

# THE VIJAYANAGARA METROPOLITAN SURVEY: OVERVIEW OF THE 1996 SEASON

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## Introduction

The Vijayanagara Metropolitan Survey (VMS), directed by Drs Kathleen D. Morrison and Carla M. Sinopoli conducted its sixth season of field research from January through March 1996. The VMS project is a multi-phased project focusing on the documentation of archaeological remains in the ca 350-sq km Metropolitan Region of the imperial capital of Vijayanagara. Our project seeks to examine the economic and political development and organization of Vijayanagara through an understanding of the distribution, growth and nature of settlement, productive activities and infrastructure in the Vijayanagara urban landscape.

We have defined the Vijayanagara Metropolitan Region according to a combination of topographic and cultural features as the area contained within the outermost fortifications of the capital. Since fortification walls do not form a continuous ring around the city, but instead span low-lying regions or routes of access into the capital, topographic features were also taken into account in defining the bounds of the metropolitan region. This is especially the case to the north of the Tungabhadra River, where the extremely rugged Raichur Hills provide an effective barrier to occupation and movement.

In the VMS research design, the survey area is subdivided into arbitrary blocks, each 4.5 km on a side, following the map system of Fritz and Mitchell (1985; see also Morrison and Sinopoli 1996, and Sinopoli and Morrison 1991). The research strategy consists of three inter-related phases or aspects of research: (1) systematic, intensive transect survey in the

eight blocks immediately surrounding the Urban Core (Blocks G, H, J, M, O, R, S and T); (2) extensive survey in the remaining blocks of the Metropolitan Region; and (3) test excavations in six small, primarily agricultural sites identified through systematic survey. In this paper we report on some preliminary results of the 1996 season of field research, with special emphasis on the systematic survey.

Along with the project directors, 1996 VMS participants included: Dr Mark T. Lycett, Jennifer Lundal and Anwen Tormey of Northwestern University; Jane Jalutkewicz and John Norder of the University of Michigan; Kalyani Bhave, Neena Jhanjee, Shivendra Kadjaonkar, Varada Khaladkar, Shyamanajali Mansingh and Ditamalu Vasa of Deccan College, Pune; and Renu Bhatlekar and Subuhi Sayed of Bombay University.

## Strategy I: Intensive Survey

During 1996, intensive transect survey focused on areas located to the north of the Tungabhadra River in Blocks M, G, H, and J, as well as on a large island in the river in Block M (Figure 1). This region in general consists of a narrow low-lying alluvial band located along the banks of the river that ranges in width from less than 100 m to up to *c.* 2.5 km. This highly fertile zone is now largely under intensive wet cultivation, primarily of rice, sugarcane and bananas. As we note below, these areas were also important for agriculture in the Vijayanagara period, but the nature of their use also changed through time within this period. In places, isolated granite outcrops and hills, some quite high, rise up from the fields. To the north

of this zone, a broad band of steep granitic hills rises steeply. These hills define the northern boundary of the survey region and, in fact, we have found a marked reduction in the density of structures and artefacts as these steep hills are approached.

In each of the eight intensively surveyed blocks, a total of nine 250 m-wide transects was randomly selected to define a 50 per cent sample. Ideally, transects are surveyed by teams of three to six archaeologists spaced at intervals of 20 m who cover the area in a north-south direction. However, the terrain of the 1996 survey area made this strategy difficult to adhere to at times. When transect survey was not possible, two alternate survey strategies were employed. The first was relevant to areas dominated by rice or sugarcane cultivation. In these areas, survey crews walked along the edges of irrigation canals and paths that provided access to fields. When fallow fields or surveyable agricultural areas (such as banana fields) were discovered, these were covered using our standard methods. Attempts were made to survey non-arable areas located amid fields, such as granite inselbergs or hills. The second survey strategy was used in the extremely rugged outcrops that dominate the northern part of this region. In these zones it was typically impossible to maintain transect spacing and orientation. Instead, members scaled the hills through whatever route possible and attempted to cover all accessible areas. Where relatively flat terraces were discovered on outcrops these were systematically surveyed. In some cases, the outcrops were so steep and sheer that only their lower portions could be examined.

A total of 97 sites was recorded in the four blocks. The general characteristics of each block are described below, along with a list of identified sites.

#### *Block M*

Block M is located due west of the Vijayanagara Urban Core (Figure 2). The Tungabhadra River crosses across the upper portion of the block. Areas to the south of the river were surveyed in the 1994 field season (Morrison and Sinopoli this volume). During 1996, we concentrated on the area north of the river

and on the large island in the central part of the block. Low-lying areas near the river were typically in rice or sugarcane agriculture. The Aneondi canal *amicut* is located in the centre of the block, and extends east, providing evidence for irrigated agriculture extending back to the Vijayanagara period. Two areas of high granitic outcrops dominate the northern portion of Block M. The western outcrop located south of the Aneondi-Gangavati road was fully surveyed, though the area of this outcrop located to the north of the road was largely inaccessible. The eastern outcrop was surveyed where possible. The transects randomly selected for survey were Transects 3, 4, 5, 6, 7, 9, 10, 13 and 15 (Figure 2). Twenty sites were recorded in Block M during 1996 (Table 1).

#### *Block G*

Located to the north of Block M, Block G is characterized by extremely rugged topography (Figure 3). There are few low-lying areas in this block and these are primarily restricted to the southern part of the block, the southwest corner and, to a lesser extent, in the southeastern quadrant. Based on our topographically defined boundary of the Metropolitan Region only the southern portion of the block (ranging from 1.0 to 1.5 km from the southern block boundary) fell within the survey area (Figure 3). Even in this region, a modern dam located to the northwest of Sanapur has submerged a significant area of transects 4-8. Randomly selected survey transects in Block G were 1, 2, 3, 4, 5, 6, 12, 14 and 15. Not surprisingly given the terrain, site density was extremely low in this area and only six sites were identified (Table 2).

#### *Block H*

Block H is located due north of the Vijayanagara Urban Core (Block N) (Figure 4). The ancient and modern settlement of Aneondi extends over the southeast quadrant of the block. The archaeological remains of Aneondi have been thoroughly documented in the doctoral dissertation of Sugandha Purandare (1986; Deccan College, Pune), who recorded more than 300 archaeological

features within the walls of the settlement. Our work therefore focused largely on documenting remains beyond the outer walls of Anegondi and in the area between the inner and outer city walls. The outer wall themselves were mapped and described, as they did not appear to have been a focus of Purandare's work. The northwest corner of the block also fell outside of the Metropolitan Region, based on our topographic definition. Transects selected for survey in Block H were 1, 3, 4, 7, 10, 13, 14, 15 and 16. A total of 26 sites were documented (Table 3).

### *Block J*

The Tungabhadra River extends north-east from the southwest corner of Block J, bisecting the block (Figure 5). In 1996, we surveyed the area of the block located north of the river, leaving the area south of the river for the 1997 season. Low-lying irrigated land is common in the survey area, with steep outcrops on the western side of the block and in the northeast corner. As in other areas north of the river, lower elevations are intensively farmed and many areas were inaccessible. Modern quarrying activities in the northwestern corner of the block, as elsewhere in the Metropolitan Region, also pose an imminent threat to many of the archaeological sites on higher terrain. Transects selected for survey in Block J were 2, 5, 6, 7, 8, 11, 14, 15 and 17; 48 sites were recorded in the surveyed area (Table 4).

### Site Summary

Sites recorded in the four blocks during the 1996 season encompass a broad array of site types, relating to agricultural production, transportation, settlement, craft production and defense, among others. In the discussion and tables below, we consider only those sites whose functions can be securely determined. A number of sites of unknown function (e.g. isolated walls or architectural elements) are not discussed.

### Transportation

Sites related to transportation were found in Blocks H and J (Table 5). They include road

segments and gates. While other routes can be identified on the basis of site alignments, here we limit discussion to only those sites which can themselves be directly related to transport. It is likely that several ancient routes followed canals or modern roads and are not clearly visible today; others may have been obscured by recent agricultural expansion and quarrying in the region.

Three gates were documented along the outer city walls of Anegondi. Two (VMS-529/F3 and VMS-529/F5) are located in the continuous wall segment to the northeast and east of the modern town (VMS-529). VMS-529/F5 lies along the Gangavati-Anegondi road, on the eastern edge of the modern village of Kadabakele (Kannada for "Last Gate"). A third gate, not yet documented, is found near the river on the southern extent of this wall. These are relatively simple gates, lacking the elaborate columned platforms and complex changes of direction known from other gates of the Vijayanagara period, and are instead essentially faced gaps in the fortification wall. A road paved with well worn cobbles runs through gate VMS-529/F3, though it is no longer preserved outside of the gate. Site VMS-549 is located in the wall segment to the northwest of Anegondi, *c.* 40 m to the west of the modern road. This gate consists of two columned platforms, and is *c.* 9 x 6 m in dimension. A modern irrigation canal now runs through the centre of the gate.

Eight roads or road segments were documented. Most skirt the base of outcrops, allowing access to agricultural fields and/or settlements. The most substantial road recorded in 1996 is site VMS-524, located in the northwest quadrant of Block J. This broad road was traced for 980 m; both the northern and southern ends have been destroyed by recent agricultural activities and the original road was certainly longer. The road ranges in width from 10 to 20 m, and is flanked on both sides by low walls that define narrow platforms. Artefact densities were, however, low, suggesting that these platforms may have served more to define the road than as base-ments for the small shops and/or residences of a bazaar street, as we have found elsewhere in the survey area. Traces of pavement are preserved in some areas. Two step-wells, one

near each end, were found along the road. A small Anjaneya Hanuman shrine lies near the well at the road's present southern end.

