



Department for Transport

HS1 Asset Management and Station Periodic Review

Determination Report



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July 2019

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Executive summary

Gutteridge Haskins and Davey Ltd (GHD) supported by Gleeds Cost Management Limited, Steer Ltd and Initiate Consulting Limited (together the “Reviewer”) has been engaged by the Department for Transport (DfT) to undertake a review of the High Speed One (HS1) Control Period Three (CP3) submission for stations assets, incorporating three phases: Familiarisation, Review and CP3 Submission.

This CP3 Submission Report focuses on the 31 May Long Term Charge Submission and supporting documentation considering whether HS1 has met its obligations expressed through the HS1 Lease Agreement, via the Life Cycle Report and supported by the Life Cycle Cost (LCC) and Long Term Charge (LTC) models.

The reviewer notes that there is no definition of a renewal or handback condition within the Concession Agreement or HS1 Lease in relation to station assets, therefore the review has been undertaken using definitions within the HS1 documentation provided.

Section 3.6 of this report finds that HS1 is not yet fully compliant with all obligations as stated in Schedule 10 and Annex 1 (to Schedule 10) of the HS1 Lease. The non-compliances are not, in the Reviewer’s opinion, expected to impact approval of the submission by the DfT, but agreement on resolution of partial and non-compliances is advised. Full consideration is included as a clause by clause assessment in Appendix B – Compliance with HS1 Lease – Schedule 10 and Appendix C - Compliance with Annex 1 to Schedule 10 to this report.

The Review has identified a sufficient number of inconsistencies between the Life Cycle Reports (LCR) and information contained in the LCC models to recommend an update of the reports. These are not expected to have a significant impact on the cost of the renewal activities however, as they relate predominantly to the reporting function to the underlying models that contain the base information. Errors noted in the St. Pancras LCC model may result in a change to renewals costs, requiring clarification from HS1.

Line of sight within the asset management documentation has been an area of concern for the Reviewer throughout the periodic review process. This has been subsequently clarified by HS1, with key asset management documentation, such as the Stations Strategic Asset Management Plan (SAMP) forming a new set of documentation that, in future, will have greater bearing on asset management decisions, but which currently, do not *directly* impact day to day decisions, or the models which calculate the renewals costs.

HS1 have made several key changes as part of the LTC submission for Control Period 3.

The inclusion of a risk and contingency allowance

A risk and contingency allowance has been incorporated into the LTC model, assessed as a weighted average of 13.9%. The reviewer has reservations about the approach that has been taken, however, the overall figure does not appear unreasonable when compared with the ORR’s determination for the Network Rail PR19 renewals portfolio, and taking into consideration the relative size of the HS1 portfolio.

The removal of the 0.6% per annum efficiency overlay

HS1 proposes to remove the 0.6% efficiency overlay, and the proposed charge reflects this, however the Reviewer has not seen evidence put forward by HS1 to substantiate the necessity to remove the efficiency overlay. It would be a reasonable expectation of a regulating body to expect the operator to become more efficient in delivery over time. It is a recommendation of this report that an efficiency plan developed by HS1 is provided that would support attainment of efficiencies during CP3 and beyond.

The shortening of lift and escalator asset life cycle periods

As part of HS1's review of asset lifecycles, the lives of some assets, particularly in relation to lifts and escalators, have been shortened. This has the effect of increasing the volume of work undertaken, with the same number of assets needing to be renewed more times across the same time period (to CP10).

Asset lives have been the subject of first and second line assurance by HS1, and the reviewer has undertaken an independent check as part of this review. The result of this is that the updated asset lives are considered to be appropriate.

Overall, the Reviewer considers the value of the works proposed to be undertaken in CP3 as being deliverable, though a renewals plan for CP3 needs to be developed.

The following recommendations are made in the body of this report and are aimed at supporting HS1 in achieving their aspiration to deliver "world leading asset management" and achieve full compliance for Periodic Review 3.

No.	Recommendations
01	Recommendation: DfT to develop a detailed template for a LCR and require the template to be used by HS1 in future Periodic Reviews.
02	Recommendation: DfT to require specific cross-references between the LCC and LTC models and stations LCRs.
03	Recommendation: DfT to require Control Period submission documents to include all materially important existent documents referenced by the LCRs, when submitting the LCRs.
04	Recommendation: HS1 to provide updated and fully verified versions of the LCRs.
05	Recommendation: HS1 to update the LCR documents to make sure that all references to assets are made directly in the language of HS1's new asset hierarchy and their positioning within the asset hierarchy made clear to at least the Station Element level.
06	Recommendation: HS1 is required to prepare outline delivery plans for CP3 containing details of scope of works to asset groups at each station within a defined timeframe of determination of funding. This Delivery Plan should be prepared by HS1 and approved by DfT before the start of CP3.
07	Recommendation: HS1 to address all non-compliant and partial compliant lease requirements through a plan that is to be approved by the DfT, and HS1 to regularly report progress made against the plan to the DfT.
08	Recommendation: DfT to require HS1 to develop a cost efficiency plan for CP3 (supporting the CP3 Delivery Plan). Progress in implementing the plan to be monitored by DfT and HS1's customers.
09	Recommendation: DfT to require HS1 to update the LCC model or have an independent Spreadsheet Modelling Best Practice (SMBP) audit undertaken for consistency and flow of information throughout the model.
10	Recommendation: HS1 to review the material quantities and scope with the aim to refine the Life Cycle Cost models.

No.	Recommendations
11	Recommendation: DfT to require HS1 to update the LTC model or have an independent Spreadsheet Modelling Best Practice (SMBP) audit undertaken for consistency and flow of information throughout the model.
12	Recommendation: HS1 should confirm the rates being applied for Authorised Investments and funds remaining in escrow and ensure consistency between the underlying models and the report.
13	Recommendation: HS1 to agree and document the principles that constitute a station asset renewal with the DfT, to make sure there is consistency in decision making over time.
14	Recommendation: In support of the recommendations made elsewhere in this report, the DfT to consider the levels of assurance required to monitor the completion of any agreed actions with HS1 that arise during the periodic review process.

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1. Introduction

1.1 Purpose of this report

Gutteridge Haskins and Davey Ltd (GHD) supported by Gleeds Cost Management Limited (Gleeds), Steer Ltd (Steer) and Initiate Consulting Ltd (Initiate) (collectively, the 'Reviewer') have been engaged by the Department for Transport (DfT) to undertake a review of the High Speed One (HS1) Stations Control Period Three (CP3) submission, and advise if the submission documentation meets the requirements of the HS1 Lease Agreement.

This Determination Report forms the third of three reports to be produced.

The Familiarisation Report outlined the Reviewer's initial findings following an assessment of HS1's development throughout Control Period Two (CP2) of their Asset Management System and Project Management approach to the delivery of stations renewals works, including progress against the recommendations and actions from the last Control Period Review.

The Familiarisation Report summarised findings and provided a number of recommendations where further investigation was recommended throughout the 'Review Phase' in advance of the formal submission by HS1 in June 2019.

The second report, the Draft Life Cycle Report (LCR) Review, provided recommendations arising from a full review of the Draft CP3 documentation produced, including the Specific Asset Strategies (SAS) and LCRs, the treatment of works beyond the 50-year life cycle, the impact of moving to a 40-year rolling programme, taking into account emerging future railway considerations. The report also considered the approach to change management.

This, the third report, focuses on compliance with the HS1 Lease, including considering the robustness of the financial models supporting the renewals programme and the capture of lessons learned, and provides recommendations for Control Period 3 in line with the HS1 Lease and industry good practice.

1.2 Limitations and Assumptions

The Reviewer has not undertaken a Line of Defence Level 2 (LoD 2) or LoD 3 review (Association for Project Management (APM) best practice guidance for Assurance Reviews) of the models, relying on HS1 and their supply chain's first line quality assurance procedures having been implemented, and therefore relying on the information contained as being accurate. Review has focused on consistency spot checks and confirmation of what first line assurance has been undertaken.

The documents issued to the Reviewer are outlined in Appendix A.

2. Abbreviations

Acronym	Name
AMS	Asset Management Strategy
CP	Control Period
DfT	Department for Transport
HS1	High Speed One Limited
LCC	Life Cycle Cost
LCR	Life Cycle Report
LTC	Long Term Charge
NR(HS)	Network Rail (High Speed)
ORR	Office of Rail and Road
PR14	Periodic Review 2014
PR19	Periodic Review 2019
SAMP	(Stations) Strategic Asset Management Plan
SAS	(Stations) Specific Asset Strategies

3. Life Cycle Report

3.1 Review of the Lifecycle Report

A “Life Cycle Report” (LCR) as stated in each of the stations LCRs is defined as the “renewal and maintenance criteria for all key asset types”. This aligns with the Reviewer’s interpretation of the scope of a LCR as being a report on the asset management objectives and strategies for the systems and assets at a station, and a summary of the specific or tactical renewal activities and forecast costs.

The LCR is to be submitted by HS1 to the Government’s Representative for each station nine months before the end of each Review Period. Given that these LCRs are prepared and published once every five years, the Reviewer has inferred that while it is somewhat similar in nature to an Asset Management Plan (AMP), the style is expected to be more of a report than a plan. As such we would expect LCRs to contain asset management objectives and strategies for the stations and their major elements; an example being consideration of the heritage aspects of the objectives and strategies at St Pancras Station. The Reviewer also expects the LCRs to summarise the work that has been done over the past five years, including an explanation of all of the differences between Control Period plans and actuals (in detail, and by element), and detailed forecasts for the next five year Control Period

The Reviewer therefore expects considerably more narrative on what has been occurring at a station for all systems and major assets, and not just for a selection as is currently reported. For example, we would expect to read;

- a complete summary of the performance of each system and its major assets,
- the plans for reinvesting in that system,
- the actual investments made in the system, and
- the forecast needed to keep reinvesting in the system.

Finally, the Reviewer would expect to clearly and readily observe summary data and information against each clause in the regulatory requirements. The LCR may reference other documents and models, but would be expected to satisfy the regulatory requirements as a standalone document.

The Reviewer therefore is of the view that the LCRs do not meet the expected level of information, detail and completeness that one might normally expect them to deliver. The review of the LCRs for compliance has often only been possible by extensive reading of other submitted material. The LCRs in their current form therefore do not adequately report on the life cycle performance of the stations’ systems and major assets.

While it may be argued that the information that is of most interest to key stakeholders is the Long Term Charge (LTC) and annuity they have to pay, the Reviewer believes that the LCRs could be a much more useful reference for stakeholders in determining the reasonableness of the LTC. The Reviewer observes that this is the underlying theme to many of the comments from stakeholders included by the HS1 in the “Stations LTC review submission”. In that context, our interpretation of the contents of a LCR is pertinent.

Recommendation 01: DfT to develop a detailed template for a LCR and require the template to be used by the HS1 in future Periodic Reviews

The Reviewer considers that there is an over-reliance on references to the Life Cycle Cost (LCC) and LTC models in support of claims that the stations LCRs are regulatory compliant. The general absence of specific references to tables, graphs or other conclusions in the LCC and LTC models in the LCRs results in the need to infer or assume that the models and the summaries in the LCRs are aligned and consistent. Third party validation would otherwise require the reviewer to recreate those tables, graphs or other conclusions. It is noted that investigation into whether or not such a validation would provide an affirmation of inferences and assumptions concluded that there are inconsistencies between the LCC and LTC models and the summaries contained in the stations LCRs.

The Reviewer's investigation has concluded that the LCC and LTC models do not clearly identify the summary information that has been produced for inclusion in the stations Life Cycle Reports, and validation cannot therefore be achieved.

Recommendation 02: DfT to require specific cross-references between the LCC and LTC models and stations LCRs.

Further to cross-referencing to the LCC and LTC models, we observed additional cross-references to other documents that were important in understanding the reasoning behind the claims of compliance with the regulatory requirements for the stations LCRs. For example, cross-references to the "may-2019-hs1-stations-long-term-charge-review-for-control-period-3-submission-to-dft" resulted in a review of the material contained in that document and the affirmation that summary statements in the stations LCRs were appropriate. However, there are references to documents that were not available – e.g. "CP3 Delivery Plan" – which prevented similar affirmations from being made.

