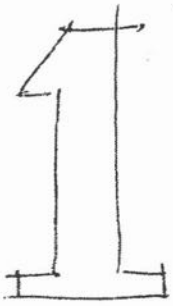
Ismailia Demonstration Projects
Final report
Volume 1 Proposals
Clifford Culpin and Partners et al
Ismailia, Egypt
April 1978



Clifford Culpin and Partners
Dr. Aziz A. Yassin
Economic Associates Limited
Ove Arup and Partners
specialist consultants
Roger Tym and Associates
Mathew Metcalf and Partners

Preface

The format of the Ismailia Demonstration Projects draft final report is as follows:

Volume 1: Proposals. This volume provides an overview to the study, describes the plans and presents proposals.

Volume 2: Technical. This volume provides technical background on the subjects of population and social studies, land, building and housing.

Volume 3: Technical. This volume provides technical background on the subjects of environment, social facilities and recreation, commerce, industry, centres, transportation and roads, utilities, costing, ability to pay and finance, institutional options and legal context.

The technical volumes provide the supporting information, such as survey results, on which the proposals are based and describe the development of the proposals.

The text is supported, wherever possible with small scale figures. In addition, three portfolios (A,A* and B) of large scale plans are provided. These are necessary only for detailed examination of the proposals. A glossary of technical terms used is provided at the rear of this volume.

In addition to the three volumes of the report, three working papers are available. These are:-

Working Paper 1 - Site Selection

Working Paper 2 - Social Survey Questionnaires

Working Paper 3 - Soil Quality Survey

Index

List of Tables

SECTION 8 (CONT.) IMPLEMENTATION

List of Figures

1

Overview

1
Overview

INTRODUCTION

1.1 The Ismailia Demonstration Projects study was set up by the Ministry of Housing and Reconstruction and the British Ministry of Overseas Development to demonstrate policies and proposals of the Ismailia Master Plan (IMP). Specifically, the aim was to give impetus to the Plan by designing certain areas in sufficient detail to permit early implementation and thus give a boost to the realisation of the Plan. This report presents the results of the work undertaken and represents an 11 month process of study, plan formulation, consultation and revision by a team of Egyptian and expatriate Consultants. The Consultants chose to locate their office in Ismailia, in order to work as closely as possible with local government authorities and to have close contact with the areas being studied and planned.

1.2 This report consists of three volumes. In addition, large scale plans are presented in two separate portfolios, with key plans also reproduced in the text at smaller scales for ease of reference. Volume 1, titled 'Proposals', presents the Consultants' basic proposals under three headings. First the policy proposals for each 'sector', such as housing or utilities, are briefly stated. The physical and technical proposals for each Study Area are then described overall and by sector, and project cost estimates are given. Finally, the full range of proposals for implementation of the projects are presented. Volumes 2 and 3 comprise the technical background to these proposals and provide the discussion of issues, methods, options, and back-up information on which the proposals are based.

SITE SELECTION

1.3 The terms of reference required the development of three basic projects, a new general urban area, the improvement of an existing section of the city, and plans for a small industrial estate. Certain areas were suggested for these projects, and the Consultants reviewed these during

*See Ismailia Demonstration Projects Working Paper No. 1, 'Site Selection'.

the first week of the project* In selecting the sites the Consultants followed three basic objectives:

1) that the projects must be successful in the short term;

2) that they should deal with immediate problems;

3) that they should further the realisation of the Master Plan.

Accordingly, three possible sites were studied for the new residential areas, and three locations for the improvement areas. Of these, two areas were found to be the most dynamic in terms of urban development: the uncontrolled northern extension of the El Hekr area and the development of a predominantly rural area, Abu Atwa, and its incorporation into the future city. As each of these areas comprised both existing zones in great need of improvement, and also empty areas of potential future development, it was decided to study and make proposals for both improvement and new development in each area. Such a simultaneous treatment of adjacent new and old areas has many advantages. New infrastructure can serve both, and any displacement from the improvement area can be accommodated in nearby new development. The site indicated in the Terms of Reference for an industrial estate was accepted, though this has later been found, on detailed study, to pose considerable problems.

OBJECTIVES

1.4 The aim of the Demonstration Projects is to show how the policies proposed in the Master Plan are applied in detail; thus the guiding objectives are derived from the Master Plan. These links with Master Plan policies are shown, subject by subject, in the following section. Here it should be emphasised that housing, implementation, and the importance of the economic base were the main policy issues taken from the Master Plan, and that objectives formulated for the Demonstration Projects were based mainly on these aspects. Accordingly, objectives may be stated as follows:

Proposals must

1) be relevant to low income groups, which form the majority of the population;

2) be capable of implementation with minimal subsidy;

3) should be based on the best possible understanding of the existing situation in its social, cultural, economic and physical aspects;

4) should be able to be administered without the need for a high level of sophistication and continued support from outside expertise;

5) should be realistic, i.e. should be implementable within the existing administrative and executive structures and not require fundamental legal or organizational reform;

6) should be implementable as soon as possible;

7) be capable of modification with experience and with changing external factors;

8) should be replicable, in form and content, at other sites in the future.

APPROACH AND BASIC ISSUES

1.5 The Consultants' basic approach to the housing issue has been to consider the situation in an objective, comprehensive manner. The range of housing needs for all income groups has been considered, but more attention has been devoted to low income groups which are least served by existing housing systems. To reach these groups either subsidies must be given, which restricts the amount of provision to the budgets likely to be available, or limitations must be made on the standards of provision in terms of space, infrastructure, and/or superstructure. All these possibilities were examined rather than assume an a priori minimum standard of provision, so that the full range of options could be examined and implications made clear.

1.6 A sound approach to the problem of catering for low income groups requires a full understanding of the existing situation. On this basis a comprehensive series of social studies of low income areas was undertaken to properly understand the social characteristics, incomes, affordability and priorities of people in the Study Areas with regard to housing need. Also, extensive work was carried out to understand the mechanisms and constraints of the prevalent housing provision system.

1.7 The financial viability of proposed projects is a crucial factor. The success of housing or 'sites and services' projects depends not only on a theoretical analysis of ability to pay set against levels of provision, but also upon the practical realities of costs and means of execution, potential revenues, and assurances of subsidies. Thus plans have been prepared which try to anticipate actual conditions, but which are flexible enough to be able to adjust levels of provision with future financial conditions.

1.8 A constant factor in these proposals is, of necessity, the ability to pay of the target population. This basically means that they have to have sufficient money to pay for improvement or new building. Thus, it is not sufficient to look only at the constraints within the housing system, as one of the major constraints is simply that the majority of the target population is very poor. The only means of improving this situation is the stimulation of economic activity, both within Ismailia, and within the Project Areas themselves. This can be both by direct means, such as training programmes and the establishment and servicing of industrial areas, and indirectly by encouraging the small workshop and commercial sectors. However, the greatest influence on incomes will depend upon the general economic growth of Ismailia, and this in turn depends on the Government's

development plans and committment to the Canal Zone cities.

1.9 The Consultants consider that the plans and policies developed for the Demonstration Projects are a starting point. They cover development over a number of years, and the experience gained by the implementing agencies should allow the proposals to be monitored and modified. To this end physical proposals have been designed to allow later detailed changes to be made without altering the basic framework proposed.

1.10 The Consultants are aware that, in meeting the Terms of Reference they have had to carry out surveys to a standard which will not be necessary for future exercises of a similar nature, and thus the analysis presented in this report should not be taken as a strict guide for future studies. The detailed and comprehensive nature of the Consultants' work was necessary, as the studies are the first of their kind in Egypt. It is vital, however, that future plan preparation should not be inhibited by the apparent technical complexity of the work involved. The Consultants hope, in the future, to be able to produce a guide for similar projects based on the minimum work necessary to prepare relevant schemes.

NOMENCLATURE

1.11 Certain terms are used in the report which have a specific meaning. These are defined here for clarity.*

*Further definitions are provided in the Glossary at the end of this report

Study Areas: The total areas of El Hekr, Abu Atwa and Nifisha which were covered by physical and social surveys.

Project Areas: The areas of El Hekr, Abu Atwa and Nifisha for which proposals are made. These lie within the Study Areas, the boundaries being set as a result of the studies undertaken.

Detailed Improvement Areas: These are within the existing built up areas of El Hekr and Abu Atwa and were specified in the Terms of Reference as being for detailed study and proposals. The Consultants agreed with the Client that improvement proposals would be more relevant for the whole of the existing areas (see 'Improvement Areas' below) and the Detailed Improvement areas are thus used as examples rather than areas for specific action.

Improvement Areas: These include the whole of the existing built up areas within the El Hekr and Abu Atwa Project Areas. Improvement proposals cover these areas.

Development Areas: This term applies to the presently undeveloped areas of the El Hekr and Abu Atwa Project Areas for which new development is proposed.

FUTURE DEVELOPED AREA
PROPOSED MOTORWAY
PROPOSED ARTERIAL
SWEETWATER CANAL
RAILWAY
RAPID TRANSIT

Location of study areas in the structure plan 1·1

SUMMARY OF PROPOSALS

1.12 A brief summary statement of the proposals for Abu Atwa, El Hekr and the Nifisha Light Industrial Area are presented here. A summary treatment of basic policy proposals is given in the following Section. The site locations and their relationship to the Master Plan are shown in Figure 1.1.

EL HEKR PROPOSALS

1.13 El Hekr has at present a population of 37,000 and is the main area in Ismailia of 'informal development' on desert land. It is an area of predominantly low income people, though more than 50% of heads of households are, in fact, government employees, and include some in the professional category. The proposals include improvement in the existing area of 132 hectares, and new development of 94 hectares of empty and sporadically developed land to the north. Subdivision plans provide 3,527 plots of which 997 are in the first phase of development. In addition, 169 concession plots to be sold at commercial rates are proposed. The combined populations of existing and new areas by the year 2000 is expected to be in the order of 90,000 persons.

1.14 The existing area has a number of very wide north-south streets, which are surplus to the needs of future circulation. It is proposed that every second one of these streets is restricted to mainly pedestrian and access use, and that the resulting free land is used to provide social facilities and recreation space, which is at present lacking. Even with this, there is not sufficient land, without considerable demolition, to provide all the facilities needed. At present, for example,there is only one primary school, though six are currently required. Space is thus allocated in the new development to make good this deficiency. The new community centre will provide a focus for the whole area.

1.15 Two areas of 'concession plots' are incorporated which provide for higher income groups. Sale of these will help to subsidise the site and service plots.

1.16 Infrastructure provision presents several problems. Water provision to standpipes will be possible immediately, but provision of a full network to serve individual plots, and provision of a water-borne sewerage system depends on ability to pay, possible subsidies and would anyway take a minimum of three years because of the upgrading to the city systems necessary to serve the area. As an intermediate stage it is proposed that individual pit latrines are used.

ABU ATWA PROPOSALS

1.17 Abu Atwa has at present a population of 20,000 and is an area situated 3.5km south of Ismailia which was originally based on agriculture, but which is becoming increasingly integrated into the city. At present only some 20% of the employed population is engaged in agriculture. The Consultants considered it important to determine whether

there were any particular problems in incorporating the area into the future city. The social surveys, in fact, indicated that the differences were significant, but less than had been expected. The proposals include the improvement of 114 hectares and the development of 40 hectares of new land. Of this 15.4 hectares are currently unoccupied, 20.5 hectares are sterilized by the sewerage works which will be phased out within 8 years, and 4.8 hectares are occupied by part of the cemetery, which the local council has agreed can be released for development. The combined populations of existing and new areas by the year 2000 will be in the order of 44,000.

1.18 As in El Hekr, the new areas will provide social facilities for both existing and new areas, though there is more scope, through vacant land for serving existing areas within their boundaries. The sections of the cemetery which will be made available will be utilised for concession plots and social facilities.

1.19 Infrastructure provision is easier than in El Hekr due to the proximity of the sewerage works, and the recent improvement of water supply to the area.

NIFISHA PROPOSALS

1.20 The Nifisha Light Industrial Area was proposed in the Master Plan to concentrate on transportation orientated industries. Its location next to the proposed city centre was of particular significance. To date there is no sign of the city centre site being made available by the military authorities, despite a letter of intent while the Master Plan was being prepared. This is compounded by the discovery during the Demonstration Projects surveys, of a high water table. The cost of fill required to offset this and the (currently) low land value, means that the site will not be economic to develop in the short term. A plan for full development has been prepared, but it is only proposed to develop the first phase of 7.1 hectares at this stage. This incorporates 169 serviced plots for small private sector industrial establishments.

IMPLEMENTATION

1.21 It is proposed that implementation agencies be set up under the Governorate. These agencies would have offices in El Hekr and Abu Atwa. Their sources of finance would be basically the sale of plots in the Project Areas, but they would also be able to raise loans, or seek grants from outside sources. A major feature in fact, would be their ability to operate without any outside financing, though such finance would enable them to significantly increase their scope of activities.

2
Policy Proposals

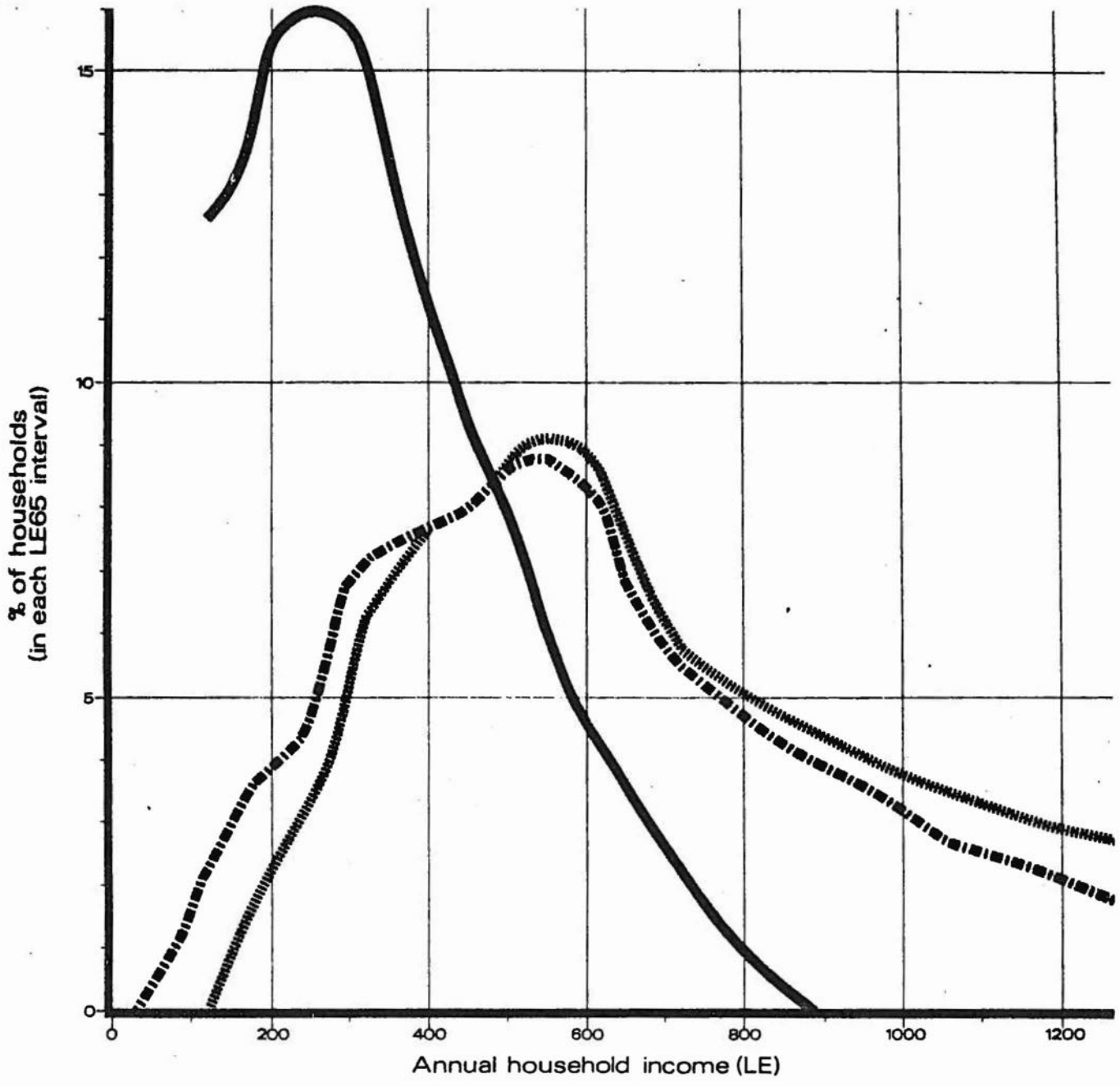
2.1 In this Section, the guiding policy proposals of the Demonstration Projects are presented. At the end of each separate topic, references are given to direct the reader to relevant sections of the report.

TARGET POPULATION

2.2 The first essential is to establish the section of the population for whom the Demonstration Projects are to be designed. In both El Hekr and Abu Atwa there are existing populations whose socio-economic characteristics have been extensively studied, and a basic policy decision has been taken that these characteristics represent the 'target' population for the Project Areas. Thus a similar population profile can be used for both existing inhabitants and those who are expected to settle in the new areas, and this has allowed the Consultants to use characteristics of the existing population as a guide in designing for the new.

2.3 This basic policy has dominated all aspects of the Consultants' proposals since it implies that improvements and programmes must be within the target population's ability to pay for them. This is a difficult task, as the target households are poor by any definition: almost all target households fall within the lowest 30% of the national urban income distribution (see Figure 2.1), with a median income of LE290 per annum as compared to a national urban average of LE625 per annum. The Consultants feel, however, that as demonstration projects, it must be shown that the poor <u>can</u> be offered a way of meeting their housing needs. Furthermore, the Consultants have an obligation to propose solutions which do not ignore the mass of Ismailia's population who are presently the most disadvantaged in terms of housing opportunities and who have as yet been untouched by existing housing programmes.

2.4 It should be noted that this basic policy objective does not imply that El Hekr and Abu Atwa are to be exclusively low-income neighbourhoods, isolated from the general social fabric of the city. The Projects have been designed



ISMAILIA TARGET POPULATION

NATIONAL URBAN (ALL HOUSEHOLDS)

NATIONAL URBAN (HOUSEHOLDS OF 3 OR MORE PERSONS)

Household income distribution (1977)

to absorb a portion of higher-income households, and opportunities for 'formal' sector investments are provided so that the area can absorb a range of higher-order urban activities, and take on the characteristics of the better-serviced areas of Ismailia. In effect, the aim is integration of the Project Areas into the city's general fabric.

2.5 For a detailed description of the characteristics of the client population, see Volume 2, Section 1. Household incomes and ability-to-pay for housing and infrastructure are discussed in Volume 3, Section 9.

HOUSING

2.6 The basic housing objective can be simply stated: The aim is to maximise the aggregate housing stock in Ismailia both in terms of volume and quality. The housing crisis in Ismailia demands that this be the main aim of the Demonstration Projects. The way of meeting this objective has already been suggested in the Ismailia Master Plan, not only for Ismailia but for Egypt as a whole:

'... the most effective level of Government action for housing is an indirect one, concentrating on providing access to the necessary resources and on the provision of infrastructure at levels and times which match users' preferences and demands. This implies that Government should redirect its housing efforts away from direct provision towards the encouragement of the private and informal sectors.'

2.7 The informal housing sector, which is characterised in Egypt by the progressive and incremental construction of housing by small contractors and owners themselves, is well established. It is a system which presently adds more units to the national housing stock than all public housing efforts combined, and this is occurring without any Government support; in fact, it is usually discouraged. The advantages of this system of housing provision are fundamental both to the user and to the nation:

1) Owner-built, incremental construction allows the household to match its own priorities towards housing with its ability-to-pay over time. It also allows flexibility in adjusting housing requirements with changing family size.

2) Such a housing system allows the household itself to treat housing as an investment; it can invest in improvements in anticipation of future sale or rental income, and thus funds are attracted into the housing sector which would otherwise not be mobilised.

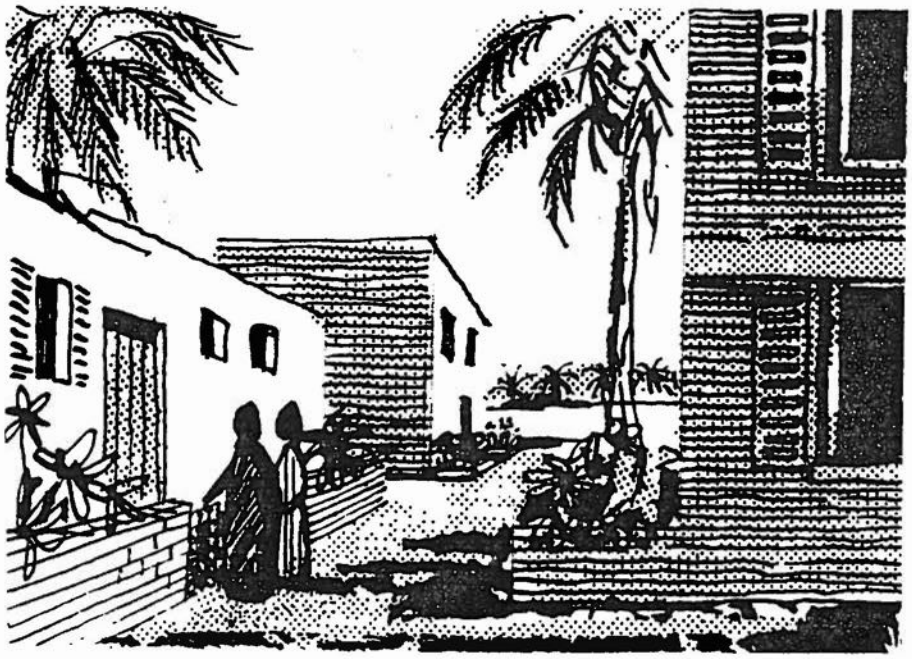
3) Informal construction is, in Egypt, cheaper than formal construction, as it avoids the multiple overheads of the large contractor and uses the owners own labour. It is also more likely to utilize appropriate technologies.

4) Finally, incremental, informal housing is accessible

to low-income urban families; formal private housing is not, and public housing is accessible only with massive subsidisation.

2.8 In the Study Areas of El Hekr and Abu Atwa all housing has been constructed informally and informal building is continuing at present. This building process has been extensively studied by the Consultants with the aim of understanding its dynamics and also identifying constraints to the realisation of its full potential. It has been concluded that the removal of these constraints will release resources and stimulate efforts which will provide for a viable and continuing housing provision system and which will rapidly add owner-occupied and rental accommodation to the city's housing stock. It will be a system in which the target population can afford to participate.

Typical existing housing in the Study Areas.



Possible development of existing area following plot rationalisation and incremental improvement of housing.

2.9 Thus a fundamental policy of the Demonstration Projects is to support and facilitate all who want to build through the informal process. This policy leads to a set of basic proposals which have been adopted by the Consultants in their approach to planning for development in the Project Areas:

1) Well defined plots with secure land tenure must be provided to remove uncertainties and to give maximum incentive for investments in durable construction. It is particularly important to regularise plot boundaries in existing areas and to remove the threat of demolition.

2) For new settlers, an appropriate range of plot sizes must be provided with sufficient space to enable families to utilise plots in the ways to which they are accustomed, to enable the construction of rental accommodation, to allow for progressive intensification of plot use, and to allow infrastructure to be provided efficiently.

3) A minimum level of infrastructure must be provided which is capable of progressive upgrading, consistent with the population's ability to pay. The early installation of water and sewerage mains is important to allow private investment in plot connections and plumbing.

4) Procedures for obtaining necessary permits and permissions must be kept to a minimum.

5) The adequate supply of appropriate building materials, at official prices and in quantities which match the incremental building process, must by assured.

6) Credit should be made available which allows home improvements and progressive additions to basic structures to be afforded.

7) Municipal services and social facilities must be adequately provided to raise the quality of living in the Project Areas.

8) Technical advice on proper construction and the efficient use of building materials should be made available in a form that is easily understandable and fits the process of incremental building.

2.10 These basic points have been followed by the Consultants and have influenced the formulation of all detailed proposals for El Hekr and Abu Atwa.

2.11 For a description of housing systems and constraints, the derivation of plot sizes, and assumptions on use of plots, see Volume 2,Section 4. For detailed proposals on land tenure and implementation/administration measures which encourage the building process, see Section 8 of this Volume. A description of informal building and the problems of building materials availability is given in Volume 2, Section 3. The implications of staged infrastructure provision are discussed in Volume 3, Sections 6 and 7.

LAND AND LAND TENURE

2.12 The El Hekr and Abu Atwa Projects involve the servicing of inhabited areas on the city fringe and the development of contiguous empty land, thus a basic role of the Projects is land development, and this will be the prime economic function of the implementing body. In this process the existing land market in Ismailia cannot be ignored, nor can the dynamics or urban expansion and the inevitable rise of land values. It follows that development of the Study Areas must be considered within the larger city land context.

2.13 Presently land in both El Hekr and Abu Atwa is not integrated into the city market since it has the status of Government leasehold land, and the rights of this form of tenure are confused and insecure. Moreover, Government responsibilities for servicing these areas are unclear, with the result that the areas do not enjoy municipal and infrastructure services. Given this situation, a basic policy of the Demonstration Projects is the rationalisation of land tenure and the formalisation of servicing mechanisms. This policy is directly linked with those adopted as part of the housing strategy (paragraph 2.9 above), and it is proposed that:

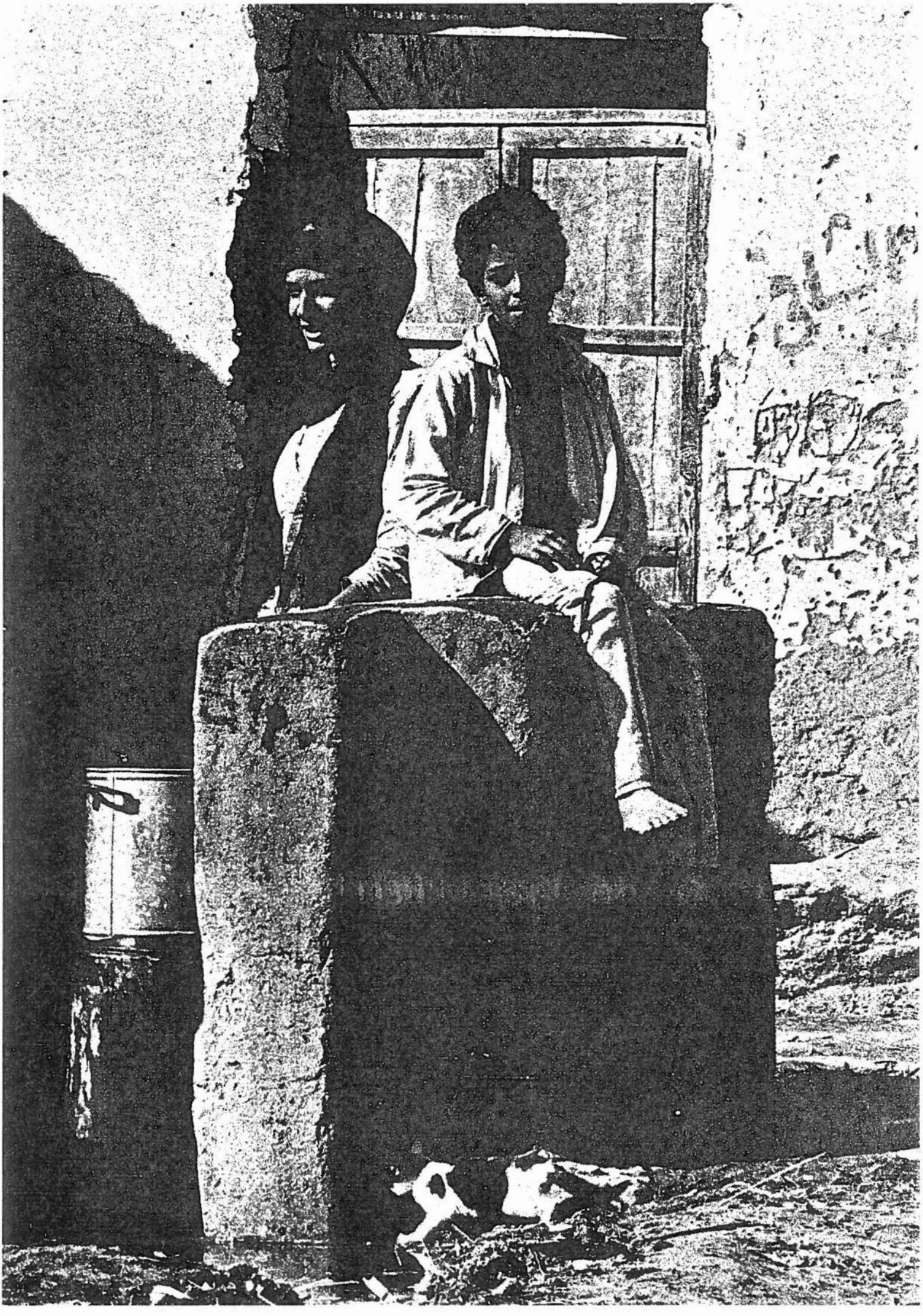
1) secure tenure be offered to all plot occupiers through the mechanism of delayed freehold title. This gives the home-owner the guarantees necessary to encourage maximum investments in home building. At the same time it restricts for the delay period (10 to 30 years) the free transfer of title on the freehold market and thus minimises the negative effects of speculation, an inevitable problem in a situation of rapidly rising land values.

2) various institutional controls be established to ensure that new plots be rapidly built on and occupied and not held for speculative exploitation.

3) all routines dealing with title acquisition and plot demarcation be clear and simple.

2.14 In addition to the above proposals, the Consultants have assigned to the implementing agencies a limited role as 'land merchants', enabling them to put certain land reserves on the open freehold market, so that the inhabitants of the areas themselves can benefit from infrastructure improvements financed from the future sale of these reserves. This principle of using the rise in land values due to urban development as a way of financing public benefits was a basic premise of Master Plan implementation proposals, and it is intended that this principle be demonstrated in the Project Areas.

2.15 The land market and land tenure situation in Ismailia is described in Volume 2, Section 2. Institutional proposals dealing with land are presented in Section 8 of this Volume.



2

Policy Proposals

FINANCING DEVELOPMENT

2.16 A basic objective of project financing is that, as far as possible, development should pay for itself. This aim is in obvious conflict with the policy of catering for a 'target' population of very low-income families, and it has been necessary to go through an extensive analysis which compares and weighs:

1) The costs of different levels of infrastructure provision.

2) The ability of people to pay for housing under different assumptions.

3) The practical constraints of staged utilities installation.

4) The appropriate means of charging and of administration finances.

2.17 The result of this analysis is the conclusion that full infrastructure provision in both existing and new areas cannot at present be fully financed by the inhabitants themselves, but that a minimum level of provision could be supported and practically implemented. Thus, at some point an element of subsidy will be required. Yet for the Demonstration Projects to start immediately and be 'successful' the Consultants have adopted a basic policy with regard to subsidies: that the running of the Projects must not depend on a monetary subsidy which, if not forthcoming, means that the Projects will fail. This basic policy has heavily influenced the financing strategy, the main elements of which are:

1) that each Project be financially independent i.e. separately accountable;

2) that a minimum level of provision of infrastructure be financed through a 'plot purchase rate'. This rate should also finance various programmes which aid the home building and home-improvement process;

3) that this plot purchase rate be amortized over various periods and that payment be linked with the eventual acquisition of freehold title;

4) that the plot purchase rate reflect, as far as is possible, plot size and commercial potential;

5) that full provision (primarily piped water and water-borne sewerage) be paid for through a mix of user charges and outside subsidy;

6) that the Projects can get underway and operate without any subsidy element, but that the amounts and types of subsidy be specified so that, when and if subsidy financing is available, the implementing agency can propose to the funding source its willingness to share in the costs of the subsidized elements;

7) that a limited number of plots be held for future sale on the open land market to amass additional funds

for infrastructure improvements.

2.18 Financial proposals are described in Section 8 of this Volume, and the full analysis of the subject is presented in Volume 3, Section 9.

INSTITUTIONAL CONTROL

2.19 The Consultants have an overriding concern that the El Hekr and Abu Atwa Demonstration Projects be set up as soon as possible, and for this reason no recommendations are made which would require legal or administrative reform on the national level. Administrative and legal control proposals have been carefully drafted to fit into prevailing local administrative practices and routines, and in the administration of the Projects themselves minimal reliance is placed upon innovative concepts and procedures. However, responsibilities of the implementing agencies will need to be of wide scope in order to guide the types of development envisaged in this report. Thus, as far as possible, proposed administrative and legal procedures have been developed in detail to provide concrete guidelines.

2.20 The main aspects of institutional proposals can be summarized as follows:

1) that each Project be managed by a financially independent 'Project Agency' with full responsibilities for all aspects of neighbourhood improvement and land management over all the site;

2) that each Project Agency be located on site;

3) that the powers and obligations of these Project Agencies be set up by enabling legislation in the form of Governor's Decrees, and that therefore these Agencies become executive bodies under the control of the Secretary General of the Governorate;

4) that each Project Agency be an on-going concern which can, through monitoring, adjust phasing, charges and the provision of improvements to maintain financial viability;

5) that each Project Agency be capable of taking on functions which serve the new and existing communities, and encourage the home building system, through such mechanisms as community development and economic stimulation programmes, the provision of small housing loans, programmes for easy access to building materials, and the provision of technical advice;

6) that the Project Agencies act as community advocates with regard to Government bodies responsible for infrastructure provision, public facilities, and social services;

7) that staffing requirements be met through the secondment of local Government staff and through the direct recruitment of well qualified key personnel;

8) that continuous monitoring of the project allow for a body of experience to be built up so that similar projects may be set up elsewhere in Ismailia and perhaps Egypt as a whole.

2.21 The Consultants believe that these proposals will best provide for the successful operation of the Projects within the existing institutional and legal context. They realize, however, that legal reform and institutional innovation in the field of low-income housing can be expected in the future, and proposals have been made with these eventualities in mind.

2.22 Administrative and development control proposals are presented in detail in Section 8 of this Volume. In addition a discussion of administrative options is given in Volume 3, Section 10, and the legal context is discussed in Volume 3, Section 11.

ECONOMIC STIMULATION

2.23 Although the main thrust of policies for El Hekr and Abu Atwa is towards the encouragement of the housing provision process, it cannot be ignored that the economics of the Project Areas (as communities of predominantly low-income inhabitants) should be stimulated to provide more employment and to increase household earning potential. The Consultants are well aware of this and have evolved the following basic policies:

1) that non-residential activities be allowed on all plots. Shops and workshops located on residential plots provide significant incomes to households, and it is well known that such small family businesses operate best if proprietors live at the place of work. Overheads are reduced and full advantage can be made of informal family employment;

2) that all settlers be allowed to provide rental accommodation on their plots. Rental income can be very significant and a settler can choose whether to re-invest such income in further housing improvements (such as more rental space) or to use it for other household expenditures;

3) that measures be taken to increase the proportion of total household retail and service expenditures spent in the Project Areas. At present only a small fraction of the inhabitants' income is actually disposed of in the Project Areas. This proportion can be greatly increased by creating commercial centres with higher-order establishments which can compete with central Ismailia in attracting local shoppers. Thus a strategy of reinforcing the commercial attraction of the Community Centres has been adopted. This has involved a flexible design of agglomerated commercial, workshop and concessionary plots along with market stalls, and a wide range of public services. This strategy has also resulted in recommendations which give the implementing agency the ability, through the sale of plots, of attracting investments in commercial and service establishments in the Community Centres.

2.24 It should be recognized that the home building process itself will provide many employment opportunities for inhabitants. It is expected that levels of construction will greatly increase in the Project Areas and that these levels will remain high for several years, thus providing secure employment (both unskilled and in the building trades) in the informal construction sector. Moreover, many construction related businesses will be stimulated by this activity, providing investment opportunities in a range of building materials production, distribution and transport concerns.

2.25 The main discussion of economic potential is presented in Volume 3, Sections 3 and 4.

LAND USE PLANNING

2.26 The Ismailia Master Plan forms a logical basis for the land use planning of the Project Areas. The Master Plan ensures that during development major land uses, their locations, and the infrastructure networks which tie them together are coordinated. This does not mean that there can be no changes, only that implications of any changes can be assessed before any decisions are made. In fact, since detailed design should be based on a much more specific level of knowledge of the particular sites concerned and of the current social and economic context it is to be expected that certain changes to Master Plan recommendations will be made.

2.27 The Demonstration Projects propose only minor changes to the Master Plan. These are:-

1) In order to allow a cohesive plan to be prepared for El Hekr, which has continued to grow in an uncontrolled manner, an adjustment has been made to the southern boundary of the proposed University site, and reservations for educational use which have already been over-run have been removed. These uses are easily accommodated to the North.

2) The development of the Light Industrial Area at Nifisha which was identified in the Master Plan for early execution, is recommended to be postponed due to the heavy site development costs which have been discovered and the problems of city development to the west.

THE MASTER PLAN

2.28 The Master Plan has deliberately allowed for significant flexibility in detailed neighbourhood design. The main land use category is 'General Urban Area', which refers to large, predominantly residential areas where a whole range of other activities such as shops, entertainment, and workshops (in addition to public facilities) may be located. Both El Hekr and Abu Atwa are designated in the Master Plan as such 'General Urban Areas', and the Consultants have only rigidly defined land use for such items as school reservations, recreation areas, central community areas, and road reservations. There is reasonable compatibility between residential and commercial or workshop uses on the same plots, and also many benefits. There is thus no need to specifically define or separate

these uses, except in the case of nuisance. Such a rigid designation would inevitably be mismatched with future demand, control would be a major administrative burden and, in addition, an important means of employment growth would be lost.

2.29 In addition to using the Master Plan as a basic framework in developing land use proposals for El Hekr and Abu Atwa, the Consultants have been guided by the following policies:

INTEGRATION OF NEW AND EXISTING AREAS

2.30 The Consultants consider it very important that the development of new areas of the city be integrated with adjoining older neighbourhoods, and that the improvement of the old should not be done in isolation from the development of the new. This has many benefits in terms of social cohesion and ease of infrastructure provision. Planning for land use of both existing and new areas together allows deficiences of public land use in the former to be compensated by extra provision in the new areas, thus avoiding the alternative course of action, which would be either to undertake considerable demolition or to accept permanent substandard provision.

ALLOWING FOR INTENSIFICATION

2.31 The progressive intensification of land use (e.g. increased density of habitation, increased concentration of commercial activities) is a normal feature of urban development in Egypt. The Consultants have recognised this factor by adopting space standards for residential, commercial, and public facilities use which allow development to proceed from initial densities to full use.

PUBLIC LAND USE

2.32 The maintenance of public land such as streets, open spaces and pedestrian circulation is one of the greatest financial burdens on local administration. As a result such areas are frequently neglected due to lack of sufficient funds. The Consultants have adopted a policy of minimising space which is the responsibility of public authorities by introducing the concept of semi-private land whose maintenance is the collective responsibility of those households who use it. Thus the creation of semi-private clusters (see below) and garden strips fronting plots have been proposed.

RESIDENTIAL HIERARCHIES

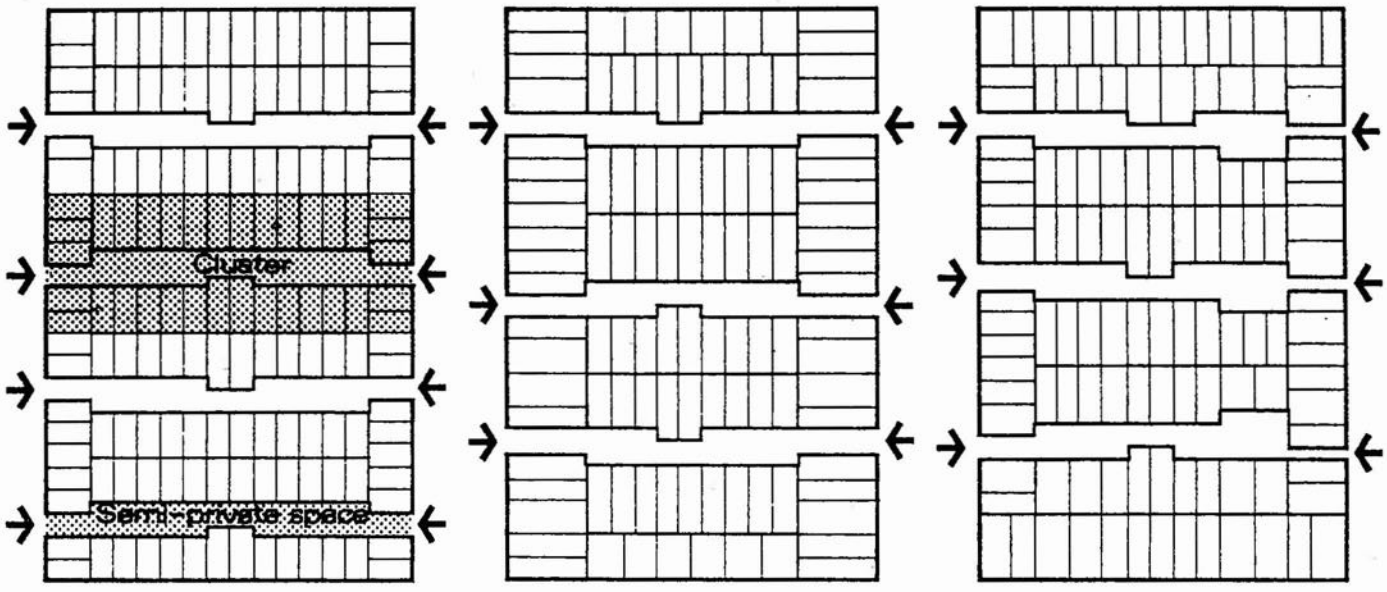
2.33 In the new areas and, as far as is possible, in existing areas, the Consultants have followed a hierarchical arrangement of residential groupings. Considerable effort has been taken to minimise infrastructure layout costs and at the same time to create forms which reflect existing social preferences. This policy has resulted in the following general hierarchy of residential groupings:

THE CLUSTER

2.34 A grouping of normally 20 to 30 plots giving onto a common circulation space which is considered semi-private in that there is little through movement and use is generally restricted to domestic activities. This spatial form is quite common in El Hekr and Abu Atwa, and its use is to be reinforced in Improvement Areas. The concept is to be repeated in new areas through the creation of semi-private areas; access to these can be made by vehicle but through movement is discouraged.These lanes or semi-private spaces are to be connected at either end to access roads where more regular street-fronting development occurs (see example layout in Figure 2.2)

BLOCKS

2.35 The basic cluster unit is combined in groups of four to five to create a block which is bounded by access or local roads. These blocks generally contain 120 to 180 plots.



LAYOUT BLOCKS
1. Maximising small plots 2. Maximising large plots 3. Mixing plot sizes 2.2

NEIGHBOURHOODS

2.36 Approximately six blocks are aggregated to form a neighbourhood of 700 to 900 plots or roughly 5,000 inhabitants. It is at this level that social services are linked to the size of population, for the neighbourhood provides an appropriate catchment area for a primary school (in terms of numbers of pupils) and is of convenient walking distance. These neighbourhoods are bound by local roads (15m. r.o.w.) which are planned to carry low but significant traffic volumes; the only vehicular movement inside a neighbourhood is for access to a particular destination. The neighbourhood module also provides a convenient size for the provision of community services such as recreation areas and mosques. It is thus the basic unit to subdivide improvement areas as well as new areas.

CENTRES

2.37 A hierarchy of community centres is proposed which directly parallels the hierarchy of residential groupings described above. These have been designated in both new and existing areas, and can be classified as follows:

NEIGHBOURHOOD CENTRES

2.38 These are the smallest type of centre proposed, to be located within the Neighbourhood Unit of roughly 5,000 persons. They are planned to contain a primary school (1 hectare), a 'kick-about' space (0.5 hectares) and a small landscape park associated with a mosque. Some plots adjoining these centres would be developed as shops and cafes. The mosque, with its particular orientation and style, imparts an immediately recognisable character to the neighbourhood centres as well as a focus to the street pattern. Because of the limited availability of empty land in Improvement Areas it has not always been possible to follow space specifications for neighbourhood centres, although the principle is repeated throughout all neighbourhoods.

SUBCENTRES

2.39 These are the intermediate form of community centre. They are similar to neighbourhood centres but also contain a health clinic and sites for one or two other community buildings. Their locations and catchment areas have been determined by the particular development forms of the Project Areas.

THE MAIN COMMUNITY CENTRE

2.40 This centre is designed to serve the whole of each Project Area, and groups a wide range of activities and services, public facilities, commercial, workshop, and entertainment establishments, public transport nodes, recreation facilities, a large mosque and the offices of the implementing agency. It is also the site for fire and police services. With all these activities, the main Community Centre is the social and economic focus of the entire Project Area. In El Hekr this centre is to be created on empty land on the fringe of present development, but in Abu Atwa it will be an extension and integral part of the existing commercial and service centre. In both cases the strategy is to encourage a central identity in the Project Areas.

2.41 Land use planning principles are illustrated in the proposals presented in Sections 4 and 6 of this Volume. The derivation of neighbourhood layouts is discussed in Volume 2, Section 4, and design principles for centres in Volume 3, Section 5.

UTILITIES

2.42 The Master Plan has been used by the Consultants to define basic policies for utilities, particularly with reference to the following three points:

1) The Master Plan envisages full provision of urban utilities in all areas of the city as a long term goal, but proposes the concept of staged provision in residential areas, starting with a basic level defined in terms of minimum public health benefits. Progress to full provision would depend on the users' capacities to pay, the practical limitations imposed by major networks, and the financial capabilities of the executing authorities. Thus the Consultants have designed for the 'full provision' level of utilities as the ultimate goal, but have paid close attention to the implications of staged provision.

2) The Master Plan gives guidelines for the provision of the city-wide utilities networks and makes recommendations for major features such as drainage catchments and water distribution centres. In general, these boundary conditions or area limits have been followed in the design of networks in the Demonstration Projects. Specifically, the likely utility needs of new areas adjacent to the Demonstration Projects have been considered; however, when more information is available on these new land uses, proposals for the Demonstration Projects must be reviewed with the objective of obtaining cost and operational benefits.

3) Standards and specifications for utilities provision in industrial areas were set out in the Master Plan. These guidelines have been followed in the design of utility networks for the Nifisha Light Industrial Project Area.

2.43 Three studies currently underway are of direct relevance to the utilities proposals for the Demonstration Projects. These are:

1) The Ismailia Water Works and Wastewater Facilities Master Plan Study (USAID)

2) Management and Tariff Studies for Cairo, Helwan, Alexandria, Ismailia, Suez, and Port Said (USAID);

3) Geotechnical Investigations for the Ismailia Master Plan (MHR/ODM).

At the time of writing no information is available from the first two studies. The Demonstration Projects have, however, been able to benefit from the Geotechnical Study concerning ground conditions.

2.44 The following paragraphs give, in summary form, the basic proposals for individual utilities in the El Hekr and Abu Atwa Demonstration Project Areas.

WATER SUPPLY

2.45 The minimum recommended level of service for potable water in both new and existing areas is the provision of public standpipes at 150m. spacings throughout. The main benefit is that these standpipes will obviate the use of polluted groundwater. The present city network has sufficient capacity to allow for the immediate installation of the proposed standpipe system.

2.46 The second level of service proposed is the provision of on-plot connections to a single tap and shower. On-plot taps are much desired by inhabitants, and only running water can provide the health benefits associated with high water-consumption per capita. The problem is:

1) the difficulty of disposal of waste water (see paragraphs 2.48 - 2.51 below),and

2) the insufficient capacity of city mains. Thus this level of service is proposed to be introduced in areas to be selected, on an experimental basis.

2.47 The third and final level of service is the installation of multi-tap, metered water connections to each plot, which must be associated with a water-borne sewerage system. Water for landscaped areas will be obtained from the potable water network, thus a separate raw water network is not recommended.

WASTE WATER

2.48 As a minimum level of provision,the Consultants consider that pit latrines (emptied by suction tankers) are an acceptable temporary solution for the disposal of excreta and a small amount of sullage. Pit latrines are, in any event, presently the only means of disposal in the Study Areas. In new areas it will be necessary to control the construction, location, and servicing of pit latrines, and a regular emptying service must be provided to both new and existing areas.

2.49 Once on-plot water connections are in use the amount of sullage increases significantly and its disposal needs careful consideration. Provided certain precautions are taken, sullage can be thrown on the ground and allowed to evaporate, soak away, or irrigate gardens. The viability of such an arrangement will be tested on an experimental basis, and to the extent that it is successful it will delay the need to construct network drainage facilities - a major obstacle in cost terms.

2.50 Septic tanks will be suitable (subject to detailed design) for public buildings that require full water provision in advance of the sewerage system.

2.51 The final level of waste water service is the installation of a full water-borne sewerage system throughout the Project Areas. Specific recommendations are made which will improve the hydraulic performance of the sewerage network, and so reduce maintenance costs. In order to minimize the capital costs of the network:

1) plot sizes and layouts in new areas have been carefully designed with sewerage in mind,

2) increases in manhole spacings are proposed, and

3) modifications to the means of access at the head of each run are recommended.

SOLID WASTE DISPOSAL

2.52 A daily collection service for domestic refuse should be provided on a house-to-house basis, and should be subsidised if necessary.

ELECTRICITY

2.53 In new and existing areas the opportunity to install domestic connections is of high priority, and overhead distribution is recommended except for the 11 KV network. Street lighting should be ultimately provided on all roads, with first priority to district roads and community centres.

TELEPHONES

2.54 Public telephones should be installed within 500m. of every dwelling together with individual lines for particular public services, with priority given to fire, health, and security centres. Public telephones should be located at commercial establishments (cafes, shops) rather than at separate telephone booths.

2.55 Utilities are fully discussed in Volume 3, Section 7.

TRANSPORT AND ROADS

2.56 The basic objectives of transport policy in El Hekr and Abu Atwa are:

1) to improve the level of accessibility for all transport modes,

2) to preserve in local areas the predominance of the pedestrian and bicycle modes,

3) to minimize property destruction required for new roads, and

4) to allow for the progressive up-grading of roads to an eventual high and uniform standard.

2.57 The objectives have been achieved by developing a road network whose hierarchy relates to certain defined standards of access. The main levels and standards are set out in Table 1. It should be noted that level 2 (Full) does not imply that further improvement cannot be carried out. Over time it is expected that all streets will be paved, and allowance has been made for future carriageway widening if traffic levels on district and local streets warrant improvement.

Table 2.1
ROAD HIERARCHY AND STANDARDS

Street Type	Cross Section		Construction Standard	
	R.O.W. (m)	Carriageway width (m)	Minimum (level 1)	Full (level 2)
District	20	7	surfaced (DBST)	paved (asphaltic concrete)
Local	15	7	gravel/ earth	surfaced
Access	10.5	5.5	gravel/ earth	gravel/ earth
Semi-private way	-	-	transitable surface	

Notes:- (1) A transitable surface is defined as being the minimum quality of surface which allows infrequent passage of motor vehicles.

(2) DBST - double bitumen surface treatment.

2.58 The road hierarchy shown in Table 2.1 has been applied to principle throughout the Project Areas. The arterial or major city streets recommended in the Ismailia Master Plan have been included, with modifications made only where they seriously conflict with the basic objectives stated in paragraph 2.56 above. District and local streets cater for vehicular circulation within the Project Areas while access roads provide for circulation inside the neighbourhoods created by the grid of district and local streets.

2.59 The question of progressive improvement of roads has been carefully considered by the Consultants in their detailed proposals. Here it should be noted that road construction and in particular road paving, must be related to programmes for the laying of sewers and water mains. Thus level 2 (see Table 2.1) standards would, in general, be met only after water and sewerage is installed. The paving of some district roads is considered of such importance for site access that it should be carried out in Phase 1.

2.60 The following paragraphs summarize policy proposals for pedestrian and bicycle movement, public transport and parking:

PEDESTRIANS AND BICYCLES

2.61 Pedestrians will always dominate movement in the Project Areas, and proposals cater for this movement by creating a network of linked spaces where through vehicular movement is prohibited. This network is largely based on linking semi-private ways (where vehicular access is limited to those needing plot access, such as suction tankers), but in certain locations purely pedestrian ways

are created. Thus in existing areas the pedestrian system is formed in part from existing circulation space which need not be up-graded to a vehicular street.

PUBLIC TRANSPORT

2.62 The proposals provide for improved bus services, with a policy that no inhabitants should be more than ten minutes from a bus stop. However, implementation of the recommendations will depend on the ability of the bus company to provide and man the additional buses needed to service the new routes. Shared taxis are an important element of public transport, and the proposed road improvements will extend the opportunity of shared taxi service throughout the Project Areas. Ample room for taxi ranks is provided in the community centres.

PARKING

2.63 Since car ownership will always be low in the Project Areas only parallel on-street parking has been provided for in road designs. Parking spaces are, however, included in the community centre designs.

2.64 Transportation and roads are fully discussed in Volume 3, Section 6.

SOCIAL SERVICES

2.65 The principal objective has been to improve public service provision in the inhabited parts of the Project Areas and to allow for a high level of provision in new areas. As the actual provision and running of public services is the responsibility of the relevant Ministries, the Consultant's main role in pursuing this objective has been to assure the availability of sufficient land for these facilities. How much land and at what locations depends on the service standards used, and guideline standards given in the Master Plan have been generally followed. Specific standards have been formulated in close consultation with representatives of the Ministries of Education, Health, and Social Affairs.

2.66 Proposals developed for particular social services are as follows:

EDUCATION

2.67 Space reserves and catchment areas have been formulated which take account of the anticipated raising of the school leaving age and the reduction of class sizes. In new development areas, primary schools have been provided at locations which meet Master Plan standards, but in existing areas the lack of available land (and the policy of minimal demolition) have meant that in some cases the recommended Master Plan standards have not been met. Preparatory schools have been planned for both El Hekr and Abu Atwa, and a secondary school is to be located in El Hekr. A secondary school to serve Abu Atwa is recommended on a site outside the Project Area.

HEALTH

2.68 In terms of health facilities a polyclinic is proposed in each Project Area, to be located at the Community Centre and linked with an ambulance service. The polyclinics are intended to provide specialist and diagnostic out-patient services, and the polyclinic in Abu Atwa will contain a limited number of beds. In addition, each subcentre in the Project Areas will contain a health clinic offering public health and preventive services.

SOCIAL UNITS

2.69 Both Project Areas currently lack the general community support services of the Ministry of Social Affairs. It is recommended that a new kind of Social Unit is provided at each Community Centre; the type recommended has been previously used successfully in more rural areas, and provided training facilities for women and young people, adult education and kindergartens, as well as normal welfare and pension distribution functions. A hall for social functions is also to be part of the Social Unit.

2.70 Details of social services proposals are found in Section 4 and Section 6 of this Volume, and standards and design criteria are discussed in Volume 3, Sections 2 and 5.

INDUSTRY

2.71 The basic policies governing proposals for the Nifisha Light Industrial Area are:

1) that the Nifisha estate aim at attracting the small and medium size industrial establishments which are, both in Ismailia and Egypt as a whole, presently without suitable support;

2) that these establishments should come from both Ismailia and from outside;

3) that positive steps be taken to encourage linkages and external economies in the groupings of these establishments;

4) that the provision of serviced plots alone is not sufficient, and that further services and support be offered to enable these industries to overcome the obstacles characteristic of small enterprises in Egypt.

