The Archaeology and Conservation of the East Front of York Minster

Volume 2 of 2
Figures, Drawings and Appendices

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- Cyan = 1820s and 1830s Tadcaster
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YORK MINSTER
EAST FRONT EXPLORATORY EXCAVATIONS PRIOR TO 1968 UNDERPINNING

SECTION EE/IC + IS
TRENCH BY BUTTRESS
S + W SECTIONS

CONTEXTS
1 - Burnt yellow limestone
2 - Dark soil with mortar clay and rubble
3 - Black soil with occasional clay and rubble
4 - Sandy fill with much mortar and Roman rubble
5 - Dark soil
6 - Black soil
7 - Black soil with red clay lumps
8 - Tipped clay
9 - Black soil continuing under tipped clay
10 - Natural clay
11 - Soil
12 - Tipped clay
13 - Dark soil
14 - Sandy fill
15 - Black soil

TOOLING

redrawn by AH Jul 2009 from original sketch elevations
Foundations

East Front interior beneath
Lady Chapel reredos

Marks common to
aisle wall benches
and stair turrets

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YORK MINSTER - East Front
Moulding schemes (sketched - not to scale)
Orientation N-S unless otherwise shown
AH August 2010

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Figure 259: East Front, nineteenth-century niche-pedestal in north buttress, Level D
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Figure 319: Great East Window interior, detail showing cramping of 1820s through-stone
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Figure 322: East Front, Great East Window exterior, detail showing Roman Cement repair reinforced with iron nails
YORK MINSTER - East Front
Great East Window - Principal Mouldings
Drawn @1:1 from the templates of William Shout, 1824-1827
AH August 2010

Figure 323: Great East Window, moulding profiles
20thC protective glazing groove

14thC glazing groove opened for 19thC protective glazing, then later filled with OPC cement in 20thC.

19thC groove for re-sited medieval glass

Great East Window interior right-hand jamb moulding (sketch only - not to scale)

AH Sept 2010

INTERIOR

Figure 324: Great East Window interior, sketch of jamb moulding, south side
Figure 325: Great East Window interior, interface between sill and jamb base, south side
Figure 326: Lady Chapel reredos showing disruption of canopies by interior screenwork and parapet (Photogrammetry - The Downland Partnership/Dean and Chapter of York Minster)
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Figure 329: Great East Window interior, detail showing relationship between inner screenwork and iron reinforcement and window aperture, lower transom north side

Figure 330: Great East Window interior, detail showing relationship between inner screenwork and iron reinforcement and window aperture, lower transom south side
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Figure 332: Great East Window interior, detail showing relationship between inner screenwork and iron reinforcement and window aperture, upper transom/walkway south side (screenwork masonry is 1820s work)
YORK MINSTER
EAST FRONT INTERIOR
Great East Window

South passage down to transom
walkway at springing level

West and east facing elevations

Drawn by AH and GD @ 1:20
Digitised by AH

August - September 2009

Figure 333: Great East Window interior, south passage to walkway at springing level of Great East Window arch

WEST FACING ELEVATION

0 0.5 1 metre

TOOLING

Pencil
Claw
Drag

EAST WINDOW TRANSOM WALKWAY

ORIGINAL LEVEL
OF DOOR CELL

Mortar

Original face of niche, re-worked to form step

These steps inserted

Angle of jamb return

This stone set back

This stone set back

EAST FACING ELEVATION
Figure 334: Great East Window interior, entrance to wall passage at springing level, south side
Figure 335: Great East Window interior, entrance to wall passage at springing level, north side
Figure 336: Great East Window, overview of iconography; dashed line indicates intended position of walkway (Photogrammetry – The Downland Partnership/Dean and Chapter of York Minster)
Figure 337: Great East Window interior, apex
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Figure 339: East Front, Great East Window exterior, off-set punched masonry, south side of arch

Figure 340: East Front, spandrel-niches surrounding Great East Window
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Figure 342: East Front, detail showing relationship between spandrel-niches and Great East Window arch, north side
Figure 343: East Front, exterior carvings below sill of Great East Window, a1-a17

X = 19thC replacement voussoir    [X] = 19thC replacement voussoir – probable

Figure 344: East Front, exterior carvings surrounding Great East Window, b1-b60
Figure 345: Great East Window interior, arch carvings c1-c30 (angels) and d1-d16 (Kings)

Figure 346: East Front, sill of Great East window with carvings beneath
Figure 347: East Front, carvings beneath sill of Great East Window, a1

Figure 348: East Front, carvings beneath sill of Great East Window, a17
Figure 349: East Front, carved voussoirs within arch of Great East Window
Figure 350: Great East Window, lion voussoir (b37)
Figure 351: Great East Window, king voussoir (b51)
Figure 352: Great East Window, canopy voussoir (b17)
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Figure 354: East Front, 'Green Man' keystone (b59) at apex of arch of Great East Window
Figure 355: East Front, seated figure (b60) in apex niche above Great East Window
Figure 356: East Front, apex of Great East Window, Coronation of the Virgin (b57 and b58)
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Figure 372: Seated figure, detail of base stone from south-east

Figure 373: Seated figure, detail of base stone from north-east (note natural bedding of stone)
Figure 374: Seated figure, detail of torso stone, left-hand side showing right hand
Figure 375: Seated figure, detail of torso section from north-east. Note face-bedding of stone
Figure 376: Seated figure, detail of torso stone, right-hand side showing left hand holding a building
Figure 377: Seated figure, head section from south-east. Note face-bedding of stone
Figure 378: Seated figure, cement/New Ketton pointing between torso and head section
Figure 379: Seated figure, head section from north-east
Figure 380: Seated figure in 1955 (YML/APYM/A5iii/14) and 2009
Figure 381: Seated figure, right-hand side of base showing exposed armature linking base with parapet
Figure 382: Seated figure, base stone, bottom bed, claw tooling

Figure 383: Seated figure, torso stone, bottom bed, claw tooling
Figure 384: Seated figure, torso stone, upper bed, claw tooling

Figure 385: Seated figure, head and shoulder section, bottom bed, claw tooling
Figure 386: Seated figure, view through rear face of parapet to rear face of base of statue
Figure 387: Seated figure, detail of rear of base showing concave base to left and supporting infill to right, torso stone above
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Figure 389: Seated figure, view through rear face of parapet to right-hand shoulder of statue with detached fragment removed to reveal calcite fault. Note white repointing mortar over re-fixing mortar
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Figure 399: Great East Window interior, historic coatings
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Figure 401: Christ in Majesty, Psalter of Stephen of Derby, c.1350-1375 (Oxford Bodl. Lib. Rawlinson G. 185 f97, http://www.churchtimes.co.uk/content.asp?id=42936)
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Figure 405: Exeter Cathedral, West Front, fourteenth-century statues of kings (Gardner 1935, 265, Figure 236)
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Figure 423: Lichfield Cathedral, detail of Kings of England, West Front
Figure 424: St Peter as Pope, France or Luxembourg 1350-1375. Boston Museum of Fine Art, Acc. No. 48.265 (www.mfa.org)
Figure 425: St. Peter as Pope, France or Luxembourg 1350-1375. Boston Museum of Fine Art, Acc. No. 48.265 (www.mfa.org)
Figure 426: York Minster nave, St. Peter in window n25, c.1310-1320
Figure 427: York Minster Thoresby’s east end, St. Peter with keys and cross staff in window n6, c.1390
Figure 428: Lichfield Cathedral, Christ in Majesty above western doorway, fourteenth century
Figure 429: Choir, north arcade 6th bay from east, east spandrel shield (2) (YML/2780, 1970)
Figure 430: Central Tower, south wall, east shield (YML/2801)
Figure 431: Great East Window, exterior voussoirs, detail of decay

