

# ARCHAEOLOGICAL SURVEY FOR THE RED SEA DEAD SEA CONVEYANCE STUDY

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Jordan, in common with most countries of the Near East, is facing an acute water problem. A rising population and the increased use of sweet water is depleting rivers and aquifers alike. One consequence has been the rapidly declining level of the Dead Sea, which threatens the long-term viability of both tourism and agriculture in the region. This problem is not new and various solutions for the problem have been suggested over the past 50 years.

In 2007 the World Bank, in co-operation with the governments of Jordan and Israel, and the Palestinian Authority, agreed to support a Study Program to investigate the viability of building a conduit to convey water from the Red Sea to the Dead Sea.

## **Purpose of the RSDSC**

The overall purpose of the Red Sea Dead Sea Conveyance (RSDSC) is to take seawater from the Red Sea and carry it north to the Dead Sea basin. The water would then be used to restore the water level in the Dead Sea and, after desalination, to supply potable water to Jordan, Israel and the Palestinian Authority.

An intake would be established in the Gulf of 'Aqaba from which seawater would be conveyed along the Wādī 'Arabah. The conveyance would be either a tunnel through the hills to the east, a tunnel and open channel, or a buried pipeline along the valley floor. All three alignments lie entirely within Jordanian territory. The conveyance would carry the seawater for around 200km northwards and terminate just south of the evaporation ponds which now constitute the southern basin of the Dead Sea.

Freshwater conveyances would be con-

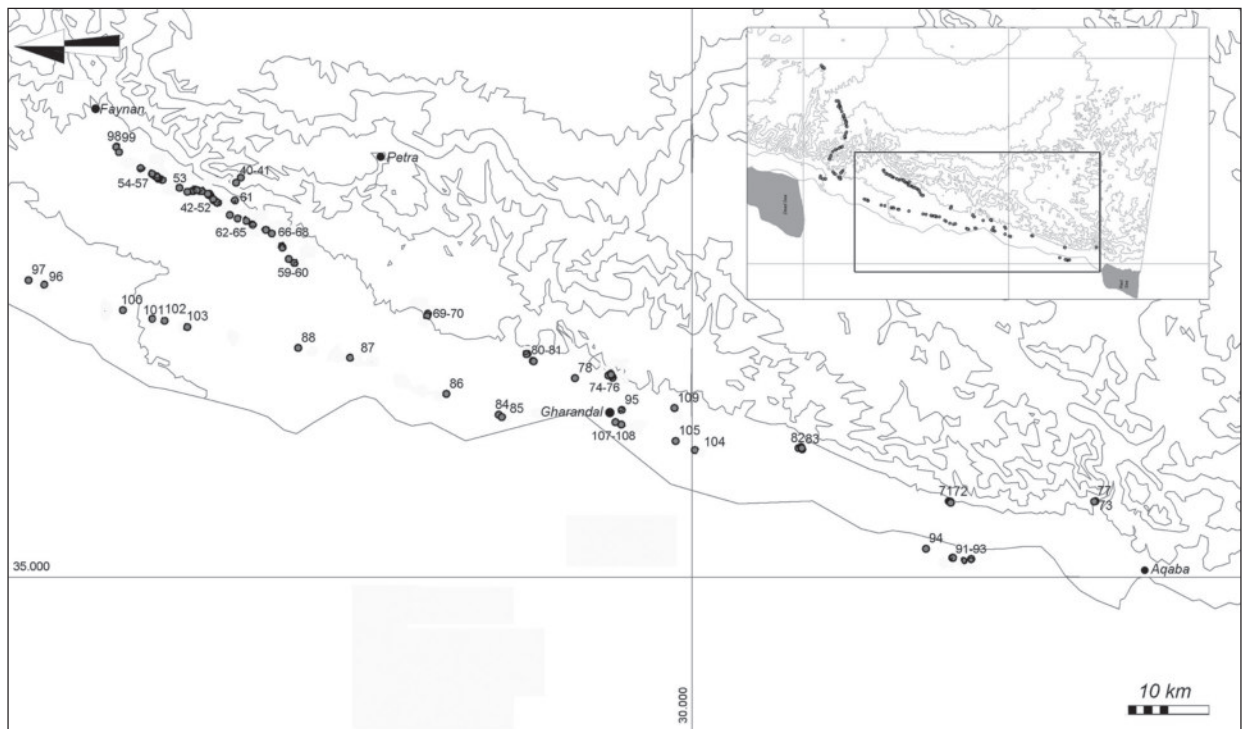
structed to take the potable water for Jordan from the desalination plant in the Dead Sea basin through the Ṭafilah highlands to the southern outskirts of 'Ammān.

As part of the overall environmental and social impact assessment for the RSDSC feasibility study, an archaeological survey of the areas that would potentially be affected was carried out in December 2009 and February and March 2010. This survey was conducted under the auspices of a consortium managed by the World Bank on behalf of the governments of Jordan and Israel, and the Palestine Authority, led by ERM, BRL and EcoConsult. The archaeological field survey in Jordan was carried out with the co-operation of the Jordanian Department of Antiquities (DoA), by the authors of this report, the invaluable DoA surveyors Jamal Safi and Tawfiq Huneiti, and additional team members from the DoA: Jihad Darwish, Sate Masadeh and Abdullah Rawashdeh. We are extremely grateful to the late Dr Khraysheh and to Dr Harahsheh and the DoA for their support and for providing the help of such an excellent team to carry out the survey.

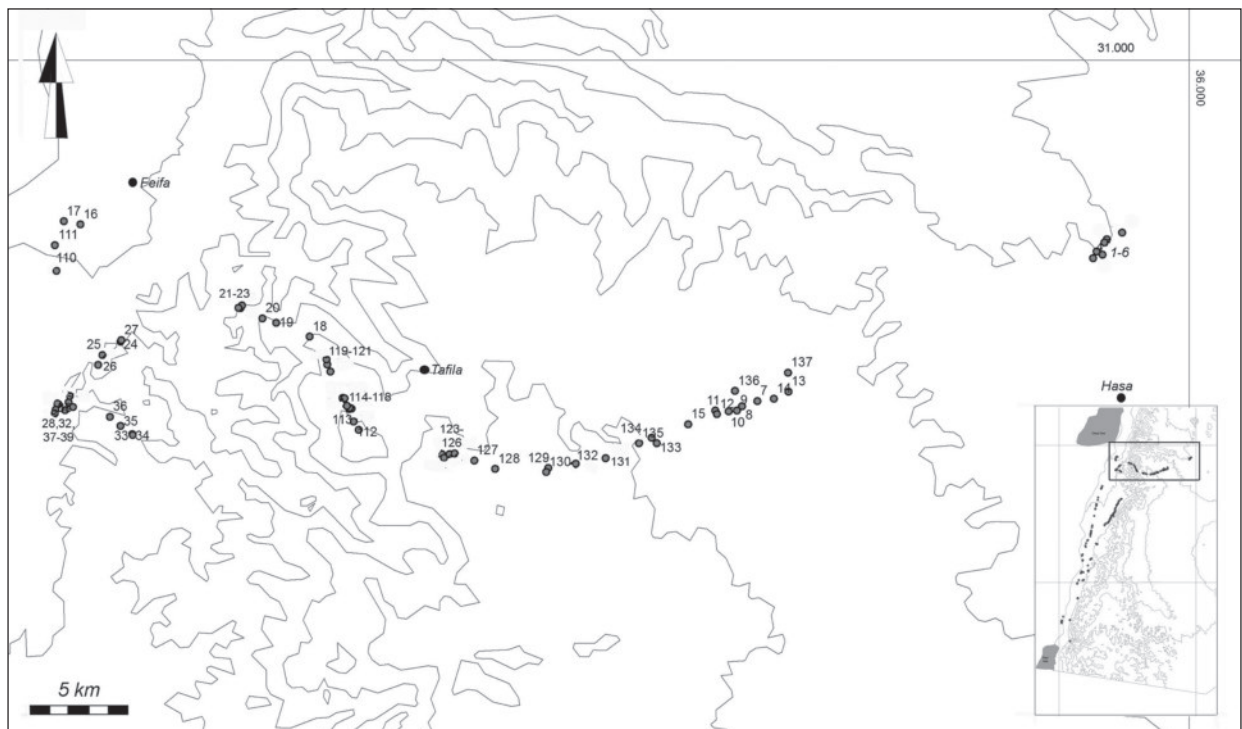
## **Area Covered by Survey**

The geographical extent of this project runs from the Gulf of 'Aqaba, along the entire length of the Wādī 'Arabah, to the southern end of the Dead Sea basin, and from there up through the Ṭafilah highlands as far as al-Ḥasā (see **Figs. 1-2**).