### Settlement

Twelve sites that can be categorized as having served primarily as settlement locales were recorded in the 1996 field season (Table 6). Settlements were identified in Blocks M, H, and J; none were recorded in the rugged terrain of Block G. Nucleated communities of a dozen or more structural complexes are the most common form of settlements in the surveyed area. Two factors appear to have most strongly affected settlement location. This first is a concern for defense; settlements are often walled and several contain bastions or watchtowers. The second factor affecting settlement location is a concern to avoid settlement on prime agricultural lands while retaining access to them. The preferred location for settlements seemed, therefore, to be on sheet-rock or outcrops above, but proximate to, agricultural fields. It is possible that some substantial settlements were built in low-lying areas and are now obliterated by recent agricultural activities, but we have not located any artefactual traces of such settlements. Low-lying areas were almost certainly occupied on a short-term basis, but for the most part traces of these more ephemeral sites have been destroyed by intensive agriculture.

The modern village of Kadebakele located to the east of Anegondi contained several badly disturbed, Vijayanagara structures and probably also had an earlier occupation. The contemporary settlements of Anegondi and Gangavati, to the east of the survey area, are also well known as locales of Vijayanagara period settlement and contain numerous Vijayanagara architectural and artefactual remains. In general, however, Vijayanagara period remains were scarce in other modern villages in the area (e.g. Timmalapur, Sonapur and Mallapur). This pattern differs markedly from that observed south of the river (particularly in Blocks M, S, and R) where modern settlements are often located in the same areas as (continuously occupied?) Vijayanagara period settlements.

Site VMS-513 is among the more substantial settlements recorded. The present site area is 6 ha (300 x 200 m) and it is clear that ongoing quarrying and agricultural activities have destroyed large parts of the settlement. The site is located along the eastern slope of a high outcrop. A massive double-faced wall, c. 2.5 m in width and constructed of small to large unmodified boulders, borders the settlement on the north while other walls bound the site intermittently on other sides and define occupational terraces on the steeply sloping sheet-rock. Dense structural remains are visible in the flat central area of the site, with at least ten multi-room structures built around courtyards evident. Other evidence for domestic occupation includes the presence of several sheet-rock and block mortars. Artefact density is variable and is highest on the southern edge of the site where storage pits containing high densities of ceramics have been exposed by recent digging.

### Temples and Shrines

Fourteen sites can be classed as having a primary function as sacred sites (Table 7). sacred images and shrines are also found in other sites, such as settlements. Small shrines or sculpted slabs were most common in the area surveyed. No large temple complexes were identified in the survey area, although several are located in Anegondi. Six of the fourteen sacred sites contained Vaishnava images; all of the latter were of the Anjaneya form of Hanuman. Six sites were devoted to Shaiva deities and contained *lingams*, Nandi and Ganesha images, or Shaiva door guardians. Site VMS-560 was a small single chamber shrine containing a hero stone. VMS-525 presently contains modern Durga images, though its original affiliation is unknown.

### Agriculture

24 of the 97 sites recorded in 1996 (24.7%) can be linked in whole or part to agricultural activities. Agricultural sites were found in all four blocks and attest to the intensive investment in diverse agricultural regimes that occurred during the Vijayanagara period. Several sites also provide evidence for temporal

changes in Vijayanagara agricultural practices. A variety of agricultural sites was recorded. These include: reservoir embankments, terrace systems, step-wells, erosion control walls and check dams, and the Anegondi canal *anicut*, outlet and a small canal section that was abandoned when the course of the canal was altered. Agricultural sites are summarized in Table 8.

A large *anicut* (VMS-585) diverts water from the river in Block M and serves as the source of the Anegondi canal. This large canal runs through the northeast quadrant of Block M, and then winds to the northeast through Blocks H and J before diverting back toward the river south of Gangavati, where it joins with another canal that originates near Singanagandu. A massive aqueduct (VMS-3) located on the northern edge of Block N transported water from the Anegondi canal to a large island in the Tungabhadra River. Although modern construction has considerably modified the Vijayanagara period Anegondi *anicut*, traces of the original construction are evident.

The construction of the canal significantly altered earlier Vijayanagara agricultural practices in this area. At least two reservoirs were made obsolete by the canal's construction. Reservoir embankments VMS-517 and VMS-573 in Block J were both cut by the canal, rendering them ineffective. Their construction must therefore date to earlier in the Vijayanagara period, or perhaps pre-Vijayanagara. Reservoir VMS-563 in Block H may also have been dramatically affected by the canal construction. The canal itself was also modified over time. Site VMS-564 in the southwest quadrant of Block H is a 140 m long section of canal that fell out of use when the canal's path was diverted further to the east. In this section of the canal, there is a significant difference in slope on each side of the site, with terrain to the east of the canal 6 to 8 m below the canal and the area to its west. The canal thus served as a significant barrier to movement across the area. A square bastion on the northern end of VMS-564 provides evidence that it was protected and had a defensive function.

### Craft Production

Craft production evidence was sparse in the surveyed area. Only two sites had clear evi-

dence for craft activities, both involving sculpting of sacred images. These were sites VMS-538 and VMS-567. Site VMS-538 consisted of a large quarried slab (*c.* 2.0 x 1.5 x 0.15 m) that had been removed from a nearby outcrop. An image of a striding Hanuman was in the process of being carved on the slab when it cracked and was abandoned. This image is located less than 100 m west of settlement VMS-537, where there is a large Hanuman shrine. It is possible that this shrine was the intended destination for the slab suggesting that, as we have observed elsewhere in the Metropolitan Region, sculptors produced images near to their location of use. The second example of image sculpting is also the production of a striding Hanuman image. This is at the settlement site VMS-567. The outlines of the deity were lightly pecked onto the boulder, but no details had been carved. The reasons for the abandonment of this carving prior to completion are unknown.

### Defense/Fortification

A concern with defense was a common feature in sites recorded in the survey area in 1996 (Table 9). As discussed earlier, the predominant mode of settlement in the area was in walled communities, several of which had associated bastions or watch towers. In addition, portions of the Anegondi canal were fortified. Undoubtedly, the most heavily fortified settlement was the centre of Anegondi. As noted above, while we did not document the inner walls and internal features of the town, we did map and document the town's outer fortification walls on the northwest and northeast side of the town. The northwest section was designated VMS-548. The southern end of the wall begins on the slope of a large outcrop. From there the wall extends to the northeast across a narrow valley and up a steep outcrop. A modern road run through this valley providing the major access to Anegondi from the north; a gate in the wall (VMS-548) suggests an earlier road (slightly to the west of the modern one) followed a similar route. Three square bastions project from the wall, which is constructed of up to ten courses of irregularly laid wedge shaped blocks. The large outcrop that defines the eastern edge of this wall extends for more

than a kilometer to the east and is 700 to 800 m wide. This steep outcrop is in itself an extremely effective barrier to movement and the fortification wall picks up on its eastern edge and wraps around the town to the southeast. Sections of this wall were assigned site numbers VMS-527, VMS-528, and VMS-529. The well constructed wall includes a number of bastions and has many changes of direction as its orientation follows that of the stone outcrops on its southern border. In many places, outcrops are incorporated into the wall, or it rests on them. Two gates are located along the wall, c. 750 m from its western end in the village of Kadabakele. To the south and east of Kadabakele, wall segments wrap around the high outcrop in the southwest corner of Block J.

### Pre-Vijayanagara Sites

Raichur District (north of the Tungabhadra River) is well known for its many prehistoric and early historic sites, with sites from the Palaeolithic to the Early Historic being reported. Our survey confirmed this previously reported pattern. Prehistoric sites, dating mostly to the Iron Age and Early Historic, were found in all four blocks. Sites identified in the 1996 season are listed in Table 10. Included among them are three painted rock-shelters (VMS-568, VMS-574, VMS-601). Motifs are typically painted in red and white and include stylized humans, structures, plants, and geometrics. A painted boulder (VMS-574) and large boulder with bruising (VMS-600) were also documented. Sites with megalithic mortuary features included a number of isolated linear cairns, and two small cemetery sites (VMS-543, VMS-603) containing stone alignments and walled rock-shelters or gaps in sheet-rock sealed by small stones. Pre-medieval settlement sites (VMS-530, VMS-541, VMS-579) were located on terraces on top of outcrops and contained surface scatters of prehistoric ceramics, and stone alignments and terraces.

### Strategy II: Extensive Survey

Intensive transect survey focuses on the eight blocks of the Metropolitan Region that

surround the Urban Core. In the remainder of the region, a more extensive approach to site documentation is practised, focusing on documenting major sites of particular relevance to our research, rather than systematic coverage of the area. In 1996, extensive survey focused on documenting sites located in the Daroji Valley to the southeast of the Urban Core in Blocks W and X, where Morrison has been conducting a long-term study of a network of Vijayanagara period, irrigation reservoirs. Fieldwork this season focused on completing the documentation of a number of reservoirs that had been partly documented in earlier seasons. Several additional sites were also documented, including a small fort on the outskirts of the village of Papinayakanahalli and the large temple complex in the village, a walled settlement, two shrines, an Islamic prayer wall, or *idgah*, and two step-wells.

### Strategy III: Test Excavations

The third component of the VMS involves excavations at several sites identified in earlier season of survey. The Government of India and Archaeological Survey of India have granted permission for excavation at six sites. All of these sites are agricultural features, though one, a large reservoir (VMS-101), also has surface remains of iron smelting activity. Through the excavations, we seek to expand our knowledge of land use and agricultural practices during the Vijayanagara period. In 1996, excavations were conducted at site VMS-133, an extensive dry-farmed terrace system (c. 375 x 375 m) located in Block S that was discovered and recorded in the 1990 field season. A number of sediment profiles had been recorded in 1994, through documentation of a series of tree planting holes that had been dug as part of a reforestation program in the area. In 1996, we excavated six 1.0 x 1.0 m square units that were placed along an east-west axis across the terraces. The units were excavated in 10 cm levels until bedrock was reached. Information was recorded on stratigraphy and sediment and matrix composition. Soil colours were recorded using Munsell Charts. Profiles were drawn of the north and east walls of all units. Unit depths ranged from 17 to 83 cm. The deepest unit

was located immediately to the west of a terrace wall, and the depth of soil accumulation attests to the effectiveness of terrace walls in soil retention and transforming this semi-arid area to one with agricultural potential. Sediment and flotation cores were collected from two units. Grain size analysis was conducted by Morrison, and flotation yielded botanical materials. Small samples were retained for pollen analysis.

