Yes / No)	Reviewed / Amended By	Reason for Amendment
0	-	-	-	Issued for Construction
	02/08/2022		**MG - Addendum Part 1**	**Task Sheet 01 – General Duties Fencing installation / refuelling pumps / Tractor Duties / Trial Holes**
	02/08/2022		**MG - Addendum Part 2**	**Task Sheet 02 – Engineering & Surveying**

PROJECT METHOD STATEMENT

4.0 RECORD OF ATTENDANCE

- Before any work commences, one of the members of the Project Management Team as listed on the cover page of this document, is to ensure that this method statement briefing is provided for all personnel involved in carrying out this work activity.

- The work activity briefing is intended to be a two-way process and all operatives are expected to challenge the proposed approach, particularly if they feel that a safer and more practical work method can be adopted.

- D Morgan invites the involvement of all employees and sub-contractors with an 'open door' policy. D Morgan always seeks to improve communication and openness to make improvements throughout the business, in particular to our Occupational Health & Safety Management System ISO 45001 and to our Safe Systems of Work (SSoW).

- All site personnel are to sign below to confirm that they understand the content of this risk assessment(s) and method statement.

- Any individuals who are no longer employed on site, or are **off site for a longer than a fortnight**, should be highlighted on the below briefing register. This is to ensure records are updated & re-briefing is to taken place, should they return to work on this project.

I have been briefed on the above method statement, fully understand its contents and any questions I may have, have been answered satisfactorily. I agree to carry out the work in compliance with this document and will not change from the agreed system of work without prior notification to the site supervisor.

Date	**Full Name** (Please Print)	**Company**	**Signature**	Please tick if no longer on site

PROJECT METHOD STATEMENT

Date	Full Name (Please Print)	Company	Signature	Please tick if no longer on site

5.0 SCOPE OF WORKS

D Morgan have been appointed to carry out the below activities on this project.
If site conditions change outside of the method, risk assessment and proposed scope, work shall stop, be re-assessed for risk, with methods re-agreed, inducted and implemented:

RIVER DEE TIE IN:

- Set up work area
- Crane mat formation
- Sheet piling
- Excavate cofferdam and install frames
- Headwall installation
- Precast stairs
- Pipework
- Backfill
- Remove cofferdam

CONCURRENT WORKS:

- General Duties - Fencing installation / refuelling pumps / Tractor Duties / Trial Holes, covered under Task Sheet 01
- Engineering & Surveying, covered under Task Sheet 02
- Install Overhead Powerline Control Measures covered under MS03
- Vegetation clearance, covered under specialist s/c RAM
- Sheet piling covered under specialist s/c RAMS
- Pipework installation covered under specialist RAMS

6.0 KNOWN KEY RISKS OF THIS METHOD STATEMENT:

- Lifting operations
- Working over and near water
- Ecological/Environmental Risk – Flooding and wildlife
- Plant & People Interface
- Working around live services

The site supervisor is the person responsible for the ongoing review of the works being carried out and the carrying out of onsite risk assessments should the work differ from those described above.

7.0 RISK ASSESSMENTS

- Risk assessments have been carried out and the operations on the following pages have been identified as the most significant risks. Additional assessments are located within the D Morgan PLC Occupational Health & Safety System and copy of which is available on site via the Site Manager.

Our approach to Risk is to remove it by taking the following actions:
ADMINISTRATIVE
Training; Competence & SSoW
ENGINEERING CONTROLS
Separation by Guarding against it
SUBSTITUTION
Use some other way
ELIMINATION
Design it out
PERSONAL PROTECTIVE EQUIPMENT
Be prepared and ready with PPE

- A safe system of work (SSoW) is a procedure to eliminate the risk involved in a specific operation. If elimination cannot be achieved, then, at least, to reduce the risk to an acceptable level. A SSoW is a part of the risk assessment process which is systematically evaluated. Once underlying hazards are identified, then different measures can be taken to eliminate (or lower) risks. This can be achieved by introducing different SSoW procedures such as engineering controls and administrative controls. As a last resort, providing protective clothing and equipment (PPE).

8.0 COSHH ASSESSMENTS / HAZARDOUS SUBSTANCES

- The following substances will be used or may be encountered during this activity. Detailed COSHH assessments are held in the site safety file; the control measures required will be briefed to the personnel involved prior to work commencing.

Hazardous Substance	COSHH Assessment Ref	Precautions / Risk Controls
Grease	CA05	Refer to CoSHH Assessment
Diesel, Gas & Oil	CA07	Refer to CoSHH Assessment

- Where a substance is not listed within this document, a request MUST be made for specific Material Safety Data Sheet (MSDS) prior to the use of the substance.

NOTE:

Is this the most suitable substance?
Could less hazardous substances be used?
Remember the hierarchy of control!

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

LIFTING OPERATIONS

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1	Lifting of loads – fall of load	✓				M	1. All loads to be slung by a certified slinger/banksman 2. All lifting accessories must have valid 6 monthly LOLER inspections. 3. All lifting devices – crane and excavator - to have valid 12 monthly LOLER inspections – 6 months if man ridging duties. 4. A permit to lift is to be in place for all lifting works.	L	SITE MANAGER
2	Overturning	✓		✓		M	1. Crane to set up with outrigger fully extended. 2. Crane to work within prescribed lifting duties. 3. Correct ballast to be used. 4. Crane mat to be designed for sheet removal which will is the largest force and the worst case. 5. Crane mat to be signed off for use with a permit to load before use.	L	SITE MANAGER
3	Tracking	✓				M	1. Operator to check for clearance prior to moving (min clearance 600mm) 2. Work under supervision of trained banksman in a place of safety	L	PLANT OP

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

LIFTING OPERATIONS

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							3. Ensure good 360 degree visibility at all times 4. Banksman or operator must do a full all round check prior to movement 5. Banksman or operator must ensure no pedestrians, plant or equipment within working area 6. Ensure nothing is left close to machine operation (eg. small tools) 7. Crane/Excavator to stay on crane mat. DO NOT TRACK OFF THE DESIGNED MAT .		
4	Slewing	✓				**M**	1. Operator to check for clearance before moving (min. 600mm) 2. Workforce to stay within vision of driver at all times 3. Slewing to be undertaken under trained banksman supervision only 4. Barriers to be used when machine is to work to confine areas 5. Ground operatives and members of the public to be excluded from fenced working area 6. Ensure nothing is left close to machine operation (eg.	**L**	**PLANT OP**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

LIFTING OPERATIONS

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							small tools)		
5	Working over existing BT cables	✓			✓		1. The crane/excavator mat must be of a suitable size for the crane/excavator to track the length of the exaction and be a designed crane mat with sufficient cover over the BT cables to prevent damage. BT Openreach to be consulted.	**L**	**TWC**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

EXCAVATIONS

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1	Collapse of excavation	✓				H	1. The cofferdam will be installed in accordance with the temporary works design. A CAT 2 certificate is to be obtained for the design. 2. The cofferdam to be removed once the excavation has been backfilled. The frame will be removed as the backfilling progresses. 3. All excavations shall be inspected before each shift and recorded daily. The cofferdam shall also be inspected after each tide. 4. A readily accessible means of access will be maintained at all times (i.e. ladder / ramp / step).	L	TWC
2	Collapse of river defence	✓				M	1. The existing sheet piled wall is to remain in place, the temporary cofferdam will butt up to the existing sheets. 2. There will be no reduction in capacity/structural integrity of the existing flood defences.	L	TWC
3	Underground Services	✓				M	1. Review contract drawings for position of known services trial holes and mark on site. 2. Contact stats to obtain all known information on	L	ENGINEER

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

EXCAVATIONS

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							existing services 3. Notify relevant authorities of construction work and agree working restrictions Permit to Dig system is to be applied in all cases no mechanical excavation to proceed until services located and once located not permitted within 1m. 4. Confirm actual position of known services from surrounding features and by use of cable detectors / trial holes.		

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

WORKING NEAR/OVER WATER

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1.	Fall into water	✓				**M**	1. All operatives are to wear a life vest. 2. A Safety boat will be used when sheet piling works are ongoing and there is a risk of falling inti the water. 3. Once the cofferdam is installed there is no means of falling into the river – the sheet piles offer a level of protection. 4. Sump pumping to be set up in cofferdam to keep water levels low. If the water cannot be controlled by pumping then works must stop until the level recedes.	**L**	**SITE MANAGER**
2.	Use of cherry picker when installing the sheet piles	✓				**M**	1. The operator must not wear an harness – only a lifejacket is required. There is no requirement for the op to be clipped into the basket whilst working over water. 2. Cherry picker to be locate on firm and stable ground. 3. Use the cherry picker when the tide is low as much as possible.	**L**	**SITE MANAGER**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

LOAD AND TIP

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1.	Overhead Services Contact with	✓				H	**SEE METHOD STATEMENT MS03 - *WORKING UNDER OVERHEAD POWERLINES* - FOR SSoW**	L	ALL
2.	Striking Operatives - Loading	✓				M	1. All operatives shall stay outside turning circle of excavator 2. All operatives to wear fluorescent PPE/ hard hats and boots 3. All wagon movements are to be under plant driver instructions and on level ground 4. No wagons / plant movements until operatives visible to driver HGV driver to remain in cab when being loaded	L	ALL
3.	Striking Vehicles - Loading	✓				M	1. All wagon movements are to be under plant driver instruction 2. Due care and attention to be paid by plant driver	L	ALL

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

LOAD AND TIP

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							when loading 3. Never load over cab of wagon		
4.	Striking Operatives – Placing	✓				**M**	1. All wagon tipping movements are to be under banksman or plant operative control on level ground 2. All operatives to wear hi viz PPE/ hard hats and boots 3. All operatives to keep clear of mechanical movements 4. No wagons/ plant movements until ground operatives visible to driver/s	**L**	**ALL**
5.	Striking Vehicles – Placing	✓				**M**	1. All wagon movements to be under plant op instruction 2. Due care and attention to be paid by HGV driver when tipping	**L**	**ALL**
6.	Over head services Contact with – Placing	✓				**H**	**SEE METHOD STATEMENT MS03 - *WORKING UNDER OVERHEAD POWERLINES* - FOR SSoW**	**L**	**ALL**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

MANUAL HANDLING

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1.	**Personal Injury / Work Related Body Disorder**	✓				**M**	1. Distribution of heavy loads around site by mechanical plant only 2. Heavy loads to be offloaded / loaded by mechanical plant only 3. When lifting by hand is unavoidable ensure sufficient personnel available for load to be lifted 4. Details / nature of loads, to be issued to appropriate personnel including hazards re weight/ size/ centre of gravity/ hazardous materials 5. Personal capability of individual to be considered prior to lift 6. Reduce size of loads/ more trips where possible 7. Ensure work environment is clear of hazards (Trips/ Slips / adequate lighting/ stable foundation/ undue temperature hazards) 8. When lifting, lift smoothly and keep control of load, when turning to side do not twist trunk and keep load as close to trunk as possible 9. Keep heaviest part of load close to the body	**L**	**ALL**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

MANUAL HANDLING

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							10. When lowering, lower to floor then slide to position, do not try to do both at the same time 11. When lifting maintain correct posture, feet apart, knees bent and back straight 12. Ensure load is held correctly, grip with palm of hands and roots of finger eg do not use finger tips this will strain muscles, tendons in the arm. 11. Avoid repetitive movements where possible 12. Ensure adequate respite is given where repetitive movement is unavoidable 13. Protective equipment to be worn as applicable Gloves – abrasive loads/ sharp loads/ hot or cold materials, etc. Safety Boots – to prevent foot injury due to uncontrolled collapse of load.		

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1.	Collapse of river defence	✓	✓	✓	✓	M	1. The existing sheet piled wall is to remain in place, the temporary cofferdam will butt up to the existing sheets. 2. A CAT 2 temporary works design certificate will be obtained for the design.	2	All
2.	Dust Pollution - Plant or vehicle movements On and off site	✓		✓	✓	**M**	1. Use dust suppression techniques to control the amount of dust being created. Water bowsers can be used to dampen down haul roads particularly during dry spells. 2. Ensure speed limits are not exceeded on site and that only authorised haul routes are being used which are being maintained on a regular basis.	**L**	**DM**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
3.	Dewatering - Silty water entering rivers, Streams or surface water Drains.	✓		✓	✓	**M**	1. Ensure key personnel are aware of the local watercourses and of the drainage system on and around the site area. 2. Ensure there is adequate provision for dealing with silty water on site. Including pumps, filters, settlement tanks, lagoon areas etc. It is important that all discharges are monitored and logged such that any pollution can be tracked to a specific time or operation. 3. All pumped discharges offsite will require some form of consent either from the environment agency or the local sewage undertaker prior to commencement. 4. Wherever possible, silty discharge should filtered prior to allowing into nearby	**L**	**DM**

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							watercourse. It should be noted that surface water drains are designed to carry uncontaminated rainfall directly to local streams and rivers. 5. Divert silty water away from drains and road gullies wherever possible to ensure that it is treated prior to discharge as outlined above. 6. Minimise amount of exposed ground and stockpile areas wherever possible as the run off from these will be silty. Leave topsoil/vegetation in place as long as possible and then incorporate cut off trenches, filter		

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
3	Mud on Roads - Surface run off into the Highway drainage system. General public concern due to dirty condition of Roads.	✓	✓	✓	✓	M	1. Ensure all site accesses are kept free of mud deposits by regular brushing or scraping. This may consist of a one-man operation using manual methods or where vehicle movements are numerous then road brushes may be utilised to ensure that all routes leaving the site are maintained in good condition. It may be necessary to block off road gullies to prevent excessive silt contamination, these gullies should also be cleaned out regularly to allow for them to work efficiently. 2. If particular problems exist or for long term contracts, the use of a purpose made wheel wash may also be considered. This requires a fixed amount of space to set up and must be regularly maintained.	L	ALL

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

		Person at Risk							
Item No.	**SIGNIFICANT RISKS / HAZARDS**	Site Personnel	Public	Subcontractor	Others	**Initial** Evaluation of Risk **High Medium Low** **(HML)**	**CONTROLLED MEASURES**	**Final** Evaluation of Risk **High Medium Low** **(HML)**	ACTION BY
							3. Ensure that there is a designated area for the tipping off and storage of collected slurry. This should then be allowed to settle and solidify prior to disposal.		

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
4	Refuelling - Storage areas	✓		✓	✓	H	1. All fuel should be stored within a bunded area. This should be impermeable and be of adequate capacity to contain the full contents of the stored fuel plus 10%. It is now common practice to use tanks within tanks such that any leakage will be contained without building substantial bund walls. 2. Contents of tanks, drums etc should be clearly marked and leaking or empty drums should be removed from site and disposed off in the correct manner. 3. The storage of fuel should be well protected from vandalism or theft when the site is unattended. All valves should be capable of	L	ALL

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk High Medium Low (HML)	CONTROLLED MEASURES	Final Evaluation of Risk High Medium Low (HML)	ACTION BY
							being locked and delivery guns secured. 4. Fuel bowser to be at least 10m away from the River Dee and there must be a bund ed area in which to store the bowser.		

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PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
4.	Refuelling - Spillage of fuel	✓		✓	✓	**H**	1. Refuel all plant away from drains and watercourses wherever possible. Diesel pumps and similar equipment should be placed on drip trays to collect minor spillages. 2. When refuelling by hand, always use appropriate funnels and containers to prevent spillage ensuring the use of drip trays where appropriate. 3. Ensure that spill materials are readily available and that these are used as required no matter how minor the spillage may appear. (the use of sand, absorbent granules, absorbent pads)	**L**	**ALL**

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

		Person at Risk							
Item No.	**SIGNIFICANT RISKS / HAZARDS**	Site Personnel	Public	Subcontractor	Others	**Initial** Evaluation of Risk **High Medium Low** **(HML)**	**CONTROLLED MEASURES**	**Final** Evaluation of Risk **High Medium Low** **(HML)**	ACTION BY
5.	During construction the following risks to otters have been identified: • Disturbance of foraging and commuting routes long the River Dee and Shotwick Brook due to night time lighting; • Risk of entrapment within temporary coffer dam which will be used in the creation of the outflow headwall in the bank of the River Dee; • Risk of killing / injury from construction traffic if otters traverse working areas of the construction site; and • Pollution risk – risk of contamination of waters used by otters during construction work.						1. • No illumination of any construction areas between the hours of sunrise and sunset within the 30m dark zone indicated on Plan 14150/P05; 2. • At the end of each a ramp consisting of a scaffold board or similar will be placed in the dam against or attached to one of the coffer dam walls to provide a mean of escape for any otters which may enter the coffer dam during the night. A pre-commencement check of the coffer dam will be undertaken each morning before the start of work; and 3. • No movement of construction vehicles within the 30m dark zone indicated on Plan 14150/P05 between sunset and		

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PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							sunrise; and 4. • Pollution control measures (as detailed within the CEMP are to be implemented during the construction phase of the development).		

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
6.	The following biosecurity risks have been identified for the construction phase: 1. If either Japanese knotweed or Himalayan balsam have colonised the site in the interim since the habitat survey completed in 2021, then earth movements associated with construction activities could result in their spread; 2. If machinery being brought onto site is contaminated with plant matter from invasive plant species it could result in their colonisation on site; and 3. In the absence of an appropriate washing down strategy, machinery being used for in-channel works could cause the spread of Chinese mitten crab.						1. An updated invasive plant survey will be undertaken during the growing season (spring/summer) prior to any works commencing, to determine if there has been any colonisation of invasive plant species subject to statutory controls on site. 2. Should any infestations be identified, an appropriately qualified invasive species contractor will be appointed by the principal contractor to eradicate the stands of knotweed / Himalayan balsam or other non-native invasive species identified during the survey. This will be undertaken using the guidance provided by Welsh government on knotweed Control ; 3. All workers on site during the development		

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Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk High Medium Low (HML)	CONTROLLED MEASURES	Final Evaluation of Risk High Medium Low (HML)	ACTION BY
							phase will be advised during a toolbox talk of the potential presence of Chinese mitten crabs during a site induction, and will be taught how to identify this species; 4. All plant or machinery which is used within a watercourse or the adjacent bank zone will be checked for crabs and thoroughly cleaned prior to entering and exiting the watercourse zone. Checking will involve a visual inspection to ensure that no crabs are attached to the machinery. Any Chinese mitten crabs found will be humanely destroyed. All parts of plant and machinery which come into contact with water during the works will be cleaned with water sprays to ensure that any crabs in the planktonic		

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

Specific Risk Assessment to be used in conjunction with R1E1 - Significant Aspects and Impacts Summary & R4E1 - Impact Control Sheets - Excerpts from these included for reference below

ENVIRONMENTAL & ECOLOGICAL

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							stage are washed off and are not transferred to other areas. Checking and cleaning will be undertaken at the end of each working day, and also when any plant or machinery exit a watercourse and its bank zone. 5. Pollution control measures (as detailed within the CEMP are to be implemented during the construction phase of the development).		