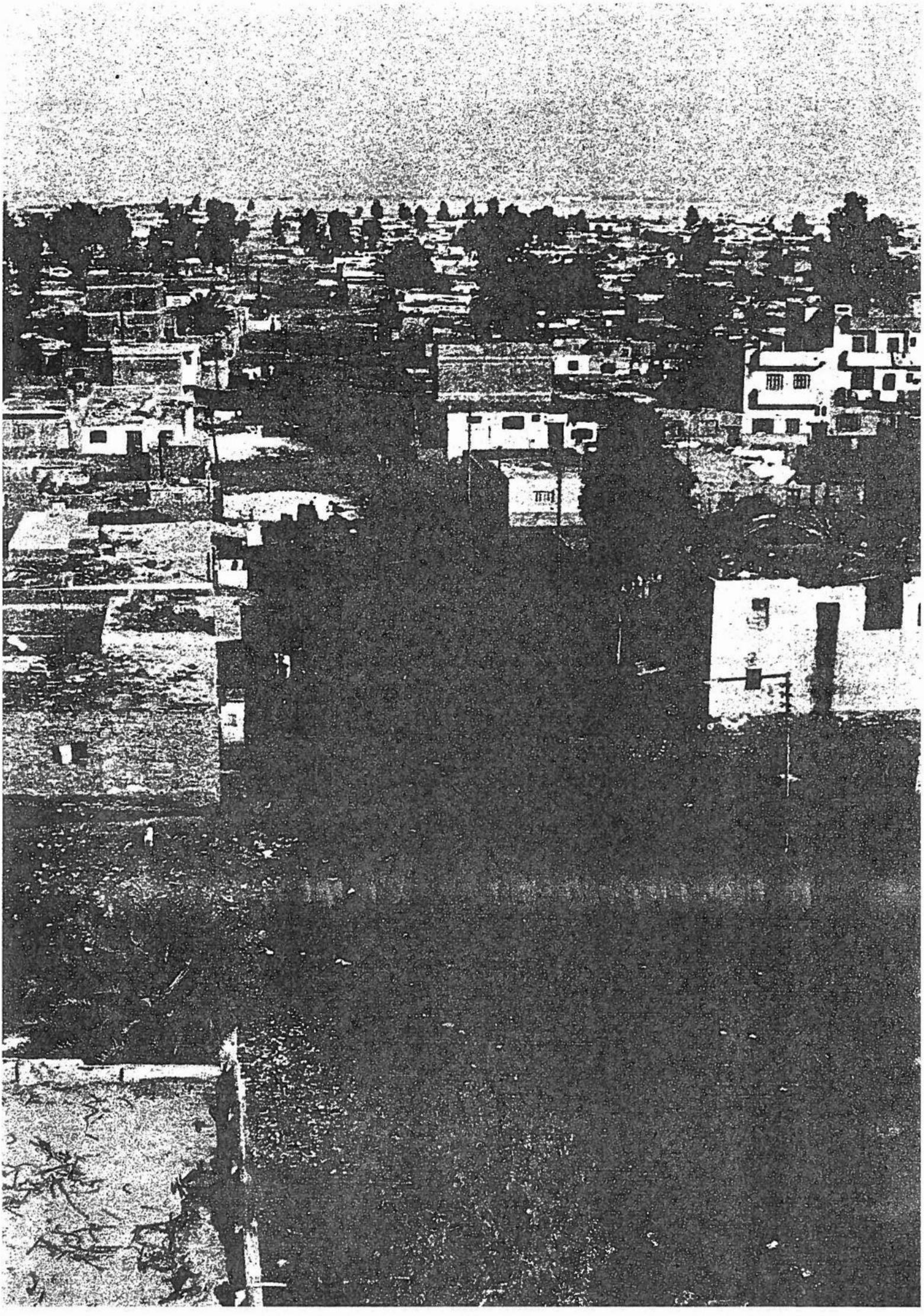
2.72 A final policy has been adopted which specifies that, as a demonstration project,the Nifisha Light Industrial Area should be set up and run without subsidies. However, if a need for subsidies is essential, the type and magnitude should be identified.

2.73 Proposals for the Nifisha estate are found in Section 7 of this Volume, and the background analysis in Volume 3, Section 4.

3

El Hekr: Existing Situation

Vol I



3
El Hekr: Existing Situation

3.1 This section describes, briefly, the existing physical and social aspects of El Hekr, and thus forms a basis for the understanding of the proposals which follow. Volumes 2 and 3 provide a much more detailed account and give the results of the detailed surveys which have been carried out.

PHYSICAL BASIS

3.2 El Hekr presents no absolute physical constraints to urban expansion, though there are a number of aspects which affect design. The main physical characteristics are illustrated in Figure 3.1.

3.3 There are no steep slopes to constrain the development of effective internal road patterns or external linkages, and the general lie of the land appears conducive to the eventual installation of such mains services as gravity sewerage systems.

3.4 Being on the northern desert fringe of Ismailia, the most adverse physical characteristic is the dominance of uncompacted surface sand. Particularly noticeable in the 'valley' area, it also constitutes a constraint on accessibility throughout the principal urban area of El Hekr.

3.5 The soil survey, summarised in Volume 3, Section 1, has shown however that the entire area can carry at least four-storey structures if appropriate foundations are built.

3.6 Another physical feature analysed by the soil survey, that does not prejudice construction but has to be considered in foundation design, is the high water table in the southern portion of the area.

3.7 In the south east of the area, is a low mound which is a former refuse tip. It is reasonably well compacted but with low load bearing capacity and has been developed for informal settlement since approximately

AREA OF HIGH WATER TABLE

PLATEAU AREA: DESERT

DESERT FRINGE

VALLEY AREA: DESERT

GENERAL URBAN DEVELOPMENT IN STUDY AREA

OLD RUBBISH TIP

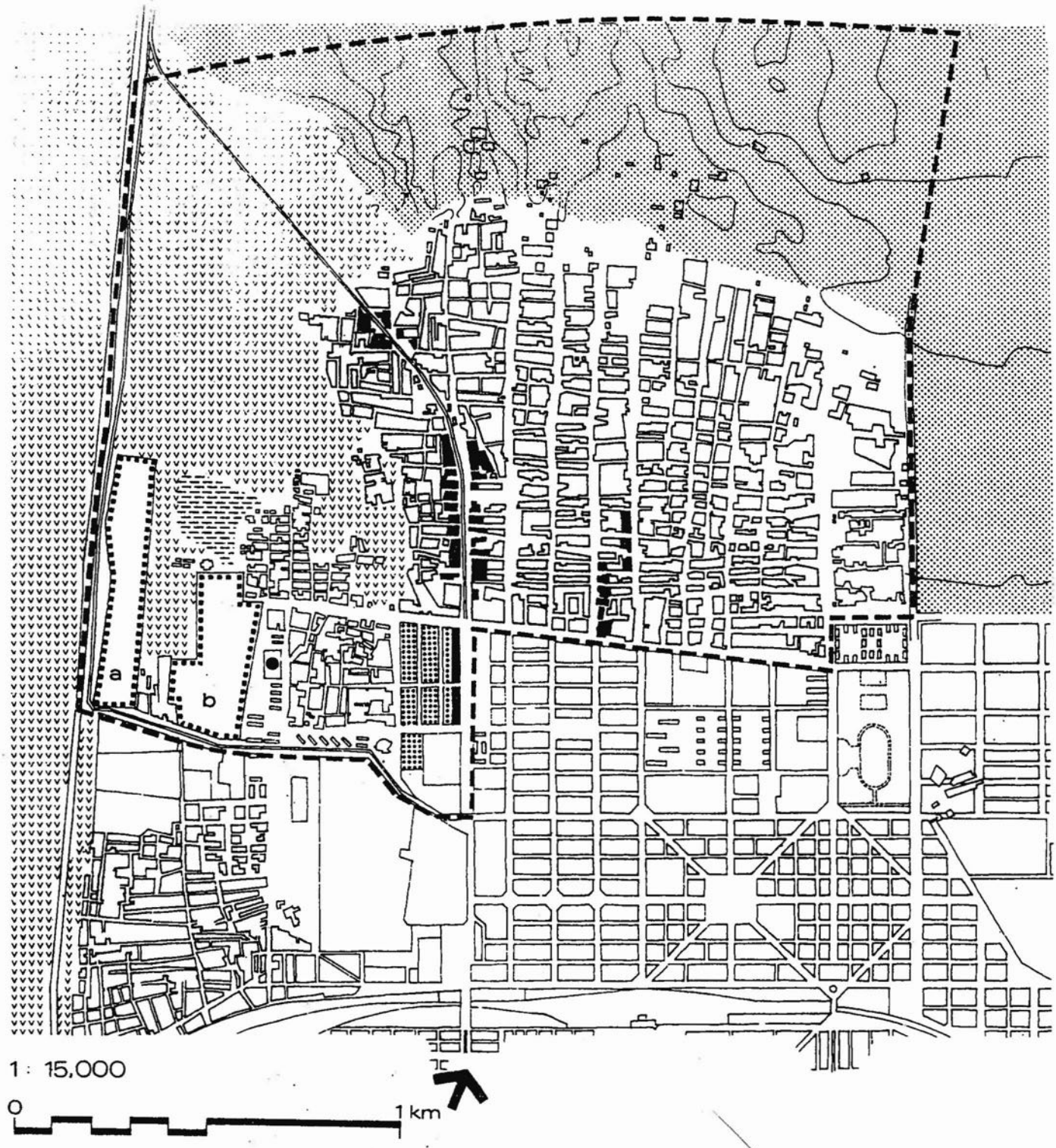
IRRIGATED AREA

MARSH

STEEP SLOPE

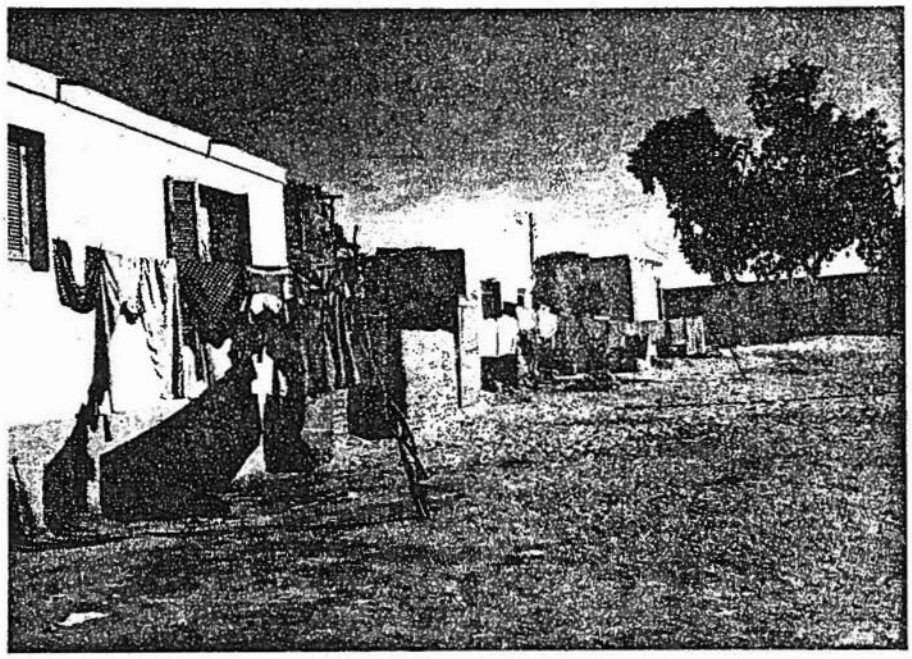
El Hekr · Topography

3·1



El Hekr · Existing land use

3·2



Street showing various uses at initial development

1975. Any upgrading scheme for this area must have regard to the physical nature of the refuse site and potential stability problems. This section has not been included in the proposed Project Area.

LAND USE

3.8 Figure 3.2 shows the principal distribution of land uses in the Study Area.

3.9 The western quarter of the Study Area is predominantly agricultural, being essentially low lying ground, irrigated from the adjacent Sweetwater Canal. This area is thus not suitable for urban development. Equally, the south west corner of the Study Area is occupied by the Suez Canal Authority Nursery and an Agricultural College, in addition to housing. This section of the Study Area has been excluded from the Project Area, for which detailed proposals are being made, for technical and administrative reasons.

1:2,000

0 100 m

BUILDINGS WITHIN DETAILED IMPROVEMENT AREA

COMMERCIAL

MOSQUE

CHURCH

AREAS IN PRIVATE USE

El Hekr · Detailed improvement · Land use 3·3

3.10 An estimated 58.4% of the Project Area is built up and of the remainder, in the north and north east, 20% is completely undeveloped and 21.6% contains scattered buildings at very low density. Of the built up area 56% is in predominantly residential use, containing within it shop and workshop uses. These are concentrated along principal streets and in particular Talaatini and Tanta Streets, and further shops are scattered more or less evenly throughout the residential areas. Larger industrial or commercial uses are few in number. The area south west of the junction of Talaatini and El Bahri Streets, just outside of the Project Area, contains a bus repair garage, government workshops and store. The only significant premises within the Project Area are the bread factory, a timber yard and a grain store in the commercial area concentrated along Talaatini Street.

3.11 General circulation takes up 43.5% of the built up area. This proportion of land is more than will be needed for circulation. The availability of a proportion of this land for open space and social facility uses underlies the improvement proposals. Public facilities take up 0.5% of the built up area, and comprise mosques, a church and a small school.

3.12 Analysis of land uses in the Detailed Improvement Area, presented in Figure 3.3* illustrates the high proportion of public land primarily used for circulation.

* See also large scale plan, Fig. 2, Portfolio A

BUILDING CONDITION/MATERIALS

3.13 Figure 3.4* illustrates the broad distribution of buildings material used in the Study Area based on the findings of building materials and conditions survey.

* See also large scale plan, Fig. 3, Portfolio A

3.14 Figure 3.5 shows the distribution of buildings materials and structural condition of houses in the Detailed Improvement Area*. All buildings in this area are at present single storey.

* See also large scale plan, Fig. 4, Portfolio A

3.15 The principal findings of the survey can be summarised as follows:

1) There is clear indication as shown in Figure 3.4 and accompanying photographs of incremental improvement and consolidation of houses over time. All houses, of two, three and four storeys, are concentrated in the oldest southern portion of El Hekr. The proportion of the constructions of modern materials is also highest in the older areas gradually decreasing in the newer area of El Hekr.

2) The highest quality buildings are almost all multi-storey, and/or of modern materials and use more sophisticated building techniques, such as reinforced concrete frame construction, the quality of structures made from traditional materials and with traditional techniques is generally good.

TRADITIONAL MATERIALS
MIXED TRADITIONAL & MODERN MATERIALS
MODERN MATERIALS
EXISTING DEVELOPMENT OUTSIDE STUDY AREA

El Hekr · Building materials

3·4

Intermediate development showing improvement and the beginnings of multi-storey construction.

3) Poor quality buildings tend to predominate in the fringe areas of the western part of the Project Area. These areas appear to be original agricultural settlements of greater age than the urban settlement that has started to encompass them.

INFRASTRUCTURE

3.16 Existing infrastructure in El Hekr is shown in Figure 3.6*.

* See also large scale plan, Fig. 5, Portfolio A

3.17 Water provision consists of a small number of standpipes in the southern part of the Project Area. Additional standpipes are presently being added with the new water-main in central El Hekr.

3.18 The sewerage network does not enter the Project Area and though mains exist immediately to the south, they do not have the capacity to take any new connection from the Project Area.

1: 2,000

0 100m

o VERY POOR CONDITION

● VERY GOOD CONDITION

TRADITIONAL CONSTRUCTION

MIXED CONSTRUCTION

MODERN CONSTRUCTION

El Hekr · Detailed improvement · Materials/condition 3·5

Intensive development in El Hekr

3.19 A new electricity distribution network has recently been installed in El Hekr, and the area is thus reasonably well served.

3.20 The only surfaced road is the extension of Talaatini Street in the west of the area, otherwise road surfaces are very poor consisting mainly of unconsolidated loose sand.

SOCIAL PROFILE

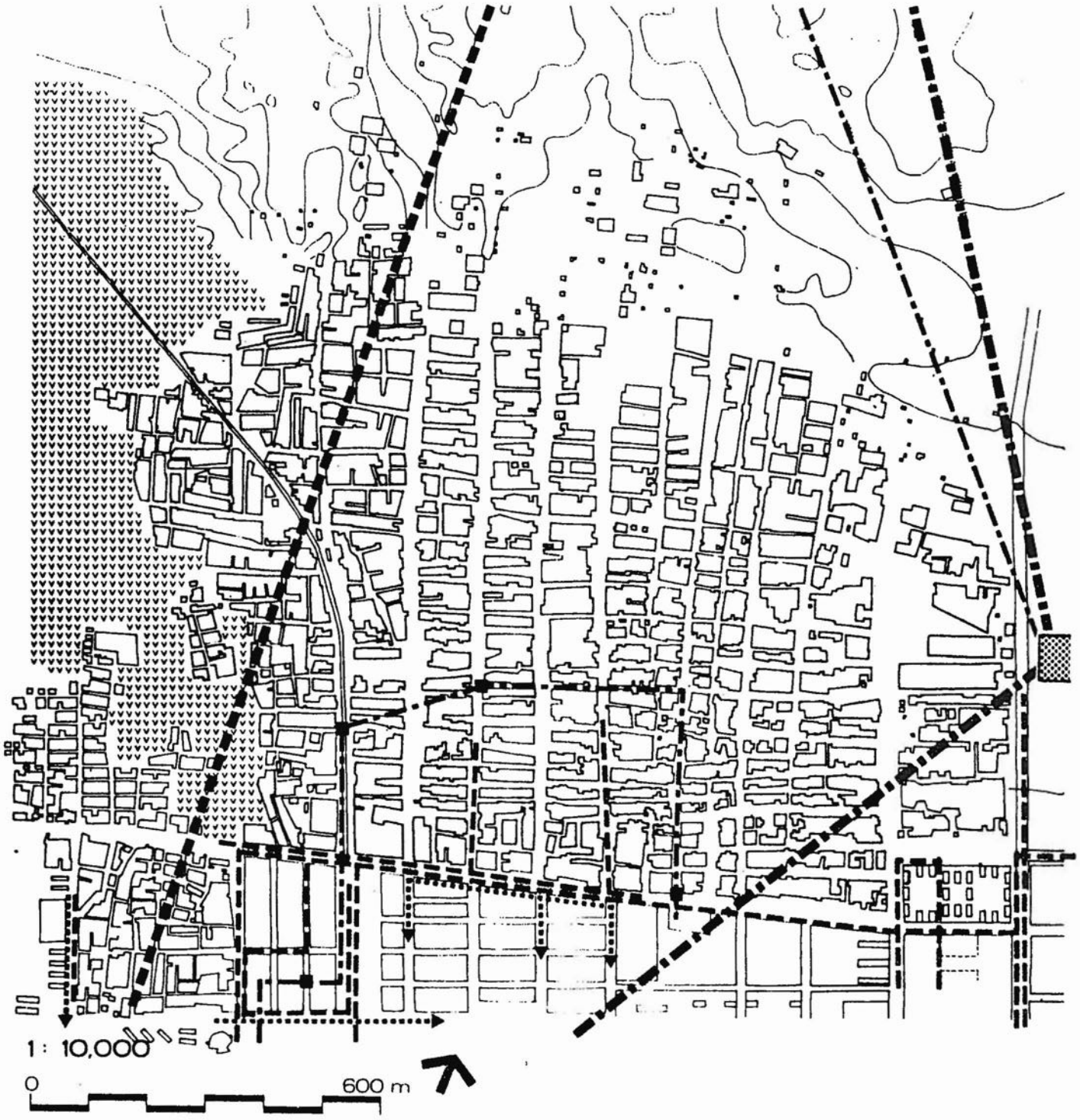
3.21 El Hekr was first occupied in 1937, and has since grown to the current estimated size of 37,000 people.

3.22 Households, which have an average size of 5 6 persons, have tended to settle and reside in El Hekr in related groups, giving rise to sections that are still predominantly occupied by family groups or groups of families with common origins elsewhere; many of them from Upper Egypt. The population of El Hekr as a whole is slightly younger than the population of Ismailia.

3.23 Over half of those interviewed in the scanning surveys, which covered the whole of El Hekr, have lived in El Hekr for more than 10 years. One fifth have lived in the area for less than 2 years, principally moving to El Hekr to own a house of their own, or to save to eventually be able to achieve home ownership.

3.24 Household incomes in the area are low, with 28% of households having monthly incomes of between LE26-LE39, and 58% having incomes of less than LE25 per month.

3.25 Employment for the population is found principally in central Ismailia, including Arashia, adjacent to El Hekr. Half of all earners in the area are in government employment, which though lowly paid, is secure and provides regular incomes. The private informal sector provides employment for a further third of all earners, though this sector appears to be relatively under-developed in the area. Most people working in central Ismailia walk to work.



WATERMAIN OR CURRENT WATERMAIN PROJECT

SEWER

11KV CABLE/LINE AND TRANSFORMER

EXISTING SUB-STATION

MASTER PLAN PROPOSED WATERMAIN

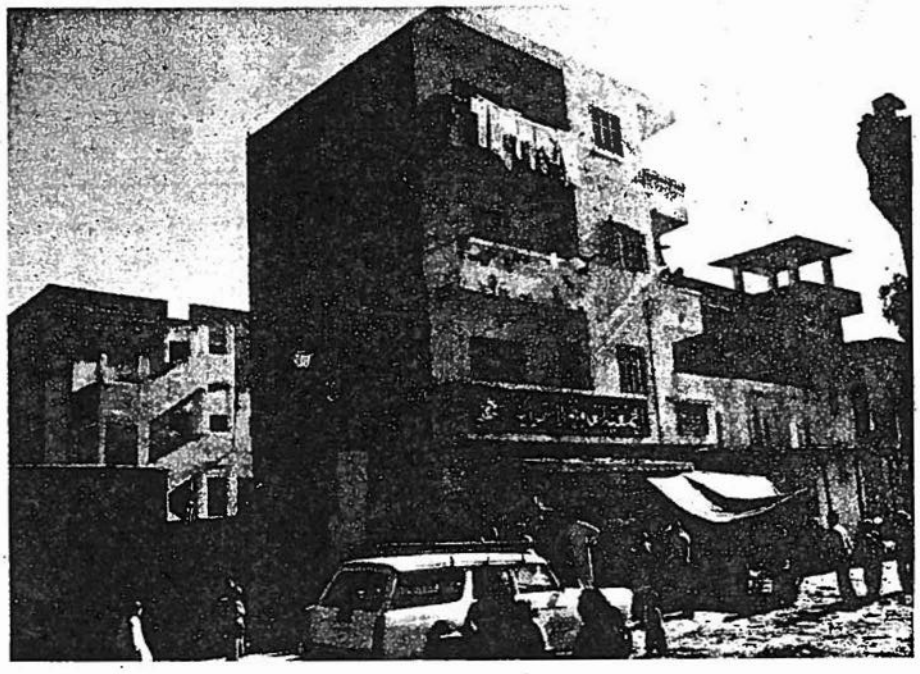
MASTER PLAN PROPOSED 11KV LINE

See Portfolio A Figure 5 for additional details

El Hekr· Exising utilities and Master Plan proposals 3·6

3.26 Most households live in individual houses, but one fifth occupy shared dwellings. Approximately one quarter of households rent accommodation, including 15% renting individual houses.

3.27 From the surveys, there is a clear consensus in the area on priorities for improvements. While the condition of the housing in the area is generally not felt to be a problem by households, (though they aim to make improvements when they can afford them), the provision of water, surfaced roads and sewerage are felt to be the priorities for government aided improvement. The land tenure of nearly all households in El Hekr is provisional, but despite this a land market exists. Security of land tenure is an underlying concern for people throughout the area.

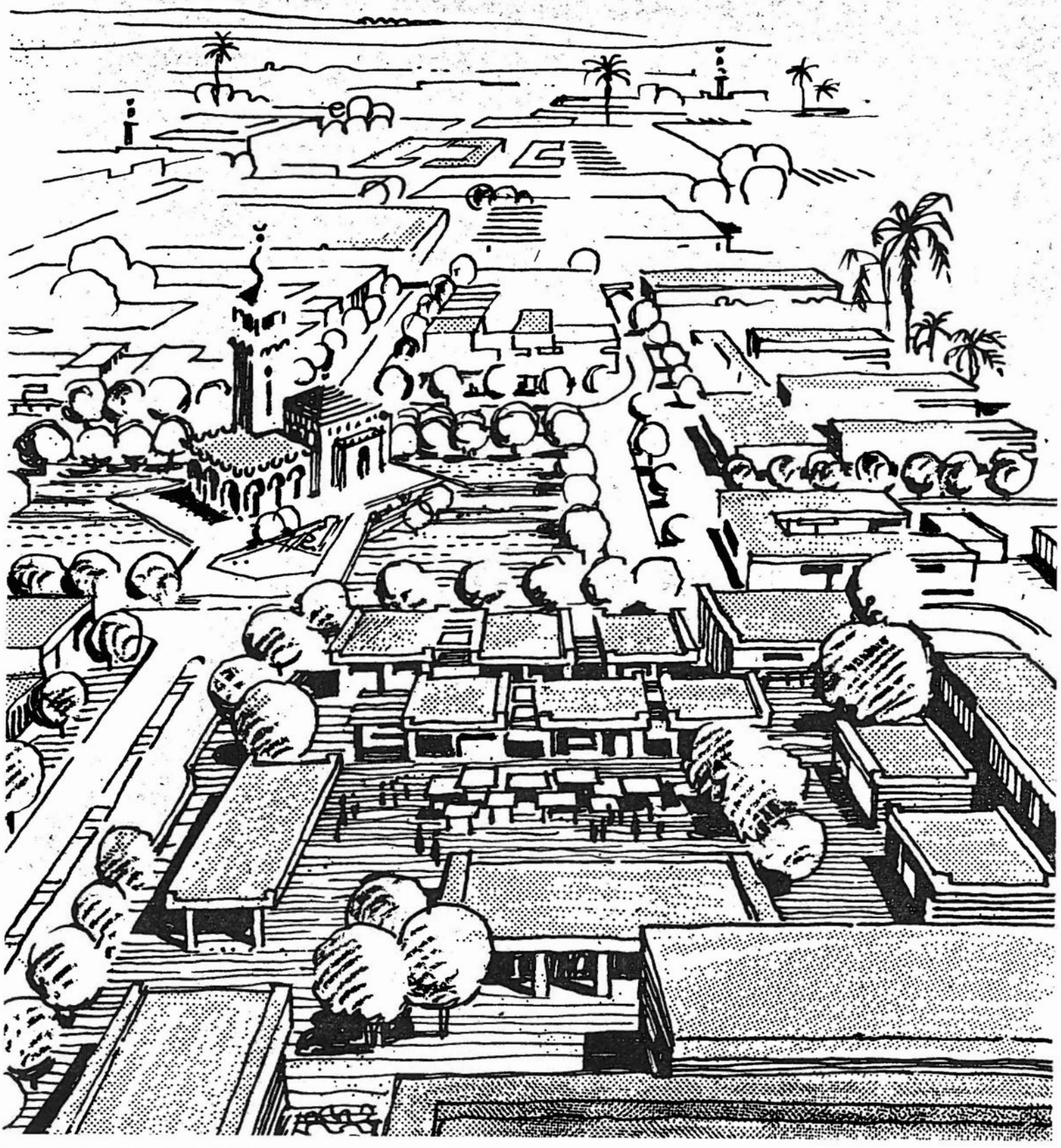


The existing primary school in El Hekr is located behind blocks of aimara apartments in an area of high density settlement.

3.28 El Hekr is very deficient in the provision of facilities. There is only one primary school in the area although a preparatory school is currently being built. Limited school provision exists in adjacent Arashia. One small social unit in Arashia serves El Hekr partially, and public health services for the area rely entirely on the hospital in Arashia.

4

El Hekr: Proposals



4
El Hekr: Proposals

The purpose of this section is to describe the proposals for El Hekr, first in terms of the inter-relationships between different aspects, such as target population, housing and infrastructure, and then in terms of each aspect individually. A full discussion of all aspects is contained in the technical volumes (Volumes 2 and 3) and only key points and proposals are given here.

COMMUNITY PLAN

POPULATION AND AREA

4.2 The Project Area of El Hekr is at present the principle direction and area accommodating Ismailia's expansion. According to the Master Plan, El Hekr will occupy a relatively central location in the future city area. Its population today consists of 37,000 people and will reach nearly 90,000 by the end of the century. Nearly 40% then will live in new neighbourhoods.

4.3 The Project Area of the Community Plan covers 226 hectares. Of this, 132 hectares are classified as built up and will be the subject of an improvement programme involving layout rationalisation, street improvement, provision of utilities, services and social facilities, landscaping and support and encouragement for the improvement of individual houses. Some recommendations are also given for improvement of an additional 25 hectares of built up area located to the south west of the Study Area (see Fig. 3.2). This area was excluded from the Project Area as its characteristics in terms of land use population, ground conditions and legal status are different from the rest of the area studied, and including it would complicate the project's implementation.

4.4 The proposals consist of completely planned neighbourhoods with social facilities and basic utilities that are capable of being improved incrementally.

4.5 Land for new subdivisions, the community centre and for schools and other facilities is 93 hectares. Of this

only 50 hectares are completely unbuilt. (There are no inhabited houses, but there are mud brick walls indicating the unregistered property claims.) On the remaining 43 hectares,there are scattered houses at a low density on very large plots. Wherever possible the new subdivision layouts have been adjusted to save these existing houses, but in most cases plot boundaries are modified.

4.6 The Community Plan is shown in Figure 4.1*.

4.7 One of the main objectives of the Project Area plan is to ensure that the improvement area and the new subdivision will form an integrated community. Street layout, centre structure, area spatial composition and phasing have been planned to achieve this objective.

* See also large scale plan, Fig. 6, Portfolio A

CIRCULATION

4.8 The area is limited in the north by the motorway reservation and in the east by the arterial, Shibeen El Koum Street, which will provide one of the main connections with the central part of the city. In addition, there are two primary district streets and two secondary district streets using the wide north-south spacings of the existing streets.

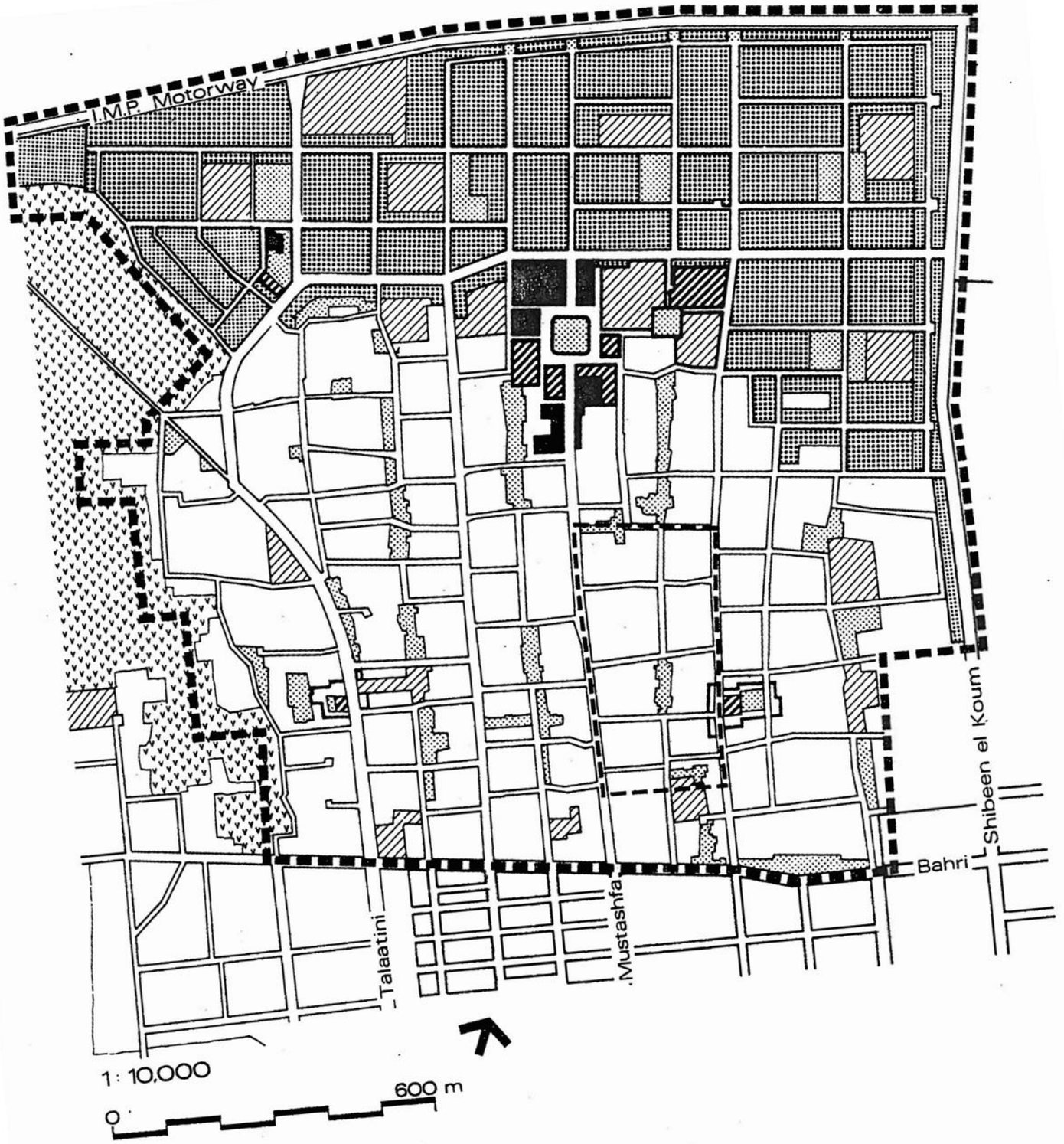
4.9 In the east-west direction an adequate network will be provided for internal communication within the area, but through traffic will be discouraged by discontinuous street layout, with the exception of two primary district streets, one limiting the project area to the south (El Bahri Street) and one planned north of the Community Centre.

CENTRE STRUCTURE

4.10 Community services will be concentrated in the Community Centre and three Community sub centres. The Community Centre is planned on predominantly vacant land as close as possible to the geographic centre of the Project Area. It is located at the end of Mustashfa Street the main north-south street of the area, leading to the railway station and the centre of the city. It will occupy 9.5 hectares.

4.11 The Community Centre will be the main focus of urban life of El Hekr. It will include government offices, the social centre, a polyclinic, a commercial centre with a number of shops, a market area, workshops and preparatory school, all grouped around a central square with the main mosque. The Centre will include also the sports club, the youth club and concession plots for cinema or large commercial establishments. All these functions will be served by adequate access streets and connected by the footpaths, playgrounds and other recreational open spaces. Located between the existing and new portions of El Hekr, the Centre will become the key-stone of the new community.

4.12 One Community Sub Centre is planned in the north-west of the new subdivision area. Being near the proposed Univeristy this sub centre will have the potential of catering for other groups besides the lower income



4·1

El Hekr · Community plan

population of El Hekr. There are also a number of fully serviced concession plots planned adjacent to the University site. This sub centre will occupy 1.5 hectares.

4.13 A further two sub centres are planned in the existing area. They will be located centrally to their respective catchment areas, at or near the existing concentrations of activities, and take advantage of the limited and scattered vacant land. The lack of land, and the policy of minimising destruction of existing property results in a reduction of space standards of these centres.

NEIGHBOURHOODS

4.14 The Community Plan divides the Project Area into 15 neighbourhoods shown in Figure 4.2. They range in area from 6.4 hectares to 20.9 hectares and in target population from 3,850 to 8,100. The initial population will range from 3,250 to 5,400. The smaller neighbourhoods will initially share social facilities.

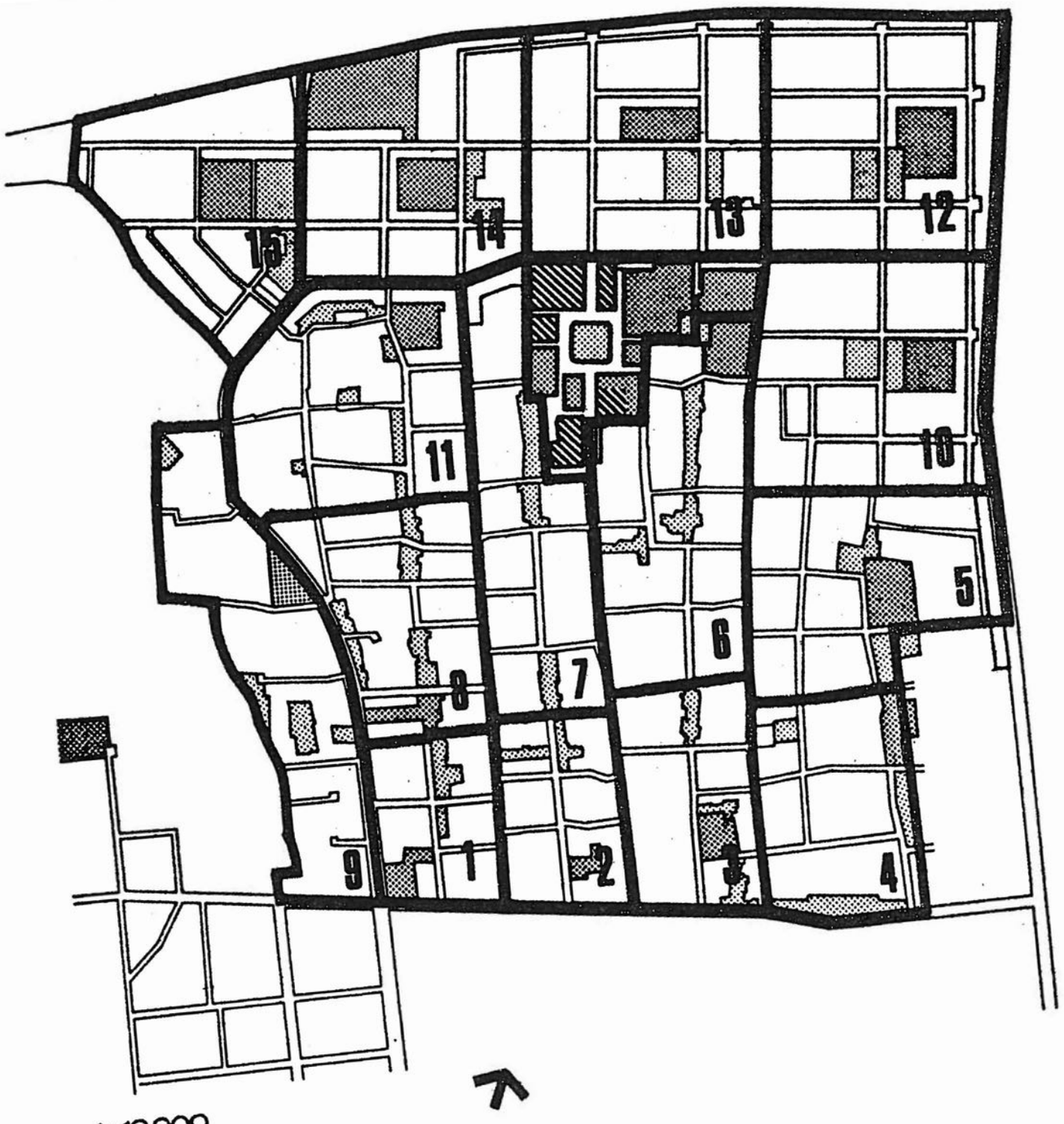
4.15 Neighbourhoods are planned to be smaller in the older area of El Hekr, where the street network is concentrated, construction density already high, and where, because of lack of space, only smaller schools with little or no expansion potential can be provided. Larger neighbourhood areas are proposed , in the new subdivision and in newer existing areas where there are no, or fewer, constraints for complete provision of the neighbourhood facilities.

NEIGHBOURHOOD FACILITIES

4.16 Neighbourhood facilities - schools, mosques, passive recreation areas, and kick-about areas are located in a centre for each new neighbourhood. This is, however, not possible in the majority of the proposed neighbourhoods for existing areas. There, the public recreation areas and the kick-about areas form, in all neighbourhoods but one, a central spine of public open spaces utilising sections of every second existing north-south street. It is proposed to convert these areas into predominantly pedestrian local access roads. This open space is, however, not sufficient to locate schools together with their playgrounds. As a result three schools are planned at the northern limit of their neighbourhoods, where open land is available. In seven other built up neighbourhoods the schools have no sports areas and only a minimal open space to accommodate children during school breaks.

4.17 Demolition cannot be completely avoided, however, and a limited amount will be necessary to locate four of the schools, two of which should be provided as soon as possible.

4.18 Provision of playing fields, to be used jointly by schools which have no space within the neighbourhood, is recommended at two locations on the closest available land outside the Project Area.



1: 10,000

0 600 m

NEIGHBOURHOOD ESTIMATED POPULATIONS

	1980-1985	2000
1	3250	3850
2	3550	4200
3	2650	3850
4	3700	6850
5	3700	6750
6	4450	6900
7	3650	6250
8	3600	5350
9	4100	6300
10	4700	7050
11	4350	7500
12	4700	7050
13	5400	8100
14	3800	5700
15	2650	4000
	58250	89700 TOTALS

El Hekr population distribution

4·2

URBAN DESIGN

4.19 The urban design of the Community Plan is dominated by the Community Centre and its central plaza, with the main mosque of El Hekr having its minaret on the axis of Mustashfa Street.

4.20 At the other main junction the new Community Sub Centre is located with its mosque visible in the perspective of three main streets.

4.21 Neighbourhood mosques occupy, wherever possible, the highest points in the area and visually express the perspectives of the streets or of the main pedestrian axes.

4.22 In the neighbourhood centres the design concept is to create a concentration of activities around a public place, between mosque and space for a small market, with the school and a kick-about area opposite or next to it. With the mosque and the school as main visual dominants each centre is expected to provide an identity focus for the population of the neighbourhood.

NEW DEVELOPMENT AREA

4.23 The plan for the new development area is presented in Figure 4.3*. New subdivision is planned in five neighbourhoods (87 ha in total), one of which will include a portion (2 ha) of built up area that will be the subject of the improvement programme.

* See also large scale plan, Fig. 10, Portfolio A

4.24 The plan also shows two examples of infill by residential plots in the existing neighbourhoods adjacent to the new subdivision. Housing proposals in the plan are discussed in Housing subsection below.

IMPROVEMENT AREA

4.25 Ten neighbourhoods (of 126 ha in total) are planned in the improvement area. They include some of the unbuilt land on the northern fringe of the improvement area which is added to provide space for the necessary neighbourhood facilities.

4.26 The Community Plan proposals for the improvement area consist of providing land for social services, street layout rationalisation, staged provision of utilities, and an increase of space occupied by private plots and community recreational uses through the reduction of excess circulation land.

4.27 Figure 4.4* gives examples of proposed layout and land use changes in the Detailed Improvement area.

* See also large scale plan, Fig 14, Portfolio A

TARGET POPULATION

4.28 The target population has been defined first in terms of population levels and secondly in terms of its economic characteristics.

POPULATION LEVELS

4.29 The estimated existing population of El Hekr is 37,000 and it is anticipated that the population of the combined existing and new development areas will increase to approximately 90,000 people in the year 2000. This estimate of the population at 2000 assumes that all designated land is developed before 1990.

Overall Projected Level of Population

Year	1977	1980-85	2000
Population	37,000	58,250	89,700

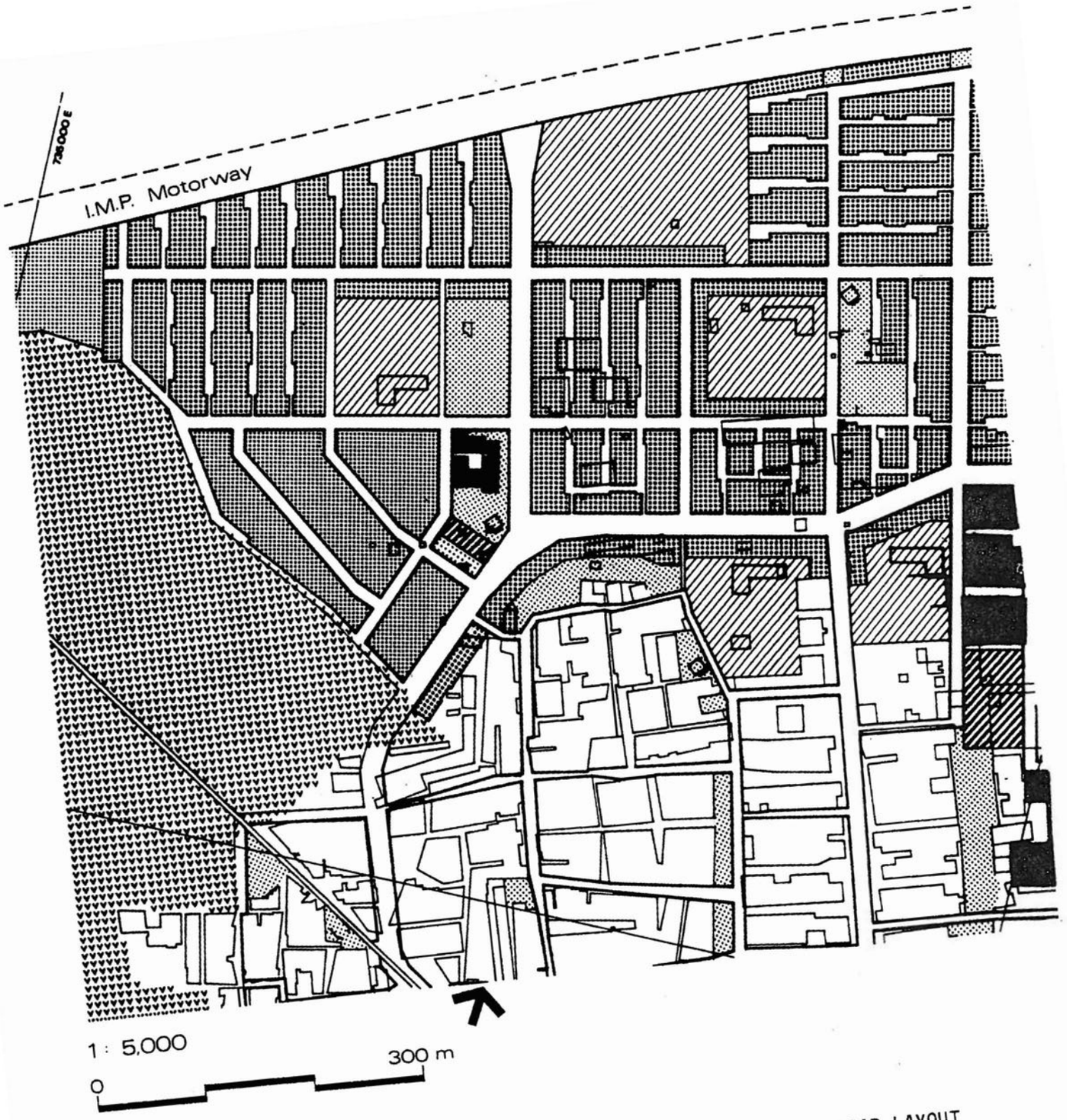
DISTRIBUTION OF POPULATION

4.30 The distributions by neighbourhood of the existing and projected populations are shown on Figure 4.2. Gross densities in the existing areas are estimated to range from 200 persons per hectare to 500 persons per hectare (in the southern area of aimaras) and are expected to increase to a range from 400 persons per hectare to 650 persons per hectare by 2000. In the new development area, gross densities range from 270 persons per hectare at initial occupation to 400 persons per hectare after 10-15 years.

ECONOMIC CHARACTERISTICS

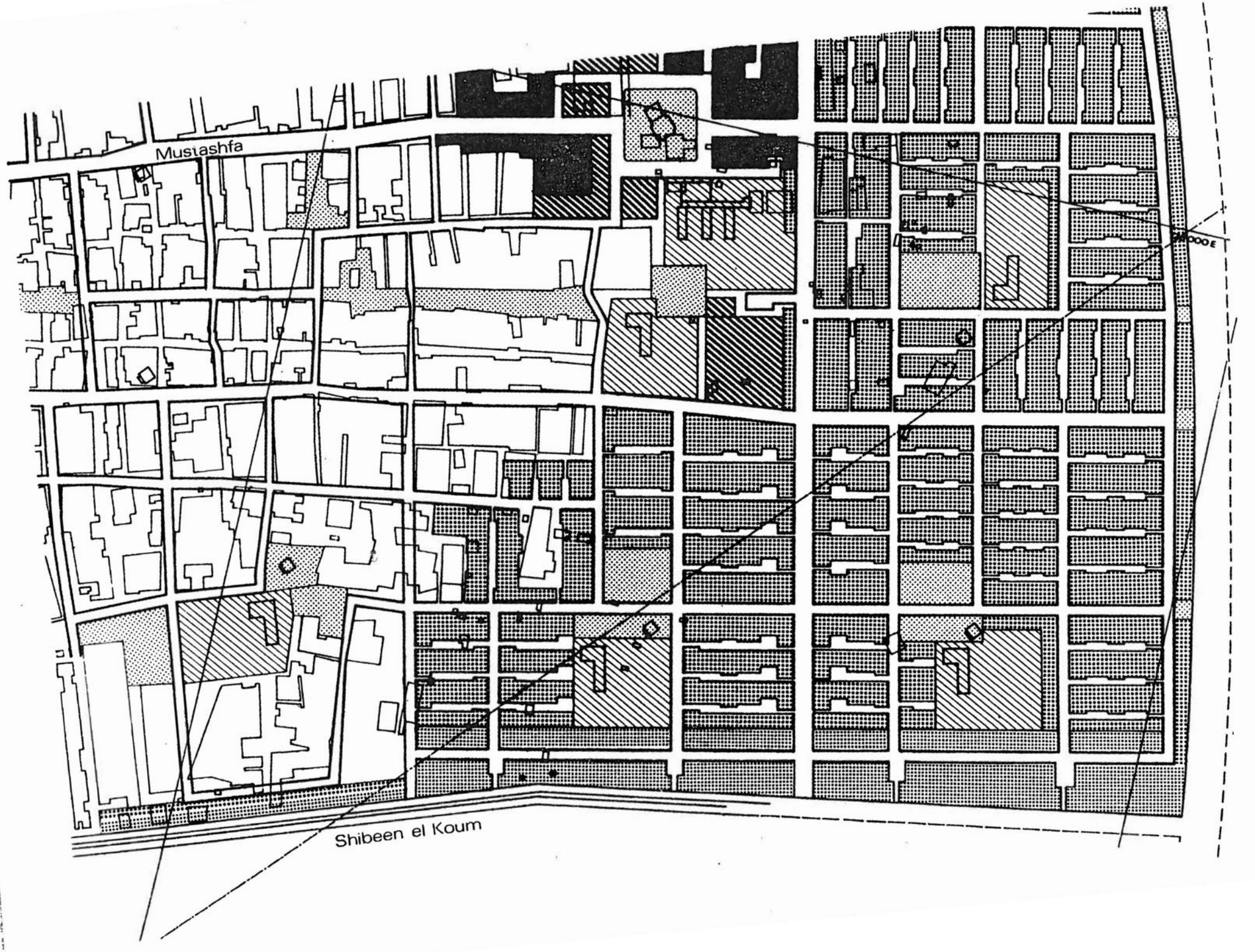
4.31 The ability of the existing and projected populations to pay for improvements, and similarly the ability to pay for plots and superstructure in the new development areas, has been determined by analysis of the income and expenditure characteristics of the existing populations of the Project Areas. It has been assumed that the incomes of this target population will remain constant in real terms over the next fifteen years. Estimates of the proportions in income groups which are economically mobile and which have a propensity to consume in terms of housing improvements or new plots have been made on the basis of the occupational structures and income groups in the areas.

4.32 In El Hekr, having taken into account the high proportion of lowly paid, but secure, government employees, and the proportion of informal private sector employees (and employers) which tend to have higher incomes, the following estimates have been made. 22.5% of the households are of very low income (less than LE25 per month) with no expectation of an improvement in their status. Households with very low to low incomes (between LE25-LE39) experiencing or expecting an improvement in their status are estimated to make up 61.5% of the population. Thirdly, households with low to moderate incomes (LE25-LE70) with no expectation of an improvement in their status are estimated to make up 12% of the population and finally 4.0% of the population are of low to moderate incomes, experiencing or expecting an improvement in their status.



4·3

El Hekr · Development area


Mustashfa
Shibeen el Koum


OS
KA
KA

HOUSING

4.33 El Hekr provides, at present, the main supply of low cost land for owner builder construction and a large proportion of new low and moderate cost rental accommodation. The land is, however, mainly in insecure tenure and is unserviced. The low cost rental accommodation is scarce, of poor quality and remotely located. The moderate cost units are scarce too, their services are deficient and rents are rapidly rising.*

*Volume 2, Section 1, 'Case Studies'.

4.34 The project proposals are to strengthen and improve the role of El Hekr in the Ismailia housing market, by providing surveyed plots, both partially and completely serviced, by improving levels of services in the existing areas, and by facilitating and supporting construction, improvement and expansion of houses in existing and new areas for own family use and for rental.

4.35 The resulting improvement planned for in the existing areas is illustrated by the sketches on the next page.

4.36 Policies of support are discussed separately. They include land tenure regularisation, simplification of plans and permit requirements, improvement of supply of building materials, availability of credit for low income owner builders, and provision of services on terms affordable by the population. No direct construction by the Project Agency is proposed.

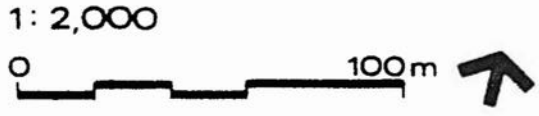
NEW DEVELOPMENT AREA

Low Cost Plots

4.37 In the areas of new low cost subdivisions (see Figure 4.3*). the plots provided will range from 72m2 to 162m2.

* See also large scale plan, Fig. 10, Portfolio A

4.38 Modular sizes of plots, blocks and clusters permit broad adjustments of proportions of plots of different sizes offered in the subdivisions (see Layouts, Volume 2, Section 4), without need of redesigning the area.