This survey set out to cover as much ground as possible along the proposed routes of the RSDSC scheme, as conceptualised in the initial studies. On the ground, this meant attempting to



1. Map of sites found in the Wādī 'Arabah.



2. Map of sites found in the Ṭafīlah highlands.

look at all the areas that would be affected by each of the three possible schemes:

- (1) A pipeline for sea water running more or less in the bottom of the Wādī 'Arabah

near the border between Jordan and Israel, between Aqaba and the south end of the Dead Sea basin;

- (2) Access points for tunnels running through

- the lower part of the mountains forming the eastern margin of the Wādī ‘Arabah;
- (3) Two canal sections along the eastern margin of the Wādī ‘Arabah;
  - (4) A sea water intake and pumping station in the ‘Aqaba region;
  - (5) Sites for desalination and hydroelectricity plants, south of Fīfā;
  - (6) A pipeline route for sweet water from just south of the Dead Sea basin, through the Ṭafilah highlands, to join the Desert Highway roughly at al-Ḥasā.

Some stretches were not surveyed: in the mountainous area they were mainly those isolated places that were too time-consuming to reach, or too steep to walk; in the Wādī ‘Arabah, they were mainly areas of continuous dunes and the large mudflats. One of the options, for a pipeline along the bottom of the Wādī ‘Arabah, runs very close to the Jordan / Israel border, and in order to access this alignment arrangements were made with the military authorities.

## Methodology

### *Survey Techniques*

In order to cover this vast area in the limited time available, one of the following survey techniques was adopted depending on the terrain and the ‘shape’ of the area to be covered:

- (1) Systematic walk-over survey;
- (2) Drive-over survey;
- (3) Targeted sample survey.

The ‘shape’ of the areas to be covered consisted of either a long narrow right of way for the proposed 220m canals and pipeline conveyances, or blocks of land designated as sites for construction of various elements of the scheme (e.g. the pumping station, desalination plant etc.). The locations of work camps around tunnel access points were less clearly defined, and therefore the general area surrounding these points was inspected.

The long narrow stretches were walked with three to five people spaced, on average, 20m apart, thus covering a corridor of 80-100m. The blocks of land were sampled either by systematic walkover (when flat) or by targeted walkovers (in hilly or steep mountainous areas), also with between three and five people. In all cases, visibility of the ground surface was excellent.

### *Site Recording*

Owing to time constraints, all sites found were rapidly recorded and photographed, but no artefacts were collected. Each site was located using a Trimble and a Garmin GPS; the site size was roughly estimated, its topographic location, present condition and, of course, details of the site type and what it contained were all recorded in the field. Where possible field identification of the pottery or flints was made in order to date them. Some items were photographed, and later shown to experts in the appropriate field, in order to confirm these field identifications. All this information was integrated into a project database.

All across the landscape there are many individual and small groups of stone piles that are usually assumed to represent graves. It was decided that groups of one to three graves would be recorded simply as a grave location, with minimal details (GPS location and some further details), whereas groups of four or more graves would be recorded as a cemetery site. This methodology was developed during the course of the survey, so that for the first two weeks (that is along the eastern and western ends of the eastern sweetwater conveyance line, between Ghawr Fīfā and al-Ḥasā) these individual graves were not recorded.

## Results

A total of 137 new sites and 69 individual graves were located by the survey. They cover all periods and many types of sites, ranging from flint and sherd scatters, stone circles and enclosures to towers and agricultural installations, and many cemeteries. This project had the privilege of gaining access, with military permission and escort, to areas along the border in the bottom of the Wādī ‘Arabah, an area that has never been surveyed systematically. Given the hot and difficult landscape it is interesting to note that there are a surprising number of sites, albeit small ones.

The majority of sites in the Wādī ‘Arabah were graves and cemeteries, but some interesting enclosures were found, some in unlikely places, as well as some small groups of structures, ancient campsites with fireplaces, prehistoric flint quarry sites and concentrations, and two small Roman towers. Generally there was a very low or no background scatter of flints and virtually

none of pottery.

The sites in the mountains and hills from Ghawr Fīfā, across the Tafīlah highlands, and east towards al-Ḥasā were more varied and, as well as cemeteries, graves and enclosures, there were stone circles, agricultural sites, caves and rock shelters, and track ways. In the settled and agricultural highlands there was a relatively high level of background pottery sherds, mostly from the Classical period and earlier, and in the eastern steppelands, around Wādī al-Ḥasā, there was a background scatter of flints in many areas.

If and when the RSDSC scheme goes ahead, each of the sites recorded by this survey that lie within its path will need to be revisited, fully documented and excavated as necessary. If the alignments of the scheme are different from those that were surveyed, then the new alignments will need to be surveyed.

The catalogue of the sites recorded by the survey is presented below. The complete database for this survey is archived at the DoA.

The two maps (one for the Wādī ‘Arabah [Fig. 1] and the other for the highlands [Fig. 2]) show the numbered sites on a simple contour map of the area.

#### *Summary of Sites Found*

The sites are presented in the order in which they were found during the survey. Each site number is followed by UTM zone 36 co-ordinates and then the elevation in metres above or below sea level.

#### Site 1

E 0782673 N 03423092. 909m

Stone circle / enclosure, *ca.* 10x20m, open on one side, on a gentle sideslope. One stone high, one stone wide; partially cleared of stones inside. Small ‘wall’ projecting westwards. Flints in area around, probably Palaeolithic.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 2

E 0782562 N 3422929. 898m

Enclosure, roughly rectangular, *ca.* 21x18m, on a gentle hill slope. Wall made of basalt and limestone boulders 1 to 2 courses high. Inside is cleared of stones and there is a small stone ‘platform’ inside. A few flints and a few sherds

found in area.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

#### Site 3

E 0782184 N 3422381. 960m

Cemetery of 15-20 scattered small graves across a hilltop. Graves made of large local limestone boulders, one stone high; roughly oval.

Site condition: Reasonable

Survey area: Fīfā to al-Ḥasā line

#### Site 4

E 0782019 N 3422011. 933m

Sub-rectangular enclosure near head of wādī, *ca.* 35x18m, on a gentle slope; about four internal divisions and some internal features (e.g. small, square wall). Made of single stone walls, one course high. A few flints and a few sherds found in area.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

**FIG. 3:** Site 4

#### Site 5

E 0782490 N 3422223. 905m

Tumbled, rectangular tower, roughly 6x4m, surviving to a maximum of four courses high (*ca.* 1.5m high) on north and west sides. It is surrounded by a low external wall measuring *ca.* 12x10m. Situated on a hilltop ‘nose’, there are good views all round. Probably Roman.

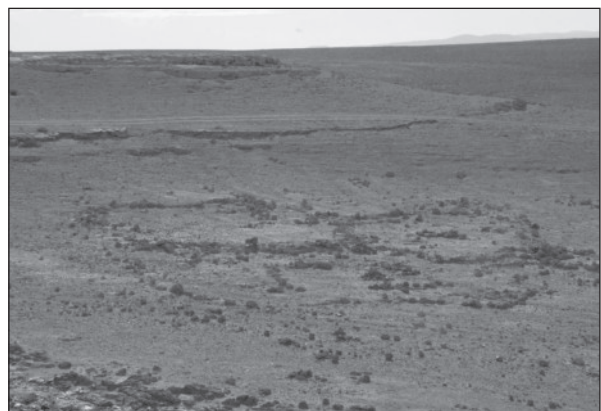
Site condition: Reasonable

Survey area: Fīfā to al-Ḥasā line

**Fig. 4:** Site 5

#### Site 6

E 0783431 N 3423498. 893m



3. Site 4: enclosure with internal divisions.



4. Site 5: remains of a rectangular tower.

Structure, *ca.* 2.5x2m, on an open plateau, one course high with possible entrance, and with fragments of column. A few sherds around.

