TOWARDS THE URBAN RESTORATION OF NEWCASTLE UPON TYNE

Volume 2 of 2 - Chapters 4 - 5

ROBERT GIDDINGS BA BArch MA DMS RIBA MCIOB FFB

Doctor of Philosophy
University of York
Institute of Advanced Architectural Studies

January 1994

CHAPTER 4

PRINCIPLES AND TYPOLOGIES IN PRACTICE

1. APPLICATION OF URBAN DESIGN PRINCIPLES

THE OBJECTIVE

Analysis of the various aspects of Urban Design Principles identified information which makes direct contributions to the proposed FRAME OF REFERENCE. The analysis also identified a number of issues about which, EXPERIMENTATION AND INVESTIGATION are necessary.

The two European Exemplars, as well as the two Newcastle Study Areas, will therefore be examined in terms of these issues. The outcomes will form the basis for THE POSSIBILITIES. In particular, the Urban Design Principles will provide tests of success for the Newcastle Study Areas. The results will assist in generating the PROPOSALS FOR EACH STUDY AREA and contribute to the FRAME OF REFERENCE FOR FUTURE DEVELOPMENT IN THE CITY.

THE PRINCIPLES

LEGIBILITY

This is based on elemental analysis for pedestrians and vehicles, in relation to Districts, Paths, Nodes, Edges and Landmarks. (See Figures 92 - 123)

Districts

These are synonymous with the four Study Areas. In the case of the Grey Street Study Area, Northumberland Street - Pilgrim Street provides a spine through the city which creates districts of different character to either side. Thus in terms of a number of aspects - age, style, material, use, uniformity of appearance, etc, Pilgrim Street forms a clear Eastern boundary to the district. At Mosley Street, to the South, there is again a difference in the character of building which relates to age. However, perhaps more significantly, the gradient increases noticeably to the South of Mosley Street creating a topographical boundary. At the North end,

streets culminate at the Earl Grey Monument from which Grey Street and Grainger Street radiate southwards. In this way, Grainger Street offers a precise Western boundary. The district is completed by the Bigg Market. The width of the space and the fact that it is still used as an outdoor market, as well as an indoor entertainment magnet, ensures its role as a focus for activity and a natural boundary to the Study Area.

The John Dobson Street Study Area lies to the East of the Northumberland Street - Pilgrim Street spine. John Dobson Street itself, terminates at Market Street to the South, adding to the strong feeling of Market Street acting as a slightly curved cordon. To the East, the motorway provides an uncompromising edge. The Northern boundary is generated by the University of Northumbria and significant public buildings such as the Public Baths and City Hall.

In Amsterdam, the Eastern boundary of the Study Area is on the line of the culverted Amstel River and forms the demarcation between the 'old city' (East Bank) and the 'new city' (West Bank). The Western boundary delineates the change in character from the 'new city' to the concentric canal system. The North end of the district is determined by the Royal Palace and the mass of activity associated with Dam Square. To the South, Spui provides a similar function.

At Stuttgart, a topographical bowl forms the Study Area. This coincides with the location of the original city. The integrity of the district is further emphasised by the surrounding streets, which are of different and larger character. The urban structure also changes beyond the boundaries. Within the district, the medieval origins are evident, whereas outside, grid patterns predominate.

Paths

The primary vehicular routes in the Amsterdam Study Area are all one-way. However, this is achieved without artificial devices such as barriers and dual carriageways. The organisation of traffic movement is very clear, following a modified rectilinear pattern. Thus, there is explicit orientation of North, South, East and West, with entry and exit points at all four corners of the Area. The secondary vehicular routes are small in number but reinforce the primary pattern. Their purpose is generally to provide a more finely-grained access for car parking and servicing. Public transport routes, in the form of tram lines, and well-established cycle routes, run parallel to the primary vehicular routes. The major tram lines are located between traffic moving in opposite directions. This all adds to the articulation of vehicle-based activity with district movement channels.

The pattern of pedestrian movement identifies three particular aspects. First, footpaths line the streets in the traditional manner. Secondly, relatively narrow passageways form linkages between the streets. These tend to be located within the interstices between the streets, and are also clearly directional in nature. Thirdly, there are collective pedestrian spaces. The major spaces form focal points where a number of routes meet. The minor spaces, on the other hand, form a chain of interest which offers an alternative to more direct pedestrian movement channels. Thus, a distinct visual hierarchy is achieved by scale and direction. The continuity of routes for both motorists and pedestrians helps everyone to move through the Area with a confidence that can easily be undermined by dead-ends, cul-de-sacs and disorientation. The pedestrian paths, in particular, also offer a sufficient number of linked routes to offer a multiplicity of ways through the Study Area.

The traffic ring in Stuttgart reduces the impact of vehicles on this Study Area. Nevertheless, the primary vehicular routes are well-organised in modified rectangular form, with access from and egress to, the North, East and South. The secondary vehicular routes are of two types. The first type is the rectilinear loop providing access for car parking and servicing. The second type terminates in substantial car parking arrangements, two examples of which are located underground. There are no ground-level public transport routes within the Study Area.

The Area has the feeling of being dedicated to pedestrian activity. The three aspects identified in the Amsterdam Study Area are again apparent, but the balance is different. The pattern is dominated by pedestrian passageways which link a number of major pedestrian spaces. Footpaths, adjacent to streets, occupy a relatively minor role.

In the Grey Street Study Area, the primary vehicular routes are both one-way and two-way. Where they change status at street intersections, clear intention is conveyed. However, changes in status which occur at minor junctions do not assist clarity of understanding. In general, the primary routes follow the principal streets and are therefore in accord with a visual hierarchy. The pattern becomes more confused at the Northern end where street lines are abruptly terminated by street pedestrianisation - thus forcing vehicles into undesired changes of direction. In most cases, the streets are traditional layouts. Pilgrim Street is the exception. Its Northern Section is in dual-carriageway form, which appears wholly inappropriate for a city street, and there is ambiguity associated with the question of why this part of one of the streets should be treated differently to the other streets. A visual appreciation of the street is further confused by the seemingly arbitrary projection of

one of the buildings across one of the carriageways. The lower part of Pilgrim Street is more successful, but loses clarity through variable pavement and street widths which produce chicane effects. At the bottom of Pilgrim Street, the street line is lost altogether at a complicated junction with Mosley Street. This is the first indication of the motorway vocabulary intruding into the street pattern, leading directly onto the Central Motorway East.

The secondary vehicular routes are of two kinds. The first type provides necessary linkages between the primary routes, although considerations about a spatial hierarchy would question the suitability of the narrow High Bridge as a vehicular route. There are also ambiguous junctions between Shakespeare Street and High Bridge, with Pilgrim Street. The second type is the cul-de-sac, and these generally lead to private parking. Avoidance of dead ends in street layout is an important objective, especially where a dead end is associated with a change from public land to private land. This is due to the confusion associated with having to backtrack as the only way out and is coupled with overtones of embarrassment or even fear resulting from intrusion into the private realm. Routes dedicated to public transport are fragmented in this Study Area. Both the Grainger Street - Market Street section and the Northern end of Pilgrim Street appear as devices to prevent the continuation of two-way traffic movement. Activity in Blackett Street (at the Northern end of the Study Area) is especially confusing. There is a two-way bus route where there is not sufficient room for two buses to pass, in a space where the visual signals would indicate that the area is dedicated to pedestrian movement. Contrast with the clarity of vehicular movement in the Amsterdam Study Area is brought to mind.

Pedestrian movement in the Grey Street Study Area is mainly associated with footpaths, lining streets. On the whole, this is understandable and effective. Other pedestrian movement is sparse and fragmented. Land

between the city streets does not offer a network of pedestrian ways, although there is considerable potential. In recent years, the Earl Grey Monument has become the central place in the city. One of the principal reasons has been that the subterranean Metro Rapid Transport System has its primary intersection of lines at this point. The interchange therefore discharges a considerable volume of people onto the streets. The demand for pedestrian space at the Monument is understandable, but as will be shown in the Urban Typologies, the paving of streets does not create a considered urban space.

Primary vehicular routes in the John Dobson Street Study Area are focussed on Durant Road and John Dobson Street itself. Both permit two-way movement, but are in dual-carriageway form. Thus, their character is incompatible with the concept of city streets. Access to and egress from the Area, is at the North, East and South. Market Street gives a strong visual indication that it is a primary route, but traffic management does not permit this to be realised. In fact, vehicles are intended to follow a far less obvious route along Carliol Street to the South. The secondary vehicular routes add considerably to the confusion. The North-East part of the Study Area is served by long cul-de-sacs which all stem from the junction of Northumberland Road and College Street. Dead ends are particularly unwelcome in a city movement structure and this is exacerbated by both the length of the cul-de-sacs, and the visual implication that Northumberland Road and Ellison Place are part of a continuous street network. In the South-East part of the Study Area, it has already been stated that Market Street gives the impression of a primary route. However, in reality, it merely leads to a series of loops from which there is no exit from the Area. At the Eastern end of Market Street, it is possible to see the Central Motorway East. The frustration of the loops, together with the

view out, causes many drivers to break the law and exit via the restricted extension to Market Street. Secondary routes in the North-West part of the Study Area, access the multi-storey car parks or otherwise terminate in service yards. North Street is the source of considerable conflict, as vehicles find themselves deposited on the end of pedestrianised Saville Row. To the South West, there is a through-way from John Dobson Street, via service yards and Lisle Street into Northumberland Street which has supposedly been pedestrianised.

The layout of pedestrian routes is complex. The main reason is the multiplicity of levels, causing routes to change direction, and cross over and under one another. The theme of footpaths lining streets, still exists. Unfortunately, it has become fragmented in many instances. Pedestrian passageways are also evident but rarely lead directly to other routes. In most cases, changes in direction and level do not generate easy movement and can be disorientating. The combination of pedestrian routes produces a picture from which it is difficult to discern any underlying pattern.

<u>Nodes</u>

These are representative of focal points of activity. They can relate to junctions in the transportation system, places of major pedestrian activity or a series of events on a journey. Clearly, different nodes do not necessarily display equal significance. Where various kinds of node coincide, these places tend to be centres of activity. An ideal nodal layout may be as follows. A small number of coincident nodal positions is desirable and should occur at maximum distance from one another, within the Study Area. Large scale traffic nodes should be found towards the extremities of the Area and define the main transportation layout. Secondary traffic nodes could occur within, at lesser distances. In general, the large scale pedestrian nodes should occur between the traffic

nodes, but well spaced. At the most finely grained scale, should be the small pedestrian nodes. In this way, a hierarchy of nodes can be identified, which offers a varied and contrasting spatial structure.

The Amsterdam Study Area is well suited to this model. Locations containing at least three kinds of node are found at opposing corners of the Study Area. In addition, large scale traffic nodes define the perimeter and small scale traffic nodes occur between them. Inside these groups are two large scale pedestrian nodes, either side of a large number of small scale pedestrian nodes. The latter appear as a series of finely grained events on a journey of discovery.

The Stuttgart Study Area follows a similar pattern but with different emphasis. Both primary and secondary vehicular nodes are small scale. Nevertheless, they tend to occur at the perimeter. The central area is dominated by two large scale and six medium scale pedestrian nodes, with the occasional small scale type, in between.

The nodal layout of the Grey Street Study Area illustrates a clear structure, but demonstrates the dominance of the streets. Medium scale traffic nodes define the main routes and small scale secondary nodes are located between them. However, there are only two pedestrian nodes. They are large-medium scale and occur at the perimeter. This indicates the lack of pedestrian space at the core of the Study Area, especially at the fine grained end of the spectrum.

There are comparatively few nodes in the John Dobson Street Study Area. The primary North-South traffic route is identified by four medium scale examples, which, with two others form the circulatory traffic layout at the Southern end. Small scale traffic nodes are rare and unconnected. The two medium scale pedestrian nodes are

isolated to either side of the central traffic route. Three small scale pedestrian nodes occupy the Western perimeter. The traffic spine has a strong presence along the middle of the Study Area and tends to marginalise other activity. The impact of the six primary traffic nodes, needs to be reduced or the routes redirected, in order to allow pedestrian activity to flourish.

The principle of nodal frequency offering a dimensional solution to city scale does not appear to be a justifiable or helpful concept. The distribution, number, type and scale of nodes (forming a hierarchical pattern) seems more useful as one of the tools in re-establishing urban quality.

Edges

Boundaries may be considered as positive aspects in the urban environment. For example, the perception of limits or the definition of space can be psychologically reassuring. However, edges are more concerned with negative phenomena. Where boundaries become physical or psychological barriers, loss of continuity occurs in the movement pattern. In this way, crude seams can develop within the city structure. It can often be the case that a pedestrian path is a vehicular edge and vice versa, so it may be important to establish what constitutes an edge for those two user groups. For the pedestrian, there are three main types of edge. The first type is a water course, such as a river or canal. This kind does not occur in any of the Study Areas, although it can be found in other parts of two of the cities. The second type is the physical barrier. This can be in the form of railings, fences, walls or abrupt changes in level. The last of these does not apply to changes in level which have been designed for pedestrian use, however inappropriate they may be. The third type is the street or road. It could be considered that any vehicular route constitutes an edge. Yet, it is suggested here, that city

streets lined with pavements are part of the urban network and do not constitute the same kind of edge as dual-carriageway roads or urban motorways. The latter examples imply a loss of continuity in the pedestrian movement pattern which is not experienced in the city streets.

Vehicular movement is also subjected to three main kinds of edge, which result in loss of continuity of movement. The first type is quite ironic. This is where the construction of a large scale vehicular route actually inhibits the existing movement patterns. Motorways and dual-carriageways were conceived for inter-city travel, and are characterised by long distances, fast channels and few junctions. Thus, when this kind of vocabulary is applied to the city itself, the system only has the capacity to form a minimal number of links with the existing street network. In this way, the street network becomes isolated and loss of vehicular continuity becomes evident. The second type relates to traffic management. Streets which are designated as one-way and/or subjected to restricted use, form barriers to the motorists' perception of the city. The third type is the termination of a route at parking facilities or due to pedestrianisation of the street. Neither contribute to the continuity of vehicular flow.

Of the four Study Areas, Amsterdam is most representative of the seamless city. From the above definition of pedestrian edges, none are apparent in this Study Area. The large scale vehicular routes in particular, are so well defined in terms of the various uses that their legibility avoids any notion of a psychological barrier. Moreover, the regular tram halts along these streets provide pedestrian-dedicated space in between the vehicular activity. Ambiguity is also absent from the vehicular movement. A number of vehicular edges have been noted on the plan, but in practice their effects are hardly noticeable.

In Stuttgart, pedestrian movement and vehicular movement are both adversely affected by the traffic ring, which impinges on the Northern and Eastern sides of the Study Area. However, in the other directions as well as within the Study Area itself, pedestrian movement is uninhibited and forms a fine example of continuous and varied routes. Vehicular space is less dominant in Stuttgart than the other Study Areas. Direct routes through the Area are kept to a minimum and vehicular movement is generally associated with servicing and car parking.

In the Grey Street Study Area, pedestrian edges are limited to the South East corner and the Northern part. They are associated with the roundabout leading onto the urban motorway, and a dual-carriageway road. Traffic management and pedestrianisation cause discontinuities of movement along the main vehicular routes, and minor ways end in cul-de-sacs, which are often associated with private parking.

The greatest number of pedestrian edges, is found in the John Dobson Street Study Area. These edges are mainly as a result of three phenomena. First, the urban motorway forms a harsh edge to the Eastern and South Eastern perimeter of the Study Area. Secondly, the main North-South traffic route and its link with the motorway, are littered with a plethora of physical barriers. Thirdly, the dual-carriageway form of these roads and others, substantially inhibits pedestrian movement. All three kinds of vehicular edge are evident in this Study Area. Also, the inability to gain access to the urban motorway or dual-carriageway roads, creates at least two quadrants of street cul-de-sacs. In addition, traffic management inhibits further possible lines of communication, and pedestrianisation abruptly terminates a number of traditional city streets.

Landmarks

It is possible that the sheer scale of an object can create a kind of landmark. While that may be satisfactory for orientation purposes, it does not satisfy the requirements for individuality and distinctiveness. Moreover, landmarks do not necessarily need to be large scale objects. In some cases, small scale artifacts can be just as distinctive as their large scale counterparts.

The Stuttgart Study Area contains a variety of individual large scale buildings, a smaller statue and two fountains. The tower of the Town Hall is symbolically at the heart of the Area and can be viewed at great distances in all directions. The tower to the Graf-Eberhard Bau is similarly prominent. The other buildings can be seen in various directions at middle distance. The smaller artifacts can only be viewed from within the spaces where they stand. Nevertheless, they enhance those spaces and add significantly to their individuality.

Perhaps surprisingly, the Amsterdam Study is less well-endowed with landmarks. The most significant one, both visually and symbolically, is the dome to the Royal Palace. The Theatrical School, Historical Museum, churches and University are generally only visible when quite close to them. The war memorial is a relatively small obelisk, but has the benefit of being viewed across the large Dam Square.

The Grey Street Study Area has two landmarks which can be seen at a great distance. The tower and lantern of the Cathedral church of St Nicholas, stands out, on nearly all historic and contemporary representations of the Newcastle skyline. At the other end of the Study Area, the Earl Grey Monument occupies a pivotal position in the city. The third landmark in the Area is the Theatre Royal. Its distinctive portico is visible for almost the entire length of Grey Street itself.

Landmarks in the John Dobson Street Area are less visually significant. With the exception of the Laing Art Gallery tower, little character is displayed. Bewick Court gains its impact by being very tall. The City Hall and Central Library gain significance through their uses rather than physical attributes.

It is therefore concluded that true landmarks contribute greatly to urban quality. Quantity and variety are important factors. It is also unlikely that landmarks will really be successful unless they offer symbolism. In this respect, they are more likely to be based in the public sector than in the private sector. Also, a variety of scale which enables landmarks to be viewed from various distances and directions, adds to the overall effect.

CONTEXT

This aspect of the Urban Design Principles relates to:

- Existing recognisable patterns as a basis for incremental growth
- Complexity within order

In the Amsterdam Study Area, the first of these two factors is characterised by a strong directional structure. The four powerful North-South routes set the directional flavour which provides clear orientation. These routes are linked by a series of smaller scale East-West streets and passageways, together forming a kind of ladder structure. The directional emphasis is reinforced by predominantly narrow frontages and continuous street lines. This clear pattern sets the layout parameters for infill development. Spaces within the Area appear well-considered and there is no sense of holes in the pattern nor weak corners. Indeed, there are apparently no left-over spaces nor any awaiting development.

The ladder arrangement gives the impression of a well-ordered built environment. Complexity is achieved within the blocks, through a series of small-scale passageways, junctions and courtyards. This shows that the objective of complexity within order is not only valid, but also achievable. The meanderings of optional routes, changes of direction and peaceful retreats form a stimulating contrast to the activity of the principal structure. Perhaps most important, are the ease of movement between the two worlds and the opportunity to explore without ever feeling lost.

In Stuttgart, considerable clarity is derived from the squares, joined by streets and pedestrian ways. As in Amsterdam, the structure is strengthened by continuous building lines. Plot sizes are variable, but the relationship of facades to spaces, reduces the otherwise negative effects of plot accumulation. The pattern of buildings and spaces has developed from medieval origins and has become more definite with time, rather than becoming fragmented. The powerful image of the structure undoubtedly results from the network of spaces, each performing a definite role and never appearing haphazard, despite the informal layout.

It could be considered that order is inconsistent with informality. However, in this Study Area there is significant order, demonstrating that it does not need to be synonymous with rigidity and straight lines. Small scale complexity is less pronounced than in Amsterdam. Nevertheless, choices of routes forming an interlocking network, together with a noticeable hierarchy of movement, offer interesting possibilities for exploration.

In the Grey Street Study Area, there is a clear street pattern. In part, it follows the kind of ladder arrangement, evident in Amsterdam. Again. the sense of the pattern is strengthened by continuous street

frontages. Plot sizes are variable within the Area, but main facades are ordered by repeating patterns, which will be analysed in the Application of Urban Typologies. The focus is on the streets and their frontages, but within the blocks, buildings and spaces often appear amorphous and developed in a careless fashion. Thus, behind the facades, it is difficult to discern a theme which could form the basis of incremental growth.

Order in this Area is therefore achieved by the street pattern. Unfortunately, that pattern basically forms the extent of opportunities for movement. There is not a finely grained complexity of continuous routes and options. So, the potential for full enjoyment and exploration, is unrealised.

The John Dobson Street Study Area demonstrates the mis-match of patterns. Remnants of the 19th Century city structure can be seen beneath the overlay of inappropriate and incomplete 20th Century development. This produces very unclear lines and interrupted street frontages. Plot sizes are extremely variable and the impression of a collection of separate buildings seems to produce a plethora of ill-considered, left-over spaces and potential development sites. This Area appears to be searching for a theme and a structure.

For a part of the City which has been subjected to at least one plan, there is an astonishing amount of disorder. It is all complexity. Without order, complexity is a negative phenomenon. Disorientation results from continual changes in direction and un-natural changes in level. A kind of restlessness pervades from conflicts in activity and ambiguity of spaces. It is often difficult to tell whether the discomfort experienced in many of the spaces is a signal that people are unwelcome or a result of unsuccessful design.

It is clear from observations about the four Study Areas that the establishment of recognisable patterns and complexity within order, are both valuable objectives. The two Newcastle Study Areas are deficient in a number of respects and therefore proposals for the Study Areas should address these deficiencies, with guidance from the European Exemplars.

DEFINITION

Clear Visual Forms

These are aimed at reducing negative ambiguity. Clarity in the definition of buildings and spaces is seen as one of the over-riding objectives to achieving improved urban form. The ways in which this may be achieved will be considered as part of the Application of Urban Typologies. However, in this section it is necessary to investigate the principles of DEFINITION in relation to urban patterns. In both Amsterdam and Stuttgart, two observations come to the fore in this respect:

. Identification of the limits of each building
. Definition of all spaces by building frontages

In the first observation, it is noted that the envelope of each building is described by its form and facade. Indeed, with techniques ranging from roof forms and materials to style of doors and windows, it seems to have been a conscious decision to express the fact that the city fabric is composed of a multitude of individual units. The second observation relates to the effect of the surrounding buildings on spaces. One of the contributory factors to the success of spaces is that they should be defined by building facades. In Amsterdam and Stuttgart, the buildings do not have a sense of front and back. Often one building helps to create different spaces, to either side of it. In these cases, the buildings are seen to display legitimate facades to both sides.

In the Newcastle Study Areas, the two observations are not so pronounced. In the Grey Street Study Area, amalgamations of buildings have produced many instances where the various roof forms do not give the same impression of the limits of each building, but indications may be gained from the elevational treatment. In the John Dobson Street Study Area, large blocks of building have been deigned with internal subdivisions, so there are no external visual clues. Also, in both Newcastle Study Areas, there are several inhospitable spaces, acting as car parking, or service yards. The pattern of distinct fronts and backs to buildings creates a situation in which blank elevations look down on neglected spaces, relegating them to the non-use of back lands.

Sharpness of Boundaries

There are arguably two types of boundary. The first type relates to edges, and has been considered as part of the Elemental Analysis. The second type concerns the precision of the built form which bounds urban spaces. The European Exemplars demonstrate how clarity and consistency in building form and line, provide a sharpness to the boundaries of the spaces. This approach is aided by the building lines. The lack of consistent building lines has already been noted with regard to the John Dobson Street Study Area. Delineation of the spaces is further confused by structures such as decks, walls and walkways, cutting across the lines. General clutter of artifacts such as steel barriers, a plethora of signs and inappropriate street furniture - all add to the lack of definition. The Grey Street Study Area suffers from a different problem. The building facades provide clear definition to the front streets. However, ill-considered three dimensional design, has resulted in a jumble of shapes and forms to all spaces other than the front streets themselves.

Sense of Containment of Spaces

Sharpness of boundaries to the built form also assists in the containment of spaces. Yet, it is the disposition of the buildings that is the primary factor. Guidelines for containment will form part of the Application of Urban Typologies. This section will be confined to considerations about the existing containment of contrasting spaces within the four Study Areas. Following the established principle that definition of space and contrasting spaces are examples of urban quality, there is certainly a sense of psychological comfort and well-being, experienced in the European Study Areas. Stuttgart, in particular, is comprised of a network of well-contained and contrasting spaces. Strong definition of space can be found in both Newcastle Study Areas, but they lack the assurance of the European Exemplars. This may result from factors such as use, activity level, building form, materials, etc, and all these aspects will be considered. It is suggested here that deficiencies of the Newcastle spaces may also be attributable to their isolation. Too few of the spaces are suitably contained, and even those which do succeed in this respect, do not form part of a network of contrasting space. The establishment of these networks in Newcastle would seem to be an important contribution to the renaissance of urban quality within the city.

SCALE

Height

Christopher Alexander's advice that the majority of buildings should not exceed four storeys, has already been noted. Urban patterns are three-dimensional (or perhaps four-dimensional) and therefore building heights are crucial in establishing successful patterns. The four Study Areas were tested in terms of the proportion of floor area at each storey height. (See Figure 124) If *Alexander's* model is valid, then the vast majority of

floor area should occur in the storeys one - four, with a rapid reduction in floor area above the fourth storey. Moreover, the notion of a three-dimensional urban pattern would suggest that there is a predominant building height within each Study Area. Of the four examples, it was discovered that the Grey Street Study Area closely resembles *Alexander's* model. (See Figure 125) The rate of decrease in floor area from the difference between storeys four - five, and storeys three - four was found to be:

	% age
Grey Street Study Area	170
Stuttgart Study Area	95
Amsterdam Study Area	60
John Dobson Street Study Area	0.75

Despite the variation in rates of decrease, the first three Study Areas followed similar patterns, ie rapid reduction in floor area above the fourth storey with a very small proportion of building above six storeys (Grey Street = zero floor area above six storeys). The exception was the John Dobson Street Area. In this case, not only were the floor areas seen to reduce by relatively small amounts above the fourth storey, but the aggregate above the sixth storey actually produced a significant increase. When the results were analysed in relation to building age, it was found that all age bands were similar to the overall pattern. The exception to the general pattern was seen to be in buildings constructed in the John Dobson Street Study Area, after 1950. (See Figures 126 and 127) It is concluded that these buildings are working against the possible restoration of urban quality in that Area.

Grain

The general principle is that a certain amount of consistency can be achieved in a district of a city, if development reinforces the existing building grain. There

are no established methods for calculating the grain and often it is just associated with the width of street frontages. In this instance, it was decided to base the assessment of grain on the average size of ground floor area of each building shell. In simple terms, the total ground floor area of each Study Area was divided by the number of properties. This revealed the following results -

	Average size in m^2
Amsterdam Study Area	135
Grey Street Study Area	195
Stuttgart Study Area	320
John Dobson Street Study Area	595

The average is quite a crude measure, as each Area contains some fine grained buildings, as well as some larger structures. Nevertheless, the figures are indicative of fine, medium and coarse grained patterns. It should also be remembered that existing plot sizes are not necessarily ideal, and that fine grained patterns tend to produce more successful environments. The results show a considerable difference between the Grey Street Study Area and the John Dobson Street Study Area. While it is not necessary for different districts in a city to display the same grain size, such a wide variation between two adjacent districts indicates a fundamental change in scale which may mitigate against the objective of the seamless city. In addition, the figure for the John Dobson Street Study is so much larger than any of the others, it may be felt that its grain is too coarse.

Density

The density of building varies at different floor levels. Therefore, measurement was taken at each level and expressed as a percentage of Study Area size. Comparison between the four Study Areas could establish density targets at each level. (See Figure 125) In terms of the

first four storeys, the results show a close connection in density between the Grey Street and Stuttgart Study Areas. Amsterdam produced a similar pattern, but the large spaces reduced the proportion of building throughout. The John Dobson Street Study Area is the least dense of all the Areas. Above four storeys, Grey Street could be considered as the model, with the density reducing dramatically. The overall conclusion is that the Grey Street Study Area demonstrates appropriate density figures throughout. The John Dobson Street Study Area, on the other hand, seems to display less than average densities in storeys one - four, but greater than average densities in storeys six and above. One of the concerns has been to establish a density threshold for Urbanity. In these Study Areas, such a concern seems unfounded, as all display sufficient urbanity. Another aspect is avoiding districts which are too dense. Again, this does not appear to be a problem, as all the results were relatively close and one of the European Exemplars, ie Stuttgart, is generally the most densely built. The objective therefore, may be to build in a way that brings the John Dobson Street Study Area into closer alignment with the densities of the Grey Street Study Area.

ACCESS

Permeability

One of the objectives of the successful city is good access, especially for pedestrians. This is mainly achieved by a permeable city fabric, which allows fine grained pedestrian movement. Conversely, this movement is obstructed by large blocks of building and discontinuity of movement, either by fragmentation of routes or cul-de-sac situations.

In considering the continuous pedestrian movement patterns of the four Study Areas, the distances between points of access can be measured. A certain amount of

generalisation becomes necessary, as isolated examples of a great variety of distances can be found. A precise measure is not the criterion. It is the zone of distance that is the important issue. Within these parameters, the results are as follows -

Amsterdam:	predominantly	15 - 30 m
Grey Street:	in part	15 - 30 m
	but also	50 - 120 m
John Dobson:	small proportion	15 - 20 m
	but majority	60 - 70 m
Stuttgart:	predominantly	20 - 30 m

Note: discontinuous routes were not counted as part of the pedestrian network for this purpose.

It would therefore appear that an appropriate target for distances between points of access, should be in the region of 20 - 30 m.

Devices

A difficulty, that may be observed in a structure which allows frequency of access, is fragmentation of the spatial enclosure. Therefore, a number of devices may be necessary to mitigate against this undesirable aspect. In both the Amsterdam and Stuttgart Study Areas, these devices are used to great effect. In Amsterdam, for example, a series of entrances are marked by arches and colonnades. In significant cases, these lead to courtyards which offer further routes, identified in a similar manner. In Stuttgart, the pedestrian passageway is used as a device to provide access without losing the definition of spaces. Arcades and colonnades are also used. In the Grey Street Study Area, there are arches and passageways. These are generally found in the medieval parts of the fabric but, unfortunately in nearly all cases do not contribute to the pedestrian network, as they tend

to lead to discontinuous routes. The most successful device in the Grey Street Study Area is the Central Arcade, which links Grey Street, Market Street and Grainger Street. It provides access to shops and offices while performing the role of a pleasant pedestrian thoroughfare. The arcade also offers shelter, while continuing to be perceived as an external space. In this way, it avoids the sanitisation experienced with indoor shopping malls. Only a very few of these devices are observed in the John Dobson Street Study Area. This may be surprising, as there has been such an emphasis on the separation of pedestrian and vehicle movement, with many pedestrian ways resulting from that decision. One aspect does become apparent in this Study Area. Pedestrian passages need to be kept to short distances, before opening into a square or courtyard, or providing some other visual and psychological release.

Sectors

It is generally regarded that access to the city should be available to all sectors of society - regardless of age, background or mobility. The advantage of public sector spaces is that they are open to all classes. The lack of permeability that has been noted in large parts of the Grey Street and John Dobson Street Study Areas, is mainly associated with private sector control of land. Another aspect which does not dominate these Study Areas, but is a major factor in other districts of Newcastle City Centre, is the privatisation of public space. In particular, former public streets have now become indoor shopping malls. In these places, there is selective admittance. In addition, these former public streets are now closed outside shopping hours. Sadly, the last point also applies to the Central Arcade. In terms of mobility, the Amsterdam Study Area provides good access to most spaces, but there are obstructions associated with changes of

level. Wheelchair lifts have been incorporated at these points, but they only cater for a small proportion of society. The Stuttgart Study Area offers excellent opportunities for mobility. There are a few barriers, but in any case, alternative routes are readily available. The Grey Street Study Area is also relatively good, but the close association of pedestrian movement with the street layout causes frequent potential conflict with vehicles. The John Dobson Street Study Area does not perform well in terms of mobility. While the vast majority of the Area is served by ramps, the movement patterns are long and complex.

