Islamic Archaeology in Al-Juḥfah and the Hijaz, Saudi Arabia

Report on Fieldwork in November 2025

An Archaeological Investigation of the Hijaz Hajj/Hijrah Route between Makkah and Madinah, Volume 1



Edited by Timothy Insoll

with contributions by Timothy Insoll, Abdullah Alkadi, Mousa Algarni, Nicholas M.T. Tait, Frank Stremke, Nathan Anderson, Sultan Alrasheed, Talal Alzahrani, Abdullah Alrefaei, Ibrahim Aldayel, Mohammad Alqahtani, Abdurahman Athabayti, Endris Hussien, Mustafa Baig, Gamal Ali Shawali, Tariq Altuwayjiri, and Ahmed Qadiri

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Chapter 1
Introduction

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The first season of archaeological fieldwork was completed between 29th October and 25th November 2025 as part of the partnership project, *An Archaeological Investigation of the Hijaz Hajj/Hijrah Route between Makkah and Madinah, 2025-2028* involving the Saudi Heritage Commission and the University of Exeter, funded by the Saudi Heritage Commission, Eng. Anas Serafi, and the Al-Medad Foundation. This developed from the ground-breaking research of Professor Abdullah Alkadi, also a project partner, who identified 55 milestones demarcating an ancient caravan route, the *Darb al-Anbiyā'*, or 'Way of the Prophets', that later became a Hajj route surviving in sections between Makkah and Madinah (Alkadi 2021). Preliminary survey was completed on this route in March 2023 (Insoll and Alkadi In Press) indicating the immense potential of many of the sites associated with the route.

One of the key sites identified was Al-Juḥfah, approximately 185km north of Makkah where there are the remains of a substantial stone-built town and *qaṣr* (**Figures 1 and 2**). This was the location of a *mīqāt*, one of five *mawāqīt* which denote the fixed boundary where pilgrims adopted *iḥrām*, thereby entering the "state of temporary consecration" (Van Donzel 1994: 166) for Hajj and 'Umrah denoted for men by wearing "two pieces of white seamless cloth" (ibid.). However, Al-Juḥfah was apparently abandoned by the early 12th century CE (all dates are CE unless otherwise specified), and replaced by Rabigh, 4km south, where new facilities were constructed in 1985 which remain in use (Alsubaie 2018: 34).

Al-Juḥfah was also important in the earliest Islamic period as it was visited by the Prophet in 1/622, during the Hijrah, as well as the Farewell Hajj, and is believed to be a place of revelation (Alsubaie 2018: 36) of Verse 85 of Surah 28, al-Qasas, of the Qur'an (web reference 1). The aims of the 2025 season were thus to:

1. Determine the extent of the settlement at Al-Juḥfah.



Figure 1. Excavations inside the *qaṣr* at Al-Juḥfah (photo. Saudi Heritage Commission).

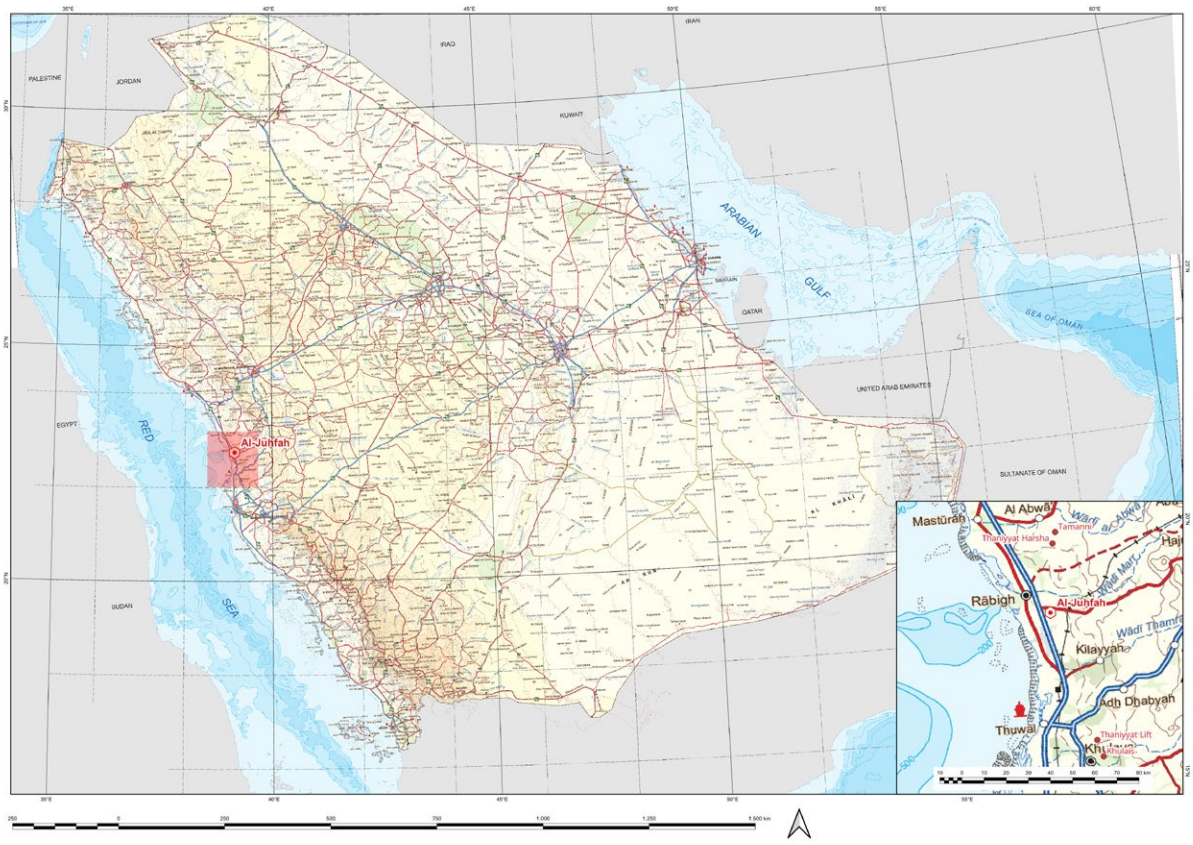


Figure 2. The location of Al-Juḥfah (c) General Authority for Survey and Geospatial Information. King Fahad National Library Legal Deposit No. 1445/665.

2. Reconstruct its chronology using C14 and artefactual dating.
3. Reconstruct the ceramic sequence.
4. Establish what other categories of archaeological material survived.
5. Place Al-Juḥfah within its wider archaeological landscape.
6. Identify promising areas for large scale excavation.
7. Complete reconnaissance survey of other sites on the route.

Previous archaeological research in the region has been minimal and in addition to the work by Alkadi (2021) and Insoll and Alkadi (In Press) had largely been confined to preliminary survey of the area around Madinah (e.g., Eskoubi 2006, 2010). An exception, however, is provided by the investigation of Al-Juḥfah completed by Alsubaie (e.g., 2018, 2025) as part of doctoral research but his excavations were limited being confined to two test units, one in the town (T1) and the other in the *qaṣr* (T2) with limited finds other than ceramics. A useful overview of the history of the site and its function as a *mīqāt* is, however, presented and Alsubaie also argued that some of the architecture is of Umayyad date and more specifically can be linked "to the reign of the caliph Muʿāwiya ibn Abī Sufyān (AH 40 – 61/661-680)" (2025: 135). As will be discussed, the C14 chronology, as yet, does not permit such a level of precision, though some Umayyad period ceramics were recovered during the recent excavations as described below.

Chapter 2
Pedestrian Reconnaissance Survey

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Introduction

Pedestrian reconnaissance survey was completed by the entire team on the 2nd and 3rd November between Thaniyyat Lift (south) and Tamanni (north) on the milestone route. This was achieved by driving the length of the milestone route initially identified by Alkadi (2021) guided by Mr Gamal Ali Shawali.

Thaniyyat Lift

At Thaniyyat Lift (533691 ME 2457568 MN) various features were identified. These included the basalt walls defining the sides of the main trackway along the pass used by pilgrims as well as the remains of numerous possible structures - a mosque built of stone blocks with lime mortar, and west of the trackway the square foundations from two stone watchtowers, one at the top of the pass, and another below the pass (**Figure 3**). Whilst to the east of the trackway various other low stone walls were recorded potentially marking former field systems. All these features remain undated as ceramics were sparse. However, it can be inferred that the black basalt mosque, watchtowers, and trackway walls are possibly connected with Abbasid investment in the Hajj routes in the 8th to 9th centuries, as has been attested on the Darb Zubaydah (e.g. al-Rashid 1980, 1986), and the mosque will be excavated to determine its chronology, and the site mapped to better understand the archaeological landscape at Thaniyyat Lift.

Khulais

The hilltop settlement at Khulais (536430 ME 2450198 MN), another important stop on the Hajj route, was also a subject of pedestrian survey. An initial visit was made to ascertain its potential for future investigation and a second visit to collect C14 samples. The hill is dominated by a large castle built of shaped basalt blocks rendered with lime mortar (**Figure 4**), and the use of the latter, it was observed, appears to be confined to more important structures – mosques, castles, palaces - but not quotidian buildings where unshaped masonry

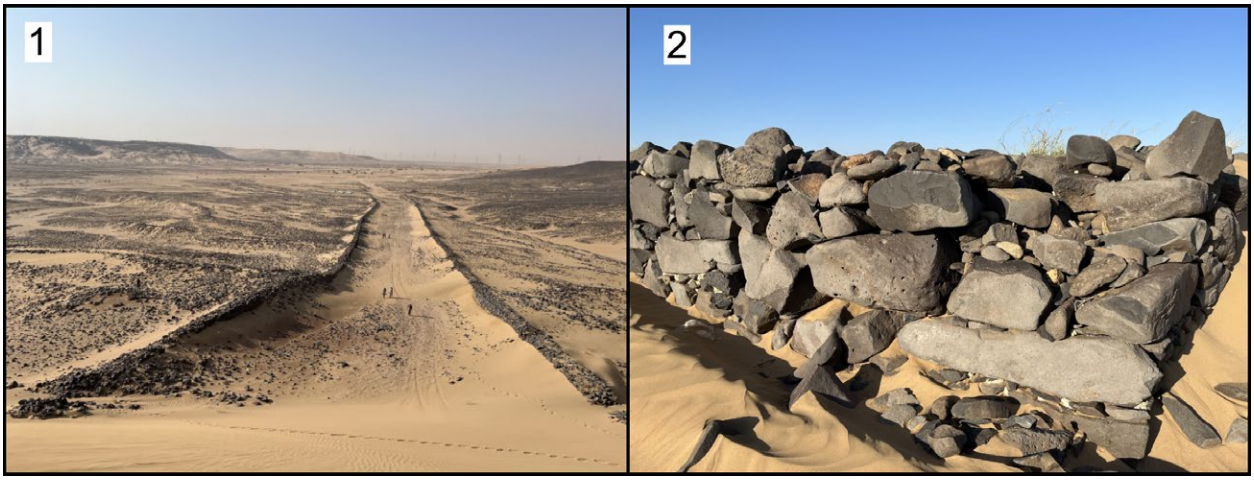


Figure 3. Thaniyyat Lift. 1. The stone walls defining the trackway. 2. The mosque (photos. T. Insoll).



Figure 4. Khulais. 1. The castle. 2. The castle interior. 3. The undercut robber's pit. 4. The location of the C14 sample taken from the robber's pit (photos. T. Insoll).

Table 1. The AMS radiocarbon dates from the 2025 field season.

Context	Material	Date and Laboratory Number
JUH25-TP1 OVEN 2	Charcoal[1]	1120+/-30 BP; 877-994 cal AD (2 sigma calibration; Beta-803858)
JUH25-TP1 SE PROFILE ABOVE FLOOR	Charcoal	1160+/-30 BP; 819-977 cal AD (2 sigma calibration; Beta-803859)
JUH25-TP3 86CM	Charcoal	1150+/-30 BP; 824-979 cal AD (2 sigma calibration; Beta-803860)
JUH25-TP3 165CM	Charcoal	1130+/-30 BP; 874-993 cal AD (2 sigma calibration; Beta-803861)
JUH25-TP4 UPPER HEARTH	Charcoal	1120+/-30 BP; 877-994 cal AD (2 sigma calibration; Beta-803862)
JUH25-TP4 LOWER HEARTH	Charcoal	1150+/-30 BP; 824-979 cal AD (2 sigma calibration; Beta-803863)
JUH25-SPB2 72CM	Charcoal	1200+/-30 BP; 773-893 cal AD (2 sigma calibration; Beta-803864)
JUH25-SPC5 57CM BENEATH WALL	Charcoal	1200+/-30 BP; 773-893 cal AD (2 sigma calibration; Beta-803865)
JUH25-SPD5 67CM	Charcoal	1300+/-30 BP; 711-774 cal AD (2 sigma calibration; Beta-803866)
KHU25 200CM	Charcoal	960+/-30 BP; 1026-1158 cal AD (2 sigma calibration; Beta-803867)

[1] It was not possible to identify the species.

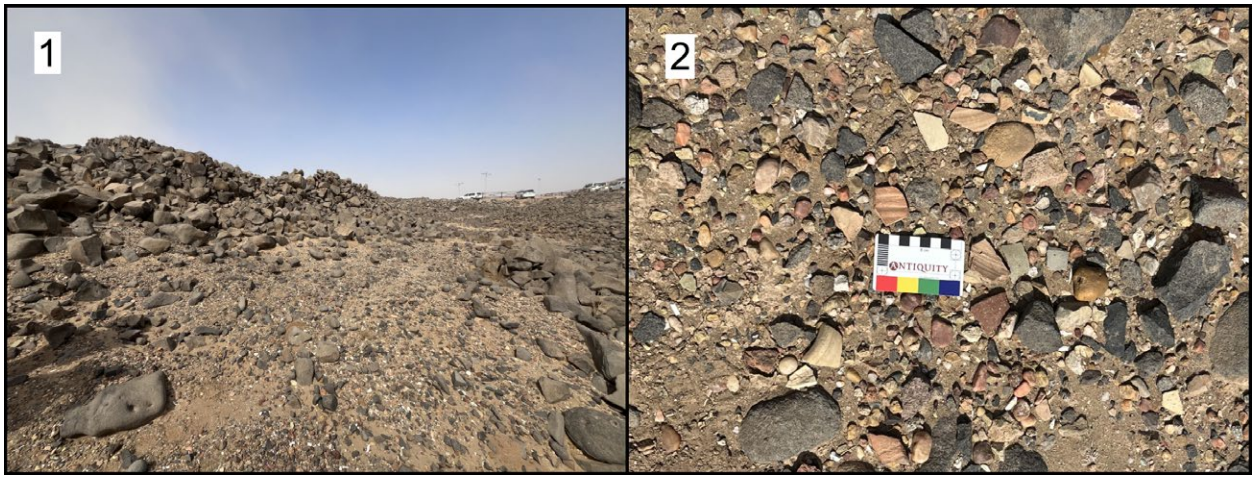


Figure 5. Khulais. 1. Settlement area below the castle. 2. Surface density of archaeological material (photos. T. Insoll).

is used. The interior of the castle was filled with a mass of basalt rubble from collapsed internal structures and the upper parts of the enclosing walls (**Figure 4**), along with some fired brick probably from flooring. Evidence of unauthorised excavation was also attested by an oval shaped and deeply undercut robber's pit of 220cm depth (**Figure 4**). This, however, yielded three samples of charcoal for C14 analysis (**Figure 4**), one of which gave a date of 1026-1158 cal AD (**Table 1**). The site will be mapped and test excavated.

Below the castle to the south were further basalt walls in varying states of preservation, forming terraces of buildings over the sloping terrain, interspersed with more open areas (**Figure 5**). Surface artifacts were abundant – softstone vessel fragments, glazed and unglazed ceramics, metal, coins, bone, charcoal, glass (**Figure 5**) – and these corroborate the C14 date in indicating settlement was contemporary with the castle. However, they also suggest that occupation of both the settlement and castle continued for at least two centuries after the C14 date, until approximately the 15th century, and this will be confirmed through excavation. There then appears to have been a shift down the hill to the area of Old Khulais (535021 ME 2450463 MN) adjacent to the extant village, where there was another abandoned settlement again with black basalt stone walls and some ceramics, including later Chinese celadon and blue-and-white ware.

Thaniyyat Harsha

A pedestrian reconnaissance survey of this pass on the milestone/hajj route was also completed, and it traversed on foot to assess the condition of the archaeological remains first noted in 2023 (Insoll and Alkadi in press). The boundary walls and associated milestone (number 19) with its Arabic inscription remained undisturbed (**Figure 6**). North of the pass, at its upper northern end, a small stone mosque, built without the use of mortar (**Figure 6**), was recorded (514886 ME 2545840 MN) and where, according to tradition, The Prophet prayed. Presumably in commemoration of this another later mosque has been constructed next to it. Both form part of a larger archaeological landscape with to the west a cemetery formed of older graves demarcated with stone head and foot markers and where more recent graves were marked with cement blocks. Whilst further west a low stone outcrop was recorded which had the remains of a basalt house on it (514564 ME 2545949 MN) as well as various linear features composed of lines of stones, presumably field walls or boundaries associated with the rectangular building, apparently a small farmhouse (**Figure 6**). The mosque linked with the Prophet will be excavated to ascertain its chronology and the site will be mapped.

Tamanni

The derivation of the 'white sand' (*Taman*) toponym was established as originating from a tradition that Aisha, The Prophet's wife, took a handful of sand and said she wished that she was that white (Gamal Ali Shawali pers. comm. 3/11/25). The features investigated in 2023 were revisited and the settlement site (515955 ME 2550954 MN) was found to have been partially dug over by treasure hunters with three of the stone structures previously recorded damaged and large spoil heaps left next to them (**Figure 7**). Fortunately, the mosque and other structures remain undisturbed (**Figure 7**) and will be test excavated in the 2026/2027 season to reconstruct their chronology.

Approximately 10km north of the settlement a large well-preserved rectangular basalt building beside the route (516372 ME 2552154 MN) first noted in 2023 was

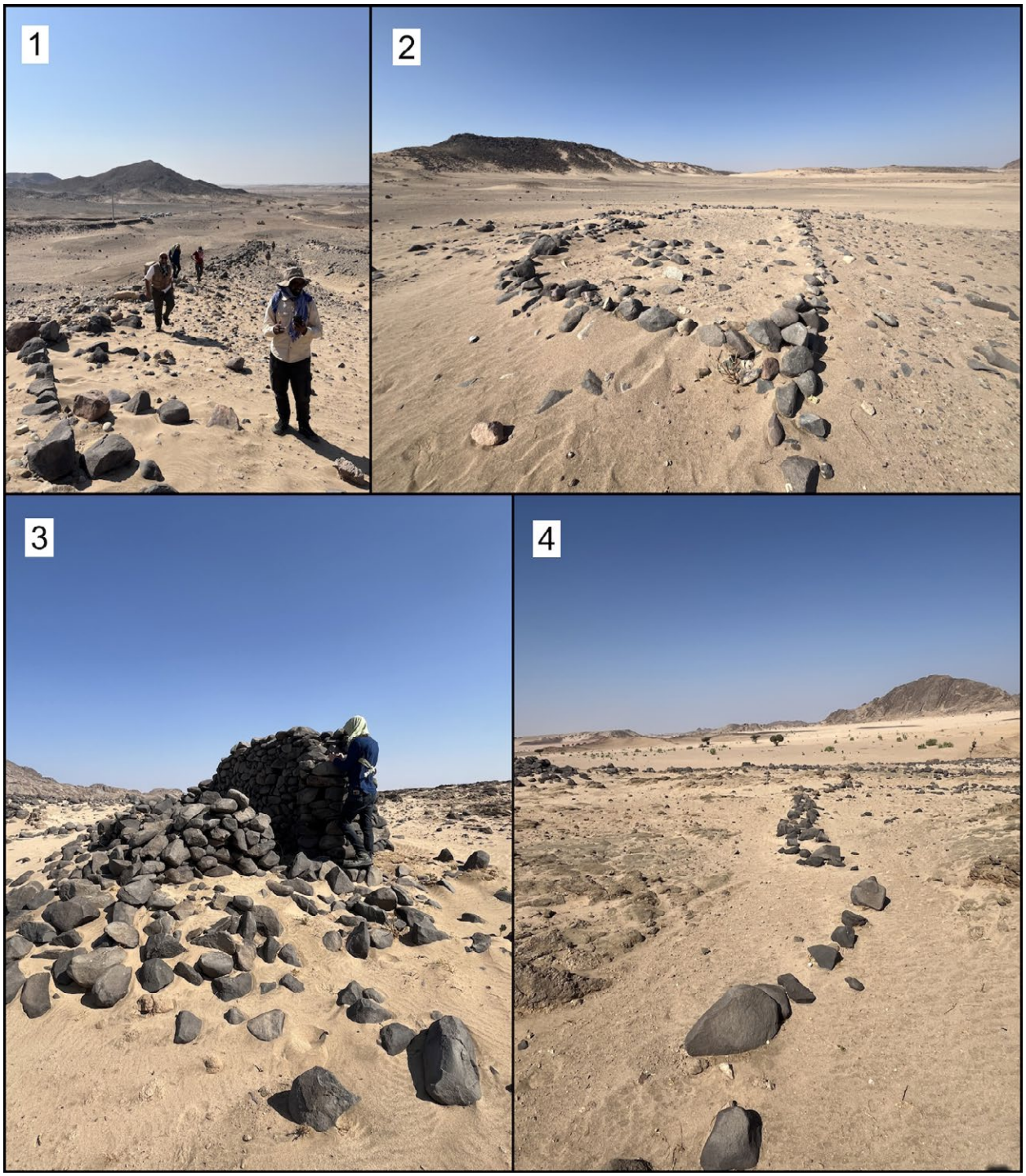


Figure 6. Thaniyyat Harsha. 1. The stone walls defining the trackway. 2. The mosque associated with The Prophet. 3. Structural remains on the stone outcrop. 4. Field walls or boundaries (photos. T. Insoll).

likewise re-examined. This remained untouched and it was noted that the building had two-tier stepped foundations, as well as two identifiable rooms, and its thick walls and lack of alignment to the qiblah allowed the inference that it had been a watchtower or guardhouse (**Figure 7**) and it will also be excavated to establish its chronology, and both sites will be mapped.

Thaniyyat Al-Azuriwyah

The final locations investigated as part of the pedestrian reconnaissance survey were in the environs of Al-Juḥfah. The first was the pass, Thaniyyat Al-Azuriwyah, connecting Al-Juḥfah to the Hajj and caravan route to the north (**Figure 8**). This, like Thaniyyat Lift and

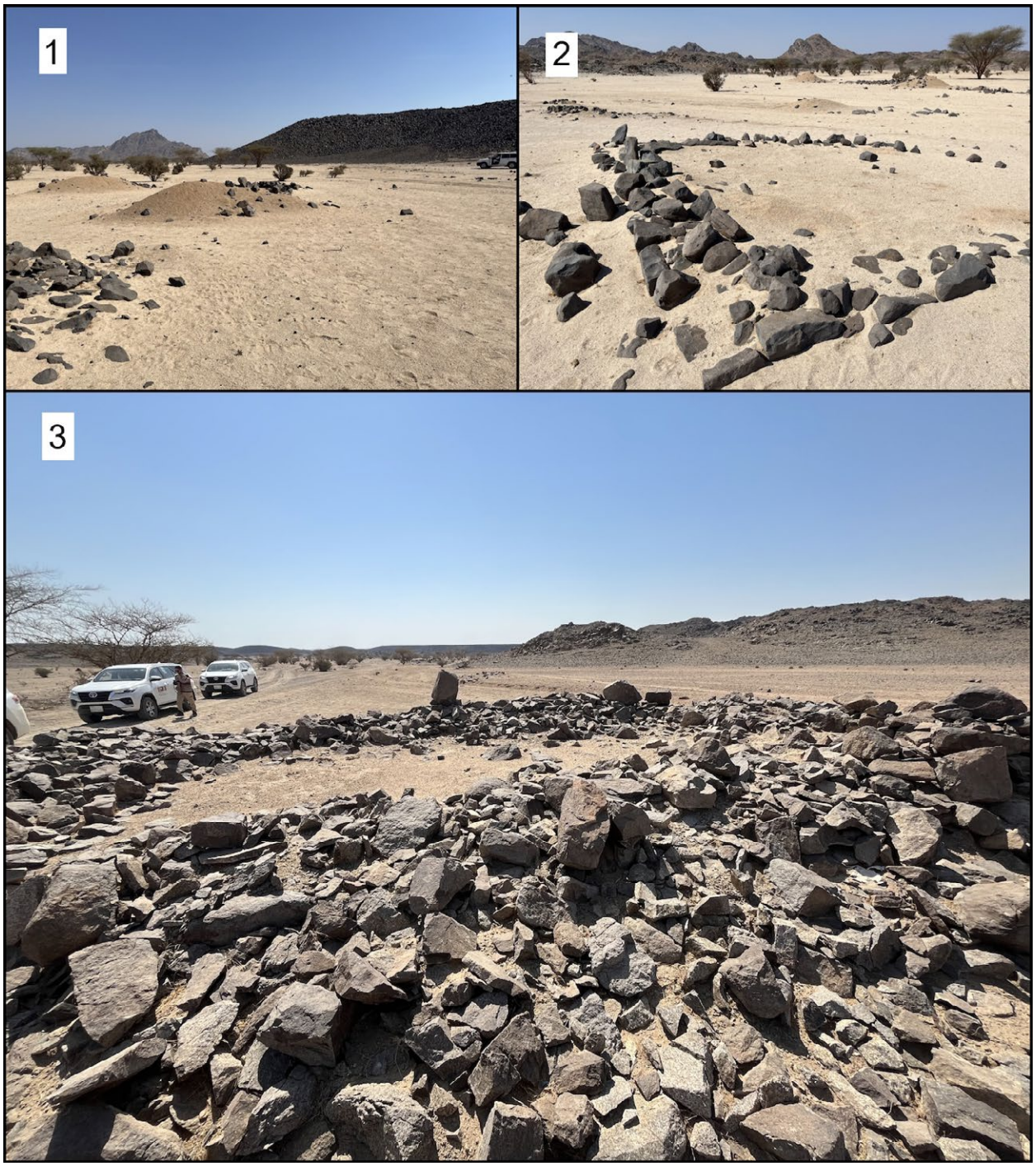


Figure 7. Tamanni. 1. Damaged structures and associated spoil heaps. 2. The mosque. 3. The watchtower or guardhouse (photos. T. Insoll).

Harsha, also had its trackway defined by outer stone walls (**Figure 9**) and the foundations of a watchtower were recorded on the southern wall towards its apex looking to the north (**Figure 9**). Evidently this *harrat*, predominantly composed of basalt, but also rhyolite and degraded limestone (Gamal Ali Shawali pers. comm. 3/11/25), had also been used in the pre-Islamic period as a line of three stone cairns or tumuli, almost certainly burial monuments, surviving on the highest point (**Figure 9**).

Whereas on the lower slopes of the pass to the south were the remains of a Muslim cemetery (**Figure 10**), one of possibly several used by both travellers and the more

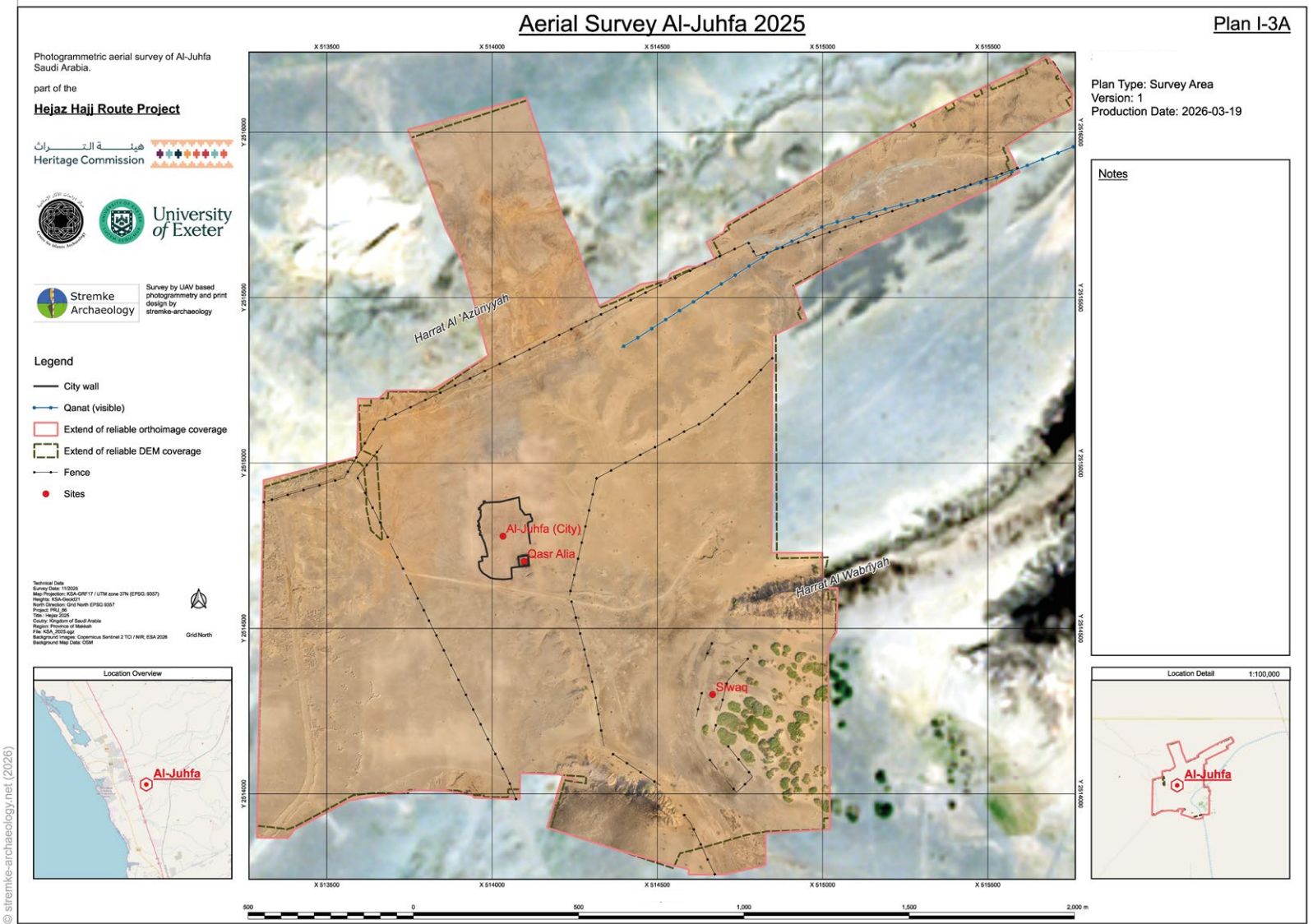


Figure 8. The location of the sites surrounding Al-Juḥfah. C = campsite. Q = *qanāt* (Stremke Archaeology).

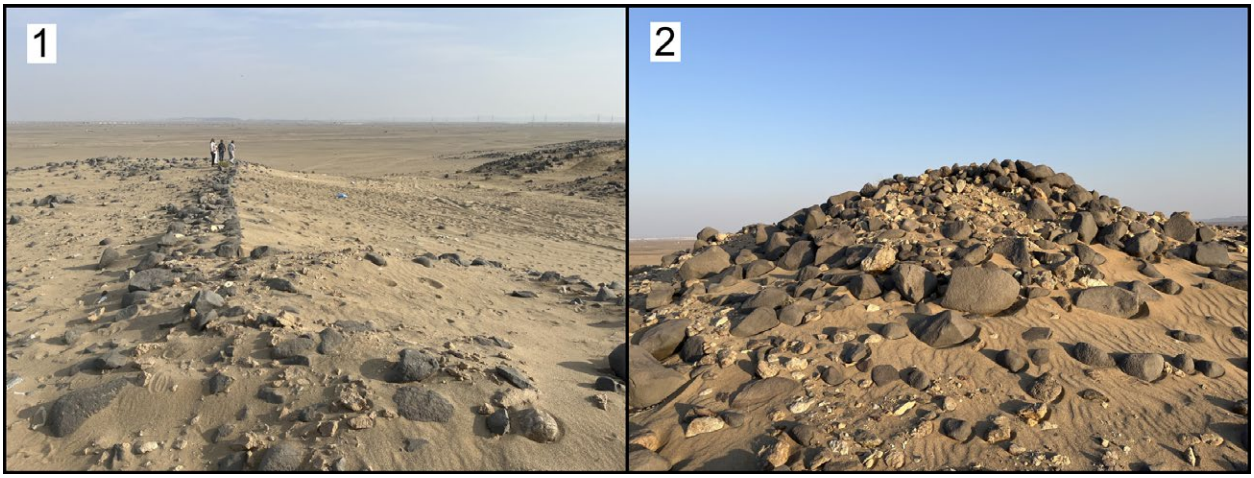


Figure 9. Thaniyyat Al-Azuriwyah. 1. Stone wall defining the trackway with watchtower foundations in the foreground. 2. Stone cairn or burial tumuli (photos. T. Insoll).



Figure 10. Thaniyyat Al-Azuriwyah. The cemetery area (photo. T. Insoll).

permanent population of Al-Juḥfah. Unfortunately, a substantial part of this cemetery had been destroyed by quarrying, but removal of the remaining spoil heaps using a bulldozer followed by hand sorting of each excavated bucket allowed the retrieval of 13 gravestones which have been stored in the Heritage Commission offices in Jeddah pending further study (**Table 2**, **Figure 11**).

Twenty rock inscriptions were also recorded engraved onto boulders on Thaniyyat Al-Azuriwyah. Of these, 16 were in Arabic, three probably in Arabic but were weathered so this was uncertain (numbers 1, 9, 18), and one (19) was composed of Thamudic, Arabic, and *wusūm*, or tribal ownership marks (**Figures 12 to 16, Table 3**). None of the inscriptions have yet been translated but it is possible that the majority are graffiti done by travellers resting or otherwise whiling away time on these shaded rock outcrops which are not directly on the route through the pass or immediately near the campsites below.

Table 2. The gravestones from Thaniyyat Al-Azuriwyah.

Number	Dimensions (cm)	Notes
1	38cm (length) x 27cm (width) x 6.5cm (depth)	
2	50cm (l) x 19cm (w) x 7cm (d)	
3	12.5cm (l) x 8cm (w) x 2.9cm (d)	This was found on the surface of the southern campsite, and the carving is much more basic than the inscriptions from the Al-Azuriwyah cemetery.
4	33cm (l) x 17cm (w) x 10.5cm (d)	
5	38cm (l) x 40cm (w) x 8.5cm (d)	
6	39cm (l) x 40cm (w) x 9.5cm (d)	Possibly commemorating the great grandson of Abdullah ibn Jaffar ibn Abutalib. The calligraphy deteriorates toward the top of the gravestone.
7	47cm (l) x 30cm (w) x 7cm (d)	
8	55cm (l) x 23cm (w) x 8cm (d)	
9	29.5cm (l) x 26cm (w) x 8cm (d)	
10	17.5cm (l) x 9cm (w) x 5.5cm (d)	Interesting use made of the contrast between the colour of the weathered surface and the underlying stone to highlight the inscription.
11	25cm (l) x 20cm (w) x 4cm (d)	
12	48cm (l) x 35cm (w) x 8cm (d)	Damaged and inscription only partially visible.
13	72cm (l) x 27.5cm (w) x 15cm (d)	Possibly early in date based upon its palaeographical characteristics

Table 3. The rock inscriptions recorded on Thaniyyat Al-Azuriwyah.

Inscription	UTN - Zone	UTM – Easting	UTM – Northing	Notes
JUH25 Inscription 1	37Q	513661	2515452	Weathered – probably Arabic
JUH25 Inscription 2	37Q	513661	2515452	Arabic
JUH25 Inscription 3	37Q	513661	2515452	Arabic
JUH25 Inscription 4	37Q	513747	2515421	Arabic
JUH25 Inscription 5	37Q	513747	2515421	Arabic
JUH25 Inscription 6	37Q	513747	2515421	Arabic
JUH25 Inscription 7	37Q	513747	2515421	Arabic
JUH25 Inscription 8	37Q	513747	2515421	Arabic
JUH25 Inscription 9	37Q	513747	2515421	Weathered – probably Arabic
JUH25 Inscription 10	37Q	513747	2515421	Arabic
JUH25 Inscription 11	37Q	513747	2515421	Arabic
JUH25 Inscription 12	37Q	513747	2515390	Arabic
JUH25 Inscription 13	37Q	513690	2515452	Arabic
JUH25 Inscription 14	37Q	513661	2515452	Arabic
JUH25 Inscription 15	37Q	513690	2515421	Arabic
JUH25 Inscription 16	37Q	513690	2515421	Arabic
JUH25 Inscription 17	37Q	513633	2515452	Arabic
JUH25 Inscription 18	37Q	513661	2515482	Weathered – probably Arabic
JUH25 Inscription 19	37Q	513832	2515544	Arabic, Thamudic, and *wusūm*
JUH25 Inscription 20	37Q	513832	2515513	Arabic

Additionally, two rock inscriptions were identified on the plain north of Al-Juḥfah, and in contrast both appear to be more directly connected with the former Hajj and caravan route, through being in its immediate proximity. These were carved onto otherwise unworked stone boulders. One had only pre-Islamic inscriptions on two faces, composed of a *wusūm*, and texts in Thamudic script including one interpreted on the basis of its rectangular border as an invocation for protection (Mousa Algarni pers. comm. 10/11/25) (**Figure 17**). The



Figure 11. The gravestones from Thaniyyat Al-Azuriwyah (photos. T. Insoll).

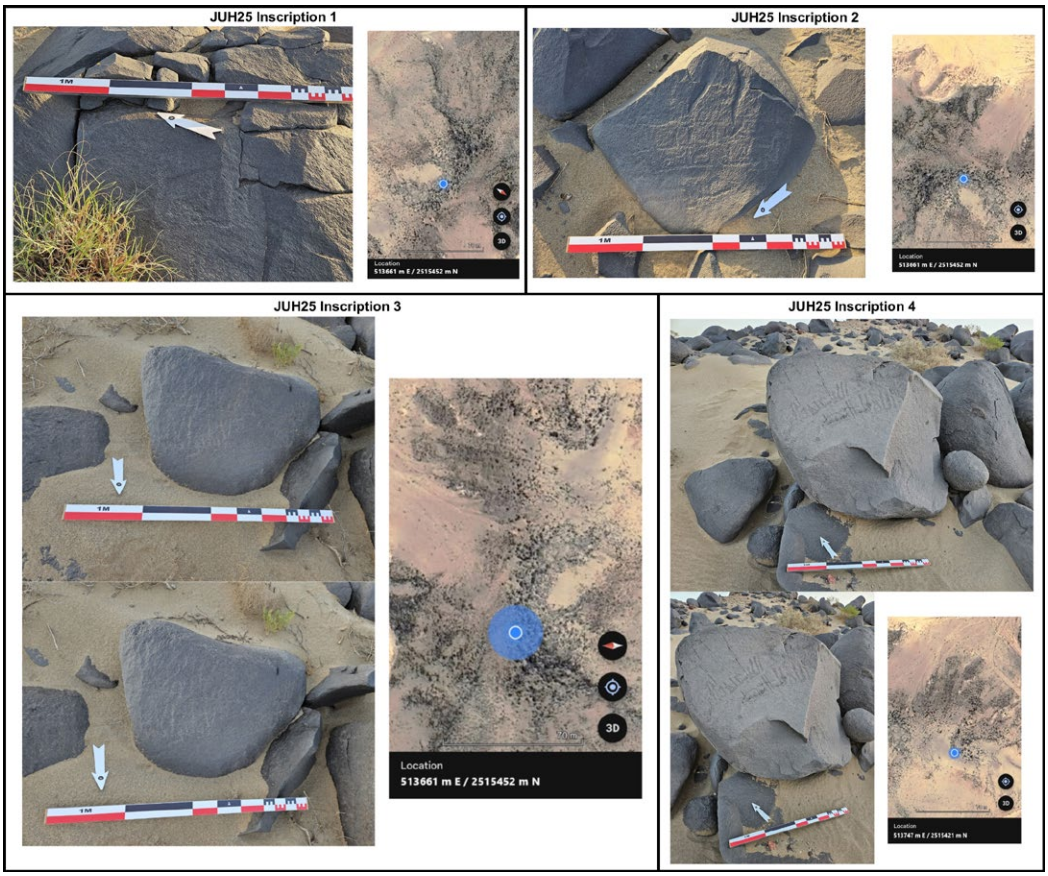


Figure 12. Rock inscriptions 1 to 4 recorded on Thaniyyat Al-Azuriwyah (photos. N. Anderson).

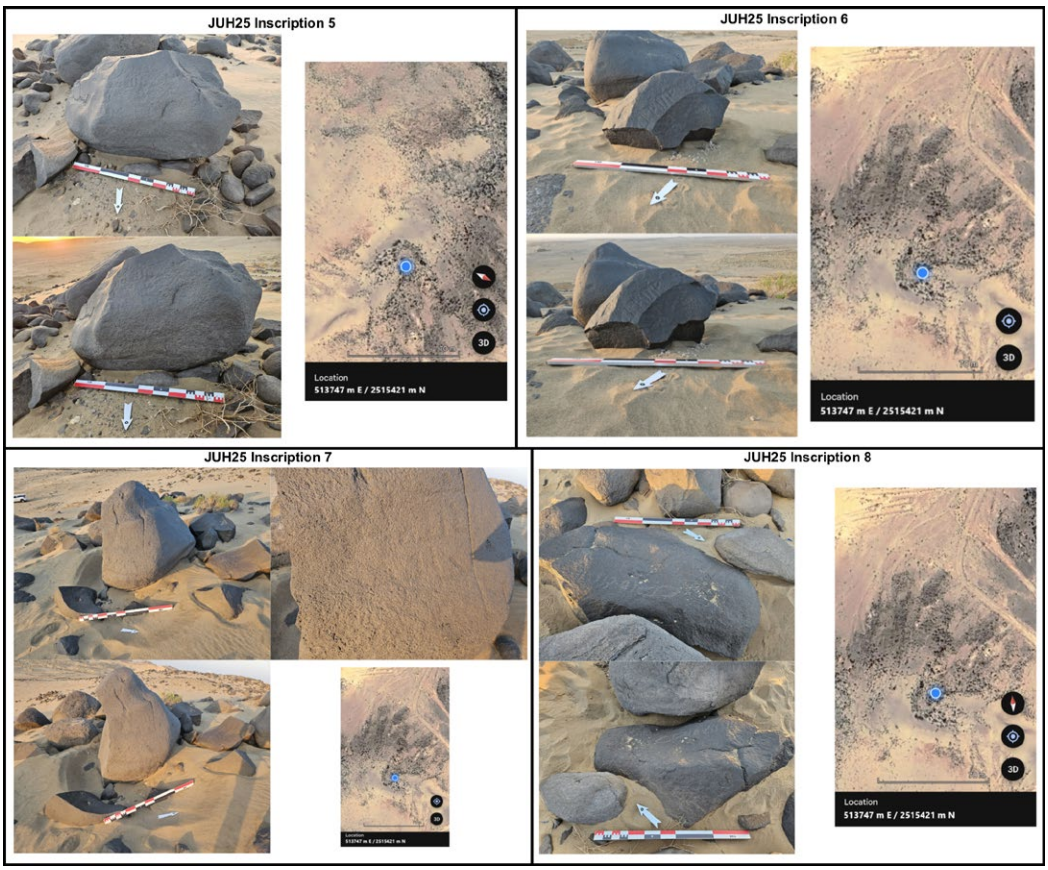


Figure 13. Rock inscriptions 5 to 8 recorded on Thaniyyat Al-Azuriwyah (photos. N. Anderson).

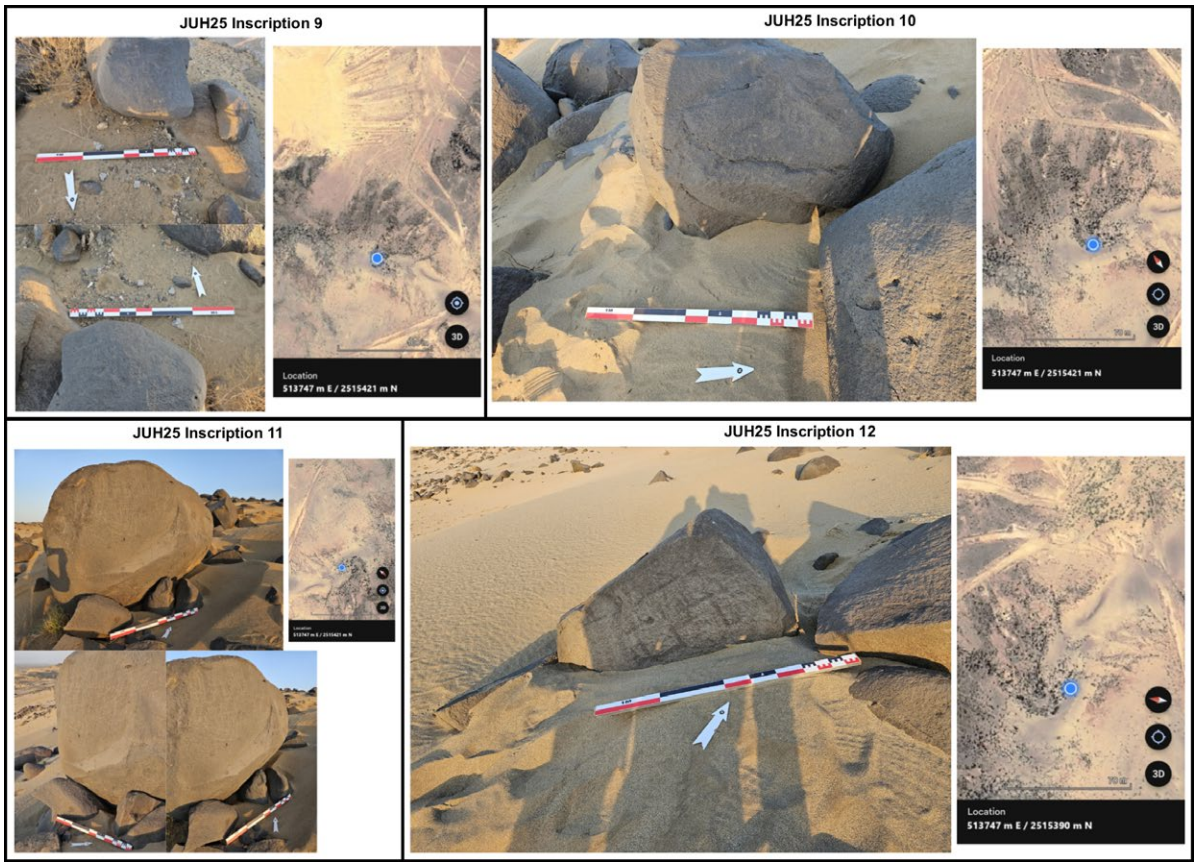


Figure 14. Rock inscriptions 9 to 12 recorded on Thaniyyat Al-Azuriwyah (photos. N. Anderson).

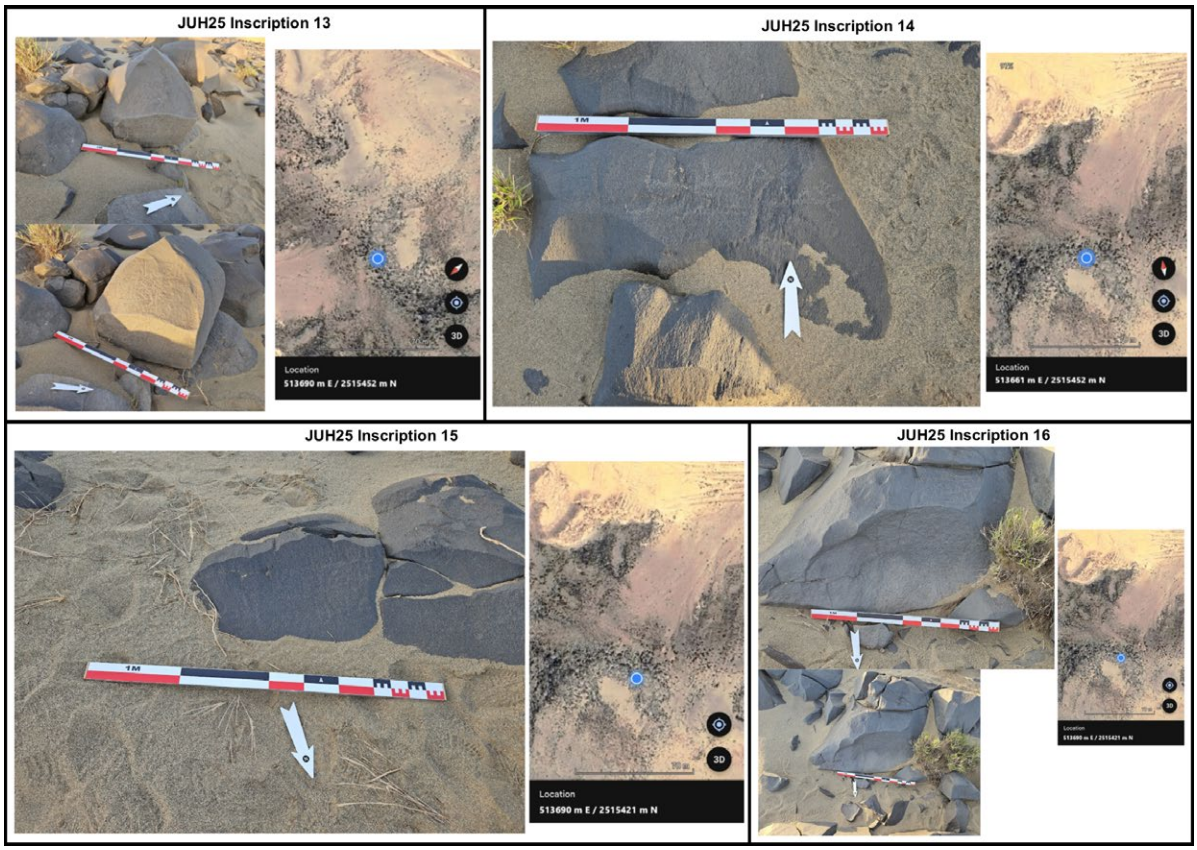


Figure 15. Rock inscriptions 13 to 16 recorded on Thaniyyat Al-Azuriwyah (photos. N. Anderson).

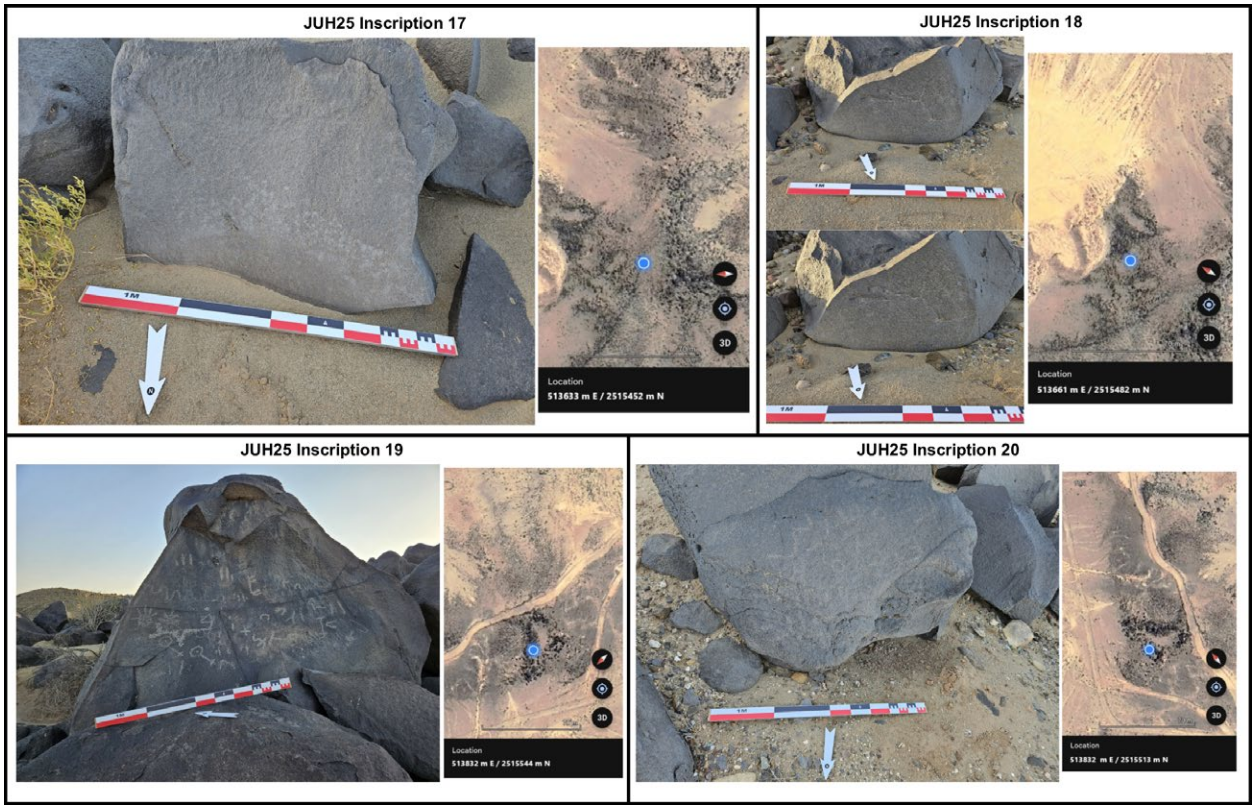


Figure 16. Rock inscriptions 17 to 20 recorded on Thaniyyat Al-Azuriwyah (photos. N. Anderson).

perimeter of this boulder was test excavated as TP5 (discussed below) which indicated it was a milestone supported by stone foundations. The other boulder appeared to be natural, not artificially placed, and the inscriptions were composed of Arabic text and another *wusūm* (**Figure 17**).

Siwak

Another site identified in the vicinity of Al-Juḥfah was Siwak, named after the groves of 'toothbrush' trees (*Salvadora persica*) nearby, and located approximately 200m east of Al-Juḥfah across a sandy wadi, Al-Kharrar, and directly below another *harrat*, Al-Wabreyah (**Figure 8**). And it is of interest that this type of tree is mentioned in a tradition that on the Farewell Pilgrimage the Prophet Muhammad prayed beside this type of tree at Al-Juḥfah on his way to Makkah (Alsubaie 2018: 82).

Various clusters of structural remains were noted on low mounds at Siwak (**Figure 18**) covered with fragments of fired clay probably from iron smelting furnaces as well as large pieces of slag suggesting this could have been a blacksmithing site placed at some distance from Al-Juḥfah because of the pollution associated with this activity (**Figure 18**). An Arabic inscription that may or may not be contemporary with occupation of the site was also recorded (**Figure 18**). Moreover, it should be noted that the contemporaneity of Siwak and Al-Juḥfah remains to be established for the plaster mortar used, as well as the surviving plaster/mortar floors at Siwak (**Figure 18**) suggest it may post-date Al-Juḥfah, and test excavation will be undertaken to establish the chronology.

Al-Juḥfah

Another key result of the pedestrian survey was the identification of the campsites surrounding the stone town at Al-Juḥfah on three of its four sides, the exception being the wadi to the east (**Figure 19**). These were identifiable from their abundant surface spreads of ceramics, bone, glass, and shell, and numerous grinding stones. The existence of these campsites had not been previously recognised (e.g., Alsubaie 2018, 2025) which is surprising as there was much greater surface artifact visibility in these areas than in the stone town where surface artifact density was lower as a correlate of wind-blown sand accumulating inside the buildings, whereas it had been scoured away exposing archaeological material in the campsites. Additional evidence for extra-mural construction was also noted, manifest by buildings outside the perimeter wall in various locations including along the valley edge to the south of the stone town (**Figure 19**). These are currently undated, but the surface collected ceramics did not



Figure 17. Al-Juḥfah. 1. and 2. Pre-Islamic inscriptions on milestone (TP5). 1. Thamudic inscriptions with protective invocation at top. 2. *Wusūm*. 3. Boulder with Arabic inscriptions and *wusūm* (photos. T. Insoll).

differ from those in other areas of Al-Juḥfah. It is also plausible that some of these structures could be tombs as part of a gravestone (number 3, **Table 2, Figure 11**) was found in this area, which suggests that Alsubaie's (2018: 249) hypothesis that there was a cemetery to the south of the town could be correct.

Within the stone town itself, further features were identified including an entrance through the perimeter wall immediately north of the *qaṣr* where there appeared to be the remains of a roadway flanked to its north by a possible guardhouse (**Figure 20 - 1**). The early Islamic mosque was also manifest through the outline of its walls next to a collapsed cement-built

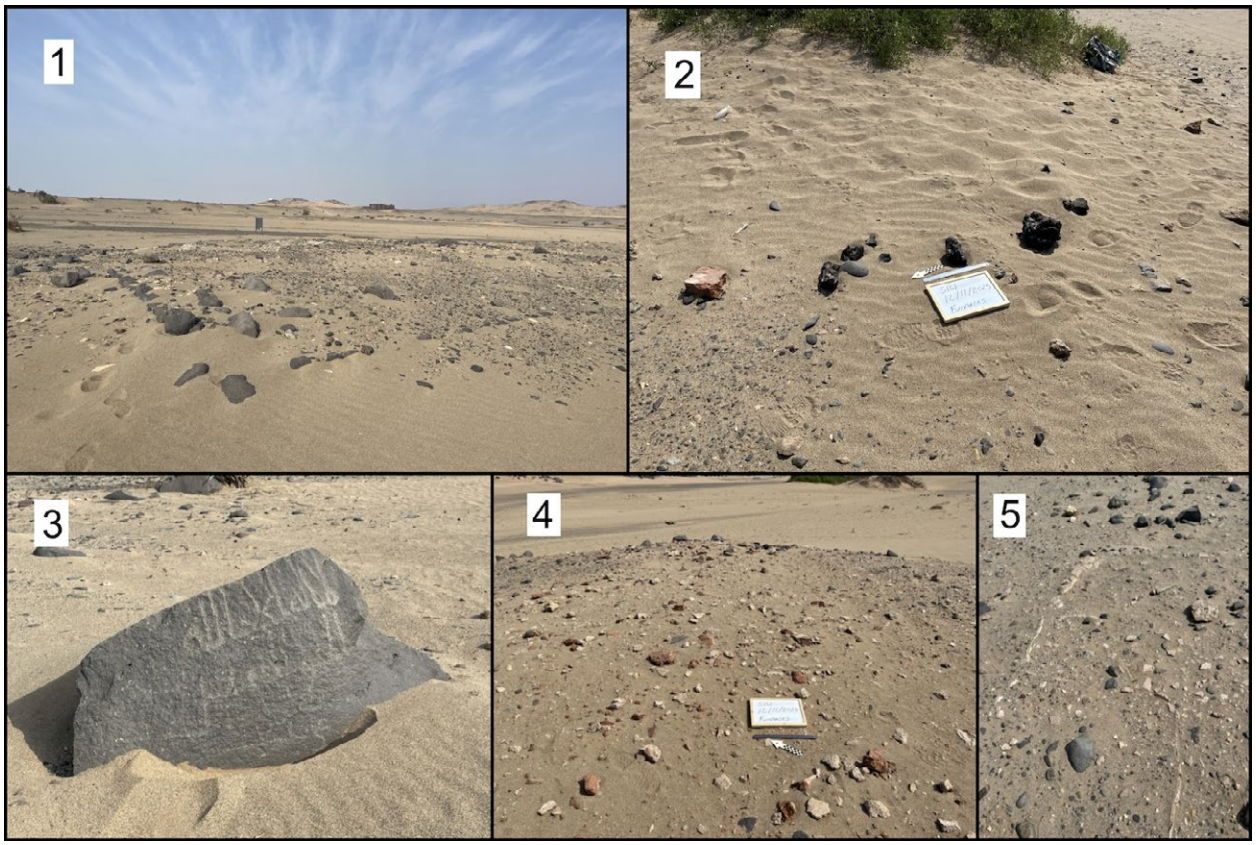


Figure 18. Siwak. 1. Rectilinear stone building. 2. Mound covered with fired clay fragments. 3. Iron slag in-situ. 4. Arabic inscription. 5. Plaster/mortar floor outlines (photos. T. Insoll).

mosque of much more recent construction (**Figure 20 – 2, Figure 21**). This is possibly the Mosque of the Prophet, al-ʾAʾama, referred to by al-Harbi (d. 898) as "in the end of al-Juhfa next to the two towers" (Alsubaie 2018: 34). Whilst the former *ḥammām*, the existence of which is historically attested by, for example, Abū Bakr ibn Abī Shayba (d. AH 235/849) (Alsubaie 2025: 145), was potentially corroborated via a dense concentration of fired-brick (**Figure 20 - 3**), otherwise largely absent at Al-Juḥfah, but a material often used in bathhouses for floors, heating systems, and associated underground passages, as in the Umayyad period palace complex in Al-Quds (e.g., Ben-Dov 1985: 316-317) and the Umayyad *ḥammām* at Al-Fudayn, Jordan (e.g., Labisi 2015: 69, 72), for example.

The *qaṣr* was also surveyed using photogrammetry and detailed plans produced (**Figures 22 to 26**). Survey of the *qaṣr* also revealed its damaged condition and during the fieldwork a section of the southeast wall collapsed after rain (**Figures 25 and 26**), and it is recommended that stabilisation measures are immediately put in place to avoid further damage.

North of the settlement part of the *qanāt* system that had supplied water to Al-Juḥfah was likewise detected and this is of additional interest as it followed the same line as that marked by the pre-Islamic inscribed milestone, and it can be hypothesised that this was the former Hajj/caravan route. The line of the *qanāt* was traced for a couple of kilometres before it had been broken by another quarry, apparently recently, for Alsubaie (2018: 107) was able to trace the *qanāt* from Al-Juḥfah for 8km to the northeast where it was fed by a spring in the al-Kharar Valley. After the quarry a *qanāt* was then traced again, and assuming this is the same *qanāt* line that fed Al-Juḥfah, it is possible that this was fed by the spring identified by Alsubaie (ibid.), which seems to be the Abdullah bin Abbas spring in the Ghadir Khumm area, which was a major source of water.

Two of the *qanāt* maintenance shafts close to Al-Juḥfah were also excavated (units TP6 and TP7) and the results are discussed below. These were dug to allow the initial construction of the underground *qanāt* and to facilitate subsequent maintenance (e.g., Rotzer 1984; Insoll et al. 2025) but are incorrectly described as wells by Alsubaie (2018: 107). Additionally, a small cistern (*birkah*) or well was recorded in the valley directly east of Al-Juḥfah (**Figures 87 and 88**). This could be the so-called 'fort pool' referred to by Alsubaie (2018: 105-106) as approximately 100m distance from the *qaṣr*.

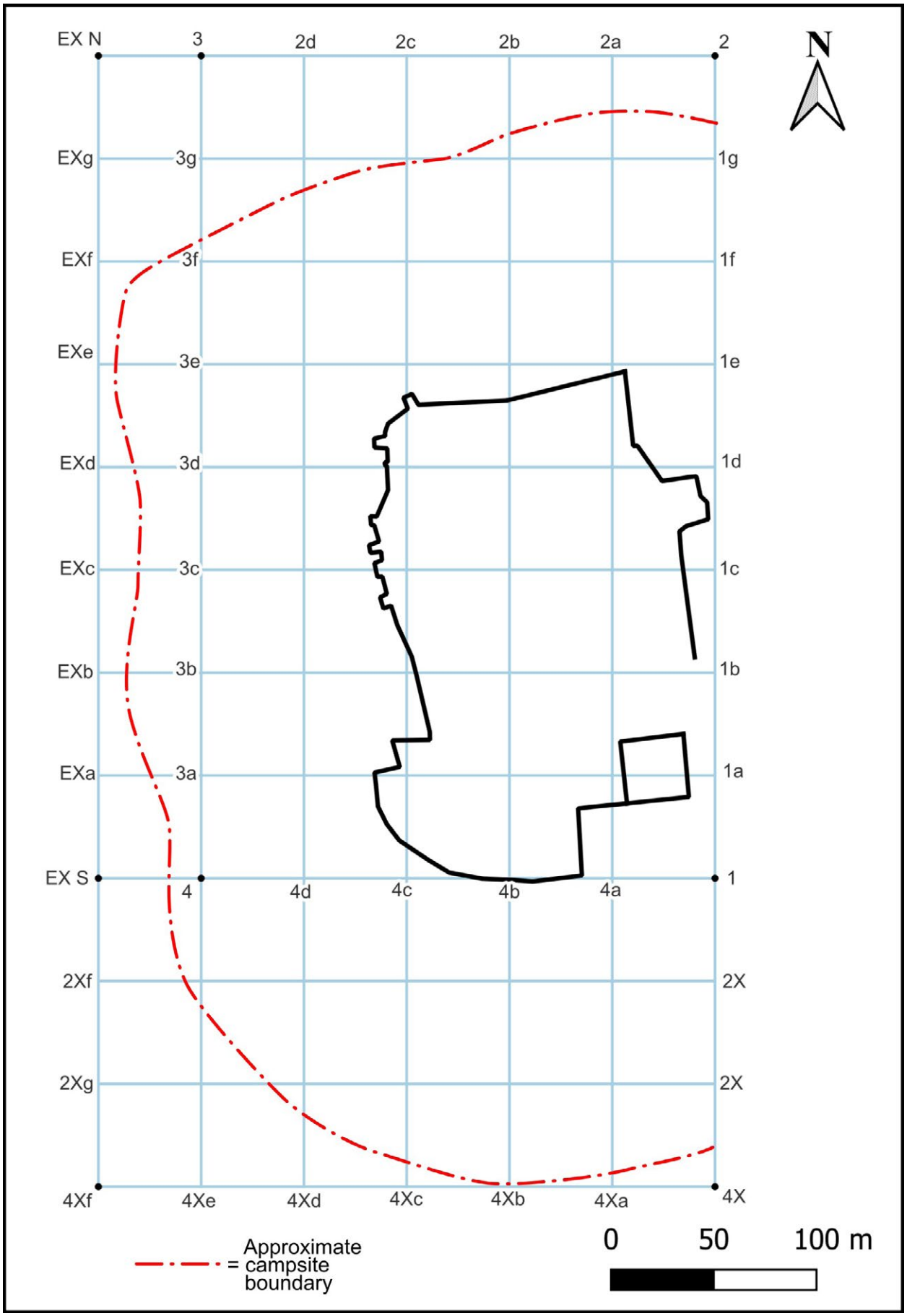


Figure 19. Approximate boundaries of the campsites at Al-Juḥfah.

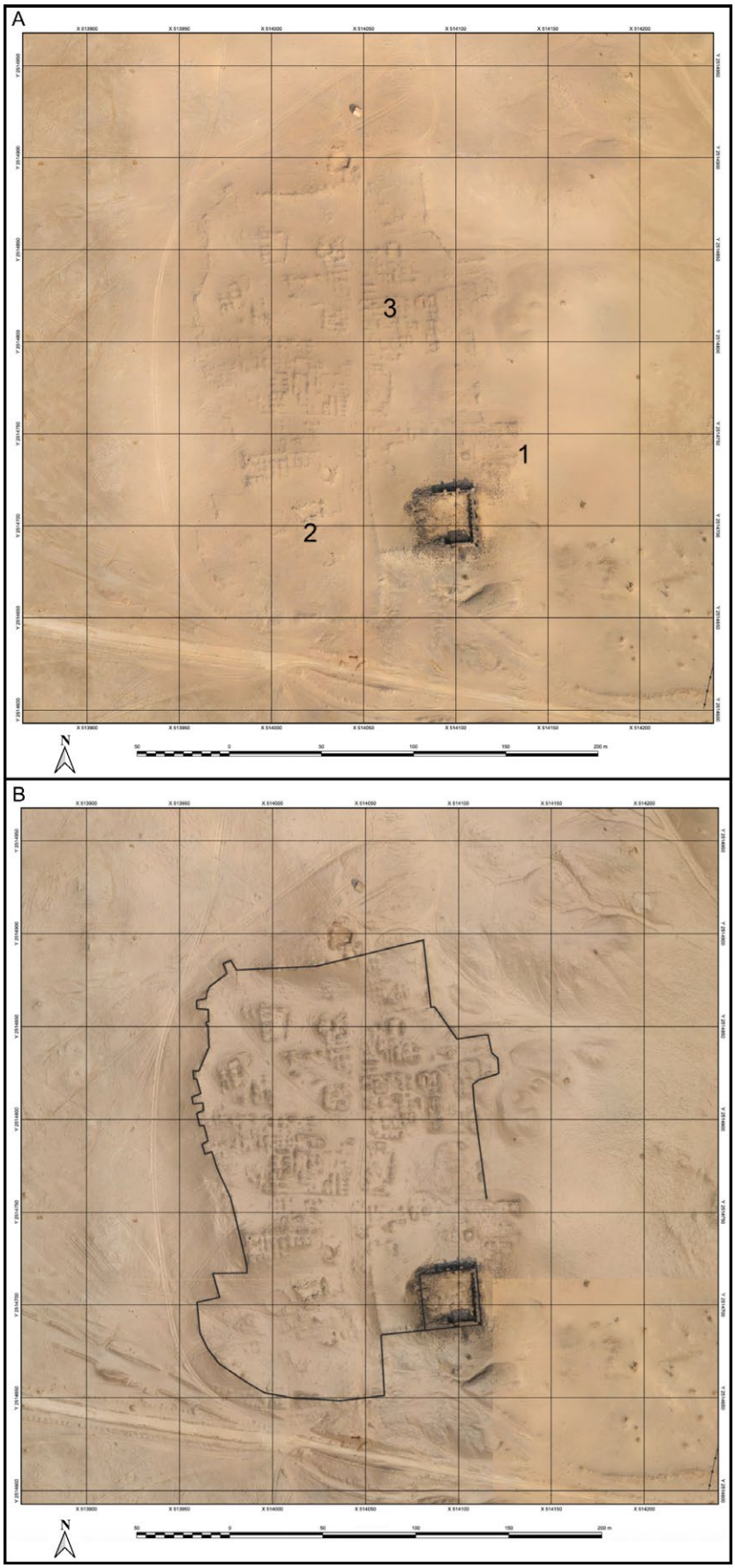


Figure 20. The stone town at Al-Juḥfah. A. Approximate locations of new features identified. 1. Entrance and roadway. 2. Mosque. 3. *ḥammām*. B. With topography enhanced (Stremke Archaeology).

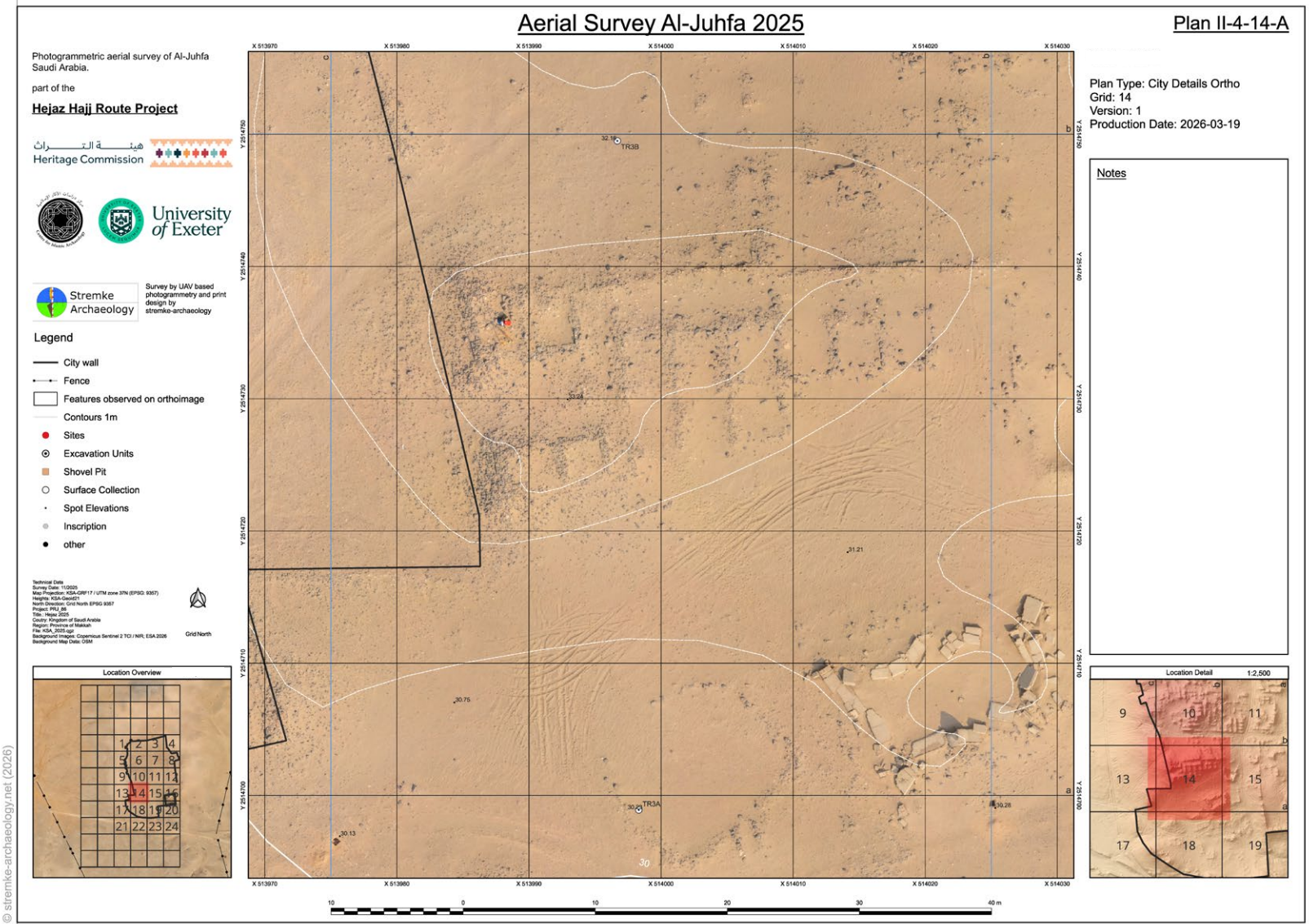


Figure 21. The early mosque (M) next to the recent demolished concrete mosque (Stremke Archaeology).

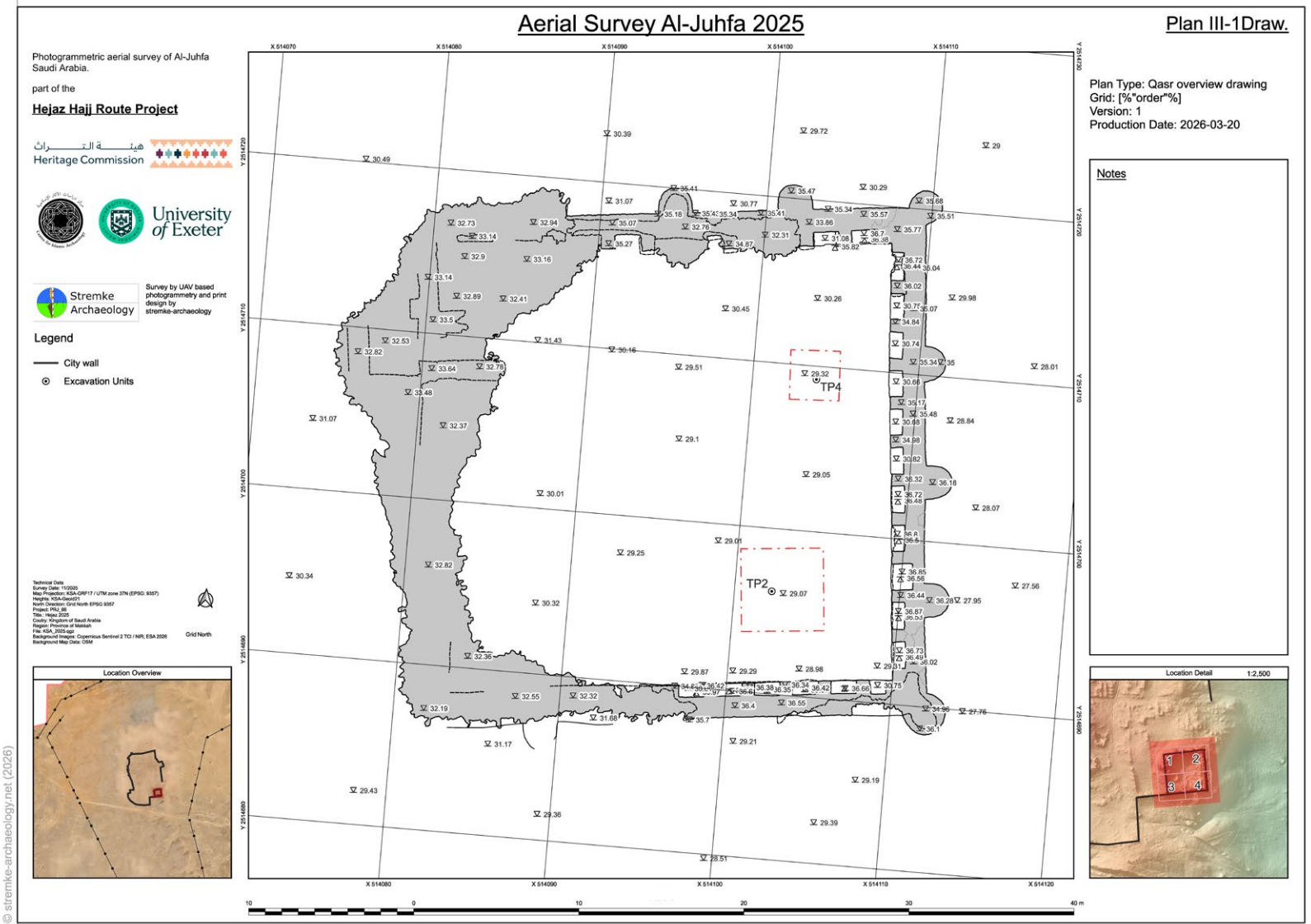


Figure 22. Plan of the *qaṣr* (Stremke Archaeology).

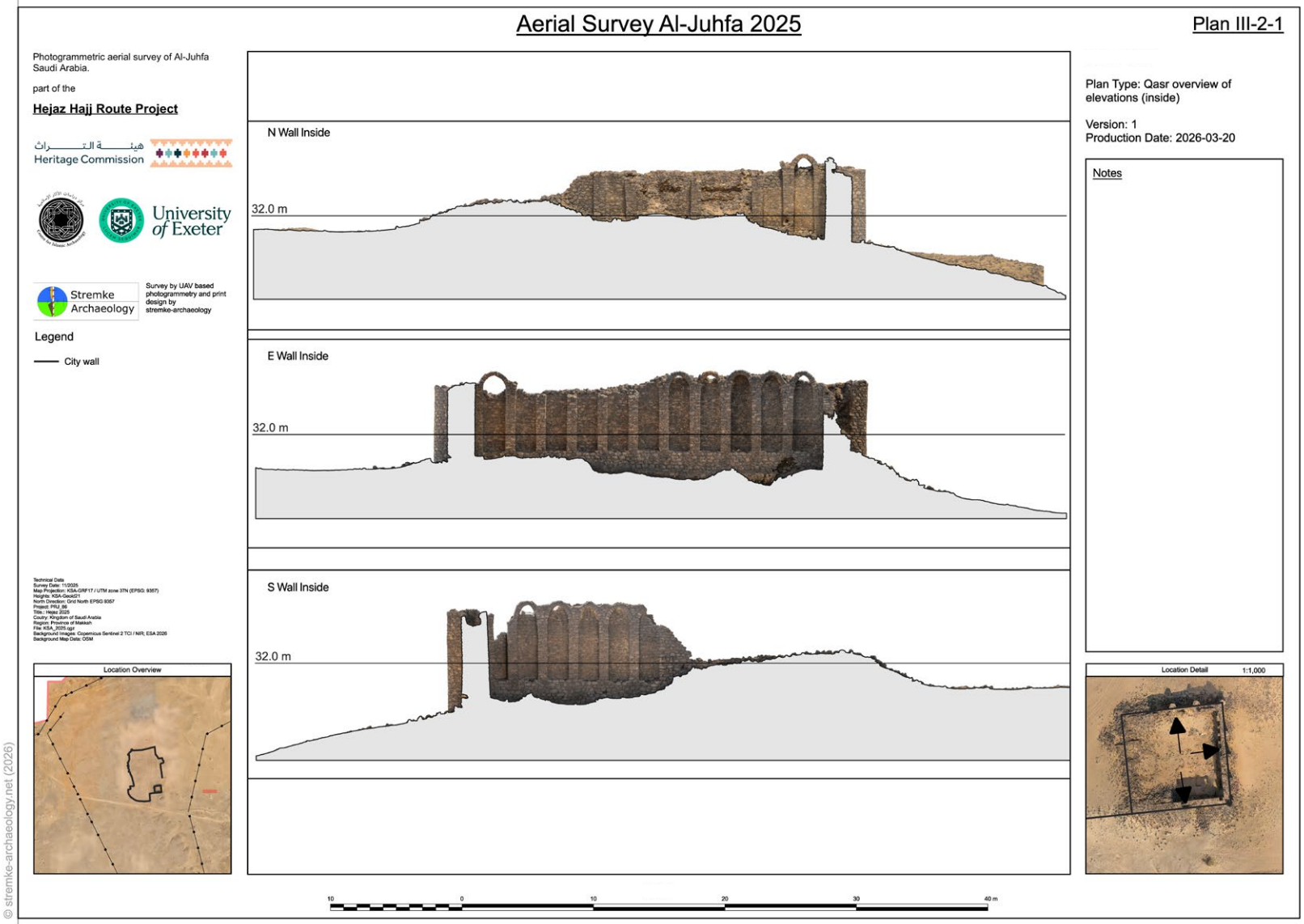


Figure 23. *Qaṣr* internal elevations (Stremke Archaeology).

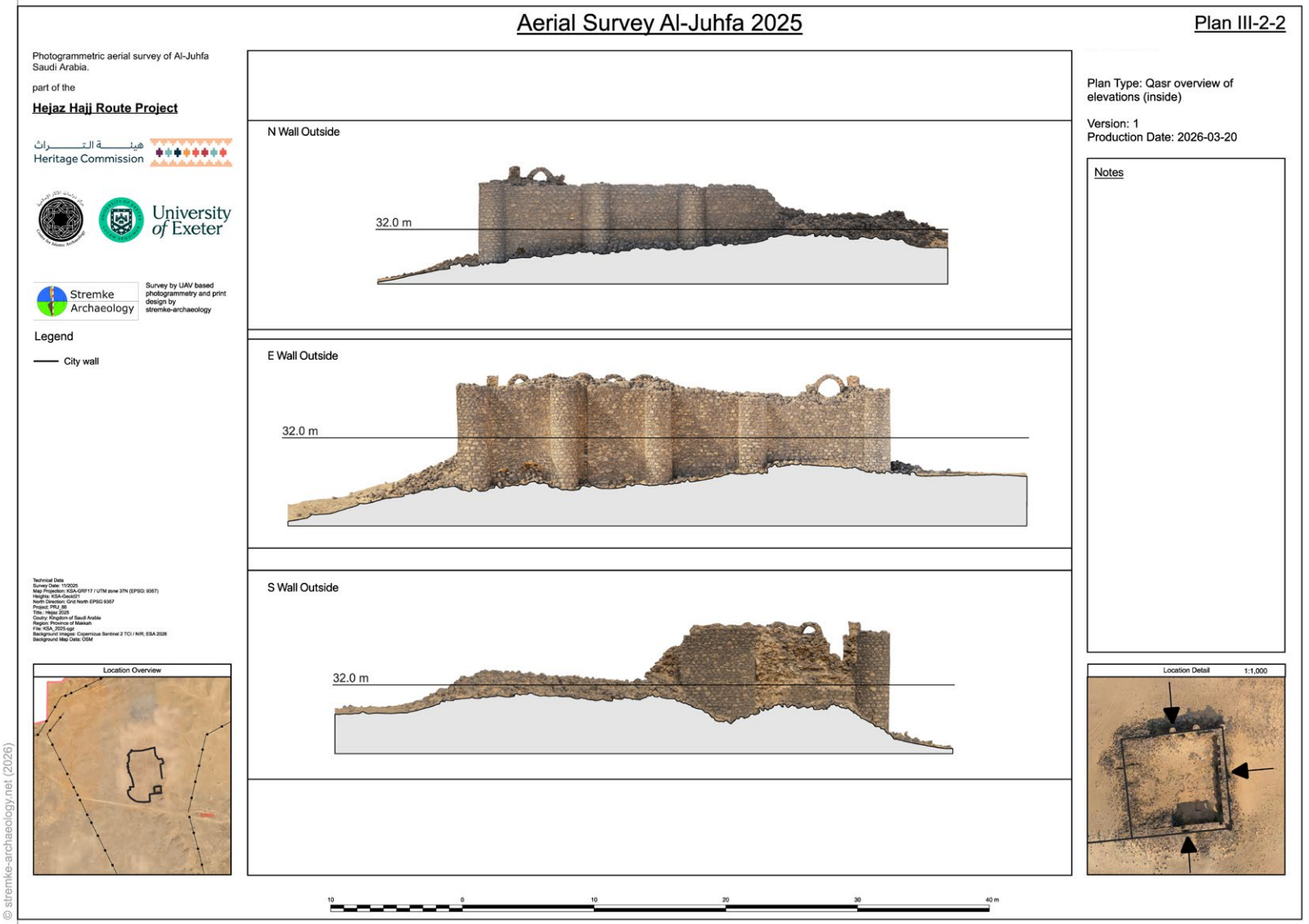


Figure 24. *Qaṣr* external elevations (Stremke Archaeology).

