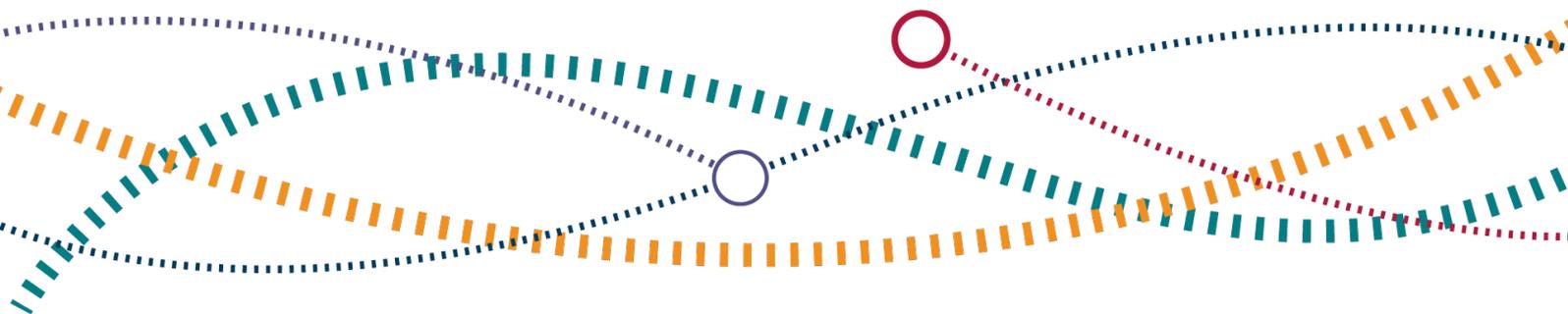




Structures Examination

Targeted Assurance Review

24 June 2021



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Acronyms and Abbreviations

CEFA – Civils Examination Framework Agreement

CP6 - Control Period 6 (April 2019 – March 2024)

CSAMS - Civils Strategic Asset Management Solution

DEAM – Director of Engineering and Asset Management

IMT – Interface Management Team (Tenanted Arches)

QLM – Quarterly Liaison Meeting

ORR – Office of Rail and Road

RAM – Route Asset Manager

RPP – Railway Planning and Performance

RSD – Railway Safety Directorate

TA – Technical Authority

TNC – Technical Non-Compliance

TSSA – Transport Salaried Staff's Association

TUPE - Transfer of Undertakings (Protection of Employment) regulations 2006

1. Executive Summary

1.1 Purpose

Examination non-compliance has been a topic of interest for ORR since 2011 when a previous examination backlog led to a national Improvement Notice being issued and later put on the Regulatory Escalator. Since then, ORR has been monitoring closely the Regions' progress on non-compliance. Through our regular engagement, we became concerned with the fact that although some progress has been achieved since 2011, the improvements have plateaued and, in some areas, worsened.

This review was undertaken from late 2020 to early 2021 to help ORR assure that Network Rail are working towards the elimination of non-compliance and being efficient in the delivery of their programme of examinations.

1.2 Background

Structures examinations and evaluations are critical activities. There are safety and asset management components to these processes. Site examination is required to manage immediate safety risks. Following site examination, asset evaluation is required to assess what interventions should be carried out in medium and longer terms. With a significant volume of assets not having the evaluation completed, there is a backlog of maintenance and renewal activities that have not been addressed and therefore NR, and consequently ORR, are not sighted of the full extent of work required in the medium and long term i.e., CP7 and beyond. Furthermore, failure to complete the overall examination process at the required intervals may result in defects being undetected or detected but not assessed by a competent person.

This is a concern for ORR as there are potential safety issues that could be associated with the backlog of examinations, and a negative impact on the planning of maintenance and renewals activities and consequently uncertainty over route capability.