TOPOGRAPHY

One aid to easy movement in the city, is to work with the natural form of the land. The positive use of natural topography has been one of the chief reasons for the recorded enjoyment of Grey Street itself. The slope and curve, have been remarked upon by a number of writers. In general, the Area uses the natural form of the land to good effect. The topographical bowl in Stuttgart, has already been noted. The feeling of going down into a district defined by higher land, is an important factor in its success. The topography provides the boundaries and helps establish the identifiable character of the Area. The topography also works in association with the symbolism. At the centre of the Area and at the bottom of the bowl is the Market Place, with the Town Hall looking onto it. The land form in the Amsterdam Study Area is very flat, and therefore fewer natural sensations are on offer. Only in as much as there is a development of spaces from watercourses, does this part of Amsterdam have associations with the natural topography. In the John Dobson Street Study Area, much has been done to alter the topography. The natural fall from North to South and the

level nature of East-West routes are evident in the traditional streets, especially Northumberland Street, Pilgrim Street, Saville Row, Saville Place and Ellison Place. John Dobson Street artificially dips down under Bewick Court and rises the other side - against the natural fall of the land. This adds to the abrupt end of Saville Row, where there is a level change of several metres down to John Dobson Street. A similar situation occurs between Saville Place and Durant Road. One further example is the most peculiar dip in the level of Ellison Place as it passes under MEA House.

In terms of man-made devices, these can enhance or negate the natural features. The lack of natural drama in the Amsterdam Study Area means that the man-made devices are required to produce the sensations. It has already been noted more than once, how the arches, passageways, courtyards, colonnades, arcades, etc, contribute greatly to the hierarchy of movement pattern and contrasts in entrances, spaces and atmosphere. Similar devices are also used in the Stuttgart Study Area and combine well with the natural form. It could be argued that in Newcastle, there is natural drama and therefore the man-made devices are needed less. However, they can be used to add further sensations and enhance the natural features. In the John Dobson Street Study Area, man-made contributions tend to interrupt the natural form, confusing the picture and weakening the sensations. In the Grey Street Study Area, man-made devices are very few, but one good example of the combination between the man-made and the natural, is at the Earl Grey Monument. At this point, two major routes move uphill and converge. The sense of climax is heightened by the presence of the tall, thin column with its crowning statue facing back down the hill.

UNITY

Materials

One of the methods of achieving unity, is often considered to be consistency in the use of materials - especially in the building facades. A percentage analysis of the four Study Areas, revealed the following results -

	Amsterdam	Grey Street	Stuttgart	John Dobson Street
Brickwork	70	19	1	42
Stonework	7	68	21	20
Render	16	4	38	4
Concrete	6	4	7	21
Curtain Wall	1	5	33	13

If a simple majority is taken as a measure of significance, it becomes apparent that the Amsterdam Study Area is predominantly brick and the Grey Street Study Area is predominantly stone. The other two Areas display a range of materials. It is interesting to compare the materials with the dates of facades -

	Amsterdam	Grey Street	Stuttgart	John Dobson Street
pre 1800	38	3	11	3
1800 - 1850	10	43	0	8
1850 - 1900	17	15	0	12
1900 - 1950	27	21	22	20
1950 →	8	18	67	57

If a simple majority is again taken as the criterion, it is evident that in the Stuttgart and John Dobson Street Areas, a significant number of buildings were constructed after 1950. In fact, comparatively few buildings have been constructed in the Amsterdam and Grey Street Study Areas in the latter part of the 20th Century. Therefore, the implication is that material unity occurs in areas where the majority of buildings were constructed before 1950. Conversely, a high proportion of late 20th Century buildings, implies lack of material unity.

Technology

Consistency in Technology, as a means of achieving unity, can be a useful concept. However, it demands that the technology is expressed, ie the structure and construction of a building are clear from the external appearance. Evidence from all the Study Areas, is rather inconclusive in this matter. However, careful observation of the buildings offers some guidance. In Stuttgart, although many of the buildings are small-scale, it appears that the majority are framed structures. This assertion is supported by the fact that a relatively small proportion of the buildings are faced in brick or stone. The ambiguity lies in the use of render, as this material can be applied to the infill panels or to a masonry structure. Thus, the use of materials leads to a supposition about the technology rather than a clear statement. In the Amsterdam and Grey Street Study Areas, the age of the buildings - together with the predominant use of brick and stone respectively, and the average small scale pattern of the Areas - all suggest a high proportion of traditional loadbearing construction. Initially, the John Dobson Street Study Area shows conflicting information. The average building scale is twice that of the Grey Street Area and three times that of the Amsterdam Study Area. 77% of the buildings were constructed during the 20th Century, including 57% which were constructed after 1950. Yet masonry accounts for 66% of the buildings. An ambiguous picture is therefore being presented. Modern buildings in the Area, are apparently loadbearing constructions, when in fact their scale suggests that they must be framed buildings, clad in masonry. Further confusion occurs, when these buildings are seen alongside traditional loadbearing construction. If unity and legibility are important concepts, then it is essential that new structures should not be cloaked in the materials of a different technology.

Scale

The various scales of the four Study Areas, have been noted in the considerations about technology. Scale could be derived from the cumulative density per floor and the average grain. As previously stated, this measure does not allow for the range within each Study Area. However, the objective is not to establish a multitude of examples, but to gain an appreciation for the overall characteristics of each Area. Scale index numbers can therefore be represented as follows -

Amsterdam Study Area	215
Grey Street Study Area	320
Stuttgart Study Area	650
John Dobson Street Study Area	960

These index numbers are relatively consistent with the average grain sizes. Some of the advantages of small scale, fine grain development have already been suggested. Nevertheless, it is possible that harmony could be achieved with large scale buildings. Perhaps a more salient point is that Grey Street and John Dobson Street are adjacent Areas in the same city. If one of the over-riding objections is the 'seamless city', a scale differential of 3:1 between the two Areas, might be inappropriate to that objective.

Style

Much of the attraction of the Grey Street Study Area, as well as the praise for Grey Street itself, comes from the architectural unity of the 1834 Newcastle Central Area Development. This distinctive post-Renaissance style, has become known as 'Tyneside Classical'. The fact that it has received this title is sufficient testimony to its qualities. In Amsterdam, the narrow-fronted gables are so identifiable in character, that the term 'Dutch Gable' has become recognised in this country. The Study Area

contains sufficient number of these buildings that a clear architectural framework is evident. The Stuttgart Study Area is basically composed of groups of buildings which represent the three eras of their construction. There is a medieval group of substantial buildings, an early 20th Century commercial style and post 1950 modernism. The last of these three eras is in the majority. It is undistinguished architecturally, but consistent in its modern style. It also forms a successful backdrop to the public spaces. In the John Dobson Street Study Area, consistency of style is difficult to discern. Many of the buildings do not even possess a recognisable style. This undoubtedly contributes to the public alienation felt about the Area, and invidious comparisons with the rich architecture of Grey Street are often suggested.

Spaces

The use of space as a unifying element depends on the consistency of spatial configurations and understandable spatial patterns. Reference back to the elemental analysis, demonstrates that these notions are relatively well established in the European Exemplars, whereas they are sadly lacking in the Newcastle Study Areas. Spatial layout needs a clear hierarchy and legibility.

Harmony in Large Scale Schemes

One of the main principles of this thesis is that large scale schemes should be avoided. However, if such a scheme is considered as the only option, then its harmony is a vital factor. Many critics have noted that large scale schemes from the past, do display a kind of harmony which is seemingly absent today. It is suggested here, that harmony/unity/consistency needs to be apparent in each of the five aspects considered above, for overall success. The late 20th Century has a poor record in this respect. With MATERIALS, the conclusion is that a high proportion of late 20th Century buildings, implies lack of material unity. In TECHNOLOGY, the structure and

construction need to be expressed and not cloaked in the materials of a different technology. The SCALE needs to respond to the surrounding scale. So, large developments may need to be comprised of small scale elements. This is a requirement for a recognised STYLE or at least an identifiable character. In terms of SPACES, hierarchy and legibility are essential. Consistency in these aspects was less complicated in the past because there was less choice. Today, from a use-demand point of view, it may be that framed buildings are a necessity. It may also be the case that we have not yet devised an acceptable combination of facade materials, scale, style and hierarchy of spaces, to suit the technology.

DIVERSITY

Uses

The initial consideration is that there should be more than one or two primary functions in an Area. (See Figures 128 and 129) The use profile for the Amsterdam Study Area illustrates an almost ideal situation, with four-five primary uses at each level. Industrial use is found to be a minority function throughout, and together with parking, storage, etc, discounted. The Stuttgart Study Area also shows a good variety of use, although retail maintains a surprisingly high figure above ground floor level. There is less diversity in the Newcastle Study Areas, although the John Dobson Street Study Area could claim three - four uses at the lower levels. However, in both Newcastle Areas, retail generally occurs at ground and first floor levels, and commercial tends to dominate the remaining space. Leisure is only apparent at ground floor level in the Grey Street Area. This is almost exclusively, a number of bars and public houses. Institutional is totally absent. Both leisure and institutional, have a better representation in the John Dobson Street Area, but both are definitely minority uses.

Residents

It is considered that a concentrated resident population is especially valuable to a city district. The Amsterdam Study Area shows that a significant resident population is feasible. In the Grey Street Study Area, residential use is minimal. There is a noticeable amount of residential use in the John Dobson Street Study Area, but as the majority is located at above six storeys, doubt needs to be expressed about the suitability of this accommodation.

Age and Economic Yield

There has been a suggestion that a variety of ages and economic yield of buildings is desirable. Yet, perhaps a more important measure of economic viability of buildings, is occupancy. There seems to be a norm of about 5% vacancy. This is certainly the case in the Amsterdam and Stuttgart Study Areas. The John Dobson Street Area has only a slightly higher figure at 7% vacancy. The concern relates to the Grey Street Area, where there is currently 32% vacancy. The high proportion of buildings constructed after 1950, in the Stuttgart and John Dobson Street Study Areas, might suggest an association between age and vacancy. However, the variety of building dates in Amsterdam and especially the small proportion constructed after 1950, indicates that older buildings are not necessarily less desirable. Some of the reasons for the low occupancy in the Grey Street Study Area will be considered in a subsequent section.

Re-Use

In Newcastle, the immediate priority should be to bring redundant buildings back into use, preferably as residences. The traditional construction of the majority of empty buildings, with natural light and ventilation, should enable this objective to be a possibility. In this respect, campaigns such as 'Living over the Shop' are positive contributions.

Facadism

It has already been established that the Newcastle Central Area Development (1834) was designed in terms of only the front elevations and street layouts. The buildings behind the front elevations were constructed as speculative houses, shops, etc. Consequently, there has been a long history of facadism in the Grey Street Study Area. In this context, it would seem a reasonable option. The deficiency in the facadism to date, has been the lack of consideration for the new elevations and the spaces created behind the buildings. This has meant that the built environment has not enjoyed any significant improvement. It should be emphasised that facadism is not generally applicable to historical buildings. It is only relevant where speculative buildings were originally grafted onto stylish facades.

JOY

Intricacy and Visual Delight

Almost by definition, these aspects relate to small scale attributes. They are primarily associated with the detail of buildings and artifacts. The overall scale of the Study Areas, has already been considered and it is not an unreasonable supposition that there may be some kind of correlation between the overall scale, and richness in terms of intricacy and visual delight. The Amsterdam Study Area contains few artifacts. However, the detailed attention to the buildings and spaces is for the most part, exquisite. Sculpted facades, detailed craftsmanship, fascinating shapes and so on, all combine to produce considerable visual delight. In Stuttgart, the emphasis is different but no less powerful. In this Study Area, the effect is generated by groups of buildings around enjoyable spaces. The historical groups are finely detailed, but the modern buildings are more plain. Yet, the small scale nature of many of the modern buildings, together with the changes of direction in the building

line, provide an intricacy of their own. Visual delight is further achieved by small scale spaces. The buildings open onto these spaces, many of which also contain well-detailed artifacts such as fountains and statues. The Grey Street Study Area also contains a small number of monuments. The building facades are sculptural and ordered in their detailing, (especially those from the early 19th Century) and provide a fascination of patterns. Intricate spaces dating back to medieval times, have the potential for visual delight, but this is currently unrealised. The John Dobson Street Study Area offers little in terms of intricacy and visual delight. There are charming exceptions like the statues of local eminent people set into a facade in Northumberland Street, or the tower of the Laing Art Gallery, or the remaining houses in Grainger's Higham Place. Nevertheless, the overall picture is one of large scale and the bland.

Poetic and Symbolic

Symbolism is a strong feature of the Amsterdam Study Area. Many of the buildings display images in their facades that relate to their original functions, their owners and dates of construction. The contrasts, in uses and atmospheres of spaces, produce an uplifting experience which tends towards the poetic. For example, the few steps from the bustling Kalverstraat to the idyllically peaceful Begijnhof, is a spiritual experience in more senses than one. The symbolism in the Stuttgart Study Area has already been mentioned. In summary, it relates to the Town Hall and Market Place at the centre of the Area, with the symbols of spiritual fulfilment (Stiftskirch), order in society (Justiz Minstry) permanence (Altes Schloss) and physical sustenance (Markthalle), located around it. The Grey Street Study Area contains some symbols, although a number have been superseded. The Cathedral church is the spiritual heart, although it feels a little marginalised and lacking in terms of a suitable setting. The Theatre Royal stands proudly as the symbol of culture and

entertainment. The portico certainly confirms its status, but even in this case, the approach seems to dilute the formality and grandeur. The bank buildings are good indicators that the Area is the traditional commercial core of the city. Unfortunately, the Bank of England has relocated to a site on the roundabout, at the bottom of Pilgrim Street. Poetry and symbolism do not abound in the John Dobson Street Study Area. Despite the attempt in the 1960s, to create a cultural square between the Central Library and Laing Art Gallery, the only real symbolism is the association of Northumberland Street with consumerism.

MEANING

This relates to the reinforcement of social, historical, functional, economic and physical characteristics - through the imagery of names. All four Study Areas have a history and are therefore well represented in this respect. In Amsterdam, the names range from the association of the streets with the former water courses which still flow under them, to the dam in the river, to Palace Street, to the English church. There are a multitude of stories and meanings behind almost every name in the Area. It is similar in Stuttgart, where Marktstrasse, Eberhardstrasse, Schiller-Platz, Kirchstrasse, etc, are all representative characteristics of the city. The principle also applies in Newcastle. Within the Grey Street Study Area, Pilgrim Street and Market Street are self-explanatory. Shakespeare Street runs adjacent to the Theatre Royal. Other streets are named after local dignitaries. There is also the Cloth Market, Groat Market, and Bigg Market which is still used for the purpose today. The names in the John Dobson Street Study Area are slightly more obtuse. It is easily understood that Northumberland Street is at the North end of the city and leads out to Northumberland. However, it is less easy to comprehend why Northumberland Road and Northumberland Place are at right angles to it, and today

both lead nowhere. New Bridge Street was one of the main routes in and out of the city, in an Easterly direction. The New Bridge was a breakthrough in communications as it provided the first crossing over Pandon Dean. New Bridge Street is now barely recognisable as a street, and certainly does not allow a clear route in and out of the city. College Street was named after the first Medical School. The building is now incorporated into the University of Northumbria, although the Medical School itself, is part of the University of Newcastle. It would seem more appropriate if College Street actually led to the main entrance of the University of Northumbria. Finally, central to the Area, is John Dobson Street. This is the only street in Newcastle upon Tyne to be named after an architect. It is therefore, disappointing that the street does not contain any 'Tyneside Classical', or Gothic buildings, on which his fame was founded.

VISION

Objectives of the Principal Players

In the John Dobson Street Study Area, the vision seems to have been frozen in the 1960s Comprehensive Development. This can only be emphasised by the recent, meaningless extension of John Dobson Street to Market Street. If the principal players are honed down to the Local Authority as policy-maker and private sector developers as initiators, it seems that there is no overall view of what the area should be like. Mainly, developers show little interest in the Area. The occasional proposals are for individual buildings and are conceived totally independently. The vision for the Grey Street Study Area is conservation, tending towards preservation. So, if there is an attempt to freeze the John Dobson Street Study Area in the 1960s, there also appears to be an attempt to freeze the Grey Street Study Area in the 1830s. Yet, the buildings have already been much changed since that time. The over-emphasis on the street facades, has resulted in many

missed opportunities and contributed to the declining structure of the Area. It was hoped that English Heritage, the City Council, the private sector campaign, 'The Grey Street Renaissance', and the associated consultants would address these issues. A joint project called 'The Grainger Town Study' was undertaken in 1992. The study suffers from the large geographical area that it labels Grainger Town - most of which did not involve Richard Grainger. However, as far as this Study Area is concerned, it does little to establish a common vision. On the one hand, the report is obsessive about the appearance of front elevations to the neglect of all the other issues. On the other hand, it provides detailed architectural solutions to a series of small developments that might take place at some time.

Amsterdam and Stuttgart represent a noticeable contrast in attitude to Newcastle. In both European cities, the Local Authorities are working towards recognisable objectives of urban quality. They are constantly studying their respective cities and reviewing the parameters for development. In Amsterdam; the Planning Department is in the early stages of devising an 'Urban Quality Plan', whereas in Stuttgart, there are frequent competitions for the design of buildings, spaces and parts of the urban structure.

<u>Communication of the Vision</u>

In Newcastle, the lack of communication suggests that there is no vision to communicate. In Amsterdam and Stuttgart the procedures are remarkably similar to one another. Clearly drawn development parameters are available for every location in both cities. These parameters refer back to the objectives for each district. The developers are therefore in no doubt as to the requirements. The parameters are rarely challenged as in these cities, the Planner's Authority is supported by a legal framework. As yet, it is unclear about the status

of the proposed 'Urban Quality Plan' for Amsterdam. The general feeling in the Planning Department is that it will be offered as recommended guidance, rather than a mandatory document.

Information from the APPLICATION OF URBAN DESIGN PRINCIPLES in the FOUR STUDY AREAS, makes direct contributions to THE POSSIBILITIES. These are summarised as follows -

LEGIBILITY

Districts

. Identifiable areas, possibly different characters, due to - age, style, materials, uses, uniformity of appearance.

Paths

. Vehicular - articulation required
- one-way acceptable but needs to be achieved without artificial devices such as barriers and dual-carriageways
- orientation needs to be maintained
- a finely grained access is required for car-parking and servicing

. Pedestrian - footpaths need to line streets in the traditional manner
- passageways can link the streets
- static spaces - focal and minor
- minor spaces - chain of interest as an alternative to direct movement channels to form a multiplicity of routes

. avoid dead-ends, cul-de-sacs and disorientation for all users.

Nodes

. Small number of coincident nodal positions at maximum distance from one another.
. Large scale traffic nodes to be at the extremities and define the main transportation layout.
. Secondary traffic nodes occur within, at lesser distances.
. Large scale pedestrian nodes occur between traffic nodes, but well-spaced.
. Small scale pedestrian nodes - most finely grained scale.

= Hierarchy, a varied and contrasting spatial structure.

Edges

. Seams in the city, but the objective is a seamless city

Therefore, it is important that the impact of the following be minimised -

. Pedestrian - water courses
  - physical barriers - railways, fences, walls, etc
  - abrupt changes in level
  - dual-carriageways and urban motorways

. Vehicular - motorways and dual-carriageways - too few links
  - traffic management restricting natural use
  - dead ends, due to parking facilities or pedestrianisation

Landmarks

. Individual, distinctive, symbolic.
. Large scale alone is insufficient and probably not desirable.
. Variety of scales and visible from various distances and directions.
. More likely to be public sector than private sector.

CONTEXT

Existing Recognisable Patterns

. Directional structure gives clear orientation.
. Continuous street lines.
. Suggested grain.
. Hierarchical network of spaces.

Complexity Within Order

. Well-ordered structure - existing recognisable patterns.
. Small-scale complexity within an ordered structure - opportunity to explore without ever feeling lost.
. Order does not need to be rigid with straight lines.

DEFINITION

Clear Visual Forms

. Identification of the limits of each building.
. Definition of all spaces by building frontages.

Sharpness of Boundaries

. Clarity of lines, especially building lines, and avoid confusion caused by decks, walls, walkways, steel barriers, signs, inappropriate street furniture.
. Apply to all facades of buildings.

Sense of Containment of Spaces

. Network of well-contained and contrasting spaces.
. Avoid spaces becoming isolated.

SCALE

Height

. Aim for predominant building height (probably four storeys).
. The number of buildings - one storey higher, should show a considerable reduction and the number of buildings - two storeys higher, should be tending to zero.

Grain

. Objective of consistency.
. Fine grain generally preferable, but not mandatory.
. Similar grain in adjacent districts assists notion of the seamless city.

Density

. Threshold for urbanity not a concern.
. Similar density in adjacent districts assists notion of the seamless city.
. Generally - high density - one to four storeys
  - low density - above four storeys

ACCESS

Permeability

. Target for distances between points of access = 20 - 30m

Devices

. Secondary routes.
. Can avoid fragmentation of spatial enclosure which may result from frequency of access.

. Examples - gateways, arches, colonnades, arcades, passageways - for short distances before opening into courtyard or square.
. Need to be part of pedestrian network.

Sectors

. Public sector - open to all classes.
. Mobility - avoid barriers, eg changes in level
- alternative routes
- short routes for access.

TOPOGRAPHY

. Emphasise natural topography - provides boundaries and helps establish identifiable character.
. Associate with symbolism.
. Man-made devices need to enhance natural features.

UNITY

Materials

. Greatly reduced since 1950 - needs to be re-established.

Technology

. Structure and construction need to be expressed and not cloaked in materials of a different technology.

Scale

. To respond to surrounding scale.

Style

. At least an identifiable character is necessary.

Spaces

. Hierarchy and legibility.

Large Scale Schemes

. Generally to be avoided.
. If unavoidable, unity required in all five factors above.

DIVERSITY

Uses

. Maximise number of compatible uses - especially increase resident population.

Residents

. Amsterdam demonstrates feasible proposal.
. Need to be located above ground floor but no higher than third floor.

Age and Economic Yield

. High vacancy in Grey Street Study Area needs to be reduced.

Re-Use

. Initially redundant buildings could be re-used as residences. 'Living over the Shop' philosophy.

Facadism

. Relevant to Grey Street Study Area, where speculative buildings were originally grafted on stylish facades.
. Considerably more attention to new elevations and external spaces is needed.

JOY

Intricacy and Visual Delight

. Primarily associated with the detail of buildings, artifacts and spaces.
. Needs to be rediscovered in the existing, and proposed in the new.

Poetic and Symbolic

. Symbolic buildings need appropriate settings.
. Poetry provided by contrasting spaces and atmospheres.

MEANING

. Reinforcement of social, historical, functional, economic and physical characteristics - through imagery of names.
. Often names exist but the physical characteristics have been diluted - the urban fabric needs to be re-tuned to the names.

VISION

Objectives of Principal Players

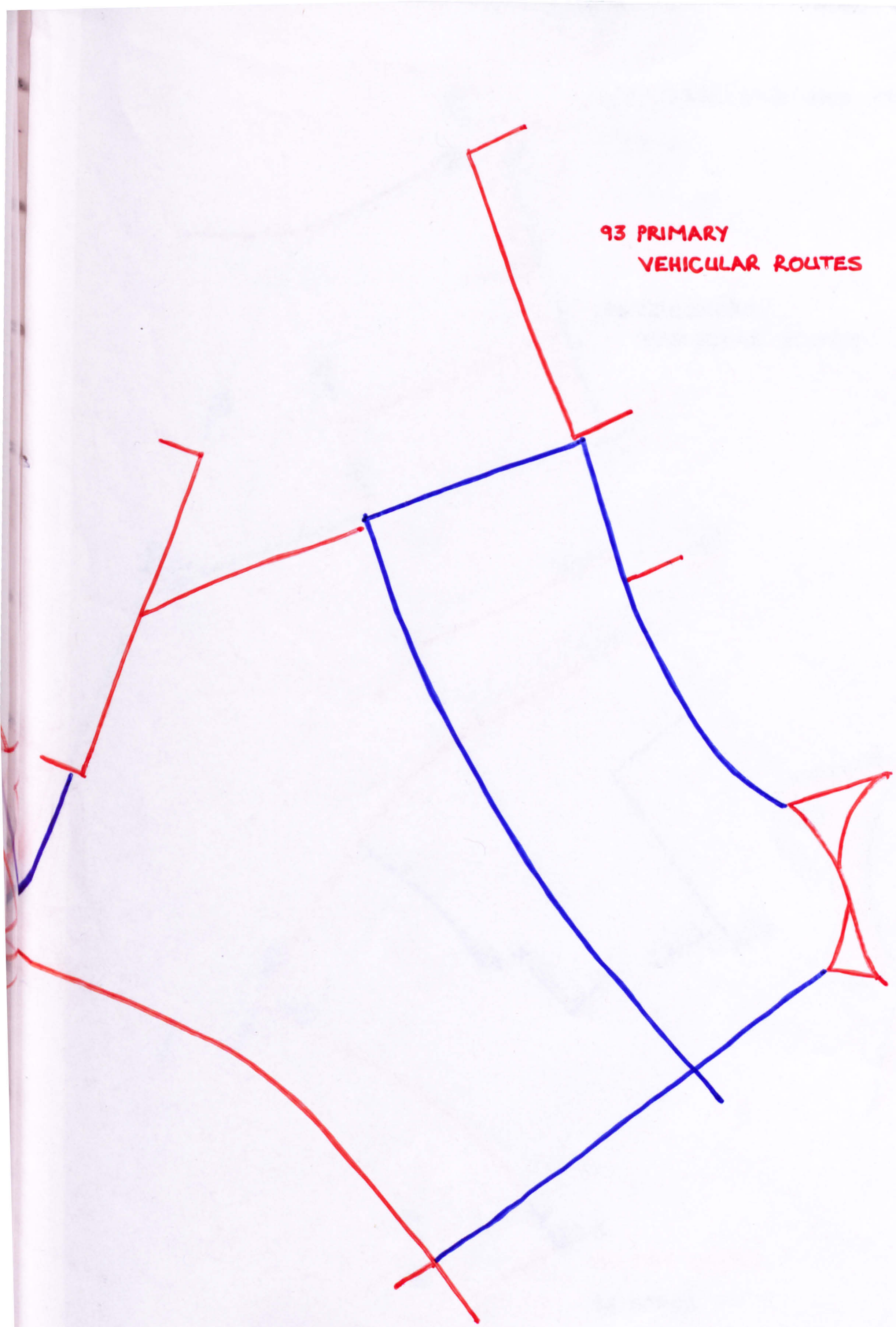
. Establish the vision, set out the objectives, provide a framework, to which the principal players can respond.

Communication of the Vision

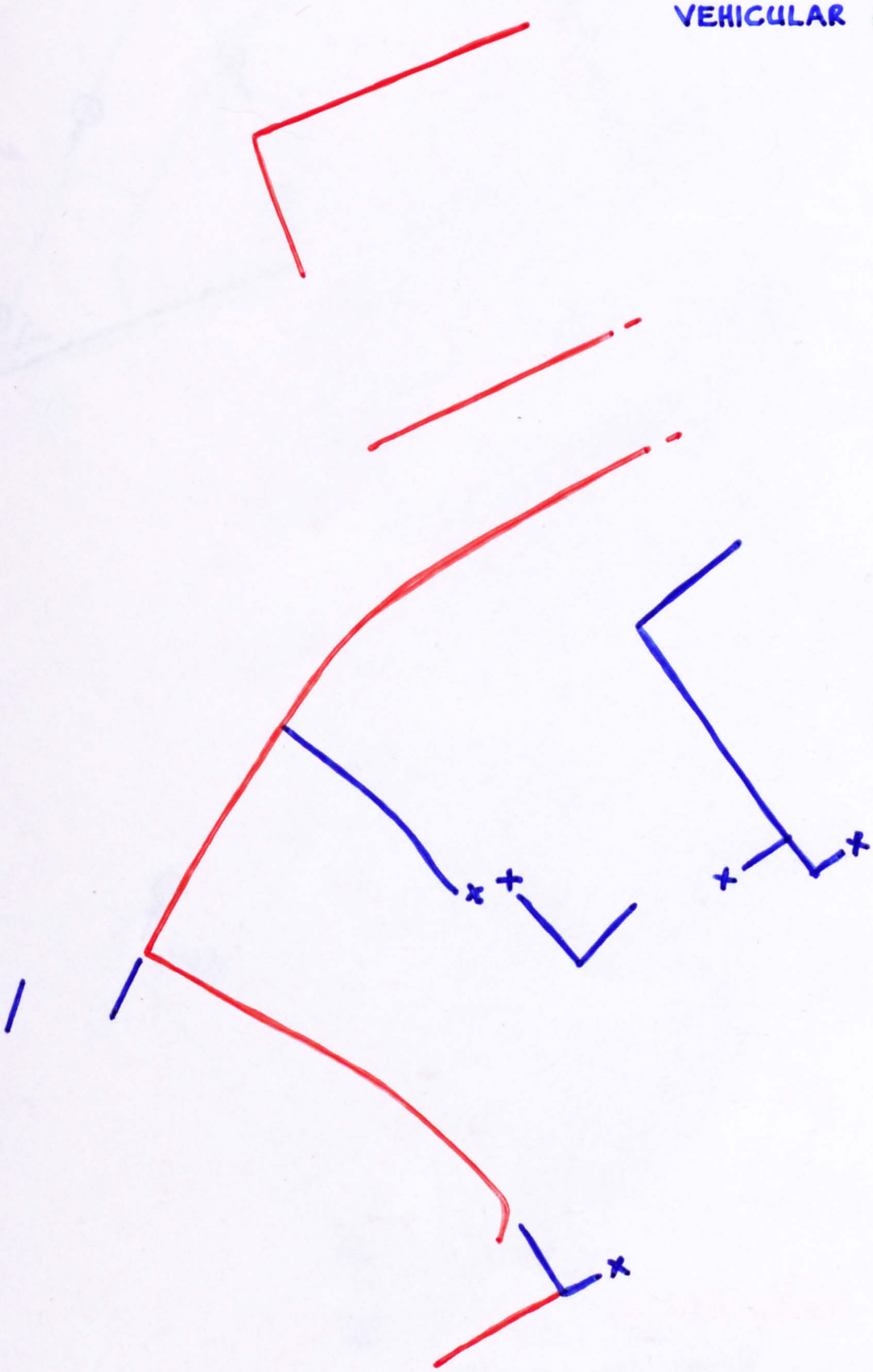
. Readily available clear guidance for development.