EXISTING BUILDING

BUILDING TO BE DEMOLISHED

KICK-ABOUT

OPEN SPACE

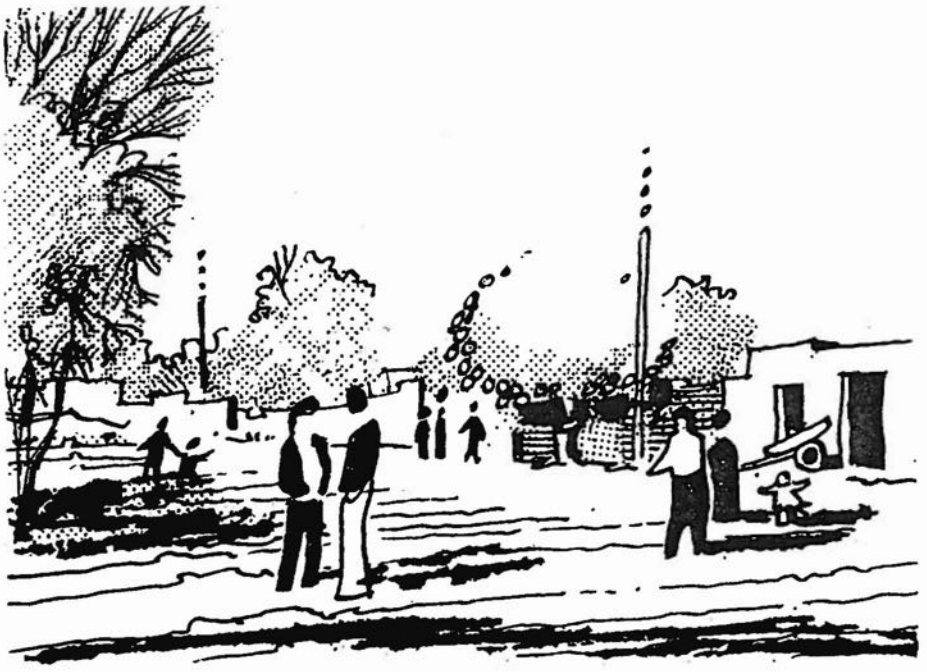
MOSQUE

CHURCH

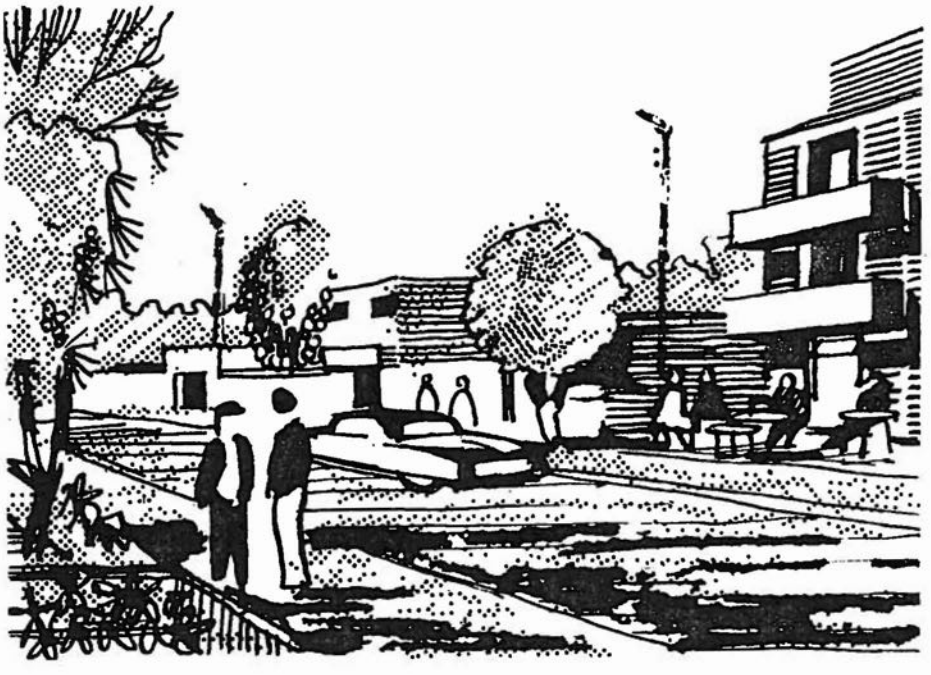
PRIVATE AND COMMUNAL*

*Not subject to detail sub division, see Volume 2, Figure 4.16

El Hekr·Detailed improvement·Land use proposals 4·4



View of typical local street in El Hekr.



View of street after plot rationalisation and house improvement.

Monitoring of the effective demand during the implementation of the first phase will show the nature and extent of adjustments which will be needed.

4.39 The subdivision layout, presented in Figure 4.3 consists of about 50% of plots of 108m2, 30% under 108% and 20% over 108m2. The average plot size is 107m2. 65% of plots are planned with 6m frontages and 35% with 9m frontages. In total 3527 low cost plots are planned in 5 new neighbourhoods. 55 of these include existing houses that were incorporated in the layout design. In 28 cases this has required provision of plots larger than those in the planned range.

4.40 The first phase of new subdivision consists of 977 plots.* 25 of these will include existing houses, 13 of which are on the large size plots. Table 4.1 shows numbers and percentages of plots of different sizes.

*See Figure 4.10

4.41 Larger plots are located mainly in the areas of commercial or rental potential such as in main streets, on corners,

near the Community Centre and Community Sub-Centres, or near the public open spaces. Smaller plots are mainly within the clusters and further away from the centres of activity.

Table 4.1
PLOT SIZES IN EL HEKR NEW SUBDIVISION*

Plot Size	6x12 72m2	6x15 90m2	6x18 108m2	9x12 108m2	9x15 135m2	9x18 162m2	12x12 144m2	Larger	Total
No. of plots - Total	517	600	1276	433	360	180	133	28	3527
%age	14.7	17.0	36.2	12.3	10.2	5.1	3.8	0.8	
No. of plots - 1st Phase	135	144	363	108	125	51	38	13	977
%age	13.8	14.7	37.2	11.1	12.8	5.2	3.9	1.3	

*excludes concession plots

4.42 No attempt was made, however, to follow these guidelines rigidly and some plots of different sizes are provided throughout the area to enable social mix and spatial variety and to increase the available choice.

4.43 The orientation of plots, and hence clusters, was designed mainly as a function of the topographic characteristics of the area, to lower cost and reduce the technical problems of sewerage mains and to facilitate a better use of public spaces.

Concession Plots

4.44 Besides the low cost plots the new subdivision offers at commercial prices 169 plots of sizes ranging from 15 x 24 m to 24 x 24 m in two concession areas, 59 in north western and 110 in eastern portions of the Project Area. These plots are planned to be sold fully serviced. An additional 2 hectares in the north west of the area which could not be surveyed because of present military use will, due to its attractive location, provide additional concession land as a continuation of the north western concession area.

4.45 The entire northern strip of the new subdivision immediately south of the proposed University, is subdivided into plots of 6 x 18 m and 9 x 18 m on the assumption that if demand for market price concession plots is high and demand for low cost plots lower, they could be converted into concession plots of 18 x 18 m.

IMPROVEMENT AREA

4.46 Improvement of individual houses will be facilitated and encouraged by some of the measures that are discussed in 'Improvements', Volume 2, Section 3, and briefly listed at the beginning of this section. They are identical in both Project Areas.

4.47 Improvement proposals for rationalisation of layout of streets and for creation of plot clusters around the

communal spaces will result in changes of the boundaries of some plots and enable provision of new infill plots in the sporadically developed areas. Detailed design of the layout of infill plots in these areas will require a complete survey of all existing houses including positions of all doors and windows on outside walls. This example of infill design is provided in the neighbourhoods adjacent to the new development area (see Figure 4.3*). The first kind of infill plots are those with attractive, potentially commercial, frontages created by the construction or rationalisation of main distributor streets. 49 such plots are planned in neighbourhood no. 11 along the new east-west distributor street and the extension of Talaatini Street.

* See also large scale plan, Fig 10, Portfolio A

4.48 The second kind, infill plots around clusters are shown in neighbourhood 5. 67 low cost infill plots are planned in the northern section of this neighbourhood, 25 of which have frontages towards the communal space within the cluster. 14 concession plots (18 x 24 m), facing Shibeen El Koum Street, are also planned as a part of infill of this neighbourhood, bringing the total of residential concession plots in the Project Area to 183.

4.49 The plan of the Detailed Improvement Area (Figure 4.4*) gives an example of the allocation of land that will be available for extension of individual plots, and for the front gardens on public land, after the rationalisation of street and cluster layouts.

* See also large scale plan, Fig 14, Portfolio A

SOCIAL SERVICES

EDUCATION

4.50 Each of the fifteen planned neighbourhoods with an average population of 6000, will have one primary school. Those in the five neighbourhoods which make up the new development area are designed to the standard recommended in the Master Plan. The sizes of these schools range from 16 classes to 34 classes in the largest neighbourhood. No school in the new development area is further than 300 metres from the furthest plot of the anticipated catchment areas, and no school siting requires the crossing of a district road. Each of the primary schools in the new neighbourhoods has been planned adjacent to defined open space to provide opportunities for expansion, and this, in addition to the relatively generous Master Plan recommended site area, means that considerable development flexibility exists within the site.

4.51 In existing areas, however, land shortage has meant that in the denser parts of El Hekr, in particular, smaller schools with little or no expansion potential are proposed. These small schools average 16 classes. Three schools are planned at the northern limit of their neighbourhoods, where open land is available beyond the presently built-up area. One of these to the immediate east of the community centre will be built with funds recently made available by the Department of Education.

4.52 In seven other El Hekr neighbourhoods the schools have only a minimal amount of open space to accommodate children during breaks, and it is recommended that playing fields are provided in two specified locations on the closest available land outside the Project Area. Apart

from the smaller schools, existing El Hēkr schools are planned to be of an average of 24 classes.

4.53 A limited amount of demolition will be necessary to provide adequate sites for the four schools proposed in existing areas.

4.54 One new preparatory school is planned within the Project Area. This is located in the main centre adjacent to a youth centre and sports club with which facilities will be shared. Of the others one is proposed outside the Project Area, one is to be converted from an agricultural secondary school in Arashia and another is currently being built in the north of the Project Area . It is proposed that this latter one be expanded. Additional provision is available at present in Arashia.

4.55 The preparatory schools serving the El Hekr population are planned to be of 36 classes, with an assumed size of 30 pupils.

4.56 A secondary school of 30 classes is planned in one of the neighbourhoods of the new development area.

HEALTH

4.57 A polyclinic is proposed for the main centre, which would serve the entire development. To supplement the polyclinic, particularly as consolidation takes place, three small health centres are proposed, each to be sited in one of the sub centres.

SOCIAL FACILITIES

4.58 With the social and economic characteristics of low incomes, under-employment, high numbers, young children and increasing numbers of elderly it is important that the support services of the Department of Social Affairs can be facilitated.

4.59 In El Hekr, a main social unit is proposed to be sited in the Community Centre. To complement this main unit three small social centres are recommended each to be sited in a sub centre. As with the small health centres, provision of the small social units will become increasingly important as consolidation continues. The main social unit in El Hekr will be funded by UNICEF.

4.60 A large mosque is proposed for the main El Hekr centre, and each neighbourhood is planned to contain a small mosque.

4.61 Government offices in the form of a Project Implementing Office are proposed. This should be built at the earliest opportunity. Also proposed are a bank and a post office on concession plots. All of these facilities are located in the main centre.

4.62 Fire and Police stations are planned for in the main centre , both of which will develop in size and function as consolidation and development continues.

RECREATION

4.63 Planned recreation provision in El Hekr includes open space and the provision of public and private facilities. In total 15.7 hectares of structured open space is proposed in the Project Area, 3.3 hectares in the new development areas, 11.7 hectares in the improvement area and 0.7 hectares in the Community Centre. Generous provision in the improvement area is both necessary and possible because of the high density of housing and excessively wide street areas. Kick-about areas are associated with primary schools wherever possible, and passive open space is associated with mosques in the neighbourhoods. The square in the main centre is a principal area for sitting out and walking, covering 0.54 hectare. Multi use of school playgrounds is also proposed. Public facilities planned are a youth centre and sports club in the main centre which are associated with the preparatory school. The main social unit in the centre also provides a hall for general public use.

LANDSCAPING

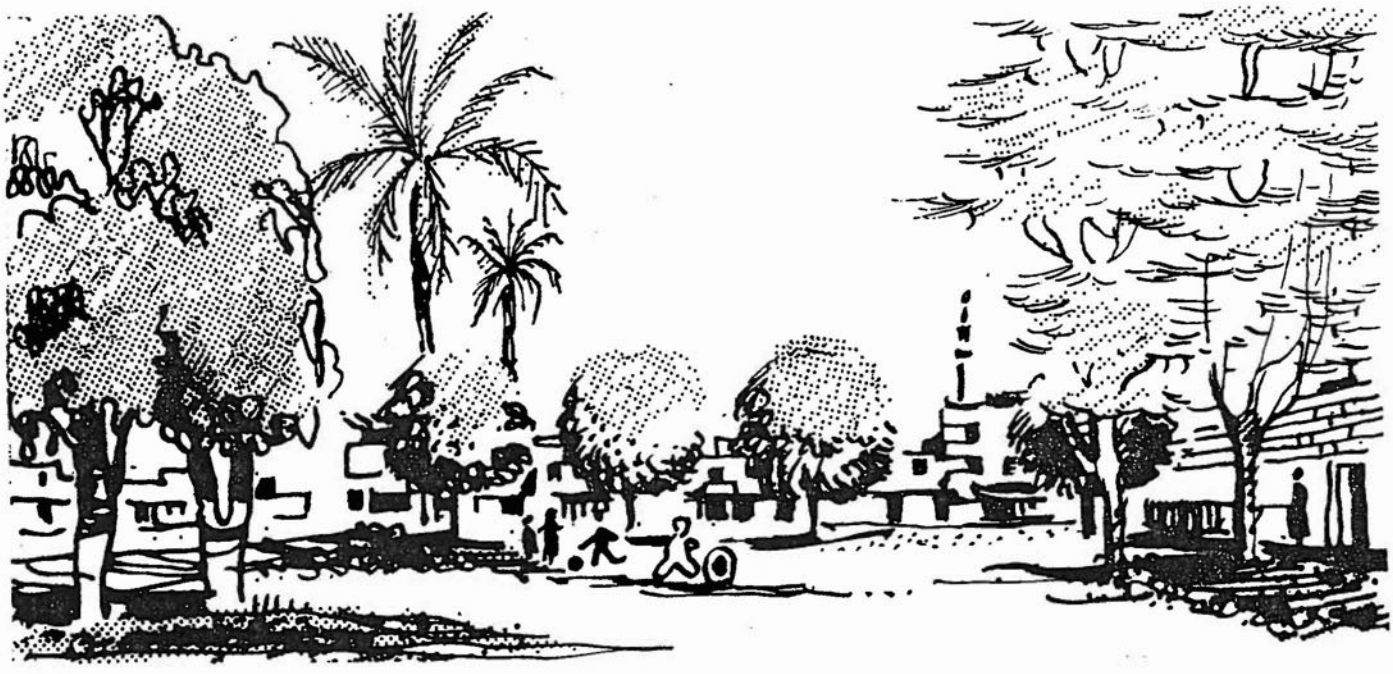
4.64 Landscaping in existing El Hekr consists mainly of private gardens, some very small, mostly at the fronts of the houses.

4.65 Despite difficult soil conditions these gardens develop very well due to care and attention of the owners. This form of landscaping will be encouraged by the free provision of space for private front gardens within the right of way of the streets and in the community spaces within the clusters. Purchase of trees and seedlings for these gardens is proposed, at a low cost, with technical advice made available.

4.66 Two other levels of landscaping include the enhancement of the community spaces within the clusters and of the public spaces of parks and kick-about areas. The first level will be a subject of joint care by the residents of the cluster while the latter will be planted and maintained by the Project Agency. Tree planting will also take place on the district streets with 20 m rights of way. These proposals are further developed in Volume 3, Section 5, 'Landscaping'.

4.67 Specific recommendations for landscaping of existing El Hekr are presented in the example of the Detailed Improvement Area in Figure 14 .

4.68 Continuous planting with trees is proposed along the main north-south district streets. In other streets trees planted in the gardens will supply shade to the sidewalks. Informal groupings of shade trees together with some seating, and sometimes children's play equipment, are suggested for the small midans and in the predominantly pedestrian access streets and footpaths.



Proposed landscaping of typical kick-about area.

COMMERCE AND INDUSTRY

4.69 It is proposed that commercial and workshop activity in El Hekr be permitted throughout the site; any existing or new settler may devote a portion of his plot to commercial or workshop premises provided that he obtains the necessary permits. Settler plots of commercial potential, a type found particularly in Phase One new development because of its proximity to the Community Centre,are to be assessed a surcharge on the 'price' of the plot, see Volume 1,Section 8.

4.70 It is also proposed that certain commercial and workshop plots in the El Hekr Community Centre be reserved for future sale on the open market, and that a small number of shop units be built by the Project Agency for rental. In addition, a covered market for fruit and vegetable sellers is proposed in the Community Centre. The space reserved in the Community Centre for these activities is:

Shops	3810m2
Workshops	3087m2
Covered market	390m2

4.71 As another component of the Community Centre, there are to be 3549m2 of larger 'concession plots' and 7542m2 of 'primarily residential plots' reserved for future sale. These spaces are also intended to contain a certain amount of commercial activity, some of it large scale, ie., department stores and a cinema, and this gives the Project Agency flexibility in managing the uptake of all plots in the Community Centre, depending on future market demand.

4.72 The strategy is to create a new and viable commercial area at the El Hekr Community Centre, the attraction of which will be reinforced by the many community services which will be located there and by public transport links. From a financial point of view it is important that the Project Agency obtain maximum revenues from the future sale of plots, but it is also important to attract, in the first

years, investors who will build substantion premises. Thus it is proposed that 10% of shop, 'concession', and 'primarily residential' plots be immediately sold 'at cost', ie., at a metre-square cost which only recoups the imputed infrastructure costs, provisionally estimated at LE6/m2. For investors or settlers interested in workshop plots even more attrative terms will be offered for 25% of all plots, in order to attract a nucleus of workshop activities. Occupation of such plots will be required within six months of signing contracts.

4.73 The amount of shop/workshop units to be built for rental will depend on the Project Agency's future perception of financial feasibility, as it is not intended that the Agency carry the burden of subsidized rents. However, to stimulate commercial activity in the first year it is proposed that the Project Office itself contain a small number of shop units to be let at modest rents.

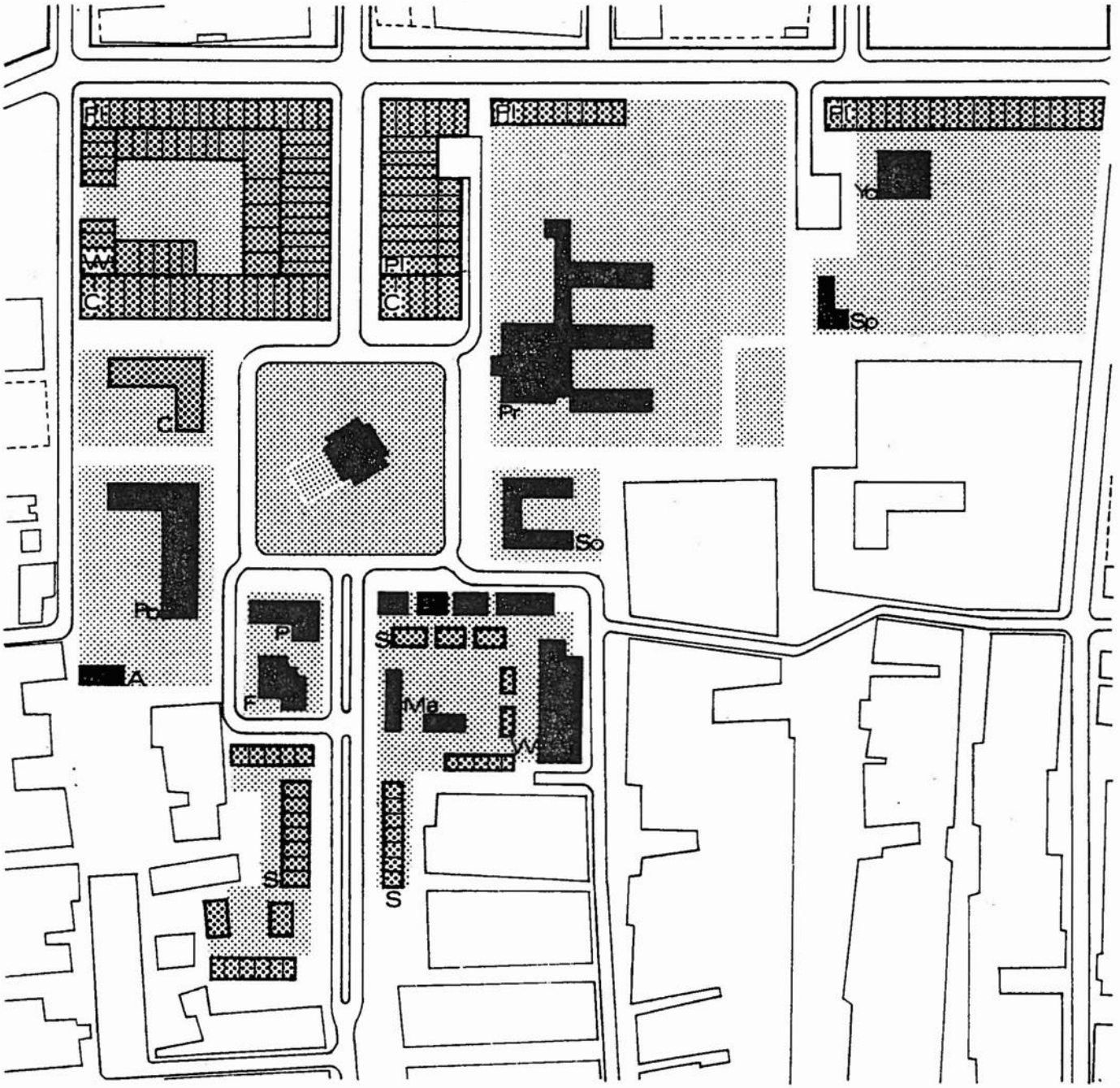
CENTRES

4.74 In El Hekr one main Community Centre, three sub centres and fifteen neighbourhood centres are proposed.

THE COMMUNITY CENTRE

4.75 The centre is planned to provide social, commercial, industrial and public facilities for the current and projected populations of the new and existing areas. In order to best serve both existing and new areas the centre is planned as near as possible to the geographic centre of the whole area, and it lies astride principal vehicle and pedestrian routes. It is planned as an extension and termination of the main north-south spine road and provides a hub to the whole development. The principal design concept is the recognition of Ismailia as an example of the synthesis of the Arab traditional urban form and French town planning of the 19th Century, with its accent on open spaces and tree lined avenues. The main square of the proposed centre is immediately to the north of the shopping centre, and provides the setting for the principal mosque as a focal point viewed along Mustashfa Street.

View of the main square in the Community Centre.



1 : 2,500

0 150m

OPEN SPACE WITHIN SITE

M MOSQUE

P POLICE STATION

F FIRE STATION

A AMBULANCE STATION

Po POLYCLINIC

So SOCIAL CENTRE

Pr PREPARATORY SCHOOL

Sp SPORTS CENTRE

Yo YOUTH CENTRE

Ma MARKET

S SHOPS

C CONCESSION SITES

W WORKSHOPS

Pl PLOTS

Community Centre · El Hekr

4.76 The principal buildings of the centre, grouped in to their main categories are as follows. Group One - shops, market, workshops, bank, post office, Implementing Agency Office and cooperative shop. Group Two - police station, fire station, ambulance station, polyclinic, social unit. Land has been made available for a cinema or similar use, and mosque sited in the main square. Group Three - preparatory school, primary school, (to serve the immediate neighbourhood) youth centre, and sports club. In addition, there is recreational open space, car parking, bus terminus and taxi ranks. Figure 4.5* shows the architectural form of the centre.

* See also large scale plan, Fig. 18, Portfolio A

4.77 It is anticipated that existing commercial uses in the south of El Hekr will extend northwards naturally over time along Mustashfa Street, and the southern part of the centre is planned to take account of this. In the eastern section are planned 61 shops, and a covered market. 41 shops are provided west of Mustashfa, together with 6 workshops with an area for further subdivision. The main square provides the setting for the service and social buildings with some concession sites in prominent positions. The schools and recreational buildings are planned on the fairly open and more level land extending to the east. The groups of buildings of similar uses are designed to relate to each other and the centre is continuous and cohesive.

4.78 For the purpose of the proposals, examples of similar buildings at present in use or planned in the vicinity have been obtained. Detailed design of these buildings is, of course, necessary before layout proposals are finalised. Space schedules and costs are based on these examples, but requirements will change in the future and designs may have to be amended. It is not expected or proposed that buildings will take the precise land areas indicated. In some cases additional space has been allowed for anticipated change. A full schedule of provision in the centre is set out in Volume 3, Section 5, Table 5.1

SUB CENTRES

4.79 Three sub centres are planned for the whole area, one in the new development area in the north, and two in the existing area. (The Community Plan, Figure 4.1, shows the location of the centres). Sub centres are planned to provide an intermediate level of service between main and neighbourhood centres, and at the intermediate level health centres and minor social units are planned. The sub centre in the new development area contains a number of concession plots which will encourage commercial provision, and each sub centre in new and existing areas is planned to contain a larger mosque and more open space than is planned for in a neighbourhood centre. The sub centres in the new development area and on Talaatini Street are also associated with neighbourhood primary schools. The two sub centres in the existing area are developments of existing social and commercial areas, and their establishment is assured. Sub centres will become more important as consolidation and development continues.

NEIGHBOURHOOD CENTRES

4.80 Each neighbourhood centre is planned to serve a population of 4,000-7,000 and principally provides a primary school, on whose catchment areas the neighbourhood is based, mosque and public open space. In the existing areas it has not been possible to accommodate all of the land uses on one site because of the lack of available land, and the policy of minimising demolition. In these cases the neighbourhood facilities are provided on dis-aggregated sites. With the mosque and school as the main visual element each centre is expected to provide an identity focus for the population of the neighbourhood.

ROADS AND TRANSPORT

STREET NETWORK

4.81 The proposed street layout and bus routes for El Hekr are shown on Figure 4.6*. The layout is a modified grid based on the existing street pattern.

* See also large scale plan, Fig. 6, Portfolio A

4.82 The figure shows how a street hierarchy has been imposed on the grid system. The local streets define neighbourhoods within which access streets provide circulation. In the developed area the distributors are alternate existing north/south routes and discontinuous east/west routes which utilise the widest of the less well defined pattern of existing cross streets.

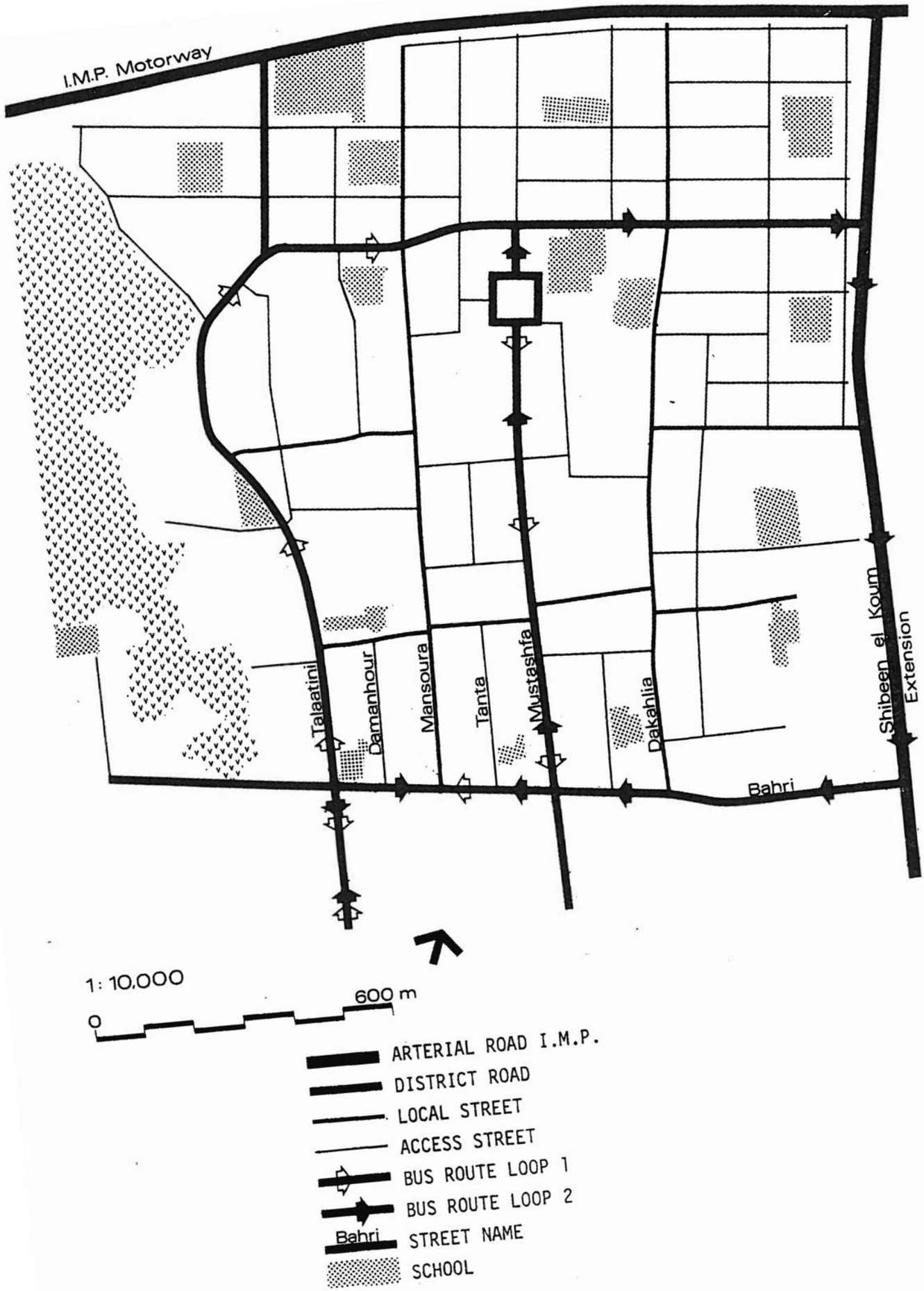
4.83 A new east-west district street bounds the northern fringe of existing development. Most of the new housing is to the north of this. Neighbourhoods within the new area are bounded by the new east-west district street and north-south district and local streets; the northern boundary is defined by the east/west route of the Master Plan motorway.

4.84 The Consultants recommend that an east-west arterial proposed in the Master Plan to cross the built up part of southern El Hekr be omitted. Investigation showed that there would be sufficient capacity available in the east-west corridor to cope with expected demand if the section of arterial through El Hekr was not built. The proposals for El Hekr also down grade the extension of Talaatini from an arterial to a district street; a function more appropriate to the kind of frontage development proposed. The nearby Port Said Road will take the arterial traffic diverted from the Talaatini extension.

4.85 These proposals show the Talaatini extension overpassing the motorway to provide access into the University site; sufficient right of way is provided to allow for works associated with an overpass.

LEVELS OF PROVISION OF STREETS

4.86 The levels of provision of road construction are detailed in Table 4.2 and indicated on Figure 4.6.



1: 10,000

0 600 m

ARTERIAL ROAD I.M.P.
DISTRICT ROAD
LOCAL STREET
ACCESS STREET
BUS ROUTE LOOP 1
BUS ROUTE LOOP 2
Bahri STREET NAME
SCHOOL

4·6

El Hekr · Transport

Table 4.2
EL HEKR STREETS - LEVEL OF PROVISION

Street Type	Level of Provision Initial	Full
District) Talaatini) Mustashfa) East-West	Surfaced DBST	Paved (asphaltic concrete)
Local	Graded with gravel surface	Surfaced (DBST a minimum asphaltic concrete)
Access	Transitable	Graded with gravel surface

NOTE: DBST - Double Bitumen Surface Treatment - See Volume 3, Section 6.

BUS ROUTES

4.87 Figure 4.6 shows the proposed bus routes, which run between El Hekr and the bus station. Within El Hekr two routes are proposed:

1) A loop based on Talaatini, the new east-west district street and Mustashfa.

2) A loop based on Shibeen El Koum, the new east-west street and Mustashfa.

4.88 In the first stage only part of the first route would operate and run on Mustashfa, terminating at the Community Centre. The full loop service would be introduced as soon as the link between Talaatini and Mustashfa was completed. The second loop service would be started only when the extent of development in the east and north east of El Hekr was sufficient to justify a service on Shibeen El Koum.

4.89 It is proposed that alternate buses on the loop routes run in opposite directions creating a two way service. Thus pairs of buses would be needed to operate the services.

4.90 It is likely that the proposed University, sited to the immediate north of El Hekr, would create demand for its own bus services. It has been assumed that such services would be additional to these proposals.

SETTING OUT

4.91 Setting out information for roads in the new development area and the Community Centre is given in Figures 11 and 19, Portfolio A.

UTILITIES

4.92 Existing utilities and the Master Plan proposals in and adjacent to the site are shown on Figure 3.6*.

* See also large scale plan, Fig. 5, Portfolio A

WATER

4.93 The proposed water distribution network is shown on Figure 4.7* and consists of a primary ringmain feeding four secondary ringmains each supplying water to approximately 24,000 people by the year 2000.

* See also large scale plan, Fig. 7, Portfolio A

4.94 Water is supplied to the area by gravity from a storage reservoir, (Master Plan - Phase 1), situated some 400 metres north of the Project Area in the proposed University area. Figure 7, Portfolio A shows principal mains within the Project Area, Figure 12, Portfolio A shows all mains within the new Development Area whilst details of the network in the Detailed Improvement Area and Community Centre are given in Figures 15 and 19, Portfolio A, respectively.

4.95 The first stage of improvement would consist of the installation of some 75 standpipes on a 150 metre grid, supplied from the south of the site by connections to the existing network. Details are shown on Figure 7A, Portfolio A. The Suez Canal Authority consider this network to have adequate spare capacity and suitable pressure: at detail design stage field tests should be carried out to measure the actual flows and pressure in the system. In order to minimise abortive costs, the standpipes will be fed by pipes ultimately forming part of the full network. A branch from this initial system will supply water to the first phase of the Community Centre.

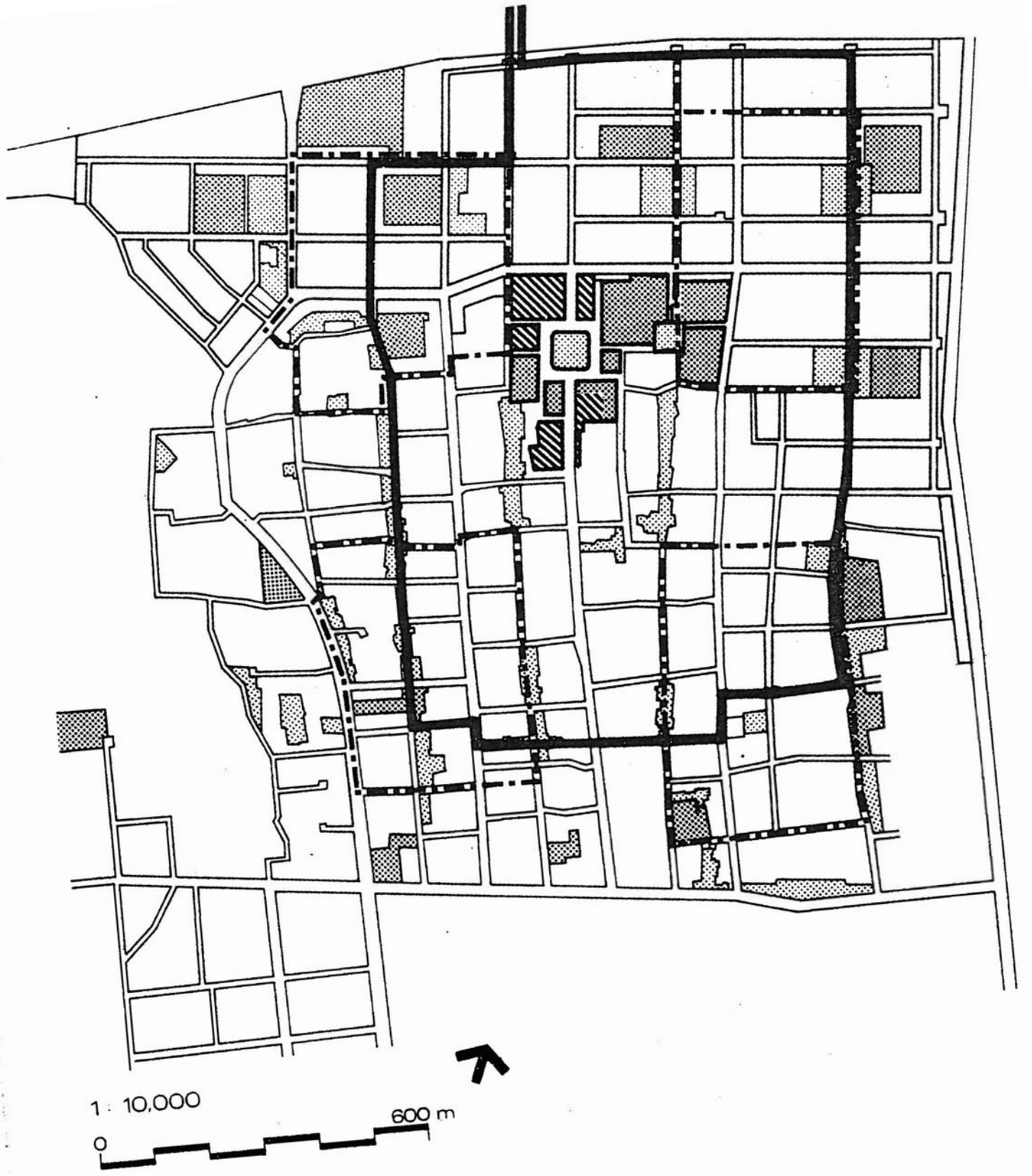
4.96 Where pressures and capacities permit, on-plot connections to single tap/shower units could be taken from the first stage network. Subsequent extension of the distribution network would follow once the storage reservoir comes into operation.

4.97 By the year 2000, the average day demand is estimated to be 18,600 m3/day with a peak hour demand of 537 litres/sec. Both figures include an allowance for irrigation water.

SEWERAGE

4.98 The proposed sewerage system is shown in Figure 4.8* and consists of several groups of branching sewers generally falling from the north east of the site to a sewerage pumping station (Master Plan - Phase 1) in the south-west. From this station, the sewerage will be pumped to the sewage works in a rising main which bypasses the existing (inadequate) city system. Within the Project Area, secondary systems discharge to two pumping stations in order to avoid excessive depths on the main collectors. The system for new development is shown in detail in Figure 13, for the community centre in Figure 8 and for the Detailed Improvement Area in Figure 16, all in Portfolio A.

* See also large scale plan, Fig. 8, Portfolio A



El Hekr · Water

4·7

4·8

El Hekr · Sewerage

4.99 Phasing is discussed in more detail below (see Figure 4.11). Briefly, proposals for the first phase consist of the main collector running east from the pumping station, proposed in the Master Plan, then north up Mustashfa Street to the Community Centre and Phase 1 of the new development area. Phase 2 would consist of an extension to this system to the north-west corner of the Project Area and also the west collector running along the edge of the existing built up area. The south-east system and pumping station would form the final phase. An emergency outfall from this station should discharge to the adjoining groundwater drain.

4.100 The existing groundwater, or cover drain, should be cleared out and repaired as necessary.

4.101 The relatively low flows in the early years of the development may result in silting up along flat sections of the sewers. Regular inspection together with routine cleaning as necessary is recommended and should prevent blockages.

4.102 In order to enable the Community Centre buildings to be supplied with water prior to the development of the sewerage system, a septic tank or tanks could be installed as a temporary measure. At detail design stage a suitable site should be identified to accommodate this provision. Special attention should be paid to the design of the drainfield and it is recommended that the tank be maintained regularly.

4.103 By the year 2000, total daily sewage flow from the site is estimated to be approximately 13,800m3/day. Peak hour flow rate will be approximately 400 litres/sec. Both figures include an allowance for infiltration.

SOLID WASTE

4.104 Proposals are given in Volume 3, Section 7.

ELECTRICITY

4.105 The proposed network is shown on Figure 4.9*. Primary distribution is by means of an 11 kv underground cable linking to 18 transformers rated from 200 to 300 KVA. Secondary distribution will be a 380/220 volts supply, generally on overhead lines. In areas such as the Community Centre, the secondary network should preferably be located underground to improve the visual amenity of the area.

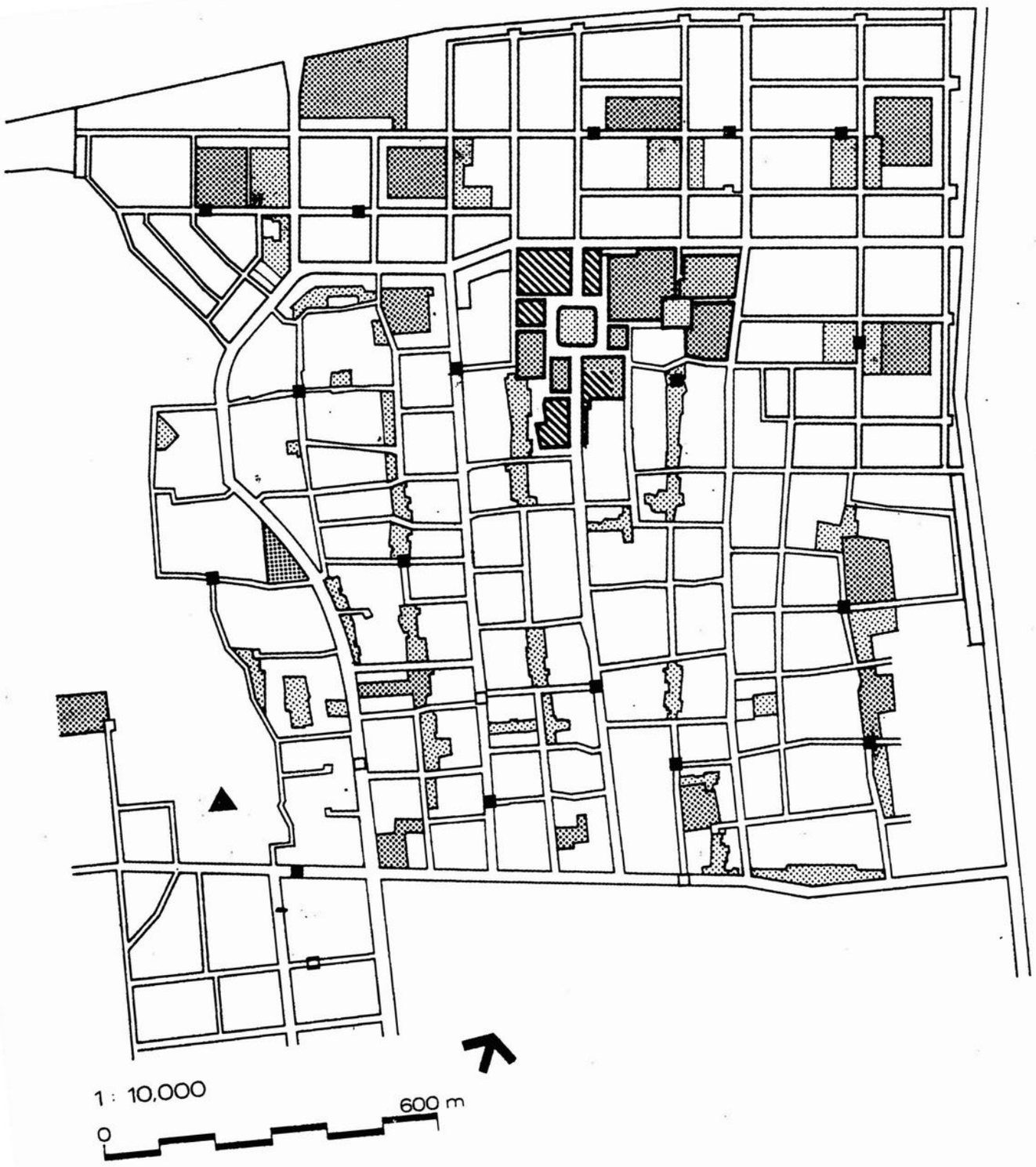
* See also large scale plan, Fig. 17, Portfolio A

4.106 It is recommended that the existing overhead 11 kv line across the north-east corner of the site should be replaced by an underground cable routed under local roads.

TELEPHONES

4.107 The new city telephone exchange is located immediately to the south of the Project Area, thus the area is well placed for provision of a telephone network.

4.108 Initially public telephones should be installed on the



El Hekr · Power

two major north-south streets and on the east-west street immediately north of the Community Centre, and thus be within 500 metres of every dwelling.

FACTORS AFFECTING CONSTRUCTION

Ground Conditions

4.109 Three features of the existing ground conditions affect the installation of utilities and have been borne in mind when preparing cost estimates, namely:

1) Sulphate attack on concrete, mainly in the southern half of the Project Area

2) High water table, mainly in the southern half of the Project Area

3) Loose or soft ground

4.110 All concrete located below the upper level of capillary rise will require sulphate resisting cement. In areas of loose or soft ground, trench sides will require adequate support and in excavations below the water table dewatering methods will need to be employed - in parts of the south and west of the area well pointing will be necessary.

4.111 Reference should be made to the Study submitted to the Ministry of Housing and Reconstruction, entitled Geotechnical Investigation for the Ismailia Master Plan, Draft Final Report, January 1978.

Existing Buildings

4.112 Particular care will be necessary when excavating trenches near to existing buildings - especially where dewatering is proposed. Settlement of the underlying ground may cause structural damage leading, in extreme cases, to building collapse. In practise this will be a significant problem only in areas of multi-storey development - generally single storey mud wall buildings should tolerate some degree of settlement without causing undue problems. It is recommended that building behaviour is carefully monitored as work progresses.

Access

4.113 The low level of vehicular activity will enable temporary street closures to be made without difficulty during the installation of utilities. Pedestrian access must be maintained at all times. Precautions will be necessary to ensure the safety of the public, particularly at night.

PHASING

4.114 It is recommended that the phasing of improvements in the existing area, and the development and improvements in the new subdivision be closely linked.

4.115 Joint planning and detailed consideration of both areas

is necessary both from a technical point of view in order to optimise the use of infrastructure and from a social and spatial point of view to facilitate integration of new and existing portions of the community. Phasing will be determined by the effective demand, by the available capital and by the technical factors.

4.116 Technical constraints make the provision of sewerage for new or existing areas impossible for at least the next three years (except by using septic tanks, which are not economically feasible for the low-cost plots). Also the provision of individual water connections with sufficient pressure requires major investment in the city wide system.

4.117 There are few technical problems however that would make the immediate higher level of provision of roads, electricity, or social services difficult. There is a demand for these facilities and they could be provided earlier than suggested providing that sufficient funds are available .

4.118 Also once technical limitations are overcome, full provision of utilities may be accelerated and the stages of improvement combined or initial level of provision raised. The feasibility of accelerating the programme of provision will depend entirely on the conditions of available funding and resulting affordability by the inhabitants.

INITIAL LEVEL OF PROVISION

4.119 Considering the above constraints and variables the initial level of provision of improvements and of the new development is proposed as follows:

4.120 The following proposals relate to the whole project areas:

1) Designating and marking of all new communal land uses such as playgrounds, parks, kick-about areas and the land reserved for construction of mosques, schools, social and health centres, as well as of the new rights of way. Marking of individual plots should not precede the demand by more than a limited supply in order to be able to adjust the proportion of plots of various sizes to the possible demand fluctuations.

2) Construction of the 7m wide tarred carriageways in the three primary district streets. Two north-south (Mustashfa and Talaatini) and one east-west passing north of the new Community Centre.

3) Providing permanent gravel surface for the secondary distributor network including every second north south and all other streets dividing the neighbourhoods from each other.

4) Providing water standpipes (public water taps) at up to 150 m intervals with limited number of mains to service them*. Plots on the streets with water mains will have the option to connect provided that there is sufficient pressure in the system and suitable means of disposal.

5) Providing direct water connection and water-borne

* See also large scale plan, Fig. 7 Portfolio A

sewerage with septic tank/s for the Community Centre buildings.

6) Providing of electric mains and of street lighting in all district streets.

7) Initial landscaping of the main neighbourhood and community green areas. Incentives and facilities for local initiative of further landscaping (such as, providing free or low cost trees).

8) Establishing a regular system of garbage collection.

9) First stage of the Community Centre.

4.121 The following proposals apply to the existing areas.

1) Land tenure regularisation procedures.

2) Improving to the level of transitability local access roads.

3) Construction of five primary schools to provide the minimum level of service for the existing population of 37,000 (about 40,000 in 1980 in 10 planned neighbourhoods).

4) Construction of the health unit and social unit in the western sub centre, by existing portion of El Gomhuria.

4.122 The following proposals are proposed for new subdivisions.

1) Bringing to the level of transitability all streets including the internal paths within the clusters.

2) Provision of primary school, mosque and public open space for each new neighbourhood.

4.123 The initial level of provision in the improvement area is planned in three phases (see Figure 4.10).

Phase 1: Improvement and New Areas

4.124 Phase 1 improvement includes approximately 2300 plots in 4 neighbourhoods located on both sides of Mustashfa Street the main street of the Project Area .

4.125 In addition, in the first phase the construction and tarring of the eastern portion of the east west district distributor will take place. This connects two secondary distributors serving the first phase of new subdivision with Mustashfa Street.

4.126 The area of the first phase of the improvement programme is limited at the north by the community centre, immediately north of the centre is the area of the first phase of a new subdivision. Both the community centre and the new subdivision will be started together with the first phase of the improvement programme.

4.127 The first phase of a new subdivision will cover a complete large neighbourhood of approximately 900 plots together with its facilities, a school, mosque and public open spaces.

Phases 2 and 3 - Improvement Programme

4.128 The second phase of the improvement programme will consist of the portion of existing area to the west of the first phase. In this phase the western portion of the east west district distributor will be built providing a tarred connection between Mustashfa Street and the extension of Talaatini Street.

4.129 The third phase will include the remaining portion of El Hekr located to the east of the first phase.

Phases 2 and 3 - New Subdivision

4.130 The second phase of new subdivision will cover the neighbourhood west from the first phase, between it and the road to the University and right to the north from the second phase of the improvement area.

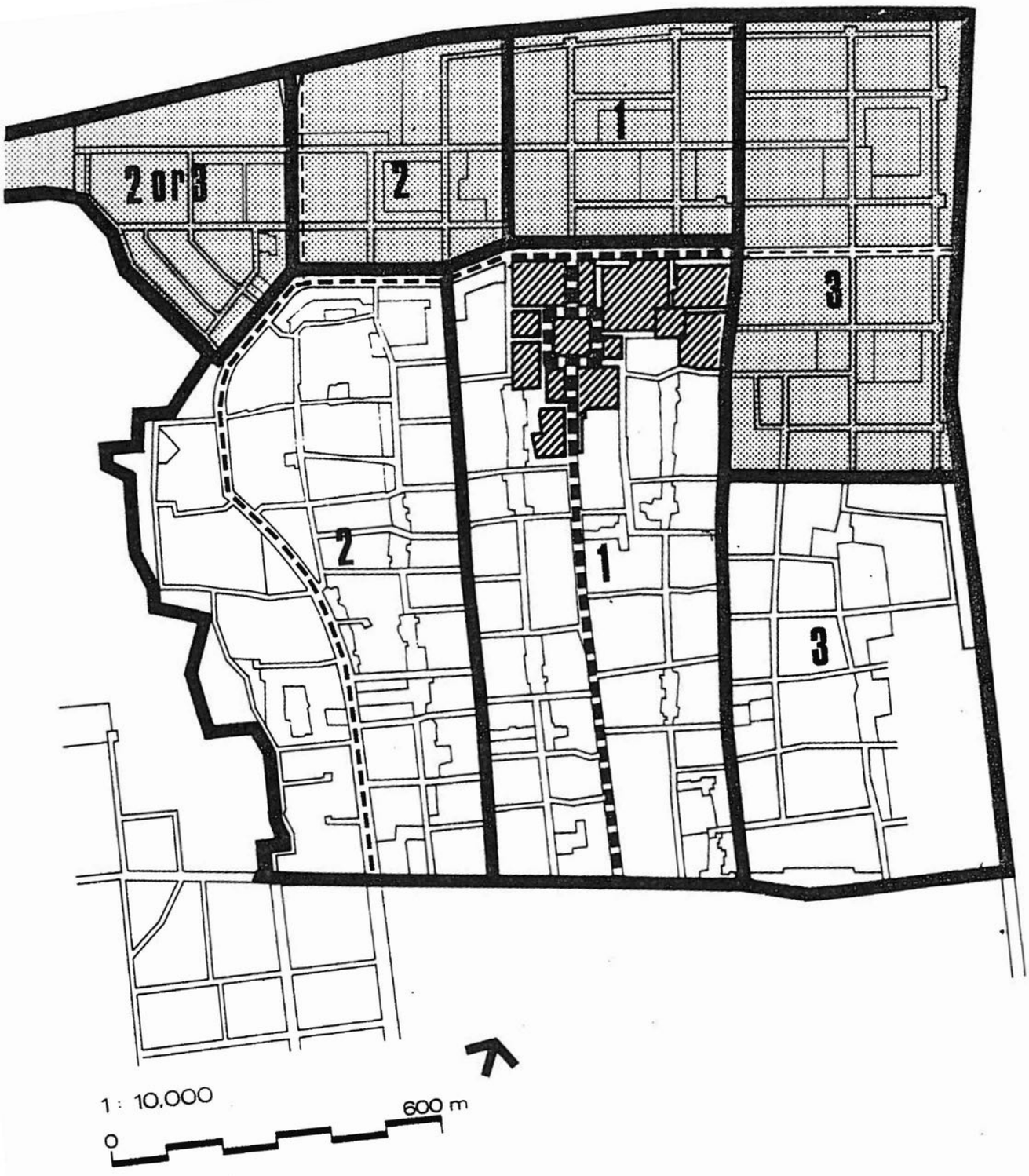
4.131 The third phase will include two neighbourhoods to the east from the first phase of new subdivision and north from the third phase of the improvement programme. In this phase the remaining portion of the east-west district distributor up to Shibeen El Koum Street will be constructed. The last new neighbourhood to the west, and the Community Sub-Centre located in it, will be implemented in the second or third phase depending on the development of the University. In addition, the 2 hectares area to the west at present under military control and which could not be surveyed, may remain undeveloped for a longer period. This neighbourhood has a large proportion of concession plots all of which will be completely serviced. Initial levels of utilities provision in these later phases will depend upon cost and affordability estimates at the time.

CONCESSION PLOTS

4.132 Two areas are proposed for concession plots, in the north west of the development area south of the University and the eastern fringe of the development area along Shibeen El Koum.

4.133 Early construction of the University and the installation of its sewerage collectors along the western edge of the Project Area will permit the early servicing and marketing of the concession plots south of the University. The commercial attractiveness of the concession plots and the economic viability of the Community Sub-Centre depends on the proximity of the University.

4.134 Phasing of this neighbourhood will also determine the level of provision of utilities for its lower cost plots. If the University mains are built early and the neighbourhood is included in the second phase this will be the first new area to offer completely serviced plots. If, however, the construction of the University is delayed the first fully serviced new plots will be offered in the eastern part of the area following the construction of the central sewerage main of El Hekr



LIMITS OF PHASES
TARRED STREETS PHASE 1
TARRED STREETS PHASE 2
TARRED STREETS PHASE 3
NEW DEVELOPMENT AREA
COMMUNITY CENTRE

El Hekr · Phasing · New development and initial provision

4·10

along Mustashfa Street.

4.135 Phasing of the remaining concession plots along Shibeen El Koum Street is less dependent on the University construction as the street is already paved and provides a convenient and attractive connection with the city centre. Full servicing of these plots from the El Hekr network would have to wait for the construction of the water reservoir to provide necessary water pressure - the areas having higher elevation. Construction of the sewerage system would take at least three years. Considering, however, the expected profits from sales of these plots a temporary arrangement such as booster pumps for water, and septic tanks or a separate connection to the existing sewerage system of the city may be economically attractive. Feasibility of septic tank solutions or of connection to the city sewerage system requires additional investigation. If these are feasible the concession plots could be put on the market at an early date.

FULL LEVEL OF PROVISION

4.136 The full level of provision in the improvement area will include:

1) Tarring of the secondary district streets.

2) Providing permanent gravel surface for all local roads.

3) Installation of water mains where they were not installed during the first stage.

4) Installation of sewerage mains.

5) Completion of street lighting.

4.137 The full level of service provision in the new areas will include the water and sewerage networks and the further road improvements. It may also include the provision of complete utility connections to plots and construction of sanitary core units.

4.138 Phasing of facilities such as mosques, schools, social and health units, beyond the initial minimal provision is separated from the infrastructure improvement schedule and follows the sectoral plans of respective ministries and agencies (determined by the population increase and by available budgets). They are discussed separately below.

