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A55 J16 AND J16A IMPROVEMENT SCHEME SUPPLEMENTARY REPORT ON SURFACE WATER QUALITY AND WATER FRAMEWORK DIRECTIVE

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1. INTRODUCTION

1.0.1 Following review of the Environment Statement for the A55 J16 and J16A Improvement Scheme, Natural Resources Wales (NRW) raised a number of points of concern / where they sought clarification. NRW's points were put in a letter dated 10 May 2021 (Ref CAS-142761-D5W2)

1.0.2 The majority of responses were given in a letter from Welsh Government to NRW dated 19 July 2021 (reference qA1420023). For some of the items raised, more detailed clarification was to follow in a supplementary report. This report provides that detail for matters related to surface water quality and the Water Framework Directive (WFD). Matters related to flood risk are covered in a separate report.

2. CLARIFICATIONS TO CHAPTER 7: ROAD DRAINAGE AND THE WATER ENVIRONMENT

Table 2.1: Title

Section	NRW Request for Clarification	Clarification
7.4.5	With regards to Section 7.4.5. we require clarification on which WFD classifications were used here. Please note this paragraph taken from 'WFD Cycle 2 Interim Classifications FAQs English' from the Water Watch Wales website when referring to the 2018 interim WFD classification: "How robust was the quality assurance of the estuarine and coastal classification compared to previous years? Due to limited resources it was not possible to carry out a full quality assurance of the estuarine and coastal classification as undertaken in previous years. Where there is a change in status, the interim classification result must be used alongside the 2015 classification to provide context. Any decisions based on the interim classification will need to be carefully considered and will need to be informed by any investigations into the status change."	The WFD classification of the Conwy Bay coastal water body quoted dates to 2018 and is sourced from the Water Watch Wales online WFD web-mapping portal[1]. The portal provides a time series of WFD waterbody classifications ranging from Cycle 1, Cycle 2 (2015) to Cycle 2, (interim, 2018). From 2015 onwards are classifications are moderate, indicating a stability in condition. Whilst it is noted on the portal that for the 2018 data it was not possible to carry out a full quality assurance (QA) of the estuarine and coastal classification as undertaken in previous years, all the data sets present a consistent message, indicating a robustness to the classifications quoted, regardless of the quoted note with regards to QA.
7.10.4	We advise that the Conwy Transitional waterbody be screened in as well. With regards to Section 7.10.4. It is stated that the conclusion of the WFD Assessment is 'no deterioration' to the designated waterbodies. However, the waterbodies have not been adequately assessed. We therefore advise that this section be updated once the assessment is complete.	The Conwy transitional water body lies just outside of the study area, approximately 600 m to the northeast of the most north easterly end of the Scheme. Its waters flow past Conwy town, discharging into Conwy Bay to the south of Llandudno. WFD Cycle 2, (interim, 2018) classification for this water body is moderate, due to the presence of mercury and trichlorobenzene. An update version of Appendix 7.1, Table 4-1 which includes the Conwy transitional water body is provided later in this report.

