

AECOM Infrastructure & Environment UK Limited 5th Floor, 2 City Walk Leeds LS11 9AR United Kingdom

T: +44 (0)113 391 6800 aecom.com

Project name:

West Burton C (Gas Fired Generating Station)

Project ref: EN010088

From: Richard Lowe, AECOM

Date:

18th February 2020

To: Planning Inspectorate

Memo

Subject: Canal and River Trust (CRT) outstanding matters

Overview

The CRT as Navigation Authority for the River Trent has raised concerns about potential damage to the river and river bank from the Proposed Development. The purpose of this document is to provide additional assurance to the CRT that there will be no adverse impacts from the proposed West Burton C development (the Proposed Development) on the structural integrity of the river and river banks. We have included extracts from the CRT letter dated 4th December 2019 to aid clarity.

This information is in addition to the information provided to the CRT on the 27th November 2019 (Appendix A).

Background

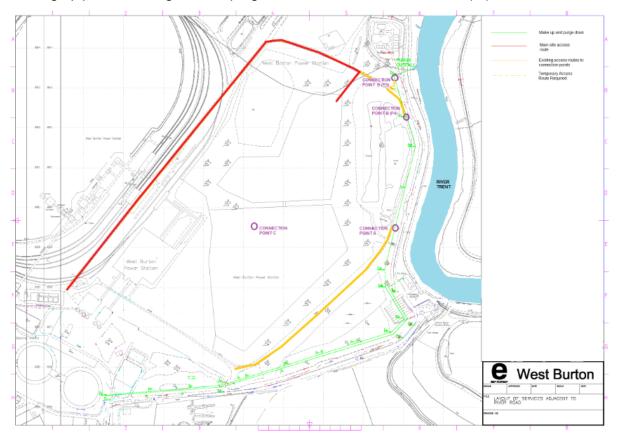
The Proposed Development is a relatively small power plant infrastructure project with an output of 299MWe, as compared with other recent and much larger Combined Cycle Gas Turbine (CCGT) projects that have been consented through the DCO regime (e.g. Eggborough CCGT which is 2,300MW capacity).

In addition, and critically when considering potential impacts on the local river, WBC is an OCGT (Open Cycle Gas Turbine) project as opposed to a CCGT. A CCGT requires large volumes of cooling water to cool the steam in the steam cycle; this is typically provided via direct connections to a river through a cooling water intake, with an associated outfall returning that water to the river after use. An OCGT plant does not need to extract or discharge cooling water directly from the river as it does not have a steam cycle.

A surface water drainage pipeline for rain water collection is required for the Proposed Development, as it would be for domestic housing and other developments. Where rainfall would previously have soaked into the ground or followed existing water courses to the river, the power plant (layouts APP-020 & APP-021) as a built development comprising some impervious structures needs to include a means of draining the rain water to the river directly or indirectly.

When the West Burton C project was first developed it was anticipated that there may have been a need to drain water directly into the river and this is why the CRT were consulted at the statutory consultation stage. However, it has now been established that there is no need for a direct connection to the river and instead a connection into existing site drainage infrastructure will be made. This therefore avoids us having to undertake any works on or near the river bank or in proximity to the Environment Agency flood defence that lies between the Site and the river.

Three surface water drainage options have been included in the Application; for two of these, options (A&B) a connection into an existing site drainage pipeline, known as the purge line (purge drain), is required. For the 3rd, option (C), a connection into the existing WBB site surface water drainage system is required. Further details of the three options can be found in the Outline Drainage Strategy document [APP-142]. The drawing below shows the location of the connections relative to the river, connection A and the two connection B locations are more than 45m away from the river and connection C is more than 350m away from the river. The maximum size of the drainage pipe connecting into the purge line from WBC will be 150mm (6") diameter.



CRT Concern 1 – Damage from Construction or Traffic Vibrations:

Extract 1:

river banks. The river banks are reinforced with sloping masonry in this location and as such are likely to be vulnerable to the impact of, for example, vibrations caused by construction works, the movement of heavy plant and equipment etc. Such works could adversely impact the stability of the riverside bank and necessitate future repair work. Accordingly, the Trust would need to be assured that any construction methods account for the stability of the banks and do not cause harm which may ultimately affect navigation along the River Trent.