4.139 Phasing of the full level of provision of utilities is determined mainly by the sewerage network (see Figure 4.11).

Sewerage

4.140 The first phase of sewerage will be started with construction of the pumping station and the connection to the city network to the south west of the Project Area.

4.141 Within the area it will include the main collector to Mustashfa Street, along Mustashfa to the Community Centre, and the first neighbourhood of the new development. Construction of this collector and of the full extent of its branches is the main basis for delineation of the first phase; using only gravity flow it covers about half of El Hekr with most of the area between Mustashfa and Talaatini Streets (including plots on both sides of these streets), the Community Centre, the western portion of the new subdivision and a few other smaller areas.

4.142 The main collector is to be built first. The area directly served by this collector is illustrated in Figure 4.11, notation Phase 1a. Branches of this main collector serve areas in illustrated as Phase 1b.

4.143 The second phase covers all of the Project Area to the west of the first phase. It is serviced by the gravity collector along the western edge of the area connecting directly to the main pumping station built at the beginning of the first phase. A brief analysis of possibilities of receiving the sewer from the University area suggests that extension and joint use of this collector is likely to be the most economic solution. An area at the north east of the second phase will require a small pumping station.

4.144 The third phase, located to the east of the first phase includes the remainder of the Project Area. All the effluent of this phase is directed first to the pumping station and next pumped into the main collector built during the first phase.

Water

4.145 The phasing of the water network (Figure 4.12) was planned to serve the area in the sequence determined by the sewerage network, as both utilities are provided together and the design of sewerage is subject to more constraints.

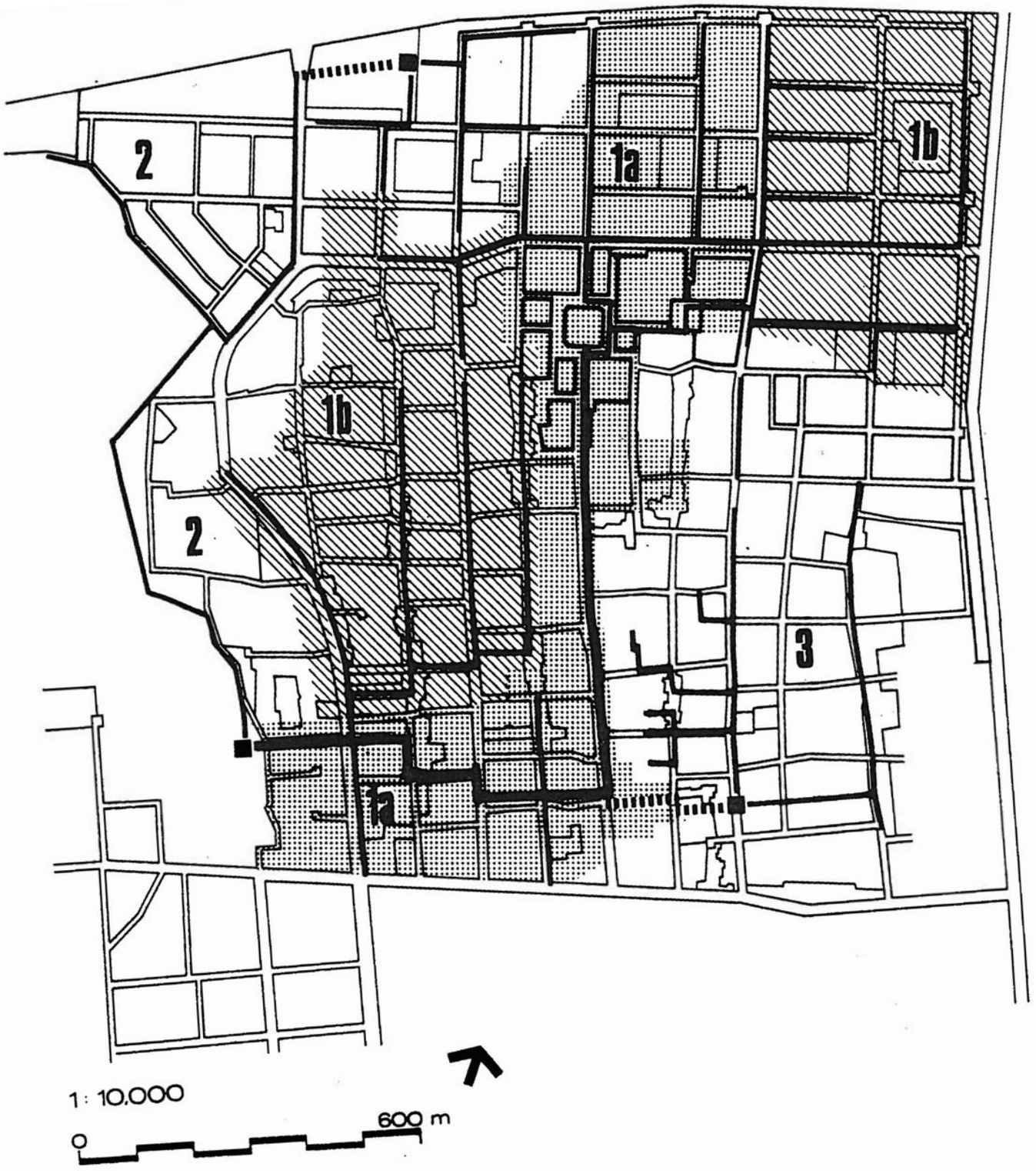
4.146 Water mains installed during phase 1 are sufficient to provide service to the area served by phases 1 and 2 of the sewerage provision. Phase 2 of water network corresponds to phase 3 of sewerage network.

Roads

4.147 Full provision of paved roads will follow the installation of water and sewerage.

Social Facilities

4.148 The minimum school construction programme suggested as the initial level of service provision for the improvement area consists of five schools. It also includes the establishment of the large playing field to the west of the Project Area. It will be used by the schools in the south western neighbourhoods of El Hekr where, due to the present density of construction, it will not be possible to provide sufficiently large



El Hekr · Phasing · Sewerage

NOTE: For initial provision of water to standpipes see portfolio figure 7

PRIMARY MAIN 1ST PHASE

SECONDARY MAIN 1ST PHASE

PRIMARY MAIN 2ND PHASE

SECONDARY MAIN 2ND PHASE

4·12

El Hekr · Phasing · Water

Table 4.3
LAND BUDGET - EL HEKR

	Project Area Existing ha	%	Project Area Proposed ha	%
1) Improvement Areas				
- Private	73.9	55.5	95.0	71.4
- Circulation	58.5	44.0	18.9	14.2
- Public Services	0.6	0.5	7.4	5.6
- Structured Open Space			11.7	8.8
Sub Total	133.0	100.0	133.0	100.0
2) New Areas				
- Private			48.0	57.8
- Circulation			22.8	27.4
- Public Services			9.0	10.8
- Structured Open Space			3.3	4.0
Sub Total			83.1	100.0
3) Community Centre				
- Private			1.8	19.0
- Circulation			3.7	38.9
- Public Services			3.3	34.7
- Structured Open Space			0.7	7.4
4) TOTAL EL HEKR				
- Private	73.9	55.5	144.8	64.2
- Circulation	58.5	44.0	45.4	20.1
- Public Services	0.6	0.5	19.7	8.7
- Structured Open Space			15.7	7.0
TOTAL	133.0	100.0	225.6	100.0

NOTE: 1) Circulation in new areas includes semi-private space, estimated at 40% of total circulation.

2) Private includes residential and commercial land uses.

3) Circulation in the Community Centre includes extensive landscape areas.

playing fields next to the schools. If these five schools are built in the next five years, they will together with the single existing school, each serve an area with nearly 7000 inhabitants. If five more schools are built in existing area of El Hekr (including the existing one to be remodelled and expanded) up to the year 2000 this level of provision will be maintained. Five schools are planned in the new development area. These are to be built at the time of settlement of each new neighbourhood - their phasing follows the phasing of the new development.

4.149 One preparatory and one secondary school are planned within the Project Area. The preparatory school is to be built just within the community centre and within the first five years. The secondary school to be built at the northern edge of new development will be required towards the stage of full development.

4.150 Phasing of provision of schools and other social facilities is illustrated in Figure 4.13.

4.151 Of four social units, the largest, located in the community centre, is to be built first. The phasing of construction of the remaining three, located in sub centres, is proposed as follows: First - SW sub centre, Second - NW sub centre, and Third - SE sub centre. Identical phasing is proposed for the health units.

4.152 Early construction of mosques is particularly important for development of the neighbourhood identity and confidence in its future. It is therefore recommended that they should be built at the time of an initial settlement of each neighbourhood in new areas and as soon as possible in existing neighbourhoods lacking religious facilities. Construction of mosques will help develop community spirit in the new neighbourhood.

LAND BUDGET

4.153 The land budget for El Hekr is detailed in Table 4.3.

COSTS OF DEVELOPMENT

4.154 The total capital costs of the El Hekr Project at full development are given in Table 4.4. The derivation of these cost items are:

1) Base land cost: @ LE0.45/m2 for empty government land (see Volume 2, Section 2).

2) Markers: @ LE2.50 per marker plus LE1.00 per marker for surveying.

3) Levelling: 18.4 hectares @ a nominal cost of LE0.10 per m2.

4) Administration: (See Volume 1, Section 8 and Volume 3, Section 10).

5) Compensation: @ LE400 per house (no compensation for land).

6) Electricity: (See Volume 3, Sections 7 and 8).

7) Sewerage: (See Volume 3, Sections 7 and 8).

8) Water: (See Volume 3, Sections 7 and 8).

9) Roads: (See Volume 3, Sections 7 and 8).

10) Landscaping: (See Volume 3, Sections 7 and 8).

11) Public Facilities: (See Volume 3, Section 8). All building costs include furnishings and external works.

12) Write-off costs of staged provision: (See Volume 3, Section 9).

4.155 In calculating the portion of total costs attributable to individual plot occupants to the Project Agency (see Section 8 below), and to outside sources the following assumptions were used:

1) The base land cost, which represents the opportunity cost of empty government land, is logically attributed to the government.

2) Staffing costs of administration are split, with base salaries and benefits assigned to the staff secondment source and incentive salaries assigned to the Project Agency (see Volume 3, Section 10). All other administrative costs are the responsibility of the Project Agency.

3) The costs of levelling, markers, and compensation are all attributed to the Project Agency.

4) For utilities, the network mains are assigned to other sources, as suggested by the Advisory Committee for Reconstruction (ACR) in their letter of November 13, 1977. Local networks are the responsibility of the Project Agency, costs of connections must be met by households. Street lighting is paid for by the Project Agency, and both electricity connections and the low-voltage system are assumed to be recouped through connection and user charges.

5) District roads are attributed to other sources (as suggested by the ACR), and all other road costs are to be borne by the Project Agency.

6) Landscaping costs are to be met by the Project Agency except for a portion of the costs of landscaping the community centre.

7) All public facilities costs (except shops and workshops) are attributed to the government organisations which are responsible for their provision and operation.

4.156 Utilities and roads costs are not assigned in the same form that has been used in calculating the finances of the Project Agency. (See Volume 3, Section 9). The

total costs attributed to the Project Agency in Table 4.4 (some LE2,800,000) could be met by the Agency, if optimistic assumptions of the Project Agency's revenues (particularly future revenues from land sales) are used. In actual fact it is proposed that only a portion of the water and sewerage reticulation networks be financed from Agency funds. The necessity for this arrangement is explained fully in Volume 3, Section 9.

4.157 The subsidy element of the El Hekr Project implied by the figures in Table 4.4 is 54% of total capital costs. If, however, the costs of public facilities are excluded (on the assumption that these items, funded from national revenues, are transfer costs) then the subsidy element is reduced to 29% of total costs.

4.158 The capital costs of development of Phase 1 of El Hekr are given in Table 4.5. This Phase involves the provision of minimum infrastructure services in all existing El Hekr and in the first new neighbourhood of 977 plots. Costs have been derived and assigned under the same assumptions as stated above.

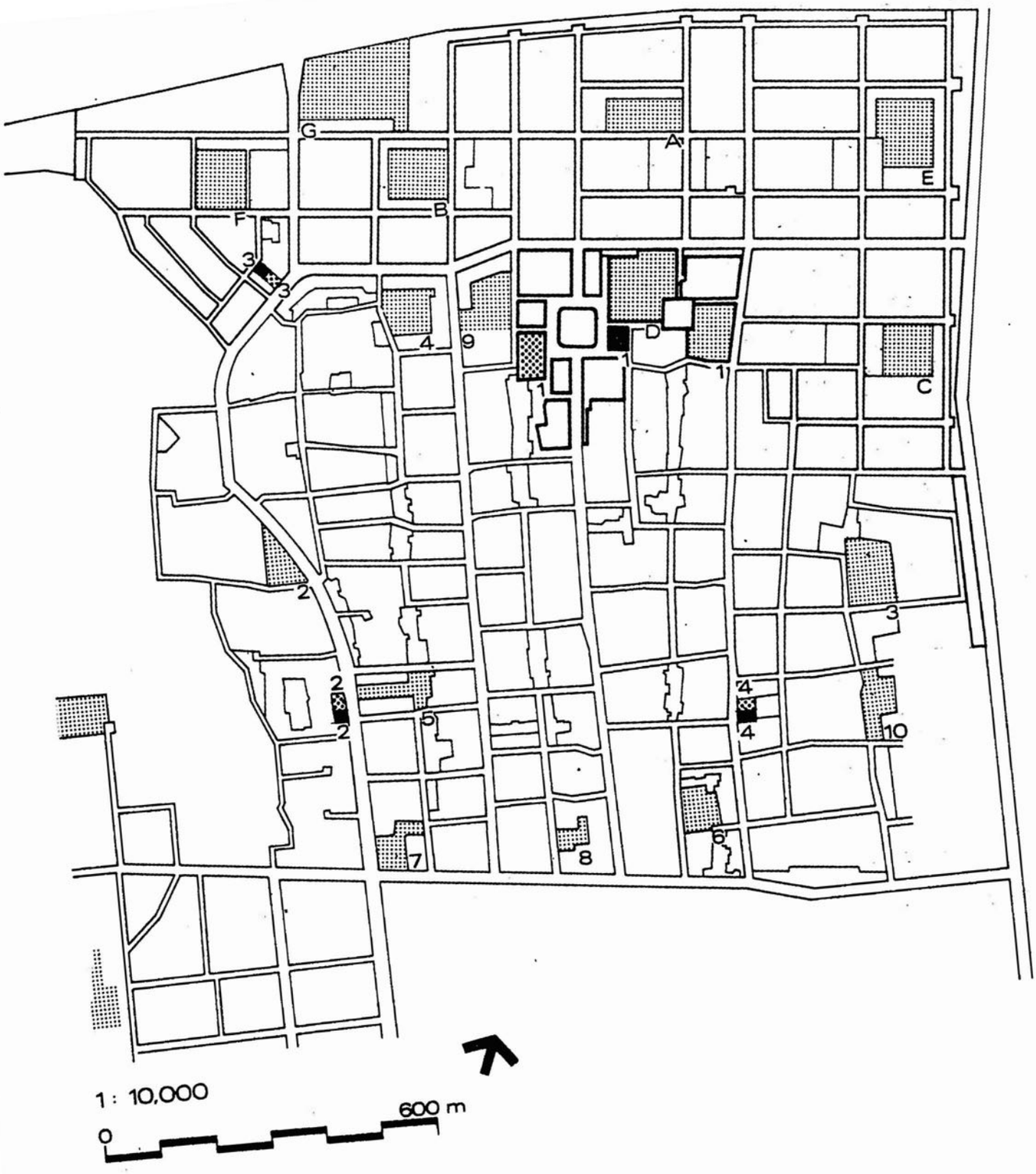
Table 4.4
EL HEKR: TOTAL CAPITAL COSTS (FULL DEVELOPMENT)

Item	Total Cost	Portion of Total Cost Attributed to: Plot Occupants	Project Agency	Outside Sources
1) Base Land Cost	373,900			373,900
2) Markers (and surveying)	38,800		38,800	
3) Levelling	18,400		18,400	
4) Administration				
- capitalised running costs	176,800		94,900	81,900
- offices (incl. bank/post office)	30,000		30,000	
Sub Total	206,800			
5) Compensation	26,600		26,600	
6) Electricity				
- street lighting	130,400		130,400	
- trunk lines	302,500			302,500
- low voltage network	210,000	210,000		
- connections	166,300	166,300		
Sub Total	809,200			
7) Sewerage				
- trunks	510,000			510,000
- local (reticulation) network	1,109,300		1,109,300	
- connections	940,500	940,500		
Sub Total	2,559,800			
8) Water				
- trunks	509,600			509,600
- local (reticulation) network	612,200		612,200	
- connections	611,200	611,200		
Sub Total	1,733,000			
9) Roads, Sidewalks and kerbing				
- district roads (20m ROW)	280,300			280,300
- local roads (15m ROW)	290,950		290,950	
- access roads (10.5m ROW)	206,750		206,750	
Sub Total	778,000			
10) Landscaping	65,000		45,000	20,000

Table 4.4 (cont'd)
EL HEKR: TOTAL CAPITAL COSTS (FULL DEVELOPMENT)

Item	Total Cost	Portion of Total Cost Attributed to: Plot Occupants	Project Agency	Outside Sources
11) Public Facilities				
- 1 Secondary School	198,000			198,000
- 1 Preparatory Schod	250,000			250,000
- 14 Primary schools	2,198,000			2,198,000
- 1 Polyclinic/ ambulance station	400,000			400,000
- 3 Health centres	163,500			163,500
- 4 Social "	171,000			171,000
- 1 Sports centre	19,000			19,000
- 1 Youth "	26,000			26,000
- 1 Fire/Police station	60,000			60,000
- Shops/Workshops/ Market	41,500		41,500	
- 9 Mosques	434,000			434,000
Sub Total	3,961,000			
TOTAL	10,570,500	1,928,000	2,644,800	5,997,700
12) Write off costs due to staged provision				
- pit latrines	357,000	357,000		
- roads	118,400		118,400	
- standpipes	20,200		20,200	
Sub Total	495,600			
ADJUSTED TOTAL	11,066,100	2,285,000	2,783,400	5,997,700

(all costs in 1977 LE)



A SCHOOL PHASING IN DEVELOPMENT AREA

2 SCHOOL PHASING IN IMPROVEMENT AREA

SOCIAL UNIT

HEALTH CENTRE

A 3 NUMBER OR LETTER GIVING PHASING ORDER

El Hekr · Phasing · Social facilities

4·13

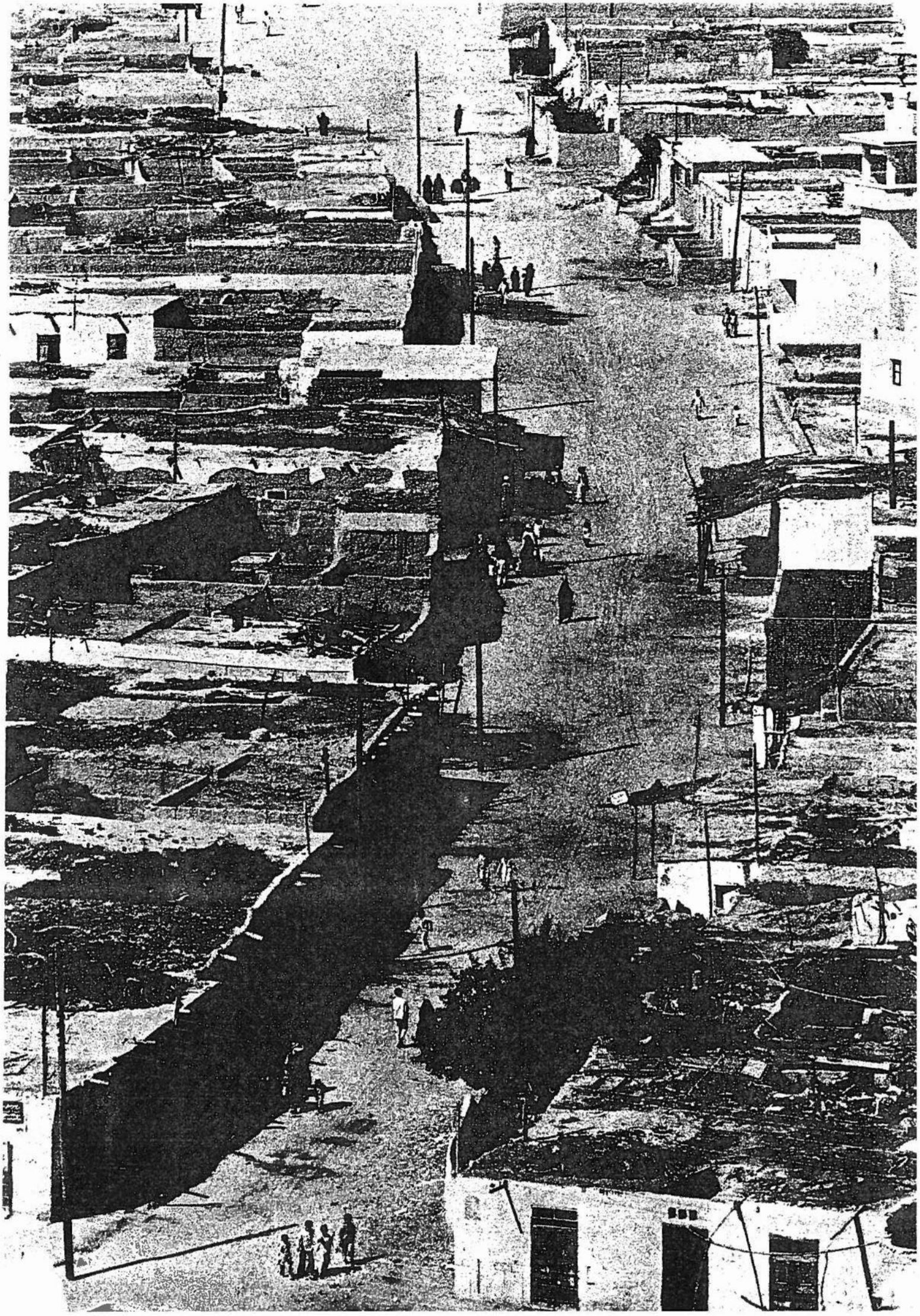
Table 4.5
EL HEKR: PHASE 1 CAPITAL COSTS

Item	Total Cost	Portion of Total Cost Attributed to: Plot Occupants	Project Agency	Outside Sources
1) Base Land Cost	119,400			119,400
2) Markers and surveying	8,800		8,800	
3) Levelling	18,400		18,400	
4) Administration				
- capitalised 5 year running costs	36,500		19,600	16,900
- offices (incl. bank/post office)	30,000		30,000	
Sub Total	66,500			
5) Compensation	26,600		26,600	
6) Electricity				
- street lighting	93,000		93,000	
- trunk lines	225,000			225,000
- low voltage network and connections	192,900	192,900		
Sub Total	510,900			
7) Pit latrines	101,200	101,200		
8) Standpipe system	135,700		135,700	
9) Roads, Sidewalks and Kerbing				
- district roads (20m ROW)	200,300			200,300
- local roads (15m ROW)	62,300		62,300	
- access roads (10.5 ROW)	114,200		114,200	
Sub Total	376,800			
10) Landscaping	35,000		24,500	10,500
11) Public Facilities				
- 5 Primary schools	785,000			785,000
- 1 Health centre	54,500			54,500
- 1 Social "	51,000			51,000
- Shops/Workshops/ market	28,250		28,250	
- 1 Mosque	66,000			66,000
Sub Total	984,750			
TOTAL	2,384,050	294,100	561,350	1,528,600

(all costs in 1977 LE)

5

Abu Atwa: Existing Situation



5
Abu Atwa: Existing Situation

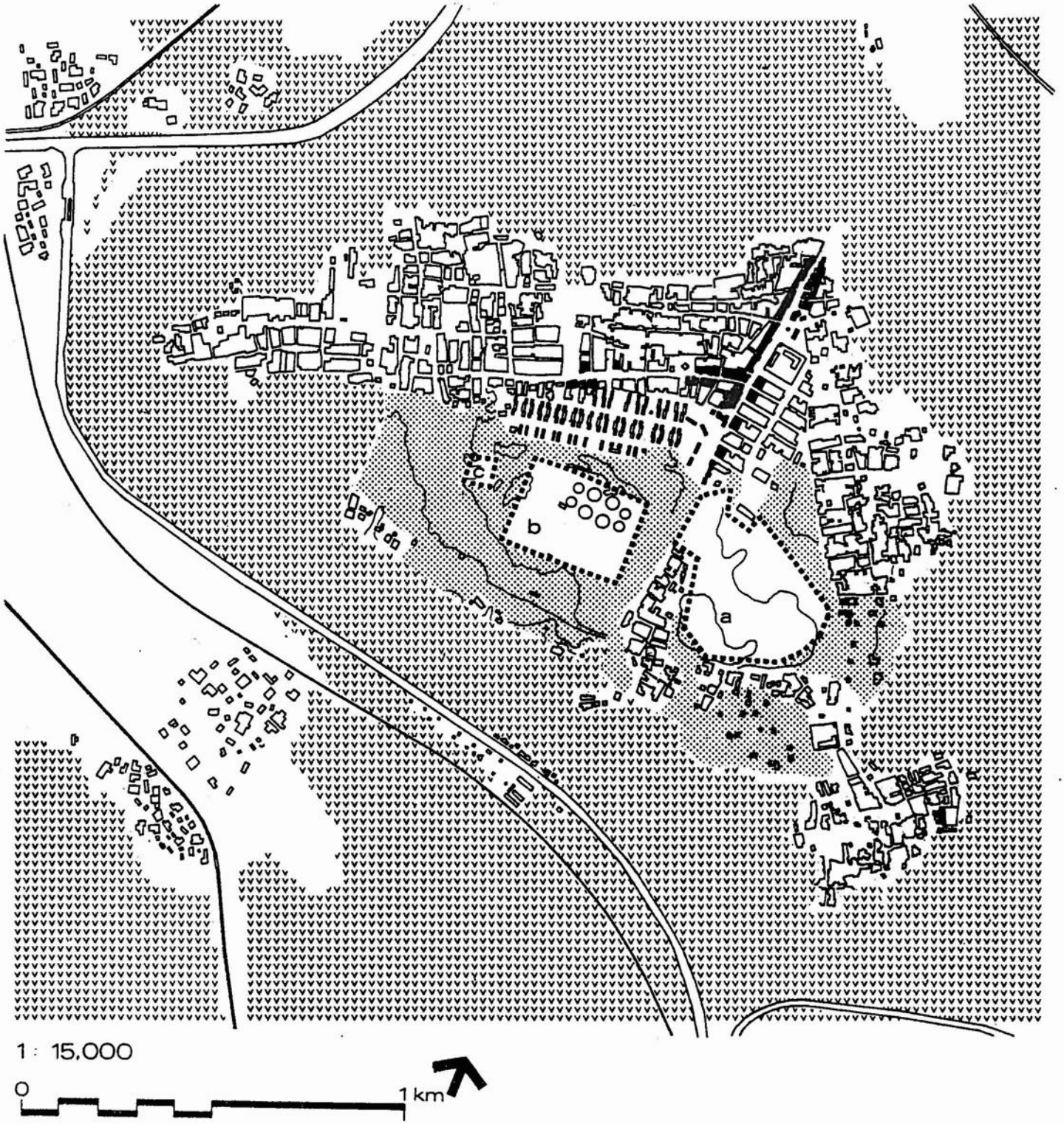
The centre of Abu Atwa with Ismailia in the distance

PHYSICAL BASIS

5.1 This section describes, briefly, the existing physical and social aspects of Abu Atwa, and thus forms a basis for the understanding of the proposals which follow. Volumes 2 and 3 provide a much more detailed account and give the results of the detailed surveys which have been carried out.

LAND USE AND BUILDING CONDITION

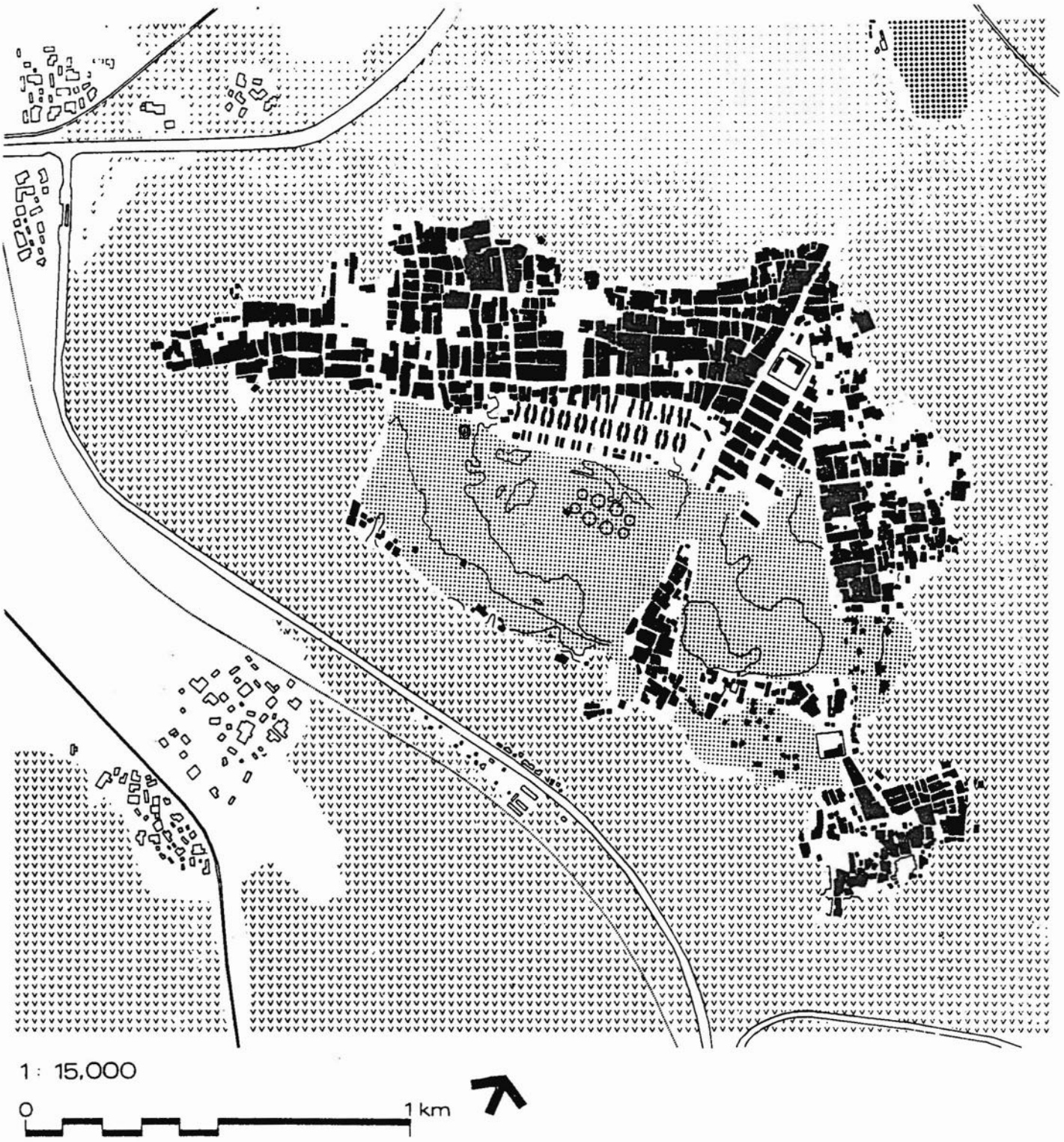
5.2 The Project Area is located on raised ground surrounded by intensively cultivated agricultural land, as shown in Figure 5.1. It contains three well established settlements; Abu Atwa itself, Abu Shehata to the west and El Sahara to the south. These have become physically and socially integrated in recent years. The area is administered by the Governorate and has a Local Council based in Nifisha.



COMMERCIAL/INDUSTRIAL AREA
URBAN/RESIDENTIAL AREA
DESERT WITH SPORADIC DEVELOPMENTS
AGRICULTURAL LAND
a CEMETERY
b SEWERAGE WORKS
c MILITARY AREA

Abu Atwa · Existing land use

5·2



PLATEAU AREA/DESERT

VALLEY AREA/DESERT

URBAN DEVELOPMENT IN STUDY AREA

IRRIGATED AREA

Abu Atwa · Topography

5·1

5.3 Although the area is connected to central Ismailia by taxis and a regular bus service, there is a vigorous local centre along the main north-south road containing about fifty commercial establishments and forty workshops. Details of this are shown in Figures 5.2* and 5.3*. Additional commercial activity extends along the smaller roads leading to the sub centres.

* See also large scale plan, Fig. 20 & 21, Portfolio B

5.4 The rural character of the settlement is evident from the predominance of traditional courtyard houses made of mud-brick or rammed earth, as shown in Figures 5.4* and 5.5*. In the more developed parts, these are often built close together and linked by narrow winding paths.

* See also large scale plan, Fig. 22 & 23, Portfolio B

5.5 Despite these rural characteristics, Abu Atwa is undergoing rapid change. In addition to a number of 'EGYCO' prefabricated housing units accommodating those displaced during the recent hostilities, new building operations are increasingly using concrete and baked brick, and a number of two or three storey structures have appeared, particularly in the central area and near El Sahara. As the population increases and more people find employment in central Ismailia, so traffic along the main road has become more congested. At the same time, pressure on land has led to considerable infilling within the existing development. Most of the available land has therefore been accounted for, though an open area of 16 hectares south of Abu Shehata and adjacent to agricultural land has remained intact.

INFRASTRUCTURE

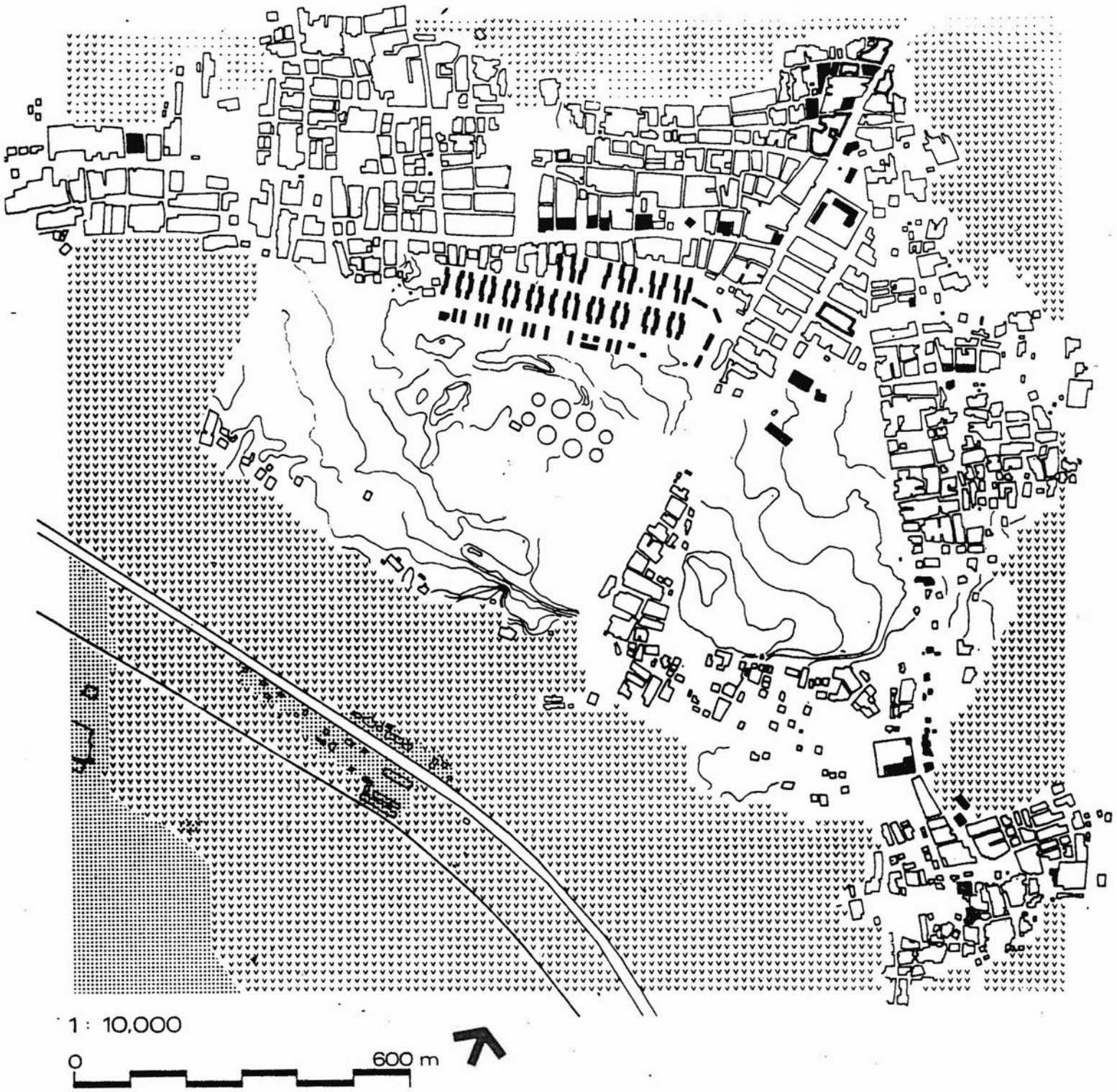
5.6 Utilities provision is similar to several other low-income areas of the city. For details, see Figure 5.6*. Water supplies are obtained from public standpipes and a limited number of building connections (including the EGYCO housing) in the northern part of the area. The remainder has no piped supply. Analysis of the groundwater has revealed excessive amounts of nitrites, nitrates and bacteria in half of the samples taken.

* See also large scale plan, Fig. 24, Portfolio B

5.7 No sewers exist in the area except for those associated with the sewerage works and building connections to the EGYCO housing. On-plot disposal is normally effected by means of pit latrines constructed by local contractors along the limited lengths of surfaced road; generally, refuse is either re-cycled, burnt or buried locally.

CONSTRAINTS

5.8 Three major physical constraints to future growth in the area are the cemetery (occupying 12.6 hectares), the sewerage works (9 hectares) and a small military site. All of these are situated on the highest land, in the centre of the area, and therefore in the most suitable location for new development. They are also directly accessible to all parts of the existing settlement and would not entail the use of agricultural land. The existing cemetery is considerably larger than required and contains extensive open areas; the sewerage works is due to be phased out by 1985 and the military site has already been vacated, though it may be reactivated at some future date.



TRADITIONAL MATERIALS

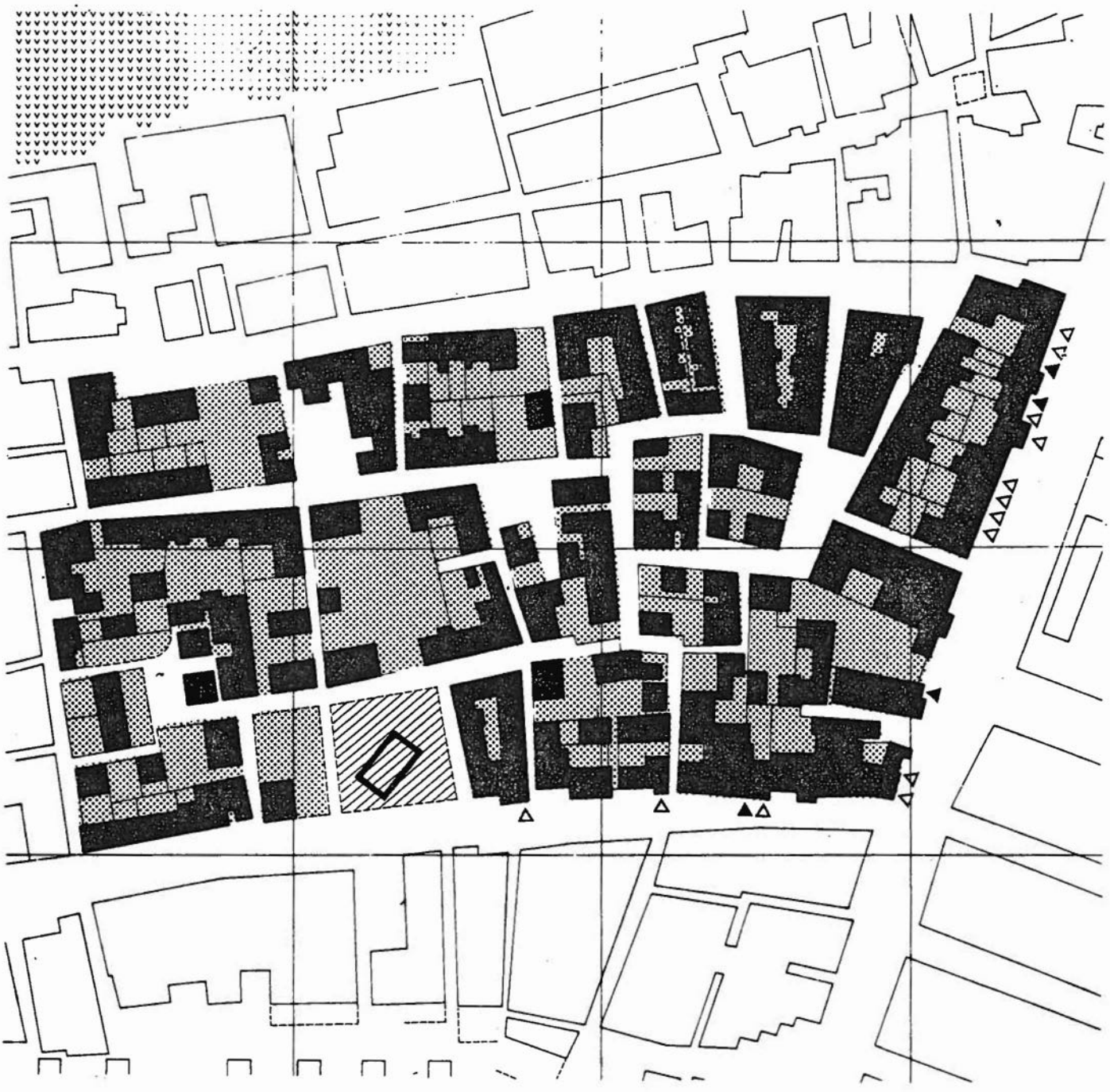
MIXED TRADITIONAL & MODERN MATERIALS

MODERN MATERIALS

EXISTING DEVELOPMENT OUTSIDE STUDY AREA

Abu Atwa · Building materials

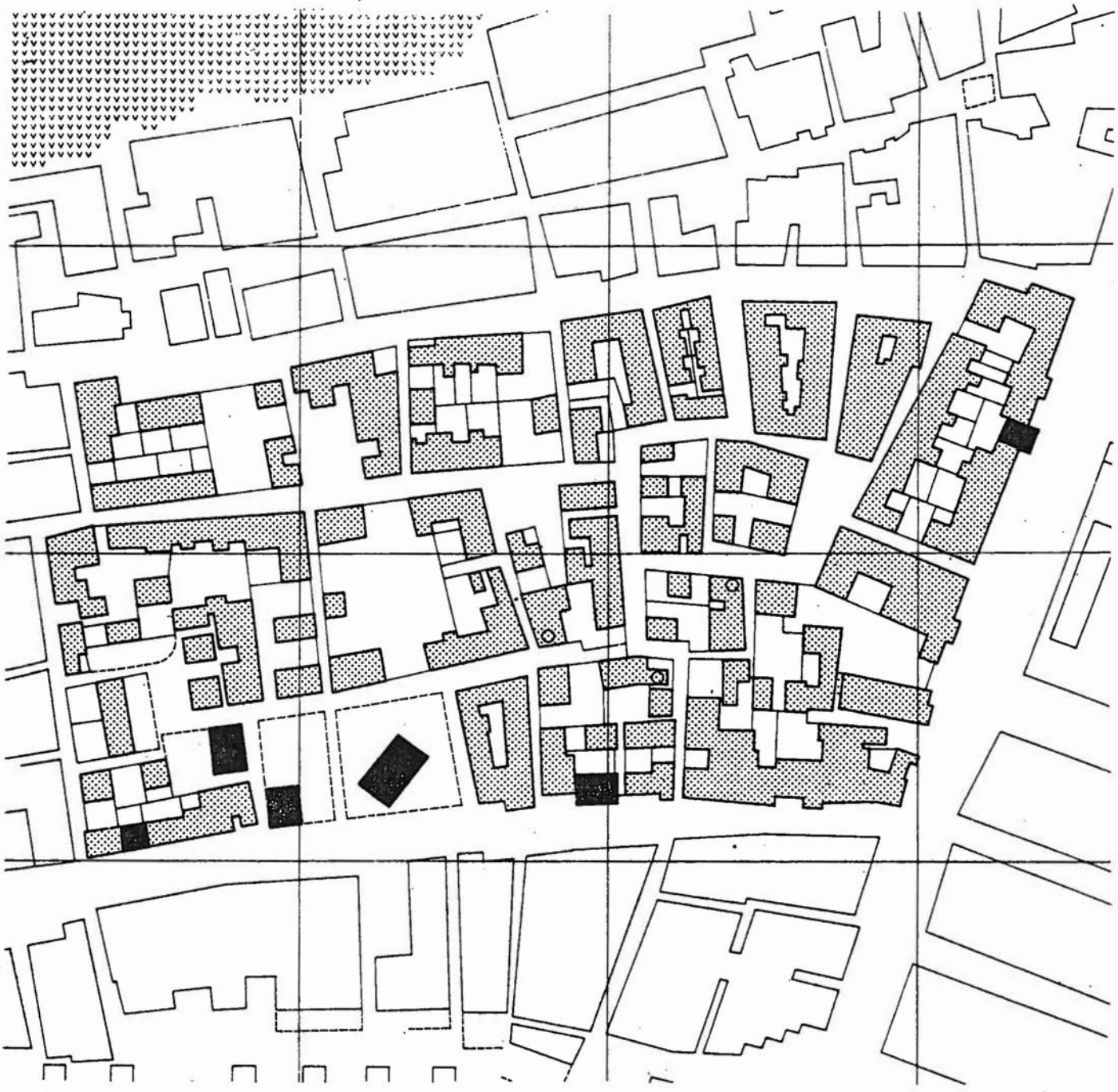
5·4



BUILDINGS WITHIN DETAILED IMPROVEMENT AREA
INDUSTRIAL
COMMERCIAL
MOSQUE
AREAS IN PRIVATE USE

Abu Atwa · Detailed improvement · Land use

5·3

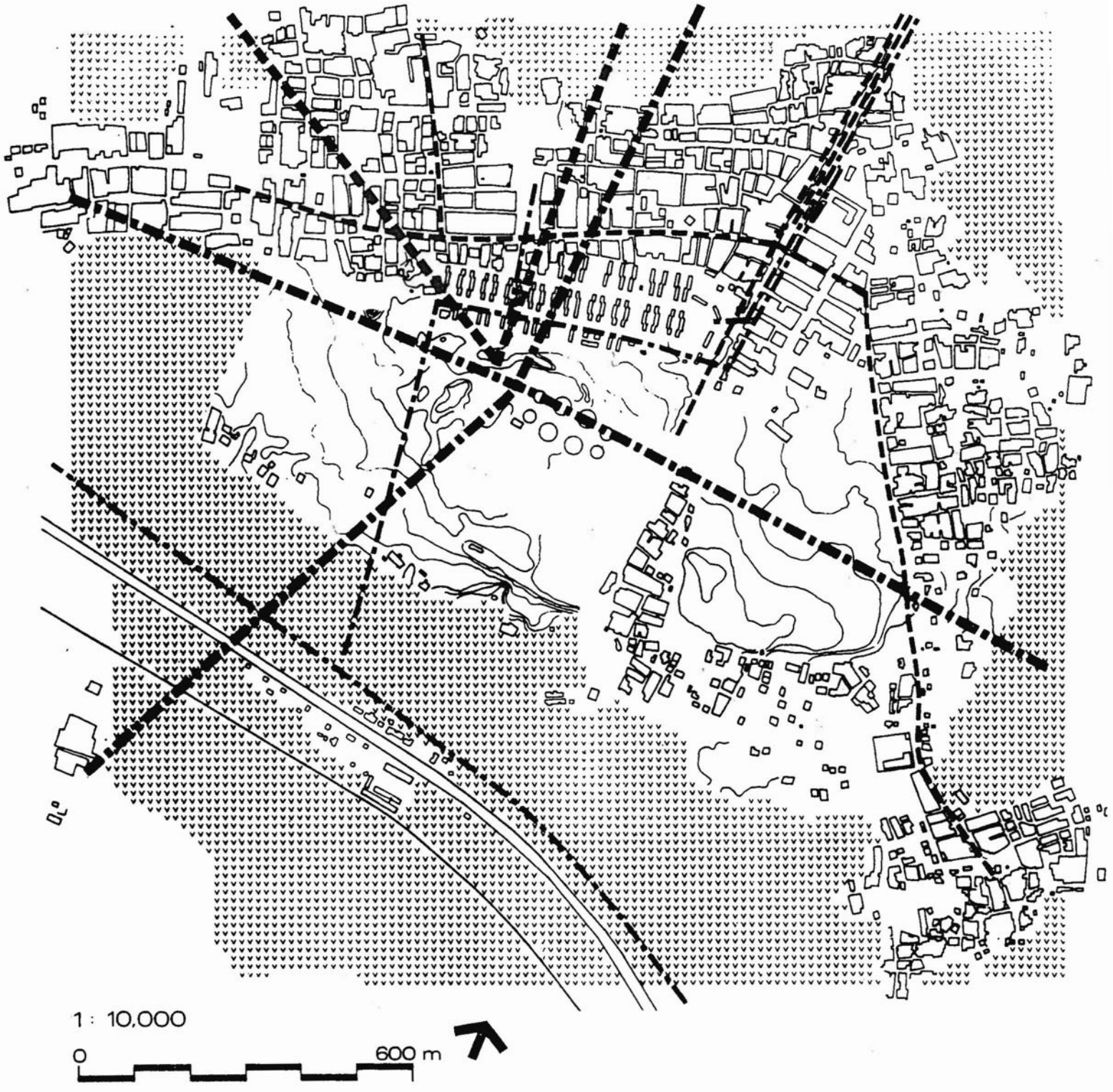


VERY POOR CONDITION

TRADITIONAL CONSTRUCTION

MODERN CONSTRUCTION

Abu Atwa · Detailed improvement · Materials/condition 5·5



WATERMAIN OR CURRENT WATERMAIN PROJECT

11 KV CABLE/LINE

MASTER PLAN PROPOSED WATERMAIN

MASTER PLAN PROPOSED 11 KV LINE

See Portfolio B Figure 24 for additional details

Abu Atwa · Existing utilities and Master Plan proposals 5·6

5.16 Priorities for improvement are clear. The evidence of social surveys and case studies indicates that the provision of piped water, surfaced roads and sewers are considered the most urgent items.

5.17 Land tenure for almost all households is provisional 'hekr' and security of tenure is a major concern for all households in the area. Social organisations are more in evidence that in the case of El Hekr.

5.18 As in many parts of Ismailia, the area is deficient in the level of provision of several facilities. With regard to these, there are only two primary schools to serve the total population and some adjacent villages. Both schools operate double shifts but provision is still not available for every eligible child. With regard to preparatory and secondary schools, the situation is even worse in that none exist and pupils are required to go to central Ismailia or Nifisha. Health care is also a cause for some concern in that there is one health unit to serve the area, but this has no in-patient capability and the nearest hospital is in Ismailia. (A number of residents occasionally permit clinics to operate from their houses and this is a valuable service at times such as for mass immunisation, but cannot be relied upon.)

5.9 One further factor deserving mention is the recently completed monument and gardens containing the remains of three Israeli tanks. These are located on a hectare of ground near the southern boundary of the main north-south road.

5.10 Planning options for the area are inevitably limited by these constraints and the rate at which they can be removed. There are few other impediments, however, to development. The ground is firm and transitable throughout and slopes are minimal. The condition of existing structures is generally good, though utilities installation will not be easy in the high density areas.

SOCIAL PROFILE

5.11 The area of Abu Atwa developed at the turn of the century as an agricultural settlement. The three villages which make up the total area have grown in recent years as a result of natural increase and in-migration, so that the population at present is approximately 20,000. The area is rapidly assuming urban characteristics, though household sizes continue to be larger than in Ismailia as a whole or in El Hekr, the average size being 6.5 persons. Families have tended to settle in proximity to relatives or acquaintances with common origins, so that close ties are formed within any given locality.

5.12 Analysis of the age structure indicates that the population in the area is younger than that found in either El Hekr or Ismailia as a whole and the under-12 age group is particularly well represented. Residential mobility is difficult to ascertain with accuracy because of the period of evacuation, but the evidence of surveys and case studies indicated that over 50% have lived in Abu Atwa for more than ten years and that although 20% have moved into their present house within the last two years, a third of these have moved from a previous dwelling in the area. There is clear evidence, however, of increased in-migration from other parts of Ismailia and beyond.

5.13 Household incomes in the area are low with 20% in the LE26-39 per month range, 50% in the LE15-25 per month range and 25% below LE15 per month. The effect of these income levels is partly mitigated by the availability of non-cash incomes through crops, livestock or poultry.

5.14 Analysis of the employment structure confirms the increasing urban character of the area. 58% of the economically active population were found to commute to work in Ismailia and 34% are employed in Government service. Only 21% are still in agricultural employment. Abu Atwa does, however, still have a relatively high proportion locally employed in the informal private sector, indicating a degree of independence from Ismailia.

5.15 Approximately 85% of households live in single family houses, whilst 15% share accommodation. Approximately 25% rent complete houses.