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

DRIVING ARTICULATED DUMP TRUCKS (ADT's)

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1.	Collision with other vehicles					**M**	**See No Banksman Risk Assessment*		
2.	Reversing into other vehicles					**M**	**See No Banksman Risk Assessment**		
3.	Operatives struck by vehicles					**M**	**See No Banksman Risk Assessment**		
4.	Pedestrians hit by vehicles					**M**	**See No Banksman Risk Assessment**		
5.	Contact with O / H services					**H**	**SEE METHOD STATEMENT MS03 - *WORKING UNDER OVERHEAD POWERLINES* - FOR SSoW**	**L**	**ALL**
6.	Overturning					**M**	1. Ensure surface is level and sound prior to tipping 2. Consideration to be made for high winds 3. Always lower body before moving off 4. Maintain haul routes to minimize potholes, ruts, debris and other obstructions 5. Avoid slopes, including slopes in the direction of travel. If slopes cannot be avoided, check with the vehicle manufacturer that the dumper can negotiate	**L**	**ALL**

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

DRIVING ARTICULATED DUMP TRUCKS (ADT's)

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							the slopes safely 6. The cab and skips on the ADT's MUST be aligned when tipping especially on inclines. 7. ADT overturns often occur due to a combination of slope and rough ground so manufacturers' guidance on the capability of a vehicle to negotiate a slope should be reduced where rough ground must be negotiated. **If an ADT has overturned, then something has gone wrong** 8. Tip on of a flat and stable haul route and deposition areas. 9. Loading machines must break up large lumps of earth, or concrete, into manageable pieces, prior to loading as to prevent the load shifting in the ADT skip 10. Speed should be kept to a minimum on rough ground 11. Where traffic routes pass close to the edge of a roadway, embankment or other drop, make sure the		

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

DRIVING ARTICULATED DUMP TRUCKS (ADT's)

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							edge of the roadway is suitably supported and a barrier in place to prevent vehicles running off the roadway (either stop blocks or bunded) 12. Undertake regular maintenance and vehicle checks in accordance with manufactures recommendations 13. Stop blocks or safe bunding edges of haul roads / slopes and protection to excavations. And adequate designed temp works to trenches 14. Only trained and competent drivers to operate ADTs		
7.	Driver Error due to Lack of Experience and Training e.g. accidental operation of controls					**M**	1. Drivers to familiarise themselves with vehicle controls prior to moving 2. Drivers to familiarise themselves with the ADT 'Dump Support-Lateral Inclination' system. The function can trigger an alarm and prevent the raising of the load body if the transverse inclination exceeds set values. 3. Only allow authorised drivers to hold vehicle keys 4. Instruct drivers to turn off engine and remove key whenever leaving the vehicle	**L**	**ALL**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

DRIVING ARTICULATED DUMP TRUCKS (ADT's)

Item No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROLLED MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
8.	ADT Recovery (In the event of a skip or cab overturn)					**L**	1. Should any item of mobile plant, such as an Articulated Dump Truck (ADT), become stuck / bogged on site. Then the operator MUST immediately contact the Site Supervisor and in no circumstances should you or others try to recover the machine without the Site Supervisor present. 2. The 'Know What to Do - Correcting an Overturned / Stuck ADT' recovery procedures have been written as guidance where ADT's are in use on site and the procedures have been written (as a step by step guide) to ensure when up-righting or dislodging an ADT, it's done safely and without causing any damage to the truck. 3. Driver to familiarise themselves with these ADT recovery procedures and ask your supervisor if you have any questions.	**L**	**ALL**

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

HEALTH & HYGIENE MEASURES

Golden Rule No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROL MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
1.	**SPREAD OF INFECTIOUS DISEASE**	✓	✓	✓	✓	**H**	1. Public Heath alerts are sometimes issued giving guidance on how to protect us. When guidance is given STAY ALERT and implement it. 2. If we all STAY ALERT disciplined in our behaviour in the workplace and in our social lives, we have the very best chance to protect ourselves and others against the spread of viral infection in the population. 3. Look out for symptoms of a virus in yourself. 4. For Health & Hygiene: Soap is the answer. Water does not kill a virus. Soap kills it. Use soap to wash your hands and wrists, (cold water is fine – hot water is not necessary), wash your hands and wrists with soap and kill it. 5. Adequate supplies of soap and fresh water to be made readily available and kept topped up at all times. 6. In the absence of soap and water, use hand sanitiser (containing minimum 60% alcohol) to kill a virus.	**L**	**The D Morgan TEAM**

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

HEALTH & HYGIENE MEASURES

Golden Rule No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROL MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							7. Wash your hands more often and for 20 seconds. Wash your hands frequently and thoroughly with soap and water. 8. Carry tissues and use them to catch your cough or sneeze and then bin it. 9. Adopt good hygiene practice including cleaning surfaces you or others have touched 10. A dirty workplace with exposed waste including waste food are perfect conditions for bacteria to multiply and spread. To prevent this, keep everywhere organised, clean and tidy. 11. Increase ventilation in enclosed spaces. Rooms should be well ventilated / windows opened to allow fresh air circulation. 12. Recycle as much waste as possible and keep waste disposal including waste food in appropriate sealed bins. 13. PRACTICE GOOD HEALTH HABITS – Look after your body and your immune system. Get plenty of sleep, maintain physical activity,		

Everyone Goes Home Safely

PROJECT METHOD STATEMENT

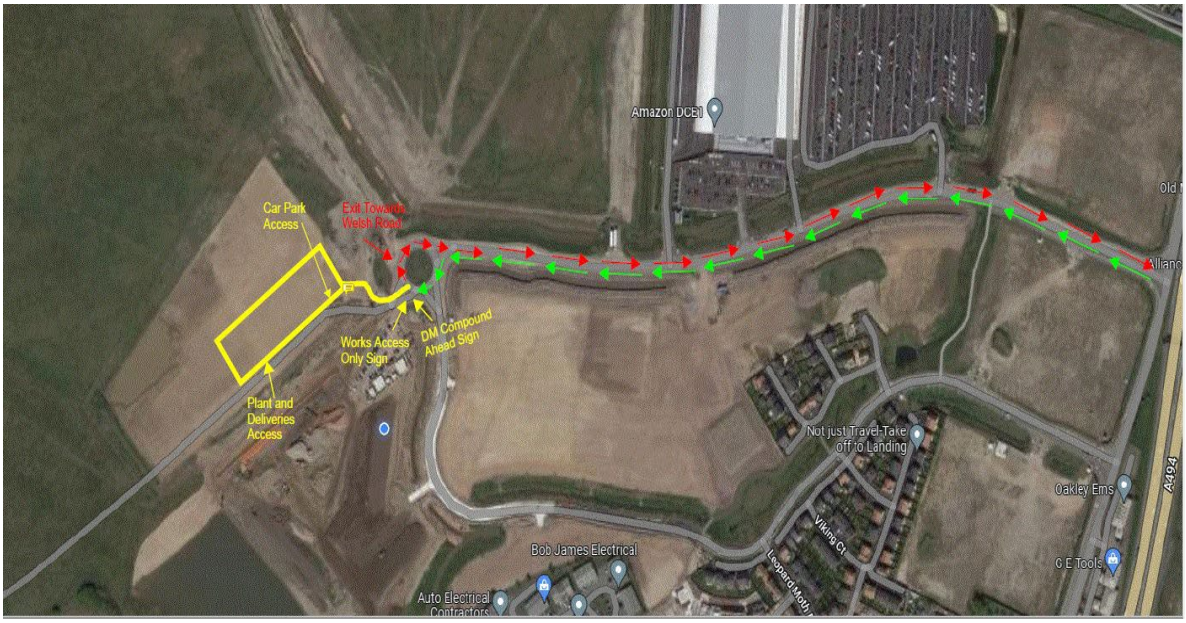
PROJECT: NORTHERN GATEWAY HIGHWAY & INFRASTRUCTURE WORKS – ROAD 2 & ROAD 3

HEALTH & HYGIENE MEASURES

Golden Rule No.	SIGNIFICANT RISKS / HAZARDS	Person at Risk: Site Personnel	Public	Subcontractor	Others	Initial Evaluation of Risk (High / Medium / Low) (HML)	CONTROL MEASURES	Final Evaluation of Risk (High / Medium / Low) (HML)	ACTION BY
							drink plenty of fluids & eat nutritious food. A good immune system is a great defence 14. Vaccines are also available to boost your immune system providing protection from serious illness from viruses including: Covid-19 & Influenza (flu) 15. STAY HOME WHEN SICK – When sick, you're encouraged to stay home from work. Do not spread any infectious disease in your workplace.		

9.0 SITE ACCESS & EGRESS

- All personnel attending site will be required to access via the main entrance off the Welsh Road, Deeside, Flintshire, CH5 2RD. (Access to the site is available along the previously constructed road which is accessed from the B5441 to the east of the site).



10.0 RESOURCES AND RESPONSIBILITIES

- Implementation of the approach / methodology and various risk control measures identified in this risk assessment and method statement will be monitored by the Site Manager with the assistance (where applicable) of the Site Engineer / Foreman / Contracts Manager. Details as below:

Project Management Team	Operations Manager (Off site support) – Robbie Evans Contract's Manager (Visiting) – Tony Brown SHEQ Manager (Off site support) - Lee Davies SHEQ Assistant (Off site support) – Patrick Sarjeant Engineering Manager (Off site support) – Dan Wilkinson Site Manager – Miles Germany Site Engineer – Jimmy Greeves Site Foreman – Paul Halas
Labour	General Operative – CSCS Plant Operatives – CPCS Subcontractors – Tree Felling

Plant/Tools

Tracked Excavators (5t to 49t)
ADT Dump Trucks up to 30t
Rollers
Dozers
Forward tipping dumper
JCB 3CX
Mechanical kerb lifter
Pickup
Stihl saw
Wacker plate
CAT & Genny

Note Plant & Labour to be assessed and subject to change by site team

Materials

Site won material of various grades
Stockpiled material
Site won material
Safety Fencing & Signage (Incl. Social Distancing)
Warning signs / Netlon fencing
Overhead Powerline Protection Measures
Welfare / Cleaning Products & Hand Sanitiser
Imported Material
Capping - 6F2
Type 1 MOT
Topsoil
Debris Netting & Heras Fencing

PPE

Safety Helmet EN397/1995
Hi-Viz vest/jackets EN471/3
Safety footwear (steel toe & sole) EN20345/2004
Gloves (as specified by risk assessment)
Safety Glasses / Googles (as specified by risk assessment)
Hearing Protection (as specified by risk assessment)
Dust masks (as specified by risk assessment)
Overalls/Coveralls (as specified by risk assessment)
Tree Felling PPE

Details of additional task specific PPE are contained within the Risk Assessment. All personnel must wear Personnel Protective Equipment, (PPE), when instructed to do so.

11.0 CRITICAL PRE-START ACTIVITIES

Prior to work commencing on the activity, the following items must be completed:

- All visitors and personnel visiting the site must initially report to the D Morgan site office for initial site safety induction and working procedures. The Site Induction (Doc Ref: I9.R2.1) is to be given to all persons employed on or visiting the operational areas of the site and confirmation of such must be made on a Health & Safety information for employees record sheet for safety induction.
- The Site induction focusses in particular on safety aspects and Safe Systems of Work (SSoW) of the site. Site inductions will include the site rules, emergency procedures and site-specific hazards. Regular tool box talks and daily activity briefings will be held to discuss further safety issues relevant to the works in progress. Interface with other contractors will be a feature of the works and will be included in briefings.
- All work will be undertaken in accordance with the Company Health & Safety Policy, the Project Health & Safety Plan and Site Rules, taking particular notice of the hazards associated with working on site.
- All operatives and operators will produce valid CSCS / CPCS cards or Certificates of Competency, prior to starting work.
- All training certificates to be witnessed and copies retained within the site files for records. Personnel may undertake more than one role but must have minimum training requirements specified to undertake that role.
- All plant shall have valid safety certificates and will be produced prior to starting work. All plant operators should fill in daily check sheets for submission to the site manager at the end of their working week on this site.
- Daily inspections of plant will be carried out and recorded by operatives prior to use. If any defects are noticed they will be reported to a supervisor who will arrange for repair work to be carried out to the plant or replacement of it. The item of plant will be stood down until the supervisor confirms that the repair or replacement has occurred.
- The footpath that runs along the River Dee is to be closed to the public. It will be closed at points agreed with Flintshire County council and suitably signed.
- All plant will initially be off loaded at work access point. All operatives will be briefed on the criteria for the day's work prior to works commencing via a Daily Activity Briefing Sheet (DABS) and this Method Statement.
- All existing services within proposed working area will be identified prior to works commencing. A C.A.T scan will be carried out by the engineers and any services will be surveyed and plotted onto a drawing & will form part of any 'permit to work/excavate'.
- Once the engineer is satisfied a 'Permit to Dig' will then be issued to all machine operatives/supervisors detailing all known risks on an attached drawing & showing the proposed works under the permit.
- The permit to dig will be issued prior to the commencement of any activities after ensuring all redundant services are disconnected and any services to remain have been sufficiently marked out and protected.
- The ongoing operations will be monitored by our Site Manager Miles Germany (Tel: - 07803 291 631) to ensure that they comply with the restrictions outlined.

12.0 PHASING & SEQUENCE OF THE WORKS

This phasing and sequence of works describes the generic methods to be adopted across the project and are as per the Contract Programme and this should be referred to at all times.

After completion of all the above pre-start activities, work will commence following the procedure below. If at any point something changes which requires amendments to the following procedure, work must be stopped and the risk assessment reviewed and methodology rewritten. Under no circumstances must work be carried on outside of this procedure.

SET UP WORK AREA

- The work area will be set up as per the attached sketch.
- The public footpath alongside the River Dee that cuts through the work area is to be closed. A permit has been sought from Flintshire Council and the path will be closed from Hawarden rail bridge to the blue road bridge.
- The work area will be fenced off with heras fencing - there will be no access down the footpath or Corus road for the public.
- A self-contained welfare unit will be set up and used as a security hut at nights and weekends. We will have a security guard when the site is closed.
- A crane mat will be required to protect the road and BT cables from the track loads.

CRANE/EXCAVATOR MAT CONSTRUCTION

- Bog mats will be laid on the existing road and sub base place over them.
- Mats will also be placed over the route of the BT to protect the cables.
- Sub base will be laid inlayers and compacted in accordance with the temporary works design up to the required depth.
- The slope off the ramp is not to exceed 45 degrees.

COFFERDAM INSTALLATION

- A 50T long reach excavator will be delivered to site. Sheet piles will also be delivered once the excavator is on site. The track loading onto the embankment will be 57KN/m2.
- Sheet piles will be installed using a Movax attachment on the excavator.
- Sheet pile installation works will be carried out at low tide to mitigate the risk of noise and vibration into the water.
- The Movax will work on the crane mat areas in the appendix alongside the embankment when working out of the footprint of the cofferdam, and on the river bank in the footprint of the cofferdam.
- We will maintain the berm level by maintaining the levels with sub base and maintain this as and when required.
- The existing sheet piled wall and tie beam will remain in place. Our works will but iup to the existing sheet piled wall.
- Access to the sheet pile position for operatives will be via a cherry picker. For the first few piles we can use the existing embankment for access at low tide.

- The corner sheet piles will be butted against the existing sheet piled wall. We do not remove any of the existing sheets and the cofferdam we are installing is structurally independent of the existing sheet piled wall.
- Excavate as required within the cofferdam and install the frame. The excavation works will be carried out using a 30T excavator. The track pressures on the ground are 40KN/m2.
- Set up pumps in the corners of the cofferdam to control groundwater. The ground water will be pumped through settlement tanks and discharged to the swales within the site boundaries. If the water ingress is beyond that which can be controlled by the pumps the operatives will leave the excavation until the tide level has lowered or the pumps can maintain the water levels.
- The cofferdam layout is appended. The top of the sheet level is 7.10m AOD. The cofferdam has been designed for a maximum water level of 7.10m AOD. The frames internally will be installed as the excavation works progress to maintain stability as per the design. The cofferdam design will have a CAT 2 temporary works check certificate in accordance with BS 5975 for cofferdam design.
- The cofferdam will be excavated using a 21T excavator and spoil loaded into ADT's or muck away wagons. As previously the excavator will sit upon a crane mat to protect the berm and embankment.
- Should any section of the cofferdam fail or movement is encountered work must stop and advice sought for the designer. The cofferdam is to be monitored for movement daily and records kept of inspections.
- We are sheet pile clutches will be sealed. Whilst this is not 100% watertight, after the first few tides leaks generally seal themselves and after this any further ingress can be managed with 6/8" pumps in the corners of the cofferdam. Should there be too much water ingress we will work at low tide only – daytime.
- Tides times and river levels will be briefed daily and any risk of topping over the cofferdam works will stop until levels recede. This is the same for any storm surges – works will stop.

HEADWALL AND PIPEWORK INSTALLATION

- Once the excavation works have been completed the internal pipework can be set up on pipe bedding and concreted into position. Pipework will be lifted into and positioned in the work are using a 21T excavator .
- Pre cast headwalls are to be used for both the lower and upper headwalls. They will be lifted over the protruding pipework and concreted into position. There is no risk of contamination as all works are still within the cofferdam.
- There is a 300mm diameter pipe to cross the line of the existing sheet piles. We will cut a hole in the sheets though which the pipe can pass. We will fill any void in sheet around the pipe with concrete.
- There is no reduction in structural integrity of the existing sheet piled wall working in this manner. No sheets will be removed.

BACKFILL AND REMOVAL OF THE COFFERFDAM

- The excavation will be backfilled as the works progress.
- Fill material will be placed wit the excavator and compacted in accordance with the specification.

- Once the pipework is complete, headwalls installed, stairs cast and backfilled to frame level we will remove the sheets. This will be done using the excavator in a reverse of the installation process.

- Once works are complete we will make good any road areas/ verge areas and reopen the footpath.

PLANT & PEOPLE INTERFACE

- All plant operatives operating any machine or operatives working in attendance of a machine shall ensure they follow the D Morgan "Say Hello, Wave Goodbye" Safety Rule.
- When any person makes visual contact with the operator the operator must immediately stop work, put the machine bucket down on the ground and take both hands of any levers, when visitor leaves the work area you must visually acknowledge each other to give the ok to recommence work.

13.0 EMERGENCY PROCEDURES – KNOW WHAT TO DO

Certain activities will require the development of specific emergency procedures. Examples include confined space entry, working from MEWP/MCWP, roof work, working in proximity to overhead power cables, working in areas that are hazardous to health e.g. presence of substances/chemicals whether they are present as part of Client operations or as part of our activities. This section shall be completed in these events and shall contain details of the procedure to be followed, the names of responsible persons, their roles and contact numbers/details.

PROCEDURE IN RESPONSE TO A SAFETY INCIDENT:

- Follow normal site rules (displayed in site offices) and make immediate contact with the site supervisor below if any accident or dangerous occurrence happens whilst on site. If any damage occurs to services, no matter how minor it may appear, this must be reported to the site supervisor immediately.

- All personnel will make their way to the site office or nearest muster point as soon after the incident as possible, unless involved in the emergency dealing with a casualty or keeping persons away from danger.

- The site management will liaise with Fire & Medical Services during any emergency at the site entrance.