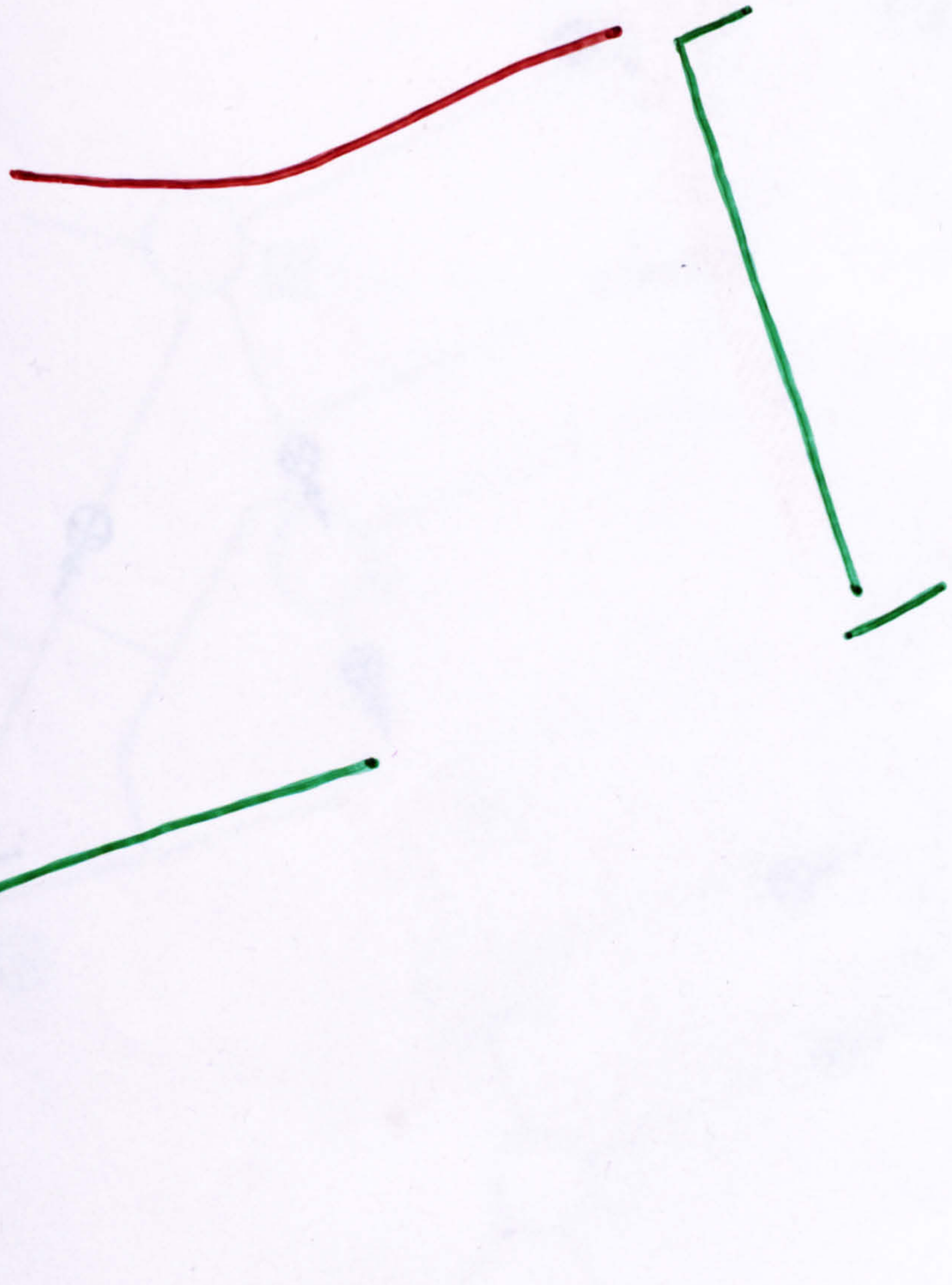
92 PEDESTRIAN ROUTES

93 PRIMARY
VEHICULAR ROUTES



94 SECONDARY
VEHICULAR ROUTES



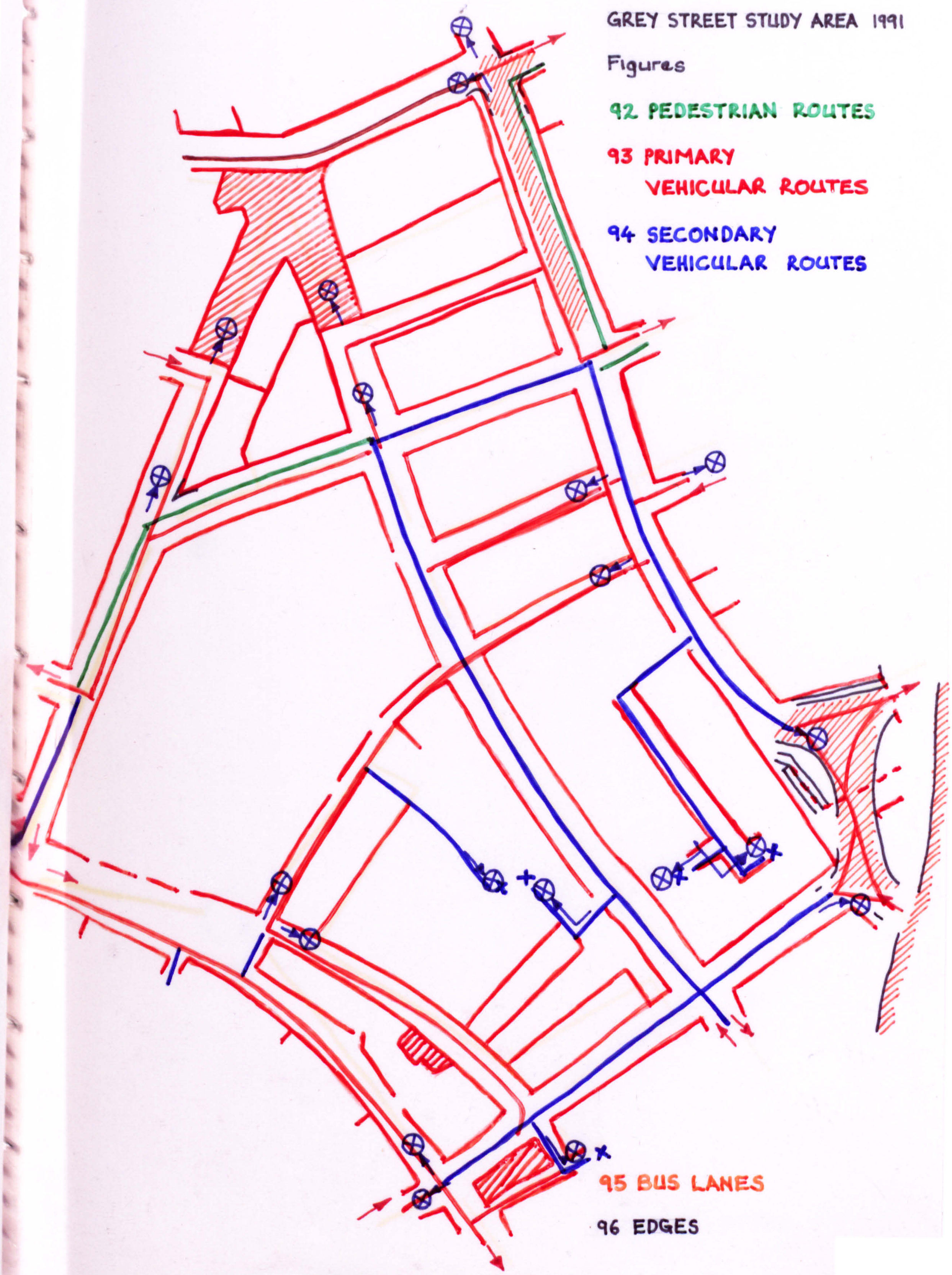


95 BUS LANES

GREY STREET STUDY AREA 1991

Figures

96 EDGES



GREY STREET STUDY AREA 1991

Figures

92 PEDESTRIAN ROUTES

93 PRIMARY VEHICULAR ROUTES

94 SECONDARY VEHICULAR ROUTES

95 BUS LANES

96 EDGES

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GREY STREET STUDY AREA 1991

Key

- Primary Vehicular
- Secondary Vehicular
- Pedestrian

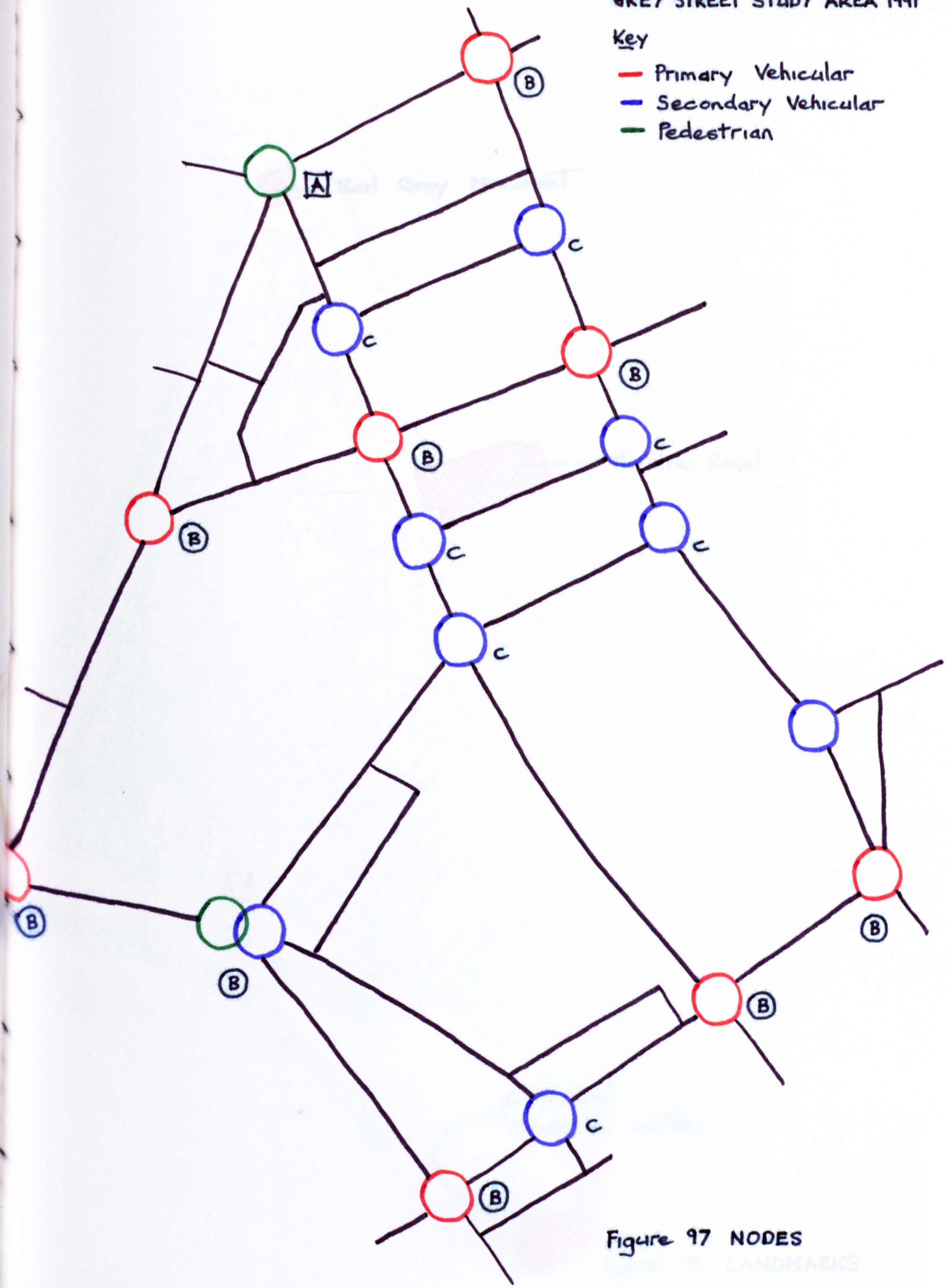


Figure 97 NODES

Figure 98 LANDMARKS

GREY STREET STUDY AREA 1991

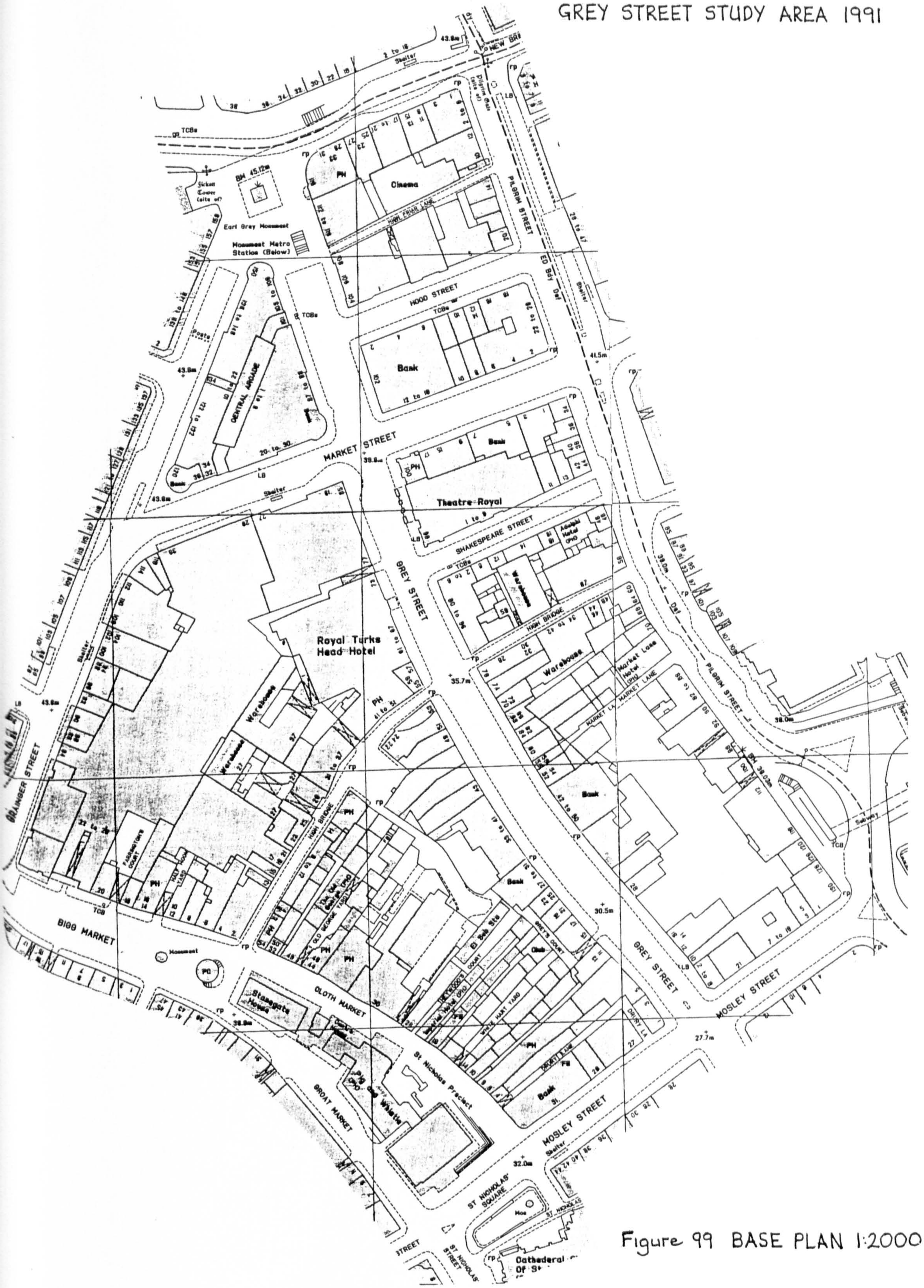
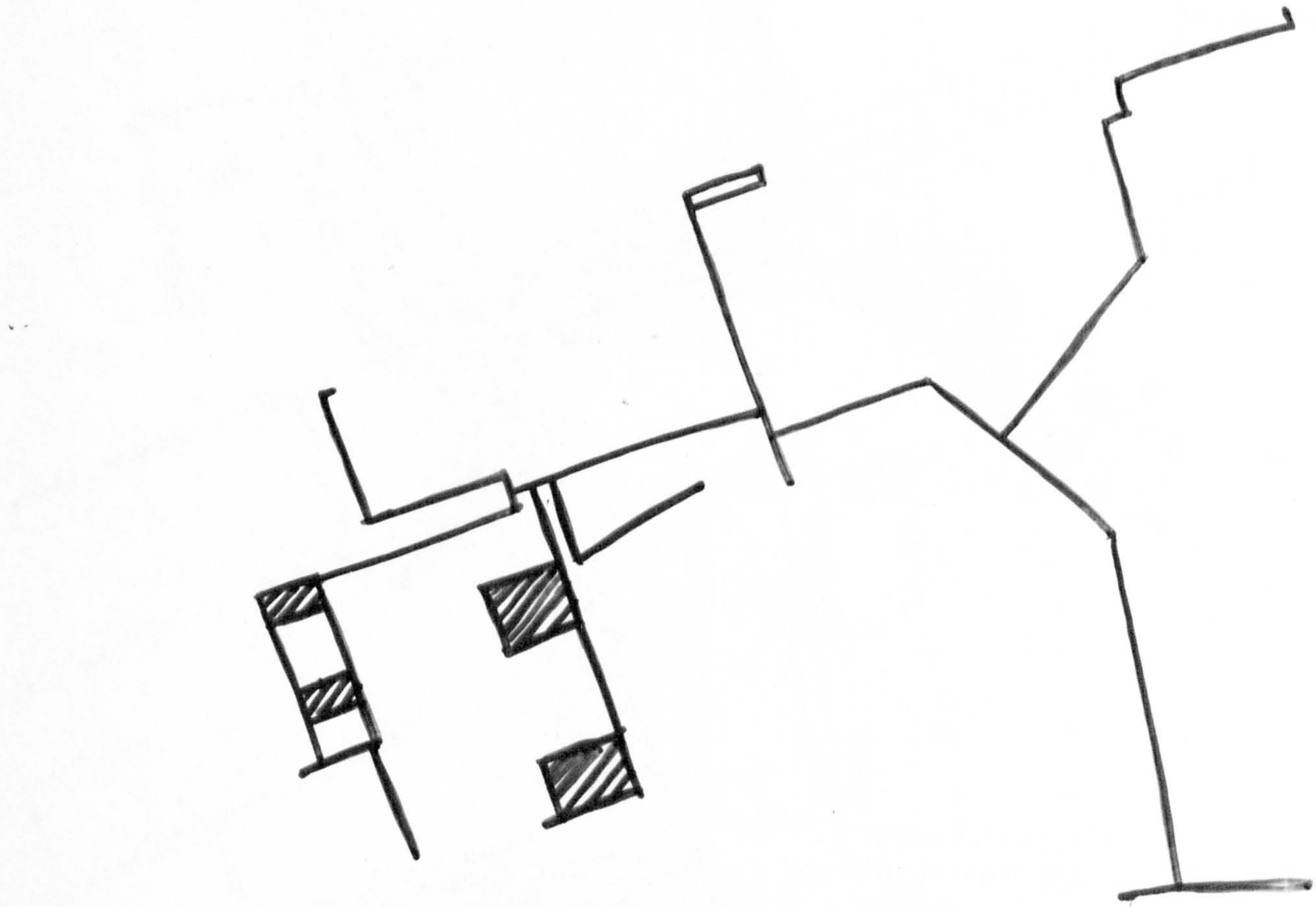
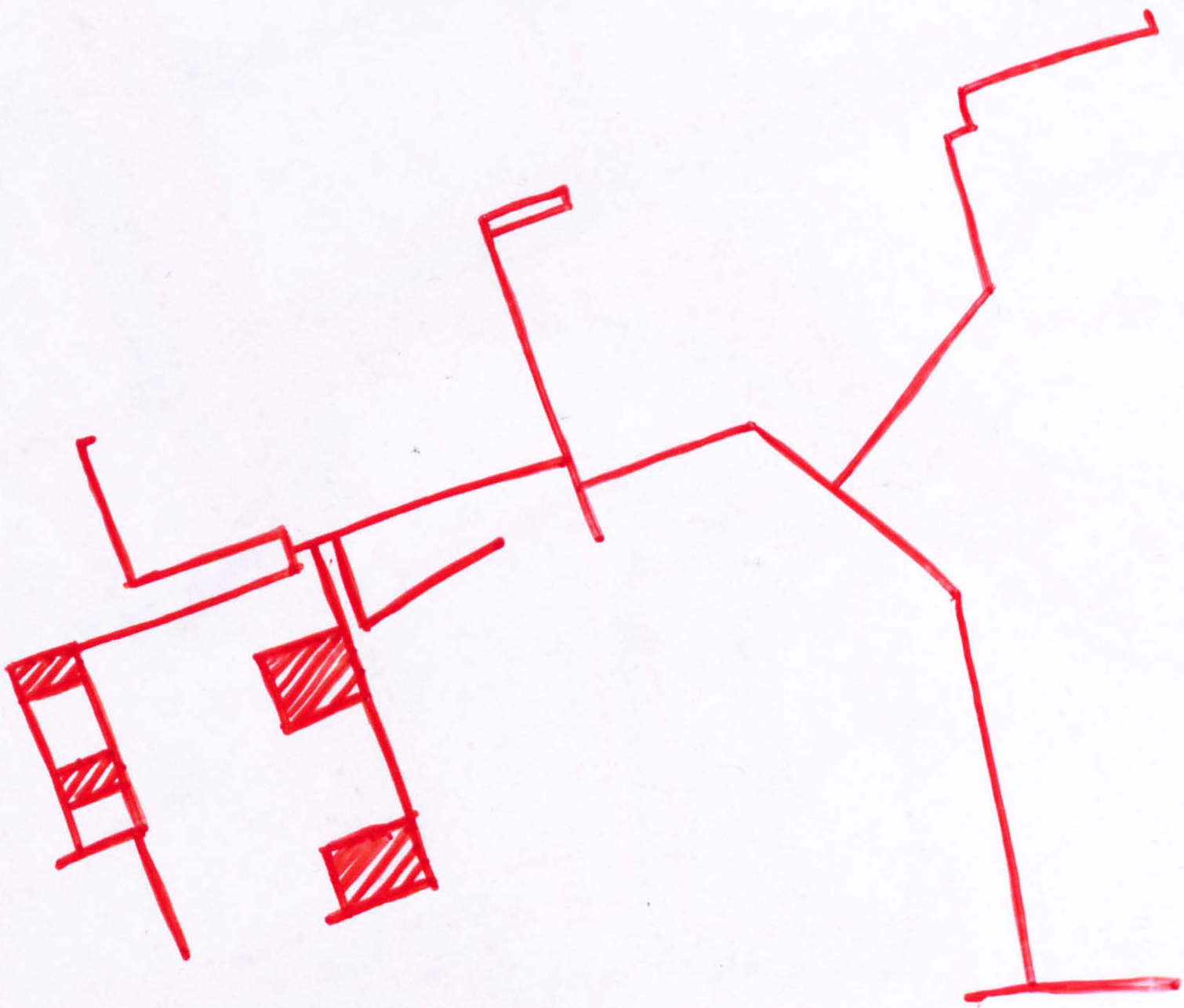