- The river and river banks are not within the Order Limits of the Proposed Development and no work will take place on or close to CRT assets. The closest distance of works to the river bank is approximately 45m.
- River Road will not be used for construction vehicles for the Proposed Development; the
 route for construction vehicles is through the WBA site and is shown in Section 2.1 of the
 updated Framework Construction Traffic Management Plan (APP-137).
- The purge line at the connection point for options A and B is more than 45m from the river.
 Between the river bank and the purge line there is a raised flood defence which is the responsibility of the Environment Agency, see drawing appendix B. With the construction methods to be employed no risk has been identified to the raised flood defence and it is of

note that the Environment Agency as a statutory consultee for the Proposed Development with responsibility for flood defence and has not highlighted any concerns about the proximity of the proposed development works, drainage options proposed or risks to the flood defence. The EA has also not sought Protective Provisions within the draft DCO.

- River Road runs along the top of the flood bank and leads to the Severn Trent sewage treatment works. The road is routinely used by vehicles and to date there has been no damage to the river bank through the use of this road. Also, no risks to the road condition have been identified as a result of the proposed works for the WBC project.
- The main pressurised foul drain supplying the Severn Trent sewage plant runs below ground level parallel to and alongside River Road, i.e. between the WBC works and the river itself. Severn Trent has not highlighted any concerns about damage to their infrastructure as a result of the Proposed Development or proposed drainage options. No Protective Provisions are being sought by Severn Trent.
- Historically, a much larger (800mm diameter) cooling water connection was made into the purge line at connection point A as part of the construction of WBB which went into commercial operation in 2013. These works would have been consistent with those required now for WBC and undertaken at a similar distance from the river bank, but would have required a larger excavation and the boring of a larger hole in the side of the inspection chamber. No damage was caused to the flood defence, foul sewer, river bank or to the river from these works.
- If it would help to provide reassurance, we are happy to include the CRT as a consultee on the final method statement for the drainage works which will be discharged by requirement and which will require approval by the local authority BDC.
- A site visit has been arranged to allow the CRT to get a better understanding of the proposed works.

CRT Concern 2 – Design is not yet finalised, access roads and excavation works

Extract 2:

It is understood that the specific scheme has yet to be finalised, and that the overall risk to the waterway is likely to depend upon the final design and option undertaken for the construction of surface water drainage.

The Outline Method Statement highlights that works would comprise of the formation of temporary access roads and excavation works. Three different options have been put forward for these works, with categories A, B and C.

- Should Option B be pursued, the works would be approximately 50m from the river bank (as calculated using the scales provided from the drawings).
- In the absence of full details of the specifications of Option A, these works could be within approximately 30m of the river (i.e. any location within the Works Plan 5 shaded area).
- It is usual for the detailed design for a power station like West Burton C not to be finalised at the planning stage; detailed design only progresses once a project is certain to go ahead.
- Connection options A and B shown are similar and although strategy document (APP-142)
 only provides detail for option B it can be confirmed that the arrangement is also
 representative of option A.
- For options A and B the pipe line will be run from a collection pond on the main development site underground and be introduced into the existing purge line via a bored hole through the wall of an inspection chamber, the drain line will be sealed and grouted in

- place. It is envisaged that the drain works will be open cut trench work performed by a JCB or equivalent (there will be no requirement for piling).
- Option A, as shown on the drawing, is just over 45m from the river and not 30m.
- Temporary access roads, if required, and excavation works, associated with Options A and B, would be located to the West of the drainage connection and therefore will be further away from the river than the Purge Line. Temporary roads will be minimised and are only required to provide access for a JCB or equivalent and other light weight construction vehicles for the duration of these works.

CRT Concern 3 – Water flow and discharge into the river

Extract 3:

Options A and B would also result in connections to the existing purge drain and outfall to the river, which could have implications for the water flow and velocity, even within the existing discharge licence.

The additional information statement does not provide the necessary certainty or detail to allow us to conclude that there is no risk to the river from the works. We have confirmed with your representatives that no further technical information is currently available.