6

Abu Atwa: Proposals

6
Abu Atwa: Proposals

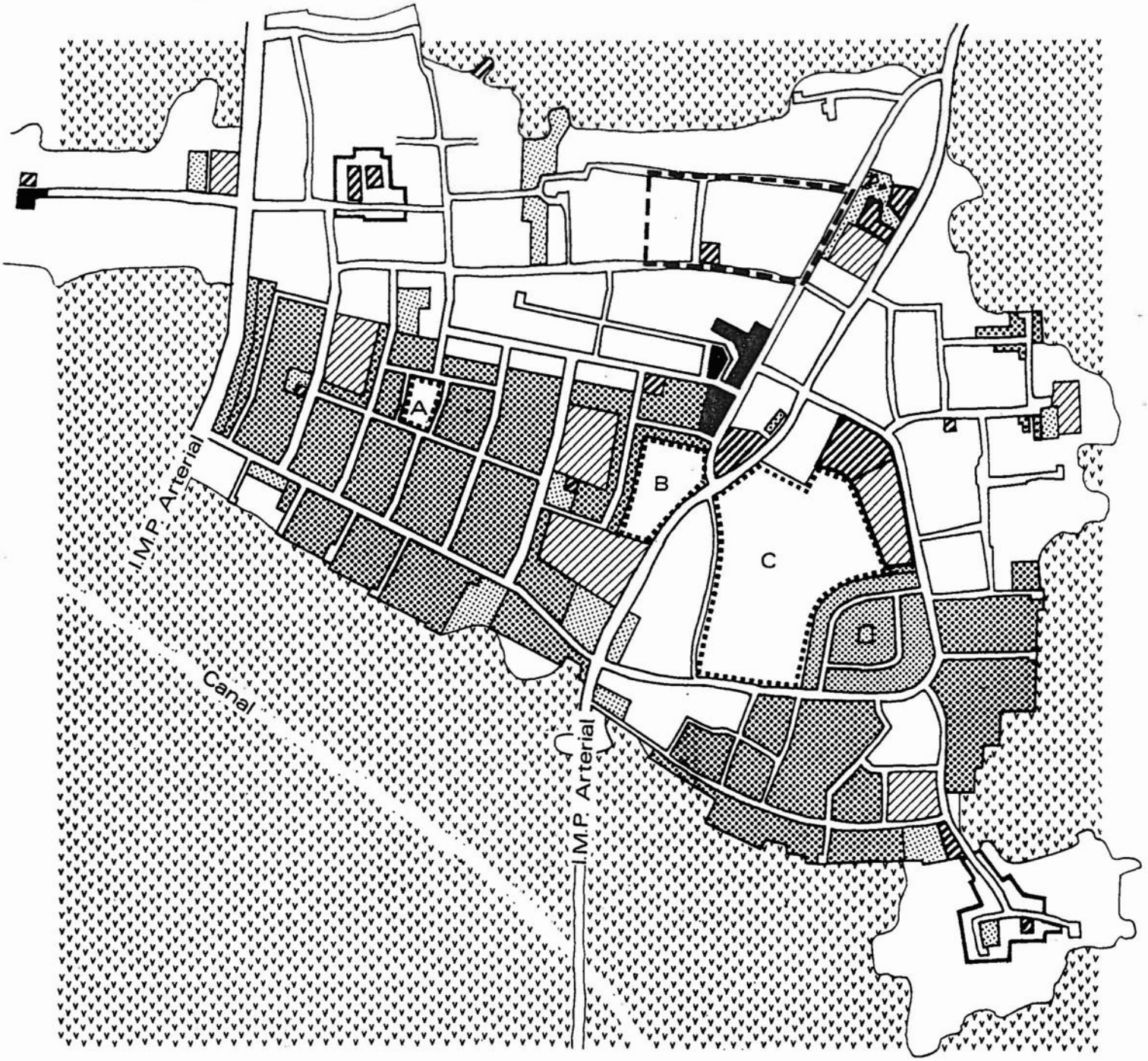
6.1 The purpose of this section is to describe the proposals for Abu Atwa, first in terms of the inter-relationships between different aspects, such as target population, housing and infrastructure, and then in terms of each aspect individually. A full discussion of all aspects is contained in the technical volumes (Volumes 2 and 3) and only key points and proposals are given here.

COMMUNITY PLAN

6.2 With the implementation of the Master Plan proposals, Abu Atwa will become more closely integrated with Ismailia in the near future. Two new arterial roads linking the existing and proposed city centres to Abu Atwa and to Khashayna in the south are proposed to achieve this. These roads pass in a north-south direction through the centre of Abu Atwa and to the west of Abu Shehata, respectively. The objectives of the Community Plan are two-fold; first, to reduce barriers to development in the existing settlement and second, to provide a physical framework to absorb an additional 24,000 people by the year 2000. It is assumed for this purpose that all designated land is ultimately available for development, though the efficiency of the plan would not be unduly prejudiced if the actual phasing varied from that recommended. When fully developed, the area is planned to consist of six neighbourhoods, each with an average population of 7,300. The full development is shown in Figure 6.1*. Each neighbourhood, whether in an existing or new development area, is intended to contain a number of public facilities, such as a primary school, recreational open space and small mosque. Two of the neighbourhoods have been allocated additional facilities such as shops, a small social unit and a health centre and these are designated as subcentres. The areas selected for this purpose are the existing village centres of Abu Shehata and El Sahara.

* See also large scale plan, Fig. 25, Portfolio B

6.3 Major social, educational and economic activities are concentrated in the existing centre serving the whole Abu Atwa area. These include the provision of a new polyclinic, police and fire stations, and a market,



1 : 10,000

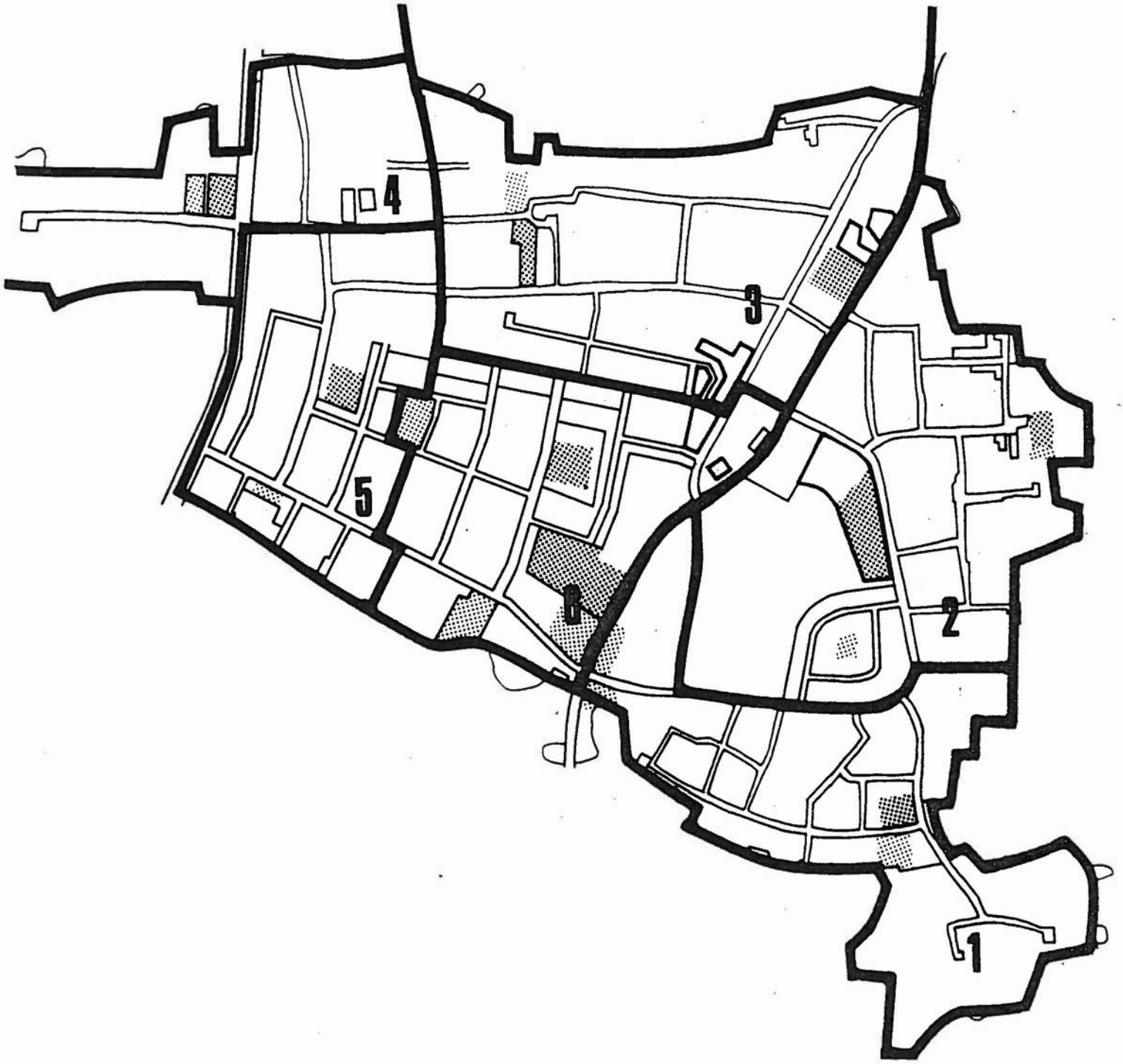
0 600 m

EXISTING DEVELOPMENT
NEW SHOP AND WORKSHOP CONCENTRATIONS
LOW COST PLOTS
SCHOOLS
SOCIAL FACILITIES
CONCESSION AREAS

OPEN SPACE
AGRICULTURE
SUB CENTRES
DETAILED IMPROVEMENT AREA
A MILITARY SITE
B WATER STORAGE RESERVOIR
C CEMETERY

Abu Atwa · Community plan

6·1



1 : 10,000

0 600 m

NEIGHBOURHOOD	ESTIMATED POPULATIONS		
	1980	1990	2000
1	5400*	6450	8100
2	5550*	6650	8300
3	4900	5750	6600
4	5300	5950	6600
5	5000	6000	7550
6	1100	5850*	7000
TOTAL	27250	36650	44150

* INCLUDES PHASE TWO

Abu Atwa population distribution **6·2**

as well as, space for small shops. Since undeveloped land is at a premium in this area, other facilities, such as one of the proposed preparatory schools, the main social unit, the sports and youth clubs, space for a cinema, the Project Agency office and plots for small workshops, are located on open land further south. It is proposed that a new secondary school needed for the area, be located to the north of Abu Atwa near the proposed eastern arterial road.

6.4 In order to reduce congestion in the existing main street and ensure that existing investment, employment and services be protected, the alignment of the proposed eastern arterial by-passes the community centre. In addition, a distributor road loop is proposed to link all parts of the area and provide efficient connections to the arterial network.

NEW DEVELOPMENT

6.5 This is concentrated in two main areas; first, on open land south of Abu Shehata and second, in the vicinity of El Sahara. Land immediately available in these two areas (see Figure 6.2*) consists of approximately 15.4 hectares suitable for development as a first phase and a further area of 20.5 hectares on areas partly occupied by the existing sewerage works. When these works are phased out in the mid-1980's, this area will provide space for a second phase.

* See also large scale plan, Fig. 29, Portfolio B

6.6 In the second area, to the south-east, existing sporadic development will be consolidated by new housing layouts in the initial phase, whilst 3.8 hectares of land presently occupied by the cemetery is designated for the development of concession plots for middle income housing. This will be developed as a later phase when the land required becomes available. The development of concession plots will reinforce an existing trend for higher quality houisng to be built in this area.

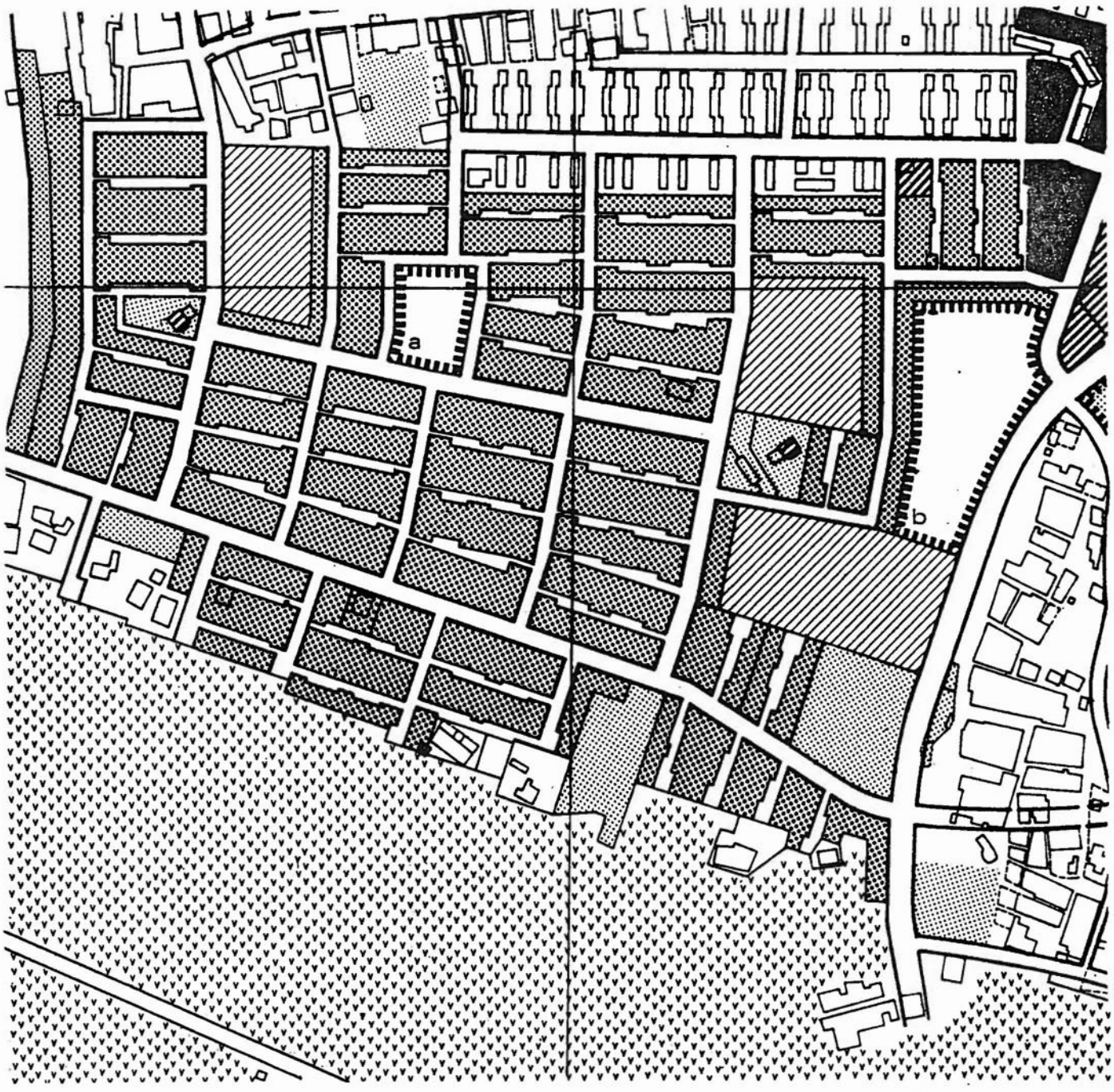
6.7 Agreement has been reached in discussions with the Local Council to reduce the extent of the cemetery in order that the proposed developments can be implemented. Whilst the relocation of a number of graves will be required, care has been taken to keep this to a minimum and to ensure that the remaining area of the cemetery is adequate for long-term needs.

6.8 The proposals incorporate an area of two hectares required for a water storage reservoir for Ismailia as a whole. This is located on high ground near the existing sewerage works.

IMPROVEMENT

6.9 Improvement of the existing settlement is illustrated in detail for an area of 5.2 hectares immediately to the west of the community centre (see Figure 6.3*). This contains some of the most densely built housing and therefore presents the range of problems of utilities installation which will have to be tackled elsewhere. Proposals for general improvement are concentrated upon the installation of access roads to existing plots and the provision of utilities, both of which are discussed in detail below.

* See also large scale plan, Fig. 33, Portfolio B



1 : 5,000

0 300 m

SCHOOLS

SHOPS AND WORKSHOPS

LOW COST PLOTS

CONCESSION AREAS

COMMUNITY FACILITIES

OPEN SPACE

a SPECIAL AREA - MILITARY SITE

b SPECIAL AREA - WATER RESERVOIR

Abu Atwa · Development area

6·3

TARGET POPULATION

6.10 The target population has been defined first in terms of population numbers and type and secondly in terms of the income groups for whom the overall proposals are designed.

POPULATION LEVELS

6.11 The estimated existing population of Abu Atwa is 20,000. It is anticipated that the population of the combined existing and new development areas will increase to approximately 44,000 people by the year 2000.

6.12 This latter estimate of population assumes that the two areas occupied by Phase One are implemented before 1980, and those of Phase Two by 1990.

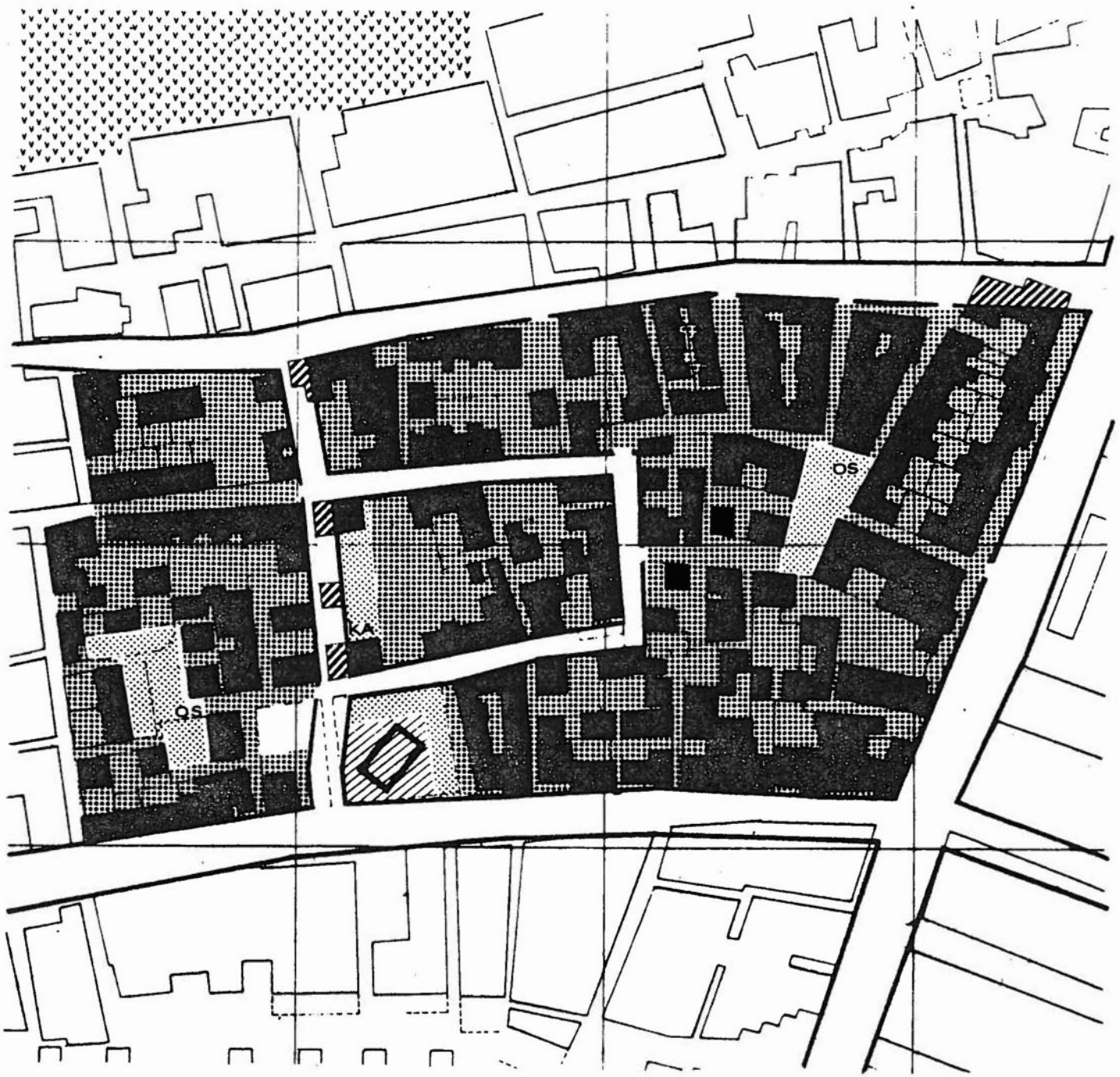
DISTRIBUTION OF POPULATION

6.13 The distributions by neighbourhoods of the existing and projected populations are shown in Figure 6.4 . Gross densities in the existing areas are estimated to range from 150-230 persons per hectare and are expected to increase to a range of 200-400 persons per hectare by the year 2000. In the new development areas, gross densities range from 270 persons per hectare at initial occupation to 400 persons per hectare after 10-15 years.

ECONOMIC CHARACTERISTICS

6.14 The ability of the existing and projected populations to pay for improvements, and similarly the ability to pay for plots and superstructure in the new development areas, have been determined by analysis of the income and expenditure characteristics of the existing populations of the Project Areas. It has been assumed that the incomes of this target population will remain constant in real terms over the next fifteen years. Incomes and occupations have been analysed in order to be able to assess the ability of households to react to the housing market.

6.15 Income estimates for Abu Atwa include all main employment categories, such as government and public sector employees, the private informal sector employees and those in agricultural employment. These revealed the following distribution. Very low income households (less than LE25 per month) with no expectation of an improvement in their status, constitutes 24% whilst households with very low to low incomes (LE25-39 per month) experiencing or expecting an improvement in their status are estimated to make up 67% of the population. Thirdly, households with low to moderate incomes (LE39-70 per month) with no expectation of an improvement in their status are estimated to make up 7.0% of the population. Finally 2.0% of the population are of low to moderate incomes, experiencing an improvement in their status. No households have been found in higher income groups.



1: 2,000

0 100 m

EXISTING BUILDING

BUILDING TO BE DEMOLISHED

KA KICK-ABOUT

OS OPEN SPACE

MOSQUE

PRIVATE AND COMMUNAL*

*Not subject to detail sub division, see Volume 2, Figure 4.16

Abu Atwa·Detailed improvement·Land use proposals 6·4

HOUSING

6.16 The process of active urbanisation currently taking place in Abu Atwa has led to significant changes in the methods and forms of house construction. The predominantly mud-brick, courtyard houses are gradually giving way to more mixed forms using a variety of materials including red-brick and reinforced concrete. It can be anticipated, therefore, that during the next few years this will result in the area containing a wide range of housing types from the urban multi-storey structures to the large courtyard type.

NEW DEVELOPMENT AREAS

6.17 The Consultants have recognised this process of change in preparing detailed plans for new housing in the area. A mixture of plot sizes and shapes is proposed for both initial and later phases of development, so that new households will have a choice of plot on which they can construct a dwelling to suit their needs and resources. Thus, a number of plots with wide frontages (of 9m. or 12m.), are located near to the existing areas of Abu Shehata, where many houses follow the courtyard form and also near the south of the new development areas, where the proximity of agricultural land may attract farming households. Another aspect which has been incorporated in the Community Plan are proposals to reinforce the trend towards more substantial brick and concrete houses in the vicinity of El Sahara, by allocating an area of 3.8 hectares in land presently occupied by the cemetery for use as concession plots for middle income housing. The availablility of good access to the main centre, the preparatory school, as well as, the extensive areas of open space, make this area suitable for such development. It also ensures that the social mix currently found in the area continues in the future, and provides an element of internal cross-subsidy which can benefit low-income households.

6.18 In other aspects, the principles of plot size distribution and housing layouts as described in Volume 2, Section 4, have been applied without significant modification. Larger plots are therefore located particularly on the main local roads, where it is considered that multi-occupancy is most likely to occur and where the extent of local traffic may also generate demand for some on-plot commercial or workshop space. The two 15m. roads leading south from the existing development into the new areas and the two east-west roads linking these all contain a preponderance of larger plots. For the same reason, plots fronting onto the western arterial, as it passes the area of new development, are designated as concession plots for middle income group housing.

6.19 Smaller plots are mainly located in clusters, though care has been taken to provide a mixture of plot sizes and shapes in these areas in order to prevent a major disparity developing between development on roads frontages and in clusters and to provide a choice.

Typical existing open space in Abu Atwa.

The same area after plot rationalisation and house improvement.

once the problems of tenure insecurity and access to materials are removed.

6.26 Although the ground surface in Abu Atwa presents few problems, the dense and informal character of existing development makes access, particularly by vehicles, difficult to achieve in some areas. It is therefore proposed to construct a number of local roads in order to guarantee access to all house plots. By adopting the minimum 6m. width currently applicable, this only involves a small amount of demolition and it is generally possible to accommodate displaced households in the vicinity once the area layout is rationalised. In the limited number of cases where this cannot be achieved, it is recommended that such households be accorded priority for plots in the new development areas.

6.27 The only other demolition of housing proposed is in the central area of Abu Atwa, where it is required in order to construct the new arterial by-pass and a number of

6.20 The total number of plots included in Phase One of the new development is 616 and contains the following distribution:

	No.	%
72m2 (6mx12m)	90	14.6
90m2 (6mx15m)	102	16.5
108m2 (6mx18m)	229	37.1
108m2 (9mx12m)	83	13.5
135m2 (9mx15m)	63	10.2
144m2 (12mx12m)	32	5.0
162m2 (9mx18m)	17	2.7

6.21 In addition to the above, 16 concession plots, averaging 432m2 (18mx24m), are included on land adjacent to the western arterial road. It has been assumed that monitoring the rate of take up of each size and shape of plot during Phase One will be undertaken. This will enable modifications to be made to the layout of subsequent phases in order to ensure that an appropriate range of plots are provided to meet demand.

6.22 Whilst site boundaries and access conditions in the areas of new development are sufficiently distinct to enable new areas to be treated separately to the existing development, they have also required that some layout blocks adopt an irregular shape in order to accommodate changes in the alignment of local roads. This is allowed for in the layout process as described in Volume 2, Section 4, Figure 4.12 and is achieved by creating an informal series of spaces in the communal clusters. Plots on both sides of the cluster can then conform to the standard sizes and shapes proposed.

6.23 Layouts in the new areas are planned to incorporate public facilities such as mosques, primary schools and open spaces in ways which enhance rather than prejudice the efficiency of land use and the visual attractiveness of the layouts. Mosques are therefore located at the junctions of local roads and are separated from housing plots by small open spaces, which can accommodate planting and a local market. It is anticipated that other commercial or workshop activities will develop within residential plots as at present, providing households with a source of income and the area with a variety of services.

IMPROVEMENT AREAS

6.24 The emphasis of proposals for the existing housing areas is directed towards the installation of utilities and the provision of public facilities such as schools, mosques, and open spaces. It is considered that proposals for the provision of secure tenure and the availability of cheap building materials will serve to release existing local potential towards the improvement of individual houses by their occupants, though this is less likely, of course, in the case of rental properties.

6.25 Evidence from the social surveys and case studies conducted in the area during 1977 have revealed a considerable desire and capacity for housing improvment

public facilities and in the west of Abu Shehata on the alignment of the western arterial road. Land exists in the vicinity of both areas to accommodate displaced households.

SPORADIC DEVELOPMENT AREAS

6.28 At the present time, land in the south-east of Abu Atwa near El Sahara, has been partially settled on an informal and sporadic basis. In order to ensure that future development is within a planned framework, and to provide an efficient network of utilities to the existing housing in the locality, it is proposed that this area be considered as an essential part of the general housing development in Abu Atwa and that it be implemented in Phase

6.29 The nature of existing settlement and other site constraints has necessitated considerable modification to the layout system applied in the new development areas. The proposed layout incorporates the main elements of this system and allows generous communal spaces between existing buildings in order to provide ease of access and the gradual rationalisation of plot boundaries.

SOCIAL SERVICES

EDUCATION

6.30 Each of the six planned neighbourhoods, with an average population of 7,300 will have one primary school.

6.31 The road layout, constrained by the existing development, does not allow complete freedom in the organisation of neighbourhoods and the appropriate location of facilities. In addition, the shortage of land means that the distribution of schools has been determined first by the location of existing schools, and second by the availability of pockets of open space of sufficient size. This has meant that in one case a school is on the limit of its catchment area and adjacent to an arterial road. The main access to the central primary school should continue to be orientated towards the existing main street, which will be relieved of congestion on implementation of the by-pass. In existing neighbourhoods the schools are planned to be of 30 classes on average.

6.32 Primary schools, in the two neighbourhoods which make up Phases One and Two of the new development area, are designed to the standards recommended in the Master Plan. These two schools are of 32 classes each. Neither is further than 400 metres from the extreme of its catchment area.

6.33 Two preparatory schools are planned, one on either side of the arterial road which will by-pass the existing centre. Both are on sites which slightly exceed the Master Plan recommended space standards. The eastern site, which is part of the southern section of the community centre, is located adjacent to the existing youth centre and sports club and facilities, and open space should be shared. This school has received funding from the Department of Education. Both preparatory schools should be ultimately of 36 classes, assuming 30 pupils per class.

6.34 There is no secondary school in the Project Area, but the Consultants recommend that a school be developed on a site north of the Project Area, to serve Abu Atwa and the surrounding villages.

HEALTH

6.35 In Abu Atwa, there exists a base from which health facilities can be developed. It is proposed that the existing health centre, which is in the northern section of the proposed main centre, is expanded, both on adjacent land and vertically, to form a polyclinic, which may also include a limited number of beds. This main centre will be supplemented by two small health centres which will be sited in the El Sahara and Abu Shehata sub centres. This level of provision is intended to also serve out-lying areas in addition to the Project Area.

SOCIAL FACILITIES

6.36 As with El Hekr a main social unit is proposed which will be an innovation in the urban area of Ismailia. The main social unit in Abu Atwa is proposed in the southern section of the main centre. To supplement the main unit, two small social units are recommended to be sited in the two sub centres. This provision will serve outlying areas in addition to the Project Area.

6.37 No new main mosques are proposed for the centre as a number of new large mosques have recently been completed in Abu Atwa, including one in the northern section of the recommended main centre. Land is allocated for neighbourhood mosques, however, where none exist at present.

6.38 A Project Implementing Agency office is proposed together with a bank and post office. All of these facilities are located in the main centre.

6.39 The main centre is planned to contain fire and police stations, both of which will develop in size and function as consolidation and development continues. The stations will initially have access to the existing main street, but this will be changed to access to the arterial by-pass, when it is implemented.

RECREATION

6.40 Recreation provision is of three kinds; that requiring open space, that requiring a 'public' facility and that requiring a 'private' facility. The Master Plan recommendations of open space standards have been taken as the basis of open space provision. Recreation requiring open space is divided in to 'active' and 'passive'.

6.41 'Active' refers to sports and play facilities, such as, 'kick-about' areas or children's play areas, while 'passive' refers to areas such as parks and gardens, where sitting and walking are the main recreations. The distinction is not rigid, and some overlap occurs. Children's playspace is located within the clusters in the new development areas, and within the housing areas

in the overall improvement area. 'Kick-about' areas are located wherever possible close to primary schools, and in the new development at appropriate intervals on local main roads. An equipped sports area is planned at the existing youth club, which it is proposed will be associated with a sports club. Additional facilities are provided on the site of the adjacent proposed preparatory school and it is recommended that multi-use of all school playgrounds be encouraged.

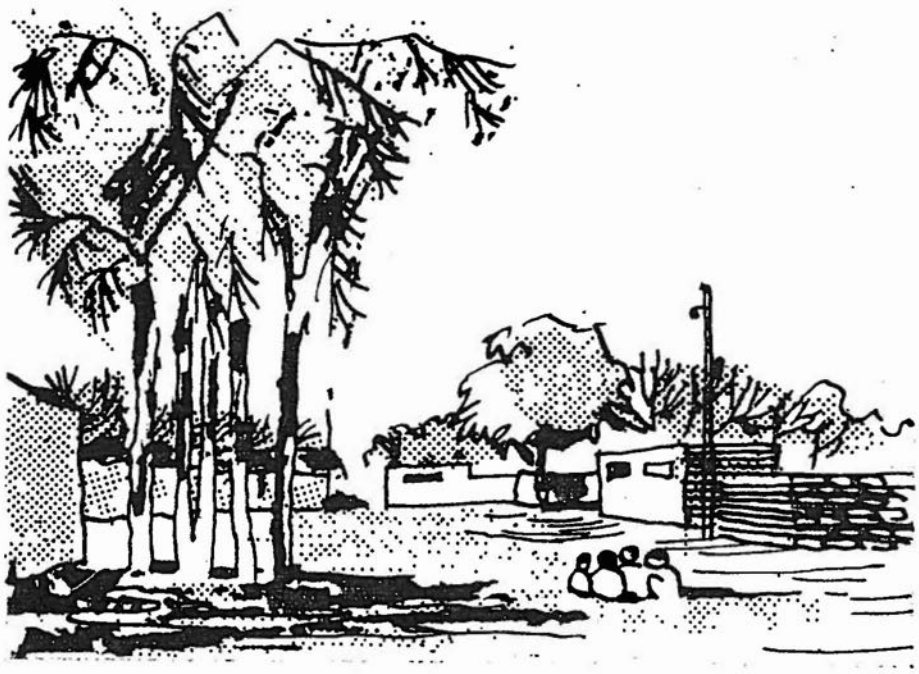
6.42 'Passive' open space is associated with the existing and proposed mosques. In the northern section of the main centre the area adjacent to the main mosque is planned a 'passive' recreation area. Gardens have recently been provided adjacent to the tanks monument in the south of Abu Atwa. Other small open spaces are located near the edges of agricultural land where paths lead to outlying villages.

6.43 Recreation requiring a public facility is proposed in the form of a main social unit in the Community Centre, which contains a hall for general social use. Similar, but smaller units are located in the sub centres. Commercially run facilities, such as cinema, restuarants and coffee shops are also proposed.

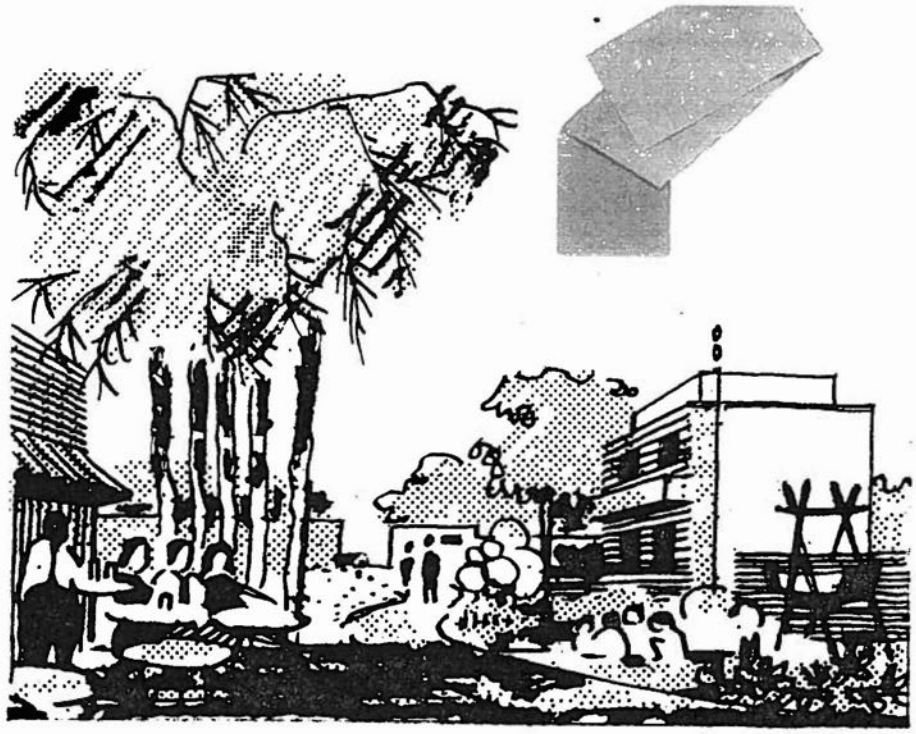
LANDSCAPING

6.44 Existing landscaping in Abu Atwa consists mainly of private gardens in some of the larger courtyard houses and a number of mature trees in public spaces. The abundance of cultivated land surrounding the area provides an attractive setting for the settlement.

6.45 The planning proposals for Abu Atwa aim to preserve as much as possible of existing planting and encourage residents to plant new areas on their plots or on the 1.5m. and 2.0m strips provided immediately in front of their plots.



Typical existing planting in open space at Abu Atwa.



The same area after incorporating existing planting into new landscaping.

6.46 The Project Agency will undertake planting in designated public spaces such as parks, 'kick-about' areas and large open spaces. An example of possible landscaping in existing areas to be undertaken by the Project Agency is in the Detailed Improvement Area, details of which are shown in Figure 33*. Informal clusters of trees are included in the small open spaces and adjacent to junctions and these will be supplemented by seating and swings, where appropriate.

* See also large scale plan, Fig. 33, Portfolio B

6.47 In the communal spaces of the courtyard clusters, residents will be expected to take direct responsibility for planting and landscaping and both trees and seedlings will be made available at low cost.

6.48 Detailed proposals for landscaping policies are described in Volume 3, Section 5.

COMMERCE AND INDUSTRY

6.49 It is proposed that commercial and workshop activity in Abu Atwa be permitted throughout the Project Area; any existing or new settler may devote a portion of his plot to commercial or workshop premises, provided he obtains the necessary permits. Settler plots of commercial potential (due to advantageous locations) are to be assessed a surcharge on the 'price' of the plot, as is explained in Section 8.

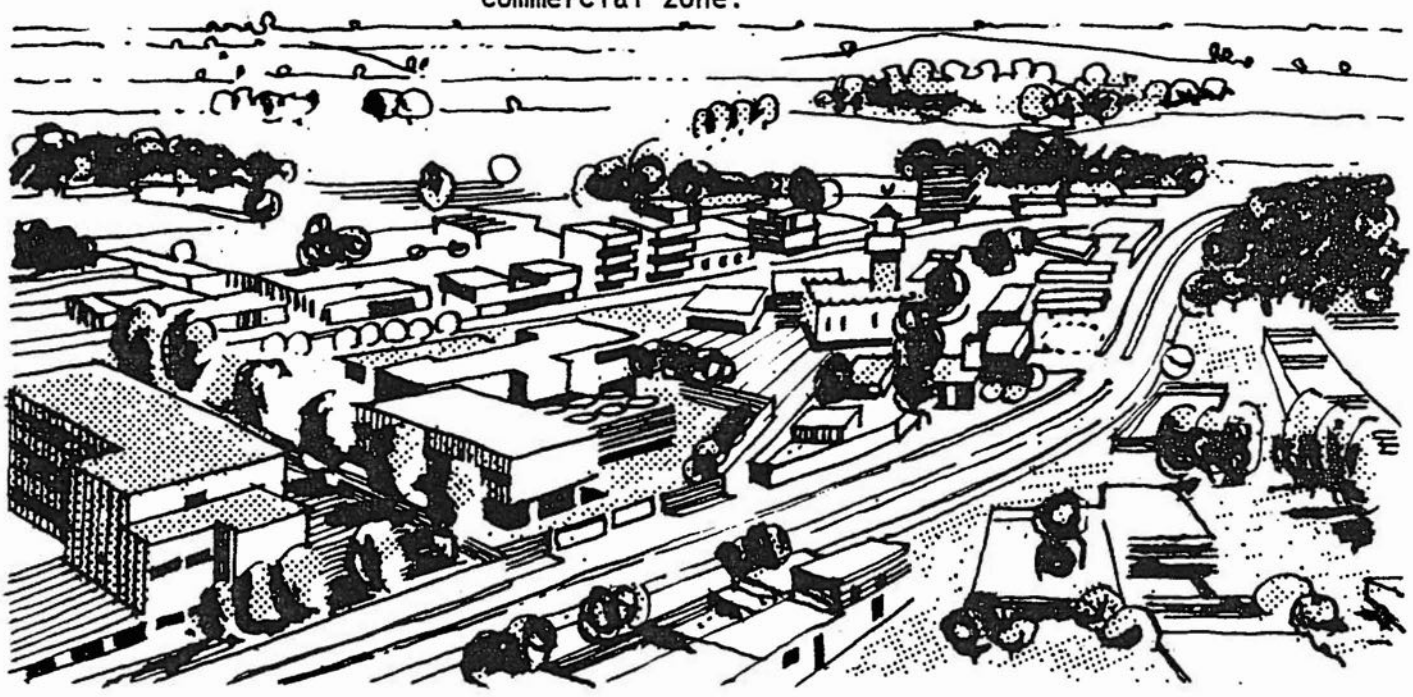
6.50 It is also proposed that certain commercial and workshop plots in Abu Atwa be reserved for future sale on the open market. These plots will be located at or near the south section of the Community Centre. A covered market for fruit and vegetable stalls is to be provided in the centre.

6.51 The total space to be reserved for these activities is:

Shops	1845m2
Workshops	1056m2
Covered market	159m2

6.52 In addition, a 'concession site' of 940m2 is to be reserved (probably for a cinema), and other concession plots totaling 835m2 on the proposed eastern arterial will be available for future sale. These areas give the Project Agency flexibility in managing plot take-up depending on future demand for workshop and shop plots.

6.53 These space reserves for shops and workshops will provide for commercial activities which are in addition to the well established commercial centre at the north section of the Community Centre. Due to space limitations, no additional commercial space can be reserved in the north section. However, it is to be expected (and encouraged) that commercial activity will intensify on many plots already occupied in this commercial zone. The Project Agency could sponsor a traders' association for the proprietors of public premises and set up a fund (perhaps with matching contributions from association members and the Agency itself) to finance minor street improvements in the commercial zone.



Aerial view of the proposed Community Centre in Abu Atwa.

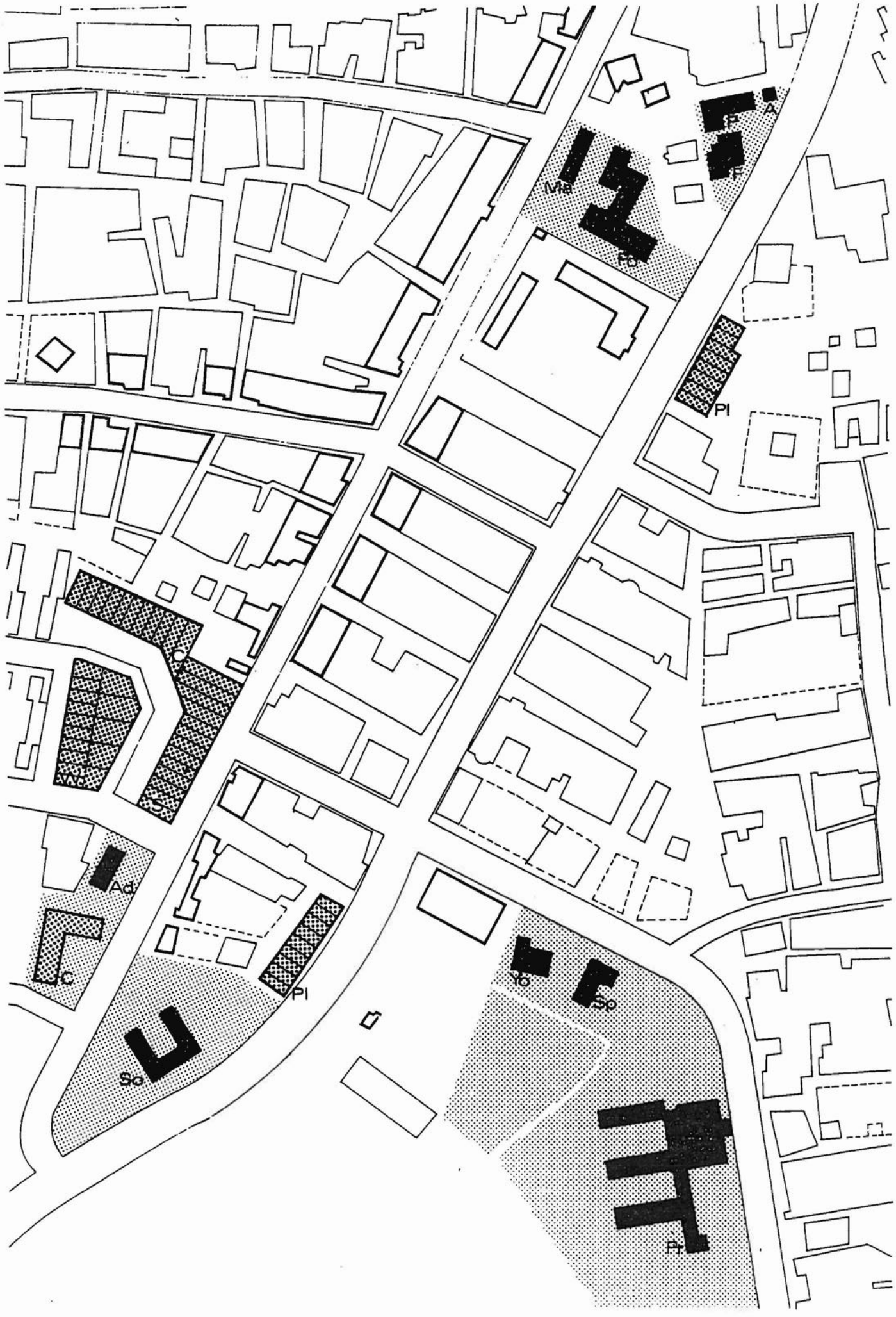
CENTRES

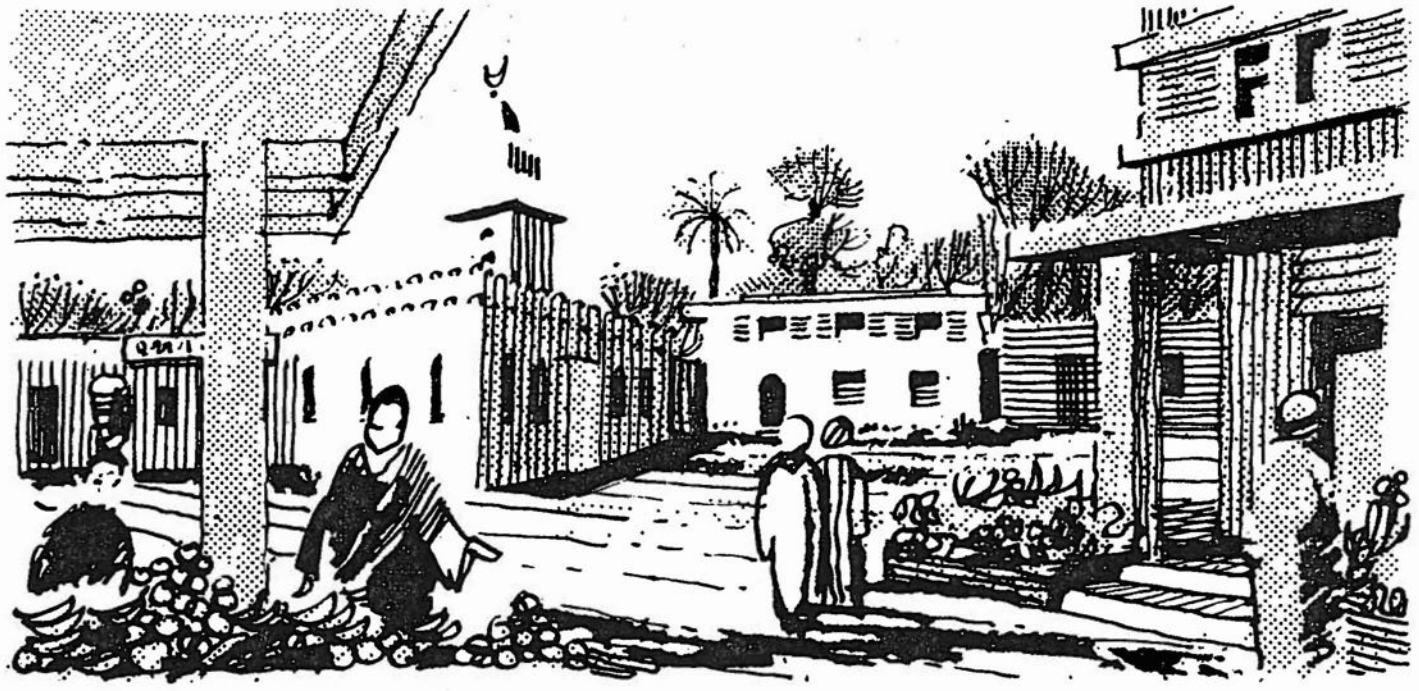
6.54 To serve the proposed six neighbourhoods in Abu Atwa, one main centre is proposed together with two subcentres and four neighbourhood centres.

THE COMMUNITY CENTRE

6.55 The centre is planned to provide social, commercial, industrial and public facilities for the new and existing area and also for nearby villages, at optimal standards of provision for the population of these areas in the year 2000.

6.56 The treatment of the centre illustrates an alternative planning approach which contrasts to that adopted in El Hekr. Existing features and site availability have facilitated a more flexible approach and architecturally the traditional form of development, prevalent in the existing centre, has been treated sympathetically. For


Ma
Fo
A
F
Pl
C
WC
S
Ad
Jc
Pl
Sc
Yo
Sp
Pl



View of the new market and facilities in Abu Atwa Community Centre.

example, buildings along the new eastern arterial road are deliberately placed to break up formal building lines and to create space for landscaping.

6.57

As shown in Figure 6.5* the proposed main centre is planned to be concentrated in the existing centre of Abu Atwa. The majority of additional new facilities are located south of the existing centre. These two principal areas are linked by existing shops and the whole area will become a linear centre when these shops are established.

* See also large scale plan, Fig. 37, Portfolio B

6.58

The acquisition of land for the eastern arterial road, which by-passes the existing centre, enables some land to be re-used for new building.

1 : 2,500

0 150m

OPEN AREA WITHIN SITE
A AMBULANCE STATION
P POLICE STATION
F FIRE STATION
Ma MARKET
Po POLYCLINIC
Ad ADMIN CENTRE
So SOCIAL CENTRE
Yo YOUTH CENTRE
Sp SPORTS CENTRE
Pr PREPARATORY SCHOOL
W WORKSHOPS
S SHOPS
C CONCESSION SITES
Pl PLOTS
EXISTING SOCIAL FACILITIES & SHOPS

Community Centre · Abu Atwa 6·5

6.59 The centre contains the following buildings grouped in three main areas. The northern area consists of a market, police station, fire station, ambulance station and polyclinic whilst the southern area contains space for shops, workshops, bank, post office, cooperative shop, offices, for the Project Agency and the main social unit as well as a site for a cinema or similar use. No new mosque is planned as there is a central mosque which has recently been completed. Finally, the south eastern area is proposed to have a preparatory school, youth centre and sports club.

6.60 In addition, recreational open space, car parking, and taxi ranks are provided in all three areas. The existing main area in Abu Atwa, which will be relieved of congestion by the proposed eastern arterial by pass, is already a thriving main street and a market but no additional shops are proposed; while in the area to the south a small number of shops are proposed, together with 11 workshops and potential for further workshop subdivision.

6.61 The polyclinic on the northern site is planned to be an extension of the existing health centre, and because of the limited availability of land the health centre will be extended vertically as well as horizontally to accommodate the polyclinic. A full schedule of provision appears in Volume 3, Section 5.

SUBCENTRES

6.62 Two subcentres are planned in Abu Atwa, and these are located in Abu Shehata and El Sahara. Both subcentres contain a small social unit and health centre, and in El Sahara these higher order facilities are provided in association with the El Sahara neighbourhood primary school and open space. In Abu Shehata facilities are provided on a site which is disaggregated from the neighbourhood level services. The higher order services will be required in the later stages of consolidation and development of Abu Atwa as a whole, assuming that the appropriate major central facility is provided at an early stage.

NEIGHBOURHOOD CENTRES

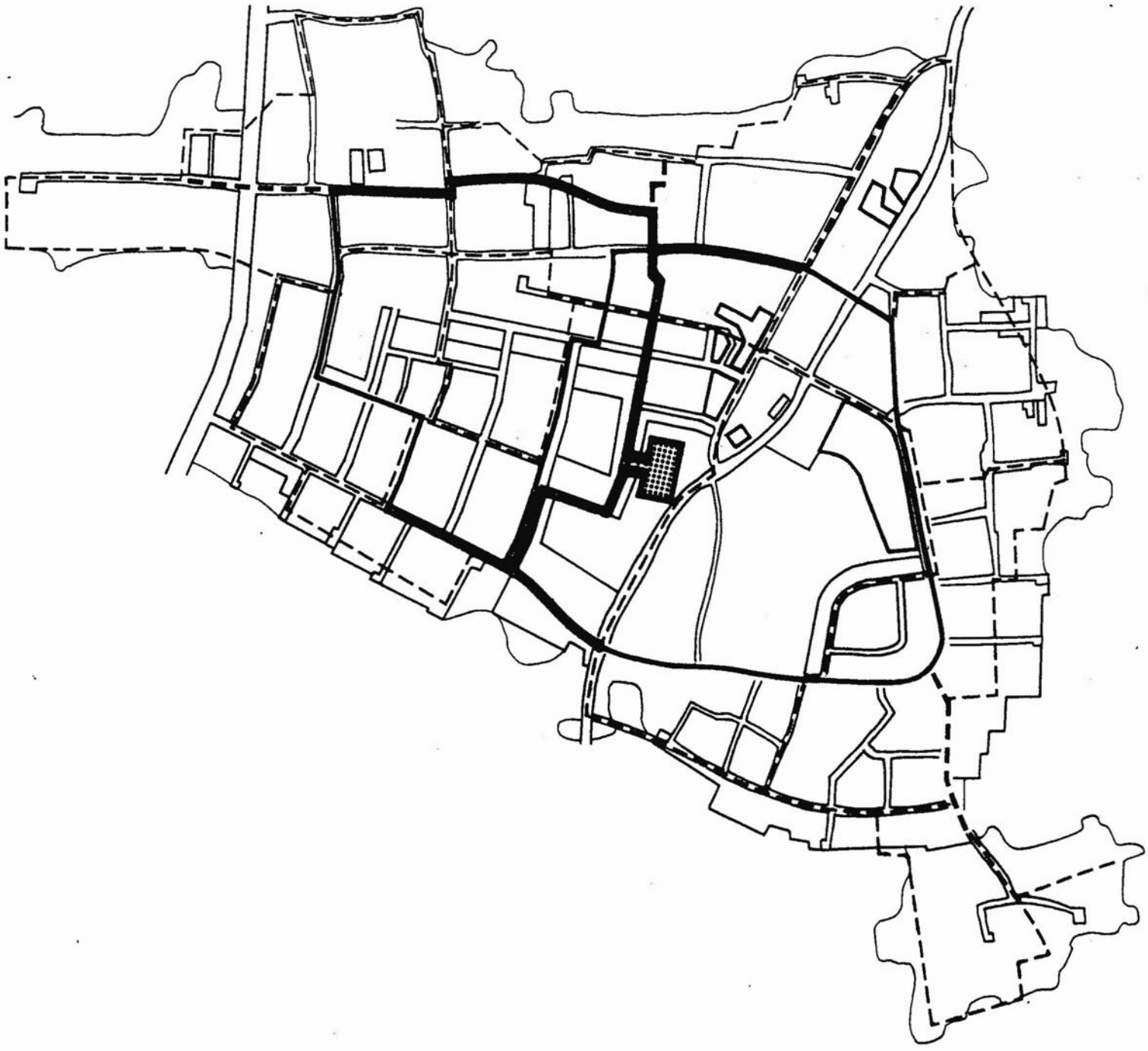
6.63 Each neighbourhood centre is planned principally to serve populations of 4,000-7,000, although two neighbourhoods in Abu Atwa will serve populations of 8,000 and standards of provision have been adjusted accordingly. Each neighbourhood centre is planned to contain a primary school and open space. Existing areas have mosques and provision is made for new ones in the development areas. In both existing areas and new development areas, mosques and schools are located on sites which enable them to act as a focus of identity for the neighbourhoods they serve.