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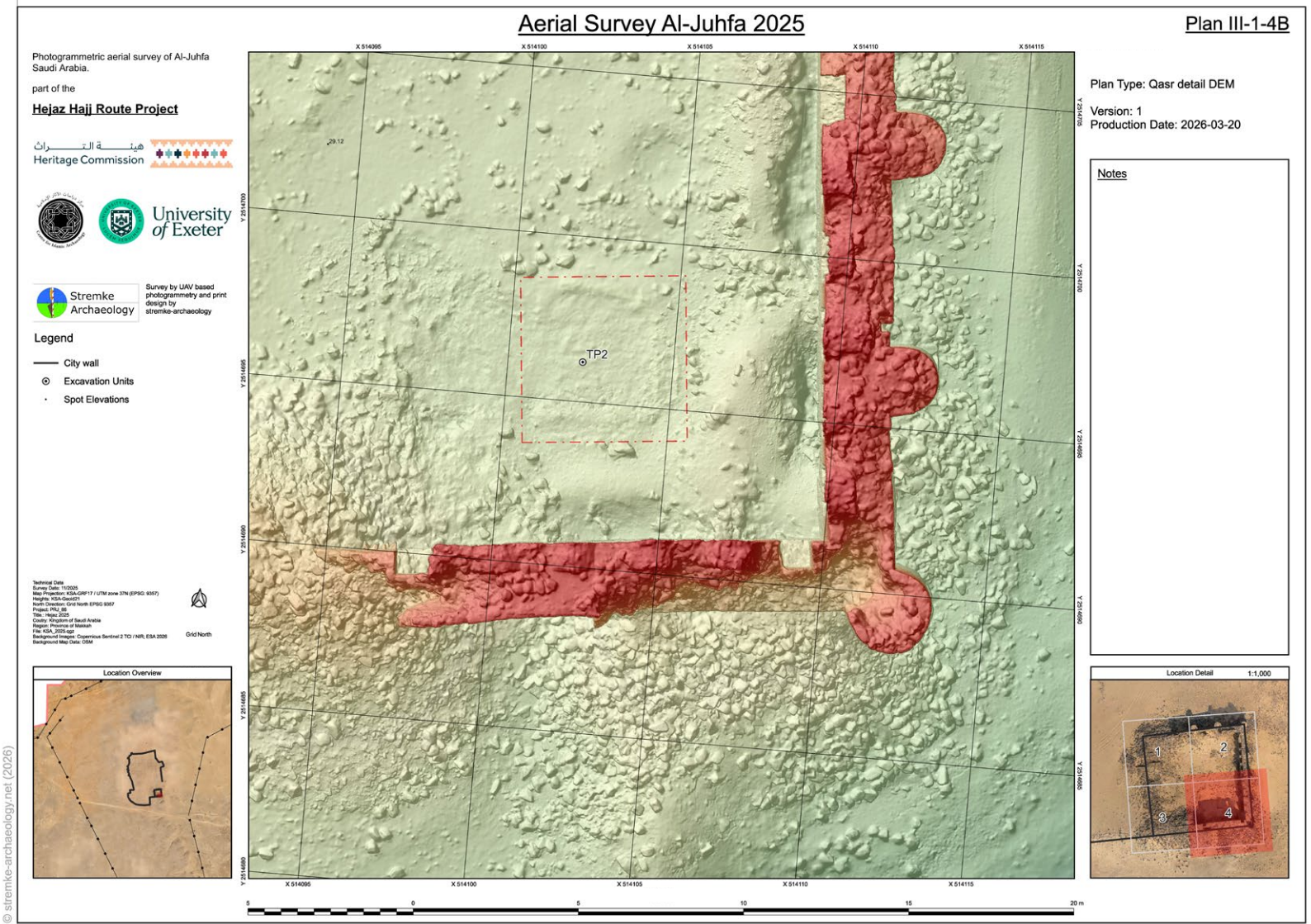


Figure 25. The damage to the southeast *qaṣr* wall (Stremke Archaeology).

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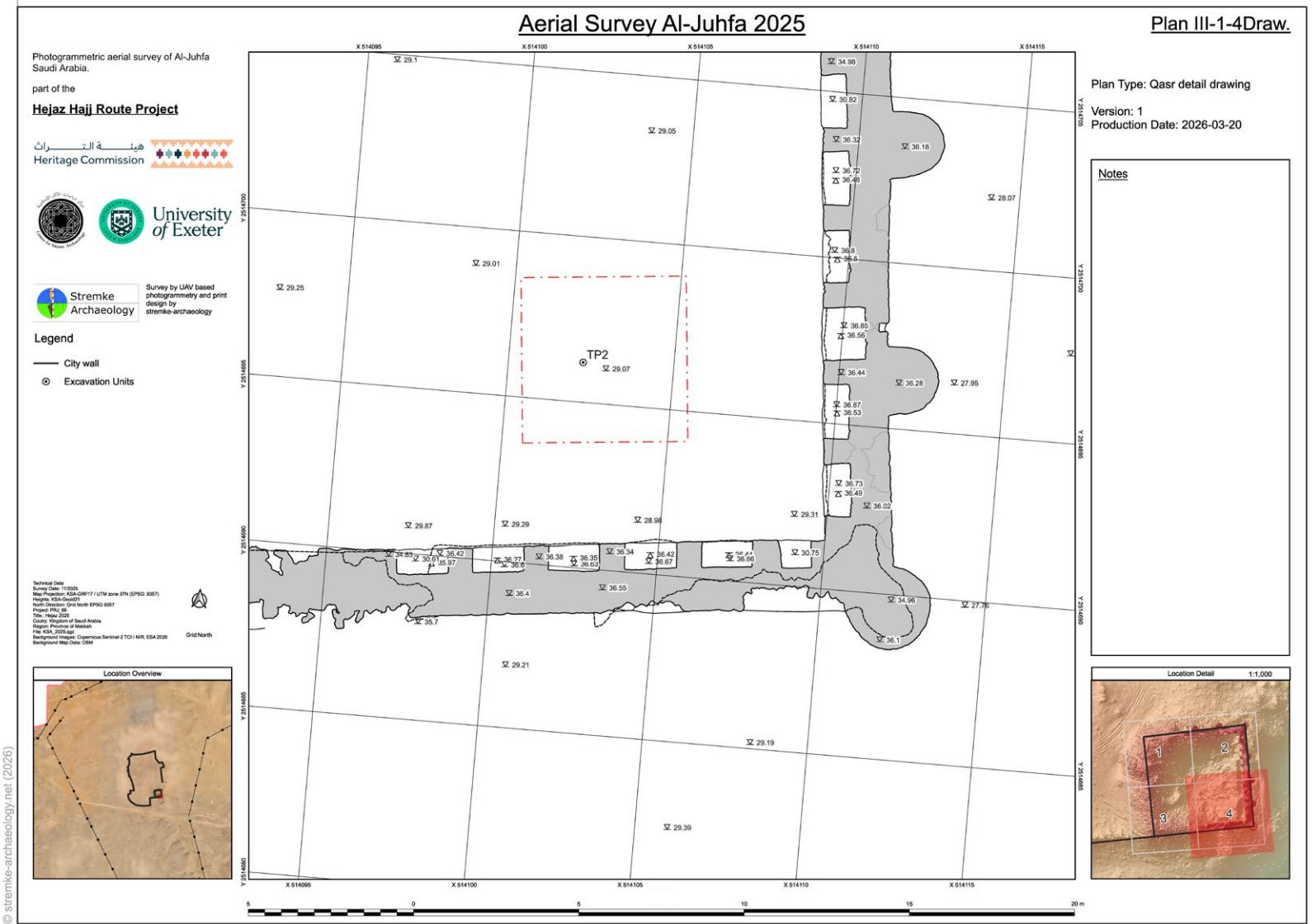


Figure 26. Plan of the damage to the southeast *qaṣr* wall (Stremke Archaeology).

Chapter 3
Ceramic Transect Survey

Nicholas M.T. Tait

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Introduction

An additional element of the survey at Al-Juḥfah was a ceramic sherd density study to aid in identifying areas of transient occupation or where buried features may be located. In addition to counting the sherds in each sample point any other relevant archaeological material was noted (but not counted), as well as any local surface geology or conditions which may have affected the results such as modern tracks, architectural features, concentrations of windblown sand, or vegetation.

Methodology

Five sampling transects were placed 50m apart running north-south and offset from the main grid by 25m on the east-west axis (**Figure 27**) to avoid overlapping with shovel test pits. The area surveyed covered most of the town as well as to the north and west of the town, bounded to the east by the slope further down into the valley. Point TR1A was omitted as it would have been located within the *qaṣr*. Sample areas were placed every 50m, with each consisting of a circle with a radius of 1m (area of 3.14m^2). The circle was produced using a 1m length of string attached to a metal stake placed in the centre. The number of sherds above 1cm in size within each was counted, and any other relevant material was noted. A GPS location was taken at the centre point, and the area was photographed for reference (**Figures 28 and 29**). Selected sherds and other archaeological materials such as shell, glass, and worked stone were kept from the transect survey points. Archaeological glass was observed in about half of the sample points, but most heavily concentrated in Transect 4 and to the north of the town. Shell was also present in about half of the points spread across the site. The results and their implications are discussed in the ceramics report below.

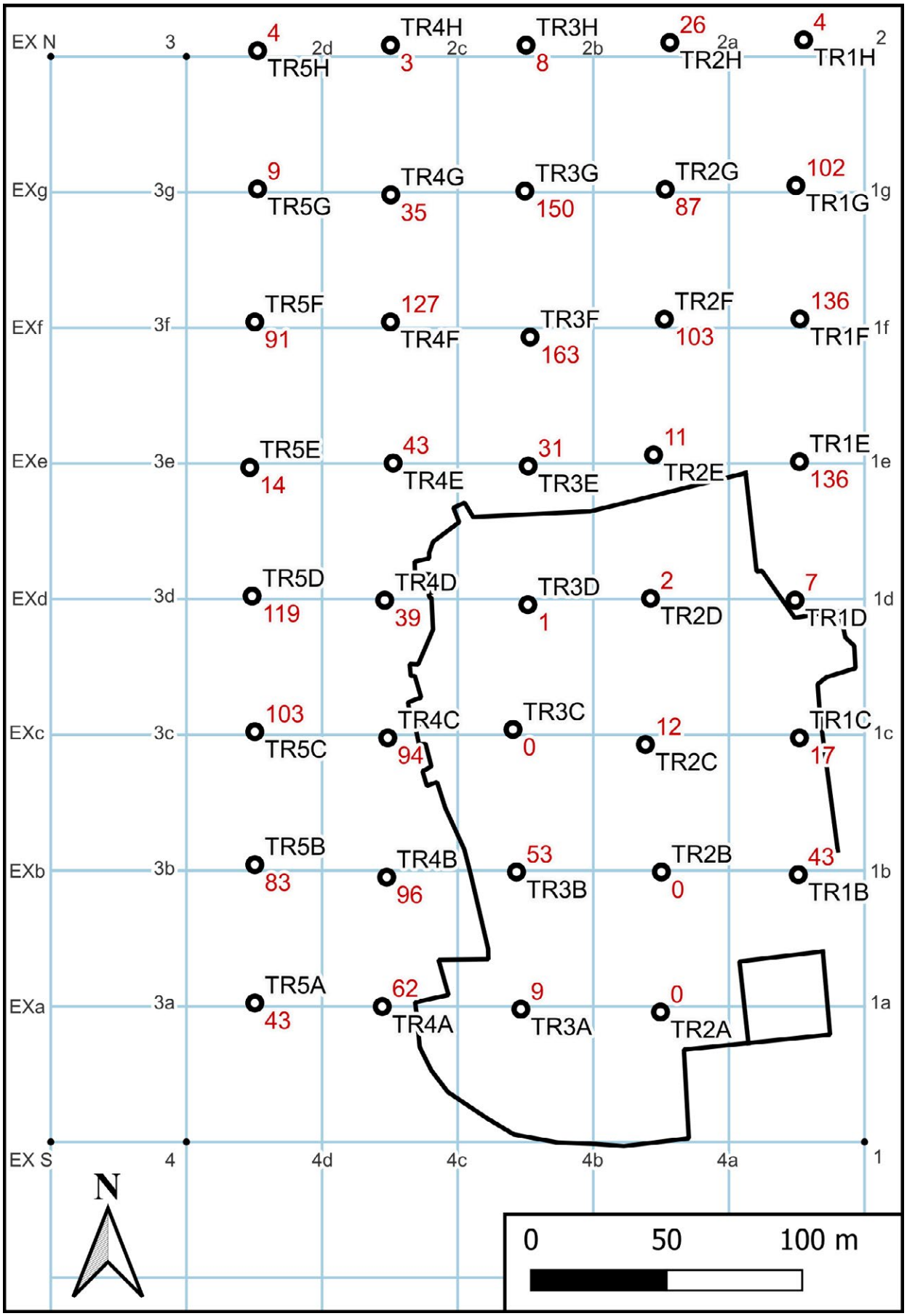


Figure 27. Locations of, and codes given to the transect survey sample points.

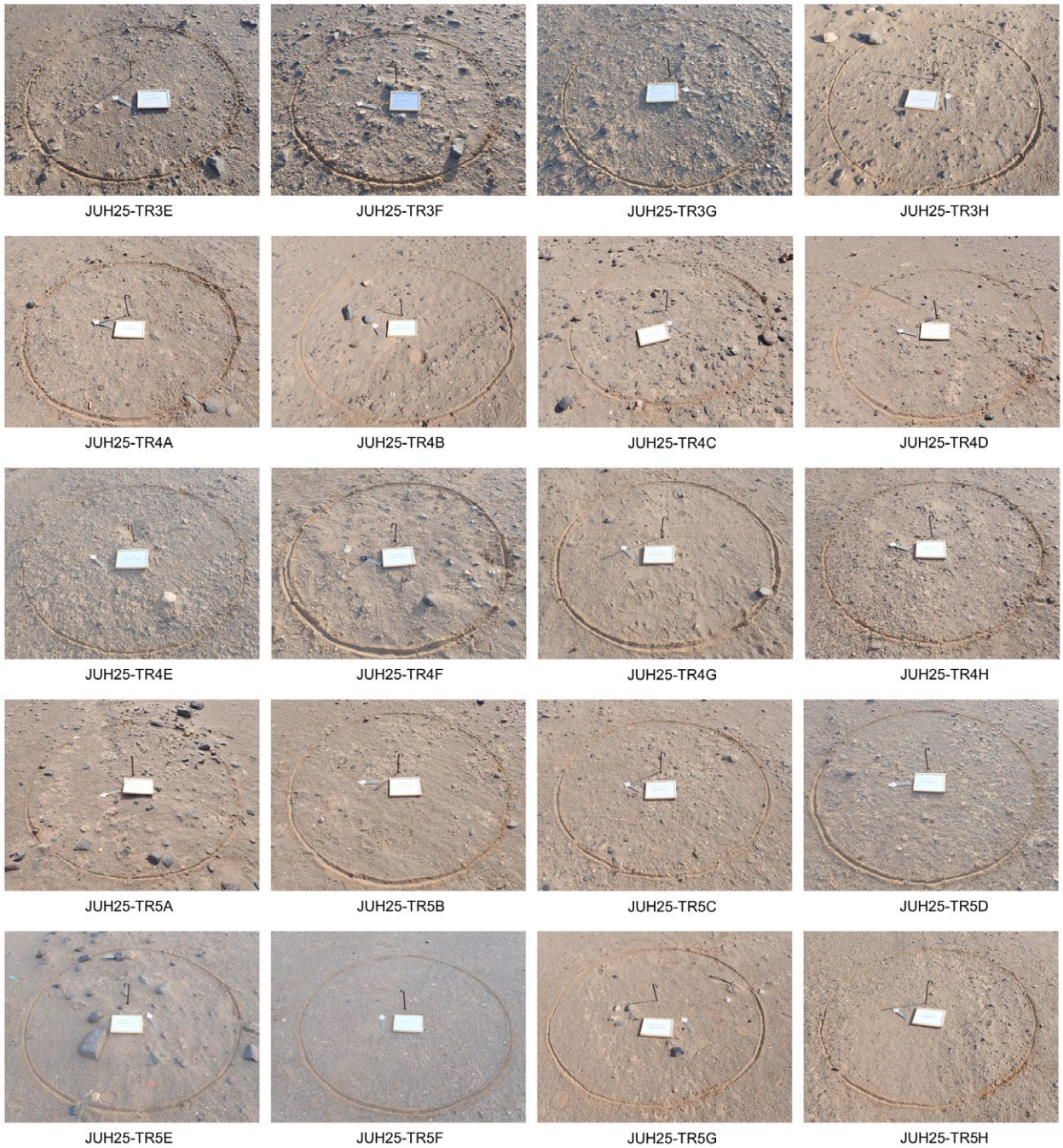


Figure 28. Reference photos of the transect survey sample points (photos N. Tait).

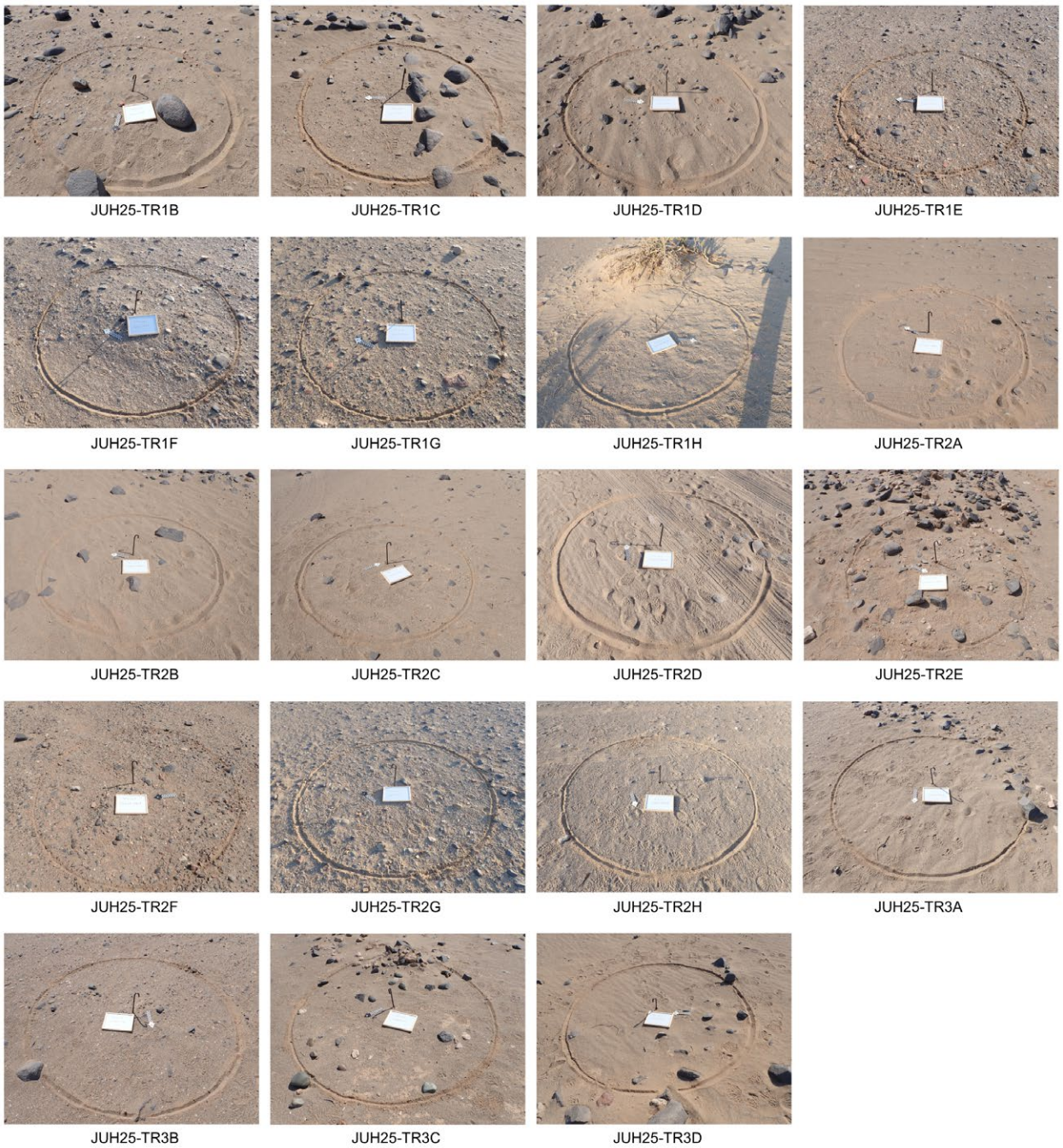


Figure 29. Reference photos of the transect survey sample points (photos. N. Tait).

Chapter 4
Photogrammetric Survey

Frank Stremke

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Introduction

Ten days of field survey were completed in mid-November 2025, followed by two days of finds documentation in Jeddah. The survey was conducted by the author, assisted by varying team members. Aerial survey was conducted using three different UAV (drones) for aerial stills photography. Typical capturing height was between 50m and 100m above the ground (depending on camera sensor performance and required surface resolution). This image data was then processed in photogrammetry software and referenced by surveyed markers. The resulting rectified referenced ortho images and digital terrain models were processed into plans as well as digital products for further analysis in GIS software in Germany. For ease of use, the orthoimage can also be opened in Google Earth. For this project a specialized visualization technique was developed and used in the PDF plans. It consists of a carefully balanced merging of shaded 3D data and orthoimage colour information. Video renders of all 3D models were also delivered for ease of file management and presentation.

Methodology

Equipment and Software Used

Emlid GNSS equipment was used and the Emlid RX was employed as a network RTK rover in the KSA-CORS. The GPS unit was connected to a mobile phone and processing done in the Emlid Flow app and the results saved in the cloud. The point data of the GNSS was collected and administered using Microsoft Excel 365. After cleaning and labelling survey data, processing was done in QGIS 3.4.4.

Photography was done with a Ricoh GR II with an 18 mm f2.8 APS-C as well as the built-in drone cameras. For the DJI Mini 4 the FC8482, 24.0 mm f/1.7 (6.72 mm) for the DJI Air 2 the FC8282, 24.0 mm f/1.7 (6.72 mm) and for the Phantom 4 the FC6310S, 24.0 mm (8.8 mm). Additional photography was done with a Leica M3 (Voigtländer Ultron 28 mm f2 II/Leica Summarit 50 mm f2.5 and Voigtländer APO Skopar 90 mm f2.8). The film stock used was Kodak Pro Image 100. Field navigation for flights and target positioning was provided by Gaia GPS app on iPhone. All photography was catalogued, and tags applied in Adobe Photoshop Lightroom Classic CC 15.2.1. Additional photo editing was done in Adobe Photoshop CC 2026. Photogrammetry was processed in Agisoft Metashape Professional 2.1.3 Build 18946.

Co-ordinate Systems

Due to technical reasons, it was not possible to do all the processing in a single coordinate reference system as initially there was no access to the KSA-CORS (GPS reference system) and a local coordinate system based around BP01 was utilised. With the GPS running, KSA-GRF17 as the reference frame was employed, with the UTM zone 37N (EPSG code 9357) as a coordinate system. The transformation between the local and UTM coordinates was achieved with 12 identical points and a 2D Helmert transformation. Elevations were processed separately. The transformation standard deviation was 5mm, which is usable given the non-standard survey conditions (lack of forced centring and tripods). All GPS elevation data was calculated with a fixed undulation value calculated for a sample point in the middle of the survey area.

The handheld GPS data was transformed from WGS84 to KSA-GRF17 using the transform function in QGIS, which offers enough accuracy for hand held GPS applications (L1 and L5 data only). All processing and mapping was done in EPSG9357, and local coordinate data only appears in the point data of the first days in the final survey point database where only final values are represented. For archival reasons the ellipsoidal elevations are also given for GPS measurements, when working with the point data special care should be taken to work with the ortho heights provided.

Reference Point Survey

For GNSS survey, the rover was handheld (kinematic mode) with a monopod and spirit level. If the KSA-CORS system was used, the correction was transmitted to the receiver via Bluetooth connection with the mobile phone. The data management and receiver interface was done using an iPhone app (Emlid Flow).



Figure 30. Total-station at base point BP01 looking east (photo. F. Stremke).

The reference markers were first recorded in a GPS mapping app on a smartphone to ensure a proper pattern of points, as well as to help in finding these points again in the landscape. Later, during the GNSS measuring phase, this point data in the navigation app was re-opened and in the notes field it was marked if the point had been surveyed.

Total Station Survey

A Leica TS09+ total station was provided by the project (**Figure 30**). Unfortunately, it came only with one tripod and a mini prism with segmented prism stick. This proved a difficult combination for the longer baseline measurements, but fortunately, it was not needed after the GPS was operational. The initial scale used for the local coordinate system was 1 but for the work with the UTM coordinates a combined scale was used (0.99960245). The total-station was used for the *qaṣr* survey with reflector-less mode to survey targets placed on the vertical surfaces. It was also used on the last day to measure the created base points for balancing the GPS data. This was, however, limited in accuracy due to the hand held prism set up. Data was exported directly from the total station onto a USB stick, but limited to point data, and raw data was not exported.

UAV aerial photography and photogrammetry

The aerial survey was conducted using three models of locally provided UAVs made by DJI with different cameras used depending on their availability. From a processing standpoint, this is a suboptimal procedure, but due to technical difficulties it was the only way to acquire the images in the time provided. During normal survey operations, the camera was pointed straight down (nadir mounted). The *qaṣr* survey also required oblique photographs of all vertical surfaces, to merge these successfully with the ground-based photogrammetry. Before every survey flight, a reference frame with colour card was taken for calibration and as a visual divider between flights and photo blocks. All photographs were recorded in raw (DNG) format and then processed for colour and contrast in Adobe Lightroom.

The usual flying pattern was a single zebra pattern without a turn for the return segment meaning the camera was always pointing in the same direction during the individual photo block recordings. The *qaṣr* was recorded in a double zebra pattern. The targeted overlap was 80% along and 50% parallel to the flight lines, this overlap was manually adjusted by sight using



Figure 31. Areas assigned for work compartmentalization (photo. F. Stremke).

the live view on the remote controller. Aircraft and camera were manually controlled at all times, auto-flight features were not used. Photo blocks (areas) (**Figure 31**) which required more than one flight were continued at the last camera location or provided with an extra overlay for safety after landing for battery change. Time between flights was minimized as much as possible to allow for uniform lighting. Moreover, it was tried to achieve similar light conditions for the different blocks by flying in a window of the best light at all days. However, due to meteorological constraints and ground humidity differences after rain, a slight colour difference between photo blocks remains, and this was reduced during post-processing.

Ground-based photogrammetry

Additional ground-based photogrammetry was conducted at TP3, south of the *qaṣr*, as well as in the *qaṣr* itself. The photos were taken with the same Ricoh GR II camera used for the object photogrammetry. At first, a circle was recorded around the trench, taking overview photographs of the whole trench area with the camera as high as possible above the ground. Afterward, hand-held oblique photos were taken of all sections and elevations, especially the northern section which created much better 3D models than only using vertical photographs. In the *qaṣr*, it was ensured that a good overlap between the last oblique photos taken with the

Data Sheet / Database Printout

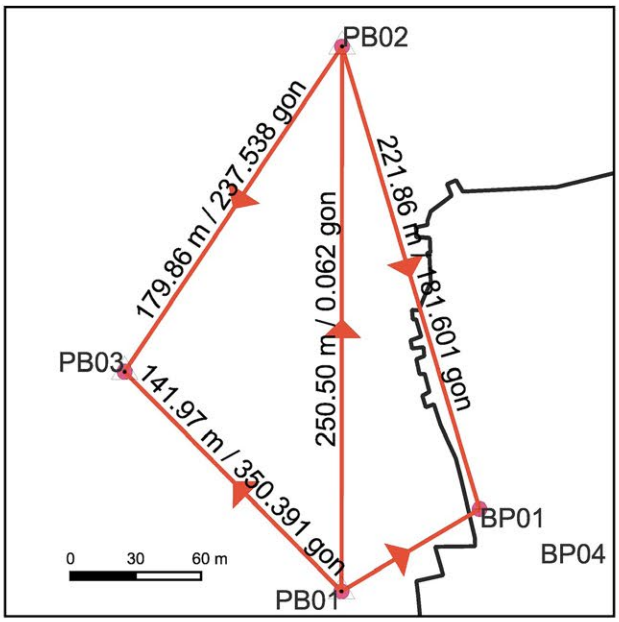
Base Point Cards / Al Juhfa 2025

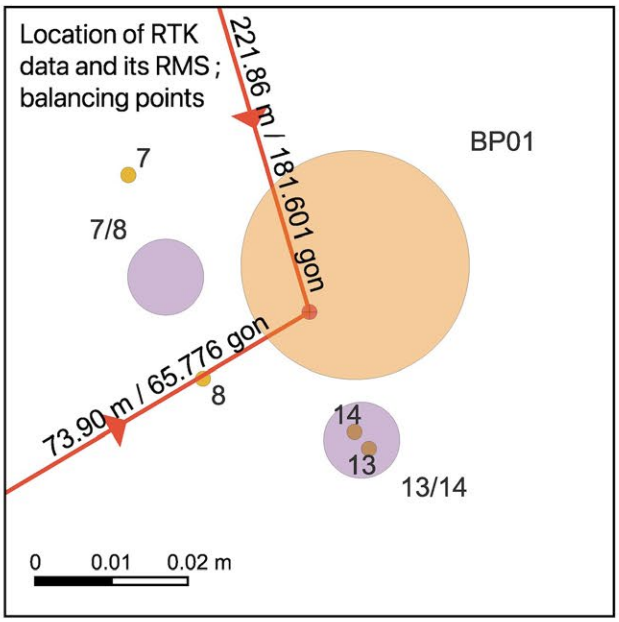
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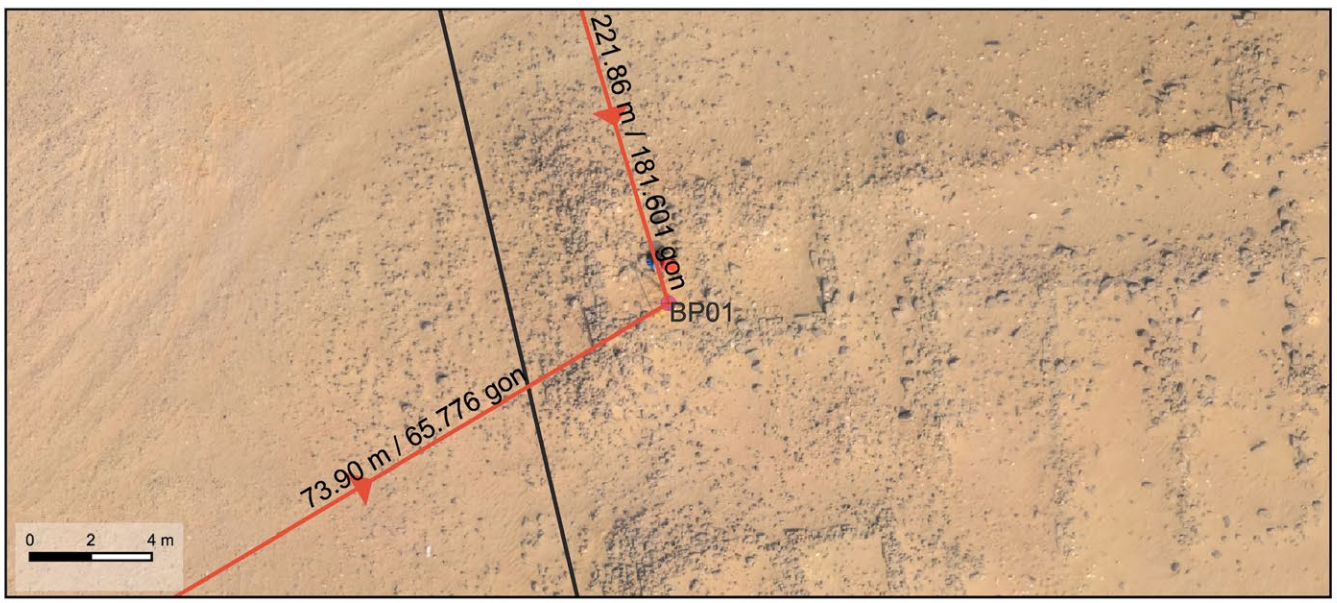
Stremke Archaeology

Base Point: BP01

Date: 2025-11-22 Project: Al-Juhfa (KSA) 2025 Grid EPSG:9357 Elevation system: Ellipsoid with fixed undulation correction 6.11m applied Remarks: Temporary point probably not preserved Source: RTK survey, balanced with total station between points. RTK antenna and prism hand held only. Description: Permanent marker cross on stone	X: 513988.361 Y: 2514734.485 Z: 33.818 Scale (combined): 0.99959632







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Figure 32 (Opposite page). Example of data sheet (photo. F. Stremke).

drone and the first hand held shots provided sufficient overlap to process these image sets together. Initially, it was planned to have an extra image set between the UAV and the hand held images by using a 4m camera pole. However, this was not needed, and the images required from this height and angle were instead also recorded with the UAV. For this model, 705 hand held, and 579 aerial photographs were taken. During the ground based as well as the aerial photography, the focus was locked to increase reconstruction quality.

Moreover, after the fieldwork, a set of object photogrammetry models was created in the office in Jeddah. Since the object photogrammetry was not part of the initial assignment, it had to be improvised using the equipment available. To achieve this the camera and light source were moved around the static object, initially with a neutral background and then with a textured one to increase the alignment accuracy. However, the reconstruction scale was limited due to the lens available.

Processing and Archiving of Data during Fieldwork

A strict daily routine was followed to allow for redundant data back up and quality assurance (**Figure 32**). All the photos were downloaded to a common folder and catalogued for flight number and site in an Adobe Lightroom catalogue. There, the images were also checked for correct exposure and focus, as well as the absence of motion blur. The photos were then bulk edited for maximum shadow detail and sharpness, as well as reduction of chromatic aberration and vignetting.

The UAV wrote GPS coordinates into each file; these were, however, very rough and in the wrong reference frame. The edited and geotagged photos were then exported as JPG files into the flight processing folders for each flight number. Meanwhile, the GNSS survey data was downloaded from the cloud server to create point files with the coordinates of each control point. In Metashape Pro, the images were aligned at a very low setting using the GPS coordinates from the flight data recorder as rough guidelines for image matching. Finally, the results were inspected and compared against the surveyed ground control points. Special care was taken that the overlap was sufficient and would not later create processing problems. Fortunately, all models were suitable for further processing and only one additional 'fill-flight' had to be conducted. The last step was a complete-synchronized back up of the project folder on a second hard drive. Therefore, triple redundancy was achieved since the raw data was not deleted from the GNSS devices and the image data was archived in unprocessed raw form directly from the memory card on a separate hard drive. Additionally, an activity log was kept for use in processing and reporting.

Post-Fieldwork Processing

Photogrammetry

After editing the photos in Lightroom, the images to be used for photogrammetry were exported into model specific folders. Usually, the model specific folders were labelled with the flight (FLT) or terrestrial scan number (TPS). As soon as the colour corrected images finished exporting into the model folders, images were imported into Agisoft Metashape. In here, the first step was the automatic assessment of the image quality and careful scanning of the numerical results so that individual photos could be eliminated from further processing. The main reason for low numerical image quality was motion blur. After the image quality test, an initial low-quality alignment was performed to isolate problematic photos (from an alignment standpoint). The embedded GPS positions in the image metadata were very useful in accelerating the alignment process. However, before further processing, these coordinates had to be transformed into the coordinate system that was used (KSA-GRF17/UTM zone 37N).

Transformation was done in Metashape itself with the next step in the processing workflow the introduction of ground control points (GCP). These coordinates from survey markers (targets) were collected in the field by GNSS and total station survey. The reference point data was introduced into Metashape using the point lists in CSV format. Points not needed were deleted immediately after the import. To simplify the process of marker placement on the images, an initial round of marking the position of every third marker on its first three images was done. This meant the georeferencing of the model was updated which placed the remaining markers within a few centimeters of their final position, making it much easier and quicker to mark their position on all the relevant images. Marker placement was done by filtering the images for a specific marker and then placing this on all images where the marker was visible or at least a clear bright patch of pixels marked its position. This resulted in many thousands of markers to be placed, but by experience this significantly improved the geometric accuracy and reliability.



Figure 33. 3D model of the *qaṣr* (photo. F. Stremke).

Next the final alignment and optimization was completed. The optimization was conducted by filtering the sparse point cloud after alignment by a set of reference values and deleting all the points not showing enough reliability. Then the optimization function was used, and the final accuracy assessment results were inspected. The whole model was checked for settings and parameters and finally the dense cloud generation could be started. On more complex models, the point cloud was generated first for sample areas and the reconstruction quality assessed. Point cloud generation was run with high or highest setting to get the highest resolution for the digital elevation models. Since most of the dense point clouds contained well over 500 million points, the usual export procedure was changed. Instead, the 3D model was created directly from the depth maps (**Figure 33**) and only tiled 3D models were created since the ultra-high quality settings made creation of single 3D models almost impossible.

The next standard procedure in the photogrammetry post-processing was the creation and export of processing report and DEM (Digital Elevations Model). The orthoimage was calculated based on the DEM. Before the export of the orthoimage, it was checked carefully for any blurry or unusually exposed images, as well as for cars or people in the picture, and the parts in question were manually replaced by better suited images. A short video was also produced show-casing the main parts of the model to make it easier for the user to identify and preview the model in its extent and resolution without opening the file.

Standard Photogrammetry Output

A standardized system to export and name the photogrammetry results was employed usually holding information about the scan and model number, as well as the type of export and its number. Further information in the filename contains, if applicable, resolution coordinate reference system and a description (labelling) of the file. Thus the filename usually consists of (each segment separated by an underscore):

1. Identifier terrestrial or aerial scan (TPS, FLT).
2. Flight or terrestrial scan number (three-digit number) irrespective of project.
3. Model number with the prefix M and a single digit number (this is the processing version).

4. Type of export followed by a single digit number (this is if, for example, several orthoimages, such as plan view and elevations, are exported).
5. If applicable. Resolution per pixel rounded to the next natural number followed by the resolution length unit, for videos the resolution type (HD, 4K) and additional information such as 3D video.
6. EPSG code of coordinate system (if geo-referenced).
7. Description, in this project usually the site name.
8. Further description, as required.

GIS

Open-source QGIS was used, and the results imported in the form of a survey points list, the model extended polygons and ortho images/DEM files. In QGIS, the data was sorted and grouped. To ease the print/plan export phase, layer states were created to save and recall the state and styling of the layers for certain views and plan types. For reference and overview plans, additional satellite imagery and terrain data was downloaded from the ESA Copernicus open science hub to show the site surroundings in larger scale so as not to have blank map backgrounds. All files were similarly styled with the same coloured overlay over a multi shaded seven-times enhanced elevation model. For the *qaṣr* area details, the elevation model enhancement was left at Z factor 1. The colour scale was adjusted to give the best use of the spectrum for the elevations of interest to the particular models. An additional visualization scheme was introduced as visualization 'C', a blend of shaded terrain model and orthoimage. Whereas for the tiled plan generation the report function was mostly used in QGIS, and for all other plans the map function was used.

Photogrammetry Results

As this was the first season, the work concentrated on the documentation of the core area and then radiated outwards. The work proceeded without any major difficulties with good weather conditions and rain only occurring at night. In total, 8424 photos were taken of which 5637 were aerial photographs. For ground-based photogrammetry, 2514 photos were taken and the number of ground-based survey points recorded was 166. Flying was done in 14 missions with three different UAVs, and 12 photogrammetry models of varying extent and complexity were recorded and processed. Ultimately, a total of 464 A3 plans and 7 A0 sized plans and elevations were created based on these models with the total area covered for ortho images and 3D modelling 2.8km².

Chapter 5
Interpretation of the Aerial Survey Results

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Introduction

The interpretation of the plans produced from the aerial survey data has allowed the identification of varied features that are presented in **Table 4**, and which were not always visible during pedestrian survey. However, it should be noted that as the plans overlap some of these features are represented on more than one plan so the figures provided relate to each plan and should not be used to calculate overall totals of the features recorded. A full digital data set has been deposited with the Centre for Islamic Archaeology, University of Exeter, and the Saudi Heritage Commission.

Results

The detailed photographs allow identification of many features and examples are provided in **Table 4** and in **Figures 34 to 97**. Notable instances include the stone walls delimiting the pass at Thaniyyat Al-Azuriwyah (**Figures 35 and 36**), as well as three stone structures or enclosures and two stone cairns or burials west of the pass (**Figures 37 and 38**). Within the campsites various features are visible; a stone hearth surround (**Figure 57**), a u-shaped stone structure or windbreak (**Figure 60**), possible outlines of stones used as potential weights on tent edges, thereby leaving an archaeological marker of transient occupation (**Figures 61, 84, and 85**), a stone qiblah wall and mihrab (**Figure 58**), another possible mosque (**Figure 75**), and an irregularly shaped wall that may have functioned for flood control (**Figure 63**). Stone structures were also identified such as two multi-room buildings with courtyards (**Figures 74 and 78**), and another multi-room structure in the southern campsites area (**Figure 82**), as well as a three room stone structure in the western campsites area (**Figure 72**).

The wadi largely lacked features, but a stone structure and spread of stone rubble is a possible *birkah* or well (**Figure 88**). Whilst east of the wadi in Siwak, numerous features are visible including a possible mosque (**Figure 90**), a large multi-room building with an unusual semi-circular recess facing east (**Figure 91**), a line of single room structures (**Figure 94**) and circular stone features, possibly bases or platforms for furnaces (**Figure 96**). It is also apparent that the density of features increases in the campsites in proximity to the stone town (e.g., II-1-7c-A and II-1-7d-A) and correspondingly decreases with distance. Finally, the *qanāt* is also visible, though it should be noted that the blue dots used in **Figures 41 to 48** are arbitrarily placed as a schematic device to show its route and do not mark the actual position of the maintenance shafts.

Table 4. Features identified in the aerial survey of Al-Juḥfah and its environs.

Site	Features	Plan	Figure
Al-Azuriwyah north	Two unidentified stone features	II-1-2c-C	34
Al-Azuriwyah north	Two stone walls delimiting the route on the pass and four circular stone cairns or pre-Islamic burials	II-1-2d-A (and II-3-7)	35
Al-Azuriwyah north (detail)	Two stone walls delimiting the route on the pass (42.28, 44.2)	II-3-7	36
Al-Azuriwyah west	Possible stone-walled enclosure	II-1-3c-A	37
Al-Azuriwyah west	Eight lengths of stone wall delimiting the route on the pass, two stone cairns or burials, two groups stone features/ structures/enclosures	II-1-3d-A (and II-3-12, II-3-23)	38
Al-Azuriwyah west (detail)	Three linear stone structures or enclosures (49.18)	II-3-12	39
Al-Azuriwyah west (detail)	Two stone cairns or burials (49.97, 50.12)	II-3-23	40
Al-Juḥfah east	*Qanāt* line	II-1-3h-A	41
Al-Juḥfah east	*Qanāt* line	II-1-3i-A	42
Al-Juḥfah east	*Qanāt* line	II-1-3j-A	43
Al-Juḥfah east	*Qanāt* line	II-1-3k-A	44
Al-Juḥfah east	*Qanāt* line	II-1-2k-A	45
Al-Juḥfah east	*Qanāt* line	II-1-2I-A	46
Al-Juḥfah east	*Qanāt* line	II-1-4f-A	47
Al-Juḥfah east	*Qanāt* line	II-1-4g-A	48
Al-Azuriwyah south	L-shaped stone wall	II-1-4d-A	49
Al-Azuriwyah south	L-shaped stone wall	II-1-4e-A	50
Campsite north	Possible stone structure	II-1-4h-A	51
Campsite north	Possible stone structure	II-1-5d-A	52
Campsite north	Boulder with Arabic inscriptions and *wusūm*	II-1-5e-c	53
Campsite north	Three possible stone outlines or enclosures	II-1-5f-A	54
Campsite north	Possible stone outline or enclosure	II-1-5g-A	55
Campsite north	Two possible stone structures, qiblah wall, and a hearth (and II-3-32)	II-1-6c-A (and II-3-32, II-3-35)	56
Campsite north (detail)	Stone hearth surround (28.32)	II-3-32	57
Campsite north (detail)	Stone qiblah wall and mihrab (28.73)	II-3-35	58
Campsite north	One stone structure, one possible stone structure and eight stone features	II-1-6d-A (and II-3-55, II-3-95)	59
Campsite north (detail)	One stone feature and one u-shaped stone structure or windbreak	II-3-55	60
Campsite north (detail)	Five stone features – tent weight outlines, hearths, wind breaks	II-3-95	61
Campsite north	One possible stone structure and two stone walls	II-1-6e-A (and II-3-69)	62
Campsite north (detail)	Irregular shaped stone wall. Possible flood control measure	II-3-69	63
Campsite north	One unidentified stone feature	II-1-6f-A	64
Campsite north	Stone structure	II-1-7b-A (and II-3-1)	65
Campsite north (detail)	Stone structure (27.81)	II-3-1	66
Campsite west and north	One possible stone structure and 11 unidentified stone features	II-1-7d-A	67
Campsite north and wadi edge	One possible stone structure and two unidentified features	II-1-7e-A	68
Campsite west	11 stone features and structures	II-1-7c-A (and II-3-2, II-3-3, II-3-34)	69
Campsite west (detail)	Six stone structures (27.85)	II-3-2	70
Campsite west (detail)	One stone structure and stone features (27.85)	II-3-3	71
Campsite west (detail)	Three room stone structure (28.59)	II-1-34	72

Site	**Features**	**Plan**	**Figure**
Campsite south	One stone structure, possibly a mosque, a stone structure, and four unidentified stone features	II-1-9d-A (and II-3-45, II-3-58, II-3-101)	73
Campsite south (detail)	Multi-room stone structure with a courtyard (27.86)	II-3-45	74
Campsite south (detail)	Possible mosque (28.11)	II-3-58	75
Campsite south (detail)	Square stone structure (27.92)	II-3-101	76
Campsite south	12 stone structures and one large stone structure	II-1-9e-A (and II-3-60)	77
Campsite south (detail)	Large multi-room stone structure with a courtyard (29.96)	II-3-60	78
Campsite south	Two unidentified stone features, possibly graves	II-1-10c-A	79
Campsite south	One possible stone structure and two unidentified stone features	II-1-10d-A	80
Campsite south	Stone structure and four unidentified stone features	II-1-10e-A (and II-3-64)	81
Campsite south (detail)	Multi-room stone structure (28.11)	II-3-64	82
Campsite far south	One stone structure	II-1-10f-A	83
Campsite southwest	Stone weight tent outline, a stone structure, and an unidentified stone feature	II-1-9c-A (and II-3-44)	84
Campsite southwest (detail)	Stone weight tent outline (27.36), and a stone structure (27.49)	II-3-44	85
Wadi edge	One unidentified feature	II-1-7f-A	86
Wadi	Stone structure and spread of rubble. Possible *birkah*/well	II-1-8e-A (and II-3-57)	87
Wadi (detail)	Stone structure and spread of rubble. Possible *birkah*/well (20.11)	II-3-57	88
Siwak	One possible stone mosque, one stone structure, six unidentified stone features, and one elongated rubble spread	II-1-10g-A (and II-3-72, II-3-80)	89
Siwak (detail)	Possible stone mosque (22.78)	II-3-72	90
Siwak (detail)	Large multi-room stone structure with semi-circular recess to the east (21.86)	II-3-80	91
Siwak	Three unidentified stone features	II-1-10h-A	92
Siwak	Four stone structures, 8 unidentified stone features, and one elongated rubble spread	II-1-11g-A (and II-3-73, II-3-76, II-3-77)	93
Siwak (detail)	Line of single room stone structures (20.2, 20.61)	II-3-73	94
Siwak (detail)	Large rectangular stone structure (20.8)	II-3-76	95
Siwak (detail)	Circular, stone possible furnace bases or platforms	II-3-77	96
Siwak	One stone structure, 10 unidentified stone features, and one elongated rubble spread	II-1-11h-A	97

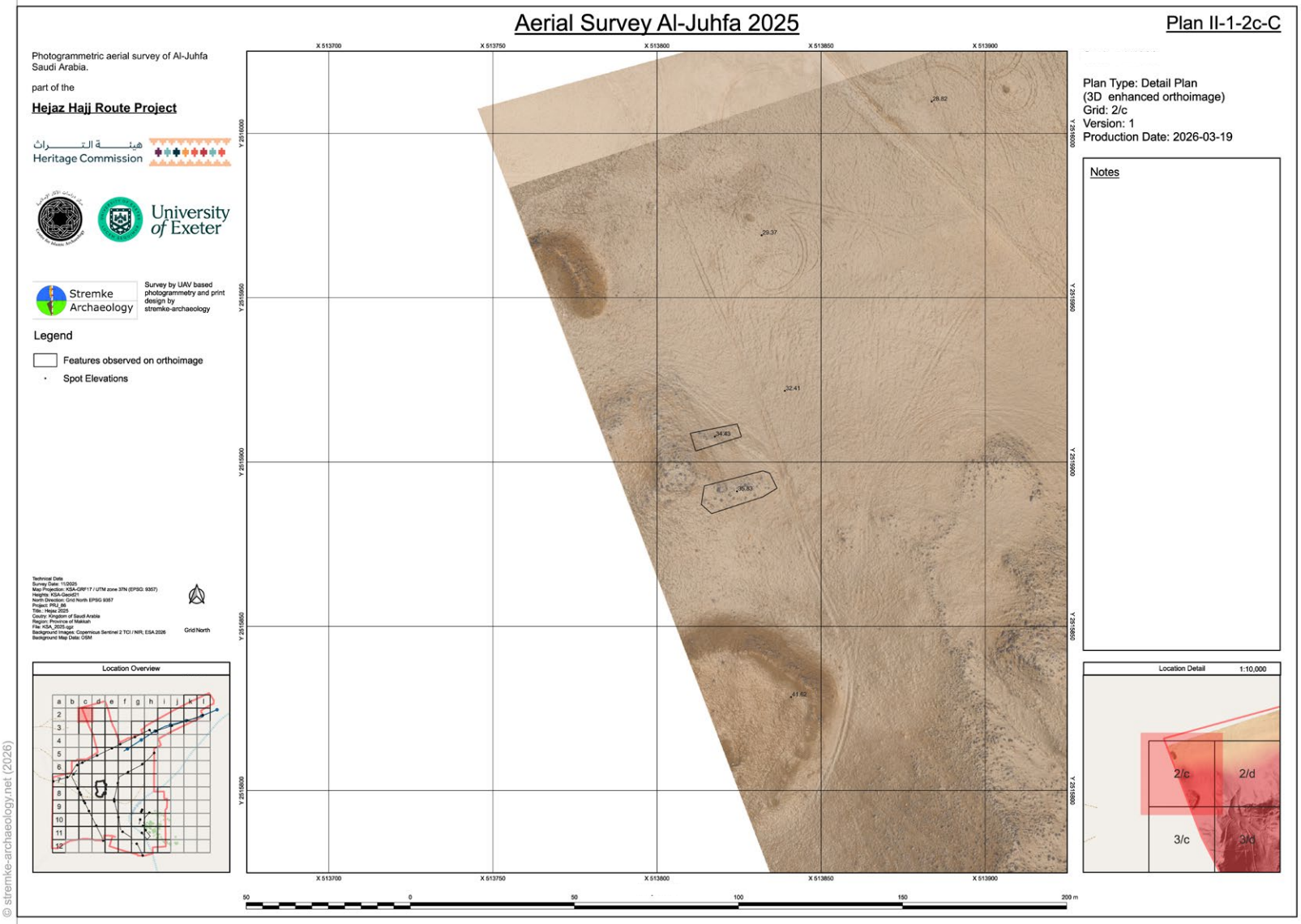


Figure 34. Al-Azuriwyah north. II-1-2c-C (Stremke Archaeology).

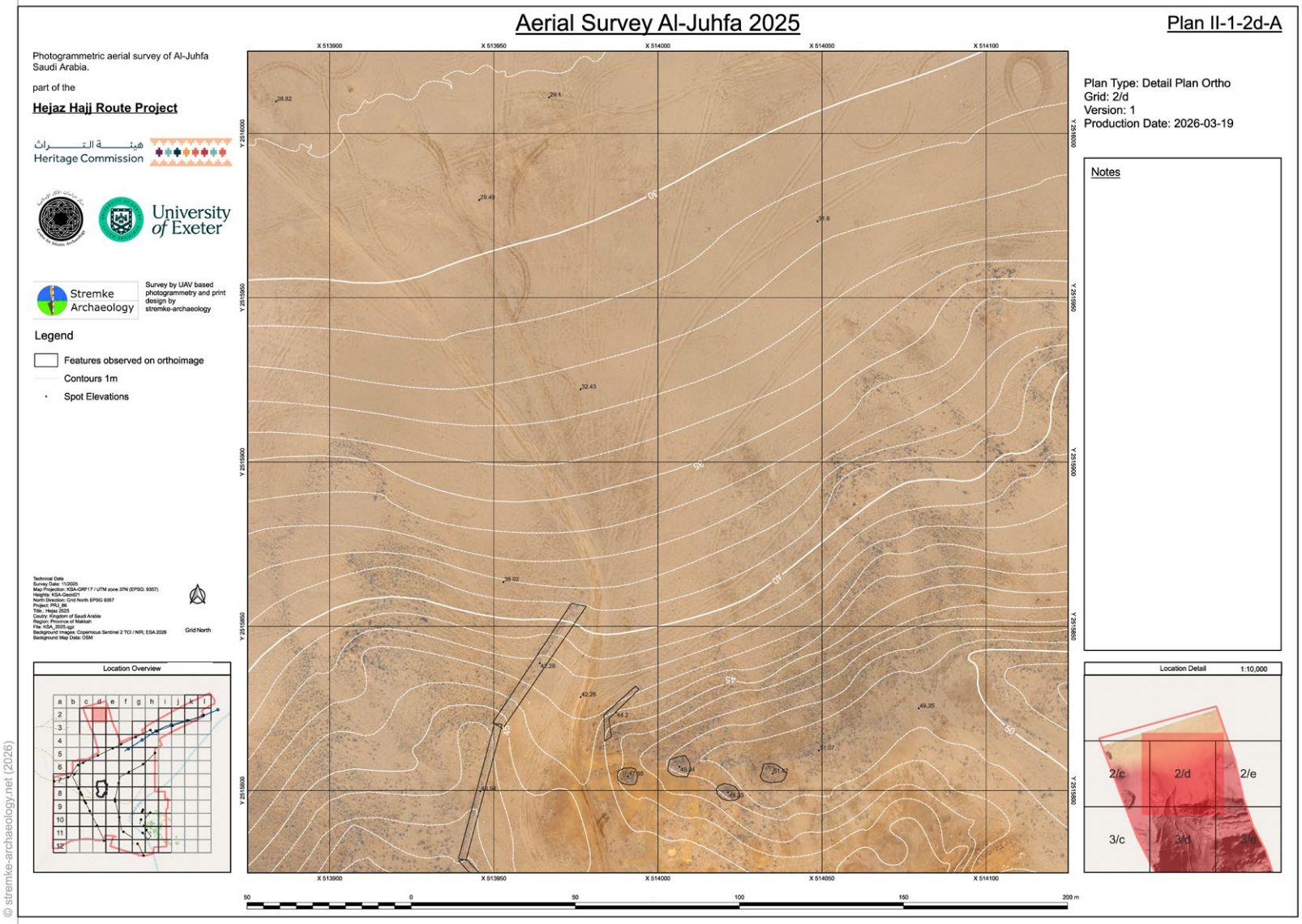


Figure 35. Al-Azuriwyah north. II-1-2d-A (Stremke Archaeology).

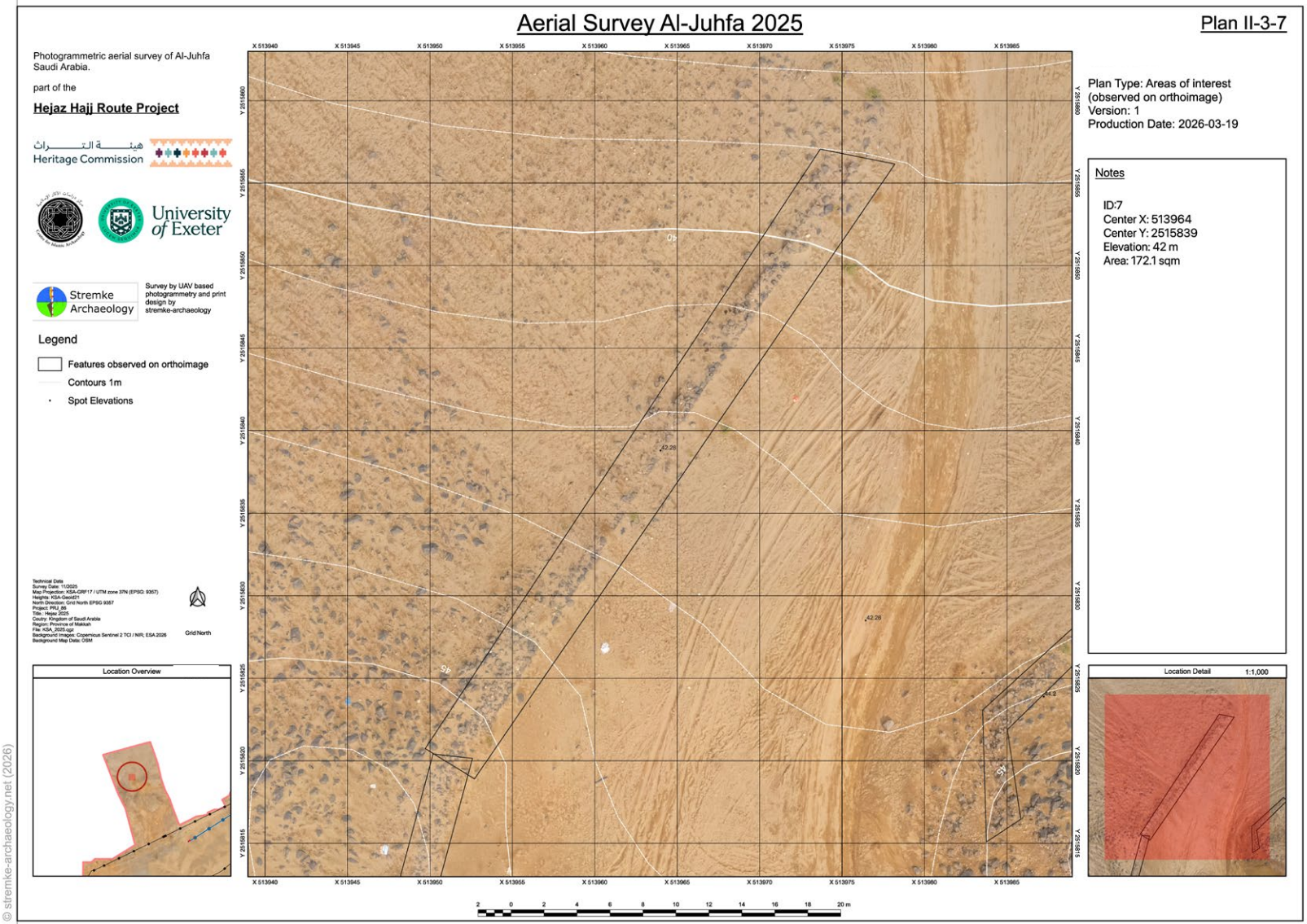
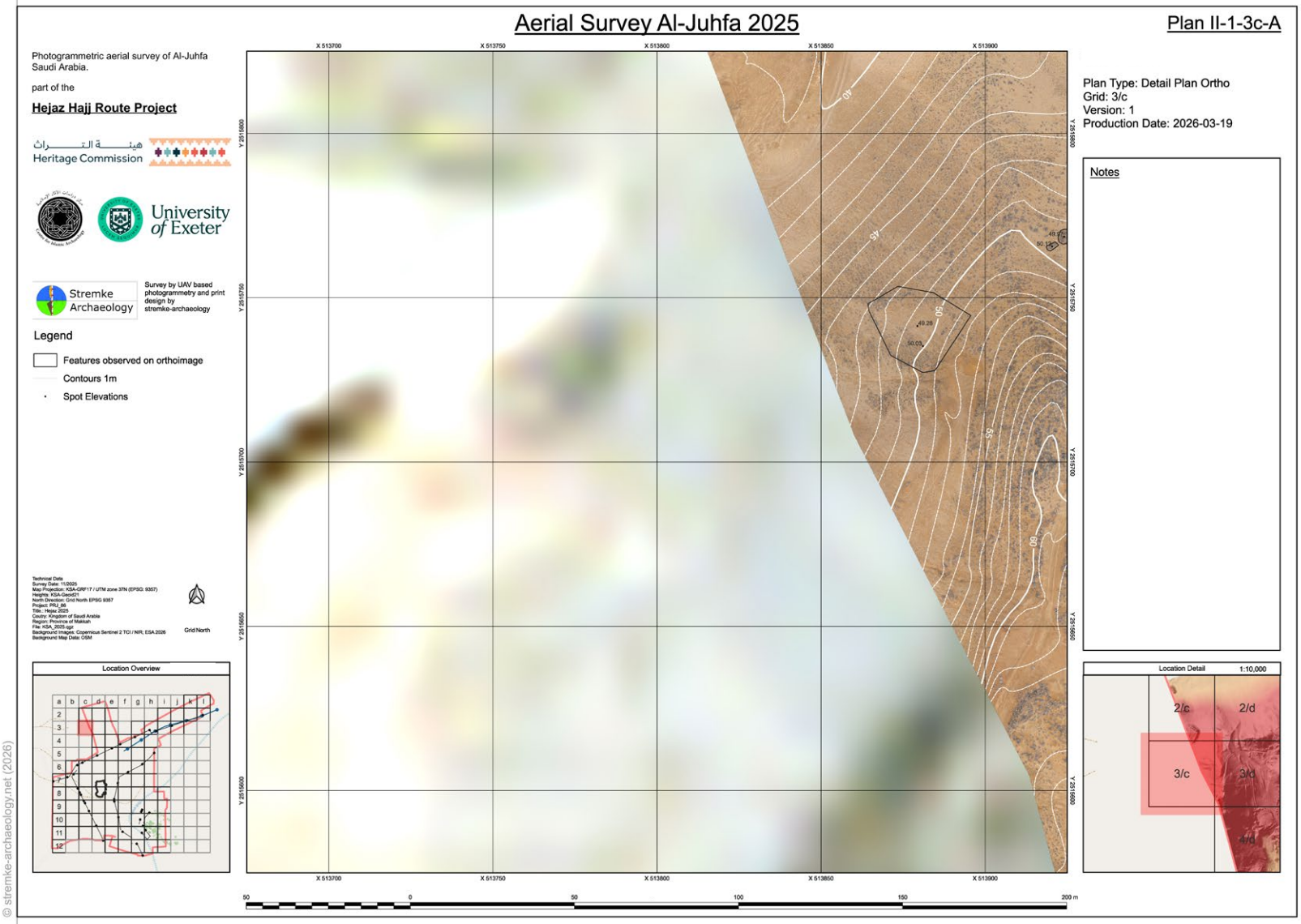
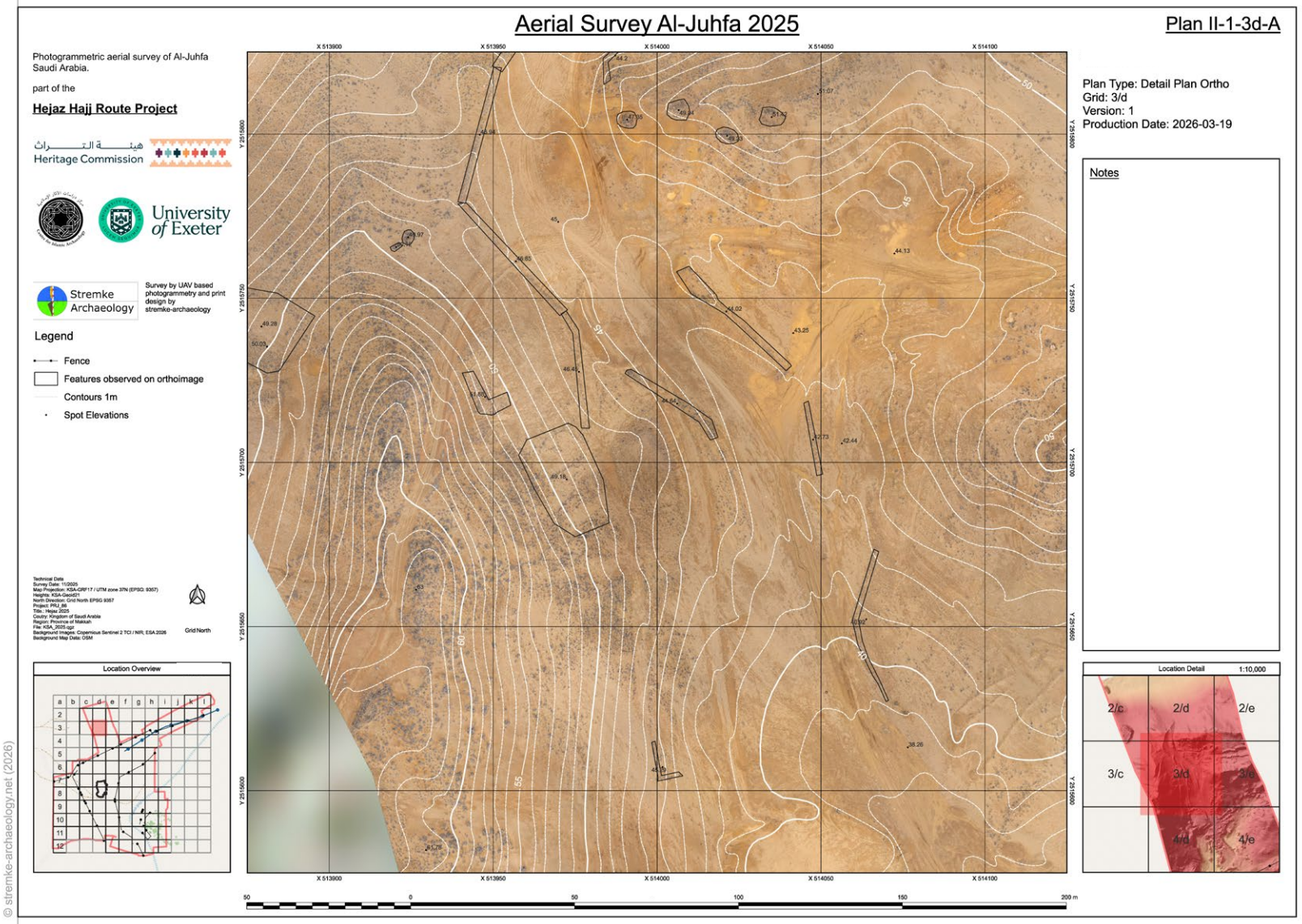


Figure 36. Al-Azuriwyah north (detail). II-3-7 (Stremke Archaeology).



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Figure 37. Al-Azuriwyah west. II-1-3c-A (Stremke Archaeology).



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Figure 38. Al-Azuriwyah west. II-1-3d-A (Stremke Archaeology).

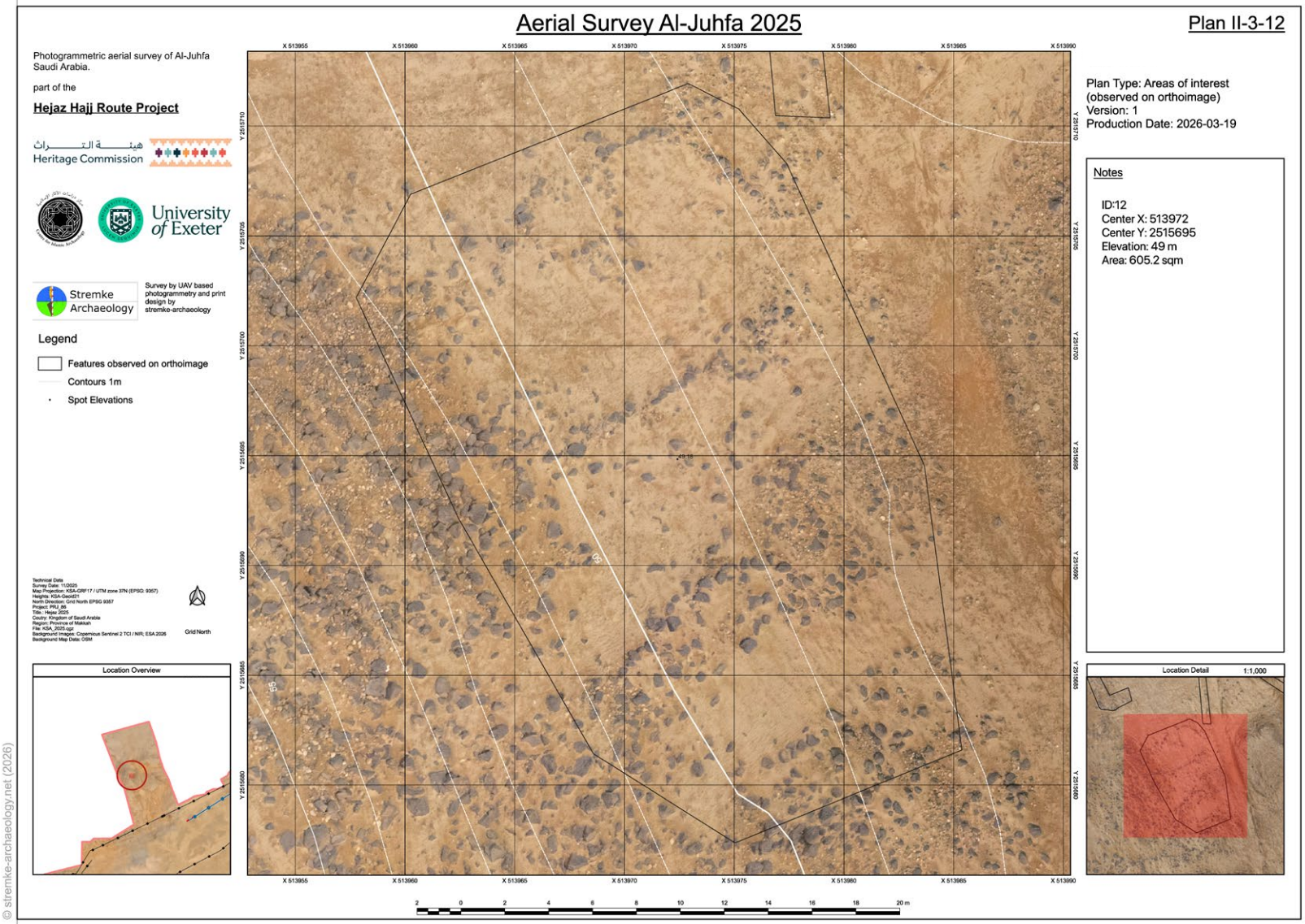
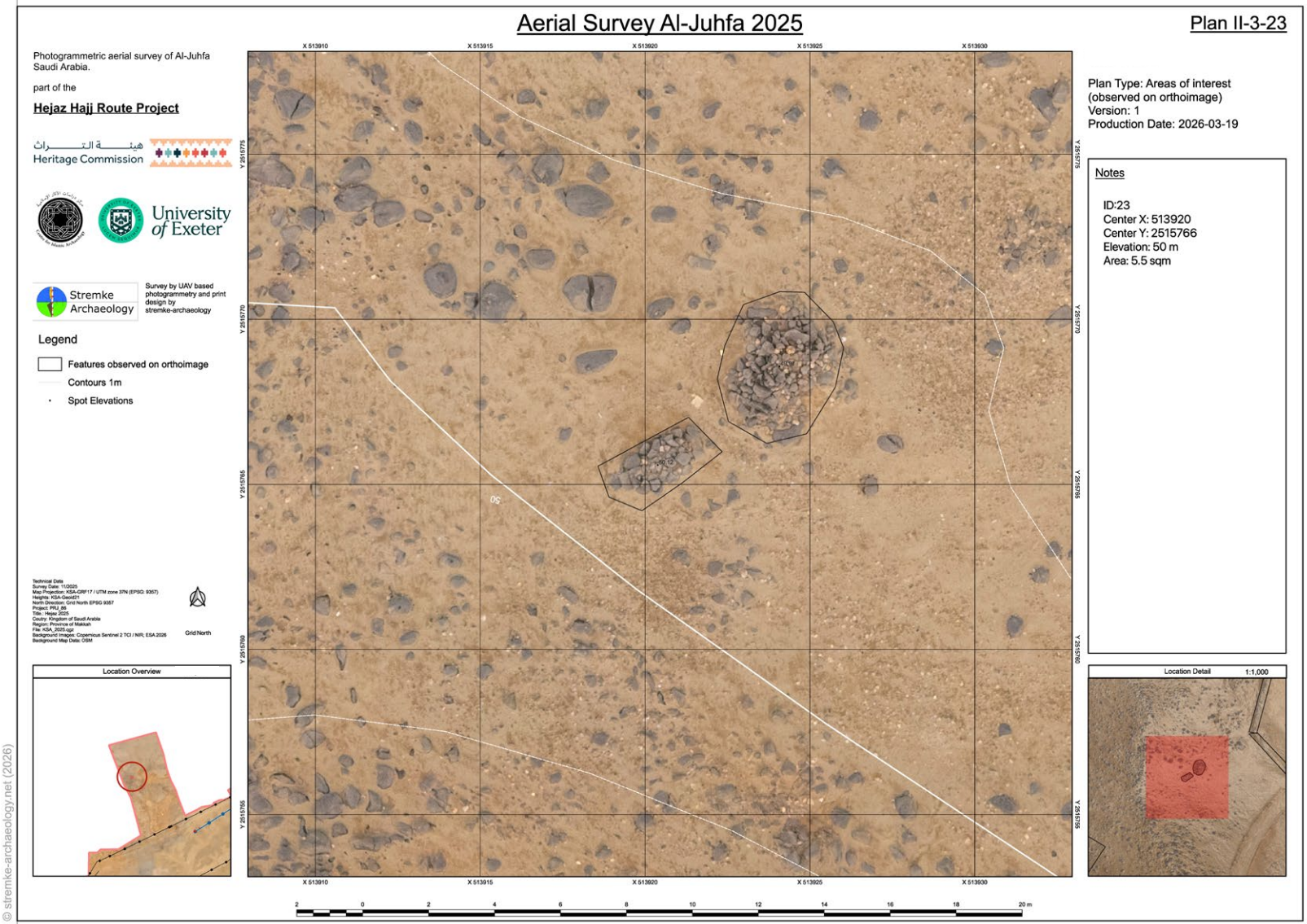
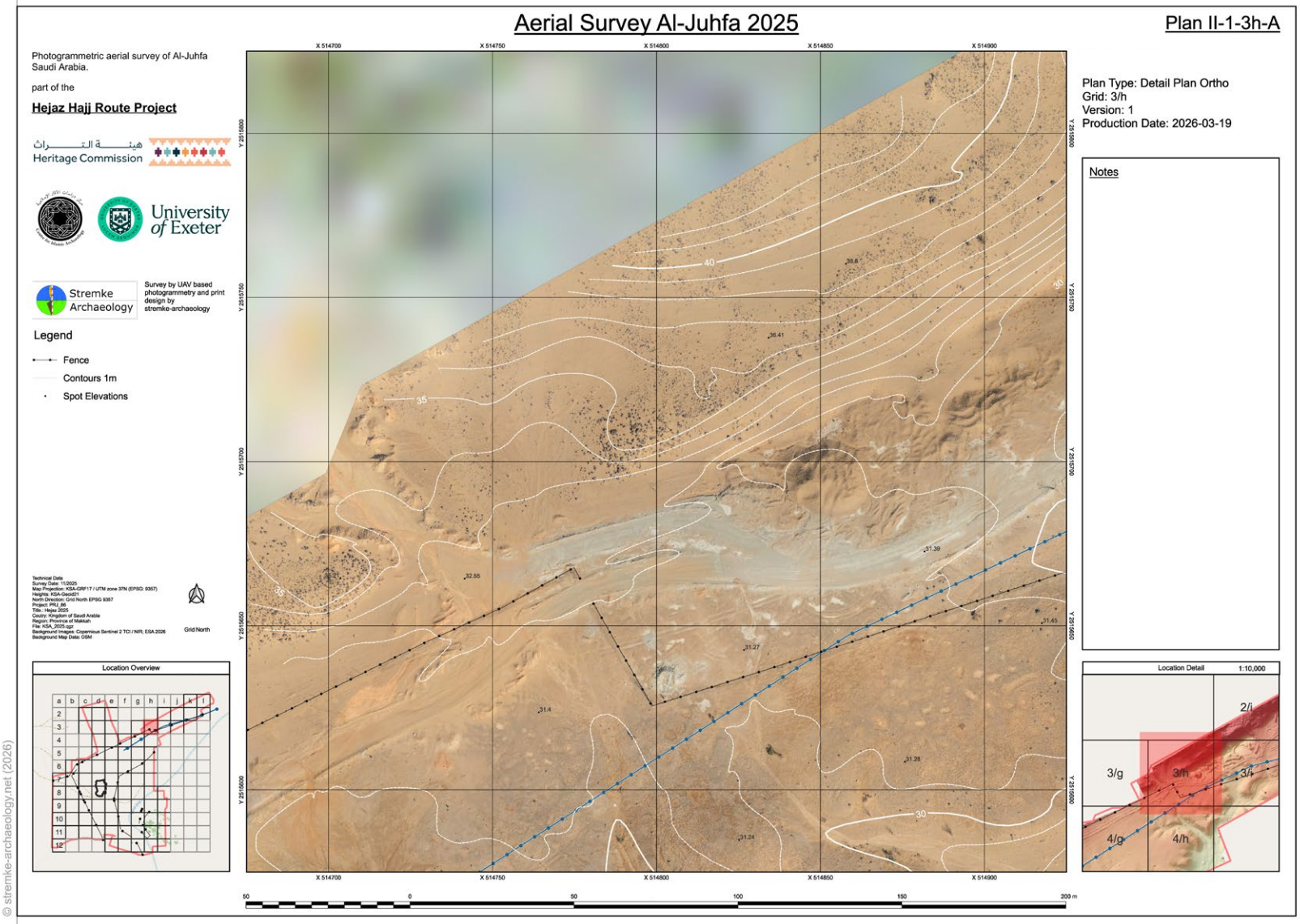


Figure 39. Al-Azuriwyah west (detail). II-3-12 (Stremke Archaeology).



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Figure 40. Al-Azuriwyah west (detail). II-3-23 (Stremke Archaeology).



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Figure 41. Al-Juḥfah east. II-1-3h-A (Stremke Archaeology).

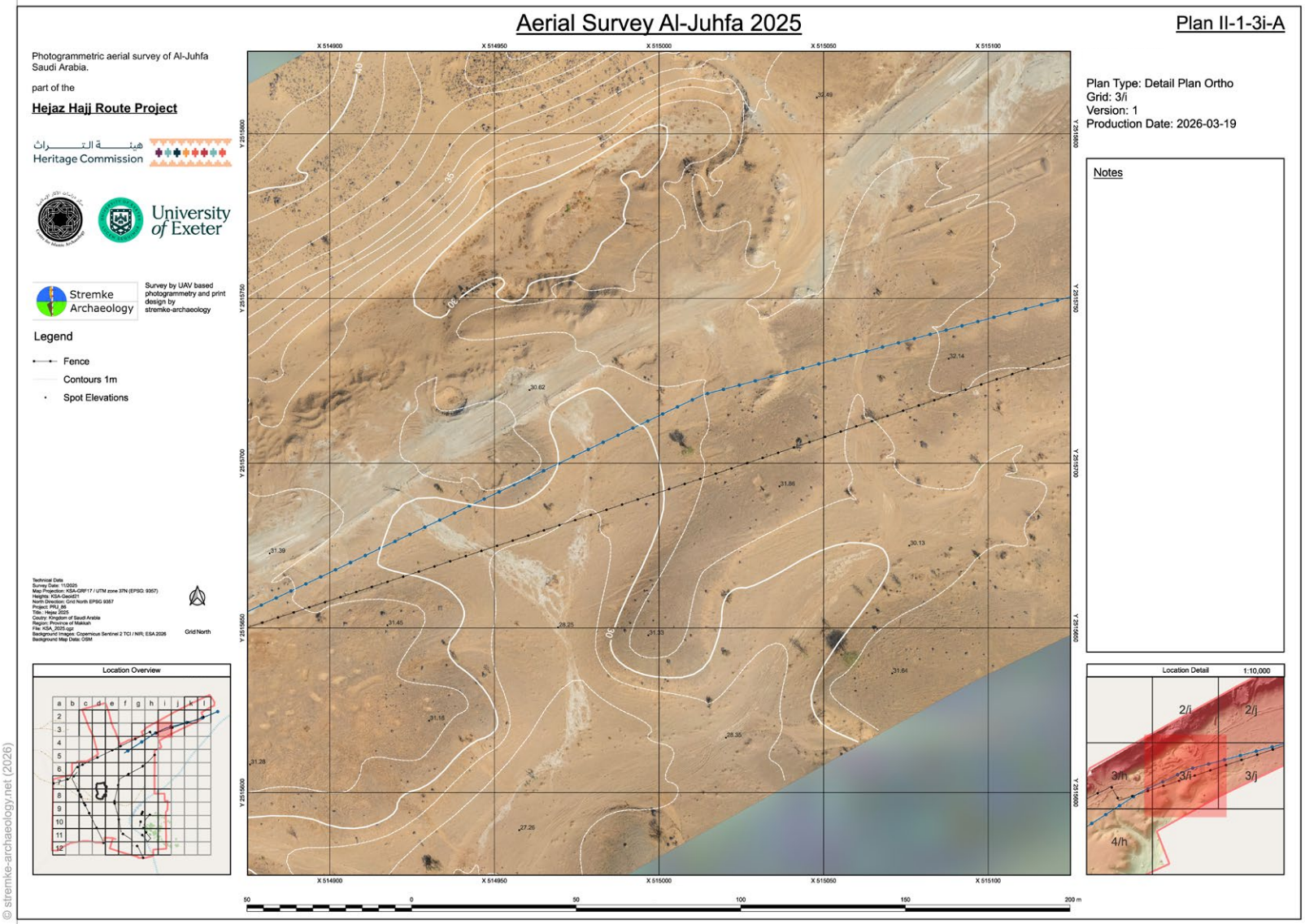
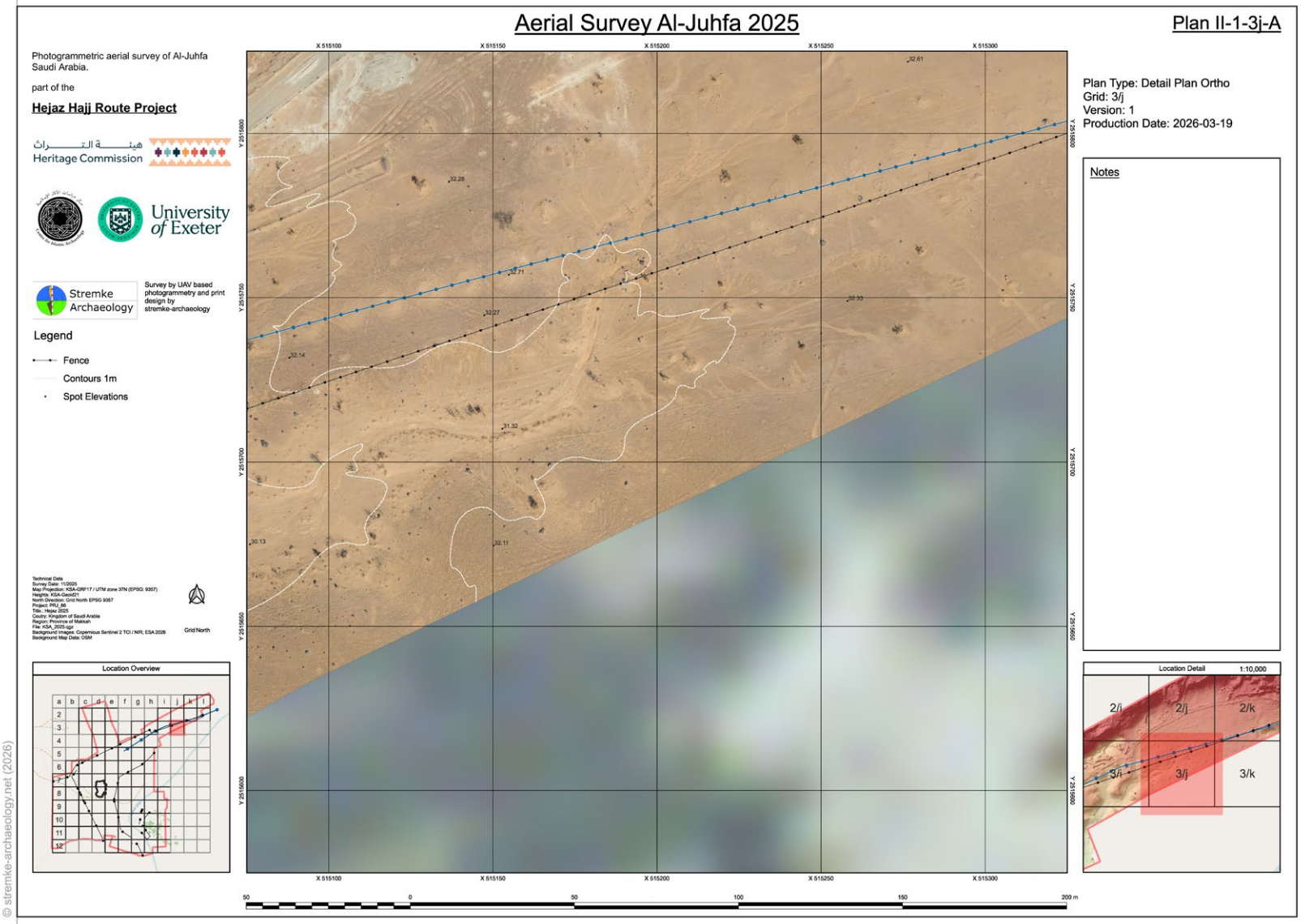


Figure 42. Al-Juḥfah east. II-1-3i-A (Stremke Archaeology).