- The existing purge line consists of 2 x 42" concrete pipelines lines installed when West Burton A was built; water from the purging and draining down of the WBA cooling tower ponds is discharged through the purge line to the River Trent. When West Burton B was built, the purge line was additionally used for the discharge of cooling water and surface water drainage from the WBB.
- The additional rain water flow proposed to be directed through the purge line from the Proposed Development will be small (via a 6" diameter pipe) and the total flow including this additional water will remain within the allowed discharge consent limits specified in the Environmental Permit for West Burton B (WBB). There is no specific limit for surface water discharge in the permit as the rain water would anyway have found its way naturally to the river.
- Option C also discharges water through the purge line although the physical connection is into the WBB surface water drainage pipeline.
- The additional flow of water arising from WBC will therefore be insignificant and will not affect the current conditions in the river.

In Summary

CRT assets are not within the Order Limits of the Proposed Development and are at least 45 m from any proposed works, lying beyond an Environment Agency flood defence, a roadway and a foul sewer. No construction works will present any risk to the integrity of the river or river bank. No construction traffic for the Proposed Development will utilise the roadway running adjacent to the river. The additional rain water flow through the purge line from the surface water drains will be minimal and the total flow and velocity will remain within design limits. The rain water would anyway find its way naturally into the river.

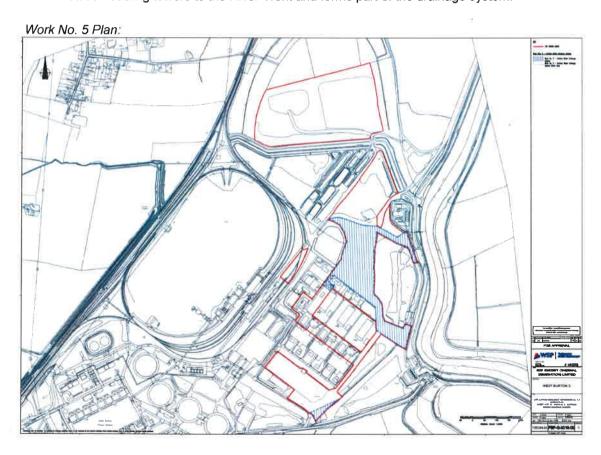
Memo West Burton C

Appendix A - Additional information provided for the Canal & River Trust on the 27th November 2019

West Burton C Gas Fired Generating Station Additional information for the Canal & River Trust

1 **BACKGROUND**

- 1.1 This document has been prepared on behalf of EDF Energy (Thermal Generation) Limited (the "Applicant") for the purpose of providing the Canal & River Trust (the "Trust") with additional information regarding the proposed West Burton C gas fired generating station (the "Proposed Development"). The note sets out details concerning the nature of the works proposed for Work No. 5 (section 2 below) and impacts on the Trust's interests (section 3 below).
- 1.2 Document references relate to the DCO Examination Library, accessible here.
- 2 NATURE OF WORKS PROPOSED (WORK NO. 5)
- 2.1 The Development Consent Order ("DCO"), once granted, will provide consent for Work No. 5 shown on Figure 3.2 (Sheet 5 of 10) of the application works plans (APP-013 -Document 3.2). This comprises a new surface water drainage system, comprising pond(s) and/or a tank or similar, including a surface water drainage pipeline connecting the Proposed Development into the existing West Burton Power Station site purge line that runs approximately parallel with River Road from the West Burton A ("WBA") Power Station cooling towers to the River Trent and forms part of the drainage system.



2.2 All three potential drainage connection options under consideration would connect to the existing WBA Power Station drainage infrastructure (purge line) for subsequent discharge to the River Trent. Consequently, there is no need for the Proposed Development to construct any new outfall into the river and none of the drainage options under consideration require works under or adjacent to the existing Environment Agency maintained flood defences and no new outfall structures are proposed.

