ATKINS
Member of the SNC-Lavalin Group

Memo

To:	Lizzie Lewis		
From:	Greg Whitfield	Email:	Greg.whitfield@atkinglobal.com
Date:	5th July 2023	Phone:	01925 238219
Ref:	5205264	cc:	<cc>
Subject:	Par St Blazey – Additional Works WFD Appendix		

Following completion of the Water Framework Directive (WFD) assessment undertaken in 2022, the proposed works has evolved to include the following three additional elements:

***1. An additional culvert (at NGR SX 07496 53518) downstream of the A3082**, comprised of a new elliptical concrete culvert approx. 6.8m in length. The purpose of the culvert is to direct flow from the Par St Blazey Stream to the Par River. The flows within the Par St Blazey Stream currently discharge directly into the St Blazey pumping station immediately downstream. The aim of the new culvert is to (i) enable safe downstream migration of eel (away from the pumping station and into the Par River) and (ii) minimising low flows that currently discharge into the pumping station downstream of the Par St Blazey Stream; thereby reducing the need for frequent operation of the pumps and desilting the watercourse.*

An elliptical concrete culvert structure (internal diameter 1150mm wide x 750mm high and cross-sectional area of 0.68m^2) has been selected as the most appropriate culvert option for the proposed works.

There is currently an existing concrete block retaining wall located where the proposed reinforced concrete (RC) headwall structure is to be constructed. The existing concrete wall is to be excavated down to 1.225mAOD to enable and support construction of the new RC headwall.

The downstream end of the culvert will tie into an existing headwall.

***2. A small stop log weir is to be constructed within the Par St Blazey Stream,** just downstream of the culvert opening, to help redirect the flow towards the culvert. This will comprise of stop logs of adjustable height to suit the prevailing flow conditions.*

***3. A slight alteration to the A3082 bypass culvert** (relative to the existing assessment), associated with the orientation of the upstream headwall. The headwall is no longer an angled headwall, rather it is now designed to be flush with the adjacent river walls. This is due to constructability and suitability of the design to accommodate large plant to clear the watercourse in the future.*

The aim of this appendix is to provide a commentary on the above design changes in relation to the overall conclusions of the original 2022 WFD assessment.

- All of the above design changes affect only the Par River (lower) WFD water body (GB108048002290), the baseline status of which remains the same as reported in section 3.3 of the 2022 assessment. Therefore, there is no requirement to screen in any additional water bodies to the assessment as a result of the design changes.

- The new culvert and the new stop log weir would be scoped in for detailed assessment, as these new activities represent the potential for direct modification to the water environment relative to the baseline that has not yet been assessed. The alteration to the A3082 bypass culvert as described above does not affect the conclusions of the 2022 assessment.
- The above design changes do not result in the requirement to scope any additional WFD quality elements into the assessment (all quality elements apart from Protected Areas were scoped in for assessment, and the above changes do not introduce any pathway to a Protected Area). Therefore Table 4.2 of the 2022 assessment remains valid.

Impact assessment – new culvert:

- The new culvert has the potential to permanently affect the hydromorphology and biology conditions within the water body through the addition of new physical modification of the Par St Blazey Stream watercourse. However, given that the baseline Par St Blazey Stream drains into the St Blazey Pumping Station (rather then being conveyed directly to a downstream watercourse), the proposed modification represents an improvement relative to the baseline conditions. The new culvert facilitates a more direct connectivity of flow between the Par St Blazey Stream and the Par River and, as noted above this alleviates baseline pressures in terms of low flows (on both rivers) and the need to actively maintain (desilt) the lower Par St Blazey Stream (when it fills up with fine grained sediment during low flow conditions). Therefore, although introducing new physical modification, the proposed works represent a local improvement to the functioning of the water environment relative to baseline. In addition to these hydromorphological improvements, the new culvert has been designed to facilitate the downstream migration of eel, by providing a direct route to the Par River compared to the baseline situation (where they are directed towards the pumping station only). Therefore, the proposed works represent the potential for local biological improvements to the water body via improved connectivity.
- The management of any water quality impacts would be associated with the construction phase of the project, and would be managed via the same measures as outlined in Table 5.2 of the 2022 assessment. There are no further changes worthy of note.
- The new culvert does have the potential to contribute to additional WFD Mitigation Measures in the water body relative to those highlighted in Table 5.4 of the 2022 assessment, as follows: 8.2.3 (passage of migratory and non-migratory fish), 8.2.5 (prevent/reduce fish entrainment), and 8.4.5 (downstream flow regime). This represents an improvement in the ability of the project to facilitate the objectives of the River Basin Management Plan (RBMP) through contributing to the delivery of Mitigation Measures.

Impact assessment – stop log weir

- The new weir has the potential to permanently affect the hydromorphology and biology conditions within the water body through the addition of new physical modification of the Par St Blazey Stream watercourse (and impoundment of flow across the whole channel length). However, given that the baseline Par St Blazey Stream drains into the St Blazey Pumping Station (rather then being conveyed directly to a downstream watercourse), the proposed modification does not provide any deterioration in the quality of the water environment relative to baseline conditions. Rather the new weir facilitates the passage of flow between the Par St Blazey Stream and the Par River, via the new culvert (above). As noted above this alleviates baseline pressures in terms of low flows (on both rivers) and the need to actively maintain (desilt) the lower Par St Blazey Stream (when it fills up with fine grained sediment during low flow conditions). Therefore, although introducing new physical modification, the proposed works represent a local improvement to the functioning of the water environment relative to the baseline. In addition to these hydromorphological improvements, the new weir is likely to prevent downstream migration of eel towards the pumping station, re-routing them through the Par River. Therefore, the proposed works represent the potential for local biological improvements to the water body via improved connectivity.

- The management of any water quality impacts would be associated with the construction phase of the project, and would be managed via the same measures as outlined in Table 5.2 of the 2022 assessment. There are no further changes worthy of note.
- The new weir does have the potential to contribute to additional WFD Mitigation Measures in the water body relative to those highlighted in Table 5.4 of the 2022 assessment, as follows: 8.2.3 (passage of migratory and non-migratory fish), 8.2.5 (prevent/reduce fish entrainment), and 8.4.5 (downstream flow regime). This represents an improvement in the ability of the project to facilitate the objectives of the RBMP through contributing to the delivery of Mitigation Measures.

Overall conclusion

Whilst introducing some local scale improvements relative to the original design, in terms of both hydromorphology and biology, as outlined in this appendix, there is no evidence to suggest that the overall conclusion of the 2022 WFD assessment requires any further update.

Technical Note

Project:	Par St Blazey		
Subject:	St Blazey Stream Culvert – Eel Passage		
Author:	Hannah Hagon		
Date:	29/06/2023	Project No.:	5205264
Distribution:		Representing:	

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft for Information	HH	PP	TJ	MG	29/06/2023

Client signoff

Client	Environment Agency
Project	Par St Blazey
Project No.	5205264
Client signature / date	

Introduction

Atkins have been commissioned by the Environment Agency to undertake drainage design works to divert the St Blazey Stream into the Par River. The proposed scheme comprises the construction of an elliptical concrete culvert structure (internal dia - 1150mm wide x 750mm high and cross-sectional area of 0.68m^2) to direct flow from the Par St Blazey Stream to the Par River. The aim of this piece of work is to assess whether the culvert can be utilised as a passage to enable safe migration of eels. Therefore, an estimation of low flows is required.

This assessment of low flows has considered the Q95[1] and Q50[2] flow, as requested by the Environment Agency.

Hand calculations would be undertaken to determine the water depth of the culvert against the low flow estimates for the St Blazey Stream. Calculations are based on the estimated low flows from FEH. These works form part of the wider Par St Blazey Flood Alleviation Scheme.

Catchment overview

The catchment is a small urban catchment with a total area of 1.78 km^2, shown in

Figure **Error! No text of specified style in document.**-1. The catchment is underlain by the Trendrean Mudstone Formation with superficial alluvium deposits present to the east of the catchment, associated with the River Par. There is no appropriate gauged data available for the catchment.

Figure **Error! No text of specified style in document.**-1 - Catchment overview

[1] Flow that is equalled or exceeded for 95% of the flow record
[2] Flow that is equalled or exceeded for 50% of the flow record (median flow)

Catchment descriptors

Updated descriptors shown in red

Site code	AREA (km^2)	BFIHOST	DPLBAR (km)	DPSBAR (m/km)	FARL	FPEXT	PROPWET	SAAR (mm)	URBEXT 2000
Par St Blazey	1.78	0.635	1.3	85.7	1	0.1213	0.45	1099	0.268

The catchment boundary/area was checked using DEFRA's 2m LiDAR dataset and OS river network. The URBEXT values were then updated using the following formulae (equation 5.1 and 5.3 in the Defra/EA R&D URBEXT report):

URBEXT 1990 = URBAN Proportion of catchment / 2.05

URBEXT 2020 = URBAN Proportion of catchment x 0.629

Q95 and Q50 flow estimation

As no gauged data was available for the catchment, a donor site was used. The donor site was selected by undertaking a regional analysis of 11 existing gauging stations within 30 km of the Par St Blazey catchment, using data available on the National River Flow Archive website[3]. The results of the regional analysis are outline in

Following the regional analysis, St Austell at Molingey (station code:48008) was chosen as the donor catchment as it appeared representative of regional hydrology and was the closest to the subject site both geographically and in terms of urban extent.

The Q95 and Q50 for St Austell at Molingey was then scaled by area to that of the subject site (St Blazey catchment area 1.78km^2) to give a **Q95 of 0.012 m^3/s** and a **Q50 of 0.038 m^3/s.**

[3] NRFA (2023) Search Data | National River Flow Archive (ceh.ac.uk)

Table **Error! No text of specified style in document.**-1.