Figure 432: South-clerestory cornice, example of cavitation upon stones previously treated with linseed oil
Figure 433: East Front, example of decay upon underside of canopy, north buttress

Figure 434: East Front, niche-base before cleaning trials
Figure 435: East Front, niche-base after cleaning trials (right-hand side left untreated)
Figure 436: Great East Window exterior, mullions and transom masonry before cleaning trials
Figure 437: Great East Window, exterior mullions and transom masonry after cleaning trials. Note removal of 1960s paint but retention of historic patination
Figure 438: Surface decay of new magnesian limestone indents, Howden Minster Chapter House
Figure 439: Cusworth Hall, South Yorkshire. Detail of salt damage to new magnesian-limestone masonry

Figure 440: Cusworth Hall, detail of surface decay to new magnesian-limestone masonry
Figure 441: East Front, south-buttress canopy before conservation by Lee Godfrey
Figure 442: East Front, south-buttress canopy during pinning and anchoring for mortar repairs
Figure 443: East Front, south-buttress canopy during mortar repair

Figure 444: East Front, south-buttress canopy after conservation
Shelter coat applied to entire canopy; 3 coats to underside, 1 coat to face. 1 lime putty:
1 Highmoor Magnesian limestone dust: 1 brown sand: 1 Durham yellow sand: 50/50 skimmed milk
and water (all <150 microns)

Mortar repairs:
Base coat - 1 lime putty:
1 Magnesian limestone dust
1 Limestone Buzzard sharp sand:
1 Durham yellow sand: 10%
Metastar pozzolan (of mix)
(all <600 microns)
+ Goat hair
Second coat - As above
Top coat - 1 lime putty:
2 magnesian limestone dust:
(<=500 microns): 1 yellow sand
(<=600 microns): 10% Metastar
pozzolan (of mix)

INSERTS FIXED WITH:
- AK(EMI Epoxy Resin
- Hydraulic Lime Slurry
- Chemical Mortar

P+ = Stainless steel pin
R+ = Reinforcement/anchor within mortar repair

HYDRAULIC LIME
CALCIUM LIME
MAGNESIUM LIME
CLEANING POZZOLAN APPLIED
Figure 446: East Front, central vessel, historic lime-mortar repair
Figure 447: East Front, south buttress, historic lime-mortar repair

Figure 448: Howden Minster Chapter House, arcade panel before conservation trials
Figure 449: Howden Minster Chapter House, arcade panel after conservation, November 2009
Figure 450: Howden Minster Chapter House, detail of trial conservation with coarse lime mortar
Figure 451: Howden Minster Chapter House, enhanced salt development adjacent to magnesium-lime pointing, June 2010

Figure 452: Howden Minster Chapter House, deteriorating NHL2 mortar repairs, June 2010
Figure 453: York Minster, aisle parapet, easternmost bay before surface treatment trials, July 2007

Figure 454: York Minster, south-aisle parapet, easternmost bay after mortar consolidation and application of surface treatments, July 2007
Figure 455: York Minster, condition of south-aisle parapet before trials, July 2007

Stone harmoniously weathered
Stone with cuboidal cracking
Stone with symptoms of salt decay
Hydrated calcium sulphate (Gypsum)
Stone wrongly bedded
Structural cracks
Ordinary Portland Cement (OPC)
Cementitious lime (overlies OPC)

YORK MINSTER
East Front/Lady Chapel
South Aisle, Easternmost Bay Parapet
Condition Survey Jul 07

LG/AH Drwng 01
1 lime putty:1 soft yellow sand:1 Mg limestone dust: Leyton Buzzard sharp yellow sand

1 NHL2:1 Mg limestone dust:1 yellow sand:1 dried kiln sand

1 lime putty:1 Leyton Buzzard sharp yellow sand:1 yellow sand. Approx 1 year old, crushed and mixed in pug-mill

As + 10% Metastar Pozzalan

1 NHL2:2 Mg limestone dust:1 dried kiln sand

1 NHL2:2 dried kiln sand:1 Mg limestone dust

1 lime putty:2 Mg limestone dust below 300 microns:1 soft yellow sand below 300 microns:10% Metastar of aggregate

(Background as )

1 lime putty:2 Mg limestone dust below 300 microns:1 soft yellow sand below 300 microns:1 soft brown sand

P Stainless steel pin fixed with Fischer FIS P380c chemical mortar

T Mortar repair built upon Nimbus Conservation Ceramic T-Bars

YORK MINSTER
East Front/Lady Chapel
South Aisle, Easternmost Bay Parapet

Repair Mortars Jul 07

LG/AH Drwg 03
YORK MINSTER
East Front/Lady Chapel
South Aisle, Easternmost Bay Parapet

Protective coating applications
Jul 07

1a = lime putty egg white: yellow ochre
20:1:1
1b = 1a
2a = lime putty yellow ochre: boiled linseed oil
20:1:1
2b = 2a
3a = lime putty yellow ochre: raw linseed oil
20:1:1
3b = 3a
4 = lime putty: yellow ochre: gum arabic
20:1:1
5 = lime putty yellow ochre: beaten egg
20:1:1
6 = lime putty yellow ochre: egg white
20:1:1
7 = quicklime: yellow ochre: linseed oil
20:1:1
8 = lime putty yellow ochre
20:1
9 = beaten egg: linseed oil
10 = egg white: linseed oil
11a = boiled linseed oil
11b = 11a
12a = raw linseed oil
12b = 12a
13a-e = Seamus Hancox shelter coat
1.5 dry soft sand below 15 microns
0.5 dry brown sand below 15 microns
1 pt Mg bidentate dust below 10 microns
1 lime putty: slaked lime: thixotropic
50:50 separated skimmed milk
14a = 1a + 13a-e but with skimmed milk
15 = quicklime: yellow ochre: skimmed milk: water:athanol
20:1:1:0.99 several drops
16 = quicklime: yellow ochre: skimmed milk: water
20:1:0.99
17a = quicklime: yellow ochre: skimmed milk
20:0.99:0.99
17b = 17a