Classification: Confidential

- 2.3 Only one of the three drainage options will be developed, and the decision as to which option will be used will be made at the detailed design stage. Details of the finalised drainage drawings clearly indicating the drainage routes and emissions points for the Proposed Development will be developed as part of the design process and approved by Bassetlaw District Council under the provisions of the DCO. This information would also be supplied to the Environment Agency prior to commencement of commissioning, as part of the Environmental Permit.
- 2.4 Surface water drainage options under consideration are presented in the Outline Drainage Strategy (APP-142 - Document 7.8) and described in Chapter 4: The Proposed Development (APP-033 - Document 5.2). Each of these options is assessed in the Environmental Impact Assessment ("EIA").

Option C

2.5 'Option C' presented in the Outline Drainage Strategy (APP-142 - Document 7.8) is to connect into an existing chamber (WBB GU36) within the existing West Burton B ("WBB") Power Station drainage system and for surface water to then be transmitted onto the permitted discharge point W6 of the Environmental Permit regulated by the Environment Agency, via a connection into the existing purge line chamber 15 south of the Proposed Development. The availability of this option is dependent on the final plant design and associated volumes of surface water drainage. This option may include the installation of an oily water separator to the south-east corner of the WBB Power Station site, as shown in the 'triangular' hatched area on Work Plan 5 above.

Option B

An alternative option 'Option 'B' in the Outline Drainage Strategy (APP-142 - Document 2.6 7.8) is to connect to the existing purge line chambers P3 or P4 and outfall prior to the sluice gate to the River Trent, near the existing Severn Trent Water sewage treatment works. This pipeline route (approximately 250m in length and referred to as the 'northern drainage connection corridor') would largely follow an existing access road (the Ash Road) that is used for access to the Severn Trent Water sewage treatment plant.

Option A

2.7 A third alternative option (Option 'A' in the Outline Drainage Strategy - APP-142 -Document 7.8) has also been identified. This pipeline route known as the 'southern drainage connection corridor' is approximately 350m in length and would connect into the existing WBB GMX/purge line chamber 7, (permitted discharge point W5 in the existing WBB Environmental Permit), to the south-east of the gas receiving facility for WBB Power Station. As explained in paragraph 5.2.9 of the Outline Drainage Strategy, due to the technical difficulties and risks present with the connection option 'A' (refer to Section 6.1), calculations and layouts have only been carried out for options 'B' and 'C'. The land required for Option A is included on Work Plan 5 and the option to construct and use this drainage connection corridor has been include in the EIA in order to ensure a worst-case assessment.

3 **IMPACTS ON THE TRUST'S INTERESTS**

River Trent users (lighting effects on navigation)

3.1 Lighting required during the operational stage of the Proposed Development would be designed to reduce unnecessary light spill outside of the Proposed Development site boundary, in accordance with the Lighting Strategy (APP-138 - Document No. 7.4). Due to the screening effect of intervening vegetation and the restrictions placed on lighting by the Lighting Strategy (refer to APP-138 - Document 7.4) it is anticipated that, overall, the effects of night-time lighting at sensitive receptors (including users of the River Trent for navigation) resulting from the Proposed Development will not materially increase above current baseline levels from WBA and WBB Power Stations.

WORK\35638830\v.3 2 38257.40

- 3.2 During construction, the Applicant has sought to limit the impact of light pollution from artificial light on local amenity through the Lighting Strategy. Paragraph 4.5.26 explains that lighting may be required around the site for night-time construction and during core working hours within winter months, but will be designed adopting the mitigation principles outlined in the Lighting Strategy to avoid excessive glare and minimise spill of light to nearby receptors (including navigational users of the River Trent) outside of the site as far as reasonably practicable.
- Control of lighting during construction is set out in the Framework Construction Environmental Management Plan (APP-137 Document 7.3) (the "CEMP") including measures to protect, manage and enhance existing trees and vegetation that is to be retained in the drainage connection corridors that would assist in reducing the impact of construction lighting associated with the Proposed Development. The CEMP also includes the commitment that "construction temporary site lighting required to enable safe working during construction in hours of darkness would be designed as far as reasonably practical so as not to cause a nuisance outside of the Site".
- 3.4 Furthermore, it is considered that the mitigation principles set out in paragraphs 3.1.3 and 3.1.4 of the Lighting Strategy to minimise the potential for excessive glare towards adjacent habitats used by bats will provide equal benefits to users of the River Trent, given that some of the important bat habitat referred to occurs in the West Burton Reedbed and West Burton Power Station Local Wildlife Sites, both adjacent to the River Trent. Impacts due to construction lighting on navigational users of the River Trent will therefore be minimised, as far as reasonably practicable, and effects on navigational safety are not considered likely.