1.3 Findings

At the end of Year 2 of CP6 (April 2021), there was a significant number of incomplete structures examinations across the network. At National level, there were 21 890 structures that had a non-compliant examination. The Regions with highest volumes of examination non-compliance are NW&C, Eastern and Southern, followed by Wales & Western and Scotland.

The Regions understand the root cause to their examination non-compliance backlog. In general, the factors given that contribute to overall non-compliance examinations are related to Planning, Track Access and Resources.

The Regions did not provide assurance that a suitable trackable plan to eliminate non-compliance was in place, or that adequate progress towards elimination of examination non-compliance was being made.

The responses confirmed that there is a significant examination compliance problem with tenanted arches in Southern and NW&C Regions. Since then, we have met with Arch Co and NR, and both parties have accepted that cooperation to achieve compliance will be essential. Agreed procedures for carrying out examinations have been established and a timebound delivery plan is now in place.

We received some assurance that the TUPE transition arrangements have been planned appropriately to avoid disruption during the transition to the new CEFA contract.

There are limited examples of new technology adopted and becoming part of business as usual and embedded in the examination programme. There is no evidence to suggest that a coherent, SMART plan is in place to adopt new (or existing) technology.

There is not a “seamless” system in place that includes an asset register and workflow process. There was no evidence of a clear vision for the future describing what was required or when it would be delivered. There is reference to new systems improving the situation. Improvements are not described, specific, measured or time bound.

1.4 Conclusions and Recommendations

The fact that the Regions could identify the root causes of the backlog but did not provide a trackable plan to eliminate examination non-compliance, suggests that the local leadership teams do not see examination backlog as a high priority issue. ORR is concerned that the current level of overdue examinations appears to be treated as an accepted norm by Network Rail.

We have confirmed that examination compliance of tenanted arches remains a problem and the backlog in tenanted arches examinations remains a significant concern, particularly for the most affected Regions (Southern, NW&C and Eastern). We have taken action to ensure this is rectified. Following ORR involvement, concerted joint efforts by stakeholders currently appears to be creating the conditions for an improvement. We will continue monitoring progress through our 8-weekly meetings with Arch Co and NR.

Given the significance of our findings, it has been recommended that all Regions are placed on the Regulatory Escalator. Alongside the regulatory escalator entry, and to inform further action, we recommend that an independent reporter is commissioned to better understand the drivers of non-compliance, review the quality of the recovery plans developed by the Region's to eliminate compliance and to assess the likely of success of the Regions responses in terms of being able to provide a sustainable and complaint outcome.

1.5 Next Steps

We will monitor closely Network Rail's progress and delivery to ensure that Regions have suitable improvement plans in place or are making adequate progress towards eliminating the overall non-compliance.

We are also commissioning an independent reporter to assess the non-compliance across the Regions in more detail, including the reviewing the actions being taken, the quality of the plans that have been developed and the likelihood of each Region being able to provide a sustainable and compliant outcome.

2. Introduction

2.1 Purpose

This Targeted Assurance Review (TAR) has been undertaken to understand in more detail the status of examination and evaluation of the structures portfolio, understand Network Rail's short term plans and activities to eliminate the backlog of examinations and to sustain a compliant programme for the long term.

The findings from this review will inform future action to be taken by the ORR.

2.2 Background

Network Rail is required to achieve and comply with the timescales for structures examinations and evaluation as stated in NR/LS/CIV/006/1A.

This requirement relates to Network License paragraphs 5.7 and 5.8. The information maintained under these conditions must be accurate and readily accessible.

In 2011, ORR identified a structures exam backlog across Network Rail. RSD issued a national Improvement Notice and the issue was placed on the Regulatory Escalator. By the time the exam backlog was removed from the Escalator, the level of backlog for site examinations was dramatically reduced but not eliminated.

The improvements have plateaued and has in some areas worsened. The current level of non-compliance has the potential to be treated as an accepted norm by Network Rail.

Failure to complete the overall examination process at the required intervals may result in faults being undetected or detected but not assessed by a competent person.