Recommendation 03: DfT to require Control Period submission documents to include all materially important existent documents referenced by the LCRs, when submitting the LCRs.

Inconsistencies and errors within the LCRs

In addition to the Reviewer's assessment of LCR compliance with the requirements of Schedule 10 (see Section 3.6 Compliance with HS1 Lease), the Reviewer sampled values presented in the LCRs against those contained in the LCC and LTC models (these being major sources of values reported in the LCRs).

This sampling identified numerous inconsistencies across the LCRs.

For example, using the Ebbsfleet LCR as an indicative example, the values recorded in 'Table 2 Summary of Renewals costs and Forecast to complete' (replicated in Figure 1 below) are inconsistent with the values stated in the LTC model (replicated in Figure 2 below):

Figure 1 Ebbsfleet LCR values

Table 2 Ebbsfleet CP2 Summary of Renewals Costs and Forecast to complete

Financial Year	2015/16	2016/17	2017/18	2018/19	2019/20
LCC (000's) ³	£1.5	£8.8	£52.2	£65.1	£1,263.6
Total (000's)					£1,391.4

Figure 2 LTC values

Schedule 10 Annex 1: 6 Financial Model of available lifecycle funds					
Station: Ebbsfleet	CP2				
	15/16	16/17	17/18	18/19	19/20
	£k (000)	£k (000)	£k (000)	£k (000)	£k (000)
Available life cycle funds b/f	3,911	4,745	5,540	6,316	6,992
Initial funding					
LTC:					
Receipt from TOCs	809	724	746	712	801
Life cycle works costs	(2)	(9)	(57)	(44)	(837)
Income on escrow	27	80	87	8	92
Available life cycle funds c/f	4,745	5,540	6,316	6,992	7,048

Inconsistencies such as those highlighted in the example above are readily identified through sampling of other values given in the Ebbsfleet LCR, for example:

- Table 6 LCC expenditure at station from 2015/16 to 2017/18 (also noting that 2017/18 should read 2019/20)
- Table 7 Escrow Balance during CP2
- The value for life cycle budget stated under Figure E
- Expected life for Escalators and Escalator Control Panels in Appendix D1v. Renewals

A significant number of general errors are also present where information appears to have been incorrectly duplicated across LCRs. The labelling of charts/figures is also questionable and it appears that residue remains from the CP2 submission.

Examples of errors, using the Ebbsfleet LCR as an indicative example, include;

- Figure A shows two instances of the 'Ebbsfleet Life Cycle Report' and omits St Pancras. It also references 45-year life cycle cost and financial models (as opposed to the remaining 40-year lease period), and does not reconcile with Figure C.
- Figure B has a caption, but the figure is missing
- Figure E states that the figures are given in £k, whereas they appear to be given directly in £.
- The caption and contents of Table 8 indicates that the performance figures are for St Pancras, and are the same as those in the St Pancras LCR. It is probable that the table is for St Pancras and not Ebbsfleet. The variance figure given in the text above the table does not match the value in the table (in either of the Ebbsfleet and St Pancras LCRs)
- Appendix C2 highlights that: *"* Heritage is an important assessment area for Ebbsfleet International Station, but not for the other three stations"*; however this should only be applied to St Pancras.

Recommendation 04: HS1 to provide updated and fully verified versions of the LCRs.

Use of old asset descriptor model

The LCRs retain the asset descriptors used for the CP2 submission even though HS1 have made a significant change to their asset hierarchy during CP2.

The use of the old asset descriptor model is unique to the LCR documents, with all other CP3 submission documents, including the Stations Strategic Asset Management Plan (SAMP), SAS, LCC models and LTC model, using the new asset hierarchy.

Appendix 'B1. Classification of assets' provides a mapping between the old model and Annex 1 to Schedule 10 Station Elements, however the justification for the use of the old descriptors in the LCR; i.e. that the old asset descriptors are used in the LTC model; is no longer appropriate as the LTC model has been updated.

The table provided in Appendix B1 is ambiguous in the context of the new asset hierarchy as there are many instances where old assets are mapped to multiple Station Elements. The position of assets within HS1's new asset hierarchy should be clearly referenced, at least to the Station Element level.

Recommendation 05: HS1 to update the LCR documents to make sure that all references to assets are made directly in the language of HS1's new asset hierarchy and their positioning within the asset hierarchy made clear to at least the Station Element level.

CP3 Delivery Plan

HS1 has stated their intent in the LCRs to provide specific details of their approach to planning and undertaking CP3 work in their 'CP3 Delivery Plan' that is to be released ahead of the start of CP3. The Reviewer's findings in the Familiarisation phase of the review were that HS1 committed to deliver a CP2 Delivery Plan in their CP2 submission, but did not do so. Refer to Recommendation 06 in Section 3.2 Proposed Renewal Activities.

3.2 Proposed Renewal Activities

The LTC submission and supporting documentation refers to an 'HS1 Stations Renewals Plan' as being the document that sets out the planned renewals from 2020 to 2060 (HS1 Stations LTC Review Section 8.3 page 35; HS1 SAS page 5 and other documents). The Reviewer understands from HS1's letter to the DfT of 26 June 2019 that the Renewals Plan is contained within the LCC models which is articulated as expenditure against assets in a given year. A summary of the proposed works is provided in Table 18 (Section 9.4) in the Stations Long Term Charge Review document (Submission to DfT 31 May 2019). The table does not detail any of the planned works, and only identifies high level assets at each station with an associated cost line.

The Reviewer has challenged HS1 to provide an outline scope of works planned for CP3. Their response was:

'The CP3 Delivery plan will be developed in light of the DfT's funding approval in PR19. The LCC models contain high-level information and costs for the planned interventions, which are further explained in the Stations LTC review submission.'

The Reviewer understands that this approach mirrors the approach applied to Network Rail in CP6, where NR has a period of time after determination of the funding to respond with their renewals plans. The Reviewer recommends that a similar approach is applied to HS1 for their CP3 renewal plans.

Recommendation 06: HS1 is required to prepare outline delivery plans for CP3 containing details of scope of works to asset groups at each station within a defined timeframe of

determination of funding. The Delivery Plan should be prepared by HS1 and approved by DfT before the start of CP3.

We have been able to trace the allocated investment from the LCC models to the Stations LTC document. However the proposed scope of intervention is not clear from these documents.

The Station Specific Asset Strategies (Station SAS) do include details of frequency of maintenance works and intervals for major intervention for each asset type. However as explained in section 3.4 Alignment to Asset Management Strategy there is no linkage between the SAS documentation and the LCC modelling for CP3 so we are unable to use this information in assessing the proposed scope of works.

3.3 Effective Delivery

In the Five Year Asset Management Statement (5YAMS), HS1 states that it has improved its project management and delivery capabilities, and has driven a similar improvement in Network Rail (High Speed)'s (NR(HS)) capability.

The Reviewer challenged HS1 to provide documented evidence of their approach to the project delivery process. Their response was:

'The ARUP report sets out our intended future state. The current state is overseen by the DfT/HS1 renewals governance process, as described above. Our practice is then to procure renewals activities according to the procurement frameworks of HS1, NR(HS) or other suppliers. We will look to improve documentation of this process in future.'

In a response to another question on Change Management, HS1 provided the following:

'This is captured through the normal renewals governance process, overseen by DfT. We note that GHD were not provided key documentation, including the Annual Stations Portfolio Funding Paper and meeting minutes. In view of this, should the DfT wish to progress a change management process, HS1 is open to discussing this.'

The Reviewer has not had sight of the project processes that are currently being used by HS1 or NR(HS) and is therefore unable to comment on the validity or maturity of the approach to project delivery.

Section 9.5 of the Stations LTC Review document discusses efficient delivery. This is limited to the procurement approach and contains no objective measures of what efficient delivery means or how it will be measured.

Without a statement of the scope of the renewals planned, it is difficult to comment on the deliverability of the CP3 works beyond consideration of the overall volume of work.

When compared to the renewals completed in CP2, the renewals planned for CP3 increase in quantum, however the overall volume of work completed in CP2 is unclear with the conflicting totals reported as a forecast outturn of £15.884m (Table 8 in Section 4.4.2 of the LTC) and £11.8m (Section 9.4 of the LTC).

Notwithstanding the differing stated positions of work completed in CP2 and the lack of a scope of the renewals planned for CP3, completion of £18.3m of works across the four stations in five years is considered to be achievable.

3.4 Alignment to Asset Management Strategy

The LCC and LTC models are acknowledged by HS1 in Annex A to their CP3 submission as being built from the 'bottom-up', rather than developed 'top-down' from the asset management strategy.

HS1 has identified that there are currently gaps in the line of sight from asset management strategy through the LCCs to the LTC. Further improvements are required to ensure that clear strategies for station specific assets can be readily translated into appropriate renewal plans.

The asset management artefacts created by HS1 are not yet mature enough to inform the LCCs or the LTC for CP3 by providing the line of sight from policy, objectives and strategy through to renewal plans and the LTC.

HS1 needs to undertake more work to establish their asset management system and the current level of disconnect from the renewal plans. Evidence of alignment of the LCC models, LTC model and LCRs with the asset management strategy is difficult to identify.

3.5 Alignment with Life Cycle Purpose

As discussed in Sections 3.4 Alignment to Asset Management Strategy and 3.7 Asset Management Maturity, HS1's asset management system is currently insufficiently mature to direct the LCC models from a 'top-down' perspective. Alignment with the HS1 Lease Life Cycle Purpose is therefore being achieved through HS1's 'bottom-up' assessment of renewal needs captured within the LCC models.

The LCC models determine renewal interventions based on cycles of expected asset life. The Reviewer has sampled renewal frequencies defined by HS1 for types of assets and concluded they are appropriate. The Reviewer also considers that the unit rates used for calculating the cost of renewal work are reasonable results from the assurance work undertaken.

Section 4.1 Review of the Lifecycle Cost Model qualifies this conclusion given that the assurance that HS1 have performed on the scope and quantum of the required work activities defined in the LCC models is not clear.

It is therefore difficult to conclude categorically that alignment with the Life Cycle Purpose has been achieved.

3.6 Compliance with HS1 Lease

HS1 Lease Schedule 10 LCR Compliance

The interpretation of what constitutes a LCR has been necessary throughout this staged review process so as to not unnecessarily constrain the regulatory review and approval process. Cross-referenced and supporting documentation (such as the LCC and LTC models) has been used with focus given to those items that were materially significant and therefore worthy of stringent compliance with the regulatory requirements and those items for which no compliant evidence was available.

Consistent with the Reviewer's first round assessment of the Life Cycle Reports, our assessment of compliance focuses on the provision of the information required by Schedule 10, rather than the accuracy and reliability of the information. The Phase 3 review has incorporated a separate exercise to sample information documented directly in the LCRs against other CP3 submission documents. The Reviewer's overall finding is provided in Section 3.1 Review of the Lifecycle Report of this Phase 3 report.

The Reviewer considers that the stations LCRs have been significantly improved.

The previously substantial number of errors of naming, referencing and completeness have been mostly addressed and in so doing the HS1 has transitioned from non-compliance to compliance in some instances. Where the determination was one of non-compliance, this was typically determined where there was both no or limited information in the stations LCRs and, either no reference to another document source, or the referenced document source was not available to the Reviewer.

It is noted that there were instances where the reference to another document source was obscure or oblique. In those instances the Reviewer presumed that the intent was to reference a specific section in another document; in which that other document was reviewed to identify relevant material so that it could be possible to conclude that the LCR was in compliance with that particular clause. The Reviewer has previously recommended that the cross-referencing should be more specific, transparent and flowing in both directions to enable better evaluation of future regulatory submissions. There remains instances where there is uncertainty with respect to compliance; the accompanying notes provide commentary as to the nature of the uncertainty.

The Reviewer concludes that the stations LCRs remain non-compliant. There are significant areas that do not meet the requirements and work remains in order for the reports to be deemed sufficiently, appropriately compliant.