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Figure 43. Al-Juḥfah east. II-1-3j-A (Stremke Archaeology).

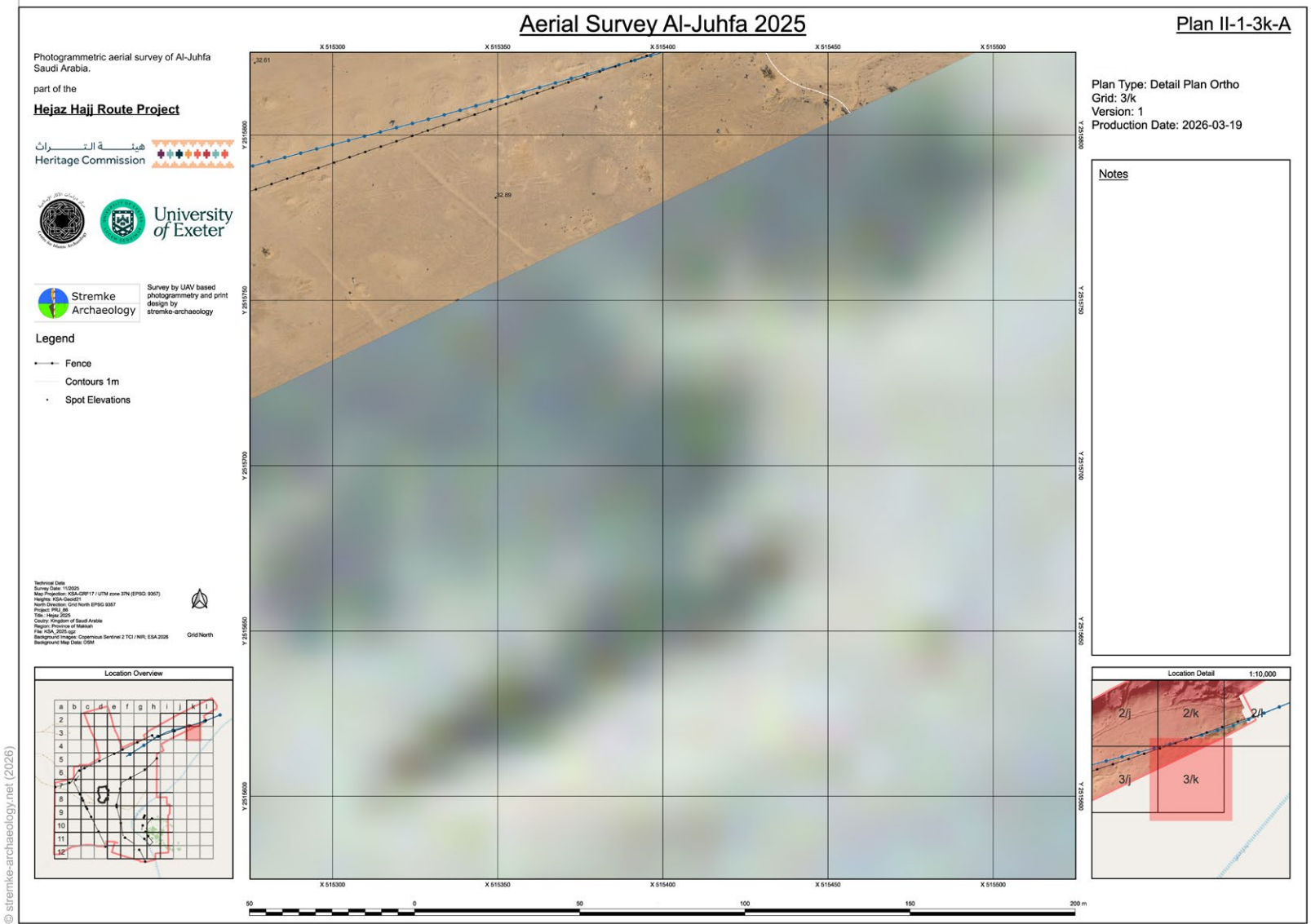


Figure 44. Al-Juḥfah east. II-1-3k-A (Stremke Archaeology).

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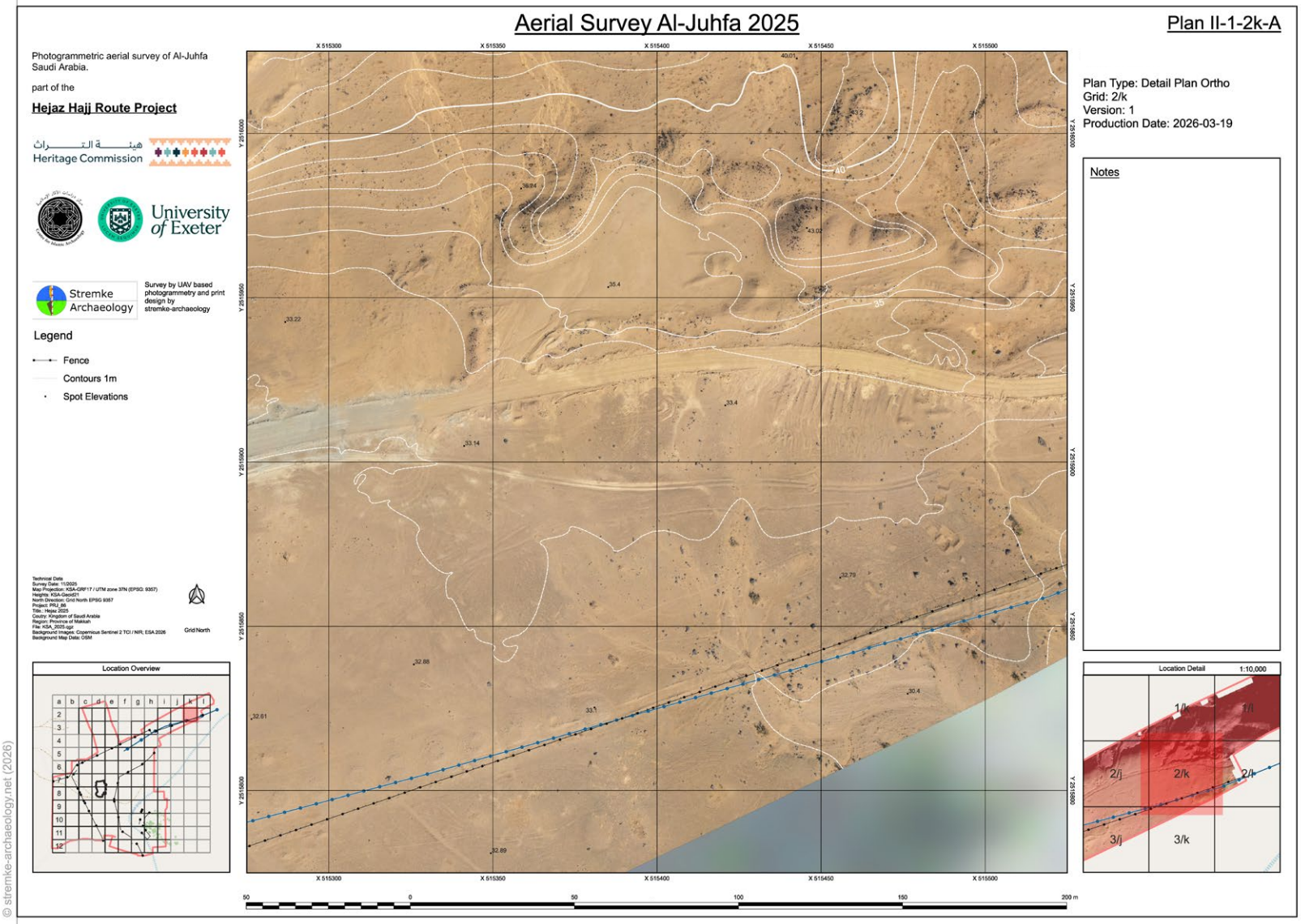


Figure 45. Al-Juḥfah east. II-1-2k-A (Stremke Archaeology).

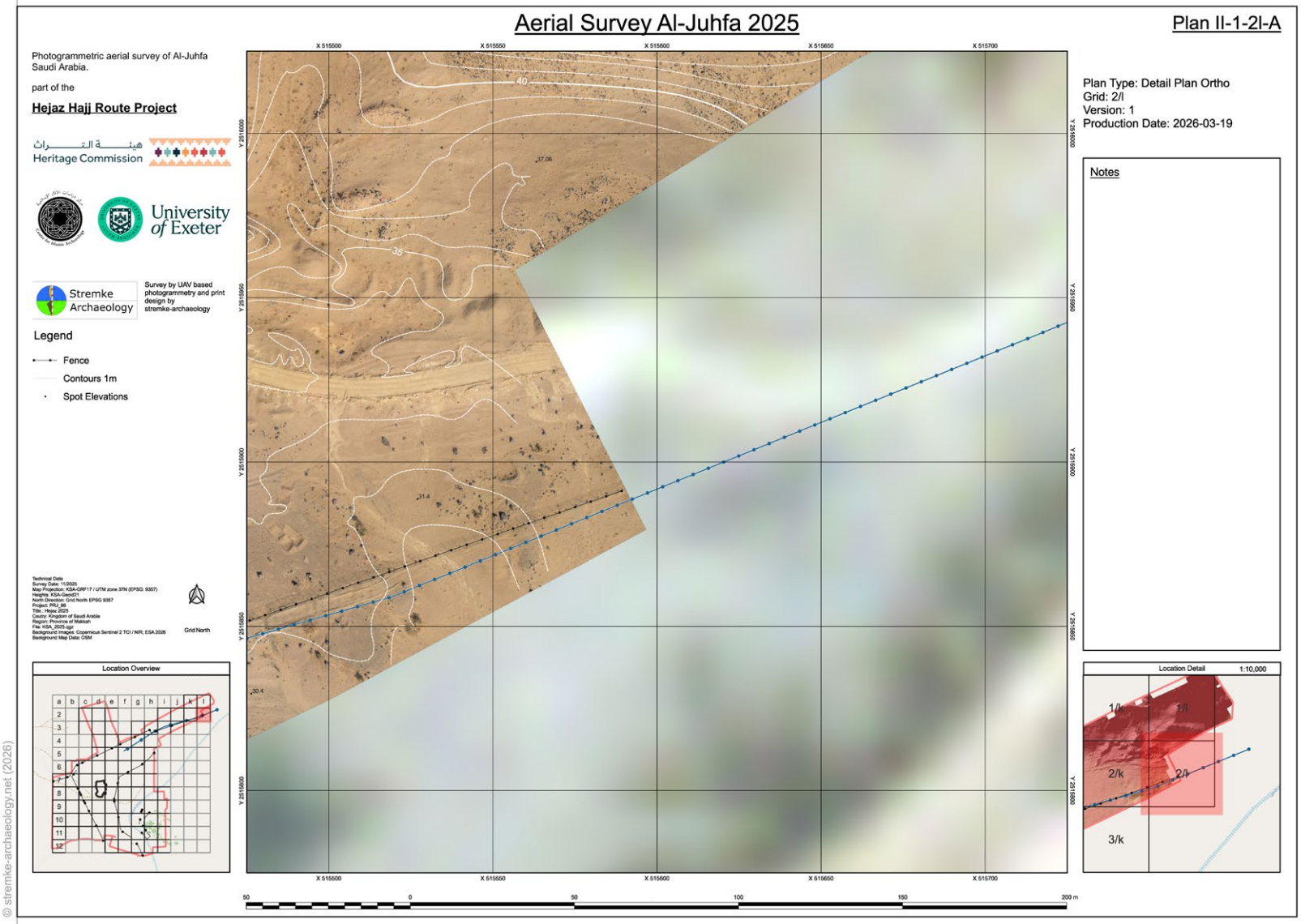


Figure 46. Al-Juḥfah east. II-1-2I-A (Stremke Archaeology).

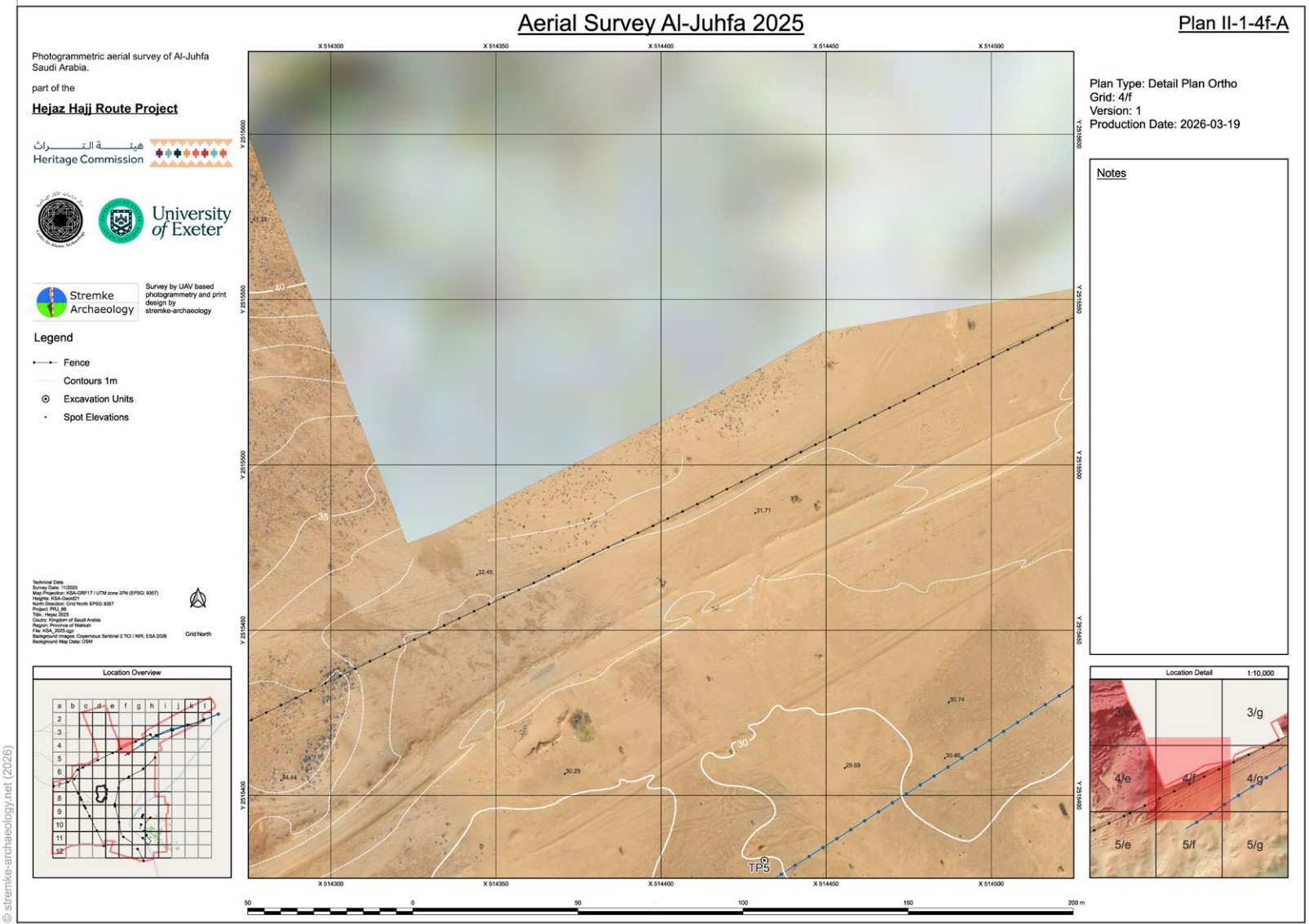


Figure 47. Al-Juḥfah east. II-1-4f-A (Stremke Archaeology).

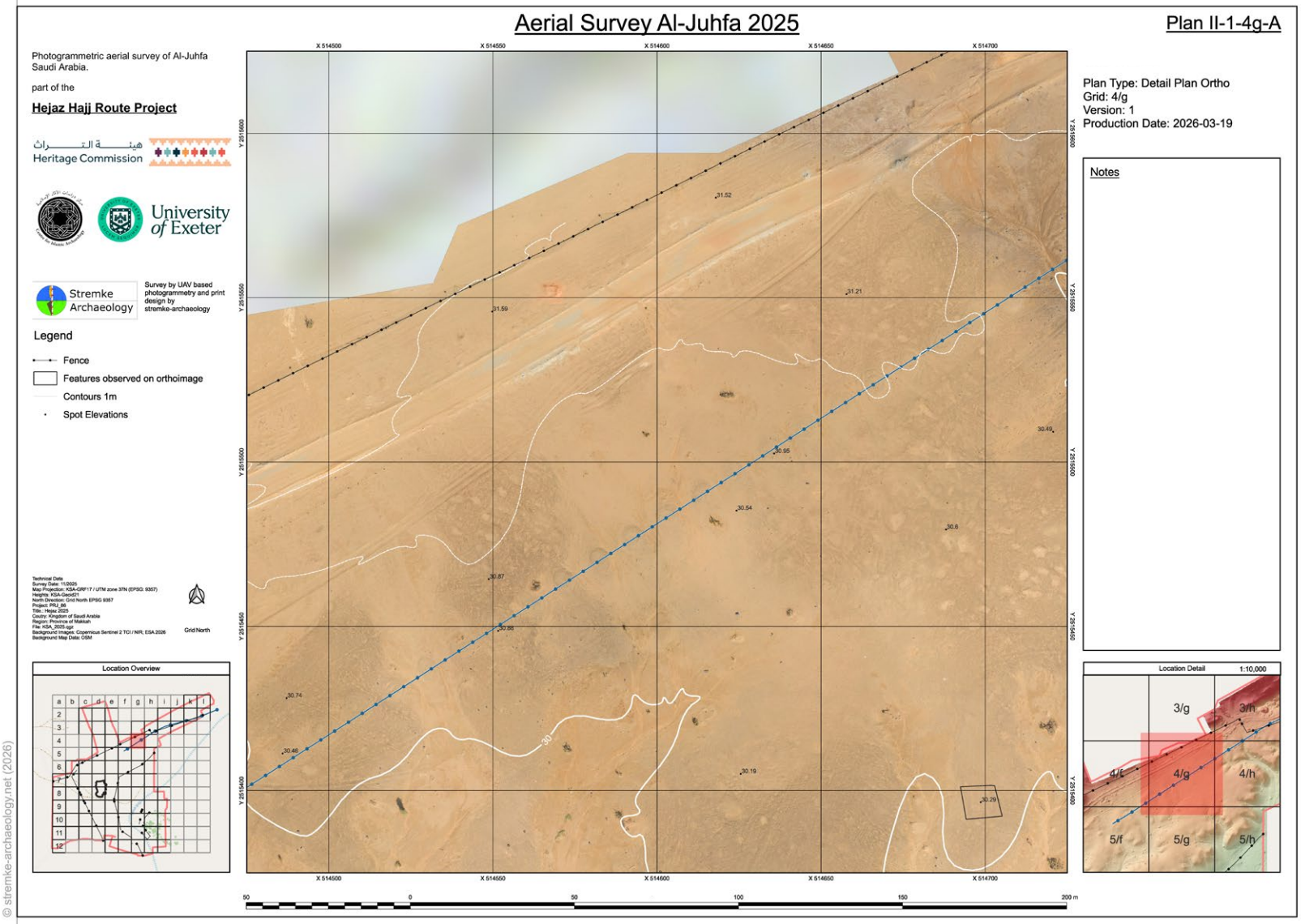


Figure 48. Al-Juḥfah east. II-1-4g-A (Stremke Archaeology).

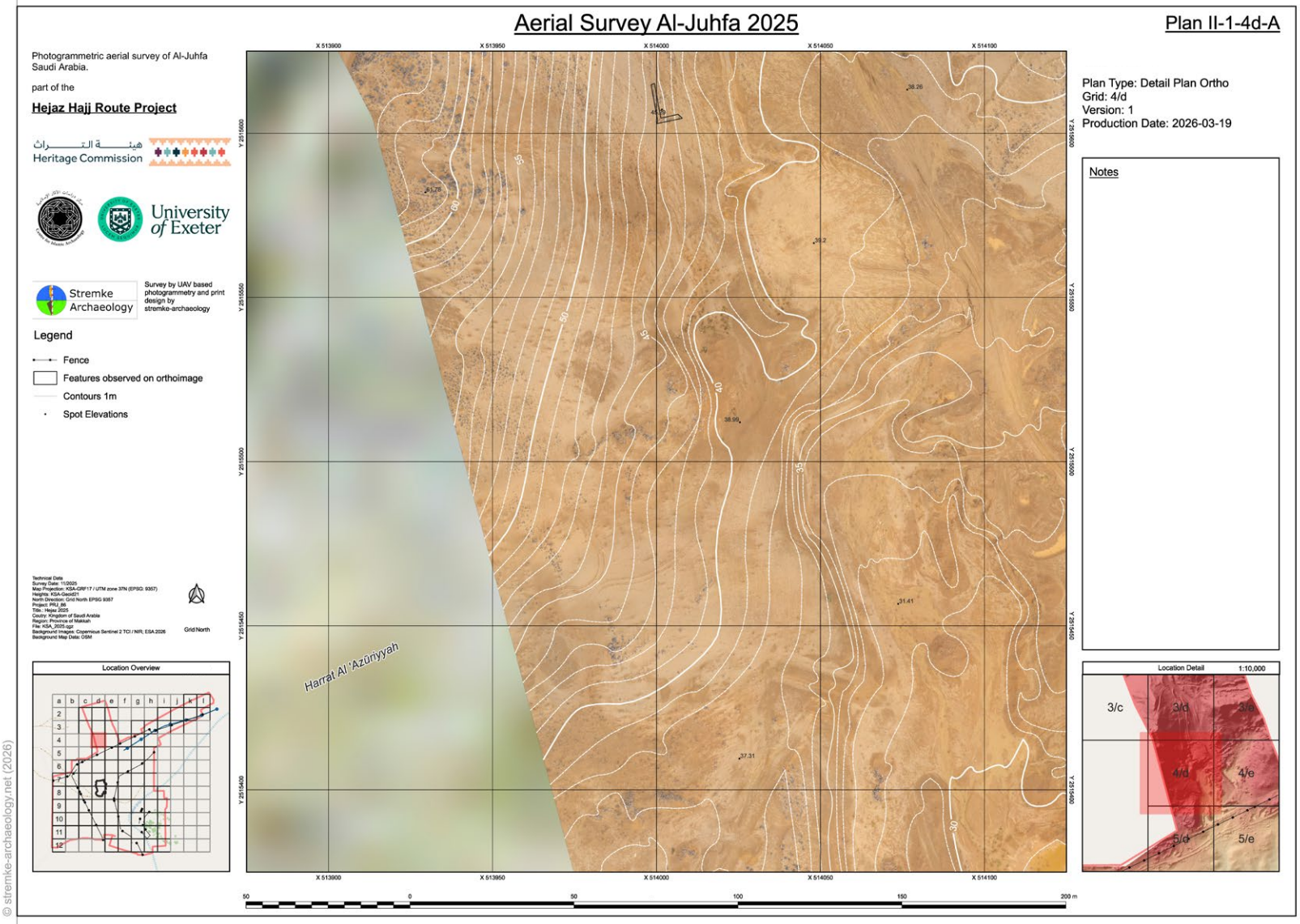


Figure 49. Al-Azuriwyah south. II-1-4d-A (Stremke Archaeology).

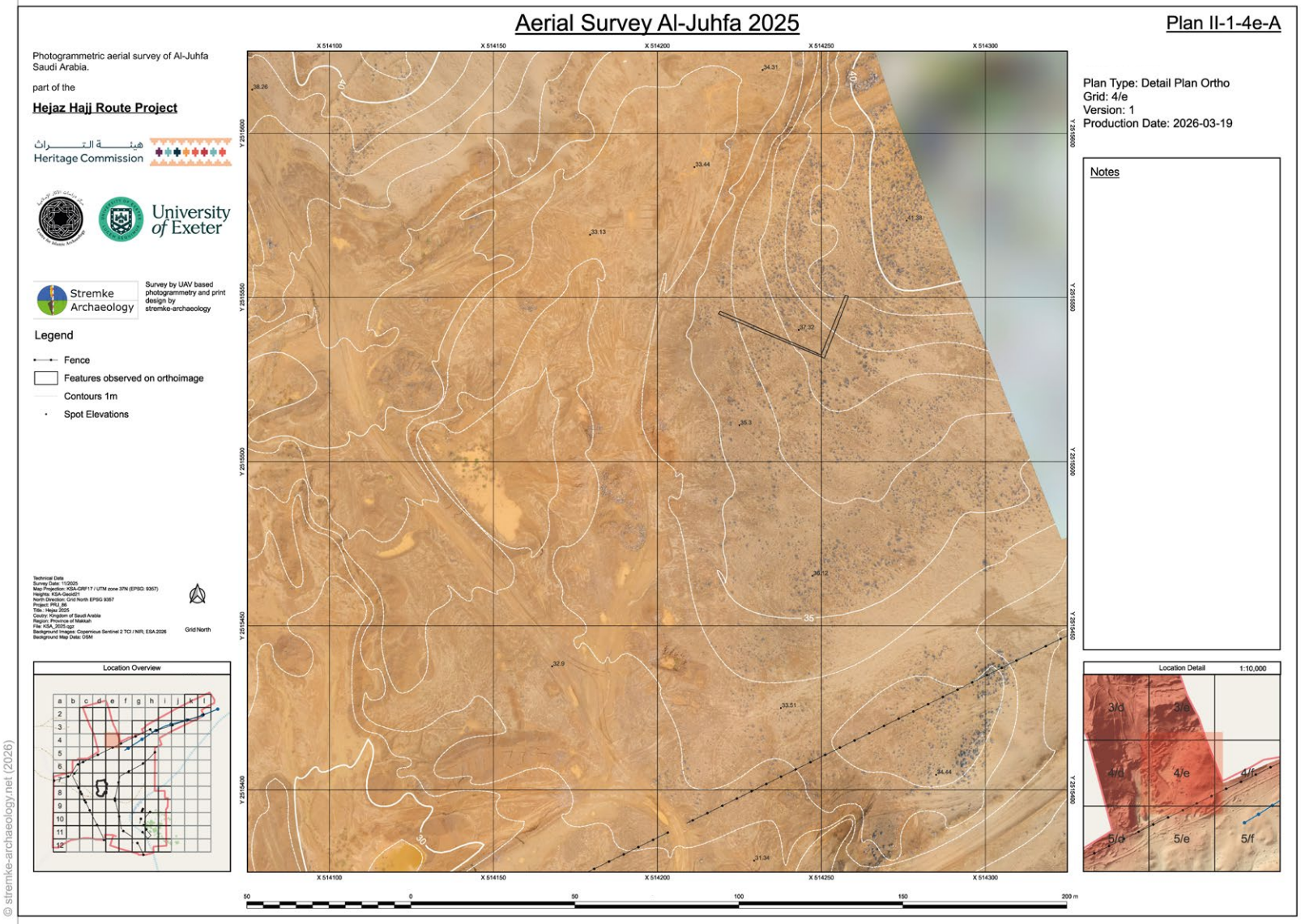
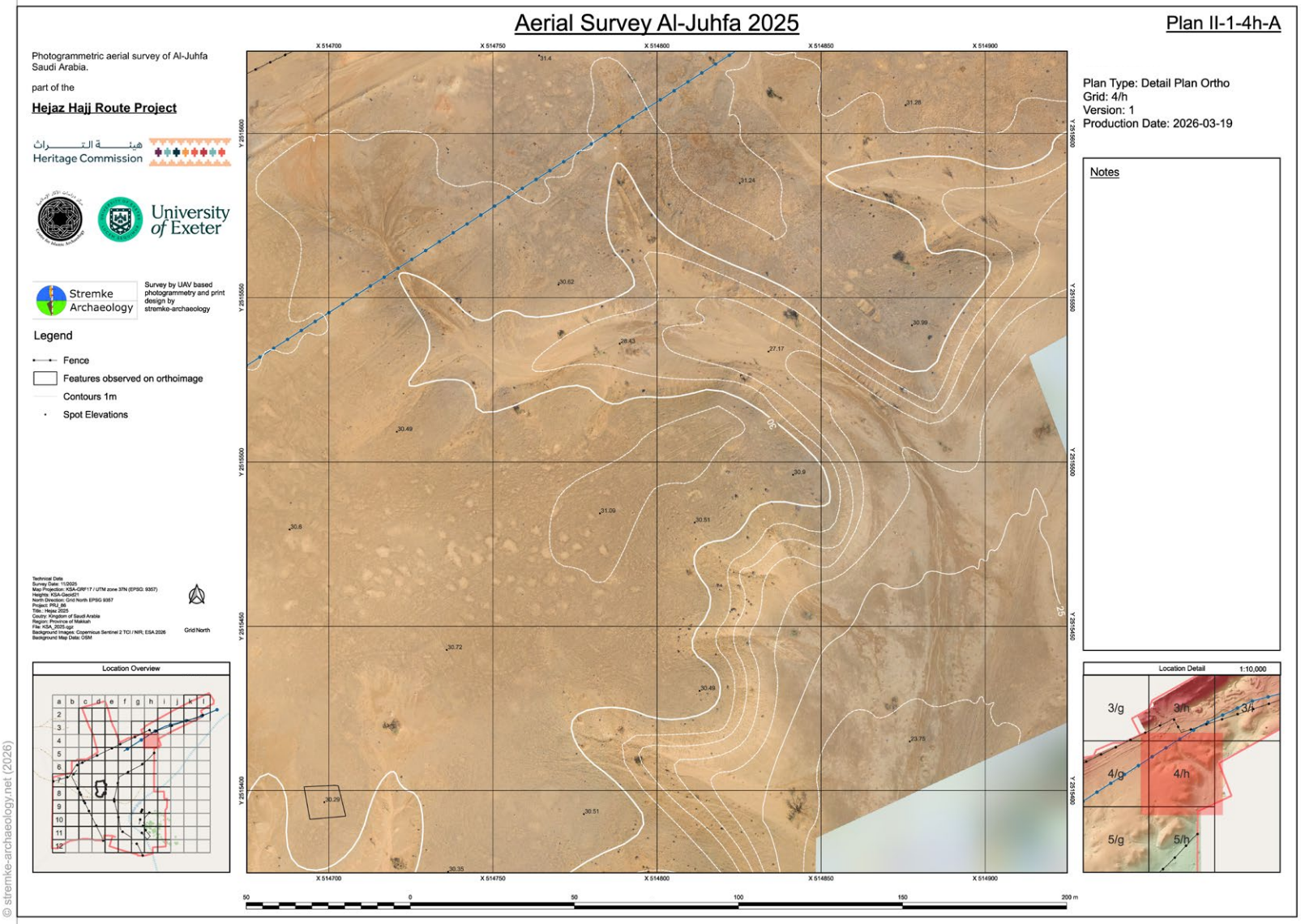


Figure 50. Al-Azuriwyah south. II-1-4e-A (Stremke Archaeology).



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Figure 51. Campsite north. II-1-4h-A (Stremke Archaeology).

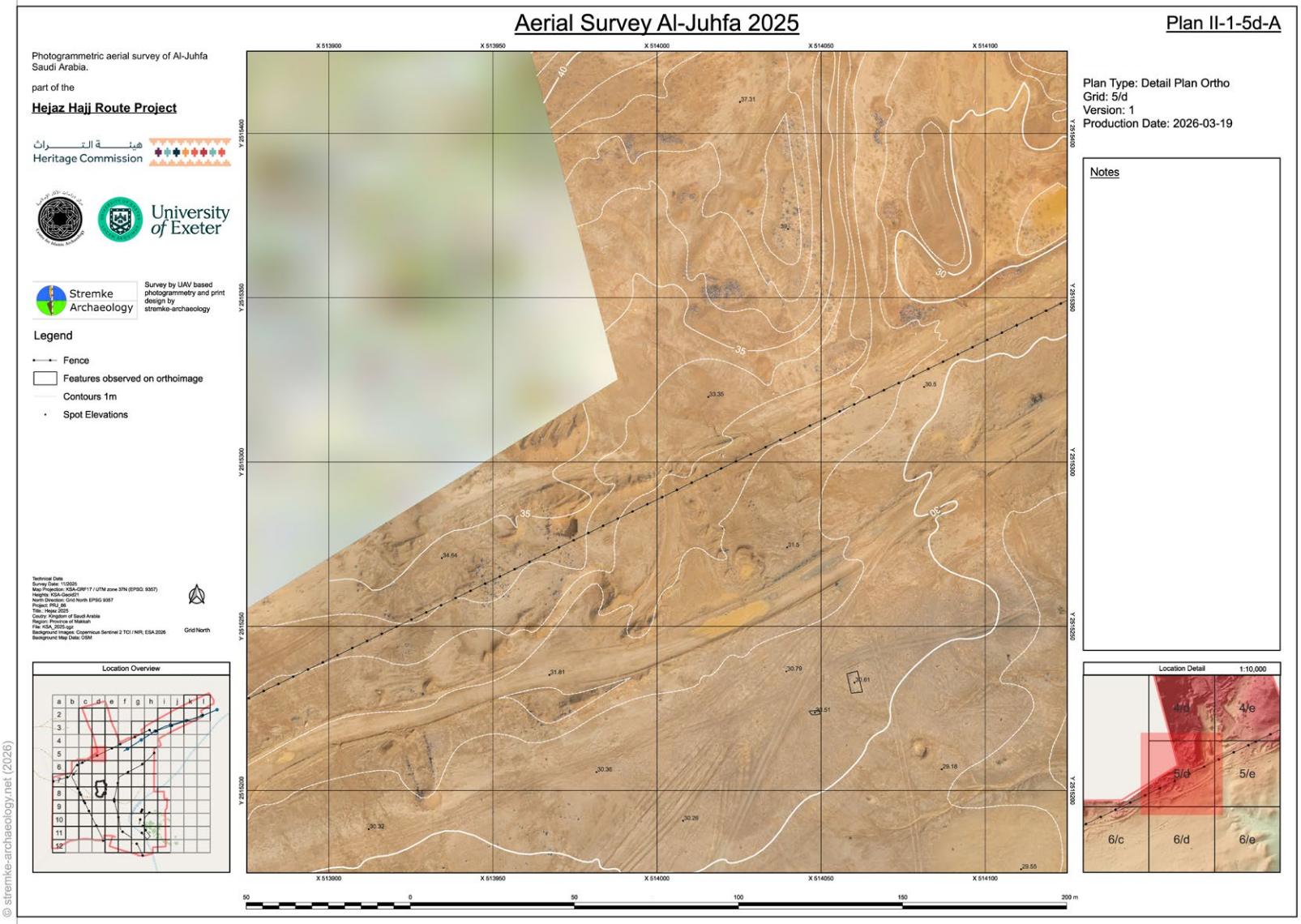


Figure 52. Campsite north. II-1-5d-A (Stremke Archaeology).

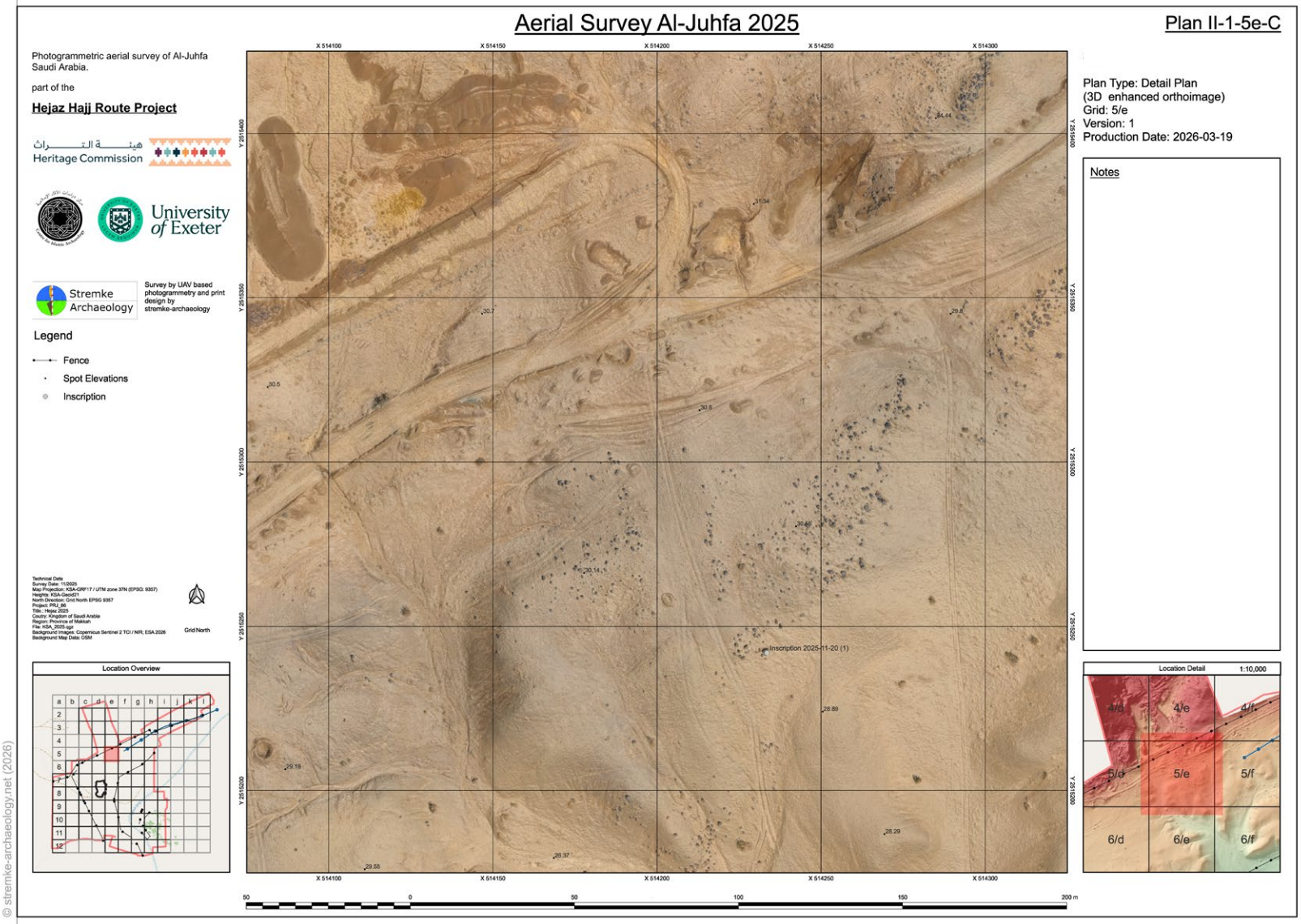


Figure 53. Campsite north. II-1-5e-c (Stremke Archaeology).

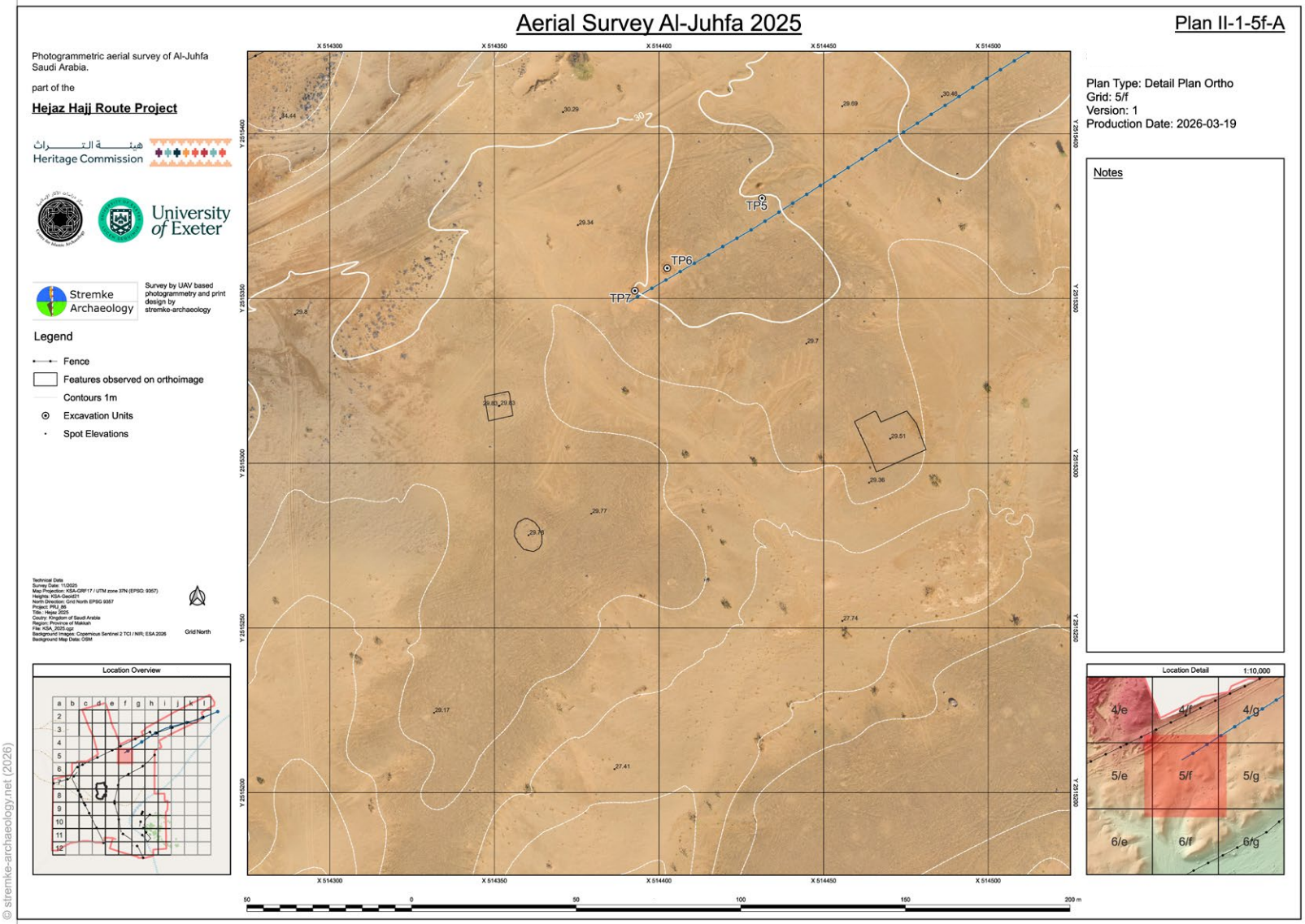


Figure 54. Campsite north. II-1-5f-A (Stremke Archaeology).

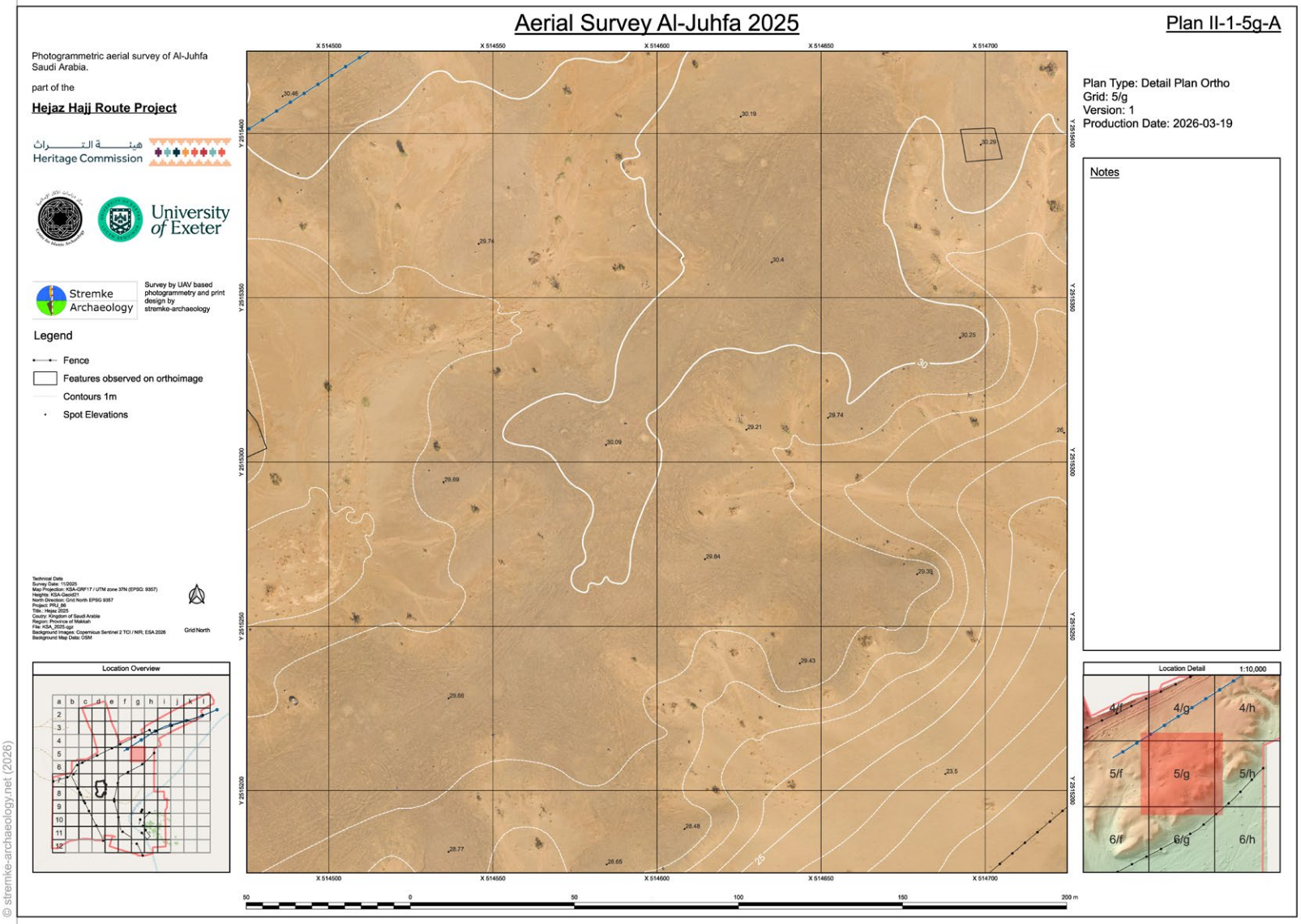


Figure 55. Campsite north. II-1-5g-A (Stremke Archaeology).

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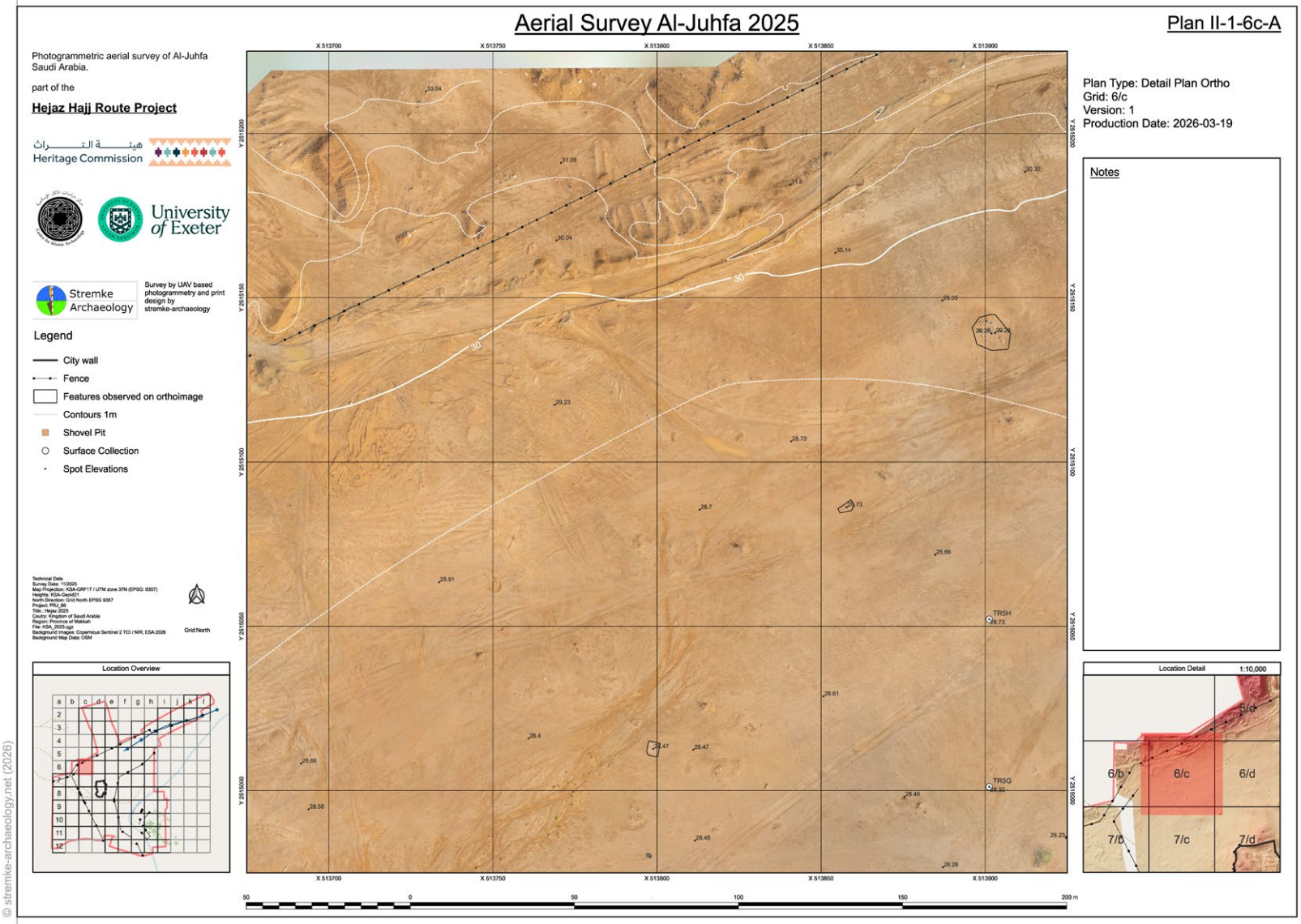


Figure 56. Campsite north. II-1-6c-A (Stremke Archaeology).

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Figure 57. Campsite north (detail). II-3-32 (Stremke Archaeology).

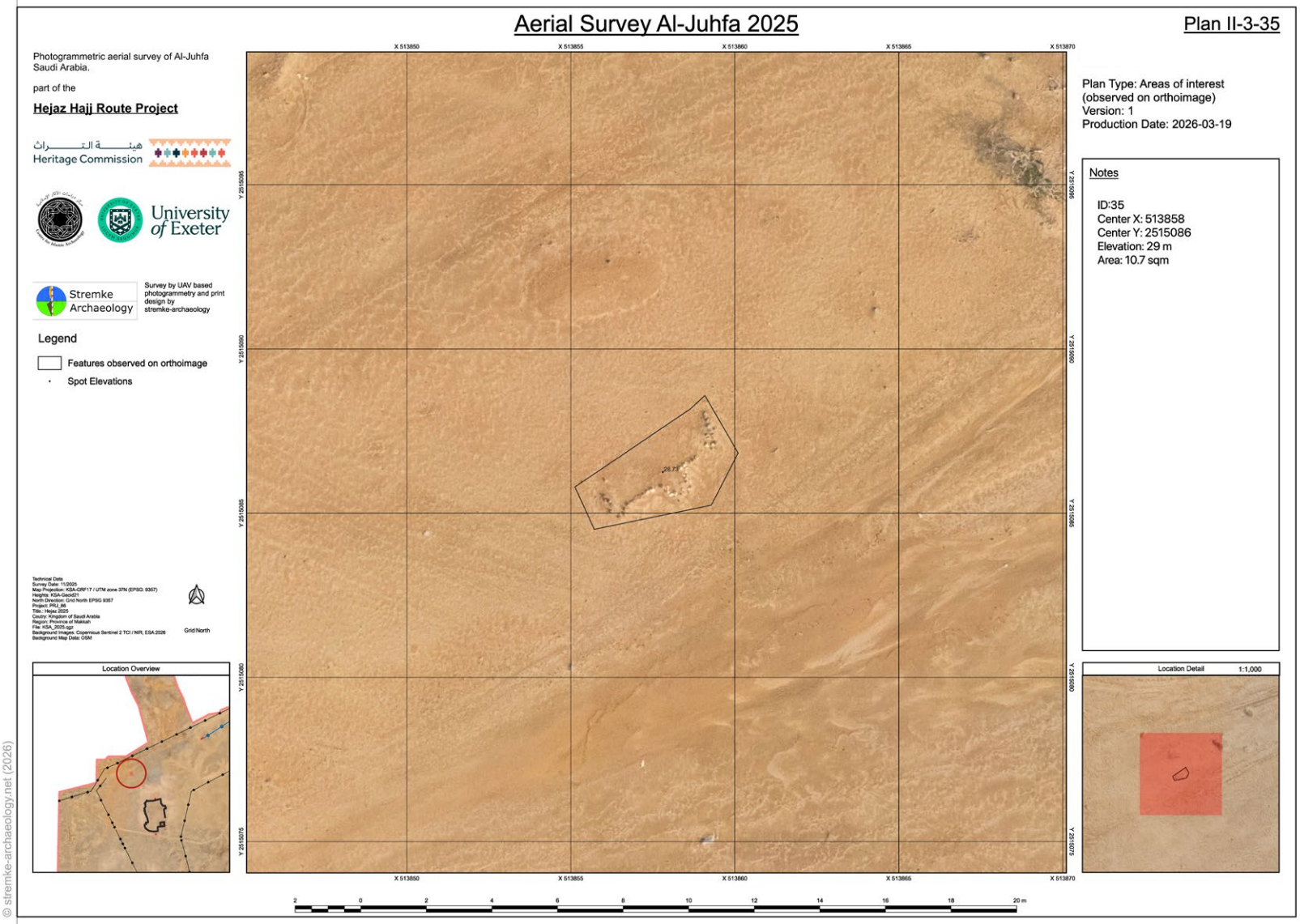
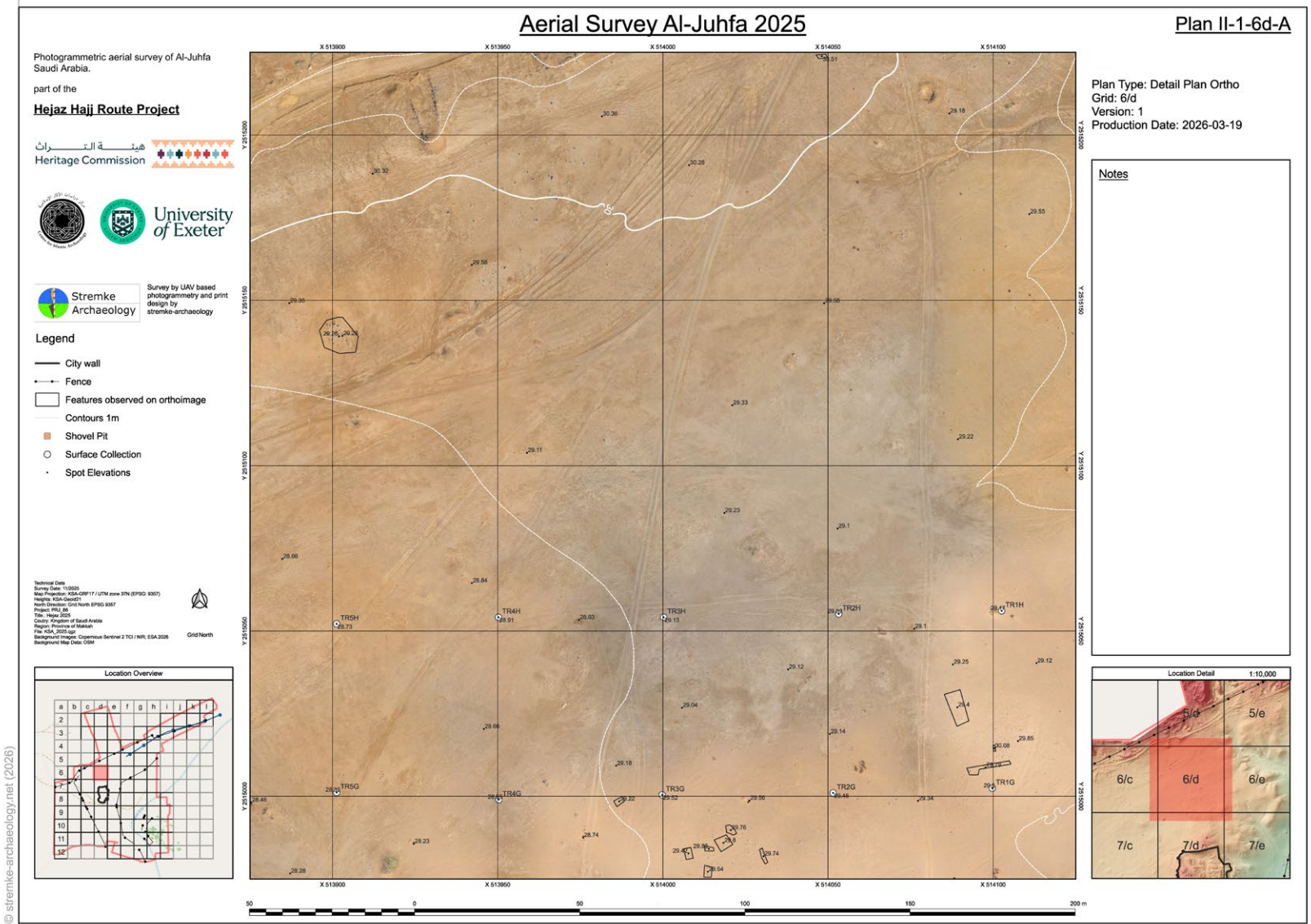
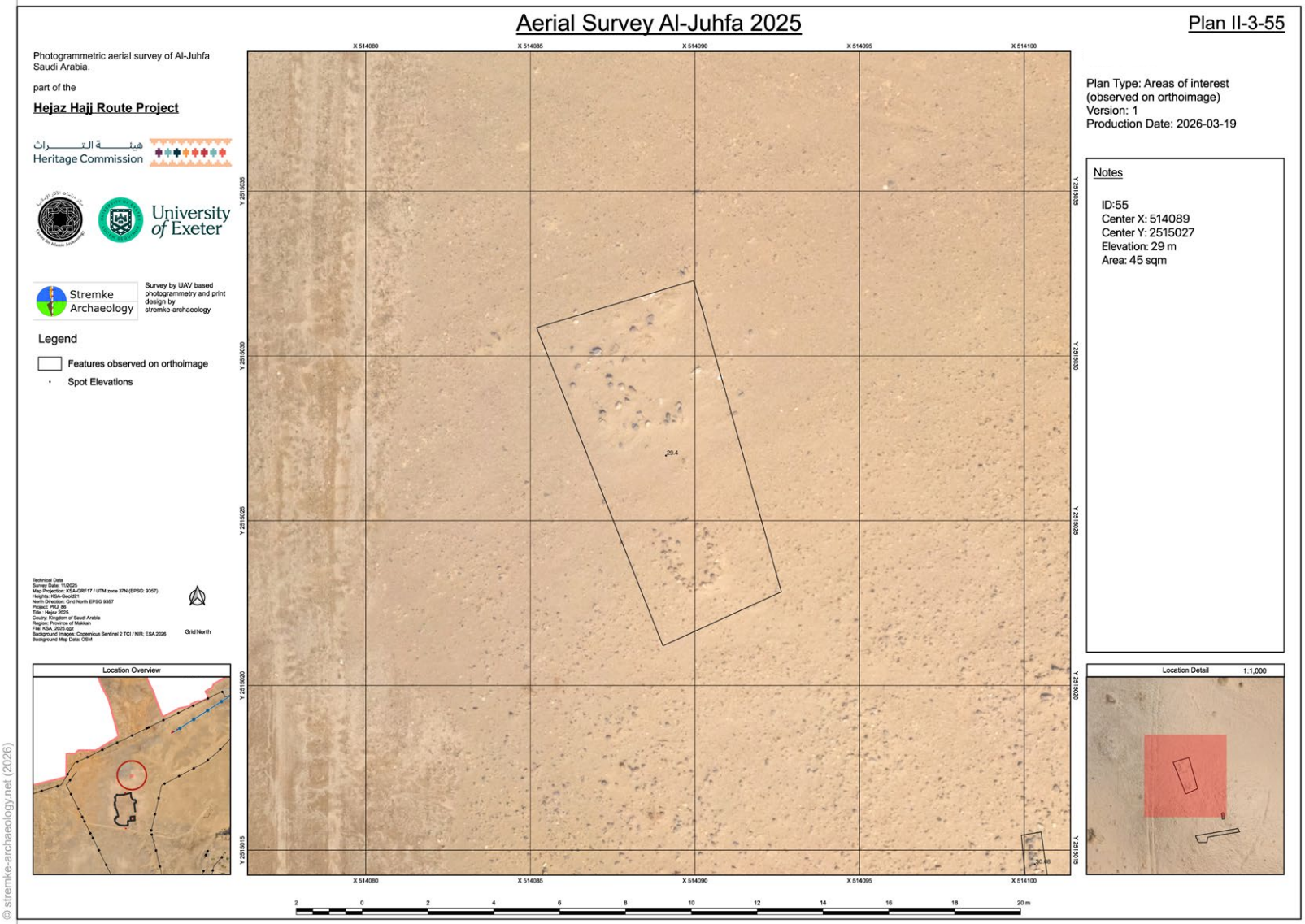


Figure 58. Campsite north (detail). II-3-35 (Stremke Archaeology).



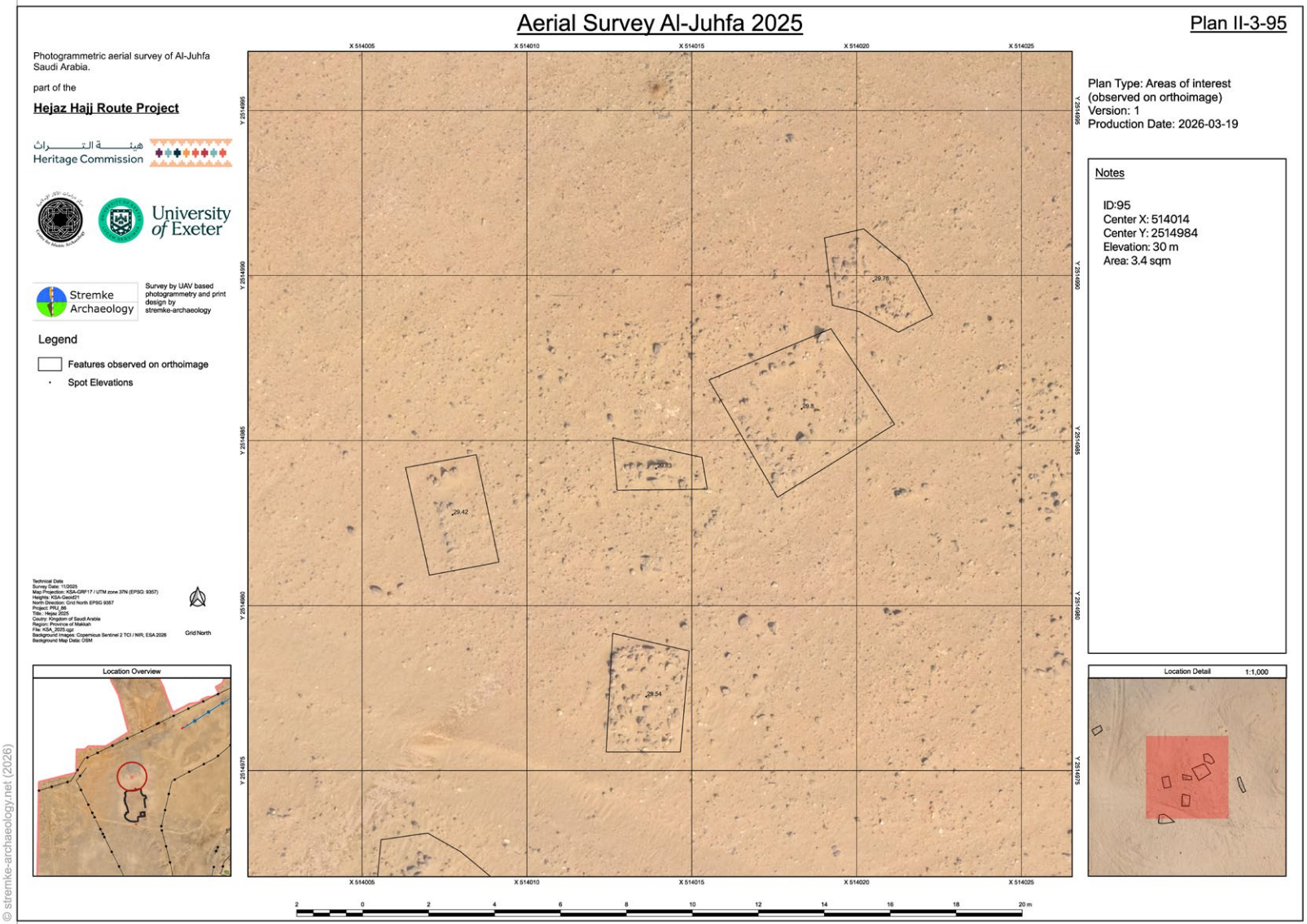
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Figure 59. Campsite north. II-1-6d-A (Stremke Archaeology).



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Figure 60. Campsite north (detail). II-3-55 (Stremke Archaeology).



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Figure 61. Campsite north (detail). II-3-95 (Stremke Archaeology).

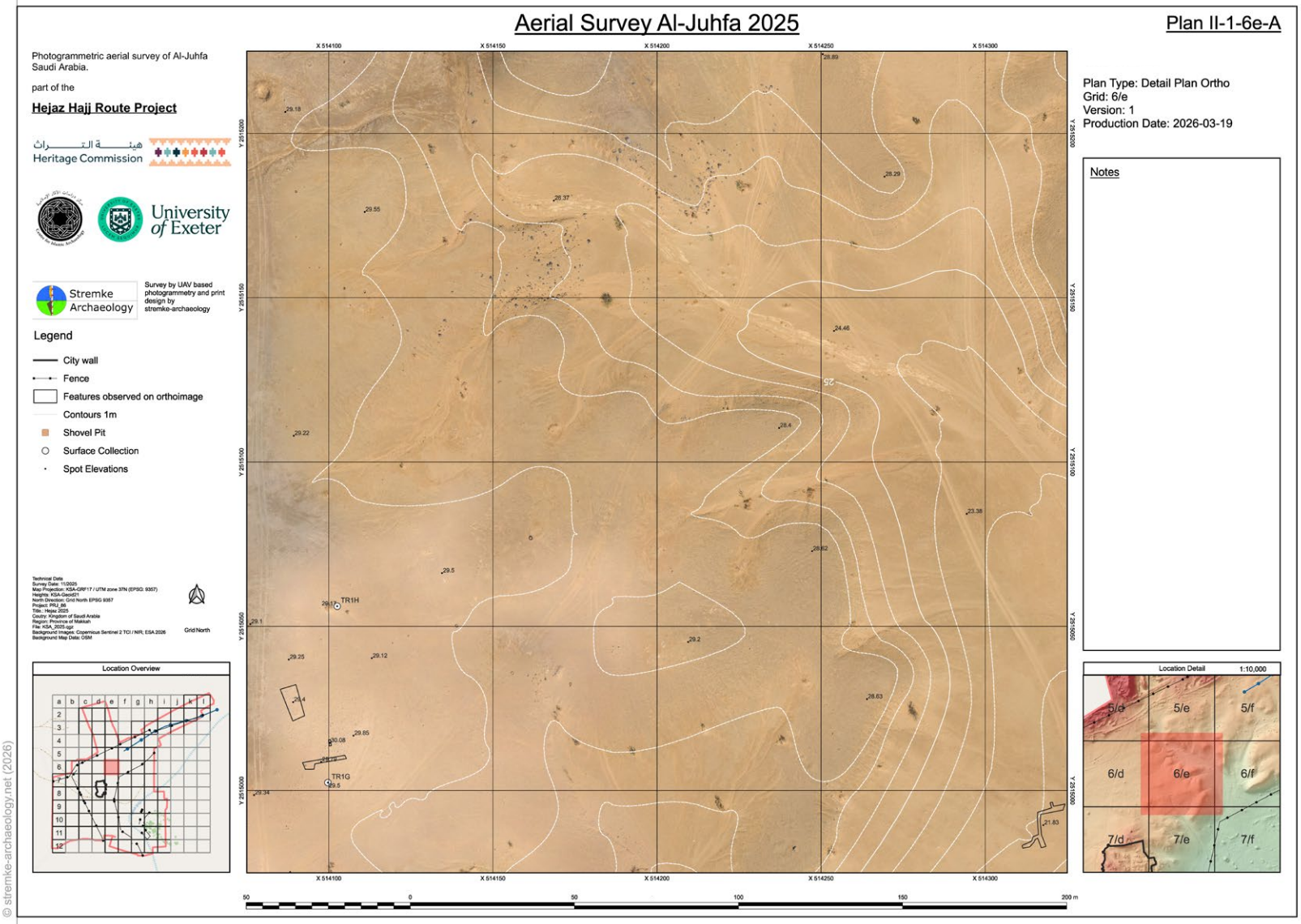


Figure 62. Campsite north. II-1-6e-A (Stremke Archaeology).

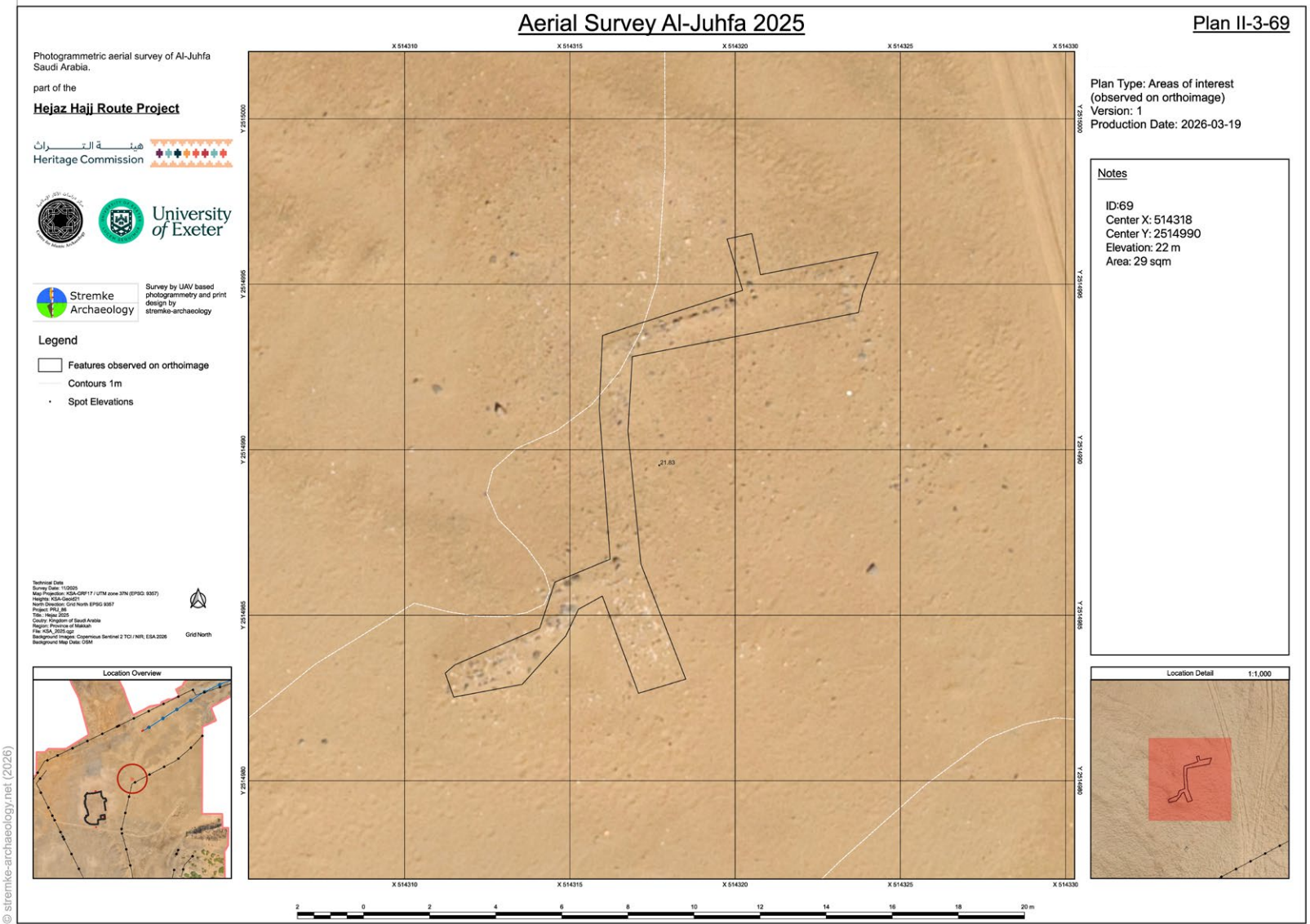


Figure 63. Campsite north (detail). II-3-69 (Stremke Archaeology).

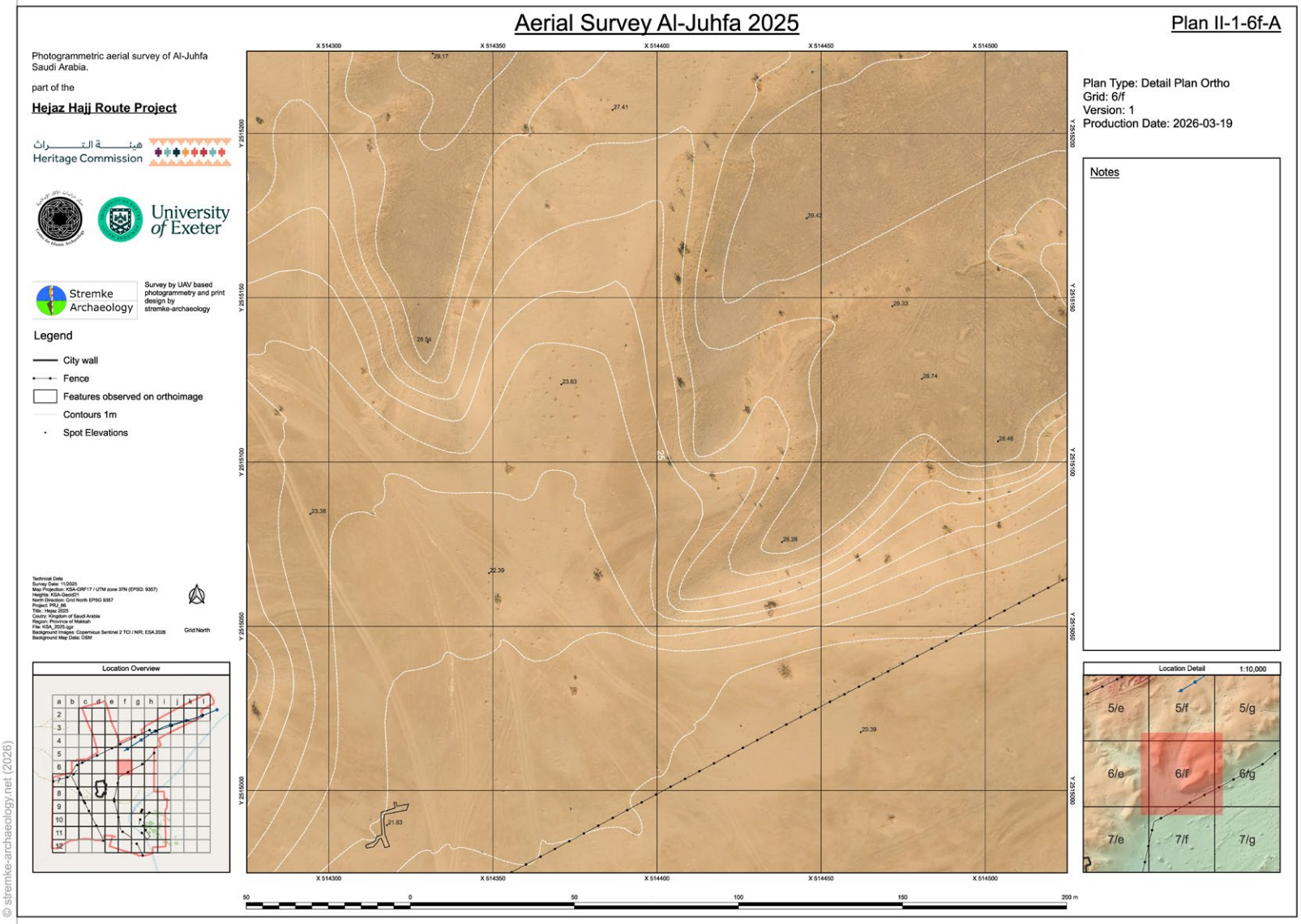


Figure 64. Campsite north. II-1-6f-A (Stremke Archaeology).

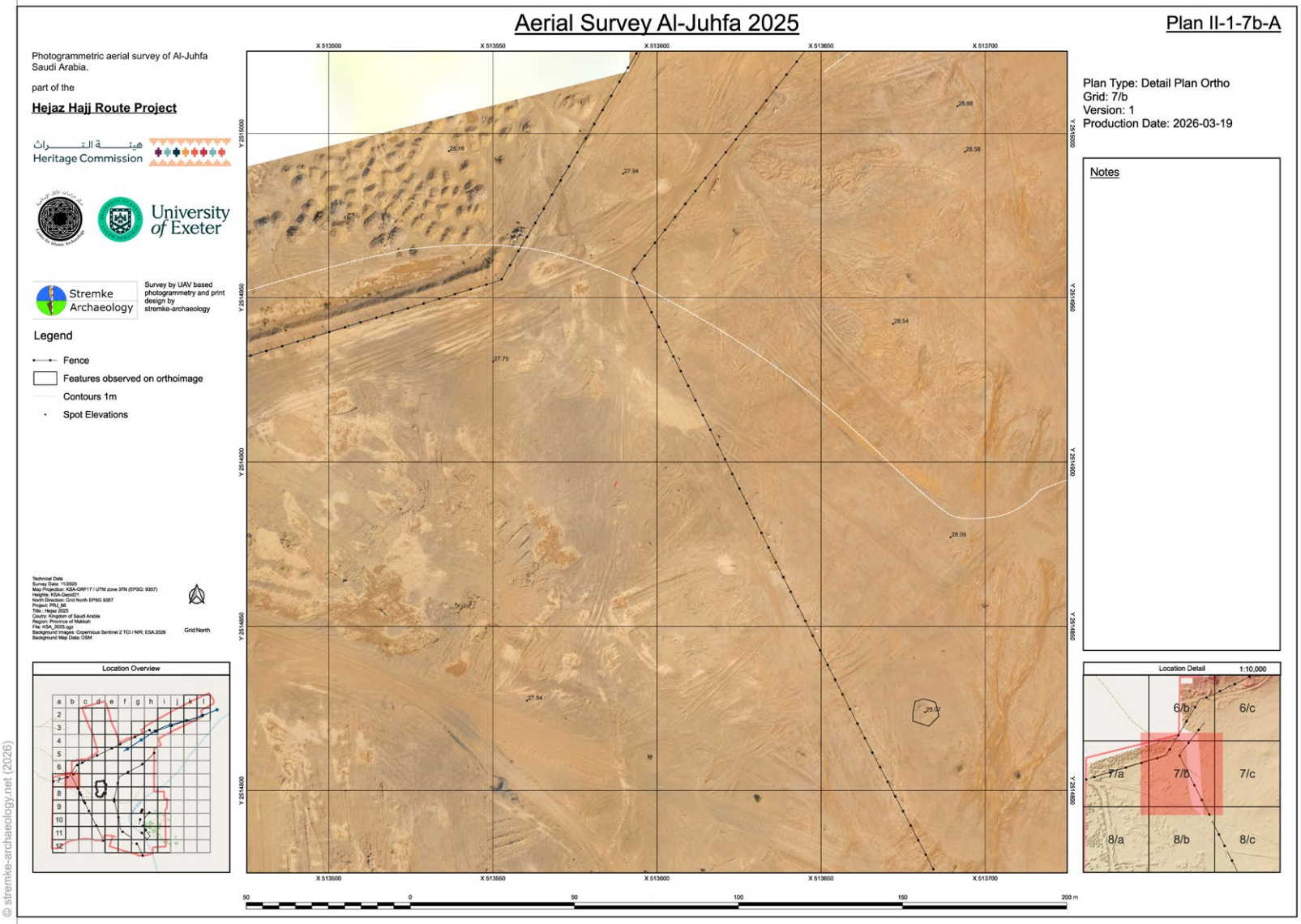


Figure 65. Campsite north. II-1-7b-A (Stremke Archaeology).

