

Dŵr Cymru Welsh Water

**Cardiff Central District Sewerage
Pumping Station**

WFD Compliance Assessment

4293_S_205-ARP-07-XX-RP-NX-10045

Issue | 23 January 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 241391-00

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Document verification

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|---|-------------|---|-----------------------------------|-----------------------|---------------------|
| Job title | | Cardiff Central District Sewerage Pumping Station | | Job number | |
| | | | | 241391-00 | |
| Document title | | WFD Compliance Assessment | | File reference | |
| | | | | | |
| Document ref | | 4293_S_205-ARP-07-XX-RP-NX-10045 | | | |
| Revision | Date | Filename | WFD Compliance Assessment v3.docx | | |
| Issue | 23 Jan 2020 | Description | Version of issue | | |
| | | | Prepared by | Checked by | Approved by |
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| | | Description | | | |
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| <div>Issue Document verification with document</div> <div><input checked="" type="checkbox"/></div> | | | | | |

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1 Introduction

Arup has been commissioned by Dŵr Cymru Welsh Water (DCWW) to undertake a Water Framework Directive (WFD) Assessment for the scheme known as Cardiff Central District Sewerage Pumping Station.

Under the WFD¹, all proposed schemes with the potential to impact upon WFD-designated water bodies must be assessed to ensure:

- No deterioration of the current status or potential of any WFD quality elements; and
- No prevention of future attainment of the ‘good’ status or potential objectives of any WFD quality elements.

This report follows guidance produced by Natural Resource Wales² (NRW) to produce a WFD Assessment Report which identifies the activities related to the scheme that may cause deterioration or prevent a water body from meeting its objectives. The report follows the scoping template provided as part of this guidance, along with a detailed impact assessment of residual risk identified.

¹ European Commission. Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

² Natural Resources Wales / Environment Agency. Water Framework Directive assessment: estuarine and coastal water. Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

2 Project Details

| Your activity | Description, notes or more information |
|---|---|
| Applicant name | Morgan Sindall |
| Name of activity | Cleaning of outfall pipe and replacement of outfall grille |
| Brief description of activity | <p>The scheme involves:</p> <ul style="list-style-type: none"> The cleaning of emergency overflow outfall pipeline to remove 67m³ of indigenous estuarine material that is regularly brought in by high tides; A like-for-like replacement of the grille on the end of the outfall pipe. |
| Location of activity (central point XY coordinates or national grid reference) | 320896 175512 |
| Footprint of activity (ha) | <0.1ha |
| Timings of activity (including start and finish dates) | <p>Approximate start date: May 2020</p> <p>Approximate finish date: June 2020.</p> <p>Approximate number of working days: 27</p> |
| Extent of activity (for example size, scale frequency, expected volumes of output or discharge) | 67m ³ of indigenous estuarine material |
| Use or release of chemicals (state which ones) | N/A |

3 WFD Baseline Information

| Water body ³ | Description, notes or more information |
|--|---|
| WFD water body name | Severn Lower |
| Water body ID | GB530905415401 |
| River basin district name | Severn |
| Water body type (estuarine or coastal) | Transitional |
| Water body total area (ha) | Approximately 46,600 |
| Overall water body status (2015) | Moderate |
| Ecological status | Moderate |
| Chemical status | Fail |
| Target water body status and deadline | Good by 2021 |
| Hydromorphology status of water body | Morphology: N/A Hydrological Regime: N/A |
| Heavily modified water body and for what use | Heavily modified water body – flood protection use |
| Higher sensitivity habitats present | Intertidal seagrass Mussel beds, including blue and horse mussel Saltmarsh |
| Lower sensitivity habitats present | Cobbles, gravel and shingle Intertidal soft sediment Rocky shore Subtidal rocky reef Subtidal soft sediment |
| Phytoplankton status | High |
| History of harmful algae | Not monitored |
| WFD protected areas within 2km | Severn Estuary Special Areas of Conservation (SAC) Severn Estuary Special Protection Area (SPA) |

³ Water body information can be found in the Environment Agency's catchment data explorer and the water body summary table. Magic maps provide additional information on habitats and protected areas. Links to these information sources can be found in the WFD assessment guidance for estuarine and coastal waters.

4 Screening Assessment

The proposed works consist of maintenance of the existing overflow from the sewerage network at Cardiff Central Sewage Pumping Station. As the proposal will involve works within the Severn Estuary, there is potential to affect the current WFD status of the Severn Estuary water body (GB530905415401). Therefore, these activities have been screened into the WFD Scoping Assessment.

The proposed operational activities for the sewerage pumping station and overflow will remain as existing and therefore are not considered to present a risk to the WFD status of Severn Estuary (GB530905415401) and has been screened out from further assessment.