### Other Research

In addition to the archaeological research, Sinopoli conducted a brief study of a potter's workshop in Papinayakanahalli, one of four traditional pottery workshops in that village. Interviews were carried out with members of the potter's family, and approximately three dozen vessels were acquired for study. These vessels were drawn and measured, with detailed information recorded on diameters, thicknesses, heights and composition. This is part of an ongoing study to examine inter- and intra-workshop ceramic variability in a modern context, with a goal of better understanding ceramic variability of the Vijayanagara period.

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Table 1. Sites Documented in Block M

Site	Block	Transect	Description
VMS-512	M	2	Settlement
VMS-567	M	3	Settlement, shrine
VMS-568	M	5	Rock-shelter
VMS-569	M	5	Megalith
VMS-570	M	6	Water catchment basin
VMS-583	M	13	Reservoir embankment
VMS-584	M	10	Hanuman shrine and bastion
VMS-585	M	8-10	<i>Anicut</i> (Anegondi canal)
VMS-586	M	10	Anegondi canal outlet and embankment
VMS-587	M	9	Isolated wall
VMS-591	M	6-7	Fort
VMS-592	M	6	Settlement
VMS-594	M	7	Displaced sculptures
VMS-595	M	13	Hanuman shrine
VMS-596	M	9	Game
VMS-597	M	10	Artefact scatter
VMS-600	M	5	Petroglyph
VMS-603	M	5	Megalithic cemetery
VMS-613	M	5	Shrines
VMS-614	M	8	Wall

Table 2. Sites Documented in Block G

Site	Block	Transect	Description
VMS-575	G	2	Terraces
VMS-576	G	3	Reservoir embankment
VMS-577	G	3	Reservoir embankment
VMS-578	G	3	Rock-shelter
VMS-582	G	15	Lithic scatter
VMS-611	G	3	Wall-alignments



Table 3. Sites Documented in Block H

Site	Block	Transect	Description
VMS-527	H	14	Fortification wall (Anegondi)
VMS-528	H	14	Embankment/wall
VMS-529	H/J	14-18/ 1-3	Fortification wall (Anegondi)
VMS-547	H	5	Reservoir
VMS-548	H	10	Fortification wall (Anegondi)
VMS-549	H	9	Gate
VMS-550	H	10	Settlement
VMS-562	H	14	Temple
VMS-563	H	15	Reservoir embankment
VMS-564	H	7	Fortification
VMS-565	H	7	Road segment
VMS-566	H	7	Temple
VMS-572	H	1	Catchment tank/embankment wall
VMS-573	H	15-16	Reservoir
VMS-574	H	16	Pictograph
VMS-579	H	11	Settlement
VMS-580	H	10	Fortification wall
VMS-588	H	10	Wall and room
VMS-589	H	12	Painted rock shelter
VMS-590	H	11	Reservoir
VMS-593	H	4	Step-well
VMS-598	H	11	Megalith
VMS-599	H	12	Megalith
VMS-601	H	11	Rock-shelter with paintings
VMS-602	H	12	Megalith

Table 4. Sites documented in Block J

Site	Block	Transect	Description
VMS-513	J	7-8	Settlement
VMS-514	J	8	Temples in compound
VMS-515	J	7	Artefact scatter
VMS-516	J	7	Shrine (Shaivite)
VMS-517	J	5	Reservoir embankment
VMS-518	J	4	Settlement
VMS-519	J	4	Bastion
VMS-520	J	4	Bastion and wall
VMS-521	J	4	Bastion
VMS-522	J	2	Step-well
VMS-523	J	1	Reservoir embankment
VMS-524	J	1	Road
VMS-525	J	2	Temple (Durga)
VMS-526	J	2	Images on boulder
VMS-519	J	4	Bastion
VMS-520	J	4	Bastion and wall
VMS-521	J	4	Bastion
VMS-529	H/J	14-18/1-3	Fortification wall (Anegondi)
VMS-530	J	2-3	Settlement
VMS-531	J	1	<i>Mandapa</i> /displaced elements
VMS-532	J	4-6	Road segment
VMS-533	J	5	Artefact scatter
VMS-534	J	7-9	Anicut
VMS-535	J	3	Reservoir embankment
VMS-536	J	15	Road segment
VMS-537	J	15	Settlement, with shrine
VMS-538	J	15	Hanuman slab
VMS-539	J	15	Road wall
VMS-540	J	16	Step-well
VMS-541	H	11	Settlement
VMS-542	J	7	Wall segment
VMS-543	H	8	Megalithic cemetery/platforms
VMS-544	J	14	Temple/terrace/structure
VMS-545	J	14	Artefact scatter/settlement
VMS-546	J	14	Fortification wall and peg holes
VMS-551	J	8	Erosion control wall
VMS-552	J	8	Road segment
VMS-553	J	8	Horse stones
VMS-554	J	7	Road wall
VMS-555	J	7	Wall and platform
VMS-556	J	7	Displaced image and columns
VMS-557	J	6-7	Wall/road
VMS-558	J	6	Horse-stones
VMS-559	J	6	Inscription
VMS-560	J	10	Shrine
VMS-561	J	11	Single room structure
VMS-571	J	7	Ceramic scatter
VMS-581	J	17	Platform

Table 5. Sites Related to Transportation

Site	Block	Transect	Description
VMS-529/F1	H	17	This is a small stairway constructed of boulders placed along a well-worn area of sheet-rock (c. 3 x 2 m) located along a path to the south of the outer wall of Anegondi (VMS-529).
VMS-529/F3	H	17	Simple linear gate in outer wall of Anegondi, ca 9 m long x 8 m wide, narrowing to the south.
VMS-529/F5	J	2	Simple linear gate in outer wall of Anegondi, located on Gangavati-Anegondi road, c. 15 m long x 8 m wide, faced with large stone blocks, 2 platforms or bastions on interior.
VMS-549	H	9	Two platform columned gateway on high basement located outer wall of Anegondi in a narrow valley between two high hills. Central columns are square with octagonal insets, remaining columns are simple rectangular blocks.
VMS-565	H	7	This is a small (30 x 14 m) road segment defined by a boulder alignment on sheet-rock, skirting the base of an outcrop.
VMS-524	J	1	Large road (980 x 20 m) oriented 20 east of north, in a valley between two high outcrops. Low walls line either side, and traces of pavement are preserved in some areas.
VMS-532	J	4-6	This long road (300 x 12 m) extends south from Kadabakele toward the Anegondi <i>anicul</i> . It is lined on one or both sides by a low wall constructed of large unmodified boulders; a small platform (Feature 1) is located on western edge of road.
VMS-536	J	15	This small road fragment (36 m long) is flanked by two walls, and extends along the base of an outcrop.
VMS-539	J	15	This 22 m long segment of double-faced wall is probably associated with VMS-536.
VMS-552	J	8	This is a small segment (40 x 6 m) of paved road bed extending along a low outcrop and incorporating worn sheet-rock in sections.
VMS-554	J	7	Skirting the southern face of an outcrop, this long wall of 1-2 courses forms a flat terrace, c. 80 m long x 2 m wide.
VMS-557	J	6-7	This road is likely a continuation of VMS-554. A low wall ranging from 1-5 courses skirts the southern edge of an outcrop; a small platform is located near western end of wall.

Table 6. Sites Related to Settlement

Site	Block	Transect	Description
VMS-512	M	2	This is a nucleated settlement bounded by a large enclosure wall, and with a Hanuman shrine. Traces of several small structures evident within this <i>c.</i> 135 x 130 m settlement; southern part of site has been recently ploughed, destroying structural remains and contributing to dense artefact scatter.
VMS-567	M	3	A small settlement (75 x 60 m) located on a low rising outcrop above rice fields; some modern artefacts and structures, but displaced Vijayanagara elements present, and traces of at least 5 rectangular structures, unfinished Hanuman sculpture on boulder near small circular stone tower or bastion.
VMS-592 (Figure 6)	M	6	This is a fortified area of <i>c.</i> 14 rooms (180 x 40 m) located on the southwest slope of the outcrop below fort VMS-591, with which it is most likely associated.
VMS-550	H	10	This is a nucleated settlement (190 m north-south x 230 m east-west, minimal estimate) built against the west face of a large outcrop, to the north of the outer wall of Anegondi. Despite extensive disturbance by modern agricultural activities and quarrying, the remains of many rectilinear structures placed opportunistically among the outcrops are evident, as are traces of an enclosure wall.
VMS-588	H	10	This site consists of wall alignments and small structure located <i>c.</i> 100 m north of VMS-550; small room or terrace of unknown date.
VMS-513	J	7-8	A nucleated walled settlement, <i>c.</i> 300 x 200 m located on the eastern slope of a moderately high outcrop. Heavily disturbed by quarrying. Enclosure walls are constructed of large unmodified boulders, with entry to the settlement through broad gaps. In some areas, traces of dense rectilinear structures are preserved, some situated around courtyards. Storage pit profiles are evident in modern soil excavations.
VMS-515	J	7	This is a surface scatter of ceramics (60 x 60 m) located <i>ca</i> 150 m southwest of VMS-513 and probably associated with that large settlement.
VMS-518 (Figure 7)	J	4	This is a walled settlement protected by four bastions located on a level terrace on the north face of an outcrop, <i>c.</i> 120 m east-west x 60 m north-south. A minimum of 8 rectilinear structures are visible within the walls. This area also contains several ground stone mortars and high ceramic density. Some modern modification, but some Vijayanagara elements are present.
VMS-537 (Figure 8)	J	15	This settlement is presently <i>c.</i> 120 x 60 m in dimension, though has been disturbed by agricultural activities. The settlement contains a small Hanuman shrine and several displaced sculptural elements. Remains of at least 12 structures are visible within a large enclosure wall.