An undetected defect cannot be evaluated by a competent Engineer, repaired or removed and may therefore be a precursor to a structural failure.

Failure to manage the examination process introduces uncertainty into the railway system and will impact on the ability to plan maintenance and renewal activities. This may lead to poor performance due to ESR or TSRs. Route capability including route availability may also be negatively affected.

Current Non-Compliance Levels by Region

		Regions					
	Exam type	Eastern	Southern	W&W	NW&C	Scotland	Total
P8	Detailed	248	112	50	234	80	724
	Visual	916	1016	236	832	388	3388
	Underwater	24	16	33	5	66	144
	Total	1188	1144	319	1071	534	4256
P13	Detailed	326	92	18	235	35	706
	Visual	612	73	95	407	107	1294
	Underwater	47	7	3	10	16	83
	Total	985	172	116	652	158	2083

		Regions					
	Exam type	Eastern	Southern	W&W	NW&C	Scotland	Total
P8	Detailed	318	246	109	990	325	1988
	Visual	1192	1291	818	5753	458	9512
	Underwater	55	23	213	12	38	341
	Total	1565	1486	1140	6755	821	11767
P13	Detailed	583	220	289	790	341	2223
	Visual	3170	1347	1215	5500	514	11746
	Underwater	20	47	197	19	40	323
	Total	3773	1614	1701	6309	895	14292

		Regions					
	Exam type	Eastern	Southern	W&W	NW&C	Scotland	Total
P8	Detailed	1052	195	19	328	337	1931
	Visual	2853	3204	94	562	136	6849
	Underwater	119	26	30	178	28	381
	Total	4024	3425	143	1068	501	9161
P13	Detailed	963	103	52	108	86	1312
	Visual	1395	2206	193	144	67	4005
	Underwater	95	6	7	68	22	198
	Total	2453	2315	252	320	175	5515

Total NC at P13	7211	4101	2069	7281	1228	21890
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Table 1 – Structures examination non-compliance volumes at Period 8 and Period 13 of CP6 Year 2

At the year end, at Period 13, there were 2083 structures that were overdue for site inspection, an additional 14 292 have been done on site but examination reports have not been submitted to NR, and a further 5515 reports due to be evaluated by NR Asset Engineers.

2.3 Scope

2.3.1 The scope of the TAR includes all Regions. The scope included

- The examinations programme
- CEFA Transition Plans (all regions except NW&C)
- Tenanted Arches
- Use of Technology
- Systems and Databases

2.3.2 The objectives of this TAR included:

- Seek assurance of a coherent plan is in place to remove the examination backlog. Obtain assurance that the regions understand the reasons for the backlog and that this understanding has informed their plan.
- Obtain assurance that the transition to the new CEFA contracts will improve the non-compliance position as expected by Network Rail. This TAR will allow us to test this.
- Access to Tenanted Arches has been raised as a concern by some of the regions. We seek assurance that this is being appropriately managed by the stakeholders.
- NR have committed to using technology to improve Asset Management, this TAR seeks assurance that technology is being used and developed in the structures examination delivery plan.
- The successful management of a large complex structures portfolio dictates the need for robust systems and databases. Considering the difficulties experience with CSAMS we seek assurance that this requirement is being managed.

The Transport and Salaried Staff association (TSSA) raised concerns through our RSD colleagues and the issues they raised have been included in the scope of this TAR. These concerns revolve mainly around the Transfer of Undertakings (Protection of Employment) regulations 2006 (TUPE) issues including loss of skilled staff and how this could impact Network Rail's transition to the new CEFA contract.

2.4 Approach

Through our ongoing monitoring and holding Network Rail to account protocols we kept the examinations backlog under review. This business as usual approach identified the backlog as a matter of concern.

To enable analysis of our concern it was necessary to gather further information and evidence. This was achieved through a Request for Information (RFI). Our approach was to create and distribute a set of questions based around the themes identified in 2.3.1 and addressing the issues described in 2.3.2.