Figure 99 BASE PLAN 1:2000

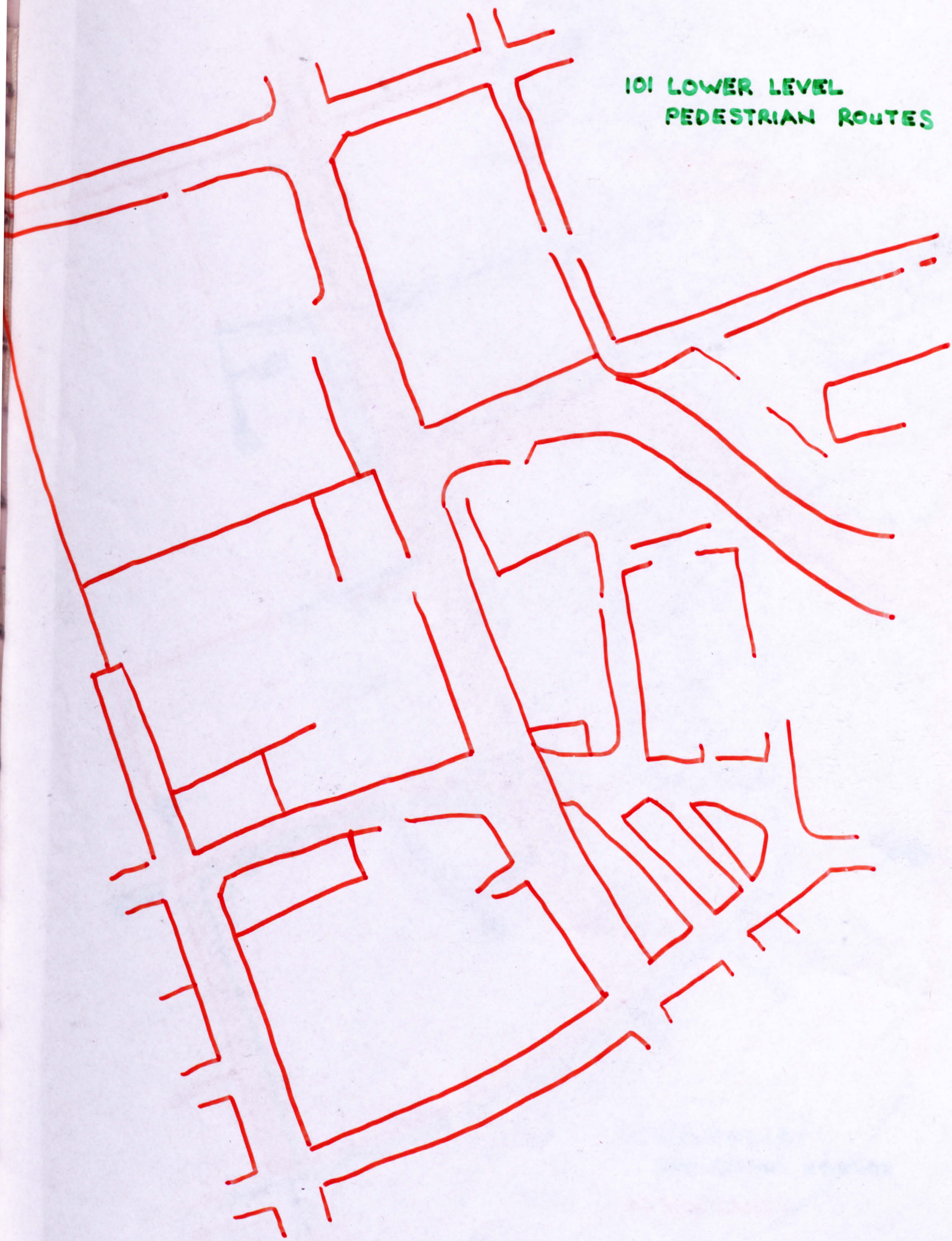
100 UPPER LEVEL
PEDESTRIAN ROUTES

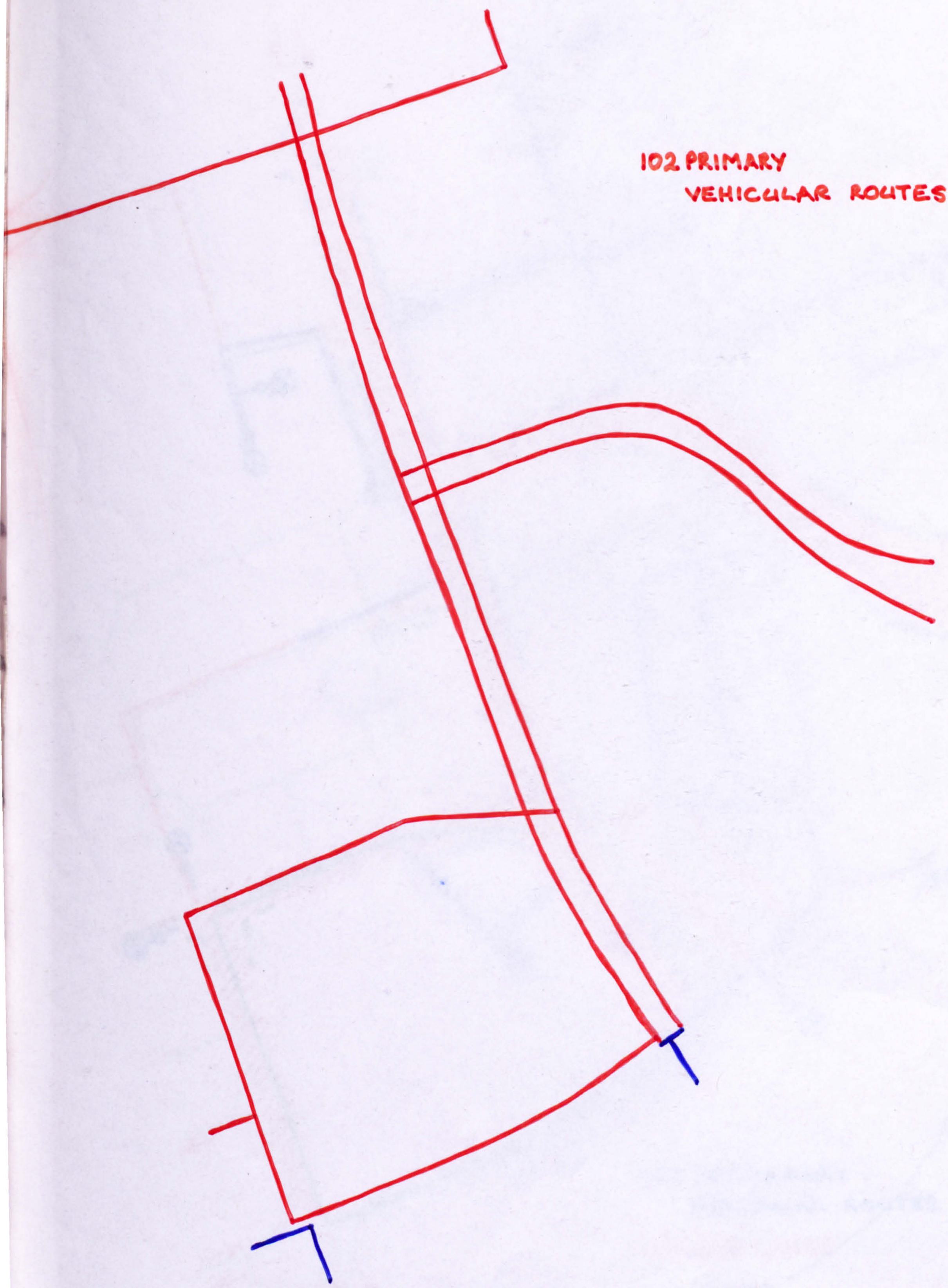


100 UPPER LEVEL
PEDESTRIAN ROUTES

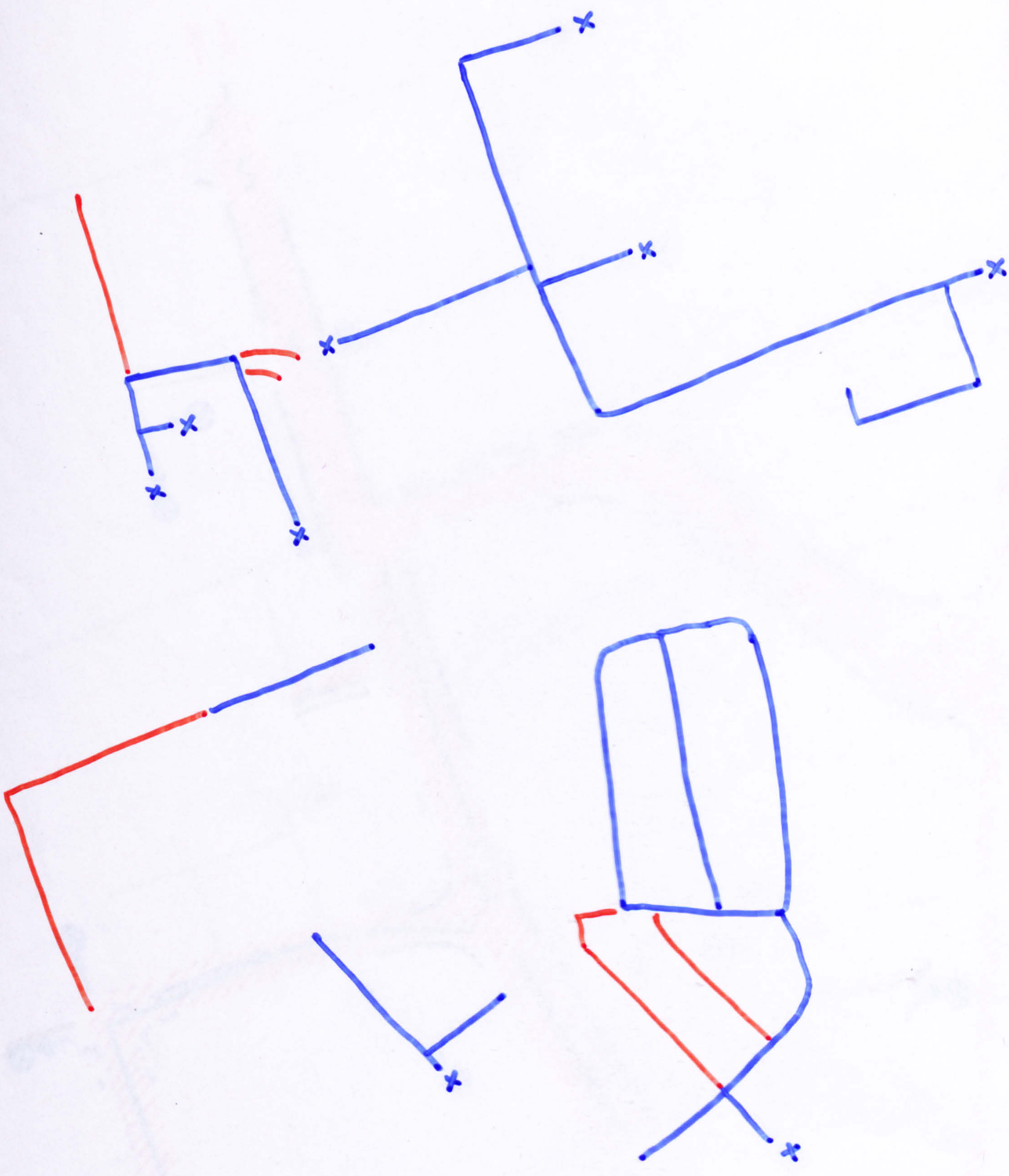


101 LOWER LEVEL PEDESTRIAN ROUTES

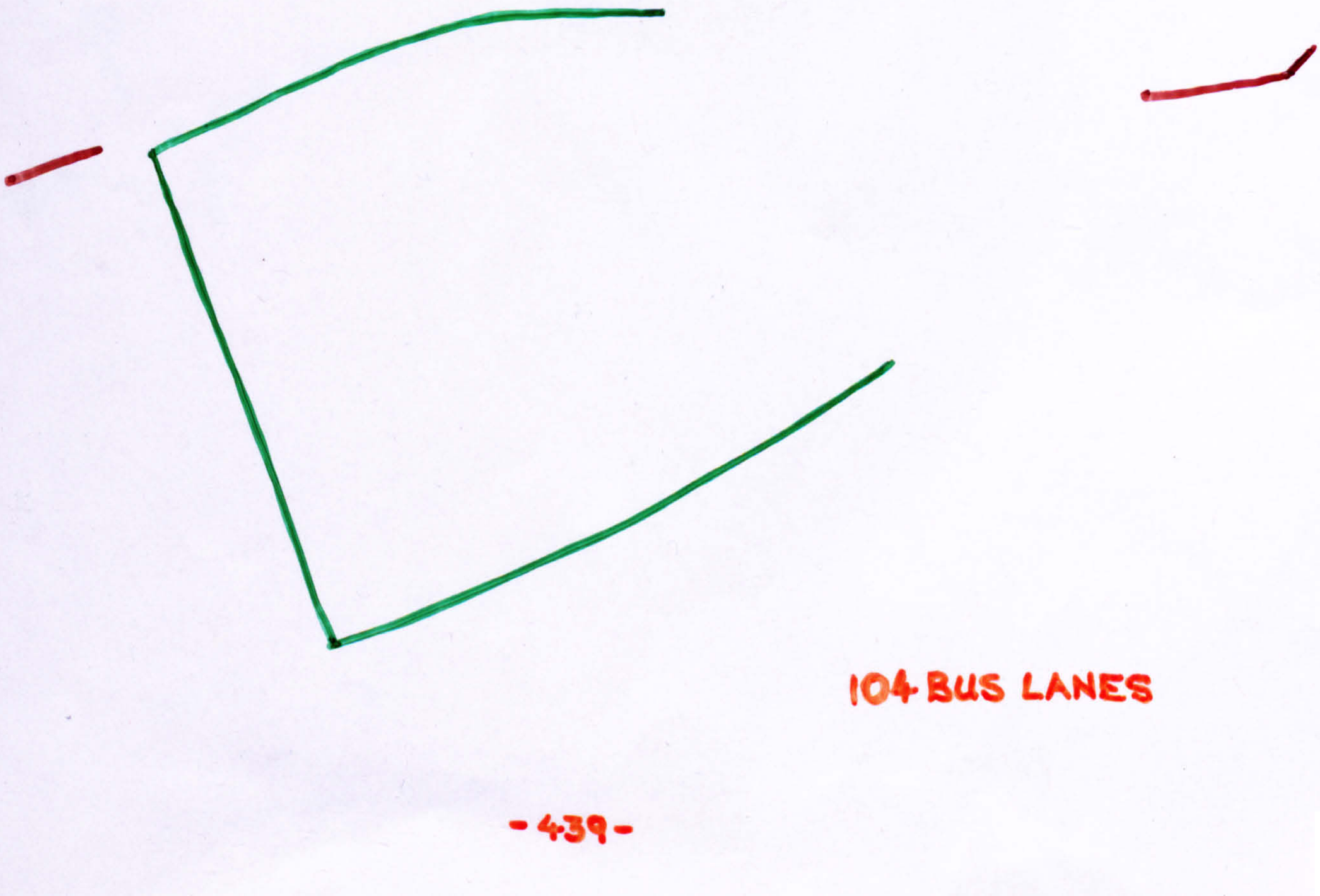




102 PRIMARY
VEHICULAR ROUTES



103 SECONDARY
VEHICULAR ROUTES



104 BUS LANES

JOHN DOBSON STREET STUDY AREA 1991 Figures

105 EDGES

JOHN DOBSON STREET STUDY AREA 1991

Figures

100 UPPER LEVEL PEDESTRIAN ROUTES

101 LOWER LEVEL PEDESTRIAN ROUTES

102 PRIMARY VEHICULAR ROUTES

103 SECONDARY VEHICULAR ROUTES

104 BUS LANES

105 EDGES

-435 -436- 437- 438- 439- 440-

JOHN DOBSON STREET STUDY AREA 1991

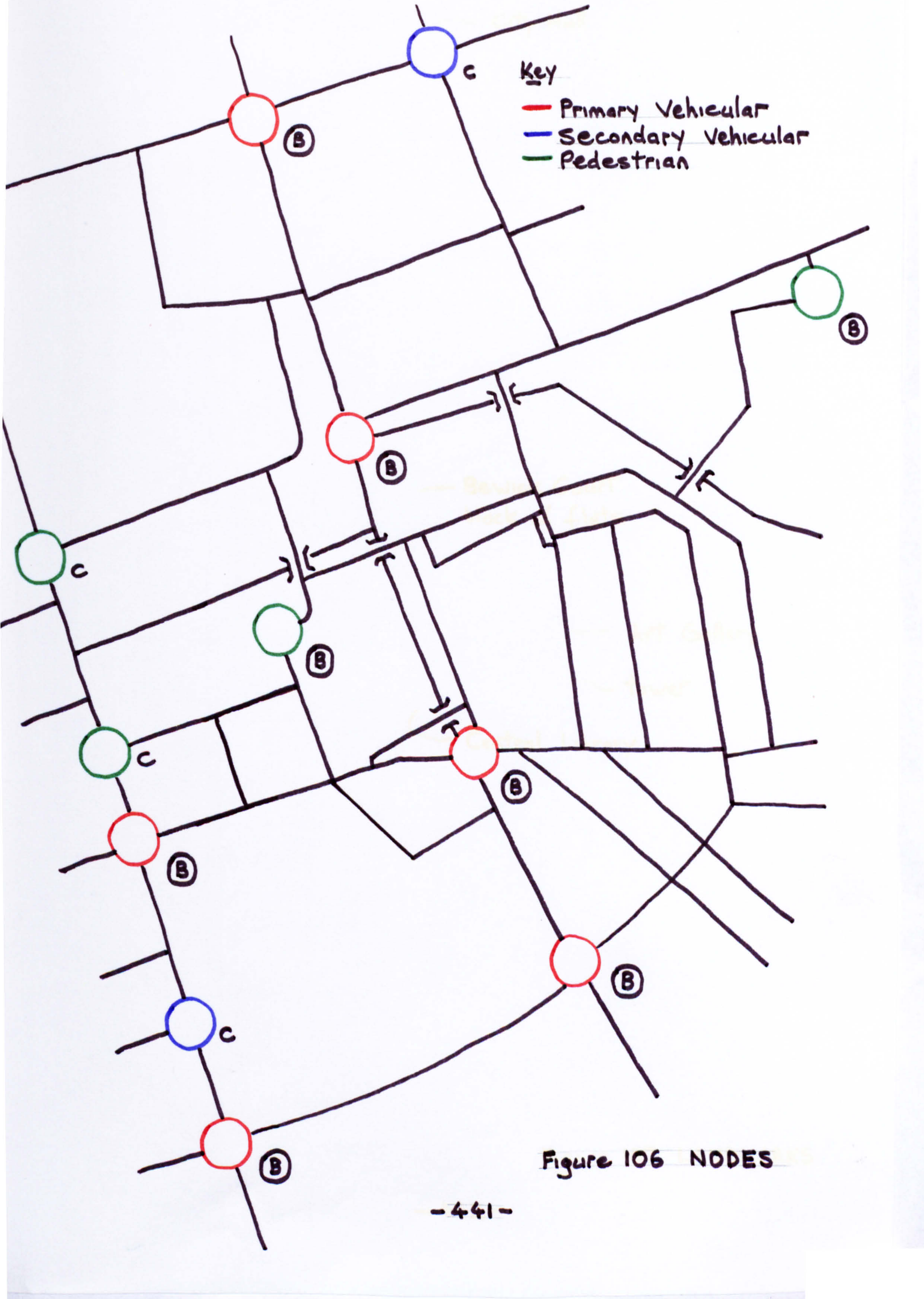


Figure 106 NODES

JOHN DOBSON STREET STUDY AREA 1991

Figure 107 LANDMARKS

JOHN DOBSON STREET STUDY AREA 1991

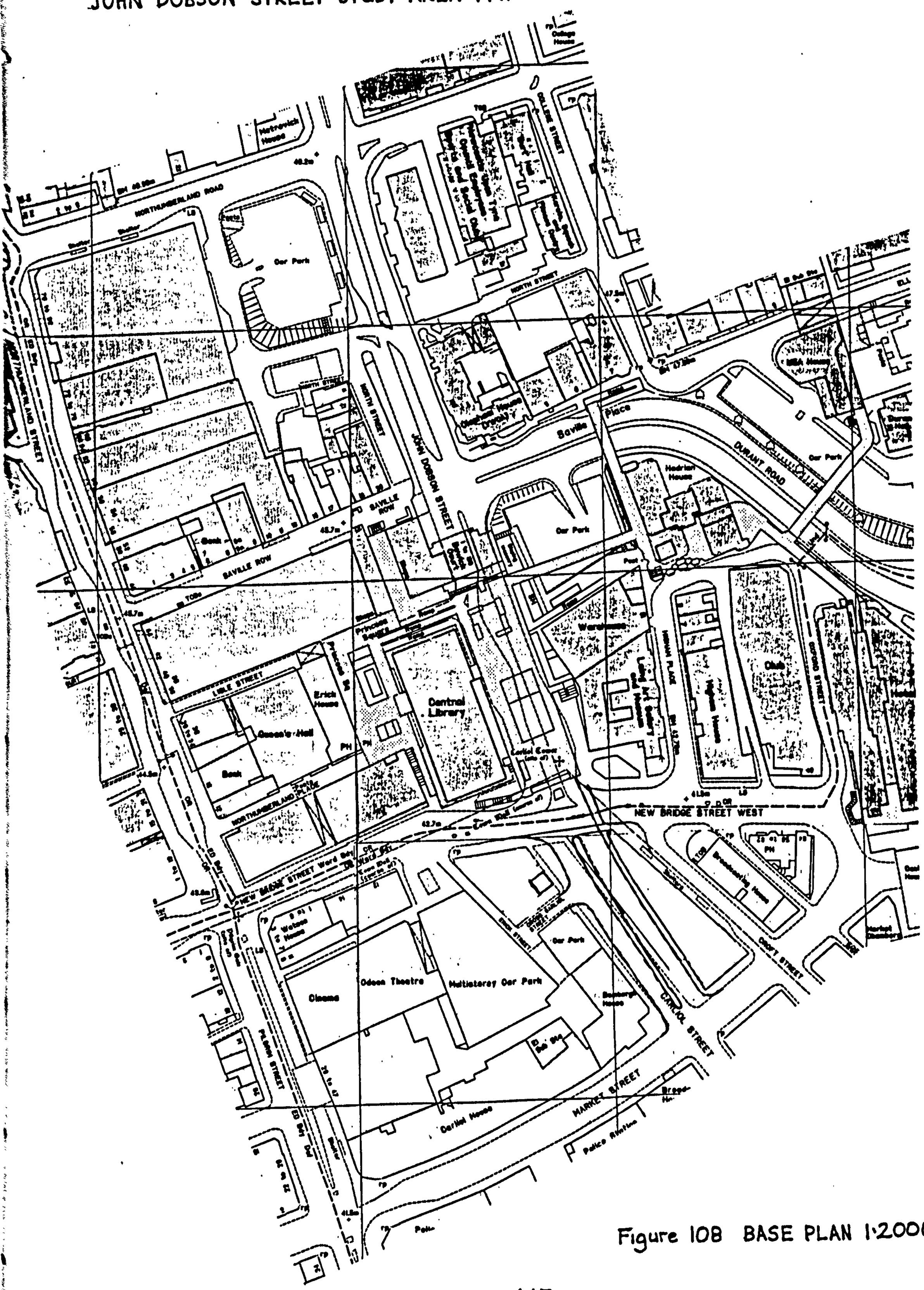
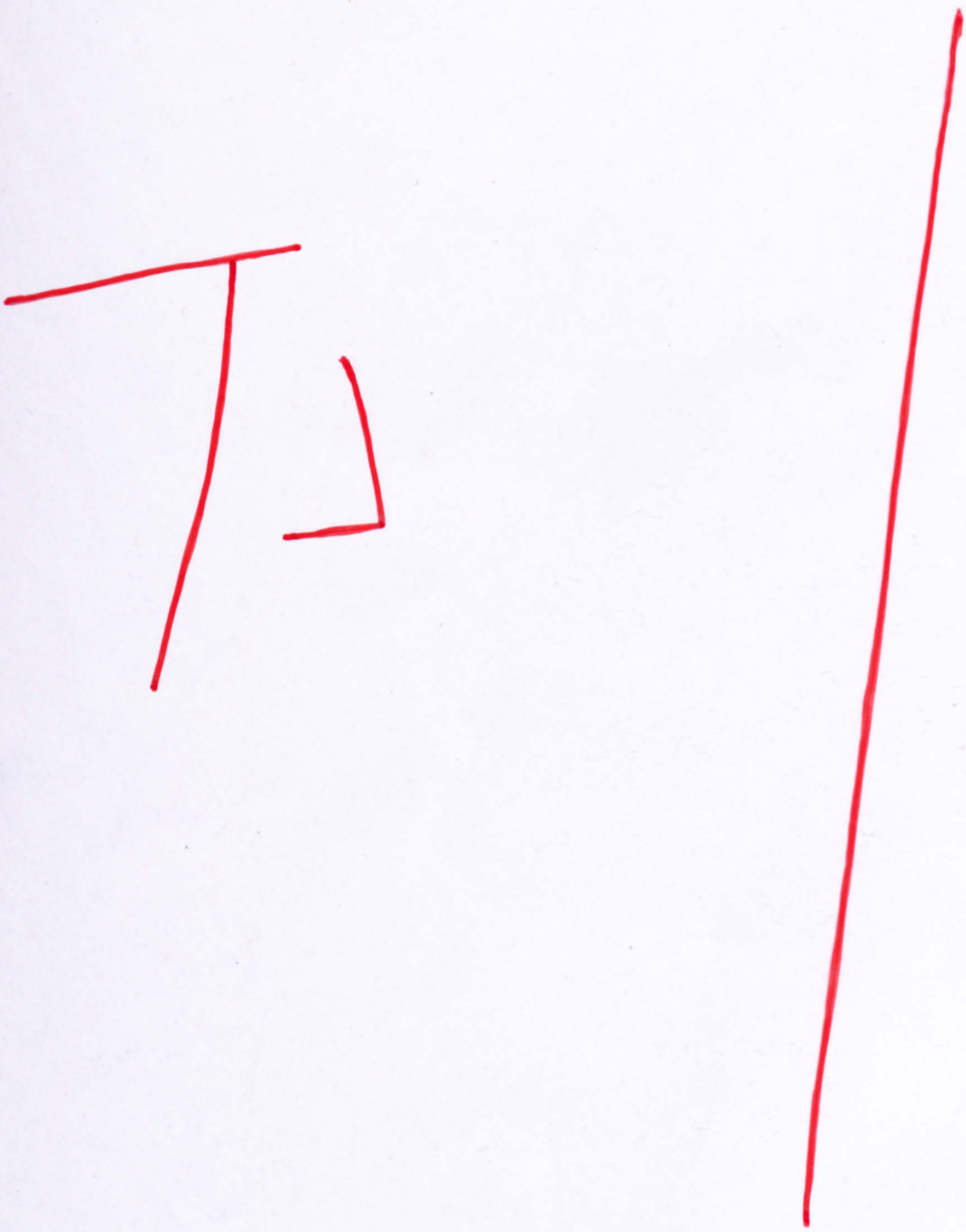


Figure 108 BASE PLAN 1:2000

RIAN ROUTES

110 PRIMARY VEHICULAR ROUTES

III SECONDARY VEHICULAR ROUTES



112 TRAM ROUTES + CYCLEWAYS

Figures

113 EDGES

AMSTERDAM STUDY AREA 1992

Figures

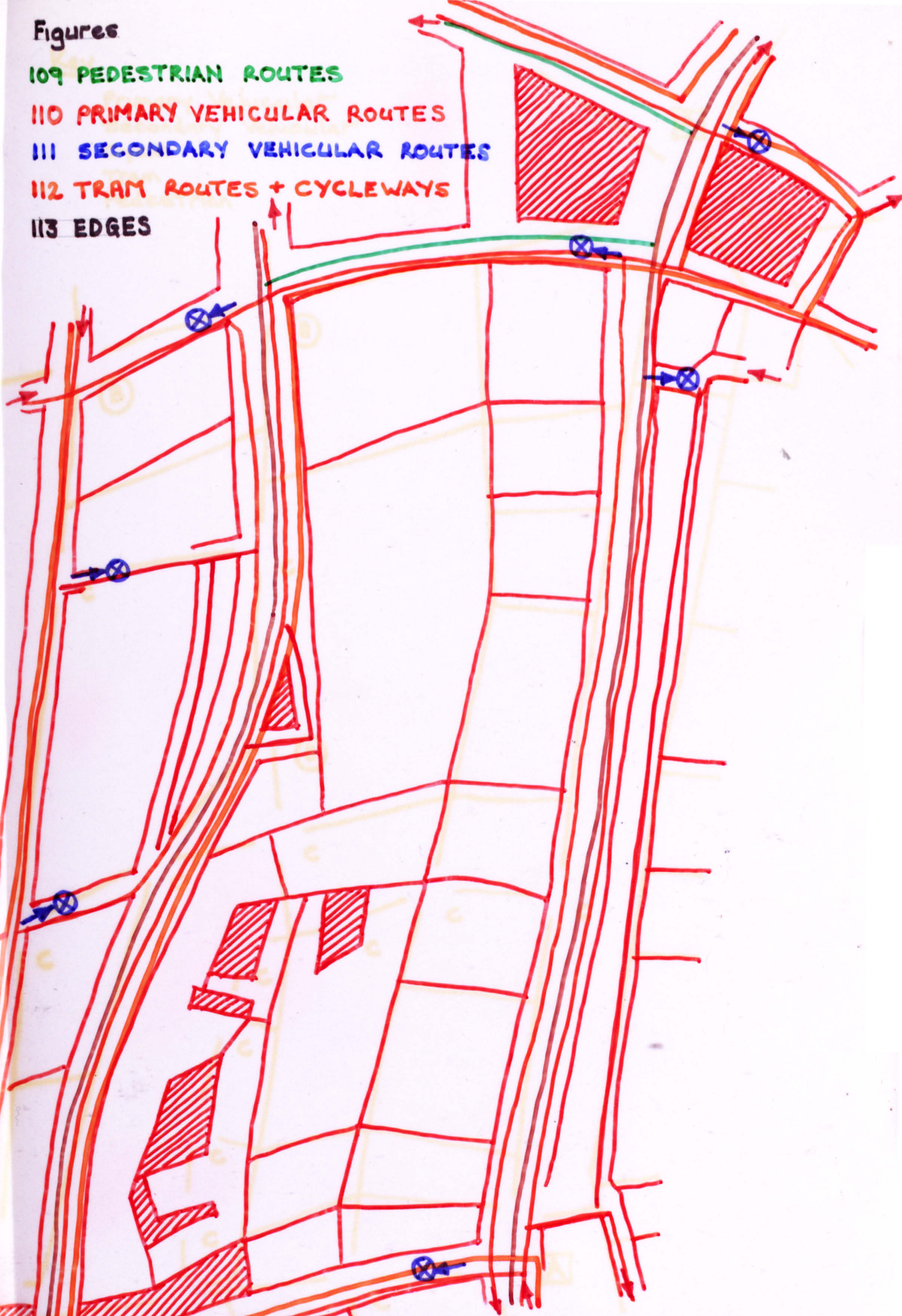
109 PEDESTRIAN ROUTES

110 PRIMARY VEHICULAR ROUTES

111 SECONDARY VEHICULAR ROUTES

112 TRAM ROUTES + CYCLEWAYS

113 EDGES



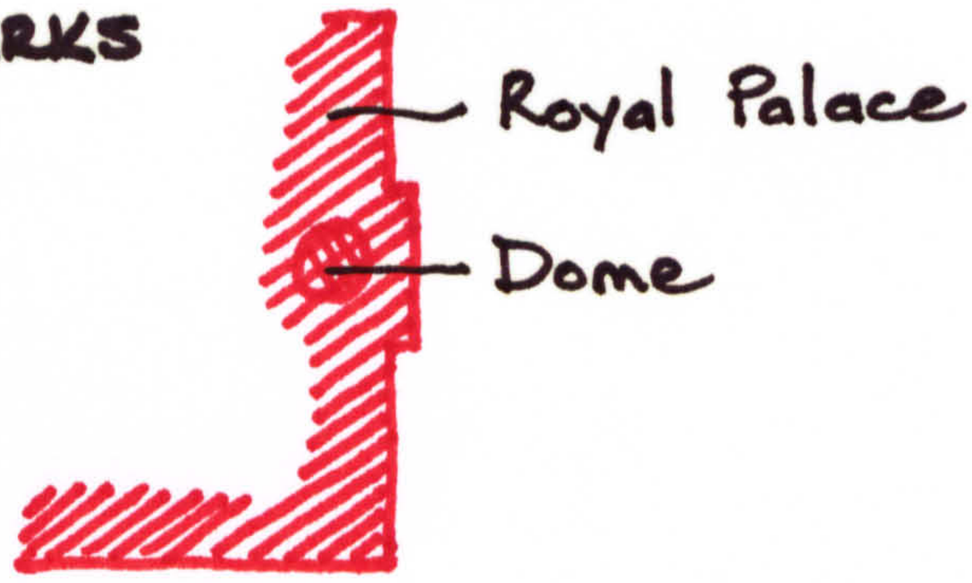
AMSTERDAM STUDY AREA 1992

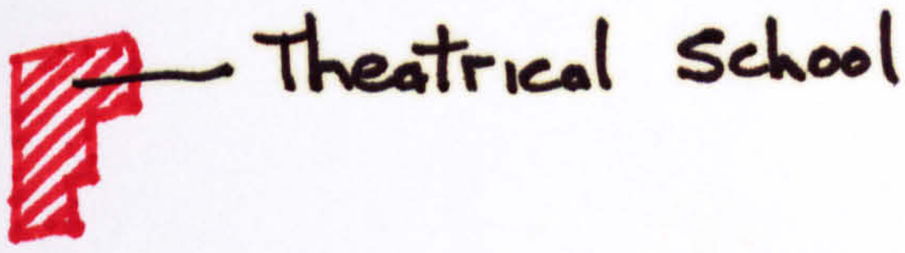
Key

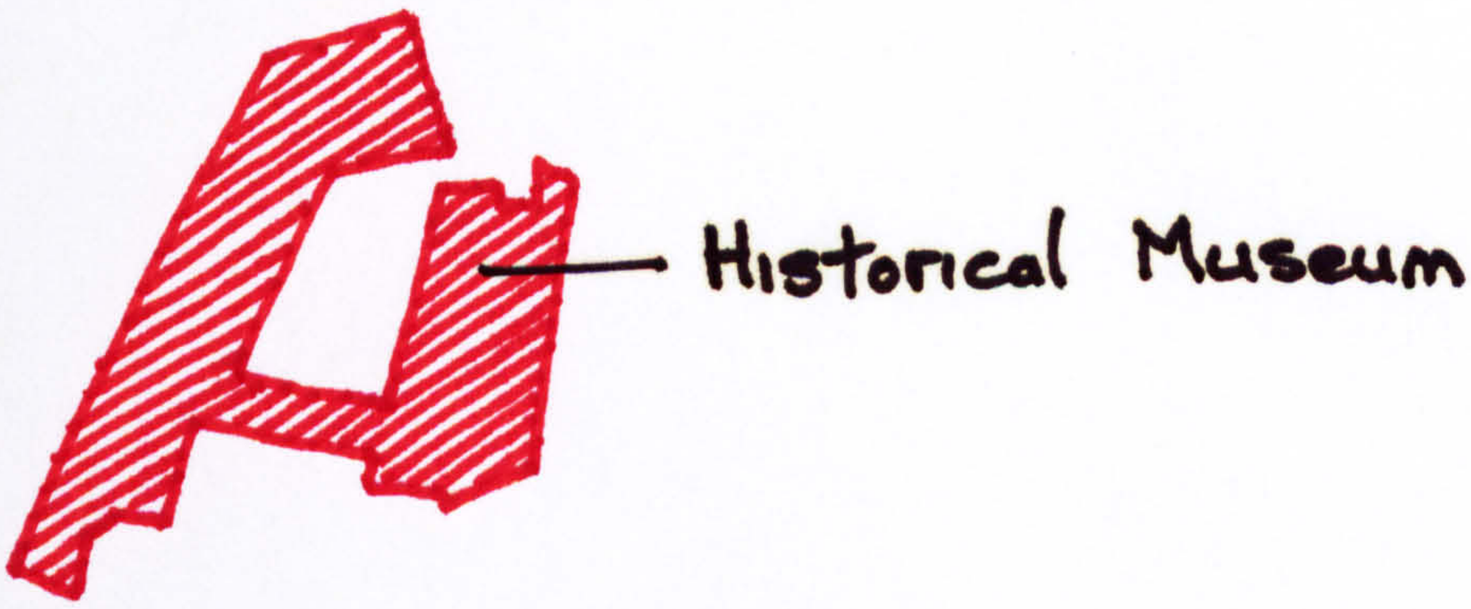
- Primary Vehicular
- Secondary Vehicular
- Cycle
- Tram
- Pedestrian

AMSTERDAM STUDY AREA 1992

Figure 115 LANDMARKS







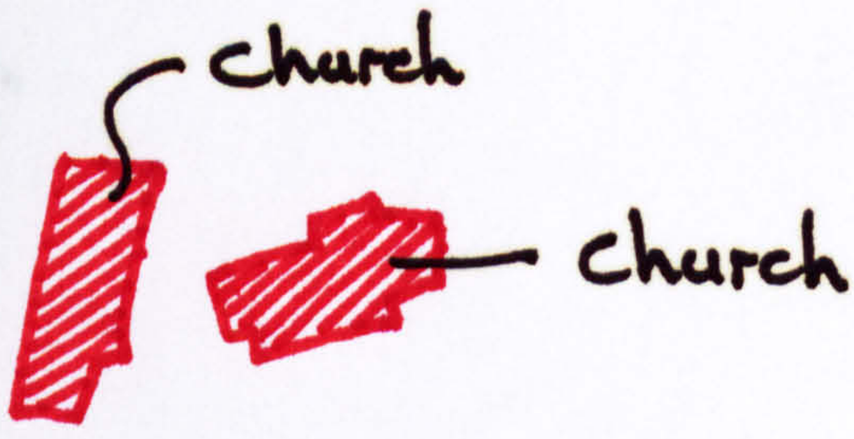
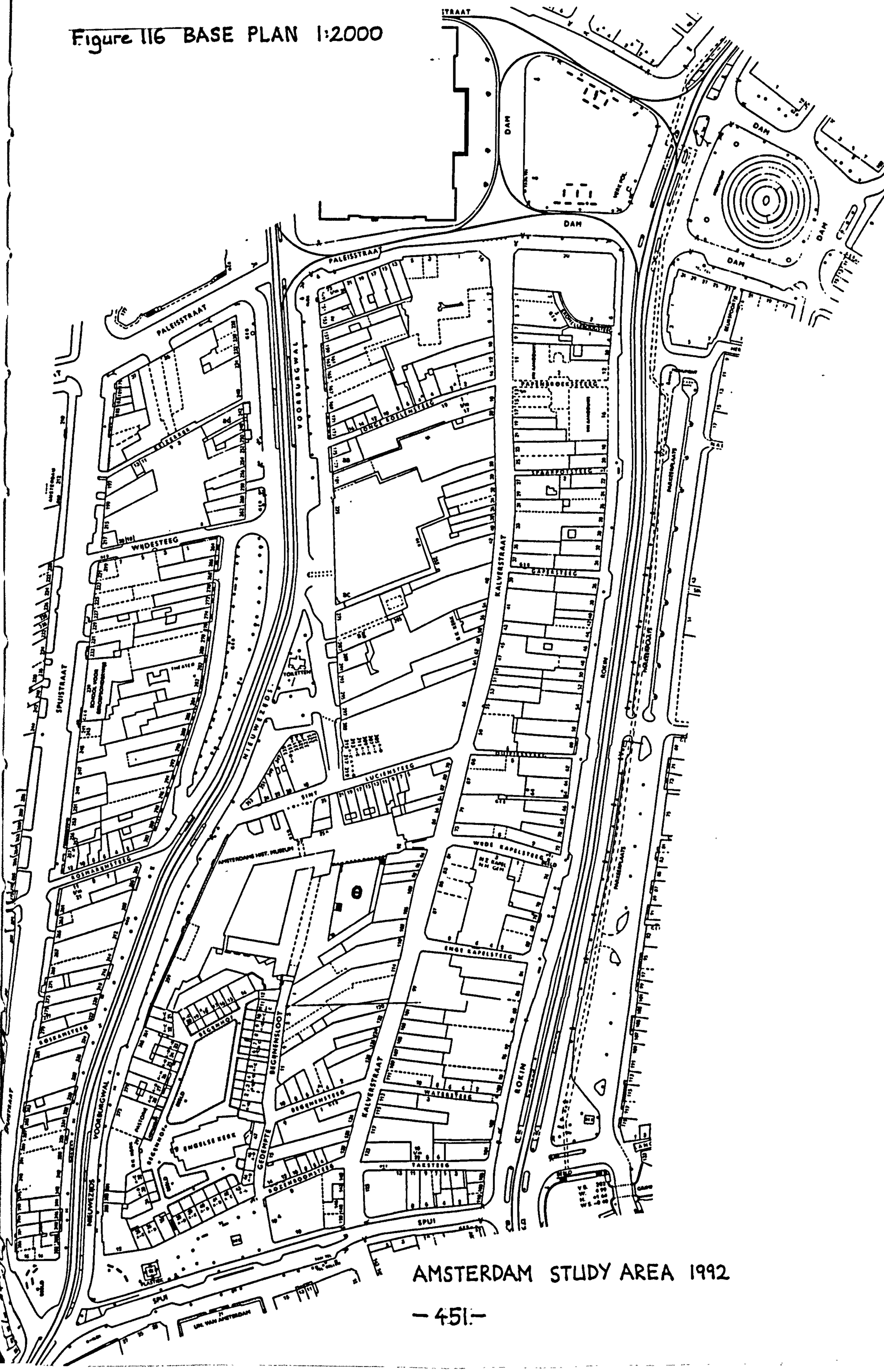
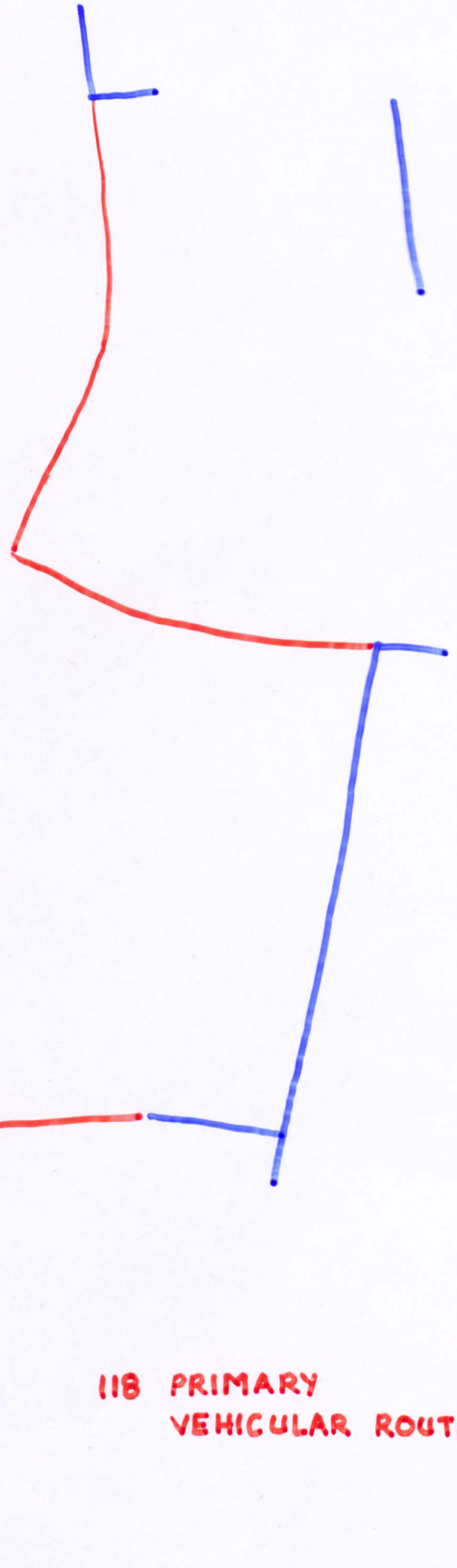