Site condition: Poor, robbed

Survey area: Fīfā to al-Ḥasā line

#### Site 7

E 0765614 N 3413396. 1116m

Thin lithic scatter on flat hilltop, probably Palaeolithic, but also found a fan scraper, so could go to as late as EB. On gentle slope below is a large cemetery of unknown date consisting of a scatter of at least 80 graves spread across more than 100m; these are small round stone piles (1 to 1.5m diameter).

Survey area: Fīfā to al-Ḥasā line

#### Site 8

E 0764869 N 3413066. 1095m

Hilltop cemetery with 2 large graves, *ca.* 2m in diameter with a high stone pile on top, of local limestone boulders, about 12m apart, and another, less well-preserved grave further away. There may be others nearby. There is the ubiquitous flint scatter across this site and the general landscape around. Some Roman / Byzantine sherds were also found.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

#### Site 9

E 0764624 N 3412829. 1146m

D-shaped enclosure on hill slope 'nose', *ca.* 8x7m, with one side disappeared. Made of a single line of upright fossiliferous limestone slabs (many are slumped over). Background scatter of flints and some Roman / Byzantine sherds, which may or may not be associated with the

enclosure.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

#### Site 10

E 0764209 N 3412756. 1157m

Small cemetery, on a hilltop saddle, with 4-6 scattered graves of local boulders at ground level. One is oval, about 2m long and oriented east - west, the others are more rounded. These could be recent burials.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

#### Site 11

E 0763544 N 3412796. 1150m

Small, probably square tower, *ca.* 3x3m, standing on a hilltop about 2m to the east of long wall (site 12) that forms one stretch of the Khaṭṭ Shabīb. Only one course of one wall remains, of roughly hewn rectangular blocks of local limestone for a length of *ca.* 3m. The few sherds around the tower are Roman / Byzantine, but cannot really be directly associated with it.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 12

E 0763634 N 3412588. 1153m

Long wall, visible for several kilometres, meandering across the landscape, often on ridge tops. This is one stretch of the wall known as Khaṭṭ Shabīb. Made of limestone boulders, mostly spread across a width of about 2-3m.

Site condition: Reasonable

Survey area: Fīfā to al-Ḥasā line

#### Site 13

E 0767144 N 3413976. 1081m

Rectangular enclosure, *ca.* 18x16m, on a hill slope beside a shallow *wadi*, with small rectangular 'room' in north-east corner that has two newer graves in it. Enclosure walls are tumbled and not complete. Background scatter of flints and a few sherds found.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 14

E 0766427 N 3413553. 1095m



5. Site 17: natural rounded boulders forming the sides of a channel.

Squarish structure, *ca.* 1.6x1.1m, on a hill slope; made of large limestone blocks (roughly dressed); completely robbed out. Down slope and 20m away is a short wall, *ca.* 8m long, made of upright limestone slabs that might be part of an enclosure. Background scatter of flints and a few sherds found.

Site condition: Poor, robbed.

Survey area: Fīfā to al-Ḥasā line

#### Site 15

E 0762220 N 3411985. 1173m

Hilltop site consisting of three large, robbed stone piles. One is probably a grave, completely robbed out, *ca.* 4x2m, made of limestone blocks. The second is a strange, round structure, external diameter *ca.* 7x6m, made of roughly dressed limestone blocks. It has been robbed out to reveal three courses of blocks and a slightly curved wall of blocks across the middle of the circle. 8m to the east is a robbed out and destroyed circular stone grave with a central rectangular cist.

A few sherds found in area.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 16

E 0731884 N 3422734. -310m

Long, winding channel located in the flat, sandy bottom of the Dead Sea basin. Made of rounded boulders about 30-40cm wide. Width of channel itself is about 50cm. Mostly sanded up, but in a few places it seems that there is old mortar between the stones. Probably a relatively recent water channel system, to which site 17 must also belong.

Site condition: Reasonable

Survey area: Dead Sea basin

#### Site 17

E 0731057 N 3422895. -379m

Long, winding channel located in the flat, sandy bottom of the Dead Sea basin. Made of rounded boulders about 30-40cm wide. Width of channel itself is about *ca.* 30-40cm. Mostly sanded up, but in a few places it seems that there is old mortar between the stones. Probably a relatively recent water channel system to which site 16 must also belong.

Site condition: Reasonable

Survey area: Dead Sea basin

**Fig. 5:** Site 17

#### Site 18

E 0743364 N 3416557. 896m

Stretch of road / trackway on a hill slope defined by two parallel walls of tumbled stones about 1 m wide each. Road varies between 2 and 3 m wide between the walls. No sign of metalling or other road surface, just some stone clearance. Visible for a length of about 300m; destroyed at each end. There are no other visible traces of it here.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

**Fig. 6:** Site 18

#### Site 19

E 0741703 N 3417319. 850m

Structures on a hilltop covering an area of about 50x30m, but completely destroyed by bulldozer. Remains of large limestone boulders can be seen, a few look like they are still in line, form-



6. Site 18: an ancient road or track.

ing a wall. A few sherds, Classical and perhaps Iron Age.

Site condition: Destroyed

Survey area: Fīfā to al-Ḥasā line

#### Site 20

E 0741008 N 3417555. 693m

A series of small rock shelters and one cave (about 5x4m) on a ledge on a steep hillside, below a low cliff. In front of these is a modern wall then a flat area defined by an old wall made of limestone boulders. The cave is full of layers of sheep dung. There are a few sherds.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

#### Site 21

E 0739915 N 3418113. 412m

Small pottery concentration beside a shallow *wadi*, below a low cliff. Two types of pottery found: one hand-made red with incised criss-cross pattern, the other buff wheel-made large (water?) jar. Classical and Islamic date. This site might represent a temporary camp below the nearby track, site 22.

Site condition: n/a

Survey area: Fīfā to al-Ḥasā line

#### Site 22 A, B, C and D

E 0739975 N 3418263. 413m

Track winding across the hillside, about 1m wide. Can be followed for about 300m. Some sherds of Roman / Byzantine pottery found.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 23

E 0739801 N 3418118. 375m

Oval tumulus or grave, *ca.* 3x4m, on a flat area, with sherd scatter next to it. Pottery from Iron Age II and Roman period and one flint scraper.

Site condition: Poor, partly robbed

Survey area: Fīfā to al-Ḥasā line

#### Site 24

E 0734023 N 3416056. -40m

Circular enclosure, *ca.* 12x14m, with two small adjoining spaces on north side. Walls of boulders, *ca.* 1m wide and one or two stones high. Located on a flat area between *wadis*. Pottery was found, possibly EB IV.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

#### Site 25

E 0733143 N 3415280. -90m

Two small, roughly rectangular enclosures about 17m apart north - south, on a flat area between hills. The northern one, *ca.* 11x11m, has a small additional enclosure on north side, and a pile of rocks on the south side. Walls are tumbled, made of local sandstone boulders. The southern enclosure is larger, 14x14m but less well defined. Possible grave on north side. No surface finds.

Site condition: Reasonable

Survey area: Fīfā to al-Ḥasā line

#### Site 26

E 0732936 N 3414712. -19m

Cemetery with more than 20 graves spread across a plateau edge next to a *wadi*. Graves are mostly oval mounds of about 3x2m, some very eroded.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 27

E 0734063 N 3416140. -32m

Stone circle, one stone wide, 4x4m. On gently sloping plateau above a *wadi*.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

#### Site 28

E 0731020 N 3412406. -46m

Small cemetery on a small ridge next to a *wadi* with about 13 burials, about four of which appear to be children. Oval stone piles, defined by a ring of stones, with gravel and small stones in-

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side, *ca.* 2x1m and oriented east-west.