The RFIs were sent to each Region for completion. When the RFIs were returned we undertook a review of the responses, which were reviewed and evaluated.

Where appropriate further evidence and clarification was sought. Additional meetings were held with the NW&C and Southern Regions.

Conclusions were drawn and recommendations made on the basis of the above evaluation.

3. Findings

3.1 Examinations programme

At National level, there were 2083 structures that are overdue for site examination, an additional 14 292 have been done on site but examination reports have not been submitted to NR and a further 5515 reports that are due to be evaluated by NR Asset Engineers.

The Regions claim to understand the root cause to their examination non-compliance backlog. They were able to identify key factors or areas that contribute to the failure of achieving a compliant examination programme. In some instances, no quantification of these factors has been provided. In general, the factors given that contribute to overall non-compliance examinations are related to Planning, Track Access and Resources.

The Regions did not provide evidence of a plan to eliminate examination non-compliance. There is a stated intention to improve or minimize the current status in terms of non-compliance backlog. However, this is not translated into a trackable plan with timescales or route map to eliminate overall non-compliance. Of note is the fact that Regions have in the past presented plans to eliminate non-compliance, but this not been achieved.

NW&C Region have provided a plan to improve their non-compliance position. However, this was not sufficiently detailed and did not provide specific detail and milestones that we could classify as a trackable plan. In addition, the non-compliance backlog is still at a high level.

In terms of resources the Regions were not able to provide evidence that the adequate level of resources is available. The Regions mentioned the number of Examiners and Asset Engineers allocated to the respective territories, but we did not find evidence confirming the adequacy of the existing resources to achieve and maintain overall compliance.

NW&C is currently recruiting for STE2 and STE1 and the Region recognized the challenge to fill the current vacancies with competence staff. Scotland Region is training new members of their team and also has a recruitment process undergoing to fill vacant posts to address the exams evaluation backlog.

Regarding the risk associated with the examination of non-compliance, each Region explained that each non-compliance is assessed in a case by case basis and a risk assessment is carried for each non-compliant examination. The risk assessments are carried out to help the Regions decide if interim risk mitigations were needed pending

completion of overdue site inspection. ORR expectation is that these risks assessments are carried out within the timescales specified in the standards and Regions are compliant with the risk assessment completions.

At portfolio level, no Region was able to demonstrate the risk profile of their current examination backlog. Eastern Region provided comprehensive information about the risk assessment process but explained that for the Detailed Examinations it is not possible to export the data at portfolio level to undertake the analysis of the risk profile.

Southern Region explained that the risk is reviewed on an individual asset basis and that the risk posed varies on the asset type, its functionality and the environment in which is located. Therefore, an accurate risk profile across the population is a complex technical challenge.

Scotland, NW&C and W&W mentioned the risk assessment process, although no risk profile has been provided.

3.2 CEFA transition

The Regions are aware of the TUPE-related risks raised by the TSSA. Regions have stated that TUPE arrangements will be between their contractors. Network Rail is therefore not in a position to make demands of or arrangements with suppliers about its implementation. Regions expressed confidence that TUPE will apply in most cases, and all apart from Eastern described mitigation arrangements that will be in place in the event of a resource shortfall immediately after the transition.

Wales & Western and Scotland have stated that they are not fragmenting the work bank, which avoids the concerns that TSSA have raised about that. Wales & Western state that they will be using a single supplier, which should make TUPE arrangements straightforward. However, that route currently has no KPIs in place for the delivery of a compliant examination regime under the new contract, and their response to questions about how they would ensure compliance was unsatisfactory.

The Southern Region response expressed confidence that the transition would proceed effectively. This “expressed confidence” was not supported with evidence. Of concern was a suggestion that they were considering a Temporary Non-compliance (TNC) against NR/L3/CIV/006/1A ‘to support the implementation of new contracts’. This suggests that they expect non-compliance to increase and that rather than deal with it, they will seek to normalize it via a TNC.