Figure 116 BASE PLAN 1:2000

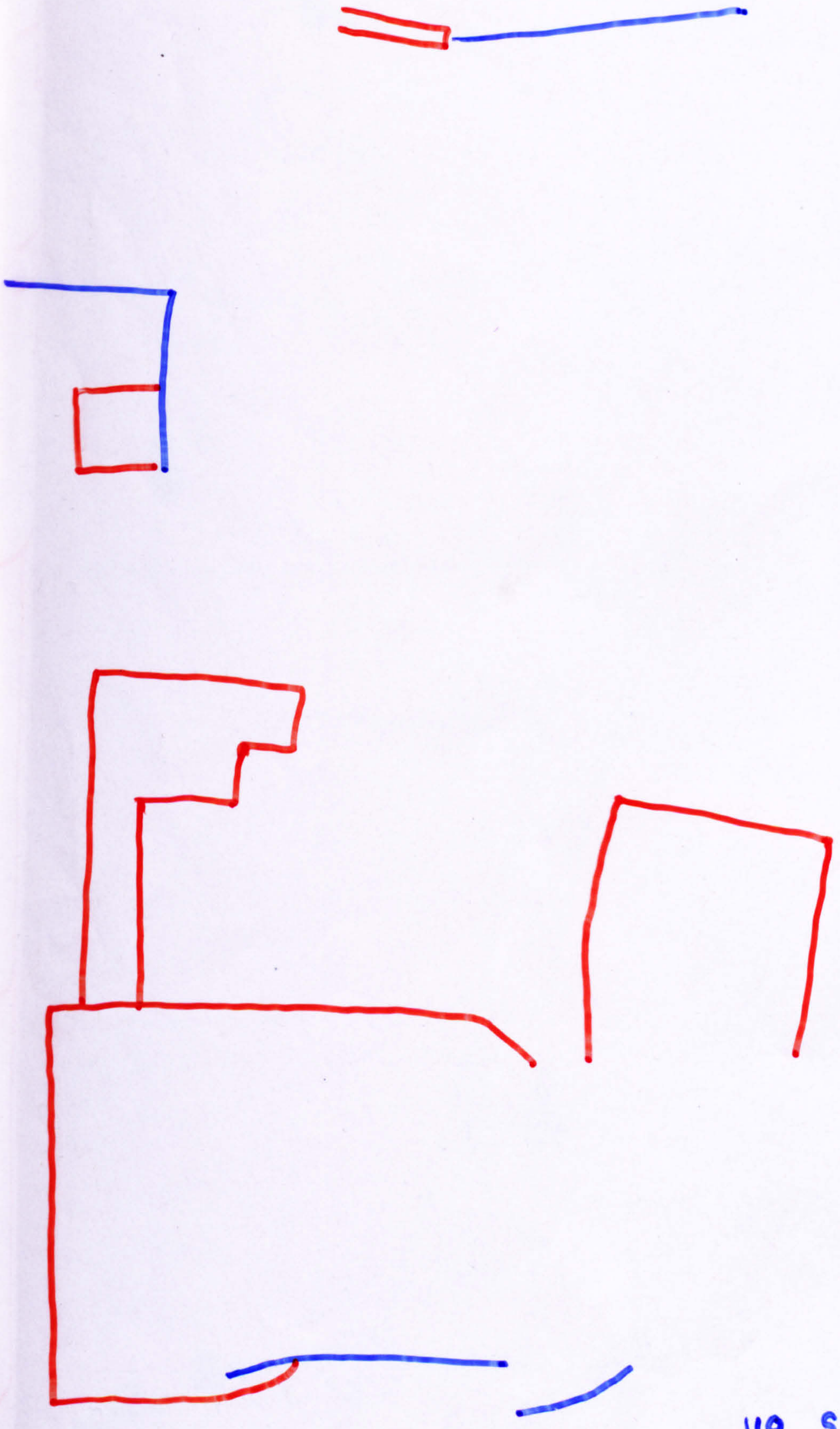


AMSTERDAM STUDY AREA 1992

117 PEDESTRIAN ROUTES



118 PRIMARY
VEHICULAR ROUTES

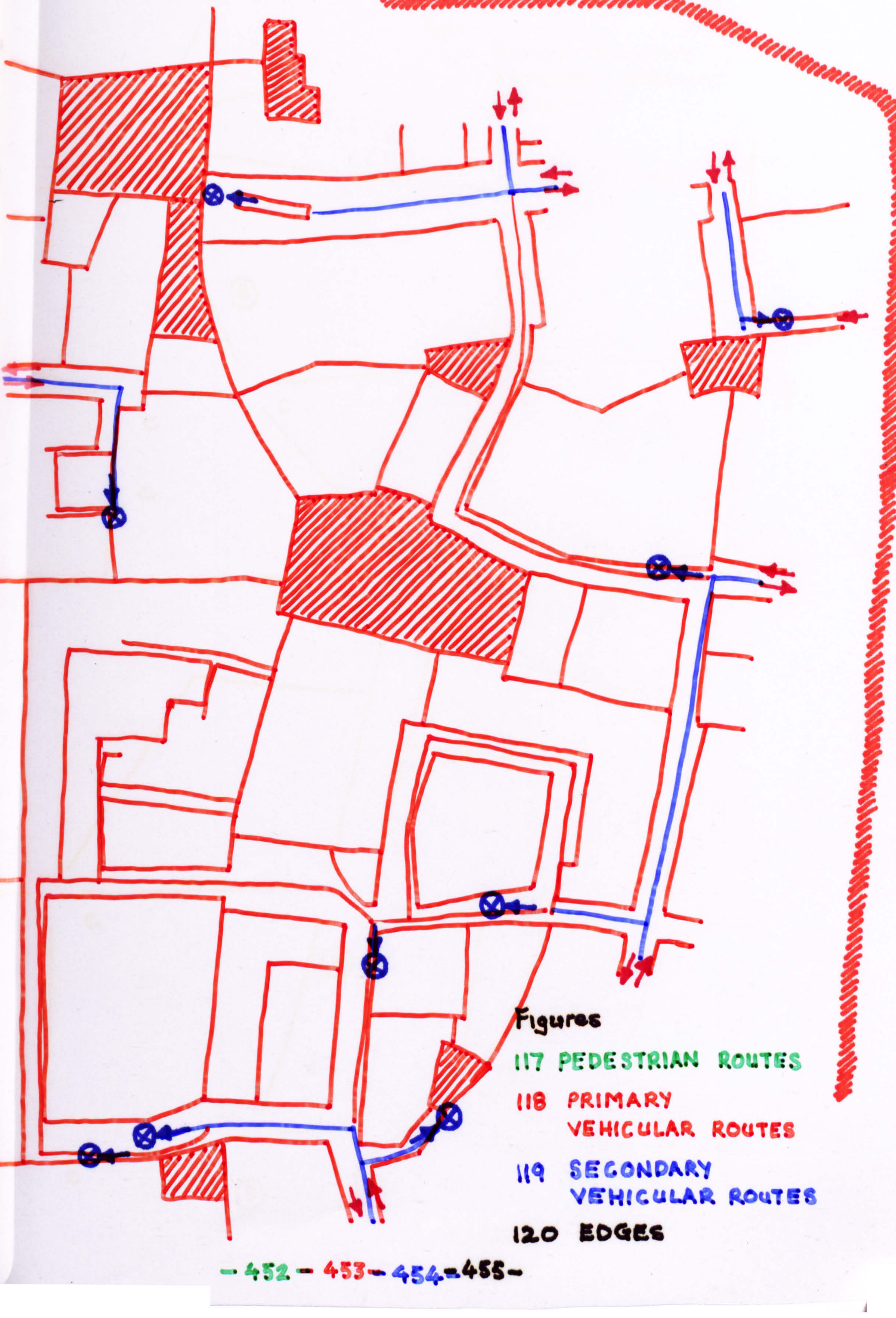


119 SECONDARY
VEHICULAR ROUTES

Figures

120 EDGES

STUTTGART STUDY AREA 1992



Figures

117 PEDESTRIAN ROUTES

118 PRIMARY VEHICULAR ROUTES

119 SECONDARY VEHICULAR ROUTES

120 EDGES

STUTTGART STUDY AREA 1992

Key

- Primary Vehicular
- Secondary Vehicular
- Pedestrian

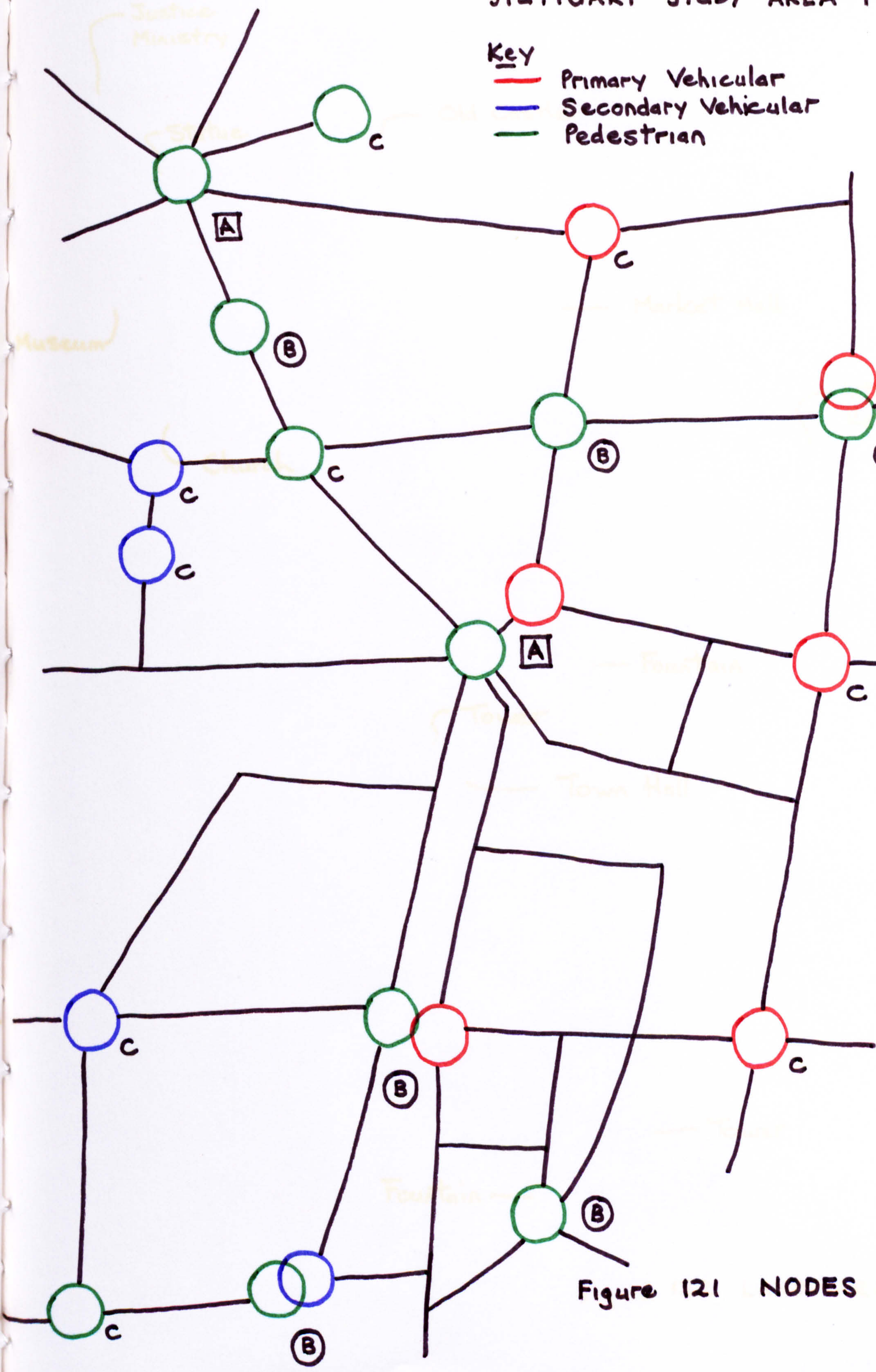


Figure 121 NODES

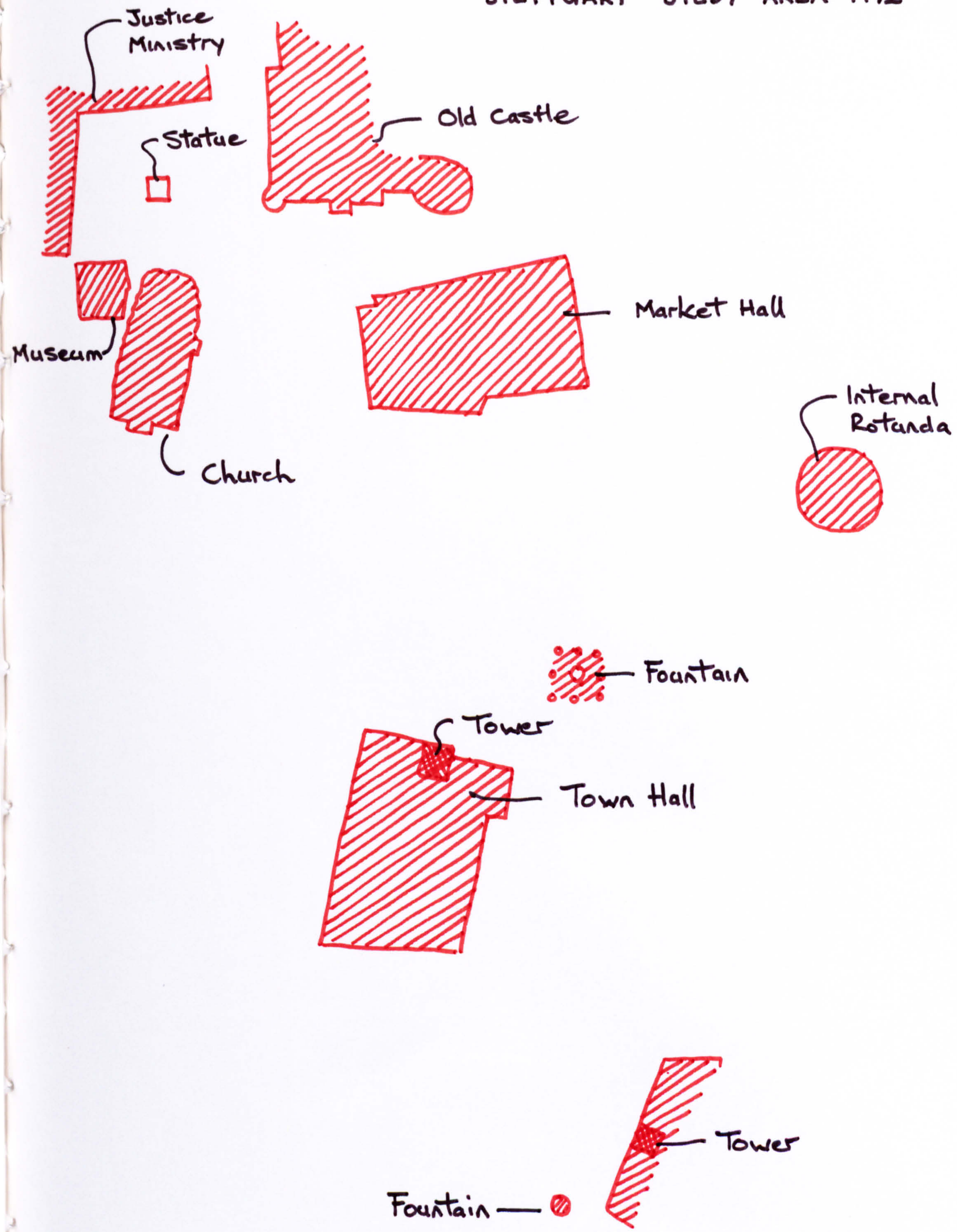


Figure 122 LANDMARKS

STUTTGART STUDY AREA 1992

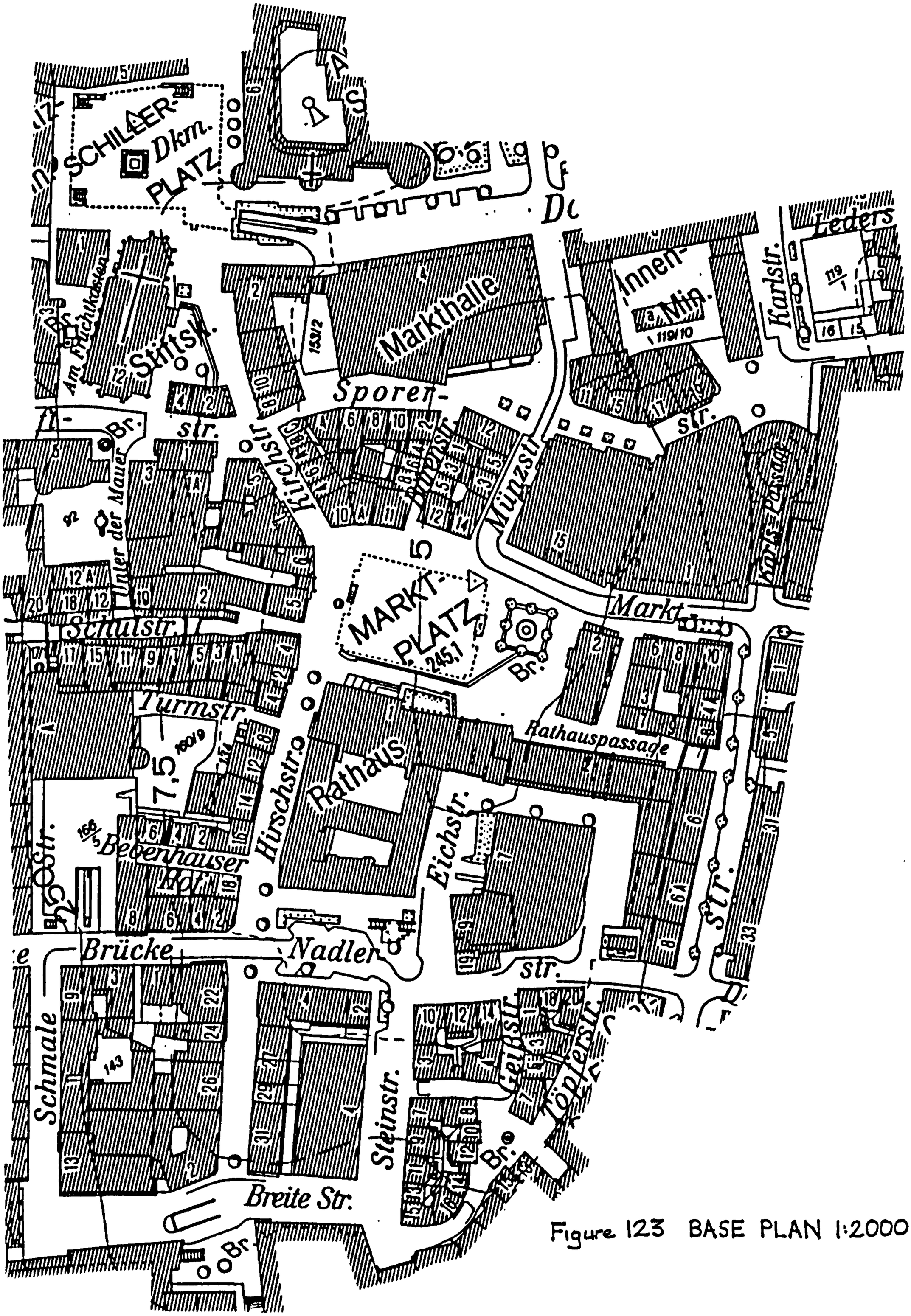


Figure 123 BASE PLAN 1:2000

ACTUAL DENSITY OF STUDY AREAS

Storey Height	Stuttgart	Grey Street	John Dobson Street	Amsterdam
above 5	2940		17675	4230
5	18070	1490	10055	6470
4	28455	10150	13675	17305
3	41580	31090	25735	32210
2	48315	38785	37700	41560
1	52676	44080	43785	48180
G	52070	44935	45840	52925
	244105	170530	194465	202880
Study Area size (m^2)	120600	104000	120700	131925
Conversion factors to standardise Study Area sizes	0.829	0.962	0.8285	0.758

DENSITY OF STUDY AREAS NORMALISED TO 10HA

Storey Height	Stuttgart	Grey Street	John Dobson Street	Amsterdam
above 5	2435		14645	3205
5	14980	1435	8330	4905
4	23590	9765	11330	13120
3	34470	29910	21320	24415
2	40053	37310	31235	31500
1	43670	42405	36275	36520
G	43165	43225	37980	40120
	202363	164050	161115	153785

Figure 124 TABLE OF BUILDING DENSITY OF STUDY AREAS PER FLOOR

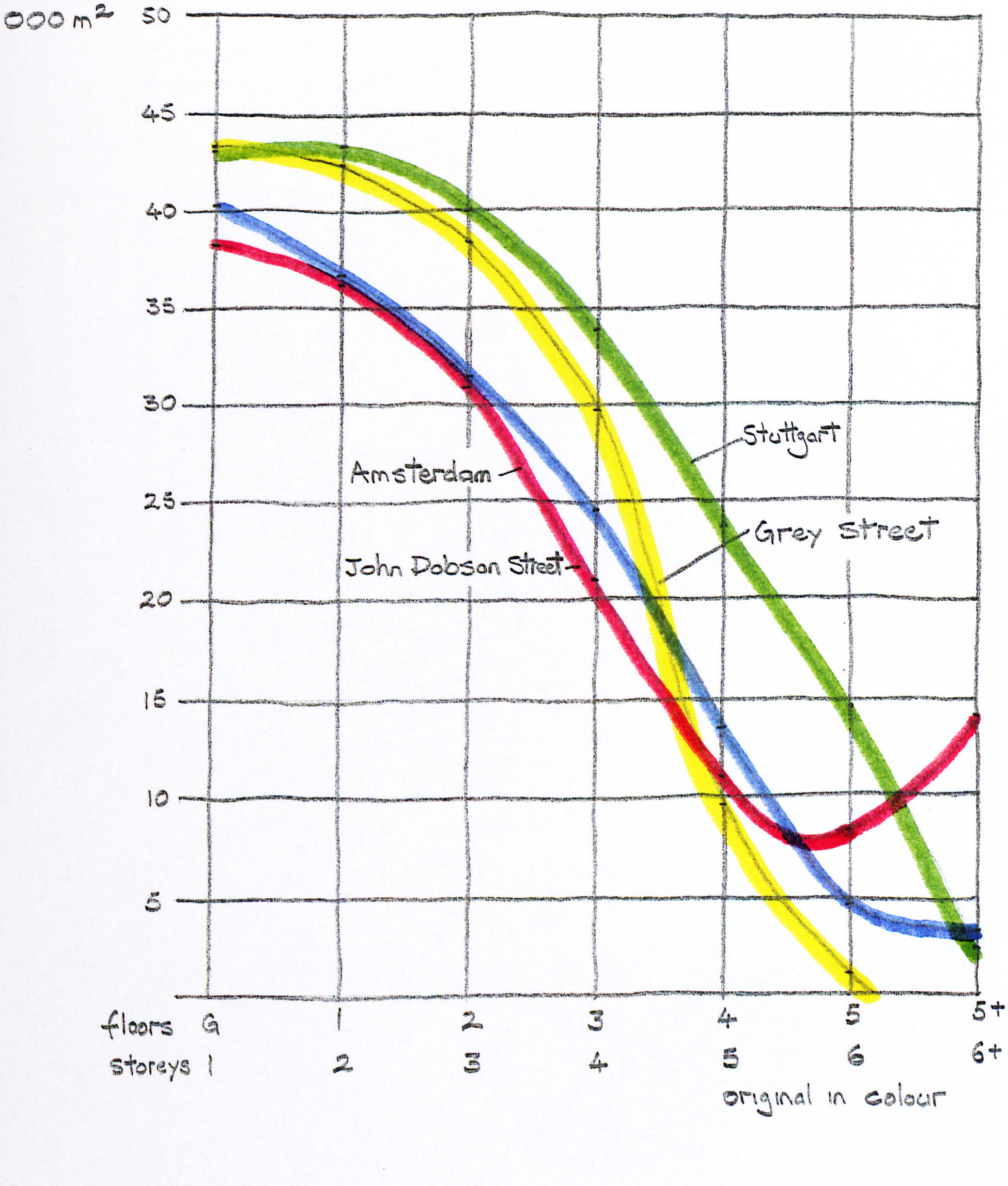
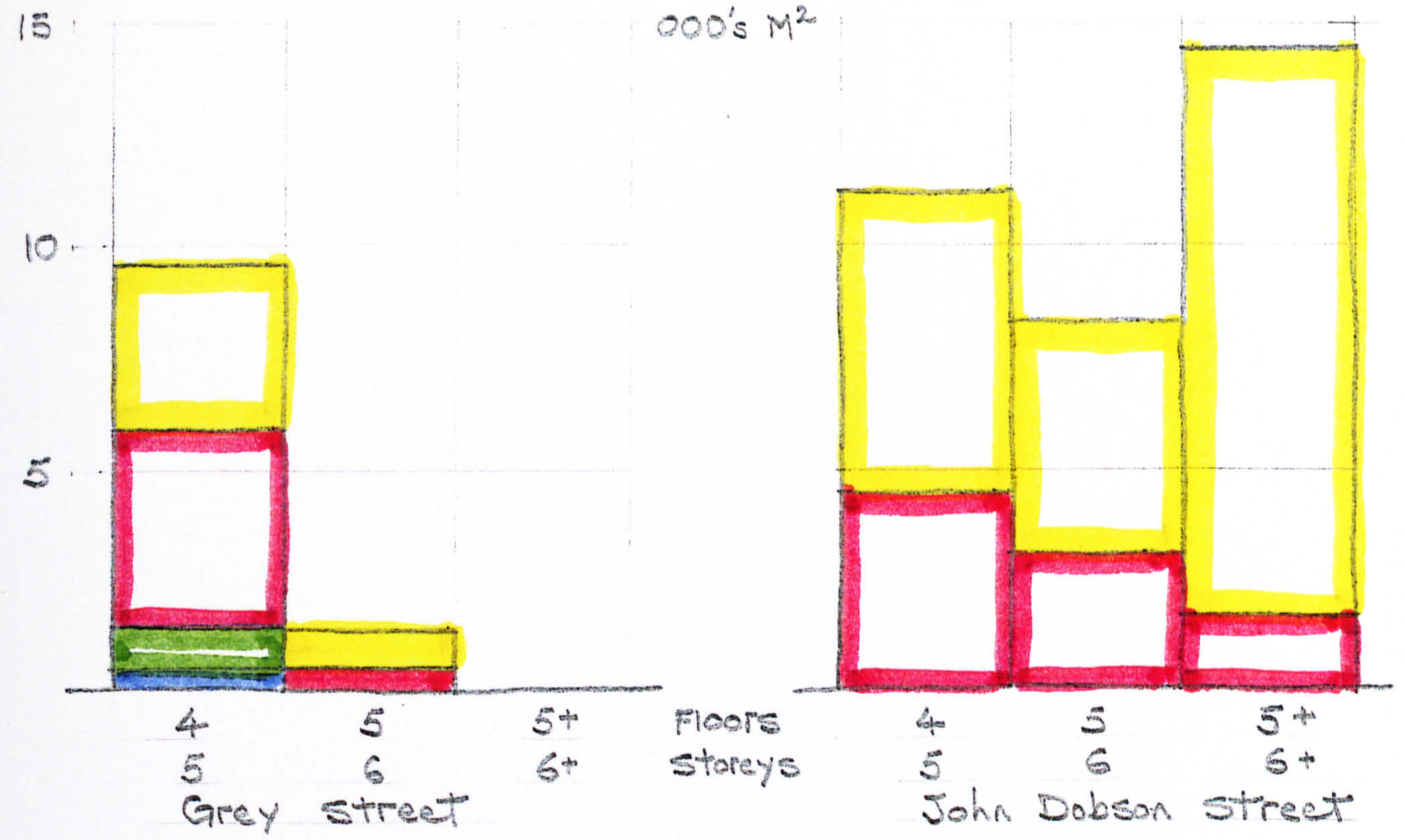


Figure 125 GRAPH OF BUILDING DENSITY OF STUDY AREAS PER FLOOR

HEIGHTS OF BUILDINGS ABOVE 4 STOREYS RELATED TO DATE NORMALISED TO 10HA

Storey Height	Stuttgart	Grey Street	John Dobson Street	Amsterdam	Dates
above 5	1925		12985	1075	1950 +
above 5	165		1660	1660	1900 - 1950
above 5				470	1850 - 1900
above 5					1800 - 1850
above 5	345				before 1800
5	11140	910	5210	1015	1950 +
5	3335	525	3120	2605	1900 - 1950
5				900	1850 - 1900
5				210	1800 - 1850
5	505			175	before 1800
4	16900	3725	6790	1245	1950 +
4	6185	4565	4540	4875	1900 - 1950
4		990		3515	1850 - 1900
4		485		1255	1800 - 1850
4	505			2230	before 1800