Site condition: Good

Survey area: Wādī 'Arabah

Site 29

E 0731516 N 3412528. -40m

Cemetery, 20 or more graves spread across a flat, low area between the hills. Graves are round or oval stone piles, generally small. Roman / Byzantine pottery nearby.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 30

E 0731367 N 3412071. -49m

Small cemetery with about ten old, very disturbed graves on a small *wadi* terrace between the hills. Some Roman and possibly Byzantine pottery around.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 31

E 0731573 N 3412900. -36m

Cemetery and campsite with ten or more small, circular to oval stone heaps, widely scattered across a flat area between hills. Tent clearance patches, and pottery: possibly Chalcolithic, EB IV, IA, Roman, Byzantine and Nabataean, plus one basalt grinder fragment.

Site condition: Reasonable

Survey area: Wādī 'Arabah

Site 32

E 0731734 N 3412266. -45m

Cemetery of two oval graves, on a narrow flat area between the hills, next to a *wadi*. Graves are low stone piles. Some Roman pottery found nearby.

Site condition: Reasonable

Survey area: Wādī 'Arabah

Site 33

E 0734713 N 3410763. 225m

Complex of simple structures, small stone circles, graves and a sherd scatter of Roman pottery on a flat area, *ca.* 40x40m, bordered by two *wadis*. Possible stone square 8x8m. Also a modern *bedouin* campsite that includes stone platforms. Possibly one complex with nearby site 34.

Site condition: Poor



7. Site 34: enclosure with annexes.

Survey area: Wādī 'Arabah

Site 34

E 0734728 N 3410716. 231m

Sub-rectangular enclosure, with internal dimensions of 11x13m, and with less well preserved annexes on north and east sides, on a flat area between hills. Wall is *ca.* 1m wide, made of large local boulders, one to three stones high. Wall seems most substantial on north side. Slightly higher than site 33, and possibly one complex with it. Roman sherds found around area.

Site condition: Good

Survey area: Wādī 'Arabah

Fig. 7: Site 34

Site 35

E 0734130 N 3411234. 228m

Small sherd scatter, on a flat area next to a *wadi*. Pottery is Roman / Byzantine and Ayyubid / Mamluk. There are some possible graves.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 36

E 0733580 N 3411743. 178m

Small cemetery with a few graves, one large, 3x3m with large boulders, roughly circular, with the actual grave in the middle. Robbed. Roman / Byzantine pottery around this grave and Chalcolithic pottery to the west of it. Flat area by the roadside

Site condition: Reasonable

Survey area: Wādī 'Arabah

Site 37

E 0730892 N 3412096. -68m

Two oval and two squarish graves on the slope, some stone piles and small possible walls /



I. Ruben et al.: Archaeological Survey for the Red Sea Dead Sea

structures on a *wadi* terrace and lower hill slope. Disturbed by bulldozer track. Pottery is Roman and possibly IA.

Site condition: Poor

Survey area: Wādī ‘Arabah

Site 38

E 0730849 N 3411887. -88m

Thin pottery scatter on a *wadi* terrace. Sherds are Chalcolithic / EB. Site has been disturbed by a bulldozer track; modern *bedouin* camp nearby.

Site condition: Poor

Survey area: Wādī ‘Arabah

Site 39

E 0730958 N 3412457. -96m

Multi-period campsite, on a large flat area next to *wadi*, with cleared patches and rock piles. Pottery is Chalcolithic, EB and Roman.

Site condition: Poor

Survey area: Wādī ‘Arabah

Site 40

E 0730012 N 3375040. 282m

Small lithic and pottery scatter, on a deflated surface on the top of an outcrop. Pottery is Nabataean / Roman, also some Palaeolithic flints.

Site condition: Poor

Survey area: Wādī ‘Arabah

Site 41

E 0730245 N 3374828. 305m

Small cemetery with five or six circular graves, *ca.* 2x2m, made of ring of large local boulders, one or two stones high, with centre filled with smaller stones. On boulder-strewn alluvial fan at foot of mountains.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 42

E 0729868 N 3376517. 194m

Small cemetery with five roughly oval graves, made of rings and piles of local boulders. On boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 43

E 0729871 N 3376629. 205m

Thin pottery scatter of Roman / Byzantine sherds and one circular grave, on boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 44

E 0729969 N 3376882. 205m

Five contiguous enclosures: roughly circular and terraced. Each enclosure is demarcated by a wall of local stones and is cleared of stones inside. A few surface flints and tools, probably Chalcolithic / EB. Enclosures vary from 6x6 to 10x15m. Also, just across a small *wadi* is one robbed tomb, about 1 m high and *ca.* 5 x 5 m oval with an internal chamber of upright stones, 1x1m oval. Like site 51, this is a strange place to find enclosures, in the middle of a boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 45

E 0730081 N 3377051. 204m

Small cemetery with 11 graves, consisting of oval stone piles dispersed across the boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 46

E 0730210 N 3377298. 203m

Small cemetery with six or seven circular stone pile graves, *ca.* 3x3m, dispersed across the boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 47

E 0730655 N 3377682. 205m

Wall, curving and crossing a small *wadi* within the boulder-strewn alluvial fan. About two courses high and 20m long, made of local boulders.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 48

E 0730736 N 3377905. 198m

Enclosure and five or more graves. Enclosure is a C-shaped wall about 10m long, made of local

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boulders, one or two courses high, tumbled. Thin sherd scatter of Chalcolithic / EB I and Classical sherds. On the boulder-strewn alluvial fan.

Site condition: Reasonable

Survey area: Wādī ‘Arabah

Site 49

E 0731151 N 3378711. 114m

Small cemetery with at least six circular graves or low stone piles, about 1.5m in diameter. On the boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 50

E 0731222 N 3379418. 201m

Enclosure and cemetery with 20 or more graves – small ovals, about 1x0.5m – dispersed across the boulder-strewn alluvial fan. Thin scatter of Nabataean / Roman sherds. The enclosure is roughly circular, 7x7m, made of local boulders, one or two stones high, more or less clear inside. Also a small wall nearby.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 51

E 0731106 N 3379896. 202m

Enclosures and a cemetery with 15 or more graves – large and small stone piles, *ca.* 2x2m and 1x 0.5m – and a thin scatter of Nabataean / Roman sherds. The enclosures are a series of four terraced enclosures in a row. Each one is about 12x20m, made of local boulder walls and cleared of stones inside. There is only a slight change in level from one enclosure to the next. There is a thin scatter of Chalcolithic / EB and Classical sherds. Just north of the enclosures is a long wall that turns through 90 degrees. Like site 44, the middle of a large boulder-strewn alluvial fan is a very strange place to find enclosures.

Site condition: Good

Survey area: Wādī ‘Arabah

**Fig. 8:** Site 51

Site 52

E 0731027 N 3380419. 202m

Enclosure and a cemetery of four or more small stone pile graves. The enclosure is on the side of a small *wadi* within the boulder-strewn alluvial fan. It is about 20x20m, made of local



8. Site 51: cleared terraced enclosures on the boulder-strewn alluvial fan.

boulders and clear inside. A few Nabataean / Roman sherds found around.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 53

E 0731557 N 3381617. 213m

Small cemetery on the boulder-strewn alluvial fan, with four or more circular and oval graves, *ca.* 1x1m - low stone piles. Seems to be very old, the graves are in poor condition.