ROADS AND TRANSPORT

6.64 The proposed street layout and routes for Abu Atwa are shown in Figure 6.6*.

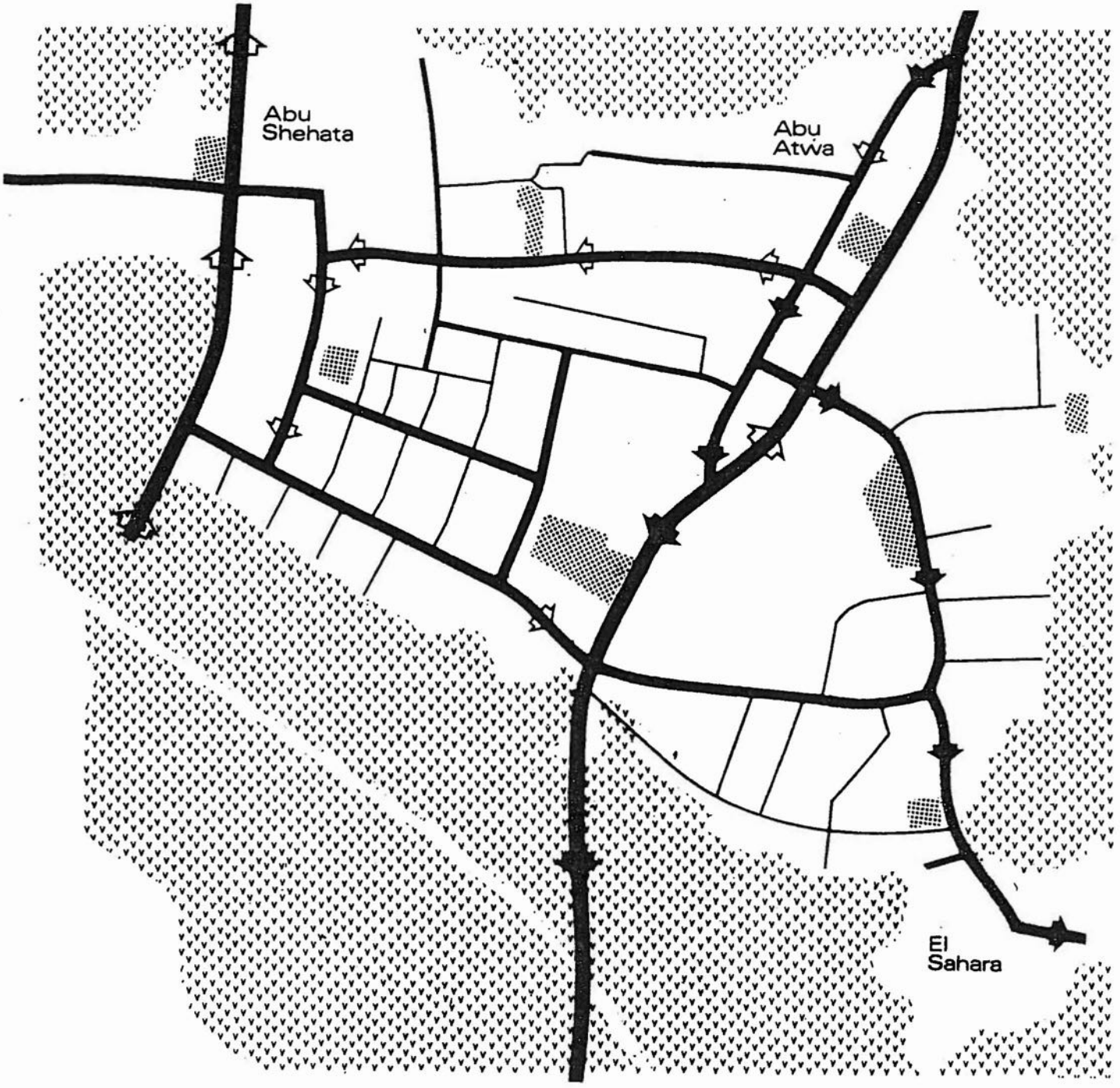
* See also large scale plan, Fig. 25, Portfolio B

6.65 Master Plan arterials are incorporated in the proposals. The alignment of the western arterial minimises both property damage and encroachment on agricultural land.



Abu Atwa · Water

6·7



1 : 10,000

0 600 m

ARTERIAL ROAD I.M.P.

DISTRICT ROAD

LOCAL STREET

ACCESS STREET

EXPRESS BUS ROUTE I.M.P.

PROPOSED BUS ROUTE

EXISTING BUS ROUTE

SCHOOL

Abu Atwa · Transport

The eastern arterial has been aligned to by-pass the existing retail and service centre fronting onto the existing road linking Abu Atwa to Ismailia.

6.66 The existing pattern of development has imposed a system of distributors and access streets which is much less regular than El Hekr but which still follows the defined hierachical principles.

LEVELS OF PROVISION

6.67 The levels of provision are outlined in Table 6.1 below.

Table 6.1
LEVELS OF PROVISION

Street Type	Initial	Full
Arterial: Eastern (20m. R.O.W.+)	Surfaced (DBST++)	Paved (asphaltic concrete)
Arterial: Western (35m. R.O.W.)	Paved	Paved (asphaltic concrete)
District (15m. R.O.W.)	Surfaced	Paved (asphaltic concrete)
Local (10m. or 15m. R.O.W.)	Graded with gravel surface or earth	Surfaced
Access (6m. or 10m. R.O.W.)	Earth road	Earth road with gravel where necessary

+R.O.W.: Right of Way
++DBST: Double Bitumen Surface Treatment

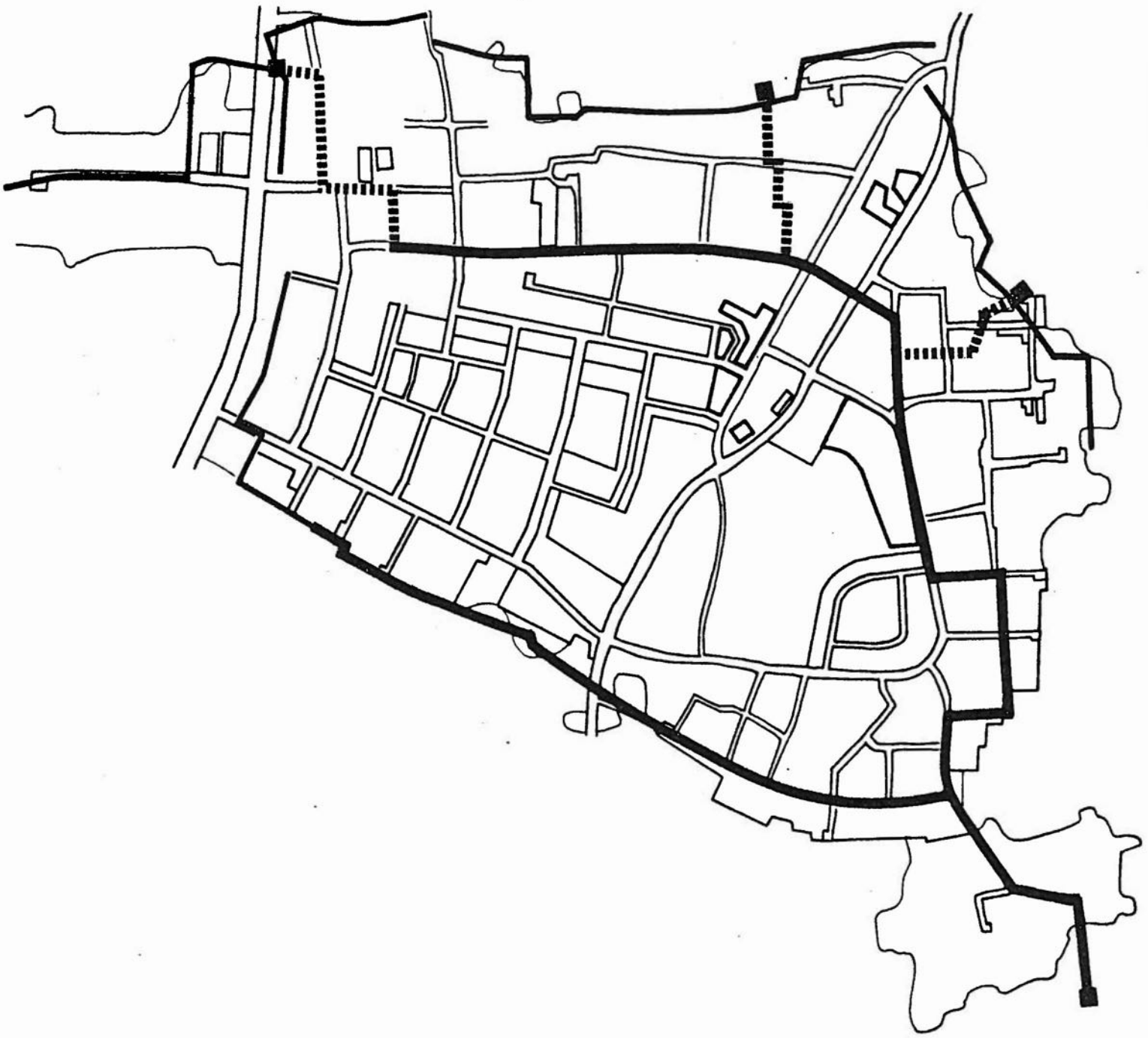
BUS ROUTES

6.68 The bus routes proposed for Abu Atwa are shown on Figure 6.6. The existing rural service, which passes through Abu Atwa, is retained as is the service to El Sahara in the south east corner of the Project Area. The only new route is a service running along the main east-west district street, terminating in the first phase housing area. This could later be extended into a loop service via the eastern arterial road when this is constructed.

6.69 A review of bus routes should be made following the construction of the western arterial and development of the Khashayna area. However, because it is considered that route planning for the regional bus services, which would operate on the western arterial, is beyond the scope of this study, only the Master Plan express bus route is shown on the proposals on Figure 6.6.

PARKING

6.70 Special provision for car parking and taxi-ranks in the Community Centre are shown in large scale plan 37 in Portfolio B.



1 : 10,000

0 600 m

■ PUMPING STATION

RISING MAIN

MAIN COLLECTOR

PRIMARY COLLECTOR

Abu Atwa · Sewerage

6·8

SETTING OUT

6.71 Setting out information for the development area is given in Figure 30, Portfolio B.

WATER SUPPLY

6.72 The proposed water distribution network is shown in Figure 6.7* and consists of 2 ringmains each supplying water to approximately 22,000 people by the year 2000. The ringmains are supplied, via 350 and 400mm. diameter feeder mains, from a storage reservoir (Master Plan Phase Two) situated in the centre of the Project site. Large scale plan Figure 31, Portfolio B shows all mains within the new neighbourhoods whilst details of the network in the Detailed Improvement Area are shown in Large scale plan Figure 34.

* See also large scale plan, Fig. 26, Portfolio B

6.73 The first stage of improvement would consist of the installation of approximately 55 standpipes on a 150 metre grid supplied from the existing pumping mains. Details are shown in Figure 26A, Portfolio B. The Suez Canal Authority consider the existing mains to have adequate spare capacity and pressure: At detail design stage field tests should be performed to measure the actual flows and pressures in the system. Where possible the pipes forming the initial network will be incorporated in the ultimate network. Soakaways will also be required.

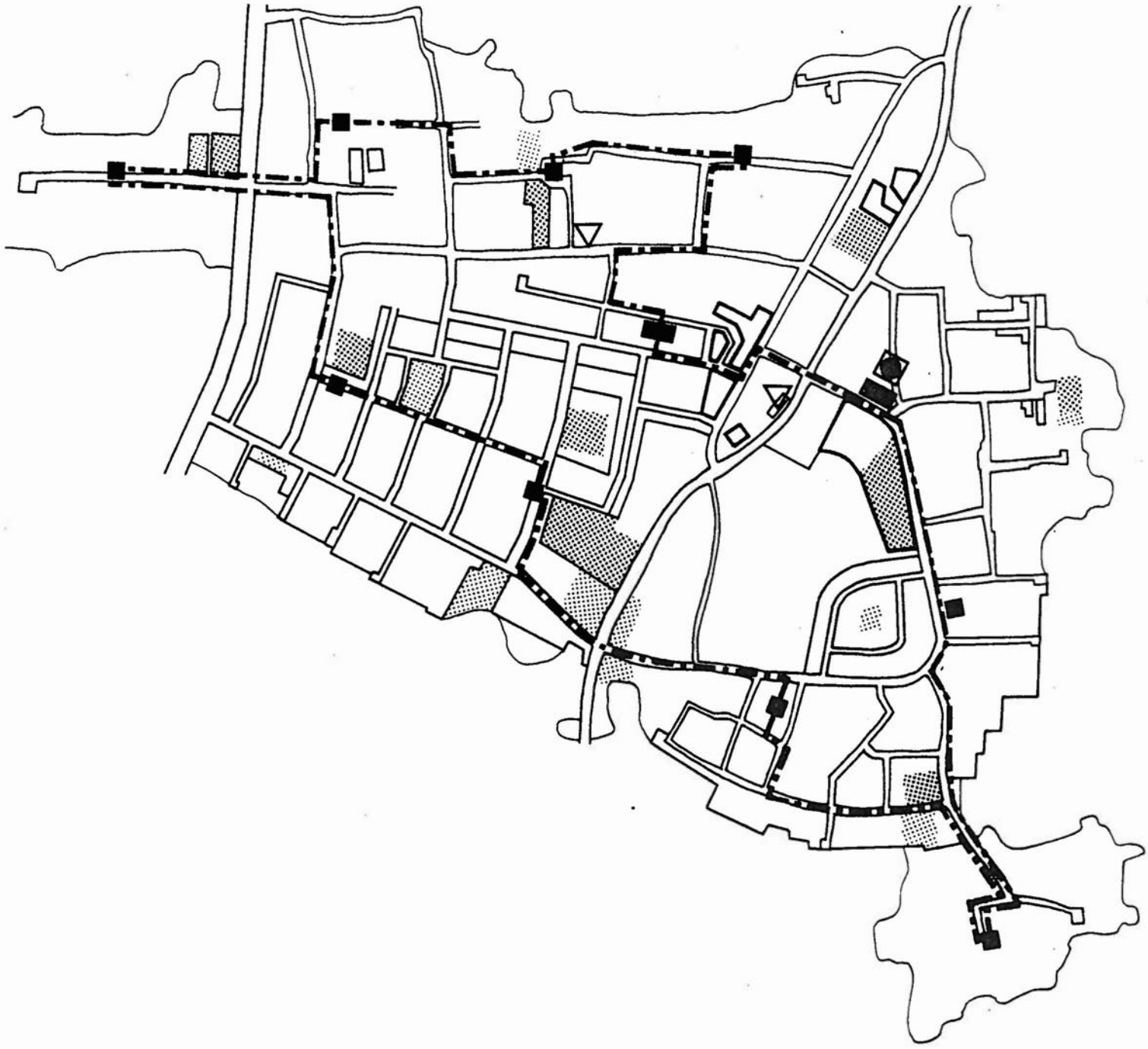
6.74 Where pressures and capacities permit, on-plot connections to a single tap/shower could be taken from the first stage network. Subsequent extension of the network would follow once the storage reservoir comes into operation. Phasing and levels of provision of the general development are discussed below.

6.75 By the year 2000 the average day demand is estimated to be 8,700m3/day with a peak hour demand of 250 litres/second.Both figures include an allowance for irrigation water.

SEWERAGE

6.76 The proposed sewerage system is shown in Figure 6.8* and consists of 2 main collectors generally draining from the north-west of the site to a sewage pumping station (Master Plan, Phase Two) adjacent to the south-east corner of the site. The dome shaped topography has dictated the need to install 3 sewage pumping stations on the northern and eastern perimeters in order to avoid excessive depths on the main collectors. Systems for the Detailed Improvement Area are shown on Figure 35, Portfolio B.

6.77 Phasing is discussed in detail below. Prior to the construction of the new sewage pumping station in the south-east, ie., whilst the existing sewage treatment works is operating, waterborne sewerage could be discharged to local outfalls and then pumped up to the existing works, as happens at present with the EGYCO Development. For sewerage in the north and east of the site, the permanent pumping stations could perform this function. Early development elsewhere would require the construction of temporary pumping stations.



1 : 10,000

0 600 m

DISTRIBUTION PANEL

EXISTING 250 kva TRANSFORMER

250 kva TRANSFORMER - NEW POSITION

200 kva TRANSFORMER

11 kv UNDERGROUND CABLE

Abu Atwa · Power

6.78 The existing sewage rising mains and gravity outfalls serving the sewage works will be redundent once the sewage works is relocated and must either be removed or filled in.

6.79 The comments on low flows and septic tanks (El Hekr Sections 4.100 and 4.101 respectively) equally apply to Abu Atwa.

6.80 In the year 2000 total daily sewage flow from the site will be approximately 6350m3/day and the peak hour rate will be 200 litres/second.

SOLID WASTE

6.81 Proposals are given in Volume 3, Section 7.

ELECTRICITY

6.82 The proposed network is shown in Figure 6.9*. Primary distribution is by means of an 11 Kv underground cable linking to 14 transformers rated from 100 to 250 Kva.

* See also large scale plan, Fig. 28, Portfolio B

6.83 The existing 11 Kv line in the south of the site must be replaced by an underground cable.

TELEPHONES

6.84 Proposals are given in Volume 3, Section 7. Initially public telephones should be installed in shops and cafes on the main north-south and east-west streets and within 500m of every dwelling.

FACTORS AFFECTING CONSTRUCTION OF UTILITIES

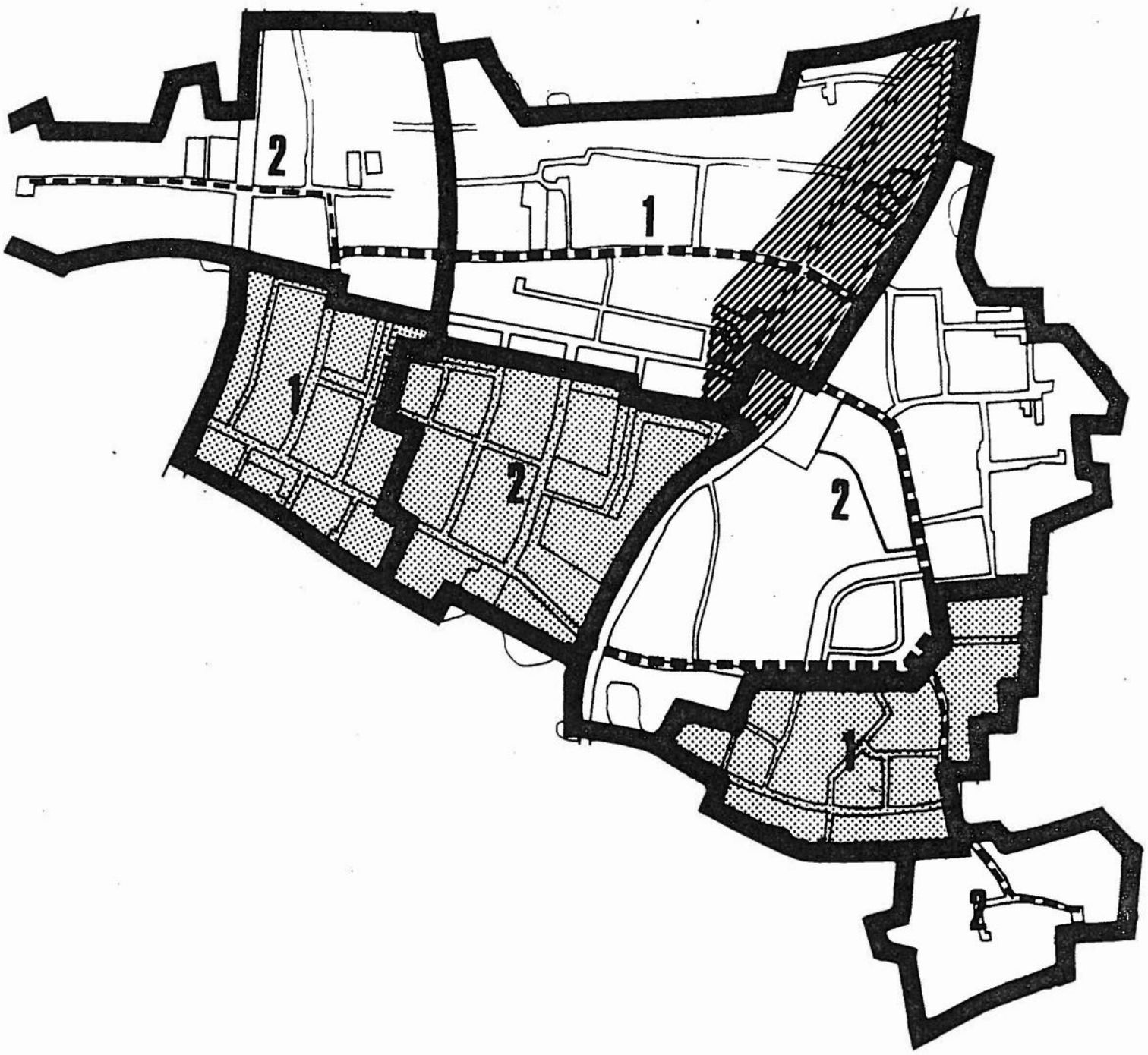
6.85 The existing ground conditions do not in general pose any particular problems for the installation of utilities, being in the main cemented sands and gravels situated well above the water table. Along the northern and eastern perimeters of the site sewer excavations are likely to encounter groundwater, and dewatering will be necessary. In these areas suitable precautions will also be necessary to protect concrete from sulphate attack: Protective measures will include the provision of inert coatings to manhole structures and cost estimates include a suitable allowance for this. In areas of uncemented soils excavations will need to be timbered.

Existing Buildings and Access

6.86 The comments in sections 4.18 and 4.19 generally apply except that ground conditions likely to give rise to structural damage are limited to a few isolated areas.

PHASING

6.87 The progressive implementation of the Community Plan in Abu Atwa is dependent upon several internal and external factors. The latter are perhaps the most critical in establishing the impetus for local development and these will therefore be discussed first.



1 : 10,000

0 600 m

2 PHASING NUMBER

LIMITS OF PHASES

TARRED STREETS PHASE 1

TARRED STREETS PHASE 2

COMMUNITY CENTRE

NEW DEVELOPMENT AREA

Abu Atwa · Phasing · New development and initial provision 6·10

6.88 The planned expansion of the city centre to the west will inevitably influence the phasing of both arterial roads. At present, the western arterial is scheduled for construction by 1980 and the eastern one by 1985*. Delay to either of these would have an adverse effect upon local development because of the uncertainty it would engender. The phasing out of the existing sewerage treatment plant is the other main external factor. This will depend upon the construction of an alternative plan serving the city's long term needs (and is at present scheduled in the Master Plan).

*Ismailia Master Plan Study, Volume 9, City Transport.

6.89 Of the internal factors influencing the implementation process, the most critical is the availability of part of the land occupied by the cemetery. Two areas are affected; the first, in the north western corner is required as soon as possible in order to construct the eastern arterial road and provide a site for the main social unit, whilst the second is in the south east on 3.8 hectares of land required for concession housing. The agreement in principle of the Local Council has been obtained. This requires the prohibition of further burials and the relocation of existing graves in both areas, but the exact timing of the land availability has still to be established.

6.90 Apart from these factors, the development consists of two main phases, as follows:

PHASE ONE

6.91 This is considered to commence immediately upon the approval of plans. Action would be required on several aspects of the plan, as described below, and illustrated in Figure 6.10.

Cemetery

6.92 An Administrative Order is necessary to ban further burials in the areas designated for future development and prepare the way for the early relocation of existing graves within the proposed boundaries of the cemetery. The areas affected are required in order to provide a right of way for the proposed eastern arterial and a site for the main social unit, in addition to land for future concession housing.

Centres

6.93 The early removal of a limited number of houses in the northern part of the community centre is required in order to provide a right of way for the eastern arterial road. Sites for the expansion of the health unit into a polyclinic and the construction of new police and fire stations are also involved. The proposed layout for the centre incorporates a number of new plots adjacent to the arterial road to accommodate displaced households.

6.94 The early implementation of proposals in this area would help to reduce uncertainty and provide the necessary impetus to local development elsewhere. It is also recommended that all sites designated for other public facilites, such as schools, social units, youth

and sports clubs and workshops, should be designated immediately and the necessary steps taken to ensure that such areas are protected from encroachment until such time as the proposed developments can be implemented.

Roads

6.95 To prevent uncertainty over the phasing of the two arterials (described above) from impeding the progress of new development and local improvement, it is proposed that priority be given to surfacing the main east-west district road linking the two arterials. This will serve two purposes; first, to provide improved accessibility to the existing development thereby acting as a stimulus to house improvement, and second it will provide access to the first phase of new development south of Abu Atwa. It is recommended that the other district road from the community centre to El Sahara and linking back to the eastern arterial be constructed in the first phase, so as to serve the new and existing development in the south and the site of the proposed preparatory school. Other local and access roads do not require treatment in this phase.

New Development

6.96 This is proposed in two locations; on open land to the south of Abu Shehata and in an area of existing sporadic settlement near El Sahara. Between them, these two areas represent virtually the full extent of land currently available for development. In order to fully implement the objectives of the Community Plan, control over both is considered essential. A number of concession plots are included in this phase to provide an element of cross-subsidy for low-income development.

Improvement

6.97 This will inevitably be a continuous process. Initially, improvement is scheduled for an area of 5.4 hectares to the west of the Community Centre. This has been designated as a Detailed Improvement Area, though it is intended to initiate and illustrate a process to be applied throughout the area. It is recommended that subsequent improvement links the first phase to the area of new development, so that the two may be executed, as far as possible, on an integrated basis.

Social Services and Public Facilities

6.98 As discussed above, the Consultants recommend that all sites designated for social services and public facilities be notified to the Local Council immediately and that the necessary steps be taken to prevent encroachment onto them. The construction of a new preparatory school is the most urgently needed facility in the area. The phasing of other facilities is indicated in Figure 6.13.

Utilities

6.99 The relevant standards and the range of elements covered by initial provision in both new and existing areas are described in Section 4, Paragraph 120 above. Their

application in Abu Atwa is proposed as follows: (Refer to Figures 6.11 and 6.12).

Existing Areas

6.100 The extension of existing water mains and the installation of a new 350mm mains will enable all areas of Abu Atwa to receive water supply at the initial level of provision as shown in Figure 6.12. This is therefore proposed for Phase One. The installation of sewerage is proposed initially in the area to the west of the existing main road as far as the eastern edge of Abu Shehata. This requires the construction of a pumping station linking to the existing station serving the EGYCO housing area. Since the new station could operate in conjunction with the existing or a future treatment plant, the phasing of sewerage in this area is not dependent upon phasing out the existing plant.

New Development Areas

6.101 It is proposed that the two areas of Phase One new development both receive water at the initial level of provision. Only the area to the south of Abu Atwa will be connected to sewerage however, and this will require the installation of a temporary pumping station.

PHASE TWO

6.102 The implementation of programmes with Phase One is expected to generate a substantial amount of local employment in construction and related sectors which will benefit both the existing and new populations. In order that this be maintained and expanded, it is therefore important that continuity of implementation be secured. The proposals for Phase Two (see Figure 6.10) are therefore intended to consolidate the works undertaken in the previous stage and can be described as follows:

Centres

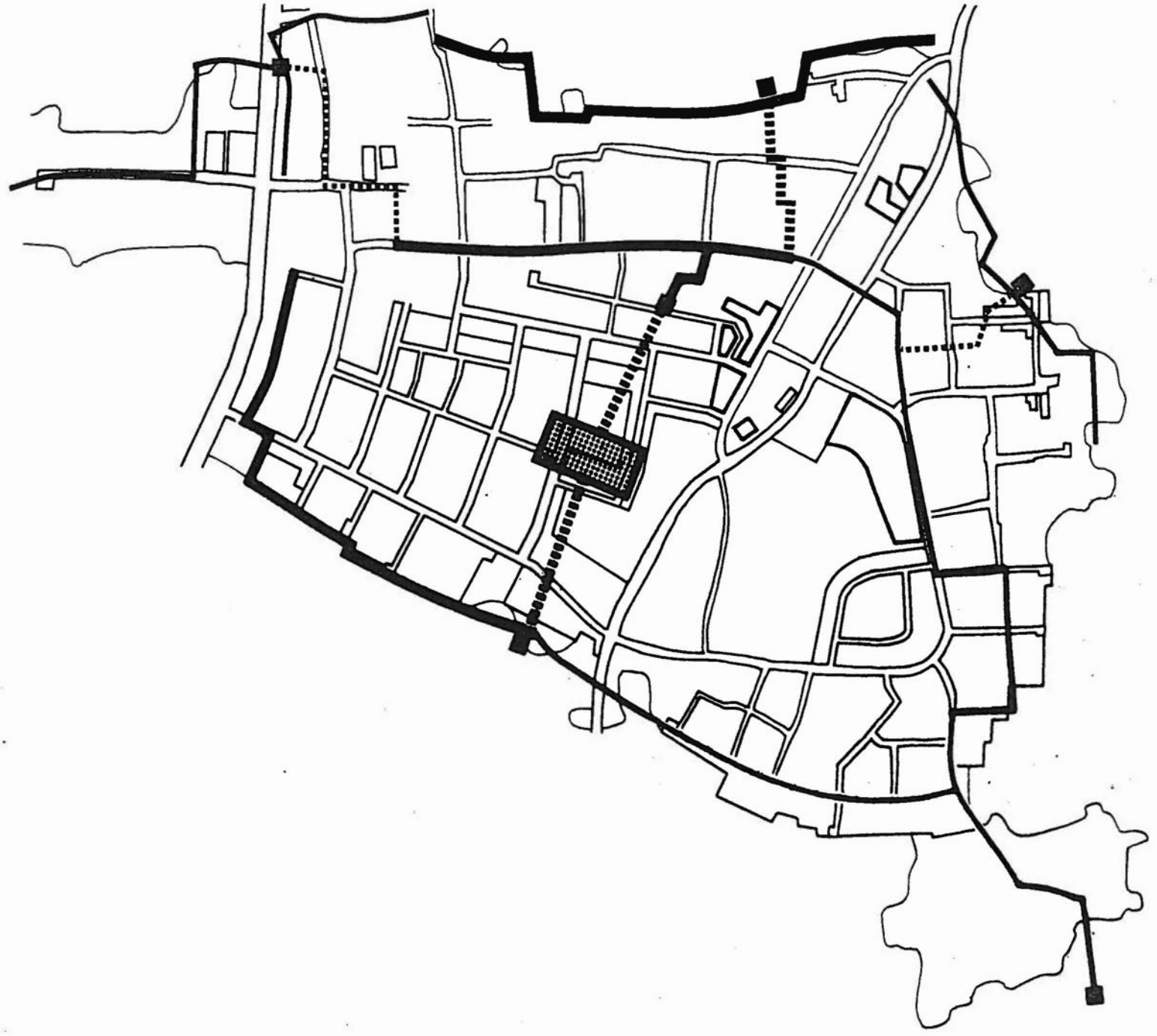
6.103 The construction of all public facilities in the Community Centre should be completed as soon as possible and implementation commenced of proposals for the sub centres.

Roads

6.104 Proposals for the phasing of road construction or improvement are shown in Figure 6.10. During the second phase, the extension of the district roads is proposed to all existing and new areas. The construction of local roads in order to provide access to existing areas is also recommended, so that the layout principles established by the Community Plan can be realised.

New Development

6.105 This is proposed in two locations; first on land presently occupied by the sewerage works and adjacent to the area of Phase One new development and secondly on land presently occupied by the cemetery near El Sahara. The first of these areas is planned as a natural extension of both the existing development (the EGYCO



PUMPING STATION
EXISTING TREATMENT PLANT
RISING MAIN
PHASE 1 SEWERAGE
PHASE 2 SEWERAGE

Abu Atwa · Sewerage · Phasing

6·11

prefabricated housing area) and the phase one development. Its implementation will depend upon the prior removal of the sewerage works and the allocation of land for a future water storage reservoir. The area, near El Sahara, is scheduled for development as a concession area and is intended to provide a cross-subsidy for the second phase of low-income housing. The implementation of this will depend, however, upon the availability of land presently occupied by the cemetery.

Improvement

6.106 The experience gained during Phase One will be valuable for the extension of improvement programmes in other parts of the area. It is recommended that these be required for the area of new development, though care will be needed to ensure that proposals remain within the ability of households to pay for them.

Social Services and Public Faciltities

6.107 During Phase Two it is recommended that the social services and facilities proposed for the subcentres be provided. If possible, neighbourhood facilities for the new development areas will also be required. Particular emphasis should be given to school provision since many of the incoming households can be expected to have children of school age and the existing population is already above the city average for children under twelve. Additional primary schools are therefore needed in existing areas. It is recommended that the one proposed next to the western arterial be constructed first followed by the one to the east of the Community Centre.

Utilities

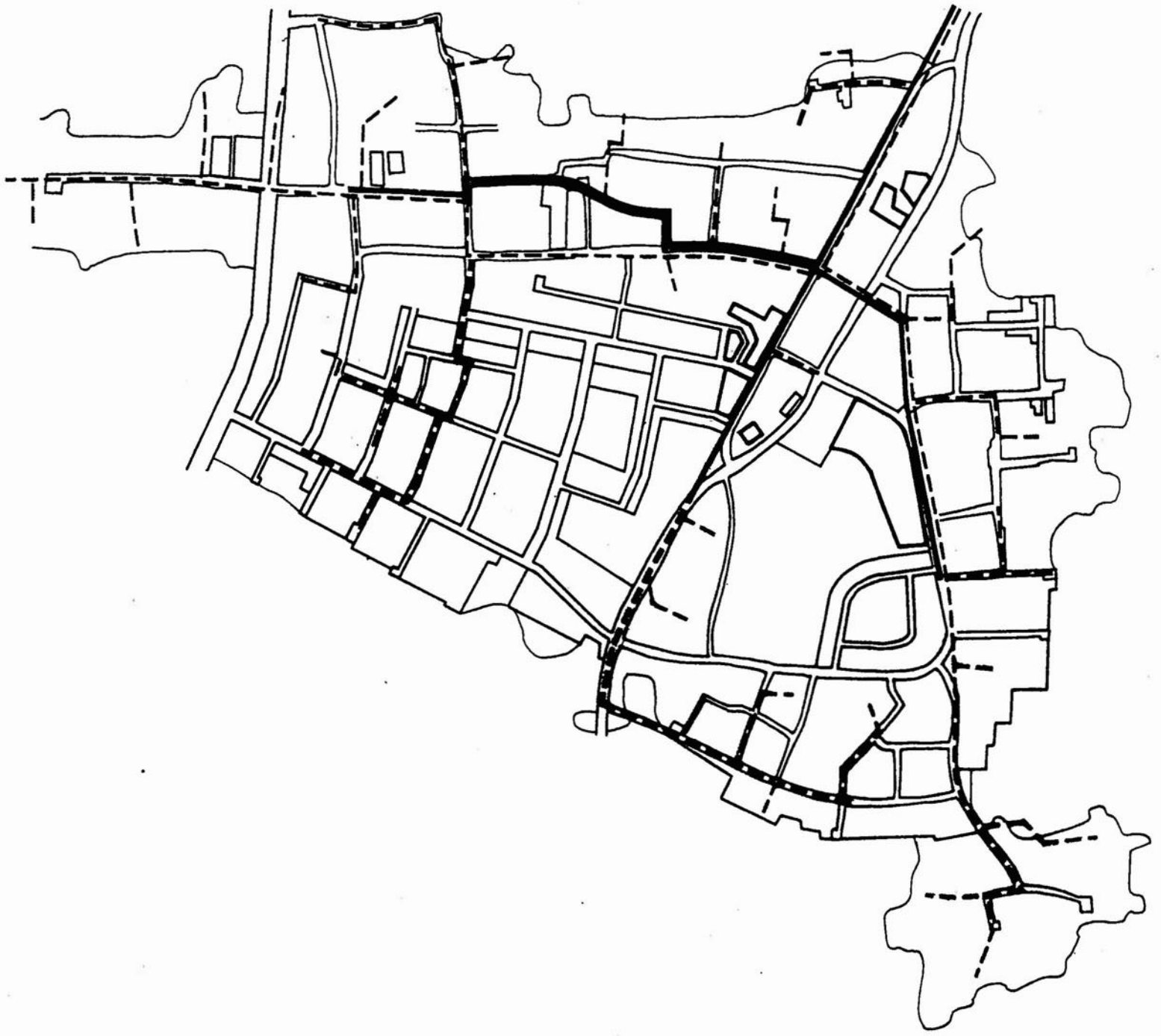
6.108 The relevant standards and the range of elements covered by full provision in new and existing areas are described in Section 4, Paragraph 135. Their application in Abu Atwa is proposed as follows:

Existing Areas

6.109 Phase Two includes the remaining parts of the Project Area excluded from Phase One. The extension of water mains to all areas and connections to the new water storage reservoir in the centre of the Project Area will be completed. The construction of a new sewerage mains to the south-east of El Sahara will enable the remaining areas of existing development to be connected during this phase. A number of local pumping stations will be necessary, though the temporary one serving the first phase of new development can be removed when the existing treatment plant becomes redundant. The exact timing of this will inevitably depend upon the construction of the new IMP pumping station.

New Development Areas

6.110 The construction of the water storage reservoir and new sewerage mains during Phase Two will enable all areas of new development to be served to the level of full provision immediately.



100 mm ø
150 mm ø
250 - 300 mm ø
350 mm ø

Abu Atwa · Water · Initial provision

6·12

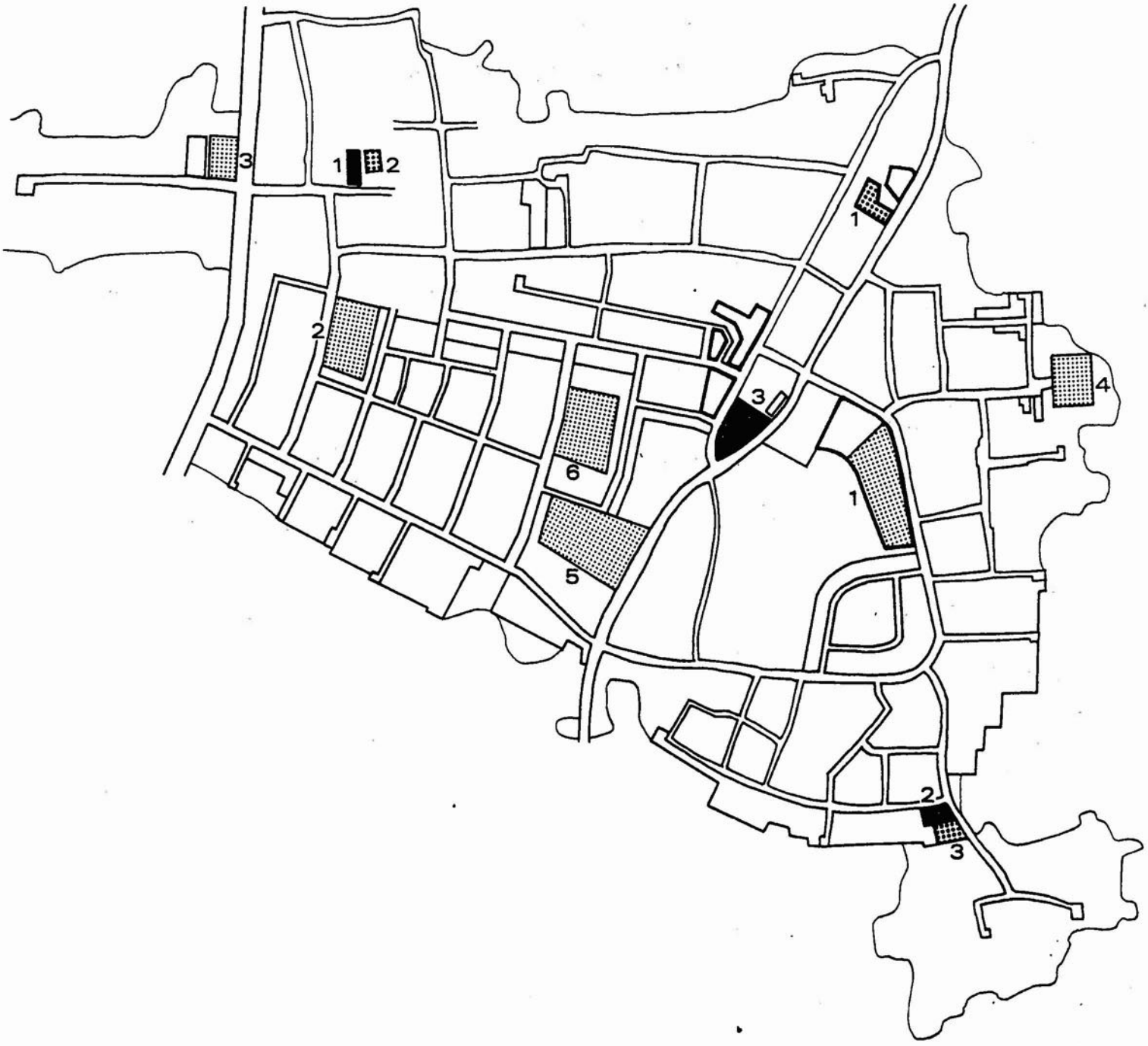
LAND BUDGET

6.111 The land budget for Abu Atwa is shown in Table 6.2 below.

Table 6.2
LAND BUDGET

	Project Area Existing ha	%	Project Area Proposed ha	%
1) Improvement Area				
- Private	47.8	40.8	77.1	67.0
- Circulation	57.9	48.6	30.6	26.7
- Public Services	2.7	2.3	3.6	3.5
- Structured Open Space	1.9	1.6	3.2	2.8
- Other	8.7	2.3		
Sub Total	119.0	100.0	114.5	100.0
2) New Areas				
- Private			20.6	53.0
- Circulation			11.4	29.5
- Public Services			4.4	11.6
- Structured Open Space			2.3	5.9
Sub Total			38.8	100.0
3) Community Centre				
- Private			1.0	18.2
- Circulation			0.45	8.2
- Public Services			3.4	61.7
- Structured Open Space			0.65	11.8
Sub Total			5.5	100.0
4) 'Sporadic' Development				
- Private			5.45	54.5
- Circulation			3 4	34.0
- Public Services			0.5	5.0
- Structured Open Space			0.65	0.65
Sub Total			10.0	100.0
5) TOTAL				
- Private	47.8	41.0	104.0	61.7
- Circulation	57.9	4.7	45.8	27.2
- Public Services	2.7	2.0	11.9	7.1
- Structured Open Space	1.9	3.0	6.8	4.0
- Other	8.7	7.0		
TOTAL	119.0	100.0	68.5	100.0

NOTE: 1) Circulation in new areas includes semi-private space (40% of circulation).
2) Private includes residential and commercial.
3) Total excludes cemetery, and water storage area.



1 : 10,000

0 600 m

2 PHASING NUMBER

SCHOOL

SOCIAL UNIT

HEALTH CENTRE

Abu Atwa · Phasing · Social facilities

6·13

COSTS OF DEVELOPMENT

6.112 The total capital costs of the Abu Atwa Project at full development are given in Table 6.3. The derivation of these cost items are:

1) Base land cost: @ LE 0.45/m2 for empty Government land (see Volume 2, Section 2). This is not a real cost, but represents the opportunity cost foregone by the Government. Also, a cost of LE 1.50m2 was assumed for 4.1 hectares of empty private land that must be acquired through compulsory purchase.

2) Markers: @ LE 2.50 per marker plus LE 1.00 per marker for surveying.

3) Levelling: 4 hectares @ a nominal cost of LE 0.10 per m2.

4) Administration: See Volume 1, Section 8 and Volume 3, Section 10.

5) Compensation: @ LE 400 per house (no compensation for land).

6) Electricity: See Volume 3, Sections 7 and 8.

7) Sewerage: See Volume 3, Sections 7 and 8.

8) Water: See Volume 3, Sections 7 and 8.

9) Roads: See Volume 3, Sections 7 and 8.

10) Landscaping: See Volume 3, Section 1.

11) Public Facilities: See Volume 3, Section 8. All building costs include furnishings and external works.

12) Write-off costs of staged provision: See Volume 3, Section 9.

6.113 In calculating the portion of total costs attributable to individual households, to the Project Agency, (see Section 8 below) and to outside sources the following assumptions were used:

1) The base land cost, which represents the opportunity cost of empty Government land, is logically attributed to the Government. The cost of expropriated land is assigned to the Project Agency.

2) Staffing costs of administration are split, with base salaries and benefits assigned to the staff secondment source and incentive salaries assigned to the Project Agency (see Volume 3, Section 10). All other administrative costs are the responsibility of the Project Agency.

3) The costs of levelling, markers and compensation are all attributed to the Project Agency.

4) For utilities, the network mains are assigned to other sources, as suggested by the Advisory Committee for Reconstruction in their letter of November 13, 1977. Local networks are the responsibility of the Project Agency, and costs of connections must be met by households. Street lighting is paid for by the Project Agency, and both electricity connections and the low-voltage system are assumed to be recouped through connection and user charges.

5) District roads are attributed to other sources (as suggested by the ACR), and all other road costs are to be borne by the Project Agency.

6) Landscaping costs are to be met by the Project Agency.

7) All public facilities costs (except shops and workshops) are attributed to the Government organisations which are responsible for their provision and operation.

6.114 Note that utilities and roads costs are not assigned in the same form that has been used in calculating the finances of the Project Agency. (See Volume 3, Section 9). The total costs attributed to the Project Agency in Table 6.3 could be met by the Agency, if optimistic assumptions of Agency revenues (particularly future revenues from land sales) are used. In actual fact it is proposed that only a portion of the water and sewerage reticulation networks be financed from Agency funds. The necessity for this arrangement is explained fully in Volume 3, Section 9.

6.115 The capital costs of development of Phase One of Abu Atwa are given in Table 6.4. This Phase involves the provision of minimum infrastructure services in all existing Abu Atwa and in the first new development of 916 plots. Costs have been derived and assigned under the same assumptions as stated above.

Table 6.3
ABU ATWA: TOTAL CAPITAL COSTS (FULL DEVELOPMENT)

Item	Total Cost	Portion of Total Cost Attributed to: Individual Household	Project Agency	Outside Sources
1) Base Land Cost	281,100	-	61,500	219,600
2) Markers (and surveying)	16,730	-	16,730	-
3) Levelling	6,000	-	6,000	-
4) Administration				
- capitalised running costs	129,300	-	74,150	55,150
- offices (incl. bank/post office)	20,000	-	20,000	-
5) Compensation	27,000	-	27,000	-

Table 6.3 (cont'd)
ABU ATWA: TOTAL CAPITAL COSTS (FULL DEVELOPMENT) (all costs in 1977 LE)

Item	Total Cost	Portion of Total Cost Attributed to: Plot Occupants	Project Agency	Outside Sources
6) Electricity				
- street lighting	70,000	-	70,000	-
- trunk lines	196,600	-	-	196,600
- low voltage network	136,500	136,500	-	-
- connections	108,000	108,000	-	-
Sub Total	511,100			
7) Sewerage				
- trunks	422,000	-	-	422,000
- local (reticulation) network	659,250	-	659,250	-
- connections	527,400	527,400	-	-
Sub Total	1,608,650			
8) Water				
- trunks	310,000	-	-	310,000
- local (reticulation) network	364,350	-	364,350	-
- connections	342,800	342,800	-	-
Sub Total	1,017,150			
9) Roads, Sidewalks and Kerbing				
-district roads (20m ROW)	157,500	-	-	157,500
- local roads (15m ROW)	364,100	-	364,100	-
- access roads (10.5m ROW)	105,600	-	105,600	-
Sub Total	627,200			
10) Landscaping	45,000	-	30,000	15,000
11) Public Facilities				
- 2 Preparatory School	500,000	-	-	500,000
- 4 Primary schools	628,000	-	-	628,000
- 1 Polyclinic/ ambulance station	410,000	-	-	410,000
- 2 Health centres	109,000	-	-	109,000
- 3 Social centres	93,000	-	-	93,000
- 1 Sports centre	19,000	-	-	19,000
- 1 Youth "	26,000	-	-	26,000
- 1 Fire/Police station	60,000	-	-	60,000
- 3 Mosques	138,000	-	-	138,000
Sub Total	1,983,000			
TOTAL	6,272,230	1,114,700	1,798,680	3,358,850
12) Write off costs due to staged provision				
- pit latrines	192,500	192,500	-	-
- roads	85,000	-	85,000	-
- standpipes	5,300	-	5,300	-
Sub Total	279,800			
ADJUSTED TOTAL	6,555,030	1,307,200	1,888,980	3,358,850

Imputed subsidy element: 51.2% of total cost

Table 6.4
ABU ATWA: PHASE ONE CAPITAL COSTS

Item		Total Cost	Portion of Total Cost Attributed to: Plot Occupants	Project Agency	Outside Sources
1)	Base Land Cost	237,300	-	61,500	175,800
2)	Markers and surveying	13,230	-	13,230	-
3)	Levelling	6,000	-	6,000	-
4)	Administration				
	- capitalised 5 year running costs	50,040	-	28,700	21,340
	- offices (incl. bank/post office)	20,000	-	20,000	-
	Sub Total	70,040			
5)	Compensation	27,000	-	27,000	-
6)	Electricity				
	- street lighting	58,100	-	58,100	-
	- trunk lines	136,500	-	-	136,500
	- low voltage network and connections	202,935	202,935	-	-
	Sub Total	397,535			
7)	Pit latrines	96,600	96,600	-	-
8)	Standpipe system	111,300	-	111,300	-
9)	Roads, Sidewalks and kerbing				
	- district roads (20m ROW)	69,750	-	-	69,750
	- local roads (15m ROW)	74,185	-	74,185	-
	- access roads (10.5 ROW)	70,118	-	70,118	-
	Sub Total	214,053			
10)	Landscaping	30,000	-	25,000	5,000
11)	Public Facilities				
	- 1 Prep. School	250,000	-	-	250,000
	- 1 Primary School	157,000	-	-	157,000
	- 1 Health Centre	54,500	-	-	54,500
	- 1 Social Centre	25,000	-	-	25,000
	- 2 Mosques	92,000			92,000
	- 1 Polyclinic/ Ambulance Station	410,000			410,000
	- 1 Sports Centre	19,000			19,000
	- 1 Youth Centre	26,000			26,000
	- 1 Fire/Police Sta.	60,000			60,000
	Sub Total	1,093,500			
	TOTAL	2,296,538	299,535	495,133	1,501,890

(all costs in 1977 LE)

7

Nifisha Industrial Area Proposals

7
Nifisha Industrial Area Proposals

SITE CHARACTERISTICS

7.1 The Project Area occupies 16.3 hectares of land adjacent to the existing main road leading from Ismailia towards Cairo. It is bordered by Nifisha village to the west, the railway embankment to the north and Al Gala' military camp to the east.

7.2 At present, only two parts of the site are actively used. These are the eastern section occupied by the army and used as a football pitch, and an area alongside the road, which is owned by the Ismailia Company for Transport and is used as a lorry park. The majority of the site is under private freehold title, though a small area near Nifisha village is government controlled.

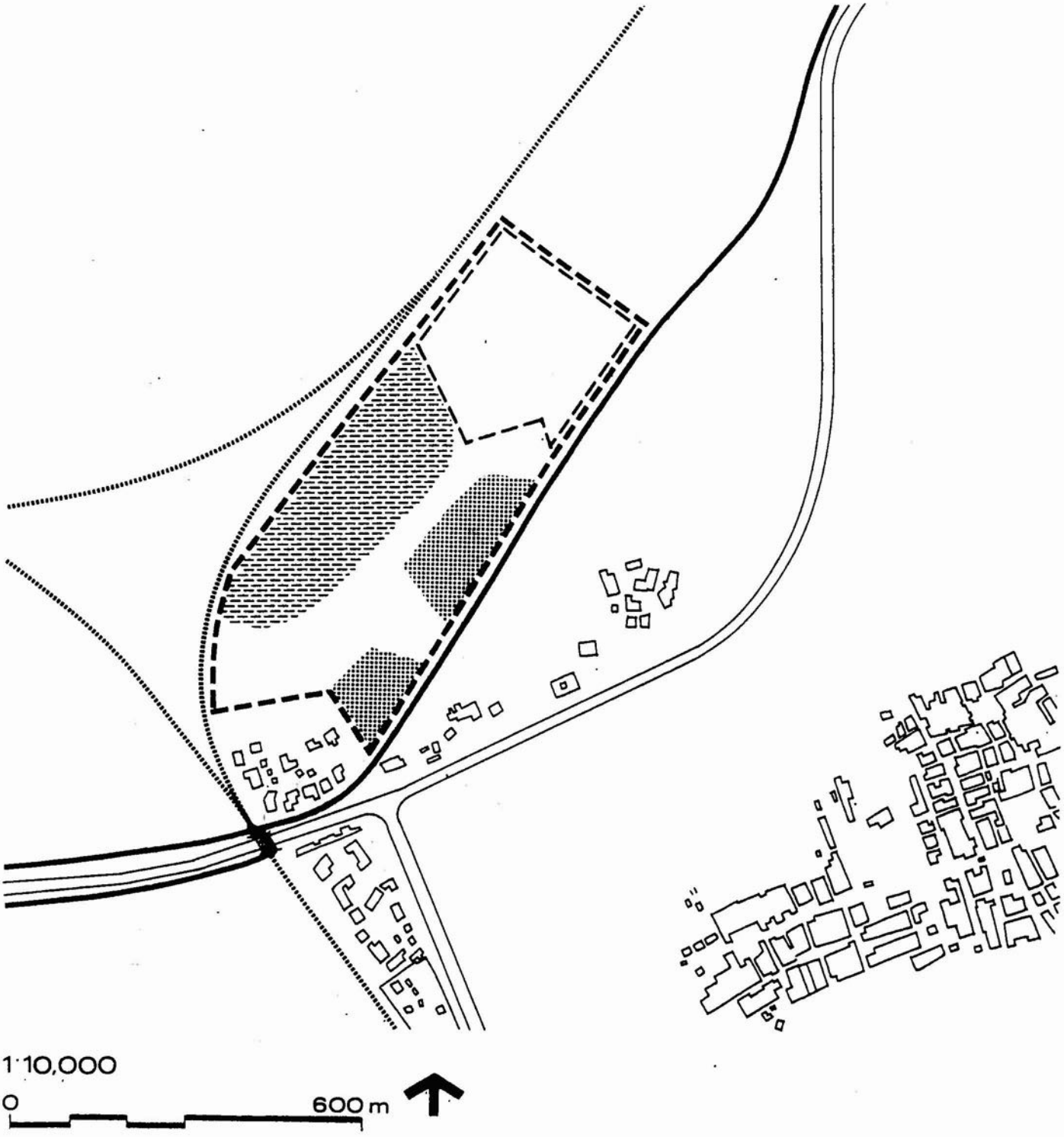
7.3 The entire site was originally irrigated agricultural land, but the high water table and accumulated salts have made farming impossible. The ground is below the level of the road throughout and falls to its lowest point near the railway embankment, where the water table is above ground level. A certain amount of fill has been deposited on land near the village, but this has not been compacted and is of uncertain quality. Figure 7.1 shows the principal physical features.

7.4 No water supply or sewerage systems serve the site or its vicinity, except for a self-contained system for the military camp. Water however will be available in June 1978. Electricity is available locally, though not on the site itself.

7.5 Whilst the physical characteristics of the site do not make it desirable for general urban development, its location on the main road and its extensive frontage make it highly suitable for light industrial activity.

FUNCTIONS

7.6 It is proposed that the Nifisha area be designed for small, private sector industrial establishments which generally employ between 10 and 50 workers. These



Nifisha light industrial area·Topography

7·1

establishments can operate at a sufficient level of output and turnover to justify the occupation of either fully serviced industrial plots or small, pre-built factory units. A mix of factory units and serviced plots is recommended, but the actual proportions of each cannot be set at present (see Implementation Strategy, Volume 1, Section 8). Some serviced plots will be sold to firms able to operate as fully independent entities and others leased (with options to buy) to firms seeking only temporary use of sites. Advance factory units would be leased and would be aimed at firms with little ready capital and with the greatest need for support.

7.7 The majority of firms that will be expected to locate at Nifisha will come from Ismailia itself and will be of the smaller type of 10 to 20 employees. Such firms will be seeking better sites which offer opportunities of expansion and industrial support services. They will be at a stage of development where they need and can afford the multiple services of an industrial estate. Other firms (and brances of firms) will originate from outside Ismailia and will in general have larger space requirements, representing sizes of 20 to 50 employees.

7.8 These enterprises, whether coming from Ismailia or outside, will be drawn from transport, metal working, construction materials, electrical, clothing and footwear, paper products and a variety of other sectors. However, it is intended that the main concentration will be in light engineering, specifically processes related to transport repair and servicing. In this way mutual reinforcement between firms through linkages will be enjoyed, because of the nature of light engineering,and there will be maximum opportunities of expansion of production and development of different production lines. Linkages will also be possible with the transport service centre of the Ismailia Company for Transport which is to be located on the Nifisha Site.