LG/AH
Drwg 64
Figure 458: Example of effect of linseed oil, south-aisle parapet trial area, January 2008
Figure 459: East Front, Huddleston-stone grotesque on north buttress, c.1970
Figure 460: East Front, north-buttress grotesque, detail of decay

Figure 461: South buttress, new-niche pedestal carving by Payson Muller
Figure 462: North-clerestory cornice bay 2 before renewal

Figure 463: North-clerestory cornice bay 1 after renewal, comparison of existing and new work
Figure 464: North-clerestory cornice bay 2 after renewal, 2008
Figure 465: East Front, south-buttress corona carving by Lee Godfrey – King Uzziah
Figure 466: East Front, south-buttress corona carving by Lee Godfrey - The Black Prince

Figure 467: Model for stone conservation
Figure 468: East Front, south buttress, Level G after renewals
Figure 469: Salvaged Great West Doorway voussoirs, York Minster Stoneyard
Figure 470: Great West Doorway voussoirs, York Minster Undercroft
APPENDIX 1 –

Photographic Record of the Exterior Carved Vousoirs

The Coronation of the Virgin and the eighteen seated figures with scrolls (Photographed with an Olympus 10x megapixel digital SLR, April 2009)

Figure 471: Great East Window, exterior vousoirs numbering scheme
Figure 474: b9
Figure 481: b28
APPENDIX 2 –

Condition Record of the Exterior Carved Vousoirs, Keystone and Seated Figure

May 2009
Notes:
14thC lion mask
Extant sound surfaces harmoniously weathered
Brown staining to surface skins
Note decay debris below mask on East Window capitals

Fe + = Ferrous insert

= Crack/fault

= Cementitious pointing

= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID:
b1
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/detachment of surface skin

Black crust
Cuboidal cracking
Cementitious coating (if defined)

Previous cementitious repair
Previous OPC repair
Previous lime repair
Notes:
14thC lion mask
Extant sound surfaces harmoniously weathered
Brown staining to surface skins

Fe+ = Ferrous insert
ｹIEnumerable = Cementitious pointing
= Crack/fault
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GW voussoirs
STONE ID:
b2
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)
Previous cementitious repair
Previous OPC repair
Previous lime repair

CONDITION RECORD

419
Notes:

14thC crowned, seated figure.

King Solomon

Trace of a crown and scroll. Figure appears to gesture to itself with its right hand.

No significant deterioration noted since first survey by Godfrey (2005)

Extant sound surfaces harmoniously weathered

Brown staining to surface skins

---

LOCATION:
YM/East Front/Area 4/GEW voussoirs

STONE ID:

RECORDED BY/DATE:
AH Photo Apr 09: Condition Survey AH Apr 09

CONDITION RECORD

Fe⁺  = Ferrous insert

= Cementitious pointing

= Crack/fault

= Epoxy resin repair

Zone of efflorescence

Zone of subflorescence inc. Powdering and Scaling

Peeling/undercutting/ detachment of surface skin

Black crust

Cuboidal cracking

Cementitious coating

(if defined)

Previous cementitious repair

Previous OPC repair

Previous lime repair
Notes:

19thC crowned, seated, bearded figure

?Originally King David, but 19thC copy taken from b46. Harp held by original figure perhaps interpreted as a scroll by 19thC carvers.

Features remain clear, including eyes, nose and mouth. Both feet protrude from robe.

Some minor loss of surface skin since first survey by Godfrey (2005) [a,b].

Extant sound surfaces harmoniously weathered.

Brown-yellow staining to surface skins.

Aggregate residues noted on surface - part of earlier coating application or residue from 'sponging-off' after re-pointing?

Fe+ = Ferrous insert

= Crack/fault

= Cementitious pointing

= Epoxy resin repair

Zone of efflorescence

Zone of subefflorescence inc. Powdering and Scaling

Peeling/undercutting/ detachment of surface skin

Black crust

Cuboidal cracking

Cementitious coating (if defined)

Previous cementitious repair

Previous OPC repair

Previous lime repair

LOCATION:
YF/East Front/Area 4/GEW vousoirs

STONE ID:
b4

RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09
Notes:
14thC original foliage
Four leaves, two flowers and stems
intended to represent a vine?
brown staining to sound surfaces
harmonious weathering to sound surfaces, softening of carved details

Fe+ = Ferrous insert
= Crack/fault
= Cementitious pointing
= Epoxy resin repair

ZONE OF EFFLORESCENCE
ZONES OF SUBFLUORESCENCE INC.
Powdering and Scaling
Peeling/undercutting/detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)

LOCATION:
YM/East Front/Area 4/GEW voussoirs

STONE ID:
b7

RECORDED BY/DATE:
AH Photo Apr 09, Condition Survey AH Apr 09

CONDITION RECORD
Notes:

719thc foliage. 
copy of a7
four leaves, two flowers and stems
considerable powdering to rear behind foliage stems
brown-yellow staining to surface skin
harmonious weathering to sound surfaces
Notes:

14thC original crowned and bearded seated figure

King Abijah

traces of scroll and left hand

substantial decay with some significant losses of surfaces and detail since survey by Godfrey (2003). These include the uppermost section of the scroll [a]
vousoirs immediately above and below remain sound; considerable loss of adjacent masonry of EW arch to L/H side

brown staining to surface skin

\( \text{Fe}^+ \) = Ferrous insert

\( \text{\textdegree}\) = Crack/fault

\( \text{\textdegree}\text{\textdegree}\) = Cementitious pointing

\( \text{\textdegree}\text{\textdegree}\text{\textdegree}\text{\textdegree}\) = Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW vousoirs

STONE ID:
b9

RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09 ___

CONDITION RECORD

Zone of efflorescence

Zone of subflorescence inc. Powdering and Scaling

Peeling/undercutting/ detachment of surface skin

Black crust

Cuboidal cracking

Cementitious coating (if defined)

Previous cementitious repair

Previous CPC repair

Previous lime repair
Notes:

- 319 BC insert (indicated by iron cramp)
- Crowned bearded and seated figure holding scroll in both hands
- Trace of nose and mouth, scroll, hands, crown and clothing
- Originally represented King Rechobam
- Harmoniously weathered, sound condition overall
- Yellow-brown staining to surface

LOCATION:
YM/East Front/Area 4/GEW vousoirs .............
STONE ID:
b10 ...........................................................
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09 ....