Site condition: Poor

Survey area: Wādī ‘Arabah

Site 54

E 0732208 N 3383602. 203m

Small cemetery, with five circular graves, *ca.* 1-1.5m diameter, of large boulders on the boulder-strewn alluvial fan. Two more graves found about 50 m further north.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 55

E 0732528 N 3384250. 209m

Enclosure and cemetery on the boulder-strewn alluvial fan. The enclosure is *ca.* 17x14m inside; the walls are about 1m wide of tumbled boulders, nothing inside. A very few flint flakes were found. The cemetery consists of ten graves scattered around the enclosure. Graves are low, circular stone piles, *ca.* 1x1m.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 56

E 0732983 N 3384798. 220m

Enclosure and cemetery on the boulder-strewn alluvial fan. The enclosure walls are not in very good condition and are made of local stones. It is 20x20m and is cleared inside. There are six later graves, in or on the enclosure and around it and possibly some small structures.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 57

E 0733154 N 3385156. 213m

Small cemetery and flint scatter on the boulder-strewn alluvial fan. The five graves are low, round stone piles, *ca.* 2x2m. There are a few flakes and used flakes, probably Epipalaeolithic and later.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 58

E 0725726 N 3369175. 219m

Small cemetery with seven or more graves, *ca.* 1.5-3m in diameter, circular stone piles, on the boulder-strewn alluvial fan.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 59

E 0724450 N 3368389. 216m

Small cemetery with six or more graves dispersed on the boulder-strewn alluvial fan, consisting of round stone piles from 1-3m in diameter. A few Nabataean / Roman sherds and a few flint flakes found.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 60

E 0724082 N 3367256. 221m

Small cemetery with five or more circular graves, *ca.* 2m in diameter, on the boulder-strewn alluvial fan. A very few flint flakes found.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 61

E 0728750 N 3375383. 201m

Small cemetery with seven round, high stone pile graves between 2-4 m in diameter, dispersed in the boulder-strewn alluvial fan.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 62

E 0728411 N 3373811. 198m

Small structure on a stony, dissected alluvial fan. It is 3x3m with only two sides remaining standing, made of standing stones. The southern half of structure is collapsed and covered by a later grave.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 63

E 0728220 N 3373452. 185m

Flint concentration on the lowest foothill along the eastern Wādī ‘Arabah margin. The site covers an area of several hundred metres, spread across the whole hill and its base, where natural flint occurs. Mostly large, heavily patinated flakes, dated Late to Middle Palaeolithic. Probably a quarry site, since there are very few tools or used flakes.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 64

E 0727859 N 3372744. 188m

Small cemetery on a low hill spur, consisting of six graves, all robbed out. Some human bones beside one of them.

Site condition: Poor, robbed.  
Survey area: Wādī ‘Arabah

Site 65

E 0727688 N 3372448. 183m

Flint scatter and one sherd, spread across several hundred metres on the lowest slopes of the lowest foothill and at its base on the floor of the Wādī ‘Arabah. Mostly flakes, so could be a quarry site, dated perhaps to Late Neolithic.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 66

E 0727008 N 3370419. 202m

Pottery scatter, consisting of a few Nabataean / Roman sherds, and temporary campsite, on a dissected alluvial fan at the foot of a small hill.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 67

*ADAJ 56 (2012)*

E 0726658 N 3369760. 212m  
Enclosure, measuring *ca.* 6x6 m, roughly oval, with a few flakes and Nabataean / Roman sherds around, in a flat area between two hills. Nearby, to the south, there is a wall or grave at the foot of a hill.  
Site condition: Poor  
Survey area: Wādī ‘Arabah

Site 68  
E 0726407 N 3369534. 217m  
Circular enclosure, 6m in diameter, on the lower slope of small *wadi*. It is cleared of stones inside; the walls are *ca.* 1m thick and up to three stones high, of local limestone rocks. There is one stone pile grave nearby to the south.  
Site condition: Good  
Survey area: Wādī ‘Arabah

Site 69  
E 0719212 N 3351945. 343m  
Small cemetery, consisting of six contiguous graves on a narrow ridge top. The graves vary from 1 to 1.5m in diameter and are made of low stone piles of local limestone. Very few flint flakes found around.  
Site condition: Good  
Survey area: Wādī ‘Arabah

Site 70  
E 0718335 N 3352339. 288m  
Pottery scatter of Nabataean / Roman sherds and temporary camp, at the foot of a sandstone cliff, on the edge of a wide, flat area. One or two flint flakes also noted.  
Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 71  
E 0701211 N 3290449. 336m  
Possible wall, surrounding a small hilltop at the very bottom of the mountain. Made of local granite boulders of different sizes and covered in natural granite gravel. The ‘wall’ is about 15m long going around hill. No finds, probably not a site.  
Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 72  
E 0701169 N 3290253. 353m

Circular structures on a hill spur at the foot of the mountains. They are five or more small stone circles, 1-3 m in diameter, made of local granite boulders. Some have only a few stones in the middle, others have a lot of stones; possibly a cemetery.  
Site condition: Good  
Survey area: Wādī ‘Arabah

Site 73  
E 0701512 N 3273258. 255m  
A group of about 20 circular structures and enclosures spread along a narrow terrace on a steep hillside, above a steep, narrow *wadi*. The structures vary in size from 3-6m in diameter and are made of local granite boulders; some are cleared in the middle and at least one has what seems to be a standing stone in the centre. Most are contiguous with one another. There are also a few, more isolated, rectangular structures with walls several courses high. No finds. Site 77 is on the opposite side of the narrow *wadi* (to the west).  
Site condition: Good  
Survey area: Wādī al-Yutum

**Fig. 9:** Site 73

Site 74  
E 0713096 N 3330106. 295m  
Flint and sherd scatter on the top and slopes of a dissected plateau between the mountains, above Wādī Gharandal. These hills are the remains of lacustrine deposits (see D. Henry *et al.* 2001), with some natural flints occurring on the surface. The flint probably dates to the Middle Palaeolithic and the sherds are Nabataean / Roman.  
Site condition: Poor, deflating  
Survey area: Wādī ‘Arabah



9. Site 73: one of the enclosures with what appears to be a standing stone in the centre.

Site 75

E 0713290 N 3330245. 295m

Extensive flint scatter on a hilltop and slopes with natural flints. Probably served as a quarry site for flints. One hand axe and two Levallois points were found. Same landscape as site 74. The flint probably dates to the Middle Palaeolithic.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 76

E 0713346 N 3330631. 296 m

Flint scatter on a hilltop and slopes in same landscape as site 74. Many very large flakes and cores of heavily patinated flint that might be Epipalaeolithic to Neolithic in date. Also one or two later graves on the hilltop consisting of small stone piles of limestone boulders.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 77

E 0701500 N 3273400. ca. 260m

A group of about four circular structures or enclosures, varying in size, some walls surviving to several courses high. Made of local granite boulders, they are clear of stones in the middle. On a sloping hill spur, opposite site 73.

Site condition: Good

Survey area: Wādī al-Yutum

**Fig. 10:** Site 77

Site 78

E 0712963 N 3334561. 224m

Dispersed flint and sherd scatter on the stony plain of the Wādī ‘Arabah, between moving sand dunes. Probably dating to the Late Neolithic /



10. Site 77: structures and enclosures on a granite hill spur (photographed from site 73).

Chalcolithic.

Site condition: Poor

Survey area: Wādī ‘Arabah

Site 79

E 0715338 N 3340178. 232m

Enclosures and graves, stretching from a small, steep *wadi* round to a flat area (the top of an alluvial fan at foot of mountains). The small terrace or enclosure walls are of local granite stones, about 5x10m; mostly cleared of stones inside. Also six or more stone pile graves around the enclosures. There is a very thin scatter of pottery of many periods (Chalcolithic, BA, Roman). This might be site SAAS no. 223 (Niemi and Smith 1999: 802).

Site condition: Reasonable

Survey area: Wādī ‘Arabah

Site 80

E 0714627 N 3339526. 118 m

Small cemetery, with 14 or more graves, consisting of circular stone piles on the sides of a small *wadi*. Some are robbed; also some sherds (Chalcolithic, EB, Nabataean / Roman, Byzantine).

Site condition: Reasonable

Survey area: Wādī ‘Arabah

Site 81

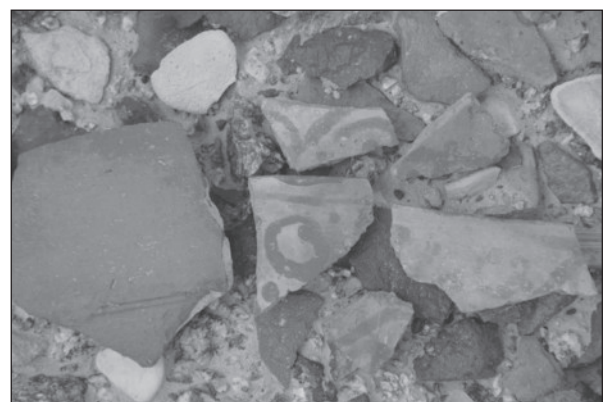
E 0714585 N 3339439. 113m

Pottery scatter consisting of a few sherds, including some painted, fine Edomite sherds. On a slightly dissected alluvial fan.

