Stephen Levrant Heritage Architecture Ltd.
62 British Grove
Chiswick
London
W4 2NL

Heatherden Hall, Pinewood Studios, Pinewood Road, Iver Heath, Buckinghamshire, SL0 0NH
Proposed first and second floor refurbishment work including replacement of existing carpet tiles with new floor finish ,new toilet layout including demolition of wall, demolition of one wall between two rooms on the second floor, removal of modern grid ceiling on first floor and re-wiring and electrical upgrades new lighting scheme for second and first floor

Discharge of Condition 2 (Planning Ref: PL/23/3928/HB) **August 21st 2024**

COVERING LETTER

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1. The proposed works at Heatherden Hall, Pinewood Studio under this LBC consist of refurbishment works to the first and second floor, and electrical upgrades.
2. Planning permission for the proposed works was granted on 8th February 2024 and the application reference number is PL/23/3928/HB (Please refer to Appendix 1 for decision notice). This purpose for this covering letter is to accompany the planning submission for the Discharge of **Condition 2**, which states:

   Condition 2:

   Notwithstanding the submitted information, details of existing internal plaster should be assessed prior to its removal and details of an appropriate lime plaster shall be submitted to and approved by the Local Planning Authority prior to being used on any historic walls. The internal works shall be carried out in accordance with the approved details unless alternative details are submitted to and agreed in writing by the Local Planning Authority.

   Reason: To safeguard the special architectural and historic character of the building, and to accord with Sections 16 and 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990, Policies C6 of the South Bucks District Local Plan (adopted March 1999) and CP8 of the South Bucks Core Strategy (adopted February 2011).

3. Heritage Architecture Ltd, acting as project architect, will be coordinating the Discharge of Condition 2 application submission and will be the main point of contact with the local authority during the application process.
4. The project is currently at RIBA Stage 5 and the construction has commenced. Ashley Group are appointed as main contractor.
5. Ashley Group have carried out sampling and analysis of the internal plaster of the walls. The analysis was carried out by Heritage Testing Ltd on July 2024, which are documented in a report (Please refer to Appendix 2 for the report, and Appendix 3 for the sampling plan).

6. The results in the report have confirmed that some areas have been coated with a mix of cementitious render and lime plaster across different areas. The report also provides disaggregation analyses of the plaster compositions at these various locations.

7. These results are not surprising given that:

    1. From historic archival research, we know that the building underwent various phases, and the internal layout of the second floor dates to the first half of the 20th century, as indicated in the morphological plan (Appendix 4).

    2. Investigation works were carried in preparation of Phase I, which have been described in the Heritage and Design and Access Statement submitted with this listed building consent. These revealed that the internal walls of the second floors are constructed in block work, and finished in different renders - lime based and cementitious - across different rooms.

8. Given the observed conditions, we would intend for the restoration approach of the internal walls to be repaired where damaged as follows:

    1. Where **small localised areas have damaged render, these are to be repaired with render to match the surroundings**. The render will follow the composition based on the result of the analysis.

    2. Where **entire walls are damaged** and existing plaster is to be removed and re-rendered, these areas will be re-plastered using a lime based plaster. The render will follow a composition of lime based plaster based on the result of the analysis.

9. The following proposed works for internal re-plastering works will not commence until this condition has received approval by the local authority. The following works has been integrated into the programme to allow the 8-week period for the council's decision time to review and approve.

Appendix 1 – Decision Notice

Directorate for Planning, Growth and Sustainability
Walton Street Offices, Walton Street, Aylesbury, HP20 1UA

planning.csb@buckinghamshire.gov.uk
01494 732950 | 01895 837210
www.buckinghamshire.gov.uk

Mr Stephen Levrant
Heritage Architecture Ltd
62 British Grove
Chiswick
W4 2NL

BUCKINGHAMSHIRE COUNCIL DECISION NOTICE

Application no. PL/23/3928/HB
PLANNING (LISTED BUILDINGS AND CONSERVATION AREAS) ACT 1990
Town and Country Planning (Listed Buildings and Conservation Areas) Regulations 1990

In pursuance of their powers under the above-mentioned Act and Regulations, Buckinghamshire Council as Local Planning Authority, **HEREBY GRANTS LISTED BUILDING CONSENT** for the following:

Applicant: Mrs Liz Waldsax

Location: Heatherden Hall, Pinewood Studios, Pinewood Road, Iver Heath, Buckinghamshire, SL0 0NH

Proposal: Listed building consent for first and second floor refurbishment work including replacement of existing carpet tiles with new floor finish ,new toilet layout including demolition of wall, demolition of one wall between two rooms on the second floor, removal of modern grid ceiling on first floor and re-wiring and electrical upgrades new lighting scheme for second and first floor

in accordance with your application received on **5 December 2023** and the plans and particulars accompanying it subject to the following conditions and reasons set out on the following page(s).

Eric Owens
Service Director of Planning and Environment
On behalf of the Council

Date: 8 February 2024

SCHEDULE OF CONDITIONS AND REASONS RELATING TO THIS PERMISSION

1 The works to which this consent relates must be begun not later than the expiration of three years beginning with the date of this decision notice. (SS05)

Reason: To comply with the requirements of Section 18(1) (a) of the Planning (Listed Buildings and Conservation Areas) Act 1990 (or any statutory amendment or re-enactment thereof).

2 Notwithstanding the submitted information, details of existing internal plaster should be assessed prior to its removal and details of an appropriate lime plaster shall be submitted to and approved by the Local Planning Authority prior to being used on any historic walls. The internal works shall be carried out in accordance with the approved details unless alternative details are submitted to and agreed in writing by the Local Planning Authority.

Reason: To safeguard the special architectural and historic character of the building, and to accord with Sections 16 and 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990, Policies C6 of the South Bucks District Local Plan (adopted March 1999) and CP8 of the South Bucks Core Strategy (adopted February 2011).

3 The works to which this consent relates shall be undertaken solely in accordance with the drawings referred to in the list at the foot of this decision notice. (SMS14a)

Reason: To safeguard the character, appearance and interest of this listed building and to accord with the terms of the submitted application. (Policy C6 of the South Bucks District Local Plan (adopted March 1999) refers.)

Drawing No.(s): N2959 101 received on 5 December 2023**, N2959 102** received on 5 December 2023**, N2959 701** received on 5 December 2023**, N2959 702** received on 5 December 2023**, N2959 704** received on 5 December 2023**, N2871 105** received on 5 December 2023**, N2871 703** received on 5 December 2023**, N2871 705** received on 5 December 2023**,**

and in accordance with any other conditions imposed by this Listed Building Consent.

Reason: To ensure that the works are carried out in accordance with the details considered by the Local Planning Authority.

GENERAL NOTES

1. See the attached Appeal Notes for details of appealing this decision.

2. This permission does not operate for the purpose of the Building Regulations or exempt you from obtaining any approval that may be required under those Regulations or compliance with any other statutory requirements. For advice please visit the Building Control pages on the Councils website or telephone 01895 837296.

3. There must be no departure from the approved application, particulars and plans without the written consent of the Council.

4. If this Decision Notice includes conditions that require the submission of details for the written approval of the Local Planning Authority, then you must formally apply to the Local Planning Authority to discharge the condition(s). To apply, complete and submit forms that are available on the Council's website, together with the appropriate fee. A fee is payable per new request, not per condition and any applications submitted without the appropriate fee will not be dealt with, until the correct fee is paid.

5. Please be aware that pre-commencement conditions must be discharged prior to works starting on site. The Development Management Section will not normally approve details required by a pre-commencement condition retrospectively. Failure to comply with the requirements of such conditions may mean that the planning permission itself cannot be implemented and a new application will be required.

APPEAL NOTES

The applicant may appeal to the Secretary of State if aggrieved by the decision of the Local Planning Authority to refuse permission for the proposed development or to grant it subject to conditions.

Appeals can be made online at: https://www.gov.uk/planning-inspectorate. If you are unable to access the online appeal form, please contact the Planning Inspectorate to obtain a paper copy of the appeal form on tel: 0303 444 5000. Guidance can be found on their website including how to complete your appeal form.

If you intend to submit an appeal that you would like examined by inquiry then you must notify the Local Planning Authority and Planning Inspectorate (inquiryappeals@planninginspectorate.gov.uk) at least 10 days before submitting the appeal. Further details are on GOV.UK.

- **Householder Applications(*)**

If you want to appeal against the **refusal of planning permission** on a 'Householder Application' then you must do so within **12 weeks** of the date of this notice. However, if you want to appeal **against the granting of planning permission subject to conditions** on a 'Householder Application ' then you must do so within **6 months** of the date of this notice.