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The Q95 and Q50 for St Austell at Molingey was then scaled by area to that of the subject site (St Blazey catchment area 1.78km^2) to give a **Q95 of 0.012 m^3/s** and a **Q50 of 0.038 m^3/s.**

Table Error! No text of specified style in document.**-1 - Catchment Q95 and Q50 regional analysis**

Code	Name	Area (km^2)	Urbext (%)	Q95 (m^3/s)	Q50 (m^3/s)	Record	Q95 per km^2 (m^3/s)	Q50 per km^2 (m^3/s)
48008	St Austell at Molingey	29.90	13.55	0.20	0.64	2004-2021	0.0066	0.0215
48011	Fowey at Restormel	169.10	2.61	0.89	3.06	1961 - 2021	0.0052	0.1024
49001	Camel at Denby	208.80	4.54	0.99	4.03	1964 - 2019	0.0047	0.1347
48010	Seaton at Trebrownbridge	39.10	6.52	0.23	0.75	1957 - 2021	0.0058	0.0249
49004	Gannel at Gwills	41.00	2.79	0.09	0.45	1969 - 2021	0.0022	0.0149
48012	Fal at Trenowth	65.10	5.22	0.27	1.27	1998 - 2021	0.0042	0.0425
48003	Fal at Tregony	87.00	4.98	0.45	1.39	1978 - 2021	0.0052	0.0465
48007	Kennal at Ponsanooth	26.50	4.66	0.09	0.33	1968 - 2021	0.0033	0.0109
48803	Carnon at Bissoe	33.60	10.43	0.23	0.57	1994 - 2020	0.0068	0.0191
48005	Kenwyn at Truro	19.10	7.63	0.05	0.22	1968 - 2021	0.0027	0.0072
48009	St Neot at Craigshill Wood	22.70	3.80	0.20	0.59	1971 - 2021	0.0090	0.0196
48004	Warleggan at Trengoffe	25.30	2.76	0.20	0.63	1969 - 2021	0.0079	0.0209
						Mean	0.0053	0.0388
						Median	0.0052	0.0212

Culvert water depth calculations to inform Eel passage

A culvert capacity flow calculation spreadsheet, which uses the Colebrook-White formula (Shown below), has been used to calculate the design capacity of the proposed elliptical culvert. The Colebrook White formula requires a number of input values of which;

V Velocity
g Gravity
D Pipe Diameter
J_E Slope
Ks Roughness
Nu Kinematic viscosity

$$v = -2 \cdot \sqrt{\left(2 \cdot g \cdot D \cdot J_E\right)} \cdot log_{10}\left(\frac{k_s}{3{,}71 \cdot D} + \frac{2{,}51 \cdot \nu_k}{D \cdot \sqrt{\left(2 \cdot g \cdot D \cdot J_E\right)}}\right)$$

The flow capacity of the culvert has been assessed against the below design parameters;

- Culvert inlet invert = approx.1.71mAOD
- Culvert outlet invert = approx.1.52m AOD
- Culvert length approx. 6.3m

The roughness value for the proposed culvert has been based on a concrete surface. An appropriate roughness coefficient, ks, of 1mm has been applied (chow, 1959[4])

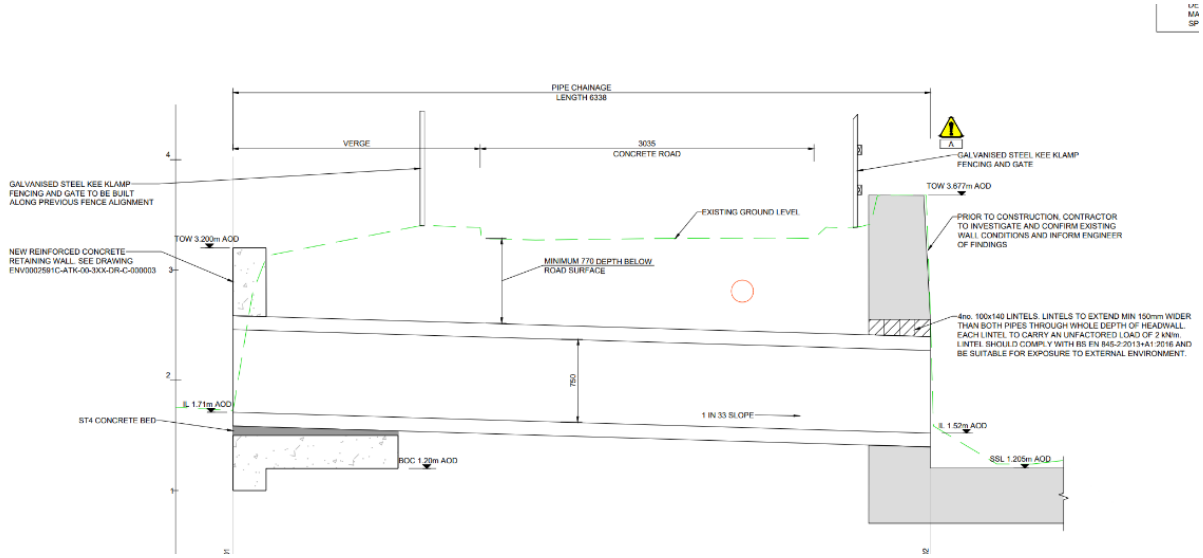


Figure Error! No text of specified style in document.**-2 – Culvert Design Dimensions**

The flow capacity of the proposed culvert has been calculated at 3.87m3/s based on Colebrook-White (See image below). Through interpolation of the calculations flow depth can be used to analyse the relationship against expected flow, this relationship is displayed in figure 4-2.

The flow depth through the pipe for a the Q95 and Q50 of the St Blazey catchment of 0.012 m3/s and 0.038 m3/s respectively result in an approximate depth of 12mm and 20mm within the proposed elliptical culvert.

The calculations here assume that the culvert is free flowing and discharging freely into the River Par from the St Blazey Stream. In addition to this it assumes that the Q95 and Q50 flow will be entering the culvert and calculates a relative depth. It is of note that these calculations do not consider the weir structure that is to be placed upstream of the pumping station that will artificially increase local water levels and therefore that which is expected to pass through the culvert.

These calculations have been derived with the purpose of indicating a depth of water within the culvert to assess if water levels are appropriate to allow for eel passage.

It is recommended that if further design work is undertaken that alters the dimensions or structural composition of the culvert that these calculations are revisited.

[4] Chow, V.T. (1959) Open Channel Hydraulics. McGraw-Hill, New York.

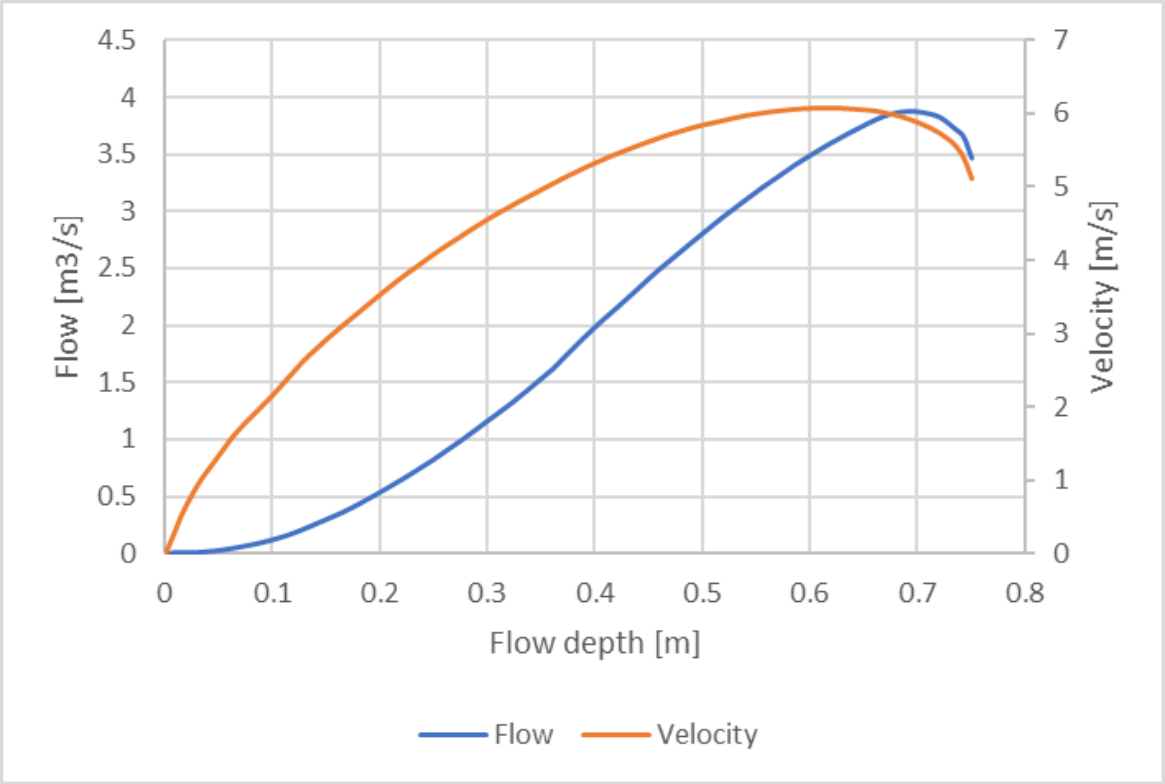


Figure Error! No text of specified style in document.**-3 – Culvert Design Dimensions**

Environmental Action Plan

Project name	Highway Dam MIOS
Project 1B1S reference	
Area	Cornwall (South West)
Date	August 2023
Version number	5.0
Author	B Cooper

Revision history

Revision date	Summary of changes	Author	Version number
06/04/2022	Draft for client review	R McCann	1.0
13/05/2022	Update following client comment	R McCann	2.0
07/07/2022	Update following final ecology surveys	R McCann	3.0
28/06/2023	Update to include additional assets	B Cooper	4.0
25/08/2023	Update following client comment and inclusion of WPD Ducting Line at Treesmill Dam	B.Cooper	5.0

EAP Approvals

Name	Signature	Title	Date	Version
Kath Wellard		Principal Environmental Consultant	06/04/2022	1.0
Felipe Steigler		Senior Environmental Consultant	13/05/2022	2.0
Melissa Cottrell		Senior Environmental Consultant	07/07/2022	3.0
Heather Coutts		Associate Environmental Consultant	29/06/2023	4.0
Heather Coutts		Associate Environmental Consultant	29/08/2023	5.0

Distribution

Name	Title	Date	Version

Purpose

This Environmental Action Plan (EAP) summarises the actions required to implement the environmental mitigation and outcomes contained within the Environmental Low Risk File note (LRFN) that has been prepared following Environment Agency Operational Instructions. It sets out specific objectives and targets defining the way in which we wish the LRFN and its relevant findings to be addressed during the implementation phase of the project (pre-construction, construction and post-construction phases). It also details roles and responsibilities of those involved in the proposal and refers to all **temporary** and **permanent** works.