Table 6. Continued

Site	Block	Transect	Description
VMS-544	J	14	This site contains a small temple located on a terraced area of sheet rock located on the north bank of the Tungabhadra River. A scatter of rubble, artefacts and ground stone suggests that residential structures may once have been present in this area.
VMS-545	J	14	This is an extensive (84 x 76 m) sparse to moderate ceramic scatter in a heavily disturbed area on the north bank of the Tungabhadra River, probably associated with VMS-544. Rubble concentrations in agricultural fields may be the remains of disturbed structures.
VMS-561	J	11	This site consists of a small (3.6 x 3.6 m) single room structure of uncertain date located on a flat area near agricultural fields.

Table 7. Sites with Religious Associations

Site	Block	Transect	Affiliation	Description
VMS-584 (Figure 9)	M	10	Vaishnava	This site, located on the southern edge of the Anegondi canal, consists of an Anjaneya Hanuman carved on a large boulder and an associated round bastion.
VMS-594	M	7	Shaiva	This site consists of two Vijayanagara period sculptures in a modern shrine. They include a Nandi image facing the shrine entry and a seated god, wearing a tall crown and pendant earrings.
VMS-595	M	13	Vaishnava	This site consists of a large Anjaneya Hanuman slab on a modern platform.
VMS-613	M	5	Shaiva	This site, on an island in the Tungabhadra, consists of a small shrine built under a boulder overhang containing a natural <i>lingam</i> , and three associated platforms, with a natural Nandi and image base.
VMS-562	H	14	Shaiva	This is a south-facing two-chamber Hanuman temple located in the modern settlement of Mallapur. While much of the structure seems recent, the central image of Hanuman, and smaller images of Nandi and Garuda are of Vijayanagara style.
VMS-566	H	7	Shaiva	This heavily modified early Vijayanagara temple with Shaiva door guardians is situated on the sheet-rock slopes below Anjanadri Hill.
VMS-514	J	8	Shaiva	This is walled temple complex containing 2 two-chambered shrines that abut each other. Associated displaced slabs include an elaborately sculpted doorway, with Shaiva door guardians; possibly late Vijayanagara.
VMS-516	J	7	Shaiva	This shrine consists of a modified rock-shelter and associated terrace. Inside a small walled-off chamber in the shelter are images of a <i>lingam</i> and Nandi. A large Ganesh is carved on a boulder on the terrace as is a seven-headed <i>naga</i> .
VMS-525	J	2	Unknown	This is a Vijayanagara period two-chambered shrine that has been incorporated into a modern Durga shrine; original affiliation unknown.
VMS-526	J	2	Shaiva, Vaishnava	This large granite boulder located near the Kadebakele gate is carved with images of a <i>lingam</i> and Nandi image, Anjaneya Hanuman, and two humans.
VMS-538	J	15	Vaishnava	This is an unfinished image of an Anjaneya Hanuman on a large stone slab found at its sculpting location.

Table 7. Continued

Site	Block	Transect	Affiliation	Description
VMS-544	J	14	Vaishnava	This is a small single-chambered Hanuman temple located on a terraced area, and probably associated with a much disturbed Vijayanagara period settlement.
VMS-556	J	7	Vaishnava	Vijayanagara period Anjaneya Hanuman in modern structure, fallen lamp-column lies nearby.
VMS-560	J	10	Hero stone	This is a single chamber (2 x 2 column) shrine containing a carved slab on which is depicted a male figure on horseback. The horse is led by a turbaned male figure; a female stands behind the horse. An image of a dog is seen between the horse's legs.

Table 8. Sites Associated with Agricultural Activities

Site	Block	Transect	Description
VMS-570	M	6	This finely built square (11.5 x 9 m) water catchment basin is located in a natural depression on sheet-rock and captured run off from the north and east. The south and west faces are constructed of up to six stepped courses of angular unmodified and split stones.
VMS-583	M	13	This c. 52 m long reservoir has a runoff sluice on its southern end and is located near the mouth of a narrow valley. No formal sluice gate is present.
VMS-585	M	8-10	This 250 m long x 15 m wide site is the <i>anicul</i> that provides water to the Anegoni canal. Much of the <i>anicul</i> is modern, though several elements date to the Vijayanagara construction.
VMS-586	M	10	This site is a stepped stone canal embankment and outlet of the Anegoni canal that parallels the Tungabhadra River for c. 120 m. The embankment is up to 20 m wide. The modern canal is located slightly to the north of this site.
VMS-575	G	2	This small (16 x 10 m) site consists of three walls that served to limit erosion from agricultural fields in an area of sloping terrain.
VMS-576	G	3	This heavily overgrown and damaged reservoir embankment (60 x 10 m) is located between granitic hills and channelled water to the southwest. It is constructed of up to 10 courses of medium to large unmodified and split boulders.
VMS-577	G	3	This small reservoir embankment (100 x 7.5 m) is similar to VMS-576 and likewise spans a narrow valley. It is constructed of up to 10 irregular courses of small to medium unmodified and split boulders.
VMS-611	G	3	This site consists of two parallel wall alignments located near reservoir VMS-576. It may have served to control erosion.
VMS-528	H	14	This 185-m long stepped stone embankment is incorporated in the outer fortification wall of Anegoni. It spans an east facing valley. The east face is a well constructed Vijayanagara fortification wall of wedge-shaped blocks; the west face is stepped and constructed of up to 11 courses of medium to large unmodified and split boulders. It would have impounded water from slopes to the west in a catchment c. 100 x 140 m in area.
VMS-547	H	5	This 270-m long north south reservoir embankment is located between two large outcrops. One sluice gate is preserved near the south end and a sluice outlet is visible in the north. This tall and steep embankment is faced on both sides, with between 13-15 courses of dressed slabs.



Table 8. Continued

Site	Block	Transect	Description
VMS-563	H	15	This site is a northeast-southwest oriented reservoir embankment that spans a narrow valley between two outcrops. The eastern side is faced with five to seven courses of medium to large unmodified and split boulders. Two standing columns mark the existence of a disturbed sluice gate.
VMS-564	H	7	This site is a 140-m long segment of the Anegondi canal that fell out of use when the canal was diverted to its present course. In sections there is a significant difference in elevation on either side of the canal, with the terrain to the east 6 to 8 m below the western face. The eastern embankment is faced with up to 12 courses of stepped stones. A stone platform is located near the south end of the site, and a square bastion is located on the north.
VMS-572	H	1	This stepped, north-south oriented, 340 m-long embankment spans a valley between two steep outcrops. The western side is faced with 5-13 regular courses of medium to large unmodified boulders. A square outlet basin is located near the south end.
VMS-573	H	15-16	This site consists of a highly disturbed 320+ m long reservoir embankment located amid irrigated rice and peanut fields. One sluice gate is extant with a single angled bevel moulding. Embankment construction is of 5-7 irregular courses of medium to large unmodified boulders.
VMS-590	H	11	This site consists of a reservoir or water catchment feature (39 x 36 m) and associated walls that bound a natural depression on an outcrop. May be prehistoric in date, as black and red ware sherds were found on nearby terraces.
VMS-593	H	4	This small heavily overgrown step-well is located in a low lying area amid modern fields.
VMS-612	H	1	This is a small (85 x 8 m) reservoir embankment that encloses a narrow valley between two east-west trending outcrops. It is constructed of up to 8 courses of medium to large unmodified and split boulders and most likely served to impound water, not to distribute it. No sluices are present.
VMS-517	J	5	This poorly preserved, 250 x 15 m north-south reservoir embankment spanned a low-lying area between two outcrops. 5 to 7 stepped courses of medium large unmodified and split boulders are preserved. The embankment was cut by the Anegondi canal and must therefore predate canal construction. A sluice outlet is preserved, though no gate is present.

Table 8. Continued

Site	Block	Transect	Description
VMS-522	J	2	This site consists of a small shrine and associated step-well. The water basin of the well is <i>c.</i> 10 x 10 m, with steps on the west and a water drawing platform on the east. The walls of the well are constructed of well dressed cut granite slabs and blocks; coursing is regular and Vijayanagara quarry marks are visible.
VMS-523	J	1	This heavily disturbed, north south oriented reservoir embankment extends north from the Kadebakele gateway on the outer wall of Vijayanagara. It was made obsolete during Vijayanagara times by the construction of the Anegondi canal. The western face of the embankment is faced with 3 to 7 course of unmodified medium boulders. A sluice gate is preserved near the southern end.
VMS-534	J	7-9	This long <i>anicut</i> (1,100 m) snakes along the Tungabhadra River from the northern bank to the southeast. Large parts are fully submerged. The <i>anicut</i> diverts part of the river flow to a natural channel between large boulders that ultimately leads to the Ramasagara channel on the southern river bank.
VMS-535	J	3	This <i>c.</i> 200 m long reservoir embankment spans a valley between two outcrops, and is oriented 10° east of north. The western face is constructed of up to seven courses of unmodified and split medium boulders. No sluice gate is preserved.
VMS-540	J	16	This rectangular step-well is associated with settlement VMS-537 located 30 m to its north. The well is constructed of up to four visible courses of masonry. There are no stairs.
VMS-551	J	8	This site consists of a doubled-faced wall that extends for 58 m along the southern edge of an outcropping area. Incorporating natural boulders in parts, the wall likely served to limit erosion in the fields to the south of the wall, though it may also have defined a foot path.