Figure 126 TABLE OF BUILDING HEIGHTS AND DATES FOR STUDY AREAS



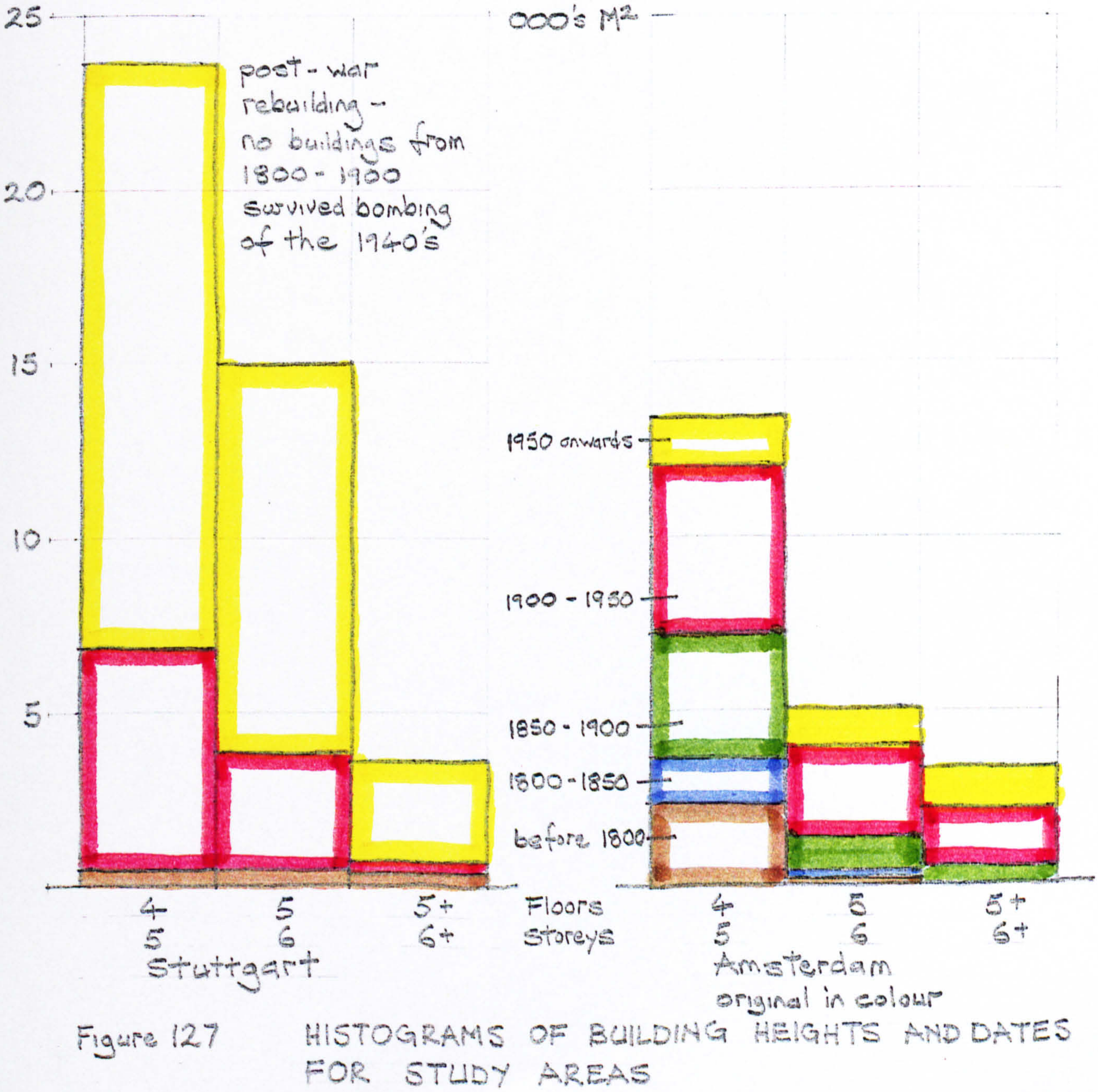


Figure 127 HISTOGRAMS OF BUILDING HEIGHTS AND DATES FOR STUDY AREAS

DIVERSITY OF USES

Grey Street

	R	C	L	Res	I	Cu	P/S	V	Totals
above 5									
5		323						551	874
4		2615		165				3172	5952
3	185	9875		238				7934	18232
2	1560	11408	1202		205			8368	22743
1	4682	10969	2105	29	164		85	7813	25847
G	9166	6146	5140	68	246		1009	4577	26352
	15593	41336	8447	500	615		1094	32415	100000

normalised to $\frac{100000}{170530}$ m^2 = $\frac{100000}{170530}$ = 0.59 conversion factor

John Dobson Street

	R	C	L	Res	I	Cu	P/S	V	Totals
above 5		4692		4106			381		9089
5		2949		962			1260		5171
4		3918	879	1052			1183		7032
3		5230		1028		324	4816	1836	13234
2		10369	2448	566		1160	3607	1237	19387
1	4443	6736	2926	496		1998	3435	2481	22515
G	7204	3484	3106	414		2049	5505	1810	23572
	11647	37378	9359	8534		5531	20187	7364	100000

normalised to $\frac{100000}{194465}$ m^2 = $\frac{100000}{194465}$ = 0.5 conversion factor

Amsterdam

	R	C	L	Res	I	Cu	P/S	V	Totals
above 5	414	1099	397	79			96		2035
5	414	1309	535	399			532		3189
4	500	2200	1274	1728	192		2233	403	8530
3	909	3692	1380	4387	234	377	3416	1481	15876
2	2038	4537	2122	5804	345	1484	2802	1353	20485
1	4690	4614	3051	4047	313	1680	3830	1523	23748
G	12032	2642	4655	1178	328	1981	2822	449	26087
	20997	20093	13414	17622	1412	5522	15731	5209	100000

normalised to $\frac{100000}{202830}$ m^2 = $\frac{100000}{202830}$ = 0.49 conversion factor

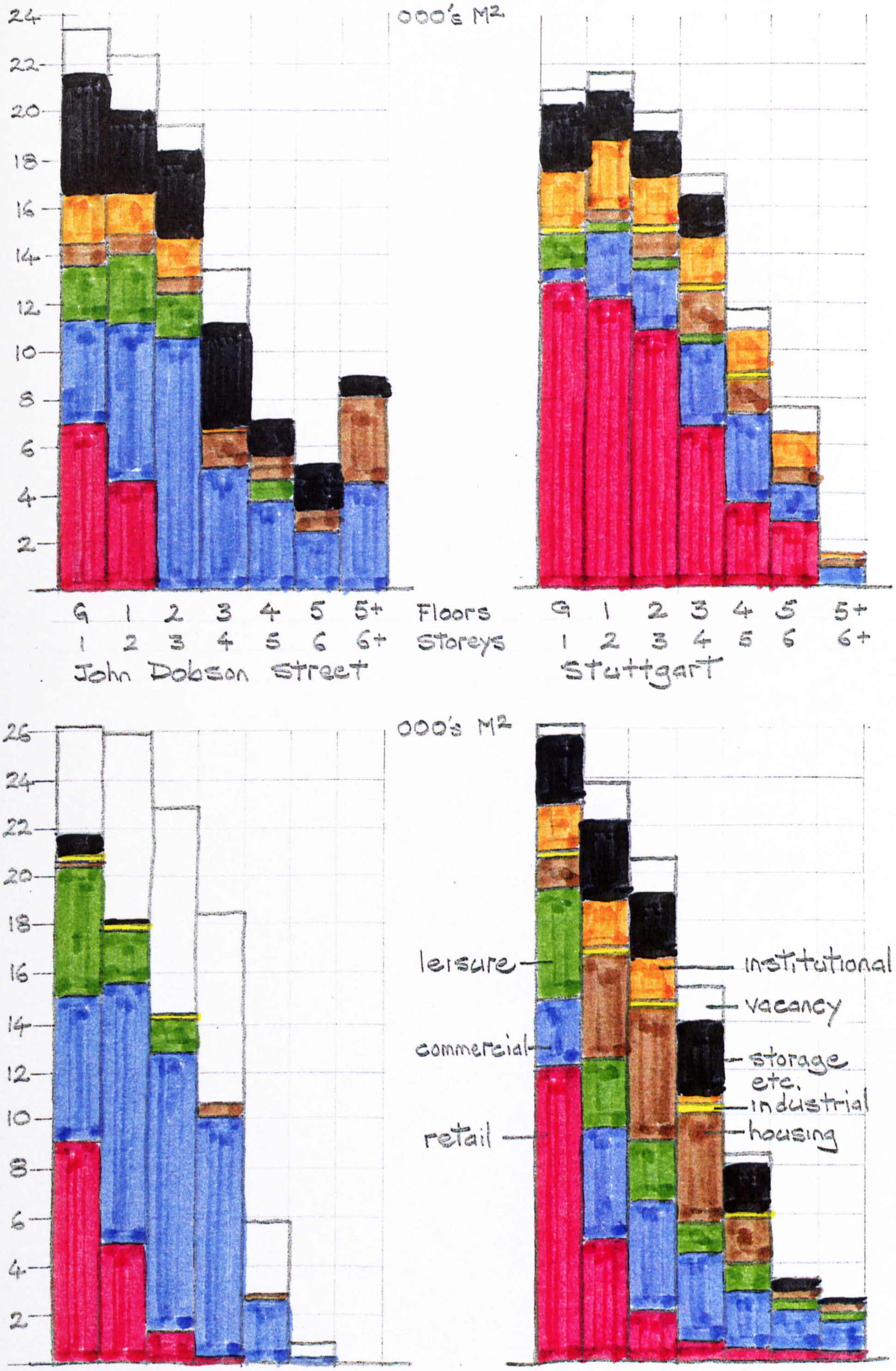
Stuttgart

	R	C	L	Res	I	Cu	P/S	V	Totals
above 5		842		192		170			1204
5	2677	1622		585		1684		834	7402
4	3406	3818		1692	72	1835		834	11657
3	6532	3832	61	2069	72	2179	1454	834	17033
2	10735	2853	61	1260	80	2179	1878	746	19792
1	12626	2382	463	201	8	2874	2280	746	21580
G	13154	830	1182		111	2610	2855	590	21332
	49130	16179	1767	5999	343	13531	8467	4584	100000

normalised to $\frac{100000}{244105}$ m^2 = $\frac{100000}{244105}$ = 0.41 conversion factor

R = Retail; C = Commercial; L = Leisure; Res = Residential; I = Industrial; Cu = Cultural; P/S = Parking/Storage; V = Vacant

Figure 128 TABLE OF DIVERSITY OF USES FOR STUDY AREAS



original in colour

Figure 129 HISTOGRAM OF DIVERSITY OF USES FOR STUDY AREAS

2. APPLICATION OF URBAN TYPOLOGIES

THE OBJECTIVE

Analysis of the various aspects of Urban Typologies, identified information which makes direct contributions to the proposed FRAME OF REFERENCE. The Analysis also identified a number of issues about which, EXPERIMENTATION AND INVESTIGATION are necessary.

The two European Exemplars, as well as the two Newcastle Study Areas, will therefore be examined in terms of these issues. The outcomes will form the basis for THE POSSIBILITIES. In particular, the Urban Typologies will provide tests of success for the Newcastle Study Areas. The results will assist in generating the SUGGESTIONS FOR EACH STUDY AREA and contribute to the FRAME OF REFERENCE FOR FUTURE DEVELOPMENT IN THE CITY.

THE TYPOLOGIES . URBAN SPACE

SQUARES

Throughout the four Study Areas, twenty eight spaces were identified, which could be notionally described as squares. Of these, twelve are found in Stuttgart, eight in Amsterdam, and five and three respectively in the Grey Street and John Dobson Street Study Areas. (See Figures 130 - 141) This section will examine the existing squares in relation to the established criteria, as a means of deducing parameters for the creation of potentially successful urban squares.

DEFINITIONS (See Figure 142)

Sizes and Shapes

There are three main measures of the size of squares. These are the dimensions, the area and the perimeter. For the most part, all three measures result in the same size ranking order, but irregularities in shape can produce

apparent inconsistencies. However, these are comparatively minor and have little impact on the analysis. The first striking feature is the range of sizes. It has already been noted that Dam Square (ref A1) is really comprised of two interlocking squares. In addition, it is so much larger than any of the other squares, that for purposes of size analysis it should be discounted. Thus, *Sitte's* maximum of 145 x 60 m appears justified. The plan proportions also vary considerably, with length: width ratios of 1.07 to 3.79. It should be pointed out, that only four squares have a ratio of greater than 3.00, and of these only one has a ratio of more than 3.50. None of the spaces, is completely 'square' on plan.

Heights of Buildings

The heights of the surrounding buildings are measured in relation to the length and width of the squares, and ratios generated. An overall observation about both ratios, is that they tend to lessen in accordance with the size ranking order of the squares. The implications are that the building heights do not change in proportion to the size of the space. An interesting consequence of this phenomenon, is the different psychological perceptions of the spaces. The larger squares are on the upper limits of containment and are therefore 'tending towards agoraphobia'. To achieve comfort, they need to be quite densely populated - as a means of reducing the apparent space and increasing the feeling of containment. The smaller spaces, on the other hand, have a sense of containment which is 'tending towards claustrophobia' and therefore need to be sparsely populated for comfort.

The length to height ratios vary from 8.5 to 1.4 and the width to height ratios range from 4.0 to 0.9.

OPENINGS (See Figure 142)

The objective of openings to a square is to provide sufficient ease of access to the space, without destroying the sense of containment.

Size

The size of openings also varies considerably. Perhaps not surprisingly, the larger openings are predominantly for vehicle access and the smaller openings for pedestrians. The presence of vehicles and/or pedestrians clearly affects the character of a square. Yet, if two squares which are dedicated to pedestrian activity, are compared, it can be seen that larger openings produce a quicker, bustling environment. Conversely, smaller openings tend to produce a more secluded, quieter, slower atmosphere. Whilst it is acknowledged that there are other factors involved (not least of these are the size of the square, its space to height ratios, and the materials), nevertheless Schiller Platz (ref S3) and Begijnhof (ref A4) are offered as examples of the size of openings contributing to contrasts in activity level.

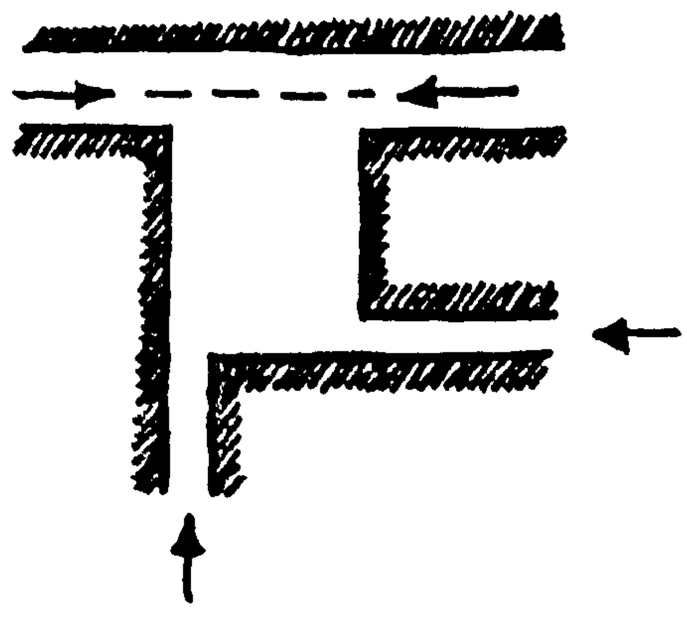
Frequency

This is measured in two ways. The first method is to simply count the number of openings in each square. The second approach is to represent the sum of the openings as a percentage of the perimeter of each square. Neither of these measures produces a correlation with size ranking order of the squares, or indeed with each other.

It is a reasonable supposition that generally, there should be fewer openings in a small square than in a large square. Intuitively, it would also seem reasonable that there is a range of percentage opening which provides sufficient containment without becoming claustrophobic.

Masking

Unwin and *Sitte*, in particular, stressed the importance of preventing extended views out of a square from any point of entry. In the majority of squares in the Study Areas, this is achieved, although a substantial minority of cases show that two openings are not masked. These squares are generally to the side of a thoroughfare, producing a distinct generic form -



In all the Study Areas, there are only three exceptions to complete masking of openings or the form as illustrated (refs G1, D1, G2).

FOCAL BUILDINGS (See Figures 131, 134, 138, 139)

A number of the Pioneers have drawn attention to the role of Focal Buildings in squares. A detailed analysis of Focal and Background buildings, will be offered in a subsequent section of this thesis. In this section, the initial proposals are that -

. Focal Buildings enhance the quality of squares.

. Squares require certain quality characteristics, to be able to support Focal Buildings.

Type

Sixteen of the twenty eight squares contain Focal Buildings. These are in the broad categories of -

	References
Government	A1, S1, S2
Religion	S2, D2, G2, A4, S7, A5
Public Facilities	S3, D1, D3, S8, A7, A6, A8
Law	S3
Health	-
Education	A2

The actual uses are as follows -

Government	:	Palace, Town Hall
Religion	:	Church, Cathedral
Public Facilities	:	Museum, Public Library, Art Gallery
Law	:	Justice Ministry
Education	:	University

Size and Position

The squares containing Focal Buildings are of two types. The first type conforms to *Sitte's* model of Deep Plan or Wide Plan squares. In the Deep Plan variety (refs A1 and A4), the Focal Building occupies one end of the square, whereas in the Wide Plan version (refs S1, S2, S7, A2, A5, G2, D1, D2, D3), the Focal Building takes up a proportion of one of the long sides. The second type is a square in which all sides are occupied by a Focal Building or Buildings (refs S3, S8, A6).

TOPOGRAPHICAL SITUATIONS (See Figures 130, 133, 136, 137)

Unwin referred to Greek Cities when he stressed the importance of 'choosing the right place' for an urban square. *Tibbalds* noted that

> 'post-war development has tended to ignore the topography and compose artificial levels .... Cities need to regain their topography if they are to regain their positive image.'

In the Stuttgart Study Area, it has already been established that Markt Platz (ref S1) is at the heart of the Study Area, with most routes leading to it. Schiller Platz (ref S3) is linked to it, by the primary route, and forms a gateway at the Northern end of the Area. Other squares (refs S2, S4, S5, S6, S7, S9, S10, S11) are located around the two major spaces and connected to them.

Dam Square (ref A1) is a dominating space in the Amsterdam Study Area. It is physically and symbolically recognised as the focus of the city. It is joined to Spui (ref A2) by the broadest street in the Area. The central section of this street widens further, to form its own square (ref A3). A chain of smaller squares (refs A5 - A8) are linked to one another, and to A2 and A3, at either end.

From St Nicholas' Square (ref G2), at the Southern end of the Grey Street Study Area, the land rises through a minor square (ref G4) to the Bigg Market (ref G1) and through another minor square (ref G5) to the culmination at the Earl Grey Monument (ref G3).

All three of these Study Areas make good use of the natural form of the land in the disposition and linkages of their squares. The picture is far less clear in the John Dobson Street Study Area. First, there are only three identifiable squares. Ellison Place (ref D2) is isolated from the centre of activity, sandwiched between major roads (notably Durant Road and the Central Motorway East). Its forlorn appearance is emphasised by the entry/ exit points. Two of these are cul-de-sacs. The third is down a ramp from part of the jumbled, elevated walkway system. The fourth point is via an artificial dip in the street, which was manufactured to accommodate a low, modern building to bridge over. The 'Cultural Square'

(ref D1) and Princess Square (ref D3) are separated by the Central Library. Both are essentially raised concrete decks and as such, it is difficult to visualise them as squares.

FUNCTIONS AND TIME USAGE

If *French's* traditional functions of a square are observed, the following activities can be assigned to a number of the squares -

	References
Trade	A2, A3, G1
Information	G3
Recreation	S1, S3, S5, A1, A2, A4, A6, A7
Protection	-
Piety	A5

In addition, *Krier's* notion of association with adjacent Focal Buildings should also be included -

	References
Museum	S3, S8
Town Hall	S1, S8
Church/Cathedral	S7, A4, A5, G2, D2
Palace	A1
Public Library	D3

The following squares are left without an identifiable function - S4, S6, S9, S10, S11, S12, A8, G4, G5, D1. With the exception of D1, none of these squares has a Focal Building. D1 does not provide an access to the adjacent Art Gallery and the square is so environmentally unsatisfactory, that the Central Library has permanently locked its doors to that side of the building.

As far as time usage is concerned, this is related to the functions -

	Day Time	*Evening*	*Indeterminate*
Trade	A2, A3, G1	-	-
Information	G3	-	-
Recreation	S1, S3, S5, A1, A2, A4, A6, A7	S1, S3, A1 A2	-
Piety	A5		-
Focal Buildings	S3, S8, S1, S7, A4, A5, G2, D2, A1, D3		D1
No function			S2, S4, S6, S9, S10, S11, S12, A8, G4, G5

It is noticeable that the four squares with the greatest time usage are at the larger end of the size ranking, have more than one function, and are associated with recreation.

<u>PEDESTRIANS AND VEHICLES</u> (See Figures 132, 135, 140, 141)
In order to assess the movement characteristics of each square, an analysis was undertaken of positive and negative aspects related to pedestrians and vehicles, with the following results. (See Figure 143)

<u>EVALUATION OF SQUARES</u> (See Figure 144)
The objective of this evaluation is to establish parameters for the creation of potentially successful squares. The sizes and shapes of all the squares seem to be acceptable. The only exception is Dam Square (ref A1) which is larger than would be proposed, although in other respects it demonstrates excellent quality. With regard to length, width, and height of the squares, the length to

height ratios range from 8.5 to 1.4, and the scope of width to height ratios is 4.0 to 0.9. All these ratios appear acceptable, although it should be noted that the ratios tend to reduce in relation to square size. The opening sizes are too variable to establish any pattern. However, the number of openings and percentage of total openings in relation to the perimeter of a square are significant. The minimum number of openings to a square should be two. These may then increase in relation to square size to a maximum number of about nine (for a perimeter of 334 m). The range can be seen on the summary sheet. It would seem that for containment without oppression, there should be maximum and minimum percentages of total openings, for various square sizes. Recommendations for this banding are difficult to ascertain, but it is suggested that the banding may be determined by assessment of a number of other factors. The masking of views through squares should either be total, or one view in either direction, depending on the type of square. Focal Buildings add significance to squares, and although the size and location of the Focal Buildings are important, their mere existence is the crucial aspect. In most cases the squares are well suited to the topography. The only major exceptions are D1 and D3, which are raised concrete decks. D1 is an unpleasant place, but in many other respects D3 is quite a successful square. Functions of squares, or at least association with Focal Buildings, seems to increase activity levels and thereby chances of success. When coupled with time usage, this becomes a good indicator, as can be seen on the analysis sheet. Positive and negative aspects related to pedestrians have already been collated, producing another helpful indicator. Finally, it would seem appropriate to add a subjective feeling of well-being to the other indicators. While this is not significant in isolation, it may confirm or question other criteria.

When all the above information is assimilated, the following squares are shown to fit all the criteria, and are therefore proposed as good models -

Ref	Nominal size	Nominal area	Actual peri-meter	Length /width	Length/ height	Width/ height	%age open-ing	No of open-ings	Open-ings not masked
A1 [1]	172x84	14448	548	2.05	7.0	3.4	27	11	0
A2	118x36	4248	334	3.28	8.5	2.6	28	9	0
S1	106x68	7208	332	1.56	5.7	4.0	20	7	0
S3	74x60	4440	286	1.23	3.7	3.2	22	6	2
G1 [2]	106x28	2968	265	3.79	7.2	1.9	22	7	1
A4	52x34	1768	184	1.53	4.3	2.8	10	3	0
D3 [3]	52x23	1196	151	2.26	7.4	2.2	19	3	0
A5	40x14	560	112	2.86	3.4	1.2	16	2	0
A7	30x14	420	98	2.14	3.4	1.6	8	2	2

Footnotes:

1. Square over size, but otherwise excellent characteristics.
2. Focal Building (Town Hall) now demolished.
3. Poor topographical aspects, but otherwise very good characteristics.

STREETS

This section will analyse streets and their junctions within the four Study Areas. In particular, the different requirements for vehicles and pedestrians will be examined. The objective is to establish criteria for potentially successful urban streets.

STREET PATTERNS

The primary structure in Amsterdam comprises both pedestrian and vehicular streets. The form is a grid, adjusted to suit the topography. The emphasis is North-South, as there is only a relatively small number of minor East-West routes within the enclosing rectangle. The Stuttgart pattern displays its medieval origins and is therefore predominantly organic in nature. Nevertheless, when the major routes are identified, an adjusted grid

layout becomes evident. The majority of the Stuttgart streets are pedestrian, but a significant minority also carry vehicular traffic. The Grey Street Study Area has only one pedestrian street. The pattern is also mainly a grid adjusted to suit the topography. Yet, there is an element of radial system at the Northern end. The problem of vehicular movement at the focus of a radial pattern has led to pedestrianisation around the Earl Grey Monument, and corresponding unnatural termination of vehicular access in the radiating streets. This is a situation where there has been an attempt to create a SQUARE, from a complicated street junction. In the John Dobson Street Study Area, there is an underlying grid formation. Unfortunately, it has been severely fragmented by 20th Century intervention. Three of the streets are pedestrian, but the picture is further complicated by the plethora of elevated walk-ways.

Thus, it can be seen that there are advantages in a recognisable street pattern. Mixed systems seem to create compromises which are difficult to resolve. The worst situation appears to be an interrupted layout, whereas the most acceptable is a grid adjusted to suit the topography. Examples are not available of *Sitte's* MODIFIED GRID, a variety which would be interesting to investigate.

<u>DEFINITIONS</u> (See Figures 145 - 148)

Streets are dynamic spaces, and therefore it is appropriate that they should be associated with movement. Nevertheless, as positive urban spaces, streets need to be comfortable for the various user groups and function accordingly.

<u>Width</u>

In studying streets in the four Areas, it soon became apparent that much of the perception of the spaces is generated by their widths. These vary greatly -

Grey Street Area	25 m - 5 m
John Dobson Street Area	32 m - 7 m
Amsterdam	42 m - 2 m
Stuttgart	30 m - 4 m

There is clear association between successful street widths and uses, viz - two-way vehicles
one-way vehicles
pedestrian

The analysis was therefore undertaken, on the basis of these three categories.

Width, Length, Height Ratios

The width of streets is only one of the factors involved. While the width is significant in absolute terms, definition is derived from the relationship between width, length and height. As with static spaces, there is a continuum which ranges from 'tending to agoraphobia' where definition is weak, to 'tending to claustrophobia' where definition is strong. In order to avoid agoraphobia, a wide street needs compensating ratios, as follows -

length:width	.	high value
length:height	.	high value
width:height	.	low value

Conversely, to avoid claustrophobia, a narrow street needs alternative compensating ratios, as follows -

length:width	.	low value
length:height	.	low value
width:height	.	high value

The various ranges were found to be -

Two-Way Vehicles

width	42 m	-	8 m
length:width	9.5	-	3.0
length:height	21.0	-	1.6
width:height	2.2	-	0.5

One-Way Vehicles			
width	19 m	-	6 m
length:width	6.3	-	8.7
length:height	8.0	-	3.7
width:height	1.3	-	0.4

Pedestrian			
width	20 m	-	2 m
length:width	12.6	-	22.0
length:height	16.8	-	3.4
width:height	1.3	-	0.2

It can be seen from the above, that streets taken from the extremes of the range do not comply with the notion of compensating ratios. It is therefore surmised that these streets are not good models in terms of definition. An evaluation of an appropriate range will be offered at the end of this section.

JUNCTIONS (See Figures 149 - 152)

Number of Streets

The majority of junctions involve two streets. In these cases, the form is determined by whether both streets continue past the junction (Cross-Roads) or whether it is only one of them (T Junction). Irregular junctions, those related to squares or roundabouts, and junctions with more than two streets - are all small in number and categorised under 'Other Forms'.

	Cross-Roads	*T Junctions*	*Other Forms*
Grey Street Area	7	8	3
John Dobson Street Area	6	5	1
Amsterdam	4	9	2
Stuttgart	1	4	2

Cross-Roads

None of the cross-roads, in any of the Study Areas, allows unrestricted two-way movement in all directions. Also, in the Grey Street Study Area, every junction has a different vehicular movement pattern. This is unhelpful to motorists, as they are obliged to judge the options for each junction as it is approached. Similar difficulties are experienced in the John Dobson Street Study Area. In Amsterdam, the general separation of vehicles into single-directional flows clarifies and articulates the junctions. There is only one cross-roads junction in the Stuttgart Study Area.

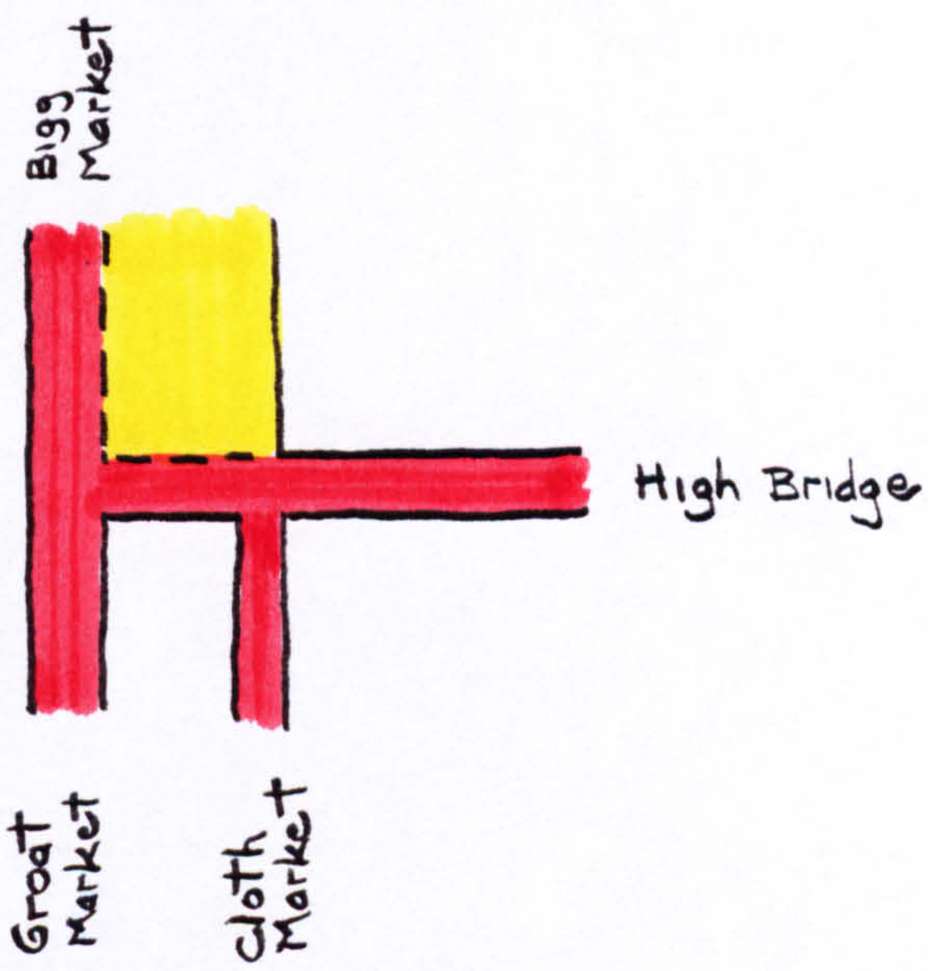
T Junctions

These are generally simpler in form, as each junction tends to be comprised one dominant and one subordinate street. However, the number of different use combinations still produces a relatively complicated pattern in the Grey Street Study Area. The most ambiguous, are the junctions of Shakespeare Street and High Bridge with Pilgrim Street, where vehicles are required to cross over the pavement. Similar complexities are apparent in the John Dobson Street Study Area junctions. In Amsterdam, there are a relatively high number of T junctions. Yet, they form a small number of generic types, and are therefore readily understood. The Stuttgart junctions are less clear than those in Amsterdam, but more easily understood than the Newcastle varieties. In Stuttgart, the junctions are based on combinations of one-way and two-way traffic.

