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Future Demands of Development-led Work in England

Archaeological Archives

Andrea Bradley

Nathaniel Lichfield and Partners, Chartered Institute for Archaeologists, and Rob Hedge

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Summary

A forecast of the volume of archival material which may be produced through development-led archaeological work and require deposition in a National Centre for Archaeological Archives (NCAA) in the next ten years, 2023-2033, has been researched for the Future for Archaeological Archives Programme.

The report brings together research carried out by the Chartered Institute for Archaeologists (CIfA) drawing together data on the scale of archaeological work carried out each year relative to development and the archive it produces, as well as research by Nathaniel Lichfield and Partners (Lichfields) on the historic and potential future scale of development in England.

Contributors

Project delivered by the Chartered Institute for Archaeologists with Nathaniel Lichfield and Partners Limited.

Acknowledgements

The author would like to acknowledge Richard Coburn, Emma Taylor and Martin Taylor at Lichfields and Rob Hedge for their expertise and valued advice. Front cover image: Two rows of long racking in large warehouse. © Historic England.

Contents

Illustrations

1. Introduction

1.1. Background

1.1.1 This research report has been commissioned to provide a forecast of the volume of archival material which may be produced through development-led archaeological work and require deposition in a National Centre for Archaeological Archives (NCAA) in the next ten years, 2023-2033.

1.1.2 The Future of Archaeological Archives Programme (FAAP), a collaboration between Historic England, Arts Council England and national heritage organisations has proposed the creation of the NCAA to address the challenge of realising a sustainable future for archives derived from archaeology projects in England in response to the Mendoza Review.

1.1.3 DCMS has asked Historic England for an outline of the pipeline of archaeological work which is likely to create archives over the coming decade to support a business case for the NCAA.

1.1.4 The report brings together research carried out by the Chartered Institute for Archaeologists (CIfA) drawing together data on the scale of archaeological work carried out each year relative to development and the archive it produces, as well as research by Nathaniel Lichfield and Partners (Lichfields) on the historic and potential future scale of development in England.

1.1.5 The Lichfields and CIfA research is available from Historic England as Appendices to this report.

1.2 Aims and Objectives

1.2.1 This report aims to answer the question:

What is the volume of archaeological archive that will be produced over the next 10 years, in the context of the likely scale of development in England in the same period?

1.2.2 To arrive at the forecasts provided in this report, research has been carried out with the following objectives:

- to estimate the value of development in England over the last ten years and forecast the potential value over the next ten years;

- to estimate the value of development-led archaeological work undertaken in England over the last ten years and the average volume of archaeological archive produced annually from that work;
- to forecast the potential amount of development-led archaeology that could be undertaken in England in the next ten years, and the volume of archive that would generate; and
- to identify data limitations, as well as policy, economic or other factors that could affect the conclusions of the report.

1.3 Methodology

1.3.1 Detailed methodologies are provided in the Appendices to this report. A brief overview of key sources is provided here. This work relies on published data available at the time of writing, in April 2024.

Archaeological market data sources

1.3.2 The key dataset used to track the scale of development-led archaeology carried out in the past ten years has been the 'State of the Archaeological Market' (SotAM) survey, produced annually by Landward Research on behalf of the Federation of Archaeological Managers and Employers (FAME) since 2014. The survey is completed by respondents in leadership positions within organisations who are either members of FAME or are Registered Organisations (ROs) accredited by the Chartered Institute for Archaeologists.

1.3.3 A second, complementary data set, Profiling the Profession (PtP), is an in-depth study of the archaeological sector and those who work within it. Carried out in 1999, 2002/03, 2007/08, 2012-13, and 2020, the data from this study has a broad scope, covering all aspects of archaeological practice in the UK. Unlike the SotAM surveys, it has captured information on and from individual practitioners: it therefore represents a broader cross-section of the profession, but with less of focus on economic trends and outlook across the sector.

1.3.4 The Options for Sustainable Archaeological Archives (OSAA) Report produced in 2021 for the Arts Council and Historic England, is the only data source for estimating the scale of archives produced for England as a whole, itself drawing both on earlier research reports and its own surveys, carried out in 2020.

Construction data sources

1.3.5 Lichfields have drawn data from the Office for National Statistics (ONS) and Department for Levelling Up, Housing and Communities (DLUHC) on the value of construction output and hectarage of land use change, respectively. These datasets are designated national statistics.

1.3.6 The ONS statistics provide a detailed breakdown of the quarterly and annual value of construction output in the public and private sector from 1998 to 2023, including new work on housing, infrastructure, and various industrial and commercial uses. The accompanying price indexes allow these values to be rebased to constant prices.

1.3.7 The DLUHC land use change statistics by hectarage provide an annual summary of the quantum of land changing use. Analysis of land use allows for an estimation of the proportion of development taking place on brownfield sites and greenfield sites, respectively (see Appendix 1).

1.3.8 Reconciling these datasets to produce estimates of the construction value of historic development in England has followed a two-stage process. Firstly, as the more detailed ONS data is presented at a Great Britain-level only, the proportion of development across broad categories in England has been estimated and applied to the more detailed subcategories available for Great Britain.

