



Capital Delivery Alliance
Cynghrair Cyflawni Cyfalaf

Risk and Value

Eign IED Compliance

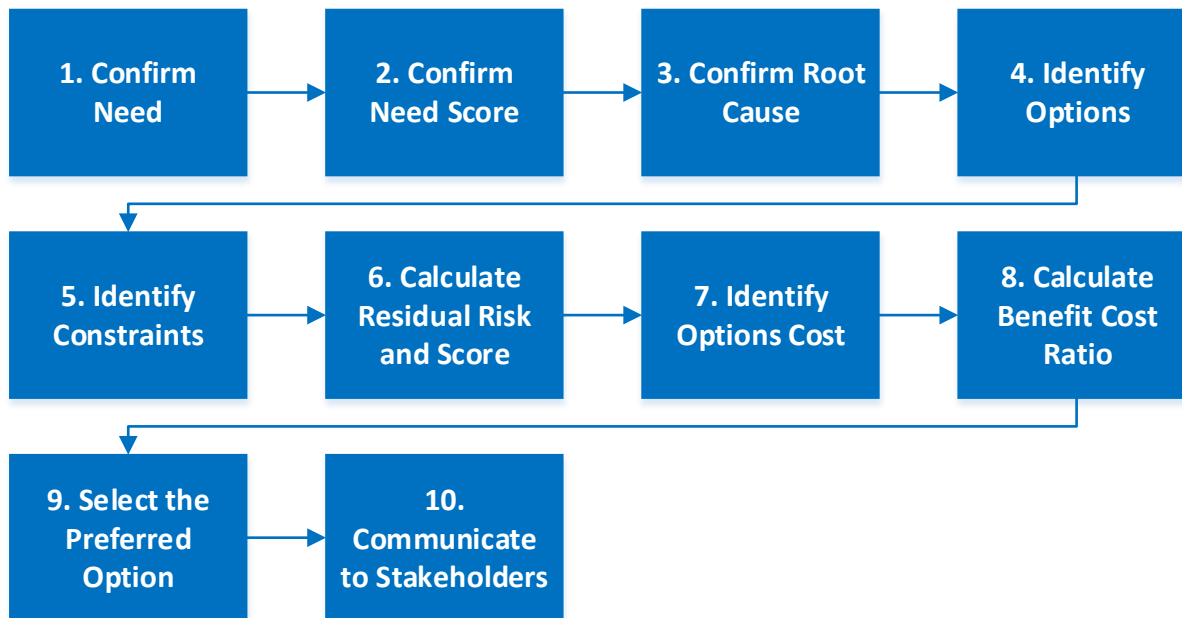
7 July 2022

Introductions

- Name
- Organisation
- Role



Purpose of session



Workshop roles

Chair – Richard Whittaker

Lead – Mat Foley

Facilitator – Neil Campbell



Need

N180061 – 'Hereford Eign WwTW - Non-Compliant with Industrial Emissions Directive (IED) - 30903