The EAP summarises the actions required to minimise the risks to the environment during the works. It sets out objectives and targets that the contractor must comply with during the works.

The EAP is a 'living document' which is intended to be used to guide environmental management during construction and operation of the project.

These actions form part of the contract documentation and must be adhered to.

Roles

Environment Agency Project Manager: James Pemberton

NEAS Environmental Project Manager (EPM): Lizzie Lewis

Site Supervisor: James Maddison

Safety, Health and Environment Manager: TBC

Environmental Clerk of Works (ECW): Jo Cullis

Atkins Project Manager: Marianne Gibson

Atkins Environmental Lead: Heather Coutts

Responsibilities – Environmental Action Plan

Each action in the table below has a **named role** 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 Environment Agency are responsible for agreeing any changes to the EAP and for signing off, or agreeing to the signing off of the actions.

The Contractor is responsible for advising the ECW of any changes to method statements or the planned works as these may result in changes to the EAP.

The ECW, in consultation with the NEAS EPM, will assess the significance of these changes and determine the appropriate course of action.

The contractor is also responsible for implementing good environmental practice on site, in line with its own Environmental Management System (EMS). The Site Supervisor (or their appointed delegate) will monitor adherence to the EMS. Typical issues include the following, not all of which will be relevant to the works:

- Working hour restrictions;
- Dust suppression measures;
- Traffic management;
- Site waste management;

- Materials management;
- Maintenance of the carbon calculator;
- Vehicle maintenance and management;
- Pollution prevention and control (including storage, refuelling and incident response);
- Response procedures e.g. services strike, contaminated land;
- Hazardous materials handling and storage;
- Noise management; and
- Securing and delineation of working areas including signage.

Prior to the commencement of construction works, all construction staff will have an Environmental Induction at the same time as a Health and Safety Induction.

Environmental Audits

The appended template should be used when undertaking any site audits during construction. Such audits can be undertaken by the Environment Agency Project Manager or delegated to the Site Supervisor or other individuals. Technical assistance can be obtained from functional staff as appropriate. Site audits can potentially highlight good practice and can be separate to the review of EAP actions as undertaken in progress meetings. Audits do not replace the regular checks undertaken by the Site Supervisor (or their appointed delegate) during the works; no set template has been provided for this.

Environmental Incident Reporting system

All environmental incidents must be reported to the Environment Agency Incident Hotline 0800 80 70 60 at the earliest opportunity and then to the Environment Agency Project Manager, Site Supervisor and Atkins Project Manager. 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. The report must include the following information (project/location, date, contractor, 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 the Environment Agency Project Manager, Atkins Project Manager and Safety, Health and Environment Manager within 14 days of the incident.

Summary of scope of works

Background information

The Site

Works are proposed across six sites, which together make up the Project considered within this EAP. These are detailed below, and the locations presented in Figure 1-1. Actions within this EAP have been delineated between the separate project sites.

Highway Dam

The Highway Dam site is located to the north of Par in Cornwall at approximate Ordnance Survey national grid reference (OSNGR) SX 07227 55404. The Highway Dam is an earth embankment of approximately 70 metres (m) in length and a maximum height of 1.9m above existing ground level. Works at this site are on the Highway Dam outlet control structure (at the central grid reference provided above), and to the embankment directly to the west. The reservoir is formed by this earth embankment. The Treffry Canal, an artificial watercourse which is an offtake of the River Par, passes through the dam. The Highway Dam impounds water in high flow events. The adjacent railway embankment adjoining the earth dam on its northern side also forms part of the reservoir retaining structure.

In order to fully discontinue the reservoir, the dam needs to be breached so that it can no longer impound water above the natural ground level. These works are required to be undertaken as Measures to be taken in the Interests of Safety' (MIOS), in line with the Reservoirs Act 1975.

To discontinue the reservoir, the following works are proposed:

- Removal of the outlet structure, including cutting back the downstream outlet culverts to the boundary of the Environment Agency operational land, enabling restoration of the Treffry Canal channel through the dam;
- Lowering of the dam crest on either side of the restored channel to restore the floodplain;
- Installation of a concrete headwall to transition between the Treffry Canal and the culverts (pipes) under the Highway Garage Site. The headwall will have stone facing in order to maintain the setting of the WHS;
- Reprofiling of the banks to a 1:3 slope, and placement of pre-seeded coir matting on bank slopes, and coir rolls on the toe of the banks to allow for vegetation establishment; and
- Installation of seeded geotextile bags (Rootlok) to transition from the reprofiled bank to the existing blockstone upstream of the removed dam.

The site compound for the Highway Dam works is located at OSNGR SX 07160 55233 and will be situated on the hardstanding to the southwest of the dam outlet. Access to this compound will be from the A390.

Treesmill Dam

The Treesmill Dam site is located at OSNGR SX 07716 54562, approximately 900 m south of the Highway Dam site. The Treesmill Dam is located on the Tywardreath Stream, a tributary of the Par River. The confluence of the Tywardreath Stream and Par River is on the tidal section of the Par River, approximately 200 m upstream of Par Sands beach. The Treesmill Dam site falls within an area of wet woodland and is within Par Marsh County Wildlife Site.

Flows out of the Treesmill Dam are controlled by three penstocks within the dam.

The proposed works at Treesmill Dam involve replacement of the western double penstocks and the eastern single penstock with automated 'gearbox actuators', in order to enable the mechanical opening and closing of the sluice gates (currently operated by hand). The existing telemetry boxes associated with the penstocks will be replaced with larger control kiosks, containing the operational equipment for the new actuated penstocks.

Access to the Treesmill Dam site will be via the field to the north, which can be accessed from Sams Lane, at OSNGR SX 07602 54871. This access field currently comprises an improved grassland field.

To the west and south of the site is the town of Par. Extensive woodland and agricultural habitats are present to the north and east.

Treesmill Dam – WPD Ducting Line

As part of the Treesmill Dam work an additional 3pH meter box and associated electricity box will be installed on behalf of Western Power Distribution. The works will start from St Andrew's Road and run through the carpark of Marsh Villa Gardens and follow the main footpath through the gardens for approximately 150 m, with the total cabling installed expected to be 200 m.

5803 / 5804 Embankment

The 5803 / 5804 Embankment site is located at OSNGR SX 07363 53949, approximately 1,500 m south of the Highway Dam site. The 5803 / 5804 Embankment is an existing flood defence asset constructed as part of the wider Par St Blazey Flood Alleviation Scheme.

The 5803 / 5804 Embankment narrows and lowers close to a tie-in with an existing Network Rail embankment. The Environment Agency have raised concern that there is a risk of the Network Rail embankment failing due to overtopping in a flood event at this section of Embankment. To combat this risk, the proposed works comprise installation of an erosion protection solution in the form of a Turf Reinforced Mat (TRM) to the tie-in with the Network Rail embankment. The area of the proposed reinforced matting is approximately 78 m^2.

Access arrangements to the 5803 / 5804 Embankment are still to be determined, however will likely be through an industrial estate adjacent to the Site, accessed via St Andrews Road.

Par St Blazey Eel Pass

The Par St Blazey Eel Pass is located at OSNGR SX 07501 53512, downstream of the A3082 and is comprised of a new elliptical concrete culvert approximately 6.8 m in length. The purpose of the culvert is to direct flow from the Par St Blazey Stream to the Par River. The flows within the Par St Blazey Stream currently discharge directly into the St Blazey pumping station immediately downstream. The aim of the new culvert is to (i) enable safe downstream migration of eel (away from the pumping station and into the Par River) and (ii) minimising low flows that currently discharge into the pumping station downstream of the Par St Blazey Stream; thereby reducing the need for frequent operation of the pumps and desilting of the watercourse.

An elliptical concrete culvert structure (internal diameter 1150 mm wide x 750 mm high and cross-sectional area of 0.68 m^2) has been selected as the most appropriate culvert option for the proposed works.

There is currently an existing concrete block retaining wall located where the proposed reinforced concrete (RC) headwall structure is to be constructed. The existing concrete wall is to be excavated down to 1.225 m AOD to enable and support construction of the new RC headwall. The downstream end of the culvert will tie into an existing headwall.

As part of the Eel Pass works, a small stop log weir is to be constructed within the Par St Blazey Stream, just downstream of the culvert opening, to help redirect the flow towards the culvert. This will comprise of stop logs of adjustable height to suit the prevailing flow conditions.

Access to the eel pass will be through a private access track (used by the Environment Agency to access the St Blazey Pumping Station), via the A3082.

A3082 Culvert

The A3082 Culvert is located at OSNGR SX 07481 53528, upstream of the A3082. The proposed works involve increasing the capacity of the culvert carrying the Par River under the A3082 via the provision of a new by-pass culvert and angled headwall.

The works will act to prevent flooding at the A3082 culvert on the River Par in a 1% AEP (annual exceedance probability) storm.

Access to the A3082 culvert will be through a private access track accessed from the A3082.

Construction Methodology

The outline construction methodology for each aspect of the Project is listed in **Table 1** below.