1.3.9 Secondly, to reconcile the DLUHC and ONS data, the share of annual development on brownfield sites and greenfield sites from DLUHC by broad land use has been applied to the more detailed categories from the ONS data.

Combined analysis

1.3.10 Bringing together the archaeological and construction data, sections 3.4 and 3.5 below summarise the estimated future value of archaeological work in England in the context of wider development over the next 10 years, and the volume of archive that work could produce. The results are based on the assumptions identified in Section 2 below.

2 Summary of forecasting assumptions

2.1 Construction estimates and forecasts

2.1.1 The Lichfields work is based primarily on publicly available information and information supplied by third parties alongside evidence-based professional

judgements by Lichfields itself. The analysis and interpretation of information and conclusions are based on current conditions and views which may be subject to change. Lichfields has relied upon the accuracy of data and other information supplied without independent verification.

2.1.2 Analysis and forecasting applies Lichfields own methodologies. Projections of future construction values and the underlying assumptions are illustrative: they are intended for the purpose of considering future construction/development activity in order to estimate future archaeological output. While Lichfields is assured of their suitability for this purpose, the nature of historic data and future estimates relied upon mean there is a potentially wide variance of outcomes.

2.1.3 All forecasts are subject to high degrees of uncertainty, particularly beyond the short-to-medium term (e.g. over a 10-year period or more), so future scenarios are presented as a range (high, mid and low), reflecting the sensitivity of future estimates.

2.2 Archaeology estimates and forecasts

2.2.1 Historically, archaeological sector size has tended to be estimated by using either data from planning applications, or organisational turnover in conjunction with employment data. These approaches have been evaluated, and the most consistent and comprehensive estimates are considered to be those generated by the SoTAM surveys (2014-2022), taking into account the revisions to employment estimates outlined in Profiling the Profession 2020. These take the mean turnover per member of staff within responding organisations and multiply that figure by the total estimated number of archaeologists working in the commercial sector. The SotAM surveys remain the most comprehensive way in which data on the archaeological market has been collated over the past decade - there may be limitations, but these are known, and are consistent between surveys.

2.2.2 Many UK-headquartered archaeological organisations work in multiple countries. SotAM has been collecting data on the proportion of turnover originating in each country within the UK since 2016-17. Prior to that, the proportions of work occurring within England cannot be reliably ascertained. The approach for this report has therefore been to take a mean figure for the proportion of work undertaken in England by all responding organisations from 2016-17 up to 2021-22 (89.5%) and apply this to figures from 2013-14 to 2015-16.

2.2.3 The Options for Sustainable Archaeological Archives (OSAA) 2021 report contains the most recent and comprehensive estimates for the annual accrual of archaeological archives in England over the last 5-10 years. The data was derived from approximately 45% of the contracting organisations involved in the creation and compilation of archaeological archives in England.

2.2.4 A 1997 English Heritage/MGC survey (see Swain 1998; Merriman and Swain 2022), estimated an archive size per year between 1987 and 1997 to be 1200m³ – over twice the OSAA estimate. However, it seems likely that the smaller figure produced by OSAA could more realistically reflect the current situation, due to recent changes in policy and practice (such as the introduction of CIfA guidance on archive selection) which encourages selection strategies that are research-led rather than determined by what space is available.

2.2.5 The OSAA figures are therefore considered the most reliable estimate of archive accrual in recent years. Other limitations of archive accrual estimates are described in section 3.3 below.

2.2.6 The archaeological sector size calculations expressed as a value in £ sterling have been adjusted to remove the impact of inflation. In line with the Lichfields historic data on construction output spend, the UK government's GDP deflator figures have been used to adjust historic data to 2019-20 prices (see Figure 1 below).

2.2.7 The Lichfields data has used quarterly data in its central projection, which has been matched to financial year in the archaeological data and used as the basis for the statement of results below.

3 Statement of Results

3.1 Construction profile 2013-2023

3.1.1 The Lichfields report characterises past development activity by construction output, including housing, infrastructure and commercial development.

3.1.2 Development activity in England over the past decade has been characterised by significant growth in housing development, driving much of the value in the construction sector. Infrastructure development is also a key driver of new construction work; despite the cancellation of HS2 Phase 2a and 2b, the Construction Industry Training Board (CITB) consider the pipeline of infrastructure work to remain strong in the short to medium term.

3.1.3 Figure 1. below shows the seasonally adjusted value of total construction output in England between 2013 and 2023, split by component activity.