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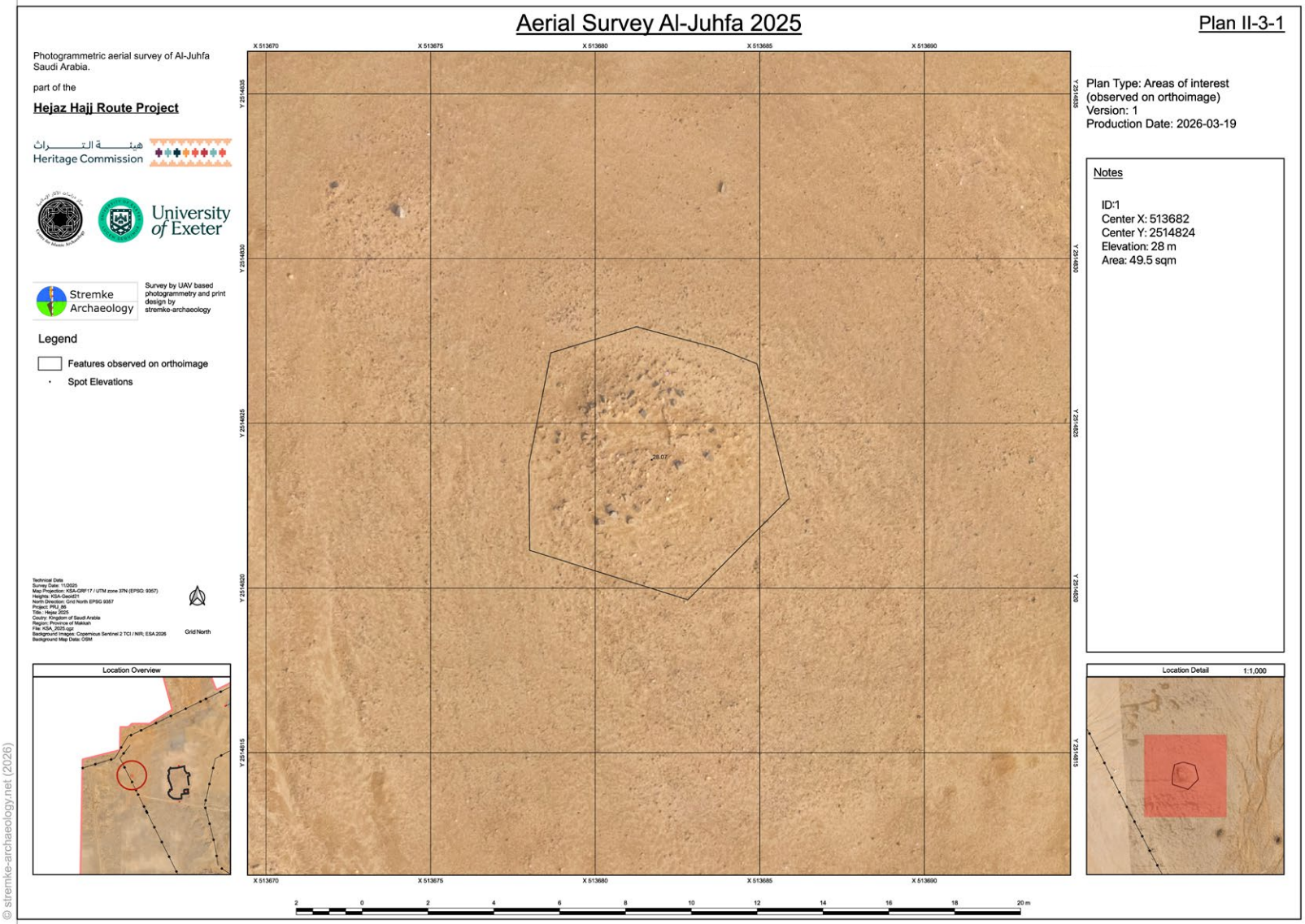


Figure 66. Campsite north (detail). II-3-1 (Stremke Archaeology).

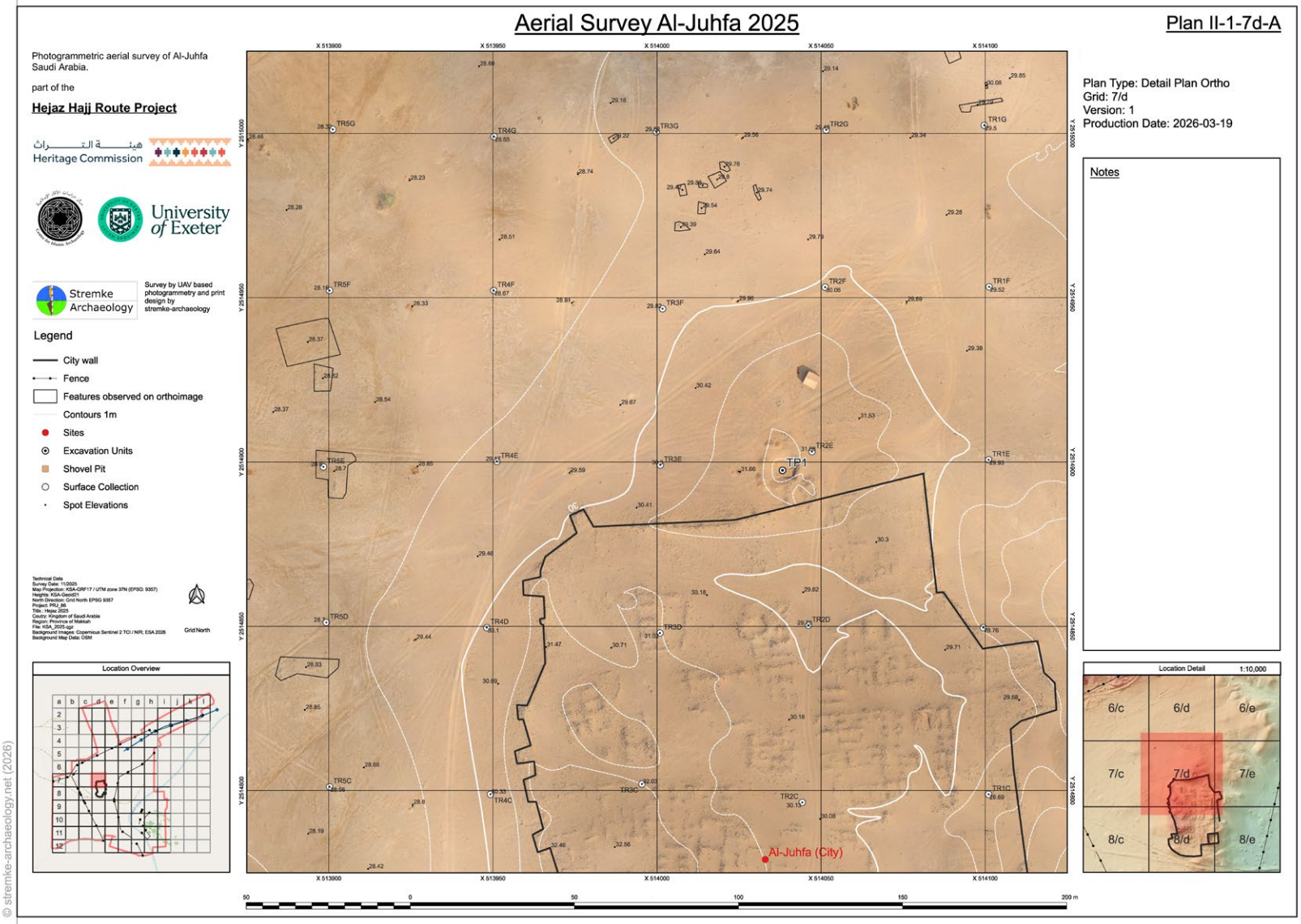
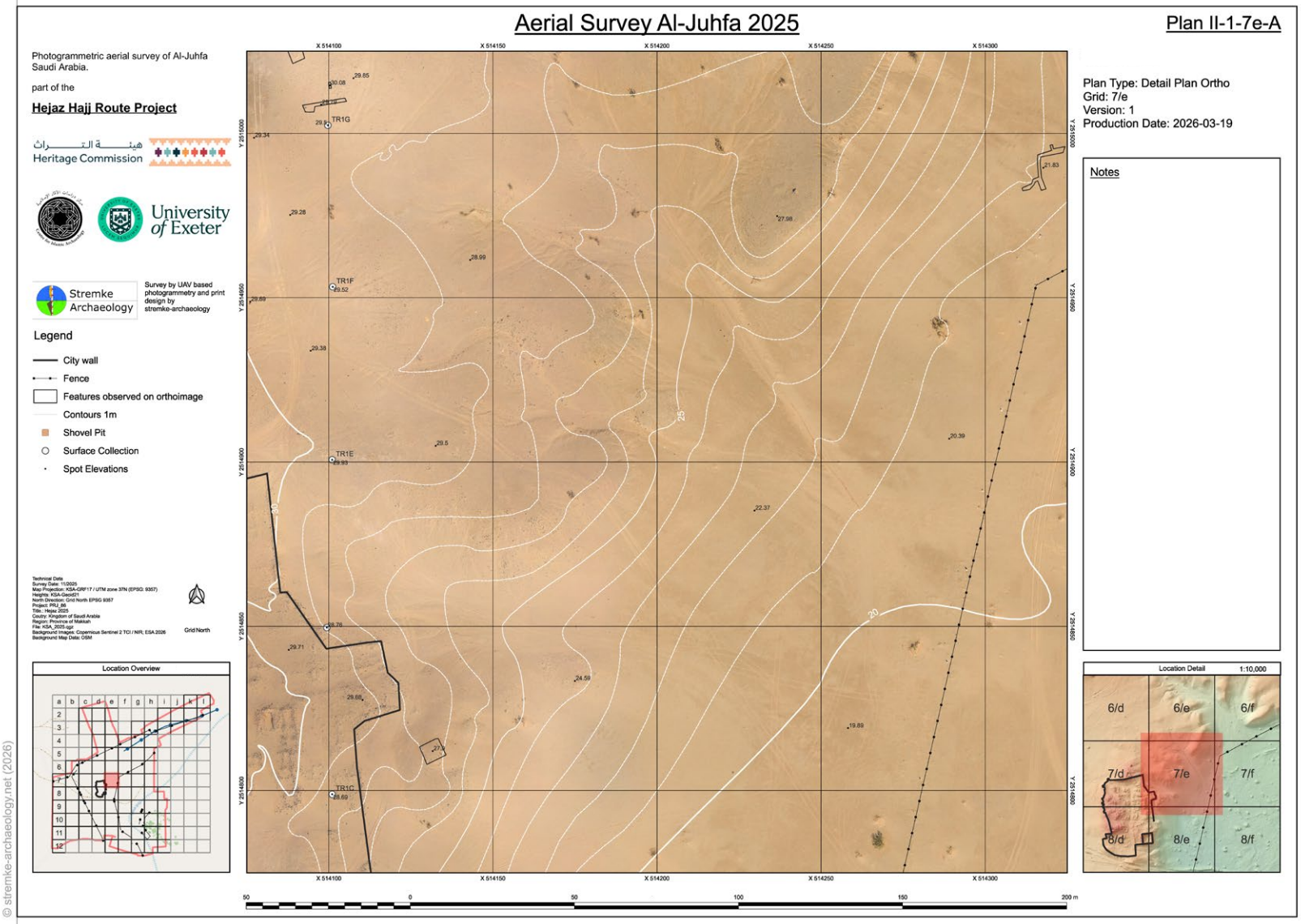


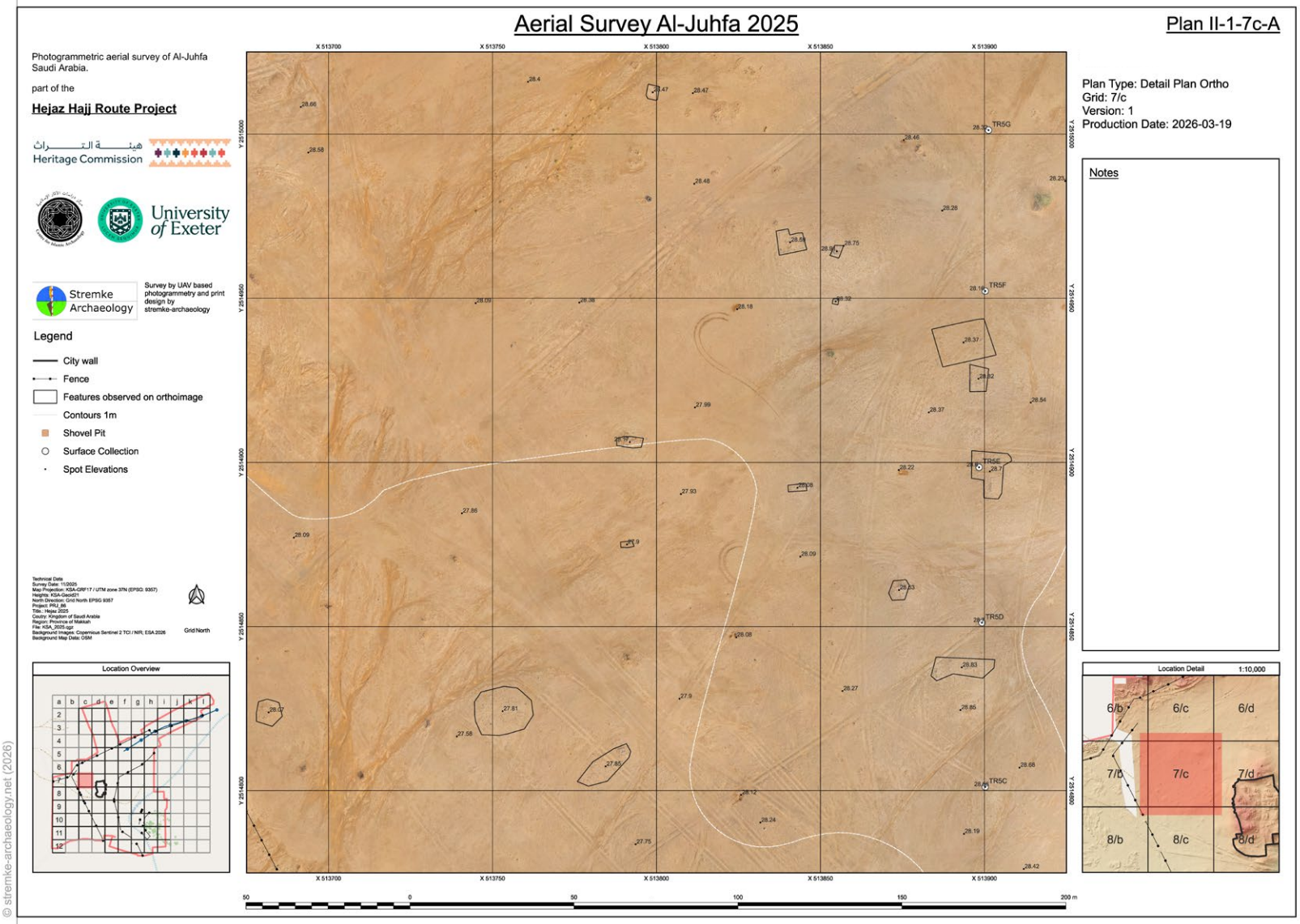
Figure 67. Campsite west and north. II-1-7d-A (Stremke Archaeology).

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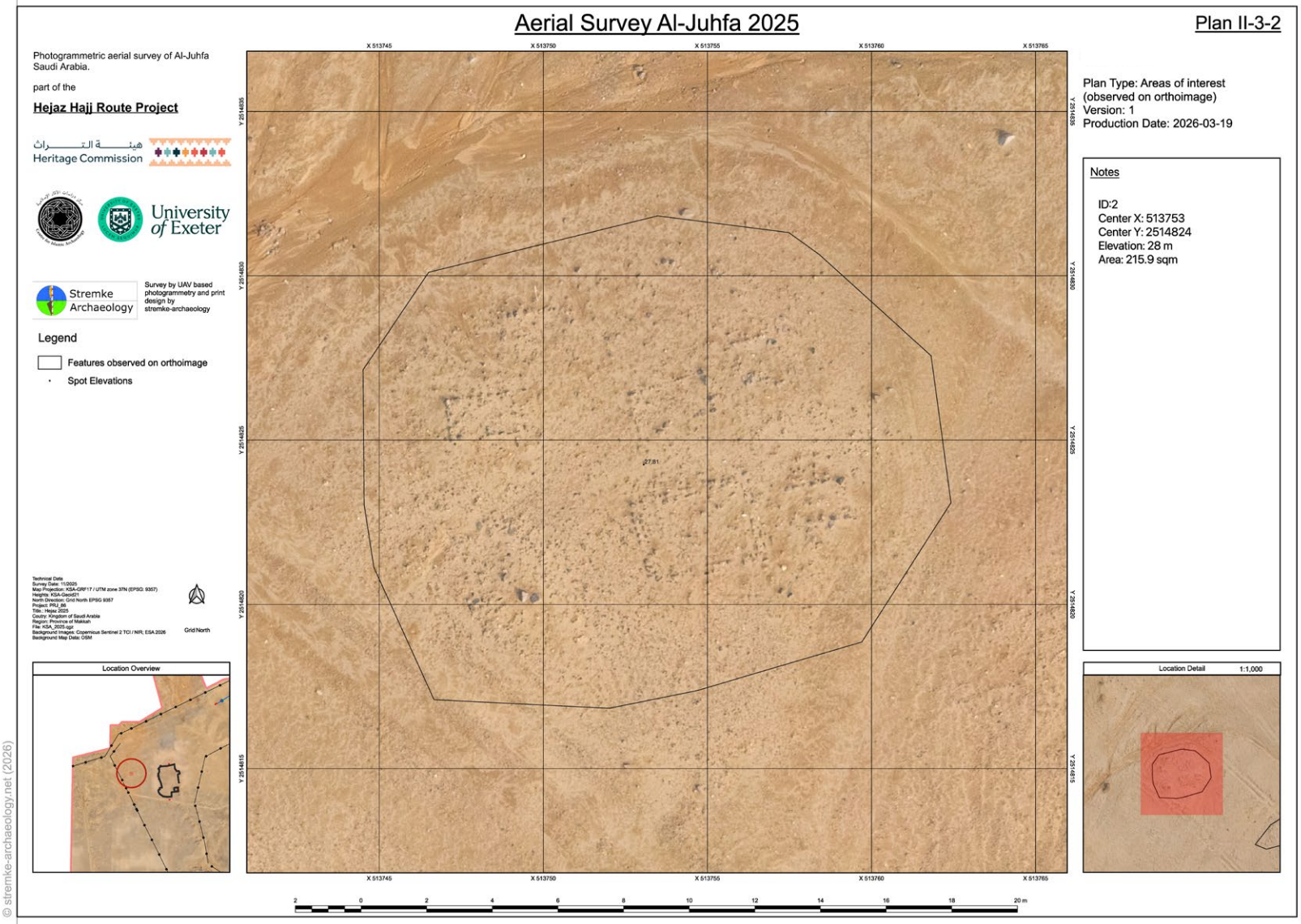
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Figure 68. Campsite north and wadi edge. II-1-7e-A (Stremke Archaeology).



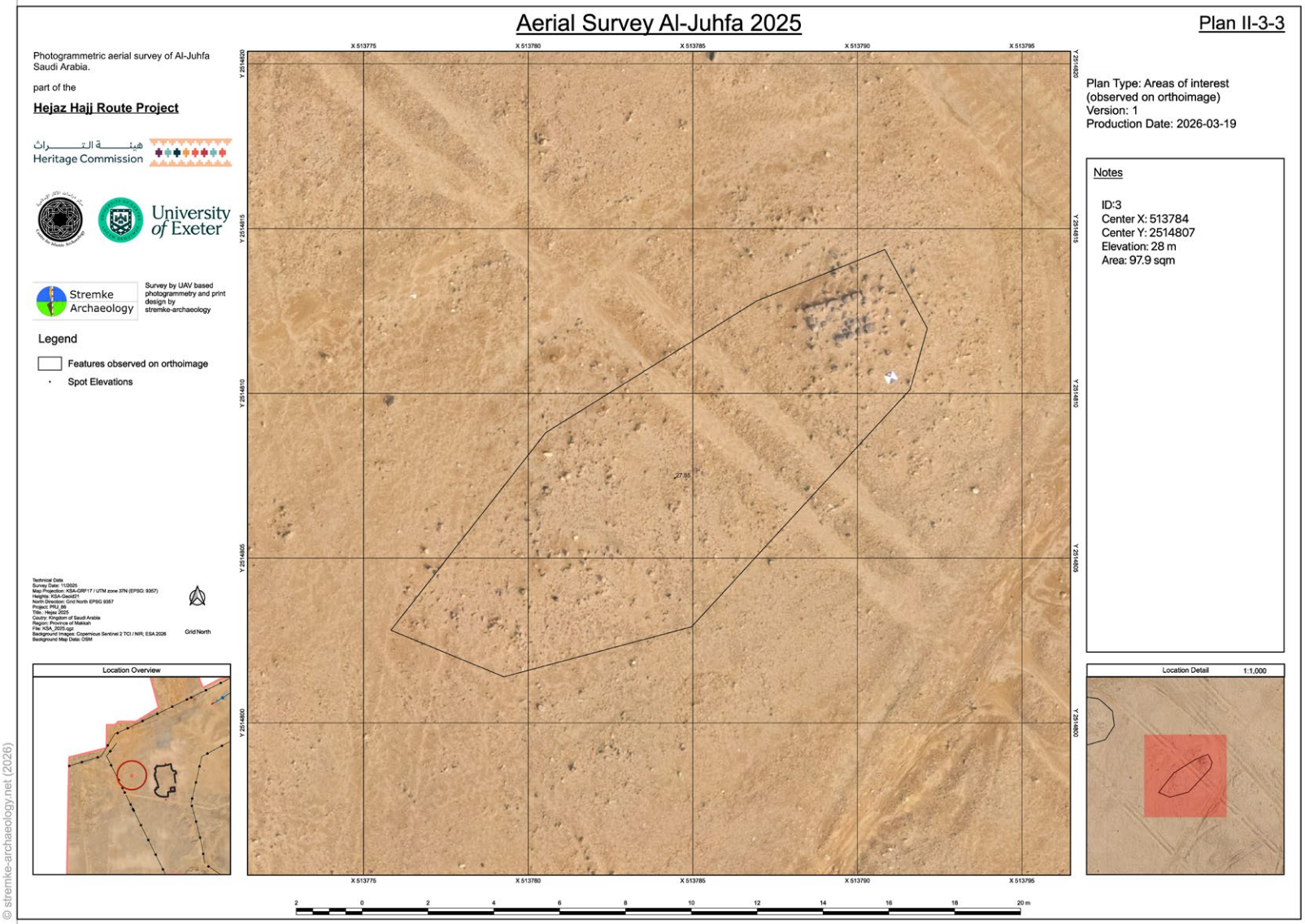
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Figure 69. Campsite west. II-1-7c-A (Stremke Archaeology).



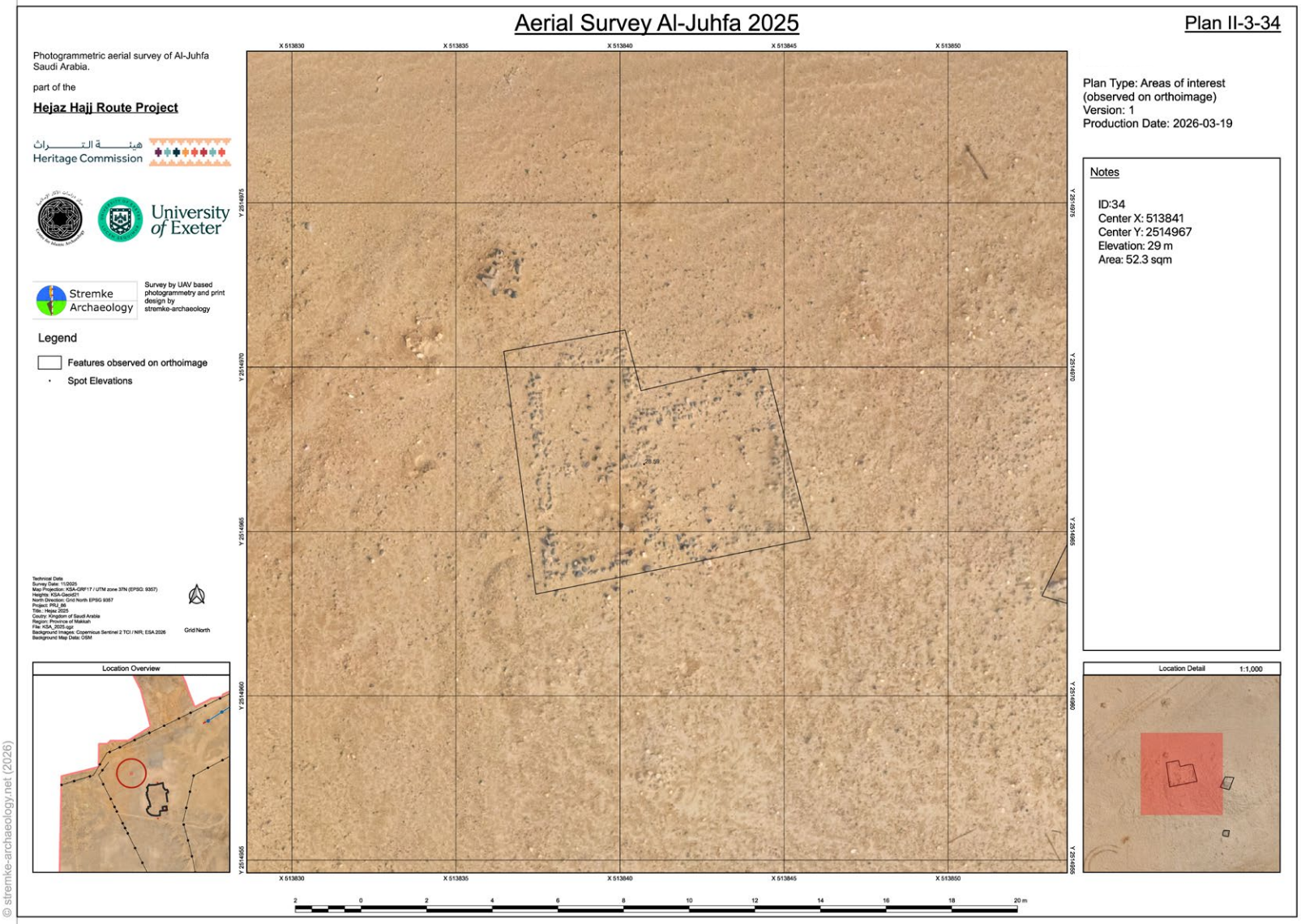
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Figure 70. Campsite west (detail). II-3-2 (Stremke Archaeology).



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Figure 71. Campsite west (detail). II-3-3 (Stremke Archaeology).



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Figure 72. Campsite west (detail). II-1-34 (Stremke Archaeology).

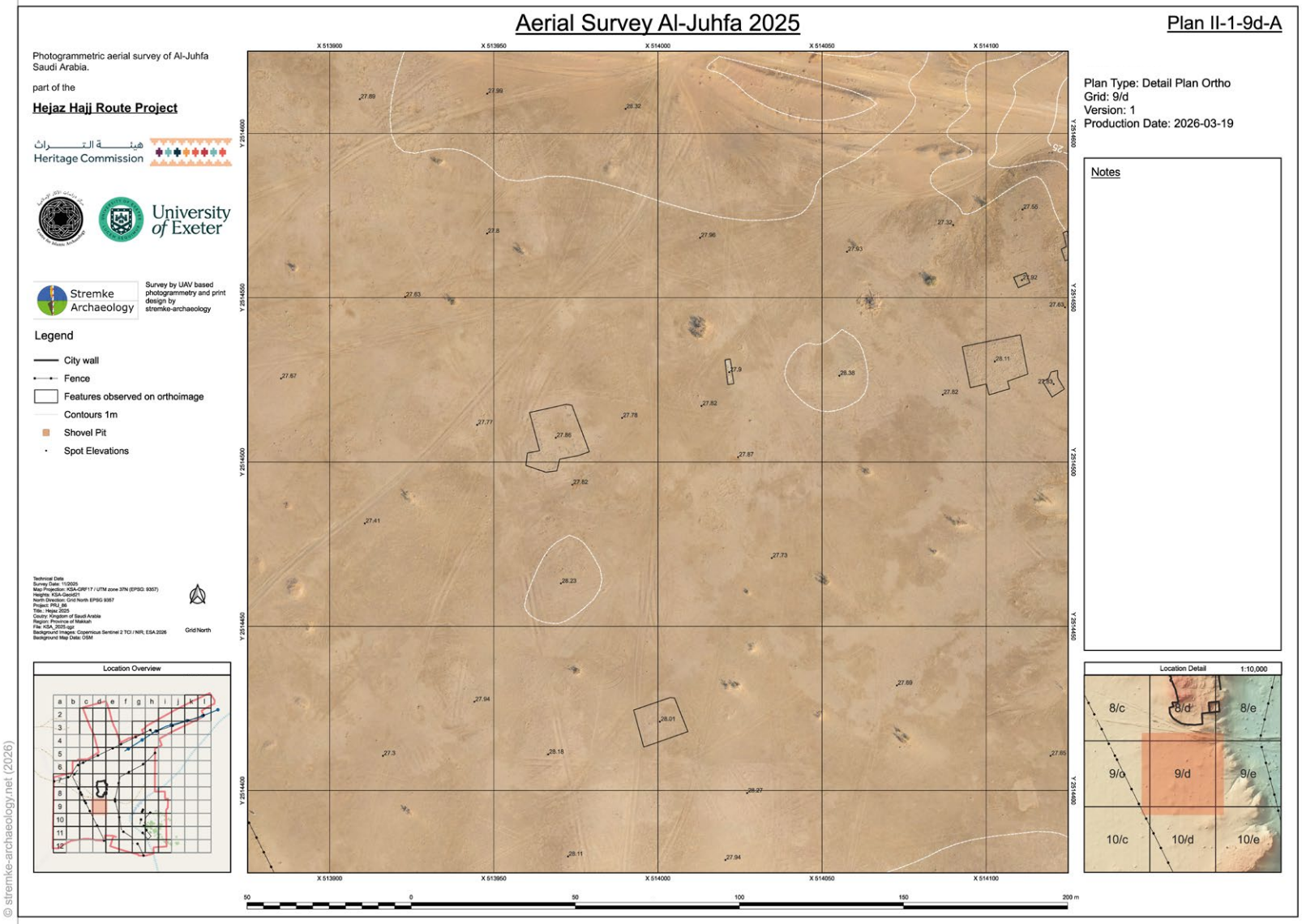


Figure 73. Campsite south. II-1-9d-A (Stremke Archaeology).

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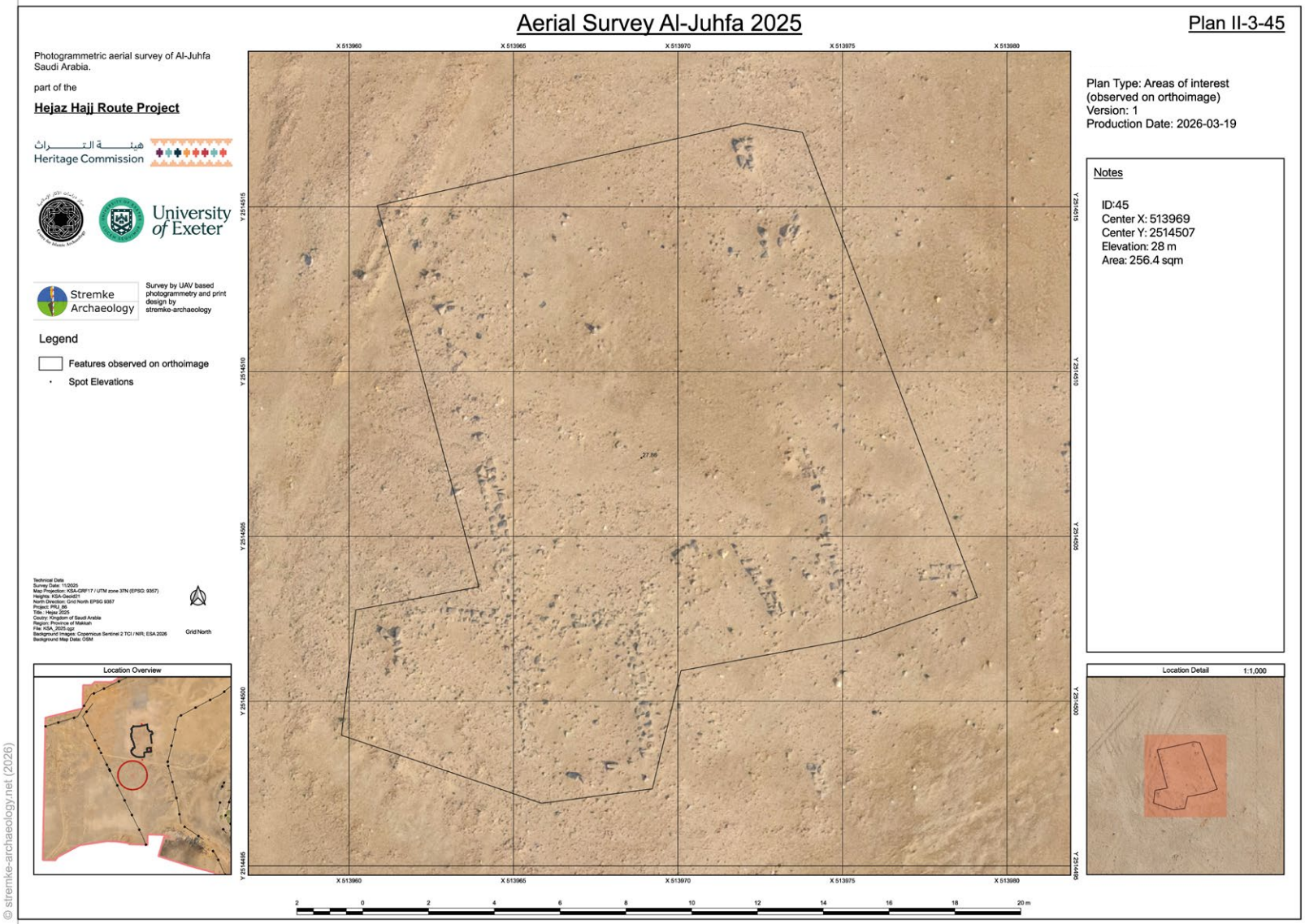
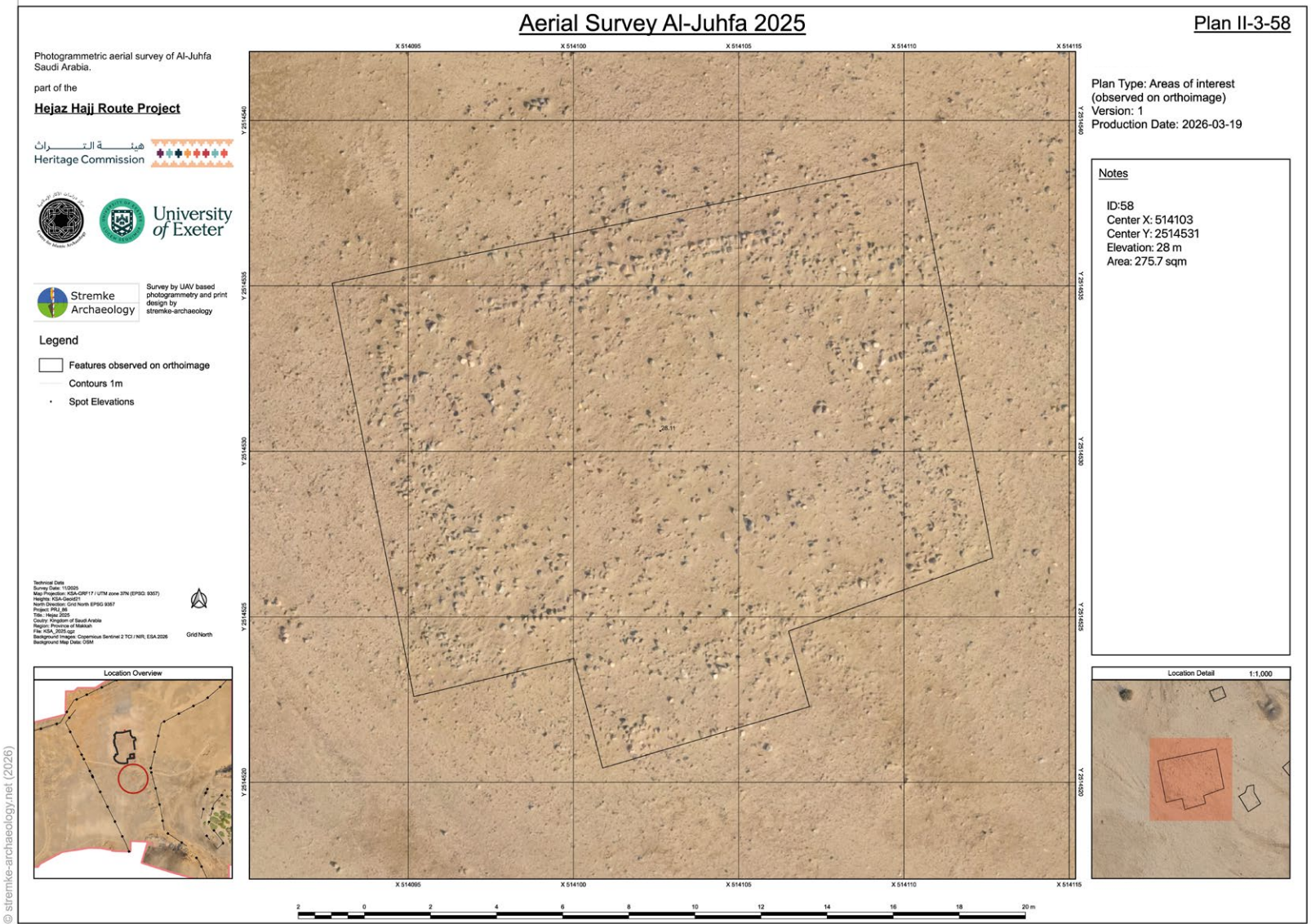


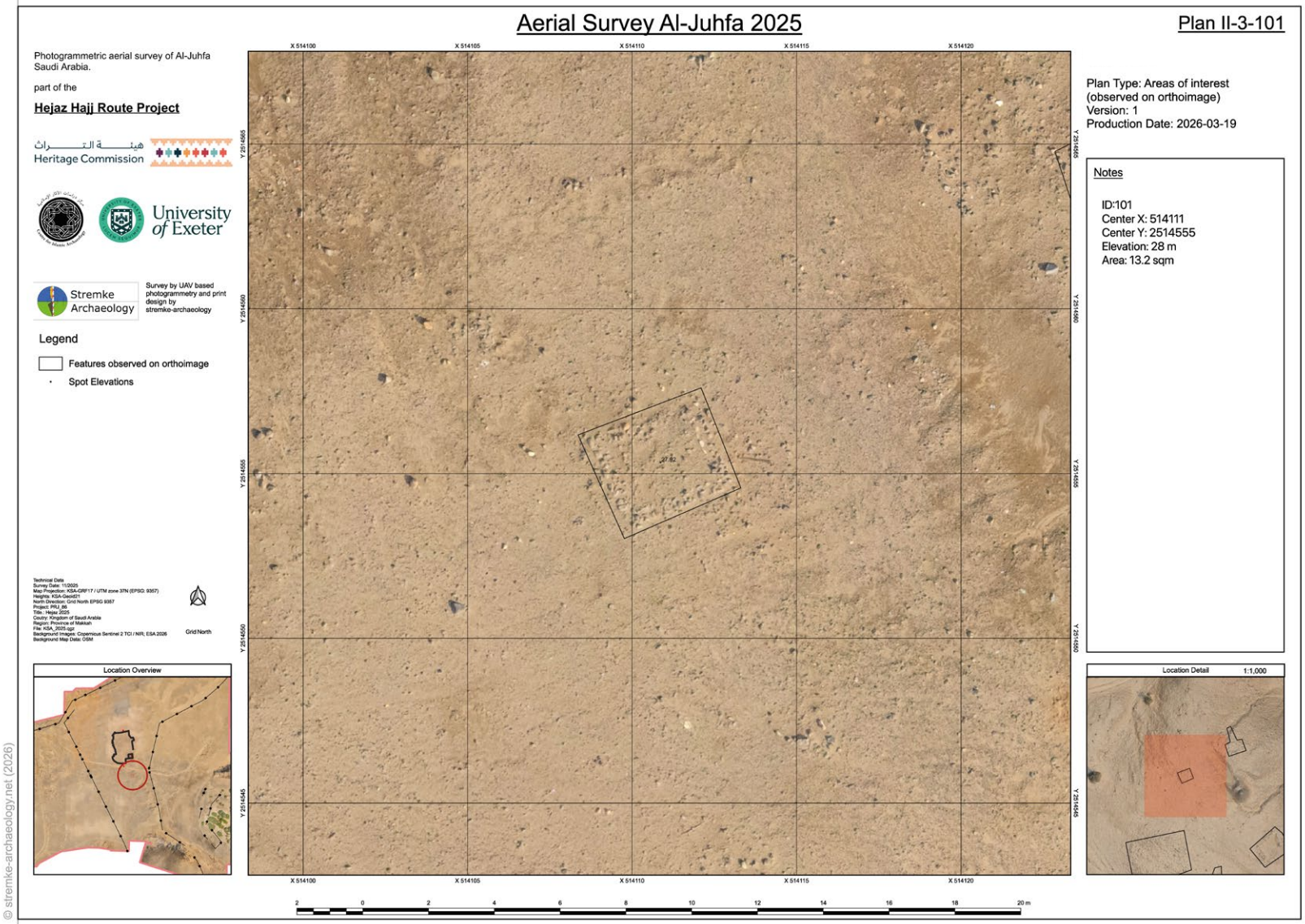
Figure 74. Campsite south (detail). II-3-45 (Stremke Archaeology).

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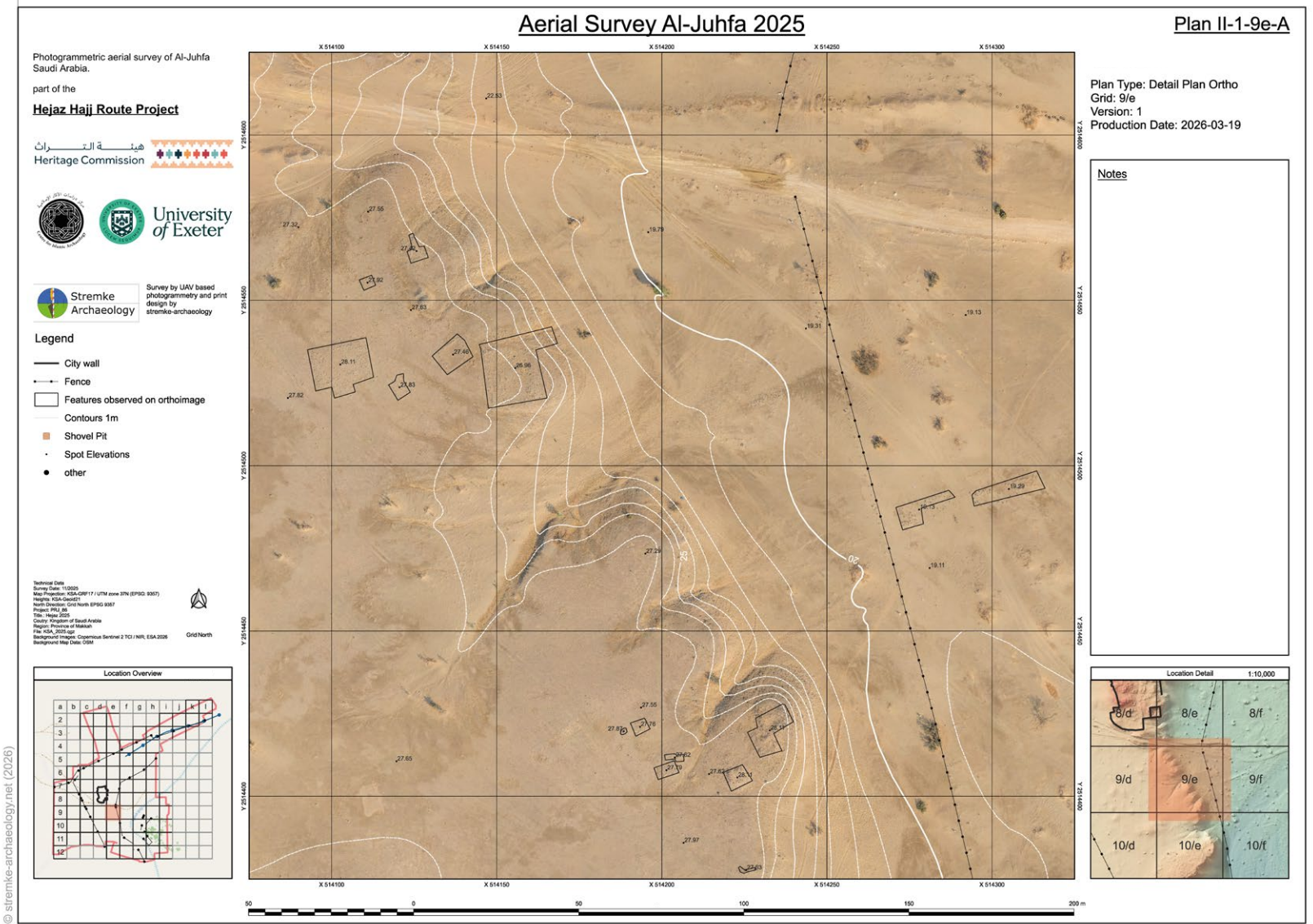
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Figure 75. Campsite south (detail). II-3-58 (Stremke Archaeology).



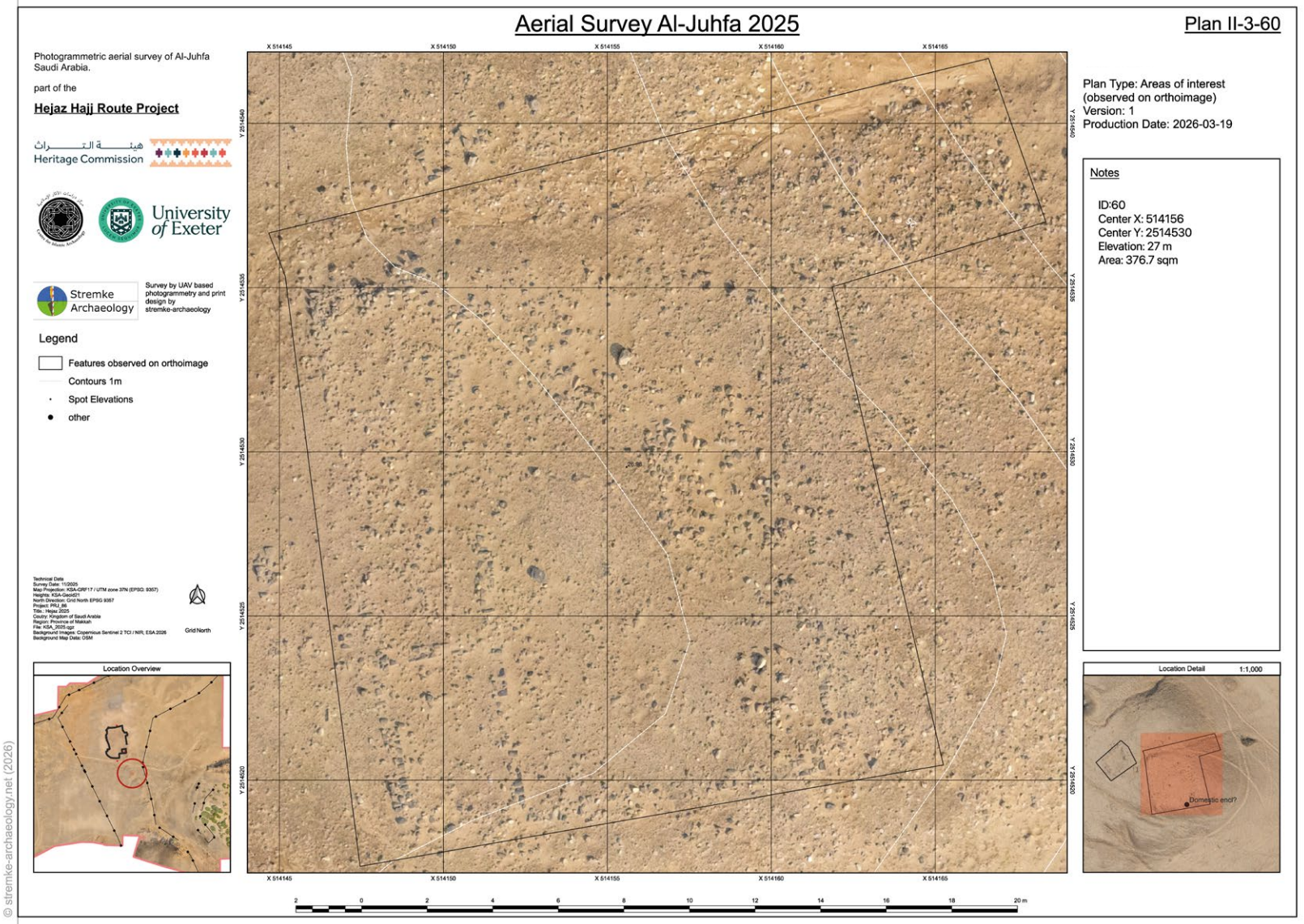
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Figure 76. Campsite south (detail). II-3-101 (Stremke Archaeology).



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Figure 77. Campsite south. II-1-9e-A (Stremke Archaeology).



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Figure 78. Campsite south (detail). II-3-60 (Stremke Archaeology).

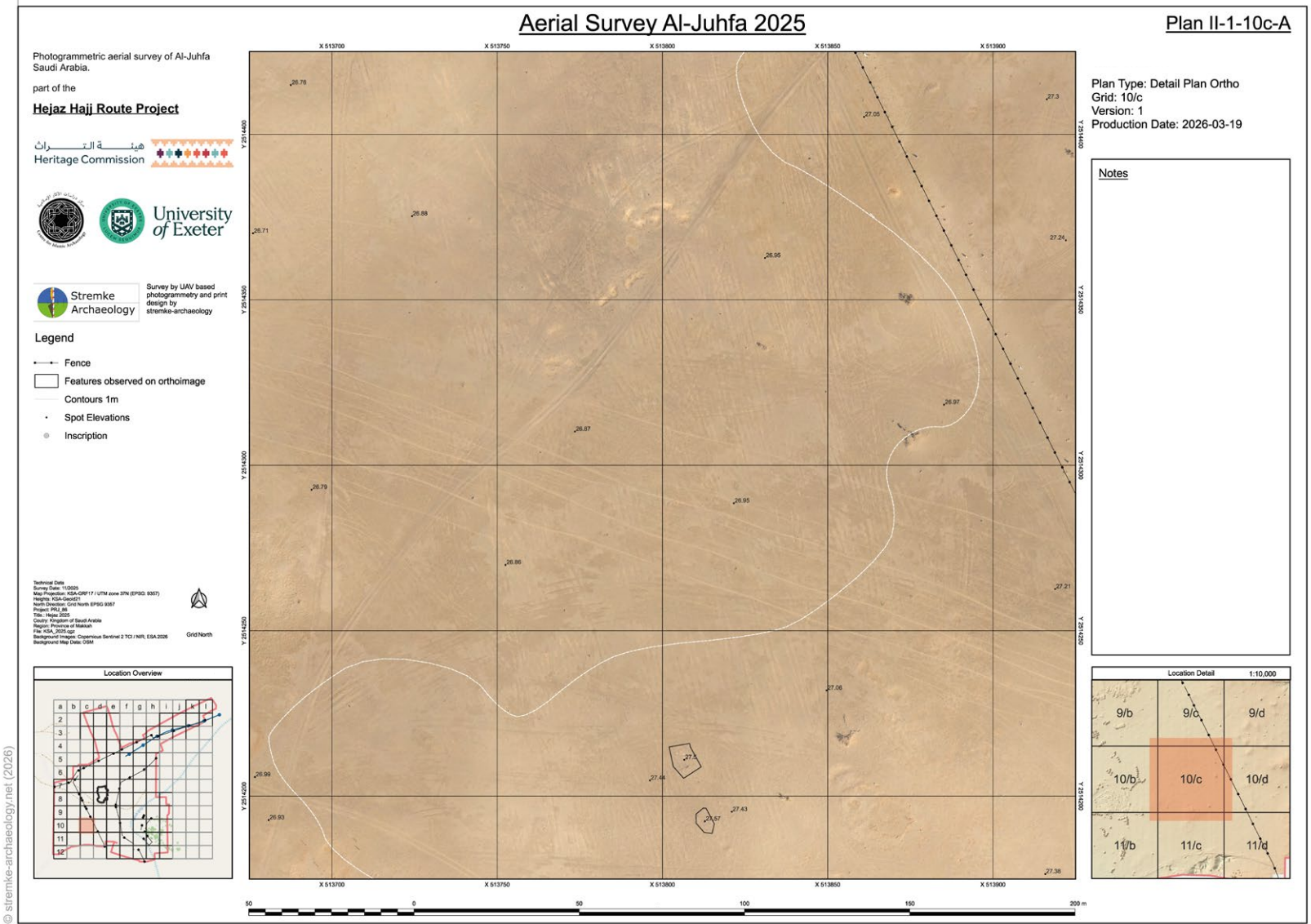
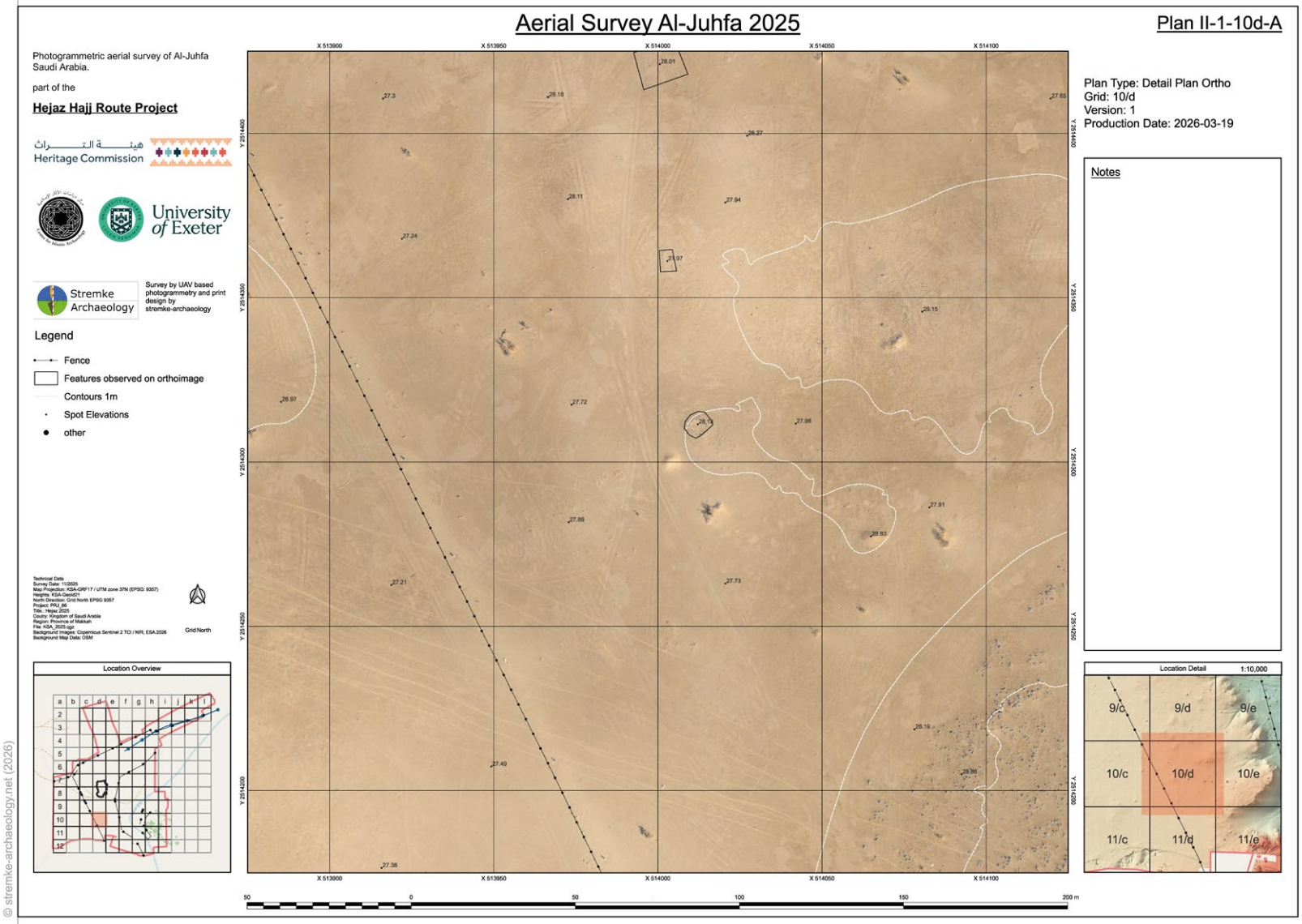


Figure 79. Campsite south. II-1-10c-A (Stremke Archaeology).



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Figure 80. Campsite south. II-1-10d-A (Stremke Archaeology).

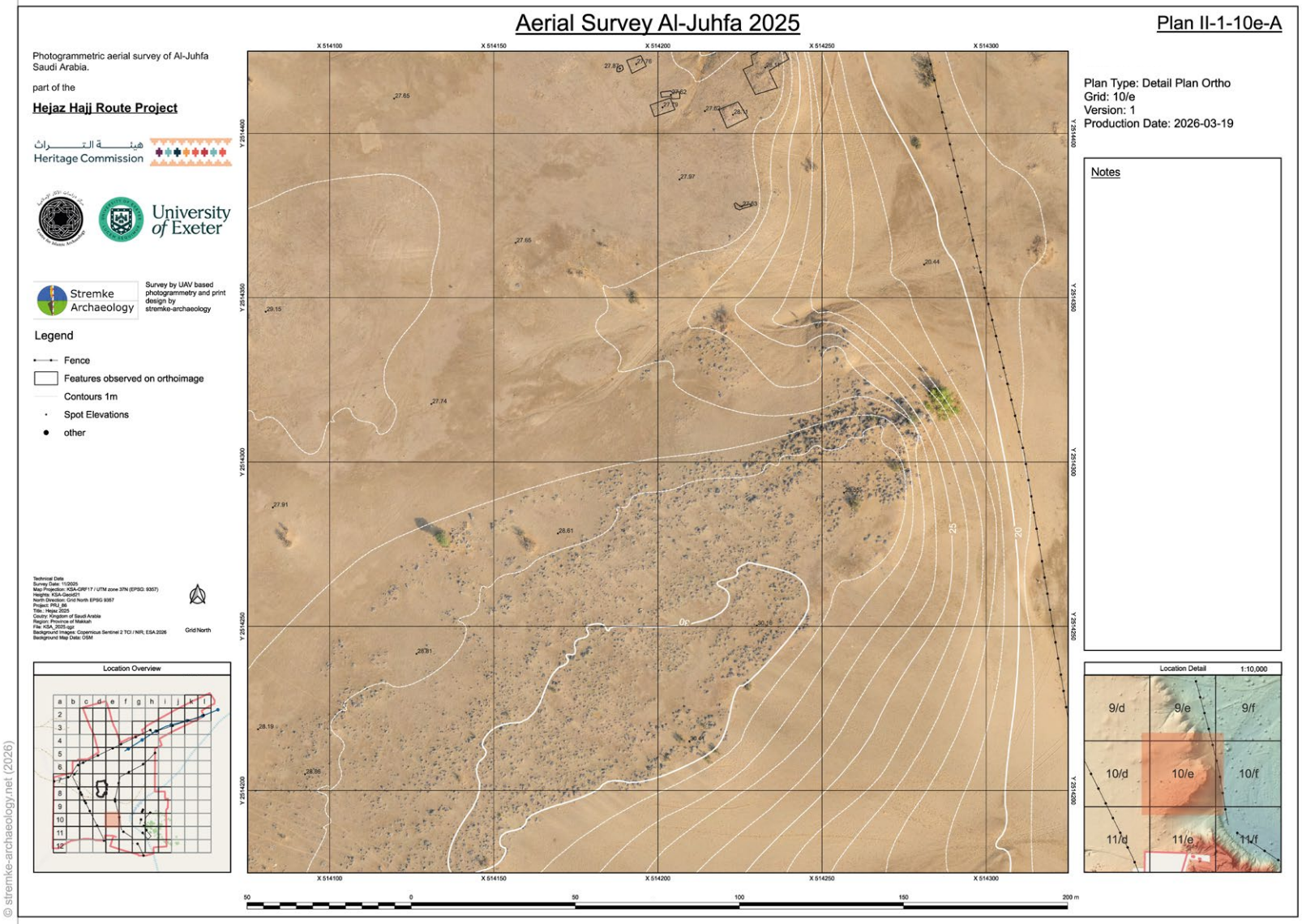
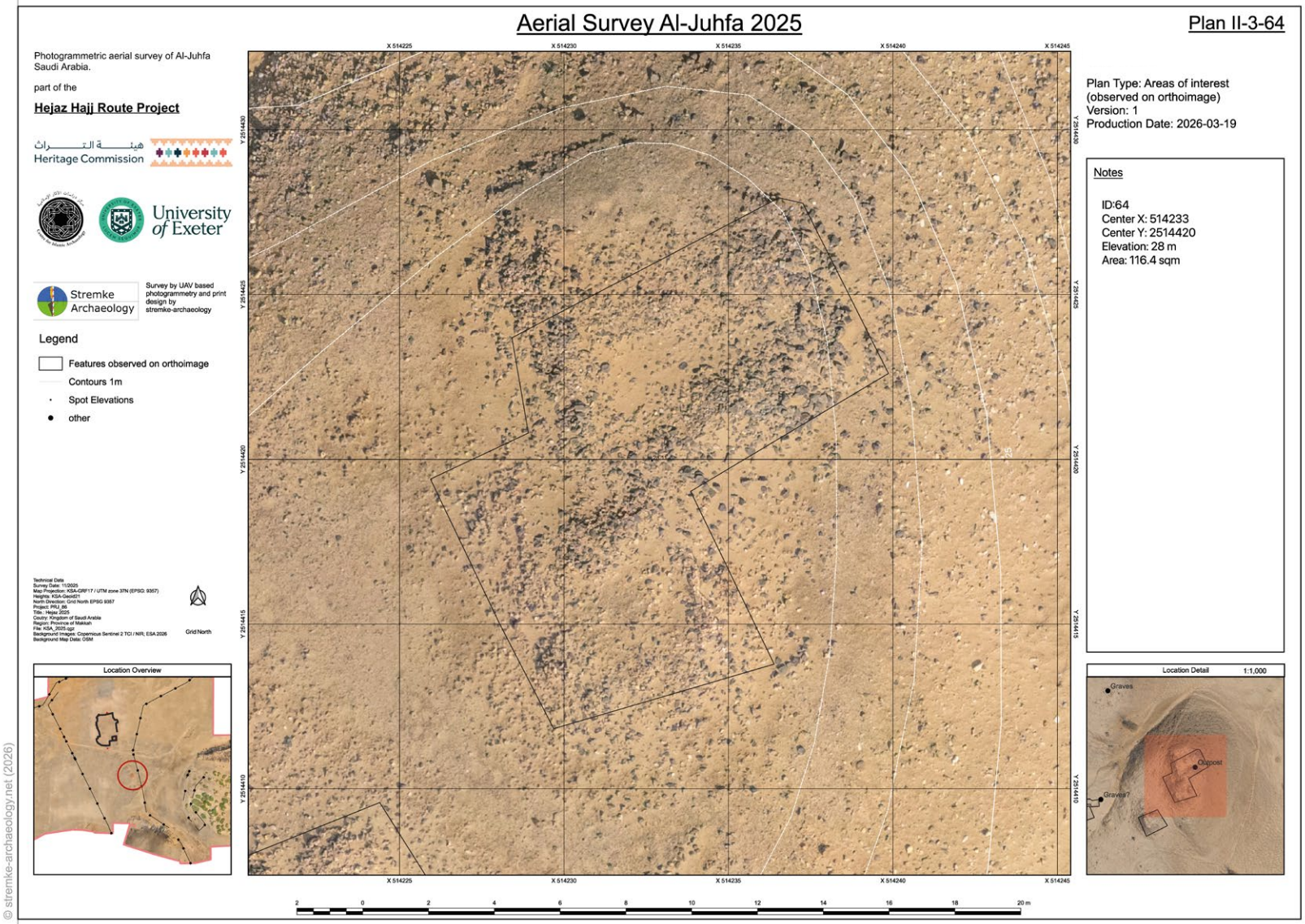


Figure 81. Campsite south. II-1-10e-A (Stremke Archaeology).

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Figure 82. Campsite south (detail). II-3-64 (Stremke Archaeology).

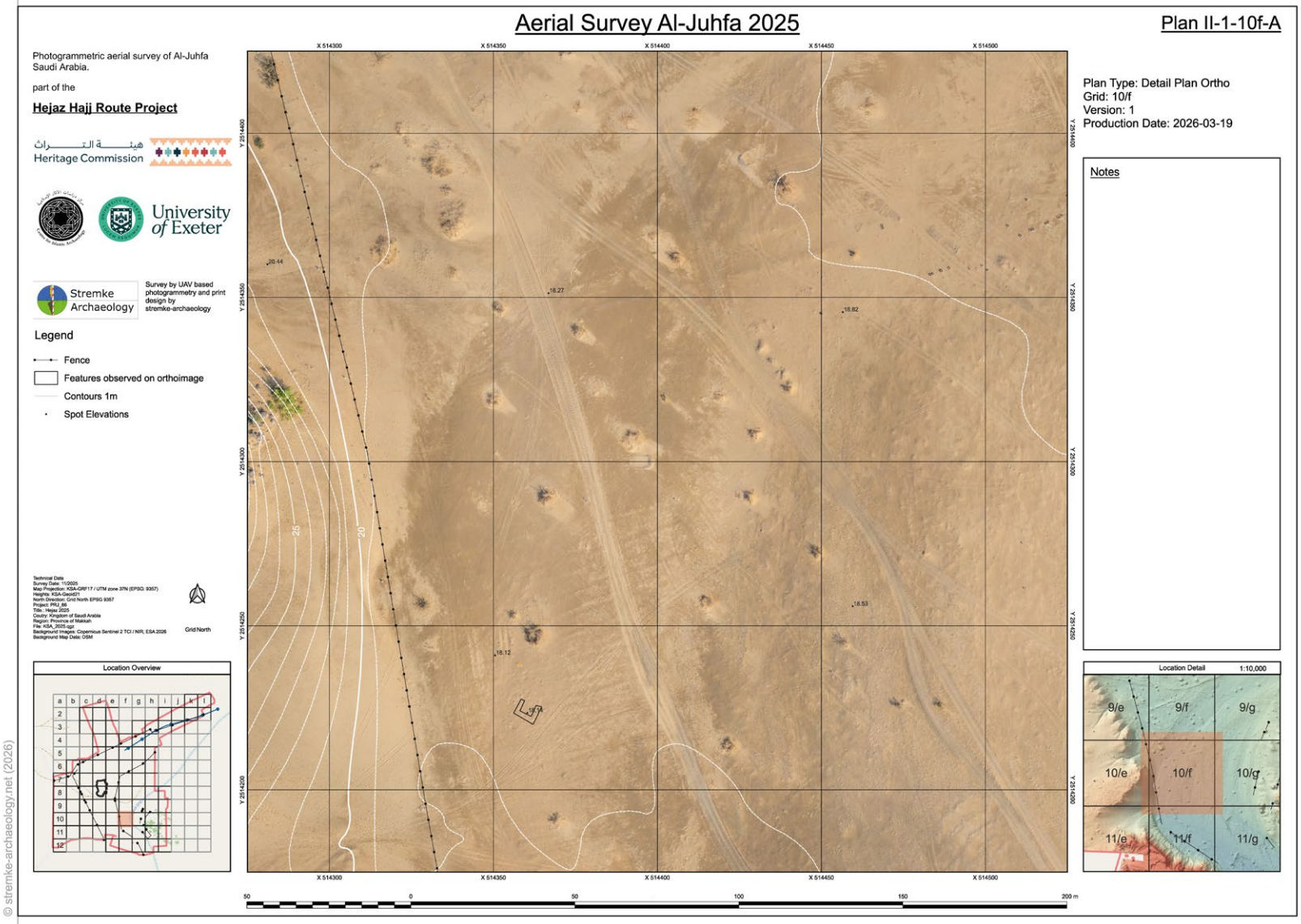
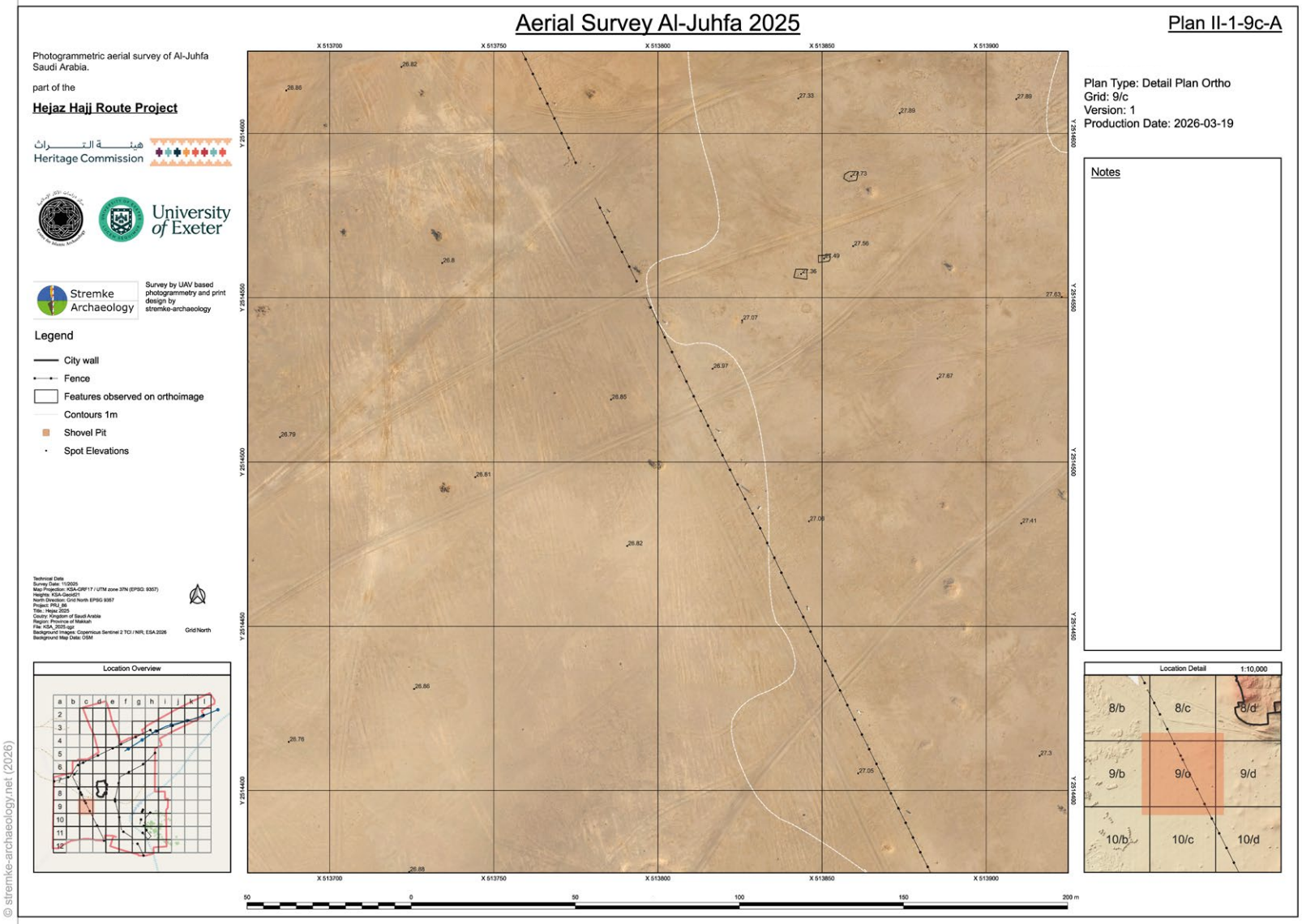


Figure 83. Campsite far south. II-1-10f-A (Stremke Archaeology).

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Figure 84. Campsite southwest. II-1-9c-A (Stremke Archaeology).

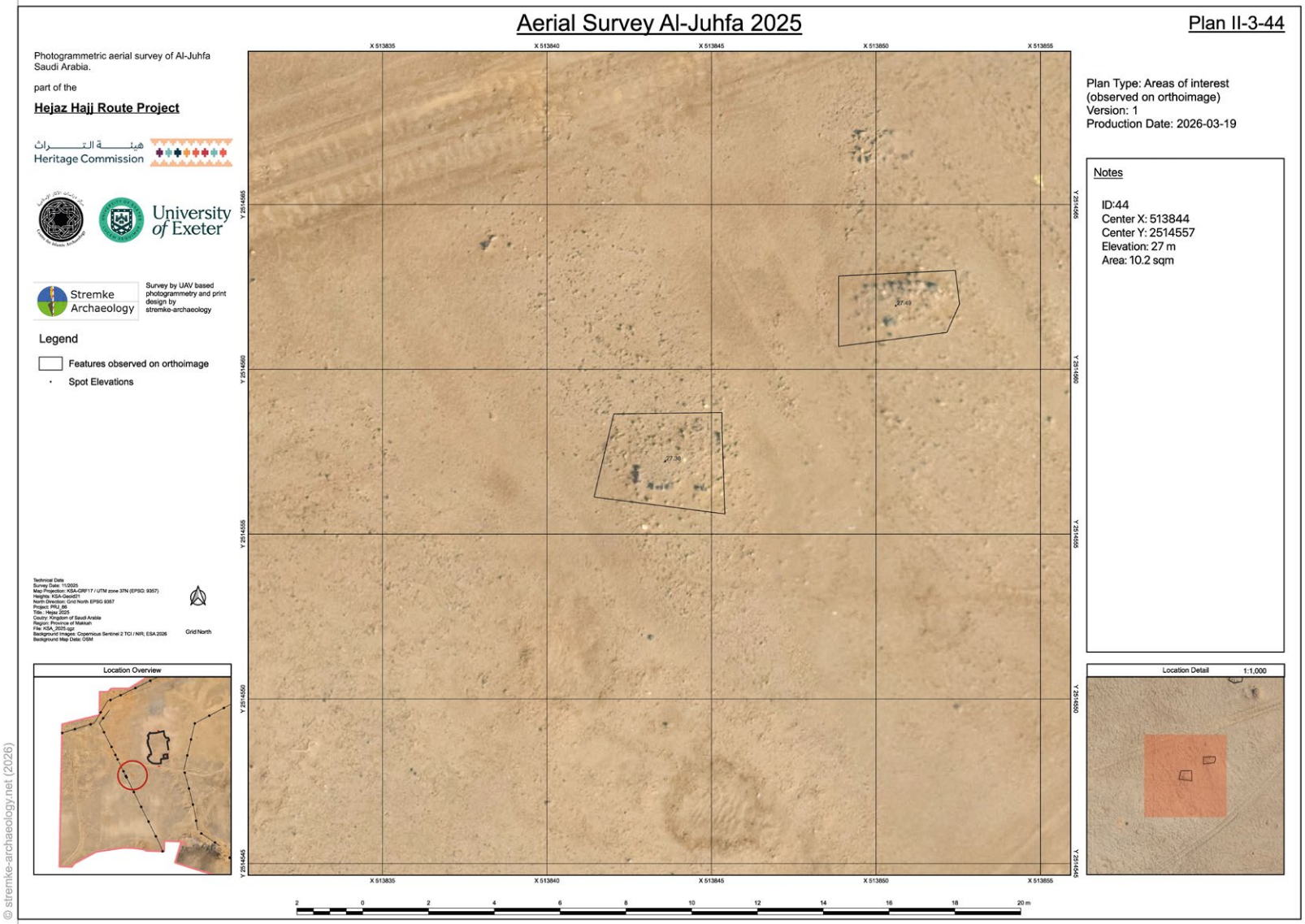


Figure 85. Campsite southwest (detail). II-3-44 (Stremke Archaeology).

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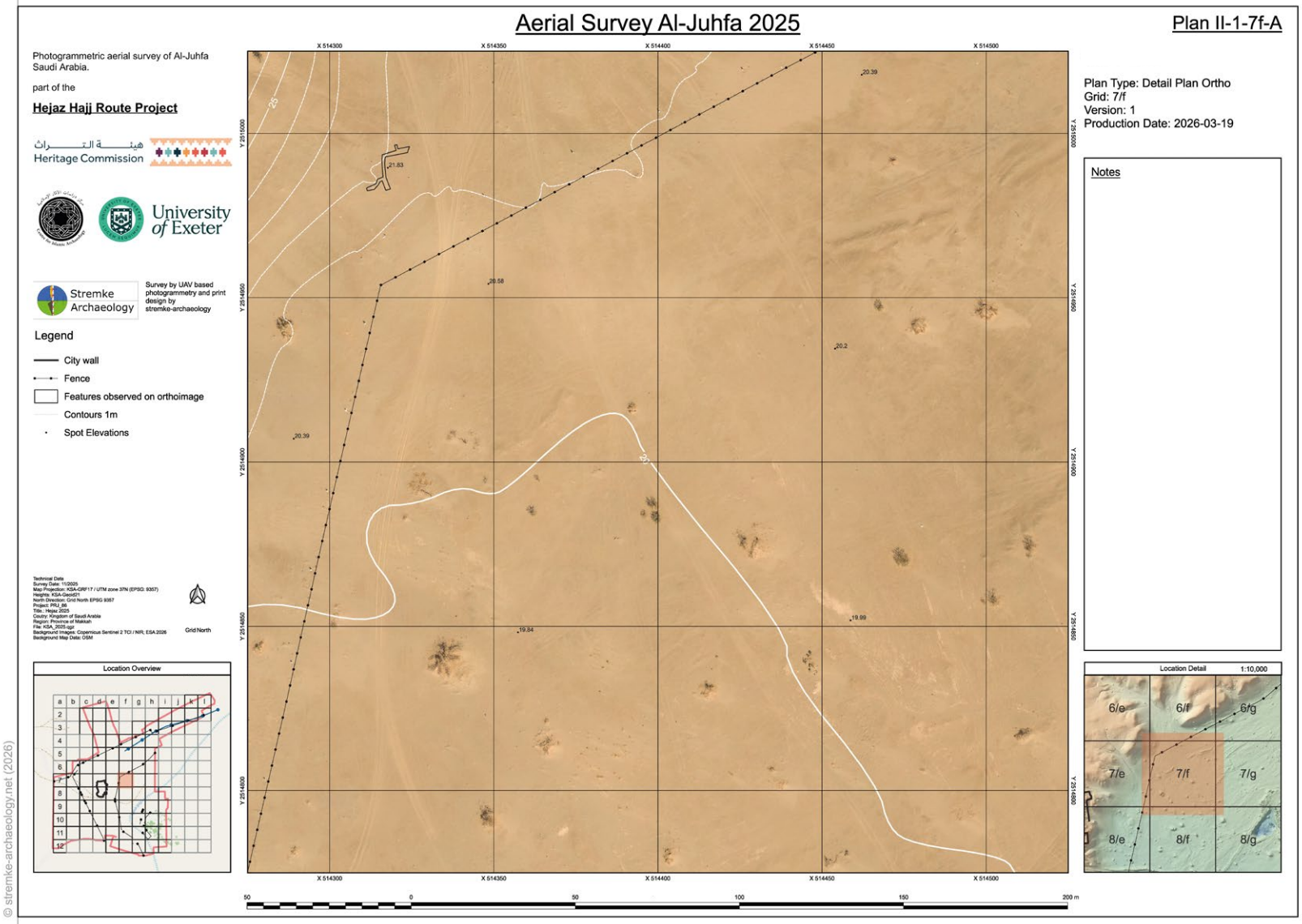


Figure 86. Wadi edge. II-1-7f-A (Stremke Archaeology).

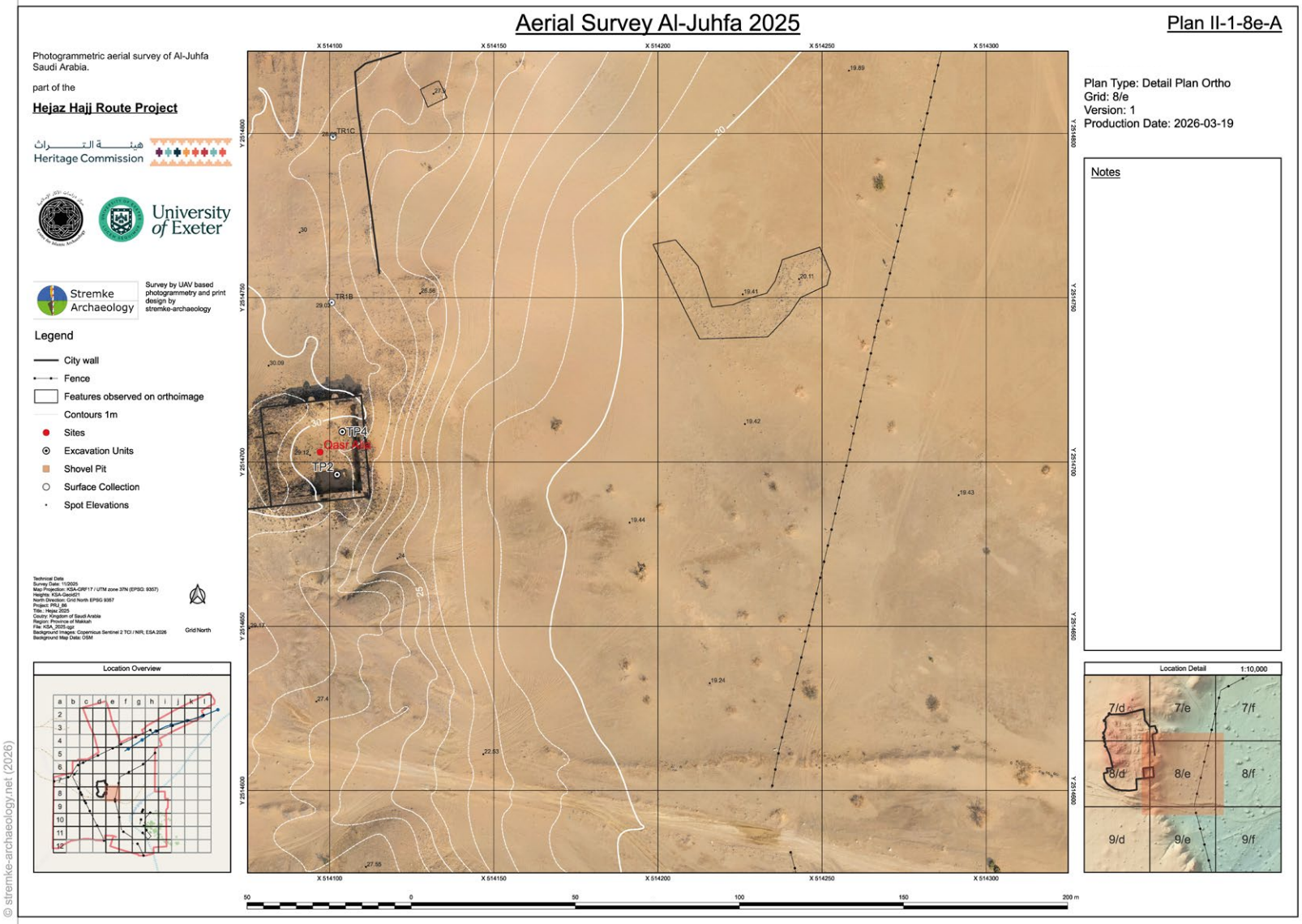
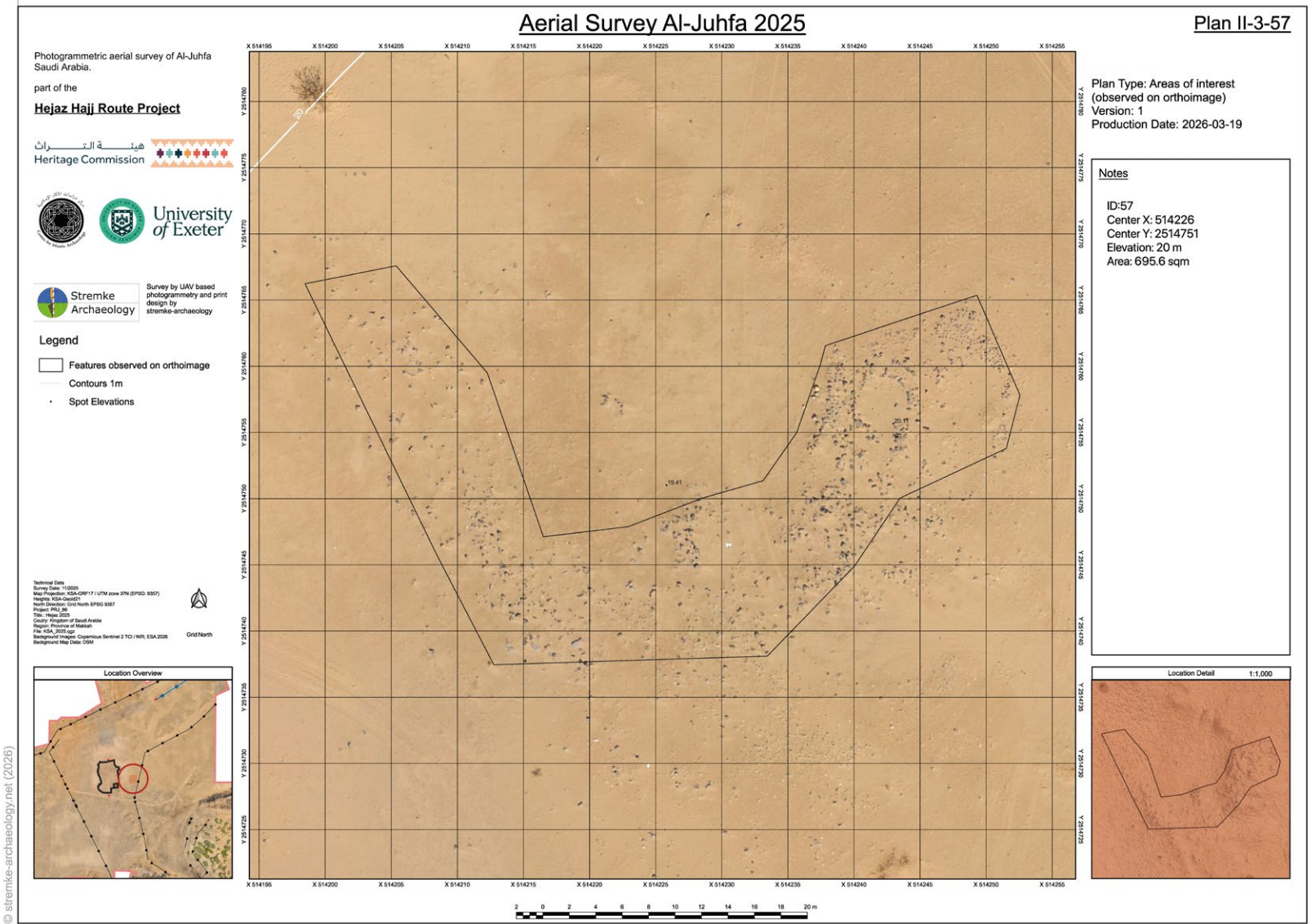


Figure 87. Wadi. II-1-8e-A (Stremke Archaeology).