7.9 The inherent flexibility of these small firms is however, reduced because such firms are disadvantaged with regard to raw materials availability, marketing and distribution, and technical support when compared with larger establishments. The grouping of many small firms on the Nifisha Site will, in itself, help overcome these problems, as economies of scale begin to operate. But this alone is not sufficient, and it is proposed that the Estate provide a range of administrative support. This support can be termed 'nursery services' in that it aims at encouraging the growth of infant firms; such service would include a central workshop, centralised communications, technical information, and shared marketing promotion facilities.

PLAN

7.10 As originally proposed in the Ismailia Master Plan, the whole of the Nifisha site was to be developed by 1980. Full development is, however, difficult to achieve for several reasons. One is that the eastern part which is occupied by the Al Gala' military camp, is not likely to be available for development in the near future. Another reason is the 5.6 hectares of the site area which is occupied by the Ismailia Company for Transport.

The company intends to retain this area and exercise its options on a further area of 0.6 hectares. These areas have therefore been regarded as outside the scope of the project. The remaining frontage and a large proportion of the remaining site area are also held in private freehold tenure and will have to be acquired before development can commence. Only then can the area of Government controlled land at the rear be developed.

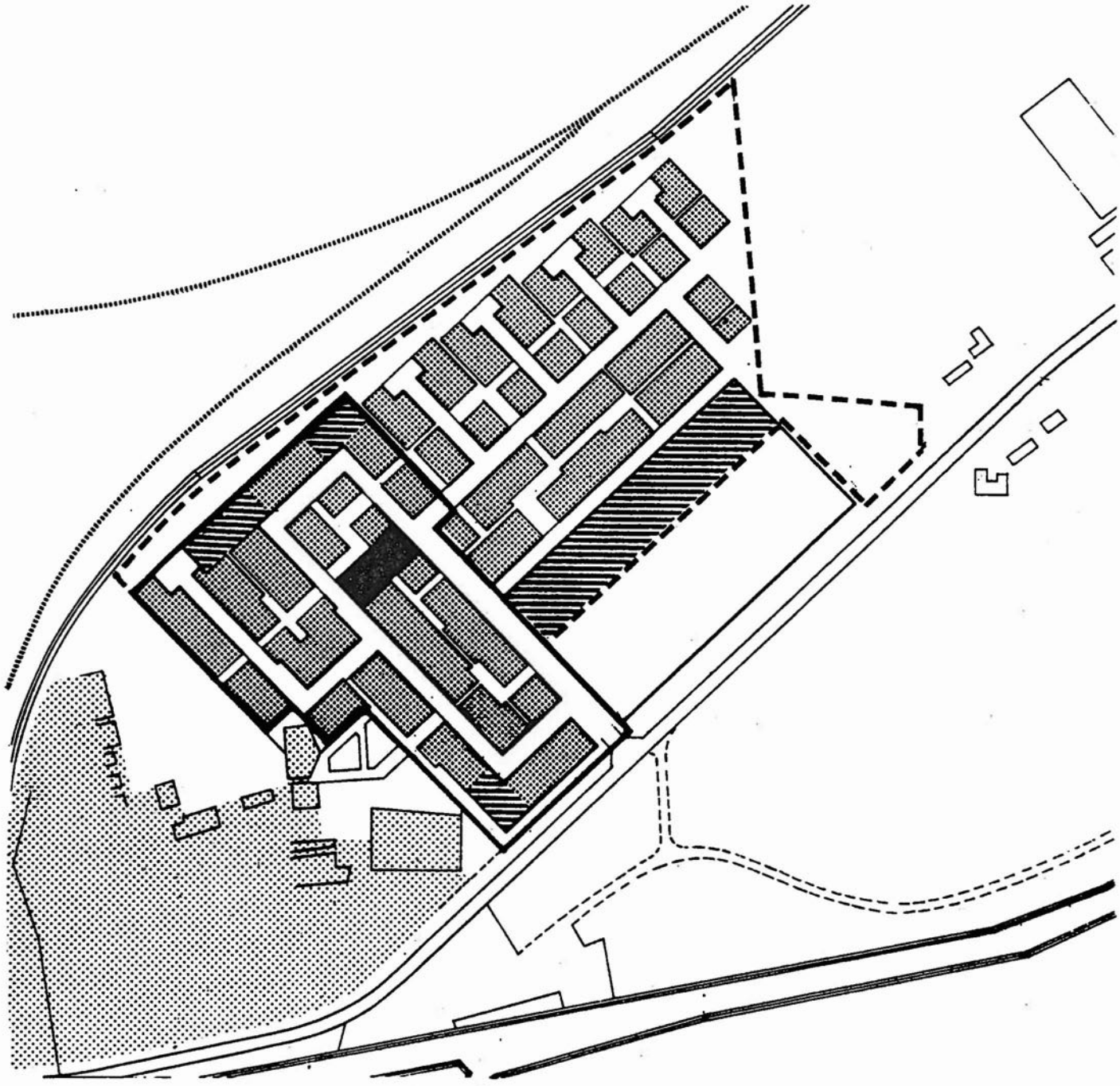
7.11 The major problem in developing the site, however, relates to the high ground water and the saline soil conditions. Substantial filling is required throughout the site to make it suitable for the construction of conventional superstructures and the provision of full services required by the types of enterprise anticipated. Whilst net land costs excluding fill are LE4.7m2, costs of filling increase this to LE18.7m2. As a result of this and uncertainty concerning current demand, the Consultants consider that it is premature to develop the full site immediately. Instead, it is proposed that the part which can be developed initially be laid out with plot subdivisions and individual utility connections. Since the area involved requires generally less fill, it is estimated that Phase One can be developed at a cost of LE15m2 net. Meanwhile, the organised filling of the site should be encouraged. The layout for the full development and Phase One, is shown in Figure 7.2*.

* See also large scale plan, Fig. 38, Portfolio B

7.12 It is assumed that the types of enterprise locating at Nifisha will have a variety of space needs and that many will subsequently be able to expand their activities, and hence their demand for space. It is therefore considered essential that the plan provides flexibility of both site and plot layout. At the scale of the site layout, flexibility is achieved by the selection of an 80m. road grid into which plots of different sizes can be located. This grid is applied throughout the development and is interspersed with another grid, also at 80m. intervals, for pedestrian circulation. This sytem serves to separate pedestrian and vehicular traffic modes and provide front and rear access to plots.

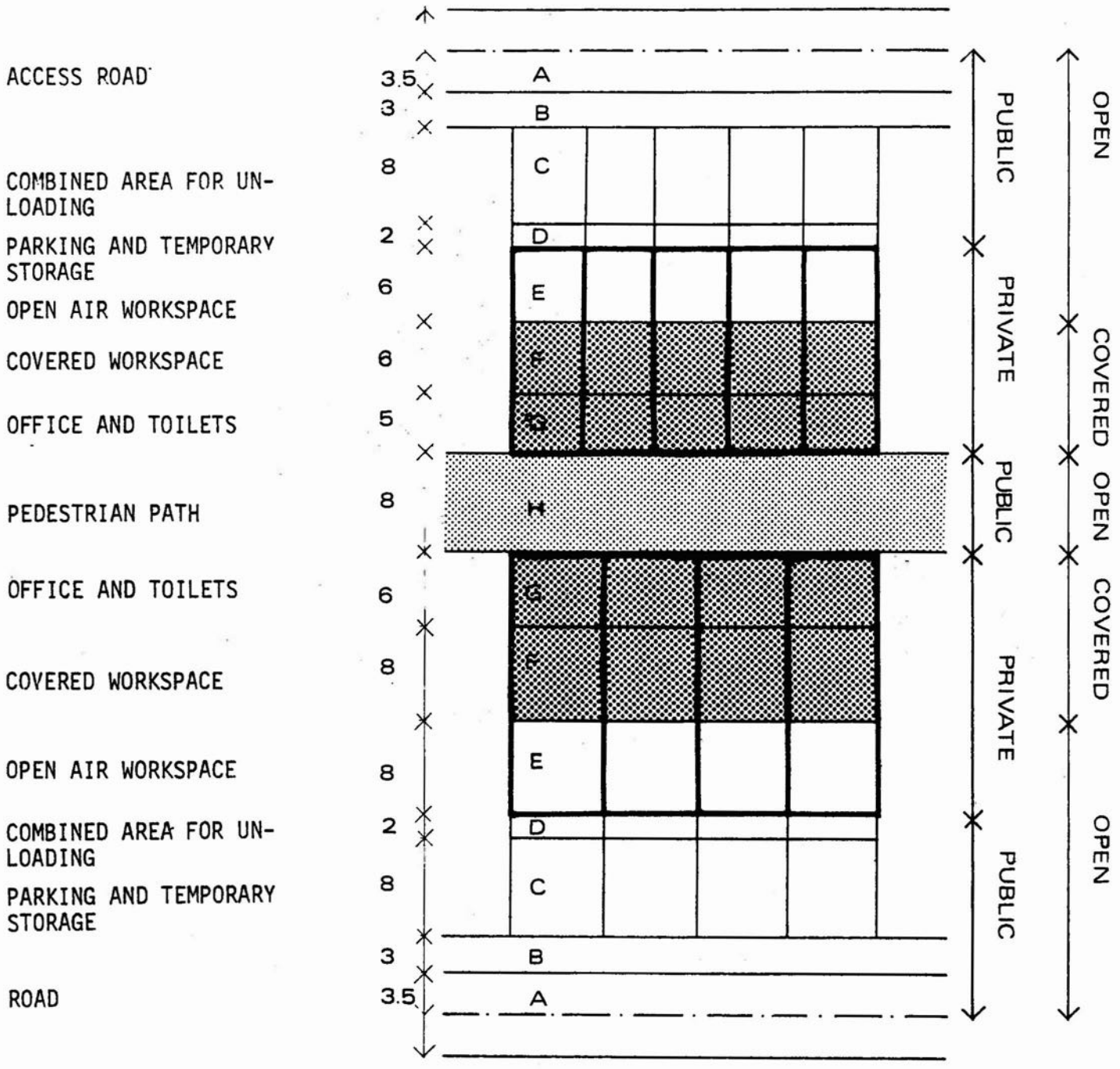
7.13 The plan consists of a main connection to the Ismailia-Cairo road which serves two loop distributors. These, in turn, serve the major areas of the development and connect a series of cul-de-sacs. The pedestrian network connects with the roads at approximately 40m. intervals and at these points spaces for recreation are provided with planting. Administrative facilities are located at the intersection of the loop distributors to enable the Project site office of the proposed Industrial Development Unit to monitor and actively promote the development of the estate and ensure that the implementation of the plan responds to changing patterns of demand. The area for administration also includes space which can be leased for coffee houses or canteens and has direct connections to the pedestrian network.

7.14 Details of the proposed plot layout and relationships to the grid system are shown in Figure 7.3. Two sizes of



ADMINISTRATIVE FACILITIES
PROJECT AREA
PHASE ONE
EXISTING URBAN AREA
INDUSTRIAL - SMALL AND MEDIUM PLOTS
INDUSTRIAL - CONCESSION PLOTS

Nifisha light industrial area·Development plan 7·2



1: 50

0 30m

A	ROAD
B	HARD SHOULDER
C	PARKING
D	LOADING BAY
E	OPEN AIR WORKSPACE/EXPANSION
F	COVERED WORKSPACE
G	OFFICE AND TOILETS
H	PEDESTRIAN PATH

Proposed layout of plots

plots are proposed to meet the needs of different types of firm. Each plot contains an area of 10m. set back from the road and designated for parking. The smaller plots, which have a frontage of 6m., then provide a depth of 12m. for workshop space with access via a loading ramp as shown. An additional area of 5m.x6m. is allocated for offices and toilets. THe larger plot, with a frontage of 7.5m, provides a depth of 16m. behind the parking area for workshop space. As with the smaller plot size, half of this is allocated for open air working or expansion. An additional area of 6m.x7.5m., is provided for offices and toilets. In the plans for both plot sizes, the offices give access to a pedestrian path access. A total of 110 small and 220 larger plots are provided in the plan and in addition to these, 14 concession plots are included for larger enterprises. The three types of plot provided are distributed throughout the site area, so that a choice will be available at each stage of development.

7.15 The plan excludes land currently occupied by the army, though extensions of existing roads can be made to provide access when this area becomes available. Provision is also made for a second entry road from the arterial to serve the eastern part of the site. In order to provide a visual and acoustic buffer between the new development and the existing school and housing in Nifisha village, an area of open land has been retained between the two. This is intended to be landscaped and will then provide much needed recreational open space for the village; part of this area already serves as a football pitch, and this use would be safeguarded.

ROADS AND TRANSPORT

7.16 As mentioned above, the types of industry expected to occupy the Project Area will be small scale and locally orientated. This type of industrial use generates small unit loads. The Project Area has direct access onto the Ismailia-Cairo regional road, which the Master Plan proposed be upgraded to a dual carriageway. No connection to the railway on the northern boundary is proposed.

7.17 The internal road layout for the Project Area is shown on Figure 7.2*. A grid system is proposed having a two level hierarchy of distributor and access streets. The plot arrangement is such that frontage access onto distributor streets in minimised. A system of mid-block paths aids pedestrian circulation.

* See also large scale plan, Fig. 38, Portfolio B

STANDARDS

7.18 Recommended construction standards are given in Table 7.1.

Table 7.1
NIFISHA LIGHT INDUSTRIAL AREA

Street Type	Standard
Distributor	10cm asphaltic concrete with flush kerbs
Access	5cm asphaltic concrete with flush kerbs
Shoulders	5cm asphaltic concrete
Hardstanding	Compacted fill

BUS ROUTES

7.19 A bus route passes the Project Area on the Ismailia-Cairo road. This will be adequate to serve the site in the initial phases of development. When the estate is more fully developed it may be necessary to provide a peak hour service linking the site to the central bus station. It is envisaged that medium to large scale enterprises will provide buses for their workers.

PARKING

7.20 Parking space is provided on the basis of approximately one space per 25 workers. The layout is such that large plots, which are likely to generate more parking demand, have room for some on-plot parking. Parking space is also proposed for works buses.

UTILITIES

7.21 Proposed utilities and road networks are shown in Figures 7.2, 7.4, 7.5 and 7.6 . In designing these features, standards of provision given in Table 7.2 have been followed.

7.22 A central administration area is proposed (Figure 7.2) for the administrative office and industrial support services. The space for the office is estimated at 300m2 (including 3 classrooms). Other buildings will occupy 1,000m2.

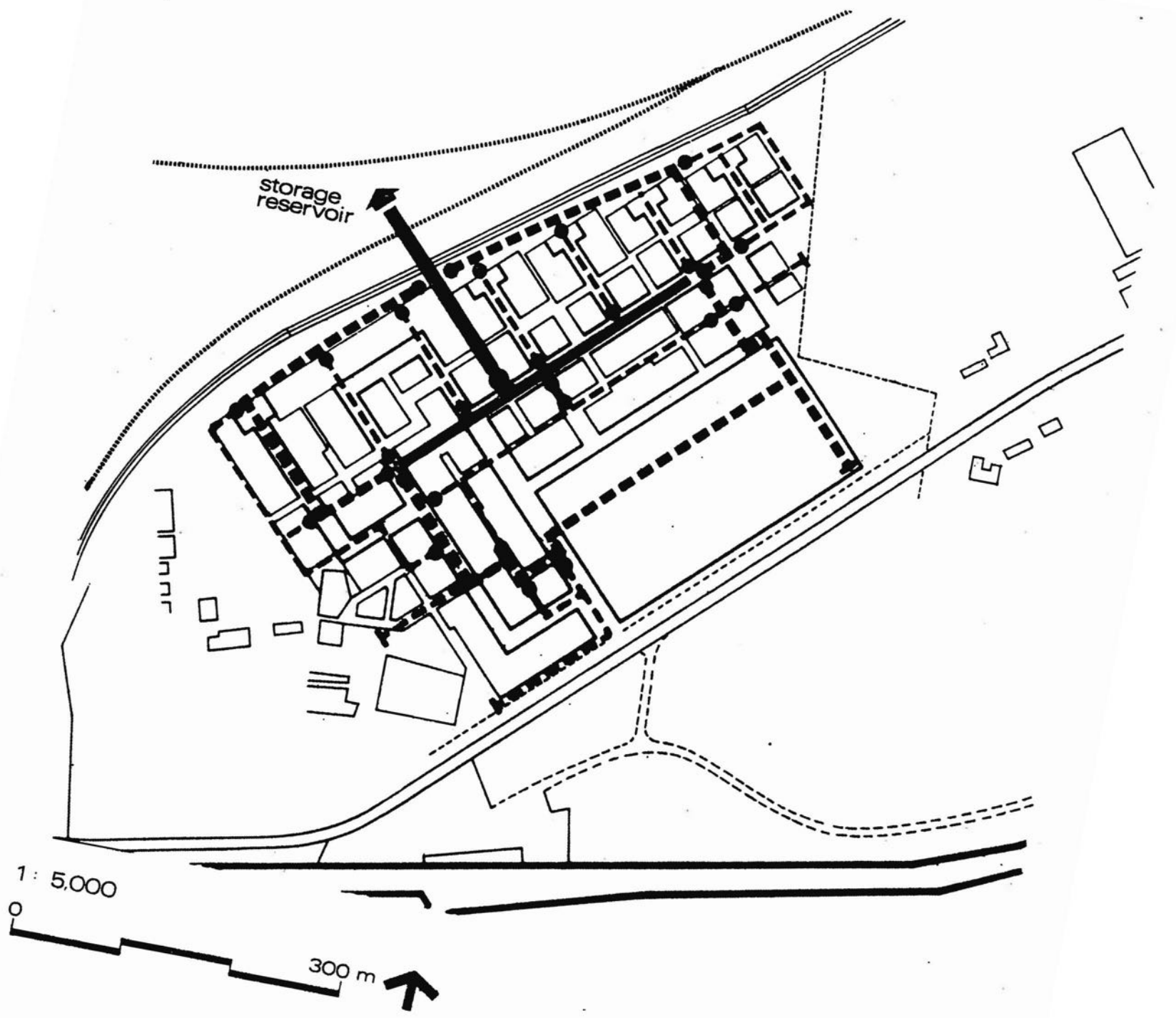
WATER

7.23 The Master Plan recommends the construction of a storage reservoir, to be sited approximately 700 metres to the north west of the Nifisha site, in Phase 1 of the Master Plan proposals. In the long term it is proposed to serve the site, by gravity, from this reservoir. However, until it is built and fully operational it will be necessary to supply the site from the existing treatment plant.

7.24 As stated 7.11 above the Consultants consider it premature to develop the full site immediately and propose to develop only part of the site with plot subdivisions and individual utility connections. Subject to field tests on capacity and pressure, this first phase could be supplied from the 400mm diameter mains supply currently under construction along the line of the Cairo-Ismailia agricultural road to link up with the Abu Suweir pipeline.

Table 7.2
STANDARDS OF INFRASTRUCTURE FOR NIFISHA ESTATE

Type of Infrastructure Provision	Standard	Comments
1. Worker/factory space ratios.	1 employee/10m2	Likely to be wide variations in labour intensity, but standard represents satisfactory average.
2. Optimum plot ratios: Covered factory space to total private plot area	1:1.5	Non-covered space for workspace, storage, etc.. Hardstanding and future expansion are provided in front of the private plot.
3. Advance Factory Units	Basic units of 72 and 120m2 with provision for combination	
4. Roads:		
Distributor	10cm. asphaltic concrete on 25 cm. base	Carriageway widths as shown in Figure 7.2; future widening allowed.
Access	5cm. asphaltic concrete on 25 cm. base	
Shoulders	5cm. asphaltic concrete. Flush kerbing.	
Hardstanding	Compacted fill.	
Parking	1 space per 25 workers	Additional parking on uncovered portion of plots.
5. Electricity	146 Kva/ha	No extraordinary consumers of electricity assumed
6. Water:		
Industrial usage	270 litres/ worker/day	
Employees	45 litres/ day	
7. Sewage	80-100% of water consumption volumes	Will vary depending on type of factory process, recycling etc. Harmful effluents to be rigidly controlled



100 mm ø
150 mm ø
200 mm ø
300 mm ø

Nifisha light industrial area · Water

7.4

7.25 The proposed on-site water distribution network is illustrated, Figure 7.4*, and consists of a central 'spine' main feeding two secondary rings.

* See also large scale plan, Fig. 40, Portfolio B

7.26 For Phase 1 the average daily demand is estimated to be 840 m3/day with a peak hour demand of 24 litres/sec. By the year 2000 the corresponding figures are 2090 m3/day and 60 litres/sec, respectively. Both figures include an allowance for irrigation water.

SEWERAGE

7.27 The proposed sewerage system is shown on Figure 7.5* and consists of several branches draining to the main collector on the line of the Cairo-Ismailia road. From this point a main collector discharges to a sewage pumping station, as recommended in the Master Plan, situated to south of the site.

* See also large scale plan, Fig. 41, Portfolio B

7.28 Phase 1 of the development would involve construction of the western part of this system and the outfall to the pumping station.

7.29 By the year 2000, total daily sewage flow from the site is estimated to be 1800 m3/day with a peak flow rate of 52 litres/sec. Both figures include an allowance for infiltration.

7.30 The site will have a significant area of impermeable surfaces. North of the main NE-SW spine road, surface water will be directed to the landscaped area along the northern perimeter. Elsewhere road gulleys will discharge the run off into the proposed sewerage system.

SOLID WASTE

7.31 Arrangements for solid waste will require detailed consideration once more information is available on the amount and type of refuse generated by the development.

ELECTRICITY

7.32 An 11 KV overhead line passes in close proximity to the site. Details and phasing of actual provision to be made should be determined immediately prior to the development of the site for light industrial purposes. Specific user requirements are capable of being met by the existing services in the area. (Refer Figure 42, Portfolio B).

TELEPHONES

7.33 Main trunk lines pass along the perimeters of the site. Subject to the implementation of plans to improve the telephone system and the availability of telephone facilities, it is proposed to make full telecommunication facilities available. Detailed aspects of actual provision to be made should be determined once development of the site is confirmed.

FACTORS AFFECTING CONSTRUCTION

7.34 The ground conditions are particularly difficult and have led to the proposal to raise the level of the whole site. Even with raised levels, some of the sewers will be located in the zone of capillary rise or below the water table. In these areas, it will be necessary to protect concrete from sulphate attack by the use of sulphate resisting cement and protective coatings; these factors have been allowed for in the cost estimates.

7.35 Where sewers are laid in filled ground it will be necessary to anticipate possible settlement of the fill and take suitable precautions to ensure that structural damage does not occur to the pipes. The use of flexible joints would be a decided advantage in these circumstances.

DEVELOPMENT CONTROL

7.36 The Master Plan provides guidelines in respect of a) the location of industrial units b) the types of industrial units to be encouraged on such sites, and, c) industrial emission control with respect to the units. These guidelines were established in order that industrially generated pollution hazards and problems could be avoided and minimised respectively. Thus in determining a rational emissions control policy attention is focussed on issues related to b) and c) above.

THE TYPES OF UNITS TO BE ENCOURAGED AT NIFISHA

7.37 In industrial pollution control, prevention is not only better than cure, it is also cheaper. The early identification of appropriate industrial processes within the area can obviate entirely the risks of particular types of pollution emissions. As long as the economic constraints allow, it is preferable to be able to dispense with the need for expensive methods of emission control and effluent disposal by choosing industrial categories which are, in most respects, non-polluting; this will be the main criterion of the implementing authority in selection of applicants (see Volume 1, Section 8).

EMISSION CONTROLS

7.38 Controls are also necessary to ensure performance standards as set out in Law 453/54 are carried out, the provisions of this law are adhered to in the design and operating guidelines of the Nifisha Project.

7.39 Health dangers to workers inside the site must be prevented. In particular dangers from radiation, fumes, gasses, vapours, dust, small particles and noise, and the concentrations of noxious materials which are considered to be the maximum permissable in current legislation have been accepted in the project area.

Air Borne Emissions

7.40 The location of the site relative to the Master Plan proposals for development to the south means that no new industry with significant air borne emissions should be allowed to develop at Nifisha.

Noise

7.41 This will be a short distance problem only. The urban areas along the eastern edge and to the north of the site (when developed, according to the Master Plan) may be affected, unless buffer zones of landscaping are provided. Specifically, the school near the western boundary of the site should be protected by a zone of tree planting.

Water Borne Emission

7.42 It is vital that no toxic waste is disposed of on-site as this would pollute the water table, and in turn, the Sweetwater Canal which is 200m. south of the site. Wastes must be discharged into the sewerage system and conform to the standards established in Law 93/62.

Monitoring

7.43 The local authority is responsible for the monitoring of discharges, and ensuring that the legal standards are adhered to.

PHASING

7.44 As discussed above, and in Volume 3, Section 4, the costs of fill for the entire site and the uncertainty regarding current demand make it desirable to implement the development in two phases. The plan allows for this to be done and includes a mixture of plots in eaeh phase. The layout can also respond to changes in demand by either amalgamating or further subdividing plots as necessary. The administrative facilities are located in Phase 1 but are well situated to serve Phase 2. The road and pedestrian paths networks have been designed to operate efficiently for both the full and initial layouts.

7.45 The location and extent of Phase 1 is shown in Figure 7.2* and occupies 7.1 hectares to the west of the main access road. This area requires less fill than that for the site as a whole and can therefore be developed for roughly LE15m2 net instead of LE18.7m2 for the whole area. Access paths and considerable landscaping would be required in Phase 1 for the western boundary of the site near Nifisha village.

* See also large scale plan, Fig. 38, Portfolio B

7.46 Phase 2 includes the remainder of the development. It is expected that a considerable period may elapse before this becomes economically viable, but the long term potential of the site is clear and it is likely that development will become more attractive when the land occupied by the Al Gala' camp becomes available for the city centre and land prices in the area rise sufficiently

to make it economically viable to fill the site.

7.47 Utilities phasing is not a problem, as water and sewerage lines are sited under footpaths running between plots rather than under paved roads.

DEVELOPMENT COSTS

7.48 Capital costs for developing the Nifisha Light Industrial Area have been estimated for both Phase One and for full development. These costs are presented in Table 7.3. Cost estimates have been derived as in the El Hekr and Abu Atwa Projects (see Volume 3, Section 8) with the following exceptions:

1.) Base land cost; @ LE0.75 for private land to be purchased. No cost is included for Government land.

2) Filling; extensive imported fill over 85% of project site, @ LE4.00/m3.

3) Unpaved areas; nominal surface preparation for pedestrian circulation.

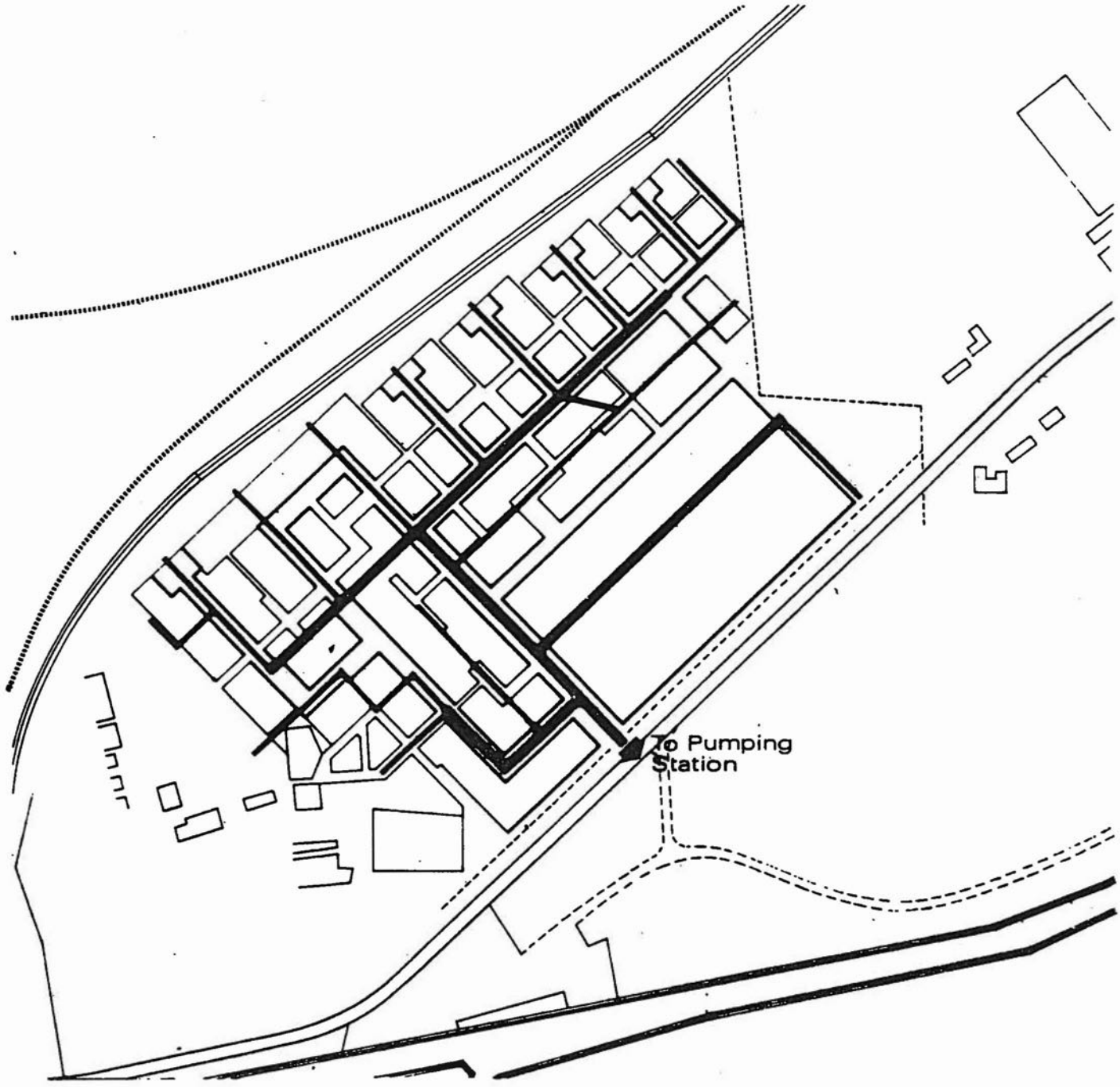
4) Boundary wall; approximately 1,000m. of 2m. high wall.

7.49 It should be noted that the costs of constructing factory units are not included, as the number of these units cannot at present be specified. In calculating the marketability of factory units (see Volume 3, Section 4) a cost of LE55/m2 of net factory space is assumed.

Table 7.3
NIFISHA INDUSTRIAL AREA: ESTIMATED CAPITAL COSTS OF INFRASTRUCTURE

Infrastructure	Full Development (gross area: 163,002m2)	Phase One Development (gross area: 71,856m2)
1 Land cost	117,500	49,000
2. Filling	1,097,800	340,000
3. Paved areas	125,000	55,000
4. Unpaved areas	7,500	3,300
5. Water supply	78,700	37,800
6. Sewerage	149,200	71,600
7. Electricity supply	80,000	37,600
8. Street lighting	15,000	6,600
9. Telephones	15,000	4,000
10. Landscape	5,000	3,500
11. Public facilities	35,000	4,000
12. Boundary wall	19,000	19,000*
TOTALS	1,744,700	631,500

*LE8,000 of this attributed to Phase One net costs.



1 : 5,000

0 300 m

MAIN COLLECTOR

PRIMARY COLLECTORS

Nifisha light industrial area · Sewerage

7·5

8

Implementation

8
Implementation

OVERVIEW

8.1 In this section the main proposals involving administration, legal and institutional control, project finance, monitoring and immediate steps are presented. The background analysis, justification and discussion of issues are found under the appropriate sections in Volume 3*, but the proposals themselves are shown here in full detail. Read together, these sections should give a clear, overall picture of implementation arrangements. The subjects presented refer first to the Abu Atwa and El Hekr Projects. Then, Nifisha Light Industrial Area, due to its different nature, is treated separately at the end of this section.

*In addition a full description of local administration and institutions appears in the Ismailia Demonstration Projects Status Report, August 1977.

PROJECT ADMINISTRATION – EL HEKR AND ABU ATWA

8.2 In each area the key to implementation is the formation of an entity, hereafter called the 'Project Agency'. As will be seen below, the Project Agencies for El Hekr and Abu Atwa are to share certain personnel and have certain coordinated functions, but administratively they will be separate.

A. FORMATION OF THE PROJECT AGENCY

8.3 Each Project Agency will be formed by Governor's Administrative Order and will be, ultimately, under the control and supervision of the Secretary General of the Governorate. Thus the Project Agency will be an executive Government body charged with administration of a specific Project Area for the public benefit. The Governor's Administrative Order will be preceded by the approval of the Project (design, financial and administrative aspects) from the Governorate and District Local Councils in full session.

8.4 Responsibilities and powers of the Project Agency will be set out in the Governor's Administrative Order, and will include the following specifications:

(i) The Project Agency will have the power to manage all lands within the boundaries described separately respecting all individual rights as prescribed by law. Acquisition of land by the Project Agency not presently in use, will be automatic with promulgation of the Order. It is understood that no base land payment will be necessary for Government lands.

(ii) The location of the Project Agency will be on site.

(iii) The Project Agency will have the power to sell lands to the public, at prices and under conditions that it chooses, providing that such prices and conditions are approved by the Secretary General of the Governorate.

(iv) The Project Agency will have the power to enter into contract agreements with all inhabitants of the area.

(v) (This article may require a decree waiving stipulations of Law 107 of 1976). The Project Agency will have the authority to manage its own budget separate of all local budgets, on two conditions:

a) that all revenue to the budget be spent on capital or recurrent improvements in the Area, after deducting necessary administrative expenses.

b) that all financial dealings be open to the auditing and inspection of the local office of the Ministry of Finance and/or the Governorate.

(vi) The Project Agency, as an autonomous public body, may solicit and act as guarantor (with collateral) for commercial or Government loans.

(vii) The Project Agency has the authority to select applicants for land parcels, based on criteria approved (and monitored if so desired) by the appropriate Governorate Committee.

(viii) The Project Agency may enter into contract arrangements with private or public contractors or public agencies, for the construction or installation of utilities and services. It may also, for small works, enter into contract with non-registered contractors residing in the Area.

(ix) The Project Agency may, at its discretion, institute a building loan programme for the benefit of the inhabitants of the area.

(x) The Project Agency may, in coordination with the Housing Directorate, institute a programme for the sale of limited quantities of building materials at official prices.

(xi) The Project Agency will have access to seconded personnel; for key positions, the Agency may directly recruit qualified persons.

(xii) The Project Agency may request that the Governor institute land expropriation proceedings.

(xiii) The two Project Agencies of El Hekr and Abu Atwa will be governed by one Board of Directors, the members of which will include (tentatively):

- the Secretary General of the Governorate
- Representative of the Governorate and District Local Councils
- Representative of the Ismailia City Council
- Representative of the Ismailia Housing Directorate
- Representative of the Amlak Department of Ismailia
- Representative of the Executive Agency of the MHR
- Representative of the local office of the Ministry of Finance
- the Project Managers of the El Hekr and Abu Atwa Project Agencies.

B. FUNCTIONS OF THE PROJECT AGENCY

8.5 In a sense, the functions of the Project Agency are outlined in the Governor's Administrative Orders as described above. To have a complete understanding of the scope of the Project Agency, however, it is necessary to ennumerate its functions in detail: (Some of these functions are to be shared between the Abu Atwa and El Hekr Project Agencies, as is noted under 'Staffing' below.)

(i) The management of a programme for the demarcation and registration of plots already inhabited; also the management of the designation, relocation, and compensation of a certain number of households whose removal is necessary for public improvements.

(ii) The management of a programme for the provision of marked plots to new settlers, including the processing of applications, selection of applicants, and assignment of plots.

(iii) The arranging and issuing of contracts for programmes (i) and (ii) above.

(iv) The collection of payments from contract holders.

(v) All printing, distributing and announcements of a publicity and information nature needed for programmes (i) and (ii) above.

(vi) The maintaining of an independent budget (capital and current).

(vii) The ability to negotiate and enter into contract agreements with contractors or with the SCA Works Department, the Electricity Board, the General Organisation for Sewerage and Sanitary Drainage, the Bus Company for the East Delta, or the Ministry of Wire and Wireless Communications. It may also correspond and communicate with these bodies for any

matters concerning the Project Areas.

(viii) The borrowing of money from banks or the National Housing Fund or the Cooperative Housing Society; also the acceptance of loans or grants from foreign sources, providing these follow the correct routines.

(ix) The assistance to inhabitants in obtaining building materials at official prices.

(x) The representation of the inhabitants of the Area to national Government, etc., for the provision of needed community facilities, such as schools, clinics, etc.. As such the Project Agency will need to communicate and correspond with the appropriate Government bodies. This function will be in concert with the elected representatives of the Area in the District and Village Local Councils.

(xi) The setting up of a small building loan system for inhabitants of the Area in the absence of availability of any such programme by other agencies.

(xii) The setting of prices and the preparation of specifications and documents for the future sale of certain commercial and residential plots on the open market.

(xiii) The organisation and encouragement of self-help and community improvement projects; also organizational assistance to inhabitants wishing to qualify for utilities provision under Law 259 of 1956.

(xiv) In coordination with the City Council and as part of community self-help programmes mentioned in (xiii), a capacity for small landscaping works and landscaping maintenance.

(xv) A capacity for planning and design for neighbourhood improvements, at least for the initial two years.

(xvi) The provision of technical assistance to home builders to ensure that superstructures and pit latrines are built according to clearly defined standards.

C. STAFFING OF THE PROJECT AGENCY

8.6 With the range of functions noted above, the Project Agency will need a significant administrative capacity. It is crucial to keep the costs of administration to a minimum (see discussion in Volume 3, Section 10), and the following staffing profile has been calculated with these two factors in mind.

8.7 The responsibilities of general management would include scheduled discussions with the Board of Directors, contacts and negotiations with other agencies (functions vii, viii, ix, and x above), and decision making as to when and at what prices to sell certain plots, when to open up new stages of development and announce new selection rounds,

and when to install utilities and services; (this last decision process would be formalized into annual improvement budgets). General management would be the overall responsibility of the Project Manager, in concert with active members of the Board of Directors and section heads (see below), and also with Local Council representatives from the Area.

8.8 It is proposed that this 'general management' function be shared between the El Hekr and Abu Atwa Project Agencies. While there would be a Project Manager for El Hekr and another for Abu Atwa (each the sole manager on site), there would be only one Board of Directors and only one section head for both projects. Thus the Engineering, Finance, and Legal chiefs, while mainly based in El Hekr, would also control their sections in Abu Atwa.and accounts would be kept separately. The Board of Directors would consider the businees of both Projects at the same session.

8.9 The day to day running of the Project Agencies will require, for the most part, clerical and administrative staff. Each project will need to have the following offices or sections staffed:

(i) Office of the Manager: deals with administration (office staffing, bills, transport, correspondence, etc.), with publicity and with overall monitoring of performance.

(ii) Engineering Office: deals with inspection and guarding of sites and plots, drawing up contracts for construction and utilities provision, and design of small works and improvements. It would also advise on and regulate the construction of pit latrines and give other construction advice (including the production of instructions and notes for distribution on technical points). Also, it would deal initially with the production and installation of plot markers and surveying corrections. It would also endorse applications for building materials. Finally, it would run the area-wide landscaping programme and control the activities of Project gardeners.

(iii) Finance Office: deals with the collection of payments, the management of books and budgets, depositing money and drawing cheques, etc.. It would also be responsible for administering a building loan programme.

(iv) Legal Affairs Office: a small office to deal with the drawing up and letting of contracts, the recording of contracts and the sending of copies to appropriate offices etc.. The major load on this office extends over the first two to three years only.

(v) Public Relations and Applications Office: this would be the 'front' office which would accept applications, answer queries, direct people, file applications, make up waiting lists, etc.. At rush times, it will need quite a capacity, in which case employees from the 'back' offices can help out.

8.10 The Consultants have made a preliminary estimate of the staffing requirements for these offices, which would be revised as recruitment gets underway and sources of seconded personnel are decided:

1. Office of the Manager

   Project Manager
   Assistant Manager
   3 Secretaries

2. Engineering Office

   Chief Engineer
   3 Engineers (one of whom is a survey engineer)
   Draughtsman
   2 Survey Assistants
   Clerk

3. Legal Affairs Office

   Legal Advisor
   Clerk
   Secretary

4. Finance Office

   Financial Chief
   Accountant
   Cashier
   Clerk

5. Public Relations and Applications Office

   Public Relations Officer
   2 Reception Clerks
   2 Filing Clerks

6. Support Staff

   3 Guards
   Office Boy
   2 Drivers
   5 Gardeners

8.11 This gives a total of 36 persons for the El Hekr Project Office, of which 10 are professional, 13 are clerical, and 13 are support staff. Since three of the office heads would double for Abu Atwa as well as El Hekr, the average number for each Project Agency would be 35.5 persons. This total could be reduced if a certain number of employees could be temporarily seconded for rush periods during the first two years. Certainly, once the plot registration and demarcation process for existing inhabitants is completed (see below), on-going staffing needs could be decreased significantly.

8.12 For Abu Atwa total staffing needs will be somewhat less than the above estimates for El Hekr, largely because the existing and likely future population is smaller. Thus it is assumed that, although the office structure would be the same as El Hekr, the number of professionals would be 4 (exclusive of 'shared' office heads), 9 clerical and 10 support persons. For an analysis of the cost implications of staffing, and possible arrangements for secondment, see Volume 3, Section 10.

D. SERVICES OF THE PROJECT AGENCY

8.13 It should be clear from previous discussion that it is of prime importance for the Project Agency to operate successfully as a vehicle for land development and neighbourhood improvement. It is also important, however, that the Project Agency has a capacity for the encouragement and aid of home building. Thus it is proposed that its functions include the management of a building loan programme and a mechanism for the supply of building materials at official prices, and also a capacity for construction advice. The nature and operation of these services is now briefly described (it should be noted that the scope of these services depends largely on the staff available and, in the case of building loans, on funding sources).

Building Loan Programme

8.14 In the absence of a national or city-level building loan programme which would be accessible to inhabitants of the Project Areas, the Project Agencies could set up a modest loan programme of the following characteristics:

The amount of a single loan would be limited to LE400 to LE500, (the cost of reinforced concrete roofing), with payback over a medium term period (say, 3 to 6 years), charged at the Agency's own capitalization rate (probably 7%). The funds for this loan programme could come from the Agency's own revenues, from loans secured by the Agency from external sources, or from a subscription programme (whereby participating inhabitants would pay into a savings fund similar to an expanded savings gama'ia). Qualifications for securing such a loan would be:

(1) proof of payback ability (income test),
(2) previous subscription payments into the savings fund, and
(3) technical approval of the proposed construction.

It is difficult to say how extensive such a loan programme would need to be, as it would depend on the amount of capital the Agency could raise or earmark for the fund. It may be that the main constraint would be the staffing capacity of the Agency for administering such a loan programme as the paperwork involved could be quite burdensome.

Building Materials Supply

8.15 (For a full discussion of the building materials problem, see Volume 2, Section 3.)
Government controlled building materials, in particular cement, could be made available at (or near) official prices through liaison by the Project Agency with the MHR and the Ismailia Housing Directorate, to promote the following arrangements:

(1) The licensing of three more official distributors of building materials in each Study Area.

(2) The increase of the monthly materials quota for

Ismailia, with a specified amount earmarked for the Study Areas.

(3) The institution of a programme whereby settlers holding contracts in the project be allowed to buy a specified annual quantity at official prices under a modified "repair" application routine.

(4) That this routine be simplified by the Project Agency so that necessary documentation is kept to a minimum; specifically, the Agency could issue and endorse (as in the loan programme described above) a booklet, upon which the Housing Directorate can record purchases.

Technical Advice

8.16 The Project Agency engineers could assist settlers in planning improvements which require structural precision (e.g. roofing). A small, fixed fee would be set by the Agency for this service. The real importance of such assistance would be that the engineers could approve the planned improvement and thus make the settler eligible for either or both of the programmes mentioned above. The Engineering Office would also provide model plans (as illustrated in Volume 2, Section 4) at nominal cost to show settlers alternative ways of constructing on their plots, and could advise them on conformance with building specifications.

8.17 Besides these home-building services, the Project Agency has the opportunity to act as a vehicle for a number of community development services and self-help programmes. These services, such as adult education, birth control and nutrition information, cultural and handicraft development, and community-organization building, would be offered and run by the appropriate Government organization, but the Agency could help in promotion and organization. Since for the first time in Ismailia there would be a community-level, locally based agency specifically aimed at community betterment and neighbourhood improvement, the Project Agency would provide the necessary focus and identity to the community, and may release the potential for social commitment on the part of the inhabitants, which until now has had few means of expression.

8.18 The Project Agency would also act as a representative of the community, along with Local Council members from the area, vis-a-vis the City Council to ensure that City Council services (street cleaning, garbage collection, road repair, and the emptying of pit latrines) are carried out. To the extent that these services remain substandard, after all possible pressures are applied, the Agency could, out of its own budget, improve them; perhaps by organising self-help efforts. This would be particularly important for repairing roads, where,if repair is not carried out immediately, further deterioration of the road surface would result. This capacity of the Project Agency is also extremely important to ensure the regular emptying of pit latrines by suction truck. In the case of insufficient service, the possibility of 'renting' these trucks or of paying part of the daily fees should be investigated by the Project Agency (see Volume 3, Section 7, Utilities).

LEGAL AND INSTITUTIONAL CONTROL—EL HEKR AND ABU ATWA

8.19 This subsection presents the proposed legal conditions and institutional processes which will control the land development activities of both the existing and new settlers. These proposals have been based on the Consultants' understanding of the existing legal context in Egypt, prevalent Government practices and capacities at the local level, and upon perceptions of desires and attitudes of the inhabitants in the Study Areas; these issues are discussed in Volume 3, Sections 10 and 11.

A. NEW SETTLERS: CONDITIONS OF AGREEMENT FOR PLOT ACQUISITION - DELAYED FREEHOLD

8.20 The following conditions are recommended as a basis for the design of a contract for plot acquisition by new settlers.* The "settler" is the head of the household making application.

*These conditions do not apply to the sale of concession plots; these plots are to be sold outright, following normal legal procedures.

(i) The settler agrees to pay, for 10, 15, 20 or 30 years, annual payments which are based upon a total value of LEX, amortized at 7% annual interest. He may choose between the four time periods; at any time during this period he may change to a shorter period, and payments would be adjusted accordingly. He may also choose to pay monthly, quarterly or annually.

(ii) The settler agrees to pay, upon signing, a demarcation and administration fee of LE10, and also one year's payment in advance, as deposit.

(iii) For the period chosen, the settler has the legal status of renter of the plot; if he wishes to leave at any time during this period (i.e. leaves and does not transfer contract to another in the immediate family), he must sell his contract to another on the Waiting List** (see below); he is entitled to his accumulated payments and the superstructure is sold to highest bidder, within limits set by the Project Agency. The new occupier takes on all payment obligations as if he were a new settler.

**In the event of there being no-one on the waiting list the contract may be transferred to another party with approval of the Project Agency.

(iv) At the end of the period chosen, he or his inheritor receives freehold title for the plot, with all rights and obligations as set by law, on condition that the built superstructure meets all design specifications set out in this document or is in compliance with the executive regulations of Law 106 of 1976. If, at the end of the period, the superstructure is in violation, the settler maintains his renter status with the same restrictions of sale as described in article (iii) above.

(v) The settler agrees to occupy his plot within twelve months of signing and to continue occupying the plot with the majority of his household (see below).

(vi) The settler is not allowed, at any period or for whatever reason, to subdivide his plot.***

***Freehold title would include a restriction clause to this effect.

(vii) The settler agrees, during the chosen period, to use his plot primarily for residential purposes. However, he is permitted to construct and operate, in addition to his habitation:

- a public place, on condition that he follows all requirements as set out by Law 371 of 1956, specifically the obtaining of a commercial permit from the Housing Directorate;

- a workshop, on condition that the workshop is not a noxious use, (Law 13 of 1904), as defined by the City Council, and that a permit is obtained as prescribed by Law 371 of 1956;

- rooms or apartments for rent.

(viii) The settler agrees, at the time of connecting his plot to public water and sewerage mains, to be assessed:

- a connection charge equal to the cost of connection;
- additional charges as may be levied by the GOSS or SCA.

(ix) The settler agrees that, up to the time of provision of water-borne sewerage, the construction, use, and emptying of a pit latrine by him be subject to supplementary regulations, as will be set out by the Project Agency (see Volume 2, paragraphs 4.88-4.92 and Volume 3, Section 7).

(x) The settlers of class 'A' plots which have access to a communal space are responsible for the maintainance of that space. If the space is not maintained to the satisfaction of the Project Agency, the Agency may itself undertake the work and recoup the costs from the residents.

(xi) Contravention of these agreements by the settler, specifically payment default, may put the settler's plot claim in jeopardy; (delinquency conditions to be decided).

(xii) In constructing a superstructure, the settler agrees to conform with the following design regulations (or those regulations found in Law 106 of 1976):

- 20% of the area of the plot shall be left unbuilt and uncovered, regardless of plot size. This open area must include at least one courtyard with a minimum width of 2.7m; additional courtyards or light wells must be at least 1m wide.

- the height of the building may not at any point exceed 1.5 times the width of the fronting street, except for stair wells and ornament. In the case of a corner plot, the width of the widest of the two streets is used for measurement. In the case of fronting streets of 9m width or less, the building may not exceed 1 time the street width. In no circumstance may a building exceed five storeys.

- the occupier is allowed to use a strip of land fronting the plot for tree-planting or a garden. This width may not exceed 1.5m on streets of 9-10.5m width and 2.0m on streets of 15m and 20m width. No planting is allowed on lanes of widths less than 9m. Under no circumstances may walls be built around this strip, and the Project Agency may at any time acquire this strip for sidewalks, road widening or utilities installation without payment of compensation.

- enclosed balconies may be built with a maximum overhang of 1.25m, except on streets less than 9m width, in which case no balcony may be built. Balconies may not be constructed within 1m of adjoining plots.

- habitable rooms (living, dining, sleeping) must have a minimum width of 2.7m. In addition, each room (except a central sitting room) must have opening(s) of at least

0.75m2 area giving on to the street or interior open spaces. The interior height (clearance) of these rooms may not be less than 2.7m.

- other rooms must conform to the following minimum measurements:

	Minimum width	Minimum clearance
Kitchen	1.5m	2.1m
Toilet/Lavatory	1.0m	2.1m
Corridor	1.0m	2.1m

In addition, adequate ventilation must be provided for kitchens and toilets, either by windows or roof openings of at least 0.5m2 area.

- if stairs are constructed they must be of 1.00m width; rises may not be greater than 18cm and treads not less than 20cm.

- units for rent on upper floors must be provided with toilets (connected to the pit latrine or sewerage lines).

(xiii) The settlers of two adjoining plots may construct a common building. In this case the above design regulations apply as if the two plots are one. Before proceeding the two settlers must take the necessary legal steps to establish joint title to the parcels.

B. NEW SETTLERS: SELECTION OF APPLICANTS AND PLOT ASSIGNMENT

8.21 The Project Agency will announce, through appropriate public channels, the availability of plots and the place and date for presentation of applications. Also announced will be the following conditions* for screening applications:

*These conditions should be reassessed after the first round of plot allocation.

- that the applicant be the head of the family (only one applicant per family allowed);

- that the applicant or his spouse have been a resident of the Ismailia Governorate for a minimum of 18 months (this condition is waived if applicant is a current occupier of an expropriated plot in the Area);

- that the present residence of the applicant and his family be fully released upon occupying the new plot;

- that the total income of the applicant and all other members of the household does not exceed LE70 per month.

8.22 In the application the following information will be requested:

(i) Applicant's name, age, identity card number, and place of employment.

(ii) Names of all members of his household who are now or will be living with him, their ages and employment, if any.

(iii) Present place of residence, and proof of 18 months residence in Ismailia Governorate.

(iv) If the applicant or any member of his household has already presented an application to the Governorate for public housing, the date and number of this application.

(v) A statement of total household income and sources.

8.23 Applicants will be selected by Governorate committee according to the following criteria and priorities.

- removal from existing plot;
- household income and need;
- the priorities which presently apply to selection for public housing.

8.24 Selected applicants for Round One (500 to 1000 plots) are notified; if there are more qualifying applicants than plots, the cut-off is decided by lot and others are put on a Waiting List. Notified applicants are invited to choose, within 15 days, the size of plot, whether Class A, B or C, and the repayment programme (choice of four). If a notified applicant feels he cannot build on and occupy a plot within 12 months, he has the option of having his name placed at the top of the Waiting List.

8.25 An applicant is allowed to submit joint preferences with other applicants for adjoining plots; in this case, as far as assignments of plots is concerned, these preferences are considered as one.

8.26 Once all selected applicants from Round One have submitted preferences as described above, the Project Agency will assign plots. In cases where certain size and class plots are over subscribed, cut-off will be decided by lot and excluded applicants will have the choice of selecting from remaining plots or being put on the Waiting List for Round Two. Settlers' preferences for plot location will be elicited on site plans; if necessary, priority for first selection will be related to the order established by lot. In all cases the Project Agency reserves the right of final say

8.27 Once assignment is completed, the settler enters into contract agreement with the Project Agency, endorsed by the Secretary General of the Governorate of Ismailia. The contract becomes valid upon initial payment.

8.28 In addition, to the above procedure, the Agency may, if it considers it appropriate, sell up to 10% of the non-concession plots to unrestricted buyers. This would be at a higher market rate, to be decided at the time of sale. Purchasers would be required to meet full building regulations, and to complete, within two years, at least the ground floor of a building approved by the Agency.

C. EXISTING SETTLERS: CONDITIONS OF AGREEMENT - DELAYED FREEHOLD

8.29 The following conditions are recommended as a basis for the design of a contract for plot acquisition by existing settlers. The 'occupier' is the head of household as defined by the registration programme described below.

(i) The occupier agrees to pay 5, 10, 20 or 30 years annual payments which are based upon a total amount of LEX, amortized at 7% annual interest. He may choose between time periods; at any time during this period he may change to a shorter period, and payments will be adjusted accordingly. The occupier can arrange to pay on an annual, quarterly or monthly basis.

(ii) The total amount is assessed according to the square metre area of the plot and plots Class category (see 'Project Finance' below).

(iii) The occupier agrees to pay an administrative fee of LE5 and also one year's payment in advance.

(iv) For the chosen period, the occupier has the legal status of renter of the plot. If he wishes to leave at any time during this period (ie., leaves and does not transfer the contract to another in his immediate family), he must sell his contract to another on the Waiting List for new settlers*. He is entitled to his accumulated payments, and the superstructure is sold to the highest bidder within limits set by the Project Agency The new occupier takes on all payment obligations as if he were a new settler, and pays the entry fee.

*In the event of there being no-one on the waiting list the contract may be transferred to another party with the approval of the Project Agency.

(v) If the occupier has registered his plot previously at the Amlak Department or Housing Directorate his total financial obligation is reduced by the value of hekr payments he has already made.

(vi) If the occupier's plot is enlarged by street rationalisation, the total enlarged surface area is charged. If his plot is reduced by street rationalisation, he pays only for the new reduced surface area.

(vii) If his plot is reduced by street rationalisation to the extent that he must move (see paragraph 8.36 below), he is given priority in new plot selection; any hekr rent he has paid up to this point can be set against his total payment obligation in the new plot. He is also compensated for the loss of his superstructure (see expropriation note below).

