Dear Kate,

Thank you for your email and for setting out the Panel's queries so clearly. Please accept my apologies for the delay in responding.

We recognise that corrugated steel attenuation tanks are not commonly promoted for sewerage adoption and that the Panel therefore has limited direct experience of these assets. The information below is intended to address the specific points raised and to provide clarity on their suitability for long-term adoption where proposed.

1. Self-cleansing capabilities

Self-cleansing is a fundamental drainage design requirement and is addressed through system-level hydraulic design, rather than being a function of the storage structure itself.

Corrugated steel attenuation tanks are designed and operated as storage assets, providing volumetric attenuation during storm events. Primary conveyance is provided by upstream and downstream pipework, which is typically smooth-walled and designed to meet minimum self-cleansing velocity criteria in accordance with DCG principles.

Sediment management is therefore addressed at system level through:

- upstream silt control or pre-treatment where appropriate,
- defined inlet arrangements to manage sediment deposition,
- smooth-wall outlet pipework controlling discharge from the system.

The tank itself is not relied upon to provide self-cleansing performance. This approach is consistent with other adoptable attenuation solutions, where storage is provided within oversized structures designed for infrequent storm events and flow performance is governed by the associated pipework and control structures.

Hydraulic modelling is undertaken on a project-specific basis to demonstrate compliance with drainage performance requirements, including assumptions relating to access and jetting reach. Self-cleansing performance is therefore designed-in at network level, consistent with standard adoptable drainage practice.

2. Crushing and loading strength / structural performance

Corrugated steel attenuation tanks are flexible buried soil–steel structures whose performance is governed by well-established soil–structure interaction principles that are already widely accepted within UK drainage and infrastructure practice.

Structural design considers permanent and variable actions, construction loading, traffic surcharge and groundwater effects where applicable, and long-term performance. Steel

grade and corrosion protection systems (including galvanizing and, where required, additional protective coatings) are selected to suit the defined design life and assessed ground conditions.

Installation is undertaken using clean, well-graded granular bedding and surround materials that are readily available within UK supply chains and are demonstrably non-aggressive to steel. Materials are placed and compacted in controlled layers in accordance with an approved specification, using standard civil engineering plant and methods.

Quality control, inspection, and traceability are managed under ISO 9001-certified systems.

3. Maintenance regime and requirements

Corrugated steel attenuation tanks are designed to require no more onerous maintenance than other underground attenuation assets currently adopted.

Maintenance considerations include:

- access provided via adoptable access shafts (typically 900 mm or 1200 mm diameter) connecting to the crown of the tank, allowing inspection and maintenance activities to be undertaken without the need for internal chambers,
- compatibility with standard inspection techniques, including CCTV,
- removal of accumulated silt where required using conventional flushing or vacuum methods.

Sediment deposition is typically localised near inlet areas and is readily accessible via the access shafts, enabling maintenance activities to be targeted and efficient. Cleaning and inspection methods are consistent with normal water industry practice and are selected to be appropriate to the asset type and its protective systems.

Inspection and maintenance frequencies are aligned with those applied to other adoptable attenuation structures and remain the responsibility of the adopting authority, in accordance with DCG principles.

4. Asset lifespan

Corrugated steel attenuation tanks are designed for an explicit and defined structural service life, selected to align with the requirements of the adopting authority and long-term asset management expectations.

Within the sewerage sector, design lives of around 60 years are often referenced historically as a baseline for gravity drainage infrastructure. However, for adoptable attenuation assets, extended service lives are increasingly preferred to support long-term durability, inspection outcomes, and whole-life asset management.

For this reason, attenuation tanks proposed for adoption are designed for a 100-year service life, achieved through the use of enhanced polymer-coated steel systems supported by independent third-party certification and durability assessment.

Durability is demonstrated through assessment of ground and groundwater conditions, corrosion allowance calculations, and verification of coating performance against the defined service life. This approach provides additional robustness and durability margin, supporting long-term asset condition and inspection outcomes.

5. Examples of adoption and previous use

Formal sewerage adoption of corrugated steel attenuation tanks within England has historically been limited. This reflects the absence of specific reference to corrugated steel storage structures within previous editions of Sewers for Adoption and, to date, within the current Design & Construction Guidance (DCG), rather than any inherent technical or durability limitation of the system.

Notwithstanding this, corrugated steel attenuation tanks have been widely used across the UK on designed drainage schemes, including a substantial number of developments delivered for major national housebuilders. In many such cases, the drainage systems are retained as private assets rather than offered for adoption, reflecting commercial and asset-ownership decisions rather than any limitation in system performance.

Within these schemes, corrugated steel tanks are typically selected by designers and specialist contractors due to their structural robustness, predictable performance, and constructability, particularly on constrained or logistically challenging sites. Their repeated use across multiple developments reflects confidence in the technology and its long-term performance when correctly designed and installed.

In addition to residential development, corrugated steel soil–steel structures have a long and well-established record of use within regulated infrastructure, including highway drainage, flood attenuation, rail, airport, and strategic infrastructure, as well as water-related assets constructed in accordance with recognised industry standards, including Water Industry Specifications.
Internationally, corrugated steel storage structures are widely used and, in many territories, routinely adopted as part of municipal drainage and water infrastructure. Their performance is supported by extensive design guidance, installation standards, and long-term operational experience.

The current change proposal is therefore intended to provide a clear and consistent framework within DCG for the assessment and adoption of corrugated steel attenuation

tanks, building on an established body of use while providing adopting authorities with greater confidence and consistency going forward.

At present, we do not have formal sewerage adoption case studies that can be presented as precedents, reflecting the historical absence of a clear adoption framework for corrugated steel attenuation tanks within Sewers for Adoption and the current DCG.

We do hold project examples, drawings, and technical records relating to non-adopted schemes and scheme-specific approvals, which demonstrate typical layouts and design approaches. These schemes pre-date the current DCG and were developed under project-specific requirements.

Should the change proposal be accepted, all future schemes intended for adoption would be designed and detailed strictly in accordance with the approved DCG framework and any conditions or guidance set by the adopting authority. Historic examples are therefore offered, if required, for illustrative context only and should not be taken as representative of future adoptable designs.

Closing comments

We recognise the Panel's need for confidence, particularly given previous proposals that may not have met adoption criteria. Corrugated steel attenuation tanks are not a novel or experimental solution; rather, they are a robust, well-understood structural system that relies on clear design, specification, and construction control.

If it would assist the Panel, we would be happy to:

- provide supporting information in a separate technical note or appendix,
- supply illustrative precedent material,

Please let me know if there is anything further the Panel would like clarified ahead of its next meeting.

Kind regards,

Paul Rawcliffe