5 Scoping Assessment

5.1 Hydromorphology

| Consider if your activity: | Yes | No | Hydromorphology risk issue(s) |
|---|-----|-------------------------------------|--|
| Could impact on the hydromorphology (for example morphology or tidal patterns) of a water body at high status | | No - Impact assessment not required | Water body not at high status. |
| Could significantly impact the hydromorphology of any water body | | No - Impact assessment not required | Impacts are not likely as construction activities will take place during low tide and do not require dry working areas or modifications to the estuary. The volume of sediment being re-distributed is very small relative to the size of the water body. |
| Is in a water body that is heavily modified for the same use as your activity | | No - Impact assessment not required | Proposal is located in a HMWB for flood protection purposes. Activity is routine maintenance of a drainage network asset. |

5.2 Biology

5.2.1 Habitats

The list of habitats considered to be higher sensitivity and lower sensitivity by the WFD which should be considered within an assessment are shown below.

| Higher sensitivity habitats ⁴ | Lower sensitivity habitats ⁵ |
|--|---|
| chalk reef | cobbles, gravel and shingle |
| clam, cockle and oyster beds | intertidal soft sediments like sand and mud |
| intertidal seagrass | rocky shore |
| maerl | subtidal boulder fields |

⁴ Higher sensitivity habitats have a low resistance to, and recovery rate, from human pressures.

⁵ Lower sensitivity habitats have a medium to high resistance to, and recovery rate from, human pressures.

| Higher sensitivity habitats ⁴ | Lower sensitivity habitats ⁵ |
|--|---|
| mussel beds, including blue and horse mussel | subtidal rocky reef |
| polychaete reef | subtidal soft sediments like sand and mud |
| saltmarsh | |
| subtidal kelp beds | |
| subtidal seagrass | |

| Consider if the footprint ⁶ of your activity is: | Yes | No | Biology habitats risk issue(s) |
|---|-----|-------------------------------------|--------------------------------|
| 0.5km ² or larger | | | |
| 1% or more of the water body's area | | | |
| Within 500m of any higher sensitivity habitat | | | |
| 1% or more of any lower sensitivity habitat | | No – Impact assessment not required | |

5.2.2 Fish

| Consider if your activity: | Yes | No | Biology fish risk issue(s) |
|---|-----|-------------------------------------|---|
| Is in an estuary and could affect fish in the estuary, outside the estuary but could delay or prevent fish entering it or could affect fish migrating through the estuary | | No – Impact assessment not required | Construction activities will occur during low tide and above the water line. All plant will be removed from the working area between working periods. |
| Could impact on normal fish behaviour like movement, migration or spawning (for example creating a physical barrier, noise, chemical change or a change in depth or flow) | | No – Impact assessment not required | As above. |
| Could cause entrainment or impingement of fish | | No – Impact | As above. |

⁶ Note that a footprint may also be a temperature or sediment plume. For dredging activity, a footprint is 1.5 times the dredge area.

| | | | |
|--|--|-------------------------------|--|
| | | assessment not required | |
|--|--|-------------------------------|--|

5.3 Water Quality

| Consider if your activity: | Yes | No | Water quality risk issue(s) |
|--|-----|-------------------------------------|---|
| Could affect water clarity, temperature, salinity, oxygen levels, nutrients or microbial patterns continuously for longer than a spring neap tidal cycle (about 14 days) | Yes | | Construction activities will occur for longer than 14 days. There is potential for construction activities to displace existing indigenous estuarine material causing potential increased in suspended solids and decreased oxygen levels. |
| Is in a water body with a phytoplankton status of moderate, poor or bad | | No – Impact assessment not required | Phytoplankton status ‘Good’ |
| Is in a water body with a history of harmful algae | | No – Impact assessment not required | N/A (Not a category in Wales data) |
| If your activity uses or releases chemicals (for example through sediment disturbance or building works) consider if: | Yes | No | Water quality risk issue (s) |
| The chemicals are on the Environmental Quality Standards Directive (EQSD) list | Yes | | The proposal will involve dispersion of indigenous estuarine material. Any chemicals contained within the material have originated from the estuary they are re-entering therefore the chemicals are already expected to be present in the estuary. Given the quantity of estuarine material to be dispersed, impacts associated with the dispersion of sediment are expected to be minor, temporary and localised. |
| It disturbs sediment with contaminants above Cefas Action Level 1 | | No – Impact assessment not required | As above. |

| If your activity has a mixing zone (like a discharge pipeline or outfall) consider if: | Yes | No | Water quality risk issue(s) |
|---|-----|------------------------|---------------------------------------|
| The chemicals released are on the Environmental Quality Standards Directive (EQSD) list | | No – Impact assessment | Proposal does not involve a change to |

| | | | |
|--|--|--------------|--|
| | | not required | the composition of the outfall effluent. |
|--|--|--------------|--|

5.4 WFD Protected Areas

| Consider if your activity is: | Yes | No | Protected areas risk issue(s) |
|---|----------------------------|----|--|
| Within 2km of any WFD protected area ⁶ | Requires impact assessment | | The proposed site is directly adjacent to the Severn Estuary Special Protection Area (SPA) and Severn Estuary Special Areas of Conservation (SAC). |