[1] https://waterwatchwales.naturalresourceswales.gov.uk/en/

3. CLARIFICATIONS TO APPENDIX 7.1: WFD ASSESSMENT

Table 3.1: Title

Section	NRW Request for Clarification	Clarification
Appendix 7.1, Section 2.3 and Table 4-1	We note Table 4.1 We advise that the Conwy Transitional waterbody should also be screened in.	An update version of Table 4-1 which includes the Conwy transitional water body is provided below.
Appendix 7.1, Table 4-2	We note Table 4.2 and advise that it is unclear which waterbodies were scoped in this table. As only one waterbody was screened in, it can be assumed that this is the waterbody being scoped, but it should be stated for clarity which waterbody is being scoped. We advise that Conwy Transitional waterbody should be screened in and may also need to be scoped.	An updated version of Table 4-2 is provided below, which incorporates clarification as to which water bodies are referred to. Conwy transitional water body has been included within the table.
Appendix 7.1, 4.4.1	Inclusion of Conwy Transitional Water Body in the impact assessment	The scoping stage identified the potential for surface water highway run-off from the Scheme to have a detrimental effect on adjacent water bodies due to the presence of pollutants from the EQSD list within it. The Scheme would discharge surface water run-off via seven existing outfalls and one proposed new outfall along the length of the Scheme into the Conwy Bay coastal water body, which is currently classified as failing with respect to its chemical status due to the presence of mercury and trichlorobenzenes. The Conwy transitional water body would receive no discharges from the Scheme
Appendix 7.1, 4.4.4		For discharges to the sea, the HEWRAT methodology was adapted for use in saline waters (as there is no better alternative) and the results are set out in Appendix 7.3 to the Environmental Statement. The assessment concluded that the discharge of routine runoff from the Scheme to Conwy Bay coastal water body would have a negligible impact. Consequently, any impact on the Conwy transitional water body would also be negligible and due to its distance from the Scheme and the significant level of dilution that would occur between the point of discharge and transport to the area of that waterbody, would be even more negligibly affected than the level modelled for the Conwy Bay coastal water body.
Appendix 7.1, 4.4.7		Taking all of the above into account, the impact of routine runoff on the water environment of Conwy Bay coastal water body and Conwy transitional water body is considered to be negligible both from dissolved and sediment-bound contaminants.
Appendix 7.1, 4.4.9		Given the predicted levels of contaminants, mitigated by the inclusion of some pollution control measures in the Scheme design and the significant dispersion within the Conwy Bay coastal water body it is concluded that the discharge of surface water run-off from the Scheme would not result in significant impacts on the quality of the water within the Conwy Bay coastal water body or the Conwy Bay transitional water body, and that the Scheme provides betterment over the current situation.

Section	NRW Request for Clarification	Clarification
Appendix 7.1, 4.7	With regards to section 4.7. Mitigation Measures. We advise that the statement "the Scheme is unable to have an impact on formal mitigation measures for the Conwy Bay waterbody as there are none currently in place" is inaccurate. Under the WFD, mitigations measures for heavily modified water bodies (HMWBs) that are 'not in place' and have not been identified as technically feasible or disproportionately costly should be considered active, and impacts caused by the proposed project must be assessed.	There are no local target mitigation measures in place for either the Conwy Bay coastal water body or the Conwy transitional water body. The Scheme is therefore unable to have an impact on such targeted mitigation measures for either water body as there are none currently in place. NRW does, however, have a number of national measures, some of which are relevant to this Scheme. Although details of individual measures are quite specific and targeted, the overall theme of the relevant measures is to increase utilisation of sustainable drainage systems (SuDS) in order to: • manage water pollution from towns, cities and transport; and • manage flood risk. The Scheme drainage design includes the use of SuDs and flow attenuation mechanisms to intercept pollution and limit flows to existing levels (allowing for climate change). Additionally, flood modelling has been carried out in order to identify the need for flood control and compensation, and measures included within the design. In this way, the Scheme supports these wider national mitigation measure targets.

A55 J16 Environmental Statement, Appendix 7.1, Table 4-1 Water Framework Directive Assessment Scoping (Revision A – July 2021)

Activity/Characteristic	**Description Notes or More Information**		
Applicant name	Welsh Government		
Name of activity	Construction and operation of the Scheme		
Brief description of activity	Creation of new grade-separated junction, new overbridge and associated slip roads		
Location of activity (central point XY coordinates or National Grid reference)	Approximately 273404E, 377664N		
Footprint of activity (ha)	Site area is approximately 30 ha		
Use or release of chemicals (state which ones)	None		
Water body type	**Groundwater**	**Coastal**	**Transitional**
WFD water body name	**Llyn and Eryri**	**Conwy Bay**	**Conwy**
Water body ID	GB41002G204600	GB671010400000	GB541006614800
River basin district name	Western Wales	Western Wales	Western Wales
Water body total area	1317 km^2	49.7 km^2	15.57 km^2
Overall water body status	Poor (2018 interim, Cycle 2)	Moderate (2018 interim, Cycle 2)	Moderate (2018 interim, Cycle 2)
Ecological status	N/A	Moderate (Cycle 2) (due to quality of invertebrate populations, infaunal quality index score)	Moderate (Cycle 2) (due to quality of invertebrate populations, angiosperms and mitigation measures assessment)
Chemical status	Poor (qualitative) (Cycle 2)	Fail (Cycle 2) (due to the presence of mercury and trichlorobenzenes)	Fail (Cycle 2) (due to the presence of mercury and trichlorobenzenes)
Quantitative Status	Good (quantitative) (Cycle 2)	N/A	N/A
Target water body status and deadline	Poor by 2015	Good by 2021	Good by 2021