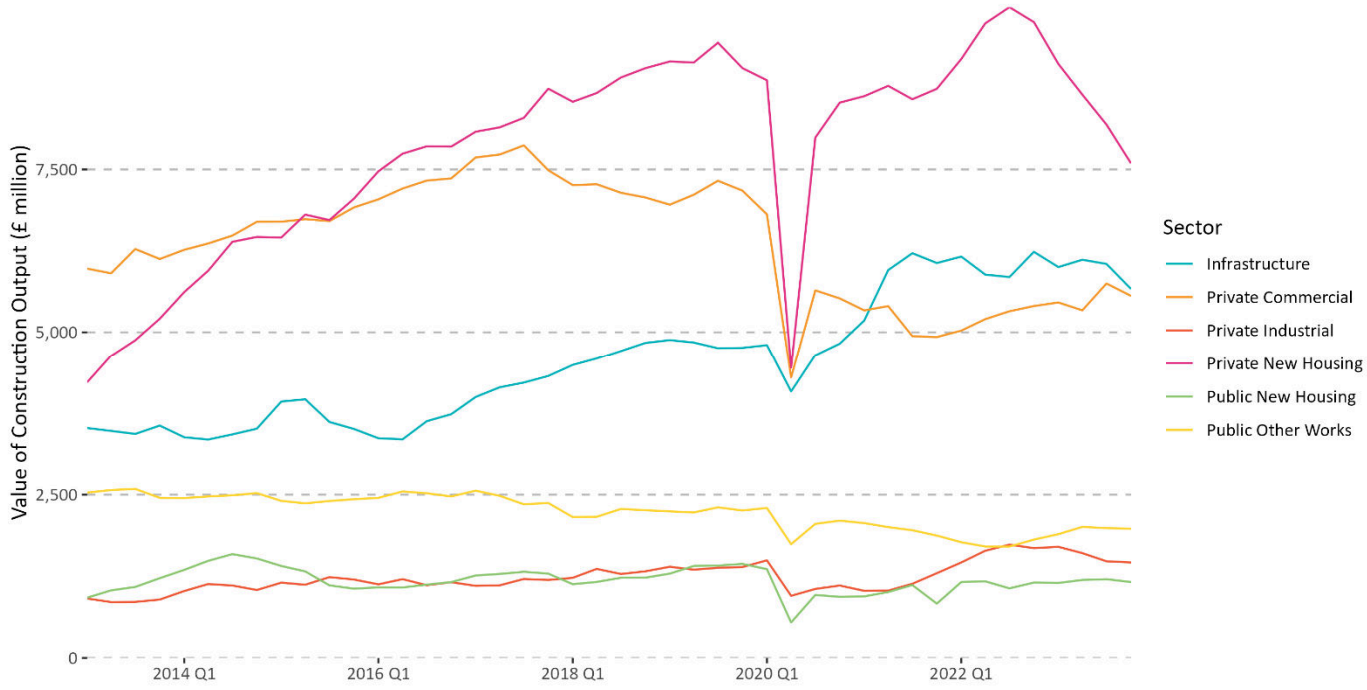

Figure 1: Value of construction output by broad sector in England, 2013-2023 (seasonally adjusted, 2019 prices). Source: ONS/Lichfields analysis.

3.1.4 The relative value of greenfield and brownfield development, land-use change, as well as the proportion of the sector represented by the housing market (anticipated to remain one of the key drivers of development) are discussed in more detail in the Lichfields report in Appendix 1.

3.1.5 Figure 2 shows the data on the value of construction output in England for 2013-2023.

Year	Value of Construction Output
2013	75,142
2014	84,079
2015	88,333
2016	92,979
2017	100,259
2018	101,368
2019	104,726
2020	87,069
2021	95,042
2022	101,861
2023	98,327

Figure 2: Annual value of construction output in England, 2013-2023 (£ million, 2019 prices). Source: ONS/Lichfields analysis.

3.2 Forecast construction profile 2023-2033

3.2.1 Lichfields have used a hierarchy of forecasts to build their central (mid) projection of total construction output in England over the forecast period (Figure 3). This mid projection is a future estimate based on past movements and does not factor in exogenous policy announcements or expectations. Examination of policy-based projections and construction pipelines are used to inform the high and low projection alternatives to this central model.