Fe+ = Ferrous insert
= Crack/fault
= Epoxy resin repair

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/ detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)

Previous cementitious repair
Previous OPC repair
Previous lime repair

CONDITION RECORD
Notes:
14thC original canopy
sound surfaces harmoniously weathered
orange-brown staining to sound surfaces
mortar-repaired cavity to adjacent EW arch mouldings
signs of previous decay subsequently consolidated along L/H side
decay to trabeation behind upper section of canopy
Notes:
14thC original
poor condition
brown staining to surface skins
some harmonious weathering to extant sound surfaces
multiple vertical faults running through central section
Notes:

14thC original lion mask
brown staining to sound surfaces
evidence of earlier decay on L/H side subsequently consolidated/inhibited
softening of surface details by harmonious weathering

Fe+ = Ferrous insert
\(\square\) = Crack/fault
\(\square\) = Cementitious pointing
\(\square\) = Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID: b13
RECORDED BY/DATE: AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)
Previous cementitious repair
Previous OPC repair
Previous lime repair
Notes:
14thC original canopy
brown staining to surface
pockets of earlier decay subsequently consolidated and inhibited to lower L/H side
outermost details softened by harmonious weathering
zone of micro-blisters behind leftmost upper canopy light

Fe⁺ = Ferrous insert
\(\uparrow\downarrow\) = Crack/fault
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID:
b17
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/ detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)
Previous cementitious repair
Previous CPC repair
Previous lime repair
Notes:

?14thC original canopy
almost all detail now lost
20thC Cadeby indent to R/H moulding
brown staining to extant surface skins
extant surface details softened by weathering

Fe+ = Ferrous insert
= Crack/fault
= Cementitious pointing
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID:
b18
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Zone of efflorescence
Zone of active decay inc. Powdering and Scaling
Peeling/undercutting/ detachment of surface skin

Black crust
Cuboidal cracking
Cementitious coating (if defined)

Previous cementitious repair
Previous OPC repair
Previous lime repair
Notes:
14thC original foliage
four main leaves and
four flowers originally
brown staining to
surface skins
extant surface details
softened by
weathering
claw tooling observed
on R/H bed where
mortar has previously
been removed

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID:
b19
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Fe+ = Ferrous insert
\(\text{\neq}\) Crack/fault
\(\text{\neq}\) Cementitious pointing
\(\text{\neq}\) Epoxy resin repair

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/ detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)

Previous cementitious repair
Previous CPC repair
Previous lime repair
Notes:
14thC original foliage
four leaves, four flowers; ft/H flower almost totally lost
brown staining to sound surfaces
extant details softened by weathering
dark sulphation residues behind lower flower
further decay likely to be concealed beneath surface soiling

Fe + = Ferrous insert
\__/ = Crack/fault
●●●●● = Cementitious pointing
○○○○○ = Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW vousoirs
STONE ID:
b20
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD:
- Previous cementitious repair
- Previous OPC repair
- Previous lime repair
Notes:

14thC original seated crowned bearded figure

King Jehoram
does not appear to hold a scroll; has the unique pose of turning three quarters to look directly into the tracery of the East Window
details of face and clothing survive

very little evidence of continued deterioration since survey by Geoffrey (2005)
dark sulphation residues exist upon base of throne
brown staining to extant sound surfaces
details of face and clothing softened by weathering

Fe⁺ = Ferrous insert

= Crack/fault

= Cementitious pointing

= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW vousoirs
STONE ID:
621
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD

Previous cementitious repair
Previous CPC repair
Previous lime repair

Zone of efflorescence
Zone of subflorescence inc. Powdery 
and Scaling
Peeling/undercutting/ detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)
Notes:
14thC original bearded seated figure
The Prophet Isaiah
face, right arm and scroll discernable; figure may have originally worn a hat
dark sulphation to underside of hair and ears
1970s indent to R/H moulding
brown staining to surface skins
harmonious weathering to sound surfaces
no noticeable change since survey by Godfrey (2005)
Notes:
14thC original canopy
claw tooling observed in previously exposed R/H joint
canopy lobes originally formed two beasts; heads now missing
brown staining to sound surfaces
details softened by harmonious weathering

Fe²⁺ = Ferrous insert
 vận = Crack/fault

Location: YM/East Front/Area 4/GEW voussoirs
Stone ID: 923
Recorded by/Date: AH Photo Apr 09; Condition Survey AH Apr 09

Condition Record
Notes:
14thC original canopy
majority of carving now lost
brown staining to extant sound surfaces

Fe⁺ = Ferrous insert
ΔΔΔΔ = Crack/Fault
= Cementitious pointing
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW vousoirs
STONE ID:
b24
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD
Notes:
14thC original lion mask
claw tooling observed in previously exposed joint
buff-pink hue to original bedding mortar
detail of L/H ear lost, then break subsequently consolidated
Ketton and cement pointing to R/H side exhibits brown staining
brown staining to sound surfaces
softening of details through weathering

Fe + = Ferrous insert
= Crack/fault
= Cementitious pointing
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW voussoirs

STONE ID:
b25

RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD
Notes:
14thC original lion mask
brown staining to sound surfaces
extant sound surfaces harmoniously weathered

Fe⁺ = Ferrous insert
↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓→
Notes:

19thC indent
Lancets pierced, but not fully; top of canopy closed
bolster tooling observed
brown staining observed on sound surfaces
some softening of detail from weathering
Notes:
14thC original canopy
brown staining to sound surfaces
extant details softened by weathering
Notes:
14thC original foliage
four leaves, two flowers
and stems
19thC indented
moulding to L/H side
details softened by
weathering
brown staining to
sound surfaces
Notes:

14thC original foliage
four leaves, four flowers and stems
details softened by weathering
brown staining to extant sound surfaces

area where stone has previously detached along a calcite fault

Fe+ = Ferrous insert
= Crack/fault
= Cementitious pointing
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW voutosorhs
STONE ID:
b32
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

- Previous cementitious repair
- Previous OPC repair
- Previous lime repair

CONDITION RECORD
Notes:

- 14thC original bearded seated figure
- St John the Evangelist
- wears a hat, clutches a scroll with both hands
- positioned in arch at the point where the EW iconography changes from the Old Testament Patriarchs to the Nine Orders of Angels
- details still very clear, some softening by weathering
- loss of scroll detail at [a] since survey by Godfrey (2005)
- brown staining to surface
Notes:
- 14thC original crowned bearded seated figure
- King Ahaz
- uniquely posed with crossed legs (R over L)
- scroll in left hand, sceptre in right
- figure wears a belt and cloak
- clothing and facial elements still clear; though details softened generally by weathering
- significant losses of details since survey by Godfrey (2005)
- right heel detached Dec 2008 [a]; loss to base of scroll ongoing [b]; loss of edge to base [c]
- light brown staining to extant surface
- evidence of previous dark sulphation

Fe+ = Ferrous insert  |  = Cementitious pointing
--------- = Crack/fault  |  = Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW vousoirs ..........
STONE ID:
b34 ........................................
RECORDED BY/DATE:
AH Photo Apr 09: Condition Survey AH Apr 09 ....