The tabulated results of the review included as Appendix B – Compliance with HS1 Lease.

HS1 Lease Annex 1 to Schedule 10, Strategy Compliance

HS1 has not provided a cross reference between all the requirements of Annex 1 and their CP3 submission document set, and there is neither a single document, nor a single document per station, that covers all the requirements.

The Reviewer has therefore needed to establish the most probable suite of documents that would confirm compliance, and has searched these documents to assess the submission against each Annex 1 requirement (clause). In some cases this is straightforward, in other cases the HS1 source document(s) is ambiguous.

Based on the requirements stated in Annex 1 and the purpose HS1 has stated for their CP3 submission documents, the Reviewer has assumed that the following documents contain information pertinent to the requirements of Annex 1:

- Stations Strategic Asset Management Plan (Stations SAMP),
- Station Specific Asset Strategies (SASs),
- Life Cycle Cost (LCC) models,
- Long Term Charge (LTC) model,
- Life Cycle Reports (LCRs)

Our assessment of Annex 1 compliance has therefore considered only these HS1 CP3 submission documents, with the Reviewer taking into consideration HS1's confirmation of the bottom-up approach taken to develop the LCC models, and the limited 'influence' of some Stations SAMP and SASs elements.

It was noted that the requirement to undertake variance analysis and optioneering including and excluding assets has not been significantly improved from CP2, though the Reviewer notes that improvements had been indicated as part of the CP2 Periodic Review process.

In conclusion, we find that HS1 is partially compliant with the requirements of Annex 1 to Schedule 10.

The tabulated results of the review included as Appendix C - Compliance with Annex 1 to Schedule 10.

Recommendation 07: HS1 to address all non-compliant and partial compliant lease requirements through a plan that is to be approved by the DfT, and HS1 to regularly report progress made against the plan to the DfT.

3.7 Asset Management Maturity

HS1 has chosen to adopt (and therefore align with) the principles defined in the International Organisation for Standardisation (ISO) 55000 series (Asset Management) in relation to the management of the assets for which they are responsible.

As the principles of the ISO 55000 series represent current best practice for asset management, adoption of these principles by HS1 in relation to station assets including their renewal is considered by the Reviewer to be positive.

Adoption of the ISO 55000 series principles continues to progress, and full compliance with the principles was not achieved by HS1 during CP2. The expected benefits of adoption are therefore not realised within the LCC and LTC models or LCRs for the CP3 submission. This position is recognised by HS1 in Annex A to their CP3 submission.

HS1 has benchmarked their current asset management maturity against the ISO 55001 standard and concluded that they are currently below the level of maturity that would be recognised as a base line for certification.

3.8 Efficiencies and Value for Money

A cost efficiency plan has not been provided to accompany HS1's 31 May 2019 Submission although the HS1 document does refer to the following:

- "Removal of the 0.6% p.a. compounding 'efficiency overlay' that was applied to unit costs in the PR14 numbers" (page 6, left hand column, 2nd bullet point)
- "In CP2 we have delivered outstanding performance and significant improvements in cost efficiency" (page 10, left hand column, last paragraph, second sentence)
- "Reassure parties that we are motivated to achieve efficiencies and that we have the workstreams in place to deliver them" (page 7, right hand column, 2nd bullet point)
- "...we challenge our suppliers to improve their practices and deliver efficiently" (page 12, right hand column, fourth paragraph, last sentence)

HS1 has not submitted any evidence to validate the removal of the 0.6% compounding efficiency overlay applied to CP2, and has not indicated if the overlay was either too high or too low. In the absence of any such evidence the Reviewer considers that the normal regulatory expectation of the regulated utility adopting a continuous improvement plan to deliver to their customers the services required at reducing costs (cost efficiencies) in CP3 should be at the same, or a comparable level, to that used in CP2.

The final two bullet points above are considered evidence of HS1 seeking efficiencies in CP3. In particular, the Reviewer considers the reference to having "...workstreams in place.." to demonstrate an intent to approach efficiencies in a structured manner, as would be expected in a cost efficiency plan. Accordingly, the Reviewer considers that HS1 should commit to preparing a cost efficiency plan as part of their CP3 Delivery Plan, and recommends that their progress in implementing it be monitored by DfT and HS1's customers.

Whilst the Reviewer accepts that HS1 has undertaken benchmarking of direct costs, and undertakes competitive tendering to achieve and demonstrate achievement of market prices, it is expected that the 'workstreams' identified by HS1 would seek to improve on existing costs,

including but not being limited to, the examination of the way in which renewals and enhancements works are packaged. Alternative delivery models and the examination of HS1's own costs should be considered to keep on-costs down and drive value for money for the customer. Refer to Section 4.2 Structure of LCC Model for further comment on on-costs.

Recommendation 08: DfT to require HS1 to develop a cost efficiency plan for CP3 (supporting the CP3 Delivery Plan). Progress in implementing the plan to be monitored by DfT and HS1's customers.

4. Life Cycle Cost Model

4.1 Review of the Lifecycle Cost Model

Four separate LCC MS Excel models (one for each station) were provided for review. The models cover a 50-year life cycle (starting 2010/11) with version control stating these as being CP3 v4 dated 27 March 2019 – minor version update on the models provided with the February Draft for Consultation ‘CP3 v3 no contingency’. The Reviewer notes that total renewal costs did not change between these two versions.

The models reflect a time based renewal for each of the assets listed. These asset lifecycles were the subject of review during the CP3 update, with Pell Frischmann and 4Way Consulting undertaking this first line assurance. The Reviewer has also tested the asset lifecycles stated in the models, and without undertaking a detailed examination of the assets, can confirm that these appear reasonable.

The Reviewer has identified in the latest version of the LCC models two activities within the St Pancras model that are accounted for up to and including the ‘Elemental Analysis’ worksheet, but which are not incorporated in the ‘Report’ worksheet, which subsequently informs the LTC model.

Station Element ‘5L Communications Systems’ (Row 285 of the ‘Elemental Inputs’ worksheet) appears to be absent representing the exclusion of a 5-year recurrent cost of £80,400.

The other element that appears to be absent is a ‘CDE- Asset Management Capability’ costed work activity (see row 284 of the ‘Elemental Inputs’ worksheet). This represents the exclusion of a 20-year recurrent cost of £685,000 starting in 2020/21.

It would be expected therefore that unless intentionally excluded for reasons that remain unstated, the cost of renewals would increase further for each CP through to handback.

Recommendation 09: DfT to require HS1 to update the LCC model or have an independent Spreadsheet Modelling Best Practice (SMBP) audit undertaken for consistency and flow of information throughout the model.

4.2 Structure of LCC Model

The LCC models do not contain any material changes to those that were provided with the 28 February 2019 Draft Consultation documentation (dated November 2018).

Inputs to the LCC models include material quantities, unit rates and on costs. The models do not contain any provision for contingency nor risk, which is an overlay that has been included in the LTC model (refer to Section 5.2 Structure of Financial Model for further comment).

Material quantities

The Reviewer has not been provided with any first line assurance regarding material quantities nor scope to support the models. HS1 has advised that the material quantities and scope have not been changed or assured since they were first created in circa 2010.

Recommendation 10: HS1 to review the material quantities and scope with the aim to refine the Life Cycle Cost models.

Unit rates

Pell Frischmann has assured the unit rates adopted by HS1. A comparison of the unit rates used in the LCC models with the Reviewer’s own database and SPONS (published source of

rates information) has been undertaken. Very few outliers have been found in the LCC rates. The Reviewer therefore considers that the rates used are reasonable.

On costs

The Reviewer considers that in CP2 HS1 had undertaken to “..review on costs associated with the contractual framework and track actual on costs when projects are undertaken so that this analysis can be used in future reviews..” (DfT publication entitled “HS1 Control Period 2 – Stations Review Final Decision”, page 15, section 2.38, 5th bullet point).

The Reviewer has not sighted evidence of the actual on costs associated with projects in CP2. Rather, for their CP3 Submission, HS1 has applied on costs as a series of percentage additions to the direct costs of individual asset renewals (much as was done for the CP2 submission). Pell Frischmann and Network Infrastructure Consultants have assured the on cost percentages adopted by HS1.

The total of “standard on costs” used in the CP3 LCC models is circa 72%. This has been compared with the on cost ranges adopted by Network Rail for their CP6 renewals Final Determination which lie within the range 36%-75% (mid-point 55.5%). The Reviewer concludes that HS1’s on costs are high when compared with the Network Rail CP6 data set, which are some 16.5% lower.

5. Financial Model

5.1 Review of the Financial Model

The Long Term Charge (LTC) model is (like the LCC models) a time based model and is the sole financial model used to calculate the “annuity charge” - the annual amount paid by TOCs for stations asset renewals work.

The LTC model covers the 40-year period 2020/21 to 2059/60. The annuity calculation is set at a level such that the escrow balance in 2059/60 becomes zero. The annual charge to TOCs during a Control Period is set to be the average cost of the annual LTC over a Control Period, which is then divided amongst the access beneficiaries (TOCs) in proportion to pre-agreed parameters.

The LTC model includes the outputs from the LCC models (direct costs, on costs and year of individual asset renewals), the Financial Assumptions (e.g. inflation, escrow amount available for long term investment and cost of borrowing) and risk and contingency.

Recommendation 11: DfT to require HS1 to update the LTC model or have an independent Spreadsheet Modelling Best Practice (SMBP) audit undertaken for consistency and flow of information throughout the model.

5.2 Structure of Financial Model

Evidence of the outputs from the LCC models being identical inputs into the LTC model has been sighted, which supports Spreadsheet Modelling Best Practice procedures.

The model does not contain any material changes to the model (dated November 2018) reviewed in the context of the 28 February 2019 Draft Consultation, except for the addition of a provision to cover risk and contingency as set out in Table 19 of the HS1 Submission to DfT dated 31 May 2019 (replicated in Table 1 below).

Table 1: Risk and Contingency Allowance Profile

Station	CP3-4	CP5-6	CP7-8	CP9-10
St Pancras	15%	15%	10%	20%
Stratford	15%	15%	10%	5%
Ebbsfleet	10%	15%	10%	10%
Ashford	10%	10%	15%	10%

Risk and contingency allowance

The Reviewer has reviewed the methodology for calculating the risk and contingency allowance, set out in the Pell Frischmann report entitled “HS1 Stations Asset Replacement Cost Project Report” (Issue 1.0, dated 18 February 2019).

The approach assesses each asset renewal modelled in the LCCs against certainty or uncertainty metrics in relation to Scope, Quantum and Cost to forecast an outturn cost range as either “Minimum, Medium or Maximum” over the total renewals for the five 10-year periods between 2020/21 – 2069/70, and derives a risk and contingency allowance for each of the four stations.

The Reviewer notes that the station specific risk and contingency provision for the five 10-year periods was a simple summation of the “Medium” and “Maximum” columns. This was then converted into a percentage addition to the “Medium” total to derive the “Maximum” total.

The Reviewer considers this approach to be limited, and queries the following:

- The application of uncertainties in Quantum and Scope on a like for like renewals basis where HS1 has had asset stewardship responsibility for the last 10 years;
- References in the report relating to “poor maintenance practices” and “maintenance regime failures” which are the responsibility of HS1 and should not be deemed a risk in the context of this submission;
- The lack of variable probability of the occurrence of adverse events such as would be associated with a Monte Carlo Analysis (or similar) as part of a more normal Quantitative Cost Risk Analysis (QCRA) approach to estimating risk provision.

Notwithstanding these reservations, the Reviewer has assessed the CP3 risk and contingency provision to be 13.9% on a weighted average basis.

In our Phase 2 report to DfT, the Reviewer noted on page 9, section 3.4.2 that ORR’s Final Determination for Network Rail contains a 10.7% allowance for risk over a £21bn maintenance and renewals portfolio. HS1’s CP3 renewals expenditure is considerably less than Network Rail’s, and therefore the 13.9% allowance for risk may be reasonable given the HS1 renewals portfolio has less ability to absorb “shocks” than Network Rail’s £21bn portfolio.