Table 1 - Summary of Proposed Works

Asset	Proposed Works
Highway Dam	Discontinuation of the reservoir, involving removal of the outlet structure and installation of a concrete headwall to transition between the Treffy Canal and an upstream culvert. To facilitate removal of the outlet structure and construction of the upstream headwall, the Treffy Canal will be flumed. Construction of the headwall will be undertaken in two phases and will be constructed in two halves to avoid the requirement for over-pumping the Teffry Canal. Works to discontinue the Highway Dam are proposed to occur between May and November 2023, including demobilisation (14 week working window).
Treesmill Dam	Replacement of existing penstocks with new actuated penstocks. Flow diversion using sandbags for the western double penstocks works will be required, with in-channel working required for the eastern single penstock works. Works are proposed between May and November 2023 and will be undertaken within a 10-week working window.
Treesmill Dam – WPD Ducting Line	The works will start from St Andrew's Road through the carpark of the Site and follow the main footpath through the gardens for approximately 150 m, with the total cabling installed expected to be 200 m. Excavations will be required and will be limited to the hardcore footpath to a depth of 600 mm and a trench width of between 300 – 500 mm. Onsite trenching, excavation and reinstatement works will follow the existing path where possible. A suitable backing

	will be applied for 3pH meter box. Installation of 3pH meter box with suitable entry for WPD cable.
5803 / 5804 Embankment	Removal of existing turf and placement of reinforced matting. Vegetation removal will be required and previously planted whips on the dry side of the embankment will be replaced further upstream on the embankment. The works will be undertaken in August 2023 within a 2 – 3 week working window.
Par St Blazey Eel Pass	Construction of a rectangular (1.25 m wide x 0.75 m high) concrete box culvert to direct flow from the Par St Blazey Stream to the Par River. This will require installation of a cofferdam around both headwall locations and excavation down to the underside of the existing culvert pipe. Works include installation of a small stop-log weir downstream within the Par St Blazey stream. The works will be undertaken in August 2023, with the anticipated duration of the works still to be determined.
A3082 Culvert	By-pass pipe culvert to be installed under the A3082. Positioned to the west of existing culverts (i.e., between the river and the railway). Installation of a new pre-cast concrete headwall at the upstream end to aid flows into the culvert. Downstream end of culvert to tie into existing headwall next to the river. This will require installation of cofferdams around both headwall locations. During construction the flow will be reduced in the Par River (by 20 – 30%) by diverting flows using a sandbag weir into the Treffry Leat at the Pontsmill penstock. Flow in the Par River to be monitored and not reduced to lower than 0.336 m^3/s. Remaining flows in the Par River to be flumed through existing highway culverts. The works will be undertaken in September 2023 to February 2024, with an approximate 5 month working window.

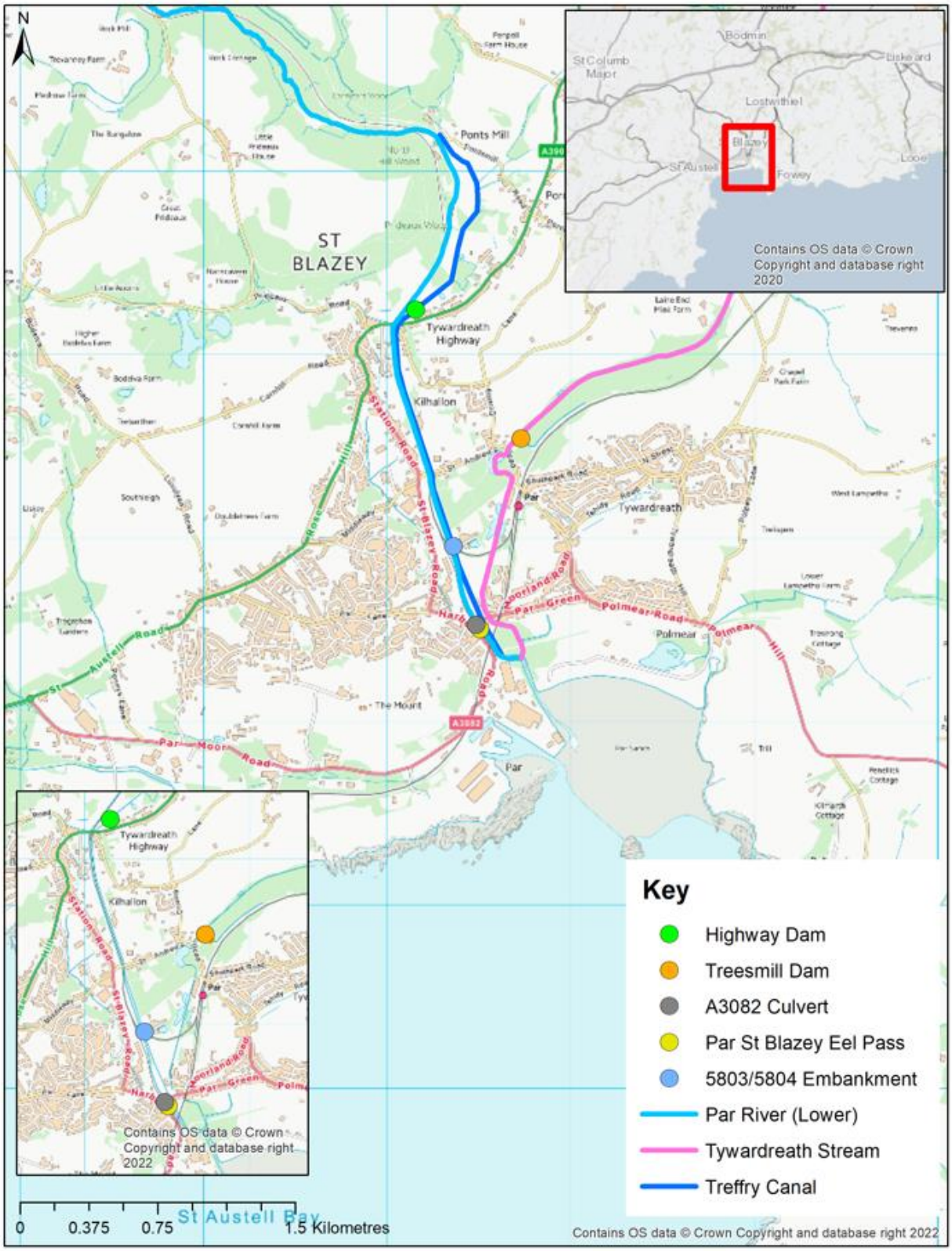


Figure 1: Location of Flood Defence Assets

Relevant contact details

Environment Agency PM	James Pemberton - 07796 611912
Atkins PM	Marianne Gibson - 01372 756 590
NEAS Environmental Project Manager	Lizzie Lewis - 07880 410036
Atkins Environmental Lead	Heather Coutts - 01372 756958
Site Supervisor	James Maddison – 07969 050 218
Contractor	Ian Fawcus - 07710 392 104

Environmental Action Plan

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
Pre-construction							
Population / Communities							
A1	**To ensure that local residents are aware of the works**	*Letters to be sent to residents and businesses affected by the works at least 4 weeks in advance of construction, informing them of the works and likely programme.* *The information will include a timetable of works, a schedule of working hours, the location and extent of works, type of disturbances likely to occur and a contact name, address and telephone number in case of complaint or problem.*	*EA PM*	*All assets*			
A2	**To ensure that users of the Public Right of Way (PRoW) are aware of the works**	*Local users of the PRoW will be informed by signage at entry and exit points of the PRoW at least 1 month prior to the works commencing.* *The information will include a timetable of works, the location and extent of works, and*	*EA PM*	*Treesmill Dam* *5803 / 5804 Embankment* *WPD Ducting Line*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		a contact name, address and telephone number in case of complaint or problem.					
A3	**To minimise disruption to users of the local road network.**	*Ensure an updated Construction Traffic Management Plan (CTMP) is completed prior to works and agreed with Cornwall Council* *The CTMP will identify the specific controls related to highway activities and people/plant interface at the point of work. Consideration must be given to the precautions required to protect pedestrians, including designated walkways on site and in the compound area.* *Any deviations from design phase CTMP to be agreed with Environment Agency Project Manager (confirmation with Cornwall Council may be required)*	*Contractor*	*A3082 Culvert*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A4	**To support local employment / economy**	*Where reasonably practical, the Contractor will seek to employ staff based locally to provide employment opportunities and endeavour to source materials locally as far as possible.*	*Contractor*	*All assets*			
Biodiversity, flora and fauna							
A5	**To ensure that ecological receptors are protected from disturbance or harm during the works**	*If any changes are proposed/made to extents of the works area, access or compound arrangements to that assumed in the Preliminary Ecological Appraisal, prior advice will need to be sought from an experienced ecologist with regard to the potential impacts on ecological receptors at the Site.*	*EA PM*	*All assets*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-00-3HD-RP-EN-000001 (Relates to Highway Dam and Treesmill Dam only)*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A6	**Inform site personnel of ecological issues.**	*All Site workers will be required to attend a Toolbox Talk (TBT) as part of the induction by the ECW prior to construction works commencing.*	*ECW*	*All assets*			
A7	**To avoid harm to bats**	*For works adjacent to the structure with the known bat roost, primarily to construct the control kiosk at the eastern Penstock, a vibration noise assessment will be put in place by the contractor prior to works commencing, including vibration monitors.*	*Contractor*	*Treesmill Dam*	*Bats PMW (Appendix B)*		
A8	**Ensure ecological receptors and constraints on site are understood prior to works commencing**	*An ecological walkover is to be undertaken by a suitably qualified ecologist a minimum of 6 weeks prior to the commencement of work on each site. This must include all working areas, compound locations and access routes.* *This EAP will be updated with appropriate actions should any ecological constraints be identified.*	*EA PM*	*5803 / 5804 Embankment* *Par St Blazey Eel Pass*			
A9	**To avoid harm to badger**	*The site will have a pre-construction check carried out by an experienced ecologist*	*Contractor*	*Treesmill Dam* *Highway Dam*	*Badger PMW*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		within 24 hours of each stage of the works commencing to check for any new signs of badger including new setts. If any active setts are identified, no activities will take place within 30 m of an active badger sett without prior agreement with an experienced ecologist.		*A3082 Culvert* *WPD Ducting Line*	*(Appendix C)*		
A10	**To avoid harm to rabbits**	*The site will have a pre-construction check for rabbit warrens carried out by an experienced ecologist within 24 hours prior to the commencement of any work. The works should proceed slowly and with caution, allowing rabbits the chance to escape prior to works.*	*Contractor*	*Treesmill Dam* *Highway Dam* *WPD Ducting Line*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-00-3HD-RP-EN-000001*		
A11	**To prevent disturbance to nesting birds**	*Where possible, vegetation clearance (including ground level vegetation) should be undertaken outside of the bird breeding season (typically 1st February to 31st August in Cornwall).*	*Contractor*	*Highway Dam* *Treesmill Dam* *A3082 Culvert* *WPD Ducting Line*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		An experienced ecologist should conduct a nesting bird check of the vegetation suitable to support nesting birds, including mature trees, scrub, and grassland (for ground nesting birds such as skylark). This nesting bird check should be undertaken no more than 24 hours prior to the works commencing. *If any active nests are identified, they should be left in situ for their entire nesting period, with a five-metre buffer demarcated by tape to avoid disturbance. This buffer zone will be demarcated and enforced by an experienced ecologist.*			*00-3HD-RP-EN-000001 (Relates to Highway Dam and Treesmill Dam only)*		
A12	**To avoid harm to reptiles and amphibians (excluding great crested newt: scoped out of further assessment)**	*Immediately prior to works starting on Site, all suitable habitats within the working area will be checked by an experienced ecologist for the presence of reptiles. Work will not be permitted to start at the site until hand searching of the working areas has been completed.*	*Contractor*	*Highway Dam* *Treesmill Dam* *A3082 Culvert* *WPD Ducting Line*	*Reptiles PMW (Relates to Highway Dam and Treesmill Dam only)*	Vegetation clearance for the Highway Dam, Treesmill Dam and A3082 Culvert were	