Impacts on the riverbank due to construction activities

- 3.5 Appendix E.2 of the Outline Drainage Strategy (APP-142 Document 7.8) provides an outline connection method statement to assist in the understanding of the likely procedure for connection of drainage from the Proposed Development to the existing WBA drainage systems.
- If either Option B or Option C are chosen, working methods will involve the removal of vegetation along the line of the proposed drain, the formation of an access road and hardstanding, excavations within the ground down to the connection invert point and potential measures to prevent instability of excavations, coring works at the connection point to connect the new drainage pipeline, grouting and backfilling excavations. The activities proposed are considered low risk with regard to the potential to generate levels of vibration above which damage to buildings or structures would be expected. Such levels are set out in APP-037 (Chapter 8: Noise and Vibration) of the EIA, taking into account ISO 4866:2010 which defines different categories of building damage.
- In relation to the potential effects of construction vibration, it is acknowledged in APP-037 (Chapter 8: Noise and Vibration) that construction works have the potential to affect buildings within the existing WBB Power Station site, during piling, if required. However, this effect relates to annoyance to building occupants, rather than building damage. Paragraph 8.3.37 explains that the levels of vibration for building damage are far in excess of those that may cause annoyance, and no piling is proposed in relation to construction of the drainage works. Paragraph 8.6.19 notes that if piling, heavy earthworks, vibratory rollers or other significant vibration-producing operations are proposed in close proximity to any existing sensitive buildings, further consideration will be given to potential impacts, once the contractor is appointed and the construction methods and requirements are developed. This risk is included within the CEMP (APP-137 Document 7.3) for assessment and mitigation when the construction techniques and exact plant locations have been finalised, and would extend to any activities during construction that might result in vibration that could affect structures along the riverbank.
- 3.8 In particular, the Trust is referred to Table 4 of the CEMP which describes the best practicable means that would be applied to minimise vibration during construction,

including ensuring, for example, that where reasonably practicable, vibration is controlled at source (e.g. the selection of low vibration equipment). The final CEMP will be secured by Requirement 15 of the draft DCO.

Users of assets such as public rights of way adjacent to River Trent

- 3.9 The effects of the Proposed Development on recreational users of definitive footpaths that provide access to the riverside (River Trent, Wheatley Beck and Catchwater Drain) have been considered in APP-041 (Chapter 12: Flood Risk, Hydrology and Water Resources) (refer to paragraph 12.4.44) of the EIA. The possibility of effects on recreational activity, including walking along the River Trent, in the unlikely event of a pollution incident has been considered in paragraphs 12.6.7 (River Trent).
- 3.10 Public footpath FP4 is located immediately to the east of the Order limits, running along River Road. There is no specific identified need to temporarily stop up, alter or divert this. or any other public right of way, along the River Trent at this stage. If required, works to facilitate construction of the southern drainage connection corridor or, to a lesser extent. the other two drainage options under consideration above, are likely to require removal of a small amount of existing vegetation within areas of scrub near the approach to the River Trent. No other on-site or off-site landscape features on or adjacent to the River Trent would be impacted as a result of construction activities. Consequently, footpaths along the River Trent are therefore not being affected by the Proposed Development and will continue to be available for users throughout the construction and operational phases of the Proposed Development. The effects on users of the footpaths along the River have been assessed in the EIA and are not considered significant during either construction or operation of the Proposed Development.

Water quality

3 11 The Water Framework Directive ("WFD") status and value of the watercourses for water quality, recreation/other uses, water supply and biodiversity, including the River Trent, has been fully taken into account in APP-041 (Chapter 12: Flood Risk, Hydrology and Water Resources) (refer to paragraphs 12.4.22 - 12.4.39 and Table 12-7). As described in paragraph 12.6.49, given the nature of the impacts (notably that they are largely of temporary nature and/or unlikely to affect the WFD elements), and assuming the design and impact avoidance measures included in Section 12.5 would be effectively implemented, there would be no effect on WFD status and objectives of any of the watercourses assessed. The Proposed Development will not interfere with the mitigation measures already in place on the River Trent, Wheatley Beck and Catchwater Drain include the strategic management of sediment, bank rehabilitation, reducing impact of dredging and reducing sediment suspension.