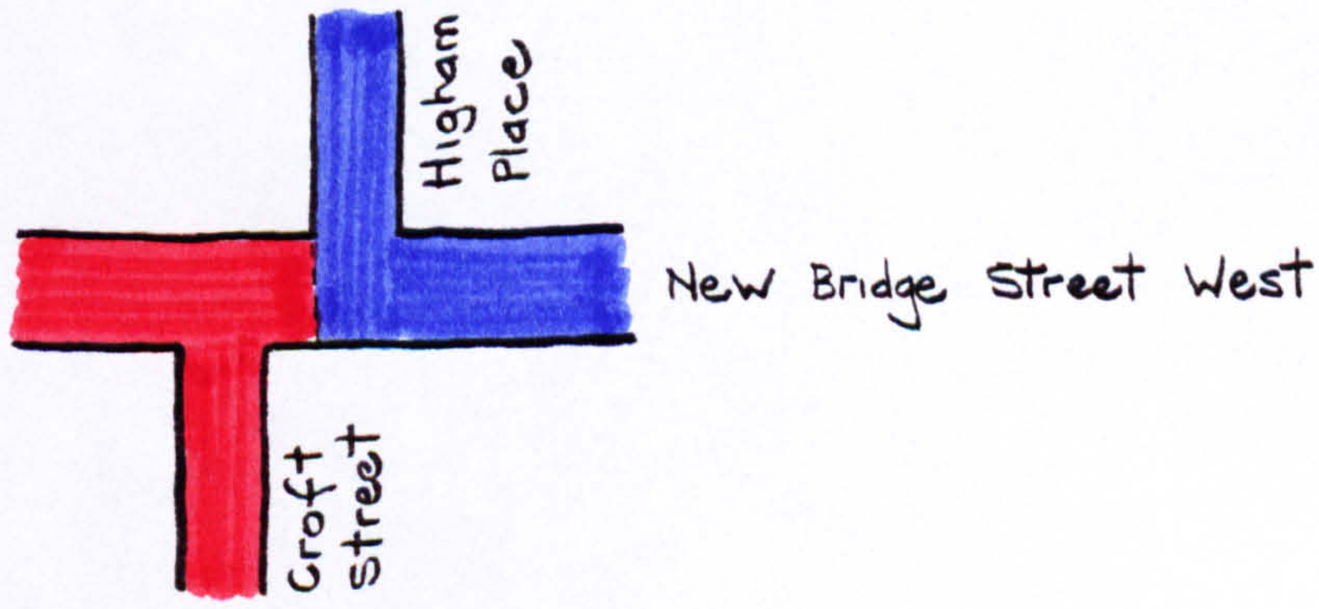
Other Forms

These can be perceived as positive or negative contributions to urban space. The Pilgrim Street - Mosley Street junction, in the Grey Street Area, is an introduction to a large roundabout controlled by traffic lights. It is linked with the urban motorway, and its scale causes a breakdown of spatial definition in that

location. The Grainger Street - Market Street irregular T junction, is complicated by at least two features. First, the vehicles are directed away from the natural line of Grainger Street. Secondly, vehicles from the subsidiary part of Grainger Street are required to cross over the restricted lane, to join the main route. The third form is a more interesting arrangement -

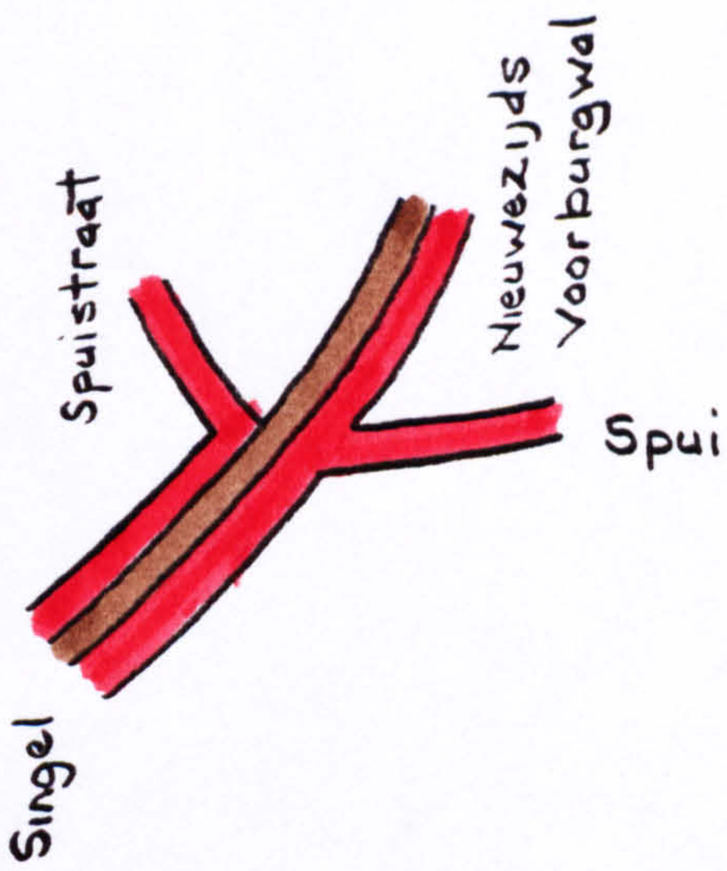


All the vehicular movement is unrestricted and one-way. It is a double T junction, which uses the corner of the Bigg Market 'square', to create a distinct place. The only 'other form' in the John Dobson Street Study Area is a break-in-direction cross-roads, much favoured by *Camillo Sitte* and the German School.

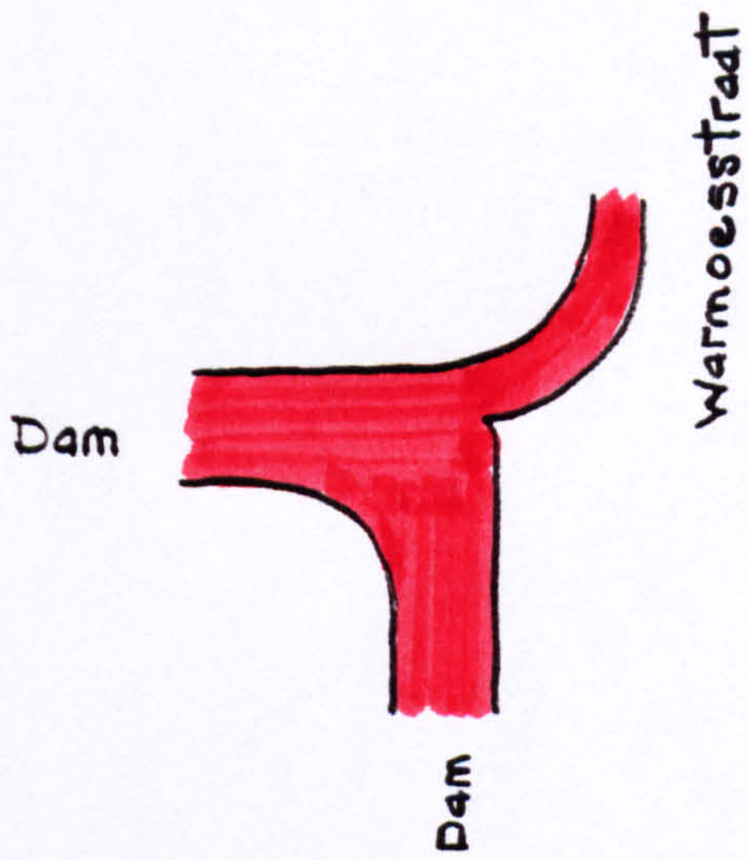


Unfortunately, this example is not as clear as it might be, due to the change from one-way traffic to two-way traffic at Higham Place. There are two further options in

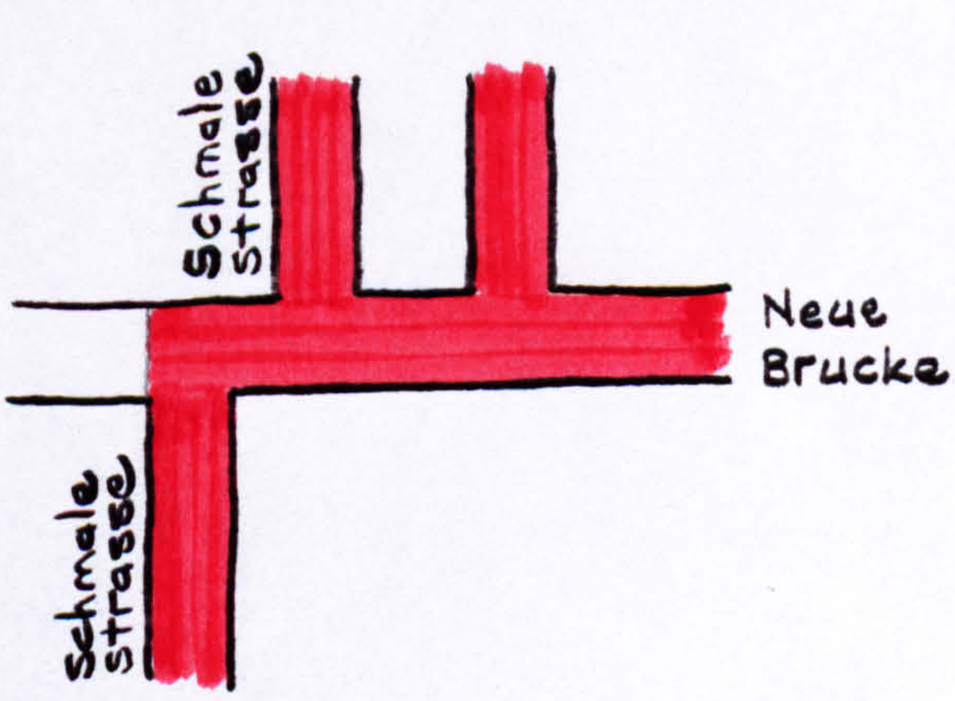
the Amsterdam Study Area. The first is an irregular cross-roads which offers clear dominant and subordinate routes, as well as directional information.

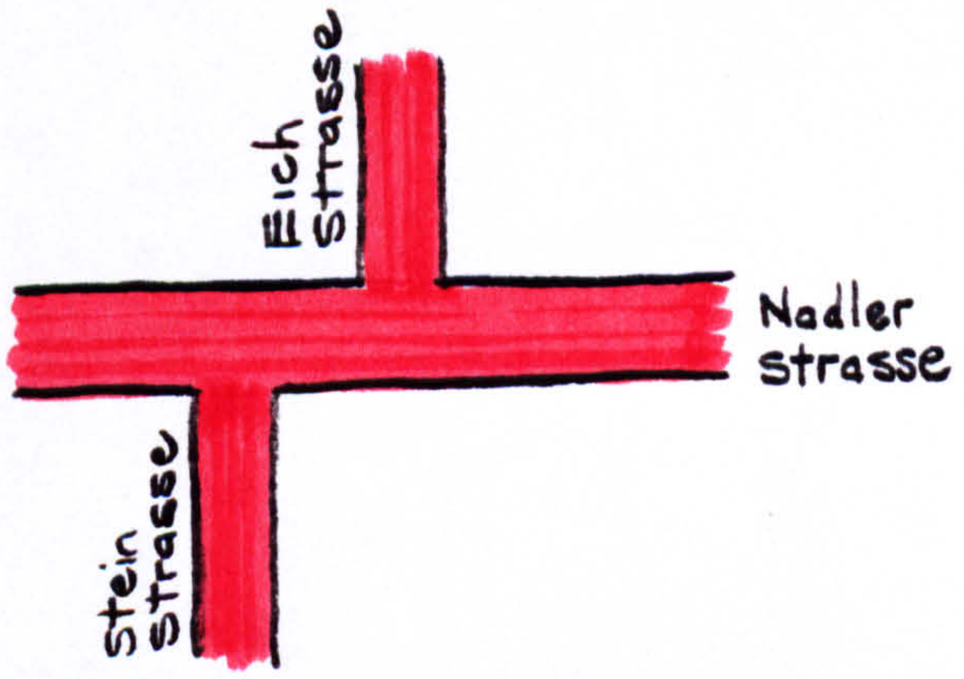


The second option is an irregular T junction which contributes similarly -



In Stuttgart, there are two types of cross-road with a break-in-direction -





These are not pure forms, but nevertheless are considerably more clear than the example from the John Dobson Street Study Area.

BUILDING LINE

Defining space

One of the principal objectives in the creation of urban space is the definition of that space. The most coherent system is where the composition is exclusively derived from buildings and space, which can be viewed as solids and voids. Streets are obviously part of the spatial pattern, so one of the tests of success should be the correlation between the dynamic voids and the perceived extent of the streets. In the Stuttgart Study Area, the correlation is almost total. (See Figures 155 and 156) In the vast majority of cases, it is the buildings that define and delineate the streets. In Amsterdam, there is a similar picture. The only exception is Rokin. (See Figures 159 and 160) This space is uncomfortably wide and filled with other artifacts, because the width was not determined by either spatial or functional requirements but by the width of the culverted River Amstel.
Compatibility is largely achieved in the Grey Street Study Area. The only exceptions in this case, relate to Pilgrim Street. (See Figures 164 and 165) At the Northern end, there is an artificially created dual-carriageway, in which the central reservation interrupts the space. At the South Easterly corner, the beginnings of the Pilgrim Street roundabout creates a loss of spatial definition.
In the John Dobson Street Study Area, there are a number of situations where spatial definition and street delineation are not coincident. (See Figures 169 and 170) Most of the situations relate to John Dobson Street and Durant Road, especially at junctions with other streets. While every situation does not need to be identified, some are worthy of note. First, the line of John Dobson Street itself is not particularly evident on the spatial plan.

Junctions with Northumberland Road, North Street/Saville Row, Durant Road/Saville Place, New Bridge Street and Market Street - are all weak. The dual-carriageway form, and intermittent use of a central reservation, add to the incoherence. The line of Durant Road is completely undefined. There is no association with adjacent buildings and a number of large, anonymous and generally ill-considered spaces are the result.

All four Study Areas illustrate the completion of the building line to define corners. However, none of them show any of the more sophisticated techniques. Not even in Amsterdam, which is renowned for the treatment of corners, are there techniques such as 'a gateway created by the buildings in the form of a pinchpoint' or 'a square created with building setbacks'. Also, while the John Dobson Street Study Area provides the negative example of 'random set-backs producing an incoherent streetscape', there is no evidence of the positive set-back which can 'denote a focal building and create well-defined space'.

Containment and Openings

The strong directional pattern of the Amsterdam Study Area produces positive containment, as the openings are small and few. It could be argued with justification, that such an arrangement demands relatively wide streets in the direction of flow. Kalverstraat for example, is a narrow street. Even without the mass of humanity, this street can appear claustrophobic and even intimidating. The streets in the Stuttgart Study Area are much shorter and there are many junctions. The majority are also mid-range in width, and there does not appear to be such striking contrasts in size. In this context, there is a danger of containment loss. However, this is generally avoided by a number of simple techniques - for example,

. Streets are not consistent in width throughout their length, and tend to narrow towards junctions.

. The manner in which streets angle away from one another assists their individual containment.
. Less significant routes are marked by gateways, arches, arcades and other devices which reduce the impact of the openings.

In the Grey Street Study Area, there is a directional feel, but it is less clear than in Amsterdam. At the Northern end, wide streets regularly form junctions with the principal routes and this does produce some discontinuity. An appropriate balance is better observed away from the Northern end. One aspect is apparent in Grey Street itself. Almost regardless of junctions and openings, the curve and change in level strengthen the form of the street. In the John Dobson Street Study Area, there is a mixed picture. Northumberland Street, Northumberland Road, Saville Row and part of Market Street are well contained. Indeed, West of John Dobson Street, spatial definition is quite clear, whereas from John Dobson Street Eastwards, the streets become very fragmented.

PEDESTRIANS AND VEHICLES

Barriers

The notion of edges has been discussed in the Application of Urban Design Principles. In this context, the investigation will be limited to physical barriers. It is significant that in the Amsterdam and Stuttgart Study Areas, such barriers are virtually non-existent. In the Grey Street Study Area, they appear in three distinct locations. (See Figure 163) The first location is at the Pilgrim Street - Mosley Street junction, which has already been noted as a situation where spatial definition dissolves. The second location is the Grainger Street - Market Street irregular T junction, where a pointed barrier emphasises the intended change of direction. The third location is the Northumberland Street - Pilgrim

Street, Blackett Street - New Bridge Street cross roads, which is a very complicated junction. In the John Dobson Street Study Area, barriers are used extensively. (See Figure 168) With a few minor exceptions, they all appear in John Dobson Street, Durant Road and New Bridge Street. These three streets are characterised by -

. lack of spatial definition
. encouragement for traffic to move quickly
. alienation of pedestrians

Barriers are generally unwelcome. Evidence emerging in this section seems to suggest that there is an association between inappropriate street design and the subsequent addition of barriers.

Conflicts

The Amsterdam and Stuttgart Study Areas demonstrate that while there is often a kind of tension between motor vehicles and pedestrians, they can co-exist with relative amicability. In the Grey Street Study Area there are frequent crossing points, but on the whole these produce little hardship. Nevertheless, the ambiguous status of some streets and junctions produces more conflict. It is important for all users to know if a street is intended for pedestrians or whether vehicles are permitted. Intuitively, people associate narrow streets with pedestrians and wider streets with vehicles. Thus, there is potential conflict, as well as confusion, where some of the narrower streets continue to be used for vehicles, while parts of some of the widest streets are pedestrianised. Confusion and conflict are particularly apparent in the John Dobson Street Study Area. One aspect which should be emphasised in this section, is the desire of pedestrians to remain at street level. The tortuous 'pedestrian system' in this Area, raises the users above

street level in a misguided attempt to separate them from vehicular routes. The desire of pedestrians, therefore produces considerable conflicts as they struggle over physical barriers and become entangled with vehicles.

EVALUATION OF STREETS

The objective of this evaluation is to establish parameters for the creation of potentially successful streets. Evidence from the Study Areas appears to show that a recognisable street pattern is a desirable quality. A radial system implies congestion at the focus, as well as complicated plot shapes for building. Where an organic pattern exists, its incremental growth over time seems to produce a good solution. In other cases, the most acceptable form would appear to be a grid, adjusted to suit the particular topography. The definitions of streets were analysed in accordance with their uses. Streets carrying vehicles in two directions total nineteen in all Study Areas. (See Figure 171) Of these, it has already been established that Rokin is an exception, because of the particular circumstances in which it was created. John Dobson Street and Durant Road have insufficient definition to be properly analysed. Of the remaining streets, Dorothenstrasse does not display adequate containment and Pilgrim Street is on the upper limit of acceptability. At the lower end of the scale, Unter der Mauer is too confined for the purpose and Oxford Street is marginal. it is therefore suggested that the band of potentially successful two-way streets, ranges from Grey Street to Higham Place.

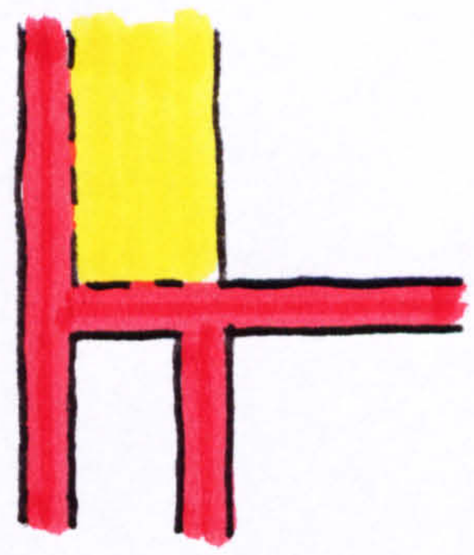
There are eighteen streets in all Study Areas that carry one-way vehicles. (See Figure 172) Of these, Lisle Street, High Bridge, Rosmarijnsteeg and Wijdesteeg are

too confined for the purpose and Turmstrasse is marginal. At the upper end of the group, Northumberland Road is marginal. It is therefore suggested that the band of potentially successful one-way streets ranges from Spuistraat to Nadlerstrasse.

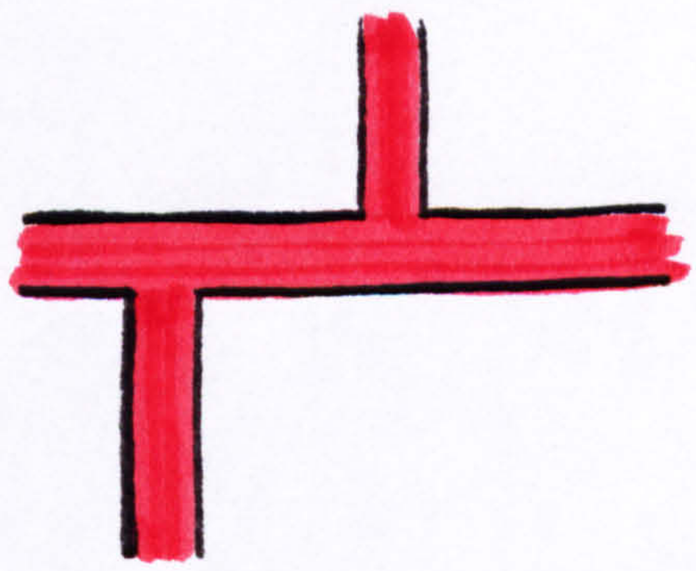
It is perhaps surprising that thirty streets in the Study Areas are dedicated to pedestrian use. (See Figure 173) Of these, Northumberland Street is too wide for comfortable use. Conversely, Gapersteeg, Jonge Roelensteeg, Papenbroeksteeg, Spaarpotsteeg and Duifiessteeg are all decidedly claustrophobic. It has already been noted that Kalverstraat is too long for its width and height, and this is indicated by the excessive length:height ratio of 31.5. However, in many other respects Kalverstraat is a perfectly satisfactory pedestrian street. It is therefore suggested that the band of potentially successful pedestrian streets ranges from Hirschstrasse to Sint Luciensteeg.

As far as junctions are concerned, the total absence of unrestricted two-way movement at cross-roads, indicates that such a junction is an unworkable type. The evidence indicates that consistency of movement patterns at cross-roads is advantageous, and Amsterdam appears to provide the best model in this respect. Many Urban Designers comment disparagingly about the use of T junctions in urban streets. Yet, once again, the examples from the Amsterdam Study Area illustrate how these junctions can be incorporated successfully. In addition, although *Sitte's* MODIFIED GRID is not apparent in any of the Study Areas, it should be noted that his solution relies exclusively on T junctions. Other forms of junction in the Study Areas are disappointingly few. The negative versions do not

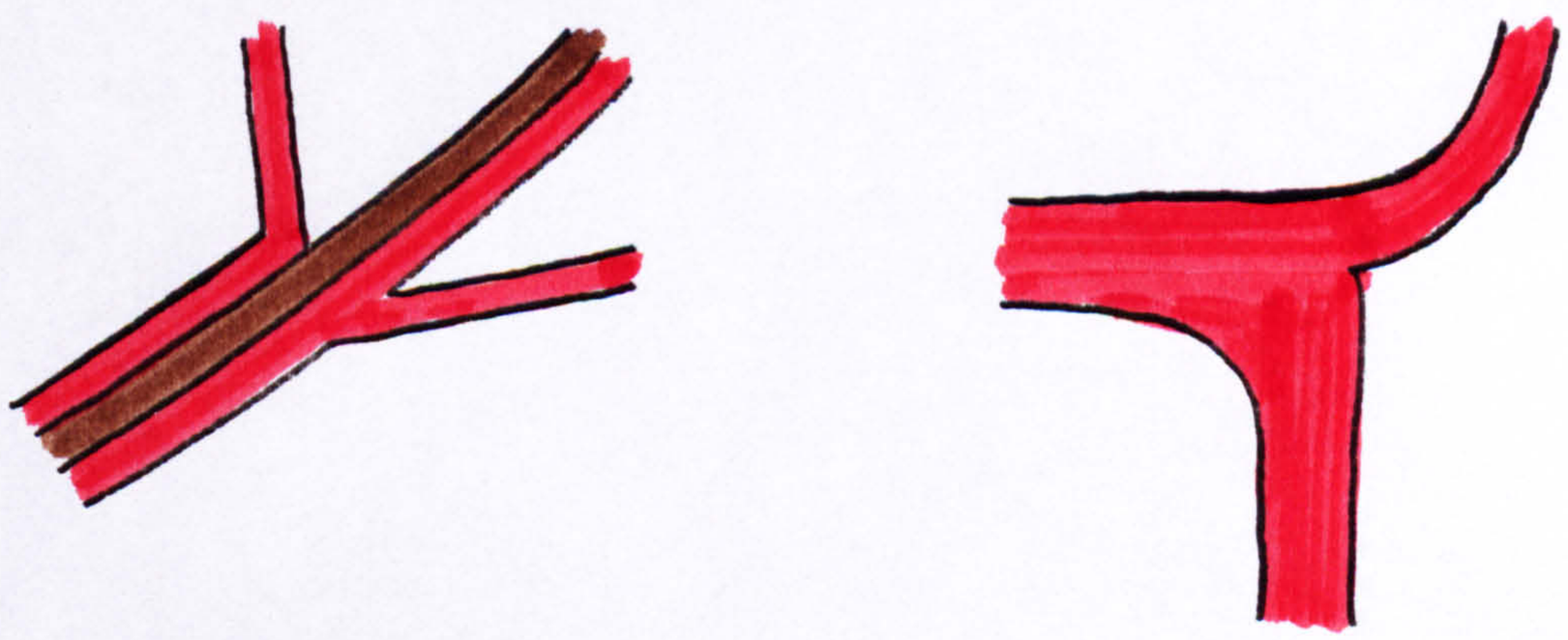
justify further comment. The positive varieties fall into three categories. The first is a combination of T junctions and a square, as in the Grey Street Study Area -



It is considered that variations on this theme could be developed. The second variety is based on the break-in-direction at cross-roads -



This could also be interpreted as a combination of T junctions. The third variety is the irregular cross-roads or T junction which offers clear dominant and subordinate routes, as well as directional information -



It is perhaps significant that all forms of junction appear to operate most successfully where vehicular flow is one-way or directed into single directional channels. However, this is not a justification for the dual-carriageway form, as there is sufficient evidence to show that such a form should not be proposed for the urban context.

In terms of defining space with the building line, it is evident that the objective should be 100% correlation between spatial definition and street delineation. It is equally important that buildings provide clear definition at corners. There are numerous examples of building lines completing corners in the Study Area. Although, it is disappointing that the more sophisticated techniques are not evident. It is clear that streets need frequent openings to avoid claustrophobia and offer optional routes. It is also clear that frequent openings dilute the necessary containment. It was discovered that certain techniques can be adopted to satisfy both requirements -

1. Identification of major and minor routes with appropriate streets widths in each case.
2. Possibility of narrowing street widths towards junctions.
3. Angling streets away from one another.
4. Minor routes marked by gateways, arches, arcades and other devices which reduce the impact of the openings.

Barriers are negative features of the urban environment and the evidence shows that they are unnecessary where there is appropriate street design. Conflicts are best avoided through unambiguous statements. First, the status and intended use of each street and junction must be expressed by size, shape, detail, containment and materials. Secondly, vehicles and pedestrians must remain in contact with the ground. Neither user group should be elevated above it, nor plunged into it. Thirdly, the size

hierarchy of streets implies the intended use, and this should be followed in practice. Users expect that the widest streets should carry two-way vehicular movement, the mid-range should carry one-way vehicular movement and the narrower streets should be dedicated to pedestrian use. Contradiction of implicit expectations results in confusion, insecurity and alienation.

GROUPED SPACES AND CENTRAL PLACES

The objective of this section is to consider spaces as an interconnected network. The arrangements will then be analysed as a kind of hierarchy, with the establishment of emphasis and subordination. This will enable central places to be identified.

PATTERNS OF GROUPED SPACES

In the Stuttgart Study Area, the shapes of spaces and their connections, produces an informal layout. (See Figures 154 - 156) The arrangement is that a number of static spaces are linked by dynamic spaces, ie squares linked by streets. The informal layout results in an organic atmosphere and certainly has a strong sense of place. The network of streets offers optional routes and especially different ways into and out of the squares. This provides the stimulation of viewing the built environment from different perspectives. There is a notion of exploration, and the security of recognition, as an unfamiliar space turns out to be a favourite square viewed from the other side. It has already been observed that Stuttgart has a number of landmarks. The tower of the Town Hall and the towers and the Stiftskirch are particular reference points that can be picked out at a distance. Their relative juxtapositions in space provide orientation and visual interest. The composition of the Focal Buildings is also a fascinating aspect, as the buildings unfold in different sequences according to the

direction from which they are approached. The atmosphere of each square seems to vary in relation to the way it is entered. For example, the route through Schiller Platz from Kirchstrasse implies constant movement at a sedate pace. As one walks through the square, there is a notion of moving between the Altes-Schloss and the Justiz-Ministry. However, when the square is entered from the small enclosed passage in the corner of the Justiz-Ministry, a completely different feeling prevails. Movement from the dark, narrow passage into the great square causes one to stop and marvel at the grandeur of the Altes-Schloss, which faces onto the other side of the square.

In Amsterdam, there are greater contrasts in the spatial arrangements. (See Figures 158 - 160) The principal lines of communication display quite a formal nature. They tend to be dynamic spaces which are strong statements in the North-South direction, linked by a series of minor routes, East-West. These dynamic spaces culminate in major squares at the Northern and Southern ends of the Study Area. Within the largest block of building is a network of small informal spaces. Some of the static spaces are joined directly to one another, whereas others are linked by dynamic spaces. There are six entry/exit points to this network so within itself, there are optional routes. The network contrasts with the surrounding streets and squares. It is more peaceful, slower, meandering - a place to explore rather than pursue direct communications. Nevertheless, it is only a few steps to re-join any of the principal routes. Two churches and the Historical Museum act as landmarks. There is no need for them to provide orientation, but they certainly help to define the spaces and operate as Focal Buildings.

The Grey Street Study Area is predominantly comprised of dynamic spaces. (See Figures 162 - 165) The arrangements are mainly derived from the 1834 Central Area Development

Plan, which gives a formal atmosphere to the layout. There are optional routes, but as they tend to be part of the principal structure, little is offered in terms of contrast, surprise and mystery. The only real exception is High Bridge. As a relatively long and narrow street, it engenders different emotional responses to the predictability of the main streets. There are large blocks of land in this Study Area, in which intricate networks of spaces could be developed. The Earl Grey Monument and Cathedral lantern tower, act as good distance landmarks and provide orientation. The Monument has the virtue of approaches from different directions but does not offer variety of composition. While the Theatre Royal is a fine building, the location tends to devalue its landmark potential.

It has already been established that the layout of the John Dobson Street Study Area appears confused. (See Figures 167 - 170) In some sense, there is an underlying formality but progressive fragmentation has produced a disjointed picture. There are optional routes but little continuity of movement. Northumberland Street is a direct means of communication, but away from that street lies the frustration of dead ends and disorientating changes in level and direction. The most noticeable landmark at a distance is the Bewick Court block of flats. This building lacks the charm and symbolism required of a landmark. In terms of Focal Buildings, the Central Library does define Princess Square. However, the building appears as an object in space, not related to a background and not offering unfolding views from different directions. The City Hall is not a distinguished building and is dubiously located on a busy traffic route. The Laing Art Gallery is a quality building, but even more than the Theatre Royal, its location and surroundings negate its value as a landmark. Thus, this Study Area

performs particularly badly in terms of Grouped Spaces. Seemingly, there is not a framework to the plan and it is difficult to perceive visual interest and variety in the spaces.

IDENTIFICATION OF CENTRAL PLACES

The focus of the Stuttgart Study Area is undoubtedly the Markt Platz, with the Town Hall looking on to it. The square is at the centre of the Area and at the bottom of the topographical bowl. (See Figure 153) Yet, the Central Place extends beyond the Markt Platz. It also includes Schiller Platz and Kirchstrasse which links the two squares. Thus, there is a twin centre with dynamic link. In hierarchical terms, Schiller Platz is lower on the scale than Markt Platz which is at the pinnacle. The two squares also differ in character - Markt Platz is a very active place whereas Schiller Platz is generally more reflective. The latter is also entirely defined by Focal Buildings (if that is not a contradiction in terms). It is the congregation of activities that confirms the ensemble as the Central Place. Numerous outdoor activities, including a variety of festivals, are sited precisely in these spaces.

If Markt Platz is the focus of the Stuttgart Study Area, then Dam Square is the focus of the Amsterdam Study Area, and indeed the whole city. (See Figure 157) This square also has a Town Hall looking on to it, although it has changed use to a Royal Palace. One stage down the hierarchical scale is Spui, which is also part of the Central Place. in fact, the Central Place extends into some of the network of small informal spaces and along Kalverstraat. The cultural atmosphere of Spui is partly contributed by the University as Focal Building. The reflective nature of Begijnhof and the other small squares, is largely derived from the churches and Historical Museum as their Focal Buildings. The

commercialised Kalverstraat does not possess any Focal Buildings, but the astonishing congregation of activity justifies its designation as part of the Central Place. Dam Square seems to attract people because it is there. Yet, there are also various events that take place in the Square. Spui's character makes it a natural home for art exhibitions, book sales and classical music. Activities in the small squares tend to relate to the churches and Museum.

In recent years, the Earl Grey Monument has become established as the focus of Newcastle upon Tyne. (See Figure 161) The main reason is probably more that a Metro-line intersection has been developed beneath it, than anything symbolic. It is also a place where major ground-level communication routes meet. In fact, it is constantly associated with movement and displays an almost restless character. Retail activity predominates and to a certain extent, the space around the Monument acts as a link between Northumberland Street (the principal shopping street) and the Eldon Square Shopping Centre. A second Central Place is located around the Bigg Market and High Bridge. Unfortunately, this is disconnected from the Monument part of the Study Area. Disconnected centres produce a fragmentary image. There are no Focal Buildings, although the Town Hall used to stand at the end of the Bigg Market. High Bridge has become lined with fashionable boutiques, and stalls selling all kinds of produce are still set-up in the Bigg Market, several days a week. In the evening, the leisure industry takes over as people flock to some of the most popular pubs and restaurants in the city.