(*) A householder development is development in the boundary of, or to an existing dwellinghouse for purposes incidental to the enjoyment of the dwellinghouse, that does not involve change of use or a change to the number of dwellings. It includes an application for any consent, agreement or approval required by or under a planning permission, development order or local development order in relation to such development. Please note, this does not include development in the boundary of, or to an existing flat or maisonette.

- **Other Planning Applications (Non Householder)**

You may wish to appeal against the:

(1) Refusal of a planning, listed building consent, including refusal to vary or discharge conditions.
(2) The conditions attached to a planning or listed building consent application.
(3) Refusal, partial refusal or deemed refusal of a lawful development certificate.

The correct form must be used to appeal – Planning: Listed Building Consent; or Certificate of Lawful Use or Development Appeal Forms. Please specify form required, if requesting from Inspectorate. The time period to do this will vary depending on the application type or development type. An appeal must be made within the following time periods of the decision date:

(1) An **advertisement application** must be made within **8 weeks**
(2) If development is a **shop front or other minor commercial development** must be made within **12 weeks**
(3) All other **non-householder application types** or development types must be made within **6 months**

- The Secretary of State can allow a longer period for giving notice of an appeal but he/she will not normally be prepared to use this power unless there are special circumstances which excuse the delay

- The Secretary of State need not consider an appeal if it seems to him/her that the local planning authority would not have been able to have granted planning permission for the development or would not have been able to have granted it without the conditions they imposed, having regard to the statutory requirements, to the provisions of any development order and to any directions given under a development order.

- In practise, the Secretary of State does not refuse to consider appeals solely because the local planning authority based their decision on a direction given by him/her.

Important information in relation to an enforcement notice

Different timescales apply where the development is also the subject of an enforcement notice. If an enforcement notice has been served within two years of an application being submitted or is served before the time period for determining the application has expired, the time limit to appeal is within: **28 days from the date of refusal or the date of determination**. If an enforcement notice is served after the application's decision date or date for determination, the time limit is **28 days from the enforcement notice date**, unless this would extend the period beyond the usual time limit for cases not involving an enforcement notice. (This does not apply to Advertisement Consent Applications)

Purchase Notices

- If either the local planning authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim he can neither put the land to a reasonably beneficial use in its existing state, nor render the land capable of a reasonably beneficial use, either carrying out any development which has been or would be permitted.
- In these circumstances, the owner may serve a purchase notice on the Council in whose area the land is situated. This notice will require the Council to purchase his/her interest in the land, in accordance with the provisions of Part V1 of the Town and Country Planning Act 1990.

Appendix 2 – Material Analysis Report by Heritage Testing Ltd.

TEST REPORT

LABORATORY BATCH REF:	**HT/24-5994/AG**
BATCH DETAILS:	**HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH**

FORMAL REPORT DATE:	12/08/2024

LABORATORY CLIENT:	**ASHLEY GROUP**
CLIENT REF:	**Sean Quigley**

TOTAL No OF COMPOSITE SAMPLES / TYPE:	Seven (07 No) plaster coating samples or subsamples.
BACKGROUND INFORMATION:	The client requested chemical dissolution analysis of the sample(s). Aim of testing: 1. To ascertain the chemical and elemental composition of the sample(s), 2. To establish the likely binder type and hydraulicity of the sample(s), for the purpose of design and specification of compatible materials for repair / replacement works, 3. Extraction and examination and photograph of the insoluble sand and aggregate components of the historic sample(s).
HISTORICAL OR OTHER INFORMATION (AS SUPPLIED BY CLIENT OR CITED):	Grade 2 Listed. List Entry No: 1414431. "Country house, original part c.1865 by Charles Frederick Reeks, extended 1914-28 by Charles Melville Seth-Ward for Walter Grant Morden"…."an unusually large and sumptuous house of predominantly early-C20 character".
TESTS REQUIRED / TESTS CARRIED OUT:	Seven (07 No) Visual and Microscopic Inspection of sample(s), with preliminary tests, Seven (07 No) Sample Preparation, Seven (07 No) X-Ray Fluorescence (XRF) elemental analysis of sample(s) employing an Olympus DELTA Premium XRF instrument with 4W Rh tube anode and 'large area silicon drift detector' (instrument ref 510850) and/or an Evident VANTA-VCA C-Series 50kV XRF Analyzer (instrument ref 841693), Seven (07 No) chemical 'dissolution' analysis of sample(s), employing test procedures as per BS 4551:2005+A2:2013, with extrapolation of test results to chemical hydraulicity and equivalent cement and/or lime binder content and mix composition (where applicable), Seven (07 No) extraction and examination of insoluble sand and aggregate component of samples, Two (02 No) Lead and Toxic Metals in paint assay, One (1 No) Formal Report.
REPORT APPROVED BY:	H.Sheridan BSc MRSC, Senior Scientist

HERITAGE TESTING LTD

Main Mobile:
0771 4006916

Unit 43, The Old Brickworks, Station Road, Plumpton Green, East Sussex. BN7 3DF.
No 05353671

Tel: 01273-891785
Fax: 01273-256545

SECTION 1: LABORATORY PHOTOGRAPHS OF SAMPLE(S)

Laboratory photography was carried out under laboratory lighting of colour temperature 5000°K (daylight). The smallest unit of the scale bar shown is millimetres, mm.

PHOTOGRAPHS OF PLASTER SAMPLES RECEIVED FOR TEST

Figs 1 to 2: Sample 5994/1: Photographs of plaster sample received for test (dry condition).

Figs 3 to 4: Sample 5994/2: Photographs of plaster sample received for test (dry condition).

Figs 5 to 6: Sample 5994/3: Photographs of plaster sample received for test (dry condition).

Figs 7 to 8: Sample 5994/4: Photographs of plaster sample received for test (dry condition).

Figs 9 to 10: Sample 5994/5: Photographs of plaster sample received for test (dry condition).

SECTION 2: Sample Details, Initial Moisture Content, and Laboratory Observations

12-Aug-24

Lab Batch Ref: ***HT/24-5994/AG***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

Note: *The initial laboratory visual inspection is routinely carried out prior to analysis and any comments are based on subjective assessment based on the analyst's experience rather than in accordance with a particular British or EN Standard. The visual inspection is designed to aid interpretation of results and should be used in conjunction with observations of the in-situ condition of the material(s) during sampling / siteworks, and any other available background information. The visual inspection of appreciably disrupted / powdered 'dust' samples will be limited compared to that obtained from intact samples. The moisture contents of the 'as received' samples may deviate from the in-situ moisture contents, depending on storage of the sample (sealed bags or containers / double bagged preferable).*

LAB. SAMPLE REF.	SAMPLE DETAILS	AS RECEIVED' COLOUR OF SAMPLE MATRIX AND SAMPLE TYPE AND CONDITION	GENERAL LABORATORY NOTES	PRESENCE OF HAIR OR STRAW REINFORCEMENT	APPARENT STRENGTH	APPARENT WATER PERM-EABILITY	PHENOLPHTHALEIN CARBONATION TEST	REACTION OF POWDERED SAMPLE WITH DILUTE HYDROCHLORIC ACID	MASS OF SAMPLE RECEIVED FOR TEST, g	INITIAL MOISTURE CONTENT OF SAMPLE ON RECEIPT (% DRY MASS BASIS) *Oven Drying Temperature: 40+/-2 degrees C*
5994/ 1	***SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER***	Cream (dry colour) to pale brown (moist colour) haired lime plaster (maximum thickness 10.2 mm).	Noted within plaster matrix: Several white nodules up to 3 x 4 mm in size. Occasional brown flakes up to 2 x 4 mm in size.	Sparsely haired.	Apparent strength low (could be broken by hand with ease).	Apparent water-permeability very high.	Fully carbonated.	Copious effervescence, with evolution of carbon dioxide gas.	19.0	**0.21**

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5994/ 2	***SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER***	Hard mid-grey plaster material resembling render (maximum thickness 11.0 mm).	Traces of red or pink paint were observed at outer face of sample. An interlayer boundary at approximately 5 mm depth was suggestive of application in two coats, Noted within sample matrix: Black carbonaceous nodules up to 1 x 3.5 mm in size. Occasional off-white nodules up to 2.5 x 3 mm in size.	None found.	Apparent strength high (could not be broken by hand nor crumbled in fingers; could be disrupted with moderate difficulty using pestle).	Apparent water-permeability low.	Generally uncarbonated.	Moderate effervescence, with evolution of carbon dioxide gas.	31.5	**1.20**

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12-Aug-24

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Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