Site condition: Poor

Survey area: Wādī ‘Arabah

**Fig. 11:** Site 81



11. Site 81: painted pottery sherds on the site.

ADAJ 56 (2012)

Site 82

E 0706318 N 3308188. 152m

Small cemetery on the lowest foothills and the top of the alluvial fan. It contains two large graves: one rectangular 5x3m external 3x1m internal, robbed; another is a 3x3m stone pile. There are two or more small graves, 1.5m diameter.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 83

E 0706205 N 3307733. 165m

Small cemetery with five large circular stone piles, *ca.* 3x3m, on a hill slope above a *wadi*. The uppermost grave with a short 'tail'. One sherd was found, possibly EB.

Site condition: Good

Survey area: Wādī 'Arabah

Site 84

E 0709054 N 3343425. 246m

An oval enclosure in the bottom of Wādī 'Arabah, on the lower slope of low hills, surrounded by desert pavement. The enclosure is *ca.* 6x3m, with a wall of tumbled local grey, cherty limestone, more or less cleared of stones inside. Four stone pile graves are nearby, two are robbed.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 85

E 0708675 N 3342507. 253m

Small cemetery of five dispersed graves consisting of small stone piles, some quite high, of local grey cherty limestone; on a low ridge top.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 86

E 0711076 N 3349620. 225m

Thin scatter of heavily weathered (with desert varnish) flint flakes and one core, amongst the flat desert pavement in bottom of the Wādī 'Arabah. Possibly of Palaeolithic date.

Site condition: Reasonable

Survey area: Wādī 'Arabah

Site 87

E 0714501 N 3360103. 184m

Dispersed cemetery with more than five graves, and ancient fireplace and a thin flint scatter on both sides of a shallow *wadi* and adjacent hill-top. The graves are low stone piles. There are very few flakes, which are heavily weathered with desert varnish. The ancient fireplace consists of a round patch of small, burned stones, *ca.* 1m in diameter.

Slopes of shallow *wadi* and hilltop

Site condition: Poor

Survey area: Wādī 'Arabah

Site 88

E 0715410 N 3367097. 143m

Enclosure on the top edge of *wadi* bank. It is about 4x4m internally; the wall is about 90cm wide, made of large boulders, and one course high. Possible grave at the top of the enclosure and a thin flint scatter nearby, of weathered flakes.

Site condition: Poor

Survey area: Wādī 'Arabah

Site 89

E 0695330 N 3287704. 41m

Enclosure and small cemetery in the bottom of the Wadi Arabah, at the very bottom of an alluvial fan, beside a shallow *wadi*. The enclosure is *ca.* 4x4m inside, and its wall, *ca.* 1m wide and only one course high, is made of local granite boulders. A few flint flakes around, but no natural flint. Also a small cemetery with five or six graves of low granite stone piles dispersed in the area.

Site condition: Reasonable

Survey area: Wādī 'Arabah

Site 90

E 0695115 N 3288613. 80m

Enclosures, small cemetery and flint scatter in the bottom of the Wādī 'Arabah, at the very bottom of an alluvial fan, beside a shallow *wādī*. The northern 'structure' is rectangular, *ca.* 4x2m, indistinct, made of local granite stones. 5m to the north is a circular enclosure, *ca.* 3x3m inside; the wall is one or two stones wide and one course high. The cemetery consists of five low stone pile graves. There is also a thin flint scatter with very few retouched flakes, but no tools; also two Chalcolithic sherds.

Site condition: Reasonable

Survey area: Wādī 'Arabah

Site 91

E 0695274 N 3289140. 80m

Cemetery consisting of six graves in the bottom of the Wādī ‘Arabah, at the very bottom of an alluvial fan, beside a shallow *wadi*. The southernmost one is oval, oriented east-west and looks more modern. The others are circular stone piles, *ca.* 1m diameter.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 92

E 0695383 N 3289327. 92m

Tower in the bottom of the Wādī ‘Arabah, at the very bottom of an alluvial fan, beside a shallow *wadi*. It is tumbled but still stands about 2m high. One face of the south wall is visible at the top, made of partly dressed granite boulders and traces of the other walls can be picked out of the rubble. The tower measures 5x5m inside. The modern military has sunk a cement barrel in the top and built some walls on and around the original tower. There are a few Nabataean / Roman sherds and a few flint flakes around. Good views all around. Probably part of a chain of towers, including site 94 to the north and perhaps somehow connected with Rujum Ṭabā further north.

Site condition: Reasonable

Survey area: Wādī ‘Arabah

**Fig. 12:** Site 92

Site 93

E 0695432 N 3289923. 125m

Cemetery of four graves consisting of large, high stone piles of mixed boulders in the bottom of the Wādī ‘Arabah, on a rise beside a shallow *wadi*.



12. Site 92: remains of a tower.

Site condition: Good

Survey area: Wādī ‘Arabah

Site 94

E 0696309 N 3293035. 85m

Tower in the bottom of Wādī ‘Arabah, between moving sand dunes. It is about 3m high and 7x6m inside; the top of the north wall is visible, consisting of partly dressed granite boulders. The modern military has put a barrel in the top (number 15), and has built some walls on and around the ancient, tumbled tower. Just to the south is a low, L-shaped wall of small stones, about 10x10m. Much pottery around, from Nabataean / Roman, Byzantine and early Islamic times.

Site condition: Reasonable

Survey area: Wādī ‘Arabah

**Fig. 13:** Site 94

Site 95

E 0709834 N 3329004. 227m

Pottery scatter and temporary camp, in the bottom of the Wādī ‘Arabah between moving dunes. The sherd scatter was found in two areas, separated by a sand dune. Pottery included one almost complete painted Nabataean bowl and other large fragments in one area, and in the other was a pot drop of a dark grey, wheel-made pot. There are ancient fireplaces of small piles of burnt cobbles, and four or five flint flakes.

Site condition: Reasonable

Survey area: Wādī ‘Arabah

Site 96

E 0721005 N 3396835. -89m

Sparse scatter of flint flakes, nothing retouched, and one sherd, Classical? On desert pavement exposed between low dunes in the bottom of



13. Site 94: remains of a tower.

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Wādī ‘Arabah, on the broad alluvial fan of Wādī Fidān.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 97

E 0721662 N 3398865. -87m

Cemetery of nine or more graves dispersed in the bottom of the Wādī ‘Arabah on the broad alluvial fan of Wādī Fidān, consisting of low circular and oval stone piles of sandstone and limestone boulders. Also a sparse scatter of flint flakes around, and ancient fireplaces of burnt cobbles.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 98

E 0735419 N 3388809. 221m

Structure consisting of two parallel walls, 5m long and 7m apart, situated on shallow *wādī* slope, just above a broad *wādī* bottom. The walls are visible at ground level, but may go down for some depth. They are of undressed local boulders, double faced. There are a few small, Classical period sherds nearby.

Site condition: Poor  
Survey area: Wādī ‘Arabah

Site 99

E 0735309 N 3388603. 157m

Cemetery of 30 or more low circular stone pile graves, 1-2m in diameter. Some are robbed. Situated on the lower hill slope of an outcrop hill, south of Faynān.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 100

E 0718836 N 3387728. 5m

Cemetery of six small, circular stone pile graves spread along a ridge top. Also a very thin scatter of flakes and one Chalcolithic sherd.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 101

E 0717850 N 3384065. 30m

Cemetery of six circular stone pile graves. Three large ones 3x3m spread along low ridge top; three small ones 1.5m diameter, grouped together.