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Figure 88. Wadi (detail). II-3-57 (Stremke Archaeology).

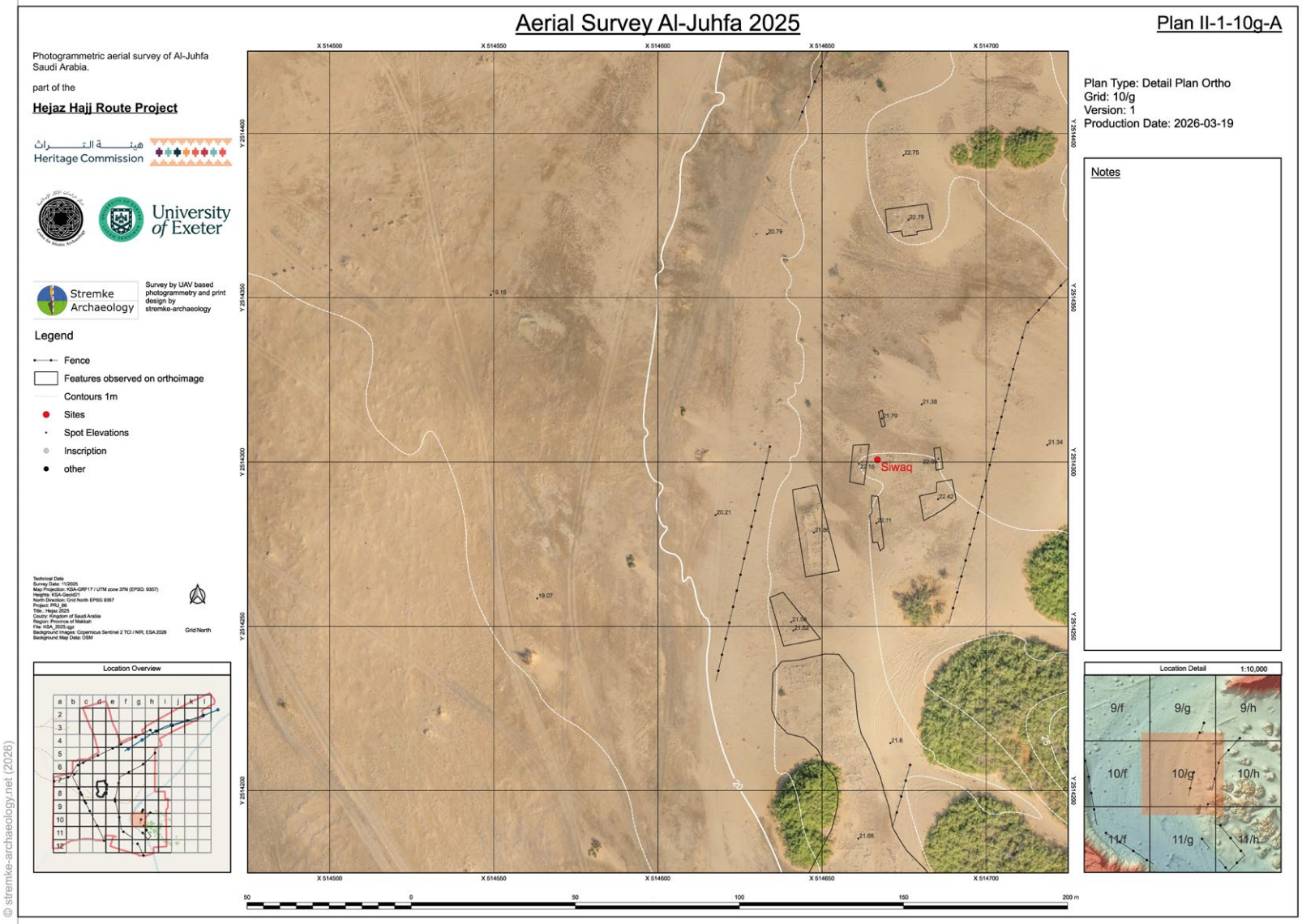
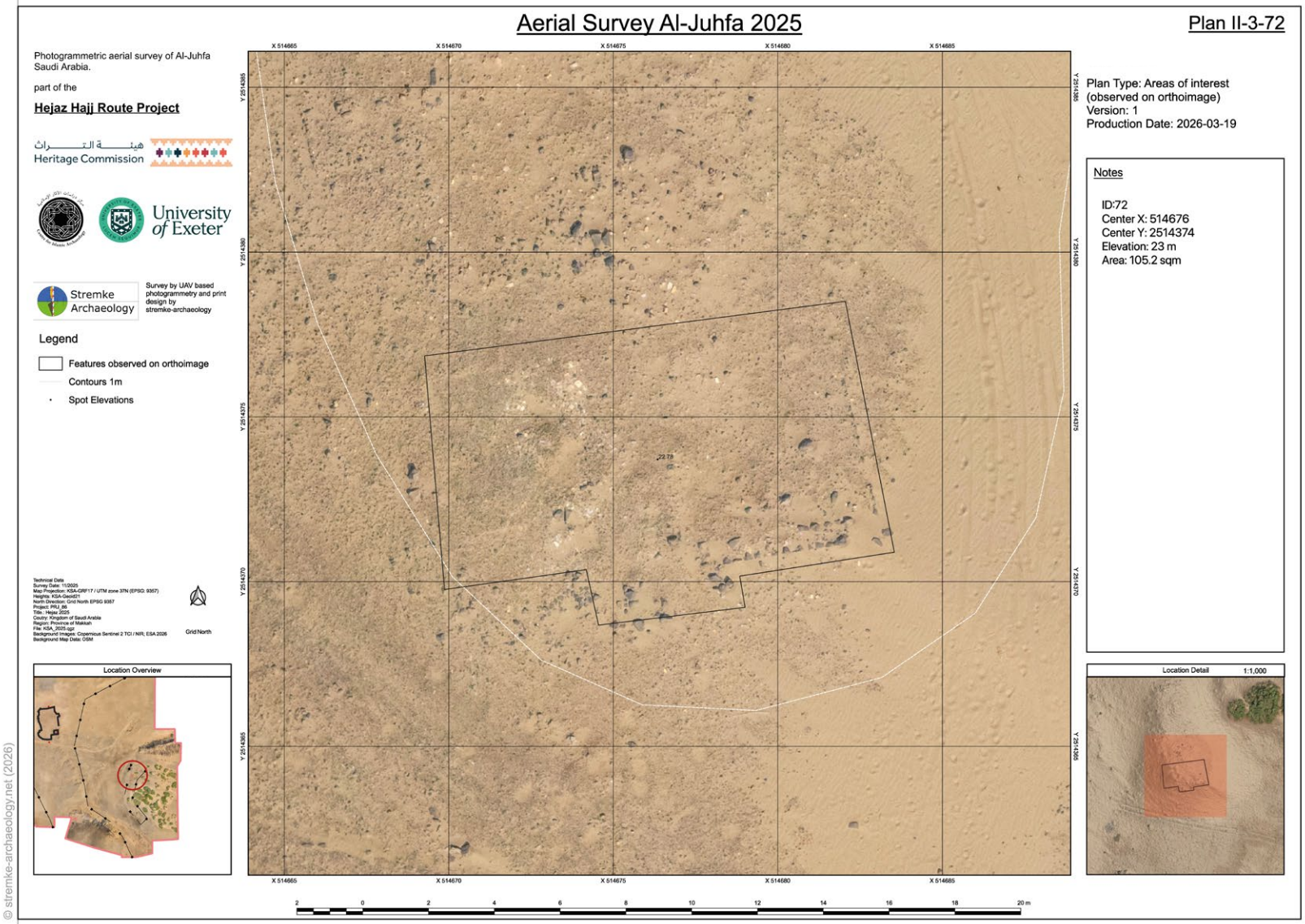
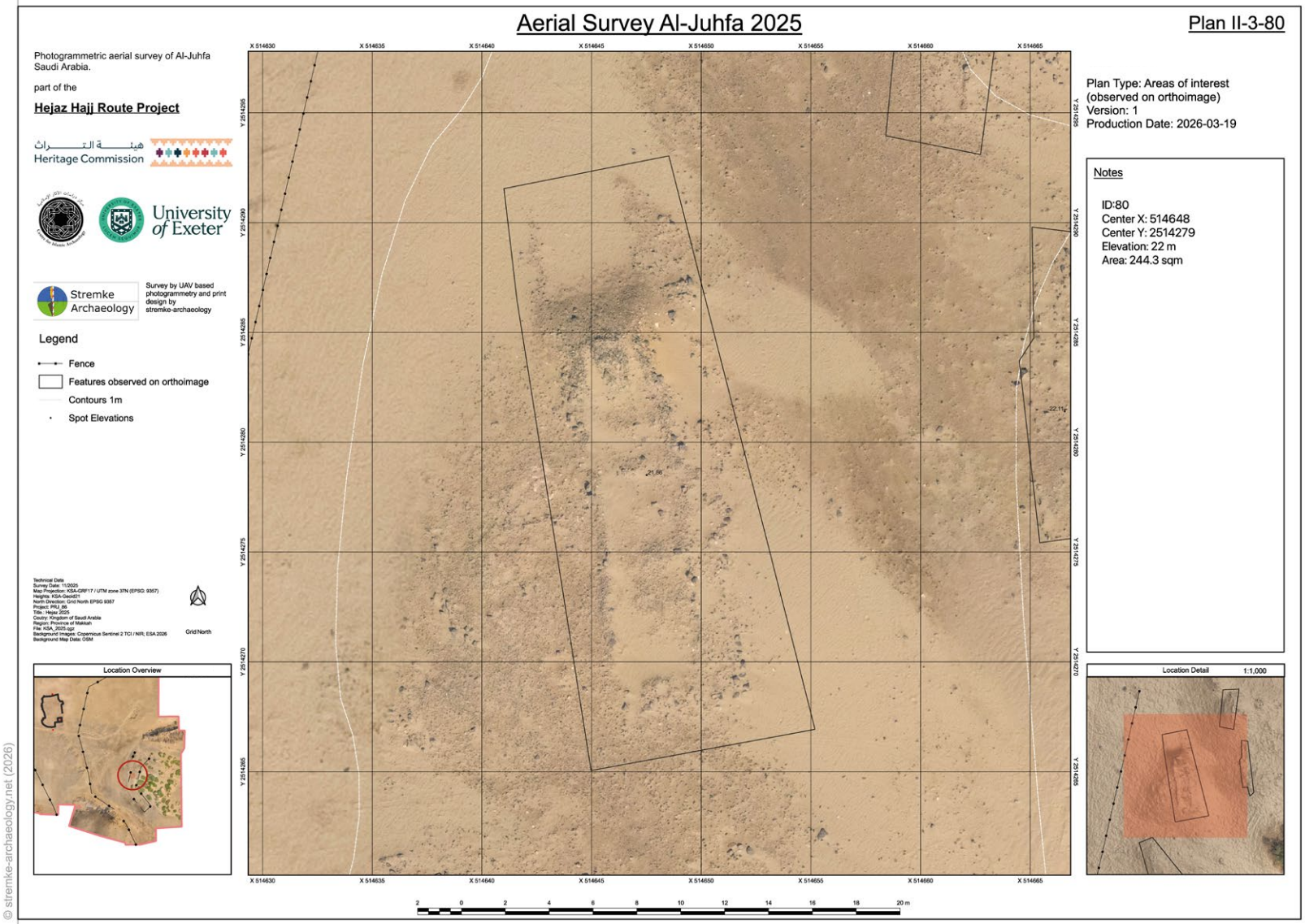


Figure 89. Siwak. II-1-10g-A (Stremke Archaeology).



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Figure 90. Siwak (detail). II-3-72 (Stremke Archaeology).



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Figure 91. Siwak (detail). II-3-80 (Stremke Archaeology).

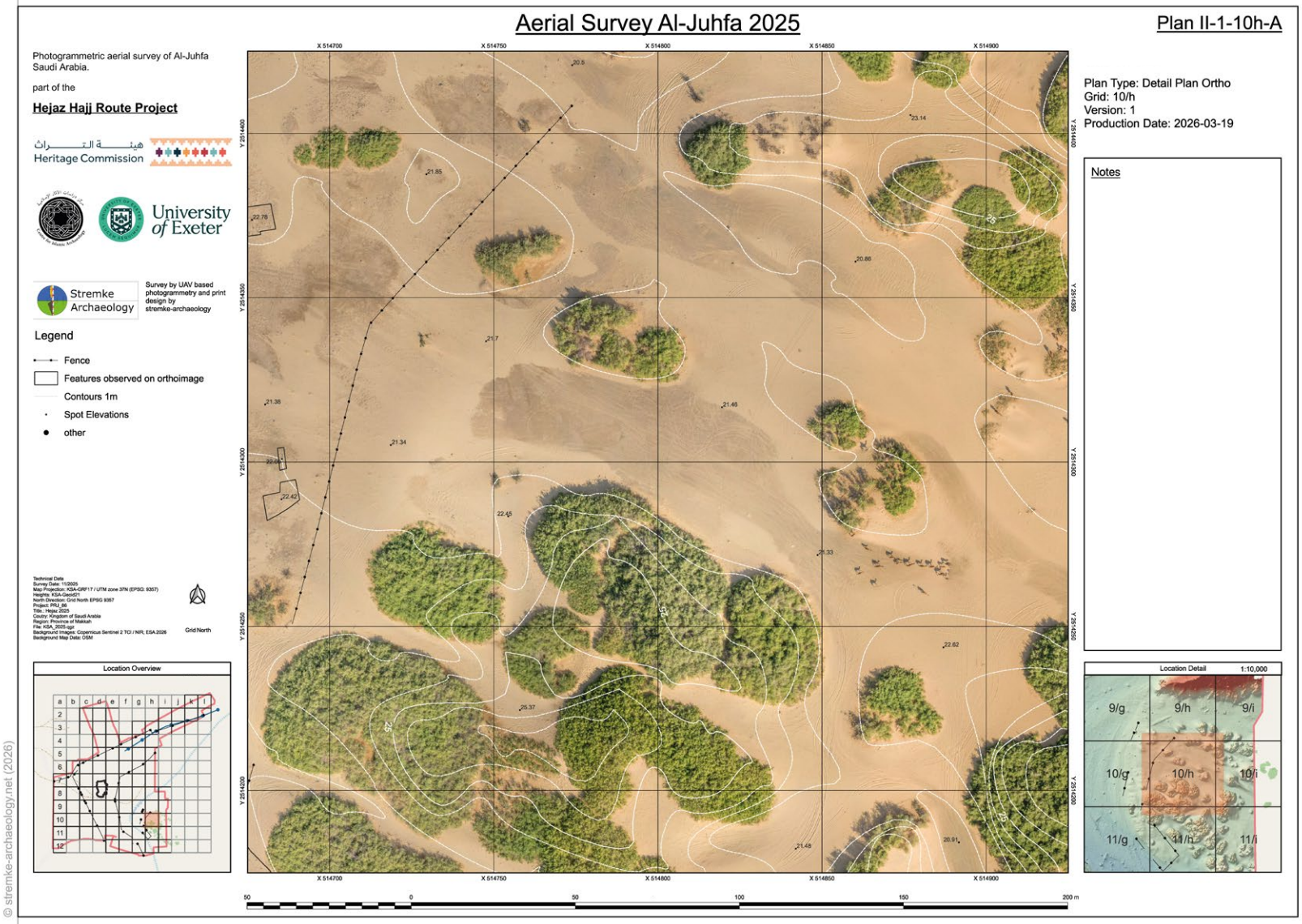


Figure 92. Siwak. II-1-10h-A (Stremke Archaeology).

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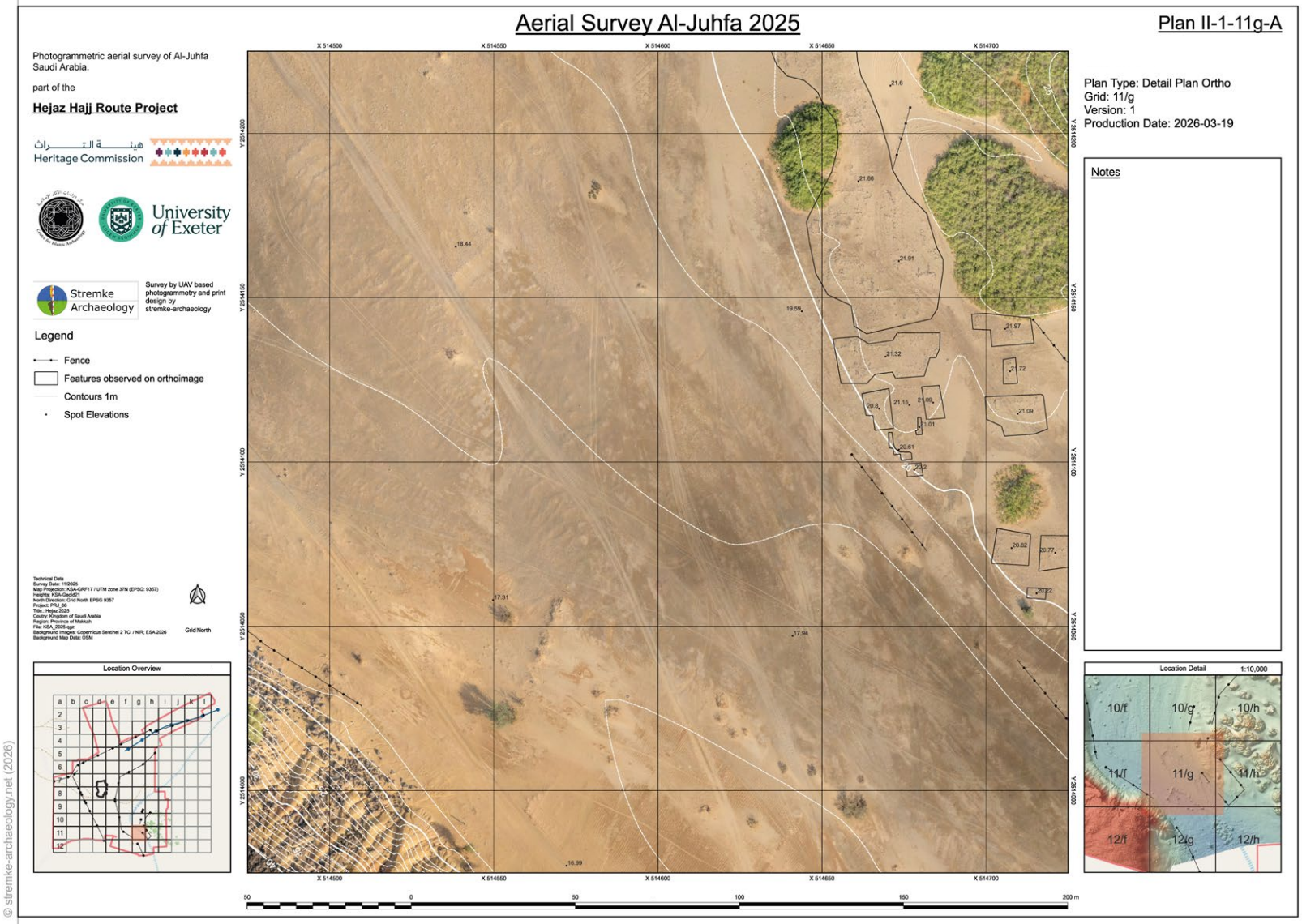


Figure 93. Siwak. II-1-11g-A (Stremke Archaeology).

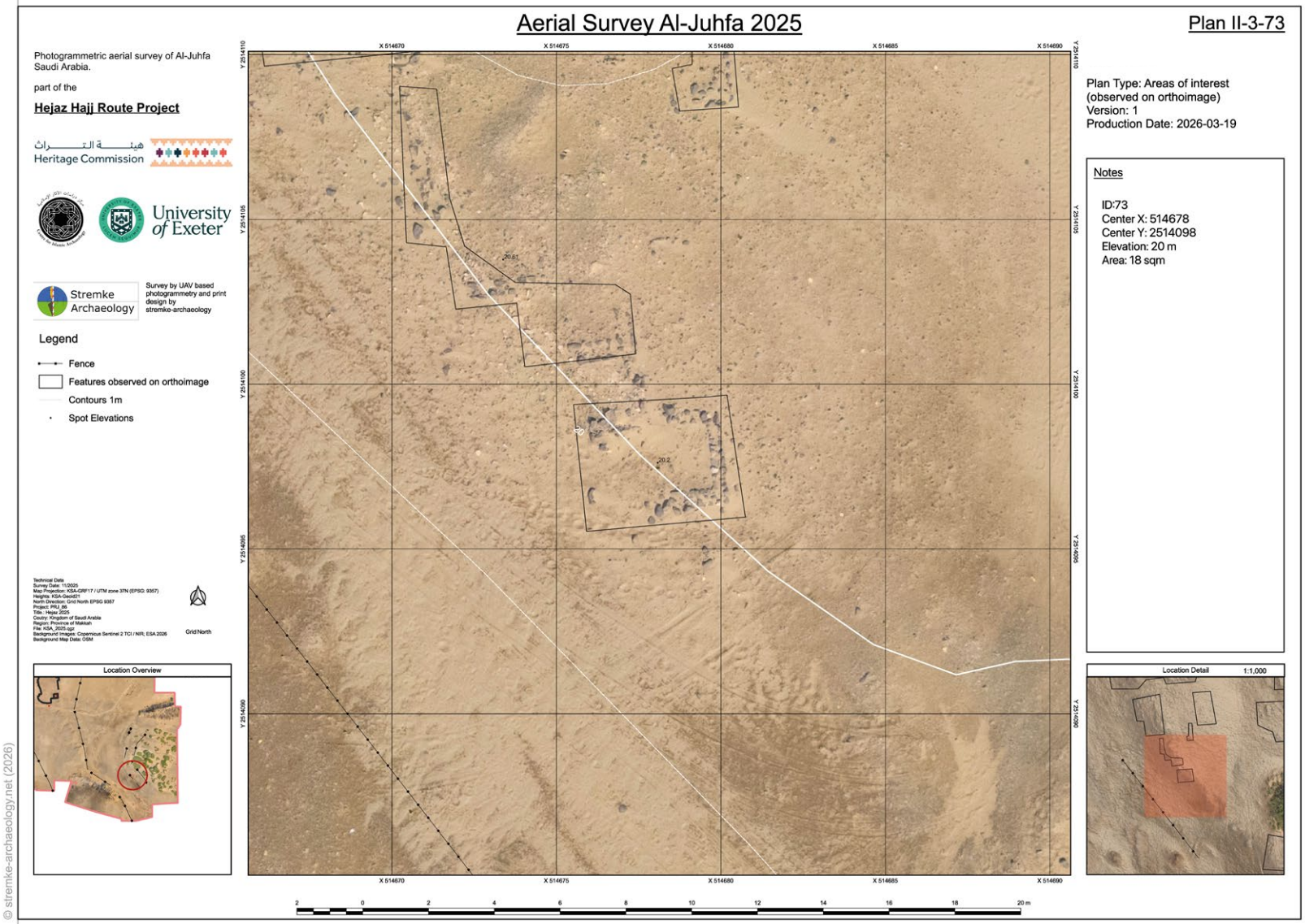
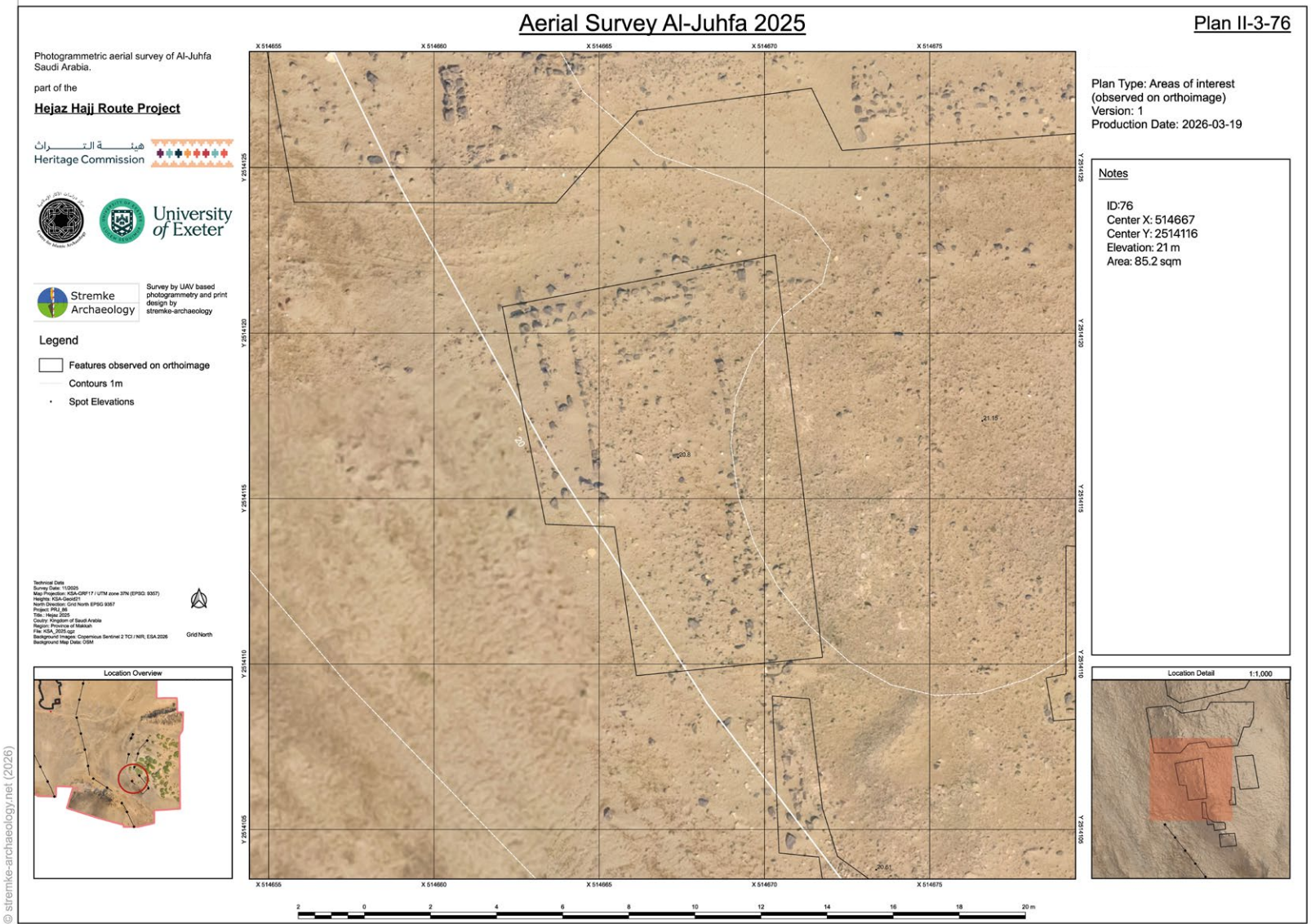


Figure 94. Siwak (detail). II-3-73 (Stremke Archaeology).



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Figure 95. Siwak (detail). II-3-76 (Stremke Archaeology).

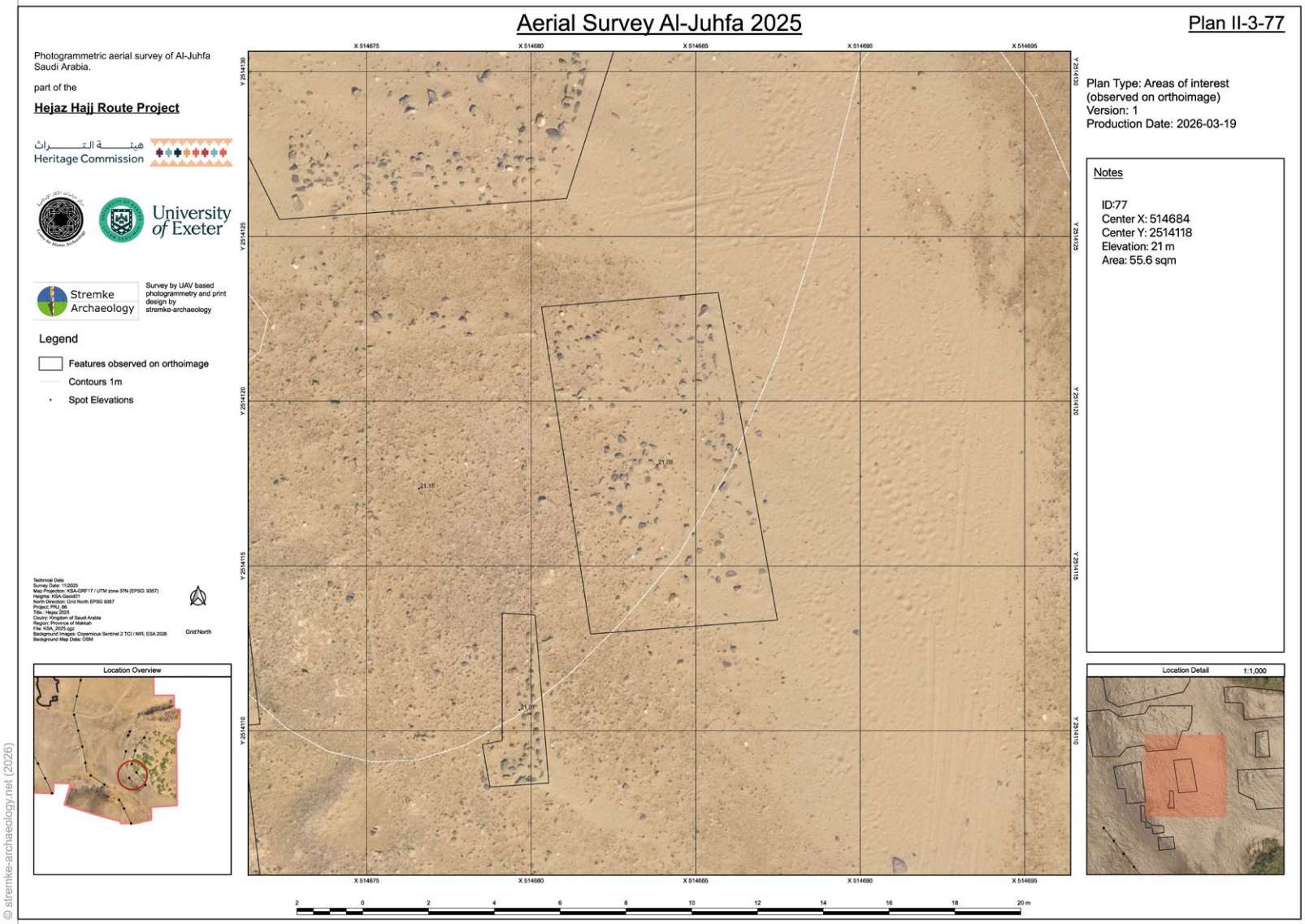
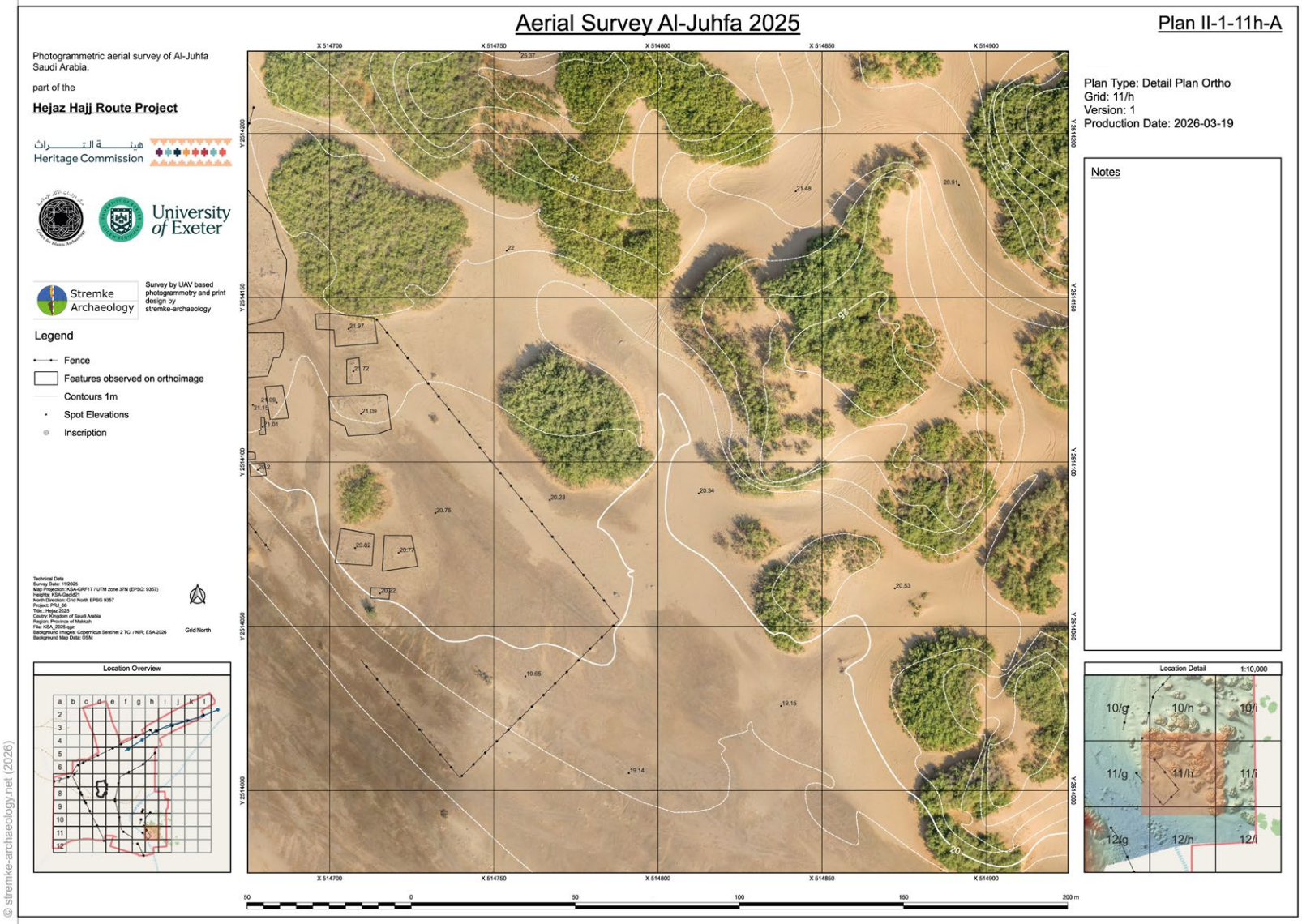


Figure 96. Siwak (detail). II-3-77 (Stremke Archaeology).



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Figure 97. Siwak. II-1-11h-A (Stremke Archaeology).

Chapter 6
Shovel Test Pits

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Introduction

To assess the results of the pedestrian survey a programme of shovel test pitting was undertaken by Dr Nathan Anderson, assisted by Mr Endris Hussien Siraj and Mr Tariq Altuwayjiri. A grid of 400m north south by 300m east to west was laid out and shovel test pits of 50cm x 50cm size were dug at 50m intervals at 33 points across the grid except where it intersected with the stone town (**Figure 98**). Although referenced to the same grid, the ceramic transect survey points were offset by 25m so as to avoid overlap.

Results

A summary of the shovel test pit results is provided in **Table 5** and three key results emerge. First the campsite locations around the stone town are traceable with these confined to an approximately 100m wide strip on all sides except in the wadi to the east (**Figure 99**). Beyond the campsite boundaries sherd density declined drastically and the shovel test pits were sterile or nearly sterile (**Figure 99**). Second, periodic flooding appears to have occurred as indicated in repeated stratigraphic sequences by compacted layers of deposits frequently containing gravel and waterworn pebbles (**Table 5, Figures 100, 103, and 105**). Third, architectural features were minimal and confined to shovel test pits near the stone town (**Figures 99, 101, and 104**) with the exception of SPB1, which correlates the results of the aerial survey with a few scattered stone structures recorded across the campsites. It is also noteworthy that the oven in SPB3 is in close proximity to TP1 (**Figures 99 and 101**) where further ovens were documented suggesting this was a sizeable facility.

Three of the shovel test pits were C14 dated, two (SPB2, SPC5) to between the late 8th and 9th centuries and the other (SPD5) to the 8th century (**Table 1**). One of these was within the stone town (SPC5) and the other two (SPB2, SPD5) in proximity to the stone town, and which when considered with the ceramics recovered from all the shovel test pits, discussed below, reveal that the campsites are contemporary with the stone town.

Table 5. Summary of the JUH25 shovel test pit results.

Code	UTM (37 Q)	Summary of Results
SPA1	514076 m E 2515054 m N	Top 10cm of pale brown to yellow sand largely sterile and overlying a sterile dune. Excavation ended at 20cm depth.
SPA2	514076 m E 2515002 m N	Top 15cm of pebble filled sand was sterile and subsequent 5cm of yellow sand overlay a 5cm flecked sand layer containing some shell. Beneath this was a pale brown sand containing ceramics, glass, bone yielding at c.35cm depth to a compact earth layer of 5cm depth on sterile dune sand. Excavation halted at 50cm depth (**Figures 100 and 101**).
SPA3	514076 m E 2514953 m N	Archaeological material (ceramics and bone) limited to top 45cm of 70cm of white to pale yellow sand excavated.
SPA4	514074 m E 2514654 m N	Top 20cm of pale brown to pale yellow sand highly disturbed by road traffic. Some plaster and lime mortar fragments recorded to 45cm depth when excavation ended.
SPB1	514026 m E 2515001m N	Yellow sand to 35 to 43cm when a compact layer of lime mortar and plaster found with beneath this further mortar, medium sized cobbles, and plaster, likely structural remains. Excavation stopped at 75cm depth (**Figure 101**).
SPB2	514025 m E 2514952 m N	White to pale yellow sand to 60cm depth, then a compacted surface found, with a second compacted surface recorded at 72cm when excavation stopped. C14 dated to 773-893 cal AD (**Table 1**)
SPB3	514025 m E 2514902 m N	Removal of 8cm of light brown to pale yellow sand uncovered a friable orange-red clay oven in the northern profile extending to 40cm depth (**Figure 101**). Ceramics decreased after this and excavation ended at 60cm depth.

Code	UTM (37 Q)	Summary of Results
SPB4	514024 m E 2514703 m N	Surface white to pale yellow sand yielded at c.5cm to white to pale yellow largely sterile sand until 50cm when brown sandy soil encountered containing significantly more ceramics. Excavation stopped at 93cm depth, but cultural layer continued (**Figures 100 and 102**).
SPB5	514024 m E 2514503 m N	Brown to pale yellow largely sterile sand to 16cm when sterile compact layer containing waterworn pebbles and cobbles found with beneath this sterile dune sand. Excavation ended at 39cm depth.
SPC1	513975 m E 2515053 m N	Sterile pale brown to yellow sand containing gravel to 35cm depth then sterile looser sand of same colour, and excavation stopped at 44cm depth.
SPC2	513974 m E 2515001 m N	Ceramics only in top 20cm of yellow sand. Excavation ended at 42cm depth.
SPC3	513975 m E 2514951 m N	White to pale yellow sand with a compact layer of sand and pebbles at 40cm depth. Sterile dune sand below compact layer and excavation ended at 57cm depth (**Figures 100 and 103**).
SPC4	513975 m E 2514901 m N	Sterile white to pale yellow sand to 40cm depth and excavation ended.
SPC5	513974 m E 2514702 m N	Pale brown to yellow sand to 30cm depth when the top of a masonry wall was found extending across the shovel pit (**Figures 100 and 104**). Area northwest of the wall was excavated to 55cm depth with artifacts still occurring. C14 dated to 773-893 cal AD (**Table 1**).
SPC6	513974 m E 2514652 m N	Thin layer of surface sand then pale brown to yellow sand to c. 50cm depth when a similar but more compacted deposit was recorded to 70cm depth and then a sterile natural pale orange to brown compact soil containing some waterworn rock. Excavation ended at 82cm depth (**Figures 100 and 105**).
SPC7	513974 m E 2514502 m N	Pale brown to yellow sand to 40cm depth when a compact layer of 4-5cm depth containing waterworn pebbles and cobbles recorded. Excavation ended at 50cm depth.
SPD1	513925 m E 2515000 m N	Ceramics on surface but otherwise sterile and excavation ended at 40cm depth.
SPD2	513925 m E 2514950 m N	White to pale yellow sand with ceramics confined to top 20cm and sterile beneath. Excavation ended at 45cm depth.
SPD3	513924 m E 2514901 m N	Top 55cm of loose yellow sand contained some ceramics with a 5cm thick compact layer then recorded, and a sterile dune sand beneath and excavation ended at 60cm depth.
SPD4	513924 m E 2514851 m N	Some ceramics, a repaired soft stone vessel fragment and bone found in the top 60cm of yellow sand deposits. Sterile dune sand underneath and excavation ended at 78cm depth.
SPD5	513924 m E 2514800 m N	Pale brown to yellow sand containing some cultural material, mainly bone, to 74cm depth when excavation was ended. C14 dated to 711-774 cal AD (**Table 1**).
SPD6	513924 m E 2514752 m N	Pale brown to yellow sand extended to 36cm depth when a 2-3cm thick compact layer found containing some ceramics. Beneath this was sterile dune sand and excavation ended at 54cm depth.
SPD7	513924 m E 2514701 m N	Pale brown to yellow sand containing bone, ceramics, and glass to 29cm depth when a sterile compact layer found. Excavation ended at 35cm depth with compact layer continuing.
SPD8	513924 m E 2514551 m N	Loose white to pale brown sand containing some ceramics. Sterile and increasingly compact after 16cm depth. Excavation ended at 42cm depth.
SP31	513875 m E 2514999 m N	No surface ceramics and only sterile pale white to yellow sand to 20cm depth and excavation was ended.
SP32	513875 m E 2514900 m N	The top 27cm of loose pale brown to yellow sand contained ceramics. A thin compact layer was then found with a largely sterile soil containing cobbles and pebbles underneath and excavation was ended at 58cm depth.
SP33	513874 m E 2514750 m N	Some ceramics in pale brown sand until 30cm depth, then sterile and at 40cm depth compact layer reached and excavation ended.
SPEX1	513824 m E 2514950 m N	Largely sterile pale brown loose sand. Excavation ended at 48cm depth.
SPEX2	513824 m E 2514850 m N	Largely sterile pale brown to pale yellow sand. Excavation ended at 52cm depth.
SPEX3	513824 m E 2514800 m N	Sterile white to pale brown sterile sand with sterile compact layer containing waterworn pebbles at 38cm depth. Excavation ended at 48cm depth.
SPEX4	513824 m E 2514700 m N	Shallow largely sterile pale brown sand top layer containing a lot of gravel of 3-5cm depth with sterile compact layer below. Excavation ended at 20cm depth.
SPEX5	513824 m E 2514550 m N	Sterile sand only. Excavation ended at 20cm depth.
SP3X1	514124 m E 2514555 m N	Sterile pale brown to yellow sand to 18cm depth when a compact layer of water lain sterile deposits recorded. Excavation ended at 25cm depth.

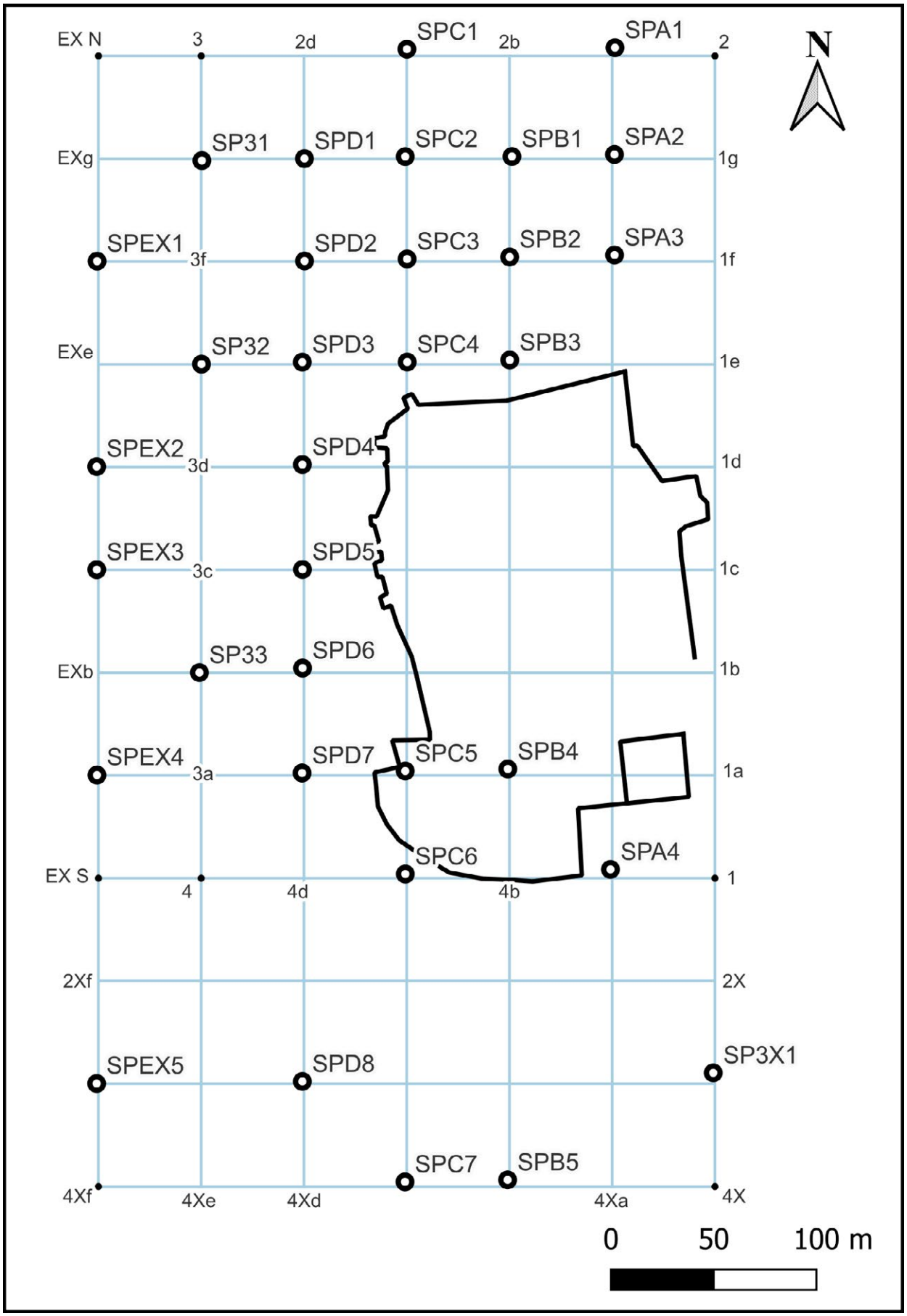


Figure 98. The shovel test pit grid.

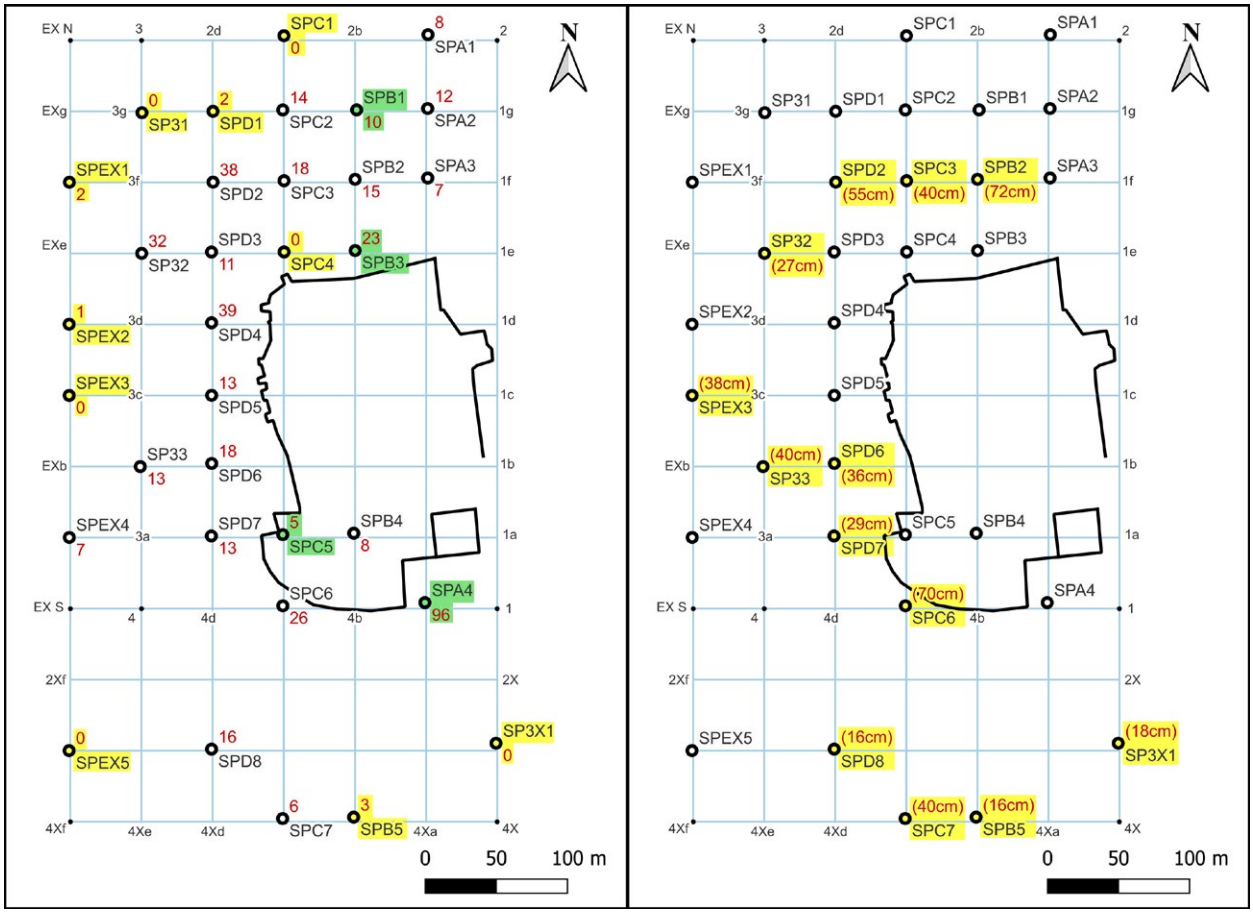


Figure 99. Shovel test pits. Left. Declines in sherd density at the edge of the campsites highlighted in yellow and STP with architectural remains highlighted in green. Right. Depth of compacted flood deposits highlighted in yellow.

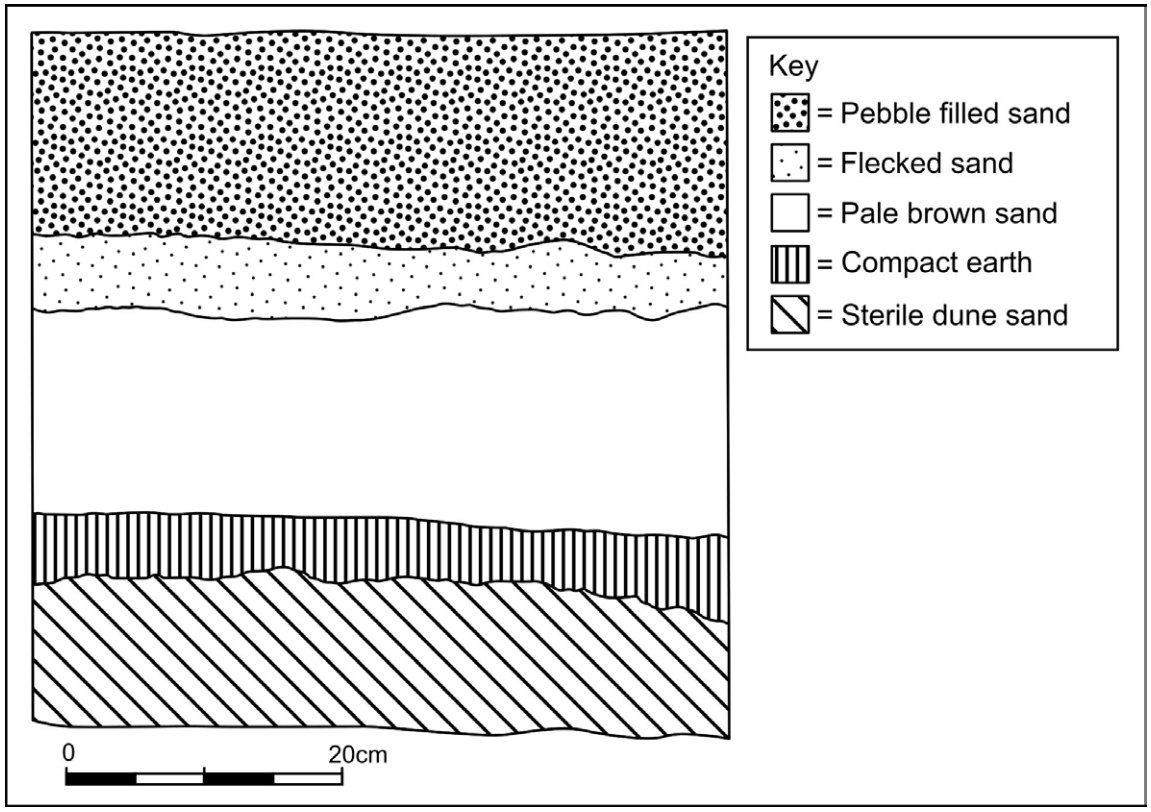


Figure 100. JUH25-SPA2. Southern stratigraphic profile.



Figure 101. JUH25 shovel test pits. 1. SPA2. 2. SPB1. 3. SPB3. 4. SPB4. 5. SPC3. 6. SPC5. 7. SPC6 (photos. N. Anderson).

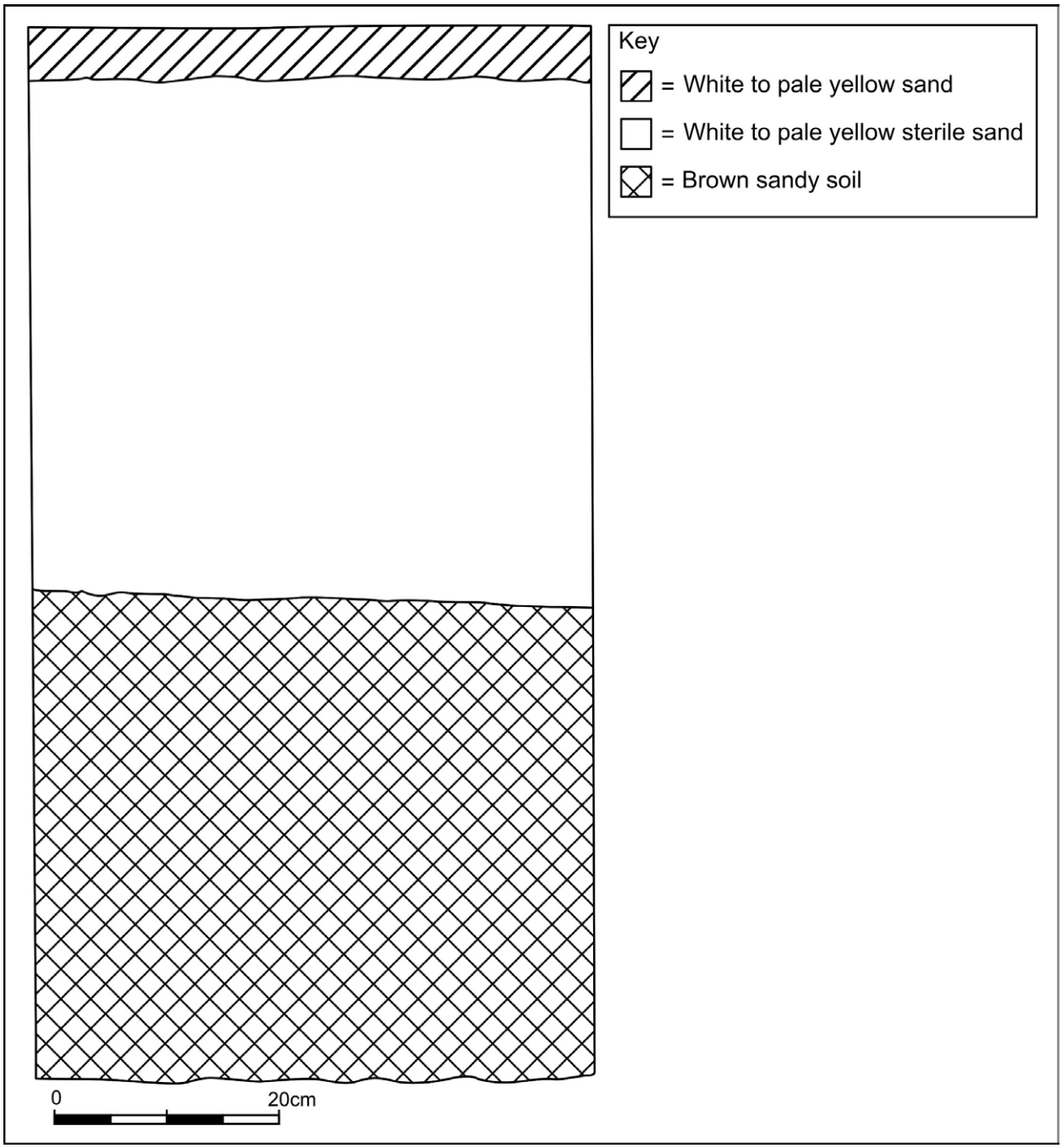


Figure 102. JUH25-SPB4. Southern stratigraphic profile.

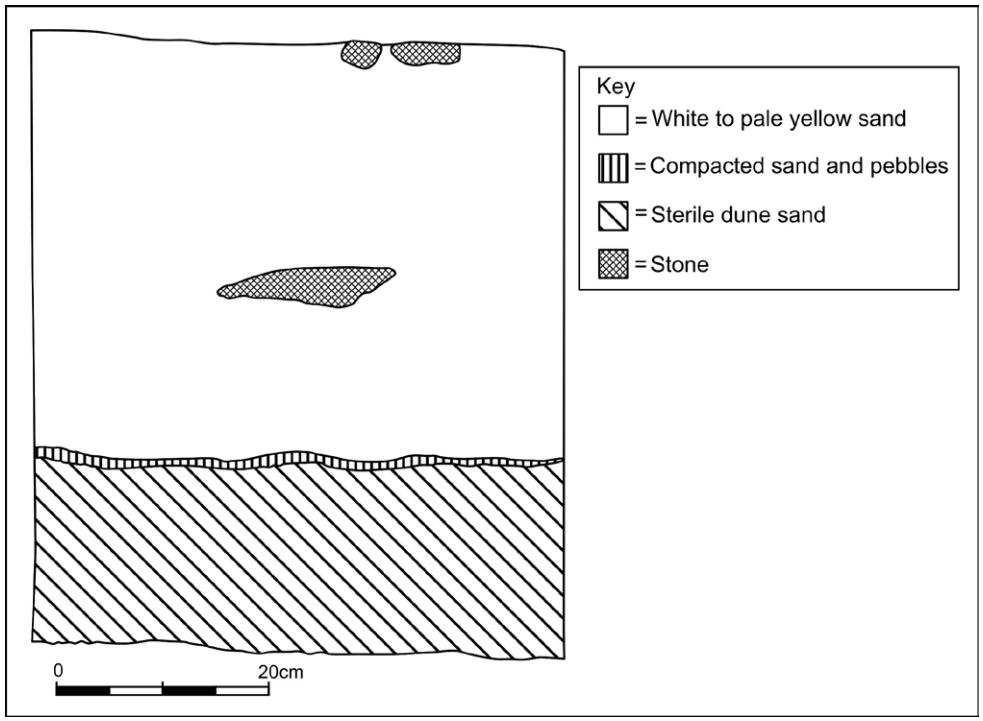


Figure 103. JUH25-SPC3. Eastern stratigraphic profile.

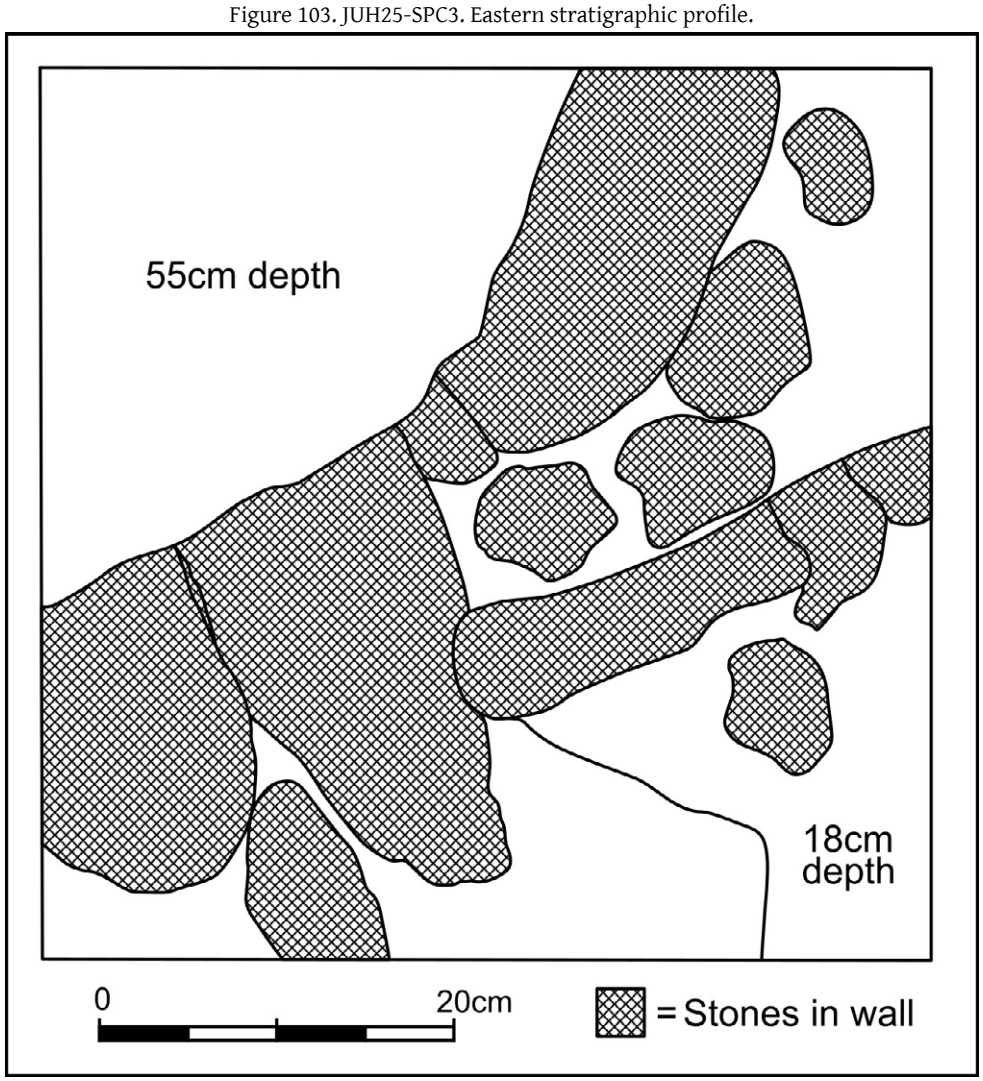


Figure 104. JUH25-SPC5. Plan of excavated features.

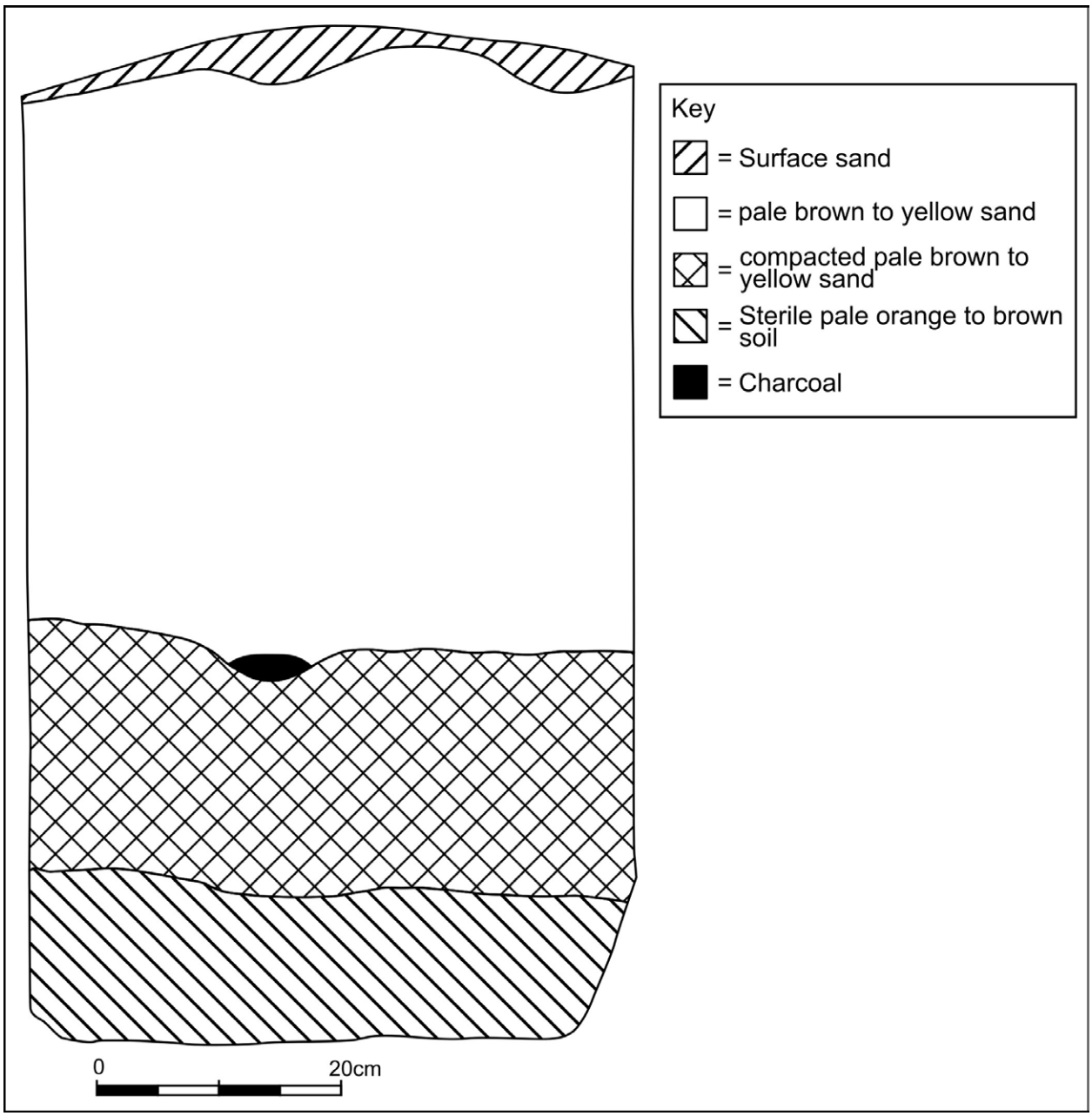


Figure 105. JUH25-SPC6. Northern stratigraphic profile.

Chapter 7
Test Excavations

Timothy Insoll[1], Sultan Alrasheed[2], Nathan Anderson[3], Abdurahman Athabayti[2], and Endris Hussien[1]

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Introduction

Seven larger test excavations, coded TP (Test Pit) 1 to TP7, were completed in different areas of Al-Juḥfah (**Figure 106**) to:

1. Assess the potential for larger-scale excavation.
2. Evaluate the depth of stratigraphy.
3. Consider the density, ubiquity, and categories of artifacts and faunal and archaeobotanical remains.
4. Assess the preservation conditions.
5. Obtain samples for C14 dating.
6. Commence reconstruction of the ceramic sequence and typology.

As these were exploratory excavations, sieving was not used, and faunal and botanical remains, excluding a few exceptional examples (**Appendix 6**) were not kept. The excavations were directed by Professor Timothy Insoll assisted by Mr Sultan Alrasheed, Mr Abdurahman Athabayti, Dr Nathan Anderson, and Mr Endris Hussien.

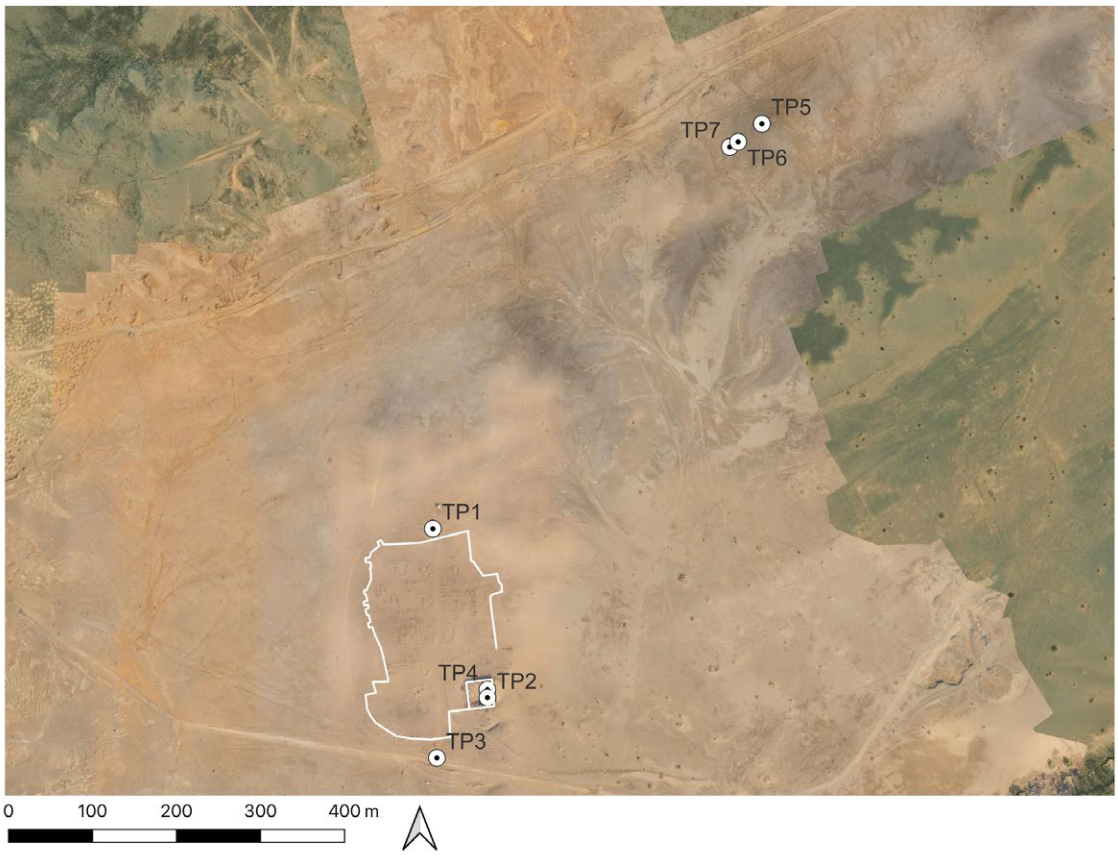


Figure 106. The test pit locations at Al-Juḥfah.

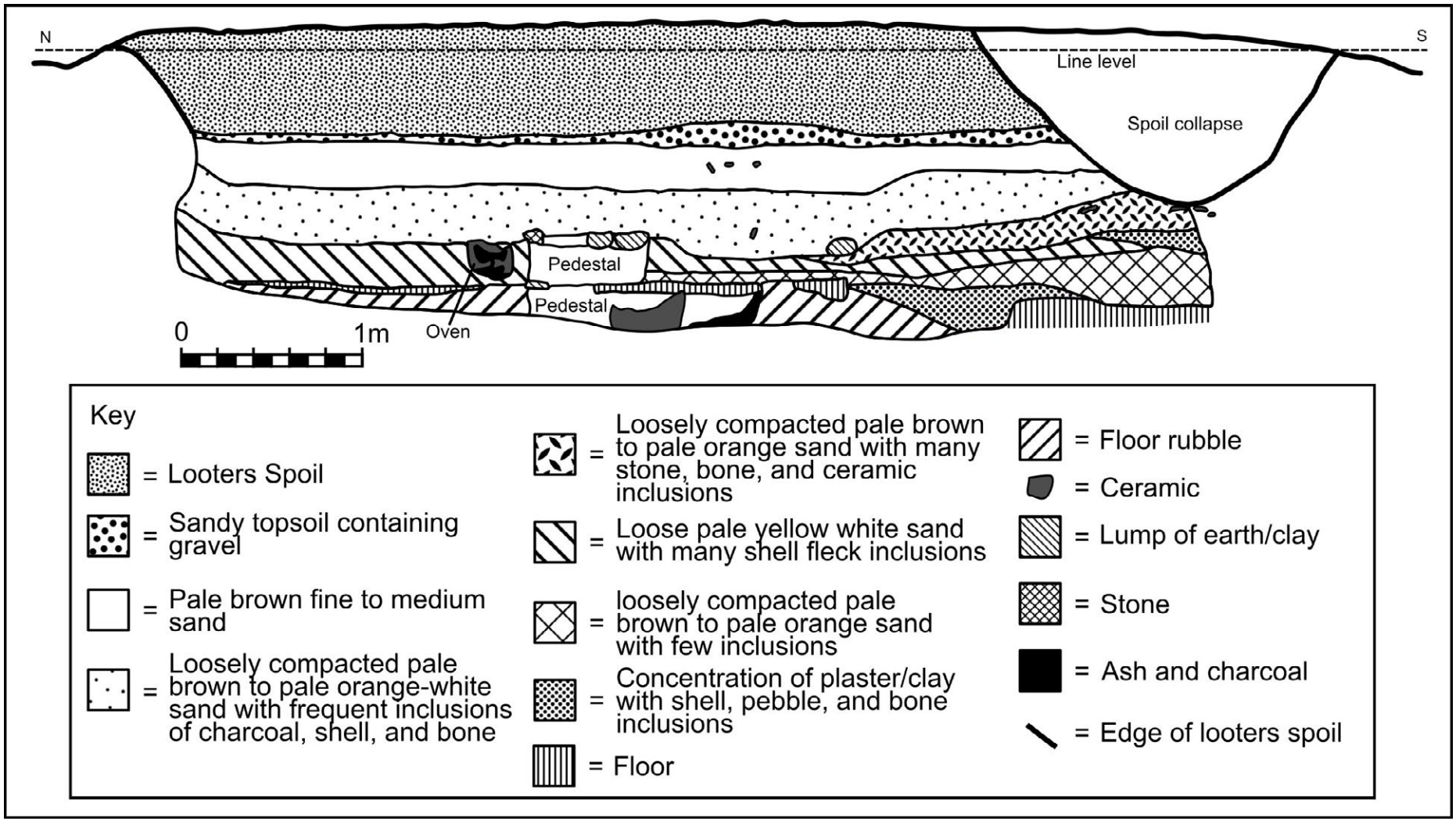


Figure 107. TP1. The eastern stratigraphic profile.

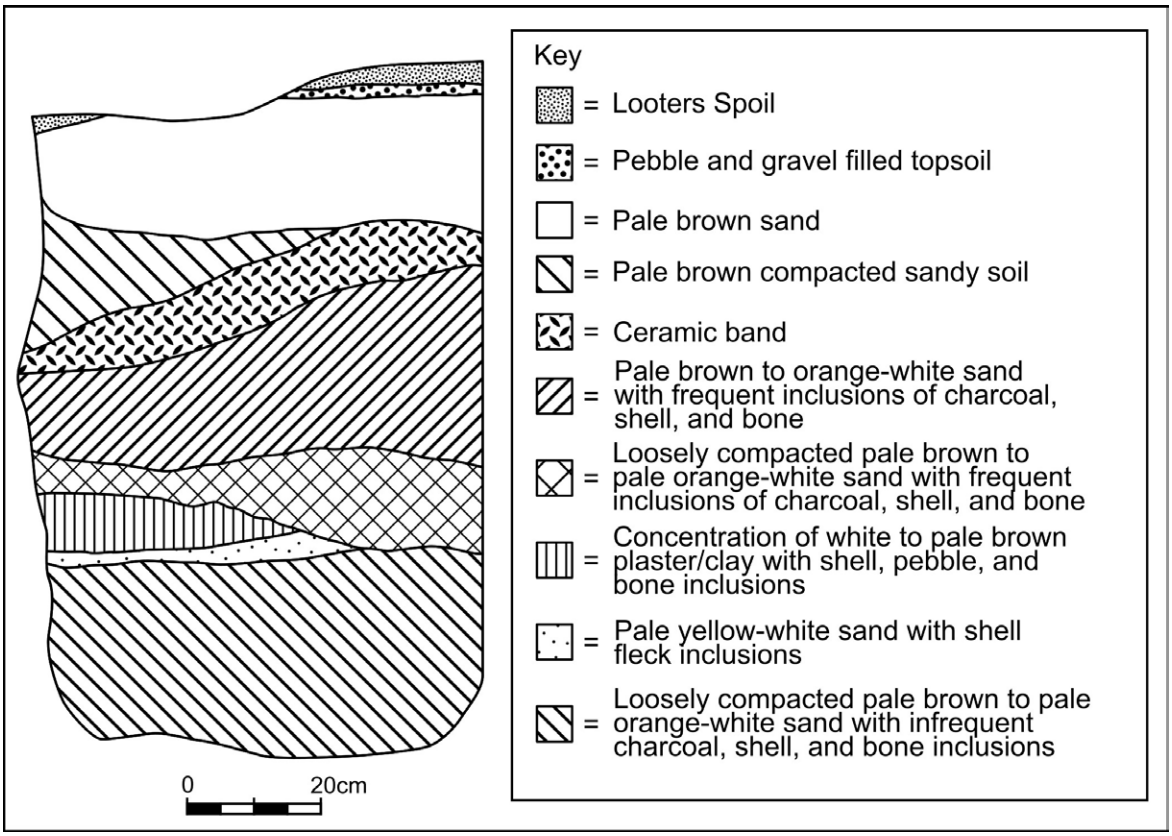


Figure 108. TP1. The southern stratigraphic profile.

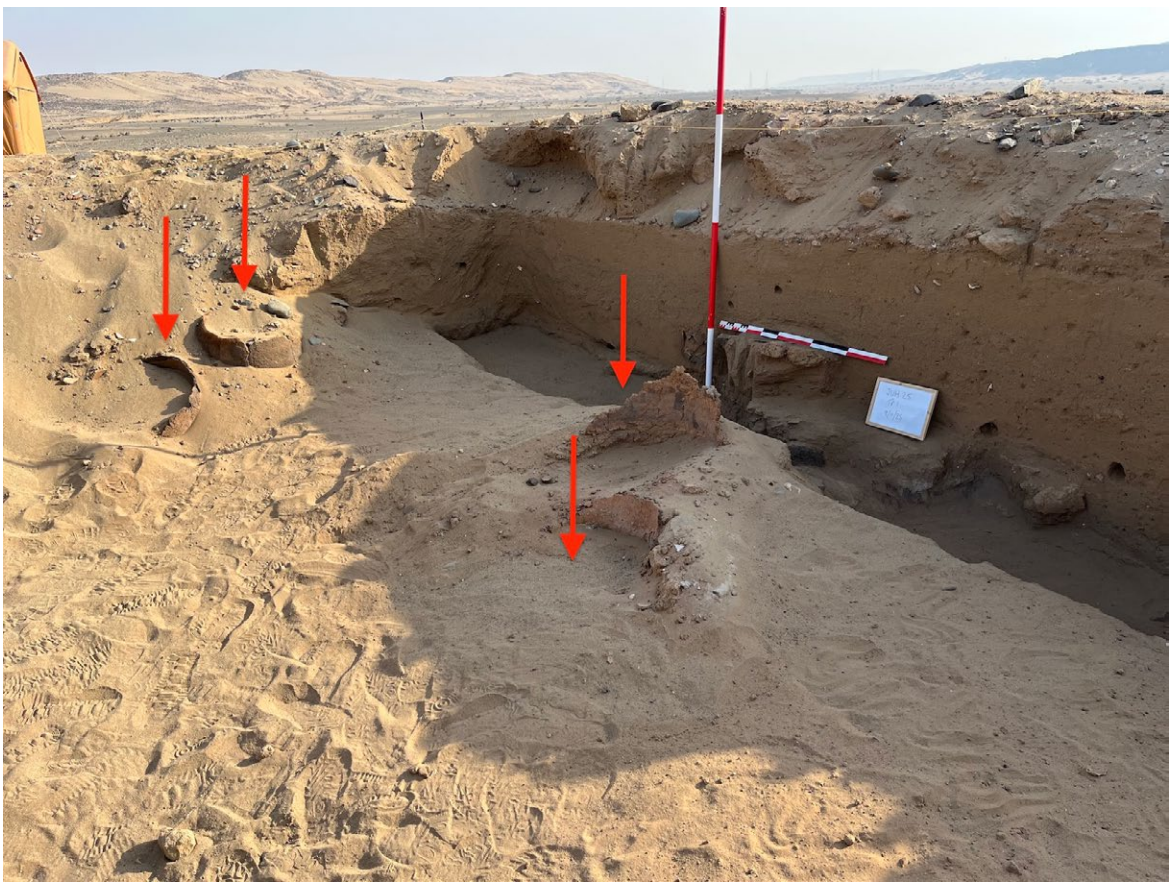


Figure 109. TP1. The kitchen area or bakery with some of the *tannūr* indicated with arrows (photo. T. Insoll).