DM Contracts Manager	Tony Brown	07803 291 600
DM Site Manager	Miles Germany	07803 291 631
DM Snr Quantity Surveyor	Liam Parry	07803 291 618
DM Snr Engineer	Jimmy Greeves	07837 845 069

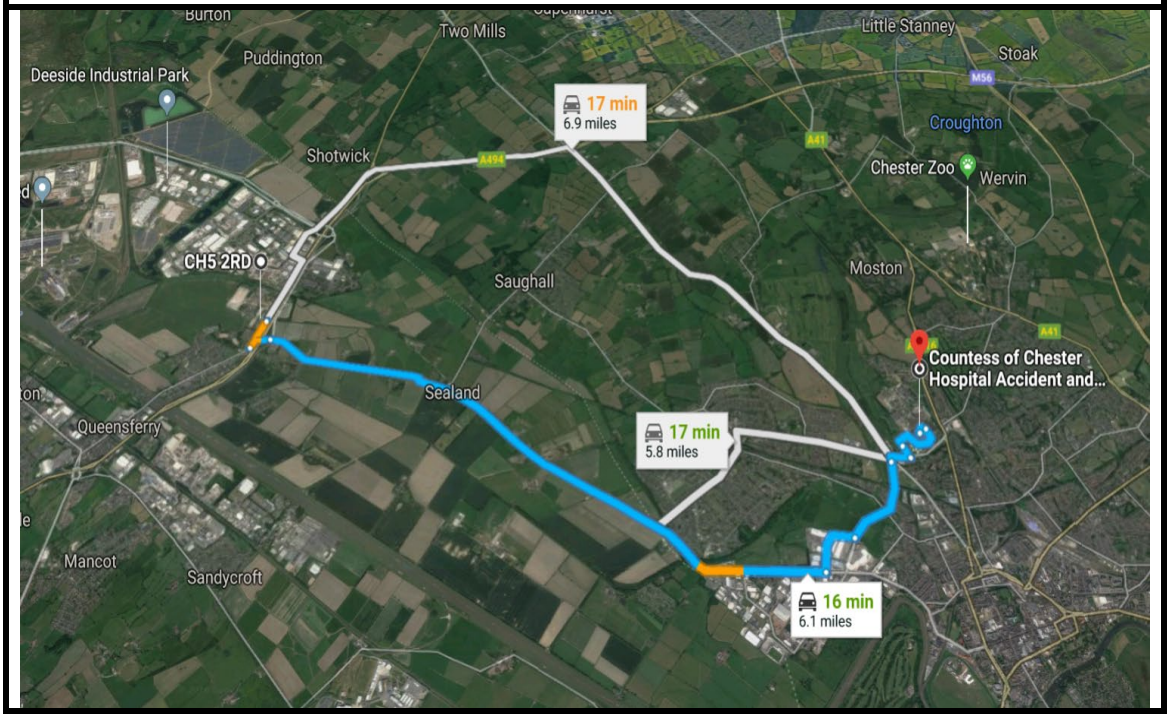
- Following contact of any of the above emergency numbers, it may be necessary to contact one or more of the following:

DM Operations Manager	Robbie Evans	07803 291 654
DM SHEQ Manager	Lee Davies	07912 480 558
DM SHEQ Assistant	Patrick Sarjeant	07803 291 633
DM Engineering Manager	Daniel Wilkinson	07803 291 617
DM Contracts Director	Ed Mc Donald	07803 291 602
DM Commercial Director	Chris Davies	07803 291 619
DM SHEQ & Pre-construction Director	Adam Onyett	07803 291 603

- In the event of an accident notify your supervisor or the nearest first aider. The qualified and certificated First Aider is Miles Germany. If absolutely necessary call the emergency services on 999.

- The nearest A&E hospital is approximately 6.1 miles from the site – Countess of Chester Hospital, The Countess of Chester Health Park, Liverpool Rd, Chester, Cheshire CH2. Route maps will be located on the Site Notice Boards

HOSPITAL ROUTE PLAN



PROCEDURE IN RESPONSE TO A FIRE:

- FIRE – All operatives will evacuate to the assembly point, call 999 and wait until the emergency services arrive.

- If the fire is able to be put out by the site fire extinguishers or soils to snuff out using plant (without placing operatives or equipment in jeopardy.

- The Site Manager/Supervisors should be summoned immediately in the event it cannot be controlled.

PROCEDURE IN RESPONSE TO AN ENVIRONMENTAL INCIDENT:

- FUEL SPILLAGE – Spillages should be contained to the immediate area by the use of soils and spill kits should be deployed to absorb the spillage where possible. The Site Manager/Supervisors should be summoned to advise on the appropriate course of action to clear the spillage and arrange for the contaminated material to be correctly disposed of.

  It may be necessary to contact NRW depending on the severity and location a of the incident.

PROCEDURE IN RESPONSE TO A RECOVERY OF A VEHICLE OR MACHINE:

- Should any item of mobile plant or vehicle, such as an Articulated Dump Truck (ADT), become stuck / bogged on site. Then the operator MUST immediately contact the Site Supervisor and in no circumstances should you or others try to recover the machine without the Site Supervisor present.

- The 'Know What to Do - Correcting an Overturned / Stuck ADT' recovery procedures have been written as guidance where ADT's are in use on site and the procedures have been written (as a step by step guide) to ensure when up-righting or dislodging an ADT, it's done safely and without causing any damage to the truck.

PROCEDURE IN RESPONSE TO A SECURITY INCIDENT:

- We must be cautious at all times, remain extra vigilant and ensure we are discouraging opportunistic theft and vandalism by removing tools from view, as well as securing any equipment and materials that might tempt thieves.

- All employees must report any item left in his care that go missing, immediately to the Site Manager or where there is no D Morgan Site Manager, immediately to the Hooton Plant Office and/or their Line Manager.

- All employees must report any breach of security immediately to the Site Manager, or by telephone to the Hooton Plant Office and then details recorded on the D Morgan observation card. Typical examples would be:
  - stores or offices not locked
  - equipment left out
  - suspicious vehicles or persons seen in the area etc.
  - Good Practice, so we can share these ideas throughout the Business

14.0 ACCIDENT, INCIDENT, NEAR MISS & OBSERVATION REPORTING

- All incidents, no matter how minor, are to be reported to the Site Manager and/or Client team, as soon as 'reasonably practicable' e.g. no later than the end of the shift. External parties will be contacted if required by D Morgan or Client Site Management. **Where you have left site at the end of the shift and not reported an incident that you later allege to have happened on site, you agree that, without suitable objective and causative evidence, D Morgan PLC may presume that it did not happen on site.**

- We need to be open and honest in learning from our mistakes, never being afraid to ask – talking about our mistakes, changing the way we work, being better than we are, so the same mistakes do NOT happen again. We have several methods for reporting accidents, incidents, hazards, near misses, close calls or any other observations.

- The Observation Card - We have had these cards printed in order that they are easily accessible, simple to follow, discreet and hopefully will be more frequently used. Observation Cards are to be used on site to log concerns. This is a good thing. We can all learn from observations, to improve OUR systems and change the way WE work. All observations are welcomed because they can make a difference and that is what we want.

- Furthermore, D Morgan has its coordinated strategy to deliver an accident free workplace incorporating the Behaviour Based Safety approach, to develop the right attitude and behaviours. At its heart the strategy requires "Everyone" to work safely, so that "Everyone Goes Home Safely". This house logo is displayed on all HI-VIZ clothing. It also appears on many company documents reminding us all…

Safety is Necessary, it's Not Optional
….. ''taking even the smallest risk just isn't worth it''…..

- The D Morgan Way Booklet informs Everyone of the D Morgan approach to delivering an accident free workplace also explaining why Behaviour Based Safety (BBS) is important – The D Morgan Way – ''A Culture of making Excellence a habit''…**The D Morgan culture includes a lifetime of knowledge & experience giving our people the confidence to innovate for better outcomes.**

- Final Thought…

Our aim;

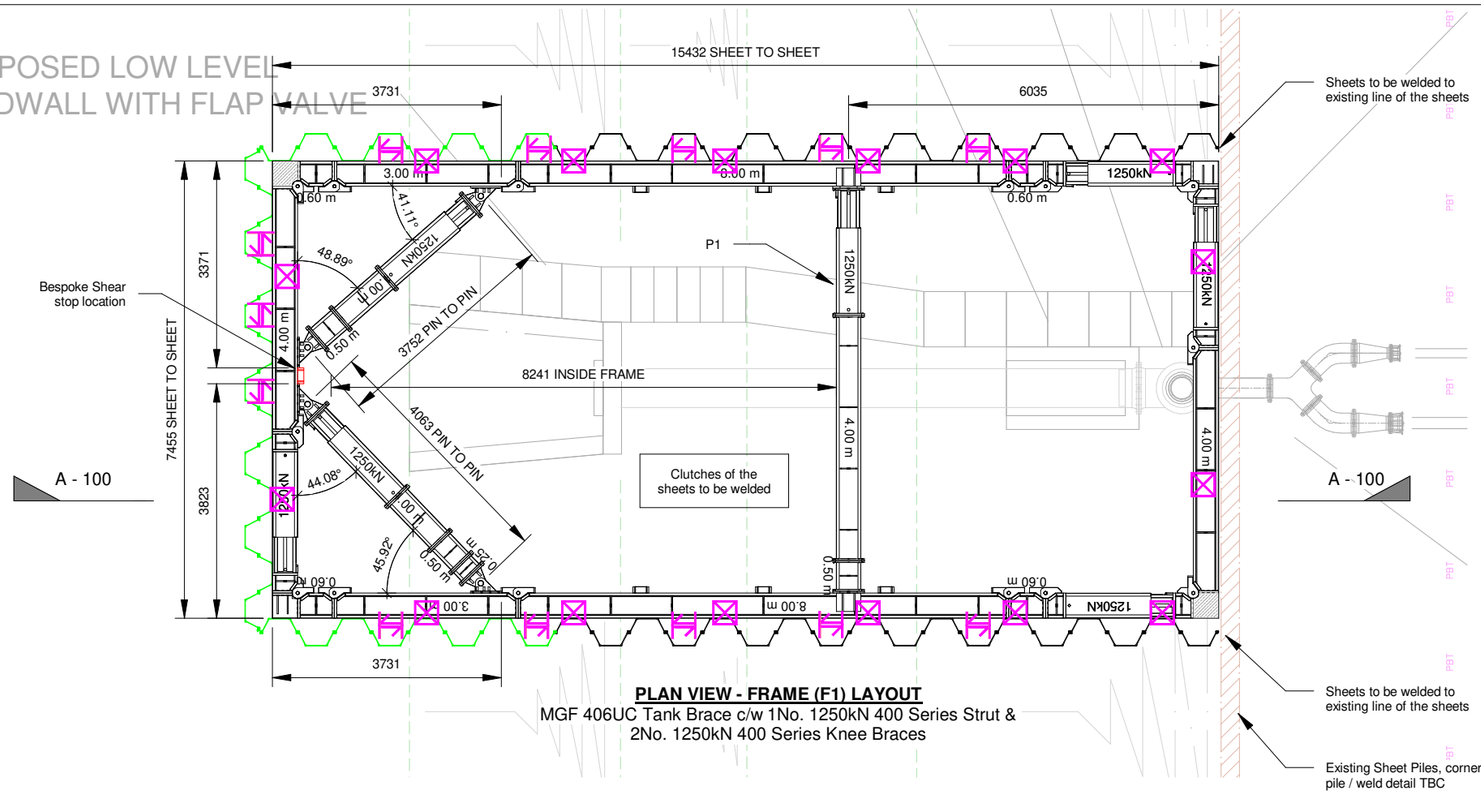
TO ACHIEVE Zero Harm AT WORK

That's why our vision is that;

''...Everyone Goes Home Safely...''

We ask everyone who enters this site to share our vision and do whatever it takes to deliver this aim –The D Morgan Way –

PROPOSED LOW LEVEL HEADWALL WITH FLAP VALVE



PLAN VIEW - FRAME (F1) LAYOUT

MGF 406UC Tank Brace c/w 1No. 1250kN 400 Series Strut & 2No. 1250kN 400 Series Knee Braces

Sheet Piles					
Description	Product ID	Sheet Length	Weight per m	Assembly Weight	Count
MGF GU 21N Sheet Pile	3.14	11000	81.90 kg/m	900.90 kg	36
MGF GU 21N Sheet Pile	3.14	11500	81.90 kg/m	941.85 kg	29

Corner Piles					
Description	Product ID	Sheet Length	Weight per m	Assembly Weight	Count
MGF BS20 Corner Pile	3.005	11500		165.60 kg	2

Frame F1			
Description	Product ID	Assembly Weight	Count
MGF 400 Series 0.25m Extension	9.706	165.00 kg	1
MGF 400 Series 0.50m Extension	9.705	214.00 kg	3
MGF 400 Series 1.00m Extension	9.710	310.00 kg	2
MGF 400 Series 4.00m Extension	9.740	889.00 kg	1
MGF 400 Series 3500kN Type A Swivel	9.704	264.00 kg	4
MGF 400 Series End Cleat	9.703	102.00 kg	2
MGF 406UC 0.60m Extension	8.405	374.00 kg	4
MGF 406UC 3.00m Extension	8.430	1228.00 kg	2
MGF 406UC 4.00m Extension	8.440	1588.00 kg	2
MGF 406UC 8.00m Extension	8.480	3028.00 kg	2
MGF 406UC 1250kN Hydraulic Ram	8.399	1394.00 kg	4
MGF 1250kN Hydraulic Strut	8.400	1047.00 kg	3

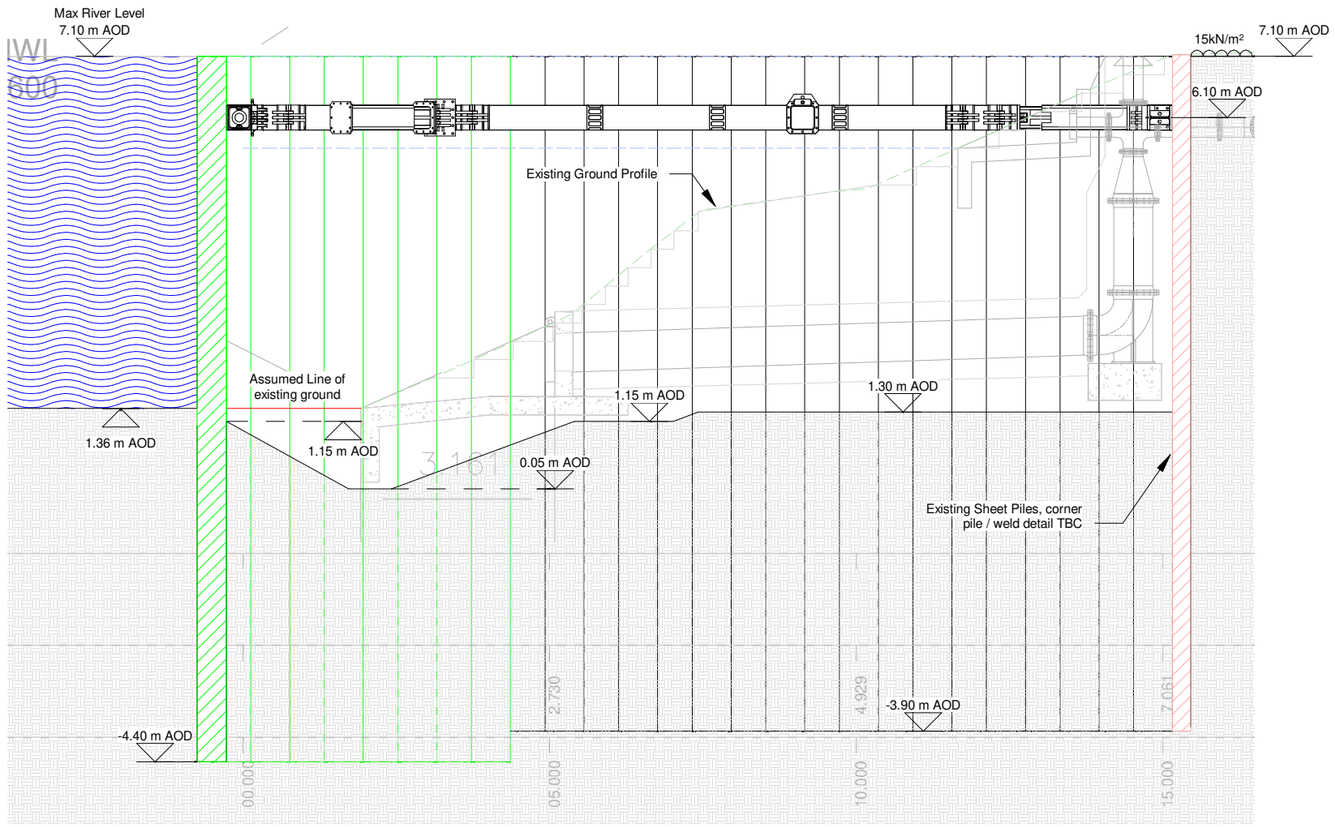
CONCEPTUAL NOTES

Design Assumptions:
- 15kN/m² surcharge has been taken to consider all plant (45Te Max Considered).
- No further surcharges / loadings have been considered.
- Crane will not operate during excavation and will be used to install the sheets only. Sheets will be removed by crane after ground inside the cofferdam is reinstated to original levels.
- Soil profile has been based on BH06 & CPT06.
- Groundwater anticipated at 7.10m AOD (High Flood Level)
- River flow assumed to be <2m/s

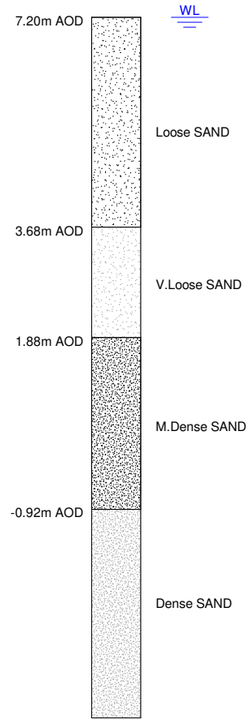
Excavation Details:
- Dig Depth: Varies
- Plan Dimensions: 15.432m x 7.455m (See Plan View)
- Installation Sequence: Pre-Drive

Residual Risks:
- Boiling and stability of the base of the excavation. Internal dewatering system might be considered by the customer.

Customer Requirements:
- Customer to confirm all design assumptions are correct.
- Customer to confirm plant size operating during the excavation until ground is reinstated on compliton of pernament works.
- Customer to provide survey of existing sheet piles.