Site condition: Good  
Survey area: Wādī ‘Arabah

Site 102

E 0718017 N 3383193. 46m

Circular enclosure, about 18m diameter, on a hill slope. Walls of local boulders, about 1 m wide, tumbled. Mostly clear of stones inside enclosure. A few flint blades and flakes, but no tools were found around and one large, circular stone pile grave 30m north.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 103

E 0717346 N 3380595. 57m

Wall / enclosure consisting of an L-shaped indistinct wall, 10x15m, made of local boulders on a gentle hill slope. A few flint flakes and blades but no tools found around and two large, circular stone pile graves nearby.

Site condition: Poor  
Survey area: Wādī ‘Arabah

Site 104

E 0705683 N 3319633. 164m

Cemetery, ‘road’ and fireplaces in between big dunes in the bottom of Wādī ‘Arabah. The ‘road’ is a 3.5m wide and *ca.* 85m long pavement of local granite and sandstone boulders on a narrow ridge of sand between the big dunes. There are also natural boulders and cobbles around and it is not clear if this is a man-made ‘pavement’ or a natural fluke of erosion. At the south end of it is one stone pile grave. On the open sand below the north end is a group of seven stone pile graves (2x2m) and circles of stone (3x3m). Further north still are three more graves. Throughout are small circles of stone less than 1 m in diameter = ancient fireplaces (?) and a thin scatter of flint flakes. This whole area seems to be a campsite and / or a sacred place of some sort.

Site condition: Good  
Survey area: Wādī ‘Arabah  
**Fig. 14:** Site 104

Site 105

E 0706790 N 3322640. 193m

Wall or dam that is a line of stones 1m wide and 40m long, running across a shallow dip between dunes in the bottom of Wādī ‘Arabah. Made of





14. Site 104: possible road (?).

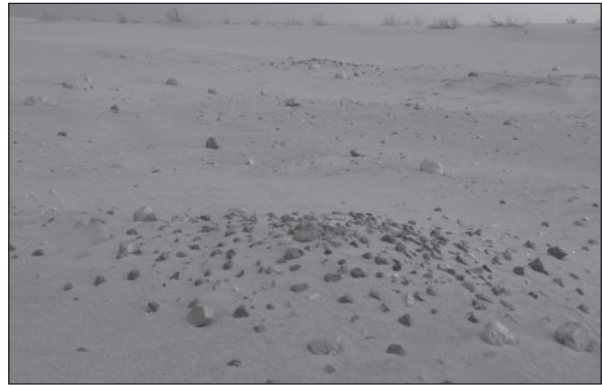
local granite and sandstone boulders.  
Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 106

E 0708118 N 3328194. 165m  
Two fireplaces consisting of small heaps of burnt cobbles with at least three pot drops of Chalcolithic pottery, between dunes in the bottom of Wādī ‘Arabah.  
Site condition: Good  
Survey area: Wādī ‘Arabah

Site 107

E 0708352 N 3329041. 182m  
Five fireplaces consisting of small heaps of burnt cobbles, ca. 1m diameter, and one small circle of stones. Also a few flakes found around, between dunes in the bottom of Wādī ‘Arabah.  
Site condition: Good  
Survey area: Wādī ‘Arabah  
**Fig. 15:** Site 107



15. Site 107: ancient fireplace (burnt cobbles) eroding out of the sand dunes.

Site 108

E 0708565 N 3329738. 211m  
Five or more fireplaces of small heaps of burnt cobbles, and a few pottery sherds, between dunes in the bottom of Wādī ‘Arabah.  
Site condition: Good  
Survey area: Wādī ‘Arabah

Site 109

E 0710131 N 3322810. 251m  
Multi-function site, including stone circles, graves, fireplaces and flints. There are two stone circles, 3x3m, of local boulders, cleared in the middle. The one on the top of the hill is not complete. There are at least four stone pile graves dotted around, and fireplaces of burnt cobbles and very small stone circles (0.5m diameter). There are flints scattered all around, but few dense concentrations. The top edges of this low hill are covered in small boulders, like paving or the unfinished foundations of a structure - perhaps a fort? Alternatively, they may be natural, as there is no Classical-period pottery at all. Indeed there is very little pottery of any period. This may be a multi-period campsite on a small hill at the very foot of the mountains overlooking the bottom of the Wādī ‘Arabah.  
Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 110

E 0730576 N 3420200. -220m  
Thin pottery scatter, with at least five different pots (Nabataean / Roman / Byzantine), and one flint flake. Possible grave nearby. Located on the very edge of drop down to Dead Sea basin, there are stunning views northwards to the Dead Sea basin.



17. Site 116: cross-wadi walls; (centre right) D-shaped enclosure.

Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 111

E 0730655 N 3421517. -318m  
Pottery scatter and two small fireplaces (ash rings), on soft sandy marl at the foot of the hills that form the scarp of the Dead Sea basin. Pottery is Nabataean / Roman / Byzantine.  
Site condition: Reasonable  
Survey area: Wādī ‘Arabah

Site 112

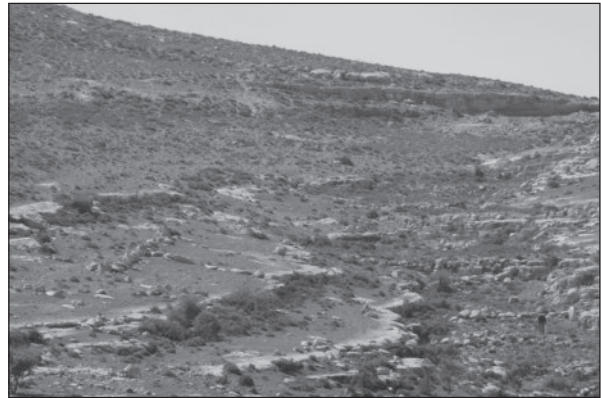
E 0745663 N 3411743. 1250m  
Small, L-shaped structure of upright limestone slabs, *ca* 3x3m, on a hill slope.  
Site condition: Poor  
Survey area: Fāfā to al-Ḥasā line

Site 113

E 0745551 N 3412477. 1215m  
Two threshing floors with partial walls around them, *ca.* 30x2m altogether, on a flat area on a hillside, above a deep *wādī*. Some flint and pottery around, perhaps IA.  
Site condition: Reasonable  
Survey area: Fāfā to al-Ḥasā line

Site 114

E 0745432 N 3412451. 1223 m  
Six cross-*wādī* walls in a steep, narrow side *wādī*, 15m wide. Each wall is about 60cm high and consists of three courses of local limestone boulders. There is a thin pottery scatter of Chalcolithic and IA sherds, and a few flint flakes. There are some low walls of large, upright limestone boulders on the natural terrace



16. Site 114: (left) low wall of upright boulders; (in wadi on right) cross-wadi walls.

on the hill slope above to the south. Probably an agricultural area, which may be connected with sites 113 and 115, about 100m to the north-east.  
Site condition: Good

Survey area: Fāfā to al-Ḥasā line  
**Fig. 16:** Site 114

Site 115

E 0745446 N 3412524. 1229m  
Three adjoining rectangular structures on a hill slope; the walls are one course high (30cm) in the top ‘room’ and 60cm high in bottom ‘room’, and 30cm wide. The top ‘room’ is 5x6m, the middle and lower ‘rooms’ are 10x7m. The pottery scatter is IA. Perhaps associated with sites 113 and 114.  
Site condition: Good  
Survey area: Fāfā to al-Ḥasā line

Site 116

E 0745316 N 3412633. 1230m  
Enclosure and cross-*wādī* walls in a narrow side *wādī*. The enclosure is D-shaped, *ca* 15x17m, but is not complete and abuts the cliff face. The wall is preserved up to 1 m high. The two cross-*wādī* walls are 1m high, 23 and 30m long. Pottery scatter of Bronze Age sherds.  
Site condition: Reasonable  
Survey area: Fāfā to al-Ḥasā line  
**Fig. 17:** Site 116

Site 117

E 0745103 N 3413025. 1212m  
Rock shelters and three terraces in front of a slightly overhanging cliff on a hillside. One is a wide terrace (20x25m), the other two are narrower. The big terrace wall is 2.1m high. Modern

sheep dung and Chalcolithic pottery sherds were found on the big terrace.