Table 9. Sites Related to Fortification and Defense

Site	Block	Transect	Description
VMS-584 (Figure 9)	M	10	This site located on the southern edge of the Anegondi canal, consists of an Anjaneya Hanuman carved on a large boulder and an round bastion. The bastion is <i>c.</i> 6 m in diameter and was <i>c.</i> 1.6 m high.
VMS-591	M	6-7	This is a large fort located atop a high outcrop overlooking the Tungabhadra River and affording excellent views to the south, west and east. The <i>c.</i> 310 x 100 m fort follows the contours of the outcrop, with two main levels of room blocks, containing residential space, storage structures and water basins.
VMS-527	H	14	This is a 40 m-long segment of the outer fortification wall of Anegondi that spans an open area between two outcrops. The exterior of this double-faced wall is constructed of large wedge-shaped blocks, while the interior is of large unmodified boulders. This site is associated with VMS-528 and VMS-529.
VMS-528	H	14	This 185-m long stepped stone embankment is incorporated in the outer fortification wall of Anegondi. It spans an east-facing valley. The east face is a well constructed Vijayanagara fortification wall of wedge-shaped blocks; the west face is stepped and constructed of up to 11 courses of medium to large unmodified and split boulders. It would have impounded water from slopes to the west in a catchment <i>c.</i> 100 x 140 m in area.
VMS-529	H/J	14-18/1-3	This is a <i>c.</i> 2-km long section of the outer fortification wall of Anegondi, which wraps around the settlement on the north and east. The wall incorporates three gates and has several square bastions. Its orientation follows the path of outcrops on which it rests. It is constructed of well-fitted wedge-shaped blocks and is mostly double-faced ranging from 4 to 12 m in width.
VMS-548	H	10	This 200-m long section of the outer wall of Anegondi is located to the north-west of the town and spans a narrow valley between two high outcrops. Up to 10 courses of wedge-shaped block masonry are preserved. Gate VMS-549 provided access through this wall.
VMS-580	H	10	This 30-m long, double-faced wall blocks a passage through outcrops that provided access to VMS-550. It is double faced and constructed of large split boulders, with rubble fill.
VMS-519	J	4	This is a small circular bastion or watch tower located atop a high outcrop overlooking settlement VMS-518 and reservoir VMS-517. It is constructed of 14+ courses of small square and rectangular blocks. Possibly post-Vijayanagara.
VMS-520	J	4	This small square bastion is situated on a small boulder overlooking settlement VMS-517. Possibly post-Vijayanagara.

Table 9. Continued

Site	Block	Transect	Description
VMS-521	J	4	This round bastion guards the western approach to settlement VMS-517. It is constructed of small square to rectangular blocks, with up to 11 courses preserved.
VMS-546	J	14	This is a small section of fortification wall (12 x 7 m) spanning a gap in an outcrop on the north bank of the Tungabhadra River. The wall is composed of medium to large granite blocks and split boulders, with some wedge-shaped blocks. Four courses are visible.
VMS-553	J	8	This site is a 12-m long section of four parallel rows of boulders, with a width of 6 m. The boulders stand 0.8 to 1.0 m high and are spaced less than 1 m apart. Modern quarrying in the area has probably destroyed much of this site. The stones probably served as horse-stones, a defensive feature designed to impede the movement of cavalry, and were part of the defensive system of Anegondi.
VMS-558	J	6	This 110-m long site consists of two sets of parallel rows of large boulders. The northern set consists of three rows of boulder alignments, with distance between rows c. 1.5 m, while in the southern set lines are spaced at 1.0 m apart. The rows are heavily disturbed by wet agriculture and the original extent was undoubtedly much longer. The stones probably served as horse-stones.

Table 10. Prehistoric Sites Documented

Site	Block	Transect	Description
VMS-568	M	5	The rear wall of this 27-m long, northwest-facing rock shelter is painted with numerous naturalistic and geometric motifs in red and white pigment. Depictions include human figures, animals, and structures.
VMS-569	M	5	This linear cairn is located on an outcrop above VMS-568 and is associated with cemetery site VMS-603.
VMS-600	M	5	Several circular petroglyphs of uncertain date are inscribed on the eastern face of a large (c. 15 m high) boulder, located near megalithic sites VMS-568 and VMS-603.
VMS-603	M	5	Located on a terrace on the northern side of a steep outcrop, this site contains a number of circular and linear stone alignments, and possible cairns spreading over an area c. 80 x 40 m.
VMS-578	G	3	This is a two-chambered north-facing rock-shelter located on the western slope of an outcrop. The shelter contains sparse scatter of highly eroded ceramics of unknown date (but most likely prehistoric).
VMS-582	G	15	This is a small scatter of quartzite lithic debris, including cores, shatter and flakes. Date unknown.
VMS-574	H	16	This site consists of two superimposed painted images on a large vertical boulder. Designs are geometric and while the topmost image appears modern, the lower image may be Prehistoric in date.
VMS-579 (Figure 10)	H	11	This settlement site is located on the slopes of a large outcrop. Surface remains include terrace walls, and room blocks. Surface remains include black and red ware and polished red ware ceramics, slag, granite debris, and bone, ash and charcoal, associated with water catchment basin/reservoir VMS-590.
VMS-589	H	12	This west-southwest-facing rock overhang contains red and white painted geometric and stylized human images. Rock shelter.
VMS-590	H	11	This site consists of a reservoir or water catchment feature (39 x 36 m) and associated walls that bound a natural depression on an outcrop. May be prehistoric in date, as black and red ware sherds were found nearby, and it appears to be associated with settlement VMS-579.
VMS-598	H	11	This site is an isolated linear cairn megalith (4.7 x 1.9 m).
VMS-599	H	12	This is an isolated linear cairn megalith (6.7 x 2.7 m).

Table 10. Continued.

Site	Block	Transect	Description
VMS-601	H	11	This south-facing rock-shelter is located in a narrow passage in a large outcrop, and contains red and white painted images of humans, animals, plants (?) and geometric motifs.
VMS-602	H	12	This is an isolated linear cairn megalith (4.55 x 2.5 m).
VMS-530	J	2-3	This settlement site is located on terraces on a high outcrop above the Tungabhadra River. Surface remains include black and red ware, polished red, polished black and russet-coated painted ware ceramics, lithics, bone and ash. Terrace walls and wall alignments are visible.
VMS-541 (Figure 11)	J	11	This settlement site is located on the northern terraces of a high outcrop and consists of stone alignments and a surface scatter of iron age ceramics. Modern quarrying has probably destroyed much of this site.
VMS-543 (Figure 12, Plate 1)	J	8	Located on the southern end of the same outcrop containing settlement VMS-541, this mortuary site contains a number of stone alignments and linear cairns. Walls were built in many of the small rock shelters on the outcrop creating small chambers.



Plate 1. VMS-543, close up of Feature 5, linear cairn.

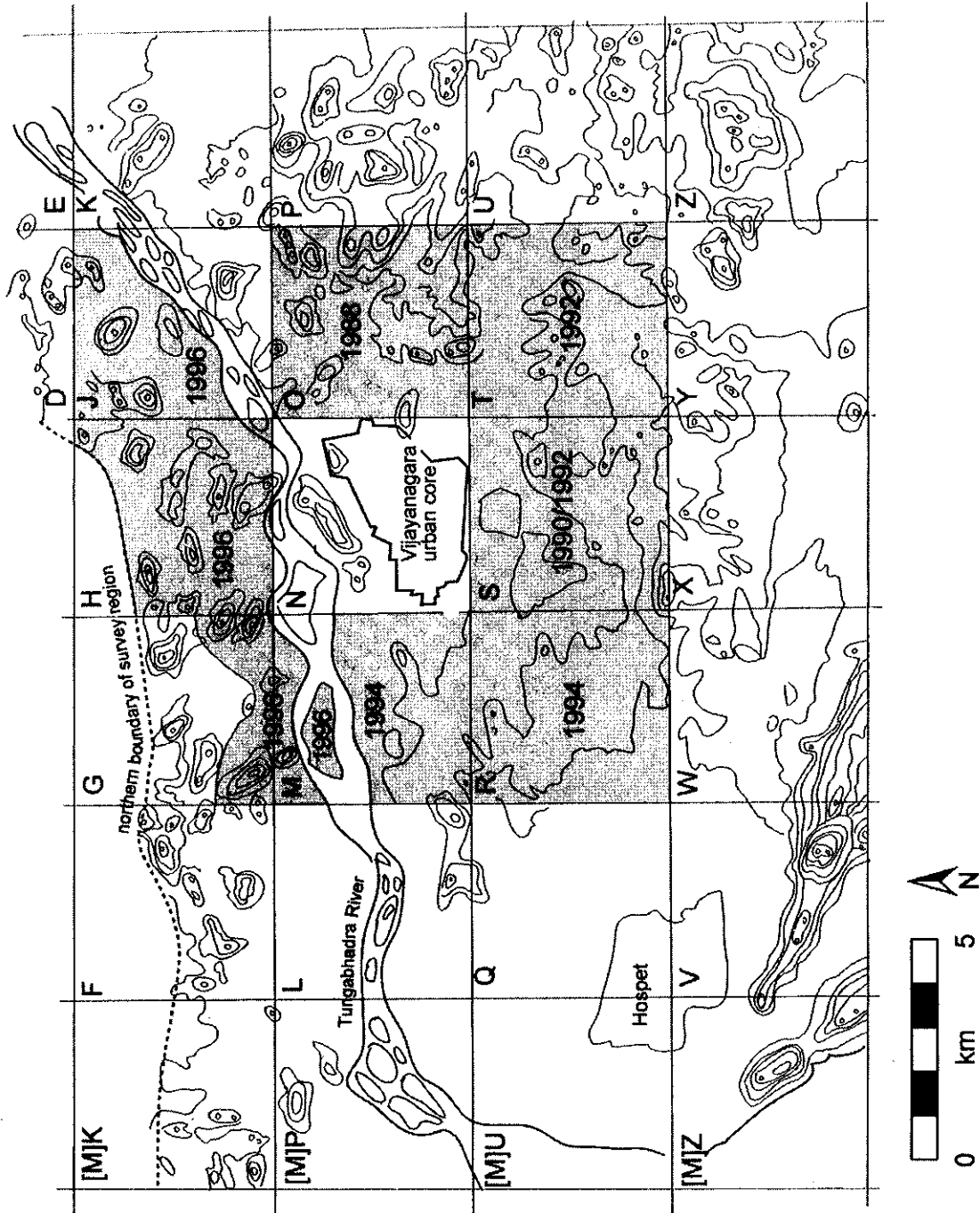
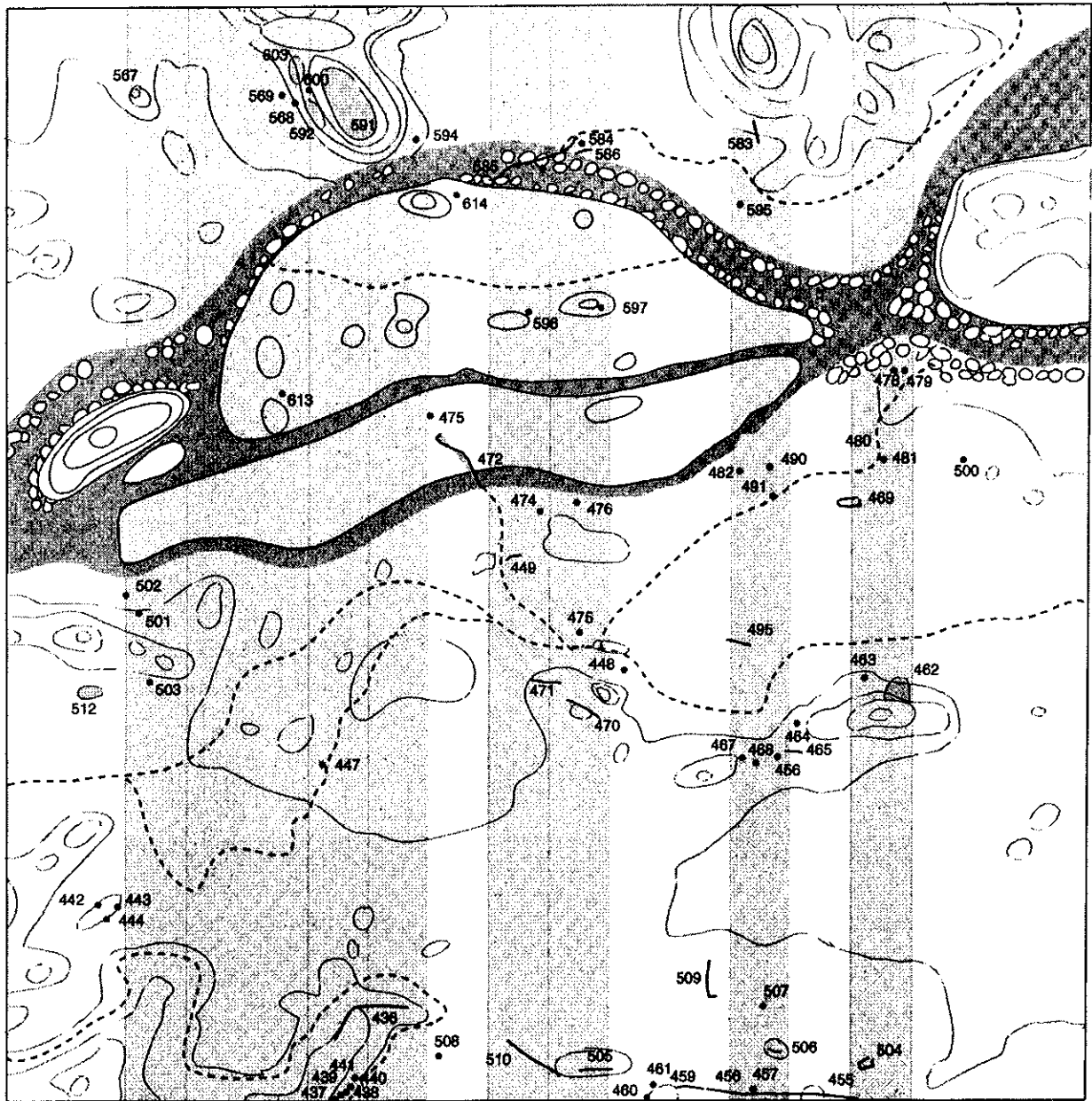