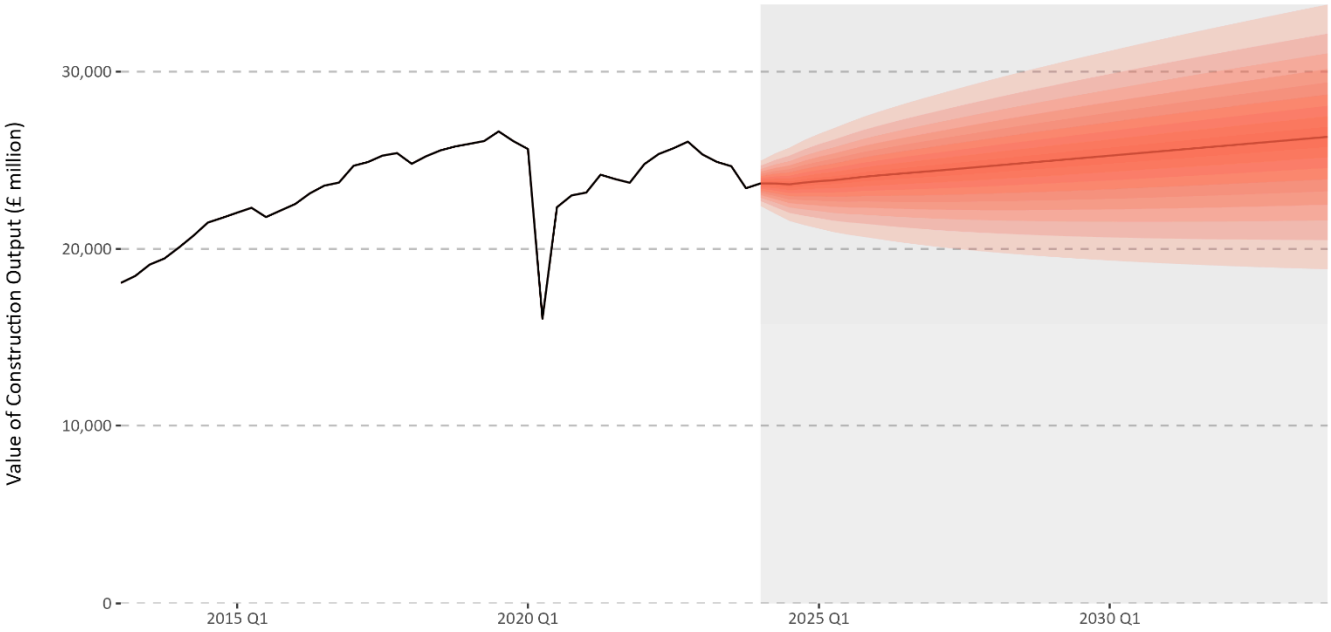

Figure 3: Historic and projected quarterly value of construction in England 2013-2033 (seasonally adjusted, 2019 prices). Source: ONS/Lichfields analysis.

3.2.2 OBR and ONS based housing construction projections produce a lower projection for construction overall over the next 5 years, and Experian/CITB data shows a broadly similar trend from 2024.

3.2.3 The National Infrastructure Construction Pipeline, as reviewed by Lichfields, is considered to project a conservative growth in the value of infrastructure construction in the next decade.

3.2.4 Policy based projections for housing produce a higher projection scenario, where policy targets are met in the next 10 years. Reaching those targets would require a significant increase in construction activity, resulting in growth in the sector overall that far exceeds other projections.

3.2.5 Based on the comparison between the central scenario projection (above) and these other industry forecasts, high growth and low growth scenarios have been developed.

3.2.6 The projected value of construction output in England for the period 2024-2033 from the central, high and low scenarios are given in Figures 4 and 5.

Year	Low Scenario	Central Projection	High Scenario
2024	93,629	94,775	95,921
2025	93,857	95,723	97,589
2026	94,591	96,958	99,325
2027	95,277	98,054	100,831
2028	96,062	99,196	102,330
2029	96,875	100,328	103,782
2030	97,715	101,462	105,208
2031	98,577	102,595	106,613
2032	99,456	103,728	108,000
2033	100,350	104,862	109,373

Figure 4: Central, high and low scenarios for projected annual value of construction output in England, 2024-2033 (£ million, 2019 prices). Source: Lichfields analysis.