Root cause

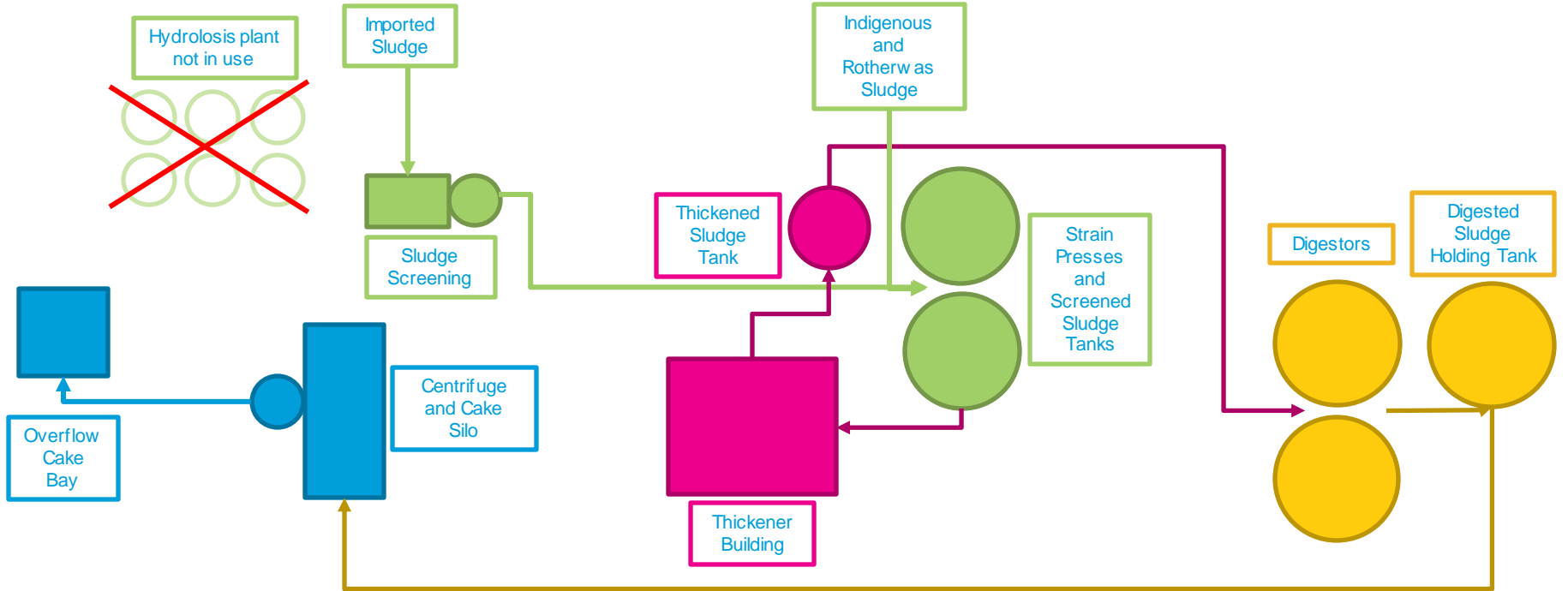
Eign is non compliant with Industrial Emissions Directive (IED) and requires improvement to site to meet regulatory requirements.

European Commission Directive 2010/75/EU has come into force across all Water Companies requiring sites with the capacity to treat over 100 tons of sludge per day to operate under an Industrial Emission Directive permit (IED) utilising Best Available Techniques (BAT). The legislation was adopted in 2010 and came into force in Jan 2011 and was transposed by member states in 2013. Since the legislation was transposed into UK law, the NRW and EA considered whether sewage sludge and anaerobic digestion should be covered by the legislation, reaching their conclusion that it does in 2020, hence this was not part of our PR19 business plan.