SECTION A-A



SOIL PROFILE BASED ON BOREHOLE LOG REF: BH06 & CPT06

Groundwater anticipated at 7.10m AOD

Issue	Issue Description	Date	Designed	Drawn	Checked
T2	Length revised	01.09.22	MD	AK	SB
T1	For Tender	26.08.22	MD	AK	SB

CONCEPTUAL

EXCAVATION SAFETY SOLUTIONS
Design Services Ltd
Foundation House, Wallwork Road, Astley, Manchester. M29 7JT
design@mgf.ltd.uk | mgf.ltd.uk | 01942 402 704

Customer: D Morgan

Site: Airfields, Deeside, The Airfields, Deeside, CH5 2RD

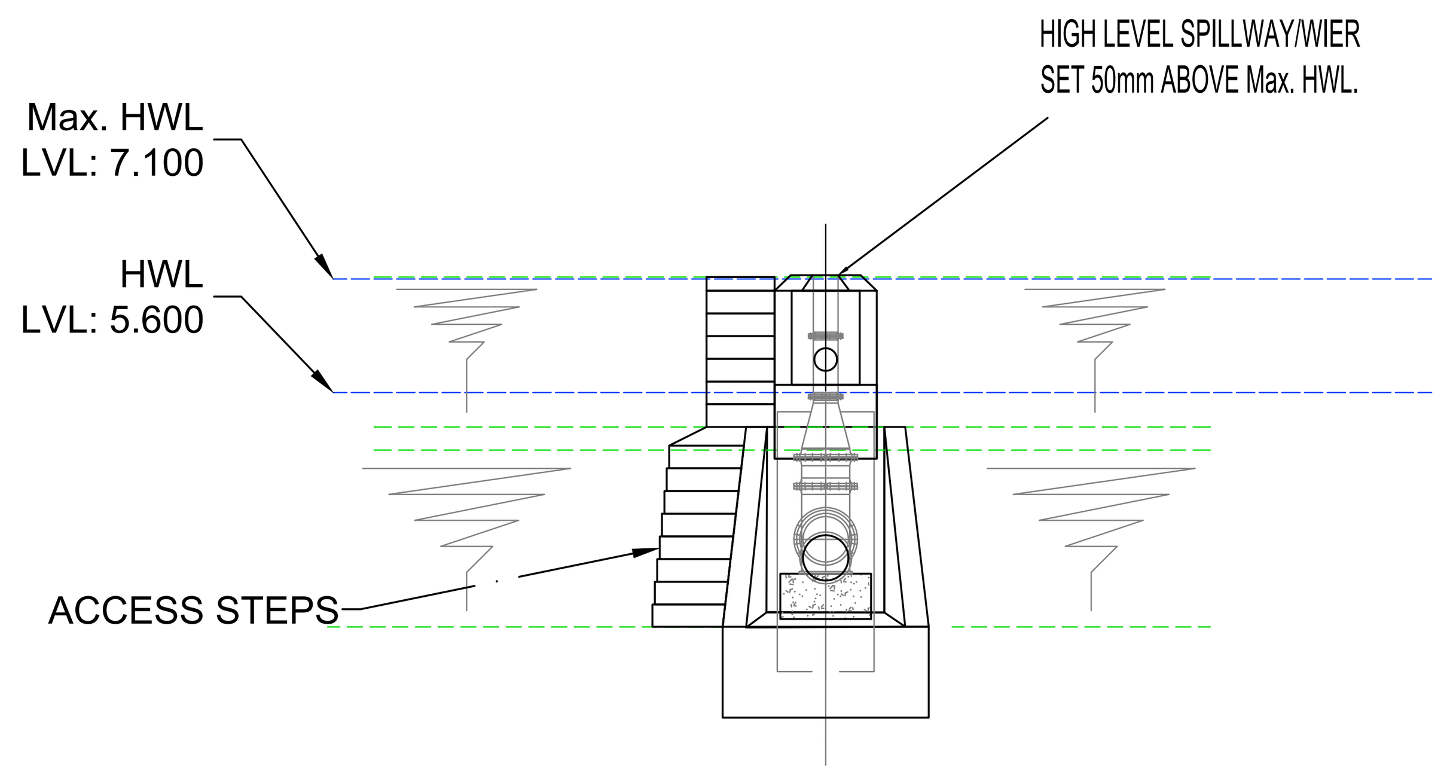
Scheme: Effluent Discharge Cofferdam

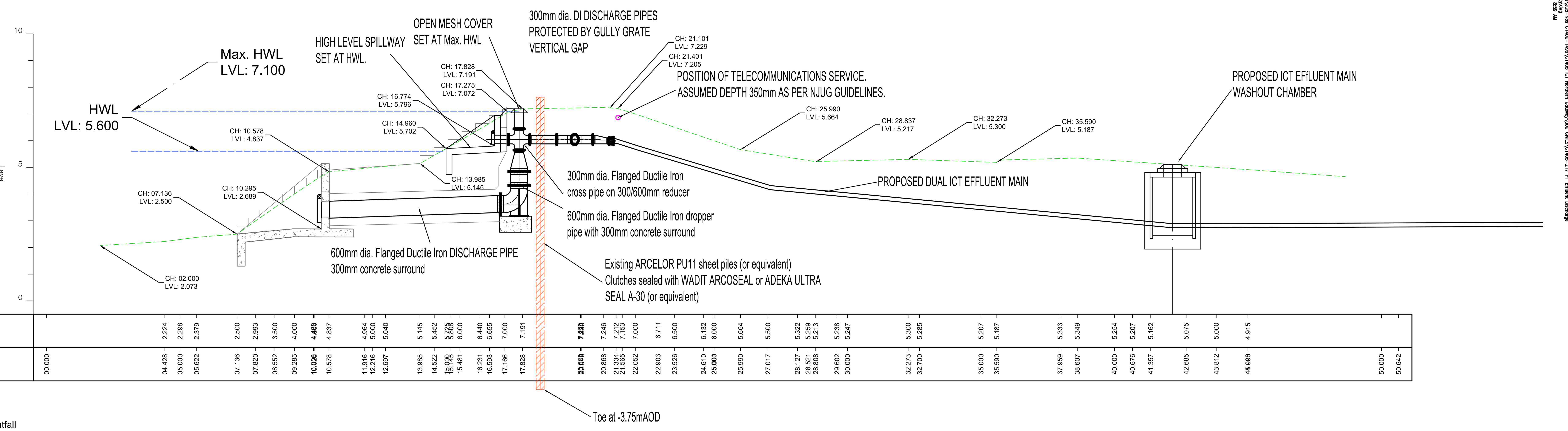
Drawing Title: Temporary Cofferdam

Date: 26.08.22 | Designed: MD | Drawn: AK | Checked: SB

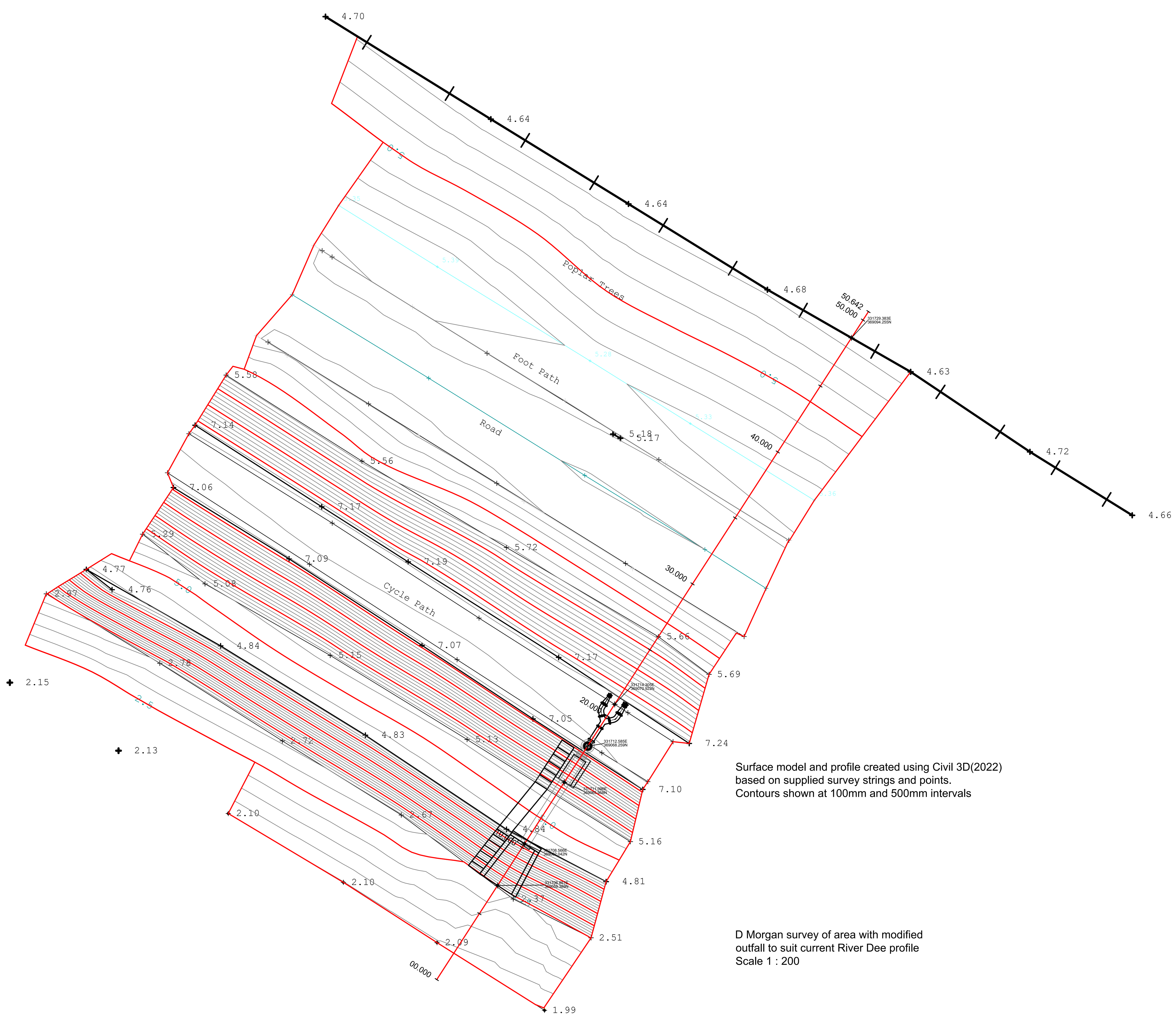
Drawing No: 68252 - 100 | Rev: T2

A3 Sheet





Morgan_Outfall
SCALE: H 1:100,V 1:100. DATUM: 0.000



Surface model and profile created using Civil 3D(2022)
based on supplied survey strings and points.
Contours shown at 100mm and 500mm intervals

D Morgan survey of area with modified
outfall to suit current River Dee profile
Scale 1 : 200

Rev.	Description	Rev. by	Date

Shepherd Gilmour
Consulting Engineers
Phoenix House, Cross Street
Manchester, M2 4JF
t: 0161 837 1500 w: www.shepherd-gilmour.co.uk

Client
INDUSTRIE CARTARIE TRONCHETTI

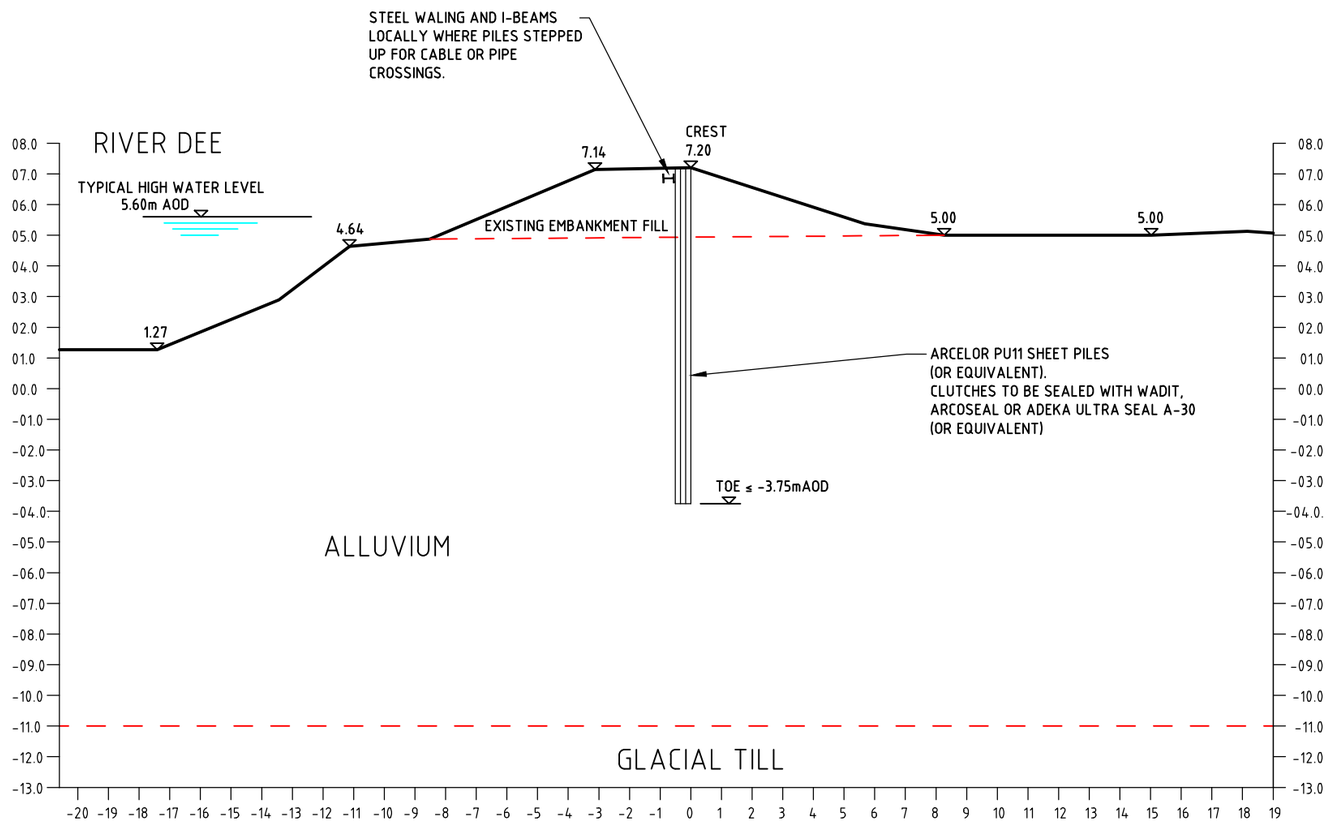
Architect
AEW ARCHITECTS

Project
**ICT PAPER MILL FACILITY
EFFLUENT MAIN TO RIVER DEE**

Title
**REVISED OUTFALL BASED ON
D MORGAN SURVEY
(Received 28/09/2022)**

Date	28/09/2022	Drawn By	SWM
Size	A(1)	Checked By	SWM
Scale	1 : 200 & 1 : 100	Approved By	EAJ

Dwg. No. **C1405/217** Rev **P1**



TYPICAL SECTION THROUGH FLOOD BUND

SCALE 1:200

NOTES:

1. PROPOSED PILE LENGTH VARIES - 1.25mAOD (6m) TO 3.75mAOD (12m) BELOW GROUND, TO CREST HEIGHT OF MIN 7.20m AOD
2. TYPE OF SHEET PILE REQUIRED IS SUBJECT TO FINDINGS OF THE ADDITIONAL GROUND INVESTIGATION.
3. WALING AND I-BEAMS USED TO SUPPORT AND CONNECT THE PILES AT CABLE OR PIPE CROSSINGS, SECURED BY BOLTING. (SEE DRAWING T006)
4. THE PILE LOCATION WILL MOVE TO THE WATER-SIDE AND/OR CENTRE LINE IN THE EVENT OF SERVICES LOCATED CLOSE TO THE INLAND EDGE. (SEE DRAWING T004)
5. EMBANKMENT TO BE RAISED IN LOW SPOTS TO A MINIMUM LEVEL OF 7.20m A.O.D.
6. TARMACADAM FOOT/CYCLE PATH ON THE CREST OF THE EMBANKMENT TO BE REINSTATED TO MATCH EXISTING.

Issue	Description	Date
01	FIRST ISSUE	05/03/13

50mm on Original

Client: Llywodraeth Cymru Welsh Government

Status: FOR TENDER

		Current Issue Signatures	
Scales	1:200	Author C.Matthews	
Original Size	A3	Checker D.Brown	
Height Datum	DATUM	Approver M.Lundie	
Grid	GRID	© Copyright reserved	

Filename: T005-UA005198-UP33D-01 - TYPICAL CROSS SECTION THROUGH FLOOD DEFENCE BUND.DWG

Project: NORTHERN GATEWAY DEVELOPMENT DEESIDE

Title: PROPOSED TYPICAL CROSS-SECTION THROUGH FLOOD DEFENCE BUND

Hyder Consulting (UK) Limited
HCL House
St Mellons Business Park
Fortran Road, St Mellons
Cardiff
CF3 0EY
Tel: +44 029 20926700
Fax: +44 029 20925222

Drawing No.	Project No.	Issue
T005	UA005198	01

12/Mar/2014 K:\UA005198 Northern Gateway\E-Our Drawings\Planning Drawings\Tender Issue 2014-02-12\T005-UA005198-UP33D-01 - Typical Cross Section Through Flood Defence Bund.c

xf \Ref\X007-PRO_INO-WXX-00_A3H.dwg

Appendix 2

Construction Ecological Management Plan and Ecological Compliance Audit

Outfall Construction Site ICT Paper Mill Facility

Tyler Grange

Plot C, ICT

Deeside Airfields

12th October 2022

TG Report No. 14150_R05_JM

Report No:	Date	Revision	Author	Checked
14150_R05	12th October June 2022	0	John Moorcroft MSc, MCIEEM C Env.	

Disclosure:

The contents of this report are valid at the time of writing. Tyler Grange shall not be liable for any use of this report other than for the purposes for which it was produced. Owing to the dynamic nature of ecological, landscape, and arboricultural resources, if more than twelve months have elapsed since the date of this report, further advice must be taken before you rely on the contents of this report. Notwithstanding any provision of the Tyler Grange Group Ltd Terms & Conditions, Tyler Grange Group Ltd shall not be liable for any losses (howsoever incurred) arising as a result of reliance by the client or any third party on this report more than 12 months after the date of this report.

Contents:

Section 1: Introduction 1

Section 2: CEMP and ECA Tables 4

Appendices:

Appendix 1 - Cofferdam Construction Method Statement

Appendix 2 - Otter Conservation Plan

Appendix 3 - Biosecurity Risk Assessment

Appendix 4 - Marine Biosecurity Plan

Appendix 5 - Tree Protection and Removal Plan

Section 1: Introduction

1.1 This report has been prepared by Tyler Grange Group Limited on behalf of Industrie Cartarie Tronchetti (ICT) UK Limited and provides ecological inputs to the Construction Environmental Management Plan for construction works associated with the proposed outfall on the River Dee for the paper mill facility proposed at plot C, Deeside Airfields and along the River Dee where an outfall for treated water from the production process is proposed.

Site Location

1.2 The construction area covered by the CEMP is shown on **figure 1** below.

1.3 The redline boundary defines the extent of the development which encompasses the Papermill Facility site and the line of the proposed discharge and outfall to the River Dee. However, this CEMP is purely concerned with construction of the outfall along the River Dee and therefore covers the potential ZoI of influence in respect of ecological features shown in yellow hatch on **figure 1.** above (notwithstanding any pollution risk which could feasibly extend further if pollution were to enter the River).

Relevant Planning Conditions

1.4 The CEMP is required to discharge planning condition 3 of planning consent 063721 for the above facility which states:
"No development or phase of development, including site clearance, shall commence until a site wide or phased Construction Environmental Management Plan (CEMP) (further to the outline CEMP) has been submitted to and approved in writing by the Local Planning Authority. The CEMP should include the following:

- *Construction methods: details of materials, how waste generated will be managed.*

- *General Site Management: details of the construction programme including timetable, details of site clearance; details of site construction drainage, containment areas, appropriately sized buffer zones between storage areas (of spoil, oils, fuels, concrete mixing and washing areas) and any watercourse or surface drain.*
- *Biodiversity Management: details of tree and hedgerow protection; invasive species management; species and habitats protection, avoidance and mitigation measures.*
- *Soil Management: details of topsoil strip, storage and amelioration for re-use.*
- *CEMP Masterplan: details of the extent and phasing of development; location of landscape and environmental resources; design proposals and objectives for integration and mitigation measures.*

- *Control of Nuisances: details of restrictions to be applied during construction including timing, duration and frequency of works; details of measures to minimise noise and vibration from piling activities, for example acoustic barriers; details of dust control measures; measures to control light spill and the conservation of dark skies.*
- *Resource Management: details of fuel and chemical storage and containment; details of waste generation and its management; details of water consumption, wastewater and energy use.Traffic Management: details of site deliveries, plant on site, wheel wash facilities.*
- *Pollution Prevention: demonstrate how relevant Guidelines for Pollution Prevention and best practice will be implemented, including details of emergency spill procedures and incident response plan. For further guidance please refer to GPP 5 and PPG 6 at the following link: http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines- ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/*
- *Details of the persons and bodies responsible for activities associated with the CEMP and emergency contact details / Emergency Response Plan.*
- *The applicant is advised that they should include NRW in the 'Communications Plan' so that they are notified when development commences and can advise should an incident occur (especially at the time when the cofferdam and works around the headwall are being carried out).*
- *Ecological clerk of works to ensure construction compliance with approved plans and environmental regulations.*
- *Regular checks should be undertaken (regarding discolouration of the water) of the watercourse leading to the culvert and out to the river, and identification of triggers for appropriate action required should the water course show signs of any pollution.*
- *Measures to prevent potential release of contaminated sediment as a result of construction works, this should include sampling methodology and appropriate management actions, should concentrations of any priority substances be exceeded.*
- *Details of management and mitigation measures to address any impacts upon fisheries and ornithological receptors.*

- *The CEMP shall be implemented as approved during the site preparation and construction phases of the development.*

REASON: A CEMP should be submitted to ensure necessary management measures are agreed prior to commencement of development or phase of development or specified activity and implemented for the protection of the environment during construction in accordance with policies"

1.5 This CEMP and ECA provides details of the ecological mitigation required for compliance with condition 3 of the above planning consent and will be submitted to Flintshire Council for approval.