5.3 Definitions and Assumptions

Section 10.2 of the LTC Submission states that the financial models are based upon the following assumptions:

- *“Inflation rate of 2.75%. This is based on the Bank of England forecasts of 2.0% CPI and 75 to 100 bp between CPI and RPI; we have assumed the bottom of the range. This forecast is consistent with our internal forecasting principles.*
- *For calculation of LTC a discount rate of 5.1% nominal has been used based upon our WACC [Weighted average cost of capital – HS1’s average cost of borrowing]*
- *We have assumed that 80% of escrow funds are placed in Authorised Investments and 20% remain in the escrow account*
- *Escrow interest rates, based upon CP2 outputs:*
 - *For Authorised Investments 1.30%*
 - *For funds remaining in the escrow account 0%*
 - *For negative escrow account balances 5.1% is charged as a financing cost.”*

The Reviewer considers the inflation rate and WACC to be within the bounds of what is considered appropriate.

The Reviewer notes that the LTC model for the HS1 Infrastructure uses the same financial assumptions, save for the following exceptions:

- For Authorised Investments 1.2248%
- For funds remaining in the escrow account 0.7%

Recommendation 12: HS1 should confirm the rates being applied for Authorised Investments and funds remaining in escrow and ensure consistency between the underlying models and the report.

As stated in our Phase 1 Familiarisation Report there is currently no definition of what constitutes a station asset renewal provided in the HS1 Lease – Schedule 10.

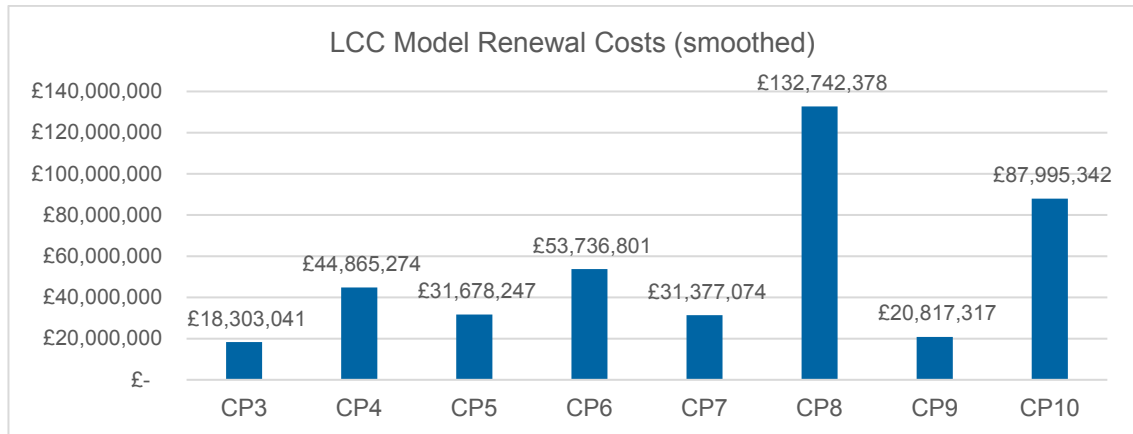
Recommendation 13: HS1 to agree and document the principles that constitute a station asset renewal with the DfT, to make sure there is consistency in decision making over time.

6. Long Term Works

The Life Cycle Period is defined in the HS1 Lease as being the period of fifty (50) years commencing on 1 April 2011.

A total of £422m of renewal costs is required from CP3 to CP10 (calculated by combining the four smoothed LCC models). This is shown in Figure 3 below and replicates the information presented in Figure 9 of the LTC Submission:

Figure 3: LCC Model Renewals Costs (smoothed)



HS1 has developed a LCC model for each station which runs for 50 years, in line with the Life Cycle Period. This is a fixed period model, with 40 years remaining from CP3 to CP10. The static '50 year model' includes costs through to 2059/60 but is limited in that it does not consider asset renewals from 2060/61 onwards. It would therefore be expected, that from 2020 onwards, if the static model remains, renewals beyond 2060 would not be fully funded.

Intuitively, moving to a 40 year rolling model would enable future renewals activities beyond 2059/60 to be considered by the LTC model, and enable collection of an annuity to cover the renewal of these assets. This is preferable for long term sustainable renewal of all assets contained in the model.

HS1 stated in a letter to the DfT dated 26 June 2019, that their intent is to roll the LCC model forward at each Control Period, in five year increments, thus adjusting the static model to a rolling 40 year model, with renewal cycles being guided by the assets included within each additional five year increment of the model.

The Reviewer considers this proposed rolling approach an improvement on the fixed model, which will provide greater visibility to the DfT and TOCs of the anticipated renewal costs over a 40-year period. This is expected to enable sufficient time to account for the collection of charges associated with less frequent, longer renewal cycle assets.

Assets such as the St Pancras Roof are currently excluded from the models and so, at no point, will fall within the annuity calculations and charges to TOCs. HS1 in their letter of 26 June 2019 provided the view that one-off requirements such as the roof are materially different in nature to the 'wear and tear' and obsolescence-driven renewals, and therefore require a different funding approach. The letter suggests public funding of these renewals works.

HS1, the TOCs and passengers realise the benefits afforded by the roof, and therefore, as the beneficiaries, it would be reasonable to expect contributions towards renewal, proportionate to asset life. For example, if the asset is expected to last for 100 years, over the five year control period, 1/20th of the cost of renewal would be expected to be contributed.

7. Lessons, Risks and Changes

7.1 Lessons Learned

The table below outlines key lessons identified during the review of the period review process.

Table 2: Lessons from CP2 and CP3 periodic review process

ID	Lesson	Proposed action
01	Lessons were identified from the CP2 review, presented to stakeholders in the Industry Stakeholder Workshop Planning for CP3 Presentation (June 2017), but had not been considered nor informed thinking for the Control Period 3 submission e.g. presentation of options	A lessons learned exercise is undertaken at the end of CP3, as planned, including DfT, HS1, the Reviewer and key Stakeholders, with actions agreed (including relevant outstanding actions from the CP2 Review) for address in advance of the CP4 submission process. Completion of actions to be monitored by DfT to ensure the captured lessons from CP2 are incorporated in CP3, and subsequently in CP4.
02	Commitments made as part of the CP2 decision were not completed or tracked, which in the Reviewer’s opinion, negatively impacted the level of asset management development ahead of the CP3 submission.	Incorporation of commitments made as part of the CP2 periodic review process into the improvement plan for CP3, to support asset management maturity.
03	Multiple iterations of draft documentation were provided to and commented on by the Reviewer throughout the process requiring re-work by HS1. A more collaborative approach to CP4 involving the Reviewer and DfT on proposals and approach may lead to less drafting and re-work of documentation.	The next review to consider ways in which the Reviewer and HS1 could share information on proposals and changes prior to these being fully developed.
04	With two sets of asset management documentation (the ISO family of documents and the Periodic Review submission documents) available during the review, it was unclear from draft documentation what factors actually impacted the CP3 renewal costs and what was aspirational.	A clear and specific description be included in the CP4 submission articulating how costs have been determined and what factors affect the costs (including links to supporting third party reports).

7.2 Identification of new risks to the Periodic Review

As noted in Section 8 Suggested amendments to the Concession Agreement below, a key risk to future Period Reviews is balancing the strict application of the Agreement Requirement with evolving Asset Management Practice. As flagged during this Periodic Review, the split of

maintenance from renewals contrasts to good asset management practice and creates a risk that the agreement and approach could stymie good practice.

7.3 Potential changes required to the periodic review framework

Recommendation 14: In support of the recommendations made elsewhere in this report, the DfT to consider the levels of assurance required to monitor the completion of any agreed actions with HS1 that arise during the periodic review process.

8. Suggested amendments to the Concession Agreement

The following suggested amendments should be read in conjunction with recommendations made elsewhere in this report and in the Executive Summary.

It is suggested that interpretation or guidance is provided for the assessment of the Schedule 10 and Annex 1 obligations. For example, strict application of the clause vs. meeting the clause in principle would support both ease of development of the submission and ease of review.

Further to Section 7.2 Identification of new risks to the Periodic Review above, the prescribed split of renewals from maintenance is in contrast to good asset management practice. While costs and payment systems may need to be also considered, the treatment of assets should be considered holistically, including maintenance and renewal activities, to deliver an efficient service to TOCs and passengers within the constraints imposed. The Reviewer proposes that these elements are not strictly separated.

As noted in the Reviewer's Phase 1 and Phase 2 reports, there is currently no detailed agreed definition for a Renewal or Handback Condition. Incorporation of an agreed definition would provide greater certainty to both HS1 and the DfT and would be recommended for consideration in any future change to agreements.

The Reviewer notes that a number of areas that were included within the scope of the review of the Control Period 3 Submission, were not supported by specific clauses and obligations in the Concession Agreement or HS1 Lease. This includes, for example, Station Enhancements and their treatment. Unless separate agreements are in place that enable the DfT to regulate proposals, it is suggested that they be considered for inclusion in any future update of the Concession Agreement, which would enable their consideration within the Periodic Review Process.

Appendices

Appendix A - Document list

ID	Document Title / File Name	File Date
1.	00 HS1 stations - Uncertainty Study Report 2019.pdf	15/03/2019
2.	01 Ashford 2070 OPEX Uncertainty 2019.pdf	15/03/2019
3.	02 Ebbsfleet 2070 - OPEX Uncertainty 2019.pdf	15/03/2019
4.	03 St Pancras 2070 OPEX Uncertainty 2019.pdf	15/03/2019
5.	04 Stratford 2070 OPEX Uncertainty 2019.pdf	15/03/2019
6.	150216 Jays LTC 2015-16 revised cost estimate and projects for all 4 stations.xlsx	17/09/2018
7.	150327 Searchable PDF - Supplemental Agreement amended and restated concession agreement.pdf	01/10/2018
8.	190626 Letter DfT stations queries.pdf	14/07/2019
9.	2015%20Route%20AMAS%20Draft%20A%20New%20Format%20(V11%202).pdf	03/07/2018
10.	2017-18 pre-approved pre gate 4 spreadsheet signed.pdf	01/10/2018
11.	2018-10-10 DfT Engagement - Asset Management Strategic Context (Session 2).pdf	11/10/2018
12.	2018-19 funding request signed.pdf	01/10/2018
13.	2018-19 Pre-approved funding v3.xlsx	24/07/2018
14.	2019-01-17 Minutes from Stations Document Review Feedback.pdf	23/01/2019
15.	Annex A Stations AM - overview of CP3 approach.pdf	26/06/2019
16.	Annex B 190604 DfT GHD stations responses.xlsx	26/06/2019
17.	Approach to HS1 Stations Periodic Review.pdf	24/04/2018
18.	Ashford Estimate Validation WIP 20.07.18.xlsx	10/08/2018
19.	Ashford International LCR_1 August 2014 submission.pptx	24/04/2018
20.	Ashford International LCR_30 June 2014 submission.pptx	24/05/2018
21.	Ashford INTL - AHF 260716.xlsx	24/05/2018
22.	Asset Management Document Maps Combined.pptx	21/09/2018
23.	Asset Management Strategy_30 June 2014 submission.pptx	04/07/2018
24.	Complete Screen Shots (A3 to print in colour!).docx	24/05/2018
25.	Compliance matrix with HS1 Ltd updates 25 July 2014.xlsx	17/09/2018
26.	CP 3 Ashford Station LCR Revision 03.docx	10/01/2019
27.	CP 3 Ashford Station LCR Revision 05clean.pdf	26/06/2019
28.	CP 3 Ashford Station LCR Revision 05tracked.pdf	26/06/2019
29.	CP 3 Ebbsfleet Station LCR Revision 03.docx	10/01/2019
30.	CP 3 Ebbsfleet Station LCR Revision 05clean.pdf	26/06/2019
31.	CP 3 Ebbsfleet Station LCR Revision 05tracked.pdf	26/06/2019
32.	CP 3 St Pancras Station LCR Revision 03.docx	10/01/2019
33.	CP 3 St Pancras Station LCR Revision 05clean.pdf	26/06/2019
34.	CP 3 St Pancras Station LCR Revision 05tracked.pdf	26/06/2019
35.	CP 3 Stratford Station LCR Revision 03.docx	10/01/2019
36.	CP 3 Stratford Station LCR Revision 05clean.pdf	26/06/2019
37.	CP 3 Stratford Station LCR Revision 05tracked.pdf	26/06/2019
38.	CP3 Ashford Station LCR 28 Feb 19.pdf	06/03/2019