Figure 1. Overview of Intensive Survey Area blocks.



0 1 km



Figure 2. Block M.



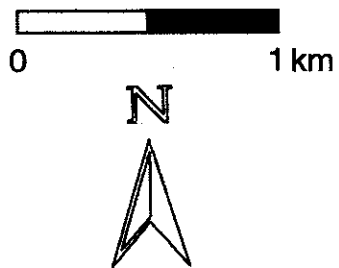


Figure 3. Block G.



Figure 4. Block H.

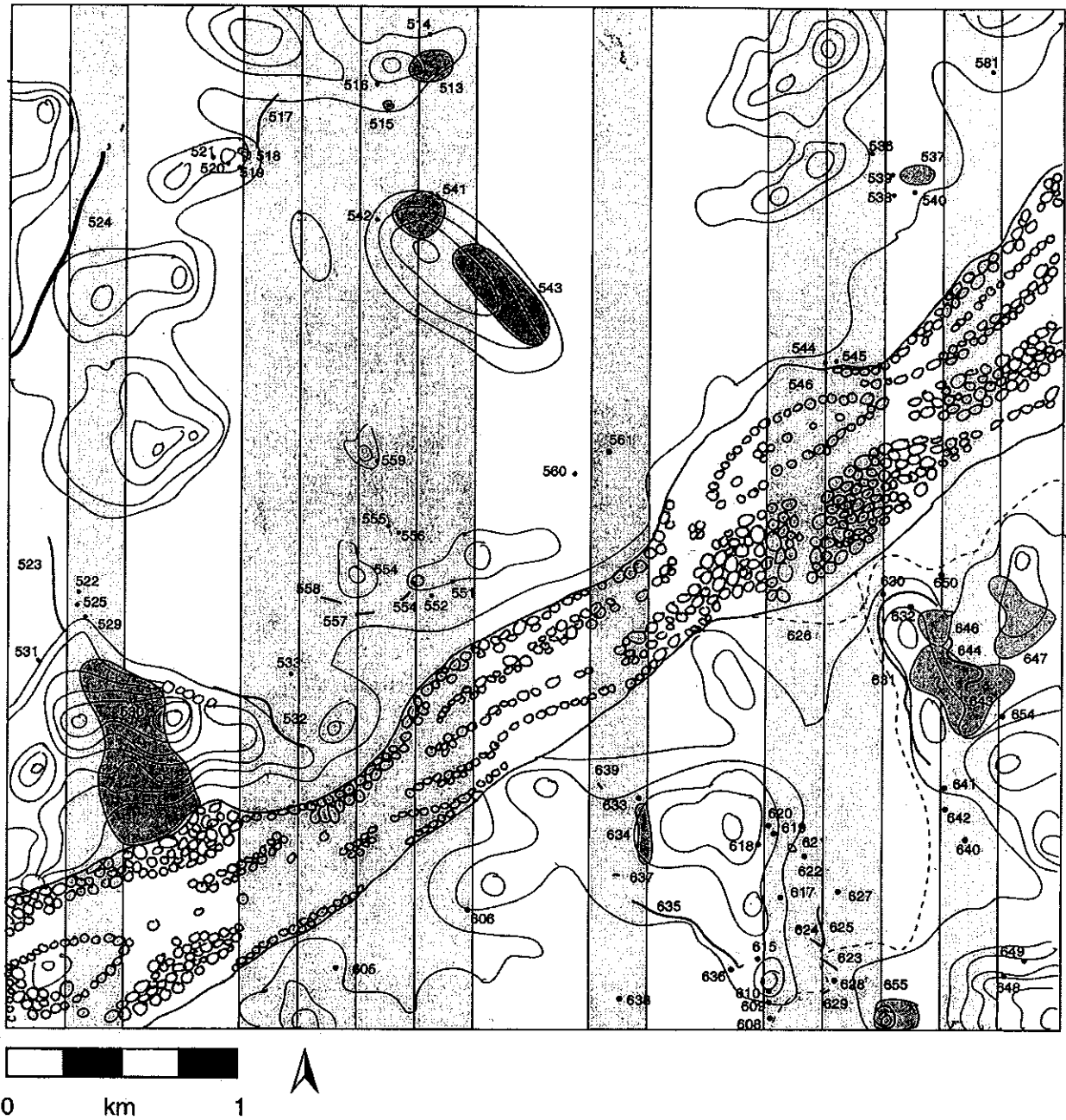


Figure 5. Block J.

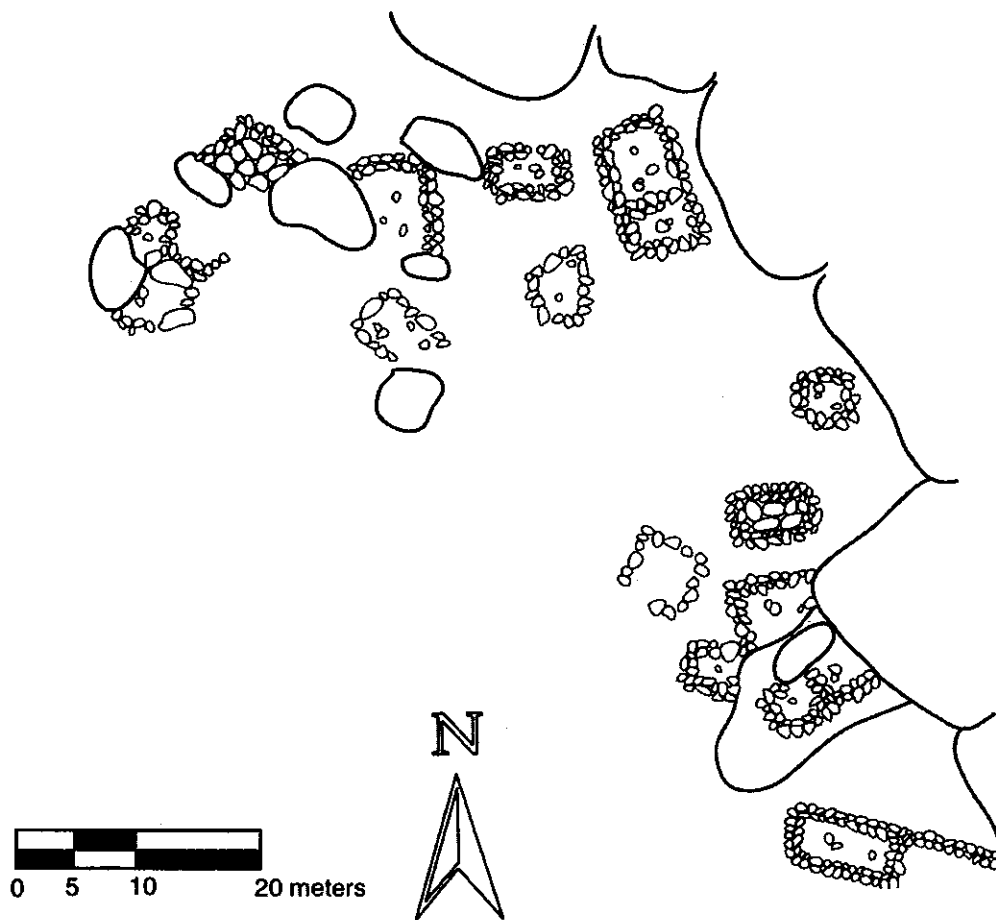


Figure 6. VMS-592.