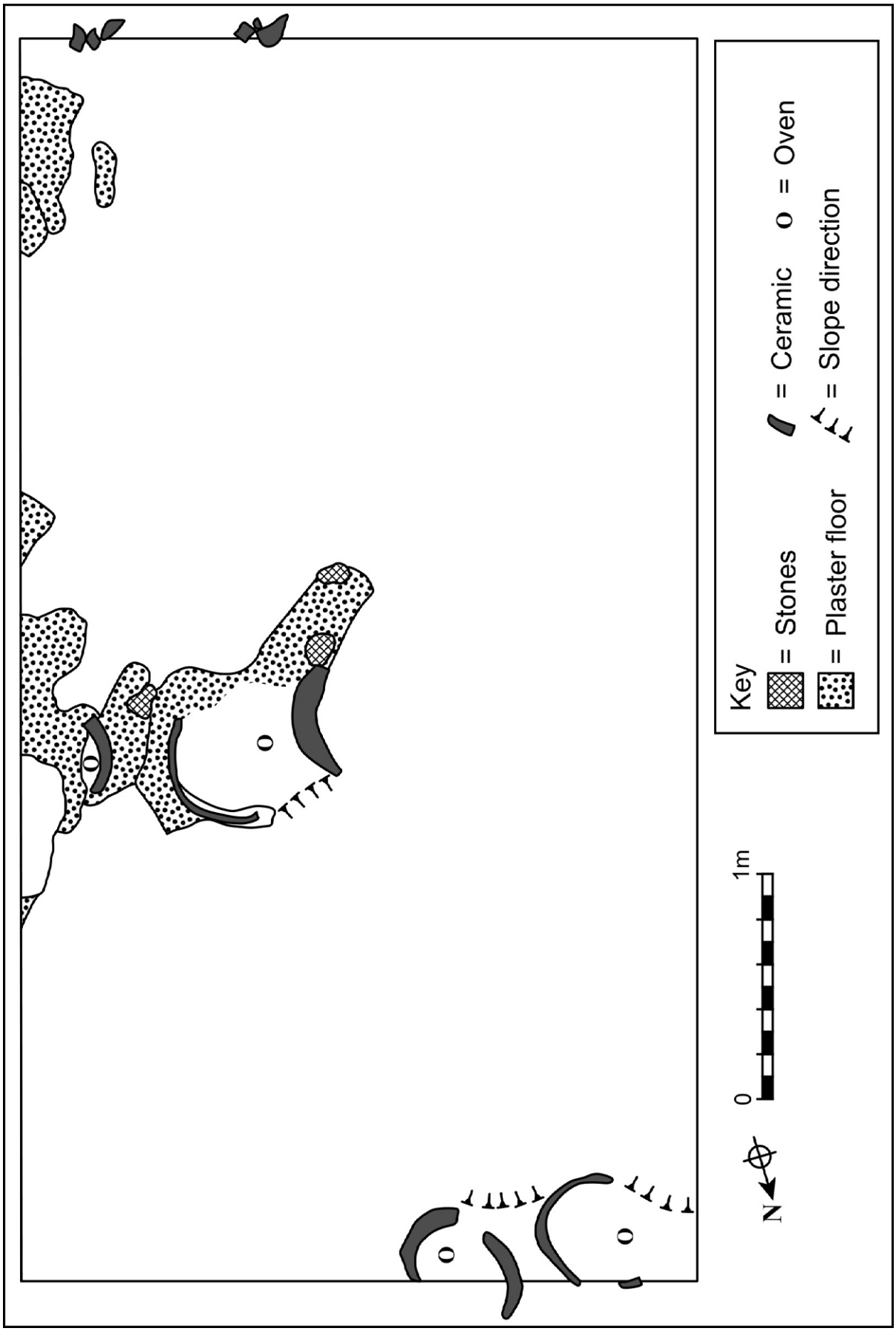


Figure 110. TP1. Plan of the excavated features.

TP1

Unit TP1 (514040 ME 2514901 MN) was excavated to investigate a robber's pit, and an 8m x 8m grid was placed over it, aligned north to south. The eastern face of the pit was first cleaned to expose the section and 20cm depth of yellow sand removed from an adjacent strip of 4m width (**Figures 107 to 110**). This uncovered the tops of four ovens (*tannūr*). The same yellow sand continued and contained varying quantities of archaeological material, primarily sherds, both in context as well as discarded by the robbers. A soft-stone vessel fragment mended with an iron rivet was also found in association with one of the ovens. The southern section was next cleaned and revealed in-situ layers of charcoal and ash linked with different phases of use as well as a fifth oven in close proximity to the section. Two fired bricks placed side-by-side were also recorded in the eastern profile potentially from a platform connected with ovens three and four or, alternatively, with another as yet unexcavated oven to the east. The base of two further ovens were next exposed (**Figure 110**) and in the southeast corner two sections of plaster floor were recorded, i.e., the floor of the structure that housed the seven ovens. Three charcoal samples were taken for C14 dating, one from the profile above the plaster floor in the southeast profile, another from the back of oven 2, and the third from a cluster of potsherds in the eastern profile. The first two of these were subsequently processed giving dates of 819-977 cal AD and 877-994 cal AD (**Table 1**).

It is likely the ovens represent either a bakery or kitchen used by pilgrims and placed just outside the northern perimeter wall of the stone town and thus adjacent to the campsite. Similar structures containing multiple ovens were found at Al-Rabadhah (T. Insoll personal observation). The presence of charcoal and carbonised plant remains in the oven bases suggests that archaeobotanical sampling, which will commence in the 2026 season, should provide further detail on both their use and the plant-based components of diet and cuisine at Al-Juḥfah more generally. After photography and planning of the architectural features and stratigraphy, the unit was backfilled onto geotextile to facilitate future excavation.



Figure 111. TP2. The southern stratigraphic profile at the end of excavation (photo. T. Insoll).

TP2

Unit TP2 was similarly placed to investigate an illicit robber's pit dug inside the *qaṣr* at its southern end (514106 ME 2514703 MN) which also incorporated one of the small test trenches excavated by Alsubaie that had not been backfilled (Muhammad Alsubaie pers. comm. 8/11/25). A unit of 5m x 5m was demarcated around these and the edges cut back to reveal their sections. The base of the unit was next investigated and a 20cm layer of greyish-yellow sandy gravel-filled matrix removed (**Figure 111**). An additional 20cm of this deposit was then excavated which was found to be harder packed and which contained significant quantities of fist-sized stones, larger pieces of rubble, and a plastic water bottle, the latter attesting recent activity. Hence as the deposits were disturbed and largely sterile (**Figure 111**), this excavation was terminated at 140-160cm depth and the unit backfilled onto geotextile.

TP3

Unit TP3 was excavated at the northern side of the main track leading to the site parking area (514040 ME 2514632 MN) (**Figure 106**) where a section had already been partly cut by the road traffic and there was a high density of surface artifacts. A unit of 5m x 5m was demarcated and five layers (0-30cm, 30-60cm, 60-90cm, 90cm+, 120cm+) of 30cm depth removed. These were composed of undifferentiated yellow sandy deposits interspersed with thin lenses of charcoal, ash, and darker soil, the latter resulting from the decomposition of organic material (**Figures 112 and 113**). Some modern contamination – a plastic water bottle, aspirin blister pack, cigarette butts – was also noted at the base of the slope toward the modern track where these had likely been discarded from vehicles. At approximately 90cm below ground surface level the density of finds began to decrease, and the excavation area was reduced to a strip 5m length x 1m width. The same yellow sand continued, and the artifact density further reduced in quantity after about 140cm when sterile natural sand deposits began to be encountered, and the excavation was ended at a depth of 165cm below ground surface level, and the unit backfilled onto geotextile. Three samples of charcoal for C14 dating were taken from the northern profile at 86cm, 133cm, and 165cm points below surface level. The first and third of these were processed giving radiocarbon dates of 824-979 cal AD and 874-993 cal AD (**Table 1**).

The deposits contained significant quantities of artifacts as a probable correlate of the area having been

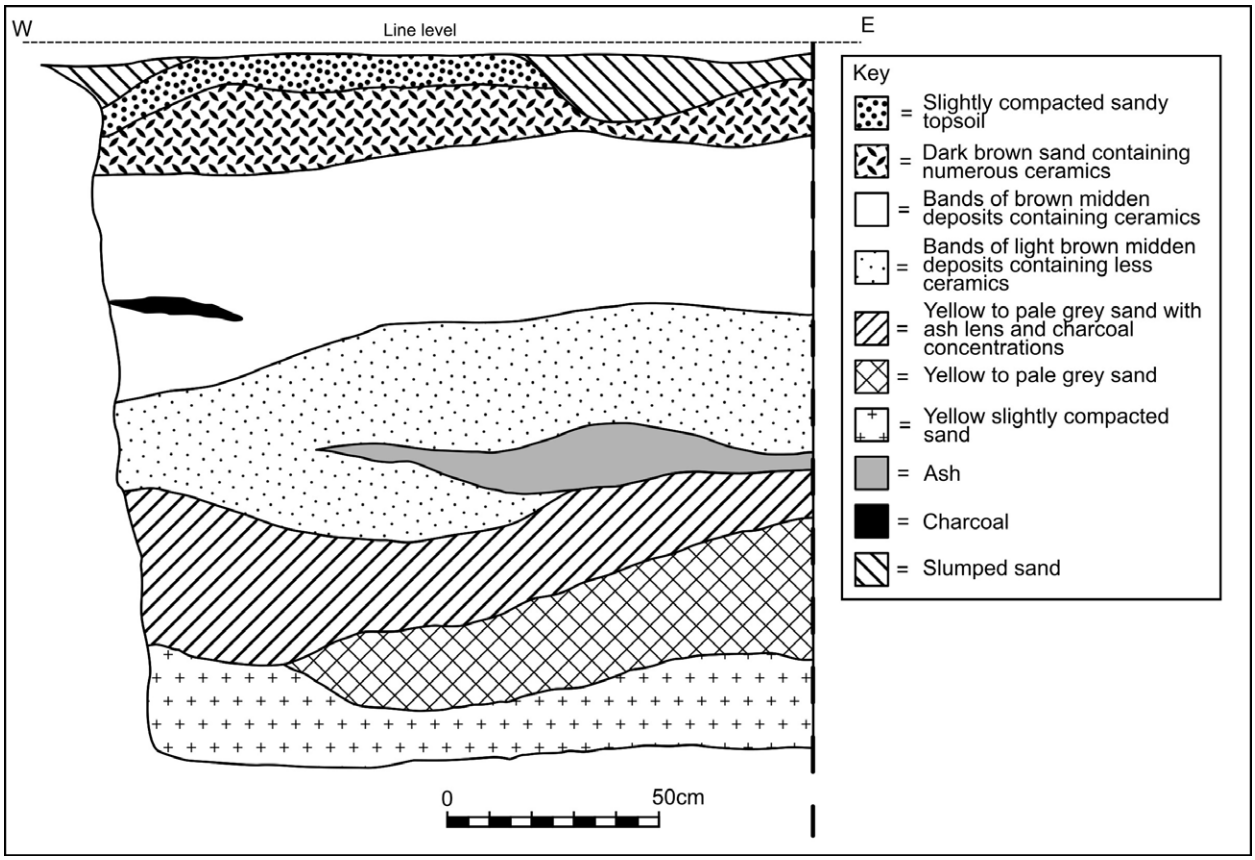


Figure 112. TP3. The northern stratigraphic profile.

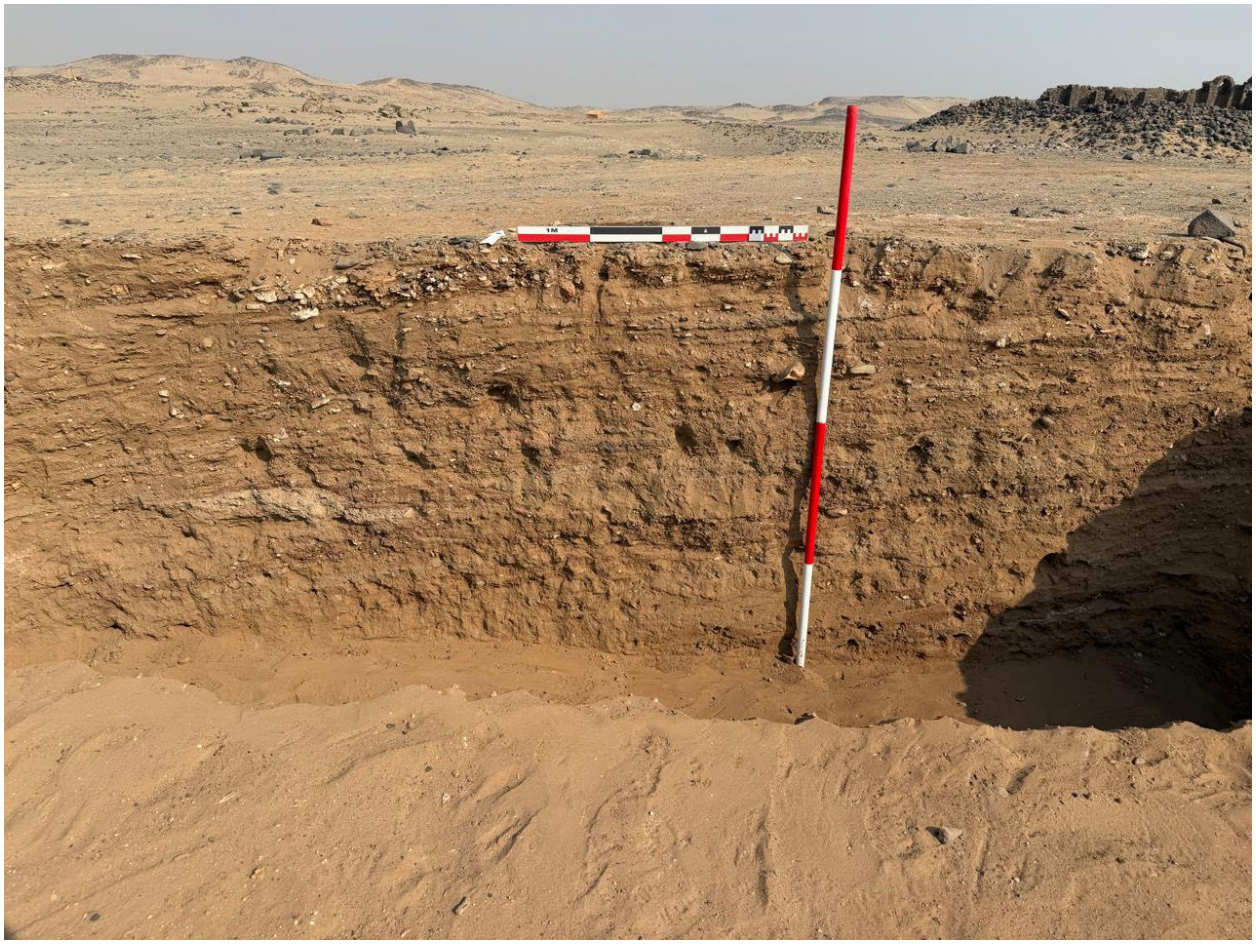


Figure 113. TP3. The final stratigraphic profile (photo. T. Insoll).

used as a midden or dump. Consequently, there was a lack of structural features excluding part of a possible floor exposed at the western end of the unit after the excavated area was reduced. This function would also explain the inversion of the C14 dates whereby the earlier sample was higher in the stratigraphy because old wood (charcoal) had been dumped in an upper layer. The artifact assemblage was also varied with, for instance, *Monetaria moneta* cowry shells with their dorsa removed, an as yet unidentified bronze or tarnished silver coin of 22mm diameter, sherds of buff ware seemingly locally painted with designs in red pigment, another locally adapted sherd with the word 'Allah' painted on it, a sherd of lustreware decorated with the word 'Jalal', and an elaborately carved softstone vessel handle. Some ceramic sherds had also been drilled and mended, which when considered with similarly modified soft-stone vessel sherds, suggests these repairs were among the services offered to pilgrims at Al-Juḥfah. Bone, charcoal, and archaeobotanical preservation was likewise excellent with, for example, a mango stone (not modern) recovered.

TP4

Another unit with a smaller robber's trench at its centre was also excavated within the *qaṣr* (514108 ME 2514711 MN). This measured 3m x 3m and was aligned to the cardinal points (**Figures 114 and 116**). It was selected as illicit excavation had exposed three sections of wall, two short, and one longer, aligned north to south and constructed with two single courses of masonry slabs mortared with lime cement as facings and a fill of small pebbles between the two facings (**Figures 114 and 116**). The robber's pit was first emptied of its remaining loose sand fill and its edges defined. This showed that it was surrounded by intact archaeological deposits and the top layer of clean yellow-brown sand was next removed revealing a compact water-lain deposit cut by the robber's pit (**Figure 115**) which contained limited artifacts but yielded one of the few Chinese sherds recovered, from a whiteware or *qingbai* vessel.

Beneath this was a rubble layer and its excavation uncovered a hearth built against the shorter wall in



Figure 114. TP4. The hearths and walls at the end of excavation (photo. T. Insoll).

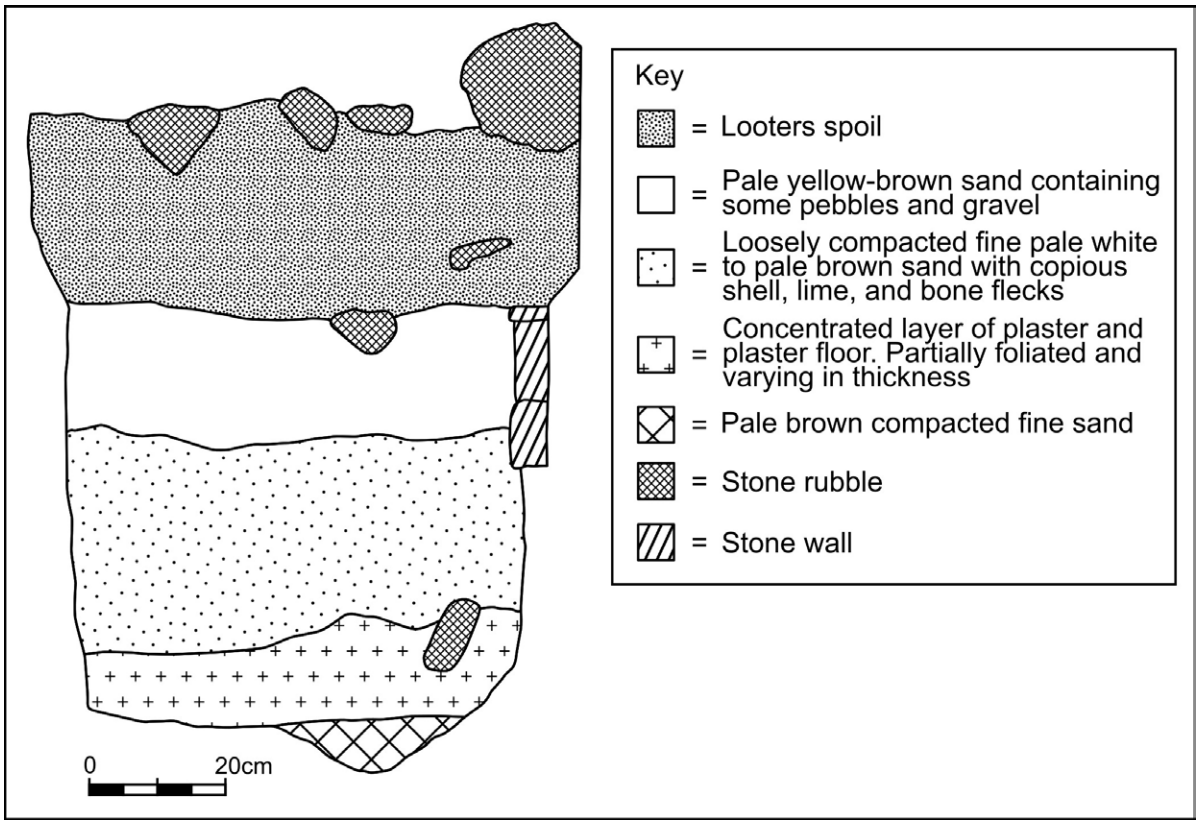


Figure 115. TP4. The northern stratigraphic profile.

the north of the unit demarcated with stone slabs and filled with charcoal. A second lower hearth to the south was then discovered. This was likewise delimited with a stone surround, and charcoal samples were taken from both hearths for C14 analysis providing dates of 877-994 cal AD for the upper and 824-979 cal AD for the lower hearth (**Table 1**). The remainder of the unit was filled with rubble (**Figure 114**) which was left in-situ pending further excavation in the 2026 season, and the excavation halted at a maximum depth of 130cm and the unit backfilled onto geotextile. It is apparent from the results of the two test excavations in the *qaṣr* that it is the northern area that contained various structures, but the southern part where TP2 was located appears to have been empty and was perhaps an open courtyard. However, whether these structures were connected with palatial occupation as the designation *qaṣr* implies or if the building was instead a *khan*, *funduq*, or caravanserai is unclear, but should be established after further excavation.

TP5

Unit TP5 was excavated to investigate the boulder (514432 ME 2515383 MN) with pre-Islamic inscriptions previously described to assess if it was a milestone and thus its placement due to human agency. A 2m x 2m area around it was demarcated and approximately 30cm depth of yellow sand fill incorporating fist-sized cobbles removed. No artifacts were recovered but the results indicated that the boulder was supported by large stone cobbles absent elsewhere in the unit and it therefore had been intentionally positioned (**Figure 117**).

TP6

Unit TP6 was located at the mouth of one of the *qanāt* maintenance shafts (514403 ME 2515363 MN). A 5m x 5m area was demarcated and the top 30cm of wind-blown sand overlying water-lain sterile gravel filled deposits was removed, which was comparable in consistency to the flood associated compact layers recorded in multiple shovel pits. The mouth of the shaft was next delimited and emptied of its sterile clean yellow sand (**Figure 118**). This revealed that the shaft was slightly oval in shape and measured 253cm north to south by 212cm east to west at its opening and though containing some large lumps of stone rubble on its southern edge was not stone lined but simply cut into the ground. The shaft was then half-sectioned to assess its composition in profile, but as this disclosed nothing informative the full shaft was again emptied demonstrating that the aperture progressively narrowed. This had been achieved by digging two stepped cuts or terraces to deepen the shaft thereby lessening the danger of

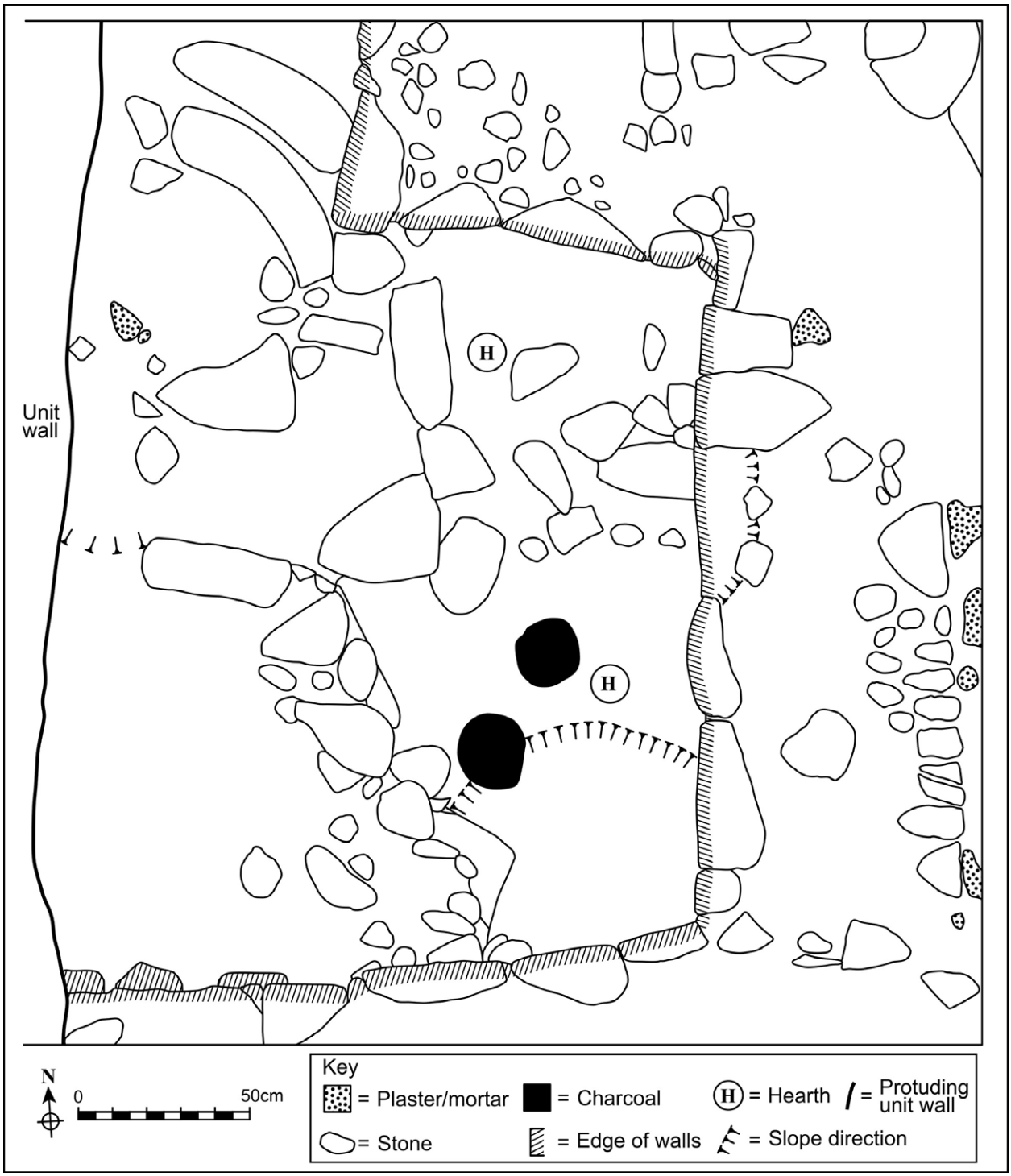


Figure 116. TP4. Plan of the excavated features.

collapse before the access hole was reached (**Figure 118**). The second of these terraces measured 130cm north to south by 148cm east to west and the access hole narrowed to 130cm north to south by 95cm east to west. A stone slab possibly used to support the roof of the horizontal channel was also recorded but as the channel itself was not identified this could not be confirmed.

Because of safety concerns in the absence of props to shore the sides of the maintenance shaft, the excavation was halted at a depth of c.230cm below ground surface level. The shaft itself was left unfilled but to avoid animals or people falling into it wooden boards were placed over the opening, covered in geotextile, and backfilled with a layer of sand. Wooden cross beams

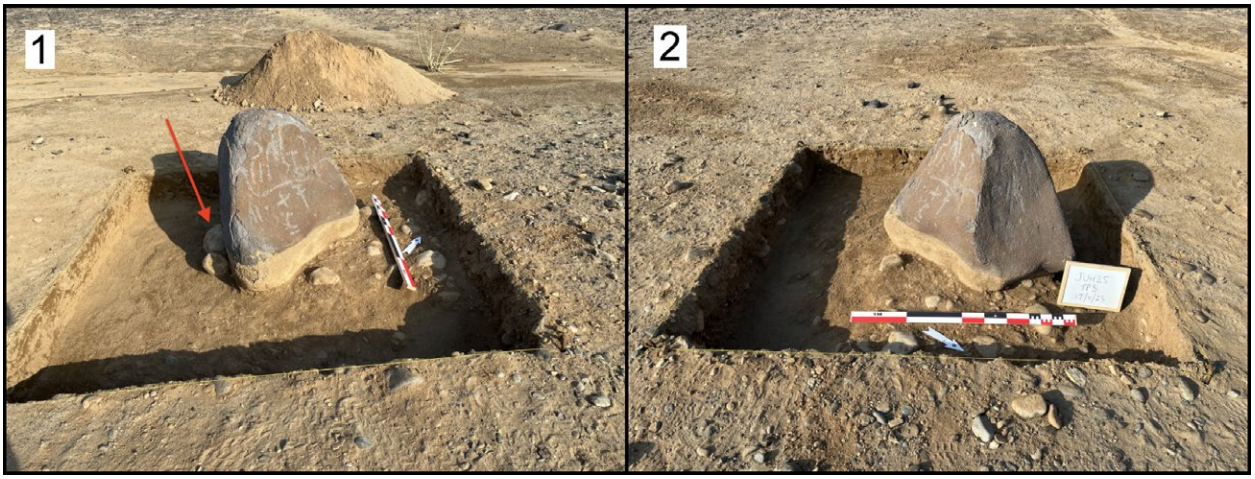


Figure 117. TP5. 1. The boulder with the intentionally placed cobbles indicated with an arrow. 2. The inscriptions (photos. T. Insoll).



Figure 118. TP6. The *qanāt* maintenance shaft at the end of excavation (photo. T. Insoll).

were then inserted along with additional wooden boards and another layer of sand added.

TP7

Unit TP7 was located at the mouth of a second *qanāt* maintenance shaft south of TP6 (514394 ME 2515358 MN). The stratigraphy and its design were comparable to the latter with the shaft opening covered by wind-blown sand and sealed by a water-lain deposit. It likewise had two stepped levels, the first measuring 260cm north to south and 234cm east to west and the second 149cm north to south and 110cm east to west, before the shaft opening, measuring 120cm north to

south and 48cm east to west, was reached (**Figure 119**). These were filled with clean sterile yellow sand and the shaft cut through comparable hard conglomerate to that found in TP6. The oval entrance was, however, more uneven, and narrowed and sloped down to the east. Similarly, a stony layer at the northern end of the opening was possibly the top of the horizontal channel, but as in TP6, confirmation awaits further excavation. Because of safety concerns excavation of TP7 was also halted at a depth of 240cm below ground surface level and the unit made secure in the same way as previously described.



Figure 119. TP7. The *qanāt* maintenance shaft at the end of excavation (photo. T. Insoll).

Chapter 8
Non-Ceramic Artifacts

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Introduction

Seven categories of artifacts (soft stone vessels, stone tools, marine shell, metal artifacts, glass, faunal and botanical remains [here considered together], and miscellaneous artifacts) were recovered from the excavations and collected as surface finds (**Appendices 1 to 9**). Most are small in quantity in comparison to ceramics, considered in the next chapter. However, it should be reiterated that with the exception of the ceramic density survey and the shovel pits, from which all finds were kept, all other artifacts were selectively sampled as sieving was not used and this affects their quantities. Nonetheless, a representative and comprehensive collection was recorded which suggests a former cosmopolitan population engaged in various activities was resident at Al-Juḥfah.

Soft Stone Vessels

54 sherds from soft stone vessels were recovered, 12 from surface collection and 42 from excavated contexts (**Appendix 4**). These ranged in quality and variety, from strictly utilitarian through to exceptionally carved examples such as the 'castle' handle (JUH25-TP3-0 to 30cm; **Figure 120.1**), so-named because of its resemblance to castellated architecture, as well as two ornate carved vessel spouts (JUH25-TP3-30 to 60cm; **Figure 120.2**), and other sherds with carved external decoration (e.g., JUH25-TP3-120cm+; **Figure 120.3**). Their functions also varied with some fragments from lamps and others from cooking vessels, as attested by the blackened exteriors of base fragments (e.g., JUH25-TP3-60 to 90cm; **Figure 120.4**) indicating they were either put directly onto a fire, or possibly used on *tannūrs* of the type identified in TP1, and for which some seem to have been especially designed to fit into the *tannūr* aperture, as their ledge handles imply (e.g., JUH25-TP1; **Figure 120.5**). Whereas the more ornate examples were likely serving dishes and storage vessels and, potentially, some may have been inkwells, comparable with, for instance, an example from Palgerd in Herat Province, Afghanistan, ascribed a broad 9th to 13th century date range by Franke and Urban (2025: 729).

Other fragments were of more uncertain function such as a circular piece from JUH25-TP3-30 to 60cm, or a sherd drilled with two holes from JUH25-TP4 (**Figure 120.6**). Evidence for soft-stone vessel repair was also recorded using iron rivets (e.g., JUH25-TP1; **Figure 120.8**) which was likely completed at Al-Juḥfah whereas the absence of manufacturing debris, infers that the soft stone vessels were not made there, but imported, with steatite mined and vessels produced at Umm Laj on the coast to the north of Yanbu (e.g., Kisnawi et al. 1983), for instance, and perhaps also al-Hawra as Alsubaie (2018: 193) has suggested.

Stone Tools

Four stone tools were recovered from excavated contexts, and these included a crudely made hand grinding stone and a fragment from a basalt quern stone from TP1 (**Figure 121.1 and 121.2**) (**Appendix 4**). Numerous stone tools were also scattered across the campsite where four types of grinding stones were recorded - simple basalt hand grinding stones, circular basalt quern stones with either a single or double hole to allow their rotation, and carved basalt mortars (**Figure 121.3 to 121.6**). Of these, six representative examples were collected from the surface of the campsite area and are stored in the Jeddah office of the Heritage Commission.

Marine Shell

205 marine shells were recovered, the majority fragmentary. A significant proportion of these had been processed (**Appendix 5**) using a variety of processing techniques on a fairly limited range of species, which suggests this choice was a result of consumer demand rather than the availability of certain species of marine shell. Moreover, some of these techniques were similar to those utilised on the other side of the Red Sea, notably at the slightly later (11th to 12th century CE highpoint) entrepôt of Harlaa, Ethiopia (Insoll 2021), such as removing the apex (e.g., JUH25-TP3-90cm+; **Figure 122.1**) and cutting sections from *Oliva bulbosa*. Comparable processes of shell bead manufacture (e.g., Insoll 2021: 12-13) were also manifest through

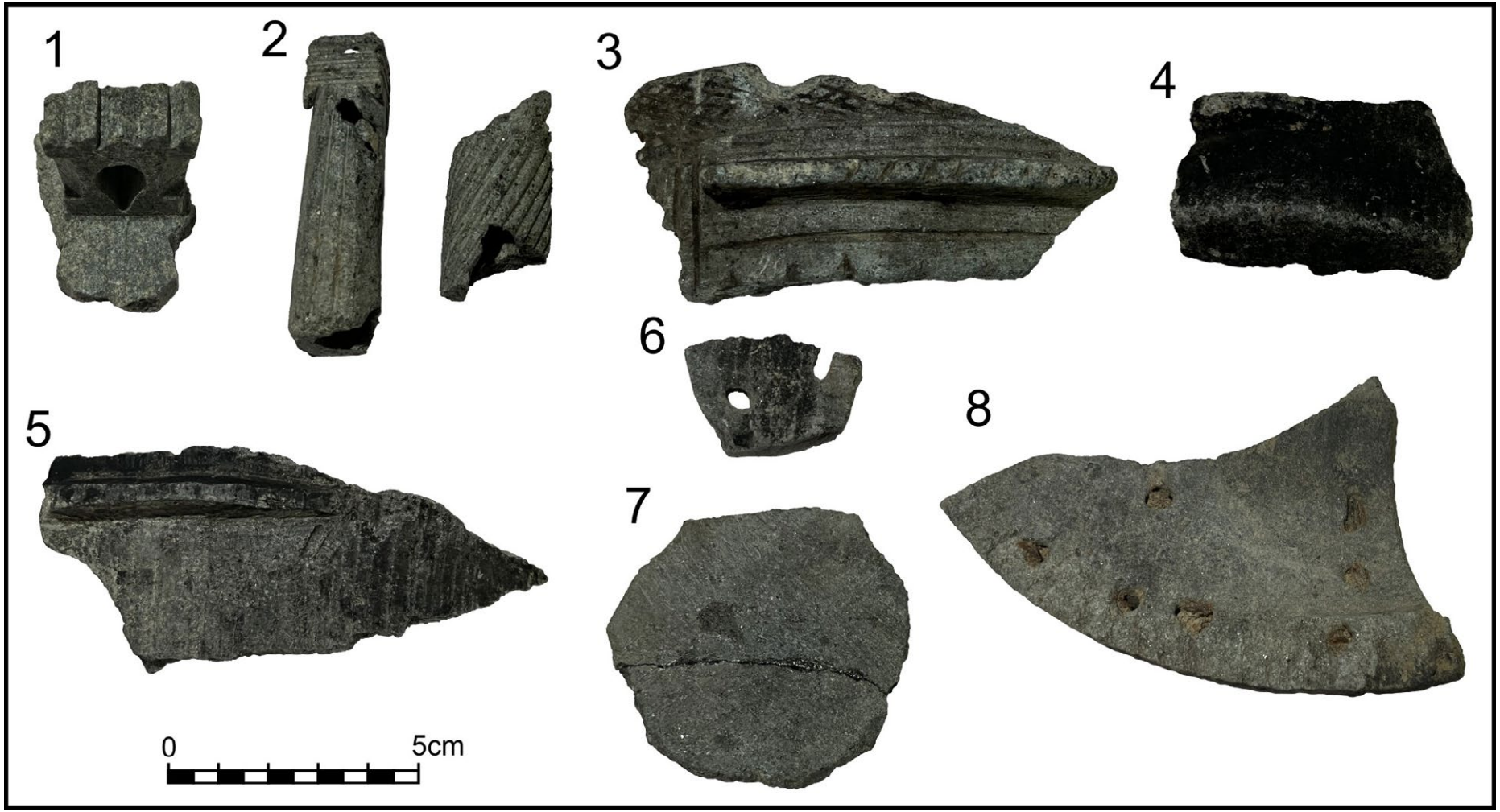


Figure 120. Soft stone vessel fragments. 1. 'Castle' handle (JUH25-TP3-0 to 30cm). 2. Spouts (JUH25-TP3-60 to 90cm). 3. External decoration (JUH25-TP3-120cm+). 4. Blackened cooking vessel (JUH25-TP3-60 to 90cm). 5. Ledge handle (JUH25-TP3-60 to 90cm). 6. Drilled (JUH25-TP4). 7. Circular (JUH25-TP3-30 to 60cm). 8. Repaired (JUH25-TP1) (photos. T. Insoll).

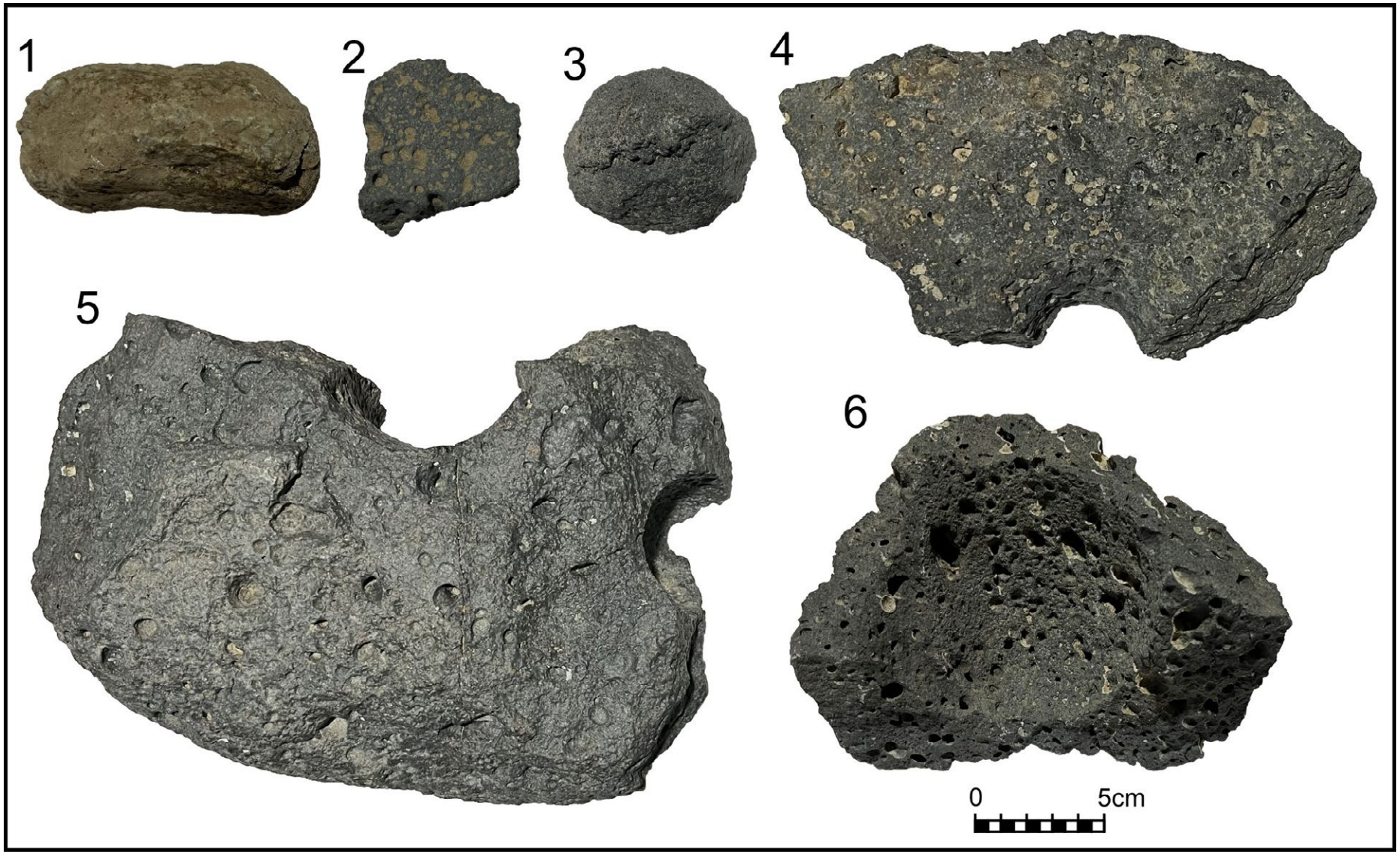


Figure 121. Stone tools. 1. Hand grinder (TP1). 2. Rotary quern (TP1). 3. Hand grinder (s/c campsite). 4. Single aperture rotary quern (s/c campsite). 5. Double aperture rotary quern (s/c campsite). 6. Mortar (s/c campsite) (photos. T. Insoll).

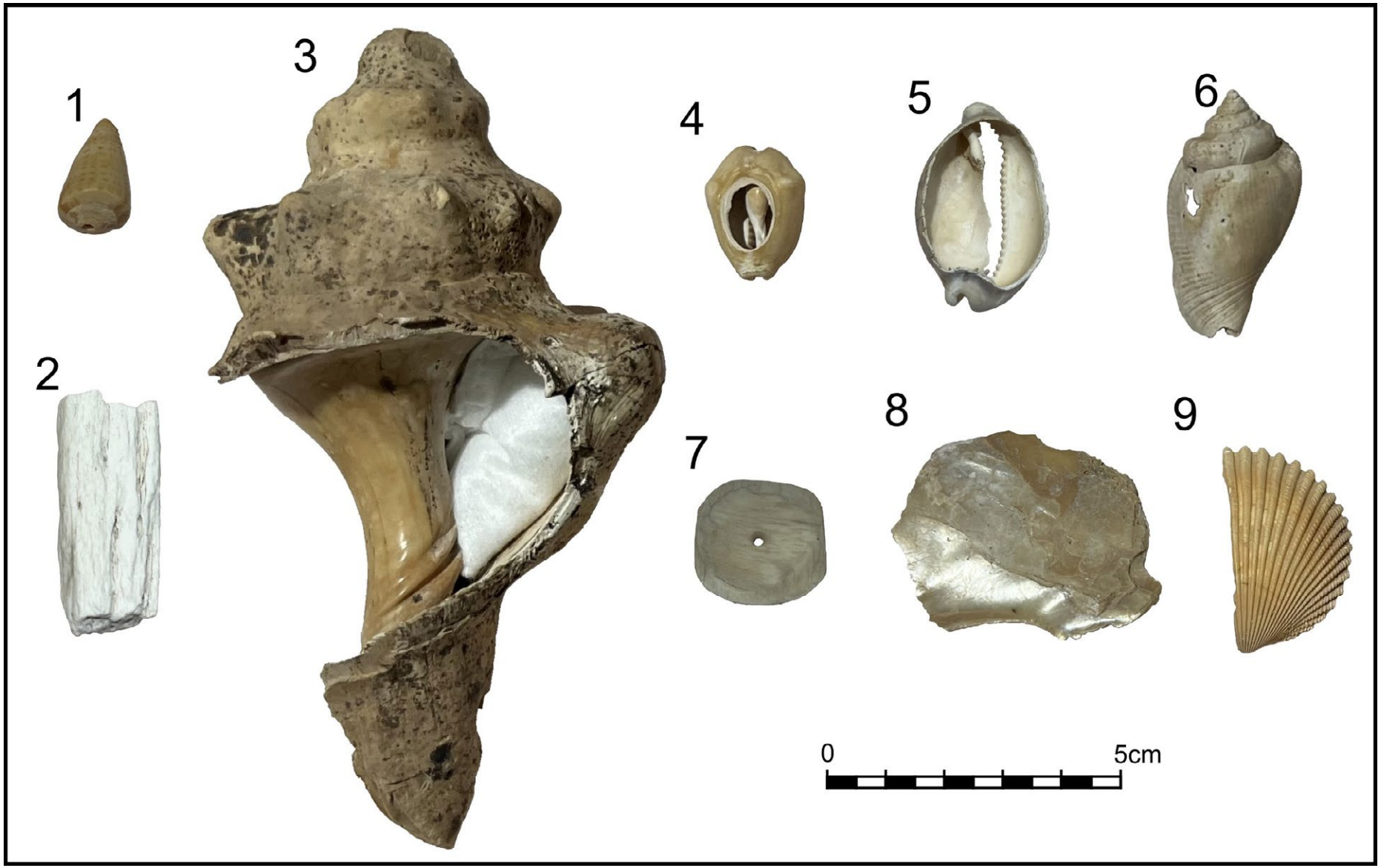


Figure 122. Marine shell. 1. *Oliva bulbosa* (JUH25-TP3-60 to 90cm). 2. Bead roughouts (s/c campsite). 3. *Strombus tricornis* (JUH25-TP3-60 to 90cm). 4. *Monetaria moneta* (JUH25-TP3-120cm+). 5. Large cowry (s/c campsite). 6. Simple bead (JUH25-TP3-60 to 90cm). 7. Disc (s/c campsite). 8. *Pinctada margaritifera* (SPB1). 9. Cut scallop shell (photos. T. Insoll).

discarded blanks (s/c campsite; **Figure 122.2**), as well as analogous working of *Strombus tricornis*, and attested at Al-Juḥfah by partially worked near complete examples (e.g., JUH25-TP3-60 to 90cm; **Figure 122.3**) comparable to shells recorded at Harlaa. Also similar was the production of beads through the simple expedient of cutting off the apex of the shell and filing down the surrounding area to create a perforation, and all are suggestive of what might be termed a Red Sea marine shell working 'tradition' or 'techno-complex'. Cowries with their dorsa removed were also fairly common (e.g., *Monetaria moneta*, JUH25-TP3-120cm+; **Figure 122.4**) including a large but as yet unidentified species with its back sawn off (s/c campsite; **Figure 122.5**). However, unlike Harlaa, there was an absence of the dorsa themselves at Al-Juḥfah, so definitive evidence for this form of processing on site is lacking, though equally this could be because the absence of sieving meant they were missed because of their small size, unlike at Harlaa where all deposits were sieved (Insoll 2021).

However, other processing techniques at Al-Juḥfah differed from those recorded at Harlaa, such as the simple perforation of otherwise unaltered marine shell, for use as beads and pendants (e.g., JUH25-TP3-60 to 90cm; **Figure 122.6**), or the grinding of simple shell discs which were subsequently perforated (s/c campsite; **Figure 122.7**), as well as the cutting of sections from mother-of-pearl shell (e.g., SPB1; **Figure 122.8**), likely *Pinctada margaritifera*. Moreover, some of the species also differed, such as the unidentified scallop shell, which had been cut in half (e.g., JUH25-TP3-60 to 90cm; **Figure 122.9**) for an unknown purpose.

Metal Artifacts

Undiagnostic small scraps of copper dominated the assemblage of 35 pieces of metal recovered, seven from surface collections, and the remaining 28 from excavated contexts (**Appendix 7**). The exceptions were primarily the surface finds from the campsite area where a copper or bronze needle (s/c campsite; **Figure 123.1**), and a small copper latch and strip (s/c campsite; **Figure 123.2**) were collected, and also from the surface of the stone town where a bronze weight was retrieved. Weighing 29g this is of polyhedral form with a punched dot in circle pattern (s/c town; **Figure 123.3**) of a type widely found in Early and Middle Islamic sites, as at Aqaba, Jordan (cf. Whitcomb 1994: 19). A small oval shaped hollow copper artifact was also recovered (JUH25-TP3-60 to 90cm; **Figure 123.4**) which was pierced possibly for attachment to an animal harness or clothing and was potentially part of a rattle or jingle. Two unidentified copper (Cu) coins were also recorded, one a surface find (s/c campsite) and the other from TP3 (JUH25-TP3-60 to 90cm).

Glass

An assemblage of 340 glass fragments was recovered (**Appendix 3**), predominantly from TP3 where 266 glass vessel fragments were collected where they must have been dumped as part of general refuse in this midden area after breakage. Decorative techniques used on vessels included moulding, as with a rosette decorated fragment, possibly a base (JUH25-TP3-30 to 60cm; **Figure 124.1**), trail decoration (e.g., JUH25-TP3-Spoil Heap; **Figure 124.2**) and wheel engraving (e.g., JUH25-TP3-30 to 60cm; **Figure 124.3**). Marvering was employed on a bead fragment (JUH25-TR1C; **Figure 124.4**). Vessel forms remain to be studied, but preliminary identifications include bottles (e.g., JUH25-TP3-30 to 60cm; **Figure 124.5**), bowls (e.g., JUH25-TP3-30 to 60cm; **Figure 124.6**), and small flasks (e.g., JUH25-SPC5; **Figure 124.7**). Pending further study, including chemical analysis, it can be hypothesised that the main sources of glass were potentially Egypt, Syria, and the Levant, areas from which significant numbers of pilgrims would have arrived at the *mīqāt* of Al-Juḥfah, as Alsubaie (2018: 190) has also noted.

Faunal and Botanical Remains

Faunal and botanical remains were not collected or sampled in the 2025 season for reasons previously outlined, but zooarchaeological remains were assessed for preservation, which was good, and for their quantity, which was considerable. The exceptions were four horn sheaths (JUH25-TP3-30 to 60cm, 90cm+, 120cm+; **Figures 125.1 to 125.4**), probably from male goats or, less likely, a gazelle species (A. Outram pers. comm.), and a mango stone (TP3 Spoil Heap; **Figure 125.5**) which were retained (**Appendix 6**).

Miscellaneous Artifacts

A total of 16 artifacts classified as 'miscellaneous' items were recovered from Al-Juḥfah (**Appendix 8**). Of these, 10 should now be discounted as these are fragments of fossil coral and thus geological not archaeological. The other miscellaneous artifacts were a fragment of fired-brick from a shovel pit (JUH25-SPD5), two fragments of ostrich eggshell from the ceramic transect survey (JUH25-TR3A and TR3B), and three exceptional quality facetted carnelian beads from an excavated context in unit TP3 (JUH25-TP3-60 to 90cm; **Figure 126**). An additional seven miscellaneous artifacts were collected from the surface at two other sites, comprising 165g of metal slag from Siwak, and 2 Cu coins, and three stone vessel fragments from Khulais (**Appendix 9**).



Figure 123. Metal artifacts. 1. Copper or bronze needle (s/c campsite). 2. Copper latch or strip (s/c campsite). 3. Bronze weight (s/c town). 4. Copper rattle or jingle (JUH25-TP3-60 to 90cm) (photos. T. Insoll).



Figure 124. Glass. 1. Moulded (JUH25-TP3-30 to 60cm). 2. Trailed (JUH25-TP3 Spoil Heap). 3. Wheel engraved (JUH25-SPA4-0 to 20cm). 4. Marvered (JUH25-TR1C). 5. Bottle (JUH25-TP3-30 to 60cm). 6. Bowl (JUH25-TP3-30 to 60cm). 7. Flask (JUH25-SPC5) (photos. T. Insoll).



Figure 125. Faunal and botanical remains. 1. and 2. Horn sheaths (JUH25-TP3-60 to 90cm). 3. Horn sheath (JUH25-TP3-90cm+). 4. Horn sheath (JUH25-TP3-120cm+). 5. Mango stone (JUH25-TP3 Spoil Heap) (photos. T. Insoll).

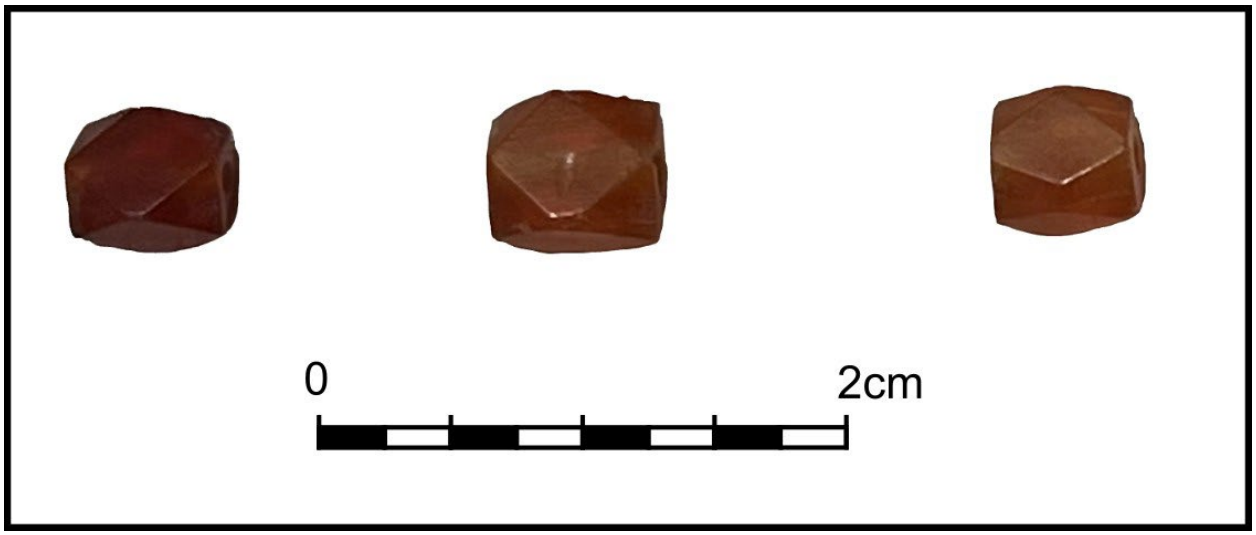


Figure 126. Miscellaneous artifacts. Facetted carnelian beads (JUH25-TP3-60 to 90cm) (photo. T. Insoll).

Chapter 9
Ceramics

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Introduction

All the ceramics recovered from Al-Juḥfah were analysed, a total of 1286 sherds from Test Pits, Shovel Test Pits, Transect Survey Points and general Surface Collection (**Figure 127**). Shovel Test Pits were the only contexts for which all ceramics were kept, with all other areas culled to representative and significant sherds. All diagnostic sherds were photographed, and relevant sherds drawn. A large number of wares (66) were identified at Al-Juḥfah, plus additional categories created for unidentified glazed and unglazed wares and *tannūr* fragments. These were divided into broad ware groups of Earthenwares, Commonwares, Glazed Wares, Fritwares, Stonewares, and Porcelains, with the latter two primarily consisting of Chinese and Southeast Asian imports. These wares will be further refined in future seasons as more data is collected, merging and separating them as needed.

Test Pits

The ceramic assemblage from all the test pits was heavily culled to include primarily diagnostic sherds providing representative (although not proportional) examples of the wares present as well as significant sherds for identifying and producing a typology of the forms, styles, and decoration present. As these were culled assemblages, quantitative analysis will not be considered.

JUH25-TP1

Test Pit 1 consisted of a single context from which 81 sherds were kept, 70 of which were diagnostic. The main Commonware recovered was Abbasid Biscuit ware (e.g. al-Thenayian 2019). Biscuit ware was wheelmade and had a fine, pale brown fabric, usually a well smoothed surface often cream slipped on at least the exterior. This was further broken down into Biscuit ware (BISC, W1) and Eggshell Biscuit ware (BISC.EGG, W2); a finer thinner walled (<4mm) variant, to investigate parallels with the well-known Eggshell White ware.

Five examples of Biscuit ware and six Eggshell Biscuit ware were recorded. Key sherds included incised decorated body (**Figure 128.1**) and neck join sherds (**Figure 128.2**), bases (**Figure 128.3**), and handle

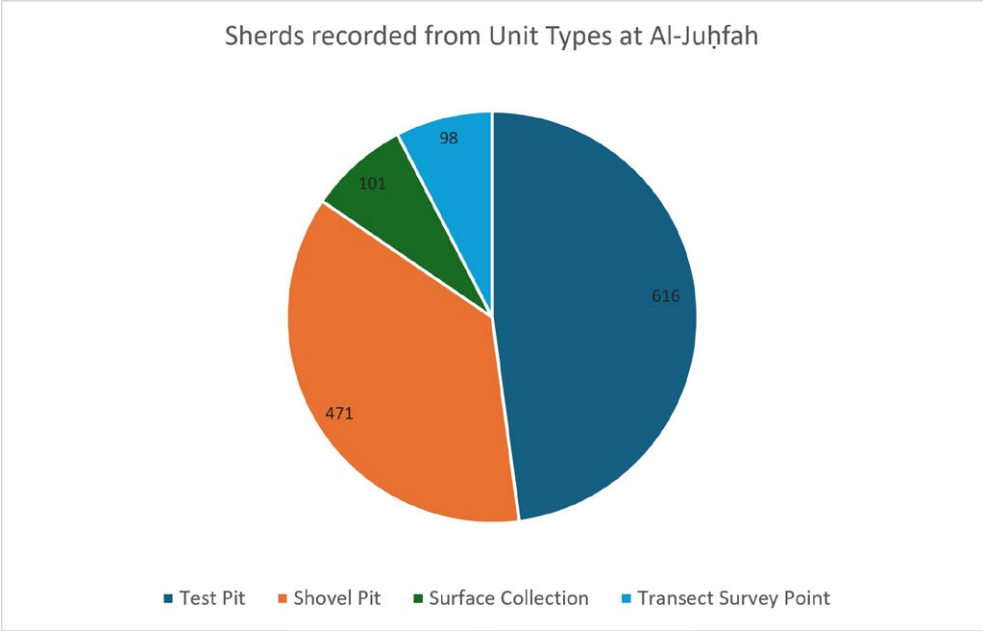


Figure 127. The number of sherds recovered from each unit type at Al-Juḥfah.

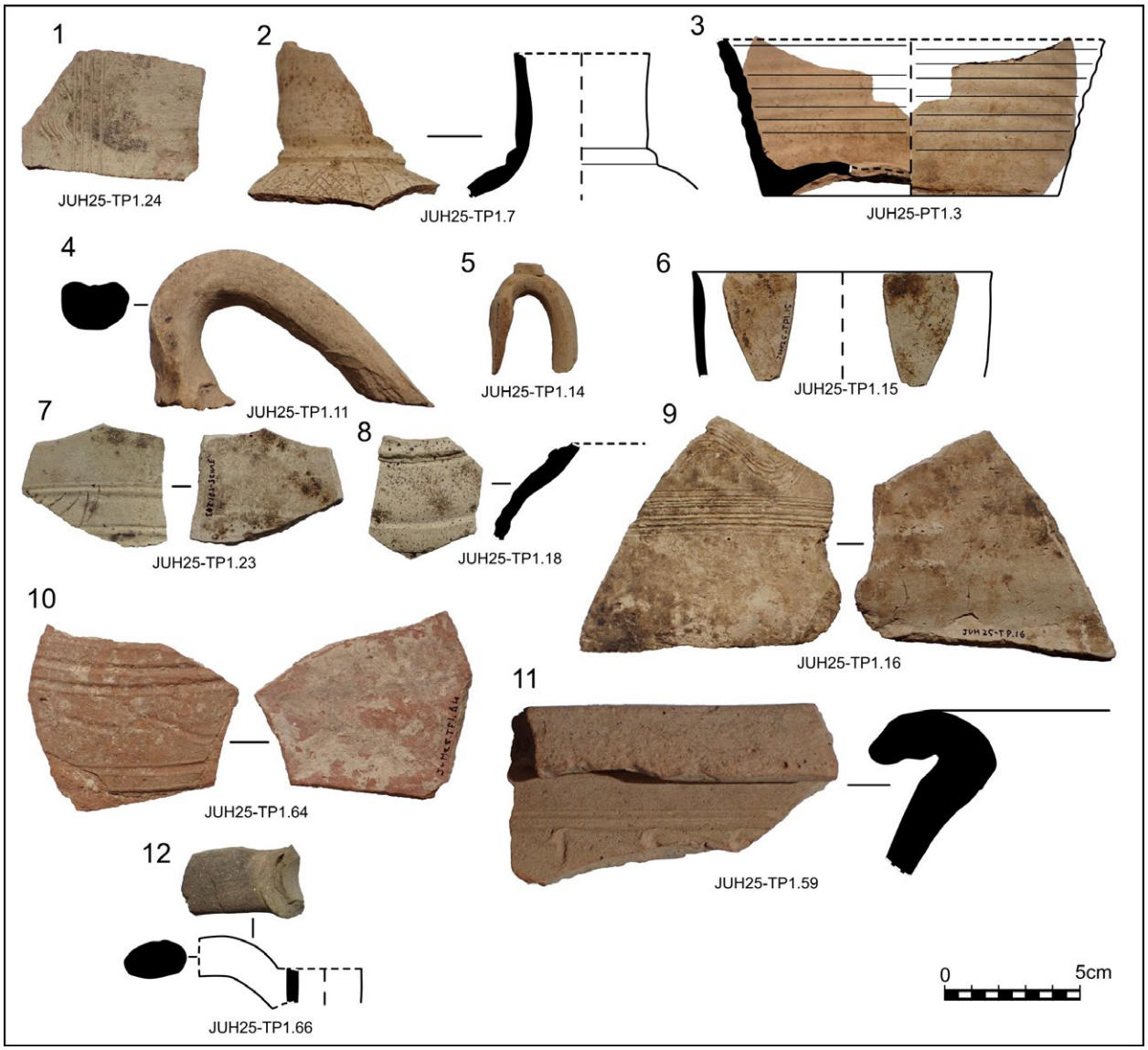


Figure 128. Key Commonware sherds from JUH25-TP1; 1. BISC comb-incised decorated sherd; 2. BISC neck with incised decoration; 3. BISC concave base; 4. almost complete BISC handle; 5. BISC.EGG rim and handle with thumb stop; 6. BISC.EGG ware rim; 7. WHITE.EGG ware neck join with incised decoration; 8. WHITE neck join; 9. Thick WHITE comb incised decorated sherd; 10. Fine Micaceous Red ware incised decorated sherd; 11. Cream Slipped Red ware rim; 12. Hard Buffware handle and neck (photos. N. Tait).

fragments (**Figure 128.4**) of Biscuit ware, and rims (**Figure 128.6**) and handles in Eggshell Biscuit ware, including a handle and rim with a thumb rest similar to Eggshell White ware (**Figure 128.5**). Interestingly, despite being common in the 2025 season, this ware was rarely found during Alsubaie's PhD work at Al-Juḥfah (2018: 176-186). Both White ware (WHITE, W3) and the related Eggshell White ware (WHITE.EGG, W4) were present. These are well-known Abbasid period wares produced in Iraq, dated to the 8th to 10th century for Eggshell and mid-8th to 12th century for White ware (e.g. Kennet 2004: 77-78, 82-83; Priestman 2021: 34-36) and were previously recorded at Al-Juḥfah by Alsubaie (2018: 174-176). Both wares have the same fabric; a very fine, compact, well levigated, lightweight pale cream-yellow fabric usually with no visible inclusions.

Eggshell ware is differentiated from White ware by thinner (<4mm) walls and is typified by a single jug form with globular body, a flared rim and a single long ribbon handle, often with a thumb support (e.g. Priestman 2021: 541-555). The Eggshell ware from JUH25-TP1 consisted of incised decorated neck joins (**Figure 128.7**) and a rim sherd consistent with this form. White ware has a larger range of vessel forms than Eggshell ware. The sherds from JUH25-TP1 consisted of bases, a neck join (**Figure 128.8**) and a thick body sherd decorated with comb-incised decoration (**Figure 128.9**), a rare decorative

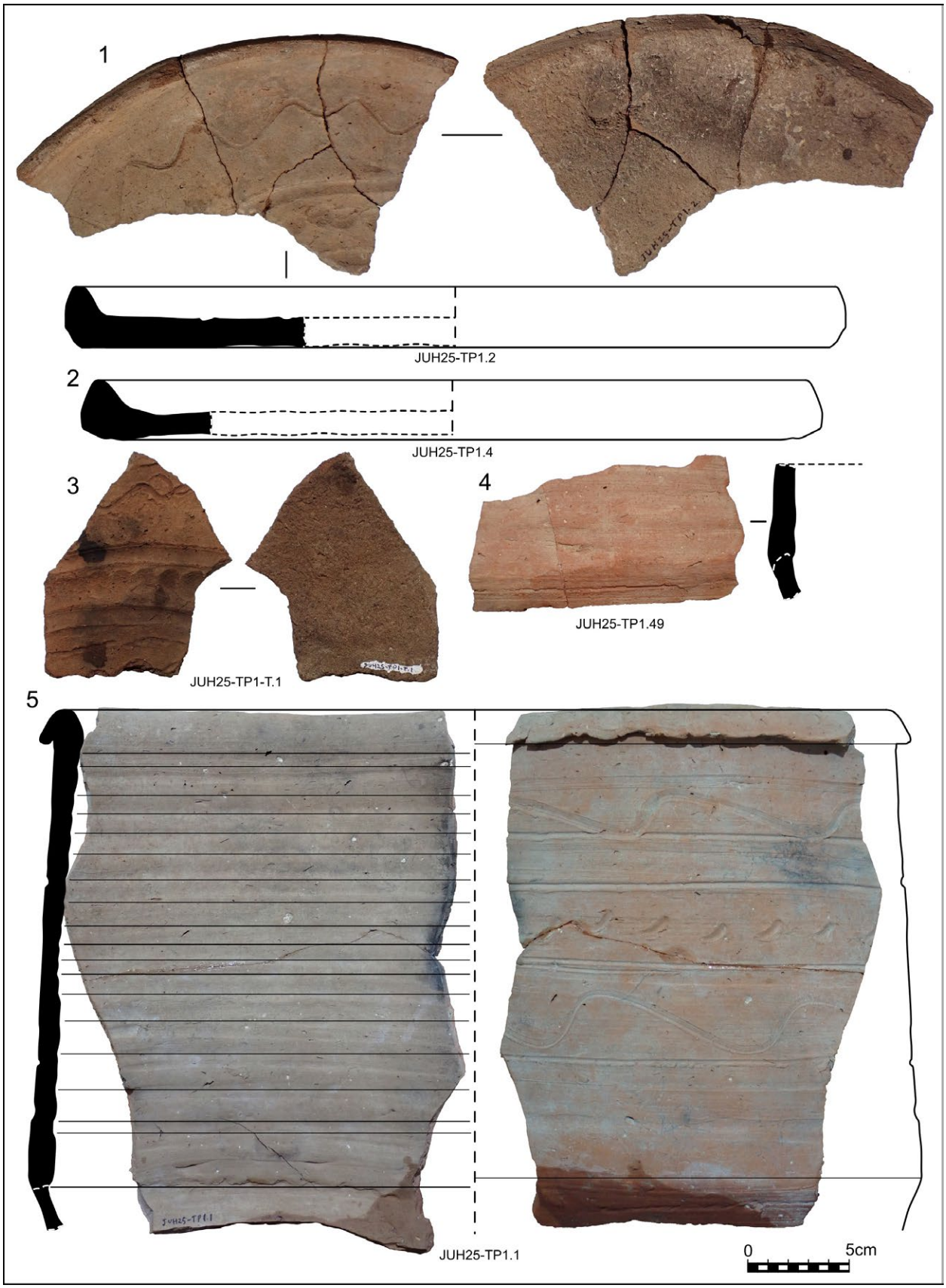


Figure 129. Key Earthenware sherds from JUH25-TP1; 1. Coarse Earthenware ETH-PL1 plate/lid rim; 2. Coarse Earthenware ETH-PL1 plate/lid profile; 3. Coarse Earthenware plate/lid fragment from base of a *tannūr*; 4. Hard, Fine Earthenware body sherd with slab join; 5. Hard, Fine Earthenware large water storage jar with slab join (photos. N. Tait).

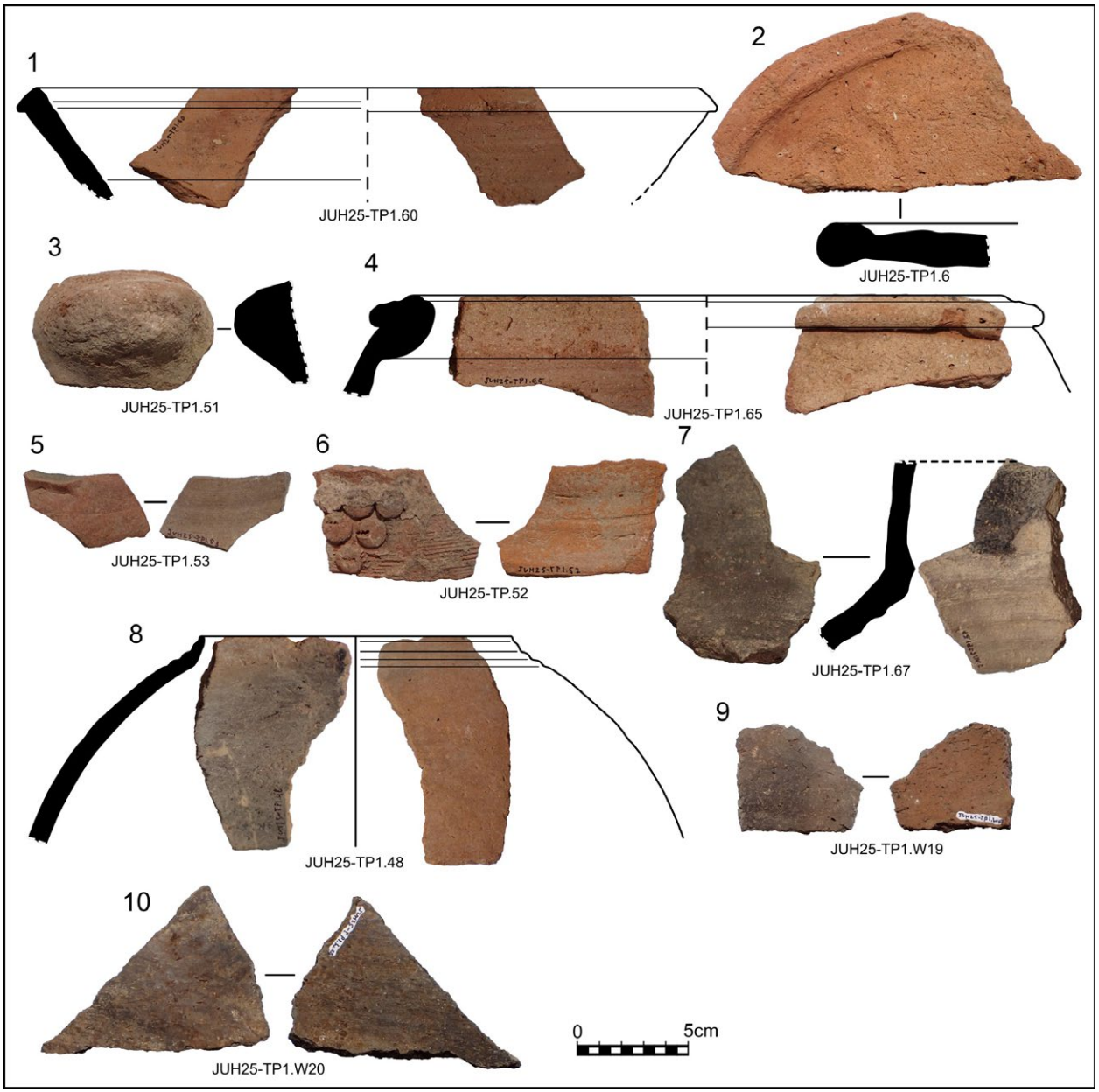


Figure 130. Key Earthenware sherds from TP1; 1. Red Earthenware basin rim; 2. Exploded Limy Earthenware Rounded ETH-PL2 plate/lid rim; 3. Coarse Limy Earthenware hemispherical handle; 4. Pinkish-Red Exploded Limy Earthenware storage jar rim; 5. Hard, Reduced Earthenware handle join; 6. Dense Red Earthenware comb incised and appliqué dots; 7. Dark, Clinky Gritty Earthenware neck join with burnt residue on interior; 8. AFRI.1 form AFR.JR2 Globular jar rim; 9. AFRI.2 body sherd; 10. AFRI.3 body sherd (photos. N. Tait).

style for White ware. The other Commonwares consisted of a decorated Fine Micaceous Red ware sherd (W21, **Figure 128.10**), a Cream Slipped Red ware (W22, **Figure 128.11**) rim likely from a large storage vessel, and a neck and handle from a Hard Buffware (W38, **Figure 128.12**). Fine Micaceous Red ware and some of the Earthenwares such as Red Earthenwares (W23) and Fine, Hard Earthenwares (W47), were likely part of Alsubaie's (2018: 177-178) Red-Bodied Pottery category.

The most common earthenware was the broad Coarse Earthenware category (W24), consisting of a fairly hard red to brown fabric with abundant poorly sorted coarse gritty inclusions. The main Coarse Earthenware form recovered from JUH25-TP1 were five examples of large plates or lids (**Figure 129.1-2**) with thick incised and finger pressed decoration on the interior, including a body sherd from the base of a *tannūr* (**Figure 129.3**). Coarse Earthenware large flat bases and rims from

basins and large storage jars were also recorded. Hard, Fine Earthenware (W47) included sherds from large water storage jars, including a large part of the profile (**Figure 129.5**). These showed evidence for being produced in at least two parts and joined together (**Figure 129.4-5**). Two large bowl/basin rims of the broad Red Earthenware category (W23) with a hard, red, finer gritty fabric often with voids from organic inclusions were recorded (**Figure 130.1**).

A range of other earthenwares were present in small quantities. These included three separate wares with limy inclusions; a rounded rim from a plate or lid in an Exploded Limy Earthenware (W54) with abundant inclusions (**Figure 130.2**), a detached hemispherical handle in a Coarse Limy Earthenware (W26; **Figure 130.3**), and a neck join from a small jar, and rim from a large storage jar (**Figure 130.4**) in a Pinkish-Red Exploded Limy Earthenware (W48). A Hard, Reduced Earthenware (W58) with a dark core was also observed during the transect survey (**Figure 130.5**), a thick neck join in a Dark, Clinky Gritty Earthenware (W59) had burnt residue on the interior (**Figure 130.7**), and a Dense, Red Earthenware (W39) body sherd with comb grooved decoration and appliqué blobs had potential parallels with Umayyad decorative styles (**Figure 130.6**). Finally, three examples of distinct handmade earthenwares were identified as potentially African. These consisted of a worn burnished rim from a globular jar (AFRI.1; W18; **Figure 130.8**) which has potential links with the Ethiopian highlands, a thicker coarse gritty body sherd with organic voids (AFRI.2; W19; **Figure 130.9**), and a dark, roughly burnished body sherd with abundant grit and opaque quartz inclusions (AFRI.3; W20; **Figure 130.10**). The latter two were potentially from either Sudan or the Swahili coast.

The most distinctive glazed ware was Hijazi Ware (W10), usually glazed in a pale cream to yellow glaze, decorated with black glazed patterns and sometimes green splashes (**Figure 131.1-3**). The Hijazi Ware forms from JUH25-TP1 included open bowls (form HIJ-BW2, **Figure 131.2-3**), a common form usually decorated with black arches infilled with crosshatching on the interior (**Figure 131.2**), and a jar neck (**Figure 131.3**). There were also a range of monochrome glazed wares with a broadly similar fabric. From JUH25-TP1 these consisted of Green Glazed Commonware (W30), Olive-Brown Glazed Commonware (W12), Yellow Glazed Commonware (W31), and a collection of Degraded Glazed Commonware (W34) for which the original glaze colour could not be determined. The Yellow Glazed Commonware may contain Hijazi Ware sherds without black-glazed patterns and included two bases, a flat and ring base, and a jar rim with a vertical pipe handle (**Figure 131.4**). Green Glazed Commonware included a rim from a large basin (**Figure 131.5**) with unglazed parallels (e.g. **Figure 135.9, 136.1, 148.11**) and two rims of undetermined form (e.g. **Figure 131.6**). Degraded Glazed Commonwares consisted of several flat or concave bases and two bowl rims (form GLA-BW1 and GLA-BW2). One blue glazed base had a distinct reddish orange-pink fabric (Blue Glazed Commonware 2, W35) and very thick pooled glaze on the interior (**Figure 131.7**).

Some of the glazed wares fell into the Opaque Glazed Wares category. These have a fine, hard, pale creamy-yellow fabric, and are usually glazed white, often with further lustre or coloured glaze on top. At Al-Juḥfah the fabric was sometimes a pale-brown to pale reddish-brown, potentially due to post-depositional taphonomic processes rather than production. Currently these have been recorded as a separate sub-ware until this can be confirmed. These wares are well dated in the Gulf, associated with the so called "Samarra Horizon" with different variations having tight date ranges (e.g. see Kennet 2004; Priestman 2021). One early 9th to 10th century plain Opaque Glazed Ware (OPAQ.W, W8) bowl rim (**Figure 131.9**) was recovered from JUH25-TP1 of the OPQ-BW1 form (Priestman's SAM-OR2; 2021: 93-94,) as was a base (**Figure 131.8**) of late 9th to 10th century Gold Lustre Opaque Ware (OPAQ.LG, W5). Finally, body sherds with the darker fabric of early-mid 9th century Cobalt Splashed Opaque Glazed Ware (OPAQ.CS2, W55; **Figure 131.10**), mid-9th to 10th century Green and White Splashed Ware (SPLASH.GW2, W56; **Figure 131.11**), and a crude Turquoise and Black Splashed Opaque Glazed Ware rim (OPAQ.TBS2, W57; **Figure 131.12**) also dated to the mid-9th- to 10th century were recorded. Unusually, the OPAQ.TBS2 rim was only glazed on the interior, while typically the ware would be glazed on both the interior and exterior.

JUH25-TP2

Little archaeological material was recovered from this test pit, and only 13 ceramic sherds were kept. These included an Abbasid Biscuit ware (W1) handle fragment (**Figure 132.1**) and a Fine Micaceous Red ware (W21) ring base Commonware (**Figure 132.2**). The Earthenwares consisted of three decorated sherds of the broad Red Earthenware (W23) category (**Figure 132.3**) including a rim (**Figure 132.4**), two large undiagnostic Hard Fine Earthenware (W47) body sherds (**Figure 132.5**), and an undiagnostic Dense Brown Earthenware (W60) body sherd (**Figure 132.6**). The glazed wares consisted of two Hijazi Ware (W10) sherds; a rim from a large bowl (**Figure 132.7**), and a body sherd from the bottom of the unit with vertical glazed black lines on both sides

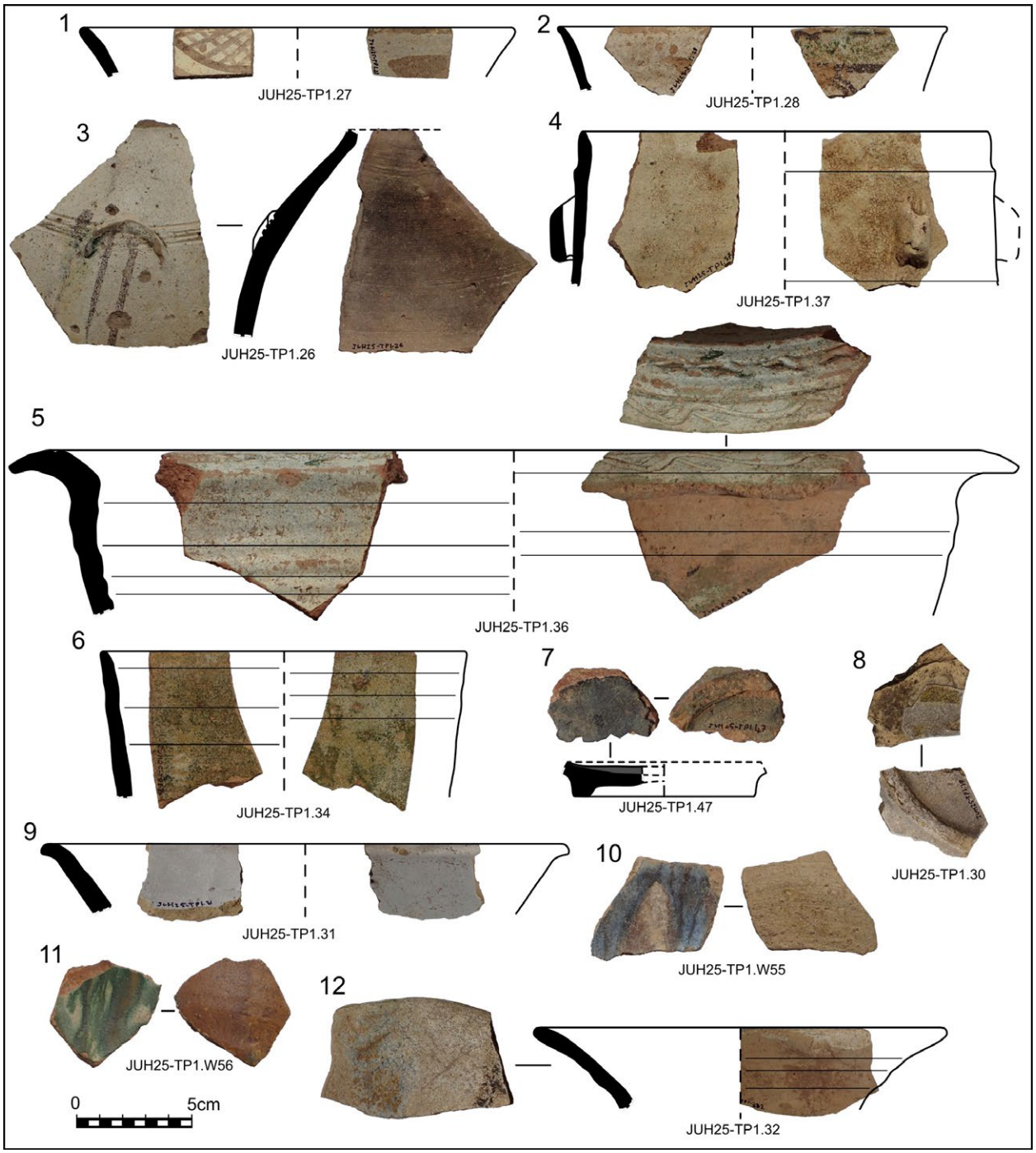


Figure 131. Key Glazed Ware sherds from TP1: 1. Hijazi Ware HIJ-BW2 bowl rim with black decoration on interior; 2. Hijazi Ware HIJ-BW2 bowl rim with black and green decoration; 3. Hijazi Ware neck join with small arched handle; 4. Yellow Glazed Commonware jar rim with "pipe" handle; 5. Green Glazed Commonware GLA.BA1 basin rim with decoration; 6. Green Glazed Commonware rim; 7. Blue Glazed Commonware 2 ring base with thick glaze (grey in profile represents glaze); 8. OPAQ.LG ring base with gold line on interior; 9. OPAQ.W bowl rim; 10. OPAQ.CS2 body sherd; 11. SPLASH.GW2 body sherd; 12. OPAQ.TBS2 bowl rim (photos. N. Tait).