CONDITION

ZONE OF EFFLORESCENCE
ZONE OF SUBFLORESCENCE INC.
Powdering and Scaling
Peeling/undercutting/ detachment of surface skin
BLACK CRUST
CUBOIDAL CRACKING
CEMENTITIOUS COATING (IF DEFINED)

PREVIOUS CEMENTITIOUS REPAIR
PREVIOUS CPC REPAIR
PREVIOUS LIME REPAIR

445
Notes:
14thC original canopy
little in the way of ongoing deterioration visible
softening of details by weathering
brown staining to surface

Fe⁺ = Ferrous insert
                                = Cementitious pointing
DDR = Crack/fault
                                = Epoxy resin repair

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID:
655
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09 ___

Previous cementitious repair
Previous CPC repair
Previous lime repair

CONDITION RECORD
14thC original canopy
multiple open cracks
in upper section
details softened by
weathering
brown staining to
surface

LOCATION:
YM/East Front/Area 4/GEW voussoirs
STONE ID:
b36
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Fe+ = Ferrous insert

= Crack/fault

= Cementitious pointing

= Epoxy resin repair

Zone of efflorescence
Zone of subflorescence inc.
Powdering and Scaling
Peeling/undercutting/
detachment of surface skin

Black crust
Cuboidal cracking
Cementitious coating
(if defined)

Previous cementitious repair
Previous OPC repair
Previous lime repair
Notes:
14thC original lion mask
details softened by weathering
brown staining to surface

LOCATION:
YM/East Front/Area 4/GEW voussoirs ............... STONE ID: 637................................................
RECORDED BY/DATE:
AH Photo Apr 09: Condition Survey AH Apr 09 ....

Fe+ = Ferrous insert  ▲ = Cementitious pointing  ▼ = Crack/fault  ▶ = Epoxy resin repair
Zone of efflorescence  Zone of subflorescence inc. Powdering and Scaling  Black crust  Previous cementitious repair
Peeling/undercutting/ detachment of surface skin  Cuboida cracking  Previous CPC repair  Previous lime repair
Cementitious coating (if defined)  CONDITION RECORD
Notes:

14thC original lion mask
softening of details caused by weathering
brown staining to surface
Notes:
- 14thC original canopy
- Evidence of previous black sulphation
- Surface scored by previous wire brushing
- Details softened by weathering
- Brown staining to surface
Notes:
14thC original canopy
evidence of previous black sulphation
surface scored by previous wire brushing
sound condition, but much detail now lost
extant details softened by weathering
brown staining to surface
Notes:
14thC original foliage
four leaves, four flowers and stems
evidence of previous black sulphation
some details previously lost followed by consolidation
some softening of details caused by weathering
brown staining to surface

**Fe** + = Ferrous insert

- - - - - = Cementitious pointing

= Crack/fault

= Epoxy resin repair

- Zone of efflorescence

- Zone of subflorescence inc. 
  - Powdering and Scaling

--- Peeling/undercutting/ 
  - detachment of surface skin

Black crust

Cuboidal cracking

Cementitious coating 
(if defined)

LOCATION:
YM/East Front/Area 4/GEW voussoirs

STONE ID:
b43

RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD

Previous cementitious repair

Previous OPC repair

Previous lime repair

452
Notes:
14thC original foliage
four leaves, four flowers
and stems
evidence of previous
dark sulphation
some score marking
from previous wire
brushing
slight softening of
details caused by
weathering
brown staining to
surface

LOCATION:
YM/West Front/Area 4/GEW vousoirs
STONE ID:
b44
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Fe ++ = Ferrous insert
Wavy line = Crack/fault
Yellow line = Epoxy resin repair

- Zone of efflorescence
- Zone of subflorescence inc. Powdering and Scaling
- Peeling/undercutting/ detachment of surface skin
- Black crust
- Cuboidal cracking
- Cementitious coating (if defined)
- Previous cementitious repair
- Previous OPC repair
- Previous lime repair

CONDITION
RECORD

453
Notes:
- 14thC original crowned bearded seated figure
- ‘King Josiah’
- hands hold remains of a scroll
- figure very worn but sound
- ?previously decayed subsequently consolidated
- scoring/brush marks left by previous cleaning / attempt at consolidation
- evidence of previous dark sulphation
- orange-brown staining to surface
Notes:

14thC original crowned bearded seated figure

King Amon

Very good condition, all details still very clear with limited softening by weathering

Hands hold scroll at its base, right hand points to scroll

Used as a reference for the 19thC re-carving of b4 below

Evidence of previous dark sulphation in sheltered zones

Brown-grey staining to surface
Notes:
14thC original canopy
extant details softened by weathering
previous decay subsequently consolidated in some areas
evidence of previous dark sulphation
some scoring from previous wire brush cleaning
brown staining to surface
14thC original canopy
details softened by weathering
evidence of previous dark sulphation
brown staining to surface

Fe+ = Ferrous insert

= Cementitious pointing

= Crack/fault

= Epoxy resin repair

Location:
YM/East Front/Area 4/GEW vousoirs
STONE ID:
648
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Condition Record
Notes:
14thC original lion mask
previous decay subsequently consolidated on L/H side
softening of details by weathering/cleaning
brown staining to surfaces

Fe+ = Ferrous insert
= Crack/fault
= Cementitious pointing
= Epoxy resin repair

LOCATION:
YM/East Front/Area 4/GEW vousoirs
STONE ID: b49
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

CONDITION RECORD
Notes:
14thC original lion mask
very good condition, very little decay observed
softening of details by weathering
brown staining to surface
Notes:
14thC original crowned bearded seated figure
King Jehoiachin/ also known as Jeconiah
mirrors b52 opposite
turns three quarters to face the viewer
most details in good condition, although right hand now lost
left hand raised to point at raised scroll
pockets of decay on mouldings previously consolidated with coarse lime mortar
some surface loss since survey by Godfrey (2005) at [a], [b], [c] and [d]
softening of details by weathering
yellow-brown staining to surface
Notes:

14thC original crowned bearded seated figure

?King Jeholachim

mirrors b51 opposite

turns three-quarters to face the viewer

all details clear; figure points to the top of its scroll with its right hand

good condition no visible signs of decay

no change since survey by Godfrey (2005)

some softening of details by weathering

evidence of previous dark sulphation

brown staining to surface
Notes:
- 14th-C original canopy
- Only partly pierced
- Very little evidence of ongoing decay
- Softening of details by weathering
- Brown staining to surface
Notes:
14thC original canopy
softening of details by
weathering
evidence previous
dark sulphation
brown staining to
sound surfaces
very little evidence of
active decay
Notes:

?19thC indent

very simple form: four bold leaves and two flowers

evidence of previous dark sulphonation

some softening of detail by weathering

yellow-brown staining to surface
Notes:
14thC original foliage
four leaves, four flowers and stems
evidence of previous dark sulphation
softening of details by weathering
claw tooling observed on moulding to R/H side
brown-grey staining to surface

LOCATION:
YM/East Front/Area 4/GEW vousoirs

STONE ID:
b56

RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

Fe + = Ferrous insert
= Crack/fault
= Cementitious pointing
= Epoxy resin repair

Zone of efflorescence
Zone of subflorescence inc. Powdering and Scaling
Peeling/undercutting/ detachment of surface skin
Black crust
Cuboidal cracking
Cementitious coating (if defined)