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LAB. SAMPLE REF.	SAMPLE DETAILS	AS RECEIVED' COLOUR OF SAMPLE MATRIX AND SAMPLE TYPE AND CONDITION	GENERAL LABORATORY NOTES	PRESENCE OF HAIR OR STRAW REINFORCEMENT	APPARENT STRENGTH	APPARENT WATER PERM-EABILITY	PHENOLPHTHALEIN CARBONATION TEST	REACTION OF POWDERED SAMPLE WITH DILUTE HYDROCHLORIC ACID	MASS OF SAMPLE RECEIVED FOR TEST, g	INITIAL MOISTURE CONTENT OF SAMPLE ON RECEIPT (% DRY MASS BASIS) *Oven Drying Temperature: 40+/-2 degrees C*
5994/ 3	***SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER***	Paint (total thickness 0.4 to 0.5 mm) adhered to white plaster topcoat (thickness 2 to 2.5 mm) adhered to cream haired lime plaster basecoats.	Paint colours observed: White on white, pink (gypsum plaster skim coat), pale orangish-brown, red, white, pale brown, green, light brown). Notables within plaster basecoat matrix: White and off-white coarse aggregate particles and nodules up to 5.7 x 7.1 x 9.2 mm (rounded and subrounded flint) and 8.5 x 11.1 x 14.1 mm. Traces of grey uncarbonated cementitious nodules resembling blockwork were noted within sample.	Much hair reinforcement noted within plaster basecoat.	Apparent strength of plaster topcoat moderate to low (could be broken by hand with ease and crumbled in fingers with difficulty). Apparent strength of plaster basecoat low (could be broken by hand with ease and crumbled in fingers with ease).	Apparent water-permeability of plaster topcoat moderate to high (cream coloured when moist). Apparent water-permeability of plaster basecoat high (light brown when moist).	All plaster coats were fully carbonated throughout.	Plaster topcoat = Copious effervescence, with evolution of carbon dioxide and hydrogen sulphide gas. Plaster basecoat = Vigorous and copious effervescence, with evolution of carbon dioxide gas.	99.3	**0.22**

SECTION 2: Sample Details, Initial Moisture Content, and Laboratory Observations

12-Aug-24

Lab Batch Ref: ***HT/24-5994/AG***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

Note: *The initial laboratory visual inspection is routinely carried out prior to analysis and any comments are based on subjective assessment based on the analyst's experience rather than in accordance with a particular British or EN Standard. The visual inspection is designed to aid interpretation of results and should be used in conjunction with observations of the in-situ condition of the material(s) during sampling / siteworks, and any other available background information. The visual inspection of appreciably disrupted / powdered 'dust' samples will be limited compared to that obtained from intact samples. The moisture contents of the 'as received' samples may deviate from the in-situ moisture contents, depending on storage of the sample (sealed bags or containers / double bagged preferable).*

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5994/ 4	***SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER***	Hard mid-grey plaster material resembling render (maximum thickness 9.3 mm).	Sample matrix was similar to that of sample 5994/2.	None found.	Apparent strength high (could not be broken by hand nor crumbled in fingers; could be disrupted with moderate difficulty using pestle).	Apparent water-permeability low.	Generally uncarbonated.	Moderate effervescence, with evolution of carbon dioxide gas.	9.2	**1.18**

SECTION 2: Sample Details, Initial Moisture Content, and Laboratory Observations

12-Aug-24

Lab Batch Ref: ***HT/24-5994/AG***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

Note: *The initial laboratory visual inspection is routinely carried out prior to analysis and any comments are based on subjective assessment based on the analyst's experience rather than in accordance with a particular British or EN Standard. The visual inspection is designed to aid interpretation of results and should be used in conjunction with observations of the in-situ condition of the material(s) during sampling / siteworks, and any other available background information. The visual inspection of appreciably disrupted / powdered 'dust' samples will be limited compared to that obtained from intact samples. The moisture contents of the 'as received' samples may deviate from the in-situ moisture contents, depending on storage of the sample (sealed bags or containers / double bagged preferable).*

LAB. SAMPLE REF.	SAMPLE DETAILS	AS RECEIVED' COLOUR OF SAMPLE MATRIX AND SAMPLE TYPE AND CONDITION	GENERAL LABORATORY NOTES	PRESENCE OF HAIR OR STRAW REINFORCEMENT	APPARENT STRENGTH	APPARENT WATER PERM-EABILITY	PHENOLPHTHALEIN CARBONATION TEST	REACTION OF POWDERED SAMPLE WITH DILUTE HYDROCHLORIC ACID	MASS OF SAMPLE RECEIVED FOR TEST, g	INITIAL MOISTURE CONTENT OF SAMPLE ON RECEIPT (% DRY MASS BASIS) *Oven Drying Temperature: 40+/-2 degrees C*
5994/ 5	***SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER***	Paint (total thickness 0.3 mm) adhered to white plaster topcoat (thickness 3 to 5 mm) adhered to cream haired lime plaster basecoats.	Paint colours observed: Pale brown on green. Notables within plaster basecoat matrix: White and off-white coarse aggregate particles and nodules up to 7.5 mm in size (rounded and subrounded flint).	Sparse hair reinforcement noted within plaster basecoat.	Apparent strength of plaster topcoat moderate to low (could be broken by hand with ease and crumbled in fingers with difficulty). Apparent strength of plaster basecoat low (could be broken by hand with ease and crumbled in fingers with ease).	Apparent water-permeability of plaster topcoat moderate to high (cream coloured when moist). Apparent water-permeability of plaster basecoat high (light brown when moist).	All plaster coats were fully carbonated throughout.	Plaster topcoat = Copious effervescence, with evolution of carbon dioxide gas. Plaster basecoat = Vigorous and copious effervescence, with evolution of carbon dioxide gas.	92.6	**0.57**

SECTION 3: CHEMICAL DISSOLUTION ANALYSIS AND X-RAY FLUORESCENCE (XRF) ELEMENTAL ANALYSIS OF PLASTER

Lab Batch Ref: HT/24-5994/AG

Client: **ASHLEY GROUP**

Client Ref: **Sean Quigley**

Project: **HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH**

Key: Major components above 10% are coloured RED, Significant components 1% to 10% are coloured BLUE, Minor components < 1% are coloured BLACK, components NOT DETECTED are coloured GREEN.

	SAMPLE REF:	TEST METHODOLOGY / NOTES	5994/ 1	5994/ 2	5994/ 3.2	5994/ 3.3	5994/ 4
	SAMPLE:		SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER	SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER TOPCOAT	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER BASECOATS	SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER
	SUB-SAMPLE DETAILS:		Cream (dry colour) to pale brown (moist colour) haired lime plaster (maximum thickness 10.2 mm)	Hard mid-grey plaster material resembling render (maximum thickness 11.0 mm)	White plaster topcoat (thickness 2 to 2.5 mm)	Cream haired lime plaster basecoats	Hard mid-grey plaster material resembling render (maximum thickness 9.3 mm).
ELEMENT / COMPONENT	Units:		%	%	%	%	%
Extractable Calcium as Calcium Oxide	CaO %	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	6.08	16.3	25.3	7.61	14.0
Extractable 'Soluble' Silica as SiO_2	SiO_2 %	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	0.937	3.60	1.61	0.760	3.78
Extractable Magnesium as Magnesium Oxide	MgO %	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	0.452	0.268	0.770	0.340	0.276
Chloride	Cl %	Chemical Dissolution Analysis of acid extract of sample (BS4551:2005+A2:2013)	0.00265	0.0360	0.0117	0.00728	0.00819
Total Insoluble Residue (Sand, Aggregate, and Fines)	%	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	84.8	62.6	33.7	82.8	62.7

SECTION 3: CHEMICAL DISSOLUTION ANALYSIS AND X-RAY FLUORESCENCE (XRF) ELEMENTAL ANALYSIS OF PLASTER

Lab Batch Ref: HT/24-5994/AG

Client: **ASHLEY GROUP**

Client Ref: **Sean Quigley**

Project: **HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH**

Key: Major components above 10% are coloured RED, Significant components 1% to 10% are coloured BLUE, Minor components < 1% are coloured BLACK, components NOT DETECTED are coloured GREEN.