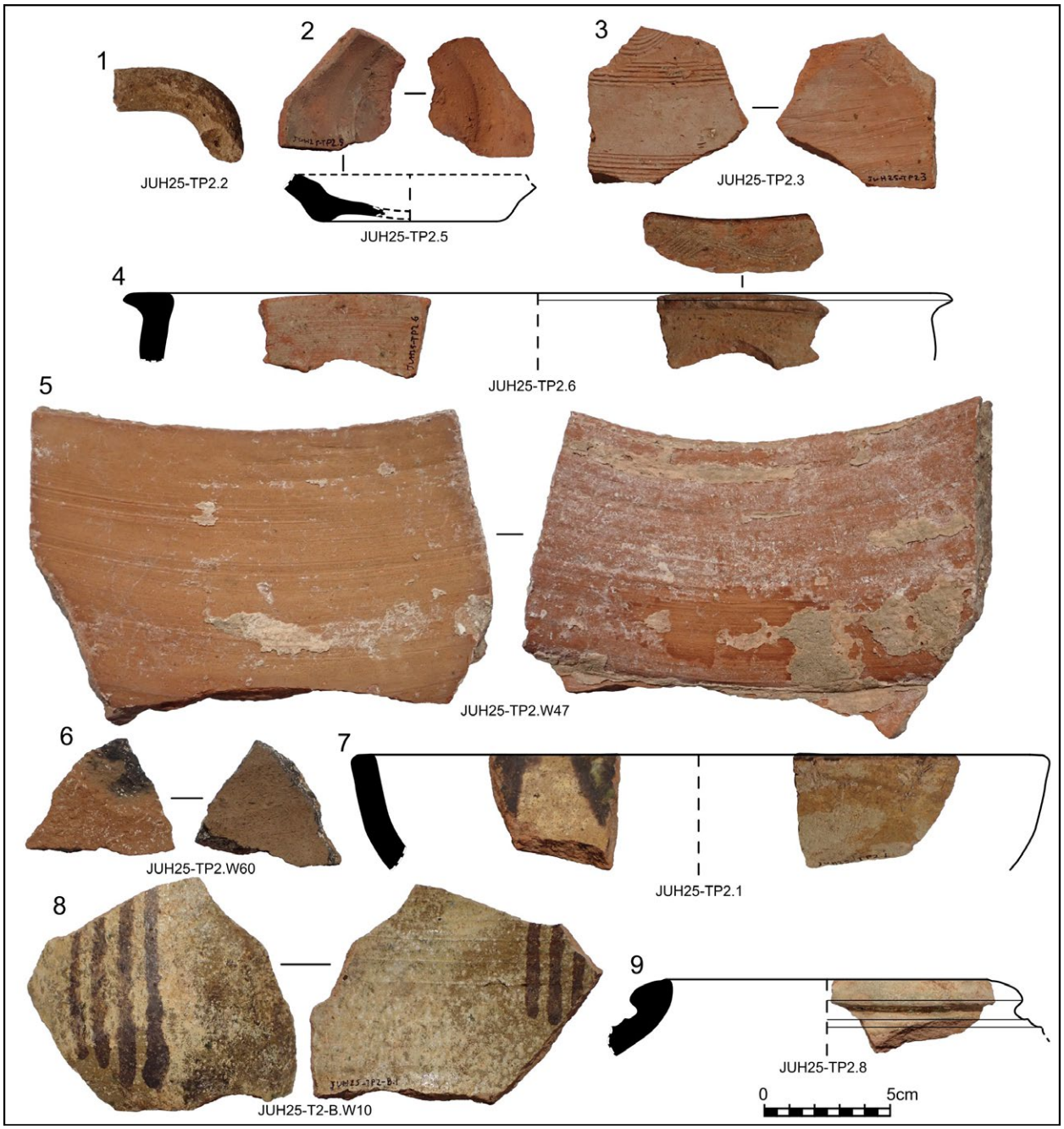


Figure 132. Key sherds from TP2; 1. BISC ribbon handle fragment; 2. Fine Micaceous Redware ring base; 3. Red Earthenware comb incised body sherd; 4. Red Earthenware rim with comb incised decoration on top; 5. Hard Fine Earthenware body sherd; 6. Dense Brown Earthenware body sherd; 7. Hijazi ware bowl rim; 8. Hijazi Ware body sherd with decoration on both sides from base of unit; 9. Green Glazed Commonware jar rim (photos. N. Tait).

(**Figure 132.8**), a Green Glazed Commonware (W30) rim from a globular jar (**Figure 132.9**), and two degraded Glazed Commonware (W34) sherds including a flat base.

JUH25-TP3

JUH25-TP3 consisted of five contexts of arbitrary 30cm spits. Due to being a midden a large amount of archaeological material was recovered, with 475 sherds kept of which 427 were diagnostic. Together Abbasid Biscuit ware (BISC, W1, 43 sherds) and Eggshell Biscuit ware (BISC.EGG, W2, 43 sherds) were the most common wares collected from TP3 and present in all excavated contexts. The Biscuit Ware included multiple ribbon handle fragments (**Figure 133.1-3**), including examples with thumb rests (**Figure 133.2**) and turban handles (**Figure 133.3**), and bases, mostly concave (**Figure 133.4**) or flat (**Figure 133.5**), also a sherd with part of

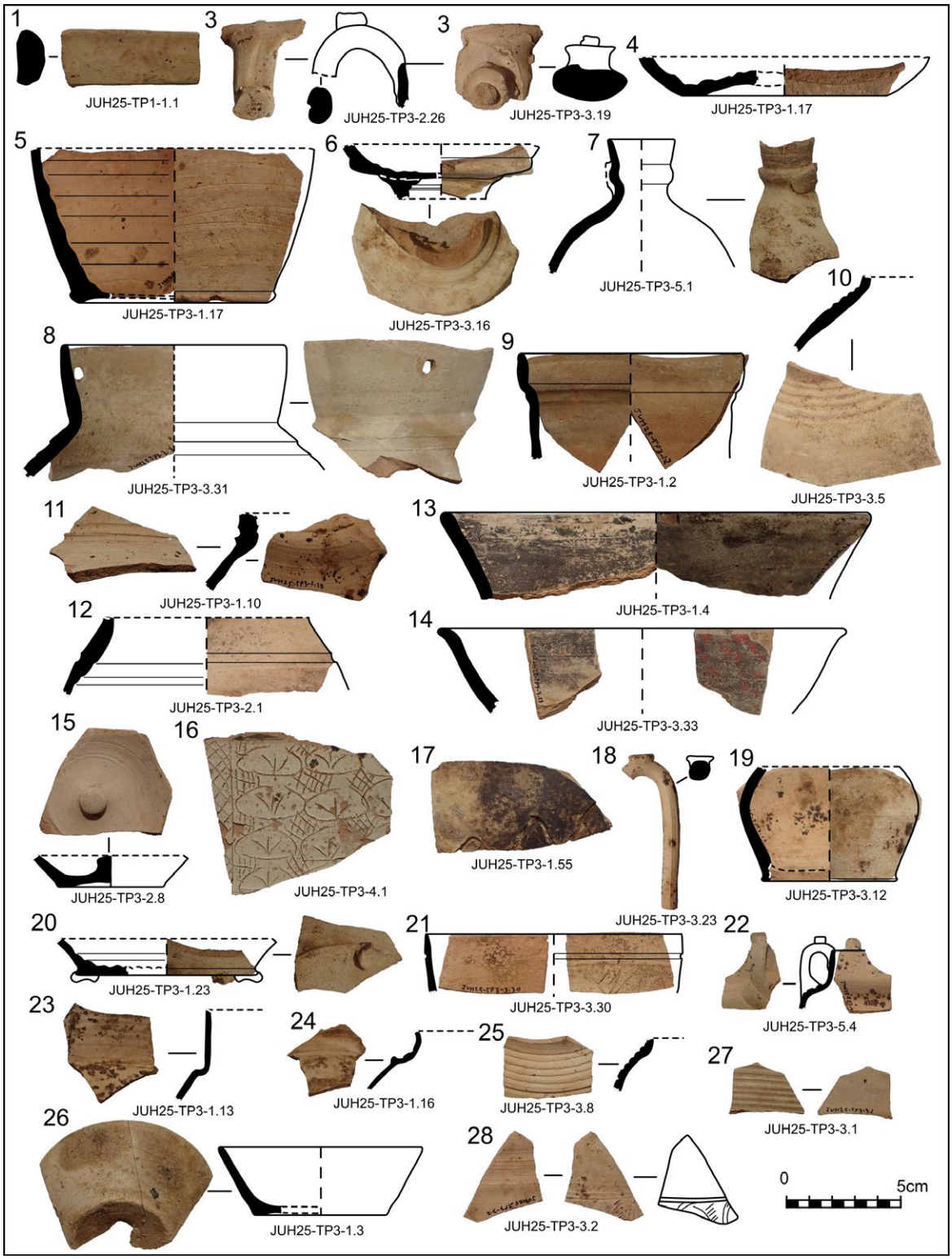


Figure 133. Key Abbasid Biscuit ware and Abbasid Eggshell Biscuit ware sherds from TP3; 1. BISC ribbon handle fragment; 2. BISC rim with ribbon handle and thumb rest; 3. BISC turban handle; 4. BISC concave base; 5. BISC flat base; 6. BISC base sherd with start of a hollow "stem"; 7. BISC jug fragment with handle join; 8. BISC jug/jar fragment; 9. BISC jar neck; 10. BISC jug/jar neck with ribbing; 11. BISC jug/jar neck with ridge; 12. BISC jug/jar neck with thick groove; 13. BISC form BIS-BW2 bowl rim with sooting; 14. BISC form BISC-BW3 rim with sooting and secondary red painted decoration; 15. BISC lid; 16. BISC body sherd with detailed incised decoration; 17. BISC body sherd with incised wave; 18. BISC.EGG handle with thumb rest; 19. BISC.EGG flat base from a small globular vessel; 20. BISC.EGG flat base with foot; 21. BISC.EGG probable jug/jar rim with incised decoration; 22. BISC.EGG small jar fragment with complete handle; 23. BISC.EGG jug/jar neck; 24. BISC.EGG jug/jar neck with moulded ridge; 25. BISC.EGG jug/jar neck with moulded ridges; 26. BISC.EGG BISC.BW1 small cup; 27. BISC.EGG body sherd with moulded ribbing; 28. BISC.EGG body sherd with incised decoration (photos. N. Tait).

a hollow "stem" underneath (**Figure 133.7**). A range of neck joins and rims were recovered from jug/jar forms (**Figure 133.7-12**), as well as open bowls (**Figure 133.13-14**). A single sherd from a lid was recorded (**Figure 7.15**). Decoration was rare, primarily incision (e.g. **Figure 133.16-17**), with occasional examples of moulded ribbing or ridges (**Figure 133.10-11**). One bowl rim was painted with red dashes, a secondary addition as it was painted over soot on the sherd (**Figure 133.14**). Eggshell Biscuit ware also included ribbon handle fragments, some with thumb rests (**Figure 133.18, 21**), flat bases, including one with a large part of the body from a globular vessel (**Figure 133.19**), and multiple examples with "feet" attached to the base (e.g. **Figure 133.20**). A range of Eggshell Biscuit ware neck joins were recorded (**Figure 133.22-24**), including one from a very small jar with a complete handle and the full neck and upper body (**Figure 133.22**), showing a wider range of jar/jug forms than White Eggshell ware. Other than jars/jugs the only form identified was a small shallow straight walled drinking cup (BISC-BW1, **Figure 133.26**). Again, the primary decoration was incised (e.g. **Figure 133.21, 28**) alongside occasional moulded ribbing and ridges (e.g. **Figure 133.24-25, 27**).

Eggshell White ware (WHITE.EGG, W4) consisted of 48 sherds, as well as a further 20 White ware (WHITE, W3). The Eggshell White ware included handles, many with typical thumb rests (**Figure 134.1-3, 12**), as well as rims and neck joins, of typical Eggshell ware form (**Figure 134.4-7, 13**). The bases recorded (**Figure 134.8-10**) also concur with Priestman's Eggshell ware base forms (Priestman 2021: Figure 152). Decoration usually consisted of incision (**Figure 134.5-7, 11**), with thumb rests sometimes having stamped decoration on top (**Figure 134.3**). One group of Eggshell ware sherds had secondary black-painted decoration, probably using bitumen (**Figure 134.9-13**). Potential parallels with North African decorative styles have been suggested (T. Insoll, pers. comm.). The White ware included flat bases of several styles (**Figure 134.14-16**), including one with "feet" (**Figure 134.17**). The handles included a crude turban handle (**Figure 134.18**) and ribbon handles with large thumb rests (**Figure 134.19**). Rims all suggested medium-large jar/jug forms (**Figure 134.20-22**), with no evidence for open bowls/basins. One rim had a small crude triangular appliqué handle near the rim (**Figure 134.21**). Primary decoration was incised (**Figure 134.20, 23**), with occasional stamped decoration on thumb rests (**Figure 134.19**). One sherd had secondary, white-painted Arabic script potentially including the word "Allah" (**Figure 134.24**).

Other Commonwares from JUH25-TP3 included 165 Fine Red Micaceous ware (FIRMIC, W21) sherds consisting of flat and concave bases (**Figure 135.1-2**), rims from medium-sized basins (**Figure 135.3**), as well as smaller forms (**Figure 135.4-5**), necks from jars/jugs (**Figure 135.5-6**), and a single ribbon handle (**Figure 135.7**). Decoration consisted of incised patterns (**Figure 135.3, 5-6, 8**), most commonly comb incised. The next most common was Cream Slipped Red ware (W22) at nine sherds, these primarily consisted of rims from medium-large basins (**Figure 135.9**), as well as occasional rims (**Figure 135.10**) and handles (**Figure 135.11**) suggesting jug/jar forms. Six sherds were of a Fine Pale Buff ware (W17), consisting of bases including one with feet (**Figure 135.12**), and necks and rims from jars/jugs (**Figure 135.13-14**). Four Commonware sherds were identified as likely Umayyad (W15) due to distinctive appliqué decoration (**Figure 135.15-16**). Two Porous Buffware (W50) sherds (e.g. **Figure 135.17**), and one neck join (**Figure 135.18**) of a Hard Buffware (W38) were also recorded.

The most common Earthenware was the broad Red Earthenwares (W23) category at 17 sherds, primarily a range of rim forms from basins/bowls (**Figure 136.1, 3**) and medium-large storage vessels (**Figure 136.4-5**). One body sherd showed evidence for the use of slab joins in manufacture (**Figure 136.2**). Eight sherds of the Dense Earthenwares (W39) category included several large flat bases (**Figure 136.6, 10**), including one with a thick layer of bitumen underneath (**Figure 136.6**), as well as a large spout from a thick-walled vessel (**Figure 136.7**), and a sherd probably with an industrial function (**Figure 136.8**). The six Fine, Hard Earthenware (W47) sherds were primarily body sherds, with further evidence for slab joins (**Figure 136.11**), decorated with simple wide incised lines (**Figure 136.12**), or drilled (**Figure 136.12**). One rim (**Figure 136.10**) was potentially from a similar water storage vessel to the example from JUH25-TP1. The five sherds from the broad Coarse Earthenwares category (W24) included an interior sherd from a large plate/lid (**Figure 136.13**) identical to those recovered from JUH25-TP1, and rims from a medium-sized globular jar form (**Figure 136.14**).

A range of other Earthenwares were present as small or isolated examples. These included a single large base (**Figure 137.1**) in a Shelly Brown Earthenware (W25), a well smoothed, almost burnished lug handle (**Figure 137.2**) in a Coarse Limy Earthenware (W26), a jar/jug rim (**Figure 137.3**) in a Hard Grey Earthenware (W27), a rim (**Figure 137.4**) in a Pinkish-Red Exploded Lime ware (W48), a rim and handle probably from a globular cooking pot (**Figure 137.5**) in a Hard Sandy Earthenware (W40), a ribbon handle with thumb rest (**Figure 137.6**) in a Fine Soft Earthenware (W29), a body sherd with a slab join (**Figure 137.7**) in a Brown Fibrous ware (W28), and two undiagnostic body sherds (e.g. **Figure 137.8**) of the broad Coarse Handmade (W41) category.

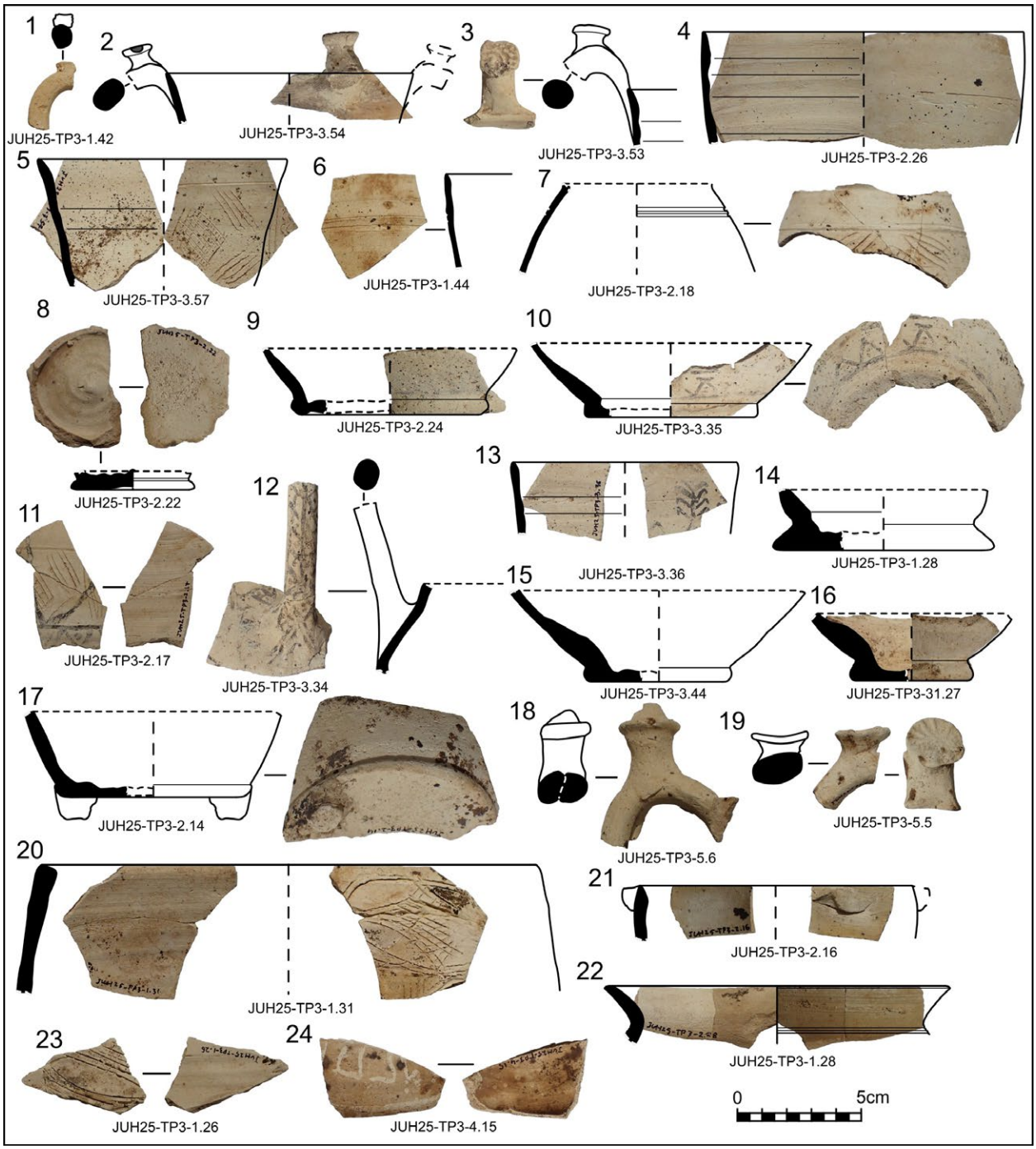


Figure 134. Key White ware and Eggshell White Ware sherds from TP3; 1. WHITE.EGG ribbon handle with thumb rest; 2. WHITE.EGG jug rim with ribbon handle and thumb rest; 3. WHITE.EGG jug rim with ribbon handle and stamped thumb rest; 4. WHITE.EGG jug rim; 5. WHITE.EGG jug rim with incised decoration; 6. WHITE.EGG rim with horizontal incised line decoration; 7. WHITE.EGG neck join with incised decoration; 8. WHITE.EGG base, 9. WHITE.EGG base with faint secondary painted decoration; 10. WHITE.EGG base with secondary painted decoration; 11. WHITE.EGG body sherd with incised and secondary painted decoration; 12. WHITE.EGG ribbon handle and body with secondary painted decoration; 13. WHITE.EGG jug rim with secondary painted decoration; 14. WHITE base; 15. WHITE base; 16. WHITE base; 17. WHITE base with "foot"; 18. WHITE double ribbon handle with turban handle; 19. WHITE ribbon handle with stamped thumb rest; 20. WHITE rim with incised decoration; 21. WHITE rim with appliqué near rim; 22. WHITE rim; 23. WHITE body with incised decoration; 24. WHITE body sherd with secondary white painted script (photos. N. Tait).

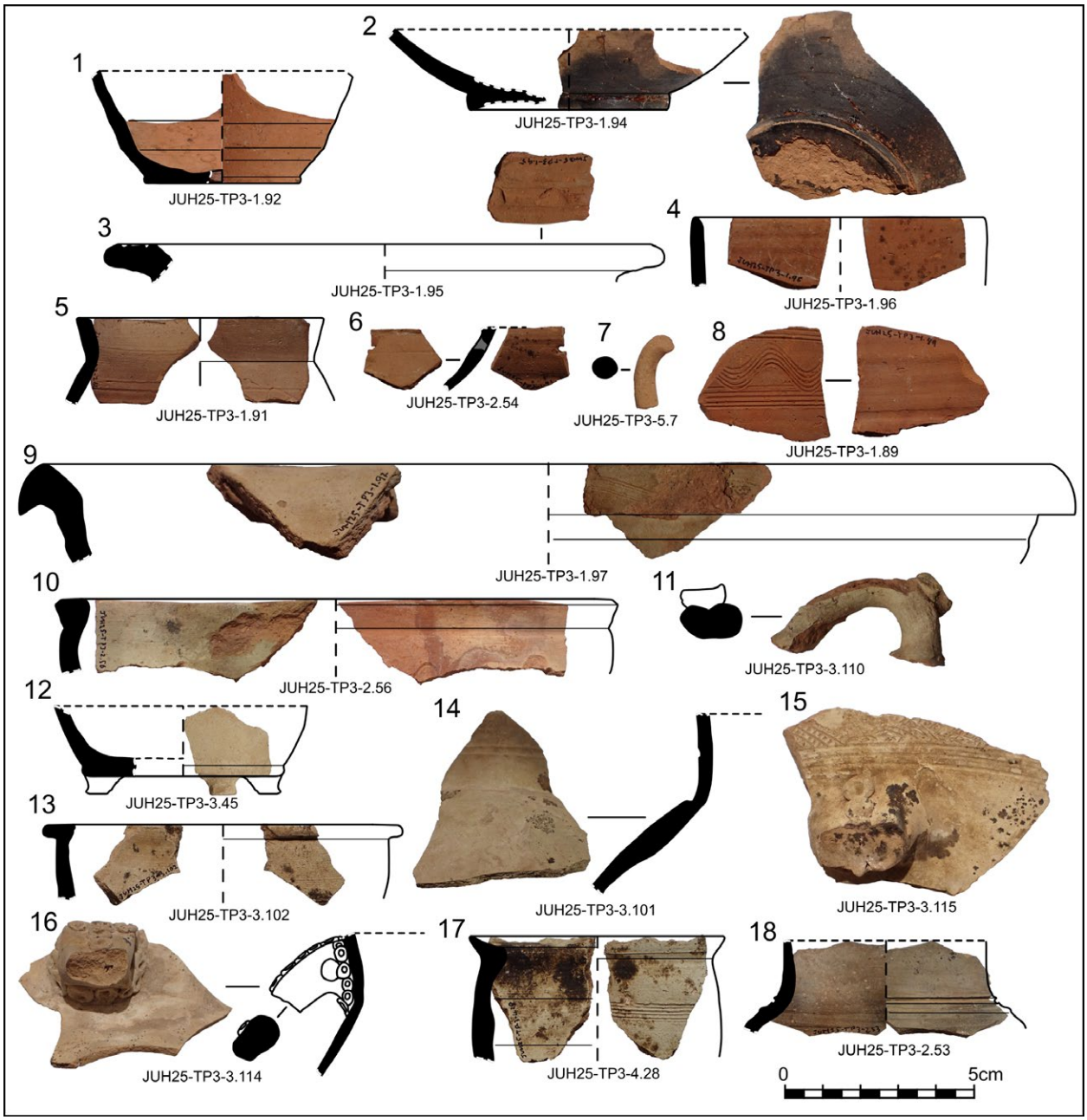


Figure 135. Key other Commonwares from TP3; 1. FIRMIC flat base; 2. Damaged FIRMIC concave base with soot deposits; 3. FIRMIC probable medium basin rim with incised decoration on rim; 4. FIRMIC jar/jug rim; 5. FIRMIC jar/jug rim with incised decoration; 6. FIRMIC neck join with piercing; 7. FIRMIC small ribbon handle; 8. FIRMIC body sherd with comb-incised decoration; 9. Cream Slipped Red ware basin rim with incised decoration on rim; 10. Cream Slipped Red ware probable jug/jar rim; 11. Cream Slipped Red ware ribbon handle with thumb rest; 12. Fine Pale Buffware base with foot; 13. Fine Pale Buffware probable jug/jar rim; 14. Fine Pale Buffware neck; 15. Umayyad Appliqué ware body with appliqué decorated handle with incised decoration; 16. Umayyad Appliqué ware body with appliqué decorated ribbon handle; 17. Porous Buffware jar rim; 18. Hard Buffware jug neck join (photos. N. Tait).



Figure 136. Key Earthenwares from TP3; 1. Red Earthenware basin with comb incised decoration on rim; 2. Red Earthenware body sherd broken along slab join; 3. Red Earthenware bowl/basin rim; 4. Red Earthenware globular jar rim; 5. Red Earthenware storage jar rim; 6. Dense Earthenware flat base with lug handle; 7. Dense Earthenware spout; 8. Dense Earthenware probable industrial object; 9. Dense Earthenware base with bitumen underneath; 10. Fine, Hard Earthenware rim; 11. Fine, Hard Earthenware body sherd broken along slab join; 12. Fine, Hard Earthenware body sherd with shallow horizontal incised lines and drilled hole; 13. Decorated Coarse Earthenware plate/lid sherd; 14. Coarse Earthenware medium globular jar (photos. N. Tait).

A total of 17 sherds were identified as potentially African Earthenwares across four ware categories. The seven AFRI.1 (W18) sherds included four rims from globular jars with small necks (**Figure 137.9-10**). Six sherds of AFRI.2 (W19) primarily consisted of globular jar rims (**Figure 137.11-12**) as well as a single bowl rim (**Figure 137.13**). The only form identified among the AFRI.3 (W20) was a bowl rim (**Figure 137.14**). The final two sherds were AFRI.4 (W45), variably fired reddish-brown to black with abundant coarse gritty, smaller white, and organic inclusions and the surface burnished or roughly smoothed. The only diagnostic sherd was a rim from a globular jar (**Figure 137.15**).

Hijazi ware was the most common glazed ware at 56 sherds (W10), with another fifteen in an Olive-Brown Hijazi ware (W11) variant. Bowls were the most common form identified in a range of variants. These included small straight-walled drinking cups/bowls (HIJ-BW1; **Figure 138.1-3**) equivalent to Biscuit ware examples (e.g. BISC.BW1, **Figure 133.26**), medium straight-walled bowls (HIJ-BW2, **Figure 138.4-6**), medium concave bowls with a lip rim (HIJ-BW3, **Figure 138.7**), and medium-large deep bowls with a flared rim (HIJ-BW4, **Figure 138.8**). As with JUH25-TP1, HIJ-BW1 and HIJ-BW2 form bowls were almost always decorated with black arcs under the rim (e.g. **Figure 138.1-7**), alternatively empty or filled with cross-hatching. Straight rims were likely from a jug form (**Figure 138.9-11**), and a large rim and upper body sherd with a handle from a small flared-rim cylindrical jug (**Figure 138.12**) was recorded. Other notable diagnostic sherds included a "pipe" handle (**Figure 138.14**) similar to the Yellow Glazed Commonware example from JUH25-TP1 (**Figure 131.4**), ribbon handles, and neck joins (**Figure 138.13**). Bases were usually flat (e.g. **Figure 138.15**), with a couple of concave bases and one damaged ring base (**Figure 138.16**). Decoration usually consisted of black glazed arcs or triangles sometimes infilled with crosshatching, simple lines, and occasionally spirals (e.g. **Figure 138.8, 9, 16**). The Olive-Brown Hijazi ware also included HIJ-BW1 (**Figure 138.17**) and HIJ-BW2 (**Figure 138.18**) form bowls, and straight or in-turned rims likely from jugs (**Figure 138.19-20**). Bases were flat and included conjoining sherds from part of a carinated body (**Figure 138.21**).

The sixteen Olive-Brown Glazed Commonware sherds (W12) included a rim from a small drinking cup/bowl (form GLA-BW4, **Figure 140.1**) equivalent to the HIJ-W1 and BIS-BW1 forms, and medium-sized straight walled bowls (GLA-BW1, **Figure 140.3**), other rims included over 50% of the rim from a globular jar (GLA-JR1, **Figure 140.5**), a narrow-necked jug/bottle with a ribbon handle (**Figure 140.2**), and a shallow dish rim (**Figure 140.4**). Both flat and ring bases were present, as well as a carinated sherd (**Figure 140.6**) and a sherd with an appliqué ridge (**Figure 140.7**). Finally, a small object appeared to be a small spout or toggle (**Figure 140.8**). The five Yellow Glazed Commonware (W31) included a rim from a GLA-BW2 large bowl/basin (**Figure 140.9**), and both flat and ring bases. The most common monochrome glazed ware was Green Glazed Commonware (W30) at 27 sherds. These included multiple conjoining sherds from an almost complete rim of a large bowl/basin (GLA-BW2) with heavily degraded glaze that had been drilled in multiple locations for repair (**Figure 139**). There were also rims from several large bowls/basins with rows of horizontal incised lines under the rim (GLA-BW3, **Figure 140.10**), multiple rims from medium-sized straight walled bowls (GLA-BW1, **Figure 140.11**), and other general jar/jug rims (**Figure 140.12-13**).

Bases were primarily flat, including one example with a "foot" (**Figure 140.14**). One carinated sherd was identified as potentially from a North African Tagine vessel (**Figure 140.15**).

Other monochrome glazed Commonwares were present in small quantities, including two rims (e.g. **Figure 141.1**) in a Dark Brown Glazed Commonware (W51), a Blue Glazed Commonware (W32) small jug/jar rim (**Figure 141.2**), and a Blue Glazed Commonware 2 (W35) neck (**Figure 141.3**). 24 sherds were in the Degraded Glazed Commonware (W34) category, where the original glaze colour could not be determined. These primarily consisted of bowl/basin forms including multiple GLA-BW3 bowl/basin rims (**Figure 141.4-5**), simple straight walled bowls (GLA-BW1, **Figure 141.6**), including the small drinking cup/bowl variant (GLA-BW4). Bases were primarily ring bases (e.g. **Figure 141.7**). Other glazed wares included a worn Yellow/Green Glazed Moulded ware body sherd (W42, **Figure 141.8**), which dates from the Umayyad to Abbasid period, and a drilled sherd currently classified as Polychrome Glazed ware (W36, **Figure 141.9**). While too small to currently confirm, based on decorative styles it may be an example of Coptic Glazed Ware, dated to the 8th century (Whitcomb 1989; 1992; Ting and Taxel 2020).

Glazed sherds associated with the Samarra horizon included 15 OPAQ.W (W8) sherds, primarily squared ring bases (**Figure 142.1**) and open bowl rims (OPQ-BW1, **Figure 142.2**), both typical for OPAQ.W. One unusual OPAQ.W sherd was likely from a lid (**Figure 142.3**). Lustre wares consisted of thirteen Gold Lustre ware (OPAQ.LG, W5) and eleven Gold and Ruby Lustre ware (OPAQ.GR, W7) sherds. As with OPAQ.W the Lustre ware bases were squared ring bases (**Figure 142.4-5**), and a similar bowl form (OPQ-BW1, **Figure 142.6-9**) was present alongside other open forms (e.g. **Figure 142.10**). A range of decorative patterns in lustre were present, including a base with Arabic script (**Figure**



Figure 137. Key Earthenwares from TP3; 1. Shelly Brown Earthenware base; 2. Coarse Limy Earthenware lug handle; 3. Hard Grey Earthenware rim; 4. Pinkish-Red Exploded Lime Earthenware rim; 5. Hard Sandy Earthenware rim and handle; 6. Fine Soft Earthenware ribbon handle with thumb rest; 7. Brown Fibrous Earthenware; 8. Coarse Handmade Earthenware body sherd; 9. AFRI.1 necked jar rim; 10. AFRI.1 neck jar rim; 11. AFRI.2 globular jar rim; 12. AFRI.2 globular jar rim; 13. AFRI.3 bowl rim; 14. AFRI.4 bowl rim; 15. AFRI.4 jar rim (photos. N. Tait).

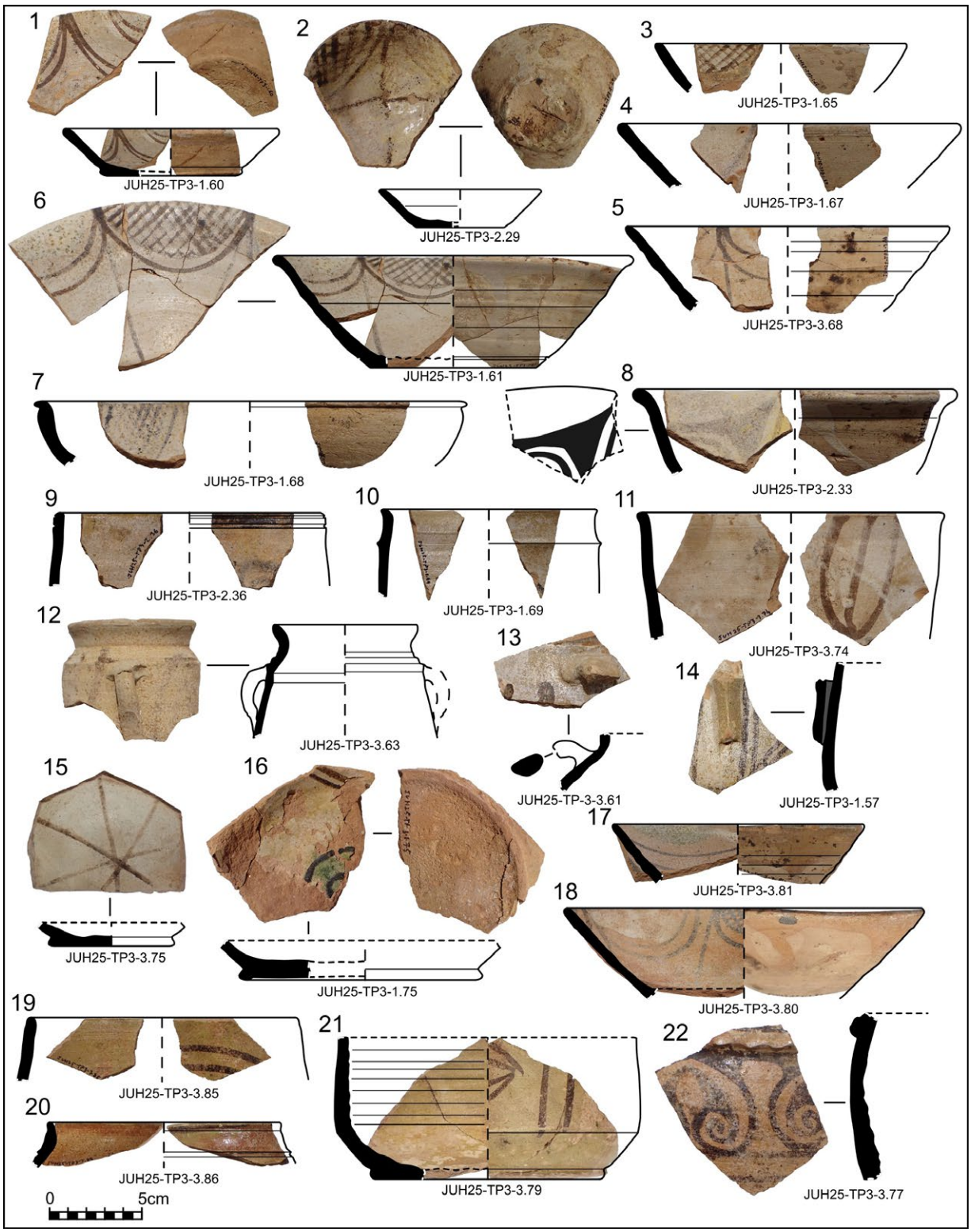


Figure 138. Key Glazed Wares from TP3; 1. Hijazi ware form HIJ-BW1 small bowl/cup fragment; 2. Almost complete Hijazi ware form HIJ-BW1 small bowl/cup; 3. Hijazi ware probable form HIJ-BW1 rim; 4. Drilled Hijazi ware form HIJ-BW2 rim; 5. Hijazi ware form HIJ-BW2 rim; 6. Hijazi ware form HIJ-BW2 full profile; 7. Hijazi ware form HIJ-BW3 rim; 8. Hijazi ware form HIJ-BW3 rim with potential spiral decoration; 9. Hijazi ware HIJ-JR1 form rim with potential spiral decoration and horizontal incised decoration under rim; 10. Hijazi ware HIJ-JR1 form rim with appliqué ridge; 11. Hijazi ware form HIJ-JR1 rim; 12. Hijazi ware form HIJ-JR2 cylindrical jug; 13. Hijazi ware neck join with ribbon handle; 14. Hijazi ware pipe handle; 15. Hijazi ware flat base; 16. Worn Hijazi ware ring base with potential spiral decoration and green glaze; 17. Olive-Brown Hijazi ware probable form HIJ-BW1 rim with green glaze; 18. Olive-Brown Hijazi ware form HIJ-BW2 rim; 19. Olive-Brown Hijazi ware form HIJ-JR1 rim; 20. Olive-Brown Hijazi ware jar rim with horizontal incised decoration; 21. Olive-Brown Hijazi ware flat base with carinated body; 22. Olive-Brown Hijazi ware body sherd with appliqué ridge and spiral decoration (photos. N. Tait).



Figure 139. Reconstructed Green Glazed Commonware form GLA-BW3 basin/large bowl with multiple pairs of holes drilled for repair from TP3 (photos. N. Tait).

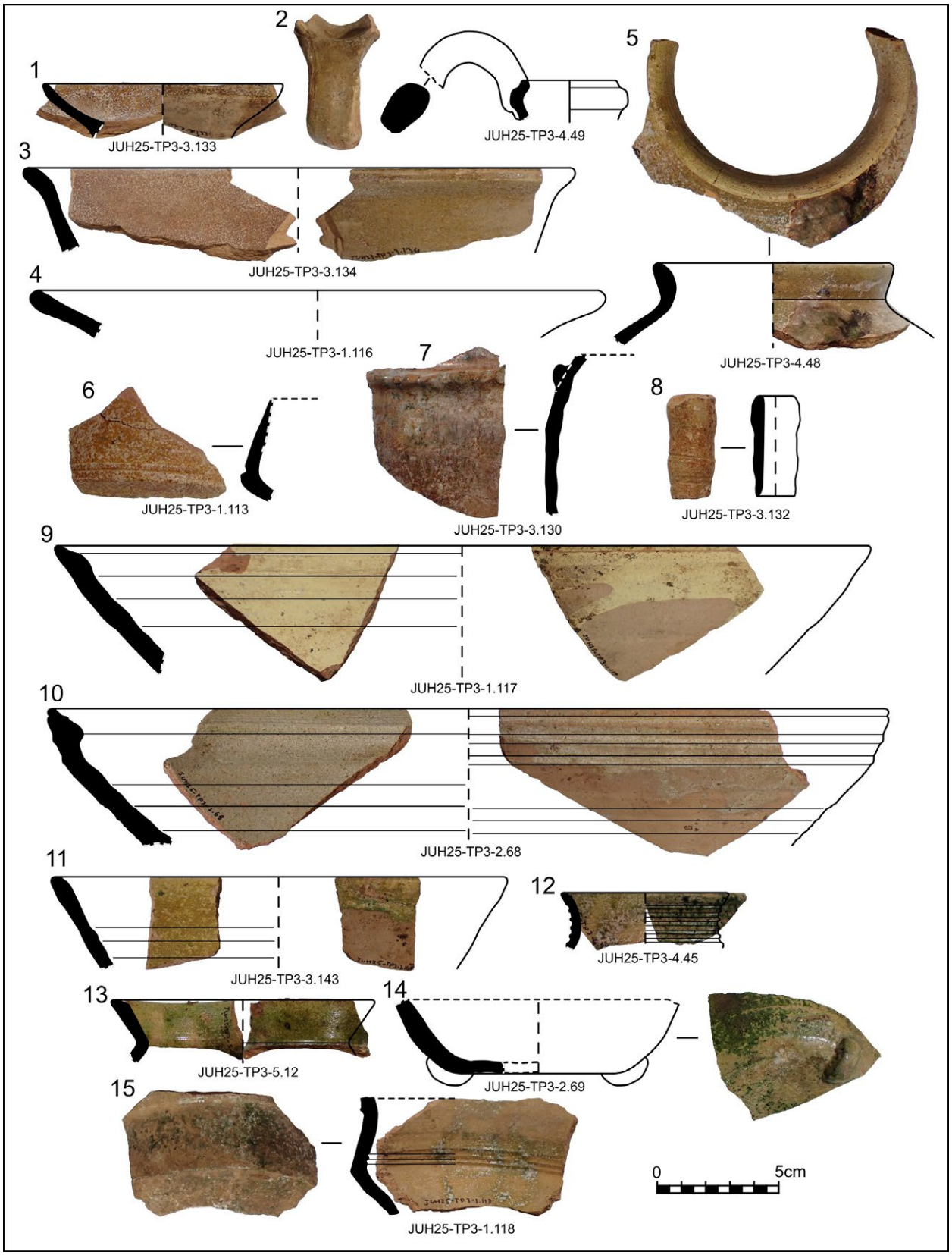


Figure 140. Key Glazed wares from TP3; 1. Olive-Brown Glazed form GLA-BW4 small bowl/cup rim; 2. Olive-Brown Glazed narrow-necked jug rim with ribbon handle; 3. Olive-Brown Glazed form GLA-BW1 rim; 4. Olive-Brown Glazed shallow dish/plate; 5. Olive-Brown Glazed form GLA-JR1 jar rim; 6. Olive-Brown Glazed ware carinated sherd; 7. Olive-Brown Glazed sherd with appliqué ridge; 8. Olive-Brown Glazed toggle or spout; 9. Yellow Glazed form GLA-BW2 rim; 10. Green Glazed form GLA-BW3 rim; 11. Green Glazed form GLA-BW1 rim; 12. Green Glazed jar rim; 13. Green Glazed form GLA-JR2 rim; 14. Green Glazed base with foot; 15. Green Glazed potential North African tagine sherd (photos. N. Tait).

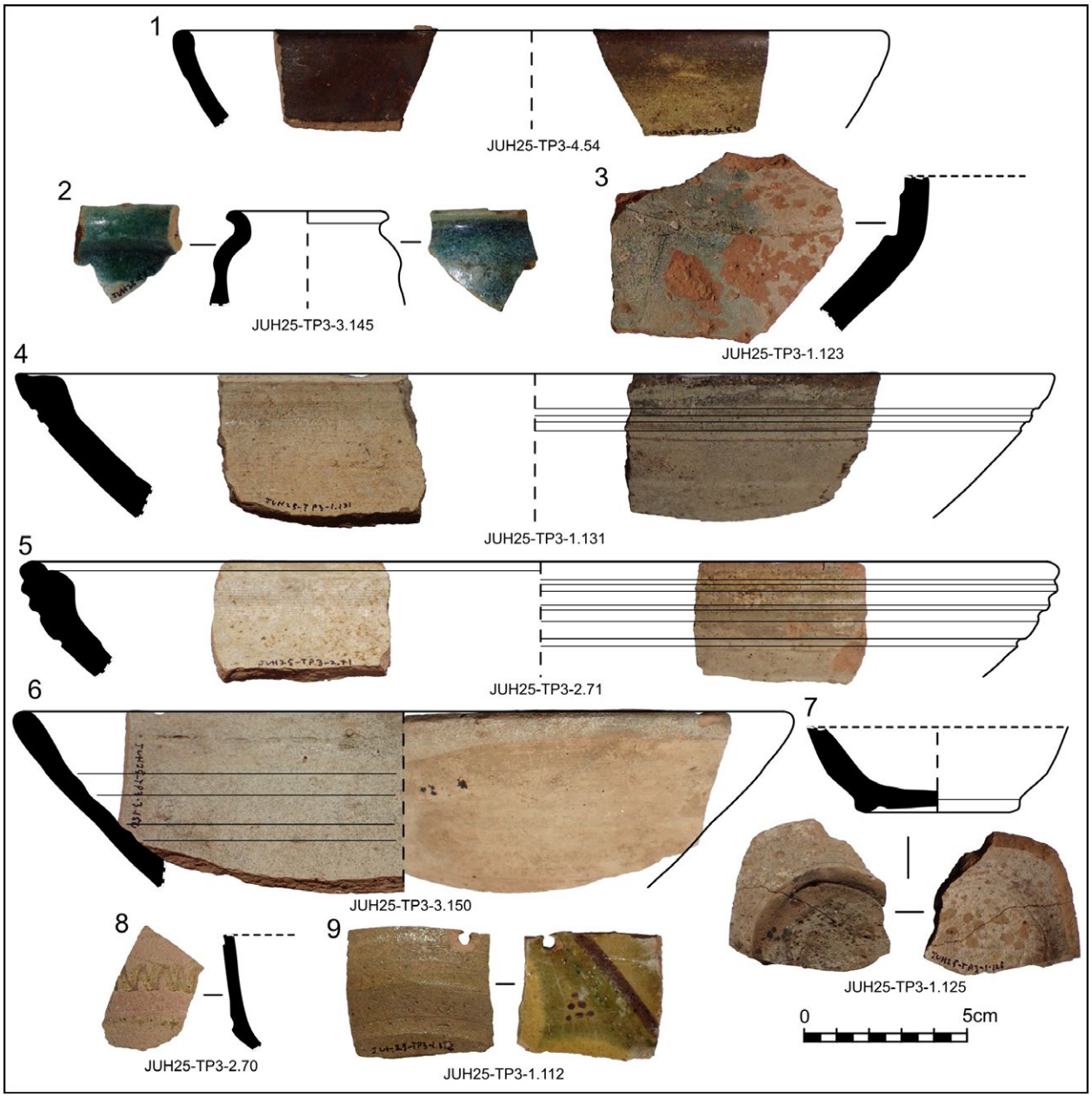


Figure 141. Key Glazed wares from TP3; 1. Dark Brown glazed form GLA-BW1 rim; 2. Blue Glazed small jar rim; 3. Blue Glazed 2 neck join; 4. Degraded glaze form GLA-BW3 basin rim; 5. Degraded glaze form GLA-BW3 basin rim; 6. Degraded glaze GLA-BW1 rim; 7. Degraded glaze ring base; 8. Very worn Green/Yellow Glazed Moulded ware; 9. Polychrome Glazed ware body sherd with drilled hole (photos N. Tait).

142.4). The six Turquoise Splashed Opaque Ware (OPAQ.TS, W16) included three squared ring bases (e.g. **Figure 142.15**) and a rim from an unidentified form (**Figure 142.14**). There were three Opaque Glazed ware sherds with distinct fabrics, one White Opaque Glazed ware (W37), one Black Splashed (W52) and one Turquoise Splashed (W53). The single Green and White Splashed ware (SPLASH.GW, W44) was from a small jar (**Figure 142.17**). Nine Alkaline Turquoise Glazed ware (ALK.T, W9) included two small bowl rims (e.g. **Figure 142.18**), a medium sized jar rim (**Figure 142.19**) and two bases including one likely from a larger storage vessel (**Figure 142.20**), and multiple undiagnostic body sherds, including examples with white (**Figure 142.21**) or black glaze (**Figure 142.20**) on the interior which was typical for early Islamic ALK.T closed forms. Finally, two rim sherds were tentatively identified as Polychrome Splashed Ware, dated to the mid-9th to 10th century. One was a standard simple straight-walled bowl form (**Figure 142.22**) with a repair rivet, and the second an atypical concave bowl with a wide rim (**Figure 142.23**).

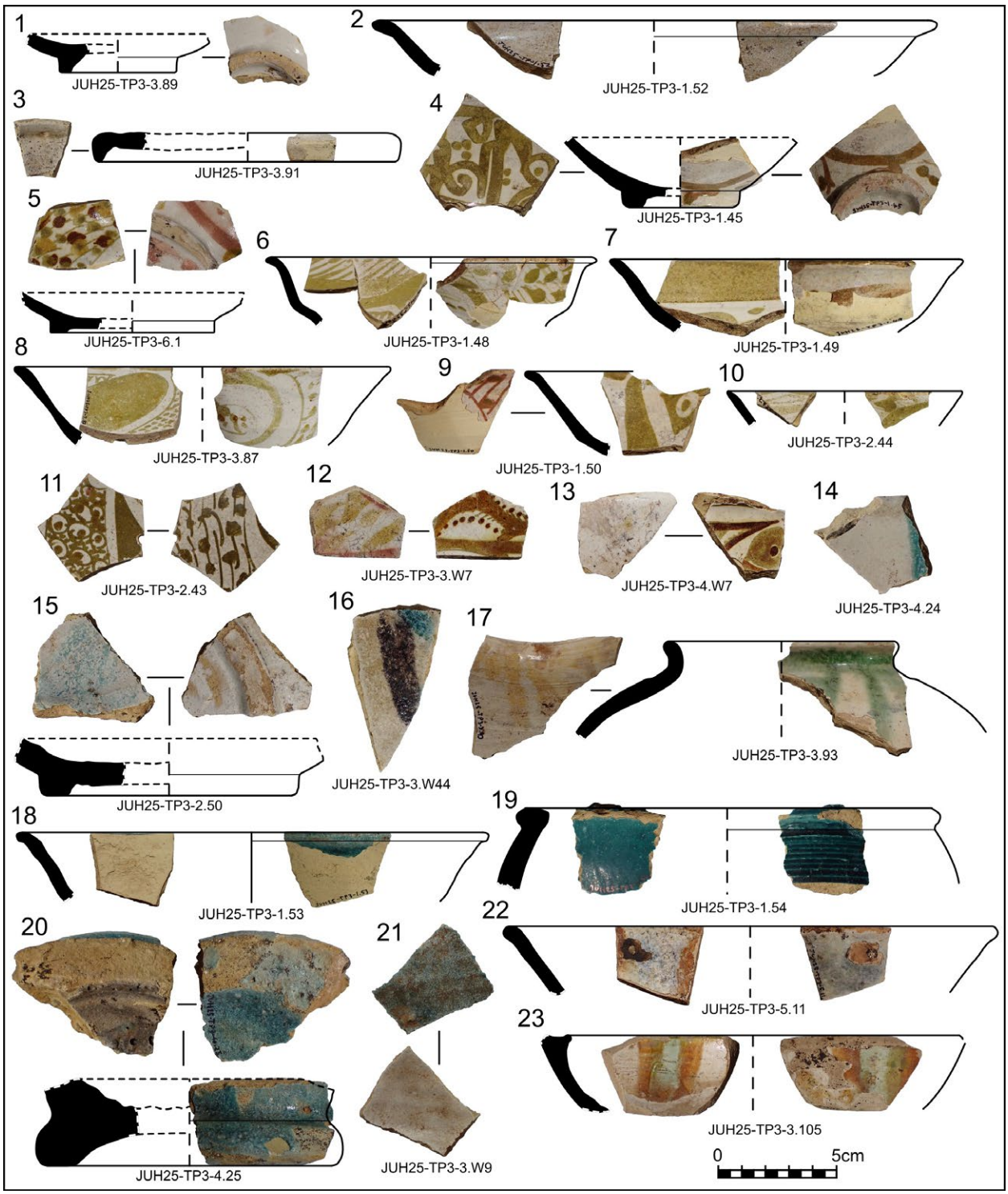


Figure 142. Key Samarra horizon and associated glazed wares; 1. OPAQ.W ring base; 2. OPAQ.W form OPQ-BW1 bowl rim; 3. OPAQ.W lid; 4. OPAQ.LG ring base with Arabic script on interior; 5. OPAQ.GR ring base with mixed lustre on both; 6. OPAQ.LG form OPQ-BW1 bowl rim; 7. OPAQ.LG form OPQ-BW1 bowl rim; 8. OPAQ.LG form OPQ-BW1 bowl rim; 9. OPAQ.GR form OPQ-BW1 bowl rim with gold interior and ruby exterior; 10. OPAQ.LG small bowl rim; 11. OPAQ.LG drilled body sherd; 12. OPAQ.GR body sherd with mixed lustre on both; 13. OPAQ.GR body sherd with mixed lustre on interior; 14. OPAQ.TS rim; 15. OPAQ.TS ring base; 16. OPAQ.TBS body sherd; 17. SPLASH.GW jug rim; 18. ALK.T bowl rim; 19. ALK.T jug/jar rim; 20. ALK.T large, thick-walled ring base with dark grey/black glazed interior; 21. ALK.T body sherd with white glazed interior; 22. Polychrome Splashed Glazed ware bowl rim with iron repair rivet, 23. Polychrome Splashed Glazed ware concave bowl rim (photos. N. Tait).

JUH25-TP4

A total of 47 sherds were kept from across three contexts, and to provide a representative sample of the wares present, a higher proportion of the sherds kept were non-diagnostic, as only 22 diagnostic sherds were identified.

Four Abbasid Biscuit ware (W1) and three Eggshell Abbasid Biscuit ware (W2) sherds were recorded, with the diagnostic sherds two Biscuit ware rims, from a globular jar (**Figure 143.1**) and a basin (**Figure 143.2**), and an Eggshell Biscuit ware ribbon handle fragment (**Figure 143.3**). The other main Commonwares consisted of two White ware (W3), including a jug/jar neck join (**Figure 143.4**) and a flat base, and six Eggshell White ware (W4) including two flat bases (e.g. **Figure 143.5**). Abbasid Eggshell ware and White Eggshell ware were the only two identifiable wares recovered from JUH25-TP4-Final. The remaining Commonwares consisted of single undiagnostic Fine Red Micaceous ware (W21, **Figure 143.6**), Cream Slipped Red ware (W22, **Figure 143.8**), and Porous Buffware (W50, **Figure 143.7**) sherds. Earthenwares included a Red Earthenware (W23, **Figure 143.9**) rim of unclear form with comb incised decoration, and undiagnostic sherds consisting of two Fine, Hard Earthenware (W47, **Figure 143.10**) sherds, two Coarse Handmade (W41, **Figure 143.11**) sherds, a Hard Reduced Earthenware (W58, **Figure 143.12**) sherd, and a Hard Burnished ware (W63, **Figure 143.13**). Undiagnostic sherds of two likely African earthenwares, AFRI.2 (2 sherds, W19, **Figure 143.14**) and AFRI.3 (1 sherd, W20, **Figure 143.15**) were recorded from the upper context.

The five Hijazi ware (W10) sherds were all from the upper context and included a HIJ-BW2 form straight walled bowl rim, a jar rim (**Figure 143.16**), and a ring base. The glazed Commonwares consisted of an Olive-Brown Glazed (W12) body sherd, a Green Glazed (W30) jar rim (**Figure 143.17**), and four Degraded Glaze (W34) consisting of two simple bowl rims (form GLA-BW1), a fine probable jug/jar rim (**Figure 143.18**), and an incised decorated sherd (**Figure 143.19**). Other glazed wares included two conjoining Green/Yellow Glazed Moulded ware (W42) sherds from two separate contexts (**Figure 143.20**), two worn Gold Lustre ware (W5) sherds (e.g. **Figure 143.21**), and an Opaque White Glazed ware (W8) rim from a fine thin-walled vessel (**Figure 143.22**). Finally, a Chinese Porcelain White Ware (W62) sherd was recovered (**Figure 143.23**) from the upper context. This sherd has exact parallels to Priestman's Carved White Ware (2021: 191-192, Plate 168), dated to the 11th to 13th century and so at Al-Juḥfah is likely from the very end of occupation.

Shovel Test Pits

A total of 471 sherds were recovered from 27 of the 33 Shovel Test Pits across Al-Juḥfah (**Figure 144**). The Shovel Test Pits were the only units from which all ceramics were kept. This was to allow the distribution of ceramics across the site to be considered and to compare this with the surface Transect Survey ceramic distribution. Thus, diagnostic sherds made up about 27% of the Shovel Test Pit ceramics (128 sherds). The Shovel Test pits were focused outside the town walls and broadly matched the Transect Survey (see Transect Survey section) with a ceramic concentration to the north trailing off to the north-west, and a spread to the west, although less dense compared to the Transect Survey, likely due to surface material travelling down-slope from the settlement. The Transect Survey did not extend as far south as the Shovel Test Pits, and the unit with the largest quantity of ceramics, JUH25-SPA4, accounting for almost 1/5th of the ceramics from Shovel Test Pits (94 sherds), was to the south of the *qaṣr* beyond the extent of the Transect Survey.

Abbasid Biscuit Eggshell ware (BISC.EGG, W2) was the most common ware from the Shovel Test Pits at 53 sherds, with a further 36 Abbasid Biscuit ware (W1, BISC). At least one of either BISC.EGG or BISC were present in 23 of the Shovel Test Pits. Diagnostic BISC and BISC.EGG consisted of decorated body sherds (**Figure 145.1-4**), several BISC ribbon handles, ring (**Figure 145.6**) and flat (**Figure 145.7**) bases, neck joins (**Figure 145.4-5**), and two rims, one BISC.EGG rim potentially from a similar jug form to the typical WHITE.EGG jug (**Figure 145.8**), and one BISC jug/jar (**Figure 145.9**). Eggshell White Ware (WHITE.EGG, W4) and White Ware (WHITE, W3) were present in similar quantities at 43 and 50 sherds respectively across 19 units. Diagnostic White Ware primarily consisted of handles, neck joins (**Figure 145.10-11**), and bases, with only four rims including one from a globular jar (**Figure 145.11**), a flared square rim (**Figure 145.12**), and a rim with small appliqué "handles" next to the rim (**Figure 145.13**). Only eight diagnostic WHITE.EGG sherds were recorded; decorated sherds (e.g. **Figure 145.14**) including an appliqué blob (**Figure 145.16**), and bases, and rims (**Figure 145.14-15**), one with a handle (**Figure 145.15**), all consistent with the typical WHITE.EGG jug form. Twelve Fine Red Micaceous ware (W21) sherds, mostly undiagnostic, were recovered from ten units, with the diagnostic sherds from a worn, unclear form rim and a damaged ring base. Among the nine Cream Slipped Red (W22) ware sherds the diagnostic sherds were primarily rims from basins (**Figure 145.17**) and a single jug/jar rim (**Figure 145.18**). Two Sandy Commonware (W66) including a jug/jar rim (**Figure**

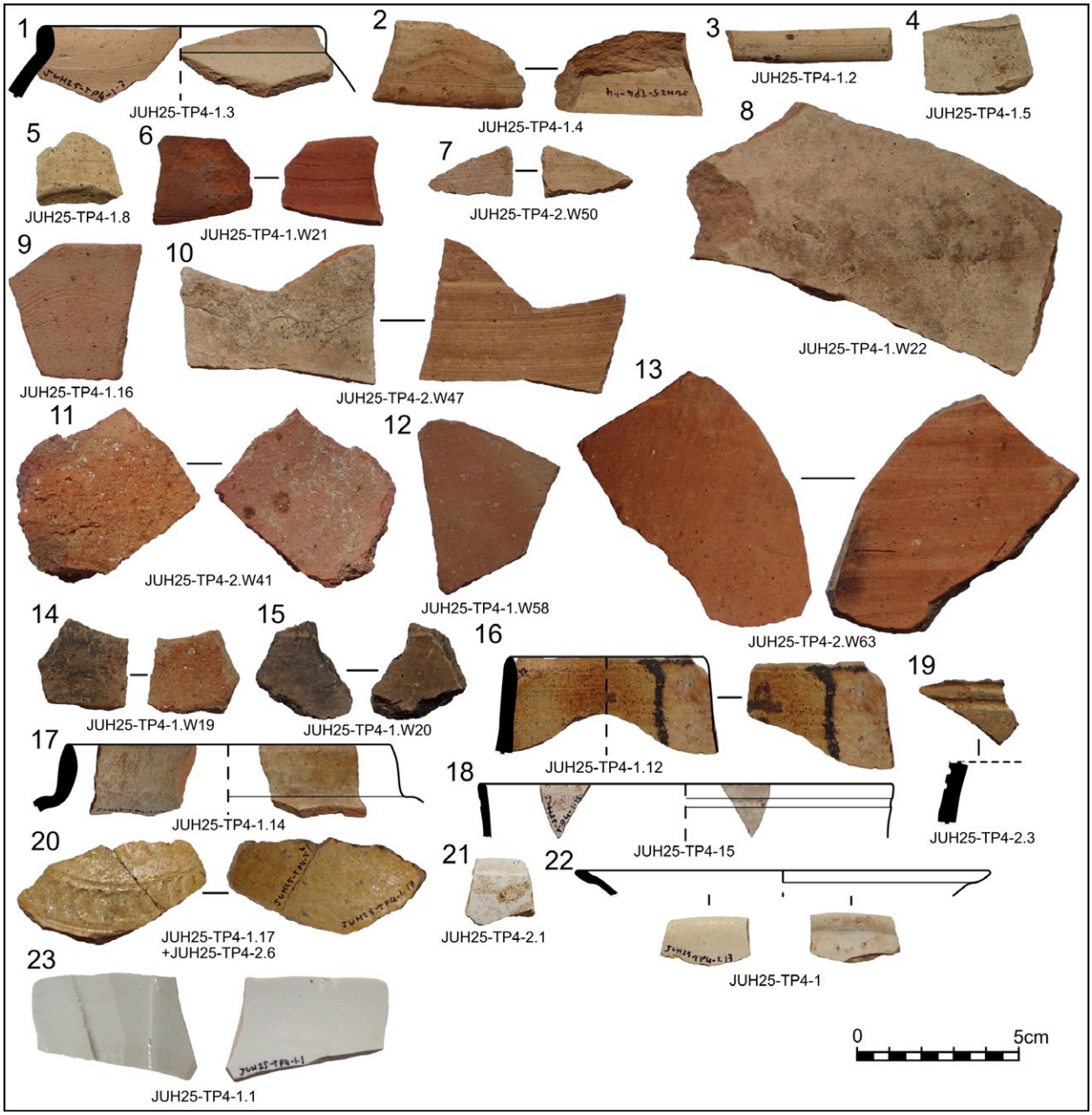


Figure 143. Key sherds from TP4; 1. BISC jug rim; 2. BISC probable basin rim; 3. BISC.EGG ribbon handle fragment; 4. WHITE jug/jar neck; 5. WHITE.EGG base; 6. Fine Red Micaceous ware body sherd; 7. Porous Buffware body sherd; 8. Cream Slipped Red ware thick body sherd; 9. Red Earthenware rim with faint comb incised wave decoration; 10. Fine, Hard Earthenware body with residue on exterior; 11. Coarse Handmade earthenware body sherd; 12. Hard, Reduced Earthenware body sherd; 13. Hard Burnished ware body sherd; 14. AFRI.2 body sherd; 15. AFRI.3 body sherd; 16. Hijazi ware jug/jar rim; 17. Green Glazed Commonware GLA.JR1 jar rim; 18. Fine Degraded Glazed Commonware fine rim; 19. Degraded Glazed Commonware body sherd with thick horizontal incised lines; 20. Green/Yellow Glazed moulded ware; 21. Gold Lustre Ware rim with faint gold decoration remaining; 22. White Opaque Glazed ware fine rim; 23. Chinese White Ware porcelain with carved decoration (photos. N. Tait).

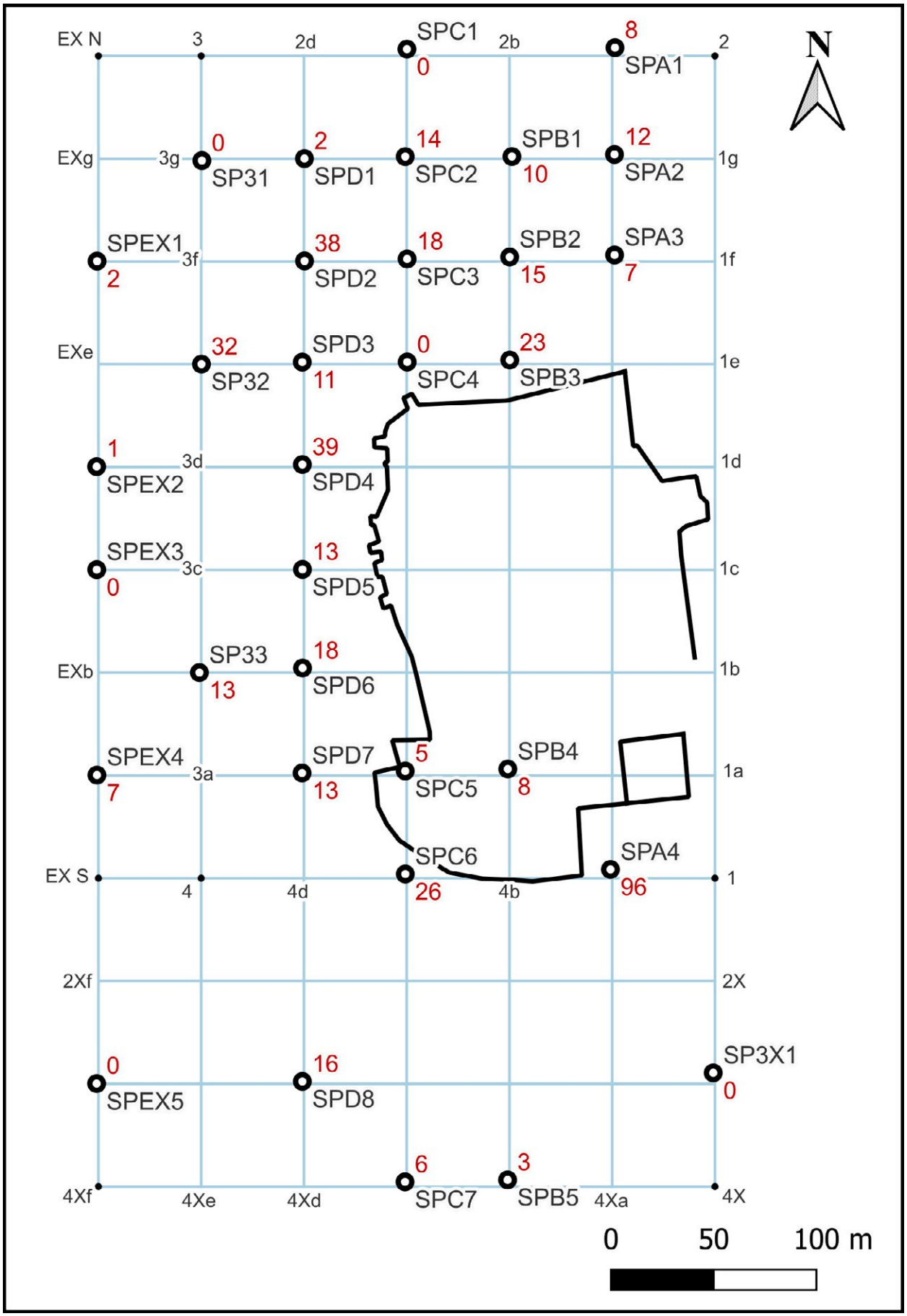


Figure 144. Number of sherds recorded in the Shovel Test Pit units.

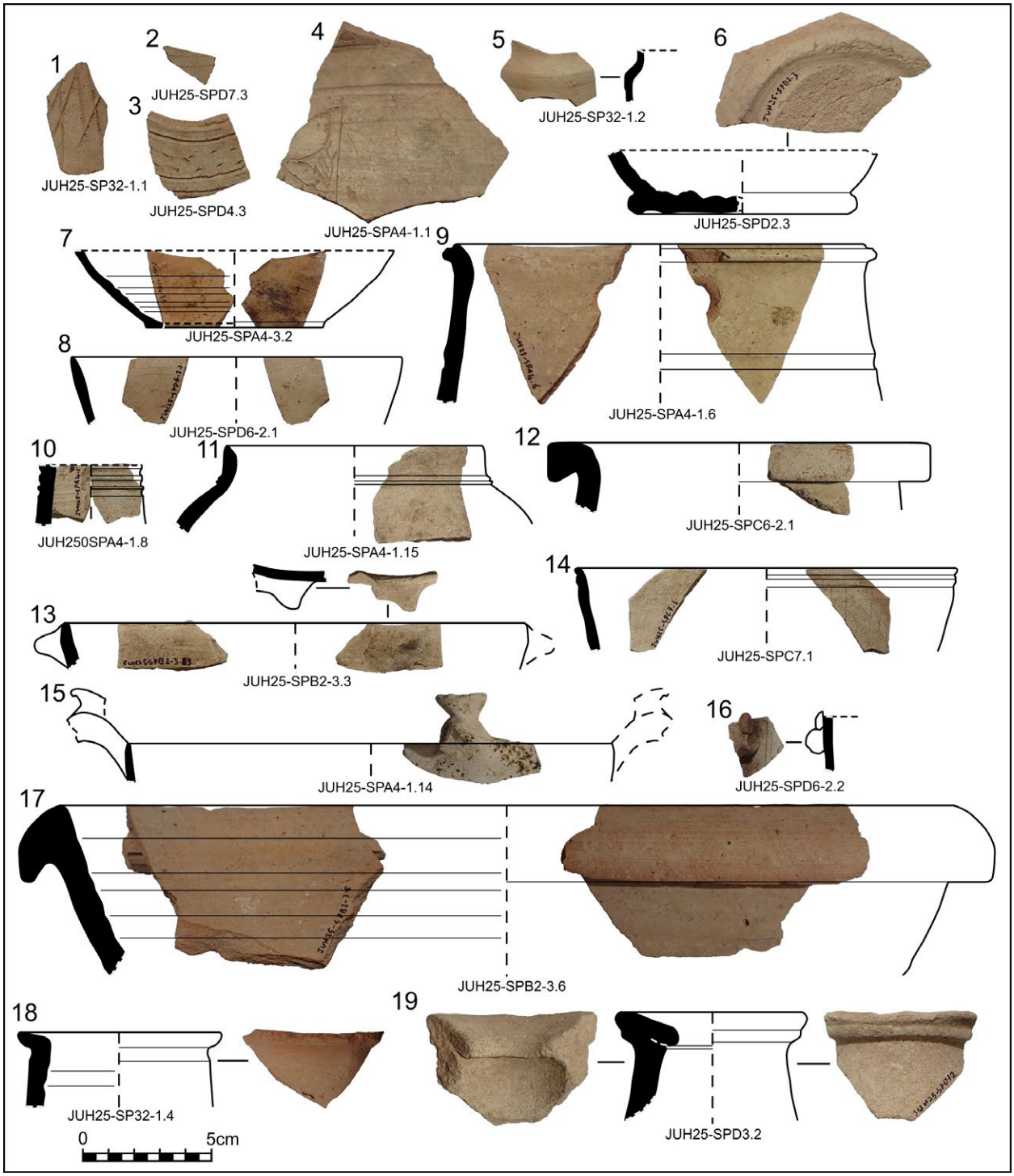


Figure 145. Key Commonwares from Shovel Test Pits; 1. BISC incised decorated body; 2. BISC.EGG with horizontal incised decoration; 3. BISC.EGG neck join with incised and punctate decoration; 4. BISC neck join with incised decoration; 5. BISC.EGG neck join; 6. BISC ring base; 7. BISC.EGG flat base; 8. BISC.EGG rim; 9. BISC jug/jar rim with part of large drilled hole; 10. WHITE Neck with wide incised lines; 11. WHITE globular jar rim/neck; 12. WHITE jug/jar rim; 13. WHITE rim with small appliqué handle on rim; 14. WHITE.EGG jug rim with fine incised decoration; 15. WHITE.EGG jug rim with ribbon handle and thumb rest; 16. WHITE.EGG with incised lines and rough appliqué; 17. Cream Slipped Red ware COM.BA1 basin rim; 18. Cream Slipped Red ware jug/jar rim; 19. Sandy Commonware thick jug/jar rim (photos. N. Tait).

145.19), four undiagnostic Porous Buffware (W50), and a Hard Buffware (W38) were also recorded.

The most common Earthenware was Hard, Fine Earthenware (W47) at 37 sherds from 14 Shovel Test Pits, although the only diagnostic sherds were a rim from a storage jar (**Figure 146.1**) and a drilled body sherd with part of the rivet/staple still present (**Figure 20.2**). 30 Red Earthenwares (W23) sherds were recovered from 15 units, with the diagnostic sherds two rims likely from a large jar/jug (**Figure 146.3**), and two decorated sherds (**Figure 146.4-5**). Nine broad Coarse Earthenwares (W7) sherds were recorded from seven units across the site, with the only diagnostic sherd a worn flat base. The ten Coarse Handmade (W41) earthenware sherds from across the site were undiagnostic sherds. Whilst the five Dense Brown Earthenware (W60) sherds were all from JUH25-SPA4, including a drilled flat base (**Figure 146.6**). A range of other earthenwares were present in small quantities, with notable diagnostic sherds including a Dense Earthenware rim (W39, **Figure 146.7**), and potential lid rim (**Figure 146.8**), and a neck with a handle (**Figure 146.9**) in a Pinkish-Red Exploded Lime ware (W48). Three probable African wares were recorded, one AFRI.1 (W18) body sherd from JUH25-SPC6, eight AFRI.2 (W19) sherds, five undiagnostic body sherds also from JUH25-SPC6, a further undiagnostic body sherd from JUH25-SPA2, a bowl rim from JUH25-SPA4 (**Figure 146.10**), and a globular jar rim from JUH25-SPD7, and an AFRI.4 (W45) body sherd from JUH25-SPB2. A sherd from JUH25-SPB2 was identified as from a *tannūr* due to parallels with JUH25-TP1. Forty-six unglazed sherds were classified as unique/unidentified (W100) due to either being too worn to identify or did not fit into an existing category but were not distinct enough to create a new one. Some of these may be given proper ware categories in future seasons as more ceramics are recovered.

The most common glazed ware was Hijazi ware (W10) at 31 sherds, plus two Olive-Brown Hijazi ware (W11), from 18 Shovel Test Pits across the site. The two Olive-Brown Hijazi ware sherds were both undiagnostic other than having black decoration (e.g. **Figure 147.1**). In addition to undiagnostic Hijazi ware body sherds there were rims, both from jugs/jars (**Figure 147.3**) and bowls (**Figure 147.4**), and bases (**Figure 147.5**), including a 'stem' base (**Figure 147.6**). The most common glazed commonware was Green Glazed Commonware (W30) at 29 sherds from thirteen contexts across the site. Diagnostic sherds were primarily rims, with the only identifiable form a GLA-BW1 bowl. The only other diagnostic sherds were two bases including a complete flat base (**Figure 147.7**). Other glazed Commonwares consisted of two Olive-Brown Glazed (W12) sherds from JUH25-SPA4, three Yellow Glazed (W31) from three areas across the site, and four Blue Glazed (W32), concentrated around the north-west.

Diagnostic sherds among the Degraded Glazed Commonwares (W34) were all rims, of the GLA-BW1 form where identifiable. Other Glazed wares included a Fine Olive Glazed ware (W64) body sherd (**Figure 147.8**) from JUH25-SPA4 which was potentially an early imitation Celadon from Iran or Iraq. Five Opaque Glazed Ware (W8) sherds included two bowl rims and a drilled body sherd (**Figure 147.9**). Four Alkaline Turquoise Glazed ware (W9) included two bases (**Figure 147.10**) and two rims, one from a fine vessel (**Figure 147.11**) and one thick rim from a jug/jar (**Figure 147.12**). A rim sherd was provisionally identified as Manganese Purple Underglaze-Painted ware (W65, **Figure 147.13**) of Priestman's MGPAINT.1 (2021: 145-146) variant dated to the 11th to early 14th century. However, the form does not match typical MGPAINT.1 forms and may be an unusually degraded Hijazi ware sherd as it has closer parallels to HIJAZI bowl forms.

Ceramic Transect Survey

As previously noted, a ceramic transect survey was undertaken across Al-Juḥfah. A total of 98 ceramic sherds were kept, either diagnostic which could aid in creating the typology of wares, forms, and types as well as typical sherds of new wares, or unusual/unique sherds, alongside representative or distinctive examples of other non-ceramic archaeological material. Many sherds were quite worn (e.g. **Figure 148.1-2, 5, 8, 24**), likely due to exposure to sand abrasion. A large degree of variation in the density of sherds was observed with this low within the town walls (**Figure 149**), and several sample points having no sherds because of windblown sand trapped by architectural remains, covering and obscuring archaeological material. JUH25-TR3B and JUH25-TR1B were the exceptions, where the gravelly sand ground level was better exposed. To the north of the town sherd density was quite high, including the two densest sample points, JUH25-TR3F (163 sherds) and JUH25-TR3G (150 sherds). This trailed off to the very north of the transect survey and towards the north-west, suggesting that the survey was reaching the limits of the campsite area. Whereas the ceramics spread to the west was concentrated around JUH25-TR5D and JUH25-TR5C and possibly continued further west beyond the extent of the survey.

A small quantity of Abbasid Biscuit ware (W1) and Abbasid Eggshell Biscuit ware (W2) was kept from the transect survey, primarily handles (**Figure 148.1**) and rims (**Figure 148.2-3**), largely of forms not observed elsewhere at Al-Juḥfah (e.g. **Figure 148.2**). The few White ware (W3) and Eggshell White ware sherds (W4) kept

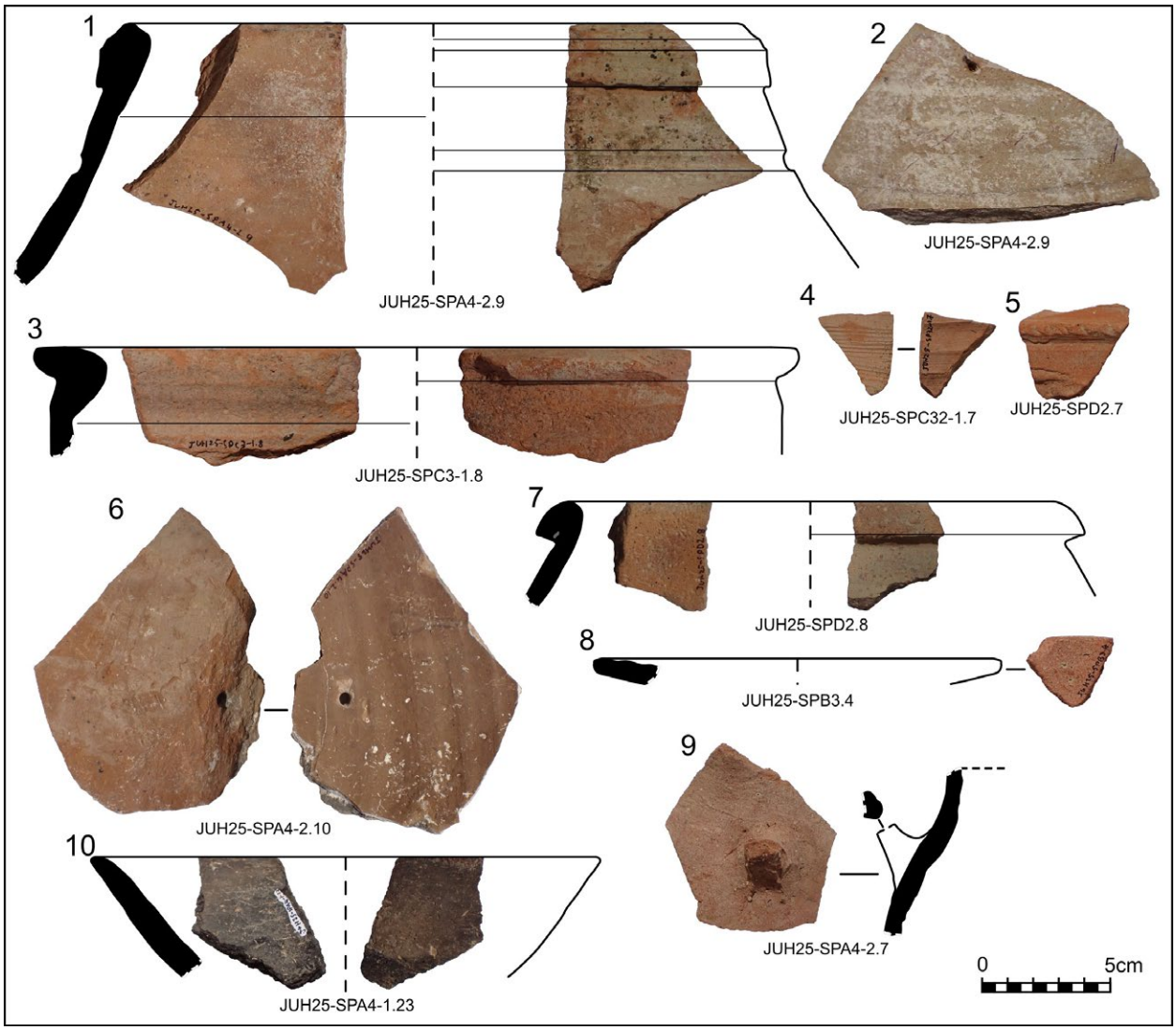


Figure 146. Key Earthenwares from Shovel Test Pits; 1. Hard, Fine Earthenware storage jar rim; 2. Hard, Fine Earthenware body sherd with repair rivet; 3. Red Earthenware jug/jar rim; 4. Red Earthenware sherd with comb-incised decoration; 5. Red Earthenware sherd with incised applique ridge; 6. Dense Brown Earthenware base with drilled hole; 7. Dense Earthenware rim; 8. Pinkish-Red Exploded Lime ware potential lid rim; 9. Pinkish-Red Exploded Lime ware neck with ribbon handle join; 10. AFRI.2 AFRI.BW1 form bowl rim (photos. N. Tait).

were also rims and handles (e.g. **Figure 148.4**), as well as a White ware sherd with moulded decoration (**Figure 148.5**). Fine Red Micaceous ware (W21) consisted of decorated sherds, primarily incised decorated (**Figure 148.7**), and one carved or moulded (**Figure 148.6**). Cream Slipped Red ware (W22) also consisted of incised decorated sherds, including a very worn flanged rim from a basin (**Figure 148.8**). The final Commonware was a Sandy Commonware (W66) rim from a large hemi-spherical bowl with ribbing on the exterior (**Figure 148.9**). Red Earthenware (W24) consisted of several rims from open forms (e.g. **Figure 148.10**), with Dense Earthenware (W39) including a flanged basin rim (**Figure 148.11**). A Hard, Fine Earthenware sherd had a white residue on the interior (W47, **Figure 148.12**). Hijazi glazed ware (W10) included further examples of the HIJ-BW2 form as well as other as-yet unclassified bowl forms (**Figure 148.13**), and sherds for identifying decorative styles (**Figure 148.14-16**). Green Glazed Commonware (W30) primarily consisted of GLA-BW1 form rims (**Figure 148.18**), a larger GLA-BW2 rim (**Figure 148.17**) and a handle fragment (**Figure 148.19**).