Previous cementitious repair
Previous OPC repair
Previous lime repair

CONDITION RECORD

465
Notes:

114thC: original set within wide mortar joint: possible bolster tooling on edges of beds, although this may have been created by cutting-out and re-pointing in 20thC

the Virgin Mary of the Coronation of the Virgin scene

crowned and seated with hands raised in prayer

softening of details by weathering

evidence of previous dark sulphation

no visible change since survey by Godfrey (2003)

yellow-brown staining to surface: possible traces of yellow limewash
Notes:

714thC. original crowned bearded seated figure

Christ blessing the Virgin Mary in the Coronation of the Virgin scene

right hand raised in blessing, left hand holds the orb

feet protrude from robe; right appears bare with toes visible

possible traces of yellow limewash on surface

central area shows signs of decay which may have since stabilised

no visible change since survey by Godfrey (2005)

evidence of previous dark sulphation
details softened by weathering
keystone at apex of Great East Window

L/H side renewed in 1915 in Ketton oolitic limestone; carved by Sam Monk. R/H side original 14thC with mortar repair over, also by Monk. Repair composed of cement with crushed Ketton as aggregate.

Head now in the form of a green man.

Originally intended to represent the ‘bright morning star’ or the holy spirit above the Coronation of the Virgin scene.

Brown staining to Ketton stone and mortar repair.

Decay ongoing beneath original stone.
Notes:
- Seated figure viewed from the SE
- Statue in 3 sections: base original 14thC, naturally bedded; middle and head sections restoration of unknown date, face-bedded
- Claw tooling observed within joints of all three sections
- Statue weathered; base section vulnerable
- Biological soiling on base and head sections
- Right hand raised in blessing; left hand holds a building
- Trace of a pallium upon middle section
- Traces of robe upon base; left foot protudes forward; outline of throne remains; socket for additional ornament next to left leg
- Statue fixed on lime mortar; re-pointed with lime and cement mortars; faults in head section grouted with cement
- Intended to represent St Peter; or Archbishop Thoresby; or Christ in Majesty?

LOCATION:
YM EAST FRONT/AREA 4/GEW seated figure at apex.
STONE ID:
b60 seated figure
RECORDED BY/DATE:
AH Photo Apr 09; Condition Survey AH Apr 09

<table>
<thead>
<tr>
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APPENDIX 3 –

Conservation Records of *in situ* limework undertaken on the south buttress of the East Front (Area 2)
LOCATION:
YM/East Front/Area 2/Lift 5/5 Face

STONE ID:
L/H Capital A

RECORDED BY/DATE:
AH 01DB

Notes:
Stone not shelter coated at point of survey
[a] Portion of moulding detached during pin drilling. Re-fixed with
Singleton Birch NHL 3:5:2.5 slurry + pins.
Mortar repair built in 5 layers:
Base coat: 1 Singleton Birch NHL 3:5:1.5 Layton Buzzard 1:5 North
Cave.
Intermediate coats: 1 Singleton Birch NHL 3:5:2.5 Magnesian
Limestone dust (<300 microns)
0.5 Durham yellow sand; Goat hair
Top coat: 1 St. Aixien NHL 2:2.5
Magnesian limestone dust (<150
microns); 0.5 Durham yellow sand
Lime render built in 3 layers:
1 Singleton Birch NHL 3:5:2.5
Magnesian limestone dust (<300
microns); 0.5 Durham yellow sand
Mix also used for cappings, apart
from (a): 1 Singleton Birch NHL 3:5
2 Magnesian limestone dust: 1
Durham yellow sand
Joints painted with 1 Singleton Birch
NHL 3:5:1 Layton Buzzard: 1 Nosterfield
washed river sand; 1 North Cave 3% stone
chippings: 0.9% ash
Cleaving poultice - "Monumental" -

Inserts fixed with:
- AKEMI Epoxy Resin
- Hydraulic Lime Slurry
- Chemical Mortar

P+ = Stainless steel pin
R+ = Reinforcement/anchor
within mortar repair

Hydraulic lime
Calcium lime
Magnesium lime

Gearing poultice applied

INTERVENTION
RECORD
LOCATION:
YM/East Front/Area 2/Lift 5/5 Face

STONE ID:
R/H Capital B

RECORDED BY/DATE:
AH Jul08

Notes:
Stone not shelter coated at point of survey
Cleaning poultice -
'Monumentique'

inserts fixed with:
× AKEMI Epoxy Resin
× Hydraulic Lime Slurry
× Chemical Mortar

P+ = Stainless steel pin
R+ = Reinforcement/anchor within mortar repair

Hydraulic lime
Calcium lime

Cleaning poultice applied
Magnesium lime
LOCATION:
YM/East Front/Area 2/Lift 5/East Face

STONE ID:
L/H Capital C

RECORDED BY/DATE:
AH Jul00

Notes:
Stone not shelter coated at point of survey

Inserts fixed with:
- AKEMI Epoxy Resin
- Hydraulic Lime Slurry
- Chemical Mortar

P+ = Stainless steel pin
R+ = Reinforcement/anchor within mortar repair

- Hydraulic lime
- Calcium lime
- Cleaning poultice applied
- Magnesium lime
LOCATION:
YM/East Front/Area 2/Lift 5/East Face
STONE ID:
R/H Capital D ......................................
RECORDED BY/DATE:
AH Jul08 ............................................

Notes:
Stone not shelter coated at point of survey
Cleaning poutice - 'Monumentique'

P+ = Stainless steel pin
R+ = Reinforcement/anchor within mortar repair

Inserts fixed with:
- AKEMI Epoxy Resin
- Hydraulic Lime Slurry
- Chemical Mortar

Hydraulic lime
Calcium lime
Cleaning poutice applied
Magnesium lime
Notes:

Stone not shelter coated at point of survey.

Mortar repair:
Built in 3 layers
Base: 1 Singleton Birch NHL; 3.5:3 Magnesian limestone dust (<300 microns); 1 Durham yellow sand (<300 microns).
Second coat = as above
Top Coat = as above
Mix also used for pointing to decorative surfaces, but putty substituted for NHL.

\[ P + = \text{Stainless steel pin} \]
\[ R + = \text{Reinforcement/anchor within mortar repair} \]

Inserts fixed with:
- AKEMI Epoxy Resin
- Hydraulic Lime Slurry
- Chemical Mortar

LOCATION:
YM/East Front/Area 2/Lift 7/N Face

STONE ID:
L/H Canopy E

RECORDED BY/DATE:
AH Oct08

INTERVENTION RECORD
Notes:
Stones not shelter coated at point of survey.