	SAMPLE REF:	TEST METHODOLOGY / NOTES	5994/ 1	5994/ 2	5994/ 3.2	5994/ 3.3	5994/ 4
	SAMPLE:		SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER	SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER TOPCOAT	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER BASECOATS	SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER
	SUB-SAMPLE DETAILS:		Cream (dry colour) to pale brown (moist colour) haired lime plaster (maximum thickness 10.2 mm)	Hard mid-grey plaster material resembling render (maximum thickness 11.0 mm)	White plaster topcoat (thickness 2 to 2.5 mm)	Cream haired lime plaster basecoats	Hard mid-grey plaster material resembling render (maximum thickness 9.3 mm).
ELEMENT / COMPONENT	Units:		%	%	%	%	%
Silt and clay / fines (inclusive of fine dust/ash where present)	%	Expressed as % by dry mass of Insoluble Residue	5.45	5.72	11.4	4.46	4.07
Total Calcium as Calcium Oxide	CaO %	XRF of powdered whole sample	14.2	20.6	31.5	18.1	18.2
Total Silicon as Silica	SiO_2 %	XRF of powdered whole sample	33.3	18.4	9.45	30.1	25.1
Total Sulphur (including Sulphide / Sulphate) expressed as Sulphur Trioxide	SO_3 %	XRF of powdered whole sample	0.708	0.570	14.8	0.0222	0.414
Total Iron as Iron Oxide	Fe_2O_3 %	XRF of powdered whole sample	1.84	9.15	1.05	1.81	7.33
Total Aluminium as Aluminium Oxide	Al_2O_3 %	XRF of powdered whole sample	2.12	3.05	0.634	2.03	1.34

SECTION 3: CHEMICAL DISSOLUTION ANALYSIS AND X-RAY FLUORESCENCE (XRF) ELEMENTAL ANALYSIS OF PLASTER

Lab Batch Ref: HT/24-5994/AG

Client: **ASHLEY GROUP**

Client Ref: **Sean Quigley**

Project: **HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH**

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ELEMENT / COMPONENT	Units:		%	%	%	%	%
Total Magnesium as Magnesium Oxide	MgO %	XRF of powdered whole sample	< 0.8	< 0.7	< 0.6	< 0.7	< 0.7
Total Manganese as Manganese Oxide	Mn_2O_3 %	XRF of powdered whole sample	0.0195	0.0424	< 0.04	0.0257	0.0227
Total Potassium as Potassium Oxide	K_2O %	XRF of powdered whole sample	0.228	0.0346	< 0.01	0.194	< 0.02
Total Phosphorous as Phosphate	PO_4 %	XRF of powdered whole sample	< 0.05	< 0.04	< 0.04	< 0.04	< 0.05
Total Titanium as Titanium Dioxide	TiO_2 %	XRF of powdered whole sample	0.178	0.251	< 0.04	0.153	0.125
Zinc	Zn %	XRF of powdered whole sample	0.0016	0.0039	1.34	0.0021	0.0026
Copper	Cu %	XRF of powdered whole sample	< 0.002	0.0007	0.0199	< 0.002	0.0010

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ELEMENT / COMPONENT	Units:		%	%	%	%	%
Nickel	Ni %	XRF of powdered whole sample	0.0009	0.0056	< 0.002	0.0016	0.0016
Tin	Sn %	XRF of powdered whole sample	< 0.04	0.0015	0.0035	0.0010	0.0009
Lead	Pb %	XRF of powdered whole sample	0.0016	0.0013	1.87	0.0020	0.0013
Cadmium	Cd %	XRF of powdered whole sample	< 0.03	0.0007	< 0.02	< 0.03	0.0008
Chromium	Cr %	XRF of powdered whole sample	0.0039	0.0087	0.0277	0.0158	0.0045
Antimony	Sb %	XRF of powdered whole sample	< 0.06	< 0.05	< 0.04	< 0.06	0.0010
Mercury	Hg %	XRF of powdered whole sample	< 0.005	< 0.005	< 0.02	0.0002	< 0.004

SECTION 3: CHEMICAL DISSOLUTION ANALYSIS AND X-RAY FLUORESCENCE (XRF) ELEMENTAL ANALYSIS OF PLASTER

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ELEMENT / COMPONENT	Units:		%	%	%	%	%
Selenium	Se %	XRF of powdered whole sample	< 0.0006	< 0.0005	< 0.002	< 0.0006	< 0.0005
Arsenic	As %	XRF of powdered whole sample	< 0.002	0.0018	< 0.02	< 0.002	0.0011
Bromine / Bromide	Br %	XRF of powdered whole sample	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Strontium	Sr %	XRF of powdered whole sample	0.0127	0.0334	0.101	0.0148	0.0211
Cobalt	Co %	XRF of powdered whole sample	< 0.001	< 0.002	< 0.0007	< 0.001	< 0.002
Rubidium	Rb %	XRF of powdered whole sample	< 0.002	< 0.0007	< 0.002	< 0.002	< 0.0005
Yttrium	Y %	XRF of powdered whole sample	< 0.0005	< 0.001	< 0.0009	< 0.0004	< 0.0005

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	SAMPLE:		SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER	SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER TOPCOAT	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER BASECOATS	SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER
	SUB-SAMPLE DETAILS:		Cream (dry colour) to pale brown (moist colour) haired lime plaster (maximum thickness 10.2 mm)	Hard mid-grey plaster material resembling render (maximum thickness 11.0 mm)	White plaster topcoat (thickness 2 to 2.5 mm)	Cream haired lime plaster basecoats	Hard mid-grey plaster material resembling render (maximum thickness 9.3 mm).
ELEMENT / COMPONENT	Units:		%	%	%	%	%
Zirconium	Zr %	XRF of powdered whole sample	< 0.005	< 0.009	< 0.005	< 0.007	< 0.007
Niobium	Nb %	XRF of powdered whole sample	< 0.002	< 0.0001	< 0.0004	< 0.002	< 0.002
Molybdenum	Mo %	XRF of powdered whole sample	< 0.004	< 0.003	< 0.0004	< 0.004	< 0.003
Silver	Ag %	XRF of powdered whole sample	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Tungsten	W %	XRF of powdered whole sample	< 0.005	< 0.0004	< 0.03	< 0.005	< 0.005
Bismuth	Bi %	XRF of powdered whole sample	< 0.0006	< 0.001	< 0.02	< 0.0007	< 0.0009
Tantalum	Ta %	XRF of powdered whole sample	< 0.0004	< 0.002	< 0.03	< 0.0007	< 0.0004

SECTION 3: CHEMICAL DISSOLUTION ANALYSIS AND X-RAY FLUORESCENCE (XRF) ELEMENTAL ANALYSIS OF PLASTER

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ELEMENT / COMPONENT	Units:		%	%	%	%	%
Barium	Ba %	XRF of powdered whole sample	< 0.03	< 0.03	0.169	< 0.03	< 0.03

SECTION 3: CHEMICAL DISSOLUTION ANALYSIS AND X-RAY FLUORESCENCE (XRF) ELEMENTAL ANALYSIS OF PLASTER

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	SAMPLE REF:	TEST METHODOLOGY / NOTES	5994/ 5.2	5994/ 5.3			
	SAMPLE:		SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER TOPCOAT	SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER BASECOATS			
	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Extractable Calcium as Calcium Oxide	CaO %	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	24.8	4.52			
Extractable 'Soluble' Silica as SiO_2	SiO_2 %	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	1.32	0.590			
Extractable Magnesium as Magnesium Oxide	MgO %	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	0.490	0.125			
Chloride	Cl %	Chemical Dissolution Analysis of acid extract of sample (BS4551:2005+A2:2013)	0.0125	0.00706			

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	SAMPLE REF:	TEST METHODOLOGY / NOTES	5994/ 5.2	5994/ 5.3			
	SAMPLE:		SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER TOPCOAT	SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER BASECOATS			
	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Total Insoluble Residue (Sand, Aggregate, and Fines)	%	Chemical Dissolution Analysis of acid and alkali extract of sample (BS4551:2005+A2:2013)	40.7	88.7			
Silt and clay / fines (inclusive of fine dust/ash where present)	%	Expressed as % by dry mass of Insoluble Residue	9.45	5.35			
Total Calcium as Calcium Oxide	CaO %	XRF of powdered whole sample	30.9	11.1			
Total Silicon as Silica	SiO_2 %	XRF of powdered whole sample	8.87	38.2			
Total Sulphur (including Sulphide / Sulphate) expressed as Sulphur Trioxide	SO_3 %	XRF of powdered whole sample	13.8	2.16			

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	SAMPLE:		SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER TOPCOAT	SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER BASECOATS			
	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Total Iron as Iron Oxide	Fe_2O_3 %	XRF of powdered whole sample	1.00	2.22			
Total Aluminium as Aluminium Oxide	Al_2O_3 %	XRF of powdered whole sample	0.320	2.38			
Total Magnesium as Magnesium Oxide	MgO %	XRF of powdered whole sample	< 0.6	< 0.8			
Total Manganese as Manganese Oxide	Mn_2O_3 %	XRF of powdered whole sample	0.0274	0.0194			
Total Potassium as Potassium Oxide	K_2O %	XRF of powdered whole sample	< 0.01	0.269			
Total Phosphorous as Phosphate	PO_4 %	XRF of powdered whole sample	< 0.04	< 0.05			

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	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Total Titanium as Titanium Dioxide	TiO_2 %	XRF of powdered whole sample	0.0641	0.152			
Zinc	Zn %	XRF of powdered whole sample	0.0690	0.0052			
Copper	Cu %	XRF of powdered whole sample	< 0.003	< 0.002			
Nickel	Ni %	XRF of powdered whole sample	< 0.003	0.0010			
Tin	Sn %	XRF of powdered whole sample	0.0007	< 0.04			
Lead	Pb %	XRF of powdered whole sample	0.0211	0.0034			