Activity/Characteristic	**Description Notes or More Information**		
Hydromorphology status of water body	N/A	-	-
Heavily modified water body and for what use	N/A	Yes – for coastal protection	Yes – for flood protection
	Habitat	**Distance from Scheme**	**Area**
Higher sensitivity habitats present (low resistance to, and recovery rate, from human pressures)	Mussel beds	130 m northwest. Adjacent to Penmaenmawr Wastewater Treatment Works	0.4 ha
Lower sensitivity habitats present (medium to high resistance to, and recovery rate from, human pressures)	Cobbles, gravel and shingle	Minimum 30 m northwest	Extensive strip of cobbles, gravel and shingle forming the beach adjacent to the whole length of the Scheme plus additional areas to the west and east along the coast
	Intertidal soft sediments like sand and mud	Minimum 40 m northwest	Extensive area extending full length of the Scheme plus additional areas to the west and east along the coast
	Rocky shore	40 m northwest	Extensive strip of rocky foreshore forming the beach adjacent to the whole length of the Scheme plus additional areas to the west and east along the coast
	Subtidal soft sediments like sand and mud	Approximately 300 m to northwest	Significant area along full length of Scheme and extending out into Conwy Bay
Phytoplankton status	Blooms of the algae *Phaeocystis* can occur along the coastline during warm and calm weather in May and June. NRW report that this typically produces a cream or brown scum along the water's edge but is otherwise harmless**Error! Bookmark not defined.**.		
History of harmful algae	Not recorded by NRW		
WFD Protected Areas within 2 km	Bathing water – Penmaenmawr (excellent quality) SPA – Liverpool Bay (UK9020294) SAC – Menai Strait and Conwy Bay (UK0030202) Shellfish water – Conwy		

A55 J16 Environmental Statement, Appendix 7.1, Table 4-2 Water Framework Directive Assessment Scoping – Specific Risk Information (Revision A – July 2021)

Within each topic presented below, the conclusions as to whether further impact assessment is required or not is indicated in bold text, with the reasoning for that decision in the 'Topic' Risk Issues column to the right

HYDROMORPHOLOGY			
Assess further if 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	Requires impact assessment	**Impact assessment not required**	No. The adjacent water bodies (Conwy Bay coastal water body and Conwy transitional water body) are of both of moderate status.
Could significantly impact the hydromorphology of any water body	Requires impact assessment	**Impact assessment not required**	No. The Scheme discharges run-off through the existing drainage system into the adjacent Conwy Bay coastal water body and therefore will not result in any change from the existing situation.
Is in a water body that is heavily modified for the same use as your activity	Requires impact assessment	**Impact assessment not required**	No. The Scheme discharges into the Conwy Bay coastal water body which is classified as a Heavily Modified Water Body (HMWB) but not for purposes the same as the nature of the Scheme.
BIOLOGY - HABITATS			
Asses further if the footprint[1] of activity is:	**Yes**	**No**	**Biology Habitats Risk Issue(s)**
0.5 km^2 or larger	**Yes to one or more – requires impact assessment**	No to all – impact assessment not required	No. The Scheme does not lie within a surface water body and the extent of potential effects from discharge of highway drainage are expected to have a footprint of less than 0.5 km^2.
1% or more of the water body's area			No. The Scheme does not lie within a surface water body and takes up less than 1% of the underlying Llyn and Eryri groundwater water body. Highway runoff would be discharged via outfalls into the Conwy Bay coastal water body but the area affected by such outfalls would be less than 1% of its overall area.
Within 500 m of any higher sensitivity habitat			Yes. The closest higher sensitivity habitat (mussel beds) is located approximately 130 m from the Scheme (see Plate 1).
1% or more of any lower sensitivity habitat			No. The Scheme does not lie with a lower sensitivity habitat. Highway runoff would be discharged via an outfall across a lower sensitivity habitat (rock and shingle beach) but the area affected by such outfalls would be less than 1% of the overall area of lower sensitivity habitats.