39.	CP3 Ebbsfleet Station LCR 28 Feb 19.pdf	06/03/2019
40.	CP3 St Pancras Station LCR 28 Feb 19.pdf	06/03/2019
41.	CP3 Stratford Station LCR 28 Feb 19.pdf	06/03/2019
42.	CP4-CP9 High Level Plan and CP4 Integrated Plan.xlsx	13/03/2019
43.	DfT CP3 Engagement Meeting - AM Strategic Context - 21 September 2018.pdf	28/09/2018
44.	DfT HS1 Asset Classification Framework v4_Final_17 July 2015.pdf	11/03/2019
45.	DfT HS1 Asset Classification Framework v3_Final Draft_29 May 15.pdf	24/05/2018
46.	Ebbsfleet International LCR_1 August 2014 submission.pptx	24/04/2018
47.	Ebbsfleet International LCR_30 June 2014 submission.pptx	24/05/2018
48.	Ebbsfleet INTL - AHF 260716 .xlsx	24/05/2018
49.	Ebbsfleet Station Estimate WIP 28.07.18.xlsx	10/08/2018
50.	Escrow Withdrawal Request - Period 7 Signed HS1.pdf	01/10/2018
51.	EXTRACT from DRAFT HS1 Asset Management Annual Statement - 2018-19.pdf	23/01/2019
52.	Final Slides for CP3 workshop on 22 June 2018.pptx	04/07/2018
53.	FW HS1 stations LTC model.msg	19/06/2019
54.	HS1 Asset Degradation Relationships v2_Final Draft_29 May 15.pdf	24/05/2018
55.	HS1 Asset Hierarchy Criticality Degradation_Final Draft_29 May 15.xlsx	24/05/2018
56.	HS1 Asset Management Annual Statement - 2017-18.pdf	25/09/2018
57.	HS1 Asset Management Annual Statement 2016-17 - Final - Signed.pdf	03/07/2018
58.	HS1 Asset Management Policy [DRAFT V4].docx	04/07/2018
59.	HS1 Control Period 2 - Stations Review Final Decision.pdf	24/04/2018
60.	HS1 CP2 2018-19 Funding Request 26.3.18 d3.docx	01/10/2018
61.	HS1 End User Requirements Station SAS Document v0.5.docx	05/10/2018
62.	HS1 External Areas Station SAS Document v0.11.docx	03/12/2018
63.	HS1 External Areas Station SAS Document v0.6.docx	05/10/2018
64.	HS1 Fittings Furnishings & Equipment Station SAS Document v0.10.docx	06/11/2018
65.	HS1 Fittings Furnishings & Equipment Station SAS Document v0.6.docx	05/10/2018
66.	HS1 Internal Finishes Station SAS Document v0.5.docx	05/10/2018
67.	HS1 Internal Finishes Station SAS Document v0.9.docx	06/11/2018
68.	HS1 Lease - Searchable.pdf	11/10/2018
69.	HS1 Lease.pdf	10/10/2018
70.	HS1 LTC CP3 Review.pptx	13/06/2019
71.	HS1 Ltd Stations LTC 31 May 2019 FINAL.pdf	07/06/2019
72.	HS1 Ltd Stations LTC redline 31 May v 28 Feb.pdf	07/06/2019
73.	HS1 Services Station SAS Document v0.11.docx	06/11/2018
74.	HS1 Services Station SAS Document v0.7.docx	05/10/2018
75.	HS1 stations - on cost review rev1 Dec 18.pdf	11/12/2018
76.	HS1 Stations LCC and LTC Model User Guide v6 07 April 2014.docx	12/10/2018
77.	HS1 Stations Long Term Charge Review for Control Period 3.pdf	06/03/2019
78.	HS1 Substructure Station SAS Document v0.5.docx	05/10/2018
79.	HS1 Substructure Station SAS Document v0.9.docx	06/11/2018
80.	HS1 Superstructure Station SAS Document v0.5.docx	05/10/2018
81.	HS1 Superstructure Station SAS Document v0.9.docx	06/11/2018

82.	HS1-AMS-001 Asset Management Policy.pdf	27/09/2018
83.	HS1-AMS-201 Stations SAMP post DfT (21-06-19).pdf	26/06/2019
84.	HS1-AMS-201 Stations SAMP post DfT (21-06-19)clean.pdf	26/06/2019
85.	HS1-AMS-201 Stations SAMP.pdf	06/03/2019
86.	HS1-AMS-202-1 Substructure Station SAS Document v0.11 post DfT.pdf	26/06/2019
87.	HS1-AMS-202-1 Substructure Station SAS Document v0.11 post DfTclean.pdf	26/06/2019
88.	HS1-AMS-202-1 Substructure Station SAS Document.pdf	06/03/2019
89.	HS1-AMS-202-2 Superstructure Station SAS Document v0.11 Post DfT.pdf	26/06/2019
90.	HS1-AMS-202-2 Superstructure Station SAS Document v0.11 Post DfTclean.pdf	26/06/2019
91.	HS1-AMS-202-2 Superstructure Station SAS Document.pdf	06/03/2019
92.	HS1-AMS-202-3 Internal Finishes Station SAS Document v0.11 Post DfT.pdf	26/06/2019
93.	HS1-AMS-202-3 Internal Finishes Station SAS Document v0.11clean.pdf	26/06/2019
94.	HS1-AMS-202-3 Internal Finishes Station SAS Document.pdf	06/03/2019
95.	HS1-AMS-202-4 Fittings Furnishings & Equipment SAS v0.12 DfTclean.pdf	26/06/2019
96.	HS1-AMS-202-4 Fittings Furnishings & Equipment Station SAS Document.pdf	06/03/2019
97.	HS1-AMS-202-4 Fittings Furnishings & Equipment Station SAS v0.12 DfT.pdf	26/06/2019
98.	HS1-AMS-202-5-Services Station SAS Document v0.13 Post DfT.pdf	26/06/2019
99.	HS1-AMS-202-5-Services Station SAS Document v0.13 Post DfTclean.pdf	26/06/2019
100.	HS1-AMS-202-5-Services Station SAS Document.pdf	06/03/2019
101.	HS1-AMS-202-6 External Areas Station SAS Document v0.13 post DfT.pdf	26/06/2019
102.	HS1-AMS-202-6 External Areas Station SAS Document v0.13 post DfTclean.pdf	26/06/2019
103.	HS1-AMS-202-6 External Areas Station SAS Document.pdf	06/03/2019
104.	HS1-AMS-203 HS1 Asset Hierarchy (Stations).pdf	06/03/2019
105.	hs1-five-year-asset-management-statement.pdf	01/03/2019
106.	hs1-stations-long-term-charge-review-for-control-period-3.pdf	01/03/2019
107.	hs1-stations-review-cp3-draft-decision.pdf	05/07/2019
108.	Industry Workshop FINAL Complete.pdf	04/07/2018
109.	LCC model - Ashford CP3 v1 18 Sept 2018.xlsb	12/10/2018
110.	LCC model - Ashford CP3 v2 02 Oct 2018.xlsb	12/10/2018
111.	LCC model - Ashford CP3 v3 no contingency 08 Nov 2018.xlsb	18/12/2018
112.	LCC model - Ashford CP3 v4 no contingency 27 Mar 2019.xlsb	21/06/2019
113.	LCC model - Ashford DEC 2014.xlsb	24/05/2018
114.	LCC model - Ebbsfleet CP3 v1 18 Sept 2018.xlsb	12/10/2018
115.	LCC model - Ebbsfleet CP3 v2 02 Oct 2018.xlsb	12/10/2018
116.	LCC model - Ebbsfleet CP3 v3 no contingency 08 Nov 2018.xlsb	04/12/2018
117.	LCC model - Ebbsfleet CP3 v4 no contingency 27 Mar 2019.xlsb	24/06/2019
118.	LCC model - Ebbsfleet DEC 2014.xlsb	24/05/2018
119.	LCC model - St Pancras CP3 v1 18 Sept 2018.xlsb	12/10/2018
120.	LCC model - St Pancras CP3 v2 02 Oct 2018.xlsb	12/10/2018
121.	LCC model - St Pancras CP3 v3.2 no contingency 08 Nov 2018.xlsb	06/03/2019

122.	LCC model - St Pancras CP3 v4 no contingency 27 Mar 2019.xlsb	21/06/2019
123.	LCC model - St Pancras DEC 2014.xlsb	24/05/2018
124.	LCC model - Stratford CP3 v1 18 Sept 2018.xlsb	12/10/2018
125.	LCC model - Stratford CP3 v2 02 Oct 2018.xlsb	12/10/2018
126.	LCC model - Stratford CP3 v3 no contingency 08 Nov 2018.xlsb	04/12/2018
127.	LCC model - Stratford CP3 v4 no contingency 27 Mar 2019.xlsb	21/06/2019
128.	LCC model - Stratford DEC 2014.xlsb	24/05/2018
129.	Lloyds Chaps Form - Ashford.pdf	27/09/2018
130.	Lloyds Chaps Form - Ebbsfleet.pdf	27/09/2018
131.	Lloyds Chaps Form - St Pancras.pdf	27/09/2018
132.	Lloyds Chaps Form - Stratford.pdf	27/09/2018
133.	LTC model - CP3 v1 18 Sept 2018.xlsm	12/10/2018
134.	LTC model - CP3 v2 02 Oct 2018.xlsm	12/10/2018
135.	LTC model - CP3 v3.2 no contingency 12 Nov 2018.xlsm	06/03/2019
136.	LTC model - CP3 v4.3b 03 June 2019-FINAL.xlsm	19/06/2019
137.	LTC St Pancras Rate Validation WIP 28.07.18.xlsb	10/08/2018
138.	may-2019-hs1-stations-long-term-charge-review-for-control-period-3-submission-to-dft.pdf	03/06/2019
139.	MITI02 Inv 220337628.pdf	27/09/2018
140.	Oxera stations enhance part 2.pptx	25/06/2019
141.	Oxera stations enhance.pptx	25/06/2019
142.	Periodic Station Project Invoice Summary - Period 7.xlsx	27/09/2018
143.	Periodic Stations Escrow Mandate Withdrawal Request - Period 7.msg	01/10/2018
144.	PR19 ORR-approach-to-pr19.pdf	11/06/2018
145.	pre-approved funding v3 signed.pdf	01/10/2018
146.	Presentation for CP3 stakeholder workshop 2_19Oct17 FINAL WITH ORR.pptx	04/07/2018
147.	Presentation for CP3 stakeholder workshop 3_13 Dec 17 FINAL SENT.pptx	04/07/2018
148.	Renewals 2018-19 d2.xlsx	01/10/2018
149.	Renewals 2018-19d2 signed.pdf	01/10/2018
150.	Revised model Elemental inputs pages 30082018.xlsx	30/08/2018
151.	Route Renewals 2018-19 (P10).xlsx	24/04/2018
152.	Slides for CP3 workshop 2018 09 14 version_SENT.pptx	17/09/2018
153.	Slides for CP3 workshop 2018.12.14.pdf	11/12/2018
154.	Slides for CP3 workshop on 6 April 2018_FINAL VERSION CIRCULATED.PPTX	11/06/2018
155.	St Pancras International LCR_1 August 2014 submission.pptx	24/04/2018
156.	St Pancras International LCR_30 June 2014 submission.pptx	24/05/2018
157.	St Pancras INTL - AHF 260716.xlsx	24/05/2018
158.	Stakeholder workshop topics plan.pptx	04/07/2018
159.	Stations Asset Criticality Schedule COMPLETE.XLSX	24/05/2018
160.	Stations CP2 Portfolio 18.19 v2.0.xlsx	17/09/2018
161.	Stations CP2 Portfolio v4.xlsx	01/10/2018