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		Any piles of wood, brash and rubble within the working area will be dismantled by hand and immediately removed from the working area, with an experienced ecologist on-hand to provide advice, in advance of the works. *Where it is not essential to remove potential refuges in order to undertake the works, these will be left undisturbed. Hand searching will include carefully checking within and underneath any potentially suitable refuges such as leaf piles around logs, log piles, dead wood, rubble piles and discarded debris (if present).* *Any reptiles found will be carefully moved by an experienced ecologist who will be trained/briefed in the safe handling of reptiles and amphibians. Reptiles and amphibians will be moved to an undisturbed nearby area.* *Adders will not be handled and will be left to move out of the working area of their own accord.*				undertaken in January to February 2023.	

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A13	**To avoid harm to otters**	*No more than 24 hours prior to works commencing, the site will have a pre-construction check carried out by an experienced ecologist of habitat features on both the Treffry Canal and Tywardreath Stream that could be utilised as resting sites by otters. The check is to ensure that no otters are present in and up to 50m from the working area.* *If a resting place is found, the works must stop, and advice sought from an experienced ecologist .*	*Contractor*	*Highway Dam* *Treesmill Dam* *A3082 Culvert* *WPD Ducting Line*	*Otter PMW (Appendix D) (Relates to Highway Dam and Treesmill Dam only)*		
A14	**To avoid harm to hazel dormice**	*Immediately prior to works starting at each part of Site, all suitable habitats within the working area will be hand searched by an experienced ecologist for the presence of hazel dormice. This includes a search of woody vegetation beneath the tree canopy, or any other potentially suitable refuges including hedgerows, trees, scrub, leaf piles and logs. If no hazel dormice are found*	*Contractor*	*Highway Dam* *Treesmill Dam* *A3082 Culvert*	*Hazel Dormouse PMW (Appendix E) (Relates to Highway Dam and Treesmill Dam only)*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		during this hand search, works will be able to proceed. *If a hazel dormouse or dormouse nest is found all work will immediately stop and the advice sought from a suitably qualified ecologist.*					
A15	**To avoid harm to water vole**	*A pre-works check shall be carried out by an experienced ecologist of habitats adjacent to the watercourses to ensure that no water vole are present in the works area. If evidence of water vole is found during the works, the works must stop, and further advice must be sought.*	*Contractor*	*WPD Ducting Line*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A16	**To minimise any risk of spread of invasive non-native species (INNS)**	*Prior to commencement of the works the site will be surveyed for INNS by an experienced ecologist. Should INNS be identified, this information can be passed to a specialist contractor who can provide a management plan including the safe disposal of specimens and appropriate procedure to avoid contamination and spread if required.*	*Contractor*	*All assets*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-00-3HD-RP-EN-000001 (Relates to Highway Dam and Treesmill Dam only)*		
A17		*Contractor to produce an INNS Management Plan prior to construction.*	*Contractor*	*All assets*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-00-3HD-RP-EN-000001*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
					(Relates to Highway Dam and Treesmill Dam only)		
Water							
A18	**To minimise reduction in water quality**	*Contractor to produce a Pollution Emergency Response Plan prior to construction.* *The plan will be approved by the EA PM with input from Area staff (Fisheries, Biodiversity and Geomorphology).*	*Contractor*	*All assets*			
A19	**To minimise any risk to fish and their passage**	*Contractor to produce a Method Statement for working within the river channel that includes mitigation measures to avoid impacts to fish including mortality, obstructions to passage/migration and from any de-watering or fluming activities.*	*Contractor*	*Highway Dam* *Treesmill Dam* *Par St Blazey Eel Pass* *A3082 Culvert*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		The method statement will be approved by the Environment Agency PM with input from Area staff (Fisheries, Biodiversity and Geomorphology).					
Soil, Geology and Hydrogeology							
A20	**To minimise risk of pollution to soils and/or groundwater**	*Contractor to produce a Pollution Emergency Response Plan prior to construction.* *The plan will be approved by the EA PM with input from Area staff (Fisheries, Biodiversity and Geomorphology).*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
Landscape and Visual Amenity							
A21	**To minimise potential damage to trees or their root systems**	*All trees and vegetation groups adjacent to the construction areas to be clearly identified on construction plans and protected in accordance with the relevant British Standard.* *An Arboricultural Staff Induction Sheet will be produced, read and signed by all site operatives, including sub-contractors, as an integral element of their initial site induction. The purpose of this is to minimise the potential for damage to trees during construction.*	*Contractor*	*Treesmill Dam* *5803 / 5804 Embankment* *A3082 Culvert* *WPD Ducting Line*			
A22		*Ground protective matting is to be placed in the area of the site access route adjacent to the Oak Tree on the culvert bank at Treesmill Dam. The Oak tree is located at OSNGR SX 07690 54550.*	*Contractor*	*Treesmill Dam* *WPD Ducting Line*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A23		*Prior to the commencement of any demolition or construction activities on the site, the locations of site offices, welfare facilities, parking, a materials storage area and a concrete mixing area must be designated and marked on the Tree Protection Plan.* *Parking, materials storage and materials mixing must remain outside of the designated construction exclusion zones, and the materials mixing area should be bunded or contained such that any spillage or risings cannot run towards the root protection areas of any retained trees.*	*Contractor*	*A3082 Culvert*	*Par St Blazey Arboricultural Assessment 21072021*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A24		*In accordance with the Tree Protection Plan, where excavation is required on the outer sections of the root protection area, it will be necessary to undertake controlled excavation and root pruning.* *This should be undertaken by a suitably qualified aboricultural contractor in accordance with the method statement detailed within Aboricultural Guidance Sheet AGS403.*	*Contractor*	*A3082 Culvert*	*Par St Blazey Arboricultural Assessment 21072021*		
A25	**To avoid impact to the landscape and visual setting of the Site**	*A photographic record is to be taken of the site and site access routes (including any PRoWs) prior to construction to help post-construction reinstatement activities.*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A26	**Ensure landowner agreements in place**	*Obtain landowner agreements relating to the proposed mitigation and enhancement landscaping plans prior to works commencing on site.* *This must include agreeing maintenance responsibilities during the establishment of new planting (5 years) and longer terms.*	*Environment Agency Estates*	*5803/5804 Embankment*			
Use of Natural Resources							

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
A27	**To minimise use of natural resources and reduce carbon emissions**	*Maximise the use of low carbon, recycled and local materials where possible and appropriate.* *Ongoing use of Carbon Calculator tool to ensure opportunities to reduce carbon emissions of the project are sought throughout the Project.* *Carbon and Opportunities Assessment, to be undertaken as part of a Carbon Optimisation Report*	*EA PM*	*All assets*			
Consenting							
A28	**To comply with Environment Agency requirements when working within 8m of the banks of a main river (or**	*Ensure that Environmental Permits for Flood Risk Activities (where required) have been obtained prior to construction starting.*	*Contractor*	*All assets*		FRAP applications for the Highway Dam and Treesmill Dam works have been submitted	