FISH			
Assess further if 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	Continue with questions	**Go to next section**	No. The Scheme is not located within an estuary, nor would discharges of stormwater from the Scheme have the potential to affect fish migration within the Conwy Bay transitional water body.
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)	Requires impact assessment	**Impact assessment not required**	
Could cause entrainment or impingement of fish	Requires impact assessment	**Impact assessment not required**	
WATER QUALITY			
Assess further if 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)	Requires impact assessment	**Impact assessment not required**	No. Discharge of highway run-off only occurs during and for a period of a few days after rainfall events.
Is in a water body with a phytoplankton status of moderate, poor or bad	Requires impact assessment	**Impact assessment not required**	Phytoplankton status is not recorded by NRW, however they do report that blooms of the algae *Phaeocystis* can occur along the coastline during warm and calm weather in May and June, but that the blooms are harmless[Error! Bookmark not defined.]. Conclusion: Scheme does not fit criteria for assessment.
Is in a water body with a history of harmful algae	Requires impact assessment	**Impact assessment not required**	This information is not available. Given the nature of the proposed works this is not considered to be an issue.
Assess further if activity uses or releases chemicals (e.g. through sediment disturbance or building works) and	**Yes**	**No**	**Water Quality Risk Issue(s)**
The chemicals are on the Environmental Quality Standards Directive (EQSD) list	**Requires impact assessment**	Impact assessment not required	Road run-off has the potential to contain a range of contaminants including the following in the EQSD list: copper, zinc, polyaromatic hydrocarbons (PAHs).
It disturbs sediment with contaminants above Cefas Action Level 1	Requires impact assessment	**Impact assessment not required**	No. No dredging or construction in the water environment is required as part of the Scheme.

If activity has a mixing zone (such as discharge pipeline or outfall) assess further if:	**Yes**	**No**	**Water Quality Risk Issue(s)**
The chemicals released are on the Environmental Quality Standards Directive (EQSD) list	**Requires impact assessment**	Impact assessment not required	Surface water from the Scheme would be discharged via seven outfalls into the Conwy Bay coastal water body and there is the potential for migration of contaminants within that discharge to be transported along the coast to the Conwy transitional water body. The water being discharged has the potential to contain a range of contaminants including the following in the EQSD list: copper, zinc, polyaromatic hydrocarbons (PAHs).
PROTECTED AREAS[2]			
Assess further if activity is:	**Yes**	**No**	**Protected Areas Risk Issue(s)**
Within 2 km of any WFD Protected Area[3]	**Requires impact assessment**	Impact assessment not required	Yes. The Scheme lies within 2 km of the following Protected Areas: Bathing water – Penmaenmawr SPA – Conwy Bay, Liverpool Bay SAC – Conwy Bay Shellfish water – Conwy
INVASIVE NON-NATIVE SPECIES (INNS)			
Assess further if activity could:	**Yes**	**No**	**INNS Risk Issue(s)**
Introduce or spread INNS	Requires impact assessment	**Impact assessment not required**	No INNS have been identified at the site

Notes:

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

[2] Protected Areas include SACs, SPAs, shellfish waters, bathing waters and nutrient sensitive areas

[3] A regulator can extend the 2 km boundary if your activity has an especially high environmental risk