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	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Cadmium	Cd %	XRF of powdered whole sample	< 0.03	< 0.03			
Chromium	Cr %	XRF of powdered whole sample	0.0121	0.0039			
Antimony	Sb %	XRF of powdered whole sample	< 0.06	< 0.06			
Mercury	Hg %	XRF of powdered whole sample	< 0.006	0.0002			
Selenium	Se %	XRF of powdered whole sample	< 0.0008	< 0.0006			
Arsenic	As %	XRF of powdered whole sample	< 0.004	< 0.002			

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	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Bromine / Bromide	Br %	XRF of powdered whole sample	< 0.0001	< 0.0001			
Strontium	Sr %	XRF of powdered whole sample	0.0775	0.0155			
Cobalt	Co %	XRF of powdered whole sample	< 0.0009	< 0.002			
Rubidium	Rb %	XRF of powdered whole sample	< 0.0004	< 0.002			
Yttrium	Y %	XRF of powdered whole sample	< 0.0005	< 0.0006			
Zirconium	Zr %	XRF of powdered whole sample	< 0.004	< 0.007			

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	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Niobium	Nb %	XRF of powdered whole sample	< 0.003	< 0.0001			
Molybdenum	Mo %	XRF of powdered whole sample	< 0.004	< 0.004			
Silver	Ag %	XRF of powdered whole sample	< 0.03	< 0.02			
Tungsten	W %	XRF of powdered whole sample	< 0.009	< 0.005			
Bismuth	Bi %	XRF of powdered whole sample	< 0.0004	< 0.0004			
Tantalum	Ta %	XRF of powdered whole sample	< 0.002	< 0.0008			

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	SUB-SAMPLE DETAILS:		White plaster topcoat (thickness 3 to 5 mm)	Cream haired lime plaster basecoats			
ELEMENT / COMPONENT	Units:		%	%			
Barium	Ba %	XRF of powdered whole sample	< 0.03	< 0.03			

SECTION 4: Historic Lime Materials: Equivalent Hydraulic Lime Binder Content / Mix Detail Calculations

Based on use of a common modern Natural Hydraulic Lime (NHL) Binder without Pozzolan.

Lab Batch Ref: ***HT/24-5994/AG*** ***Date:*** ***August 12, 2024***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

LAB. SAMPLE OR SUBSAMPLE REFERENCE	SAMPLE DETAILS	RATIO OF TOTAL CaO TO 1 PART SiO_2 *by dry mass*	APPROX. RATIO OF CaO FROM BINDER TO 1 PART SiO_2 *by dry mass*	OVERALL CHEMICAL HYDRAULICITY OF SAMPLE	MODERN NATURAL HYDRAULIC LIME (NHL) BINDER TYPE EMPLOYED FOR CALCULATION	ASSUMED OR MEASURED CaO CONTENT OF NHL BINDER, %	UNCORR-ECTED TOTAL *% by dry mass*	NORMALIZED EQUIVALENT MODERN NHL BINDER CONTENT *% by dry mass*	NORMALIZED DRY SAND, AGGREGATE, AND FINES CONTENT *% by dry mass*	EQUIVALENT MIX PROPORTIONS *PARTS DRY 'SAND AND AGGREGATE AND FINES' TO 1 PART NHL HYDRAULIC LIME BINDER*	
										PARTS BY DRY MASS	PARTS BY DRY VOLUME
5994/ 1	***SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER***	**6.5**	**6.5**	***MODERATELY TO WEAKLY / FEEBLY HYDRAULIC LIME***	**NHL 2**	63	**94.4**	**10.2**	**89.8**	**8.8**	**2.9**

SECTION 4: Historic Lime Materials: Equivalent Hydraulic Lime Binder Content / Mix Detail Calculations

Based on use of a common modern Natural Hydraulic Lime (NHL) Binder without Pozzolan.

Lab Batch Ref: ***HT/24-5994/AG*** **Date:** ***August 12, 2024***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

LAB. SAMPLE OR SUBSAMPLE REFERENCE	SAMPLE DETAILS	RATIO OF TOTAL CaO TO 1 PART SiO_2 *by dry mass*	APPROX. RATIO OF CaO FROM BINDER TO 1 PART SiO_2 *by dry mass*	OVERALL CHEMICAL HYDRAULICITY OF SAMPLE	MODERN NATURAL HYDRAULIC LIME (NHL) BINDER TYPE EMPLOYED FOR CALCULATION	ASSUMED OR MEASURED CaO CONTENT OF NHL BINDER, %	UNCORR-ECTED TOTAL *% by dry mass*	NORMALIZED EQUIVALENT MODERN NHL BINDER CONTENT *% by dry mass*	NORMALIZED DRY SAND, AGGREGATE, AND FINES CONTENT *% by dry mass*	EQUIVALENT MIX PROPORTIONS *PARTS DRY 'SAND AND AGGREGATE AND FINES' TO 1 PART NHL HYDRAULIC LIME BINDER*	
										PARTS BY DRY MASS	PARTS BY DRY VOLUME
5994/ 3.3	***SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER BASECOATS***	**10**	**10**	***WEAKLY / FEEBLY HYDRAULIC LIME***	**NHL 2**	63	**94.9**	**12.7**	**87.3**	**6.9**	**2.3**

SECTION 4: Historic Lime Materials: Equivalent Hydraulic Lime Binder Content / Mix Detail Calculations

Based on use of a common modern Natural Hydraulic Lime (NHL) Binder without Pozzolan.

Lab Batch Ref: ***HT/24-5994/AG*** **Date:** ***August 12, 2024***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

LAB. SAMPLE OR SUBSAMPLE REFERENCE	SAMPLE DETAILS	RATIO OF TOTAL CaO TO 1 PART SiO_2 *by dry mass*	APPROX. RATIO OF CaO FROM BINDER TO 1 PART SiO_2 *by dry mass*	OVERALL CHEMICAL HYDRAULICITY OF SAMPLE	MODERN NATURAL HYDRAULIC LIME (NHL) BINDER TYPE EMPLOYED FOR CALCULATION	ASSUMED OR MEASURED CaO CONTENT OF NHL BINDER, %	UNCORR-ECTED TOTAL *% by dry mass*	NORMALIZED EQUIVALENT MODERN NHL BINDER CONTENT *% by dry mass*	NORMALIZED DRY SAND, AGGREGATE, AND FINES CONTENT *% by dry mass*	EQUIVALENT MIX PROPORTIONS *PARTS DRY 'SAND AND AGGREGATE AND FINES' TO 1 PART NHL HYDRAULIC LIME BINDER*	
										PARTS BY DRY MASS	PARTS BY DRY VOLUME
5994/ 5.3	***SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER BASECOATS***	**7.7**	**7.7**	***MODERATELY TO WEAKLY / FEEBLY HYDRAULIC LIME***	**NHL 2**	63	**95.9**	**7.5**	**92.5**	**12.4**	**4.1**

SECTION 5: Indicative or Original Cement Content / Mix Detail Calculations (BS 4551:2005+A2:2013)
Based on use of Modern Ordinary Portland Cement (CEM1 / OPC) and Non-Hydraulic Hydrated Lime Plasticiser.

Lab Batch Ref: ***HT/24-5994/AG***

Client: ***ASHLEY GROUP***

Client Ref: ***Sean Quigley***

Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

Date: ***12/08/2024***

LAB. SAMPLE REF.	SAMPLE DETAILS	CALCIUM OXIDE CONTENT *% CaO by dry mass*	SOLUBLE SILICA CONTENT *% SiO_2 by dry mass*	INSOLUBLE RESIDUE CONTENT *% by dry mass*	CEMENT CONTENT *% OPC by dry mass extrapolated via Calcium Oxide Content*	CEMENT CONTENT *% OPC by dry mass extrapolated via Soluble Silica Content*	ORDINARY PORTLAND CEMENT CONTENT *% CEM1 / OPC by dry mass*	MAXIMUM ORIGINAL HYDRATED LIME PLASTICISER CONTENT *% $Ca(OH)_2$ CL90 by dry mass*	SAND AND FINE AGGREGATE *% by dry mass*	BS5628-3:2005 TABLES 13 & A1 & BS4551:2005+A2:2013 TABLE 4 TRADITIONAL MIX DESIGNATION	BS5628-3:2005 TABLES 13 & A1 MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS N/mm^2	ORIGINAL MIX PROPORTIONS *PARTS 'SAND & FINE AGGREGATE' OR 'HYDRATED LIME $Ca(OH)_2$' TO 1 PART CEMENT*			
												BY DRY MASS		BY DRY VOLUME	
												SAND/AGGR.	HYDR. LIME	SAND/AGGR.	HYDR. LIME
5994/ 2	***SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER***	**16.3**	**3.60**	**62.6**	29.1	20.2	**20.2**	**7.93**	**71.9**	***Type i***	***12 (M12 mix)***	**3.6**	**0.39**	**3.1**	**1.0**
5994/ 4	***SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER***	**14.0**	**3.78**	**62.7**	25.9	21.9	**21.9**	**3.51**	**74.6**	***Type i***	***12 (M12 mix)***	**3.4**	**0.16**	**2.9**	**0.4**

Note : Figures for indicative minimum compressive strengths are based on optimum original water contents and sand / aggregate gradings, and assume absence of deleterious processes e.g. frost damage / Sulphate Attack.