Mortar repairs:
A)
Base Coat: 1 Singleton Birch 3.5:

P + = Stainless steel pin
R + = Reinforcement/anchor within mortar repair

Inserts fixed with:
☐ AKEMI Epoxy Resin
☐ Hydraulic Lime Slurry
☐ Chemical Mortar

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poultice applied

LOCATION:
YM/East Front/Area 2/Lift 7/N Face
L/H Canopy F
RECORDED BY/DATE:
AH Oct08

INTERVENTION RECORD
Notes:
Drawing 1 of 2
Stones not shelter coated at time of recording. Pointing incomplete awaiting fixing of new grotesque to left.

New grotesque to be indented here to this line (approx.)

See drawing 2 of 2 for record of underside of canopy

P+ = Stainless steel pin
R+ = Reinforcement/anchor within mortar repair

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poultice applied

Inserts fixed with:
\\ - AREMI Epoxy Resin
\\ - Hydraulic Lime Slurry
\\ - Chemical Mortar

LOCATION:
YM/East Front/Area 2/Lift 10/N Face
STONE ID:
L/H Canopy E (stones 1, 2, 3 shown above)
RECORDED BY/DATE:
AH Jul08

INTervention
RECORD
LOCATION:
YM/East Front/Area 2/Lift 10/N Face

STONE ID:
L/H Canopy E

RECORDED BY/DATE:
AH Jul08

Notes:
Drawing 2 of 2
Stone not shelter coated at point of recording.

Mortar repairs built in 2 layers
Base: 1 Singleton Birch NHL 3.5:
2 Durham yellow sand: 1
Magnesian limestone dust
(all sieved <300 microns)
Top coat: As above but sieved to
<150 microns
Cleaning poultice -
'Monumentique'

Inserts fixed with:
- AKEMI Epoxy Resin
- Hydraulic Lime Slurry
- Chemical Mortar

P + = Stainless steel pin
R + = Reinforcement/anchor
within mortar repair

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poultice applied
LOCATION:
YM/East Front/Area 2/Lift 10/N Face

STONE ID:
R/H Canopy F

RECORDED BY/DATE:
AH Jul08

Notes:
Drawing 2 of 2
Stone not shelter coated at point of recording
Mortar repairs [a] built in 2 layers
Base: 1 Singleton Birch NHL 3.5: 2 Durham yellow sand: 1 Magnesian limestone dust
(all sieved <300 microns)
Top coat: As above but sieved to <150 microns
Mortar repairs [b] built in 2 layers
Base: 1 Singleton Birch NHL 3.5: 2 Magnesian limestone dust: 1 Durham yellow sand
(all sieved <300 microns)
Top coat: As above but sieved to <150 microns

Inserts fixed with:
× AKEMI Epoxy Resin
× Hydraulic Lime Slurry
× Chemical Mortar

P⁺ = Stainless steel pin
R⁺ = Reinforcement/anchor within mortar repair

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poutice applied

INTERVENTION RECORD
479
LOCATION:
YM/East Front/Area 2/ Lift 11/N Face

STONE ID:
L/H Pedestal E

RECORDED BY/DATE:
AH May 08

Notes:
An original 14thC pedestal
Shelter coat applied to entire
stone: 1 lime putty sieved thro'
muslin: 1.25 Magnesian
limestone dust: 0.5 brown sand:
1.25 Durham yellow sand:
50/50 skimmed milk and water
(all <150 microns)

Mortar repair/filling/capping
to rear face and carving: 1 lime
putty: 1.5 Magnesian limestone
dust: 1 Durham yellow sand: 0.5
Brown sand (all below <300
microns) Mortar repair to R/H
moulding: 1 lime putty: 1 Durham
yellow sand: 2 Magnesian
limestone dust (all <300 microns)

Pointing at base: 1 lime putty: 1
sieved Nosterfield washed river
sand: 1 Leyton Buzzard: 1 North
Case Fine: 2% stone chippings: 0.5% ash

inserts fixed with:
\[ \times \] AKEMI Epoxy Resin
\[ \times \] Hydraulic Lime Slurry
\[ \times \] Chemical Mortar

P+ = Stainless steel pin
R+ = Reinforcement/anchor
within mortar repair

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poutice applied

INTERVENTION
RECORD
LOCATION:
YM/East Front/Area 2/Lift 11/N Face

STONE ID:
R/H Pedestal F

RECORDED BY/DATE:
AH Jun08

Notes:
Entire stone shelter coated: 1 lime putty sieved thro’ muslin: 1 Magnesian limestone dust: 0.5 brown sand: 1.5 Durham yellow sand: 50/50 skimmed milk and water (all <150 microns)

Interventions:
P + = Stainless steel pin
R + = Reinforcement/anchor within mortar repair

Inserts fixed with:
X AKEMI Epoxy Resin
X Hydraulic Lime Slurry
□ Chemical Mortar

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poultice applied
LOCATION:
YM/East Front/Area 2/Lift 13/S Face
STONE ID:
L/H Canopy A
RECORDED BY/DATE:
AH/LG Aug07

Notes:
Shelter coat applied to entire canopy, 1 lime putty:
1 Magnesian limestone dust:
0.5 brown sand:1.5 yellow sand:
50/50 skimmed milk and water <150 microns
Mortar repair: 1 lime putty:
2 Magnesian limestone dust <500 microns: 1 yellow sand <500 microns: 10% Metastar pozzolan (of mix)
LOCATION:
YM/East Front/Area 2/Lift 13/S Face

STONE ID:
R/H Canopy B

RECORDED BY/DATE:
AH/LG Aug07

Notes:
Shelter coat applied to underside of canopy only: 1 lime putty:
1 Magnesian limestone dust:
0.5 brown sand : 1.5 yellow sand:
50/50 skimmed milk and water (all <150 microns)

<table>
<thead>
<tr>
<th>Inserts fixed with:</th>
</tr>
</thead>
<tbody>
<tr>
<td>X AKEMI Epoxy Resin</td>
</tr>
<tr>
<td>X Hydraulic Lime Slurry</td>
</tr>
<tr>
<td>X Chemical Mortar</td>
</tr>
</tbody>
</table>

P + = Stainless steel pin
R + = Reinforcement/anchor within mortar repair

Hydraulic lime
Calcium lime
Magnesium lime
Cleaning poutice applied
LOCATION:
YM/East Front/ Area 2/Lift 13/ N Face

STONE ID:
R/H Canopy F (1) ...........................................

RECORDED BY/DATE:
AH/LG Sep07 .............................................

