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Natural Resources Wales
Llyn Tegid Reservoir Safety Project

Environmental Action Plan

November 2019

Version 2

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Project Name	Llyn Tegid Reservoir Safety Project
Project 1B1S Reference	
Region and Area	Llyn Tegid, Bala, North Wales
Date	November 2019
Version Number	2
Author(s)	David Johnson

Revision History

Revision Date	Summary of Changes	Author(s)	Version No.
21/11/19	Revisions following NRW review; issued for public consultation	David Johnson	2

EAP Approvals

Name	Signature	Title	Date	Version

Distribution

Name	Title	Date	Version

Purpose

This Environmental Action Plan (EAP) summarises the actions and requirements identified in relation to the modifications to the existing water impounding structures at Llyn Tegid, following an Environmental Assessment of the proposal. It sets out specific objectives and targets defining the way in which we wish the findings to be addressed during the works. It also details roles and responsibilities of those involved in the project. The EAP should be read in conjunction with the appended Environmental Constraints and Opportunities Plans 1-4 (drg no. 122918-BVL-Z0-00-DR-I-00011 to 00014 and Environmental Constraints and Opportunities Record (file no. 122918-BVL-Z0-00-RP-I-00005).

This EAP follows NRW guidance as an example of best practice for addressing environmental risks. It will form the basis of any future contract documentation and must be adhered to at all times.

Roles

Each action in the table below has **one** named person who is responsible for ensuring that the action is implemented. It is ultimately the contractor's responsibility for ensuring the EAP commitments are delivered.

The contractor is also responsible for implementing good environmental practice on site, in line with their own EMS. Typical issues include:

- Any working hour restrictions
- Dust suppression measures
- Traffic management
- Pre-construction and post-construction recording of highway and footpath conditions; carry out remedial repairs if necessary
- Site waste management
- Materials management
- Maintenance of the carbon calculator
- Vehicle maintenance and management
- Pollution prevention and control (including NRW/Environment Agency Pollution Prevention Guidelines (PPGs) for storage, refuelling and incident response¹); silt traps will be deployed upstream and downstream if necessary
- Adherence to 'Code of Considerate Practice' under the Considerate Contractors Scheme
- Response procedures, e.g. services strike, contaminated land
- Hazardous materials handling and storage
- Noise management
- Securing and delineation of working areas including signage and fencing

¹ Although Pollution Prevention Guidelines has been officially withdrawn, and as such are no longer being updated, they are still considered to provide useful guidance for developers.

- Keeping construction sites clean and tidy during the works, including no storage of material outside of pre-defined working areas
- All waste to be removed and sites to be left clean and tidy at the end of the works. All temporary works removed and areas reinstated to as good a condition as previously, including reinstatement of any vegetation if required.

Consents and Licenses

Planning permission from Snowdonia National Park Authority, and a Flood Risk Activity Permit (FRAP) are required from NRW to undertake the works. Supporting these consents will be an Environmental Constraints and Opportunities Record and a Design and Access Statement (planning permission), a Habitats Regulations Assessment (HRA) using NRW OGN 200 Form 1 (planning permission, FRAP and SSSI Assent), and a WFD Compliance Assessment (planning permission and FRAP), all of which will be submitted to NRW Protected Sites Team for approval.

Environmental Compliance Audits

The appended template should be used when undertaking any site audits during construction. Such audits can be undertaken by EAT Environmental Project Managers (EPM), Environmental Clerk of Works (ECW) or delegated to other individuals as appropriate; the timing and frequency of these is to be confirmed. Technical assistance can be obtained from functional staff as appropriate. Environmental compliance audits can potentially highlight good practice and can be separate to the review of EAP actions as undertaken in progress meetings. They do not replace the regular checks undertaken by the project team during the works; no set template has been provided for this.

Environmental Incident Reporting system

All environmental incidents must be reported to the NRW Incident Hotline 0800 80 70 60 at the earliest opportunity and then (where present) to the Project Manager, Site Supervisor and NRW Project Managers. In addition, near misses must be reported via the hotline where there was/is the potential for a significant impact and where lessons can be learned.

Initial reports for such incidents and near misses must be followed by a written report using the contractor's in-house forms. This must include the following information:

- Project/location
- Date
- Contractor
- National Incident Recording System (NIRS) reference number
- Details of what happened
- Cause of incident
- Lessons learned

This final and comprehensive investigation report is to be provided by the Contractor to (where present) the Project Manager, NRW Project Manager, NRW Environmental Project Manager and Safety, Health and Environment Manager within 14 days.

Summary of scope of works

This EAP includes actions required to undertake the modifications to the existing water impounding structures at Llyn Tegid, which will involve the following work:

Protection of the River Dee embankment (left bank).