SECTION 6: Total (Acid-soluble) Sulphate assay to BS4551:2005+A2:2013.

Lab Batch Ref: ***HT/24-5994/AG*** *Report Date:* ***12-Aug-24***
Client: ***ASHLEY GROUP***
Client Ref: ***Sean Quigley***
Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

LABORATORY SAMPLE REF	SAMPLE DETAILS	% SULPHATE expressed as SO_4 *by mass of whole sample*	% SULPHUR TRIOXIDE / SULPHURIC ANHYDRIDE $[SO_3]$ *by mass of whole sample*	TOTAL SULPHATE % SULPHUR TRIOXIDE / SULPHURIC ANHYDRIDE $[SO_3]$ in CEMENT *(by mass, based on measured or assumed cement content)*
TYPICAL 'BACKGROUND VALUE' - For uncontaminated Ordinary Portland cement concretes and mortars (BS1881, BS4551):				*2.80*
'WARNING VALUE - Relevant to risk of Sulphate Attack of cementitious mortar (BS4551:2005+A2:2013):				*4.00*
5994/ 1	SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER	0.849	0.708	N/A (lime binder)
5994/ 2	SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER	0.683	0.570	3.24
5994/ 3.2	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER TOPCOAT	17.8	14.8	N/A (gypsum-lime mix)
5994/ 3.3	SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER BASECOATS	0.0267	0.0222	N/A (lime binder)
5994/ 4	SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER	0.496	0.414	2.25
5994/ 5.2	SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER TOPCOAT	16.6	13.8	N/A (gypsum-lime mix)

SECTION 6: Total (Acid-soluble) Sulphate assay to BS4551:2005+A2:2013.

Lab Batch Ref: ***HT/24-5994/AG*** *Report Date:* ***12-Aug-24***
Client: ***ASHLEY GROUP***
Client Ref: ***Sean Quigley***
Batch Details: ***HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH***

LABORATORY SAMPLE REF	SAMPLE DETAILS	% SULPHATE expressed as SO_4 *by mass of whole sample*	% SULPHUR TRIOXIDE / SULPHURIC ANHYDRIDE [SO_3] *by mass of whole sample*	TOTAL SULPHATE % SULPHUR TRIOXIDE / SULPHURIC ANHYDRIDE [SO_3] in CEMENT *(by mass, based on measured or assumed cement content)*
TYPICAL 'BACKGROUND VALUE' - For uncontaminated Ordinary Portland cement concretes and mortars (BS1881, BS4551):				*2.80*
'WARNING VALUE - Relevant to risk of Sulphate Attack of cementitious mortar (BS4551:2005+A2:2013):				*4.00*
5994/ 5.3	**SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER BASECOATS**	**2.59**	**2.16**	**N/A (lime binder)**

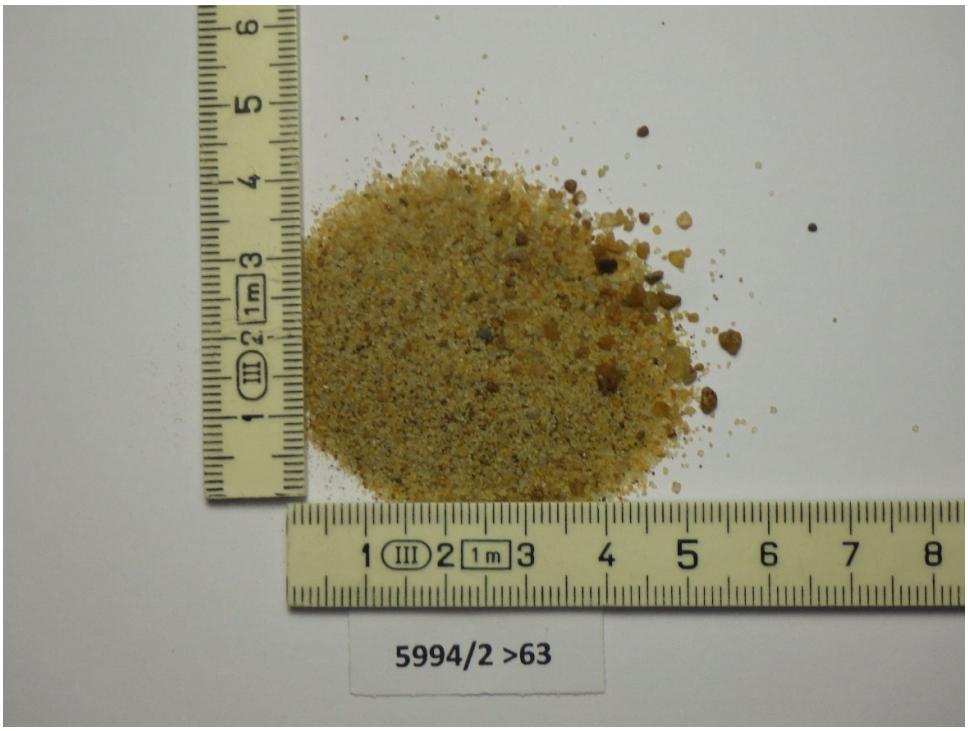
SECTION 7: PHOTOGRAPHS OF THE EXTRACTED INSOLUBLE AGGREGATE AND SAND COMPONENTS

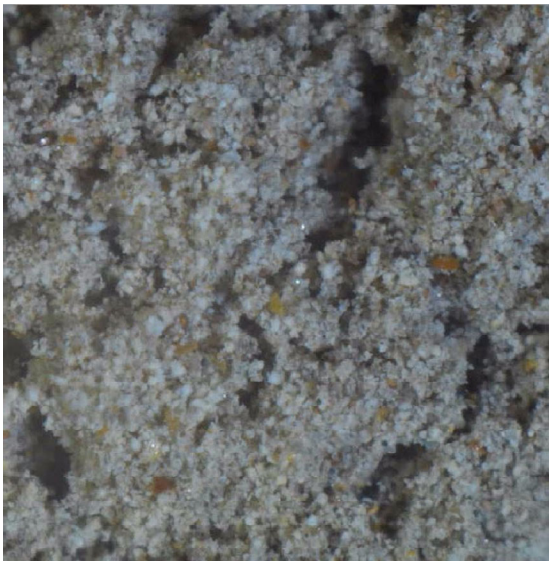
REF 5994/1: SAMPLE 1: SECOND LEVEL, ROOM 58 - INTERNAL PLASTER

Figs 11 to 13: Plaster sample 5994/1 – Showing respectively:

- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**
- **Hair reinforcement (magnified)**

REF 5994/2: SAMPLE 2: SECOND LEVEL, ROOM 58 - WALL - INTERNAL PLASTER

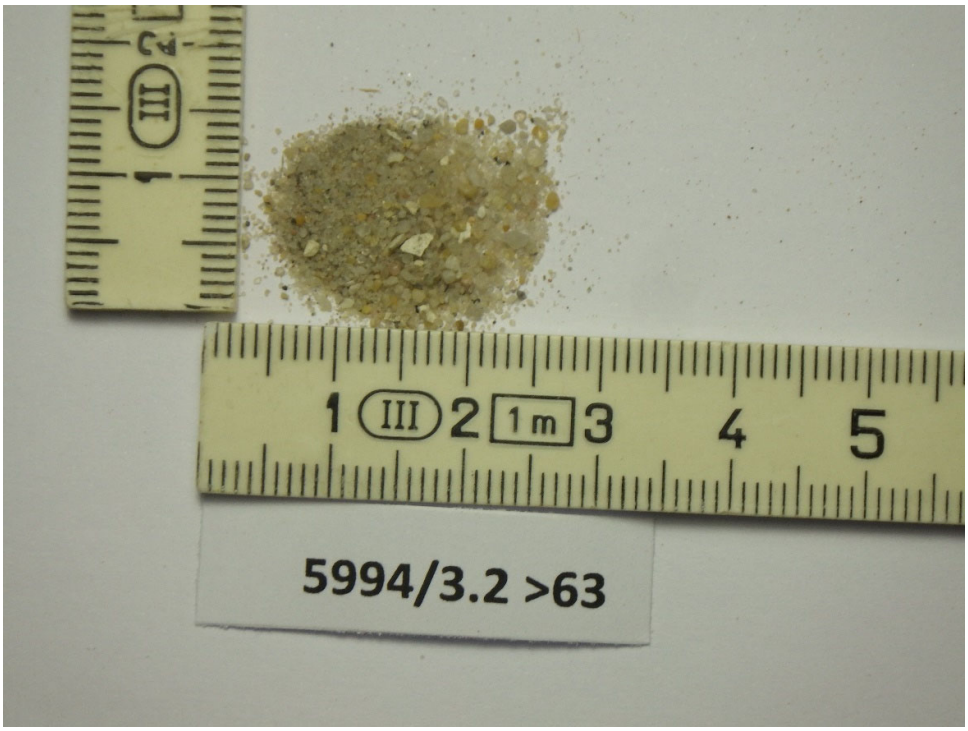




Figs 14 to 15: Plaster sample 5994/2 – Showing respectively:

- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**

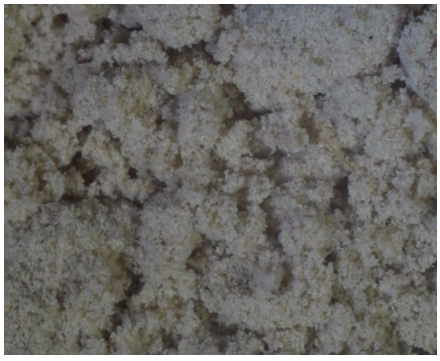
REF 5994/3.2: SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER TOPCOAT



Figs 16 to 17: Plaster topcoat sample 5994/3.2 – Showing respectively:

- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**

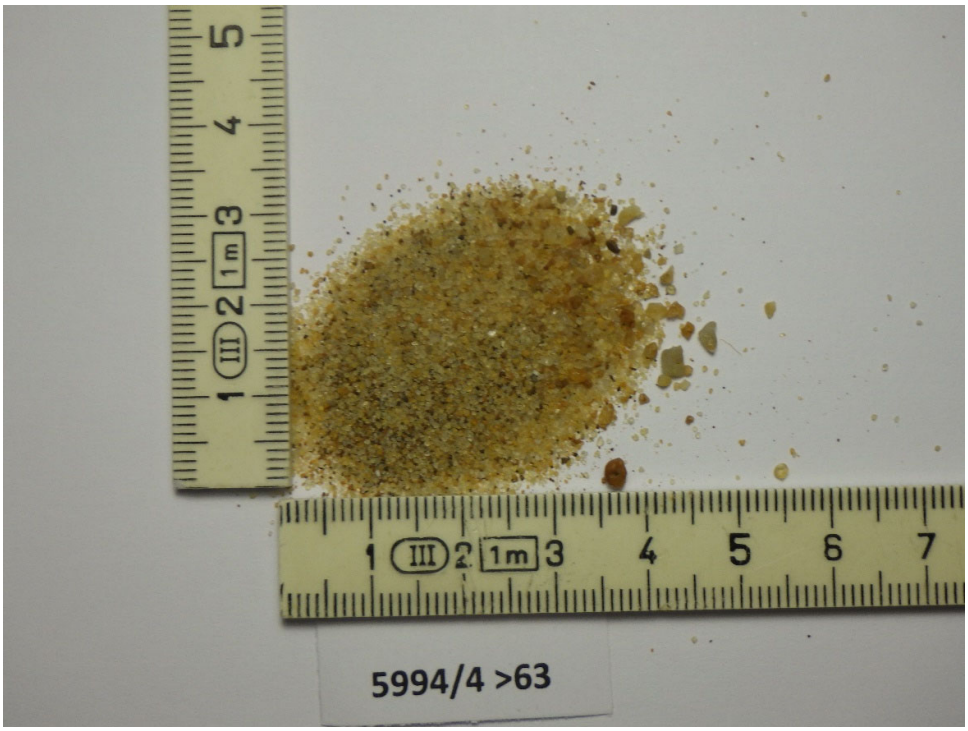
REF 5994/3.3: SAMPLE 3: SECOND LEVEL, ROOM 65 - WALL - INTERNAL PLASTER BASECOATS



Figs 18 to 20: Plaster basecoat sample 5994/3.3 – Showing respectively:

- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**
- **Hair reinforcement (magnified)**

REF 5994/4: SAMPLE 4: SECOND LEVEL, ROOM 63 - WALL - INTERNAL PLASTER



Figs 21 to 22: Plaster sample 5994/4 – Showing respectively:

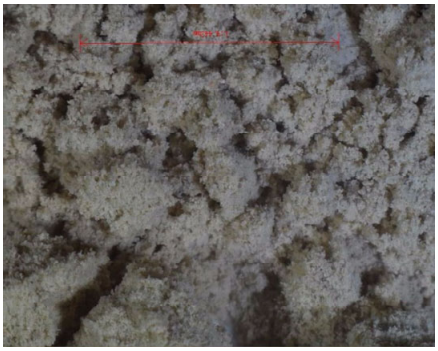
- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**

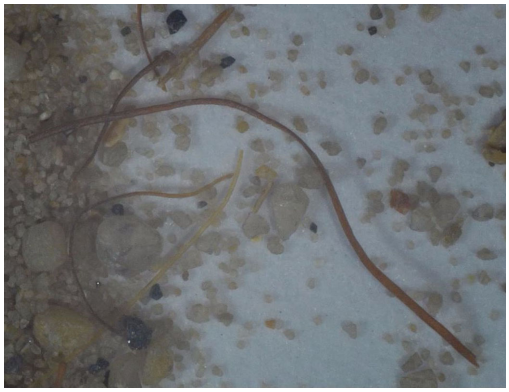
REF 5994/5.2: SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER TOPCOAT

Figs 23 to 24: Plaster topcoat sample 5994/5.2 – Showing respectively:

- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**

REF 5994/5.3: SAMPLE 5: SECOND LEVEL, AREA R12 - WALL BELOW WINDOW - INTERNAL PLASTER BASECOATS





Figs 25 to 27: Plaster basecoat sample 5994/5.3 – Showing respectively:

- **Extracted insoluble sand and aggregate component (dry condition)**
- **Silt and clay / fines component (dry condition, magnified)**
- **Hair reinforcement (magnified)**

SECTION 8: PAINT TOXICITY

Lab Batch Ref:	**HT/24-5994/AG**	**Date Received:**	**28th June 2024**	**Report Date:**	**12th August 2024**
Client Ref:	**Sean Quigley**	**Site Operative:**	**Client**		
Client:	**ASHLEY GROUP**				
Project / Site name:	**HEATHERDEN HALL, PINEWOOD STUDIOS (GRADE II LISTED), PINEWOOD ROAD, IVER HEATH, BUCKINGHAMSHIRE, SL0 0NH**				
Test Requirement:	**Analysis of paint for Lead and Toxic Metals content**				

Client Sample Identification No:			**SAMPLE 3**	**SAMPLE 5**				
Sample Details or Location:			**SECOND LEVEL, ROOM 65 - WALL – PAINT ADHERED TO INTERNAL PLASTER SYSTEM**	**SECOND LEVEL, AREA R12 - WALL BELOW WINDOW – PAINT ADHERED TO INTERNAL PLASTER SYSTEM**				
Laboratory Sample Ref:			**5994/3.1**	**5994/5.1**				
Sample Type:			**Composite paint sample**	**Composite paint sample**				
Apparent paint colours (as reported by Client and/or observed within sample bag):			**White on white, pink (gypsum plaster skim coat), pale orangish-brown, red, white, pale brown, green, light brown).**	**Pale brown on green.**				
Substrate Material Type:			**Plaster**	**Plaster**				
Analytical Parameter	**Units**	**Limit of detection**	**Each sample was prepared and analysed for Total Lead content by aqua regia digestion and Flame Atomic Absorption spectroscopy (FAAS) and screened by X-Ray Fluorescence (XRF) spectroscopy and Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES) for significant levels of other Toxic and Heavy Metals and Metalloids**					
Lead: *(aqua regia extractable)*	ppm or mg/kg	3	**25200**	**1060**				
Other Toxic and Heavy Metals present at significant levels:	ppm or mg/kg		**None Detected**	**Chromium = 1270**				
Comment:			**Lead content categorized as 'Very High'.**	**Lead content categorized as 'Moderately High'. Significant levels of 'other' toxic or heavy metals also detected.**				

SECTION 9: CONCLUSIONS

9.1) Sample(s) tested:

- **Ref 5994/1: Sample 1: Second Level, Room 58 - Internal Plaster**
- **Ref 5994/2: Sample 2: Second Level, Room 58 - Wall - Internal Plaster**
- **Ref 5994/3.1: Sample 3: Second Level, Room 65 - Wall – Paint adhered to Internal Plaster System**
- **Ref 5994/3.2: Sample 3: Second Level, Room 65 - Wall - Internal Plaster Topcoat**
- **Ref 5994/3.3: Sample 3: Second Level, Room 65 - Wall - Internal Plaster Basecoats**
- **Ref 5994/4: Sample 4: Second Level, Room 63 - Wall - Internal Plaster**
- **Ref 5994/5.1: Sample 5: Second Level, Area R12 - Wall below Window – Paint adhered to Internal Plaster System**
- **Ref 5994/5.2: Sample 5: Second Level, Area R12 - Wall below Window - Internal Plaster Topcoat**
- **Ref 5994/5.3: Sample 5: Second Level, Area R12 - Wall below Window - Internal Plaster Basecoats**

9.2) Photographs of the plaster samples supplied for test are shown in Section 1 of this report, whilst the samples are described in Section 2. Visual and microscopic inspection was suggestive of similar plaster types associated with refs **5994/2** (sample 2) and **5994/4** (sample 4), and similar plaster systems associated with refs **5994/3** (sample 3) and **5994/5** (sample 5).