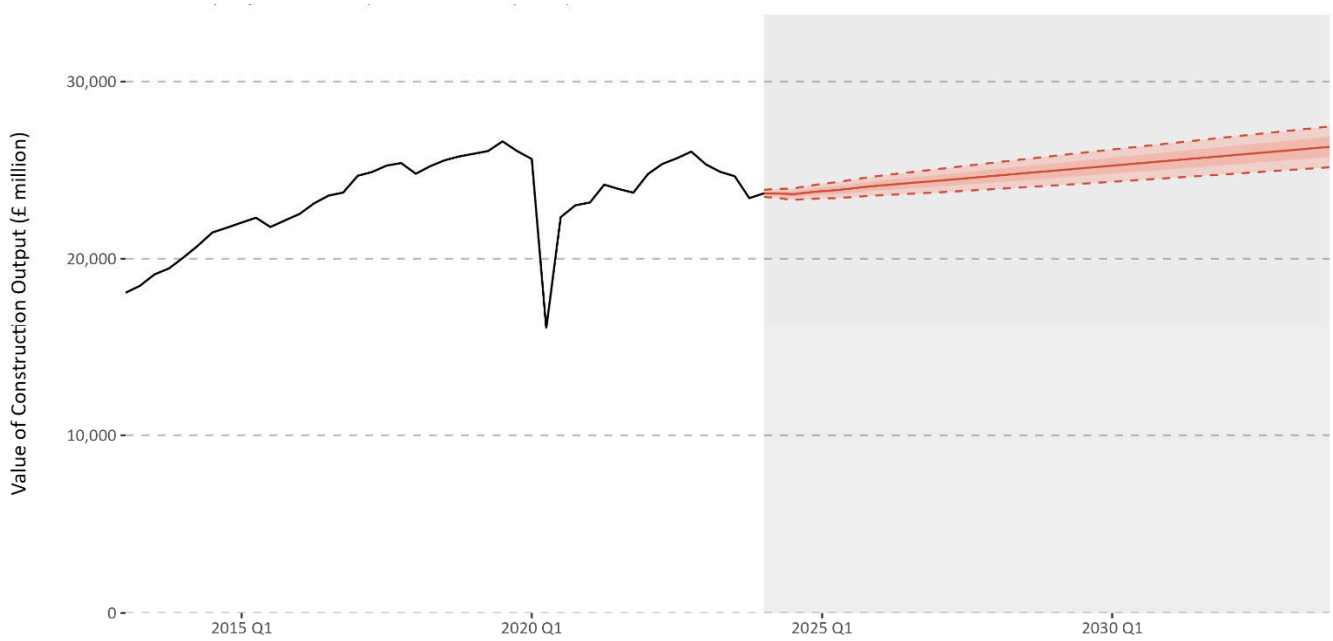

Figure 5: Historic and projected quarterly values of construction output in England, high, low and central projections, 2013-2033 (seasonally adjusted, 2019 prices). Source: ONS/Lichfields analysis.

3.3 Archaeological market profile 2013-2023

Value of construction-led archaeological work undertaken

3.3.1 Based on SoTAM and adjusting for inflation as described above, the value of the archaeological market up to the last survey is represented in Figure 6 below.

Financial year	mean turnover per staff member	estimated number of commercial archaeologists	mean turnover per staff member x n. commercial archaeologists	Value of development-led archaeology, estimate for England	**Value adjusted to 2019-20 prices**
2013-14	£56,237	4805	£161,456,427	£144,503,502	**£159,940,423**
2014-15	£45,914	5238	£150,781,576	£134,949,511	**£147,571,422**
2015-16	£45,615	5392	£158,785,815	£142,113,304	**£154,295,724**
2016-17	£45,309	5645	£169,591,587	£149,240,597	**£158,429,396**
2017-18	£48,747	5901	£194,841,759	£179,254,418	**£187,357,849**
2018-19	£48,696	6056	£202,185,792	£175,901,639	**£180,054,738**
2019-20	£51,187	6263	£223,943,125	£190,351,656	**£190,351,656**
2020-21	£52,528	6601	£246,881,600	£224,662,256	**£213,061,275**
2021-22	£55,878	6703	£268,214,400	£252,121,536	**£241,075,709**

Figure 6: Estimates of development-led archaeology sector size for England, 2013-22.
Source: R.Hedge, CIfA

Proportion of construction market represented by archaeological market

3.3.2 Previous approaches to forecasting demand for archaeologists, including Historic England's 2016 Intelligence Assessment, have expressed archaeological sector size as a percentage of varying indices for quantifying construction. This approach generates a useful metric, which we have adopted. Figure 7 illustrates the historic relationship between construction output (as defined and quantified by Lichfields) and archaeology sector size.

3.3.3 There are strong indications that archaeology sector size has historically been linked to the performance of the construction sector, although this relationship is not necessarily linear. Furthermore, national policy decisions on (for example) transport infrastructure have the potential to spark expansion in the archaeology sector even during a downturn in overall construction spend (a single infrastructure project with significant archaeological implications could significantly alter the projections), and an event such as the pandemic, can reflect differently in construction and in archaeology (see below, the apparently stronger upward trend in archaeology sector size from 2020 is likely to reflect a buoyant period through the COVID pandemic, whereas construction spend saw a significant dip in 2020-21.)

3.3.4 However, the proportion of the construction market represented by the archaeological market remains around 0.2%, even with these variations.