- A berm up to 6m wide will be installed on the downstream / dry side toe along some sections of the embankment, increasing the ground levels typically by 300-400mm. The extents of this are shown on the design drawings.
- Embankment protection will consist of a 3D geotextile membrane installed under the topsoil surface on the downstream / dry side of the embankment, upon completion the surface will be grassed as existing. The protection will extend over the berm where present, or otherwise approximately 2m beyond the existing embankment toe line.

Protection of the northern lake (Llyn Tegid) embankment:

- A berm up to 6m wide will be installed on the downstream / dry side toe along some sections of the embankment, increasing the ground levels typically by 300-400mm. The extents of this are shown on design drawings.
- Embankment protection will consist of a 3D geotextile membrane installed under the topsoil surface on the downstream / dry side of the embankment, upon completion the surface will be grassed as existing. The protection will extend over the berm where present, or otherwise approximately 2m beyond the existing embankment toe line.
- 'Rip rap' works: the existing slate stone rip-rap protecting the upstream (wet side) of the embankment will be removed and replaced with imported granite (or similar) stone, while existing granite will be re-used. The removed slate will be reprocessed for use elsewhere on the site where possible, such as for infilling the bandstand area, constructing the berm or resurfacing the overflow car park. Proportionally the imported stone will make up approximately 80%-100% of the overall stone rip-rap. Visually this face of the bank will become harder (existing vegetation to be removed) and the stone will be 'rougher' / more angular, as required to improve performance in reducing wave energy.
- Realignment of the embankment at the 'bandstand', currently the alignment causes a concentrating effect of wave energy increasing stress on the embankment during storm events. This will result in some incursion into the ecologically designated lake foreshore (SSSI, SAC and Ramsar).

Environmental mitigation:

- Tree and hedgerow planting will be delivered to mitigate for the tree and hedgerow clearance works.
 - More trees will be planted than are removed.
 - The species used will be native to the area and similar to those removed.
 - Replacement planting will focus on replacing the ecological function and value of the existing tree lines, with the aim to ensure no net loss in ecological resilience or connectivity.
- Management and removal of invasive non-native plant species from the lakeshore and river embankments.

Environmental enhancements:

- Existing footpaths along the lake embankment (i.e. the PROW 'Y Bala Rhif 4'), River Dee embankment and Afon Tryweryn embankment (i.e. the PROW 'Y Bala Rhif 1'), will be improved in relation to good practice guidance for accessibility, including 'By all Reasonable Means' (BARM) (NRW, 2017), and the British Standard 'BS 8300-1:2018 - Design of an accessible and inclusive built environment (Part 1 – External Environment)'. These works have been informed by a comprehensive Access Audit for the works area, undertaken in accordance with BS8300-1 and BARM. Further details of these access improvements are provided below:
 - Y Bala Rhif 4 is currently surfaced with tarmac, and will be re-surfaced in tarmac, with regularised levels, improved surface quality (eliminating existing problems of tree roots damaging / uplifting surfacing), and reducing gradients where possible
 - Y Bala Rhif 1 is currently surfaced with unbound stone, and will be resurfaced in tarmac, to a consistent 2m width
 - Pedestrian access control barriers, where present within the construction area, will be removed where practical to do so, or replaced with more accessible solutions where possible
 - Additional waymarker signage and seating will be provided for users of the PROWs
 - Where ramps branch off the PROWs to provide access to the lake foreshore and other adjacent spaces, the gradients and widths of these will be optimised as much as possible, within site constraints
 - An improvement will be delivered in terms 'clear walking tunnel' requirements, i.e. BS8300-1 and BARM specify vertical and horizontal clear space requirements for accessible routes, which are currently not achieved along Y Bala Rhif 4 due to low and overhanging branches; as a consequence of the required vegetation clearance works Y Bala Rhif 4 will become compliant with both BS8300-1 and BARM in this respect.
- Focus is given to footpath and access improvements between Penllyn Leisure Centre and the lakeshore car park, as a particularly popular and intensively used area, exploiting the benefits of the more open views created by the scheme. The open space to the south of the leisure centre will be enhanced with new hard and soft landscaping, new seating, and improved steps and ramped access; linked to this an existing ramp to the foreshore will be re-aligned and reconstructed to a significantly reduced gradient.
- The lakeshore overflow car park (adjacent the Bala Adventure & Watersports building) is to be re-organised and re-surfaced, with a more efficient and formalised layout designed to optimise parking capacity within reduced hard surfacing. There will be a net increase in soft landscape / decrease in hard surfacing as a result, delivering visual enhancements as well as practical improvements through a semi-formal layout.
- Associated with the re-organisation of the lakeshore overflow car park, areas of wetland habitat within the protected SAC/Ramsar site, which are currently in sub-optimal condition due to compaction from vehicles, will be protected from further compaction enabling improvement to habitat condition.
- Changes in grassland management to encourage greater floristic species diversity.
- Installation of interpretative signage at key locations.
- Integration of community artwork with the creation of a series of features carved from felled timber, using a local artist to create a locally meaningful narrative.