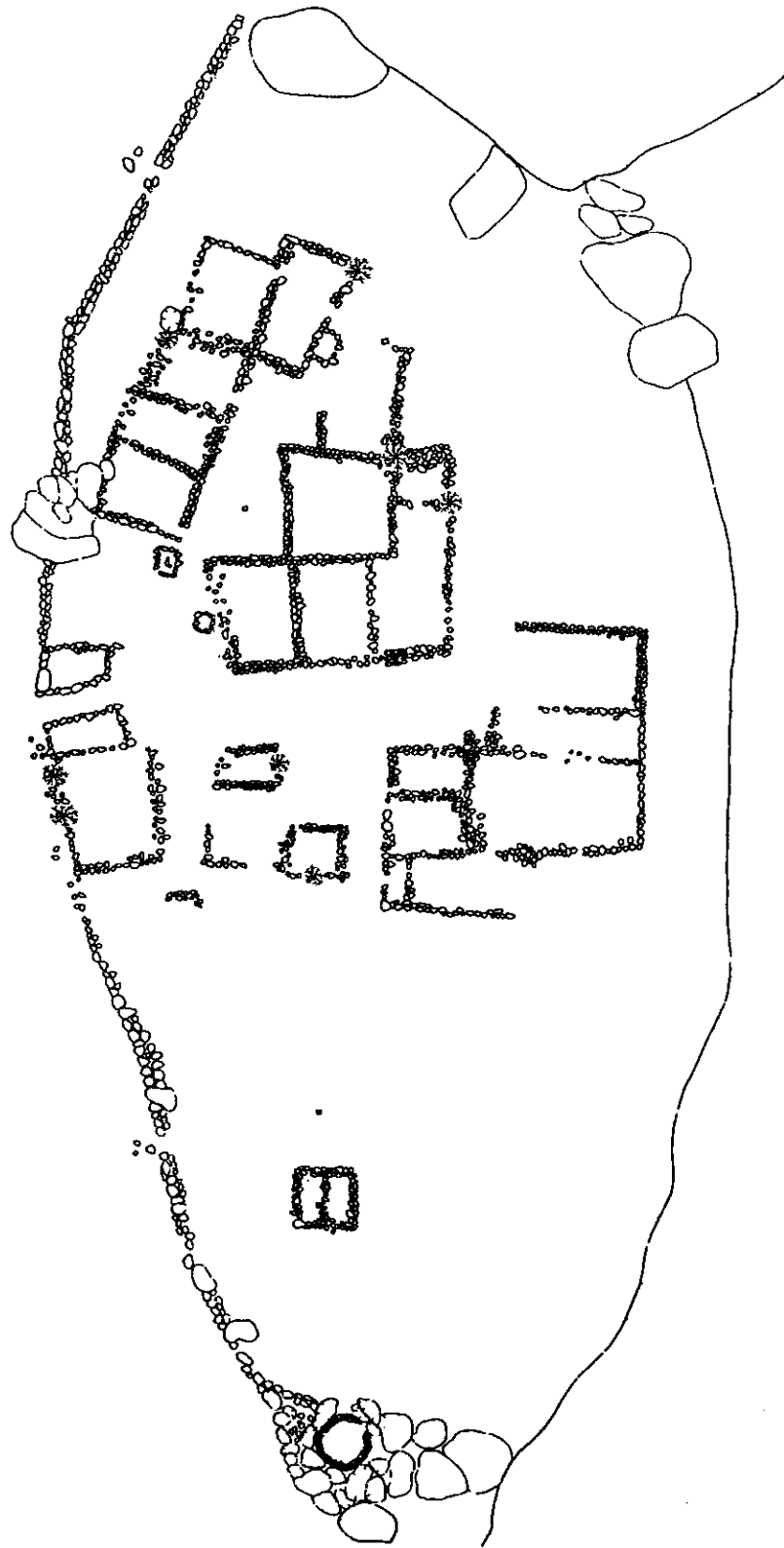


Figure 7. VMS-518.

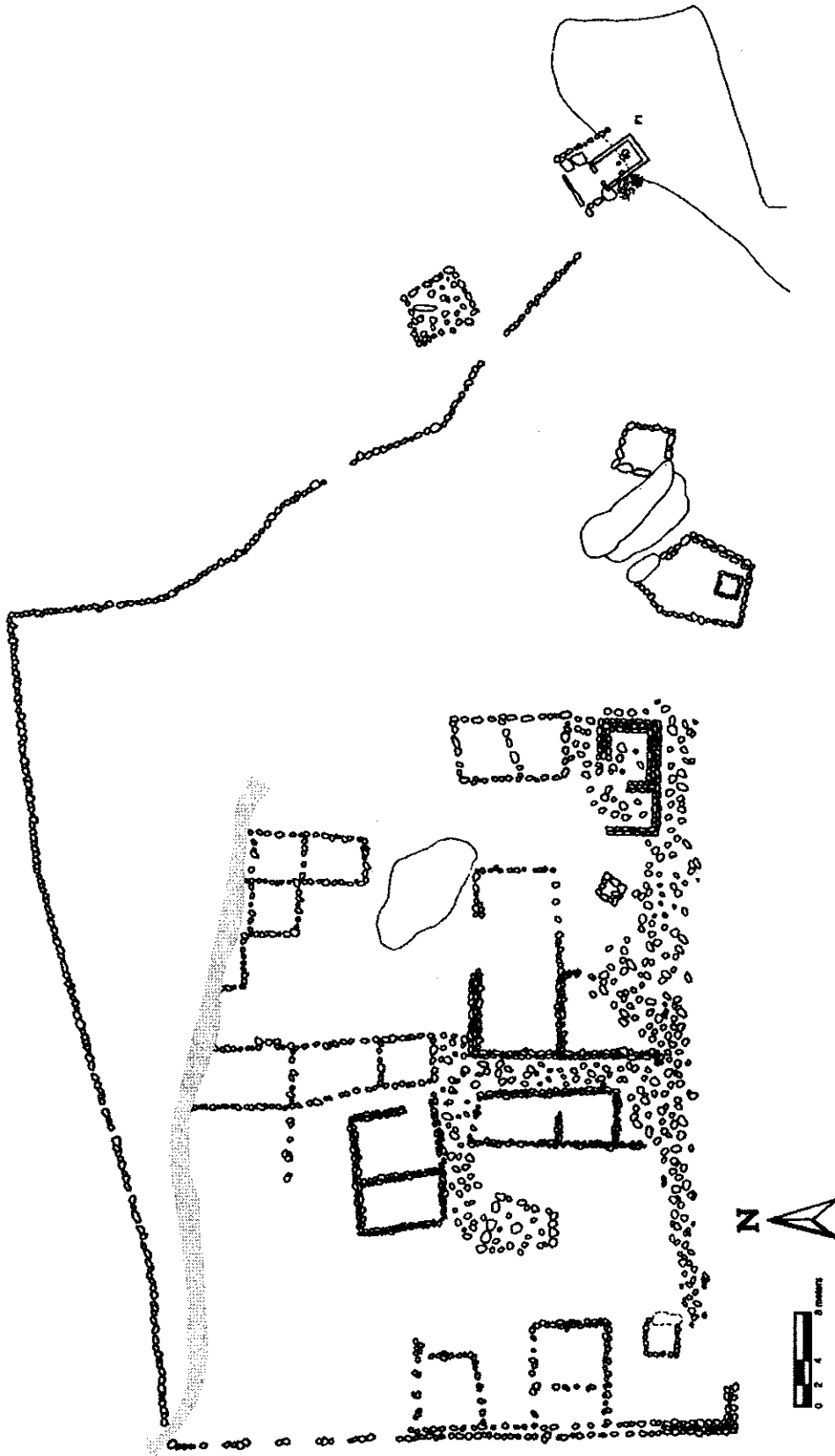


Figure 8. VMS-537.

