

Model Update Log

Vale Consultancy

September 2026

Canal Side Yard Model Update Log

Project	Canal Side Yard Model Update Log
Project Number	WHS10312
Title	Canal Side Yard Modelling
Description	This note lists the updates made to the 2017 NRW model of the River Neath. The model was used to establish design flood levels and complete an impact assessment of a proposed development.
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Date	15/09/2026
Version	1.0

1 Introduction

Wallingford HydroSolutions Ltd (WHS) was commissioned by Vale Consultancy to use the NRW model for the River Neath to establish the design flood level and complete flood impact modelling for a proposed commercial development in Neath, Neath Port Talbot (E:274784, N:197303).

The River Neath Model is a combined fluvial-tidal model which stretches approximately 12km from Abergarwed to a railway bridge south of Neath. The scope of the work is to add the proposed development to the model to establish post-development impacts and design flood levels. To do this, the model was converted to heavily parallelised compute (HPC) and climate change updates were made to the inflow hydrographs and tidal curves.

This document lists the updates made to the model in a tabulated format for clarity. Alongside this document, a model run log¹ and modelling report² have been provided.

¹ WHS. Sept 2026. Canal Side Yard Model Runs Log v1.0

² WHS. Sept 2026. Canal Side Yard Modelling v2.0

2 Model Updates Log

No.	File Name	Element Modified	Description of Changes
1	Received File Name: <i>NEAT_~s1~_~s2~_~e1~_074.tcf</i> Modified File Name: <i>NEAT_~s1~_~s2~_~s3~_~e1~_077.tcf</i>	File Directories and Model Settings	- Solution scheme was changed from classic to HPC. - Links to files updated, these files include the updated initial conditions, databases and geometry control file. - Location and format of the results file modified to a relative file path. - Added a default layered flow constriction approach using the following command: <i>Layered FLC Default Approach == METHOD B</i> (Approach B, TUFLOW default).
2	Received File Name: <i>NEAT_~s1~_~s2~_~e1~_074.ecf</i> Modified File Name: <i>NEAT_~s1~_~s2~_~s3~_~e1~_077.ecf</i>	Model Settings	- Location of the results and check files modified to a relative file path. - Since the model was built, TUFLOW has introduced overlapping HX-SX lines as an error. To ensure the model runs, the following command was added to the .ecf: <i>OVERLAPPING SX HX BOUNDARY==CHECK</i>
3	Received File Name: <i>NEAT_074.tgc</i> Modified File Name: <i>NEAT_076.tgc</i>	Updated Building Representation and post-development building added.	- Post-development building (<i>2d_zsh_NEAT_PRP_R_001.shp</i>) added to the 2D domain as a shapefile raised to 7.62m AOD. It is set to be read only during the PRP scenario. - Buildings in the model domain changed from being flow constriction shapes (<i>2d_fcsh_Neath_P2_buildings_002.MIF</i>) to layered flow constriction shapes (<i>2d_lfcsh_Buildings_001_R.shp</i>). Flow constriction shapes are not compatible with TUFLOW HPC however layered flow constriction shapes can be set to function in the same way.
4	Received File Name: <i>NEAT_074.tbc</i> Modified File Name: <i>NEAT_074.tbc</i>	Updated to accommodate new modelled events.	Added to a conditional statement ensuring that the <i>2d_bc_SXI_NCAN_042.MIF</i> file was read in for the 1000 year +CC and the 1000 year fluvial events, not just the 1000 year.

No.	File Name	Element Modified	Description of Changes
5	Received File Name: <i>NEAT_Events.tef</i> Modified File Name: <i>NEAT_Events_002.tef</i>	Modelled Events	Added in the updated climate change runs to the .tef file, labelled Q1000CC26 and Q0100CC26.
6	Received File Name: <i>TIDAL_Events.tef</i> Modified File Name: <i>TIDAL_Events_002.tef</i>	Modelled Events	- Added the updated baseline tidal curve, based on the 2023 1D_BC check file provided by NRW. Updated runs labelled 2023T0200 and 2023T1000. - Added the updated climate change runs to the file, labelled 2123T0200 and 2123T1000.
7	Received File Name: <i>bc_dbase_NEAT_FLUV_070.csv</i> Modified File Name: <i>bc_dbase_NEAT_FLUV_071.csv</i>	Links to Updated Hydrology Inflow Data	All .CSV present in the baseline incremented by one. In each of these incremented .CSV files, two additional columns have been added which include the 100 and the 1000 year flow plus climate change (preexisting hydrology +35%).
8	Received File Name: <i>bc_dbase_NEAT_TIDE_069.csv</i> Modified File Name: <i>bc_dbase_NEAT_TIDE_070.csv</i>	Links to Updated Hydrology Inflow Data	- Q2 flows were extracted from the fluvial hydrology provided and copied into two .CSV files: (<i>NEAT_Q2_Flows_CRCLDY.csv</i> and <i>NEAT_Q2_Flows_NE.csv</i>). These .CSV files were added instead of sweetener flows. <i>NEAT_INFLOW_064.csv</i> was incremented to <i>NEAT_INFLOW_065.csv</i>, however no changes were made to the relevant TCAN_BF and NCAN_BF columns. <i>NEAT_TIDES_070.csv</i> contains the updated tidal curves and supersedes <i>NEAT_TIDES_069.csv</i>. The updated tidal curve was copied from the 1D_BC check file of the P6 2023 data provided by NRW.
9	Received File Name: <i>bc_dbase_NEAT_FLUV_070cc.csv</i> Modified File Name: <i>bc_dbase_NEAT_FLUV_071cc.csv</i>	Links to Updated Hydrology Inflow Data	All .CSV present in the baseline incremented by one. In each of these incremented .CSV files, two additional columns have been added which include the 100 and the 1000 year flow plus climate change (preexisting hydrology +35%).

3 Conclusion

Minor updates have been made to the 1D-2D hydraulic model of the River Neath at Neath. The model has been converted to HPC, the tidal curve and climate change values have been updated to reflect current NRW guidance and a post-development scenario has been added into the model. These changes are deemed sufficient to allow the determination of design levels and the assessment of post-development impacts.