4 THE APPLICANT'S PROPOSAL

- 4.1 In summary, assets of interest to the Trust will remain open and continue to be available for users, as they currently are, with no significant effects predicted. In addition, there are no proposed construction activities for the Proposed Development that create a risk to the Trust's assets or its ability to maintain these assets. On this basis, the Applicant's position is that there is no need to include protective provisions for the benefit of the Trust in the DCO.
- 4.2 However, the Applicant proposes the following changes to the DCO and the Lighting Strategy to ensure that the Trust is consulted as part of the final surface water drainage strategy and that any risks to navigation are mitigated:
 - (a) Inclusion of the Trust as a consultee for the surface and foul water drainage system. Requirement 9: Surface and foul water drainage of the DCO will be updated to include reference to Work No. 5 and include the Trust as a consultee. This will ensure that the Trust is able to monitor and contribute to the detailed design of the surface water drainage system and be satisfied that the scheme approved is as set out in the draft DCO and application documents.

WORK\35638830\v.3 4 38257.40

Detailed design

- 5.—(1) In relation to Work No. 1, Work No. 2, Work No. 4 and Work No. 5, no development must commence until details of the following, where relevant for that Work, have been submitted to and, after consultation with the Lead Local Flood Authority and Canal and River Trust in relation to Work No. 5, approved by the relevant planning authority-
 - (a) the siting, layout, scale and external appearance, including the colour, materials and surface finishes of all new permanent buildings and structures;
 - (b) finished floor levels:
 - (c) hard standings;
 - (d) the internal vehicular access and circulation roads, loading and unloading, vehicle parking and turning facilities, cycle parking and routes and pedestrian facilities and routes; and
 - (e) surface water management.
- (2) Work No. 1, Work No. 2, Work No. 4 and Work No. 5 unless otherwise agreed with the relevant planning authority must be carried out in accordance with the approved details.
 - (b) Inclusion of the Trust as a consultee for the detailed design of the surface water management system. Requirement 5: Detailed design of the DCO will be updated to include reference to Work No.5 and include the Trust as a consultee in relation to the approval of the detailed design of surface water management (Requirement 5(1)(e)). This will ensure that the Trust is able to input on the detailed design of the Proposed Development to the extent that it has an interest.

The proposed wording of the amended Requirement is:

Surface and foul water drainage

- 9.—(1) In relation to Work No. 1, Work No. 2, Work No. 4 and Work No. 5, no development must commence until, where relevant for that Work, details of temporary surface and foul water drainage systems, including means of pollution control, have been submitted to and, after consultation with the Environment Agency, Lead Local Flood Authority, relevant internal drainage board and Canal and River Trust, approved in writing by the relevant planning authority.
- (2) Details of the permanent surface and foul water drainage systems, including a programme for their implementation and maintenance, must be submitted to and, after consultation with the Lead Local Flood Authority and Canal and River Trust in relation to the permanent surface water drainage system, Environment Agency and relevant internal drainage board, approved by the relevant planning authority prior to the start of construction of any part of those systems.
- (3) The details submitted and approved pursuant to paragraphs (1) and (2) of this requirement must be in accordance with the outline drainage strategy.
- (4) The schemes must be implemented as approved and maintained throughout the construction and operation of the authorised development unless otherwise agreed with the relevant planning authority,
 - (c) Amendment to the Lighting Strategy to ensure any impacts on navigation are minimised. The Lighting Strategy will be updated so that Section 3: Design Principles and Section 7: Construction Site Lighting make specific reference to ensuring that the impacts of lighting on the navigation of the River Trent will be minimised and that the lighting will be designed to pose no hazard to the navigation of the waterway.