Site condition: Reasonable

Survey area: Fīfā to al-Ḥasā line

Site 118

E 0745076 N 3413076. 1198m

Fifteen cross-*wadi* walls, between 20cm and 1m high and 8-15m long. They are 8-10m apart, down a narrow side *wadi*.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 119

E 0744450 N 3414565. 1070m

Short stretch of a double-faced wall on the side of a low hilltop. There may be more of this structure below the surface. The visible wall is 7m long by 1m wide and two courses are just visible. It is made of large local limestone blocks. There is a thin scatter of Chalcolithic / EB sherds around.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 120

E 0744270 N 3414988. 1001m

Cemetery, of more than 20 large stone heaps, some up to 5x5m, dispersed around the hill slopes. Some have a circle of stones visible, forming the outer edge. Also some stone clearance piles, on the edge of, or in, ploughed fields. Thin scatter of pottery throughout, Chalcolithic, BA and Classical, as well as some flint flakes and one lunate.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

**Fig. 18:** Site 120



18. Site 120: one of more than 20 large stone heaps; a grave (?).

Site 121

E 0744235 N 3415263. 1001m

Roughly rectangular enclosure, *ca.* 20x18m, on a low hilltop saddle. The wall is one stone wide, made of local limestone boulders, but only two walls are clear. There is a background scatter of sherds and flints. This site lies at the north end of cemetery 120.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

Site 122

E 0749980 N 3410002. 1359m

Possible standing stone, of local limestone, 50cm high, 50x40cm. Surrounded by a vague ring of small stones, 2m in diameter. The stone is placed at the edge of a limestone outcrop on the side of the hilltop.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

**Fig. 19:** Site 122

Site 123

E 0750091 N 3409961. 135m

C-shaped wall, *ca.* 10x10m, made of rough local limestone boulders, on a hill slope beside a low bedrock shelf. There is also a straight wall 11m long and some Chalcolithic pottery around.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

Site 124

E 0750175 N 3409770. 1252m

Large site with multiple walls and enclosures of local limestone blocks, mostly standing upright, one stone high and one stone wide. There are four adjoining enclosures, 10x10m, on the edge of the slope, one containing a rock-cut tomb



19. Site 122: possible standing stone.

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with two chambers. There are other enclosures up the slope and a long, curving wall connects to another set of enclosures to the north-east. Just below this northern end, the limestone bedrock forms low cliff, part of which is a rock shelter (8x10m). The site is on a gentle hill slope above a small *wadi*, which has some cross-*wadi* walls in it. There is a scatter of Chalcolithic / EB pottery throughout.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

**Fig. 20:** Site 124

Site 125

E 0750460 N 3409978. 1362m

Sub-oval enclosure on a hilltop, with incomplete wall, about 60m across the widest part. There is a modern ploughed field inside. The wall is of local limestone boulders. There are two shallow natural caves at south end, and a short (2m) stretch of wall of large roughly dressed limestone blocks nearby, and a scatter of Chalcolithic, EB and Classical sherds.

Site condition: Reasonable

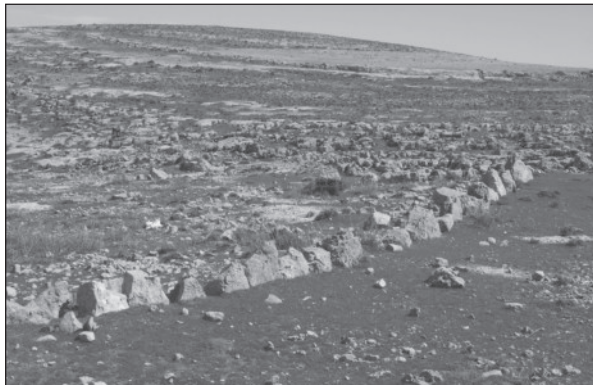
Survey area: Fīfā to al-Ḥasā line

Site 126

E 0750713 N 3410027. 1332m

Sub-rectangular enclosure on a hill slope, with two adjoining rectangular rooms (3x3m) at the north-west end and four circular enclosures (3x5m) on the south side. There is also a long wall coming down the hill slope to the south-west and another to the east and two large stone pile graves to the south. Further north, below the bedrock ledge are five more small circular enclosures (3x3m).

Site condition: Reasonable



20. Site 124: one of the walls of large upright boulders.

Survey area: Fīfā to al-Ḥasā line

Site 127

E 0751685 N 3409649. 1280m

Basalt boulder wall exposed for a length of 10m across a small *wadi* bottom, made of massive boulders; further upstream is a small section of a similar wall across the *wadi*. Also there is a possible wall higher up the slope.

Site condition: Poor

Survey area: Fīfā to al-Ḥasā line

Site 128

E 0752733 N 3409192. 133m

Two caves in a limestone bedrock ledge. They are rounded inside, with pick marks visible on the walls. One is about 4x4m and filled with sheep dung, the other is filled almost to the top. They do not appear to be tombs, but perhaps were used as shelters.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 129

E 0755361 N 3409300. 1361m

Complete circular stone enclosure, *ca* 25x25m, of basalt boulders on a low hill saddle. The wall is *ca*. 1m wide and the circle is clear inside. On the east side is a large tomb, robbed, to expose a square chamber, 1x1m, made of three huge blocks on three sides, and two smaller ones on the fourth side. Pottery (EB) and flint scatter.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

**Fig. 21:** Site 129

Site 130

E 0755269 N 3409074. 1400m

Walls and cemetery of 15 or more large and small



21. Site 129: circular stone enclosure.

stone pile graves dispersed across a hilltop and slope. There are at least three long, low walls running down the east slope of this hill, possibly drainage walls (?) that are common enough on hill slopes in this district. Thin scatter of BA sherds and flints.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 131

E 0758190 N 3409938. 1323m

Cemetery of 20 or more stone piles, dispersed across a hillside. Made of flint boulders, some are in ploughed fields and could also be stone clearance cairns. Background scatter of flints and sherds.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 132

E 0756596 N 3409461. 1323m

Cemetery of 12 or more large stone pile graves of flint boulders dispersed across a hill slope.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 133

E 0760690 N 3410856. 1167m

Structure and cemetery in a *wadi* bottom and slope. The structure is badly robbed / bulldozed, but amongst the rubble the remains of two parallel walls, 6m apart, are visible; they are well built of roughly dressed blocks at least three courses high. A few Roman sherds were found. Also ten or more stone pile graves around on the hillside to the north, one of which is robbed.

Site condition: Reasonable

Survey area: Fīfā to al-Ḥasā line

Site 134

E 0759928 N 3411092. 1079m

Cemetery of six or more stone pile graves and a small scatter of background flints, on a shallow *wadi* terrace and hill slope.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 135

E 0759811 N 3410833. 1136m

Natural cave in a limestone ledge on a hillside. It is used, with a now buried wall across the mouth.

Inside it is filled with sheep dung. Also there is a possible terrace in front of the cave, *ca.* 10x10m. A few sherds of Mamluk pottery were found on the terrace. This cave is below the multi-period site of Khirbat al-Oran, and could well be associated with it.

Site condition: Good

Survey area: Fīfā to al-Ḥasā line

Site 136

E 0764492 N 3413938. 1139m

Large, square tower on a hilltop, beside a track. Tower measures 5x5m inside and the walls are *ca.* 1m thick, made of roughly dressed limestone blocks, standing to a maximum of three courses high. The tower is surrounded by a ground-level wall about 1.5m away. Also, adjoining the outer wall is a curved wall and a small (3x3m) room. A few sherds were found nearby.

Site condition: Poor

Survey area: on access track to the Fīfā to al-Ḥasā line

6Site 137

E 0767088 N 3415055. 1122m

Square tower, on a hilltop, 4x4m, of roughly dressed limestone blocks. Inside has been reused for burials. A few sherds, probably Roman, were found nearby.

Site condition: Poor

Survey area: on access track to the Fīfā to al-Ḥasā line

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