Eastern Route, who are proposing the most radical departure from existing arrangements, provided good responses to the questions about TUPE application and fragmentation.

The TUPE issue does not affect the NW&C Region, where examination resource is in-house. We learned late in the process that Eastern Region decided to bring examination in-house at short notice in advance of the new examination year.

3.3 Examinations of tenanted Arches

The responses confirmed that there is a significant examination compliance problem with tenanted arches in Southern and NW&C Regions. We met with Southern Region, and Arch Co, to understand the issue and discuss how the situation may be remedied. NW&C state that they are seeking to develop a 'bespoke action plan for each of the overdue examinations, to facilitate access.

The Eastern data for non-compliance on an individual arch basis indicates a more significant backlog in that Region than previously known. Although their backlog, at 123 spans, is lower than Southern and NW&C, it is a cause for concern. We have discussed the situation with the RAM, who indicated that some of the arches apparently in backlog have been examined, but the reports not yet input to CARRS.

In Scotland and Wales and Western, the compliance position is much better than in the other Regions. Comments made in Scotland's response suggest that cladding may not be being routinely removed during detailed examinations.

Non-compliances also exist in all Regions in arches that are part of Network Rail's retained estate. These are small in number in comparison to the Arch Co sites.

No Region has sought to enforce the lease arrangements on Arch Co to obtain access for examinations. There is a clear reluctance to do so. NW&C point out that Network Rail's Interface Management Team (IMT) have responsibilities in this regard. .

We have met with Arch Co, alongside with the Southern Region's representative and responsible for the Region's activity in this area. Arch Co accepted that they must co-operate with Network Rail to achieve compliance. Further discussions have provided more details of the processes and procedures being agreed between NR and Arch Co.

3.4 Use of technology

Network Rail have placed great importance on the identification, use and adoption of technology in the support of examination delivery. This is evidenced in their contribution to the technical strategy for the railway and the strategy for research development and technology. Network Rail also publish challenge statements some of which are relevant to

structures. On a more granular level the Structures Asset Policy and Strategic Plan give more details.

There are numerous technology trials ongoing or planned across the regions. Some of these trials are repeated by different Regions.

Some technology quoted as introduced has been around for some years and others improve an individual process. (e.g. laser scanning, lone worker app, on-site reporting or condition monitoring).

There are limited examples of new technology adopted and becoming part of BAU and embedded in the examination programme. There is little evidence to suggest that “technology adoption” is anything other than trials.

There is no evidence to suggest a coherent, SMART plan is in place to adopt new (or existing) technology.

3.5 Systems and databases

Asset Management is the practice of managing the entire life cycle (design, construction, commissioning, operating, inspecting, examining, maintaining, repairing, modifying, replacing, and decommissioning or disposal) of infrastructure assets such as structures.

A competent modern asset management system will facilitate the effective and efficient management of the portfolio. Network Rail planned CSAMS to be this system.

The Civils Strategic Asset Management Solution (CSAMS) was intended to be an enabler to allow NR to manage data, both structured and unstructured, better. CSAMS was projected to deliver safety benefits addressing several open RAIB, ORR and NR Safety recommendations.

For several reasons the CSAMS project won't be implemented. The CSAMS project has been replaced by the Intelligent Infrastructure project, which will be delivered by discipline modules.

Against this background it is important to understand how and what systems and databases NR and the Regions use.

The responses suggest there are numerous systems including the use of suite Microsoft access and excel to hold safety critical capacity information. Other systems referred to included CARRS, ALARM, VERA, AEB tool and Polestar. Issues identified in the regions included “general performance” write up and review.

There is not a “seamless” system in place that includes an asset register and workflow process. Different activities and tasks associated with the same structure are often managed separately.