162.	Stations LTC Review_30 June 2014 submission to DfT_SUBMITTED.pptx	09/05/2018
163.	Stratford International LCR_1 August 2014 submission.pptx	24/04/2018
164.	Stratford International LCR_30 June 2014 submission.pptx	24/05/2018
165.	Stratford INTL- AHF 260716 .xlsx	24/05/2018
166.	Stratford Station WIP 28.07.18.xlsb	10/08/2018
167.	supplement-to-concession-agreement-december-2017-2[1].pdf	05/10/2018
168.	Technical advice to the HS1 government's representative_ addendum.pdf	24/04/2018
169.	Technical Advice to the HS1 Government's Representative_ Review of the International Stations' CP2 Proposals.pdf	24/04/2018
170.	Venn - Invoice 3440729.pdf	27/09/2018
171.	Venn - Invoice 3443103.pdf	27/09/2018
172.	Venn - Invoice 3457081.pdf	27/09/2018

Appendix B – Compliance with HS1 Lease – Schedule 10

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs (As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5	Life Cycle Report							
5.1	The Tenant shall submit a Life Cycle Report to the Government's Representative for each Station no later than nine (9) months prior to the end of each Review Period.		G	Review periods end on 31 March. Review Periods are 5 years in length. Review Period 1 ended on 31 March 2015. Therefore CP2 ends 31 March 2020. Life Cycle reports are therefore to be submitted by end of 1 July 2019 .	LCR's have been updated based on comments from DfT and GHD. Submitted 26 June.	LCRs	G	Compliant
5.2	Each Life Cycle Report shall, in respect of each Station, include:							
	Works undertaken and costs incurred							
5.2.1	a summary of the following in respect of the current Review Period							

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.1 (A)	<i>the Life Cycle Works carried out by the Tenant (or that it is anticipated will have been carried out by the end of the current Review Period);</i>	4.1.2	R	<p>Requires further information.</p> <p>It is not clear if the list of works includes works carried out from the start of CP2 up to this time. For example, Table 5 in Section 4.1.2 for Stratford contains 9 items. 3 items are stated to be likely deferred to CP3. 3 items are stated to be completed by June 30, 2018. 1 item is stated to be underway. It is therefore assumed that 2 items were completed prior to the development of the LCR.</p> <p>Additionally, Table 5 in Section 4.1.2 for Stratford only contains non-standard LTC Asset System Category for "5-Services" is included; it is unknown whether other asset system categories (refer Appendix B, table in B1) are absent because no work was done or is planned or because they have been inadvertently omitted.</p> <p>Additionally, there is no breakdown by year.</p>	<p>Section 6.1.2 in the LCRs has been updated to reflect the '2019/20 Annual Stations Portfolio Funding Paper.'</p> <p>The items previously stated as 'likely to be deferred to CP3' have been removed, as this table is only reflecting works likely to be completed in CP2. Those CP3 deferrals have not reached Gate 4 in the renewals governance cycle, therefore their current status is uncertain hence removal from this report.</p> <p>Table 5 is in section 6.1.2. The asset category column in Table 5 has been removed as it does not materially add to the document.</p> <p>For more detailed programme detail and period breakdowns regarding projected and actual expenditure reporting, see the annual and quarterly programme reports as submitted to DfT.</p>	Section 6.1.2, LCRs	G	<p>Compliant.</p> <p>Life Cycle Works ("LCC Works") for renewals completed, renewals planned, and new renewals projects for CP2 is provided in Section 6.1.2.</p>

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs (As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.1 (B)	the Available Life Cycle Funds at the end of each Financial Year (or the anticipated Available Life Cycle Funds by the end of the last Financial Year in the current Review Period);	4.2.1.5	R	Requires further information. The graph in 4.2.1.5 "shows the change in the Escrow balance". "Escrow" is defined but not in the context of 5.2.1 (b); the figure in Section 1.1 appears to relate 'Escrow' to 'Annuity'. The line on the graph for "Total Escrow Cash" is not defined; it is assumed this is the forecast situation for CP2, presumably the forecast made prior to CP2 commencing. The "Actual", however, seems to be a flat line of always being £5,000k. It is, therefore, unclear what the interpretation of this graph should be. Notwithstanding, it does not appear to provide the "Available Life Cycle Funds at the end of each Financial Year".	This information is provided in the LCC and LTC models, the Stations LTC review submission, and the Annual Stations Portfolio Funding Paper. A new table has been added to section 7 of the LCR documents, which copies the information shown in the Stations LTC review submission.	Section 7, LCRs	G	Compliant Available Life Cycle funds forecast for the end of each financial year remaining in CP2 are contained in Section 7.1.2.2. Note: due to a formatting error, this is Section 7.1.2.3 in the Ashford LCR.
5.2.1 (C)	the Life Cycle Works Cost (or anticipated Life Cycle Works Cost by the end of the current Review Period);	4.1.2	R	Requires further information. Comments as for 5.2.1 (a) are applicable to 5.2.1 (c).	This information is provided in the LCC and LTC models, the Stations LTC review submission, and the Annual Stations Portfolio Funding Paper. A new table has been added to section 7 of the LCR documents, which copies the information shown in the Stations LTC review submission.	Section 7, LCRs	G	Compliant Available Life Cycle funds forecast for the end of each financial year remaining in CP2 are contained in Section 7.1.2.2. Note: due to a formatting error, this is Section 7.1.2.3 in the Ashford LCR.
5.2.1 (D)	the Deferred Life Cycle Works Savings (if any) approved in previous Life Cycle Reports;	4.2.1.3	G	Compliant. It is stated that "No Life Cycle Works savings are identified"	N/A	N/A	G	Compliant

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.1 (E)	<i>the Life Cycle Works Savings (if any) brought forward from previous Review Periods;</i>	4.2.1.3	G	Compliant. It is stated that "No Life Cycle Works savings are identified"	N/A	N/A	G	Compliant
5.2.1 (F)	the effect of any Relevant Changes of Law that have occurred during the Review Period;	4.2.2	G	Compliant. It is stated that there "...have been no changes in law during CP2 that have changed our approach to the management of the asset."	N/A	N/A	G	Compliant
5.2.1 (G)	<i>an analysis of breakdown frequencies and the performance of the Elements of the Station which were identified in the Asset Management Strategy as being monitored by the Tenant;</i>	4.3.1		Requires further information for Stratford, Ebbsfleet and St. Pancras. The key word in the clause is "analysis". We observe, for example, for Stratford that Table 8 in Section 4.3.1 states that all asset groups (Stratford) achieved 100.00% availability for P6; whereas, Table 10 in Section 4.3.1 states that there were 702 reactive faults in P6, and states that there were 84 overdue faults in P6. The report for Stratford does not comment on how 100.00% availability is achieved when there are 702 reactive faults and 84 overdue faults. The report for Stratford does not comment on the recent significant increase (P5 and P6) in overdue faults. Further information is not required for Ashford other than improving Table 8 in Section 4.3.1 to differentiate between "Reactive Works" and "Not Completed".	The 100% figures refer to availability under the terms of HS1's operating contracts. These contracts allow assets to be unavailable during specified periods (e.g. during less busy periods of the day) without affecting the overall availability score. In these circumstances, it is possible to have a fault and show 100% availability. Further, Network Rail (High Speed) can identify long-term reactive works as a requirement, which are then not counted in the availability statistics. To provide oversight and assurance, HS1 monitors availability 'as seen' by passengers vs the contractual benchmarks and challenges its contractors on performance.	N/A	G	Partial Compliance Section 4.3.1 is now 6.3.1. Compliant for St Pancras, Stratford and Ebbsfleet LCRs: While the merit of determining performance averages may be questionable and the results in Table 8 don't match the preceding text, the explanation to clarify the performance results is helpful. For the Ashford LCR - non-compliant: The Ashford LCR does not comply with the requirement as it provides only a single overall chart of reactive works that does not make reference to the Station Elements; note also that the section '6.3.2 Commentary on the individual assets' that follows the chart appears selective in the list of assets and only mentions performance (in terms of availability) in one instance 'Low Voltage (LV) Supply'. A reference is made to the "schedule 8 Part 1 – KPI" spreadsheet which accompanies the Period Reports.", which may contain the required information but the definition of the KPI spreadsheet was not provided for the CP3 review.

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs (As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.1 (H)	the renewals and replacements (if any) undertaken by the Station Operator in order that it discharged its Safety Obligations in respect of the Station but which were not identified in the current Life Cycle Report ("Station Safety Works");	4.1.3	R	Requires further information for Stratford and Ebbsfleet. While it is stated for Stratford and Ebbsfleet that no Safety Obligation renewals or replacements were undertaken by the SFO, it does not state if HS1 Limited undertook Safety Obligation renewals or replacement, and it does not state that no Safety Obligation renewals or replacements were required. Further information is not required for Ashford and St. Pancras.	Section 6.1.3 (not section 4.1.3) Stratford and Ebbsfleet altered to read as follows: 'There were no renewals and replacements required to be undertaken by the SFO in order that it discharged its Safety Obligation in respect of the Station.'	Section 6.1.3, LCRs	G	Compliant
5.2.2.	in respect of the current Review Period a progress report, comparison and reconciliation by reference to the Life Cycle Report approved for the current Review Period of							
5.2.2 (A)	the Life Cycle Works actually completed to date against those anticipated giving the reasons for any differences	4.1.2	R	Requires further information. The Life Cycle Works listed in Table 5 of Section 4.1.2 are only those stated "...to be completed in the remainder of CP2." It is not known if there were other Life Cycle Works that have already been completed.	This information is provided in the LCC models, the Stations LTC review submission, and the Annual Stations Portfolio Funding Paper. Updates have been made to Section 6 of the LCRs.	Section 6, LCRs	G	Compliant Section 6.1.2 provides the renewals completed, renewals planned, and new renewals projects for CP2; the following text explains the up to date timing of the projects.

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.2 (B)	<i>the Life Cycle Works Cost incurred to date against those anticipated giving the reasons for any differences;</i>	4.1.2	R	Requires further information. For those items listed in Table 5 of Section 4.1.2 the budgets and costs are provided. However, there is no information in Section 4.1.2 on the reason for the differences between budgets and costs.	As above. Reasons for variance is discussed in the Annual Stations Portfolio Funding Paper.	Section 6, LCRs	G	Compliant Section 6.2.1.1 provides the costs for "Plan" and "Actual"; and Section 6.2.1.2 explains the variance to be due to pushing back planned work.
5.2.2 (C)	<i>the Life Cycle Works Savings achieved to date against those anticipated;</i>	4.2.1.3	A	Conditional compliance. It is stated in Section 4.2.1.3 that no savings were identified. However, it is not clear if this means none were anticipated, or that no savings have been identified where they were previously anticipated.	No savings are anticipated for the portfolio overall, however variance per project is shown in the Annual Stations Portfolio Funding Paper and Stations LTC review submission.	N/A	G	Conditional compliance It is acknowledged that the Stations LTC Review Submission states that no savings are anticipated, but works to this affect are not include in the LCR itself.
5.2.3	<i>a summary of the following up to the end of the previous Review Period for each Element of the Station of:</i>							

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.3 (A)	<i>the aggregate amount of the Life Cycle Works Cost;</i>	4.2.3	R	Requires further information. Stated that aggregate Life Cycle Works data is not yet available for CP2.	We have clarified that 'The anticipated LC works costs against budget for CP2 are shown in section 7'.	Section 7, LCRs.	G	Compliant. The aggregate amount of the Life Cycle Works Cost is shown in the Figure in Section 7.2.2.1.
5.2.3 (B)	<i>the aggregate amount of the Deferred Life Cycle Works Savings (if any); and</i>	4.2.3	R	Requires further information. Stated that aggregate Life Cycle Works data is not yet available for CP2.	As above.	Section 7, LCRs.	G	Non-compliant No information or text is provided in Section 7 with respect to Deferred Life Cycle Works Savings (if any).
5.2.3 (C)	<i>the aggregate amount of the Life Cycle Works Savings (if any);</i>	4.2.3	R	Requires further information. Stated that aggregate Life Cycle Works data is not yet available for CP2.	As above.	Section 7, LCRs.	G	Non-compliant No information or text is provided in Section 7 with respect to Life Cycle Works Savings (if any). Section 8.1 describes the process for determining "Life Cycle Works Savings", but there is no "aggregate amount" for those savings.
	Forecast Life cycle works							
5.2.4	<i>in respect of the next Review Period:</i>							