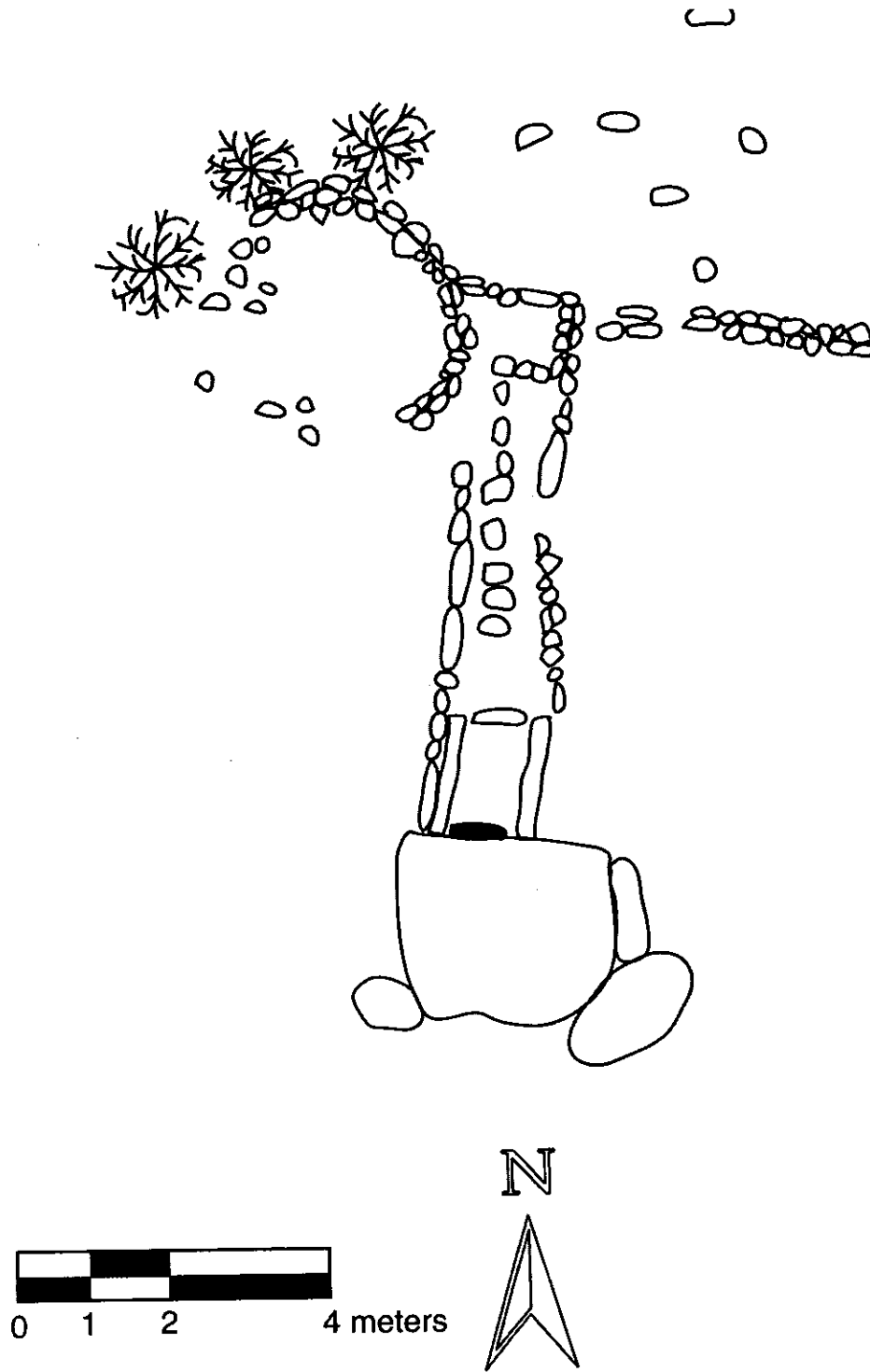


Figure 9. VMS-584.

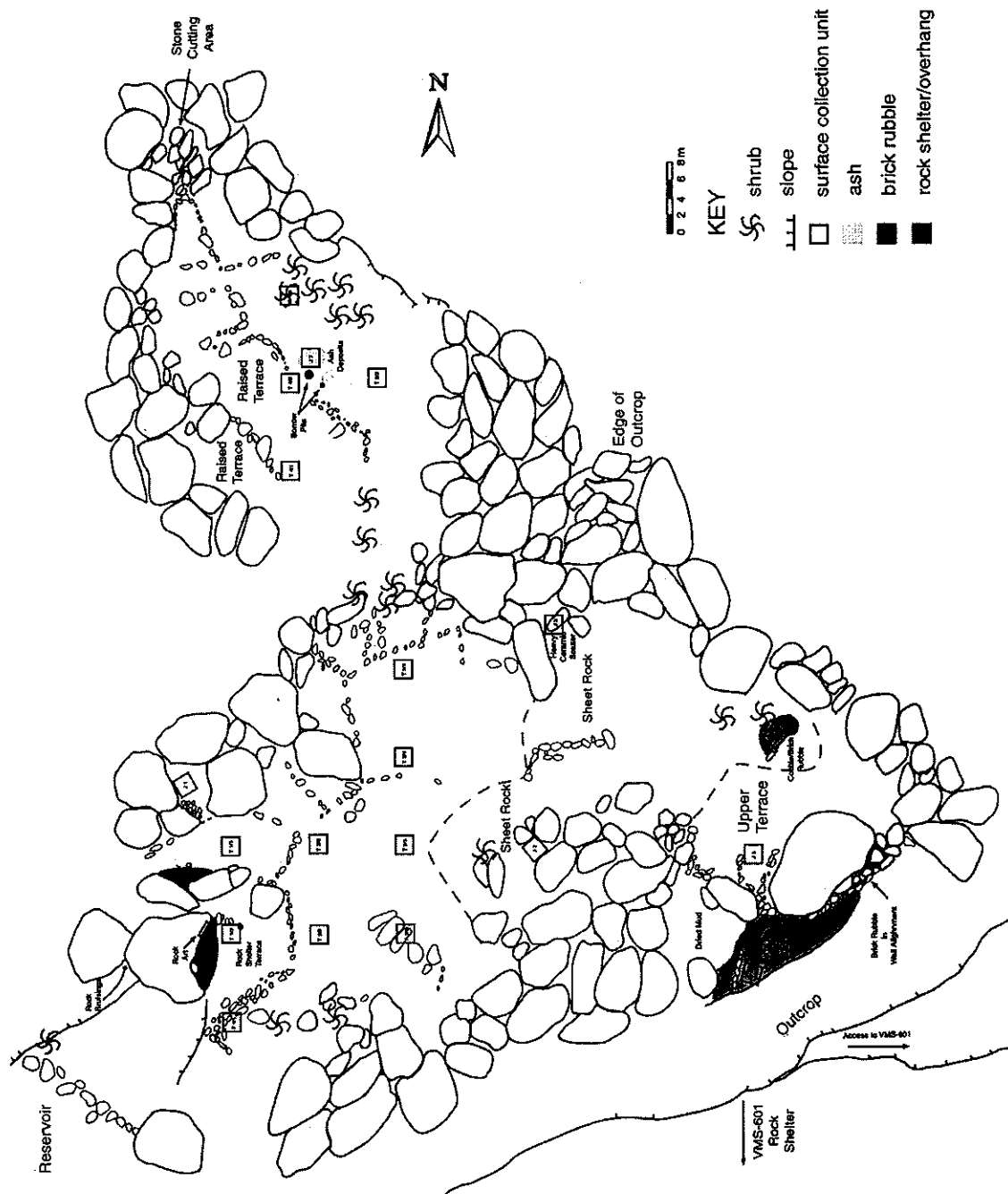


Figure 10. VMS-579.



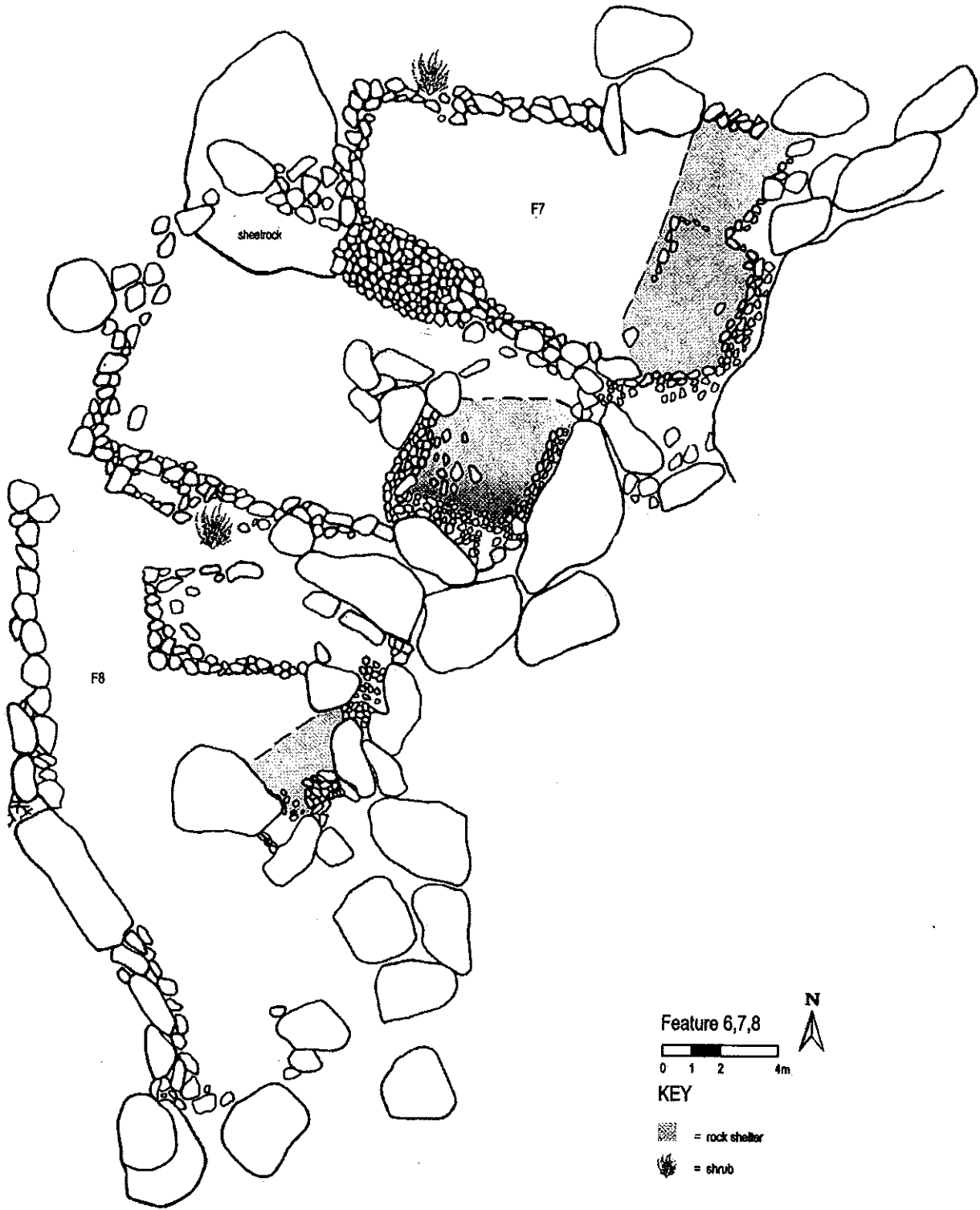


Figure 12. VMS-543.