Yellow Glazed Commonware (W31) included a sherd with an incised line (**Figure 148.20**) and a single sherd of Umayyad to Abbasid Green/Yellow Glazed Moulded ware (W42) (**Figure 148.21**). A range of Samarra Horizon wares were collected; two Gold Lustre ware sherds with very faint gold lustre remaining (**Figure 148.22**), three White Opaque Glazed ware (W8), a single worn Black on White Opaque Glazed ware (W68, **Figure 148.23**) dated to the mid-9th to 10th century, and three

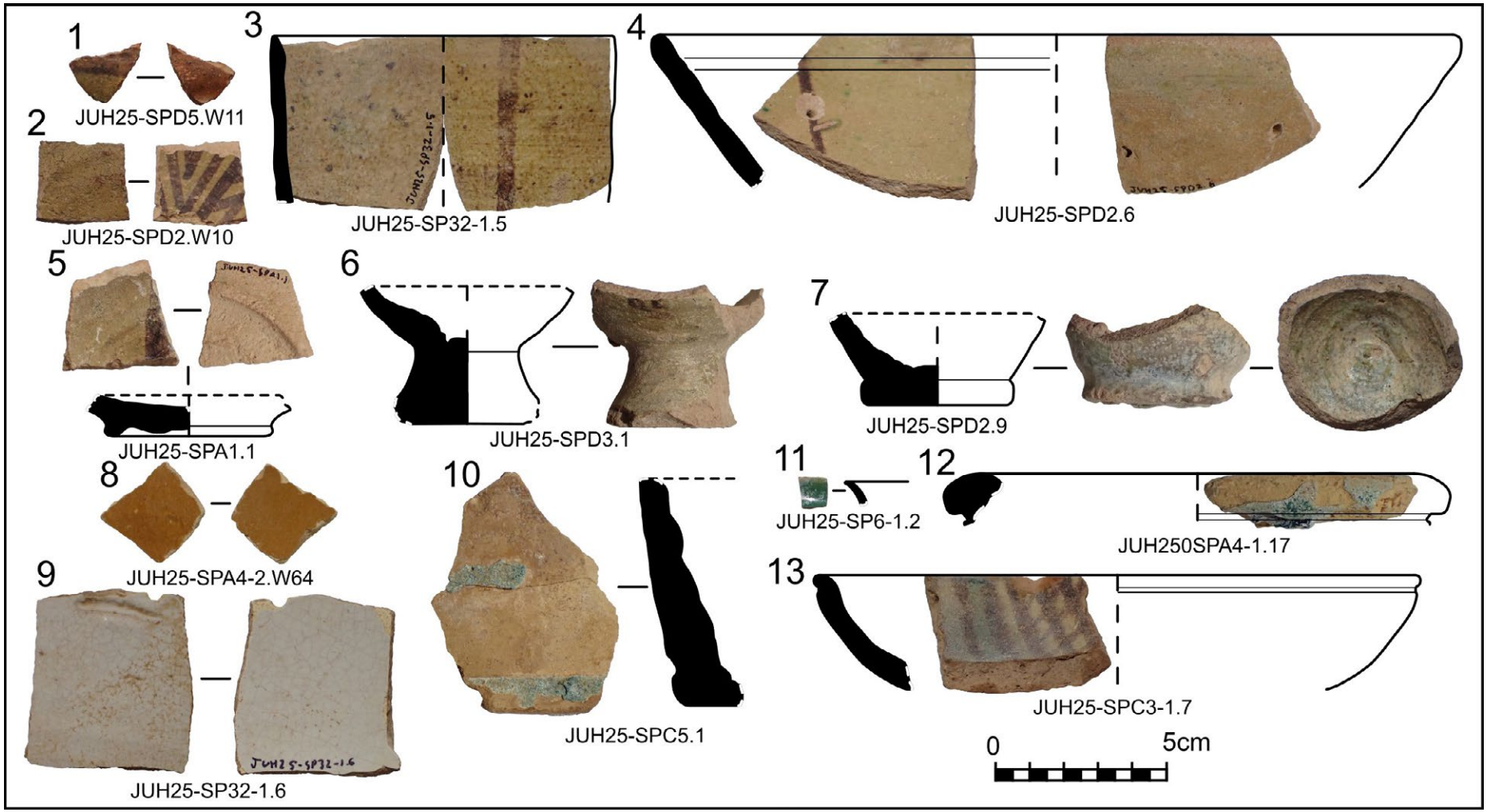


Figure 147. Key Glazed wares from Shovel Test Pits; 1. Olive-Brown Hijazi Ware body sherd; 2. Hijazi Ware body sherd; 3. Hijazi Ware jug/jar rim; 4. Hijazi ware HIJ-BW1 rim with drill hole; 5. Hijazi ware ring base; 6. Hijazi ware "stem" base; 7. Green Glazed flat base; 8. Fine Olive Glazed ware body sherd; 9. OPAQ.W body sherd with drill hole; 10. ALK.T flat base; 11. ALK.T fine rim; 12. ALK.T jar rim; 13. Potential Manganese Purple Underglaze-Painted bowl (photos. N. Tait).

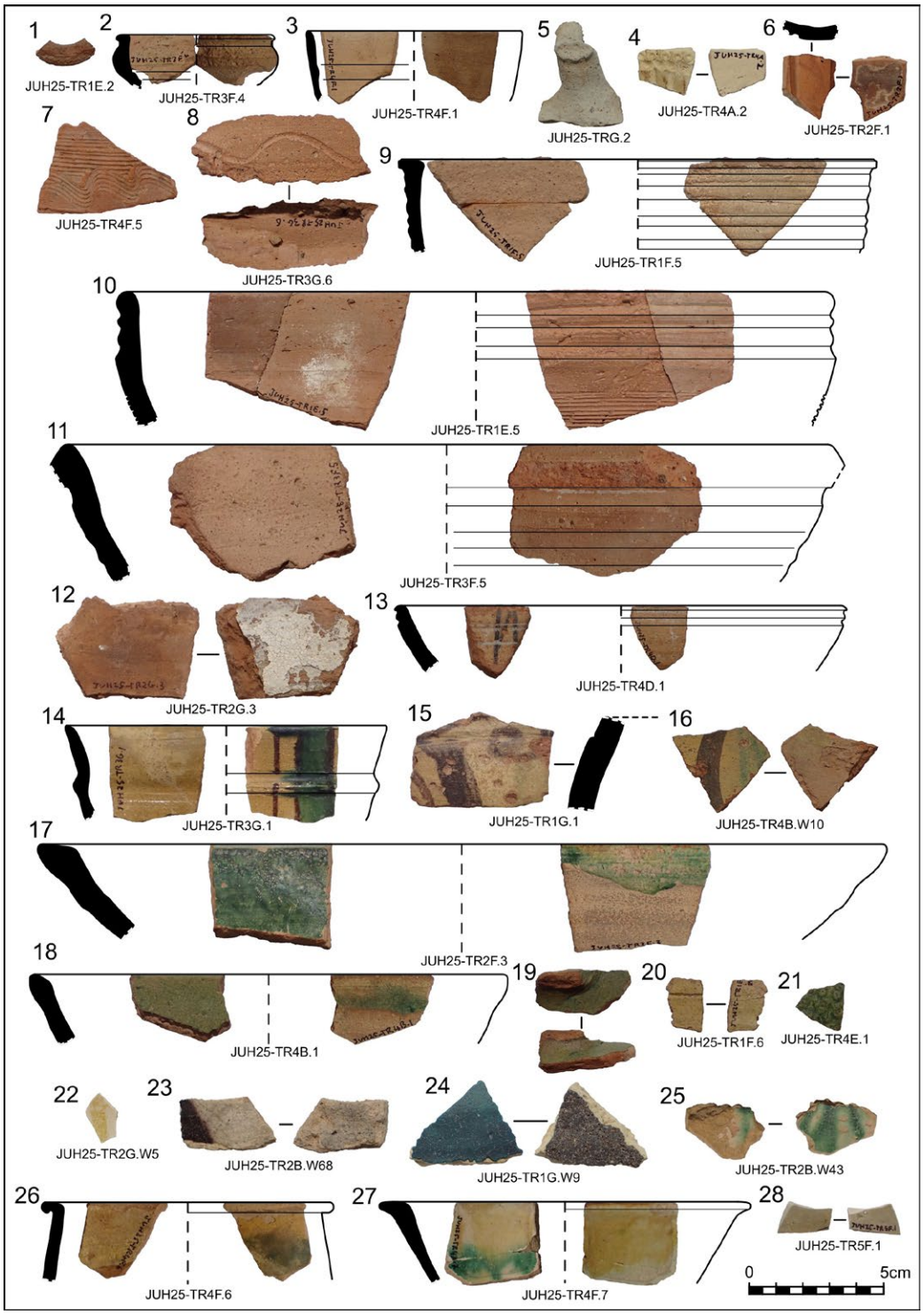


Figure 148. Key sherds kept from the Transect Survey Points; 1. Worn BISC.EGG ribbon handle; 2. Worn unusual BISC rim; 3. BISC.EGG jug rim; 4. WHITE.EGG worn rim and handle with thumb rest; 5. WHITE with moulded decoration; 6. Fine Red Micaceous ware body with moulded or carved horizontal groove; 7. Fine Red Micaceous ware body with comb incised decoration; 8. Very worn Cream Slipped Red ware flanged rim with incised decoration; 9. Sandy Commonware probable deep bowl rim with external ribbing; 10. Red Earthenware large bowl rim with ribbing and comb incised lines; 11. Dense Earthenware basin rim with broken flanged rim; 12. Fine, Hard Earthenware body with white residue on interior; 13. Hijazi ware bowl rim; 14. Hijazi ware jug/jar rim with clear green infill; 15. Hijazi ware body sherd/neck join; 16. Hijazi ware body with thick black and green lines; 17. Green Glazed GLA-BW2 form bowl rim; 18. Green Glazed GLA-BW1 form bowl rim; 19. Green Glazed ribbon handle join; 20. Yellow Glazed body sherd with incised line; 21. Green/Yellow Glazed Moulded ware body sherd; 22. Gold Lustre ware body sherd with faint lustre; 23. Black on White Opaque Glazed ware body sherd; 24. ALK.T body sherd with black glazed interior; 25. Green and White Splashed ware body sherd; 26. Polychrome Splashed ware jug/jar rim; 27. Polychrome Splashed ware bowl rim; 28. Chinese Yue Celadon body sherd (photos. N. Tait).

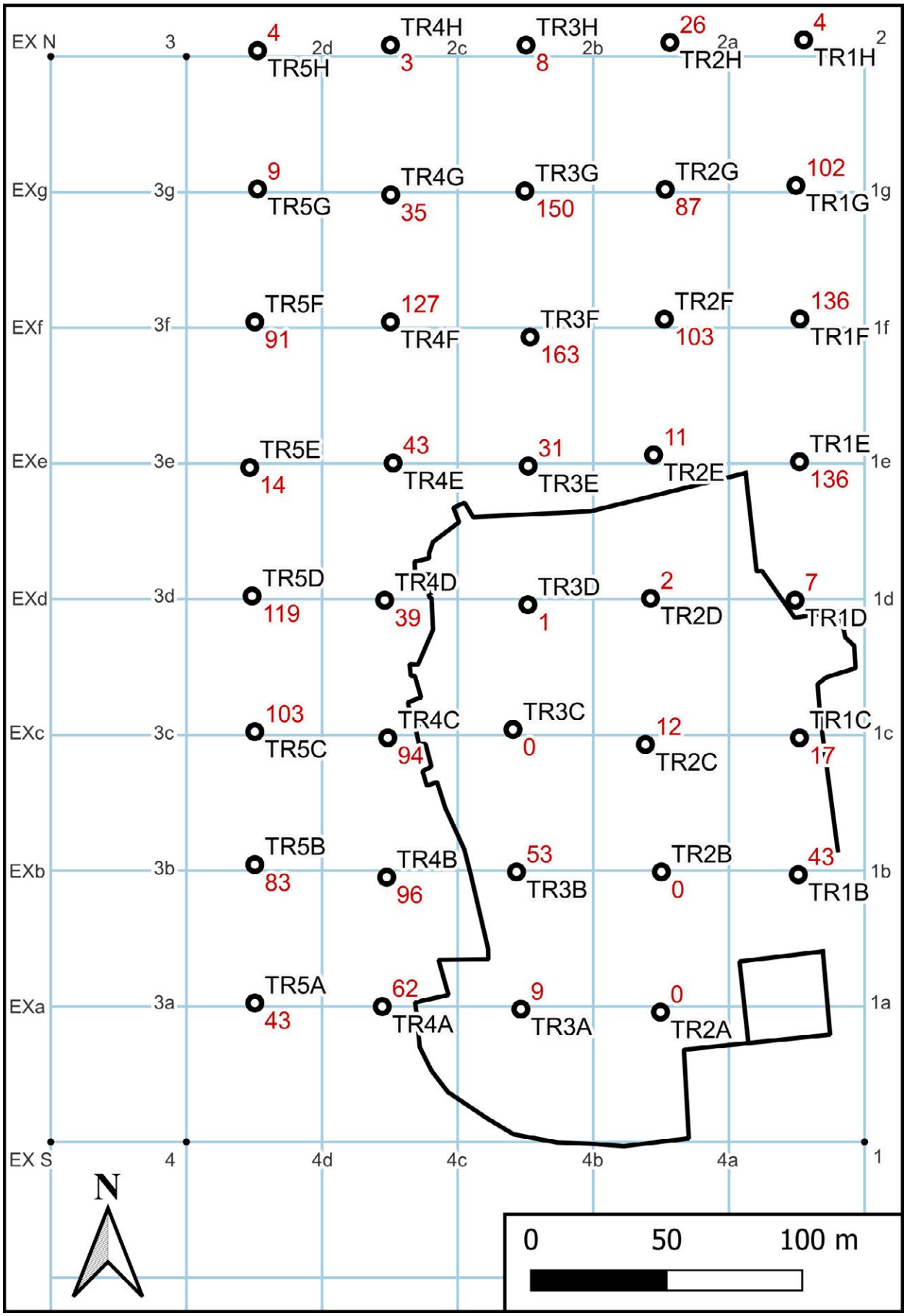


Figure 149. Number of sherds recorded in the transect survey sample points.

Turquoise Alkaline Glazed ware (W9) including a base were from three sequential transect points (TR1G, TR2G, and TR3G) which all had a dark/black glazed interior (e.g. **Figure 148.24**). Two Green and White Splashed ware (W43) body sherds (**Figure 148.25**), and two Polychrome Splashed ware (W46) rims (**Figure 148.26-27**) both from JUH25-TR4F were also recorded. Finally, a single small Chinese Yue Ware Celadon (W61, **Figure 148.28**) sherd was recovered from JUH25-TR5F, dated to between the early 9th to late 10th century (Priestman 2021: 179-181).

Surface Collection

A total of 101 sherds were kept from general surface collections at Al-Juḥfah. These primarily came from the campsite area (69 sherds), with a small amount from the town area (10 sherds), the JUH25-TP1 robber spoil (two sherds), and two points where sherds from a single vessel were observed (20 sherds). The surface collection material aided in the identification of wares and forms but as with the ceramics from the Transect Points, the sherds were often quite worn due to sand abrasion.

The only notable Abbasid Biscuit (W1) ware sherd kept from the campsite area was a body sherd with complex incised decoration (**Figure 150.1**), alongside a large, layered turban handle from the TP1 robbers spoil (**Figure 150.2**). White ware (W3) also included a good example of a turban handle (**Figure 150.3**), and Eggshell White Ware (W4) consisted of rims, bases, and handles from the typical Eggshell ware jug form. Fine Micaceous Red ware (W21) consisted of decorated sherds from both the campsite and town (**Figure 150.4-5**), and an unusual rim probably from a jug/jar (**Figure 150.6**). Finally, an Umayyad Appliqué ware (W15) body sherd (**Figure 150.7**) was recorded, showing that it was present beyond just JUH25-TP3. Red Earthenware (W23) included rims with decoration (**Figure 150.10**) and turban handles (**Figure 150.8-9**). A flanged basin rim (**Figure 150.11**) in a Fine, Hard Earthenware (W47) was the only example of a basin observed in this ware. Coarse Earthenwares (W24) included another plate/lid rim (**Figure 150.12**) from the TP1 robbers spoil, and an unusual object of unknown function (**Figure 150.13**). A Pinkish-Red Exploded Lime ware (W48) probably with an industrial function (**Figure 150.14**) was similar to one recovered from TP3 (e.g. **Figure 136.8**), although in a different ware. Unique/Unidentified wares (W100) included a fine moulded ware (**Figure 150.15**), and an unusual grey porous sherd, potentially from a flat lid (**Figure 150.16**).

Hijazi Ware (W10) consisted of undiagnostic body sherds with black and/or green glazed decoration (**Figure 151.1-3**), as well as a handle (**Figure 151.4**). Olive-Brown Glazed Hijazi ware (W11) included conjoining sherds from a large flat base (**Figure 151.5**) alongside decorated sherds (e.g. **Figure 151.6**). Surface collected Green Glazed Commonware (W30) included two handles (**Figure 151.9-10**), which were rare from excavation units, and rims from simple bowls (**Figure 151.7**) and a jar (**Figure 151.8**). The Olive-Brown Glazed Commonware (W12) rim was drilled with part of the rivet still present (**Figure 151.11**). Several Green/Yellow Glazed Moulded Ware (W42, **Figure 151.12-15**) sherds were recorded including conjoining sherds from a rim (**Figure 151.12**). Samarra Horizon wares from the surface collection included five Gold Lustre ware (W5), all quite faded (**Figure 151.16-17**), two White Opaque Glazed ware (W8) bases, a small Alkaline Turquoise Glazed ware (W9) jar rim (**Figure 151.18**), a Turquoise Splashed Opaque Glazed ware (W16) body sherd (**Figure 151.19**), two Turquoise Splashed Opaque ware (**Figure 151.21**) and a Turquoise and Black Splashed Opaque ware (**Figure 151.20**) sherds with distinct fabric (W53 and 57 respectively), and a Green and White Splashed ware (W56) bowl rim (**Figure 151.22**). A collection of Polychrome Splashed ware (W46) sherds were collected from a single location (JUH25-SC-Rescue 1, 0514028mE/ 2514920mN) which were able to largely be refitted (**Figure 152.1-2**).

A second collection of currently uncategorized green splash glazed sherds (W110, **Figure 152.3**) were collected (JUH25-SC-Rescue 2, 0513874mE/ 2514918mN) and are awaiting reconstruction. A single Blue and White Fritware (W70) from either Iran or Egypt was also recovered from the town area (**Figure 151.23**). This dates to the 14th to 19th century and post-dates the occupation of the Al-Juḥfah settlement. A few pieces of 20th century Japanese porcelain coffee cups (W69) were kept from the town area purely for reference purposes. Finally, a few Chinese or South-East Asian ceramics were recovered. These consisted of a likely South-East Asian Unglazed Stoneware (W14, **Figure 151.25**), a South-East Asian Green Glazed Stoneware (W70, **Figure 151.26**), and two conjoining sherds of Chinese Yue Celadon (W61, **Figure 151.24**). The Celadon was recovered from the same area as JUH25-SC-Rescue 2 (see above).

Discussion and Conclusions

Overall, where datable parallels are available, the ceramics from Al-Juḥfah support (e.g. Alsubaie 2018: 200-202; Alsulami et al. 2022) a largely mid-8th to 10th century Abbasid occupation, with some potential Umayyad mid-7th to mid-8th century, and a little 11th to 12th century material. No clear pre-Umayyad ceramics were identified in the 2025 season.

The key Abbasid period wares included the well-defined Eggshell White Ware (W4) and the closely related White Ware (W3). These were both produced in Southern Iraq,

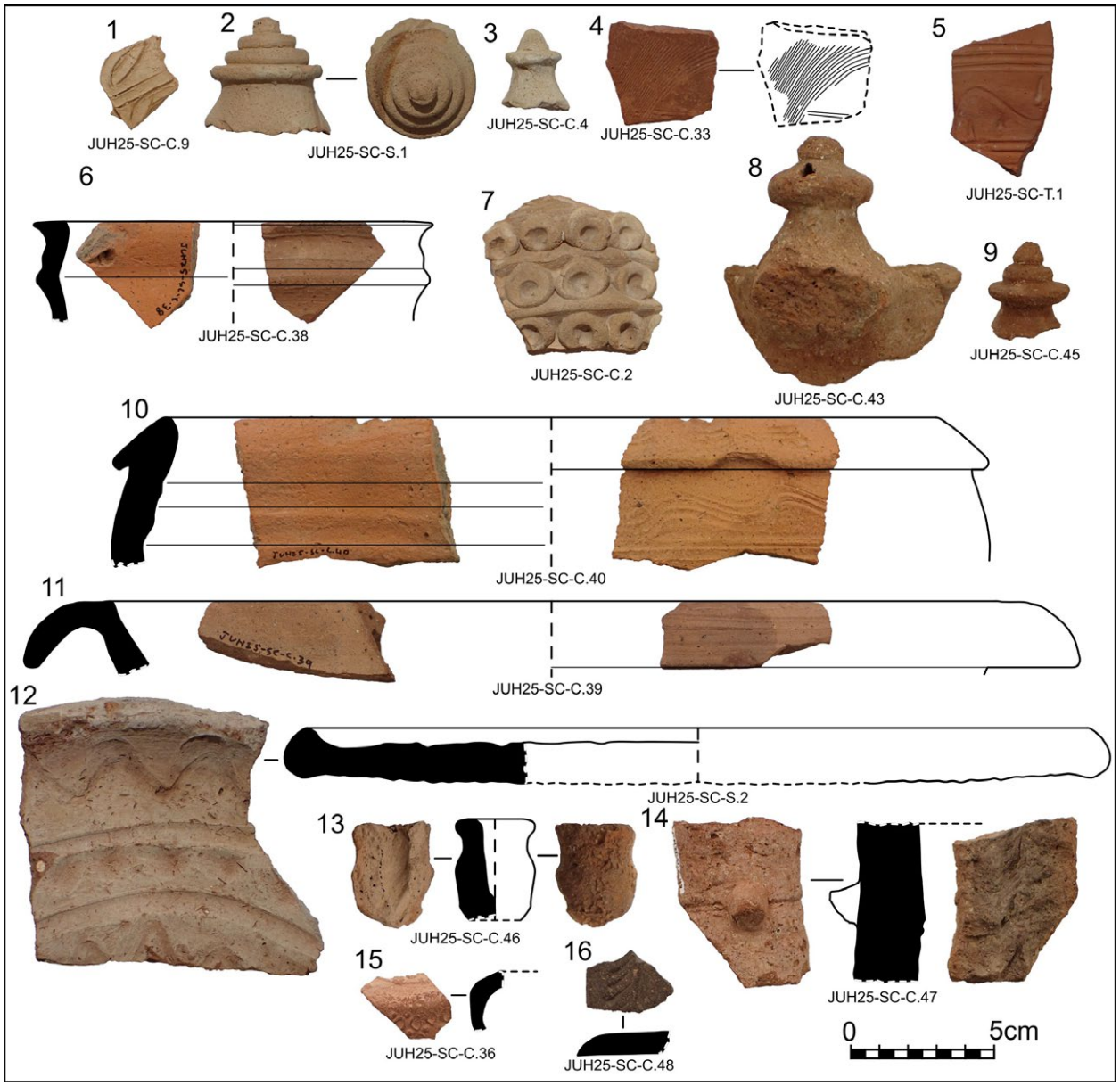


Figure 150. Key general Surface collection Commonwares and Earthenwares; 1. BISC incised decorated sherd; 2. BISC detached turban handle; 3. White ware detached turban handle; 4. Fine Red Micaceous ware body sherd with fine comb-incised decoration; 5. Fine Red Micaceous ware body sherd with incised decoration; 6. Fine Red Micaceous ware rim; 7. Umayyad Appliqué ware body sherd; 8. Red Earthenware worn rim with turban handle; 9. Red Earthenware detached turban handle. 10. Red Earthenware rim with comb incised decoration; 11. Fine, Hard Earthenware ETH.BA1 basin rim; 12. Coarse Earthenware ETH.PL2 plate rim; 13. Coarse Earthenware unidentified object; 14. Pinkish-Red Exploded Lime ware unidentified, probable industrial object; 15. Unidentified ware moulded decorated sherd; 16. Unidentified ware grey possible lid rim (photos. N. Tait).

in the 8th to 10th century for Eggshell ware, and mid-8th to 12th century for White ware (Kennet 2004: 77-78; Priestman 2021: 33-35). The second of the two main Commonwares at Al-Juḥfah was Abbasid Biscuit ware (W1) and the related Abbasid Eggshell Biscuit ware (W2). Eggshell Biscuit ware was separated to investigate potential parallels with the distinctive White Eggshell ware (W4). This ware accords with descriptions of unglazed Abbasid ceramics from Jordan (Sauer 1982: 333). A wide range of forms were produced in Biscuit ware, with the clearest defined forms small (BISC-BW1) and medium-large (BISC-BW2) open straight-walled bowls. Parallels of the White Eggshell ware thumb rests and White ware turban handles were present in Biscuit ware. Jug/jar forms were clearly present in both Biscuit and Eggshell Biscuit ware, but repeating forms could not be well defined. An Eggshell Biscuit ware variant of the typical Eggshell ware jug form (Priestman 2021: 541-555) likely existed, however, nothing complete or reconstructable enough was recovered to confirm this.



Figure 151. Key Glazed Wares, Stonewares, and Porcelains from general Surface Collections; 1. Very worn Hijazi ware jug/jar rim; 2. Hijazi ware body with appliqué ridge; 3. Hijazi ware body sherds showing decoration patterns; 4. Hijazi ware ribbon handle join; 5. Olive-Brown Hijazi ware large flat base; 6. Olive-Brown Hijazi ware body sherd; 7. Green Glazed GLA-BW1 form bowl rim; 8. Green Glazed jar rim; 9. Green Glazed ribbon handle; 10. Green Glazed small handle; 11. Olive-Brown Glazed jug/jar rim with drilled hole and rivet; 12. Green/Yellow Glazed Moulded ware rim; 13. Green/Yellow Glazed Moulded ware body sherd; 14. Green/Yellow Glazed Moulded ware body sherd; 15. Green/Yellow Glazed Moulded ware body sherd; 16. OPAQ.GL bowl rim with faded lustre on interior; 17. OPAQ.GL ring base; 18. ALK.T small jar rim; 19. Turquoise Splashed Opaque Glazed ware body; 20. Turquoise and Black Splashed Opaque Glazed ware 2 body; 21. Turquoise Splashed Opaque Glazed ware 2 bowl rim; 22. Green and White Splashed ware bowl rim; 23. Blue and White Frit ware rim; 24. Chinese Yue Celadon body sherd; 25. SEA Unglazed Stoneware body sherd; 26. SEA Green Glazed Stoneware body sherd (photos. N. Tait).

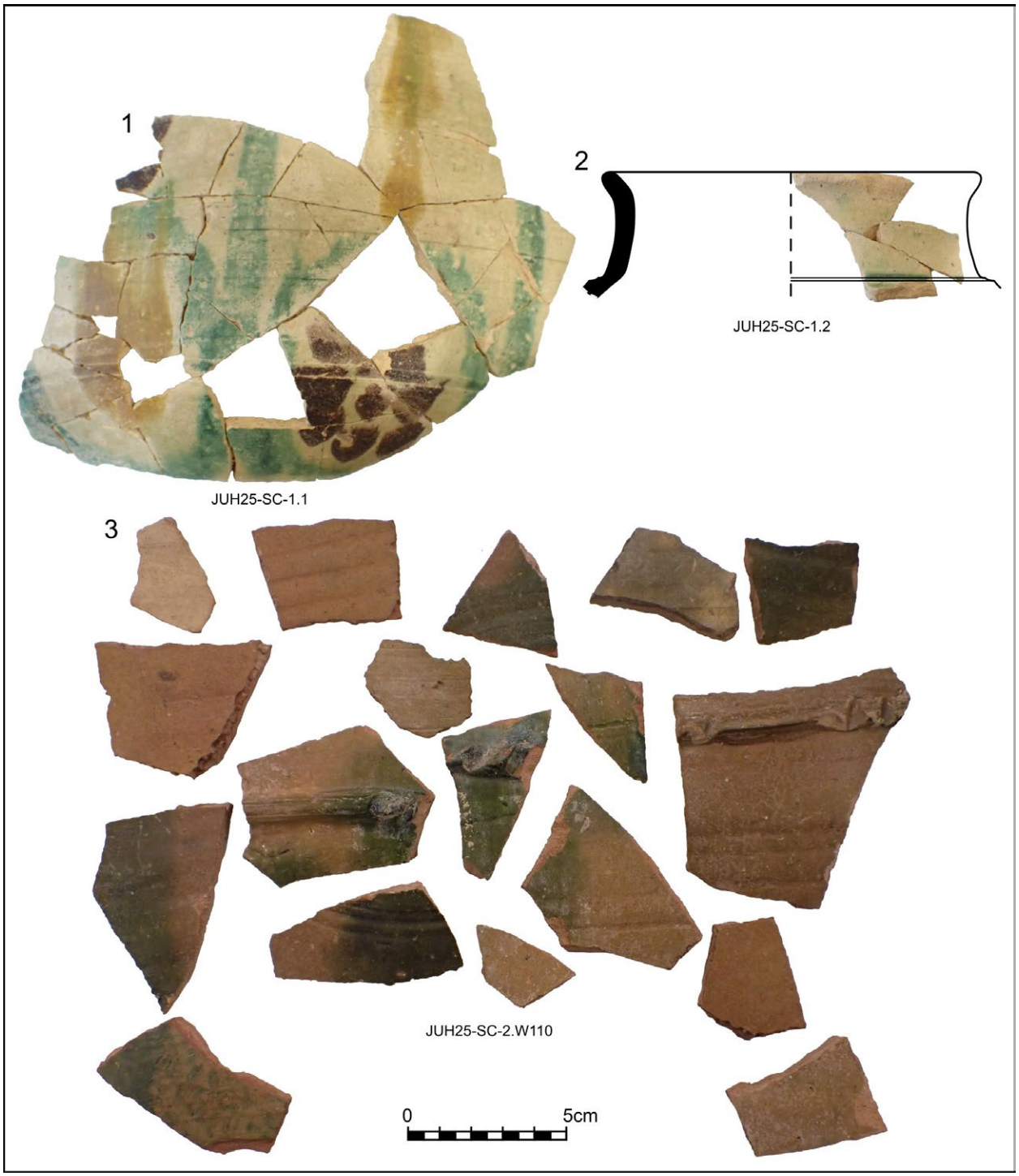


Figure 152. Sherds from the 'Rescue' Surface Collections; 1. Reconstructed Polychrome Splashed ware body from JUH25-S/C-Rescue-1; 2. Reconstructed Polychrome Splashed ware rim from JUH25-S/C-Rescue-1; 3. Unidentified Green splashed ware body sherds from JUH25-S/C-Rescue-2 awaiting reconstruction (photos. N. Tait).

Hijazi ware (W10, W11), with a yellow glaze with black, and sometimes green glazed patterns, is believed to have been produced in the Hijaz region, from the early 9th to 10th century (Ingraham et al. 1981: 78-79, Plate 87.1,4-6; Whitcomb 1989: 181; 1992: 53; Matin and Tite 2025: 31). A range of forms were identified, particularly bowls, some of which had parallels with Biscuit ware forms (e.g. HIJ-BW1 and HIJ-BW2). The HIJ-BW3 form (**Figure 138.7**) had close parallels to a Hijazi ware bowl form from Aqaba (Whitcomb 1989: Fig. 6.a-b; 1992: Fig 3.h). It is hoped that future seasons will help further define forms and decorative patterns and identify any chronological developments. This ware has links with the preceding 8th century Coptic Glazed ware produced in Egypt, and subsequent late 9th/early 10th century onwards Fayyūmī ware, produced in Egypt and North Africa (Whitcomb 1992: 48-53; Matin and Tite 2025: 30-31, 38-39). The exact divisions between these wares are not well defined and there may currently be some overlap in the Al-Juḥfah Hijazi ware assemblage.

A range of 'Samarra Horizon' wares, largely produced in Southern Iraq and closely chronologically defined were present (see Kennet 2004, Priestman 2021, and Matin and Tite 2025: 33-36 for details and descriptions). These consisted of White Opaque Glazed ware (W8), dated to the early 9th to 10th century, Gold Lustre Ware (W5) dated to the late 9th to 10th century and Gold and Ruby Lustre Ware (W7) to the mid-late 9th century, Cobalt Decorated Opaque Glazed Ware (W55) to the early-mid 9th century, and multiple wares dating to the mid-9th to 10th century (Turquoise Splashed Opaque Glazed Ware [W16, W53], Turquoise and Black Splashed Opaque Glazed Ware [W44, W57] Black Splashed Opaque Glazed Ware [W68, W52], Green and White Splashed Ware [W43], and Polychrome Splashed Ware [W46]). Alkaline Turquoise Glazed ware [W9] is also often associated with the Samarra Horizon, but has a wider date range, with those present at Al-Juḥfah likely from the 8th to 12th century. Wares identified as potentially Umayyad consisted of small quantities of the distinctive Umayyad Appliqué ware (W15), and Green/Yellow Glazed Moulded ware for which similar styles exist across the Umayyad and Abbasid periods (W42).

For Monochrome Glazed Commonwares, where they had not degraded too much to ascertain the original colour (W34), green (W30) was by far the most common, with occasional examples of olive-brown (W12), yellow (W31), blue (W32, W35), and dark brown (W51). No exact parallels have been found for these, but they concur with expected styles, and future seasons should help identify further forms and chronological developments. A range of unglazed Earthenware and Commonware wares were identified at Al-Juḥfah, most of which are missing clear parallels and therefore dating but attest to the wide range of people stopping at and travelling through Al-Juḥfah. Four wares (AFRI.1-4; W18-20, W45) were identified as likely East African in origin, and two as probably South-East Asian (W14, W70). Sherds from two Chinese porcelains; an 11th to 13th century Carved White Ware (W62), and two sherds of early 9th to 10th century Yue Celadon attest to far reaching contact at Al-Juḥfah. Many sherds at Al-Juḥfah show evidence for repair or modification, either with later painted decoration (e.g. **Figure 133.14**, **134.9-13, 24**), or drilled. Functions for drilling included to allow the vessel to be hung for easier transport or storage or to attach lids, as evidenced by drill holes near the rim (e.g. **Figure 133.8**), or for repair (e.g. **Figure 136.2, 138.4, 139, 142.11, 146.6, 147.4, 9**), with some examples from Al-Juḥfah still with part of the iron rivet remaining (e.g. **Figure 142.22, 146.9, 151.11**).

Overall, the ceramics from Al-Juḥfah support the use of the site through at least the Umayyad and Abbasid periods. The rich and diverse assemblage attests to the importance of Al-Juḥfah as a *mīqāt* on the Hajj route, and the range of people who used it. Al-Juḥfah has the potential to greatly contribute to our understanding of Early Islamic ceramics.

Chapter 10
General Conclusions

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The results of the 2025 field season are important as significant advances have been made in our understanding of the archaeology of the Islamic period in the Hijaz, primarily through the research at Al-Juḥfah. This has revealed the total size of the settlement, which when the campsites are considered is approximately four times the size of the stone town, with the C14 chronology from the shovel pits indicating that it was in the campsites that the earliest occupation was concentrated, and which is currently dated to the 8th century CE. Subsequently, as the evidence from the test pit excavations reveals, the stone town developed in the Abbasid period with a clustering of the C14 dates in the 9th to 10th centuries CE, probably as part of that polity's substantial investment in Hajj route infrastructure, as famously manifest at Rabadhah (e.g., Al-Rashid 1980, 2010a, 2010b).

Nonetheless, at present the C14 dates do not post-date the 10th century CE, though the ceramics imply occupation at Al-Juḥfah continued until the 12th century with occasional more limited use of the area thereafter. This discrepancy could be a consequence of the samples for radiocarbon dating being taken from the lower levels of the test and shovel pits, and it is probable that C14 correlation for the ceramic chronology will be recovered during future excavation, but regardless, it appears certain that Al-Juḥfah was abandoned by the 12th century CE. In this context, Alsubaie's (2018: 50-51, 53) assertion that this occurred as a consequence of the Crusaders cutting the Egyptian and Syrian Hajj land routes and hence pilgrims went directly to Rabigh and Jiddah by sea is feasible, as is his point (ibid.) that when land travel again became possible Rabigh had replaced Al-Juḥfah as a *mīqāt*, hence it ceased to be used.

Also absent so far is C14 dating for 7th century CE occupation at Al-Juḥfah, though some ceramics are of Umayyad, mid-7th to mid-8th century, date. However, we know from traditions that the Prophet Muhammad visited there several times, as during the Hijrah with Abu Bakr al-Siddiq, and during the Farewell Hajj in 632 CE, "where he stopped with thousands of his companions" and prayed (web reference 3). This is possibly because it was either impermanent and has not yet been traced archaeologically in the campsites or was concentrated in and around the area of the mosque within the town which has yet to be investigated. Currently, the existing C14 chronology seems to corroborate Alsubaie's (2018: 29) assertion that the *mīqāt* role of Al-Juḥfah post-dated the Prophet Muhammad and which he argues was fixed during the reign of Caliph 'Umar, as it was used by pilgrims from Syria whose conversion to Islam was later than the time of the Prophet. Though he also notes (ibid.) that it was used by pilgrims from "Turkey, Egypt, and Africa". But whether this apparent chronological association remains valid as excavation proceeds is questionable.

Also important is the archaeological connection with narratives as to why the site was called Al-Juḥfah. This was apparently because a flood caused severe damage sweeping "through it in one year, (and) carrying away its inhabitants" (web reference 3). Hence the original name 'Mahya'ah' (ibid.) was replaced by 'Al-Juḥfah', "derived from the Arabic root *j-ḥ-f* (ج ح ف), which relates to the concept of sweeping away, eroding, or hollowing out, often used in geographical contexts to describe a valley or a place carved by water or wind" (web reference 2). Although it is impossible to link this to a single episode, the repeated instances of flood deposition layers at varied depths across the site, which were particularly apparent in the shovel test pits do indicate that the general environmental and geomorphological premise to these traditions is correct. It is also significant that archaeological materials were often found in the stratigraphy above the compacted flood and/or water lain deposits indicating occupation after these events, and suggesting the possible use of flood control measures, as was indicated by one of the walls recorded in the aerial survey, but otherwise as yet undetermined, but whose more extensive existence is feasible considering the other hydraulic infrastructure present at Al-Juḥfah such as the *qanāt* and possible well or *birkah*.

The ceramic analysis has also permitted initial insight into what might be broadly categorised as 'international contacts' at Al-Juḥfah, with southern Iraq a major source of ceramics, as Tait has indicated, such as the so-called 'Samarra Horizon' wares and White Ware. The locally made Hijazi Ware is also well-represented,

which remains comparatively little understood, but has links with wares from Egypt and North Africa, again as Tait has related. Rare sherds of potential North African influence or origin were also found, such as the Eggshell White ware with black painted decoration and a sherd possibly from a tagine-type vessel. Other rare wares were of East African/Ethiopian/Sudanese and Southeast Asian origin. These all reflect trade, but also the areas from where travellers, particularly pilgrims, travelled from to Al-Juḥfah, and the absence of Indian ceramics would indicate that pilgrims from South Asia were using a different *mīqāt* and this was likely Yalamlam, 92km south of Makkah, which was also the *mīqāt* for Yemenis and Southeast Asians (Alsubaie 2018: 36). Less explicable is the rarity of Chinese trade ceramics which are relatively common at sites on the Red Sea coast or its hinterland in Saudi Arabia such as Al-Serrain in the Makkah region (web reference 4), or Athar in the Tihamah further to the south (e.g., Zarins and Zahrani 1985). Though it is noteworthy that at some of the sites to the north of Al-Juḥfah Chinese ceramics again seem to be less prevalent, as at al-Mābiyāt/al-Qurā (e.g., Gilmore et al. 1985: 116), or Al-Ḥawrā' (e.g., al-Ghabban 2011: 214-215, 341-343) patterns which remain to be more fully explored. Additionally, future analysis of the glass found will likely further amplify understanding of international contacts and by implication pilgrim origins with, it can be hypothesised, Syrian, Levantine, and Egyptian glass likely well represented in the assemblage, as earlier hypothesised, and as also previously highlighted by Alsubaie (2018: 190).

The results also emphasise the importance of adopting a multi-method approach within this fieldwork for each of the techniques employed has permitted the identification of features and provided information that would have been less apparent or absent altogether if only a single method had been adopted. Thus pedestrian survey was critical for first identifying features and surface material with the results enhanced by the UAV survey, but the latter did not allow identification of sherd scatters which were a major indicator of campsite occupation, though it did reveal structures otherwise invisible in pedestrian ground survey. The UAV survey was also especially useful in identifying the extent and variety of structures on Thaniyyat Al-Azuriwyah. Whilst the shovel test pit results allowed a more precise definition of the campsite limits as well as revealing the evidence for flooding. The test pits also provided in-situ samples for radiometric dating and insight into the stratigraphy at different locations.

Hence this combined methodology will be employed on the other sites identified so far on the Hajj/Hijrah route – Thaniyyat Lift, Khulais, Thaniyyat Harsha, and Tamanni. At Khulais the admittedly single C14 sample from the base of the robber's pit in the castle suggests occupation was later – 11th to 12th centuries CE – and continued thereafter, to an as yet unknown date. However, C14 dates for the other sites investigated as part of the pedestrian reconnaissance survey are still lacking, and the paucity of ceramics and other surface artifacts precluded these as an alternative source for reconstructing their chronology. Thus these will be the focus of similar archaeological investigation to establish the settlement history of this critical route between Makkah and Madinah.

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Appendix 1
Ceramic sherds from Al-Juḥfah

Context	Type	Quantity
JUH25-S/C-Campsite Area	Surface Collection	69
JUH25-S/C-Rescue 1	Surface Collection	2
JUH25-S/C-Rescue 2	Surface Collection	18
JUH25-S/C-Town	Surface Collection	10
JUH25-S/C-TP1 Robber's Spoil	Surface Collection	2
	Surface Collection Total:	101
JUH25-SP32-0 to 28cm	Shovel Pit	29
JUH25-SP32-28cm to 58cm	Shovel Pit	3
JUH25-SP33	Shovel Pit	13
JUH25-SPA1	Shovel Pit	8
JUH25-SPA2-0 to 35cm	Shovel Pit	12
JUH25-SPA3	Shovel Pit	7
JUH25-SPA4~45cm	Shovel Pit	7
JUH25-SPA4-0 to 20cm	Shovel Pit	62
JUH25-SPA4-20 to 40cm	Shovel Pit	27
JUH25-SPB1	Shovel Pit	9
JUH25-SPB1-Under Compact Layer	Shovel Pit	1
JUH25-SPB2-30cm	Shovel Pit	15
JUH25-SPB2-30cm to Close	Shovel Pit	14
JUH25-SPB2-Below Compact Layer	Shovel Pit	1
JUH25-SPB3	Shovel Pit	23
JUH25-SPB4	Shovel Pit	8
JUH25-SPB5-Surface Finds	Shovel Pit	3
JUH25-SPC2	Shovel Pit	14
JUH25-SPC3-1st Compact Floor	Shovel Pit	1
JUH25-SPC3-First 40cm	Shovel Pit	17
JUH25-SPC5	Shovel Pit	5
JUH25-SPC6-0 to 35cm	Shovel Pit	12
JUH25-SPC6-35cm to Compact	Shovel Pit	14
JUH25-SPC7-Surface to 40cm	Shovel Pit	6
JUH25-SPD1	Shovel Pit	2
JUH25-SPD2	Shovel Pit	38
JUH25-SPD3-0 to 50cm	Shovel Pit	11
JUH25-SPD4	Shovel Pit	39
JUH25-SPD5	Shovel Pit	13
JUH25-SPD6-0 to 36cm	Shovel Pit	10
JUH25-SPD6-Compact Layer	Shovel Pit	8
JUH25-SPD7	Shovel Pit	13
JUH25-SPD8	Shovel Pit	16
JUH25-SPEX1	Shovel Pit	2
JUH25-SPEX2-Surface	Shovel Pit	1
JUH25-SPEX4-Top Soil	Shovel Pit	7

Context	Type	Quantity
	Shovel Pit Total:	471
JUH25-TP1	Test Pit	80
JUH25-TP1-From base of *tannūr*	Test Pit	1
	TP1 Total:	81
JUH25-TP2	Test Pit	12
JUH25-TP2-From Bottom	Test Pit	1
	TP2 Total:	13
JUH25-TP3-0 to 30cm	Test Pit	152
JUH25-TP3-30 to 60cm	Test Pit	78
JUH25-TP3-60 to 90cm	Test Pit	162
JUH25-TP3-90cm+	Test Pit	62
JUH25-TP3-120cm+	Test Pit	19
JUH25-TP3-Spoil Heap	Test Pit	2
	TP3 Total:	475
JUH25-TP4	Test Pit	28
JUH25-TP4-Below Compact Layer	Test Pit	13
JUH25-TP4-Final	Test Pit	6
	TP4 Total:	47
JUH25-TR1B	Transect Point	5
JUH25-TR1D	Transect Point	2
JUH25-TR1E	Transect Point	10
JUH25-TR1F	Transect Point	8
JUH25-TR1G	Transect Point	8
JUH25-TR2C	Transect Point	1
JUH25-TR2E	Transect Point	3
JUH25-TR2F	Transect Point	7
JUH25-TR2G	Transect Point	6
JUH25-TR3A	Transect Point	1
JUH25-TR3B	Transect Point	4
JUH25-TR3E	Transect Point	1
JUH25-TR3F	Transect Point	8
JUH25-TR3G	Transect Point	11
JUH25-TR4A	Transect Point	3
JUH25-TR4B	Transect Point	2
JUH25-TR4D	Transect Point	3
JUH25-TR4E	Transect Point	2
JUH25-TR4F	Transect Point	7
JUH25-TR5D	Transect Point	3
JUH25-TR5F	Transect Point	1
JUH25-TR5G	Transect Point	2
	Ceramic Density Survey Total:	98
	Al-Juḥfah Total:	**1286**

Appendix 2
Ceramic sherds from the reconnaissance survey

Context	Type	Quantity
KHU25-~20cm above Natural	Robber's Pit	1
KHU25-S/C	Surface Collection	11
	Khulais Total:	12
THA25-MOS-S/C	Surface Collection	2
THA25-Road-S/C	Surface Collection	2
	Thaniyyat Lift Total:	**4**

Appendix 3
Glass from Al-Juḥfah (all are glass vessel fragments unless otherwise indicated)

Context	Type	Quantity
JUH25-S/C-Campsite	Surface Collection	4
JUH25-S/C-Campsite Area	Surface Collection	1 bangle
JUH25-S/C-Town	Surface Collection	2
	Surface Collection Total:	7
JUH25-SPA2-0-35cm	Shovel Pit	3
JUH25-SPB1	Shovel Pit	2
JUH25-SPB3	Shovel Pit	2
JUH25-SPD4	Shovel Pit	1
JUH25-SPD6-Compact Layer	Shovel Pit	2
JUH25-SPA4-0 to 20cm	Shovel Pit	9
JUH25-SPA4-20 to 40cm	Shovel Pit	4
JUH25-SPA4-~45cm	Shovel Pit	1
JUH25-SPC5	Shovel Pit	1
JUH25-SPC6-0 to 35cm	Shovel Pit	2
JUH25-SPC6-35cm to Compact	Shovel Pit	3
JUH25-SPEX4-Top Soil	Shovel Pit	1
JUH25-SPC7-Surface to 40cm	Shovel Pit	2
JUH25-SPD8	Shovel Pit	1
JUH25-SPEX1	Shovel Pit	1
	Shovel Pit Total:	35
JUH25-TP1	Test Pit	2
JUH25-TP1	Test Pit	4
JUH25-TP1	Test Pit	7
	TP1 total:	13
JUH25-TP3-0 to 30cm	Test Pit	70
JUH25-TP3-30 to 60cm	Test Pit	38
JUH25-TP3-30 to 60cm	Test Pit	7
JUH25-TP3-60 to 90cm	Test Pit	73
JUH25-TP3-60 to 90cm	Test Pit	53
JUH25-TP3-90cm+	Test Pit	14
JUH25-TP3-120cm+	Test Pit	8
JUH25-TP3-Spoil Heap	Test Pit	2
JUH25-TP3-Spoil Heap	Test Pit	1
	TP3 Total:	266
JUH25-TP4	Test Pit	6
JUH25-TP4-Below Compact Layer	Test Pit	4
	TP4 Total:	10
JUH25-TR1C	Transect Point	1 bead
JUH25-TR1E	Transect Point	2
JUH25-TR3G	Transect Point	3
JUH25-TR3A	Transect Point	1 bead
JUH25-TR4F	Transect Point	2
	Ceramic Density Survey Total:	9
	Al-Juḥfah Total:	**340**

Appendix 4
Stone Artifacts from Al-Juḥfah

Context	Type	Quantity
JUH25-S/C-Campsite	Surface Collection	1 stone tool
JUH25-S/C-Campsite	Surface Collection	4 stone vessel fragments
JUH25-S/C-Town	Surface Collection	6 stone vessel fragments
JUH25-S/C-TP1 Robber Spoil	Surface Collection	Two conjoining stone lamp fragments
JUH25-S/C	Surface Collection	6 grinding stones
	Surface Collection Total:	18
JUH25-SPD3-0 to 50cm	Shovel Pit	1 stone vessel fragment
JUH25-SPD4	Shovel Pit	1 stone vessel fragment
JUH25-SPD6-Compact Layer	Shovel Pit	1 stone tool
	Shovel Pit Total:	3
JUH25-TP1	Test Pit	2 stone vessel fragments
JUH25-TP1	Test Pit	1 stone tool
JUH25-TP1	Test Pit	1 stone tool
JUH25-TP1-Base of *Tannūr*	Test Pit	1 stone vessel fragment with residue adhering
JUH25-TP1	Test Pit	4 stone vessel fragments
JUH25-TP1	Test Pit	2 stone vessel fragments
	TP1 Total:	11
JUH25-TP2	Test Pit	2 stone vessel fragments
	TP2 Total:	2
JUH25-TP3-0 to 30cm	Test Pit	8 stone vessel fragments including ‘castle’ handle
JUH25-TP3-30 to 60cm	Test Pit	6 stone vessel fragments
JUH25-TP3-90cm+	Test Pit	3 stone vessel fragments
JUH25-TP3-90cm	Test Pit	1 stone tool
JUH25-TP3-60 to 90cm	Test Pit	4 stone vessel fragments including 2 spouts
JUH25-TP3-60 to 90cm	Test Pit	5 stone vessel fragments
JUH25-TP3-120cm+	Test Pit	1 stone vessel fragment
JUH25-TP3-Spoil Heap	Test Pit	1 stone vessel fragment
	TP3 Total:	29
JUH25-TP4	Test Pit	1 stone vessel fragment
	TP4 Total:	1
	Al-Juḥfah Totals:	**64**

Appendix 5
Marine Shell from Al-Juḥfah

Context	Type	Quantity
JUH25-S/C-Campsite	Surface Collection	49
JUH25-S/C-Campsite	Surface Collection	4
JUH25-S/C-Campsite	Surface Collection	3 beads
JUH25-S/C-Town	Surface Collection	4
	Surface Collection Total:	60
JUH25-SPB2-Surface to 30cm	Shovel Pit	1
JUH25-SPC3-First Compact Floor	Shovel Pit	1
JUH25-SPD2	Shovel Pit	1
JUH25-SPA2-0-35cm	Shovel Pit	1
JUH25-SPB1-Under Compact Layer	Shovel Pit	1
JUH25-SPB3	Shovel Pit	1
JUH25-SPD3-0 to 50cm	Shovel Pit	2
JUH25-SPD4	Shovel Pit	7
JUH25-SPD5	Shovel Pit	8
JUH25-SPD6-0 to 36cm	Shovel Pit	1
JUH25-SPD6	Shovel Pit	1
JUH25-SP32-0 to 28cm	Shovel Pit	1
JUH25-SP33	Shovel Pit	2
JUH25-SPC6-0 to 35cm	Shovel Pit	3
JUH25-SPC6-35cm to Compact	Shovel Pit	12
JUH25-SPEX4-Top Soil	Shovel Pit	1
JUH25-SPD8	Shovel Pit	1
	Shovel Pit Total:	45
JUH25-TR1C	Transect Point	1
JUH25-TR3G	Transect Point	1
JUH25-TR1H	Transect Point	1
JUH25-TR4B	Transect Point	1
JUH25-TR4D	Transect Point	3
JUH25-TR4E	Transect Point	2
JUH25-TR5G	Transect Point	2
	Ceramic Density Survey Total:	11
JUH25-TP1	Test Pit	1
JUH25-TP1	Test Pit	1
JUH25-TP1	Test Pit	2
	TP1 Total:	4
JUH25-TP3-0 to 30cm	Test Pit	8
JUH25-TP3-30 to 60cm	Test Pit	15
JUH25-TP3-60 to 90cm	Test Pit	20
JUH25-TP3-90cm+	Test Pit	9
JUH25-TP3-60 to 90cm	Test Pit	21
JUH25-TP3-120cm+	Test Pit	8
	TP3 Total:	81
JUH25-TP4	Test Pit	2
JUH25-TP4-Below Compact Layer	Test Pit	1
JUH25-TP4-Final	Test Pit	1
	TP4 Total:	4
	Al-Juḥfah Total:	**205**

Appendix 6
Faunal and Botanical Remains from Al-Juḥfah

Context	Type	Quantity
JUH25-SPD6-0 to 36cm	Shovel Pit	2 pieces of cuttlefish
	Shovel Pit Total:	2
JUH25-TP3-60 to 90cm	Test Pit	10 teeth and horns
JUH25-TP3-90cm+	Test Pit	3 teeth and horns
JUH25-TP3-120cm+	Test Pit	1 horn
JUH25-TP3-Spoil Heap	Test Pit	1 mango stone
	TP3 Total:	15
JUH25-S/C-Campsite	Surface Collection	1 bone
	Surface Collection Total:	1
	Al-Juḥfah Total:	**18**

Appendix 7
Metal Artifacts from Al-Juḥfah

Context	Type	Quantity
JUH25-S/C-Campsite	Surface Collection	1 Cu coin
JUH25-S/C-Campsite	Surface Collection	1 Cu needle
JUH25-S/C-Campsite	Surface Collection	4 Cu including latch and strip
JUH25-S/C-Town	Surface Collection	1 Cu weight of 29g
	Surface Collection Total:	7
JUH25-SPA2-0-35cm	Shovel Pit	1 undiagnostic Fe fragment
	Shovel Pit Total:	1
JUH25-TP1	Test Pit	1 crucible fragment
JUH25-TP1	Test Pit	1 crucible fragment
JUH25-TP1	Test Pit	1 Fe nail
	TP1 Total:	3
JUH25-TP3-30 to 60cm	Test Pit	2 undiagnostic Cu fragments
JUH25-TP3-60 to 90cm	Test Pit	3 Cu including potential rattle or jingle
JUH25-TP3-60 to 90cm	Test Pit	1 Cu coin
JUH25-TP3-120cm+	Test Pit	9 undiagnostic Cu fragments
JUH25-TP3-Spoil Heap	Test Pit	1 undiagnostic Cu fragment
	TP3 Total:	16
JUH25-TP4	Test Pit	2 Cu fragments, 1 with Fe attached
JUH25-TP4-Below Compact Layer	Test Pit	6 undiagnostic Cu and Fe fragments
	TP4 Total:	8
	Al-Juḥfah Total:	**35**

Appendix 8
Miscellaneous Artifacts from Al-Juḥfah

Context	Type	Quantity
JUH25-SPA1	Shovel Pit	1 piece of fossil coral
JUH25-SPD5	Shovel Pit	1 piece of fossil coral
JUH25-SPD7	Shovel Pit	2 pieces of fossil coral
JUH25-SPD5	Shovel Pit	1 fired clay brick
	Shovel Pit Total:	5
JUH25-TR3B	Transect Point	1 fragment of ostrich eggshell
JUH25-TR3G	Transect Point	1 piece of fossil coral
JUH25-TR3A	Transect Point	1 fragment of ostrich eggshell
	Ceramic Density Survey Total:	3
JUH25-TP3-60 to 90cm	Test Pit	3 carnelian beads
	TP3 Total:	3
JUH25-S/C-Campsite	Surface Collection	4 pieces of fossil coral
JUH25-S/C-Town	Surface Collection	1 piece of fossil coral
	Surface Collection Total:	5
	Al-Juḥfah Total:	**16**

Appendix 9
Miscellaneous Artifacts from the Reconnaissance Survey

Context	Type	Quantity
SIW25-S/C	Surface Collection	165g of metal slag
KHU25-S/C	Surface Collection	2 Cu coins (2g and 3g)
KHU25-S/C	Surface Collection	2 stone vessel fragments
KHU-S/C	Surface Collection	1 stone vessel fragment
	Surface Collection Total:	**7**

Appendix 10
Local Ceramics Catalogue

Nicholas M.T. Tait

Unit or Survey	Context	Sherd Code
JUH25-TP3	JUH25-TP3-0 to 30cm	JUH25-TP3-1
JUH25-TP3	JUH25-TP3-30 to 60cm	JUH25-TP3-2
JUH25-TP3	JUH25-TP3-60 to 90cm	JUH25-TP3-3
JUH25-TP3	JUH25-TP3-90cm+	JUH25-TP3-4
JUH25-TP3	JUH25-TP3-120cm+	JUH25-TP3-5
JUH25-TP3	JUH25-TP3-Spoil Heap	JUH25-TP3-6
JUH25-TP4	JUH25-TP4	JUH25-TP4-1
JUH25-TP4	JUH25-TP4-Below Compact Layer	JUH25-TP4-2
JUH25-TP4	JUH25-TP4-Final	JUH25-TP4-3
JUH25-SPA4	JUH25-SPA4-0 to 20cm	JUH25-SPA4-1
JUH25-SPA4	JUH25-SPA4-20 to 40cm	JUH25-SPA4-2
JUH25-SPA4	JUH25-SPA4~45cm	JUH25-SPA4-3
JUH25-SPB1	JUH25-SPB1	JUH25-SPB1-1
JUH25-SPB1	JUH25-SPB1-Under Compact Layer	JUH25-SPB1-2
JUH25-SPB2	JUH25-SPB2-0 to 30cm	JUH25-SPB2-1
JUH25-SPB2	JUH25-SPB2-Below Compact Layer	JUH25-SPB2-2
JUH25-SPC3	JUH25-SPC3-First 40cm	JUH25-SPC3-1
JUH25-SPC3	JUH25-SPC3-1st Compact Floor	JUH25-SPC3-2
JUH25-SPC6	JUH25-SPC6-0 to 35cm	JUH25-SPC6-1
JUH25-SPC6	JUH25-SPC6-35cm to Compact	JUH25-SPC6-2
JUH25-SPD6	JUH25-SPD6-0 to 36cm	JUH25-SPD6-1
JUH25-SPD6	JUH25-SPD6-Compact Layer	JUH25-SPD6-2
JUH25-SP32	JUH25-SP32-0 to 28cm	JUH25-SP32-1
JUH25-SP32	JUH25-SP32-28cm to 58cm	JUH25-SP32-2
JUH25-S/C	JUH25-SC-Campsite Area	JUH25-SC-C
JUH25-S/C	JUH25-SC-Town	JUH25-SC-T
JUH25-S/C	JUH25-SC-TP1 Robbers Spoil	JUH25-SC-S
JUH25-S/C	JUH25-SC-Rescue 1	JUH25-SC-1
JUH25-S/C	JUH25-SC-Rescue 2	JUH25-SC-2

Table App 10.1. Sherd codes used for units or surveys with multiple contexts.

Note: The ware catalogue is organised by type (Commonware, Earthenware, Glazed Ware, Frit Ware, Stoneware, Porcelain) then by the ware number given in the internal database. In future seasons based on new data it is likely that some wares will be merged and others divided.

Ware No.	Type	Name	Fabric/Description	Examples
W1	Commonware	Abbasid Biscuit Ware (BISC)	Fine, hard somewhat abrasive pale brown (7.5YR6/6 to 7.5YR6/4) fabric, occasional fine voids and rare fine black and white inclusions. Some fine micaceous inclusions. Usually cream slipped (~10YR8/2) on at least the exterior. Broadly Abbasid in date	Figure 128.1-4; Figure 132.1; Figure 133.1-17; Figure 143.1-2; Figure 145.1, 4, 6, 9; Figure 148.2; Figure 150.1-2
W2	Commonware	Abbasid Eggshell Biscuit Ware (BISC.EGG)	Fine, hard somewhat abrasive pale brown (7.5YR6/6 to 7.5YR6/4) fabric, occasional fine voids and rare fine black and white inclusions. Some fine micaceous inclusions. Usually cream slipped (~10YR8/2) on at least the exterior. Thinner variant of Biscuit ware (<4mm). Broadly Abbasid in date	Figure 128.5-6; Figure 133.18-28; Figure 143.3; Figure 145.2-3, 5, 7-8; Figure 148.1, 3
W3	Commonware	White Ware (WHITE)	Finely sorted pale cream-white (2.5Y 8/2-3) fabric, with almost no visible inclusions and rare voids. Medium hard with a slightly chalky feeling well smoothed surface. Dated to mid-8th to 12th century (see Priestman 2021 WHITE.PI)	Figure 128.8-9; Figure 134.14-24; Figure 143.4; Figure 145.10-13; Figure 148.5; Figure 150.3
W4	Commonware	Eggshell White Ware (WHITE.EGG)	Finely sorted pale cream-white (2.5Y 8/2-3) fabric, with almost no visible inclusions and rare voids. Medium hard with a slightly chalky feeling well smoothed surface. Dated to early 8th to 10th century. Thinner (<4mm) ware closely related to WHITE typified by a distinctive jug form (see Priestman 2021: EGG. PI)	Figure 128.7; Figure 134.1-13; Figure 143.5; Figure 145.14-16; Figure 148.4
W15	Commonware	Umayyad Appliqué Ware	Fine, hard somewhat abrasive reddish-orange (2.5YR6/6 to 5YR5/6) fabric with small voids. Rare medium sub-angular quartz, some fine mica inclusions. Well smoothed and usually cream slipped on the exterior. Decorated with appliqué, in particular rings. Broadly dated to Umayyad based on decorative parallels	Figure 135.15-16; Figure 150.7
W17	Commonware	Fine Pale Buff Ware	Fine, fairly hard slightly abrasive pale yellowish-cream (2.5Y8/2) fabric with occasional small voids, small-fine rounded quartz sand and small-fine sub-angular dark grit. Surface is well smoothed.	Figure 135.14
W21	Commonware	Fine Red Micaceous Ware (FIRMIC)	Fine, hard, dense well fired pale pinkish (5YR6/4) to red (2.5YR5/6) fabric with minimal visible temper, rare v. fine black speckling, usually abundant very fine mica. Surface is well smoothed.	Figure 128.10; Figure 132.2; Figure 135.1-8; Figure 143.6; Figure 148.6-8; Figure 150.4-6
W22	Commonware	Cream Slipped Red Ware (CRSRW)	Fine, hard somewhat abrasive reddish (2.5YR6/6) fabric with small voids. Rare medium sub-angular quartz, some fine mica inclusions. Well smoothed and cream slipped on at least the exterior.	Figure 128.11; Figure 135.9-11; Figure 143.8; Figure 145.17-18; Figure 148.8
W38	Commonware	Hard Buffware	Fine, hard, dense, well levigated medium-brown fabric with rare fine darker inclusions. Surface is usually well smoothed and often self-slipped.	Figure 128.12; Figure 135.18

Ware No.	Type	Name	Fabric/Description	Examples
W50	Commonware	Porous Buffware	Not very dense abrasive pale pinkish-brown fabric with abundant small voids, small-fine sandy inclusions, and occasional large-subangular rocky or limey inclusions. Surface is usually cream slipped	Figure 135.17; Figure 143.7
W66	Commonware	Sandy Commonware	Hard, abrasive, medium-dense pale cream (2.5Y7/3) fabric with abundant small rounded quartz sand and occasional exploded lime. Surface is usually well smoothed	Figure 145.19; Figure 148.9
W18	Earthenware	African Type 1 (AFRI.1)	Fabric colour ranges from pinkish red (7.5YR6/4) to brown. Medium dense fabric with many small voids from organic inclusions, fine-medium sub-angular gritty inclusions. Rare medium-large soft white inclusions. Core is usually reduced dark grey-black and the surface is burnished. Has parallels to ceramics from the Ethiopian Highlands	Figure 130.8; Figure 137.9-10
W19	Earthenware	African Type 2 (AFRI.2)	Fabric colour ranges from dark brown to dark grey to black. Coarse, less dense than AFRI.1, with abundant sub-angular gritty inclusions and less organic inclusion. A somewhat laminate fabric, with a roughly burnished surface. Potentially from Sudan or the Swahili coast.	Figure 130.9; Figure 137.11-12; Figure 143.14; Figure 146.10
W20	Earthenware	African Type 3 (AFRI.3)	Fabric colour ranges from dark brown to grey to black. Coarse, dark fabric with abundant sub-angular grit and quartz inclusions. Just under exterior surface fabric is usually reduced medium-grey. Surface is roughly burnished. Potentially from Sudan or the Swahili coast.	Figure 130.10; Figure 137.13; Figure 143.15
W23	Earthenware	Red Earthenwares	Broad category for sherds of a reddish medium density, but fairly hard fabric with abundant small-medium grey-red sub-angular gritty inclusions and small sub-angular-rounded quartz inclusions. Occasional voids, including some from organic inclusions. Often has some very fine mica.	Figure 130.1; Figure 132.3-4; Figure 136.1-5; Figure 143.9; Figure 146.3-5; Figure 148.10; Figure 150.8-11
W24	Earthenware	Coarse Earthenwares	Broad category of sherds of a red to brown dense, but somewhat friable fabric with abundant poorly sorted fabric colour grit ranging from fine to very large. Occasional small-fine rounded quartz, some voids. Often has v. fine mica, core can be reduced. Surface can be rough or smoothed	Figure 129.1-3; Figure 136.13-14; Figure 150.12-13
W25	Earthenware	Shelly Brown Earthenware	Medium brown to grey hard, fairly dense fabric with small-medium subangular grit and small-medium shelly inclusions, occasional small-fine voids and abundant fine-v. fine mica	Figure 137.1
W26	Earthenware	Coarse Limy Earthenware	Medium-dense red fabric with abundant medium-fine sub-angular grit and limy inclusions, exterior fired red and interior reduced black.	Figure 130.3; Figure 137.2
W27	Earthenware	Hard Fired Grey Earthenware	Hard, dense, well fired dark grey (10YR4/1) fabric with occasional small-medium sub-angular-rounded gritty inclusions and small rounded quartz.	Figure 137.3

Ware No.	Type	Name	Fabric/Description	Examples
W28	Earthenware	Brown Fibrous Ware	Dense, laminate almost "fibrous" medium brown (5YR6/4) fabric with elongated voids and a range of fine-small inclusions: dark grit, quartz, rare exploded lime, mica	Figure 137.7
W29	Earthenware	Fine, Soft Earthenware	Fabric colour can be a range of browns, reds or blacks. Dense, but fairly soft fabric with occasional fine indeterminate white and dark inclusions and voids	Figure 137.6
W39	Earthenware	Dense Earthenwares	Broad category for red to dark brown sherds of a hard, dense fabric with occasional small-medium voids and large-small angular to sub-angular grit, and small-fine rounded quartz sand	Figure 130.6; Figure 136.7-9; Figure 146.7; Figure 148.11
W40	Earthenware	Hard Sandy Earthenware	A red to dark grey hard, almost clinky fabric with abundant fine-small rounded quartz and grit sand. The surface is dark brown, interior red, and core dark grey	Figure 137.5
W41	Earthenware	Coarse Handmade	Broad category of red to brown to grey sherds of a not very dense, medium hard poorly sorted fabric with abundant fine-large sub-angular grit. Interior is usually reduced dark grey. Surface is roughly hand smoothed	Figure 137.8; Figure 143.11
W45	Earthenware	African Type 4 (AFRI.4)	Variably fired reddish-brown to black coarse, not very dense fabric with abundant poorly sorted small-large angular grit, some small-medium white inclusions and burnt organic inclusions. Interior sometimes reduced black, or core reduced grey with reddish-brown surface that is roughly smoothed with marks from organic inclusions, can be burnished	Figure 137.14-15
W47	Earthenware	Hard, Fine Earthenware	Variably fired pale brown to orange to red hard, fine, dense fabric with some small grit and fine sandy inclusions, often has fine-v. fine mica speckling. Exterior is sometimes cream slipped	Figure 129.4-5; Figure 132.5; Figure 136.11-12; Figure 143.10; Figure 146.1-2; Figure 148.12; Figure 150.11
W48	Earthenware	Pinkish-Red Exploded Lime Ware	Medium hard, not very dense pale red to orangey pink fabric with abundant small exploded limy inclusions and abundant poorly sorted large to small fabric coloured grit. Occasional small voids including some from organic inclusions	Figure 130.4; Figure 137.4; Figure 146.8-9; Figure 150.14
W54	Earthenware	Exploded Limy Earthenware	Broad category for a reddish fabric with various abundant inclusions; fine-small exploded lime, abundant small-large sub-angular grit, fine-small rounded sandy quartz.	Figure 130.2
W58	Earthenware	Hard, Reduced Earthenware	Hard, dense reddish-brown fabric with few voids and little visible temper except for some fine speckling. Interior is often reduced dark-brown/dark grey. Surface is well smoothed on the exterior, can be almost burnished.	Figure 130.5; Figure 143.12
W59	Earthenware	Dark Clinky Gritty Ware	Hard, abrasive dark brown/grey (2.5YR4/1) fabric with occasional small-fine voids, and abundant dark gritty platelets, core can be reduced dark purple	Figure 130.7
W60	Earthenware	Dense Brown Earthenware	Medium-brown (7.5YR4/4-5/4) sub-laminate fabric with most of interior heavily reduced to black. Hard, fairly dense with occasional fine-medium sub-angular grit and rare organic inclusions	Figure 132.6; Figure 146.6

Ware No.	Type	Name	Fabric/Description	Examples
W63	Earthenware	Hard Burnished Ware	Hard, dense reddish fabric with core reduced to black, occasional fine-small white and dark gritty inclusions. Exterior is burnished.	Figure 143.13
W5	Glazed Ware	Gold Lustre Ware (OPAQ.LG)	See OPAQ.W (W8) for fabric. Glazed both in a hard white opaque glaze which has been painted with gold lustre patterns. Produced in southern Iran and dated to the late 9th to 10th C. (See Priestman 2021: OPAQ.LG)	Figure 131.8; Figure 142.4, 6-8, 10-11; Figure 143.21; Figure 148.22
W7	Glazed Ware	Gold and Ruby Lustre Ware (OPAQ.GR)	See OPAQ.W (W8) for fabric. Glazed both in a hard white opaque glaze which has been painted with gold and ruby lustre patterns. Produced in southern Iran and dated to mid to late 9th C. (see Priestman 2021: OPAQ.GR)	Figure 142.5, 9, 12-13; Figure 151.16-17
W8	Glazed Ware	White Opaque Glazed Ware (OPAQ.W)	Hard, well sorted pale creamy-yellow fabric. Often without inclusions but sometimes has fine-medium rounded quartz. Glazed both interior and exterior with a hard opaque white glaze. Produced in southern Iran and dated to the early 9th to 10th C. (see Priestman 2021: OPAQ.W)	Figure 131.9; Figure 142.1-3; Figure 143.22; Figure 147.9
W9	Glazed Ware	Alkaline Turquoise Glazed Ware (ALK.T)	Fine, medium-dense fabric with small voids and no visible temper, sometimes appears "fibrous". Glazed on the exterior with a hard turquoise glaze. Interior can be glazed same as exterior, or in a rougher blackish or whitish glaze. Produced in southern Iraq, examples from Al-Juḥfah date to between 8th to 12th C.	Figure 142.19-21; Figure 147.10-12; Figure 148.24; Figure 151.18
W10	Glazed Ware	Hijazi Ware (HIJAZI)	Pale brown (7.5YR6/6 to 7.5YR6/4) to pinkish-red (5YR6/4) fine, hard somewhat abrasive fabric, occasional fine voids & rare fine sandy inclusions. Some fine micaceous inclusions and small-fine sub-angular quartz and grit either dark or fabric coloured. Pale creamy-yellow to strong yellow to mustard yellow underglaze with black glaze patterns and sometimes green glaze over. Sometimes cream slipped below glaze.	Figure 131.1-3; Figure 132.7-8; Figure 138.1-16; Figure 143.16; Figure 147.3-6; Figure 148.14-16; Figure 151.1-4
W11	Glazed Ware	Olive-Brown Hijazi Ware (HIJAZI.OB)	See HIJAZI (W10) for fabric. Similar to HIJAZI, but with a yellow brown to olive-brown primary glaze instead. Could be unusually degraded HIJAZI.	Figure 138.17-22; Figure 147.1; Figure 151.5-6
W12	Glazed Ware	Olive-Brown Glazed Commonware (GLAZ. OB)	See GLAZ.G1 (W30) for fabric. Glaze is usually glossy and a dark olive-brown or olive-green.	Figure 140.1-8; Figure 151.11
W16	Glazed Ware	Turquoise Splashed Opaque Glazed Ware (OPAQ.TS)	See OPAQ.W (W8) for fabric. Glazed both in a hard white opaque glaze which has been splashed with bands or dots of turquoise glaze. From southern Iraq and dated to the mid-9th to 10th C. (See Priestman 2021: OPAQ.TS)	Figure 142.14-15; Figure 151.19
W30	Glazed Ware	Green Glazed Commonware (GLAZ. G1)	Pale brown (7.5YR6/6 to 7.5YR6/4) to pinkish-red (5YR6/4) fine, hard somewhat abrasive fabric, occasional fine voids and rare fine sandy inclusions. Some fine micaceous inclusions and small-fine sub-angular quartz and grit either dark or fabric coloured. Glazed in a medium- to deep green, usually quite hard, often degrading to white.	Figure 131.5-6; Figure 132.9; Figure 139; Figure 140.10-15; Figure 143.17; Figure 147.7 Figure 148.17-19; Figure 151.7-10
W31	Glazed Ware	Yellow Glazed Commonware (GLAZ. Y1)	See GLAZ.G1 (W30) for fabric. Glazed in a pale yellow, often degrading to white.	Figure 131.4; Figure 140.9; Figure 148.20

Ware No.	Type	Name	Fabric/Description	Examples
W32	Glazed Ware	Blue Glazed Commonware 1 (GLAZ. B1)	See GLAZ.G1 (W30) for fabric. Glazed in a deep blue to dark turquoise blue, usually a hard, glossy glaze	Figure 141.2
W34	Glazed Ware	Degraded Glazed Commonware (GLAZ. O1)	See GLAZ.G1 (W30) for fabric. Category for glazed wares where the glaze has degraded to the point where the original colour cannot be determined. Glaze has usually degraded to an off-white.	Figure 141.4-7; Figure 143.18-19
W35	Glazed Ware	Blue Glazed Commonware 2 (GLAZ. B2)	Reddish to orangey-pink (5YR5/6) fairly dense largely well levigated fabric with abundant fine mica & occasional sub-angular medium-fine quartz and black inclusions. Glazed in a deep blue. Could be an unusually weathered GLAZ.B1.	Figure 131.7; Figure 141.3
W36	Glazed Ware	Polychrome Glazed Ware (POLYG)	Dense, well levigated slightly abrasive fabric with few visible inclusions, rare small subangular quartz/red-dark grit. Glazed green and yellow with dark brown/purple lines and dots. Could be a Coptic Glazed Ware variant (see Ting & Taxel 2020)	Figure 141.9
W37	Glazed Ware	White Opaque Glazed Ware 2 (OPAQ.W2)	Fine, well levigated, somewhat abrasive Pale brown (7.5YR6/4) fabric with no visible inclusions, rare small voids, denser and harder than OPAQ.W. Glazed both in a hard white glaze. Likely early 9th to 10th C. Potentially an unusually weathered OPAQ.W	
W42	Glazed Ware	Green/Yellow Glazed Moulded Ware	Fine, medium-dense pinkish fabric, somewhat abrasive with occasional fine black and white speckling, including rare exploded lime. Moulded decoration under a green and/or yellow glaze. Variations on this style were in use from the Umayyad through the Abbasid period.	Figure 141.8; Figure 143.20; Figure 148.21; Figure 151.12-15
W43	Glazed Ware	Green and White Splashed Ware (Splash. GW)	Hard, well sorted light cream (2.5YR 8/3-4) fabric with very fine dark inclusions and small voids. Clear lead glazed which appears white on the body splashed with green glazed streaks. Likely from southern Iraq and dated to the mid-9th to 10th century. (see Priestman 2021: SPLASH.GW1).	Figure 142.17; Figure 148.25; Figure 151.22
W44	Glazed Ware	Turquoise and Black Splashed Opaque Glazed Ware (OPAQ. TBS)	See OPAQ.W (W8) for fabric. Glazed both in a hard white opaque glaze which has been splashed with bands or dots of turquoise and black glaze. From southern Iraq and dated to the mid-9th to 10th C. (See Priestman 2021: OPAQ.TBS)	Figure 142.16
W46	Glazed Ware	Polychrome Splashed Ware (SPLASH.P)	Hard, finely levigated pale brown fabric with rare small sub-angular grit and occasional small voids. White slipped with a clear glaze splashed with a combination of brownish-yellow, pale blue, green and black. Potentially Priestman's SPLASH.P1 (2021) which would date to the mid-9th to 10th C.	Figure 142.22-23; Figure 148.26-27; Figure 152.1
W51	Glazed Ware	Dark Brown Glazed Commonware (GLAZ. DB)	See GLAZ.G1 (W30) for fabric. Hard, fairly glossy deep dark brown speckled glaze	Figure 141.1

Ware No.	Type	Name	Fabric/Description	Examples
W52	Glazed Ware	Black Splashed Opaque Glazed Ware 2 (OPAQ. BS2)	Fine, fairly hard, medium density, somewhat abrasive pale brown (7.5YR7/4) fabric with occasional small-fine rounded quartz sand inclusions. Glazed in a hard white glaze with black splashed dots or bands. Likely mid-9th to 10th C. Potentially an unusually weathered OPAQ.BS	
W53	Glazed Ware	Turquoise Splashed Opaque Glazed Ware 2 (OPAQ.TS2)	See OPAQ.BS2 (W52) for fabric. Glazed in a hard white glaze with turquoise splashed dots or bands. Likely mid-9th to 10th C. Potentially an unusually weathered OPAQ.TS	
W55	Glazed Ware	Cobalt Decorated Opaque Glazed Ware 2 (OPAQ.CS2)	See OPAQ.BS2 (W52) for fabric. Glazed in a hard white glaze with bright cobalt. Likely and unusually weathered example of Priestman's OPAQ.C (2021) dated to the early to mid-9th C.	Figure 131.10
W56	Glazed Ware	Green and White Splashed Ware 2 (SPLASH.GW2)	See OPAQ.BS2 (W52) for fabric. Glazed in a clear glaze with white and green splashes. May be an unusual mid-9th to 10th C. Priestman's SPLASH.GW1 (2021)	Figure 131.11
W57	Glazed Ware	Turquoise and Black Splashed Opaque Glazed 2 (OPAQ.TBS2)	See OPAQ.BS2 (W52) for fabric. Glazed in a hard white glaze with turquoise and black splashed dots or bands. Likely mid-9th to 10th C. Potentially an unusually weathered OPAQ. TBS	Figure 131.12; Figure 151.20
W64	Glazed Ware	Fine Olive Glazed	Yellowish cream (2.5Y8/3) fine, not very dense somewhat abrasive fabric with no visible inclusions an occasional very fine to fine voids. Glazed both sides with a thick olive-green glaze. Potentially an Iraqi or Iranian imitation of Chinese Celadons.	Figure 147.8
W65	Glazed Ware	Manganese Purple Underglaze-Painted Ware? (MPPW)	Fine, well sorted slightly abrasive medium-brown (5YR5/3) fabric with some fine rounded sand and occasional very fine mica speckling. Surface slipped or glazed white then painted over with black patterns and occasionally splashed/filled with blue. Potentially Priestman's (2021) MPPW.1 dated to the 11th to early 14th C. However, the form is unusual and may be an unusually weathered Hijazi ware sherd	Figure 147.13
W68	Glazed Ware	Black Splashed Opaque Glazed Ware (OPAQ.BS)	See OPAQ.W (W8) for fabric. Glazed both in a hard white opaque glaze which has been splashed with bands or dots of black glaze. From southern Iraq and dated to the mid-9th to 10th C. (See Priestman 2021: OPAQ.BS)	Figure 148.23
W49	Fritware	Blue and White Fritware (FRIT.BW)	Medium coarse, somewhat friable off-white frit body with blue glazed designs under a clear glaze. Could be from Egypt or Iraq and dates between the 14th and 19th century (see Priestman 2021: FRIT.BW for Iraqi variant)	Figure 151.23
W14	Stoneware	SEA Unglazed Stoneware	Hard, dense grey (~10Y4/1) stoneware fabric with occasional voids and some fine rounded sandy (incl. quartz?) inclusions. Interior slipped black, exterior dark brown. Likely from South-East Asia based on fabric but have yet to find exact parallels.	Figure 151.25

Ware No.	Type	Name	Fabric/Description	Examples
W70	Stoneware	SEA Green Glazed Stoneware	Fine, hard pale grey stoneware fabric with abundant fine black and rare white inclusions, slightly darker towards exterior. Speckled green glaze on exterior. Likely from South-East Asia.	Figure 151.26
W61	Porcelain	Chinese Yue Celadon (CEL.YUE)	Fine, hard compact, pale grey fabric with no visible inclusions. Glazed on both side with a hard pale greenish-grey or olive grey glaze. Note: while Celadons are technically a stoneware it is considered a porcelain here due to the very fine "porcelaneous-stoneware" fabric and the fact that its function and forms align closer to Chinese porcelains than typical Stonewares. Dated to the early 9th to 10th century from Zhejiang Province, South China (see Priestman 2021: YUE.1-4).	Figure 148.28; Figure 151.24
W62	Porcelain	Chinese White Ware	Pure white or light grey porcelain fabric covered by a tinted off-white glassy glaze. The example from Al-Juḥfah has exact parallels to Priestman's Carved White Ware (see 2021: CWW), dated to the 11th to 13th C. from Guangdong Province, South China.	Figure 143.23
W69	Porcelain	Japanese Porcelain Coffee Cup	Special category created for several sherds of 20th century Japanese coffee cups collected from surface collection for reference.	
W99	-	*Tannūr*	Special category created to record any *tannūr* fragments collected. An orangey-brown (7.5YR6/4) soft friable fabric with abundant voids from organic inclusions, occasional small-medium dark sub-angular grit, fine rounded sand and small sub-angular quartz, some fine mica speckling.	
W100	-	Unique/Unidentified	Special category created to record unglazed sherds which were either too worn or isolated and not distinctive enough to provide their own category.	
W110	-	Unique/Unidentified Glazed Ware	Special category created to record glazed sherds which were either too worn or isolated and not distinctive enough to provide their own category.	

This volume presents the results of the first season of fieldwork on the Hajj/Hijrah route between Makkah and Madinah in the Hijaz region of Saudi Arabia. The project developed from the ground-breaking research of Professor Abdullah Alkadi, who identified 55 milestones demarcating an ancient caravan route, the Darb al-Anbiyā', or 'Way of the Prophets', which later became a Hajj route surviving in sections between Makkah and Madinah. Preliminary survey was completed on this route in March 2023, and one of the key sites identified was Al-Juḥfah (7th/8th to 12th c. CE), approximately 185km north of Makkah, where there are the remains of a substantial stone-built town and *qaṣr*. Particular attention is given to the aerial and pedestrian surveys, ceramic transect survey, shovel test pitting, and test excavations at this abandoned settlement, which was one of the five *mīqāt*, the fixed boundaries where pilgrims adopted *iḥrām* for Hajj and 'Umrah.

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