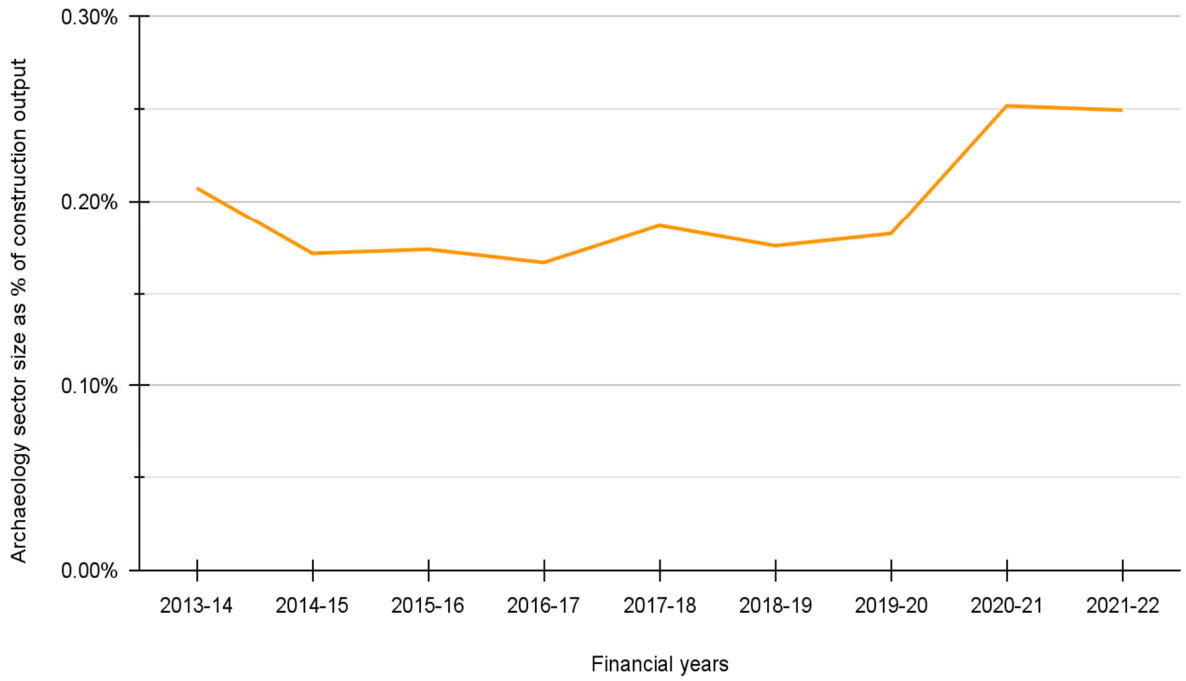

Figure 7: Archaeology sector size as % of construction output in England. Source: R.Hedge

Volume of archaeological archive produced

3.3.5 The Options for Sustainable Archaeological Archives (OSAA) 2021 report provides an estimate for the annual accrual of archaeological archives as an average over the last 5 to 10 years. The total estimated annual accrual was 233.86m³. Extrapolating this from the 19 organisations surveyed for the report, to the estimated whole sector for England was achieved by scaling up by 110.5%, to reach an estimate of approximately 492m³ per year.

3.3.6 Targeted interviews carried out in April 2024 do not dispute this figure but have cautioned against any expectation of predictable accrual rates for archaeological archives. Over the sector there is great variability based on region, cost of deposition and scale of organisation/project.

3.4 Forecast archaeological market profile 2023-2033

3.4.1 The trendline for sector size growth has followed the Lichfields central projection. Using the historical data for construction output from financial years 2013-14 up to 2022-23, a form of regression analysis commonly known as the least squares method has determined the trajectory for archaeology sector size. The methodology is further described in Appendix 2, and the results are provided in Figure 8.

3.4.2 Projections rely on the assumption that the relationship between construction output and archaeology sector size is broadly linear, which we know is not always the case (see above section 3.3) but does broadly track over time. The percentage difference between the central projection and the low/high projections is relatively modest, at +/- 4.17%. Extending this to the projections for archaeology, we might therefore observe sector size in 2032-33 to be within the range of £193.9 million to £210.8 million.

3.4.3 This is substantially lower than the most recent sector size estimates derived from SotAM, which put the sector size for England in 2021-22 at £241.1 million (see Figure 6). It assumes that the apparent buoyancy of the sector, which saw it buck the construction downturn between 2020 and 2022 (for possible reasons see Appendix 2) will not be sustained. Once they become available, the SotAM sector size numbers for 2022-23 will allow us a clearer indication of the degree to which the recent sector growth might continue.

3.4.4 Archaeology sector size is plotted in Figure 8 against construction output, historic and projected data. Figure 9 provides the figures comparing construction output with archaeology sector size. Figure 10 shows Archaeology sector size as % of projected construction output.