CEMP Inputs Covered

1.6 The ecological CEMP inputs cover the following topics:

- Biosecurity management;
- Birds wintering and breeding;
- Migratory fish;
- Other Protected species (badger and otter); and
- Trees and Hedgerows.

Related Documents

1.7 The following documents are referenced and provided as Appendices:

- Cofferdam Construction Method Statement (Appendix 1.);
- Otter Conservation Plan (Appendix2.)
- Biosecurity plan (Appendix 3.);
- Marine Biosecurity Plan (Appendix 4.)
- Tree Protection Plan (Appendix 5.)

Section 2: CEMP and ECA Tables

3.1. Table 3.1 below sets out the relevant potential ecological constraints associated with the Plot H3 and H5 works and any necessary surveys and mitigation to be implemented.

Ecological Constraint	Purpose of the Action		Detail of the Action	Responsibility
Badger	To avoid disturbance / destruction of badger setts.	2	During the 2021 updated badger survey, no evidence of badger was seen across Plot C or the proposed route for the pipeline for discharge from the papermill into the River Dee. However, the species is known to be present in the area and therefore a pre-commencement check is required in all suitable habitats across both plots and all surrounding land within 30m of the red line boundary.	Tyler Grange - responsible for surveys and design / implementation of mitigation.
		3	In the unlikely event any setts are recorded, a mitigation strategy for the retention and protection of the sett will be prepared and adhered to, or a licence acquired for sett closure from NRW where this is not possible.	Appointed contractor - Responsible for observing any exclusion zones around setts.
Breeding birds	To avoid disturbance to birds during the breeding season.	4	Where clearance works extend into the bird breeding season (March - August inclusive), a suitably qualified ecologist (SQE) from Tyler Grange will undertake a pre-commencement survey of the vegetation to be cleared and any associated access to check for the presence of breeding birds. This applies to all types of vegetation removal (i.e. grassland/scrub/trees/ruderal vegetation).	Tyler Grange – responsible for surveys.
		5	If a nest is found an exclusion zone (commensurate with the level of disturbance risk) will be set up and works will avoid the exclusion zone until it has been confirmed by a SQE that nesting is complete.	Appointed contractor - responsible for observing exclusion zones for nesting birds should nesting birds be found.

Wintering birds	Avoid disturbance of bird species forming populations of the Dee Estuary SPA. Avoid disturbance of bird species using field within the development site for grazing in winter.	Where possible works associated with the River Dee, including movements of machinery generating noise exceeding 70db (at source) should be timed to occur between April and September to avoid the passage and wintering period. (Based on studies undertaken by the Institute of Estuarine and Studies[1] (IECS). 70db is the threshold at which a response by birds (such as head turning and movement potentially disrupting feeding is likely to occur). Where timing of works to avoid the passage / wintering period is not possible, weekly monitoring of works associated with the River Dee would be undertaken by a Suitably Qualified Ecologist (SQE) to ascertain if there is disturbance. Where necessary, remedial action would be implemented such as the erection of hoarding to shield the riverbank from visual disturbance arising movement of machinery and associated noise.	Tyler Grange to advise on the need for mitigation based on monitoring. Appointed contractor to erect hoarding, if necessary.
Migratory Fish Atlantic salmon, sea lamprey, river lamprey	Risk of disturbance / injury to fish from acoustic sources generated by piling activities for construction of coffer dam for headwall	<u>Timing works</u> Where possible, avoid critical periods i)March – mid June smolt migration and ii) August – October – migration back to freshwater. A Method Statement for construction of Cofferdam has been provided in **Appendix 1.** and is summarised below.	Appointed contractor

[1] Cutts, N., A. Phelps, and D. Burdon. 2009. "Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance, Report to Humber INCA." ZBB710-F-2009. Institute of Estuarine and Coastal Studies University of Hull.

		Site set up The site set up for the construction of the cofferdam will be set up on the outside of the existing flood protection wall and the equipment for the construction of the cofferdam will largely be operated in the area already protected by the existing Flood defence sheet pile wall. Construction works The existing footway running along the River Dee will need to be temporarily stopped up and diverted safely around the works. Using small excavators located on the footway, the footway surface will be removed and the existing sheet pile wall exposed locally to the works. All Services located within the footway will be identified and protected. A working Platform will be created on the north side of the existing sheet piled wall and will be designed to take the loadings of the Installation Crane which is likely to be a tracked Mobile crane. The crane will initially install a steel support stanchions at the edge of the low tide, beyond the extent of the required sheet piled cofferdam. This installation will be undertaken utilising a Silent Pile press. The stanchion which will be subsequently used to support the cofferdam and will be installed during low tide and using soft start technology. The Crane will then install the upstream wall of the Cofferdam perpendicular to the existing sheet piled wall into the river embankment. This will be installed with the use	

		of silent pile press, a crane and a Telehandler located on the River Dee footway. As with the installation of the stanchion this works will be carried out during low tide. On completion of the upstream sheet pile wall a steel support frame will be fixed to the end of the already constructed upstream sheet pile wall and across onto the previously installed vertical support stanchion. The end wall of the cofferdam will then be installed again using the silent pile press. Finally, the downstream cofferdam wall will be completed and sealed onto the existing sheet pile wall. It is expected that all installations will be carried out during low tide and will take no longer than four working days. The above installation is demonstrated on the attached video Building a Sheet Pile Cofferdam - YouTube Once the cofferdam is complete, the water within the cofferdam will be pumped out and excavation works can commence inside the cofferdam to create the required working space to construct the headwalls and associated discharge pipe work. All such work will be confined to the inside of the cofferdam and arisings will be lifted over the existing sheet pie wall and onto the site. Were possible offsite construction will be maximised with Precast headwalls being utilised were possible and all pipe work will be preassembled offsite and bolted together onsite. 6 Once all elements of the headwall has been constructed within the cofferdam and the embankment reinstated within the cofferdam, the Cofferdam and its	

		support structure will be removed in reverse order to its installation and final reinstatement of the embankment and foot path can be carried out.	
Otter	To avoid disturbance to otters using the River Dee as a foraging and commuting resource	The following mitigations will be implemented during the construction phase: • No construction activities to be undertaken between one hour after sunset and one hour before sunrise; • No illumination of any construction areas between the hours of sunrise and sunset within the 30m dark zone indicated on **Plan 14150/P05**; **(See Appendix 2)** • At the end of each dam, a ramp consisting of a scaffold board or similar will be placed in the dam against or attached to one of the coffer dam walls to provide a mean of escape for any otters which may enter the coffer dam during the night. A pre-commencement check of the coffer dam will be undertaken each morning before the start of work; and • No movement of construction vehicles within the 30m dark zone indicated on **Plan 14150/P05** in **Appendix 2** between sunset and sunrise; and • Pollution control measures (as detailed within the CEMP are to be implemented during the construction phase of the development).	Appointed contractor - Responsible for complying with any instructions regarding the safeguarding of otter.
Invasive Plant Species	To avoid the spread of invasive plant species included in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).	The following mitigations will be implemented during the construction phase: • An updated invasive plant survey will be undertaken during the growing season (spring/summer) prior to any works commencing, to determine if there has been any colonisation of invasive plant species subject to statutory controls on site; • Should any infestations be identified, an appropriately qualified invasive species contractor will be appointed by the principal contractor to eradicate the stands of knotweed / Himalayan balsam or other non-native invasive species identified	Tyler Grange – responsible for identifying any stands of invasive species in enabling works area. Appointed contractor - responsible for any invasive species control which may be required throughout duration of enabling works.

		during the survey. This will be undertaken using the guidance provided by Welsh government on knotweed Control[2]. Also refer to the Biosecurity Risk Assessment provided in **Appendix 3.**	
Chinese mitten crab	To avoid the spread of invasive fauna species included in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).	Mitigation focuses on the prevention of the spread of this species through appropriate controls. As set out below: • All workers on site during the development phase will be advised during a toolbox talk of the potential presence of Chinese mitten crabs during a site induction, and will be taught how to identify this species; • All plant or machinery which is used within a watercourse or the adjacent bank zone will be checked for crabs and thoroughly cleaned prior to entering and exiting the watercourse zone. Checking will involve a visual inspection to ensure that no crabs are attached to the machinery. Any Chinese mitten crabs found will be humanely destroyed; and • All parts of plant and machinery which come into contact with water during the works will be cleaned with water sprays to ensure that any crabs in the planktonic stage are washed off and are not transferred to other areas. Checking and cleaning will be undertaken at the end of each working day, and also when any plant or machinery exit a watercourse and its bank zone. Also refer to the Biosecurity Risk Assessment provided in **Appendix 3.**	Tyler Grange - responsible for providing toolbox talk to contractors on the potential presence of Chinese mitten crab and mitigation measure to be implemented. Appointed contractor - responsible for implementing mitigation (cleaning of machinery) for reporting of any Chinese mitten crabs found and for humanely killing them.

[2] The Control of Japanese Knotweed (Fallopia japonica) in Construction and Landscape Contracts Model Specification and Guide to Procurement (Welsh Government 2011).

Marine Biosecurity	To prevent in-channel works from spreading Invasive Non-native Species.	Where appropriate implement measures as set out in the draft Marine Biosecurity Plan provided in **Appendix 4.**	Appointed contractor
Trees and Hedges	To prevent damage to trees and hedges retained adjacent to the development.	Prior to the start of works tree protection fencing will be erected in accordance with the Root Protection Areas (RPA) for retained trees as shown on the Tree Removal Plan in **Appendix 5.**	

Table A3.1 CEMP

3.2 **Table A3.2** below sets out the relevant ecological key performance indicators associated with the proposed works and any necessary surveys and mitigation to be implemented for the works to proceed in accordance with legislation relating to protected flora and fauna.

Ecological Feature	Key Performance Indicator	Example Evidence Required
Badgers	Pre - commencement survey to check for active badger setts within 30m of site. If necessary, mitigation / exclusion zones would be set up to prevent risk of disturbance to active setts and/or a licence acquired from NRW.	Confirmation in writing of checks made by the SQE (pre-commencement of works), compliance, where necessary, with exclusion zones / mitigation requirements.
Breeding birds	Where clearance of vegetation occurs during the bird nesting season, a SQE will undertake a pre-commencement survey to check for nesting birds within the works area. Where necessary, measures to exclude working from areas containing bird nests will be implemented until nesting is complete and has been verified as clear by the SQE.	Confirmation in writing of checks made by the SQE and of compliance, where necessary, with exclusion zones.
Wintering birds	Monitoring of bird movements on land adjacent to works. To be undertaken during weekly ECoW visits. If necessary, erect hoarding to reduce noise / visual disturbance to wintering birds.	Confirmation of monitoring during winter months by SQE and implementation of mitigation if required.
Otter	Pre-commencement survey. Implementation of mitigation, if required.	Confirmation in writing by SQE of compliance by contractor of no working between sunset and sunrise.
Invasive Plant Species Biosecurity	Pre-commencement survey. Implementation of mitigation if required. Where necessary records of treatment to be supplied by contractor.	Confirmation of pre-commencement survey by SQE. Appointed contractor to confirm implementation of invasive species control measures where necessary.

Ecological Feature	Key Performance Indicator	Example Evidence Required
	Where necessary, species listed by the Animal and Plant Health Agency that are introduced to the site will have the necessary plant passport certification. In addition, all operations which require or involve the movement of soil or plants will comply with guidance provided in Biosecurity Guidance - Forestry Commission 2012. Certification for the cleanliness of fill materials, (soils etc imported into the site) is covered by the consent already in place for stockpiling works which are currently underway.	
Chinese mitten crab	Confirmation of attendance of workers to toolbox talk regarding Chinese mitten crab Check sheet system to be implemented regarding the checking washing down of any machinery exiting the watercourse at the end of each working day and upon leaving the watercourse / bankside area	Appointed contractor to confirm implementation of species control measures.
Marine Biosecurity	Evidence of washing off of machinery / temporary infrastructure (sheet piles) on exiting / removal from watercourse.	Appointed contractor to confirm implementation of INNS control measures, where necessary
Watercourses / Other pollution	Contractors to provide details of pollution control measure to be implemented throughout the course of the work.	Appointed contractor to provide evidence to the SQE that checks have been carried out to ensure that pollution control measures have been adhered to throughout the course of the works.
Ecological Clerk of Works (ECoW)	In addition to site presence to implement mitigation for reptiles and water vole a monthly meeting will be held with the ECoW to discuss any potential ecological issues.	A record of monthly meetings will be provided.

Table 3.2: ECA Enabling Works

Appendix 1 - Cofferdam Construction Method Statement

Outline Method Statement for Construction of the Cofferdam associated with Works to the Headwall to the River Dee

Paper Mill Facility, Plot C, Airfields, Northern Gateway

Shepherd Gilmour
Consulting Engineers

Outline Method Statement for Construction of the Cofferdam associated with Works to the Headwall to the River Dee

Paper Mill Facility, Plot C, Airfields, Northern Gateway

Introduction

The use of cofferdams in the construction of headwalls in watercourses is standard practice.

This Outline Method Statement describes the processes in the design, construction and removal of cofferdams, and the mitigation measures aimed at minimising the impact on the River Dee. A Detailed Construction Method Statement will be prepared for approval prior to works commencing.

A cofferdam is required to construct the headwall on the bank of the River Dee which will be secured as part of the full planning permission for the Paper Mill Facility to secure an outfall to discharge treated water from the Facility into the River Dee.

Cofferdams are temporary construction enclosures to keep out the river water and soil so as to permit construction of the permanent structural elements of infrastructure including headwalls in dry conditions.

The location of the outfall and headwall is outlined in the Figures over the page:

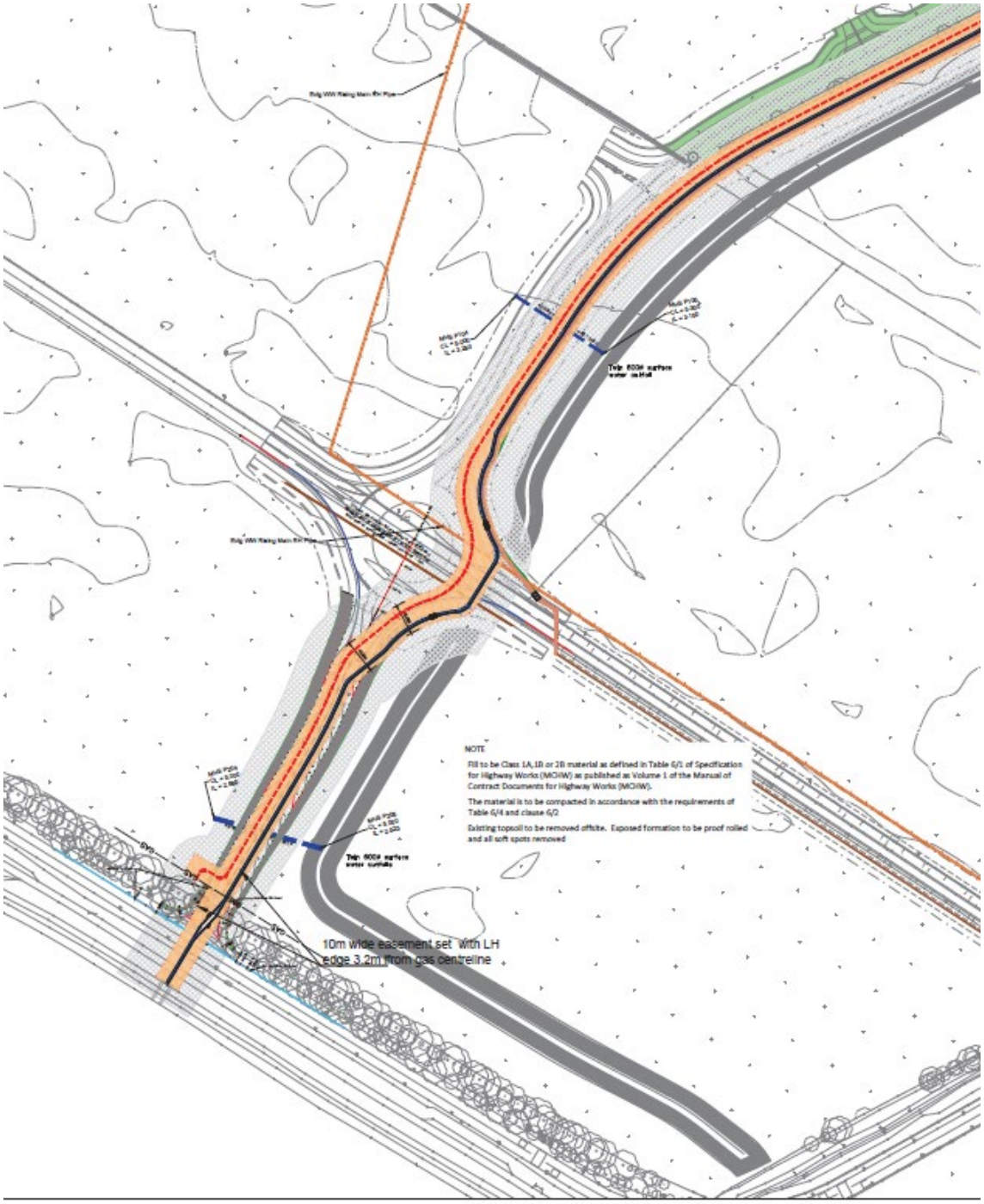
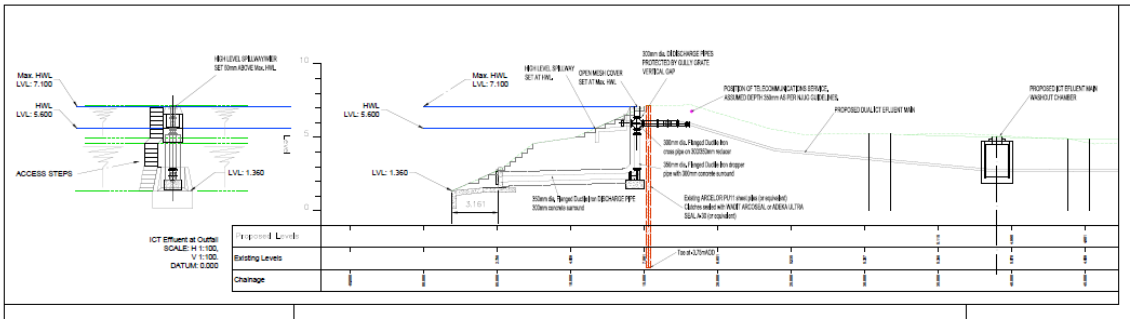