9.3) Hair reinforcement was noted within ref **5994/1** (sample 1) and the plaster basecoats of refs **5994/3** (sample 3) and **5994/5** (sample 5).

9.4) The moisture contents of the as-received plaster samples were generally low (see Section 2). Damp problems or waterlogging of the plaster are not indicated.

9.5) Magnesian (dolomitic) lime binder, mastic (oil-based) binder, and Natural cement / C19 Roman cement binder, were confirmed as absent.

9.6) The plaster samples and subsamples exhibited properties and a chemical and elemental profile (see Section 3) consistent with the following binder types:

- Ref **5994/1**: Moderately to Weakly / Feebly Hydraulic Lime
- Ref **5994/2**: Portland Cement
- Ref **5994/3.2**: Slightly hydraulic lime gauged with gypsum
- Ref **5994/3.3**: Weakly / Feebly Hydraulic Lime
- Ref **5994/4**: Portland Cement
- Ref **5994/5.2**: Slightly hydraulic lime gauged with gypsum
- Ref **5994/5.3**: Moderately to Weakly / Feebly Hydraulic Lime

9.7) The compositions of the plaster samples (see Section 3) were suggestive of **mean** equivalent volumetric mixes (see Section 4) of:

- Plaster topcoat / 'skim coat' Refs **5994/3.2** and **5994/5.2**: Lime-Gypsum-Sand blend
- Refs **5994/1**, **5994/3.3**, and **5994/5.3**: 1-part NHL2 natural hydraulic lime binder to approximately 3 parts sand and aggregate.
- Refs **5994/2** and **5994/4**: 1-part Portland cement to approximately 0.7 parts hydrated lime plasticiser (aka 'bagged builders' lime') to approximately 3 parts sand and aggregate**.**

9.8) The extracted insoluble sand and aggregate and silt and clay / fines components of the plaster samples and subsamples are shown in Section 7 of this report. These components in general comprised:

- Plaster topcoat / 'skim coat' Refs **5994/3.2** and **5994/5.2**: Light greyish-brown silica / quartz sand with occasional small flint/chert flakes and particles.
- Refs 5994/1, **5994/3.3**, and **5994/5.3**: Light brown silica / quartz sand and flint/chert coarse aggregate (predominantly white with some brown and grey flakes and particles).
- Refs **5994/2** and **5994/4**: Orange-brown ferruginous silica sand.

9.9) The Total Sulphate (aka 'sulfate') contents of the cementitious plaster samples were not indicative of high risk of Sulphate Attack. See Section 6.

9.10) Chloride loadings within the plaster samples were very low (see Section 3). Efflorescence / cryptoflorescence and enhanced corrosion of embedded metals is not considered to be a risk factor.

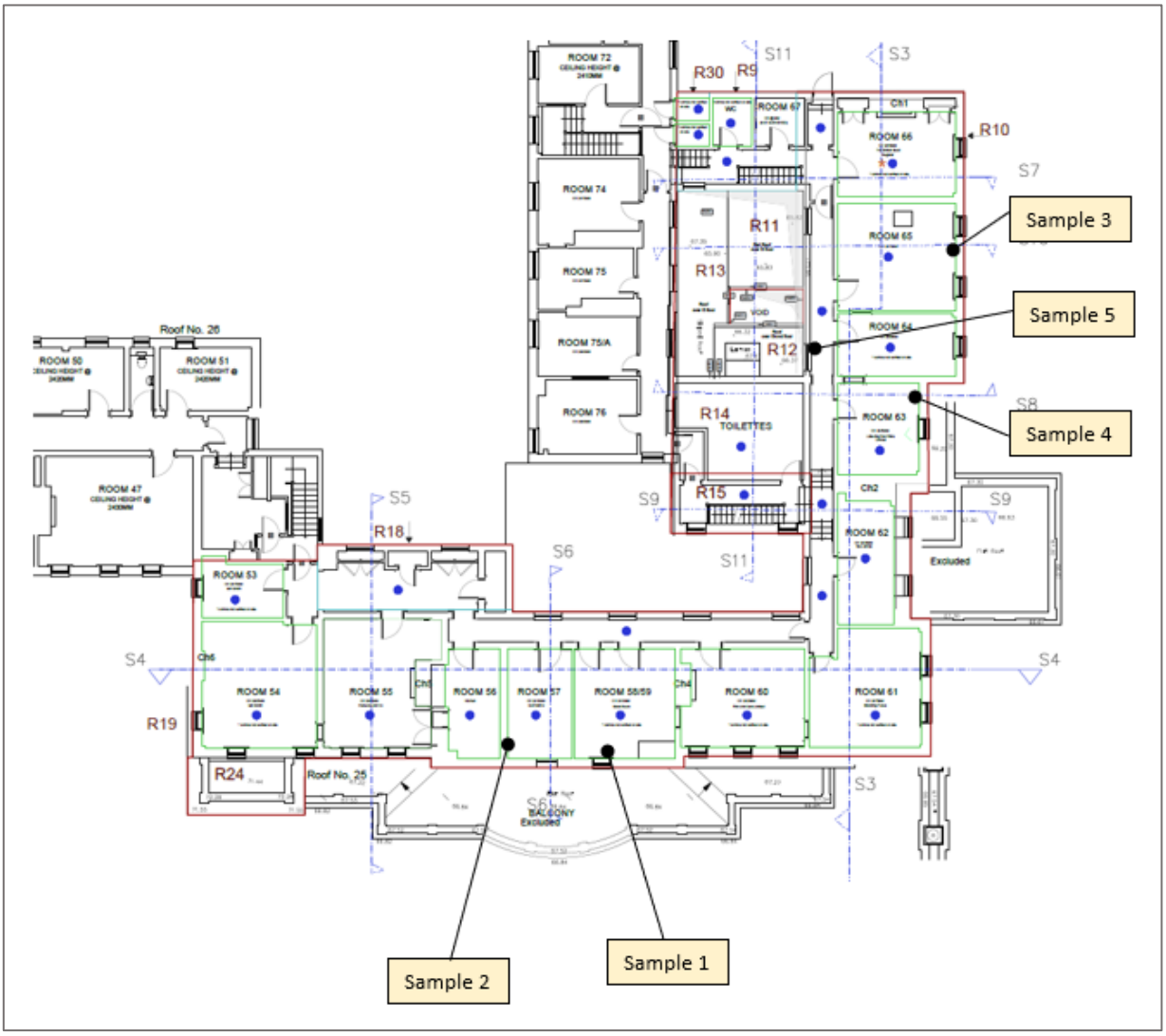
9.11) The paint system associated with plaster sample **5994/3** ('Sample 3') was found to contain very high lead levels, whilst that associated with plaster sample **5994/5** ('Sample 5') contained moderately high levels of lead and significant levels of chromium (probably associated with the green undercoat).

9.12) In view of the presence of lead and/or chromium within the paint systems, it is anticipated that risk assessment will identify a requirement for measures for personal protection, lead containment and waste disposal when dealing with the paint systems tested. Measures should comply with The Control of Lead at Work Act 2002 (CLAW 2002) and its ACOP and The Control of Substances Hazardous to Health Regulations 2002 (COSHH 2002) and will be dependent on the method of disturbance of the paint. The risk assessment will be specific to the task being carried out; the aim will be to manage and contain the risk and to avoid exposure of workers and end users. Specialist waste classification and disposal may also be required (dependent on waste code, waste status and leachable lead,

chromium, and gypsum / sulphate content).

9.13) The paint systems tested are specific to the plaster samples or sample locations supplied for test and are not a substitute to a full lead and toxic metals in paint survey.

Appendix 3 – Sampling Plan (Internal Plaster)



Appendix 4 – Morphological Plan (Level 2)