Works are proposed to start in late 2020 and will take up to 2 years to complete.

Relevant contact details

NRW Project Sponsor	James Williams 03000 653912
NRW Project Executive	Scott Squires
NRW Project Manager	Matthew Jenkins 0300 065 3274 / 07584 461248
NRW EAT Officer	Laura Cotton 03000 654524 / 07786 110135
NRW Operations	Llyr Jones 03000 653618 / 07468 742778
ECW	TBC
Contractor	TBC
Site Supervisor	TBC
Design Consultant	Black & Veatch

ENVIRONMENTAL ACTION PLAN							
Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
A - Prior to Construction							
1 – Human Population							
A1.1	To communicate information about the proposed works	<i>Obtain agreement for the works from landowners and keep them informed of the programme, likely impacts and duration of the works. Provide contact details for queries.</i>	NRW PM				
		<i>Notice of entry to be issued at least 7 days before the works begin.</i>	NRW PM				
		<i>Notifications to neighbouring residents / businesses as required. Note: there are a number of neighbouring land uses in close proximity to the embankment which could be affected by works, including Bala rugby club, watersports centre, leisure centre and cafes with associated car parking and access requirements.</i>	NRW PM				
A1.2	To minimise impact to users of public rights of way, permissive paths, open spaces and recreation uses	<i>Plan construction works to minimise temporary closures of public rights of way and permissive paths.</i>	Contractor	<i>Environmental Constraints and Opportunities Plan 1 (122918-BVL-Z0-00-DR-I-00011)</i>			
		<i>Identify key constraints on the timing of construction works to reduce environmental impacts, avoid conflicts with tourism and leisure users, and local events and include these in works information and contract.</i>	NRW		Construction planned to commence in late 2020 (after peak tourist season) and take up to 2 years to complete. Local events to consider when planning timing of works and communications with organisers include:		

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					<ul style="list-style-type: none"> Bala Big Bash (triathlon and open water swimming event) – June (possibly moving to September 2020) Bala Big Swim – early June Wild Wales Cycling Challenge – late August Wales Rally GB – late October Park Run – held every Saturday along Y Bala Rhif 1 from Tryweryn Bridge to Dee Bridge 		
		<i>Develop Publics Right of Way Management Plan (or similar) to describe closures and diversions and how these are to be managed to ensure they remain safe to use and disruption to users is minimised.</i>	<i>Contractor</i>				
		<i>Establish notices detailing works to be carried out in the area.</i>	<i>Contractor</i>				
		<i>Apply for and obtain temporary and permanent footpath closures/diversions as required.</i>	<i>Contractor</i>				
2 - Flora and Fauna							
A2.1	To avoid impacts on nesting birds	<i>Plan vegetation clearance to take place outside of the peak nesting season (March to September inclusive).</i>	<i>Contractor</i>	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>	Construction planned to commence in late 2020 (outside of nesting season)		
A2.2	To avoid impacts on roosting bats	<i>Plan tree felling/ clearance to be undertaken during winter months</i>	<i>Contractor</i>		The majority of trees to be felled are of negligible bat roost potential. There will		

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		<i>(November to January) to reduce risk of encountering bats. Trees with high bat roost potential to be inspected immediately prior to and/or supervision during felling.</i>	<i>Bat licenced ecologist</i>	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i> <i>Bat Roost Potential Survey Report (122782-BVL-Z0-00-RP-I-00010)</i> <i>Bat Survey Report (Egniol Environment, 2019)</i>	be approx. 16 trees of low bat roost potential, approx. 14 of moderate bat potential and approx. 1 of high bat roost potential which are due to be felled.		
		<i>Apply for a European Protected Species Licence for the entirety of the works to include method statement detailing how impacts on bats will be reduced.</i>	<i>B&V</i>				
		<i>In the event that construction is delayed and tree felling/ clearance is not due to commence before January 2021 then bat surveys would need to be repeated.</i>	<i>Contractor</i> <i>Bat licenced ecologist</i>				
A2.3	To avoid impacts on nocturnal animals (bats, hedgehogs, badgers and otters)	<i>Plan for no night time working to reduce impacts on nocturnal mammals. If unavoidable (e.g. at dusk on short days), plan to use sensitive directional lighting where necessary to ensure no light spill into adjacent habitats.</i>	<i>Contractor</i>	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			
A2.4	To avoid impact on Reptiles	<i>Reptile checks to be undertaken by ecologist prior to, and during, removal of rip rap stone, as directed by the Ecological Clerk of Works (ECoW) on site. If found, to be moved by ECoW to a suitable location nearby. Removal of rip rap should be undertaken outside of the hibernation period (generally Nov-Feb depending on temperatures.</i>	<i>Contractor</i> <i>ECoW</i>	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			