Figure 1: Location of easement and outfall into the River Dee



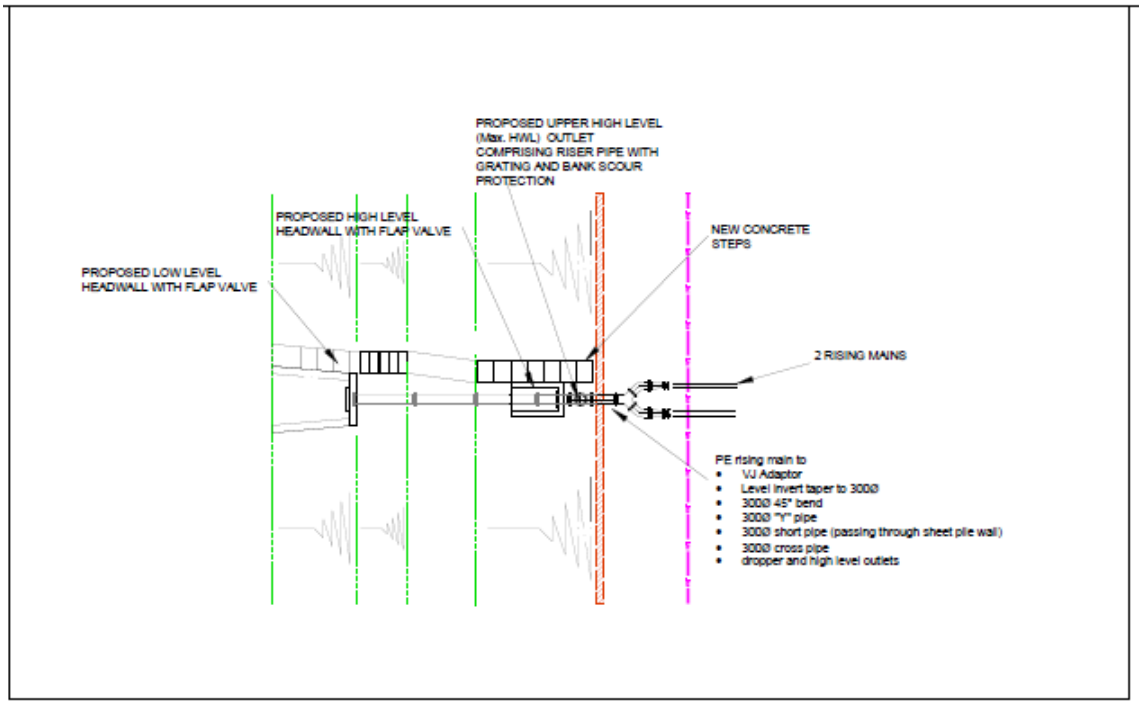


Figure 2: Headwall Design

Site Set Up

The site set up for the construction of the cofferdam will be located on the outside of the existing flood protection wall and the equipment for the construction of the cofferdam will largely be operated in the area already protected by the existing Flood defence sheet pile wall.

Construction Works

The existing footway running along the River Dee will be temporarily stopped up and diverted safely around the works. Using small excavators located on the footway, the footway surface will be removed and the existing sheet pile wall exposed locally to the works. All Services located within the footway will be identified and protected.

A working Platform will be created on the north side of the existing sheet piled wall and will be designed to take the loadings of the Installation Crane which is likely to be a tracked Mobile crane.

The crane will initially install a steel support stanchions at the edge of the low tide, beyond the extent of the required sheet piled cofferdam. This installation will be undertaken utilising a Silent Pile press. The stanchion which will be subsequently used to support the cofferdam and will be installed during low tide and using soft start technology.

The Crane will then install the upstream wall of the Cofferdam perpendicular to the existing sheet piled wall into the river embankment. This will be installed with the use of silent pile press, a crane and a Telehandler located on the River Dee footway. As with the installation of the stanchion this works will be carried out during low tide.

Where possible, this will avoid the following critical migration periods to minimise impact on migrating fish:

i. March – mid June smolt migration; and
ii. August – October – migration back to freshwater.

The clear silent pile press will also reduce noise and vibration impacts on migrating fish in the River Dee.

On completion of the upstream sheet pile wall a steel support frame will be fixed to the end of the already constructed upstream sheet pile wall and across onto the previously installed vertical support stanchion.

The end wall of the cofferdam will then be installed again using the silent pile press. Finally the downstream cofferdam wall will be completed and sealed onto the existing sheet pile wall. It is expected that all installations will be carried out during low tide and will take no longer than four working days.

The above installation is demonstrated on the attached video:
Building a Sheet Pile Cofferdam - YouTube

Once the cofferdam is complete, the water within the cofferdam will be pumped out and excavation works can commence inside the cofferdam to create the required working space to construct the headwalls and associated discharge pipe work.

All such work will be confined to the inside of the cofferdam and arising's will be lifted over the existing sheet pile wall and onto the site. Where possible offsite construction will be maximised with Precast headwalls being utilised where feasible and all pipe work will be preassembled offsite and bolted together onsite.

Once all elements of the headwall has been constructed within the cofferdam and the embankment reinstated within the cofferdam, the Cofferdam and its support structure will be removed in reverse order to its installation and executed with the same degree of care as its installation, on a stage by stage basis and final reinstatement of the embankment and foot path will then be carried out.

Conclusion

A Detailed Construction Method Statement will be prepared and submitted as a formal FRAP application for approval prior to works commencing, describing in detail the processes in the design, construction and removal of cofferdams, and the mitigation measures aimed at minimising the impact on the River Dee.

Appendix 2 - Otter Conservation Plan

Otter Conservation Plan

Plot C, ICT

Deeside Airfields

13th October 2022

Tyler Grange

TG Report No. 14150_R03_JM_CW

Report No:	Date	Revision	Author	Checked
14150_R03	13th October 2022	-	John Moorcroft BSc. MSc. MCIEEM. Cenv.	Nick Bell BA (Hons) qCIEEM

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Extent of Otter Habitat **14150/P05**

Section 1: Introduction

1.1 This report has been prepared by Tyler Grange Group Limited on behalf of Industrie Cartarie Tronchetti (ICT) UK Limited and provides a conservation plan (MS) in respect of Otters *Lutra lutra* for construction works for the paper mill facility proposed at plot C, Deeside Airfields and along the River Dee where an outfall for treated water from the production process is proposed. The site boundary is shown on plan **14150/ P05.**

1.2 The conservation plan is required to discharge planning condition 4 of planning consent 063721 for the above facility which states:
" *No development shall commence until an otter Conservation Plan has been submitted to and approved in writing by the Local Planning Authority. The Conservation Plan shall include, but not necessarily be limited to:*

- *submission of external lighting proposals during the construction phase of the proposals;*
- *submission of external lighting proposals during the operational (post- construction) phase of the proposals;*
- *submission of otter reasonable avoidance measures during the construction phase of the proposals; and*
- *submission of measures to prevent the incidental injury or killing post development.*

The otter Conservation Plan shall be carried out in accordance with the approved details. REASON: To ensure that an approved otter Conservation Plan is implemented, which protects otter affected by the development in accordance with policy WB1 of the Flintshire Unitary Development Plan.

1.3 The measures for otters set out in this report will also form a part for the Construction Environmental Management Plan (CEMP) for the site required by condition 3.

Section 2: Status of Otters in Relation to the Development

2.1 Surveys undertaken to inform the original outline consent for the Deeside Airfields and Northern Gateway developments have shown that otters use the River Dee and Shotwick Brook (see **Plan 14150/ P05)** which shows the extent of known habitat utilisation by otters in proximity to the proposed development. No otter holts or resting places were encountered during the surveys, but field signs (footprints and spraints) have been recorded, indicating that the River and Brook are used by otters for commuting and foraging purposes.

2.2 Otters form part of the Dee Estuary and River Dee SSSI / SAC conservation designations which lie in proximity to the site. The River Dee designations lie adjacent to the site and the Dee estuary designations lie approximately 300m to the Southwest.

2.3 Otters are the subject of a nationwide Biodiversity Action Plan aiming to reverse population declines in Wales and is a priority species being listed in section 7 of the Environment Wales Act 2016 which places a legal duty of care on local planning authorities in the exercise of their duties to ensure that populations do not decline as a result of development.

2.4 Otters receive legal protection in Wales under Schedule 5 of the Wildlife and Countryside Act and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 damage to or destruction of their resting places and from intentional or reckless disturbance / injury or killing.

Section 3: Potential Risks and Mitigation for Otters During Construction

Risks During Construction

3.1 During construction the following risks to otters have been identified:

- Disturbance of foraging and commuting routes along the River Dee and Shotwick Brook due to night time lighting;
- Risk of entrapment within temporary coffer dam which will be used in the creation of the outflow headwall in the bank of the River Dee;
- Risk of killing / injury from construction traffic if otters traverse working areas of the construction site; and
- Pollution risk – risk of contamination of waters used by otters during construction work.

Mitigation During Construction

3.2 The following mitigations will be implemented during the construction phase:

- No construction activities to be undertaken between one hour after sunset and one hour before sunrise;
- No illumination of any construction areas between the hours of sunrise and sunset within the 30m dark zone indicated on **Plan 14150/P05**;
- At the end of each dam, a ramp consisting of a scaffold board or similar will be placed in the dam against or attached to one of the coffer dam walls to provide a mean of escape for any otters which may enter the coffer dam during the night. A pre-commencement check of the coffer dam will be undertaken each morning before the start of work; and
- No movement of construction vehicles within the 30m dark zone indicated on **Plan 14150/P05** between sunset and sunrise; and
- Pollution control measures (as detailed within the CEMP are to be implemented during the construction phase of the development).

Risks During Operation of the Site

3.3 During operation of the development the following risks to otters have been identified:

- Night time illumination of foraging / commuting resources along the River Dee and Shotwick Brook within the dark zone shown on plan **14185/P01**;

- Pollution risk if a break down in water treatment processes leads to outfall of contaminated water into the River Dee or if there is pollution of surface water runoff from plot C into Shotwick Brook; and

- Risk of traffic related fatality from vehicle movements (if otters cross the site).

Mitigation During Operation

3.4 No specific otter related mitigation should be required during operation of the plant but the following general mitigations should ensure the above risks are avoided:

- A 'dark corridor' is to be maintained along Northern Drain and Shotwick Brook as shown on The Lighting Layout and Isoline Plots Shown on DWG NO. PMF-CDL-ZZ-XX-DR- LG-43801 providing in the lighting strategy in Appendix 1.; and

- A pollution prevention plan will be operation throughout the operational phase of the development to manage any incidental risk of pollution to watercourses for example which could arise from fuel leakage or spillage.

Mechanism for delivery

3.5 The above measures will form part of the overall CEMP for the site which will also include an Ecological Compliance Audit (ECA) setting out details for evidencing the implementation of ecological mitigation proposed during the construction phase of the development.

Appendix 1: Lighting Strategy

Paper Mill Facility, Plot C Airfields, Northern Gateway

Light Spill Assessment – Technical Assessment

Industrie Cartarie Tronchetti (ICT) UK Ltd and Crag Hill Estates Ltd (CHEL)

Job No:	1022988
Doc Ref:	PMF-CDL-XX-XX-RP-LG-63801
Revision:	P03
Revision Date:	10 September 2021

Project title	Paper Mill Facility, Plot C Airfields, Northern Gateway	**Job Number**
Report title	Light Spill Assessment – Technical Assessment	1022988

Document Revision History

Revision Ref	Issue Date	Purpose of issue / description of revision
P01	27 August 2021	Draft for Comment
P02	3 September 2021	For Planning
P03	10 September 2021	For Planning

Document Validation (latest issue)

Recoverable Signature 10/09/2021

X

Principal author

Signed by: h.murphy@cundall.com

X

Checked by

Signed by: Tweedale, Mark

X

Verified by

Executive Summary

Industrie Cartarie Tronchetti (ICT) UK Ltd and Crag Hill Estates Ltd (CHEL) are proposing to develop part of the site known as Plot C, the Airfields, Northern Gateway located near to the River Dee in Deeside with a Paper Mill Facility. The Site safety and security lighting located within the Development area will not have an effect on the residential properties to the South East and South West of the Development, if the lighting techniques highlighted in the ILP Guidance notes on the reduction of obtrusive light, 2020 document are adhered to.

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1.0 Introduction

- Cundall Light4 have prepared this technical information on lighting on behalf of Industrie Cartarie Tronchetti (ICT) UK Ltd.
- The information identifies how the Proposed Development may impact on the surrounding areas.
- A lighting calculation has been carried out to ensure that all legislation is met and consideration is taken for all noted receptors.
- Impacts of the proposed lighting have been considered. A light spill assessment has been prepared and the results regarding lux levels, light spill, source intensity and sky glow will be included in drawing ICT-CDL-XX-XX-DR-LG-63801-Lighting Lux Level Plot.
- The assessment will be in accordance with the Planning Policy Wales (February 2021) and the Local Authorities UDP.
- All of the statements included within this report acknowledging light spill, sky glow and source glare are based on the assumption that the lighting design installations are developed and integrated with best practice lighting design.

2.0 Documents Consulted

The following documents were consulted as part of the assessment;

- The Planning (Clean Neighbourhoods and Environment) Act 2005
- Welsh Planning Policy (February 2021)
- Institute of Lighting Professionals (ILP), Guidance note on the reduction of obtrusive light, (GN01:2020)
- Institute of Lighting Professionals (ILP), BATS Conservation Trust Lighting Guidance (2018)
- Institute of Lighting Professionals (ILP), A Review of the Impact of Artificial Light on Invertebrates (March 2011)
- Institute of Lighting Professionals (ILP), Lighting Against Crime, A Guide for Crime Reduction Professionals (January 2011)
- Light and Lighting – Lighting of workplaces Part 2: Outdoor Workplaces (BS EN 12464-2:2014)

3.0 Receptors

The receptors identified as susceptible to light spill from the proposed lighting scheme are included within the Light Spill Assessment calculation to assess the potential issue. The receptors that are included within the calculation that have potential to receive spill light are;

- Potential light spill onto the Chester Millennium Greenway
- Potential light spill onto the Deeside Industrial Estate
- Potential light spill onto the Airfields
- Potential light spill onto the new build housing estate
- Potential light spill onto the residential building on Sealand Avenue
- Potential light spill onto the residential building on Brookside
- Potential light spill onto Sealand Primary School
- Potential light spill onto the Jubilee Bridge
- Potential light spill onto the Wales Coast Path
- Potential light spill onto residential building at Old Farm Hall
- Potential light spill onto the poplar trees to the South
- Potential light spill onto residential building on Rowley Drive
- Potential light spill onto the Hawarden Bridge
- Potential light spill onto the Shotten Point trees
- Potential light spill onto Shotwick Brook
- Potential light spill onto dense scrub bushes

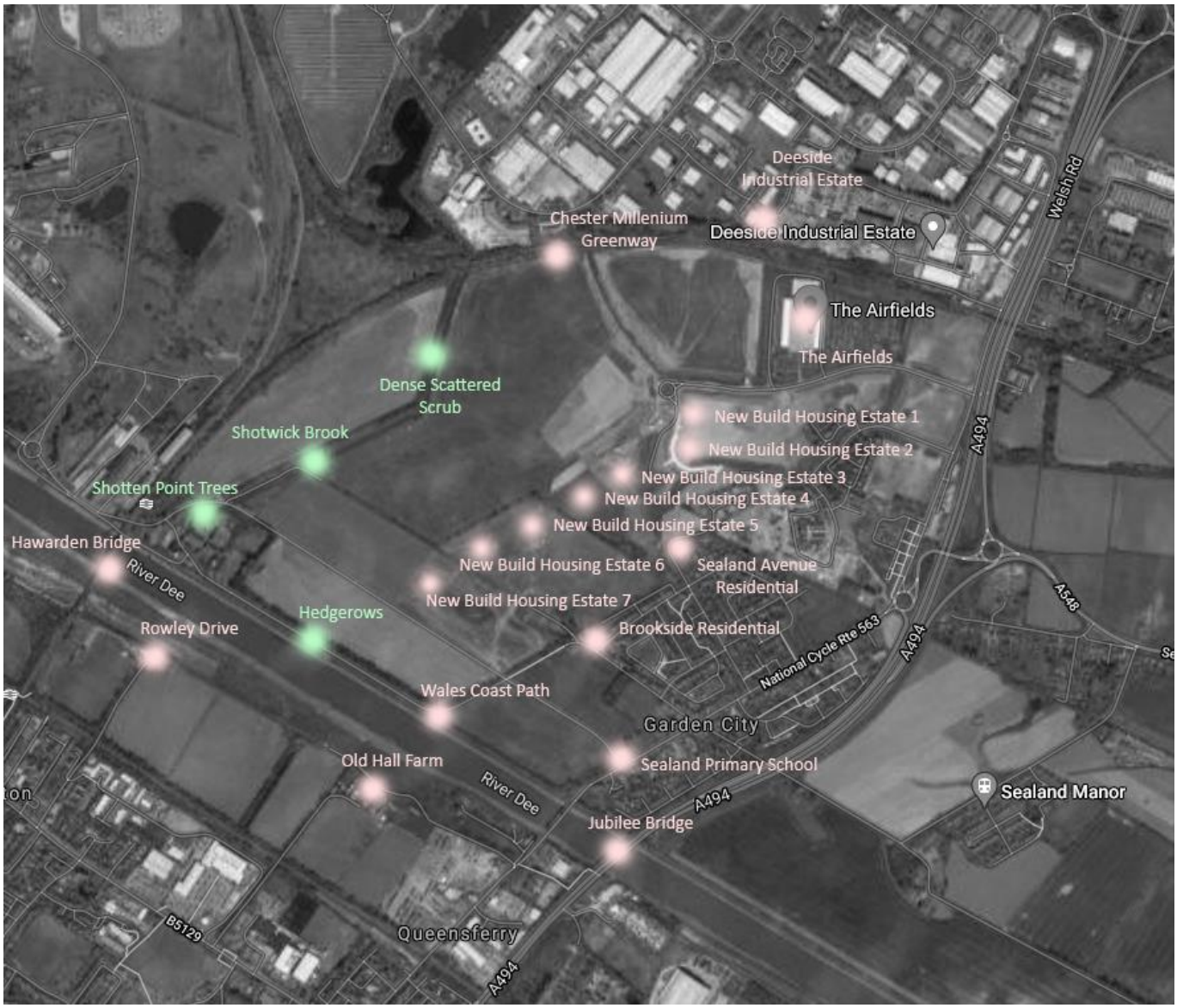

Figure 1: Receptor Map – general receptors highlighted in pink and ecology receptors highlighted in green

The receptor light trespass and luminous intensity calculations will be included within the final Technical Assessment detail. The results from the calculation can be found in drawing PMF-CDL-XX-XX-DR-LG-63801

4.0 Lighting Design

4.1 Criteria

- The proposed Paper Mill has been classified as an E3 Environmental Zone within the ILP Guidance Notes of the Reduction of Obtrusive Light, therefore the following standards must be met;
- Sky Glow (ULR) – 5.0%
- Light Trespass (Lux) – 10 (pre-curfew), 2 (post-curfew)
- Source Intensity (cd) – 10,000 (pre-curfew), 1,000 (post-curfew)
- Building luminance (cd/m²) – 10

4.2 Strategy

A lighting design and calculation will be completed for the site and will be shown as an appendix. The strategy and principles of the design area are as follows;

- Any building mounted luminaires or column luminaires which are introduced to the external areas adjacent to the perimeter of the site have flat glass diffusers to minimise sky glow. The diffusers are positioned horizontally to the ground or with a 5° tilt if necessary.
- All public realm lighting proposed for the development have been specified with flat glass diffusers which would control the light distribution and are mounted horizontally to the ground or with a 5° tilt if necessary.
- Any signage brightness, position and design needs must be considered with respect to sky glow and source glare.
- All lighting columns and wall mounted bulkheads will not exceed a height of 8m in order to achieve minimal sky glow, unless otherwise stated.
- No lighting will be installed within the proposed habitat mitigation areas in order to allow species to use the areas freely. As these areas aim to be light exclusion zones, the surrounding lighting will be dimmable in order to avoid light spill and glare
- To minimise the disturbance to wildlife, construction should only take place during daylight hours, unless otherwise agreed with the LPA, and exterior lighting such as street and security lights in the vicinity of hedgerows, trees and the wildlife corridor should be avoided, or if absolutely necessary, should be of a type that has a minimum impact on the use of these areas by bats.
- Lighting for the building perimeters will be wall mounted to the buildings, the recommended mounting heights have been provided on drawing PMF-CDL-ZZ-XX-DR-LG-63803 and are based on the clients lighting requirements. Lighting is evenly spaced along the building perimeters for uniformity.
- The loading bay lighting has higher illuminance levels based on the client's requirements, therefore higher output lighting is required along the building perimeter in these locations. Where a canopy is located over each loading bay, wall mounted lighting has been allowed for.