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
	16m for a tidal main river)					on the 29/04/22.	
A29	**Application for a Non-Material Amendment to the existing planning application**	*A Non-Material Amendment to the original planning application (reference: PA20/04892) will need to be granted by Cornwall Council prior to commencement of construction*.	*EA PM*	*5803 / 5804 Embankment*			
A30	**To minimise disruption to users of the local road network.**	*A TTRO will be obtained for the proposed traffic management on the A3082, to facilitate the A3082 culvert works.* *Applications should be made 12 weeks in advance of any road closure works.*	*Contractor*	*A3082 Culvert*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
During construction							
Population / Communities							
B1	**To avoid disturbance from noise to local residents in the vicinity of the works**	*Undertake work during normal working hours only, which are 0800 to 1800 Monday to Friday, and 8am to 1300 on Saturdays. No work is to be undertaken on Sundays or Bank Holidays, unless with prior agreement from the Environment Agency Project Manager.* *Good practice measures to be implemented to reduce noise from site e.g. switching off plant and machinery when not in use.*	*Contractor*	*All assets*			
B2	**To maintain a positive relationship with the community**	*Regular contact to be made with directly affected residents and the general community to ensure that any grievances are addressed in a timely manner.* *Ensure a formal complaint procedure is in place to record any community concerns or grievances.*	*EA PM*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
B3	**To minimise disruption to users of the local road network**	*Adhere to Construction Traffic Management Plan.*	*Contractor*	*A3082 Culvert*			
B4		*In order to manage the closure of the A3082 and diversion route, a Traffic Management Specialist will be employed throughout the duration of the works.*	*Contractor*	*A3082 Culvert*			
B5		*Parking provision for contractor's vehicles to be made within the site compound.* *Deliveries to avoid peak traffic times (07.00 – 09.00 and 15.30 – 16.30) where possible*	*Contractor*	*All assets*			
Biodiversity, flora and fauna							
B6	**Prevent adverse impacts on dormice.** **Compliance with the Conservation**	*Vegetation clearance must comply with the requirements set out within the dormouse RAMS.*	*Contractor*	*5803/5804 Embankment* *A3082 Culvert*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
	of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended)						
B7	**To avoid disturbance to bats**	*Night-time working (taken to be 30 minutes prior to sunset to 30 minutes after sunrise) will be avoided. If this is not possible, lighting is to be kept to a minimum and directed away from vegetation, as well as the watercourses which bats may commute and forage along.* *Any artificial lighting used must be in accordance with guidance provided in the Bat Conservation Trust (BCT) and Institution of Lighting Professionals Guidance Note 08/18 Bats and artificial*	*Contractor*	*All assets*	*Bats PMW (Appendix B) (Relates to Highway Dam and Treesmill Dam only)*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		lighting in the UK Bats and the Built Environment Series (August 2018). *Should a bat unexpectedly be found during the works, works should immediately stop and an experienced and licensed bat ecologist should be contacted for further advice.* *Noise disturbance to bats should be minimised on site through switching off machinery when not in use (in compliance with BS 5228). Particular consideration should be made to minimising activity within 20m of trees identified as having potential to support roosting bats.*					
B8		*Whilst a specific buffer does not need to be maintained from Tree 1 at Treesmill Dam (location shown in Bats PMW), it is good practice to avoid tracking close to the tree wherever possible and minimise noise within 10 metres of the tree.*	*Contractor*	*Treesmill Dam*	*Bats PMW (Appendix B)*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		Wherever possible, a distance of 5 m from the tree should be maintained at all times.					
B9	**To avoid disturbance to roosting bats**	*The construction of the control kiosk at the Treesmill Dam eastern penstock is to take place approximately 2 m from the structure with the known bat roost, therefore strict protocol as detailed below must be followed at all times:* *The footprint of the WPD Ducting Line works fall within 5 m of a known hibernation roost for lesser horseshoe bats. A strict PMW should be put in place to detail how the Proposed Works can be undertaken in a way which reduces the possibility of impacting bats within the structure.* *The construction of the kiosk and ducting line must not be carried out at night (taken*	*Contractor*	*Treesmill Dam* *WPD Ducting Line*	*Bats in Structures PMW (Appendix B)*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		to mean 30 minutes before sunset to 30 minutes after sunrise). *Vibration monitoring, using pre-placed vibration gauges will be undertaken throughout the work to the eastern kiosk. Triggers will be pre-arranged and there will be specific vibration levels which will stop works.* *Operatives must turn off engines of plant and machinery when not in use and the engines will operate for the minimum period required for the tasks to be carried out effectively.* *Operatives must speak in low volumes and avoid shouting. If it is difficult for operatives to hear over the sound of operating plant and machinery, they should use radios to communicate.* *If task lighting is required for the works to proceed, this must be directed away from*					

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		the known roosts, and be the minimum lighting required for the task. *To avoid vibration disturbance during the WPD ducting works, the trial pit should be hand dug within 10 m of the roost, where possible, and the reinstatement of the footpath within that area carried out in a manner that reduces vibrational impacts as far as possible.* *An experienced ecologist will conduct a watching brief on the known roosts at all times during the works located adjacent to the roosts. If the experienced ecologist determines that bats are clearly disturbed during the day (exhibit this by leaving or attempting to leave the roost in daylight hours), then works will stop and subsequent works may need to be undertaken under a Natural England mitigation licence.*					

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
B10	**To avoid disturbance to badger**	*Night-time working (taken to be 30 minutes prior to sunset to 30 minutes after sunrise) will be avoided. If this is not possible, lighting will be kept to a minimum and directed away from habitats that may be used by badgers.* *Any excavations will be filled or covered overnight. If this is not possible, one side of the excavation will be graded, or a plank of wood placed against the side so that it provides an escape ramp to prevent any animals becoming trapped.* *The contractor will ensure all rubbish and construction materials are collected and removed from site on a regular basis to prevent trapping or injury to mammals.*	*Contractor*	*All assets*	*Badger PMW (Appendix C)*		
B11	**To avoid disturbance to rabbits**	*Night-time working (taken to be 30 minutes prior to sunset to 30 minutes after sunrise) will be avoided. If this is not possible, lighting will be kept to a minimum and directed away from any active rabbit warrens.*	*Contractor*	*Highway Dam* *Treesmill Dam* *WPD Ducting Line*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		Any excavations will be filled or covered overnight. If this is not possible, one side of the excavation will be graded, or a plank of wood placed against the side so that it provides an escape ramp to prevent any animals becoming trapped. *The contractor will ensure all rubbish and construction materials are collected and removed from site on a regular basis to prevent trapping or injury to mammals.*			*00-3HD-RP-EN-000001*		
B12	**To avoid disturbance to otters**	*Night-time working (taken to be 30 minutes before sunset to 30 minutes after sunrise) will be avoided. If this is not possible, lighting will be kept to a minimum and directed away from the watercourse and terrestrial habitats that may be utilised by otter.* *During in-channel works a safe passage for commuting and/or foraging otters must be maintained at all times, with no obstructions to safe passage left along the watercourse overnight.*	*Contractor*	*All assets*	*Otter PMW (Appendix D) (Relates to Highway Dam and Treesmill Dam only)*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		Any excavations should be covered or filled overnight to prevent mammals falling in. If this is not possible, one side of the excavation will be graded, or a plank of wood placed against the side so that it provides an escape ramp to prevent any animals becoming trapped. *The contractor will ensure all rubbish and construction materials are collected and removed from site on a regular basis to prevent trapping or injury to mammals.*					
B13	**Prevent injury or death of reptiles, small mammals and amphibians.** **Compliance with Wildlife and**	*All ground disturbance works, and vegetation removal will be undertaken outside the hibernation period for reptile species (between April and October inclusive), or when daytime temperatures are consistently above 10^{o}C. If the works are delayed i.e., within the reptile hibernation season (November to March), all log piles and potential hibernacula e.g., brash/rubble will be dismantled by hand and*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
	Countryside Act 1981	*removed from the site in advance of the works prior to November.* *Where suitable habitats for these species are identified by the ECW clearance will be supervised by an ecologist or ECW (to be provided by the client, arrangements undertaken by the contractor) and be undertaken in a phased manner, strimming the vegetation to a height of 0.15m initially, allowing any reptiles present to move into suitable adjacent habitat. After 24 hours the remaining vegetation and/or topsoil will be removed. All vegetation clearance will be carried out between April to October before the reptile hibernation period begins.*					
B14	**To minimise any risk of spread of INNS**	*All works to be carried out in accordance with the INNS Management Plan.* *All proposed works will be carried out in accordance with the 'check, clean, dry' guidance from the GB non-native species secretariat:*	*Contractor*	*All assets*	*Preliminary Ecological Appraisal Report No: ENVIMSW002205-ATK-00-3HD-*		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		http://www.nonnativespecies.org/checkcleandry. *All equipment and materials used will be in a clean condition prior to their arrival on site, and on removal from site, to minimise risk of introducing INNS into the riverine environment.*			*RP-EN-000001 (Relates to Highway Dam and Treesmill Dam only)*		
Air & Climate							
B15	**To minimise impact on air quality from construction vehicle emissions**	*Use local material and workforce to minimise journey lengths where possible.* *Standard good practice measures to reduce dust and control emissions.*	*Contractor*	*All assets*			
Water							

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
B16	**To minimise potential impacts to fish**	*All works to be carried out in accordance with the Method Statement for working in the river channel.* *Works within the river channel involving fluming the river and redirecting of the river flow be carried out outside of the Cornwall fish embargo period (considered to be between 1st October to the 1st June) to avoid impact to migratory fish. Any deviations from these dates will need to be reviewed by Environment Agency fisheries specialists and their agreement sought.* *A fish rescue subcontractor will be on site to carry out any potential fish rescue during redirection of the river flow and fluming.* *Works will be undertaken during daylight hours where possible to avoid potential impacts to fish from artificial lighting.*	*Contractor*	*Highway Dam* *Treesmill Dam* *Eel Pass* *A3082 Culvert*	**Refer to Method Statements produced under Action A19**		

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
B17	**To minimise the risk of pollution of the water course**	*General measures to avoid or alleviate negative impacts on ecological receptors such as following the Pollution Prevention Guidelines (PPGs)[1,2], and the Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites[3].* *All materials utilised during the works, including material contained in the bulk bags and flume pipe, will be appropriate for use in the riverine environment.*	*Contractor*	*All assets*			

1 Pollution prevention guidelines (PPGs with particular reference to PPG1 (general guide to the prevention of water pollution), PPG3 (use and design of oil separators in surface water drainage systems), PPG5 (works near or liable to affect watercourses) and PPG6 (working at construction and demolition sites). PPGs are a series of documents developed by the Environment Agency for England and Wales, the Northern Ireland Environment Agency (NIEA) for Northern Ireland and the Scottish Environment Protection Agency (SEPA) for Scotland. Each PPG is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution. The PPGs also make reference to environmental legal obligations, but that information is currently out of date and requires updating. All of the PPGs are available from http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environmentagency.gov.uk/business/topics/pollution/39083.aspx

2 The PPGs published by the Environment Agency/Natural Resources Wales provided guidance and regulatory requirements on a range of construction issues. The PPGs were withdrawn from use in England on 17 December 2015, (as the Environment Agency does not provide 'good practice guidance'), however they still apply in Wales

3 The CIRIA documents are a series of publications developed by the Construction Industry Research and Information Association. Each document is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution. Particular attention should be given to CIRIA C532 (Control of water pollution from construction sites, 2001). The CIRIA publications also make reference to environmental legal obligations and are available from: http://www.ciria.org/CIRIA/Resources/Resource_overview/Resources/Resources_overview.aspx?hkey=a80608d2-a045-4d72-8bb9-5ecf23f8d761"