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		<i>Update EAP as required.</i>					
A2.5	To avoid impact on Otters (SAC Designated feature 5)	<i>Undertake pre-construction survey for evidence of otter. If evidence is found and the works will cause destruction or disturbance of a holt or resting place then further mitigation work may be required, ranging from a licence to an inspection of the sites each morning to ensure that otters have left the area.</i>	<i>ECoW Contractor</i>	<i>Environmental Constraints Plan 2 (122918-BVL-ZO-00-DR-I-00012)</i>			
A2.6	To avoid impacts on Badgers	<i>Undertake pre-construction check of construction compound area to ensure no new setts have been created close to the proposed works.</i>	<i>ECoW</i>	<i>Phase 1 Habitat Survey (122918-BVL-ZO-00-DR-I-00007)</i>	<i>No badger setts or signs observed during Phase 1 Habitat Survey (BVL, 2019), but habitats suitable to support badgers.</i>		
A2.7	To avoid impacts to marginal vegetation (Ramsar criterion 2)	<i>Undertake pre-construction check, during appropriate growing season, of Llyn Tegid foreshore within marginal vegetation areas for the plants mudwort <i>Limosella aquatica</i>, six-stamened waterwort <i>Elatine hexandra</i>, water sedge <i>Carex aquatilis</i>. If any plants found then reasonable avoidance measures to be made to avoid disturbing plants. If cannot be avoided then mitigation will be agreed with NRW, potentially including translocation where suitable.</i>	<i>ECoW</i>	<i>Habitats Regulations Assessment (122918-BVL-ZO-00-RP-I-00001)</i>			
A2.8	To avoid impacts to various aquatic flora (SAC designated feature 1)	<i>Plan construction to prevent surface runoff into SAC watercourse through the use of silt fencing in key areas.</i>	<i>Contractor</i>	<i>Habitats Regulations Assessment (122918-BVL-ZO-00-RP-I-00001)</i>			

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A2.9	To avoid unnecessary loss and damage of trees	Plan construction works to avoid root protection areas (RPA) of trees to be retained where possible in accordance with provisions of BS5837:2012. Install Tree Protection Fencing in accordance with the Tree Protection Plan (Tree Solutions, 2019) prior to commencement of construction.	Contractor	Arboricultural Impact Assessment and Preliminary Tree protection Plans (Tree Solutions, 2019) Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)			
A2.10	To avoid impacts to trees, hedgerow and hedgerow ecology around construction compound field boundaries	Plan construction compound to include a buffer zone around boundaries of fields to protect tree protection zones, hedges, ditches and unmanaged grass strips. Encroachment into the buffer zones to be prohibited at all times.	Contractor	Phase 1 Habitat Survey Report for additional site areas and validation (BVL, 2019)			
A2.11	To prevent the spread of invasive non-native species (INNS) (plants)	Develop species specific method statements for the management and treatment of invasive species in accordance with the Invasive Species Management Plan, including for pre-construction survey, treatment, management and removal of Himalayan balsam and Japanese knotweed.	Contractor EcCoW	Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005) Invasive Species Management Plan (BVL, 2019)			
A2.12	To prevent the spread of invasive non-native species (INNS) (aquatic invertebrates)	Plan construction works to adhere to best practice biosecurity requirements to reduce risk of introducing aquatic invertebrate invasive species into the area.	Contractor	Check, Clean, Dry campaign (http://www.nonnativespecies.org/checkcleandry/biosecurity-for-everyone.cfm) Invasive Species Management Plan (BVL, 2019)			