There was no evidence of a clear vision for the future describing what was required or when it would be delivered. There is reference to new systems improving the situation, however these improvements are not described, specific, measured or time bound.

4. Conclusion and Recommendations

4.1 Conclusions

Overall this TAR provided evidence to justify a level of concern within the ORR and initiate further action.

4.1.1 Examination Programme

None of the regions had a credible trackable plan or glide path in place for elimination of the examination backlog. Previous commitments for addressing the site examination backlog have seen some improvements but this has not been sustained.

The Regions claim to understand the reasons for the backlog. The fact that there is not a plan addressing these issues suggests that the local leadership teams do not see the examination backlog as a high priority issue.

4.1.2 CEFA Transition

We received adequate assurance that the TUPE transition arrangements have been planned appropriately to avoid disruption.

4.1.3 Examination of Tenanted Arches

Examination compliance of tenanted arches remains a problem. However, following ORR involvement concerted joint efforts by stakeholders appears to be creating the conditions for an improvement.

4.1.4 Use of Technology

There are limited examples of new technology adopted and becoming part of business as usual. At this point in time there is little evidence to suggest that “technology adoption” in the examinations programme is anything other than trials.

4.1.5 Systems and Databases

There is not a “seamless” system in place that includes an asset register and workflow process. Different activities and tasks associated with the same structure are often managed separately.

There was no evidence of a clear vision for the future describing what was required or when it would be delivered. There is reference to new systems improving the situation. Improvements are not described, specific, measured or time bound.

4.2 Recommendations

Given the seriousness of our concerns regarding the examination and evaluation backlog volumes, we recommended to put all Regions on the escalator. This recommendation was accepted by our Regulatory Compliance Group (RCG) on the 12 May 21.

4.2.1 Examination Programme

We will be monitoring closely the Regions' response to the escalator entry. In tandem with close monitoring, an independent reporter assessment will be commissioned to inform our decision making on the non-compliance issue and to inform any further regulatory action. The independent reporter work will provide further advice on the following:

- The reasons for the non-compliance, the extent to which these are understood by the Regions and the actions being taken to address non-compliance.
- The financial costs of non-compliance;
- The incentives driving compliance and non-compliance, backlog and the potential remedies whether ORR or NR biased; and
- The likely success of the Regions' responses to the escalator item in terms of providing a sustainable, compliant outcome.

4.2.2 CEFA Transition

We have received some assurance from the Regions that their transitions arrangements have been planned adequately. We therefore raise no recommendations at this stage. This will be monitored as part of the independent reporter work.

4.2.3 Examination of Tenanted Arches

We will continue monitor and review the examination backlog close-out plan at our 8 weekly meetings with Arch Co and NR.

4.2.4 Use of Technology

The independent reporter commission mentioned above will include an investigation into this topic.

4.2.5 Systems and Databases

The independent reporter commission mentioned above will include an investigation into this topic.

5. Appendix

5.1 Questionnaire sent to all Regions

1 – Compliant Examination Programme	
Q1.1	Do you understand the reasons behind your examination non compliance? If yes can you describe and quantify them.
Q1.2	Do you have a plan to eliminate your overall non-compliance (i.e. site non-compliance, report submission non-compliance and evaluation non-compliance)? -If no explain why and -if yes what is the date for achieving compliance?
Q1.3	If you have a plan to achieve overall compliance can you provide evidence of the following; - identification of tasks, people and resources (including possessions) - teams and staff to meet the technical and managerial requirements - quality processes supporting the plan - person responsible to plan, direct and control tasks, people and resources - demonstrate continuous (or sustainable) improvement - Gantt chart or Road Map
Q1.4	What changes are you making to how you prioritise examinations? (e.g. high risk sites, assets with difficult access and underwater examinations)
Q1.5	Do you have evidence that adequate level of resources in place? (Examiners and STE1, or if In-house examinations, STE4, STE2 and STE1)
Q1.6	In the short term, what measures do you have in place to achieve overall compliance by March 2021? Do you have a recovery plan in place? (time-bounded/dated plan, with periodic milestones that takes into account: access and planning, examiners resource levels, STE1 resources)
Q1.7	In the short term, do you have a recovery plan in place to carry out non-compliant UW Examinations and UW Evaluations by March 2021?
Q1.8	Do you know the risk associated with each NC structure – please provide the risk profile of the current backlog