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
B18		*Dissolved oxygen (DO) monitoring should be carried out continuously during all in-channel working, using remote sensors with an alarm system in place with results being reviewed by site staff every 3 hours to identify any developing trends. In warmer periods when water temperatures exceed 16^{o}C, review of results should be increased to at least every hour.* *Should DO levels fall below 7 mg/l, intervention would be required to reduce the risk of fish mortality. Should this occur, advice should be sought immediately from the ECW or the Fisheries, Biodiversity and Geomorphology team.* *Where possible temporary works would be able to remain in place providing DO levels show an improvement within 1 hour of flow being increased. If this does not happen work should cease and natural flow should be restored immediately.*	*Contractor*	*A3082 Culvert*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		DO monitoring should also be in place for any works where silt management is required. DO needs to be monitored immediately upstream and downstream of the working area and upstream of the most northern working area to determine the baseline. If there is a change in DO downstream of works of 10% of the baseline, or if this drops below 7 mg/l (and/or 70% oxygen saturation), then intervention will be required.					
Soil, Geology and Hydrogeology							
B19	**To minimise the risk of pollution of soils and/or groundwater**	*All clearance and construction works should be undertaken with regard to PPGs and CIRIA guidance on control of pollution from construction sites.* *Implementation of appropriate dust suppression measures to prevent migration of soil derived dust.* *Where waste soil is generated, it will be dealt with in line with the Government's waste hierarchy which is a guide to*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
		sustainable waste and material resource management. *Minimising the area and duration of soil exposure and timely reinstatement of vegetation or hardstanding to prevent soil erosion/runoff and reduce temporary effects on soil compaction.*					
Landscape and Visual Amenity							
B20	**To minimise impacts on landscape and visual receptors during construction**	*Best practice measures to be used on site to minimise area of works and maintain a tidy site appearance.* *Vegetation clearance to be kept to the minimum required.* *Temporary work areas to be fully removed and reinstated on completion of the works.*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
B21	**To minimise potential damage to trees or their root systems**	*Excavation for kiosk foundations and ducting lines is to be undertaken in a controlled manner using a mini-digger and root pruning by hand to avoid impact on the health and stability of adjacent trees.* *Mechanical rotovation or cultivation must be avoided during excavation as this can cause significant damage to the rooting system of adjacent trees.* *If any roots >25mm diameter are encountered during the works, work must stop immediately and a qualified Arboriculturalist (or the ECW) is to be consulted. Any roots <25mm diameter encountered will be pruned in accordance with good arboricultural practice.*	*Contractor*	*Treesmill Dam* *WPD Ducting Line*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
Cultural Heritage, Archaeology and Material Assets							
B22	**To minimise any potential damage to unknown buried archaeology**	*Contractors to stop work and contact the National Environmental Assessment Service of the Environment Agency if buried archaeological remains are discovered during the work.*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
Noise and vibration							
B23	**To reduce impact of noise during construction activity.**	*All equipment will be well-maintained and, where possible, will be used in the mode of operation that minimises noise,* *Plant and equipment will be shut down when not in use. Mobile construction plant and compounds will be located as far as is practicable, away from adjacent occupied buildings or as close as possible to noise barriers or site holdings to provide additional screening from sensitive noise receptors.* *Materials will be handheld in a manner that minimises noise with minimal drop distances used when offloading material.*	*Contractor*	*All assets*			
Post-construction							
Landscape and Visual Amenity							
C1	**To minimise impacts on landscape and visual**	*Temporary work areas to be fully removed and reinstated on completion of works, in*	*Contractor*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
	receptors from construction works	*line with photographic record to be taken of Site.*					
C2	**Re-instate trees following works to restore landscape character and create screening**	*Replacement tree planting must be undertaken as soon as possible following the completion of individual elements of the Scheme.* *Planting of tree whips at the 5803 / 5804 Embankment to replace tree whips that were removed prior to construction on the embankment further upstream.* *Planting of three native species of trees on the site boundary for Highway Dam to help screen views of the Site.* *Removal of all protection fencing and materials from site following establishment of planting.*	*Contractor*	*Highway Dam* *5803 / 5804 Embankment*			
C3	**Ensure establishment of planting**	*Monitor retained and newly planted areas and advise on any requirement for remedial actions over 5-year establishment period.*	*Landscape Clerk of Works (or alternative*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
	required as part of Scheme design		*agreed with NEAS)*				
C4		*Monitor retained and newly planted areas which contribute to Scheme meeting Biodiversity Net Gain requirements.*	*Environment Agency PM*	*All assets*			
Biodiversity, flora and fauna							
C5	**Prevent spread of non-native invasive species.** **Compliance with Wildlife and Countryside Act 1981**	*Monitor working areas and access routes in areas where invasive species have previously been recorded and newly planted habitats. Monitoring should continue for 5 years whilst newly planted habitats on site establish.*	*ECW during construction (or alternative agreed with NEAS)*	*All assets*			
C6	**Support ongoing conservation**	*Submit all species records from surveys and incidental records to Cornwall and Scilly Environmental Records centre.*	*ECW*	*All assets*			

Ref. No.	Objective	Action	Responsibility	Site	Reference to further information	Progress and further action	Sign off and date
	and knowledge sharing within Cornwall.						
C7	**Ensure that trees retained are healthy with opportunity to continue to grow.**	*On completion of the development, an arboriculturalist will carry out a tree inspection to look for change in tree conditions and any accidental damage to retained trees to identify the need for further tree works in accordance with those originally specified at the outset of the Scheme.*	*Scheme Arboriculturalist*	*All assets*			
Water environment and WFD							
C8	**Prevent pollution and water quality incidents**	*Conduct checks of water quality following completion of the works in each location to identify any sources of siltation or contaminants.*	*ECW*	*All assets*			

Environmental audit record

Project	Highway Dam MIOS	**Project ref.:**	
Atkins Project Manager:	Marianne Gibson	**Environment Agency EPM:**	James Pemberton
Location	Cornwall (South West)	**Grid reference**	**Highway Dam**: SX 07227 55404 **Treesmill Dam**: SX 07602 54871 **5803 / 5804 Embankment**: SX 07363 53949 **Par St Blazey Eel Pass:** SX 07496 53518 **A3082 Culvert:** SX 07481 53528.

Site Visit Audit Details

Visit During/Post Construction:		**Date of Visit:**		**Time of Visit:**	
Audit Officer:		**Photos taken (y/n):**		**Referenced to Pre-Photos(y/n):**	

Does the Site Supervisor have an up to date copy of the EAP? **Yes / No**

General comments:

Appendix A: PMW Mastersheet

Appendix B: Bats PMW

Appendix C: Badger PMW

Appendix D: Otter PMW

Appendix E: Hazel Dormouse PMW

ENVIRONMENTAL PERMITTING: FLOOD RISK ACTIVITIES
STANDARD DOCUMENT

Mr Ciaran Williams
Kier Site Office
St Andrews Road
Par
Cornwall
PL24 2LX

Our ref: EPR/HB3153GL

Date: 23/10/2023

Dear Mr Williams,

Your new environmental permit

Permit reference: EPR/HB3153GL
Operator: Kier Integrated Services Ltd
Description of Activity: Installation of a new Eel Passage, with the inlet cast into a new reinforced concrete headwall of the St. Blazey stream and the outlet cast into the existing headwall of the Par River, new stoplog weir structure and requiring the temporary works of a cofferdam.

Site / Location: South of the A3082 Crossing, between St. Blazey Stream and the Par River, Par, Cornwall
PL24 2BD

Our determination of your application for a permit is complete. We're satisfied that you can carry out your activities in accordance with the enclosed permit, without increasing flood risk, or harming land drainage or the environment. Please keep the permit in a safe place.

This letter contains web links to other documents. If you aren't able to access these please phone me on 07570 163582 or email psocornwall@environment-agency.gov.uk. Please quote our reference when contacting us.

Please look at the table below and note any of the things that apply to your permit.

If…	then..
you plan to keep your records at a site other than where the activity takes place	you need to let us know within 20 working days of receiving this letter.
your permit includes standard rules	we've enclosed the rules set/s. We may change these in future but will let you know about any changes. You must make sure you're always following the latest rules set.
your permit has a pre-operational condition requiring you to do something before work starts (for example submit a method of work, or have measures in place to reduce sediment mobilisation)	check the deadlines for completing these measures and make sure you carry them out by the times stated.
your permit requires you to notify us before works start	check the deadlines for notifying us and make sure you carry them out by the times stated.
your permit requires you to notify us when any particular work is complete	check the deadlines for notifying us and make sure you carry them out by the times stated.

you need to submit other returns or information	send these to us at the contact details above, unless we advise you otherwise.

Find out more about complying with your permit on our website https://www.gov.uk/topic/environmental-management/environmental-permits

This includes guidance on your management system and how you will be regulated.

There is a subsistence charge for your permit that applies when we carry out compliance checks. For most permits this will happen once and we will invoice you when the charge is due. If the permit continues over a longer period, deals with a number of activities, or has ongoing conditions, we may do compliance checks more than once and will invoice you at the time the compliance work is done.

Rights of appeal

If you're not happy with any permit condition that has been imposed by the permit you may appeal to the Secretary of State. You must make your appeal no later than six months after the permit issue date. Further information about making an appeal and the forms you will need are available from the Planning Inspectorate website or from the contact details below.

Environment Appeals, Enforcement and Specialist case work division, The Planning Inspectorate, 3/25 Hawk Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN. Phone: 0303 444 5584

Email: environment.appeals@planninginspectorate.gov.uk

You must send written notice of the appeal and the documents listed below to the Secretary of State at the Planning Inspectorate address above. At the same time you must send us a copy of the notice and documents to:

Centralised Services Team – Appeals, Environment Agency, National Permitting Service, Quadrant 2, Parkway Business Park, Sheffield, S9 4WF

Email : Appeals_NPS@environment-agency.gov.uk

The documents are:

- a statement of the grounds of appeal
- a copy of any relevant application
- a copy of any relevant environmental permit
- a copy of any relevant correspondence between the appellant and the regulator
- a copy of any decision or notice which is the subject matter of the appeal
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

You may withdraw an appeal by notifying the Secretary of State in writing and sending a copy of that notification to us.

If you have any questions about this permit please phone me on 07570 163582 or email psocornwall@environment-agency.gov.uk. Please quote our reference when contacting us.

Yours sincerely

Flood and Coastal Risk Management Officer

Partnerships and Strategic Overview - West | Devon, Cornwall and the Isles of Scilly

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Kier Integrated Services Ltd

Installation of a new Eel Passage, with the inlet cast into a new reinforced concrete headwall of the St. Blazey stream and the outlet cast into the existing headwall of the Par River, new stoplog weir structure, and the temporary works of a cofferdam.