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A2.13	To prevent the spread of disease including ash die back and elm disease	Prepare Biosecurity Risk Assessment for works affecting trees with potential to have ash die back or elm disease. Plan works to ensure provision for cleaning equipment and machinery prior to entry to and exit from site.	Contractor				
3 - Landscape and Visual							
A3.1	To plan for landscape reinstatement	Produce reinstatement plans detailing specifications and locations for new and replacement landscape planting.	B&V	Landscape Masterplan (in progress)			
		To ensure new and replacement landscape planting establishes where possible protect areas identified for landscape planting from compaction and contamination during construction.	Contractor	Tree Management Plan (in progress)			
A3.2	To record the condition of the site prior to any works being undertaken	Undertake a pre-works condition survey (including photos) of works area and access routes.	Contractor				
4 - Traffic and Transport							
A4.1	To minimise disruption to traffic and pedestrians	Develop Traffic Management Plan (TMP) to include requirement for all construction traffic to avoid travelling through the centre of Bala.	Contractor				
A4.2	To maintain quality of local roads and footways	Undertake pre-works condition audit of sections of B4391 and Tegid Street which will be used to access the site.	Contractor				
5 - Material and Waste							

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Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
A5.1	To minimise the amount of waste taken to landfill and ensure compliance with legal controls	<i>Prepare a Site Waste Management Plan (SWMP) to consider the waste types and quantities that are likely to be produced during the course of the project, with management actions including re-use, recycling, recovery and disposal, and a declaration that waste will be managed appropriately and in accordance with the Duty of Care.</i>	<i>Contractor</i>				
		<i>Plan re-use of slate stone rip-rap on site, such as for infilling the bandstand area, constructing the berm or re-surfacing the overflow car park.</i>	<i>Contractor</i>	<i>Leisure Centre Enhancement Plan (122918-BVL-ZO-00-DR-L-00003)</i> <i>Car Park enhancement Plan (122918-BVL-ZO-00-SK-L-00002)</i>			
6 - Soils, Geology, Water and Hydrogeology							
A6.1	To minimise pollution risk to soils, water and groundwater	<i>Produce a Pollution Incident Response Plan (PIRP) for adherence throughout construction, which will include pollution prevention measures including:</i>	<i>Contractor</i>				
		<ul style="list-style-type: none"> - <i>Use biodegradable oil within hydraulic parts of vehicles working near the water course</i> - <i>Ensure all high risk activity occurs away from the river and lake foreshore (e.g. re-fuelling)</i> 					
		<i>Plan works to avoid tracking through watercourses. If unavoidable,</i>	<i>Contractor</i>				

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Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
		<i>particularly along lake foreshore when lake levels are high, permission is to be sought from NRW prior to tracking through watercourse.</i>					
7 – Planning and Permitting							
A7.1	<i>To obtain and comply with all necessary consents</i>	<i>Obtain planning permission from Snowdonia National Park Authority</i>	<i>B&V</i>				
		<i>Discharge any pre-commencement planning conditions before starting work</i>	<i>Contractor</i>				
		<i>Obtain Flood Risk Activity Permit for the permanent works</i>	<i>NRW</i>				
		<i>Obtain Flood Risk Activity Permit for the temporary works</i>	<i>Contractor</i>				
		<i>Obtain SUDs approval from Gwynedd Council</i>	<i>NRW</i>				
A7.2	<i>To comply with all consent conditions</i>	<i>Update the EAP to include any conditions of the Planning Permission and Flood Risk Activity Permit.</i>	<i>B&V</i>				
8 – Archaeology and Cultural Heritage							
A8.1	<i>To avoid impacts to potentially historic wall</i>	<i>Plan for removal of section of stone wall, to form access to main construction compound off Tegid Street, to be done by hand under archaeological watching brief.</i>	<i>Contractor</i>				

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Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
		<i>Consult with Gwynedd Archaeological Trust to confirm level of reporting required.</i>	NRW				
B – During Construction							
1 - Human Population							
B1.1	To communicate information about the proposed works	<i>Establish onsite information boards and signs immediately before works commence. Signage should include a contact name and telephone number for the site supervisor during normal working hours.</i>	Contractor				
		<i>Keep neighbouring residents / businesses informed of progress and changes throughout the construction period.</i>	NRW				
B1.2	To minimise impact to users of public rights of way, permissive paths, open spaces and recreation uses	<i>Ensure safe public access to and along Public Rights of Way and permissive paths is maintained throughout the works. Adhere to Publics Right of Way Management Plan developed at Clause A1.2.</i>	Contractor	<i>Publics Right of Way Management Plan (Clause A1.2)</i> <i>Environmental Constraints and Opportunities Plan 1 (122918-BVL-Z0-00-DR-I-00011)</i>	<i>Gwynedd Council is the Highways Authority - Contact Liz Haynes 01341 424430</i>		
		<i>Works to be suitably fenced or signed and supervised by a banksman at all times in order to ensure the safety of members of the public.</i>	Contractor with ECW				