(viii) At the end of the chosen period, the occupier or his inheritor receives freehold title for the plot, with all rights and obligations provided that (a) the superstructure meets all building regulations set down in this document or those of the executive regulations of Law 106 of 1976 or (b) that he can prove that he is ready to meet all obligations required for Cooperative Housing loans. If conditions are not met, status is as in (iv) above.

(ix) The occupier agrees, for the chosen period, to use his plot primarily for residential purposes for himself and his family. However, he is permitted to construct and operate, in addition to his habitation;

- a public place, on condition that he follows all requirements as set out by Law 371 of 1956;
- a workshop, on condition that the workshop is not a noxious use (Law 3 of 1904) and that a permit is obtained as prescribed by Law 371 of 1956:
- rooms or apartments for rent.,

(x) The occupier agrees, at the time of connecting his plot to public water and sewerage mains, to be assessed;

- a connection charge equal to the cost of connection,
- additional charges which may be levied by GOSS or the SCA.

(xi) The occupier agrees that, up to the time of provision of waterborne sewerage, his use and emptying of a pit latrine be subject to supplementary health requirements as will be set out by the Project Agency.

(xii) The occupiers of plots having access onto a communal space, as defined in the Improvement Area proposals, are responsible for the maintainance of that space. If the space is not maintained to the satisfaction

of the Project Agency, the Agency may itself undertake the work, and recoup the costs from the residents.

(xiii)Contravention of the above agreements, specifically payment default, will result in reversion of the plot to Government leasehold, with no rights of sale of superstructure to any but the Project Agency, at compensation rates. In addition, the occupier will be unable to benefit from any of the services offered by the Project Agency.

(xiv) In expanding or rebuilding the superstructure, the settler agrees to conform with the following design regulations:

- 20% of the area of the plot shall be left unbuilt and uncovered, regardless of plot size. This open area must include at least one courtyard with a minimum width of 2.7m. Additional courtyards or light wells must be least 1m wide.

- The height of the building may not at any point, exceed 1.5 times the width of the fronting street, (measured from plot line to plot line) except for stair wells and ornament. Buildings on fronting streets of less than 6m width may not be increased in height, nor may major repairs be carried out, unless the facade is set back by a distance equal to one half the distance between the present road width and 6m. No building may exceed five storeys.

- The occupier is allowed to use a strip of land fronting the plot for tree-planting or a garden. This width may not exceed 1.5m on streets of 9-10.5 width and 2.0m on streets of 15m and 20m width. No planting is allowed on lanes of widths less than 9m. Under no circumstances may walls be built around this strip, and the Project Agency may, at any time acquire this strip for sidewalks, road widening or utilities installation without payment of compensation.

- Balconies may be built with a maximum overhang of 1.25m., except on streets less than 9m width, in which case no balcony may be built. Balconies may not be constructed within 1m of adjoining plots.

- Habitable rooms (living, dining, sleeping) must have a minimum width of 2.7m. In addition, each room (except a central sitting room) must have openings of at least 0.75m2 area giving onto the street or interior open spaces. The interior height (clearance) of these rooms may not be less than 2.7m.

- Other rooms must conform to the following minimum measurements:

	Minimum Width	Minimum Clearance
Kitchen	1.5m	2.1m
Toilet/Lavatory	1.0m	2.1m
Corridor	1.0m	2.1m

  In addition, adequate ventilation must be provided for kitchens and toilets, either by windows or roof openings of at least 0.5m2 area.

- If stairs are constructed they must be of 1.0m width; rises may not be more than 18cm and treads not less than 20cm.

- Units for rent on upper floors must be provided with toilets (connected to the pit latrine or sewerage lines).

(xv) The settlers of two adjoining plots may construct a common building. In this case the above design regulations apply as if the two plots are one. Before proceeding, the two settlers must take the necessary legal steps to establish joint title to the parcels.

D. EXISTING SETTLERS - REGULATION AND REGISTRATION PROGRAMME

This programme will involve a neighbourhood-by-neighbourhood approach; these neighbourhoods, each with roughly 700-900 plots, have been demarcated as is shown for illustration in Figure 4.2. Each Project Agency as soon as it opens will first focus attention on the Detailed Improvement Areas (neighbourhoods 3 and 6 in El Hekr and 3 in Abu Atwa), and will commence with the following programme:

(i) The Detailed Improvement Area will be divided into 'blocks', each of which will be clearly distinguishable and bounded by proposed streets; each block will contain roughly 100 plots.

(ii) It will be announced that the registration programme is under way, and that each block should put forward three representatives, preferably long-standing residents.

(iii) These representatives will be given copies of improvement proposals for the whole of the Detailed Improvement Area, with their respective blocks shown. They will also be given a circular which explains the programme and the opportunities and obligations involved. They will then be asked to consult with their block neighbours and return for a general meeting of all representatives to endorse the proposals or offer community agreed alterations affecting their respective blocks. If these alterations are in line with the Community Plan, they will be incorporated.

(iv) Maps of each block are then prepared at 1:500 scale, showing the existing house lines and the proposed road and facilities system, including any alterations forthcoming from (iii) above. Copies of these maps are given to the representatives for distribution, along with basic guidelines for plot expansion or retraction.

(v) At the same time, concrete markers are put at all street definition points and to delimit all facilities reserves.

(vi) Within 30 days, the inhabitants of each block are required to submit (after mutual agreement and through their representative using the advice of the Project engineers) a map of the block showing:

- individual plot lines sketched in;

- the name of the head of household associated wth each individual plot

- expansion lines of those plot owners who wish to expand to the new street lines, or wish to incorporate portions of plots left from street widening.

In addition, they are required to prepare, for each block, a list of all plots, showing for each the name of head of household(termed 'occupier' above), the total number of square metres (including expansion and/or retraction, if any), the members of the household, including renters, and the hekr registration numbers.

(vii) After submission, the Project Agency engineers will verify the maps, using the known total plot area in each block as a control.

(viii) The heads of households are then called to enter into contract. This is obligatory, otherwise the occupier may loose all claims

8.31 While this process is underway for the Detailed Improvement Areas, the planning staff of the Project Agency will prepare detailed improvement maps for the other neighbourhoods. Once they are completed the same process can be applied. Thus, depending on the work load, the Project Agency will work throughout the Area, completing this registration programme as soon as possible.

8.32 When plots have been registered the occupiers will attach a plate, supplied by the Project Agency, showing the registration number.

E. EXPROPRIATION AND COMPENSATION PROCESS

8.33 In Abu Atwa there are approximately 4 hectares of private (freehold) land which must be expropriated for the Phase One subdivision area. As this land is unused, the expropriation routine as prescribed by Law 27 of 1956 can be applied without difficulty. This routine requires that the Governor issue and publish a declaration of expropriation in the public interest, that the owners be informed, that the Housing Directorate, through committee, assess the property value, and that the owners be given the right of appeal. This process should take two to three months.

8.34 This is the only formal expropriation of private land required for either Abu Atwa or El Hekr. In both areas there are certain occupied plots under hekr leasehold or simple 'hand claim' (wada' yed) which require administrative compensation for the occupier's superstructure. Such parcels must be taken for street widening, public facilities, and to allow the orderly subdivision of surrounding vacant land. These parcels

are indicated on the detailed plans, but must be verified by field checking. Every attempt has been made to minimise the total amount of this form of expropriation, and if at all possible only to take walls and out-works.

8.35 Compensation for superstructure is not required for houses built after June 1977 (date of issue of Governor's administrative Order 402, prohibiting construction on empty land for one year), and this applies to some structures on the fringe of El Hekr and isolated houses in Abu Atwa.

8.36 Apart from these, the Project Agency will provide compensation for the superstructure of all needed plots, following these steps:

(i) In each block, a list of needed plots is prepared and occupiers are notified;

- that all or part of their parcel will be taken
- that if part of their parcel is taken, and the resulting plot is less than 50m2 or less than 5m. wide, they must move
- that if the resulting parcel is larger than these limits, the occupier may or may not select to move
- that if moving, the occupier is given priority in selecting a plot in the new areas
- and that administrative compensation will be assessed for existing superstructure requiring removal.

(ii) The Project Agency will, using the compensation schedule of the Ministry of Housing and Reconstruction (a schedule used in assessing compensation for war damage revised for inflation), calculate a simple rate (based on built m2, type and age of structure less movable fixtures) which will be offered to occupiers. This rate should be calculated to be slightly higher than that which could be expected from a detailed assessment.

(iii) If the occupier refuses the offered amount, detailed assessment is made directly by the Housing Directorate. This process will take time, and it is hoped that most occupiers will avoid it, (it is well known that compensation by the Housing Directorate rarely reflects real value, especially for poorer structures).

8.37 Which plots will be treated first will depend upon the street widening and plot demarcation schedule. Some plots will not need to be taken for some time, and assessment of these will be left until later, though their occupiers will be informed immediately. In these operations the inspectors of the Amlak Department will be closely involved with the Project Agency.

PROJECT FINANCE – EL HEKR AND ABU ATWA

8.38 It is proposed that the El Hekr and Abu Atwa Project Agencies each be financially independent of local Government Budgets, ie., that each will be a self-financing concern. The Agencies' revenues will come from instalment payments for plot 'purchase' (both new and existing settlers), and with this revenue it will finance infrastructure improvements and also various services. In financing infrastructure improvements it will obtain loans. Supplemental income will be available in future years from the sale of certain residential and commercial plots on the open market.

8.39 In effect, the Project Agencies will be undertaking infrastructure improvements to the best of their financial capabilities, and it has been assumed that they must be able to operate without any outside aid. How much of total infrastructure needs the Agencies can finance has been decided mainly on considerations of the ability to pay of the target population and also upon various practical constraints. These issues have been brought out in different parts of this report, and in particular Volume 3, Section 9. It is strongly recommended that this Section be read to gain an understanding of the many issues involved.

8.40 In the subsequent paragraphs the main features of the financing of the Project Agencies' activities is proposed. It should be stressed that these proposals assume that the Project Agencies have a capacity to make decisions over time and manage financing in the face of different factors which cannot be quantified at present.

REVENUES AND CHARGING

8.41 The revenues of the Project Agency are derived from the available revenue-generating surface area. This area is calculated to be as follows:

	El Hekr	Abu Atwa
Net area of existing plots	982,500m2	771,000m2
Net area of new plots	365,700m2	261,000m2
Net area of concession plots (plots reserved for future sale at market prices)	70,500m2	37,500m2
TOTAL	1,418,700m2	1,069,500m2

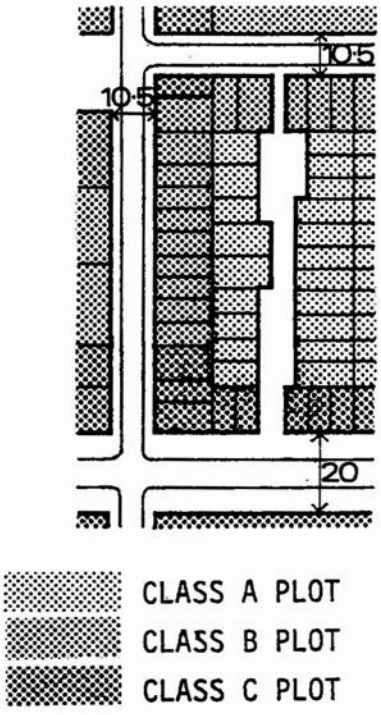
Both new and existing settlers will be required to 'purchase' plots through instalment payments, which when capitalised at 7% are equal to the 'price' of the plot. This price is calculated from a base plot-purchase rate expressed per square metre; this base rate is proposed to be:

	El Hekr	Abu Atwa
For existing plots	1.23 LE/m2	1.29 LE/m2
For new plots	1.76 LE/m2	1.72 LE/m2

The 'price' of a plot is thus the base rate multiplied by the area (in m2) of the plot, plus surcharges.

8.42

Both new and existing plots have been classified according to their commercial potential; the definition and surcharges are as follows:



Plot Classes 8·1

In New Areas:

Class A Plots — Those plots fronting on semi-private spaces (streets of 9m. width and less); no surcharge.

Class B Plots — Those plots fronting on roads of 10.5m. width or more (ie., access, local, and district streets); a surcharge of 0.25 LE/m2 is added to the plot purchase rate.

Class C Plots — A small number of plots whose particular location gives them significant commercial potential; a surcharge of LE 8.00 per linear metre of frontage is added to the plot purchase rate.

In Existing Areas:

Class A Plots — The vast majority of all plots; no surcharge.

Class C Plots — A small number of plots whose particular location gives them a significant commercial potential; a surcharge of LE 8.00 per linear metre of frontage is added to the plot purchase rate.

Class B and C plots have been identified in new areas of El Hekr and Abu Atwa; for illustration they have been shown in the Phase One subdivision of El Hekr* (see Figure 8.1)*. In existing areas Class C plots have been estimated to total 6000 metres of linear frontage in El Hekr and 3,500 metres of linear frontage in Abu Atwa.

*See Figure 10B, Portfolio A

8.43

By taking the base plot-purchase rates and the surcharges for commercial potential as explained above, it is possible to calculate the actual annual charges which existing and new settlers will be faced with. For new settlers, who may choose between four different payback periods, the range of choices is quite wide, since there are also 6 different plot types and three plot 'classes'. This range of options is illustrated for El Hekr in the charging schedule shown in Table 8.1. For existing settlers choice is limited to four payback periods, and

thus actual annual rates will depend on the settler's plot size and the payback arrangement he prefers. To illustrate, Table 8.2 shows the different obligations existing settlers in El Hekr set against plot sizes which represent the median 25th and 75th percentiles of the observed plot size distribution.

Table 8.1
ANNUAL CHARGES PER PLOT (LE PER ANNUM) FOR NEW PLOTS IN EL HEKR

Plot Class	Plot Size	Payback Period 10 Years LE/Annum	15 Years LE/Annum	20 Years LE/Annum	30 Years LE/Annum
	6x12	18.10	13.96	11.99	10.22
	6x15	22.62	17.44	14.99	12.78
Class	6x18	27.15	20.92	17.99	15.35
A	9x12	28.90	22.28	19.15	16.33
Plots	9x15	33.94	26.17	22.48	19.18
	12x12	36.21	27.90	23.99	20.44
	9x18	40.73	31.38	26.36	23.01
	6x12	21.26	16.38	14.08	12.01
	6x15	26.57	20.48	17.61	15.02
Class	6x18	31.89	24.21	21.13	18.02
B	9x12	33.64	25.93	22.29	19.02
Plots	9x15	39.85	30.71	26.41	22.52
	12x12	42.51	32.76	28.17	24.02
	9x18	47.83	36.86	31.69	27.03
	6x12	29.67	22.87	19.67	16.78
Class	6x15	34.99	26.97	23.19	19.78
C	6x18	40.31	31.06	26.71	22.78
Plots	9x12	46.26	35.66	30.60	26.14
(except	9x15	52.48	40.45	34.78	29.66
corner	12x12	59.35	45.75	39.32	33.54
plots)	9x18	58.69	45.24	37.66	33.17

Note: These rates cover the 'minimum infrastructure' programme (Table 8.3) and additional services financed by the 'Accumulated Surplus' (see Table 8.5).

Table 8.2
ANNUAL PLOT CHARGE FOR EXISTING CLASS 'A' PLOTS IN EL HEKR

Indicative Plot Sizes	Payback period 5 Years LE/Annum	10 Years LE/Annum	20 Years LE/Annum	30 Years LE/Annum
90m2 (25th percentile plot)	27.00	15.76	10.45	8.91
128m2 (median plot)	38.40	22.42	14.86	12.68
180m2 (75th percentile plot)	54.00	31.54	20.90	17.83

EXPENDITURES

8.44 The main expenditures of the Project Agencies will be investments in infrastructure elements. It is proposed that each Project Agency be responsible at least for a

Table 8.3
CAPITAL COSTS OF MINIMUM INFRASTRUCTURE PROGRAMME: EL HEKR (LE 1977)

Item	Total Cost	Share of Total Cost Attributed To:			
		Existing Settlers	New Settlers	Concession Plots	Community Facilities
1) Administration (including capitalised running costs)	94,900	55,990	34,165	4,745	-
2) Compensation	26,550	14,660	8,560	1,330	2,000
3) Markers (including surveying)	38,850	2,100	32,110	3,940	700
4) Levelling	18,400	13,060	4,780	560	-
5) Standpipes	202,165	110,000	69,000	7,500	15,665
6) Stage 1 Local roads	246,810	150,500	81,310	5,000	10,000
7) Stage 1 District roads	200,290	106,370	64,905	9,015	20,000
8) Landscaping	45,000	26,550	16,200	2,250	-
TOTAL	872,965	479,230	311,030	34,340	48,365
Share Percentage	100%	54.9%	35.6%	3.9%	5.5%
Adjusted share percentage	100%	62.7%	37.3%	-	-

Table 8.4
CAPITAL COSTS OF MINIMUM INFRASTRUCTURE PROGRAMME: ABU ATWA (LE 1977)

Item	Total Cost	Share of Total Cost Attributed To:			
		Existing Settlers	New Settlers	Concession Plots	Community Facilities
1) Administration (including capitalised running costs)	74,150	49,600	21,100	3,450	-
2) Compensation	88,500	16,440	68,100	960	3,000
3) Markers (including surveying)	16,730	1,100	12,830	900	1,900
4) Levelling	6,000	3,800	1,800	400	-
5) Standpipes	131,200	86,000	39,400	-	5,800
6) Stage 1 Local roads	173,850	111,700	52,150	5,900	5,000
7) Stage 1 District roads	69,750	45,325	19,425	2,506	2,500
8) Landscaping	30,000	20,600	8,800	600	-
TOTAL	590,180	334,565	223,610	13,810	18,200
Share Percentage	100%	56.7%	37.9%	2.3%	3.1%
Adjusted share percentage	100%	60.1%	39.9%	-	-

'minimum infrastructure programme', the items and costs of which are shown in Table 8.3 (El Hekr) and Table 8.4 (Abu Atwa). In these tables all costs the Agencies are likely to meet are included, and running or operating costs are capitalised. It is assumed that none of these infrastructure elements will be financed from outside sources even though most are properly the responsiblity of the Governorate, City Council, and SCA. Also, whereas a share of total costs should be attributed to on-site community facilities and to concession plots (as shown in Tables 8.3 and 8.4), it is assumed that the Project Agencies must finance all costs of this 'minimum infrastructure programme'.

8.45 The Project Agencies will be responsible for certain infrastructure elements and services besides those listed in the 'minimal infrastructure programme'. The costs of these items and methods of financing them are shown below in the discussion of the Project Agencies' financial profiles.

8.46 In amassing the capital necessary to execute infrastructure elements it is proposed that the Project Agency take out commercial or Government loans; these loans will be serviced through the annual revenues of the Agency, as is shown below.

FINANCIAL PROFILE OF THE PROJECT AGENCIES

8.47 It is important to understand how, in financial terms, the Project Agencies will operate, particularly during the crucial first years. Thus five-year cash flow profiles have been constructed for both El Hekr and Abu Atwa, even though the figures presented are only approximate; certain factors can only be known (or decided upon) after the projects get underway, for the following reasons:

1) Total annual revenues are not fixed, even assuming no arrears in repayments; since both new and existing settlers can choose different payback periods, actual revenues can only be known after the registration programme is complete. For the calculations presented here it is assumed that, on average, the 20 year payback option is chosen. It is quite possible that most settlers will pick shorter periods in order to gain freehold title sooner, in which case the financial position (operating budget) of the Project Agency will be improved.

2) The specific terms of any infrastructure loans to be obtained by the Project Agency are unknown at present. For the present, it is assumed that these loans will be offered at 7% for 20 years with 10% equity requirement; this is the best estimate possible, but it should be realised that more advantageous terms would increase the capital investment possibilities, and the Project Agency, as a Government body, should make every effort to obtain such terms.

3) The cost of infrastructure items will inevitably vary from estimates given here; inflation will be a real problem, implying that investment in infrastructure

should take place as soon as possible. On the other hand the Project Agency will be further investigating the cheapest and most acceptable solutions for infrastructure items such as standpipes and road surface treatment, as has been suggested in Volume 3, Section 7, and there could be significant savings. Further savings could be realised by encouraging community labour contributions to infrastructure works.

4) There is a possibility (which will be actively encouraged) that local organisations will supply or fund some elements of infrastructure during the early years of the Project. For example, the Suez Canal Authority could provide standpipes, or the City Council could provide roads and municipal services. Any such contributions would naturally affect the Project Agency's role in the first years of operation.

8.48 Taking these factors into account, likely five-year annual financial profiles of the Project Agencies have been constructed and are presented in Table 8.5 (El Hekr) and Table 8.6 (Abu Atwa). The main features of these profiles are as follows:

1) Large revenues accruing in the first year are due to registration fees imposed on settlers (LE5 for existing plots and LE10 for new plots) and to the obligation on settlers to pay one year's installment in advance. (The registration fees are exclusive of stamp duties).

2) It has been assumed, for illustrative purposes, that in El Hekr a second group of new plots (667 plots of Neighbourhood 14) is sold at the start of Year Four, and that these plots are serviced in Year Three from a loan taken out at midyear.

3) Large infrastructure loans are raised by the middle of Year One, covering the minimum infrastructure programmes' as set out in Tables 8.3 and 8.4. The money obtained from these loans allows the immediate servicing of all existing plots and the new plots of Phase One (for El Hekr 964 plots, for Abu Atwa 916 plots).

4) An initial working capital of LE100,000 is assumed which is paid back, with interest, at the end of Year One.

5) A nominal number of concession plots are assumed to be serviced in Year Four and sold in Year Five.

8.49 Referring to Tables 8.5 and 8.6, it can be seen that at the end of Year One a considerable balance is obtained, of which LE20,000 is reserved for Year Two as working capital. The remainder is termed the Accumulated Surplus. In future years this Accumulated Surplus increases steadily as there is a constant excess of revenues over expenditures. This gives the Project Agencies the opportunity to finance further infrastructure investments; for example, in Year Two the El Hekr Project Agency could take out and support over time an additional infrastructure loan with a maximum value of LE678,000 which could be used for a variety of purposes, such as:

- Installation of full street lighting in the event that the Electricity Board is unwilling to undertake this (cost LE130,000).

Table 8.5
EL HEKR PROJECT AGENCY: SIMPLIFIED FIVE YEAR CASH FLOW STATEMENT (LE 1977)

Year	1	2	3	4	5
1) Working Capital at Start of Year	100,000	20,000	20,000	20,000	20,000
2) Revenues					
Existing Settlers:					
Fees	27,500	-	-	-	-
Year advance on plot purchase rate	108,840	-	-	-	-
Installments on plot purchase rate (assuming to start mid year)	54,420	108,840	108,840	108,840	108,840
New Settlers:					
Fees	9,640	-	-	6,770	-
Year advance on plot purchase rate	20,505	-	-	13,440	-
Installments on plot purchase rate	10,250	20,505	20,505	33,944	33,944
Sale of concession plots	-	-	-	-	2,000
TOTAL REVENUES	231,155	129,345	129,345	162,994	144,784
3) Expenses					
Administration	7,150	7,150	7,150	7,150	7,150
Other current	2,500	2,500	2,500	2,500	2,500
Infrastructure loans (starting mid year)					
Equity	71,866	-	5,880	-	-
Repayment	30,525	61,050	66,045	66,045	66,045
Project office complex	30,000	-	-	-	-
Servicing concession plots	-	-	-	1,600	-
Repayment of loan on initial working capital	7,000	-	-	-	-
TOTAL EXPENSES	149,041	70,700	81,654	77,295	75,695
4) Balance	82,114	58,645	47,691	85,699	69,089
5) Accumulated Surplus	62,114	120,759	168,450	254,149	323,238

Table 8.6
ABU ATWA PROJECT AGENCY: SIMPLIFIED FIVE YEAR CASH FLOW STATEMENT (LE 1977)

Year	1	2	3	4	5
1) Working Capital at Start of Year	100,000	20,000	20,000	20,000	20,000
2) Revenues					
Existing Settlers:					
Fees	20,000	-	-	-	-
Year advance on plot purchase rate	6,624	-	-	-	-
Installments on plot purchase rate (assuming to start mid year)	33,120	66,241	66,241	66,241	66,241
New Settlers:					
Fees	10,000	-	-	-	-
Year advance on plot purchase rate	16,240	-	-	-	-
Installments on plot purchase rate	8,118	16,240	16,240	16,240	16,240
Sale of concession plots	-	-	-	-	-
TOTAL REVENUES	153,719	82,481	82.481	82,481	82,481
3) Expenses					
Administration	5,500	5,500	5,500	5,500	5,500
Other current	1,500	1,500	1,500	1,500	1,500
Infrastructure loans (starting mid year)					
Equity	50,227	-	-	-	-
Repayment	21,334	42,668	42,668	42,668	42,668
Project office complex	20,000	-	-	-	-
Servicing concession plots	-	-	-	-	-
Repayment interest on initial working capital	7,000	-	-	-	-
TOTAL EXPENSES	105,561	49,668	49,668	49,668	49,668
4) Balance	48,158	32,813	32,813	32,813	32,813
5) Accumulated Surplus	28,158	60,971	93,784	126,597	159,410

- Advance servicing of all remaining new plots (cost LE215600).

- Construction of high standard road and sidewalks over the whole site, representing 60% of the full costs of Stage 2 local roads.

Alternatively, the loan could be used for other purposes, such as the endowment of a building loan programme, the installation of piped water to individual plots on an experimental basis (as suggested in Volume 3, Section 7), or the subsidisation of pit latrine emptying services. While the Accumulated Surplus could be set aside for the future installation of mains water and sewerage, it would only be sufficient to meet a part of such investment costs; significant subsidies would still be required. This situation is discussed in detail in subsequent paragraphs.

8.50 In conclusion, it is important to emphasise that the Accumulated Surplus when capitalised, gives the Project Agencies very significant financial leverage for improvement programmes.

FUTURE FINANCING AND THE QUESTION OF SUBSIDIES

8.51 As shown above the charges imposed on settlers, and thus the revenues of the Project Agencies, only cover a minimum level of infrastructure provision. They do not cover any of the costs of the water-borne sewerage system and only a small fraction of the costs of water to each plot. In addition, a portion of the costs of high-level road provision is not covered. These items are assumed to be financed, at least partially, by external subsidies. It is proposed that the Project Agencies pursue all avenues to obtain outside financing for these elements, and the approach which should be taken is suggested in the following paragraphs.

8.52 By far the largest items requiring subsidised financing are water and sewerage (which must be installed together). Due to technical constraints these services can only be introduced to the sites in the future (see Volume 3, Section 7), thus the Project Agencies will be aiming at encouraging their installation at an, as yet undetermined future date. It can be assumed that when installed the inhabitants will be able to afford to pay for connection charges; thus attention must be focused on network costs, and these are given for El Hekr and Abu Atwa in Table 8.7. As can be seen the sums are quite large, but the Project Agencies could use their financial leverage to propose a sharing arrangement with outside funding sources. It is not possible to estimate just how much this leverage will amount to, since it will depend on (1) the revenues to be generated from the future sale of concession plots on the open land market, and (2) the amount of the Accumulated Surplus which could be devoted to water and sewerage. The total available will probably not amount to more than 30% for El Hekr and 20 % for Abu Atwa. This is not a large proportion of total costs (and total costs will inevitably rise over time due to inflation), but even the offer of contributing a small fraction gives the Project Agencies leverage in contacts with funding sources.

Table 8.7
ESTIMATED NETWORK COSTS FOR WATER AND SEWERAGE PROVISION (LE 1977)

	Reticulation Network	On-site Trunk Lines	Total
El Hekr:			
Water	612,200	370,000	982,200
Sewerage	1,109,300	510,000	1,619,300
Abu Atwa:			
Water	364,350	310,000	674,350
Sewerage	659,250	422,000	1,081,250
TOTAL	2,745,100	1,612,000	4,357,100

8.53 Although the Project Agencies, through their revenues, could finance full road provision, the problem is that this requires the paving of many streets that would have to be dug up in order to lay sewerage and water lines. Thus these higher-order roads could not be put down immediately, and the greater the delay in road building, the more road funds would be consumed by inflation. In effect this higher standard of roads is tied to sewerage and water provision, and the Project Agency will have to weigh the alternatives as they present themselves. If full financing for water and sewerage networks is obtained, the supplementary funds of the Agency could be fully used to finance a very high standard to streets and pedestrian ways. But if it must devote this 'bargaining capital' completely to obtaining water and sewerage then the financing of these higher standard streets will have to come from its normal source, ie., the City Council.

DECISION POINT: FUTURE PHASES

8.54 As soon as Phase One new plots are taken up, the Project Agencies must decide whether to carry on with the next phases under the same minimal infrastructure provision and the same charging arrangements as presented here, or whether to try a different approach. If at this time sewerage and water mains have been installed in neighbouring areas, the possibility of provision of sewerage and water prior to plot acquisition (or within a year or two of acquisition) becomes very attractive. However, in a situation where there is ample demand for plots in the next phase and no sewerage and water can be provided immediately, then the Agency policy will be to open up the new area for settlement with minimal provision.

PROJECT MONITORING – EL HEKR AND ABU ATWA

8.55 The Project Agencies in El Hekr and Abu Atwa will have, over time, to make decisions based on information and realities which are presently unknown. Thus, there will be a need for a monitoring function which will focus on the following areas:

(i) Each year the financial position of the Project Agency will need to be reviewed; infrastructure

and utilities provision already executed will be compared with phasing and levels of provision guidelines set out in this report, and plans for the next year's executive programme will be drawn up based on a) available funds, both from revenue and from possible loan financing b) current costs which must be met in the next year, including administration and repayment of outstanding loans and c) realistic, contractors' estimates of costs for infrastructure works.

(ii) The Ismailia land market must be monitored to decide the best time, price and strategy for putting reserved residential and commercial plots on the open market for sale. Expected revenues from this sale must be considered in (i) above and (iii) below.

(iii) The Project Agency must monitor, and in fact actively encourage, the establishment of basic sewerage and water networks, and co-ordinate the availability of these networks with actions in (i) and (ii) above. It must also monitor national changes in the sewerage and water tariff structures, and also possible subsidy funding for water and sewerage.

(iv) The Project Agency must also be aware of changes at the national or local level with regard to new home-building loans so that the inhabitants of the Area will have every opportunity to avail themselves of these new programmes. In a similar fashion, the Project Agency must monitor changes in Government policy with regard to availability and pricing of building materials.

(v) Finally, the Project Agency must, based on preferences of settlers in the First Phase, adjust the plot size mix and also the charging schedules for later phases. Any administrative or technical problems encountered in the first phase should be recognised and avoided in later phases. In short, the Agency must learn from experience.

8.56 These monitoring functions can be termed 'internal' in that they are carried out by the Project Agency so that it can better administer the project as an on-going concern. There is also the opportunity for 'external' monitoring, ie., the monitoring of the projects in El Hekr and Abu Atwa as a basis for the repetition of the approach elsewhere in Ismailia and throughout Egypt. Much of what the Project Agency will learn through monitoring it's own operations can be usefully applied in the establishment of similar projects, particularly in terms of client preferences, infrastructure costs, administration and the success of community involvement. Certainly there is a good argument for a professional monitoring capacity to be attached to these projects to collect and analyse such relevant information.

8.57 Perhaps of all the facets of these projects it is the institutional or administrative arrangements which are most crucial, particularly since they are designed here to be straightforward, to fit in with existing local administration, and to have minimal reliance on central control. Their success, if even partial, should indicate the feasibility of this approach on a wider scale. Certainly, at least on the city level, the experience gained by the managers and staff of the El Hekr and Abu Atwa projects, and also that of the various local Government offices which will be dealing

with these projects, can be profitably used to start other such projects in Ismailia, using as a basic guide the Ismailia Master Plan. Since the load on the Abu Atwa and El Hekr Agencies will be significantly reduced after the first few years. The transfer of personnel to new projects will be possible, with the El Hekr and Abu Atwa Agencies continuing in a reduced role as community service institutions.

IMMEDIATE STEPS – EL HEKR AND ABU ATWA

8.58 The Consultants propose in this subsection the preparations and steps necessary for the early establishment of the Project Agencies and commencement of project operations. Although ideally both the Abu Atwa and El Hekr projects should be initiated together, priority should be given to El Hekr if there are funding, staffing or procedural constraints. This is because the situation in El Hekr is in greatest need of immediate control and because El Hekr has greater opportunities for the rapid creation of new plots.

8.59 Immediate steps can be divided into two periods. Period One can be called the 'approval period', which started with the submission of the Draft Final Report on February 15, 1978. At the same time as the Draft Final Report was submitted to the Advisory Committee on Reconstruction the preliminary Arabic summary of the main proposals was presented to the relevant local Government bodies. Thus, at the same time as the Advisory Committee prepared its comments on the Draft Final, the responsible local officials responded by making suggestions which were immediately incorporated in the proposals. This was done through a series of meetings which discussed the project point by point, and arrived at an agreed revision. This was then put before the Governorate Local Council for approval and the necessary enabling orders can now be prepared by the Governor's Office.

8.60 At the same time as approval is being obtained at the local level it is necessary to secure the 'inception capital' for Period Two (described below). The importance of this funding cannot be overemphasised.

8.61 One more step must be initiated during Period One, and this is the request for a Ministerial Decree waiving certain of the requirements under Law 52 of 1940, as suggested in the Advisory Committee's letter of 13 December 1977. Before the Governor of Ismailia can issue the enabling orders this Ministerial Decree must be published.

8.62 Period One will end when the inception capital is available and the Governor's enabling orders are issued. How long this period will last is uncertain, but if efforts are made with a spirit of cooperation, it is not unreasonable to expect it to end by May 15, 1978.

8.63 Period Two begins immediately, and under the direction of a representative of the 'inception capital' funding source working directly with the Secretary General's Office of the Governorate and the Executive Agency for Reconstruction of the MHR, the following steps should be initiated:

(i) Immediate construction and furnishing of the project offices at El Hekr and Abu Atwa. Schematic designs for these offices are shown in Figures 8.2 and 8.3.

(ii) Recruitment of key personnel. The most important are the Project managers and office heads, followed by the professional staff. This will involve discussions in Ismailia with sources of secondment, and also interviews with applicants.

(iii) Production of pre-cast concrete markers and, involving a small team of surveyors and workmen, the installation of these markers in the Project Areas. Priority for markers should first go to the community centres and social facilities reserves, followed by main streets and new plots of Phase One. In this operation the inspectors of the Amlak Department will be closely involved, particularly on the fringes of El Hekr.

(iv) At the same time as (iii) above, certain levelling by bulldozer will be carried out in El Hekr, particularly at the community centre site and to make the project office easily accessible by automobile.

(v) Necessary expropriation proceedings should be started by the Governorate, so that Phase One of Abu Atwa can be subdivided and ready to accept settlers once the Project Agency commences operations.

(vi) It may be necessary to have a certain amount of preliminary publicity circulated in the Project Areas which, in conjunction with the aforementioned presentations and briefings with local representatives, should make the inhabitants well aware of the meaning of the Period Two activities.

8.64 Period Two ends with the Project Agency opening its doors for business. If at all possible, this opening should be aimed for June 30, 1978, as this is the date of the expiration of the Governor's Administrative Order 402.

IMPLEMENTATION OF THE LIGHT INDUSTRIAL AREA

8.65 In formulating the implementation proposals for the Nifisha Light Industrial Area particular attention has been paid to the following constraints on developments:

1) The high costs of site development due to the need for landfill.

2) The plans for development of a portion of the site by the Ismailia Company for Goods Transport and the fact that this company has already acquired 13.5 feddans of the best and most accessible land.

3) The uncertainties in the industrial land market, particularly with regard to small, serviced factory plots.

8.66 These factors (which are described in Volume 1, Section 7 and Volume 3, Section 4) have dictated an implementing strategy which does not aim at immediate execution. Rather, this strategy calls for the establishment of an administrative unit at the Governorate to coordinate all

aspects of industrial development in Ismailia, and at the same time to undertake preparation and monitoring functions necessary for the future execution of the Nifisha Light Industrial Area. This strategy is elaborated below.

PROPOSED INDUSTRIAL DEVELOPMENT UNIT

8.67 The Consultants propose the immediate establishment of an office, to be called 'The Industrial Development Unit' at the Governorate of Ismailia. The need for such an office is not only to encourage development of Nifisha, but to coordinate all industrial development in Ismailia. Many industrial firms have recently located in Ismailia and many more have expressed interest, and at present there is no central control or coordination, not to mention a capacity for advance servicing of industrial plots. The West Ring Road Industrial Estate was demarcated in the IMPS for medium and large scale establishments, and in the last two years half of the site has been taken-up or reserved without any space or use guidelines, nor have any plots been serviced. A free zone is to be established on adjacent land and there are important national and joint venture firms which are scheduled to locate in Ismailia in the near future. All of these activities need central control, and an Industrial Development Unit at the Governorate level is the logical solution.

8.68 The main function of the proposed Industrial Development Unit would be land management of all industrial areas. The Unit would have a core staff of legal and industrial experts, and would closely liaise with the Ministry of Industries, the General Authority for Free Zones, and the General Organisation for Physical Planning. It would involve itself with industrial promotion, the screening of applications for industrial sites, and the advance servicing of plots.

8.69 Besides these general functions, the Industrial Development Unit would undertake the steps necessary to sponsor and develop the Nifisha Light Industrial Estate, using as guidelines the proposals contained in this report. These steps can be divided into two stages, (1) initial preparation and (2) execution of Phase One.

INITIAL PREPARATION

8.70 The Governorate Industrial Development Unit will undertake the following steps.

1) It will prepare the necessary documents and initiate both the designation of Nifisha as an industrial area (under Law 28 of 1949) and the expropriation of the necessary private land on the site (under Law 577 of 1954).

2) It will form a close working relationship with the Ismailia Company for Goods Transport and come to agreement with this company (a) on any boundary adjustments which must be made, (b) the best coordinated uses of the site and (c) the possiblities of sharing development costs and of jointly using common industrial support facilities.

3) It will work up an information prospectus of site potential to attract firms seeking to locate small units in Ismailia. It will also, as part of its general industrial development function, liaise with larger manufacturing firms (such as Arab Contractors Marine, the Arab Aluminum Company and Telemisr) to see if they would sponsor small, local firms which could specialise in upstream or downstream manufacturing activities.

4) It will enter into negotiations with military authorities to acquire the portion of the site which is part of El Galaa' Camp.

5) The Industrial Development Unit will undertake, in coordination with the Ismailia Chamber of Commerce, the registration and inventory of local workshop firms wishing to expand their activities, to ascertain their most important needs and to test if there is sufficient interest in relocating at Nifisha.

EXECUTION OF PHASE ONE

8.71 These activities should give the Industrial Development Unit sufficient information to decide when to develop the Nifisha Light Industrial Area. It will also give an indication of whether another site than Nifisha should be considered, based on an analysis of alternative development costs (see Volume 1, Section 7). When it is decided that development is feasible, the Industrial Development Unit will proceed with the following steps:

1) It will seek sponsorship of the industrial estate from the General Organisation for Industries, particularly for organisational aid and advance funding. Likewise it will attempt to interest international aid organisations in providing technical expertise.

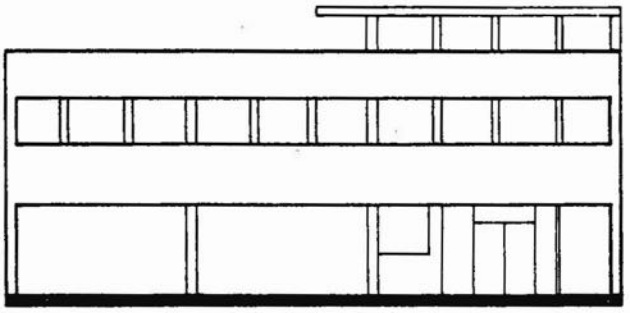
2) It will set up an independent account for all financial dealings related to the Nifisha Light Industrial Estate.

3) It will decide, based on evidenced demand, the number of factory units to be built in relation to the total number of plots.

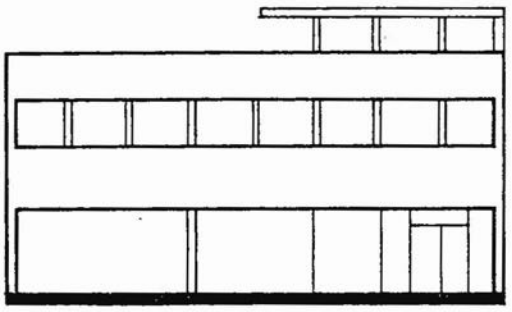
4) It will prepare a plot sale and plot lease schedule, aiming at the advance sale of a portion of the plots to amass working capital. At the same time it will draw up the necessary contracts and control stipulations.

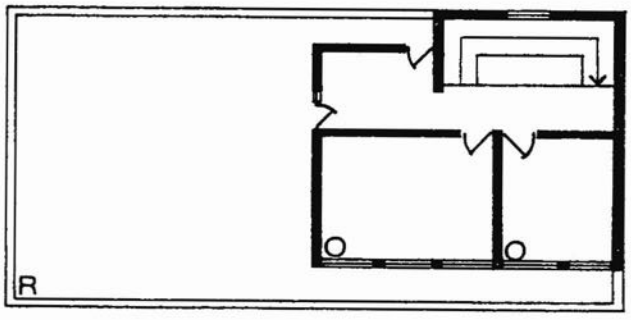
5) Utilities and roads will be put down at this time, and the administrative offices and any factory units built.

6) Finally plot assignment will be got under way for all of Phase One, with an administrative office set up on site.

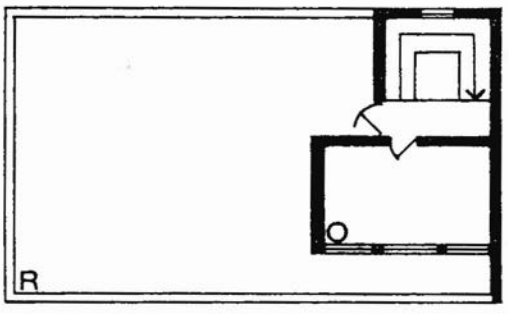


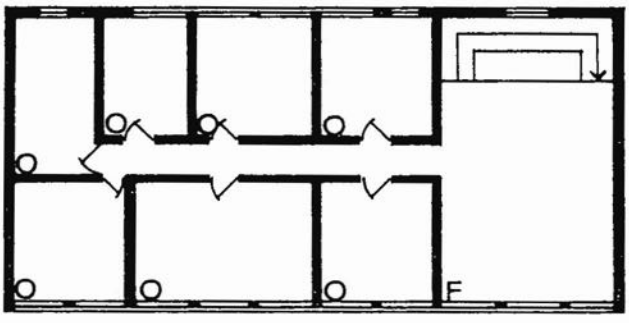
Elevation



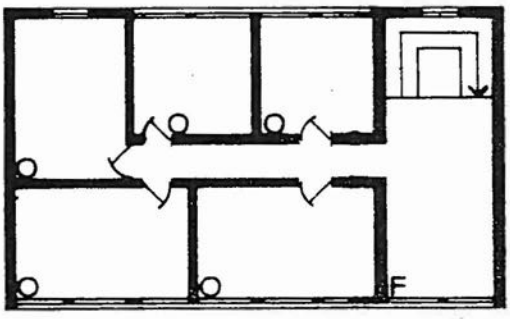


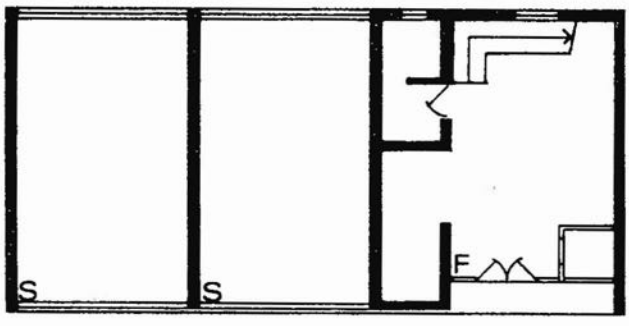
Roof



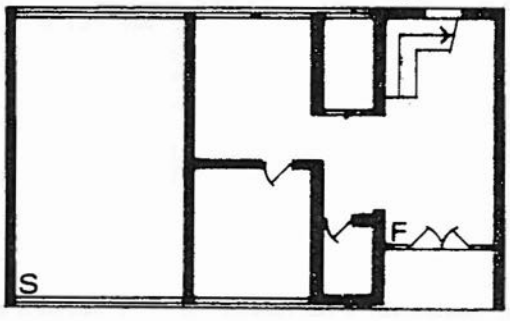


First Floor





Ground



EL HEKR 8·2
1: 250

Total cost: LE30,000
(including furnishings)

Ground coverage: 200m^2

Net floor space: 440m^2

ABU ATWA 8·3
1: 250

Total cost: LE20,000
(including furnishings)

Ground coverage: 150m^2

Net floor space: 290m^2

S SHOP
F FOYER
O OFFICE
R ROOF

Project Offices

8·2 & 8·3

Glossary

A brief glossary is presented here of technical terms which may be unfamiliar, or which are used with a specific meaning in the report. It includes a number of anglicised versions of Arabic words which we have used as there are no precise English equivalents. Entries are alphabetical from the first letter of word or group of words.

ability to pay	(in relation to housing) the amount that a person or household, can pay for housing once other essential expenditure are subtracted from income. A figure of 20% has been used in this project. (see Vol 3 paragraphs 9.8-9.10)
active recreation	recreation involving games or sports.
access street	street providing direct access to plots with no through traffic function.
'aimara'	small blocks of flats from three to five storeys, with one or two apartments on each floor
affordability	see 'ability to pay'
'Amlak'	government land agency under the General Agency for Land Reclamation which registers claims and collects rents for 'hekr' land outside the City Council boundaries.
arterial road	main traffic routes for motor vehicles travelling between different parts of the city.
block	smallest developed area surrounded by local or higher order streets.
case study	(in social survey) detailed study through interview of a household's characteristics, and in this project, housing history and priorities. Interviews are normally of many hours' duration.

circulation	(referring to space) the land area used primarily for movement, both on foot (pedestrian movement) and by vehicle.
cluster	(housing) a group of plots round a communal space (Volume 2. paras 4.125-4.127).
communal space	unbuilt land used for access, recreation and domestic uses, maintained by the surrounding residents. Responsibility for maintenance will be written into agreements for plots fronting onto the communal space. If the space is not satisfactorily maintained the Project Agency may undertake the work and charge the residents.
Community Centre	term used specifically in the Project Terms of Reference to mean the main concentration of shops, offices and public buildings in a Community Plan area (see below).
Community Plan	a plan for a relatively homogeneous area of 40-100,000 persons, normally bounded by planned arterial roads.
Concession plot/area	a plot or area which is sold or leased at a market rate for development. Disposal of these plots will not be subject to the same restrictions as apply to the low cost plots.
core unit	development on a plot prior to sale/lease, comprising at a minimum a concession point to utilities systems (service slab) and at the maximum built accommodation designed to be the first part of a larger house.
Detailed Improvement Plan	areas within existing El Hekr and Abu Atwa which were studied in greater detail in order to provide examples for improvement of the remaining areas.
Development Area	the presently undeveloped areas of El Hekr and Abu Atwa for which new development is proposed.
District street	street providing for the main vehicular movement within an area surrounded by arterial streets.
'gama 'ia'	co-operative
General Urban Area	an area of urban development, primarily residential, but including shops, workshops and other small land users.
Gross	total, without any deduction.
'Hekr'	the system whereby vacant desert land may be claimed ('wada 'yed') registered and an annual rent paid for its use ('tahkier'). See Volume 2 paragraph 2.3 (iii).
household	all the people living in one house who live as one domestic unit.
Improvement Area	the existing built up areas within the Project Area of El Hekr and Abu Atwa. Improvement proposals are made for these areas.
Industrial Development Unit	proposed organisation within the Governorate of Ismailia to co-ordinate industrial development, especially the servicing of sites. See Volume 1 paragraphs 8.67-8.70.

infill plots	plots of land developed on vacant or underused land within existing built-up areas.
informal building	building which is not carried out by the formal construction industry. It usually involves tradesmen with temporary labour teams and a varying degree of self-help from the household involved. See Volume 2 section 3
infrastructure	basic installations on which urban development depend. Here means roads, water, sewerage, solid waste disposal system,electricitytelephones.
key money	payment made to obtain tenancy of rent controlled apartment which represents the difference between the controlled and market rental rates over a long period.
local street	lowest level of street carrying through local traffic. Pedestrian use would predominate at this level.
neighbourhood	an area whose inhabitants share certain social services, in particular a primary school. They are designed to minimise walking distance to school (max. 400m) and avoid the crossing of major roads by children. Population 4-7,000 .
neighbourhood centre	the lowest order centre containing facilities to serve a neighbourhood.
net	amount after deduction, such as income after tax is deducted.
passive recreation	recreation such as sitting, walking or childrens' play which does not involve organised games
polyclinic	a primarily out-patient facility, containing a number of specialised health services.
progressive development	a form of settlement in which buildings and services are gradually improved as funds become available.
Project Agency	the administrative unit proposed to be established within the Ismailia Governorate to implement and monitor the community plans.
Project Area	part of the study areas of El Hekr, Abu Atwa and Nifisha for which proposals are made.
rabaa	single storey housing consisting primarily of rented rooms.
reticulation	(of utilities). The network of public mains used to serve an area of settlement.
scanning aurvey	a form of social survey intended to obtain quickly general information on the study areas.
semi-private space	see communal space.
services slab	a floor slab containing plot connections to public utilities.
shelter unit	a completed superstructure erected on top of a services

	slab to provide immediate accommodation.
sites and services	a method of land sub-division in which individual plots are provided with access to public utilities but superstructures, if any, are limited to a core unit. Dwelling construction is the responsibility of the occupants.
sketch plan	the preliminary layout prepared for each of the Project Areas in which the preferred planning options were presented for discussion.
social unit	social service facilities recommended by the Ministry of Social Affairs. See Volume 3 paragraphs 2.42-2.45.
sporadic settlement	a stage in progressive settlement at which the majority of land is unused.
study area	the total areas of El Hekr, Abu Atwa and Nifisha which were covered by physical and social surveys.
'tahkier'	the tax paid on 'hekr' land.
target population	the section of Ismailia's present and future population whose housing needs and resources the Demonstration Projects are intended to match.
utilities	physical services such as water, sewerage and electricity but excluding roads.
'wada 'yed'	('laying the hand') the mechanism for claiming 'hekr' land.

ABBREVIATIONS

ACR	Advisory Committee for Reconstruction. Ministry of Housing and Reconstruction, Arab Republic of Egypt.
DBST	Double Bitumen Surface Treatment.
GOSSD	General Organisation for Sewerage and Sanitary Drainage.
GOWS	General Organisation for Water Supply.
IDP	Ismailia Demonstration Projects.
IMP	Ismailia Master Plan.
MHR	Ministry of Housing and Reconstruction, A.R.E.
ODM	Ministry of Overseas Development. United Kingdom.
SCA	Suez Canal Authority.
TOR	Terms of Reference for the Ismailia Demonstration Projects.
USAID	United States Agency for International Development.

PROJECT TEAM

The Demonstration Projects proposals represent the work of the team listed below, in consultation with the Advisory Committee for Reconstruction and their Advisors, the Governorate, City and Local Councils of Ismailia, representatives of Ministries in Ismailia, the Suez Canal Authority and the people of El Hekr and Abu Atwa.

Clifford Culpin and Partners

Planning Consultants

David Allen
Forbes Davidson
Ian Green
John Midgley
Tony Osborne
Geoff Payne
David Sims
Tomasz Sudra
Isabel Vargas
Phil Whitfield

Economic Associates Limited

Consultant Economists

Giles Clarke
Peter Prynn
David Sims

Ove Arup and Partners

Consultant Engineers

John Bennett
Brian Campbell
Malcolm Simpson
Roger Tomlinson

Specialist Consultants

Roger Tym and Associates

Roger Tym

Mathew Metcalf and Partners

Ian Alexander
James Meikle

Secretarial and Production

Paul Brunton
Erika Eberhardt
Garry Gray
Ruth Green
Linda Lange
Patricia Nassar
Rita Payne
Linda Penny
Susan Rose

Egyptian Professional Counterparts

Dr Aziz A Yassin with

Ismail Amer
William Gobran Daoud
Ahmed Eid
Hassan Hamdi
Abd El Rahman Hassanein
Soliman Mohamed Hefny
Samir El Hoseiny
Samira Kamel
Gamal El Din El Khatib Mohamed
Ismail Abd El Moneim
Helmy Nakhla
Mohamed Salem
Kamal El Zayat

Social Survey Team

Mustafa Ali
Mokhtar Farhat
Nagwa Fikry
El Sayeda Gamma
Abd El Aziz Gherib
Zenab Gamal Hassan
Medhat Kedry
Sabri Mohamed
Madieha El Safty

Admin and Support Staff

Abdullah Attia
Ahmed Galal
Abdul Zanie Haned
Rateb Ismail
Mahmoud Abdullah Mahmoud
Sayed Ahmed Owes
Khalif Radwan
Mohamed Zaki Yassin

Translators

Ahmed Nassar
Mohamed Sharara

Printers

FACTO - Cairo

1 7500 ١ : ٧٥٠٠

0 500 m

صفر ٥٠٠ متر

مناطق خاصه
Special areas

مناطق تنمية موجوده خارج منطقه الدراسه
Existing development outside study area

مناطق تنمية موجوده خارج منطقه المشروع
Existing development outside project area

مناطق تنمية موجوده بمنطقه التحسين
Existing development improvement area

قطع سكنيه منخفضه التكاليف
New residential low cost plots

قطع سكنيه جديده ممتازه
New residential concession areas

مدارس
Schools

منشئات خدميه
Community facilities

المناطق التجارية-الصناعيه الرئيسيه الجديده
Main new commercial-industrial areas

اراضي زراعيه او مفتوحه
Agriculture or open space

الطريق السريع المقترح في المخطط العام
---- Master plan proposed motorway

Clifford Culpin and Partners — كليفورد كالبن وشركاه
Dr Aziz A Yassin — دكتور عزيز ا . يسن
Economic Associates Limited — ايكونوميك اسوسياتس ليمتد
Ove Arup and Partners — اوف اروب وشركاه

specialist consultants — استشاريون متخصصون
Roger Tym and Associates — روجر تيم اسوسياتس
Mathew Metcalf and Partners — ماثيو ميتكالف وشركاه

المشروعات الايضاحيه بالاسماعيليه
ISMAILIA DEMONSTRATION PROJECTS

El Nekr · Community Plan
المخطط المجتمعي لمنطقه الكر

1 7500 ١ : ٧٥٠٠

0 500 m

صفر متر ..

مناطق تنمية موجودة بمنطقة التحسين
Existing development improvement area

قطع سكنية جديدة منخفضة التكاليف
New residential low cost plots

قطع سكنية جديدة ممتازة
New residential concession areas

مدارس
Schools

منشآت خدمية
Community facilities

المناطق التجارية - الصناعية الرئيسية الجديدة
Main new commercial-industrial areas

اراضي زراعية او مفتوحة
Agriculture or open space

مناطق خاصة
Special areas

ترعة
Canal

سكة حديد
Railway

Clifford Culpin and Partners
Dr Aziz A Yassin
Economic Associates Limited
Ove Arup and Partners

specialist consultants
Roger Tym and Associates
Mathew Metcalf and Partners

كليفورد كالبن وشركاه
دكتور عزيز أ . يسن
ايكونوميك اسوسياتس ليمتد
اوف اروب وشركاه

استشاريون متخصصون
روجر تيم اسوسياتس
ماثيو ميتكالف وشركاه

المشروعات الايضاحية بالاسماعيلية
ISMAILIA DEMONSTRATION PROJECTS

Abu Atwa · Community Plan
المخطط المجتمعي لمنطقة ابو عطوه