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.4 (A)	<i>the Tenant's detailed proposals for the carrying out of the Forecast Life Cycle Works including any notices consents and approvals required in order to carry out and complete them;</i>	5.2.4	R	Requires further information. Requires access to other documentation. Reference is made to an "Asset Change Control process", with general text provided for discrete project stages. Stated that "specific detail" will be in the "CP3 Delivery Plan".	The CP3 Delivery Plan, and the supporting commentary on notices, consents and approvals, will be developed in light of the DfT's funding approval in PR19. In general, we expect a combination of Station Change approval and potentially town planning may be necessary increasingly over CP3 and beyond, given heightened renewals activity.	N/A	A	Conditional compliance. Section 7.2.4 refers to consultation with external stakeholders and consent applications. However, "detailed proposals" appear to be pushed to being in the "CP3 Delivery Plan" only.
5.2.4 (B)	<i>the Forecast Life Cycle Works Cost;</i>	5.2.2.1	G	Compliant. CP3 CAPEX estimates for renewals is provided.	N/A	N/A	G	Compliant
5.2.4 (C)	<i>the effect of any Relevant Changes of Law that will occur during the Review Period;</i>	5.2.3.2	R	Requires further information. Appendix A in all four LCRs states that "Clause 5.2.4c" is addressed in "Section 5.2.3.2". It is noted that only St. Pancras LCR contains a Section 5.2.3.2. The other three LCRs do not contain a Section 5.2.3.2. It is noted that Section 5.2.3.1 in the other three LCRs is entitled "Future Changes in the Law" and appears to contain a response to Clause 5.2.4(c). The basis for assessing compliance with Clause 5.2.4(c) is based upon the text contained in Section 5.2.3.2 in St. Pancras LCR and Section 5.2.3.1 in the Stratford, Ashford and Ebbsfleet LCRs. The response includes reference to a review by the SFO that "could cause additional funds to be spend in the remainder of CP2" as a result of the Grenfell fire. The "effect" is not stated.	Incorrect document reference. See Section 6.2.2.	Section 6.2.2	G	Compliant Section 6.2.2 states that there have been no law changes during CP2. It is noted that a risk has been identified that may be realized in CP3; presumably this is incorporated in the risk and contingency area of the HS1 submissions.

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs (As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.4 (D)	the forecast amount of Available Life Cycle Funds at the end of each Financial Year;	5.2.2.2	R	<p>Requires further information.</p> <p>It is stated in the Stratford, Ebbsfleet and St. Pancras LCRs that the forecast amount of Available Life Cycle Funds will be provided in a later version of the LCR.</p> <p>It is noted that Table 12 in Section 5.2.2.2 of the Ashford LCR contains information that appears to meet the requirements of Clause 5.2.4(d); however, the data in the table appears to be for St. Pancras, not Ashford.</p>	Section 7.2.2.2 (not 5.2.2.2) updated with CP3 Forecast of Available Funds.	Section 7.2.2.2, LCRs	G	Compliant Available Life Cycle funds forecast for the end of each financial year for CP3 are contained in Section 7.2.2.2.
5.25	in respect of the remainder of the Life Cycle Period a summary of any changes to							
5.2.5 (A)	the Forecast Life Cycle Works to be undertaken in each subsequent Review Period and Overhang Period in respect of each Element of the Station;	5.3	R	<p>Requires further information.</p> <p>Requires access to other documentation.</p> <p>Reference is made to "Lifecycle Cost models", with a 45 year profile provided in response to Clause 5.2.5(a). References to station elements is included in the 45 year profile.</p> <p>Note that the Stratford LCR, the Ashford LCR and the Ebbsfleet LCR all incorrectly include the St. Pancras 45 year profile, not the 45 year profile for the station that is the subject of the LCR.</p>	<p>This detail is provided in the LCC and LTC models, which have been provided to DfT and GHD.</p> <p>Section 7.3 (not 5.3) - 40 year profiles added from LTC spreadsheet showing 'Available LC Funds' versus 'LC Works Costs.'</p>	Section 7.3, LCRs	G	Compliant Total Life Cycle Budget for the 40-year Life Cycle Period is provided, along with the "40 year profile".

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.5 (B)	<i>the Forecast Life Cycle Works Cost in each subsequent Review Period and Overhang Period in respect of each Element of the Station; and</i>	5.3	R	Requires further information. Requires access to other documentation. Reference is made to "Lifecycle Cost models", with a 45 year profile provided in response to Clause 5.2.5(a). References to station elements is included in the 45 year profile. Note that the Stratford LCR, the Ashford LCR and the Ebbsfleet LCR all incorrectly include the St. Pancras 45 year profile, not the 45 year profile for the station that is the Subject of the LCR.	As above.	As above.	G	Conditional compliance The LCRs do not state the forecast life cycle works cost for each station element; rather this information has to be obtained directly from the LCC or LTC models.
5.2.5 (C)	<i>a forecast of the amount of Available Life Cycle Funds for each subsequent Review Period and Overhang Period;</i>	6.2.3	R	Non-compliant. It is determined that the information in Section 6.2.3 does not address Clause 5.2.5(c). Further, the information in Section 6.2.3 appears to be from a LCR for the end of CP1/start of CP2.	As above.	As above.	G	Compliant Section 7.1.2.2 states the forecast of available Life Cycle Funds at the end of CP2; Section 7.2.2.2 states the "available" Life Cycle Funds forecast for each year of CP3; and, Section 7.3 contains a graph of the "available" Life Cycle Funds for the 40 year Life Cycle Period.
	Deferrals							
5.2.6	<i>the Tenant's proposals (if any) for:</i>							

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs (As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.6 (A)	the deferral to any later Review Period or Overhang Period or the permanent omission of any Life Cycle. Works that are identified in the Asset Management Strategy as being required in the Review Periods and/or Overhang Periods following the Review Period in which the Life Cycle Report is produced: and/or	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	Section 6 (now Section 8) pertains to the LTC and is addressed in both the Stations LTC review submission and Annual Stations Portfolio Funding Paper. Clarifying text has been added to this effect.	Section 8.2.2, LCRs	G	Non-compliant Section 8.1 states that variances due to deferrals need to be identified, but there is no information on any proposed deferrals.
5.2.6 (B)	the distribution of any Deferred Life Cycle Works Saving pursuant to paragraph 7.1;	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	As above.	As above.	G	Non-compliant Section 8.1 does not contain any information on the distribution of "Deferred Life Cycle Works Saving".
	which shall include:							
5.2.6 (C)	in respect of a proposal in relation to a proposed deferral or permanent omission							
5.2.6 (C) i	confirmation by the Tenant that the proposed deferral or permanent omission will not result in the Tenant being unable to comply with its obligation under Clause 4.3.1 and 4.14 or the Life Cycle Purpose to be achieved; and	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	As above.	As above.	G	Non-compliant As above.

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.6 (C) ii	<i>a report setting out the likely effect on performance arising out of or in connection with the proposed deferral or permanent omission;</i>	N/A	G	Compliant. HS1 Limited states that this clause is not applicable ("n/a"). It is inferred that there are no proposed deferrals or permanent omissions, and therefore no report on the likely effect on performance.	N/A	N/A	G	Non-compliant As above.
5.2.6 (D)	<i>the forecast Deferred Life Cycle Works Saving arising from paragraph 5.2.6(a); and/or</i>	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	As above.	As above.	G	Non-compliant As above.
5.2.6 (E)	<i>the forecast reduction in the Long Term Charge, the LTC and the Tenant's Share arising from paragraph 5.2.6(b);</i>	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	As above.	As above.	G	Non-compliant As above.
	Distribution of Life Cycle Works Savings							
5.2.7	<i>the Tenant's proposals for any distribution of any Life Cycle Works Saving pursuant to paragraph 7.2, identifying the amount of the Life Cycle Works Saving, the reduction in the Long Term Charge, the LTC and the Tenant's Share, setting out the reasons why the Tenant considers such distribution should be made and providing all relevant supporting information;</i>	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	Any deferrals are reflected in our CP3 LTC proposals, provided in the Stations LTC Review submission. This then informs the starting escrow balance for CP2.	As above.	G	Non-compliant As above.
	Adjustments to Available Life Cycle Funds							

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.8	<i>details of any Adjustment to the Available Life Cycle Funds made pursuant to paragraph 6.4.4 in the current Review Period (or anticipated to be made prior to the end of the current Review Period) and the arrangements (if any) which the Tenant has implemented and/or proposes to implement in order to mitigate the likelihood that any of the circumstances described in paragraph 5.4.7(a) to (c) will occur ("Adjustment Arrangements"):</i>	6.1	R	Non-compliant. Section 6.1 does not appear to have been updated for the CP3 submission. Section 6.1 makes reference to "F&G models" and "F&G plans". "F&G" is not defined in the LCR Glossary.	As above.	As above.	G	Non-compliant As above.
Long Term Charge								
5.2.9	<i>a description of any arrangements the Tenant has reached with Users pursuant to the terms of the Station Access Agreement to modify the LTC;</i>	6.2	R	Non-compliant. No information is provided on any arrangements HS1 Limited has reached with the Train Operating Companies to modify the LTC. Further, the information in Section 6.2.3 appears to be from a LCR for the end of CP1/start of CP2.	Pursuant to Clause 5.2.9 of the HS1 Lease, the arrangements HS1 has in place to modify the LTC in the Station Access Agreements with operators forms part of the DfT's regulatory process in PR19; the revised agreements will be provided and explained to operators in the implementation phase following the DfT's decision in August 2019. Out of date financial information has been updated in Sections 7 and 8.	Sections 7 and 8, LCRs.	G	Compliant On the basis of information provided in "HS1 Ltd Stations Long Term Charge Review for Control Period 3" and referenced in section 8.2.2.
5.2.10	<i>any proposals by the Tenant for a modification to the LTC to recover</i>							
5.2.10 (A)	<i>any Increased Life Cycle Costs which it has funded in accordance with paragraph 6.4; and/or</i>	6.2	R	Non-compliant. No information is provided on proposals by HS1 Limited to recover Increased Life Cycle Costs from the Train Operating Companies. Further, the information in Section 6.2.3 appears to be from a LCR for the end of CP1/start of CP2.	See Stations LTC review submission. Out of date financial information has been updated in Sections 7 and 8.	Sections 7 and 8, LCRs.	G	Compliant On the basis of information provided in "HS1 Ltd Stations Long Term Charge Review for Control Period 3" and referenced in section 8.2.2.

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs <i>(As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)</i>
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
5.2.10 (B)	<i>any costs which it has suffered or incurred in connection with the Station Operator carrying out Station Safety Works in the current Review Period;</i>	6.2	R	Non-compliant. No information is provided on proposals by HS1 Limited to recover any costs resulting from the Train Operating Companies carrying out Station Safety Works. Further, the information in Section 6.2.3 appears to be from a LCR for the end of CP1/start of CP2.	See Stations LTC review submission. Out of date financial information has been updated in Sections 7 and 8.	Sections 7 and 8, LCRs.	G	Compliant On the basis of information provided in "HS1 Ltd Stations Long Term Charge Review for Control Period 3" and referenced in section 8.2.2.
5.2.11	<i>any proposal by the Tenant for a modification to the LTC (other than pursuant to a proposal in paragraphs 5.2.6(b). 5.2.7. 5.2.9 or 5.2.10) to take effect from the beginning of the next Review Period</i>							
5.2.11 (A)	<i>setting out the reasons why the Tenant considers that such modifications should be made and providing all relevant supporting information; and</i>	6.2	R	Non-compliant. No information is provided on any proposal by HS1 Limited to modify the LTC, and no information on the reasons for those modifications Further, the information in Section 6.2.3 appears to be from a LCR for the end of CP1/start of CP2..	See Stations LTC review submission. Out of date financial information has been updated in Sections 7 and 8.	Sections 7 and 8, LCRs.	G	Compliant On the basis of information provided in "HS1 Ltd Stations Long Term Charge Review for Control Period 3" and referenced in section 8.2.2.
5.2.11 (B)	<i>In the case of a modification resulting from a Relevant Change of Law, confirming that the Tenant has notified each User of the Relevant Change of Law and of its assessment of the amount of the modification, and provided Users with such information as they shall reasonably require, in a form and amount of detail which is sufficient to enable Users to make a proper assessment of the effect of the Relevant Change of Law and of the Tenant's assessment; and</i>	6.2	R	Non-compliant. No information is provided on any proposal by HS1 Limited to modify the LTC due to a Relevant Change of Law. Further, the information in Section 6.2.3 appears to be from a LCR for the end of CP1/start of CP2.	See Stations LTC review submission. Out of date financial information has been updated in Sections 7 and 8.	Sections 7 and 8, LCRs.	G	Compliant On the basis of information provided in "HS1 Ltd Stations Long Term Charge Review for Control Period 3" and referenced in section 8.2.2.