- All other lighting is to be column mounted at the appropriate height to achieve the required illuminance and uniformity levels.

- The lighting is to be controlled via photocell sensors with a 24-hour timeclock, this allows the lighting to be on only when required. Prior to commissioning, a set curfew time is to be agreed with the council.

- During the construction stage, the lighting levels recommended within Light and Lighting – Lighting of workplaces Part 2: Outdoor Workplaces (BS EN 12464-2:2014) must be adhered to and cannot be exceeded. See Table 5.1 – General requirements for areas and for cleaning at outdoor work places for further details.

4.3 Results

- Twenty-two receptor points were calculated for light spill and source intensity. Each receptor passed the ILP's Environmental Zone E3 requirements at pre-curfew and post-curfew as per the below information;

  - Sky Glow (ULR) – 5.0%
  - Light Trespass (Lux) – 10 (pre-curfew), 2 (post-curfew)
  - Source Intensity (cd) – 10,000 (pre-curfew), 1,000 (post-curfew)
  - Building Luminance (cd/m²) – 10

- The sky glow has passed the ILP's requirements at 0.0%, meaning there is no sky glow at all from the ICT Paper Mill site.

- A further observation of light spill onto the wildlife habitat areas has been made, looking specifically at the West Perimeter, Shotwick Brook to the West and Chester Millenium Greenway to the North. However, each of these areas will attain a minimum amount of illuminance from the proposed site.

- The results of the light pollution can be found in Appendix 1; PMF-CDL-ZZ-XX-DR-LG-63803.

5.0 Mitigation Measures

5.1 Demolition and Construction

- During the Site set up and mobilisation period the lighting installation should be inspected to ensure the aiming of all floodlights is appropriate and no lighting is being directed towards the residential properties or wildlife habitats.

5.2 Operation

- The light pollution study shows that the proposed lighting scheme complies with the ILP guidance on the reduction of obtrusive light during both pre-curfew and post-curfew time slots. Therefore, no additional mitigation measures are required for ICT Paper Mill.

6.0 Summary

- There is no proposed lighting at ICT Paper Mill that contributes to light spill to the surrounding roads and residential buildings.
- Under Environmental Zone E3 of the ILP Guidance Notes of the Reduction of Obtrusive Light the following standards must be met;

  - Sky Glow (ULR) – 5.0%
  - Light Trespass (Lux) – 10 (pre-curfew), 2 (post-curfew)
  - Source Intensity (cd) – 10,000 (pre-curfew), 1,000(post-curfew)
  - Building Luminance (cd/m²) – 10

- Each of the twenty-two calculated receptors passed the target standards as required
- The results from the calculation can be found in drawing IPMFCDL-XX-XX-DR-LG-63801-P01.

7.0 Appendix

41612BCB.pdf

PMF-CDL-ZZ-XX-DR-LG-63803-P01

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ILP GUIDANCE NOTES ON THE REDUCTION OF OBTRUSSIVE LIGHT							
	Sky Glow ULR [Max %] (1)	Light Trespass into Windows Ev [Lux] (2)		Source Intensity I [cd] (3)		Building Luminance Pre Curfew (4)	PASS OR FAIL
		Pre Curfew	After Curfew	Pre Curfew	After Curfew	Average L [cd/m2]	
ENVIRONMENTAL ZONE E3	5.0%	10	2	10,000	1,000	10	TARGET
1 - SKY GLOW	0.0%						
LIGHT TRESPASS 1		0.18	0.18				PASS
LIGHT TRESPASS 2		0.05	0.05				PASS
LIGHT TRESPASS 3		0.063	0.063				PASS
LIGHT TRESPASS 4		0.58	0.58				PASS
LIGHT TRESPASS 5		0.7	0.7				PASS
LIGHT TRESPASS 6		1.97	1.97				PASS
LIGHT TRESPASS 7		0.21	0.21				PASS
LIGHT TRESPASS 8		1.39	1.39				PASS
LIGHT TRESPASS 9		1.31	1.31				PASS
LIGHT TRESPASS 10		0.06	0.06				PASS
LIGHT TRESPASS 11		0.048	0.048				PASS
LIGHT TRESPASS 12		0.026	0.026				FAIL
LIGHT TRESPASS 13		0.02	0.02				PASS
LIGHT TRESPASS 14		0.007	0.007				PASS
LIGHT TRESPASS 15		0.018	0.018				PASS
LIGHT TRESPASS 16		0.026	0.026				PASS
LIGHT TRESPASS 17		0.04	0.04				PASS
LIGHT TRESPASS 18		0.007	0.007				PASS
LIGHT TRESPASS 19		0.015	0.015				PASS
LIGHT TRESPASS 20		1.91	1.91				PASS
LIGHT TRESPASS 21		0.01	0.01				PASS
LIGHT TRESPASS 22		0.01	0.01				PASS
SOURCE INTENSITY 1				43	43		PASS
SOURCE INTENSITY 2				27	27		PASS
SOURCE INTENSITY 3				22	22		PASS
SOURCE INTENSITY 4				77	77		PASS
SOURCE INTENSITY 5				37	37		PASS
SOURCE INTENSITY 6				108	108		PASS
SOURCE INTENSITY 7				84	84		PASS
SOURCE INTENSITY 8				18	18		PASS
SOURCE INTENSITY 9				22	22		PASS
SOURCE INTENSITY 10				5	5		PASS
SOURCE INTENSITY 11				7	7		PASS
SOURCE INTENSITY 12				11	11		PASS
SOURCE INTENSITY 13				1	1		PASS
SOURCE INTENSITY 14				1	1		PASS
SOURCE INTENSITY 15				3	3		PASS
SOURCE INTENSITY 16				5	5		PASS
SOURCE INTENSITY 17				6	6		PASS
SOURCE INTENSITY 18				3	3		PASS
SOURCE INTENSITY 19				3	3		PASS
SOURCE INTENSITY 20				3	4		PASS
SOURCE INTENSITY 21				22	22		PASS
SOURCE INTENSITY 22				116	116		PASS
FACADE AVERAGE VALUE						0.77	PASS

LUX LEVEL ISOLINE PLOT

INTRODUCTION

THE LIGHTING CALCULATION HAS BEEN BASED ON THE FOLLOWING ARCHITECTURAL DRAWING ISSUED BY AEW ARCHITECTS.

REFERENCE DRAWING

12500-AEW-SI-XX-DR-A-0504_P3__PROPOSED SITE

LIGHTING DESIGN NOTES

THE EXTERNAL LIGHTING DESIGN HAS BEEN ASSESSED AGAINST ENVIRONMENTAL ZONE E3 WHICH IS DESCRIBED AS MEDIUM DISTRICT BRIGHTNESS AREAS I.E. WELL INHABITED RURAL SETTLEMENTS. THIS INFORMATION IS INDICATED IN TABLE 2 DESIGN GUIDANCE IN THE ILP GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT GN01:2020

LIGHTING STANDARDS

THE EXTERNAL LIGHTING DESIGN HAS BEEN DESIGNED IN LINE WITH THE FOLLOWING STANDARDS:

- ILP THE INSTITUTION OF LIGHTING PROFESSIONALS GUIDANCE NOTES FOR THE REDUCTION OF OBTRUSIVE LIGHT GN01:2020
- ILP THE INSTITUTION OF LIGHTING PROFESSIONALS GUIDANCE NOTE - BATS AND ARTIFICAL LIGHTING IN THE UK GN08:2018
- BS EN 12464-2:2014 LIGHTING OF WORKPLACES - OUTDOOR WORKPLACES PART 2
- BS EN 5489-1:2020 DESIGN OF ROAD LIGHTING PART 1: LIGHTING OF ROADS AND PUBLIC AMENITY AREAS - CODE OF PRACTICE
- BS EN 13201-2:2015 ROAD LIGHTING PART 2: PERFORMANCE REQUIREMENTS

CONCLUSIONS

1. THE CALCULATION RESULTS INDICATE THAT THE EXTERNAL LIGHTING SCHEME DOES COMPLY FULLY WITH BOTH THE PRE AND POST CURFEW CRITERIA FOR ENVIRONMENTAL ZONE E3
2. NO TREES OR RESIDENTIAL FENCING HAVE BEEN INCLUDED IN THE LIGHTING CALCULATIONS THEREFORE THE SOURCE INTENSITY VALUES WOULD BE LOWER THAN DETAILED IN THE TABLE

True scale at 1:1

1022988 A0

Based on.

Architects Drg No.	Rev
Structural Drg No.	Rev
Survey Drg No.	Rev
Other Drg No.	Rev
Other Drg No.	Rev

THIS DRAWING MAY INDICATE ELEMENTS RELATED TO FIRE SYSTEMS. THESE ARE INDICATIVE ONLY AND FINAL NUMBER, POSITIONING AND PERFORMANCE MUST BE ESTABLISHED AS PART OF THE CDP WORKS TO MAINTAIN THE INTENT OF THE DESIGN FIRE STRATEGY

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTURAL, STRUCTURAL AND ENGINEERING SERVICES DRAWINGS, SPECIFICATIONS, SCHEDULES AND PROJECT SPECIFIC DOCUMENTS.
2. ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED.
3. DO NOT SCALE FROM THIS DRAWING.

SYSTEM DESCRIPTION

4. SET OUT ALL LUMINAIRES AS PER THE ARCHITECT'S AND LANDSCAPE ARCHITECT'S DETAILED DRAWINGS.
5. CHECK THE LIGHTING INSTALLATION CO-ORDINATION AND POSITIONS WITH THE ARCHITECT'S DESIGN DETAILS. CHECK THE CO-ORDINATION OF ANY MEP SERVICES, SUCH AS FIRE ALARM, SECURITY DEVICES ETC. CHECK THE CO-ORDINATION WITH ANY CIVILS ENGINEERING, SERVICES SUCH AS DUCTING ETC.
6. CHECK ALL FIXING OF LUMINAIRES AND SETTING OUT OF GROUND WORKS PRIOR TO ORDERING AND INSTALLING.
7. REFER TO MANUFACTURERS INSTALLATION GUIDES TO ENSURE CORRECT INSTALLATION METHOD FOR EACH TYPE OF LUMINAIRE.
8. ALL LUMINAIRES ARE TO BE LED.
9. INCLUDE ALL ANCILLARY EQUIPMENT SUCH AS DRIVERS, FLOOR BOXES, MOUTNING BRACKETS, OUTER CASINGS, CONNECTORS, INSTALLATION CLIPS ETC.
10. ALL LUMINAIRES ARE TO BE LEFT IN A CLEAN CONDITION ON COMPLETION AND CARE SHALL BE TAKEN TO ENSURE ALL GLASS COVERS, FILTERS ETC ARE DUST FREE.
11. NO FEATURE LIGHTING HAS BEEN INCLUDED IN THIS CALCULATION

LIGHTING CONTROL

12. ALL LUMINAIRES ARE TO BE CONTROLLED VIA PHOTOCELL SENSORS WITH 24HR TIME CLOCK.
13. ALLOW FOR A SET CURFEW TIME TO BE AGREED WITH THE COUNCIL.
14. THE CONTRACTOR SHALL CHECK PRIOR TO ORDERING THAT ALL LIGHTING CONTROL EQUIPMENT AND ALL LUMINAIRES ARE COMPATIBLE AND WILL DELIVER A COMPLETE SYSTEM.

LIGHTING MANUFACTURERS

15. ANY PROPOSED CHANGES TO THE LUMINAIRE MANUFACTURERS OR PRODUCTS SPECIFIED SHALL BE REVIEWED BY THE LIGHTING DESIGNER AND ARCHITECT. THE ALTERNATIVE MANUFACTURER OF INDIVIDUAL LUMINAIRE'S SHALL BE SUBJECT TO A REVIEW AND APPROVAL PROCESS BY THE LIGHTING DESIGNER AND ARCHITECT PRIOR TO PRESENTING TO THE CLIENT.

LIGHTING ASSESSMENT CRITERIA

16. A HIGHER QUANTITY OF LOW POWER LUMINAIRES MOUNTED CLOSER TO THE AREA TO BE LIT HAS BEEN THE OVERRIDING STRATEGY, THIS WILL PROVIDE A SCHEME WHICH IS FAR LESS LIKELY TO CAUSE LIGHT POLLUTION COMPARED WITH MORE POWERFUL BUT FEWER LUMINAIRES.
17. LIGHT FITTINGS HAVE BEEN GENERALLY POSITIONED AT THE PERIMETER OF THE AREAS AND AIMED INTO THE SITE SUCH THAT THE LIGHT DOES NOT DISPERSE BEYOND THE SITE BOUNDARY
18. LUMINAIRES MARKED * REQUIRE A LIGHT SHIELD TO THE REAR OF THE LUMINAIRE HEAD TO MINIMISE BACKWARD LIGHT SPILL.

ASSESSMENT LEGEND

{ LT } - LIGHT TRESPASS

{ SI } - SOURCE INTENSITY

LEGEND

- (A) TYPE A - 90W LED FLOODLIGHT - 6.5M PHILIPS BGP204 DM50 LED14920/740
- (B) TYPE B - 90W LED FLOODLIGHT - 10M PHILIPS BGP204 DM50 LED149/740
- (C) TYPE C - 71W LED FLOODLIGHT - 6M PHILIPS BGP204 DM50 LED120/740
- (D) TYPE D - 71W LED FLOODLIGHT - 7M PHILIPS BGP204 DM50 LED120/740
- (E) TYPE E - 71W LED FLOODLIGHT - 8M PHILIPS BGP204 DM50 LED120/740
- (F) TYPE F - 71W LED FLOODLIGHT - 5M PHILIPS BGP204 DM50 LED120/740

Checked Verified

Issue	Date	Description	By	Chkd	Verfd
P01	03/09/21	FOR PLANNING	HM	LS	MT

Project
PAPER MILL FACILITY, PLOT C
AIRFIELDS, NORTHERN GATEWAY

Client
ICT AND CHEL LTD

Title
LIGHTING LAYOUT AND ISOLINE PLOT

Drawing Status
PLANNING

Project No.
1022988

Scale
NTS

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Website: www.cundall.com

Drawing No.
PMF-CDL-ZZ-XX-DR-LG-63801

Plans

Plan 1: Extent of Otter Habitat 14185/P0

30m Dark Buffer

Otter habitat

Redline Boundary

N

0 100 200 300 m

Project	Plot C Deeside ICT
Drawing Title	Extent of Otter Habitat
Scale	As Shown (Approximate)
Drawing No.	14150/P05
Date	July 2022
Checked	JM

Tyler Grange

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Appendix 3 - Biosecurity Risk Assessment

Biosecurity Risk Assessment

Tyler Grange

Plot C, ICT, Deeside Airfields

12th October 2022

TG Report No. 14150_R04_JM_CW

Report No:	Date	Revision	Author	Checked
14150_R04	13th October 2022	-	John Moorcroft BSc. MSc. MCIEEM.	Nick Bell BA (Hons) qCIEEM

Contents:

Section 1: Introduction	1
Section 2: Non Native Invasive Species	2
Section 3: Potential Biosecurity Risks and Mitigation	5

Section 1: Introduction

1.1 This report has been prepared by Tyler Grange Group Limited on behalf of Industrie Cartarie Tronchetti (ICT) UK Limited and provides a Biosecurity Risk Assessment for construction works for the paper mill facility proposed at plot C, Deeside Airfields and along the River Dee where an outfall for treated water from the production process is proposed. The site boundary is shown on plan **14150/ P05.**

1.2 The risk assessment is required to discharge planning condition 5 of planning consent 063721 for the above facility which states:

> *"No development with the potential to impact on invasive species, shall commence until a Biosecurity Risk Assessment has been submitted to and approved in writing by the Local Planning Authority. The risk assessment shall include measures to control, remove or for the long-term management of invasive species both during construction and operation. The Biosecurity Risk Assessment shall be carried out in accordance with the approved details.*

REASON: To ensure that an approved Biosecurity Risk Assessment is implemented to secure measures to control the spread and effective management of any invasive non- native species at the site in accordance with policy WB1 of the Flintshire Unitary Development Plan".

1.3 The biosecurity measures set out in this report will also form a part for the Construction Environmental Management Plan (CEMP) for the site required by condition 3.

1.4 The following site specific biosecurity risks have been identified:

- Potential for non-native invasive plant species to occur within site or haul routes used during construction (specifically Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*) ; and
- Potential for in-channel works on the River Dee to result in the spread of non-native fauna (specifically Chinese mitten crab *Eriocheir sinensis*).

1.5 This risk assessment sets out:

- Identification of invasive species;
- Measures for pre-construction surveys for invasive plant species;
- Identification of risks associated with invasive species during construction works; and
- Control measures to be implemented during construction works.

Section 2: Non Native Invasive Species

2.1 The following biosecurity risks from non-native species associated with this project are:

- Chinese Mitten crab
- Japanese knotweed; and
- Himalayan Balsam.

2.2 All are invasive species subject to statutory controls being listed under schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to cause the spread of any of the above species in the wild.