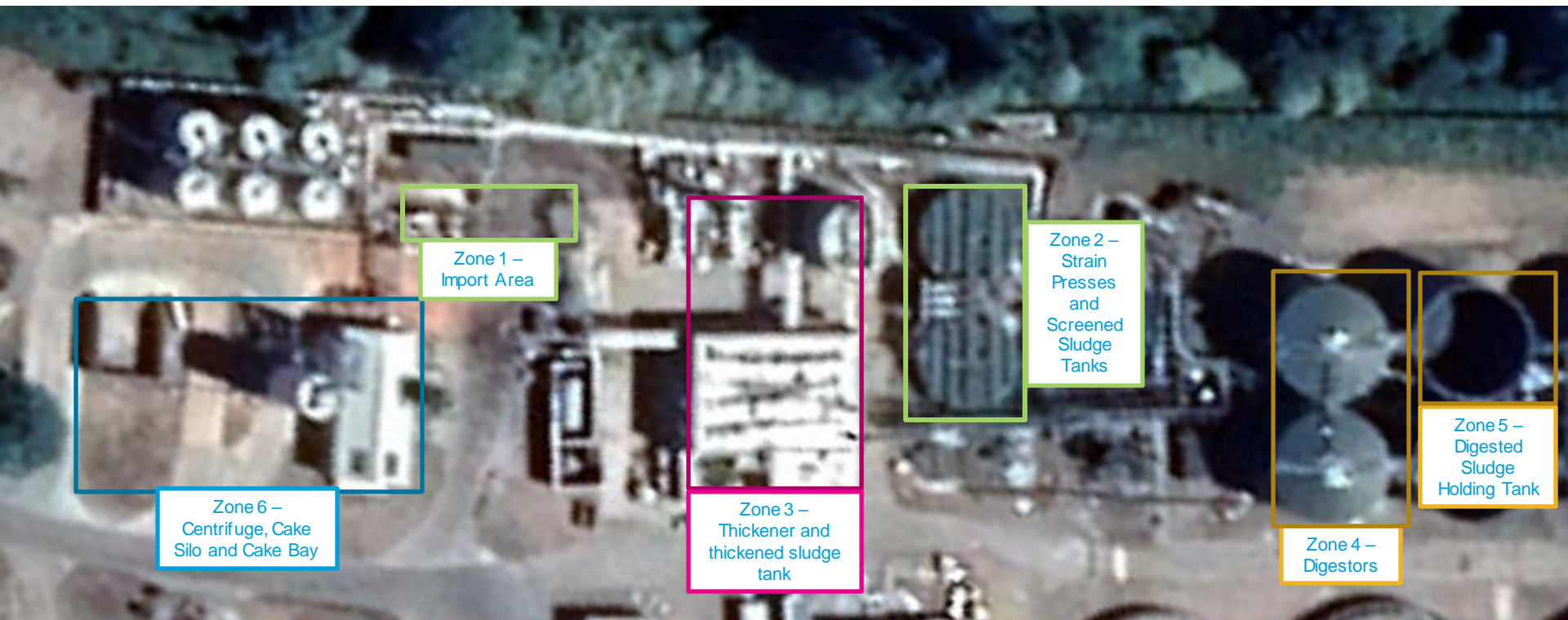
Sludge digestion assets which treat over 100T sludge/day are required to comply with the IED (Industrial Emissions Directive 2010).



Eign - Schematic



Eign - IED Zones



Due to the volume (2300m³ each) and material (Glass Fused Steel) of the digestors, these will be the main driver for the selected solution. A catastrophic failure could be deemed to be credible for this reason.

The site maintenance strategy and annual plant shutdown should include annual structural assessments of the containment structures, including the condition of the surrounding hardstanding areas. Drainage pipework (CCTV) and above ground process pipework should be inspected by a competent engineer to allow for pro-active maintenance.

A review of all instrumentation should be carried out to determine if more are required and what alarms are raised under different circumstances. (Such as sudden and unexpected drop in level).

All permeable areas at each zone should be made impermeable for the case of minor losses due to small leakages or operator error.

Vehicle protection to be place where any asset is vulnerable to vehicular impact. E.g. mixer on the thickened sludge tank and GFS tanks.

Secondary containment is required for the tanker delivery or ensuring that existing provisions are secure and if a partial failure occurred this would be contained.

Based on topography, proposed solution to accommodate catastrophic failure with a containment volume 110% of a digester volume (2,530m³) due to greater than 25% of combined volume of all tanks within the area.