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Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
		<i>Ensure all excavations are backfilled or fenced overnight and all equipment securely stored.</i>	<i>Contractor</i>				
B1.1	Undertake works during sociable hours	<i>Works, particularly noise generating works, to be restricted between 8am and 6pm. Any works outside of these hours must be agreed with SNP's Environmental Health Officer.</i>	<i>Contractor</i>				
B1.2	To maintain access to properties, businesses and local amenities	<i>Ensure adequate and safe access is maintained to all properties and businesses during the work.</i>	<i>Contractor</i>				
2 - Flora and Fauna							
B2.1	To avoid impacts on nesting birds	<i>Undertake all vegetation clearance outside of peak nesting season (March to September inclusive). Where vegetation is strimmed back to dissuade nesting birds regular re-strimming is required to prevent vegetation becoming suitable for nesting birds. <i>In the event an active nest is found then works will need to stop within a buffer zone as defined by the ECoW until the young have fledged.</i></i>	<i>Contractor with ECoW</i>	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			
B2.2	To avoid impacts on roosting bats	<i>Working under bat licence, remove high bat roost potential trees under supervision of an experienced bat ecologist (with class licence 2 or above), including close inspection and/or</i>	<i>Contractor with suitably qualified ecologist</i>	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			

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Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
		<i>sectional felling to ensure no bats are affected.</i>		<i>Bat Roost Potential Survey Report (122782-BVL-Z0-00-RP-I-00010)</i> <i>Bat Survey Report (Egniol Environment, 2019)</i>			
B2.3	To avoid impacts on nocturnal animals (bats, hedgehogs, badgers and otters)	<i>If night time working is unavoidable (e.g. at dusk on short days), use sensitive directional lighting and ensure no light spill into habitats.</i> <i>Ensure all excavations are backfilled overnight, or a means of egress provided, and all equipment and waste is securely stored or removed from site overnight.</i>	Contractor	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			
B2.4	To avoid impact on Reptiles	<i>Reptile checks to be undertaken by ecologist/ECoW prior to, and during, removal of rip rap stone, as directed by ECoW on site. If found, to be moved by ECoW to a suitable location nearby.</i>	Contractor with ECoW	<i>Clause A2.4</i> <i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			
B2.5	To avoid impacts on Otters (SAC Designated feature 5)	<i>Comply with actions identified at Clause A2.5.</i> <i>Undertake species specific toolbox talk of good construction practice in relation to otters.</i>	ECoW	<i>Environmental Constraints and Opportunities Record (122918-BVL-Z0-00-RP-I-00005)</i>			
B2.6	To avoid impacts on Badgers	<i>Comply with actions identified at Clause A2.6.</i>	ECoW	<i>Phase 1 Habitat Survey (122918-BVL-Z0-00-DR-I-00007)</i>			

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Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
		<i>In the event a badger sett is found an exclusion zone will be established as defined by the ECoW.</i>					
B2.7	To avoid impacts to marginal vegetation (Ramsar criterion 2)	<i>Comply with actions identified at Clause A2.7.</i>	<i>ECoW</i>	<i>Habitats Regulations Assessment (122918-BVL-ZO-00-RP-I-00001)</i>			
B2.8	To avoid impacts to various aquatic flora (SAC designated feature 1)	<i>Comply with actions identified at Clause A2.8.</i>	<i>Contractor / ECoW</i>	<i>Habitats Regulations Assessment (122918-BVL-ZO-00-RP-I-00001)</i>			
B2.9	To avoid unnecessary loss and damage of trees	<i>Comply with actions identified in Clause A2.9.</i>	<i>Contractor</i>	<i>Arboricultural Impact Assessment and Preliminary Tree protection Plans (Tree Solutions, 2019)</i> <i>Environmental Constraints and Opportunities Record (122918-BVL-ZO-00-RP-I-00005)</i>			
B2.10	To avoid impacts to trees and hedgerow around construction compound field boundaries	<i>Comply with actions identified in Clause A2.10.</i>	<i>Contractor</i>				
B2.11	To prevent the spread of invasive non-native species (INNS) (plants)	<i>Comply with Invasive Species Management Plan and species specific method statements developed in Clause A2.11.</i>	<i>Contractor</i>	<i>Invasive Species Management Plan (BVL, 2019) and Clause A2.10</i>			
B2.12	To prevent the spread of invasive non-native species	<i>Comply with best practice biosecurity requirements identified in Clause A2.12.</i>	<i>Contractor</i>	<i>Check, Clean, Dry campaign (http://www.nonnativespec)</i>			