2. CEFA Transitions – Changes to Contracts	
Q2.1	What steps are the Region taking to ensure that sufficient resource is available under the new contracting arrangements to enable the planned examination workload to be delivered?
Q2.2	Given the changes being planned to the structures examination contracts, has the Region considered the possibility that examiners may not be subject to TUPE arrangements?
Q2.3	If TUPE is expected to apply, is there a binding arrangement in place to guarantee this?
Q2.4	In the event that some examiners choose not to TUPE across to the new contractors, what contingency plans are in place to deal with the potential resource shortfall?
Q2.5	If the Region is planning to fragment the workbank as part of the new contracting arrangements (e.g. to separate out detailed, visual and underwater examinations into separate contracts), how will they/the contractors guard against the loss of knowledge/wider experience that might result? How will resourcing of emergency/rapid response examination work be resourced in these circumstances?
Q2.6	How will training of new examiners work in an environment in which the workbank has been fragmented?
Q2.7	What further arrangements are in place to mitigate the risks of a backlog in structures examination compliance as a result of the contract renewal/changeover process?
Q2.8	How will the Region ensure the delivery of a compliant programme for site examinations and report submissions in the new contract?
Q2.9	Which KPIs will the Region use to monitor the new supplier (s)?
3. Tenanted Arches - ArchCo	
Q3.1	What is the current site compliance position in respect of examination of tenanted arches?
Q3.2	What is the expected site compliance position at the end of the work year?
Q3.3	What arrangements are in place to recover any backlog and ensure delivery of the task list?
Q3.4	Do the current arrangements include requirements for the removal of cladding during examinations? If not, how are effective examinations being delivered?
Q3.5	What are the current arrangements with ArchCo to enable access to arches to carry out timely and effective examinations?

Q3.6	What improvements, if any, are needed to these arrangements to facilitate compliance?
Q3.7	Has any action been taken to enforce the terms of the lease on ArchCo to provide access to tenanted arches for examination? If so, what was the result of the action?
4.	Use of Technology
Q4.1	What new or innovative technology have you introduced or plan to introduce to assist overall compliance? Can a time bounded plan for its introduction be evidenced?
Q4.2	Traditional Inspection – Has the Region identified the assets stock where only traditional inspection is applicable? If so, what is the volume of assets within the 21/22 examination plan that will be subject to traditional examinations? (split by VE and DE)
Q4.3	Masonry Viaducts – Has the Region identified which assets are suitable for drone inspection? If so, what is the volume of assets within the 21/22 plan that will have drone inspections (split by VE and DE)?
Q4.4	Underwater Examinations - Has the Region identified which assets are suitable for ultrasound inspection? If so, what is the volume of assets with the plan that will have an ultrasound UW inspection
Q4.5	Underwater Examinations – Is the Region considering any other technologies to identify defects hidden under water that will be used in 21/22?
Q4.6	Retaining Walls - Has the Region identified which retaining walls are suitable for drone inspection? If so, what is the volume of assets in the plan that will have a drone inspection?
Q4.7	Clad Structures – Is the Region using new technologies for the inspection of clad structures?
Q4.8	Is the Region currently taking part of new technology trials?
Q4.9	Are there any other technologies in place within the Region to improve delivery of site examination and submission of examination reports?
5.	Systems and Databases
Q5.1	What systems do the Regions have currently in place for the Examination Report Submission and Examination Evaluation? Please explain the process and information flow between different systems.
Q5.2	What improvements, if any, are needed to the current systems to facilitate compliance





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