HS1 Lease, Schedule 10, LCR requirements		Assessment of the LCR's provided by HS1 as part of their February 2019 Draft for Consultation			HS1's response in their document "Annex B 190604 DfT GHD stations responses"			Phase 3 review of station LCRs (As table and figure references can change between the LCRs, for brevity, references given relate to the St Pancras LCR.)
Clause	Obligation	Section within LCR document as indicated by HS1	Likelihood of compliance (RAG)	Comments	HS1 Response	HS1 document ref	HS1 assessment of compliance (RAG)	
	Modifications to the Asset Management Strategy and the Life Cycle Budget							
5.2.12	<i>the Tenant's proposals for any modifications to the Asset Management Strategy (including the Life Cycle Budget) that are required to reflect its proposals in respect of the matters set out in paragraphs 5.2.1 to 5.2.11 above and/or to ensure that the Asset Management Strategy continues to satisfy the requirements set out in Annex 1 to this schedule; and</i>	3.1	G	Compliant. It is noted that HS1 Limited is stated to be developing a Strategic Asset Management Plan and a "...series of Specific Asset Strategies..." It is not reported that there are any modifications to the Asset Management Strategy.	N/A	N/A	G	Compliant On the basis of information provided in "HS1 Ltd Stations Long Term Charge Review for Control Period 3" and referenced in section 8.2.2.
	General							
5.2.13	<i>such further details in respect of the matters described in paragraphs 5.2.1 to 5.2.11 as may be reasonably required by the Government's Representative.</i>	N/A	A	Presumably, after the Government's Representative has reviewed the GHD report there will be an opportunity to formally respond to HS1 Limited to request further details as per the comments contained above.	Covered in this responses, and any further DfT-HS1 correspondence.	N/A	A	Conditional compliance DfT has released its "HS1 Stations Review (Control Period 3) Draft Decision" - so, a work in progress

Appendix C - Compliance with Annex 1 to Schedule 10

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
1	Scope	n/a	
	The Strategy shall consider only the renewals and replacement of the Station. Maintenance and repair activities shall be excluded.	A	Partial Compliance Maintenance activities are included within the HS1 strategy documentation, but excluded within the Life Cycle Cost (LCC) and Long Term Charge (LTC) models. Although technically the inclusion of maintenance activities in the strategy documents is a non-compliance, it is accepted that at present there is sufficient separation of the maintenance and renewal information in the strategy documents. The Amber status is recorded to reflect technical non-compliance only and identify the need for discussion between HS1 and the DfT going forward for CP4 on the degree of separation that will be required in light of HS1's stated intend to consider asset whole life costs.
2	Station Elements	n/a	

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
	The Strategy shall identify each of the elements of the Station which will need to be renewed and/or replaced during the Life Cycle Period. Unless the parties agree otherwise the elements of the Station shall comprise:	G	<p>Compliant</p> <p>HS1's new asset hierarchy introduced during CP2 clearly aligns with the Station Elements listed and the new asset hierarchy is applied within the CP3 Life Cycle Cost (LCC) models. However it is noted that the LCRs have not been updated to adopt the new asset hierarchy, rather they provide a mapping to it.</p>
(a)	substructure;		
(b)	frame;		
(c)	upper floors;		
(d)	roof;		
(e)	stairs;		
(f)	external walls;		
(g)	windows and external doors;		
(h)	internal walls and partitions;		
(i)	internal doors;		
(j)	wall finishes;		
(k)	floor finishes;		
(l)	ceiling finishes;		
(m)	fittings and furnishings;		
(n)	sanitary appliances;		
(o)	services equipment;		
(p)	disposal installations;		
(q)	water installations;		
(r)	heat source;		

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
(s)	space heating and air treatment;		
(t)	ventilation systems;		
(u)	electrical installations;		
(v)	fuel installations;		
(w)	lift and conveyor installations;		
(x)	fire and lighting protection;		
(y)	communication installations;		
(z)	specialist installations;		
(aa)	site works;		
(bb)	drainage;		
(cc)	external services; and		
(dd)	minor building work.		
3	Life Cycle Works	n/a	
	The Strategy shall describe, in reasonable detail:		
(a)	the renewal and/or replacements works which will need to be undertaken in relation to each of the elements of the Station in order for the Tenant to comply with its obligations under clauses 4.3.1 and 4.14 and the Life Cycle Purpose to be achieved; and	G	Compliant The LCC models identify the work that is required.
(b)	the anticipated year in the Life Cycle Period when such works should be undertaken in order for the Tenant to comply with its obligations under clauses 4.3.1 and 4.14 and the Life Cycle Purpose to be achieved.	G	Compliant The LCC models identify the year in which the work is anticipated to be required.

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
4	Performance Monitoring	n/a	
	The Strategy shall identify those elements of the Station for which the Tenant will monitor breakdown frequencies and gather performance data.	A	Partial Compliance The Ebbsfleet, Stratford and St Pancras Life Cycle Reports (LCRs) list the assets that are to be monitored in terms of availability; where this list is derived from the requirements of the Station Access Conditions (SAC). The Ashford LCR does not list the assets, rather it refers the "schedule 8 Part 1 – KPI' spreadsheet which accompanies the Period Reports.'. This KPI spreadsheet has not been provided as part of HS1's CP3 submission and therefore cannot be assessed by the Reviewer.
5	Life Cycle Budget	n/a	
	<i>Expenditure</i>	n/a	
	The Strategy shall for each of the works identified in paragraph 3 above, contain:		
(a)	an estimate of the costs of carrying out such works;	G	Compliant The LCC models show the year in which the asset renewals are planned to take place and associated costs calculated as 'direct costs' plus 'on costs'. Direct and on costs are separately identified.

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
(b)	a statement of the assumptions, including those in respect of inflation and interest rates, which the Tenant has used in preparing the cost estimates; and	G	Compliant 'Assumptions' are included in the models, albeit no explanatory text regarding why a certain percentage has been applied. The Notes tab provides some additional text. Inflation and interest rates are contained within the LTC.
(c)	an explanation, in reasonable detail, of the principal components of the cost estimates (including any management fees or contingencies) and the factors on which the costs estimates are based.	G	Compliant The LCC model contains details of the direct cost of asset renewals and the build-up of on costs. Risks and contingency is not applied in the LCC models but is applied in derivation of the LTC.
	Revenues	n/a	
	The Strategy shall contain for each Financial Year of the Life Cycle Period an estimate of:		
(a)	the Long Term Charge which will be received by the Tenant in relation to the Station;	G	Compliant The LTC model provides a per station and per year estimate of the Long Term Charge up to and including the financial year 2059/60.
(b)	any Income which will be received by the Tenant pursuant to the escrow arrangements in relation to the Station; and	G	Compliant The LTC model provides a per station and per year estimate of the income into the escrow account up to and including the financial year 2059/60.

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
(c)	a statement of the assumptions, including those in respect of inflation and interest rates, which the Tenant has used in preparing the estimates of the Long Term Charge and investment income.	G	Compliant The LTC model includes statements of assumptions applied and these include inflation and interest rates.
	Cashflow	n/a	
	The Strategy shall include an analysis of the forecast cash-flows of the revenues and expenditures described above and identify any potential shortfalls between forecast revenues and forecast expenditure.	G	Compliant The LTC model provides a per station and per year estimate of the escrow revenues and expenditures up to and including the financial year 2059/60. Inflation and interest rates have been accounted for in the forecast
6	Financial Model	n/a	
	The Strategy shall include a financial model and supporting explanatory documentation which enables the parties to determine in relation to the Station:		
(a)	the Available Life Cycle Funds in a Financial Year;	G	Compliant The LTC workbook provides a financial model that shows the determination of the Available Life Cycle Funds in relation to each station and for each financial year up to and including 2059/60.

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
(b)	the financial effect of any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station;	R	Not Compliant Documentation does not consider the financial effect of acceleration, deferral or permanent omission of any renewals and/or replacements at the Station. The models similarly do not appear to have the functionality to easily consider alternative options and scenarios.
(c)	the financial effect any new renewals and/or replacements at the Station not previously included in the Asset Management Strategy;	R	Not Compliant Documentation does not consider the financial effect of acceleration, deferral or permanent omission of any renewals and/or replacements at the Station. The models similarly do not appear to have the functionality to easily consider alternative options and scenarios.
(d)	the extent of any savings arising where the actual costs of undertaking certain renewals and/or replacements at the Station is less than the estimated cost of such renewals and replacement; and	R	Not Compliant Documentation does not consider the financial effect of acceleration, deferral or permanent omission of any renewals and/or replacements at the Station. The models similarly do not appear to have the functionality to easily consider alternative options and scenarios.

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
(e)	the financial effect of applying any savings to fund the costs of any renewals and/or replacements at the Station which are in excess of the cost estimate for such works.	R	Not Compliant Documentation does not consider the financial effect of acceleration, deferral or permanent omission of any renewals and/or replacements at the Station. The models similarly do not appear to have the functionality to easily consider alternative options and scenarios.
7	Long Term Charge	n/a	
	The Strategy shall include a financial model and supporting explanatory documentation which enables the parties to:		
(a)	determine the level of the LTC for the Station which is necessary to fund the proposed station renewals and replacements at that Station;	G	Compliant The LTC workbook provides a financial model that shows the determination of the LTC in relation to each Station and for each financial year up to and including 2059/60.
(b)	determine the level of any changes to the LTC for a Station to reflect:		
	any changes in the estimated costs of the proposed renewals and/or replacements at the Station;	R	Not Compliant There is no clearly documented methodology nor tools for undertaking variance analysis. An action from CP2 was noted as being the development of variance analysis methodology and enhance associated model functionality. This does not appear to have been completed.

ANNEX 1 (to Schedule 10)		RAG compliance indicator	Summary of compliance assessment
	An Asset Management Strategy (" Strategy ") shall comply with each of the following requirements.		
	any acceleration, deferral or permanent omission of any renewals and/or replacements at the Station;	R	Not Compliant There is no clearly documented methodology nor tools for undertaking variance analysis. An action from CP2 was noted as being the development of variance analysis methodology and enhance associated model functionality. This does not appear to have been completed.
	any new renewals and/or replacements at the Station; not previously included in the Asset Management Strategy;	R	Not Compliant There is no clearly documented methodology nor tools for undertaking variance analysis. An action from CP2 was noted as being the development of variance analysis methodology and enhance associated model functionality. This does not appear to have been completed.
	the application of any costs savings or changes in the expected levels of Income.	R	Not Compliant There is no clearly documented methodology nor tools for undertaking variance analysis. An action from CP2 was noted as being the development of variance analysis methodology and enhance associated model functionality. This does not appear to have been completed.

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Revision	Authors	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
F01	G. Richardson R. Golding W. Auton S. Mitchell	C. Murphy		C. Murphy		15/07/2019
F02	G. Richardson R. Golding W. Auton S. Mitchell	C. Murphy		C. Murphy		17/07/2019

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