Options

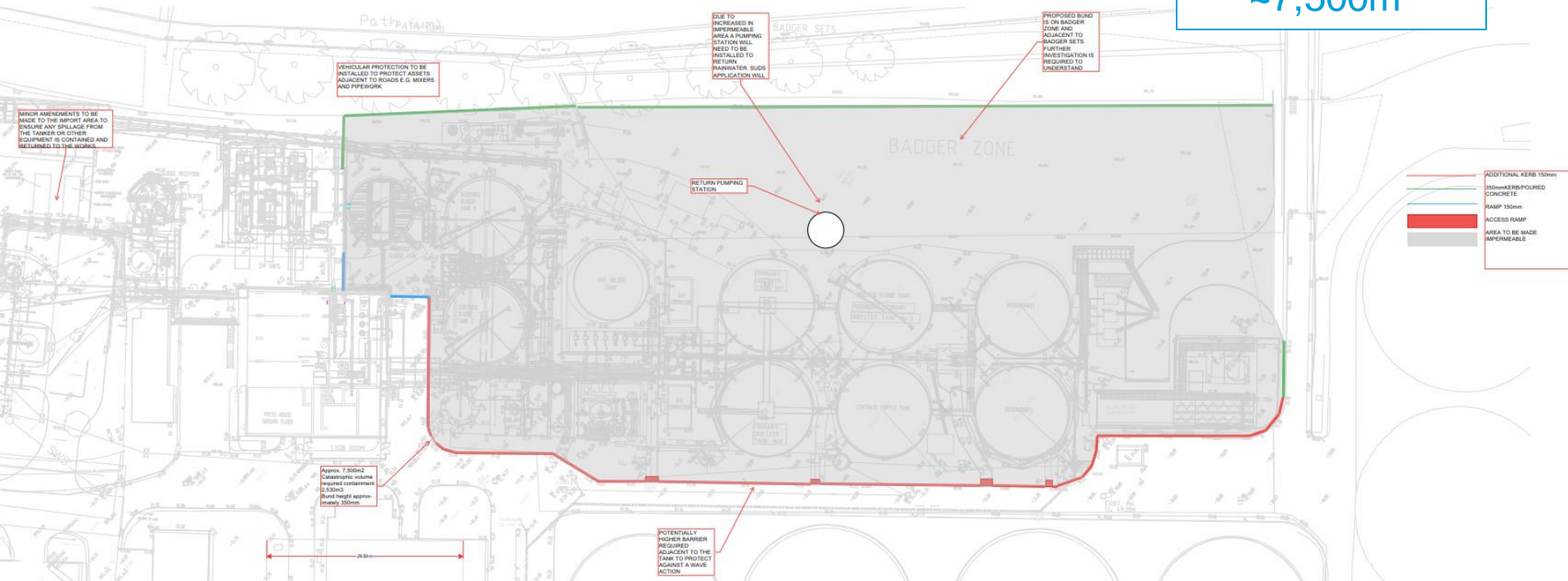
Option 1 – Obtain IED Compliance

- Provide 2530m³ bunded volume (catastrophic failure 110%) – suggested 7500m² area x 350mm bund height
- Vehicular protection to protect assets adjacent to roads (e.g mixers and pipework)
- New pumping station & rising main to return storm water captured within bund to inlet works



1. Large area containment ~7,500m²

A REVIEW OF THE INSTRUMENTS IS REQUIRED TO ENSURE VISIBILITY OF ALL PROCESSES IS HAD AND ALARMS ARE RAISED FOR ANY UNEXPECTED DROP IN LEVEL.



Option 1 - Constraints

- Ecology survey to investigate badger zone and understand impact on containment area
- A higher wall/barrier adjacent to digesters to mitigate against wave action should a catastrophic failure occur.

Option 2 – Convert to De-watering centre

- Decommission digesters
- Automatic primary sludge pump control based on sludge density.
- Revision of the sludge inlet pipework to the strain-presses so that one is for Eign, one for Rotherwas and one for imports, with crossover in case of failure. Crossover is made possible through a set of actuated valves.
- New dedicated polymer plant each for thickeners and centrifuge
- Potable water supply for polymer plant
- Tanker costs to Cog included in OPEX



Option 2 - Constraints

- Potable water supply for polymer plant is limited to the Works – may require new potable main to be laid through Hereford
- Loss of Combined Heat and Power engine incomes would be ~£280,000 per year and a further cost of £500,000 for additional imported electricity per year OPEX
- Until 2026, Cog Moors has a restriction to running one CHP. The likely cost implications will be worse as surplus biogas from Eign would be flared rather than usefully used in the engines

Option costs

[Refer to workbook]



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Calculate benefit cost ratio

[Refer to workbook]



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Select the preferred solution

[Refer to workbook]

Review actions captured

Stakeholder acceptance

[Complete stakeholder acceptance form]