National Grid Reference[s]: SX 07501 53512

South of the A3082 Crossing, between St. Blazey Stream and the Par River, Par, Cornwall
PL24 2BD

Permit number

EPR/HB3153GL

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

The status log of the permit does not form part of the permit. It sets out the permitting history, including changes to the permit or permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Permit Application Submitted Ref: EPR/HB3153GL	22/09/2023	Application ‘Duly Made’ for Eel Passage installation from the St Blazey Stream into the Par River (A3082)
Permit determined EPR/HB3153GL	23/10/2023	Permit issued to Kier Integrated Services Ltd

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/HB3153GL

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Kier Integrated Services Ltd ("the operator")

whose registered office is

Kier Site Office
St Andrews Road
Par
Cornwall
PL24 2LX

Company Registration Number 00873179

to operate the following flood risk activities:

Installation of a new Eel Passage, with the inlet cast into a new reinforced concrete headwall of the St. Blazey stream and the outlet cast into the existing headwall of the Par River, new stoplog weir structure, and the temporary works of a cofferdam.

at

South of the A3082 Crossing, between St. Blazey Stream and the Par River, Par, Cornwall
PL24 2BD

National Grid Reference(s) SX 07501 53512

to the extent authorised by and subject to the conditions of this permit.

Name	Date
 **E. Baxendale** **Senior Advisor** **FCRM Directorate**	**20/10/2023**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of flooding, impact on drainage and environmental harm so far as is reasonably practicable, including those risks arising from operations, maintenance, accidents, incidents, non-conformances and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of the permit.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 2 to this permit and showing National Grid Reference SX 07501 53512.

2.3 Operating techniques

2.3.1 The operator shall use appropriate measures, including but not limited to those in the Method of Work:

(a) to minimise sediment mobilisation

(b) to minimise impact on biodiversity

(c) to ensure there is no increase to flood risk or detrimental impact on drainage;

(d) for the storage and disposal of waste produced; and

(e) to prevent and minimise environmental harm.

2.3.2 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

2.3.3 Measures shall be taken to ensure that the activities do not cause the spread of invasive non-native species or plant or animal diseases.

2.4 Operation, maintenance, and access

Access by the Environment Agency

2.4.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, ensure that the Environment Agency has unimpeded access to the St Blazey Pumping Station Pump House (Asset ID: 220408) in the manner and at the times set out in Schedule 1 table S1.5.

3 Information

3.1 Records

3.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) records relating to conditions for the ongoing operation or maintenance of a structure;

(ii) records relating to the continuing access of the Environment Agency to the watercourse or to works or structures it operates;

(iii) matters which affect the condition of the land.

3.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

3.2 Reporting

3.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

3.3 Notifications

3.3.1 The Environment Agency shall be notified no less than 7 days before the commencement of the activities.

3.3.2 Environment Agency shall be notified no less than 7 days after the activities are completed.

3.3.3 The Environment Agency shall be notified without delay following the detection of any breach of a limit specified in the permit or any significant environmental effects resulting from the activities or of any breach of the permit.

3.3.4 Written confirmation of actual or potential incidents or effects and breaches referred to in 3.3.3 shall be submitted within 24 hours.

3.3.5 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator’s trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

3.3.6 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for flood risk, drainage or the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

3.4 Interpretation

3.4.1 In this permit the expressions listed in schedule 3 shall have the meaning given in that schedule.

3.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

3.4.3 Any reference to a distance of a number of metres from a flood defence structure, drainage work, remote defence or sea defence is a reference to that distance as measured from the foot of the foregoing as the case may be.

3.4.4 Any reference to a distance of a number of metres from a river control work is a reference to that distance as measured from the nearest part of the river control work.

3.4.5 Any reference to a distance of a number of metres from a watercourse is a reference to that distance as measured horizontally from the foot of the bank on the landward side of the watercourse

Schedule 1 – Operations

Table S1.1 activities		
Activity reference	**Description of activities**	**Limits of activities**
	Permanent Works	
P1 P2 P3	Installation of a new reinforced concrete headwall within the Par Stream with an elliptical eel passage culvert Installation of the elliptical eel passage into the existing River Par headwall Installation of stop-logs in the river channel	The activity shall be commenced within 2 years of the date of the grant of the permit and completed within 6 months of commencement. The activities shall be carried out in accordance with the following approved documents: • Part B10 Flood Risk Activities Application Form (Dated: 08/09/2023) • Eel Passage RAMS Revision 1 (Dated: 08/09/2023) • Figure: General Arrangement Combined (Dated: 08/09/2023) • Highway Dam Environmental Action Plan FBC_v4.0 PSB Additional Assets (Dated: 08/09/2023) • Figure: Reinforcement Combined (Dated: 08/09/2023)
	Temporary or enabling works	
T1	The temporary dewatering of a work area through the creation of a coffer dam	The activity shall be commenced within 2 years of the date of the grant of the permit and completed within 6 months of commencement. The activities shall be carried out in accordance with the following approved documents: • Part B10 Flood Risk Activities Application Form (Dated: 08/09/2023) • Eel Passage RAMS Revision 1 (Dated: 08/09/2023)

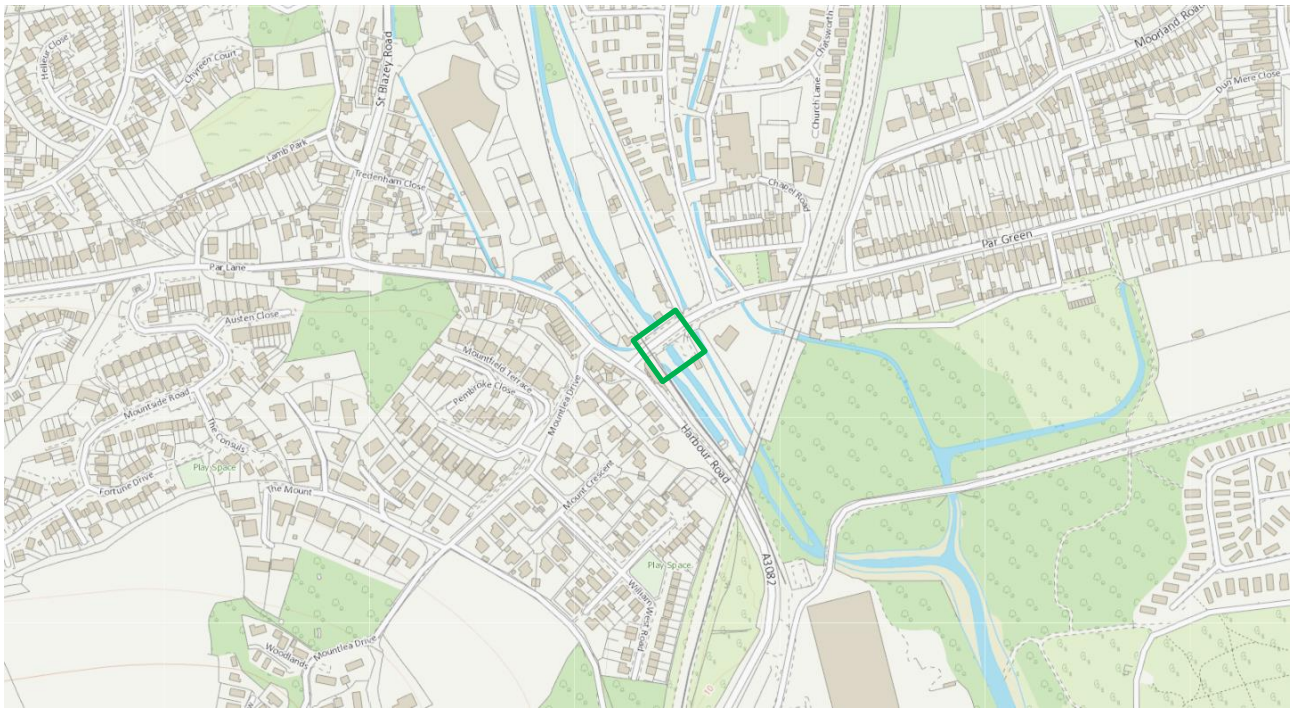
Table S1.1 activities		
Activity reference	**Description of activities**	**Limits of activities**
		• Figure: General Arrangement Combined (Dated: 08/09/2023) • Highway Dam Environmental Action Plan FBC_v4.0 PSB Additional Assets (Dated: 08/09/2023) • Figure: Reinforcement Combined (Dated: 08/09/2023)

Operation, maintenance, and access

Access by the Environment Agency

Table S1.5 Access by the Environment Agency	
Description of watercourse, works or structure for which access required	**Required access**
	The operator shall, unless otherwise agreed in writing by the Environment Agency, ensure that the Environment Agency has unimpeded access to the St Blazey Pumping Station Pump House (Asset ID: 220408) at all times, for the continued operation and maintenance of the facilities, as confirmed in the email correspondence: 'EPR/HB3153GL - Eel Passage installation from the St Blazey Stream into the Par River (A3082) - AP Consultation' sent by Ciaran Williams on 25/09/2023.

Schedule 2 – Site Plan



Schedule 3 – Interpretation

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“main river” means a watercourse or part of a watercourse designated as main river on the statutory main river map held by the Environment Agency.

“Method of Work” means a document forming part of the operator’s management system, setting out the working methods for carrying out the activity and what measures will be taken to avoid or minimise the risks of environmental effects.

“approved Method of Work” means the operator’s Method of Work approved by the Environment Agency

“environmental effects” means:

(a) flooding or risk of flooding;

(b) harm to the environment or risk of harm to the environment; and

(c) detrimental impact on drainage or risk of detrimental impact on drainage.

“environmental harm” means a result of human activity which may:

(a) cause harm to the conservation, protection and enhancement of any species and habitats designated under any enactment as having special protection or priority;

(b) prevent the achievement of environmental objectives within the meaning of the Water Framework Directive 2000/60/EC;

(c) cause pollution; or

(d) otherwise adversely affect the protection and enhancement of the environment.

END OF PERMIT