5.5 Invasive Non-Native Species (INNS)

| Consider if your activity could: | Yes | No | INNS risk issue(s) |
|----------------------------------|-----|-------------------------------------|--|
| Introduce or spread INNS | | No – Impact assessment not required | Invasive species have not been identified on site. Contractor Risk Assessment Method Statement) RAMS to include Biosecurity Measures to ensure no INNS are introduced to the site. |

5.6 Scoping Summary

| Receptor | Potential risk to receptor? | Note the risk issue(s) for impact assessment |
|-----------------------------|-----------------------------|---|
| Hydromorphology | No | |
| Biology: habitats | No | |
| Biology: fish | No | |
| Water quality | Yes | Construction activities will occur for longer than 14 days and will place indigenous estuarine material back into the water body. The disturbance of sediment has the potential to adversely affect water quality. |
| Protected areas | Yes | The proposed site is directly adjacent to: <ul style="list-style-type: none"> Severn Estuary Special Protection Area (SPA) (UK9015022); and Severn Estuary Special Areas of Conservation (SAC) (UK0013030). |
| Invasive non-native species | No | |

6 Detailed Assessment

The WFD Scoping Assessment identified potential risks to the following receptors: water quality and protected areas.

A Habitats Regulation Assessment (HRA)⁷ has been prepared for the works (Appendix E of the Marine License) which assesses the potential for impacts to habitats and protected areas in detail and the potential for the introduction or spread of INNS. For brevity, the findings of the HRA have been used to inform the conclusions of this assessment as they relate to the same works and protected areas/habitats. Both assessments will support a Marine Licence application for the works.

6.1 Potential Risks

6.1.1 Water Quality

The proposed development involves the removal of indigenous estuarine material from the overflow outfall which will be placed on the foreshore and dispersed naturally with the tides. Potential water quality impacts include turbidity and reduced BOD through an increase of sediment in the water from the estuarine material and through sediment disturbance associated with the replacement of the outfall grille.

As the scheme involves the movement and dispersion of naturally occurring estuarine sediment it is not considered that water quality will be impacted.

It is considered unlikely that these activities would result in a deterioration in water quality beyond a localised, temporary change as the small volume of placed material is redistributed within the estuary. The Contractor will produce a Method Statement for the works, demonstrating compliance with best practice pollution prevention e.g. GPP5 and CIRIA guidance. No further mitigation is considered necessary. The proposed development does not involve any activities that could impact the groundwater and therefore do not present a risk to groundwater quality.

6.1.2 Protected Areas

The site is located adjacent to the Severn Estuary SPA and Severn Estuary SAC. The working area is considered to represent a small proportion of the protected area and hence any potential impacts associated the dispersion of estuarine material, disturbance of sediment associated with the workings to place the outfall grille or dispersion of any chemicals within the material (as stated above) are not considered to be significant.

The HRA prepared for the works have assessed the impacts on the protected areas and proposed suitable mitigation to minimise potential impacts on the areas. In addition, the RAMS will include requirements to adhere to best practice pollution

7

prevention e.g. GPP5 and CIRIA guidance. No further mitigation is considered necessary.

6.2 Mitigation Measures

Update to the RAMS for construction should incorporate the following mitigation measures:

- Site-specific methods will ensure that all site activities are controlled and are in accordance with standard operating procedures; e.g. Guidelines for Pollution Prevention⁸ (GPPs) and CIRIA best practice.
- Limiting the physical works footprint and the dimensions of the access corridor as far as reasonably practicable.
- All plant will be sourced from a trusted reputable company and will come with spill kits which site personnel will be trained to use.
- Vehicles will be loaded with all plant and materials necessary to undertake the works to minimise plant movements below MHWS.
- Minimal quantities of fuels, materials, etc. will be taken on to the foreshore with biodegradable fuel oils implemented where practicable.
- All storage containers will remain within the site compound and be appropriately banded to prevent any spillages or leaks. No storage of materials or refuelling operations will be permitted outside the site compound.

⁸ <http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppps-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

7 Conclusion

The assessment has established the potential risks to receptors associated with the proposed works to clean the existing sewer outfall pipe and introduce a grille to the outfall. The key receptors are the WFD protected sites of the Severn Estuary SPA and SAC located adjacent to the proposal and the water quality within the Severn Estuary.

Given the impacts relate to the protected areas, the findings of the HRA prepared for the works have been used to inform the conclusions of this assessment. The HRA has proposed suitable mitigation to minimise the potential for impacts to protected areas which are also considered to be relevant to this assessment.

Combined with the temporary and minimal nature of the works, this mitigation is considered sufficient to ensure that the proposed works do not, either alone or in combination with other projects, give rise to any adverse effects upon WFD water bodies or habitats or prevent them from attaining good status in the future.

This assessment has been based on currently available WFD baseline data and design information for the scheme. It is considered a 'live' document and should be reviewed and updated during construction, particularly if:

- NRW update or provide additional WFD baseline data for the relevant water bodies; and/or
- Significant changes to the nature, spatial extent, scale or construction methods of the scheme are made.

The outcomes of this assessment should be shared and agreed with NRW (as the regulatory authority for the WFD in Wales) as part of the Marine Licensing process.