Chinese Mitten Crab

Identification

2.3 Mitten crabs can be identified by the following features:

- Grey-green to dark brown body ; and
- Dense brown 'fur' (may be absent in juveniles) on the white-tipped claws

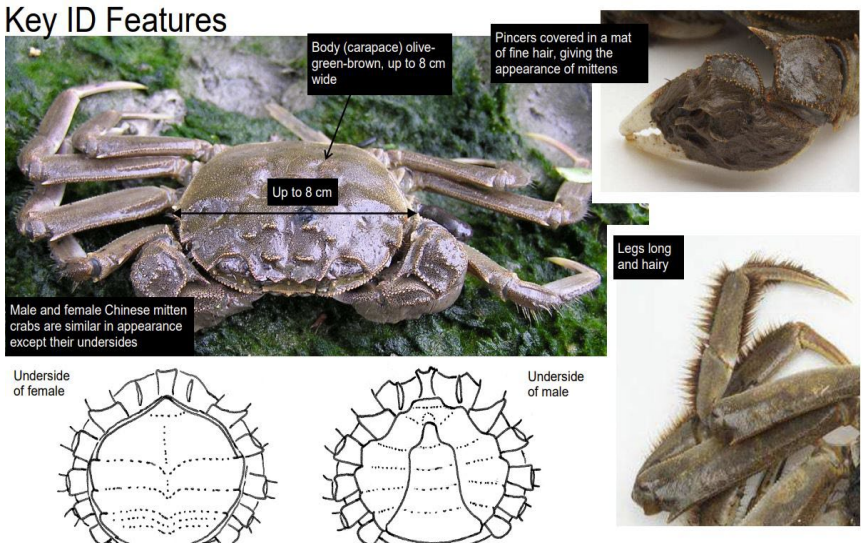

Photo 1: Identification of Chinese mitten crab

Status on site

2.4 Surveys undertaken by Natural Resources Wales (NRW)[1] have found this species to be present in the River Dee Catchment. And have been recorded as upstream as Rossett on the River Alyn (SJ 383 563) approximately 25km upstream of the estuary head at Connah's Quay.

2.5 No specific surveys for Chinese mitten crab have been undertaken in relation to the site and risks are therefore assumed on the basis of the presence of the species within the River Dee catchment.

Japanese knotweed

Identification

2.6 Japanese knotweed can be identified by the following features:

- Green, heart-shaped leaves;
- Japanese Knotweed grows to 2-3m high;
- Bamboo like stems with dark red or purple speckles. Mature Japanese Knotweed canes are hollow, resemble bamboo stems and can be snapped easily;
- Zig-zag leaf pattern due to the leaves growing from the stems; and
- Cream, white cluster of flowers.

Photo 2: Japanese knotweed identification

Status on site

2.7 No stands of Japanese knotweed were found to be present on the site when a re-survey of habitats was undertaken in 2021. A small stand was recorded in the wider airfields site by Middlemarch in 2012 within an ornamental border associated with hardstanding within the former John Summers Steelworks site located some 570 m to the west. The presence of this species within the wider Deeside Airfields / Northern Gateway sites means there could a risk of spread of this species during construction operations.

[1] https://cdn.cyfoethnaturiol.cymru/media/684745/evidence-report-154-chinese-mitten-crabs-eriocheir-sinensis-river-dee.pdf

Himalayan Balsam

Identification

2.8 Himalayan balsam can be identified by the following features:

- It grows in dense thickets, often along waterways;
- Individual plants reach 2-3m have translucent fleshy stems, pink-purple slipper-shaped flowers and large oval pointed leaves with obvious teeth around their edges;
- Each tooth carries a small globular 'gland' and produces large numbers of flowers which are followed by 'seed pods' about 25mm long;
- When mature and dry, the fruits split open explosively if touched, flinging the seeds over 6m away from the parent plant, thus helping the species to quickly spread to new sites;
- In the autumn, the plants die back, leaving the banks bare of vegetation; and
- Shallow roots which can be easily manually uprooted

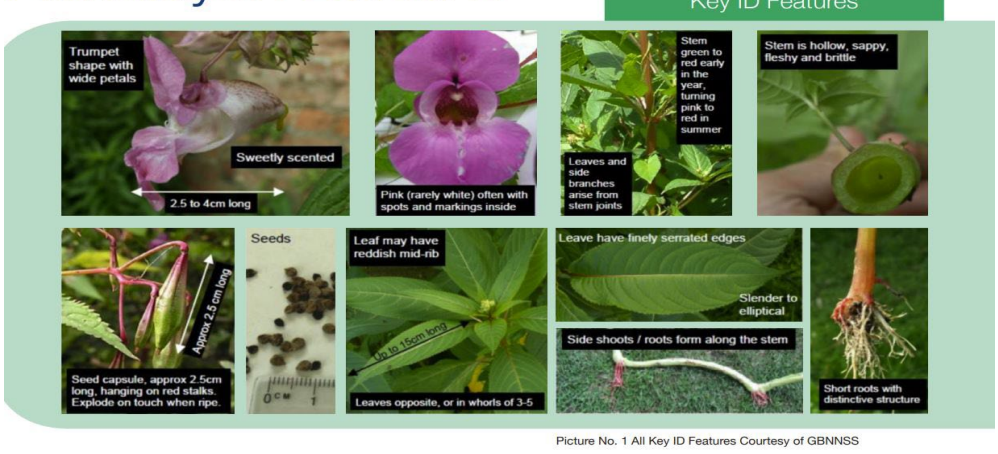

Photo 3: Himalayan Balsam identification

Status

2.9 No stands of Himalayan balsam were found to be present on the site when a re-survey of habitats was undertaken in 2021. No Himalayan balsam has been recorded during previous ecological surveys of the site to inform the outline planning applications for either the Airfields or Northern Gateway sites. However, the plant readily spreads along watercourses and adjacent riparian zones and therefore could colonise the site in the interim.

Section 3: Potential Biosecurity Risks and Mitigation

Risks During Construction Work

3.1 The following biosecurity risks have been identified for the construction phase:

- If either Japanese knotweed or Himalayan balsam have colonised the site in the interim since the habitat survey completed in 2021, then earth movements associated with construction activities could result in their spread;
- If machinery being brought onto site is contaminated with plant matter from invasive plant species it could result in their colonisation on site; and
- In the absence of an appropriate washing down strategy, machinery being used for in-channel works could cause the spread of Chinese mitten crab.

Mitigation During Construction

3.2 The following mitigations will be implemented during the construction phase:

- An updated invasive plant survey will be undertaken during the growing season (spring/summer) prior to any works commencing, to determine if there has been any colonisation of invasive plant species subject to statutory controls on site;

- Should any infestations be identified, an appropriately qualified invasive species contractor will be appointed by the principal contractor to eradicate the stands of knotweed / Himalayan balsam or other non-native invasive species identified during the survey. This will be undertaken using the guidance provided by Welsh government on knotweed Control[2];

- All workers on site during the development phase will be advised during a toolbox talk of the potential presence of Chinese mitten crabs during a site induction, and will be taught how to identify this species;

- All plant or machinery which is used within a watercourse or the adjacent bank zone will be checked for crabs and thoroughly cleaned prior to entering and exiting the watercourse zone. Checking will involve a visual inspection to ensure that no crabs are attached to the machinery. Any Chinese mitten crabs found will be humanely destroyed. All parts of plant and machinery which come into contact with water during the works will be cleaned with water sprays to ensure that any crabs in the planktonic stage are washed off and are not transferred to other areas. Checking and cleaning will be undertaken at the end of each working day, and also when any plant or machinery exit a watercourse and its bank zone; and

[2] The Control of Japanese Knotweed (Fallopia japonica) in Construction and Landscape Contracts Model Specification and Guide to Procurement (Welsh Government 2011).

- Pollution control measures (as detailed within the CEMP) are to be implemented during the construction phase of the development).

Biosecurity Risks and Mitigations During Operation of the Development

3.3 No specific risks are identified. However, The risk of habitats forming part of the Framework Ecological Mitigation Strategy (FEMS) being colonised by invasive plant species will be managed through implementation of Landscape Ecological Management Plans associated with the enabling works associated with each phase.

3.4 No risks associated with Chinese mitten crabs are identified.

Mechanism for delivery

3.5 The above measures will form part of the overall CEMP for the site which will also include an Ecological Compliance Audit (ECA) setting out details for evidencing the implementation of ecological mitigation undertaken during the construction phase of the development.

Appendix 4 - Marine Biosecurity Plan

MARINE BIOSECURITY PLANNING

Guidance for Specific Operation/Construction Related Activities

This document is designed to help guide the development of a biosecurity plan for construction activity. The examples provided are suggestions for consideration and may not be applicable in all scenarios. Separate guidance and templates are also available for creating plans for site based operations, events or estuary wide plans. A template is provided at the end of this document however plans can be in whatever format is most appropriate to the user.

NATURAL ENGLAND
Marine Pathways
Managing marine non-native species
C2W Marine Matters Managed
www.c2w.org.uk

Section 1 – Scene Setting

Your opening section sets the scene for why you are doing a biosecurity plan. You can highlight the concerns the operation raises and set them in the context of the national issues identified by the GB Secretariat. Topics which you should cover in this section include:

- What are Non-Native and Invasive Non-Native Species (INNS)?
- What is Biosecurity?
- What is a Vector or Pathway?
- Abbreviations and Acronyms

Section 2 – Introduction

Here you identify what activity is to be covered, who has responsibility for the Plan and how and when it will be reviewed and updated. Items in this section should include:

- Biosecurity Manager/Officer or responsible person or organisation/group
- Plan duration and review date (longer operations this may be quarterly or annually, shorter operations it will be at the end of the construction period)
- Plan review process
- Location of biosecurity logbook i.e. to record biosecurity actions/review of plan
- Where the activity is going to happen
- What sort of machinery or materials will be used
- Transport routes for machinery and materials
- Critical control points – where machinery and/or materials can be effectively assessed and cleaned

Section 3 - Environmental Information

In this section we delve into more detail about the physical characteristics of the area covered by the Plan. As an operation or activity plan you are mostly concerned about the physical parameters of the donor and receiving areas – for example if you are moving pontoons or a construction barge from Devon to the Clyde you will need to know a little about both areas. Don't be put off at this stage if you are not a trained marine biologist, most information is available online and searches of the relevant marine planning portals or through contact with key agencies (see list at the end of this document) will provide a lot of information. Items to include are:

- ***Site description*** – what sort of area is it? Are you going from hard standing construction site to a fully saline environment or from a sea area to another sea area or river to sea area?
- ***Tidal, salinity, stratification information*** – gather information from users such as shipping organisations which may have salinity data easily to hand.
- ***Sensitive habitats and protected features/areas*** – list any locally protected areas and include information about why they are designated and any concerns noted about the potential impact of INNS.

- ***Known environmental management measures*** – all protected areas will have some management measures in place and/or targets for maintenance of status; use these to inform the development of your plan.
- ***INNS known to be present*** – there may not be a list of INNS for your area already available. However, the Marine Biological Association along with a number of other associations, universities and agencies have compiled lists of known INNS which you may already be aware of. Make contact with these relevant organisations or you can search by area or by species on the National Biodiversity Network/Atlas site. Links at the end of the document.
- ***NNS likely to be of concern (horizon scanning)*** – the GB Secretariat has a list of high alert species but you can also compile your own list. A list of horizon scanning species has also been produced by the Marine Pathways group for Marine Strategy Framework Directive reporting.

Section 4 – Activity risk

Here you will list the major types of activity you will undertake e.g. movement of barges, construction materials etc.

Higher Risk Activities

List the main activities and risks – a list is included below to get you started. Describe the activities in a way which helps to identify the risks associated with them.

Activity	Risk Factors
Construction barges	Use of ballast water Hull fouling Speed of vessels and routes followed. Slower moving vessels from distant ports are higher risk.
Reused Pontoons and other equipment	Pontoons and other equipment will have gathered fouling in the donor area.
Earth/rock movement	It is possible to transfer INNS on these materials.
Dredging	Dredging can disturb and fragment INNS causing them to spread.
Relocation of structures and equipment	Movements or disposal of pontoons, barges, buoys, anchor chains, underwater equipment all have potential to disturb and spread INNS.

Remember to keep this list under review as risk will change over time e.g. with development of different industries or changes in practice.

Section 5 - Biosecurity Actions / Control measures

The type and number of actions you wish to include in your biosecurity plan will vary depending upon the operational parameters and budgets. In the marine environment in general measures will focus on the following aspects of control and awareness raising:

- Clean all structures before they enter the water. Use fresh, hot water if possible. Wash onto hard standing, preferably into an interceptor system. Do not allow any water to return to the sea.
- Remove unneeded man-made structures from the water – in general INNS prefer these structures and removal of the preferred substrate is a useful control measures. This could include temporary removal or moving structures out of the preferred growth zone e.g. removal of mooring buoys in winter to a yard on land and putting the mooring chain to the seabed to smother fouling.
- Air dry – most, if not all, marine and aquatic INNS will be killed by being dried out – identify opportunities to dry out equipment or infrastructure as often as possible e.g. dive kit or dredgers and barges between uses.
- Expose to fresh water – most marine INNS need some degree of salinity to sustain their life cycle – if you can expose them to fresh water by immersion or washing down you will reduce the risk posed by INNS.
- Awareness – most people are unaware of what INNS look like or the threat from them. Your biosecurity actions list could include opportunities for training and dissemination of information e.g. through public signage or ID guides for staff.
- Distribution of responsibility – include conditions in your terms for contractors for example:
    - ✓ The contractor must submit a Biosecurity Risk Assessment for written approval at least 6 weeks prior to commencement of the works.
    - ✓ The contractor must submit an updated Biosecurity Risk Assessment by a relevant date.
    - ✓ The contractor must ensure that all equipment, materials, machinery and PPE used are in a clean condition prior to their arrival on site to minimise risk of introducing INNS into the marine environment.

Section 6 – Monitoring

In this section you should make a list of monitoring/surveillance or survey activities you would like to put in place to ensure that your plan is being followed and risks are minimised. For example you could focus on aspects of compliance such as:

- Have all contractors been supplied with expected biosecurity standards?
- Have all materials and vessels been appropriately cleaned prior to use?
- Has all suspect material been dealt with by disposal to landfill?
- Have any new INNS been identified in your donor or receiving areas since the work was started?

You should also include a section on monitoring for INNS – this would be more relevant to longer projects where barges etc. will be in the water for some time. A routine monitoring regime covering all submerged structures is helpful for identifying any new INNS or those which are spreading.

Section 7 - What to do if there's an incident and who to contact

Things can and do go wrong, sadly your efforts won't work 100% of the time. Think through what you would do if there is the discovery of a high risk INNS. Seek advice on who any INNS should be reported to for support and guidance (see *further information* below). Write a brief set of instructions on what to do and who to contact and include this in your training/briefing session for volunteers before the event starts.

Further information

GB Non-Native Species Secretariat – Non-native species information, Government policy and strategy for management. www.nonnativespecies.org

National Biodiversity Network – Distribution maps and information about species. https://data.nbn.org.uk to be replaced shortly with NBN Atlas www.nbnatlas.org

European Commission - European Alien Species Information Network - EASIN https://easin.jrc.ec.europa.eu/Services/SpeciesSearch and http://ec.europa.eu/environment/nature/invasivealien/index_en.htm and list of Species of Union Concern - http://www.nonnativespecies.org/index.cfm?sectionid=7

Guidance on **Marine Biosecurity planning**

- England and Wales - www.nonnativespecies.org/downloadDocument.cfm?id=1401
- Scotland - http://www.snh.gov.uk/docs/A1294630.pdf
- N Ireland - https://www.daera-ni.gov.uk/articles/invasive-alien-species

Marine Biological Association of the UK – Information on marine species including non-native species. www.mba.ac.uk http://www.marlin.ac.uk/

Bishop Group, Marine Biological Association – Surveys of INNS and information on INNS. www.mba.ac.uk/bishop or www.mba.ac.uk/fellows/bishop-group or email cwo@mba.ac.uk

DEFRA - http://jncc.defra.gov.uk/page-5150

DASSH (The Archive for Marine Species and Habitats Data) - www.dassh.ac.uk/

MARINE BIOSECURITY PLAN FOR_____

1. Scene setting

- **What are Invasive Non-Native Species (INNS)?** *E.g. Invasive Non-Native Species are those that have been transported outside their natural range and that damage our environment, the economy, our health and the way we live.*

- **What is Biosecurity?** *E.g. Biosecurity means taking steps to make sure that good practices are in place to reduce and minimise the risk of spreading invasive non-native species. A good biosecurity routine is always essential, even if invasive non-natives are not always apparent.i*

- **What is a Vector or Pathway?** *E.g. These are the means by which a species is moved from place to place due to human activity.*

Abbreviations and Acronyms

Examples	
DEFRA	*Department for Environment, Food and Rural Affairs*
GB NNSS	*GB Non-Native Species Secretariat*
GES	*Good Ecological Status (within WFD) or Good Environmental Status (MSFD)*
INNS	*Invasive Non-Native Species*
MSFD	*Marine Strategy Framework Directive*
WFD	*Water Framework Directive*

2. Introduction

- **Biosecurity Manager/Officer or responsible person or organisation/group:**
- **Plan duration and review date:**
- **Plan review process:**
- **Location of biosecurity logbook:**
- **Location of activity:**
- **Machinery or materials to be used:**
- **Transport routes for machinery and materials:**
- **Critical control points:**

3. Environmental information:

Site description
Tidal, salinity, stratification information
Sensitive habitats and protected features/areas
Known environmental management measures
Condition assessment (if available)
INNS known to be present
INNS likely to be of concern (horizon scanning)

4. Activity risk

Activity	Risk Factors

5. Biosecurity Actions/Control Measures

Who	Biosecurity Action

6. Monitoring

7. Contingency plan

Responsibilities:

Contact details:

Appendix 5 - Tree Protection and Removal Plan

KEY

NORTH

THIS DRAWING IS BASED ON FOLLOWING DOCUMENTS:

- BCA LANDSCAPE ARCHITECT'S TREE SURVEY DRG.NO. 1973-19-01+02+03+04+05

REFER TO BB TREES LTD PRE DEVELOPMENT TREE SURVEY DATED JUNE 2019 FOR DETAILS OF EXISTING TREES.

REFER TO BB TREES LTD ARBORICULTURAL ANALYSIS DATED JUNE 2019

TREE LOCATIONS SHOWN ARE BASED ON INFORMATION PROVIDED BY GREENHATCH SURVEYS

THIS DRAWING HAS BEEN PREPARED IN ACCORDANCE WITH BS5837:2012.

ROOT PROTECTION ZONE: Area of hatching around protected trees indicates the minimum Root Protection Area required in accordance with BB TREES LTD Arboricultural Analysis dated JUNE 2019.

PROTECTIVE BARRIER: Existing trees to be retained shall be protected by protective barrier erected in accordance with the specification figure 2 of BS5837:2012. Barrier to be erected on the edge of the root protection area for each tree to be protected. To be erected prior to the commencement of any construction works on site.

T13 EXISTING TREES TO BE TO BE RETAINED AND PROTECTED AS PART OF THE PROPOSALS

T8 EXISTING TREES TO BE REMOVED AS PART OF THE DEVELOPMENT TO FACILITATE CONSTRUCTION

PROPOSED WILDFLOWER REINSTATEMENT TO BANKS (300mm depth of subsoil)

SITE BOUNDARY

G14

T15

CYCLE ROUTE

Refer to SGI drawing Ref: C 1242/441 for detail of easement and headwall

RIVER DEE

G14

REV NOTE DATE AUTH

BCA BARRY CHINN associates
Landscape Architects

CLIENT
INDUSTRIE CARTARIE TRONCHETTI UK LIMITED

PROJECT
ICT UK, PLOT C, AIRFIELDS

DRAWING
TREE REMOVAL PLAN - RIVER DEE OUTFALL

CONTRACT 2187-21			DRG NO. 05
DATE 23-08-2021		DRAWN HC	
ISSUE PRELIMINARY		CHECKED DR	
SCALE 1:1000		ORIG SHEET A1	REV -
CAD FILE 2187-21-05 - Tree Removal.dwg			

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