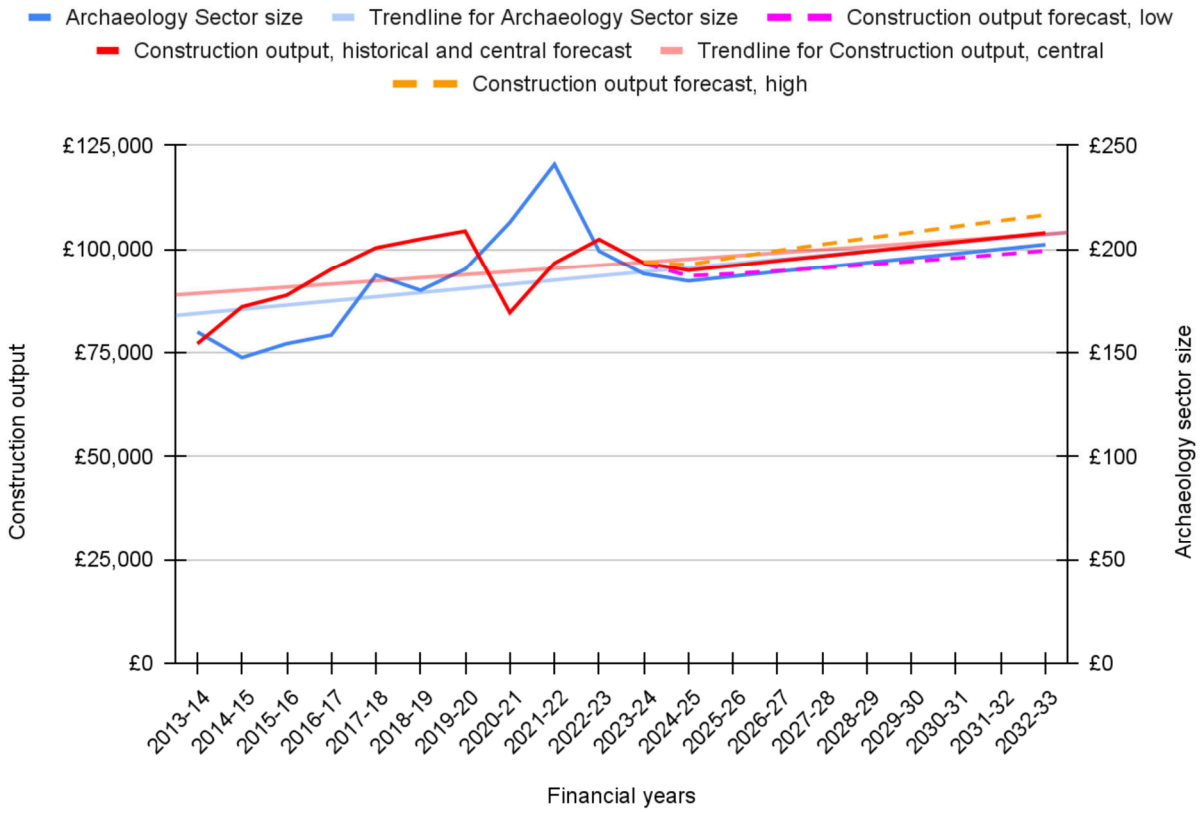

Figure 8: Archaeology sector size linked to projected construction output (Adjusted to 2019 prices, £(millions)). Source R. Hedge.

Financial year	Archaeology Sector size	Construction output forecast, low	Construction output, historical and central forecast	Construction output forecast, high	Archaeology as % of construction output
2013-14	£159,940,423		£77,142,000,000		0.2073%
2014-15	£147,571,422		£86,041,000,000		0.1715%
2015-16	£154,295,724		£88,823,000,000		0.1737%
2016-17	£158,429,396		£95,133,000,000		0.1665%
2017-18	£187,357,849		£100,371,000,000		0.1867%
2018-19	£180,054,738		£102,497,000,000		0.1757%
2019-20	£190,351,656		£104,430,000,000		0.1823%
2020-21	£213,061,275		£84,614,000,000		0.2518%
2021-22	£241,075,709		£96,647,000,000		0.2494%
2022-23	*£199,209,795*		£102,405,000,000		*0.2135%*
2023-24	*£188,105,948*	*£96,500,000,000*	*£96,697,000,000*	*£96,894,000,000*	*0.2016%*
2024-25	*£184,610,220*	*£93,538,000,000*	*£94,900,000,000*	*£96,260,000,000*	*0.1979%*
2025-26	*£186,827,877*	*£94,037,000,000*	*£96,040,000,000*	*£98,044,000,000*	*0.2002%*
2026-27	*£189,136,964*	*£94,753,000,000*	*£97,227,000,000*	*£99,704,000,000*	*0.2027%*
2027-28	*£191,296,261*	*£95,468,000,000*	*£98,337,000,000*	*£101,209,000,000*	*0.2050%*
2028-29	*£193,521,699*	*£96,263,000,000*	*£99,481,000,000*	*£102,697,000,000*	*0.2074%*
2029-30	*£195,719,903*	*£97,082,000,000*	*£100,611,000,000*	*£104,141,000,000*	*0.2098%*
2030-31	*£197,927,834*	*£97,929,000,000*	*£101,746,000,000*	*£105,561,000,000*	*0.2121%*
2031-32	*£200,129,928*	*£98,795,000,000*	*£102,878,000,000*	*£106,962,000,000*	*0.2145%*
2032-33	*£202,333,968*	*£99,678,000,000*	*£104,011,000,000*	*£108,344,000,000*	*0.2169%*

Figure 9: Construction output and archaeology sector size. Figures in italics are projections.
Source: R.Hedge