ENVIRONMENTAL ACTION PLAN							
Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
	<i>(INNS) (aquatic invertebrates)</i>			ies.org/checkcleandry/biossecurity-for-everyone.cfm			
B2.13	To prevent the spread of disease including ash die back and elm disease	Adhere to Biosecurity Risk Assessment developed at Clause A2.13, ensuring all machinery and equipment is clean and free from soil/mud, leaf litter and plant matter prior to entry to and exit from site.	Contractor	Clause A2.13			
3 - Landscape and Visual							
B3.1	To replace tree and hedgerow removed and provide enhancements	Adhere to Landscape Masterplan and landscape reinstatement plans produced at Clause A3.1.	Contractor	Landscape Masterplan (in progress) Tree Management Plan (in progress)			
B3.2	To maintain an acceptable site appearance during the construction period	Maintain the working areas in a tidy and orderly manner throughout the construction period. Maintain a photographic record of works locations and access routes throughout construction.	Contractor				
4 - Traffic and Transport							
B4.1	To minimise disruption to traffic and pedestrians	Comply with TMP (Clause A4.1). All site workers to use official access routes as defined in the TMP and avoid travelling through the centre of Bala.	Contractor				
B4.2	To maintain quality of local roads and footways	Monitor condition of sections of B4391 and Tegid Street used for construction traffic and clean/sweep and repair as	Contractor				

ENVIRONMENTAL ACTION PLAN							
Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
		<i>necessary.</i>					
5 - Material and Waste							
B5.1	To minimise the amount of waste taken to landfill and ensure compliance with legal controls	<i>Adhere to SWMP and update regularly. Undertake regular audits of SWMP and undertake corrective actions accordingly.</i>	<i>Contractor</i>	<i>Site Waste Management Plan (Clause A5.1).</i>			
B5.1	To ensure appropriate management of excavated material	<i>Excavated material to be stored on a geo-membrane and suitably contained to prevent entry into the watercourse.</i>	<i>Contractor</i>				
6 - Soils, Geology, Water and Hydrogeology							
B6.1	To avoid impacts from pollution on soils, water and groundwater	<i>Adhere to PIRP developed at Clause A6.1) to ensure pollution control during construction. Plan works to avoid spills and silt runoff. Any spills or leaks which occur during the operation are to be immediately reported to the NRW project manager.</i>	<i>Contractor</i>	<i>PIRP (Clause A6.1)</i>			
		<i>Seek permission from NRW if tracking through watercourse is required.</i>	<i>Contractor</i>				
7 - Planning and Permitting							

ENVIRONMENTAL ACTION PLAN							
Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
B7.1	To comply with all consent conditions	<i>Comply with conditions of planning permission and Flood Risk Activity Permit.</i>	<i>Contractor</i>				
8 – Archaeology and Cultural Heritage							
B8.1	To avoid impacts to potentially historic wall	<i>Section of stone wall to be removed by hand under archaeological watching brief. Materials to be stored in a suitable location on site to avoid damage to stones.</i>	<i>Contractor</i>				
C – Post Construction							
1 – Human Population							
N/A							
2 - Flora and Fauna							
C2.1	To ensure marginal vegetation (Ramsar criterion 2) re-establishes	<i>Post construction monitoring of marginal vegetation areas affected during construction to ensure plants re-establish.</i>	<i>NRW</i>	<i>Clause A2.7 Habitats Regulations Assessment (122918-BVL-ZO-00-RP-I-00001)</i>			
C2.2	To prevent the spread of invasive non-native species (INNS) (plants)	<i>NRW to inspect works area following the completion of works and treat any INNS (hand pulling Himalayan balsam early summer and spraying Japanese knotweed if it occurs).</i>	<i>NRW</i>				
3 - Landscape and Visual							

ENVIRONMENTAL ACTION PLAN							
Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
C3.1	To ensure hedgerow and tree planting establishes	<i>Establish a five-year planting maintenance programme, including for new planting to be replaced if it does not establish.</i>	<i>NRW PM</i>	<i>Landscape Masterplan</i>			
C3.2	To reinstate access and working areas	<i>Ensure all working areas, construction compound and access routes are reinstated back to pre-works condition or better.</i> <i>Undertake a post-works condition survey (including photos) of all areas.</i>	<i>Contractor</i>				
4 - Traffic and Transport							
C4.1	To maintain quality of local roads and footways	<i>Undertake a post-works condition audit of sections of B4391 and Tegid Street used during construction. Restore to previous condition or better in accordance with findings of pre-works audit (Clause A4.2).</i>	<i>Contractor</i>				
5 - Materials and Waste							
C5.1	Leave no waste on site	<i>Remove waste from site as per SWMP (clause A5.1).</i>	<i>Contractor</i>	<i>SWMP (EAP clause A5.1).</i>			
6 - Soils, Geology, Water and Hydrogeology							
N/A							
7 – Planning and Permitting							
C7.1	To comply with all necessary consents	<i>Discharge any post-construction planning conditions.</i>					