Notes:
Shelter coat applied to entire canopy: 3 coats to underside, 1 coat to face, 1 lime putty:
1 Highmoor Magnesian limestone dust: 1 brown sand: 1 Durham yellow sand: 50/50 skimmed milk and water (all <150 microns)

Mortar repairs:
Base coat - 1 lime putty:
1 Magnesian limestone dust
1 Leighton Buzzard sharp sand:
1 Durham yellow sand: 10% Metastar pozzolan (of mix)
(all <600 microns)
+ Goat hair
Second coat - As above
Top coat - 1 lime putty:
2 magnesian limestone dust:
(<500 microns): 1 yellow sand (<600 microns): 10% Metastar pozzolan (of mix)

Inserts fixed with:
□ AKEMI Epoxy Resin
□ Hydraulic Lime Slurry
□ Chemical Mortar

P + = Stainless steel pin
R + = Reinforcement/anchor within mortar repair

Hydraulic lime

Calcium lime

Cleaning poultice applied

Magnesium lime
APPENDIX 4 –
Great East Window Conservation Strategy

YORK MINSTER

Great East Window Conservation Trials

Outline of procedure
October 2008

Alexander Holton and Lee Godfrey

OVERVIEW

This document summarises the proposed strategy for the cleaning and in situ conservation of the stonework of the Great East Window of York Minster.

The term 'stonework' refers to the interior and exterior decorative voussoirs of the window, as well as the jambs, mullions and tracery elements which have not been considered for renewal.

STAGE 1 – UNDERSTANDING AND DEFINING SIGNIFICANCE

1.0 The conservation treatment of the stonework of the Great East Window must be informed by an understanding of its artistic, historical and associated cultural significance in accordance with guidance outlined by the Venice and Burra Charters (1966; 1999), and English Heritage's Conservation Principles (2008). Therefore, Stage 1 of the procedure is concerned with gaining a sufficient level of understanding through research that will guide and underpin the practical conservation process.

2.0 Stage 1 comprises art historical, archaeological and condition survey, which will seek to shed light on the iconography of the carved voussoirs of the arch and the history and impact of previous interventions. This will include the recording of previous aesthetic and/or protective coating applications to the stonework, along with detailed condition and photographic surveys. A survey by terrestrial laser-scanning is also envisaged in order to accurately capture the condition and appearance of the carved elements in 3D. This will provide a high-resolution visualisation of the carvings with
an accuracy of below 1 mm. The laser-scan data will be archived and made available as a valuable reference tool for future generations.

3.0 A statement of significance will conclude this section which will act as a central point of reference when considering the impact of current intervention proposals.

STAGE 2 – IDENTIFYING AND SPECIFYING THE NEED FOR INTERVENTION

1.0 Stage 2 will use the condition survey to identify the specific needs and levels of intervention. These interventions will seek to reinstate the structural, and in some cases aesthetic integrity of the stonework, without detriment to the perceived significance and values as established in Stage 1.

2.0 For the exterior and interior faces of the mullions and tracery and the exterior voussoir carvings, preliminary discussions with the Surveyor to the Fabric have identified the desirability for an initial phase of cleaning to remove atmospheric soiling and previous coating applications. This has been proposed as the soiling and/or coatings may be concealing further instances of decay or cracking that will need to be added to the condition survey, and therefore the overall conservation design.

3.0 In the case of the interior voussoirs, a programme of cleaning and coating removal is also being considered by the Surveyor to improve the aesthetic value of the carvings. The results of preliminary observations indicate that much of the original crispness of the carvings is consumed by successive layers of coatings, which may (or may not) be seen as detrimental to their visual impact.

4.0 A further consideration will be to devise a suitable scheme to visually unify the stonework of the window that will draw together plastic repairs, indents and full-depth stone renewals.

5.0 In respect to the exterior voussoirs, initial condition surveys have recognised that intervention beyond cleaning will be required, with the possible indenting of some carved stones. For in situ repair, a series of trials will be established to explore the range of consolidating techniques currently available.

STAGE 3 – TRIALS

1.0 Once the cases for intervention have been clarified, a specification for trials can be compiled which will explore a range of practical cleaning and consolidating techniques.

2.0 Specific locations for trials on the window stonework will be decided in direct consultation with the Surveyor. Should certain techniques or media for cleaning and/or consolidation be considered inappropriate for direct application to the
window stonework (such as irreversible silane-based products), then suitable
ruinette stones from the East Front will be selected for this purpose.

3.0 Observations before, during and after the trialling processes will be documented by
photography, CAD drawings and notation. In the case of any silane trials, the
possibility for laboratory analysis of penetration depths could also be explored.

4.0 The following techniques and products might be considered for trialling, with further
suggestions welcomed. These options may be considered alone, or in some cases in
conjunction with others:

**For cleaning:**

- Vacuuming
- Dry brushing with soft bristle brushes
- Controlled scraping using fine blades (specifically for coating
removals)
- Water-based cleaning, either with soft brushes and sponges

or

- with the Stoneway's TORC system (with or without micro-abrasives)
- Dry micro-abrasive cleaning using the TORC system
- Natural latex-based peel-away methods (such as Cleanfilm™ or Arte-
Mundit™)
- Monumentique™ (Synthetic latex peel-away method)
- Complexon™ (Gel application removed by sponging)
- Laser cleaning

**For consolidating**

- Plastic repair using the 'lime method'. Both putty and hydraulic lime
varieties should be considered. The lime method includes -

- Shelter-coating (incorporating knowledge gained from on going
protective coating trials begun in July 2007). This may also be considered
as a means to unify the stonework post-repair

- Consider organic consolidation using a silane, most probably Wacker OH.
Wacker OH is not hydrophobic and so a degree of breathability is
maintained after application. Wacker OH can stabilise decaying, laminating and granulating stone prior to secondary consolidation and protection with the lime method.

5.0 After trialling, the results will be reviewed with the Surveyor and the appropriate methods will be selected. A detailed timetable and specification for conservation should be devised at this stage.

6.0 On completion of the conservation work, a final photographic record will be made of all of the stonework and all documentation will be deposited at the York Minster Archive and the National Monument Record, Swindon.

* * * *
Drawing 4

Limit of boarded scaffold at point of survey

1320s & 1830s (magnesian limestone, Tadcaster)
1330s & 1830s (magnesian limestone, Tadcaster) - probable
1460s & 1860s (magnesian limestone, Huddersfield)
1460s & 1860s (magnesian limestone, Huddersfield) - possible
1580s-1600s (Rievaulx, oolitic limestone)
1590s, 1690s and 1950s (Clitheroe, oolitic limestone)
1970s (magnesian limestone - Huddersfield and Cadby)
1980s - 1990s (magnesian limestone, Cadby)
Stone replaced/removed at point of survey
Suspicious previous tree of application
Limewash traces
Previous lime mortar repair to pre-1830s stone
OPC render (1920s and 1950s)
Cementitious mortar render (1870s & 1900s)
Stone pitted through burning
Lead
Binders
Iron oxide/insol
Construction break/assembly break/mis-course
Construction horizon (probable)
C Tooling [C = 14thC Clare, A = 12thC Ave, B = Post-Med bastard, D = Drag, Pu = Punching, a = 11thC Ave]
P Pitting hole
P Point where masonry courses through
P Point where masonry courses and bonds through

YORK MINSTER, East Fret, Area 5
South transept elevation
Archaeological Survey
Undertaken by Roger Watson MA MRAA Sept 2000
Scale 1:20 (A0) Drawing no. 1806 290/Arch

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