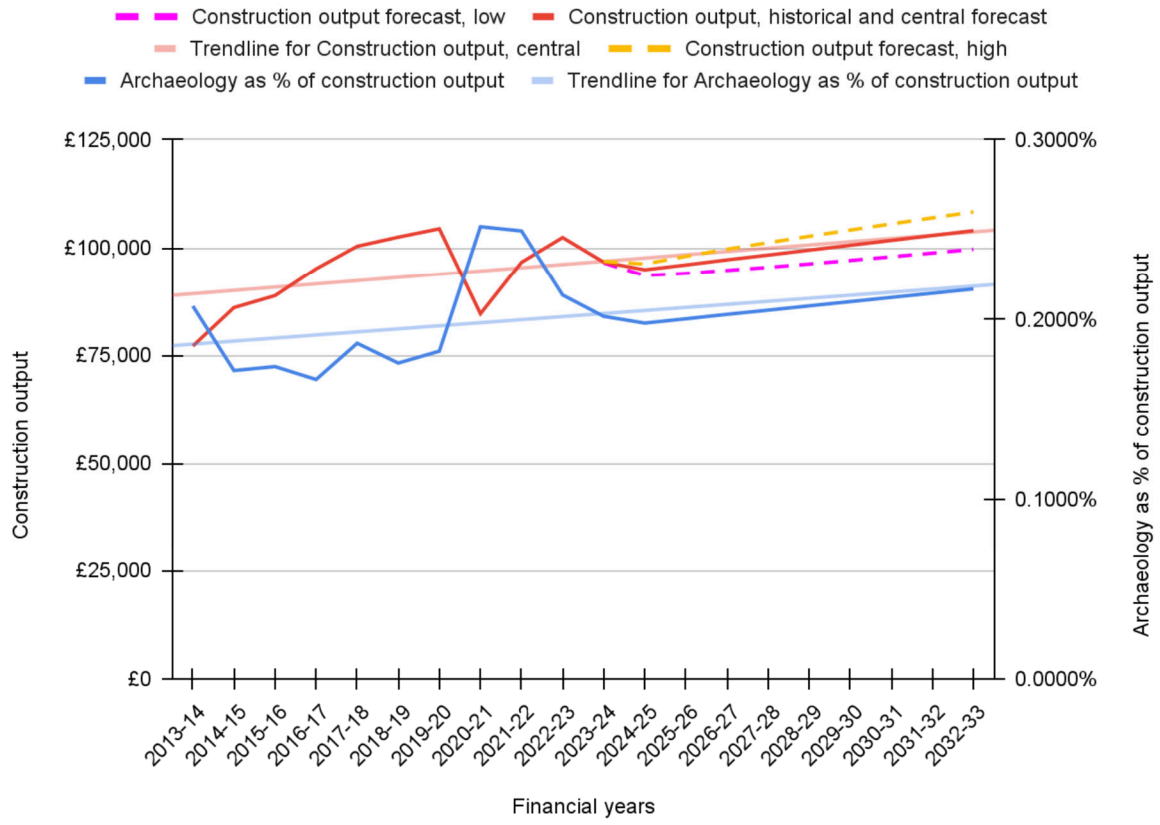

Figure 10: Archaeology sector size as % of projected construction output (Adjusted to 2019 prices, £(millions)). Source: R.Hedge.

3.5 Forecast volume of archaeological archive 2023-2033

3.5.1 It is not possible to draw a comprehensive trendline for the past accrual of archaeological archive, as data has only been collected as an average over an unspecified timescale (see above 3.3.5). The best we can say is that between 2013-14 and 2019-20, accrual averaged 492m³ per year.

3.5.2 Assumptions around archive accrual are also described in 3.3.6.

3.5.3 Accepting the limitations of the data, we can attempt to generate a trendline based on the assumption that accrual tracks the projected sector size through the next decade. The data is illustrated in Figure 11.

3.5.4 This trendline shows that the volume of artefactual and ecofactual material likely to be recovered over the next 10 years is likely to be greater than the 2019-20 estimate of 492m³, as long as the sector continues to grow at a rate broadly concordant with construction output.

3.5.5 Taking a median value of the projected figures for the next decade provides an estimate of archive accrual for England at approximately 558m³ per year between 2023 and 2033.

Financial year	Archaeology Sector size	Construction output, historical and central forecast	Archaeology as % of construction output	Estimated archive accrual
2013-14	£159,940,423	£77,142,000,000	0.21%	492.00
2014-15	£147,571,422	£86,041,000,000	0.17%	492.00
2015-16	£154,295,724	£88,823,000,000	0.17%	492.00
2016-17	£158,429,396	£95,133,000,000	0.17%	492.00
2017-18	£187,357,849	£100,371,000,000	0.19%	492.00
2018-19	£180,054,738	£102,497,000,000	0.18%	492.00
2019-20	£190,351,656	£104,430,000,000	0.18%	492.00
2020-21	£213,061,275	£84,614,000,000	0.25%	617.36
2021-22	£241,075,709	£96,647,000,000	0.25%	698.53
2022-23	*£199,209,795*	£102,405,000,000	*0.21%*	577.22
2023-24	*£188,105,948*	*£96,697,000,000*	*0.20%*	545.05
2024-25	*£184,610,220*	*£94,900,000,000*	*0.20%*	534.92
2025-26	*£186,827,877*	*£96,040,000,000*	*0.20%*	541.35
2026-27	*£189,136,964*	*£97,227,000,000*	*0.20%*	548.04
2027-28	*£191,296,261*	*£98,337,000,000*	*0.21%*	554.29
2028-29	*£193,521,699*	*£99,481,000,000*	*0.21%*	560.74
2029-30	*£195,719,903*	*£100,611,000,000*	*0.21%*	567.11
2030-31	*£197,927,834*	*£101,746,000,000*	*0.21%*	573.51
2031-32	*£200,129,928*	*£102,878,000,000*	*0.21%*	579.89
2032-33	*£202,333,968*	*£104,011,000,000*	*0.22%*	586.28

Figure 11: Estimated archive accrual assuming link to sector size. Source R.Hedge.

Appendices

Nathaniel Lichfield and Partners full report

CIfA full report (by R. Hedge)

Appendices are available from Historic England on request.

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