ENVIRONMENTAL ACTION PLAN							
Ref. No.	Objective	Action	Responsibility	Ref. to Additional Information	Further Action / Comments	Sign Off	Date of Revision
8 – Archaeology and Cultural Heritage							
C8.1	<i>To avoid impacts to potentially historic wall</i>	<i>Stone wall to be reconstructed by hand as part of reinstatement of main construction compound.</i>	<i>Contractor</i>				

	<h2 style="color: #0070C0;">Environmental / Landscape Clerk of Works (ECoW / LCoW) Report</h2>	Report No: **																		
Project: Contractor: NRW Project Manager:	ECoW / LCoW: Date: NRW Environmental Advisor:																			
Site Progress: (Brief description of works undertaken on site since previous ECoW / LCoW visit, also ref site conditions.)																				
<ul style="list-style-type: none"> • 																				
<p>Environmental Aspects / Matters Arising: (Consideration should be given to following environmental receptors and performance management measures – only need to reference when relevant. Record should include incidences where contractor has introduced positive environmental measures as well as where they have failed to deliver adequate measures).</p> <p>Environmental Receptors:</p> <table border="0" style="width: 100%;"> <tr> <td>1. Human Beings</td> <td>5. Water, Land Use</td> <td>9. Soil, Geology and Hydrogeology</td> </tr> <tr> <td>2. Flora and Fauna</td> <td>6. Cultural Heritage</td> <td>10. Use of Natural Resources</td> </tr> <tr> <td>3. Air and Climate</td> <td>7. Archaeology and Material Assets</td> <td></td> </tr> <tr> <td>4. Landscape and Visual Amenity</td> <td>8. Traffic and Transport</td> <td></td> </tr> </table> <p>Performance Management:</p> <table border="0" style="width: 100%;"> <tr> <td>1. Pollution: (evidence of protection? E.g. invasive species management)</td> <td>4. Site Protection & Mitigation: (EAP implementation?)</td> </tr> <tr> <td>2. Works & Community: (good communication/contractor relations?)</td> <td>5. Follow on Works: (environmental objectives met?)</td> </tr> <tr> <td>3. Resource Management: (efficiency use of materials/energy?)</td> <td></td> </tr> </table>			1. Human Beings	5. Water, Land Use	9. Soil, Geology and Hydrogeology	2. Flora and Fauna	6. Cultural Heritage	10. Use of Natural Resources	3. Air and Climate	7. Archaeology and Material Assets		4. Landscape and Visual Amenity	8. Traffic and Transport		1. Pollution: (evidence of protection? E.g. invasive species management)	4. Site Protection & Mitigation: (EAP implementation?)	2. Works & Community: (good communication/contractor relations?)	5. Follow on Works: (environmental objectives met?)	3. Resource Management: (efficiency use of materials/energy?)	
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Displayed on site	Yes / No																			
Environmental Action Plan																				
Environmental Constraints and Opportunities Plan 1-4																				
NRW Environmental Policy Statement & NRW ISO14001 Certification																				
NRW Environment Incident Report Card																				
Landscape Plans																				
Date ECoW / LCoW last inspected the referenced	Report / Plans / Registers	Date last inspected reviewed																		
	List to be reviewed by NRW Environmental Advisor prior to start of construction to ensure relevant documents are listed.																			
	Site Waste Management Plan / Waste Transfer Notes																			
	Invasive Species Management Plan																			

report / plans / registers (Must be inspected monthly)	Materials Management Plan	
	Work Method Statements	
	Site induction / Environmental toolbox talk register (have all site personnel attended)	
	Are environmental consents in place and still valid (e.g. Flood Risk Activity Permit, Protected Species License, etc)	
Actions to be taken: (prevention, protection?) Actions to be taken: (prevention, protection?) Any actions associated with a defect (i.e. a part of the works which is not in accordance with the Works Information) or a breach of specifications as listed within the EAP must be highlighted in yellow for site supervisor attention.		Who / When: (Person responsible / when must the action be closed off by)
•		•
Outstanding actions from previous visit:		Who / When: (Person responsible / when should the action have been closed off by)
•		•
Date ECOW last updated Environmental Action Plan (EAP)		Date:
Report completed by:	Name: Role: Date:	
Report issued to:		Date:
		Date:
		Date:
		Date:

Photographs

(i.e. Progress of Works / Meeting Standards / Failing Standards)

Photograph	Brief Description
<p>Example:</p> 	<p>Example: 2 types of Terram in use for compound/ access track. Tree protection fencing to left of view (Hi-Viz). Cabins will extend further into field.</p>