Classification: Confidential



Outline Method Statement

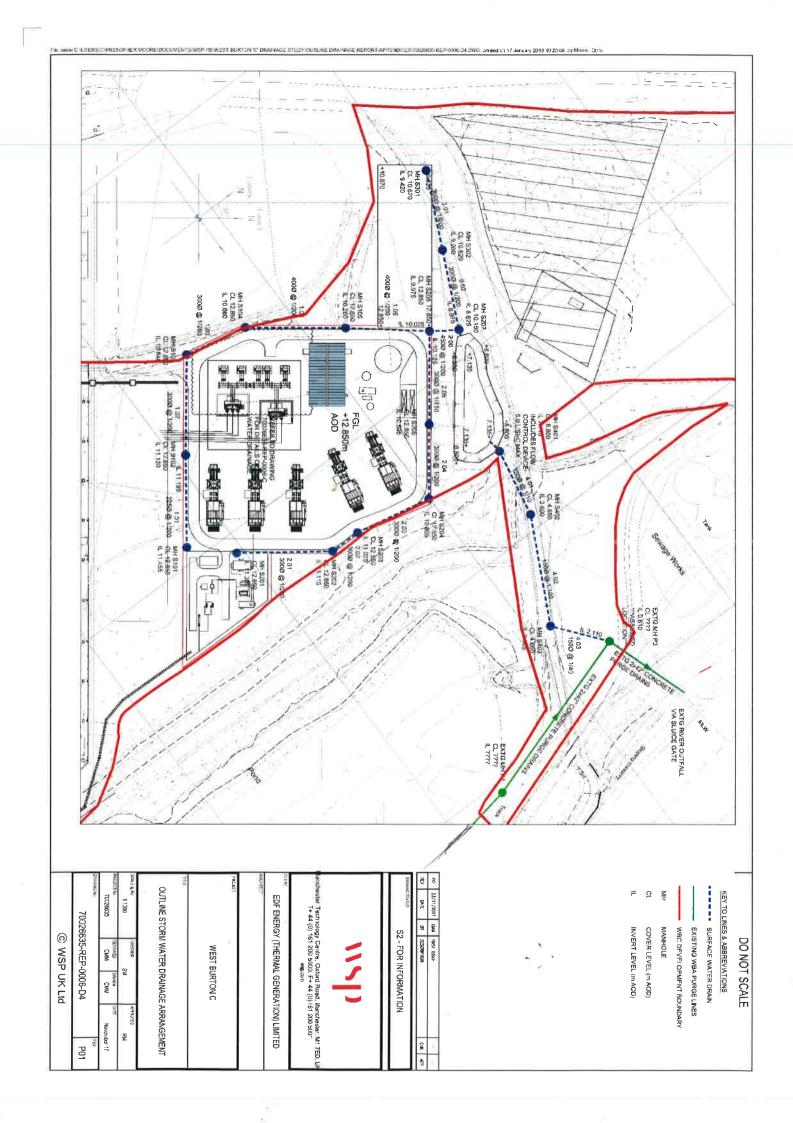
PROJECT NUMBER	70026635	DATE	20 November 2017
PROJECT NAME	West Burton 'C'	PRODUCED	C. Moore
CLIENT	EDF Energy (Thermal Generation) Limited	CHECKED	S. MacKillop
SUBJECT	Connection of WBC drainage to existing WBA Purge Line Chamber P3		

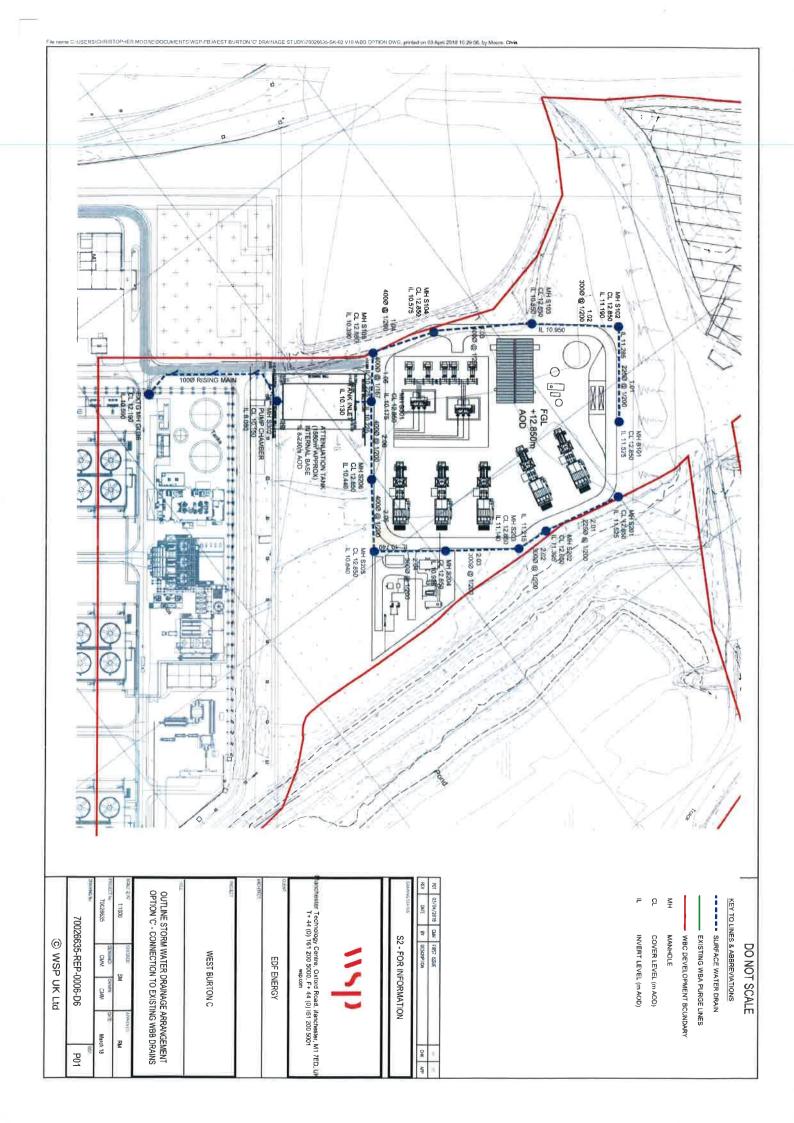
<u>NOTE</u>: The following outline methodology is provided to assist in the understanding of likely procedure for connection of WBC drainage to existing WBA drainage. The Contractor shall produce his own method statement for approval prior to commencement of the works, based on the detailed drainage design and proposed method of construction.

- Undertake full dimensional survey of interior of chamber P3, plus accurately determine location and levels, in order to confirm outline design proposals. [HOLD POINT] NOTE – Chamber P3 is likely to be a CONFINED SPACE and suitable working methods should be adopted if man access cannot be avoided.
- 2. Remove vegetation along line of proposed drain from MH S403 to P3, plus sufficient working and laydown room.
- Form temporary (permanent?) access road and hardstanding as necessary for duration of works (and future O&M?)
- 4. Excavate down to connection point invert on outer wall of chamber P3, plus additional depth locally for man / plant access for coring through existing chamber wall. Shoring / appropriate battering to excavation perimeter, plus dewatering as necessary, to prevent instability of excavation and for ease of access / working.
- 5. Remove access cover to chamber P3 in order to check internal water level is sufficiently low to prevent outflow once chamber wall is breached by core drill.
- 6. Coring works at connection point in accordance with appropriate risk assessment & method statement.
- 7. Insert pipe stub through new entry hole to chamber P3 and support as necessary.
- 8. Grout annulus between perimeter of pipe and wall of new entry hole using non-shrink cementitious grout* and allow to cure in accordance with manufacturer's instructions (note outer end of pipe stub should be capped if left exposed for any extended period of time)
- 9. Excavate, prepare and lay drain from pipe stub back towards new manhole S403 before backfilling full run up to chamber P3.

Note * - may necessitate man entry to chamber to complete works, in which case suitable working methodology required to mitigate confined space hazards.

Note – dewatering of chamber may be necessary prior to man access, if required by proposed working methodology. This could be achieved temporarily by insertion of dam boards at purge line entrance and exit from the chamber and removal of chamber water by pump to suitable tank or agreed location above ground





Appendix B – Indicative Cross Section of Land between the River and Power Plant Site