In the John Dobson Street Study Area, the only identifiable Central Place is Northumberland Street. (See Figure 166) Single dynamic spaces are not the most appropriate forms of Central Place. This is mainly because movement will inevitably dominate such a space.

There is a high level of activity but it is almost exclusively retail generated. Correspondingly, activity is limited to shop opening hours. There are no Focal Buildings in the street.

BUILDINGS

For the analysis of buildings, sample streets were selected from each of the Study Areas, as follows -

Amsterdam	.	Nieuwezijds Voorburgwal
Stuttgart	.	Hirschstrasse - Kirchstrasse
Grey Street Area	.	Grey Street
John Dobson Street Area	.	John Dobson Street

(See Figures 174 - 177)

In the case of the European Exemplars, one side of the street was taken as the sample. Whereas, in the Newcastle Study Areas, a fuller picture was obtained by an investigation of both sides of the street in each case.

FOCAL AND BACKGROUND BUILDINGS

Uses

It has been established that FOCAL BUILDINGS are generally public, unique and in styles of high culture. The use categories are mainly Government, Religion, Public Facilities, Law, Health and Education. On the other hand, BACKGROUND BUILDINGS tend to be in the vernacular tradition, but can be in a recognised style, provided they display unity, harmony and a respect for the context. Uses include Residences, Employment, Leisure and Shopping. On the chosen side of Nieuwezijds Voorburgwal, there are actually no focal buildings. However, in Kirchstrasse, there is the STIFTSKIRCH and the JUSTIZ MINISTRY beyond Schiller-Platz. The East side of Grey Street contains the THEATRE ROYAL, although the West side does not include a

focal building. Nor does the East side of John Dobson Street include such a building, but on the West side, stands the CENTRAL LIBRARY. Therefore, all other buildings should be considered as the background type.

Layout and Form

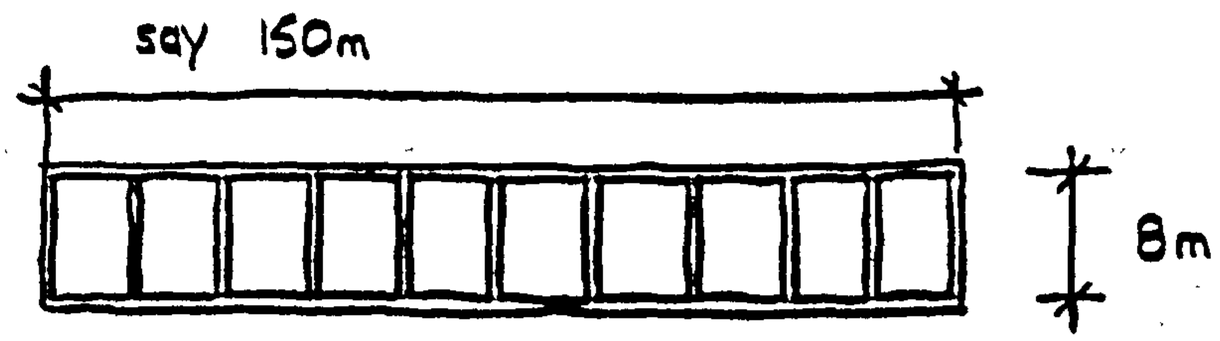
The importance of a focal building or buildings to a square, has already been established. However, the converse must also be considered. The approach and setting of a focal building has a significant effect on its impact. This is exemplified in Stuttgart where the comparatively narrow Kirchstrasse opens out to reveal the side view of the Stiftskirch. Further subtlety is achieved by the angle of the church and the projection of a building on the opposite side of the street. Together, they form a kind of pinchpoint before the space opens out into Schiller Platz, which offers a fine setting for both the Justiz Ministry and the Alter end of the church. The focal buildings in Newcastle do not enjoy this kind of status. The entrance to the Theatre Royal will be analysed later in this section, but the siting does not command a special position. Moreover, while the portico is appropriate to such a building, its projection into the street actually detracts from the lineal progression. The speculative nature of the planning of the Grey Street Study Area has already been discussed. This undoubtedly led to the lack of squares, and is in sharp contrast to *Dobson's* proposals. Nevertheless, the Theatre Royal would have benefitted greatly from the sort of spatial hierarchy that is evident in Stuttgart. The setting of Newcastle's Central Library is confused. Whilst, admittedly the main entrance is from Princess Square, the approach from John Dobson Street is quite alienating. The confusion emanates from the deck, which does not function as a square. The upper level lacks shape, containment and vitality and the lower level is dark and dismal.

As far as background buildings are concerned, the positive effects are epitomised in Amsterdam, where the buildings precisely define and contain the urban space in forming the line of the street. There is one distinct set back which helps to create a broadening out, of the central section. Variations are expressed at the corners in different ways. Sometimes, there is a general lowering of the building height, whereas in other situations, the roofs become particularly steeply pitched or display features such as turrets. In Stuttgart, the irregularity of the facades in plan form, creates a multi-faceted effect. This has the value of accommodating the shape of the street, while at the same time enabling the street and its vistas to unfold as progression is made along it. In Grey Street, the curve is defined by the building facades and it is only towards the Northern end, on the East side of the street that the effect becomes a little fragmented by three comparatively broad cross streets. In John Dobson Street, there is considerable fragmentation. First, the buildings appear as individual closed forms with extensive arbitrary space between them. Secondly, the facades do not define the street and certainly, there is no containment of urban space. Thirdly, the picture is further confused by the location of the deck and Bewick Court, over the street. The corners in Grey Street are well treated. With a few arguable exceptions, the general pattern involves distinct corner pavilions within the building form. The corners of John Dobson Street are not expressed in this way. Indeed, it is not possible to tell from the street elevations, which buildings actually form corners.

In terms of the relationship between focal and background buildings, the Stuttgart examples are not physically attached to the background. Nevertheless, there is visual

overlap which holds the focal buildings within the frame. The containment is aided by the spaces between the buildings, which are narrow. This effect of holding the focal buildings within the frame is not evident in either of the Newcastle Study Areas. While the facade of the Theatre Royal has the recognisable attributes of a focal building, the streets to either side detach it from the surrounding frame of background buildings. It is debatable whether the Central Library appears as a focal building, but it certainly does not have a relationship with any surrounding frame.

If a theoretical model is constructed on the basis of *Alexander's* 8 m optimum depth for background buildings, a likely proposition could be as follows -



The proportion of external wall to building frontage could be calculated as -

$$\frac{150 + 150 + 16}{150} = 2.1$$

There may be variations as street lengths fall into quite a broad band. However, there would be compensation as some rear walls may be party walls. Thus, a proportion of a little more than 2, would seem a reasonable objective. It might be expected that deep plans should be associated with focal buildings, and therefore a substantial difference between depths of focal and background buildings in the same street would be desirable. The

proportion of external wall to building frontage, depends on the plan shape, and the assumption that focal buildings are not physically attached to the background, eg

An analysis of the sample streets gives the following results -

	FOCAL		BACKGROUND	
	depth (m)	proportion	depth (m)	proportion
Nieuwezijds Voorburgwal	-	-	12.5	1.7
Hirschstrasse - Kirchstrasse	16 25	2.3 2.8	16	2.2
Grey Street West Side	-	-	16	2.3
John Dobson Street East Side	32	3.2	16	2.5
Grey Street East Side	50	3.0	19.5	2.5
John Dobson Street West Side	25	2.8	21.5	2.7

The proportion for focal buildings does not necessarily reveal the plan shape, but it is a good indicator in most cases. The depth of the focal buildings, ranges from 16 m to 50 m and therefore is consistent with deep plans. The depth of the background buildings, ranges from 12.5 m to 21.5 m, which is significantly greater than *Alexander's* optimum of 8 m. It is suggested here, that 16 m should be the absolute maximum, and depths which tend towards 8 m should be encouraged. Proportion values appear to be most satisfactory when greater than 2 but less than 2.5.

Further comment is necessary on the Grey Street results. First, Grainger's original 19th Century buildings would have had depths which were relatively closer to *Alexander's* optimum. A considerable amount of facadism has occurred during both centuries of the street's life. The East side has been subjected to a number of late 20th Century projects. Whilst facadism is a reasonable course of action in these circumstances, there has been an unwarranted tendency to increase the building depths in association with it. Secondly, at least two of the deeper plan buildings contain atria. Clearly, this enhances the space, but is not taken into account in the above analysis.

While variations in building heights will be considered as part of Architectural Character, it is important to assess the absolute height of buildings. *Alexander* suggests that there should be a four storey limit. If 14 m is taken to represent four storeys, a comparative assessment can be undertaken. In John Dobson Street, a relatively small proportion of its length rises above the 14 m line. (See Figures 178 - 181) Yet, the inconsistency is concerning, as blocks of building on the West side and in particular Bewick Court, are substantially above the line. This aspect is emphasised by the buildings in Grey Street, which are consistently less than a storey height above the 14 m limit. (See Figures 182 - 185) This kind of consistency can also be observed in Nieuwezijds Voorburgwal (see Figures 186 - 187) and Hirschstrasse - Kirchstrasse. (See Figures 188 - 189) Perhaps, it would be more appropriate and more realistic, to consider *Alexander's* proposal as a normal minimum height. The proportion of a building frontage constructed lower than this height would be determined by the Architectural Framework. 17.5 m could then be offered as a normal maximum height, with only spires, small gables, etc,

projecting above it. (See Figures 178, 180, 182, 184, 186, 188) Applying these criteria would produce the following width:height ratios for the sample streets -

	Width	14	17.5	Height
Hirschstrasse - Kirchstrasse	12	0.86	0.69	
Nieuwezijds Voorburgwal	22	1.57	1.26	
Grey Street	23	1.64	1.3	
John Dobson Street	32	2.29	1.83	ratios

John Dobson Street is probably too wide to be a successful city street. If it is to be maintained at this width, considerably more containment will be required, ie longer and more continuous building frontages, constructed to at least the suggested normal maximum height limit.

It has been noted that expression of a building's roof form could have at least two advantages. First, the enveloping nature of the roof produces a comforting psychological effect. Secondly, definition of the roof helps to identify the extent of individual buildings. In terms of the focal type, the Stiftskirch and Justiz Ministry in Stuttgart, are good examples. In addition, the extensive roof to the Stiftskirch enables the building to act as a large scale focus, without intimidating the surrounding structures. Roof forms in background buildings are best illustrated in Nieuwezijds Voorburgwal, where they really add to the character of the individual buildings. It is observed in all four Study Areas that expression of roof forms, tends to pre-date the mid 20th Century. Buildings constructed after that time seem to have strong eaves or parapet lines and predominantly flat roofs. The situation in Grey Street is a mixture. Some of the roofs are original, some have been replaced to appear as original from the street and others have been replaced with flat roofs. There is no doubt that the flat roofs adversely affect the harmony of the composition, and produce an abruptly curtailed effect to each of the

buildings themselves. John Dobson Street presents a picture of unrelated buildings, and the different roof treatments merely adds to the discontinuity.

Krier's 24 types are taken as the basis for the analysis of Facade Form. The interpretation of the results is based on the following criteria. First, while it is not necessary to minimise the number of different types in a street, it should be small, in order to maintain coherence. Whereas, the number of buildings should be high, to offer interest. Incoherence is therefore best avoided, by low percentage figures for types related to the number of buildings. Secondly, the number of changes in type between adjacent buildings related to the possible number of changes, is indicative of the Architectural Framework. In a positive sense, low percentages suggest tight/passive frameworks whereas high percentages point to loose/assertive frameworks. Alternatively, the former may produce monotony and the latter may result in disorder. It is important to be aware of both the positive and negative potential from the results. (See Figures 190 - 195)

Street	Types	No of Types	Changes in type	No of buildings	% no of types/ no of buildings	% no of changes /poss no of changes
Nieuwezijds Voorburgwal	1.2	2	20	51	4	40
Grey Street East Side	1.2	2	2	17	12	12.5
Grey Street West Side	1.2	2	1	15	13	7
Hirschstrasse - Kirchstrasse	1.2.3. 12	4	10	18	22	59
John Dobson Street West Side	1.2.3. 13.23	5	4	7	71	67
John Dobson Street East Side	1.3/12 .13.23	4	3	5	80	75

Description of Types

1. Plain facade with traditional pitched roof.
2. Plain facade with flat roof.
3. Top floor set back - a device to reduce the apparent height of the building.
12. Building with ground floor arcade - can be a pleasant and useful device with careful architectural treatment.
13. Building on pilotis - one of the generic and much criticised forms of modern planning - spaces leak away and unpleasant areas are created under the building.
23. Building with projections - more emphasis on spaces between projections but can be satisfactory in appropriate conditions.

The number of types is relatively small in each case. Of these, types 1 and 2 are the most common. They represent the simplest form of facade. The only clearly detrimental form, ie 13, is found in John Dobson Street. The number of buildings reaches 51 in Nieuwezijds Voorburgwal but is as low as 7 and 5 in John Dobson Street, where the percentage of types compared with the number of buildings is also very high. The percentage changes compared with the possible number of changes, indicates a passive architectural framework in Grey Street and an assertive framework in the other cases. However, there is enough evidence to suggest that the facade form in John Dobson Street may be tending towards disorder.

Architectural Character

First, it is important to establish the Architectural Framework, which could be based on the following criteria:

Passive/Tight Framework	*Assertive/Loose Framework*
Formal	Informal
Limited number of building styles	Greater variety of styles
Limited range of materials	Greater variety of materials
Simple elevations	More elaborate facades
Minimal changes in building line	Emphatic changes in building line
Little skyline interest	Raised skyline
Broader frontages	Narrower frontages

The more clearly that a street fits into one or other category, the more distinct is the framework for the background buildings in that street. Doubts about character begin to arise where there is ambiguity. (See Figures 190 - 195)

	Nieu-wezijds Voor-burgwal	Hirsch-strasse/ Kirch-strasse	Grey Street East Side	Grey Street West Side	John Dobson Street East Side	John Dobson Street West Side
Formal/Informal	Informal A	Formal P	Formal P	Formal P	Formal P	Formal P
Number of building styles	Variety A	Limited P	Limited P	Limited P	Several A	Several A
Range of materials	Limited P	Variety A	Limited P	Limited P	Variety A	Variety A
Simple/Elaborate elevations	Elaborate A	Simple P	Elaborate A	Simple P	Simple P	Simple P
Changes in building line	Occasional P	Notice-able A	Limited P	Limited P	Consider-able A	Consider-able A
Skyline interest	Consider-able A	None P	Modest P	Limited P	Variable A	Variable A
Width of frontages	Narrow A	Broad P	Broad P	Broad P	Broad P	Broad P

From the above table of seven characteristics, it can be seen that two of the streets tend towards a passive framework, one towards an assertive framework and one is rather ambiguous, ie

	P	A	
Grey Street West Side	7	-	) Passive
Grey Street East Side	6	1	)
Hirschstrasse/Kirchstrasse	5	2	Passive
John Dobson Street West Side	3	4	) ambiguous
John Dobson Street East Side	3	4	)
Nieuwezijds Voorburgwal	2	5	Assertive

The public face of buildings is represented by their elevations. The objectives are to avoid the anonymity, confusion and disorientation evident in modular facades. Windows are important in this respect as they offer comparison with human scale and give information such as

the number of floors in the building. Windows could be considered as the eyes of a building and their absence can lead to cultural depravation. If *Krier's* 24 types of elevation are taken as the basis for analysis of background buildings, the facades in Nieuwezijds Voorburgwal are mainly in accord with the traditional notion of walls pierced with a hierarchy of openings. Occasionally the pattern is varied, but the principle holds true. A proportion of the buildings in Hirschstrasse - Kirchstrasse are also of this type. However, there is a reasonably high proportion of facades that display the advanced form of modular grid, which involves solid sections. Yet, despite this geometric form, there is always a human scale and the floor positions are particularly clear. Both sides of Grey Street are the epitome of the traditional hierarchical pierced facade, with its consistency evident throughout. Although the buildings to the East side of John Dobson Street are of different kinds, the elevational type is largely the pierced facade without the hierarchical refinements. Nevertheless, part of the street is windowless and alienating. The West side of John Dobson Street displays quite a variety of elevational types. There is a small quantity of human-scale hierarchical pierced facade, an amount of basic pierced facade and some dominating modular grid. More disturbing are two windowless buildings. These are car parks and have quite a deadening effect on the environment of the Area.

The other major aspect in the elemental analysis of facades is the entrance. At the least, entrances need to be clear, easy to see, bold and welcoming. High order examples are rarely seen in modern urban situations. They predominantly involve transitional spaces such as courtyards, gardens, steps, porches and arcades. These devices allow a fusion of public and private domains and provide a more civilised and gradual entry, avoiding the shock of the abrupt penetration from outside to inside.

In Nieuwezijds Voorburgwal, the entrances are appropriate to the scale of the buildings. Moreover, decorated doors, often with large ornate fanlights over them, confer the necessary status. Yet, perhaps more importantly, many of the entrances are reached by their own half storey-height external stairs. While these approaches may not find approval in the quest for increased accessibility, nevertheless they make grand entrances. Such devices are not apparent in Hirschstrasse - Kirchstrasse, but entries to the focal buildings are well expressed. Accessibility is a major priority in Stuttgart. Sadly, in common with many urban places, the ground floors to the background buildings are less convincing than the consistency of the upper floors. Yet, despite these comments, many of the buildings have been constructed with small arcades which operate well as transitional spaces and, as noted previously, the focal buildings open onto squares. The speculative nature of Grey Street did not allow for the luxury of squares. Thus, the entrance to the Theatre Royal is a compromise. When viewing the building from the front, the implication is that entry should be made straight under the great portico. However, the columns are arranged so that it would not be a comfortable experience, even if it were possible. The colonnade runs along the kerb of the street and entry is actually made by turning at right-angles from the pavement directly outside the building. The Theatre Royal is an overwhelming example of the need for transitional spaces, especially in front of focal buildings. Some of the entrances to the background buildings in Grey Street are significant and well-conceived, but many are part of bland shop and office fronts. The most exciting piece of townscape is the Central Arcade, which passes through the Central Exchange building. The Arcade was inserted into the existing structure in 1906, after the original interior had been destroyed by fire. In John Dobson Street, the entrances are generally neither grand nor clear. Difficulty in finding the way into large-scale, mid - late 20th Century

buildings, is a common experience. An example of an ill-conceived entrance in John Dobson Street is illustrated at the Central Library. First, it is visually uncomfortable. The location of the entrance seems arbitrary, as there appears to be no reason why it is located in that position rather than any other. Further, it actually interrupts the vertical concrete fin arrangement, two groups of which hang menacingly above it. Secondly, the entrance is not apparent from street level and it is necessary to climb up to the deck over John Dobson Street. Thirdly, it is usually locked anyway, because the library security control operates from another entrance in Princess Square.

Information from the APPLICATION OF URBAN TYPOLOGIES in the FOUR STUDY AREAS, makes direct contributions to THE POSSIBILITIES. These are summarised as follows -

<u>SQUARES</u>

<u>Sizes and Shapes</u>

. maximum 145 x 60 m (as *Sitte*)
. not square on plan
. length:width ratio = 1.07 - 3.00 (could be up to 3.50)

<u>Height of Buildings</u>

. length:height ratio = 8.5 - 1.4
. width:height ratio = 4.0 - 0.9
. larger spaces tend towards agoraphobia
  smaller spaces tend towards claustrophobia
  therefore compensation may be required, by reducing ratios in proportion to square size.

<u>Openings</u>

Size -

. larger openings produce quicker, bustling environment, eg Schiller Platz (ref S3)
. smaller openings produce secluded, quieter, slower atmosphere, eg Begijnhof (ref A4)

Frequency -

. smaller squares require fewer openings

. % opening needed to provide containment without becoming claustrophobic, and number of openings =

%	8 - 28
no	2 - 9
perimeter (m)	98 - 334

Masking -

. should be complete unless a square at the side of thoroughfare

<u>Focal Buildings</u>

. enhance the quality of squares

. squares require quality characteristics to be able to support focal buildings

Type -

. Government, Religion, Public Facilities, Law, Health Education

. most common are Religion - Church, Cathedral
Public Facilities - Museum, Public Library, Art Gallery

Size and Position -

. deep plan - focal building at end

. wide plan (most common) - focal building at side

. square entirely defined by focal buildings

<u>Topographical Situations</u>

. one square at the heart of the city

. use of natural land form, in the disposition and linkages of the squares.

. part of movement pattern, ie no cul-de-sacs

. must be located at natural ground level, especially unsuccessful if raised on artificial decks

Functions and Time Usage

. specific functions seem to be conferred by the presence of a focal building, ie no focal building = no function
. function categories = Trade, Information, Recreation, Piety
. greatest time use is associated with Recreation (day and evening), other uses are day only, and no function leads to indeterminate time usage

Good Models

Ref	Nominal size	Nominal area	Actual perimeter	Length /width	Length/ height	Width/ height	%age opening	No of openings	Openings not masked
A1 [1]	172x84	14448	548	2.05	7.0	3.4	27	11	0
A2	118x36	4248	334	3.28	8.5	2.6	28	9	0
S1	106x68	7208	332	1.56	5.7	4.0	20	7	0
S3	74x60	4440	286	1.23	3.7	3.2	22	6	2
G1 [2]	106x28	2968	265	3.79	7.2	1.9	22	7	1
A4	52x34	1768	184	1.53	4.3	2.8	10	3	0
D3 [3]	52x23	1196	151	2.26	7.4	2.2	19	3	0
A5	40x14	560	112	2.86	3.4	1.2	16	2	0
A7	30x14	420	98	2.14	3.4	1.6	8	2	2

Footnotes:
1. Square over size, but otherwise excellent characteristics.
2. Focal Building (Town Hall) now demolished.
3. Poor topographical aspects, but otherwise very good characteristics.

STREETS

Street Patterns

. must be recognisable and understandable
. a grid, adjusted to suit the topography, seems to be the most appropriate
. radial pattern creates unsurmountable difficulties for vehicles at its focus
. mixed systems create compromises which are difficult to resolve
. if organic pattern exists - its incremental growth over time seems to produce a good solution

Definitions

Width -

. two-way vehicles = 23 - 12 m
one-way vehicles = 19 - 11 m
pedestrian = 13 - 4 m

Ratios -

. length:width = 12.6 - 6.0
length:height = 16.8 - 1.7
width:height = 1.5 - 0.3

- Examples of the acceptable range within the four Study Areas -

	Nieuwezijds Voorburgwal	Eberhardstrasse	Grey Street	Northumberland Street
width	22	16	23	20
length:width	8.6	8.1	10.9	12.6
length:height	12.7	7.2	14.7	16.8
width:height	1.5	0.9	1.4	1.3

	Rokansteeg	Am Fruchtkasten	High Bridge	Northumberland Place
width	4	4	7	7
length:width	6.3	6.0	10.3	9.1
length:height	1.7	1.7	4.5	6.4
width:height	0.3	0.3	0.4	0.7

- wider streets tend towards agoraphobia and therefore it may be necessary to increase the height and/or length of the build form to compensate. Conversely, narrow streets tend towards claustrophobia and therefore compensation may be achieved by reducing the height and/or length of the built form.

Junctions

Number of Streets -

. majority of junctions involve two streets

Cross Roads -

. unrestricted cross roads with two-way movement, do not exist in any of the Study Areas
. small number of generic types, allows consistency of movement and assists motorists
  - Amsterdam Study Area is a good model, as it clarifies and articulates junctions

T Junctions -

. dominant and subordinate street
. small number of generic types, allows consistency of movement and assists motorists
  - Amsterdam Study Area is a good model

Other Forms -

. negative - large roundabouts
  - junctions which direct traffic away from the natural line of a street
. positive - creation of a square at a junction
  - 'break in direction' cross roads
  - dominant and subordinate routes indicated by width of streets

<u>Building Line</u>

Defining Space -

. definition and delineation of streets, need to be provided by buildings
. structures within the street should be avoided, ie central reservations, barriers and buildings projected over the street
. corners require - completion of the building lines
  <u>or</u> gateway provided by buildings in form of a pinchpoint
  <u>or</u> a square created by building setbacks
. setbacks along the street can provide a defined space for a focal building, but random setbacks must be avoided

Containment and Openings -

. streets not necessarily required to be consistent in width throughout their length and can narrow towards junctions - although care is required with vehicular flow in these circumstances
. streets require frequent openings to avoid claustrophobia and offer optional routes, but frequent openings can dilute necessary containment
. identification of major and minor routes, with appropriate street widths in each case
. minor routes could be marked by gateways, arches, arcades and other devices to reduce the impact of openings
. better containment is achieved if streets are curved or change direction or angle away from each other - rather than being straight

<u>Pedestrians and Vehicles</u>

Barriers -

. result from lack of spatial definition
. encourage fast traffic movement
. alienate pedestrians
. need to be avoided

Conflicts -

. intent needs to be clear - intuitively people associate wider streets with vehicles and narrower streets with pedestrians, thus -
widest streets = two-way vehicular movement
mid range = one-way vehicular movement
narrower streets = dedicated to pedestrian use
. pedestrians and vehicles need to remain in contact with the ground - vertical segregation should be avoided, ie neither user group should be elevated above the ground or plunged into it

GROUPED SPACES

. provide visual interest and variety in the spaces
. optional routes can be provided by a network of squares linked by streets with involves -
  - landmarks and focal buildings viewed from different directions
  - different kinds of entries into the same square, ie broad thoroughfare to small enclosed passage
  - major squares linked by formal streets with combinations of small informal squares, either linked directly to each other or via dynamic spaces, all within the major building blocks
  - avoidance of dead ends/cul-de-sacs

CENTRAL PLACES

. hierarchy of squares, with Government square at the apex (associated with the Town Hall). Squares range from the active to the reflective, associated with the functions of the focal buildings -

Recreation, Trade	-	active
Information	-	cultural
Piety	-	reflective

BUILDINGS

Focal and Background Buildings

Uses -

FOCAL	BACKGROUND
Public	Private/Public
Unique Styles of High Culture	Vernacular (or recognised style with unity, harmony, respect for context)
Government	Residence
Religion	Employment
Public Facilities - museum, library, art gallery	Leisure Shopping
Law	
Health	
Education	

Layout and Form

. focal buildings require a square to their main entrance
. background buildings should define and contain urban space, including corners which can include variations such as -
  - raising/lowering building height
  - corner pavilions
  - features such as turrets
. focal buildings need not be physically attached to the background frame but visual overlap/masking of views out - necessary to avoid visual detachment from frame
. plan depth -
  - focal buildings - deep plan say 16 - 50 m
  - background buildings - 8 - 16 m
. external wall:building frontage ratio -
  - focal buildings - less critical, say 2.5 - 8
  - background buildings 2.1 - 2.4
. heights -
  - cross-reference with square/street requirements but normally 4 - 5 storey (14 - 17.5 m)
  - exceptions - at corners
    - spires, small gables, etc
    - assertive architectural frame-work (see next section)
. expression of roof form -
  - enveloping nature produces comforting psychological effect
  - helps to identify individual buildings
. facade form -
  - number of different types in a street/square should be small, to maintain coherence
  - number of buildings in a street, should be high to offer interest, therefore -

$$\frac{\text{no of types}}{\text{no of buildings}} = \text{low \% say} < 25\%$$

$$\frac{\text{no of changes in type}}{\text{poss no of changes in type}} = \text{indication of architectural framework}$$

low % say < 40% = passive framework or monotony

high % say > 40% = assertive framework or disorder

- most common types -
  - plain facade with traditional pitched roof
  - plain facade with flat roof
  - top floor set back - device to reduce apparent height of building
  - <u>avoid</u> - building on pilotis and other complex devices

<u>Architectural Character</u>

Architectural Framework -

<u>PASSIVE/TIGHT FRAMEWORK</u>	<u>ASSERTIVE/LOOSE FRAMEWORK</u>
formal	informal
limited number of building styles	greater variety of building styles
limited range of materials	greater variety of materials
simple elevations	more elaborate facades
minimal changes in building line	emphatic changes in building line
little skyline interest	raised skyline
broader frontages	narrower frontages

<u>Results</u> Grey Street - passive

John Dobson Street - ambiguous x

Facade/Elevations -

. avoid anonymity (confusion and disorder evident in modular facades)

. windows - comparison with human scale
- eyes of a building - absence leads to cultural deprivation

- background buildings -
  - walls pierced with hierarchy of openings
  - advanced modular grid with solid sections can be satisfactory, provided human scale and floor positions are evident
  - basic pierced facade usually too bland

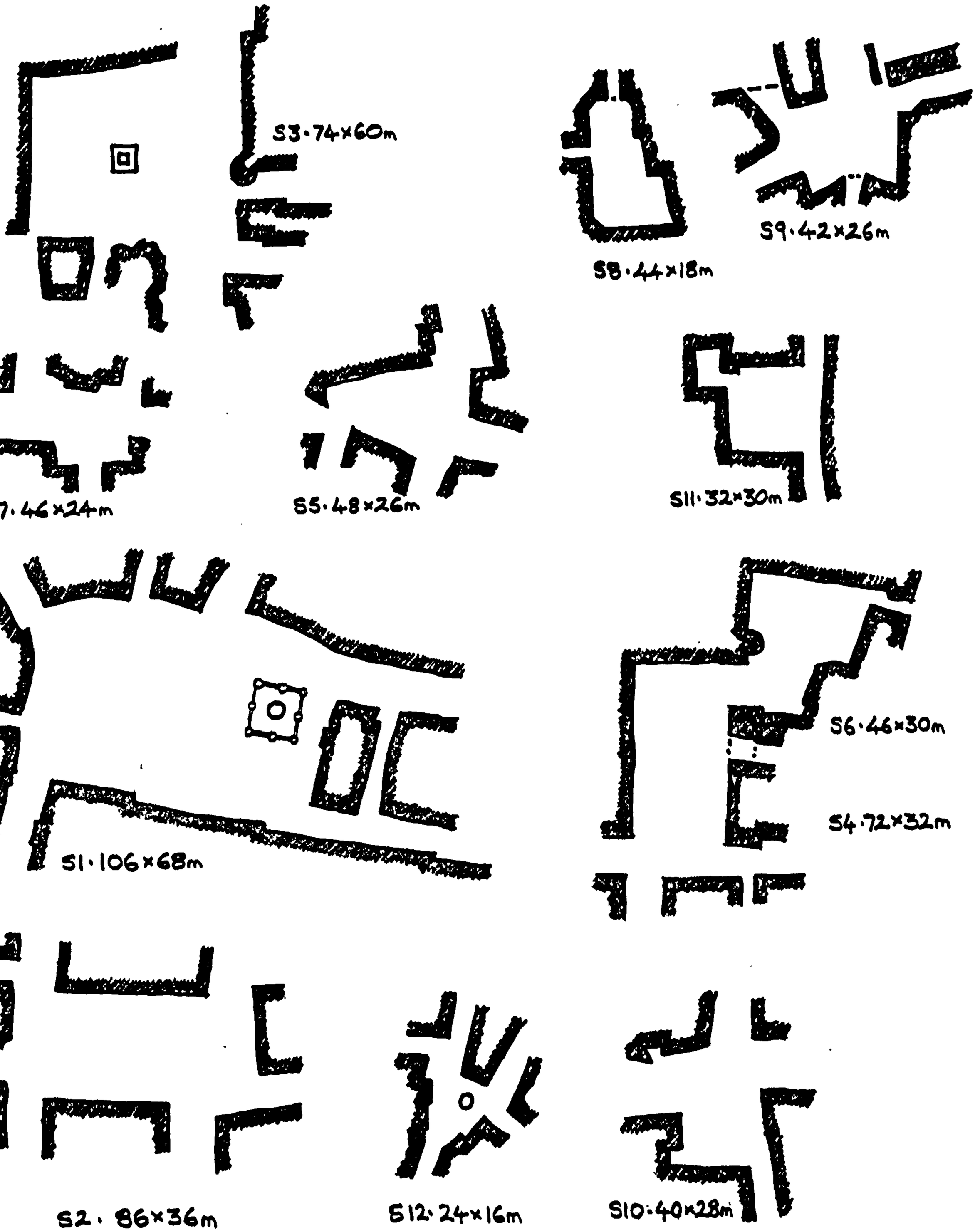
Entrances -

. need to be welcoming, clear, bold, easy to see and perhaps decorated - 'a celebration'

. transitional spaces are greatly advantageous and include - courtyards, gardens, external steps (possible problem with accessibility), porches, arcades

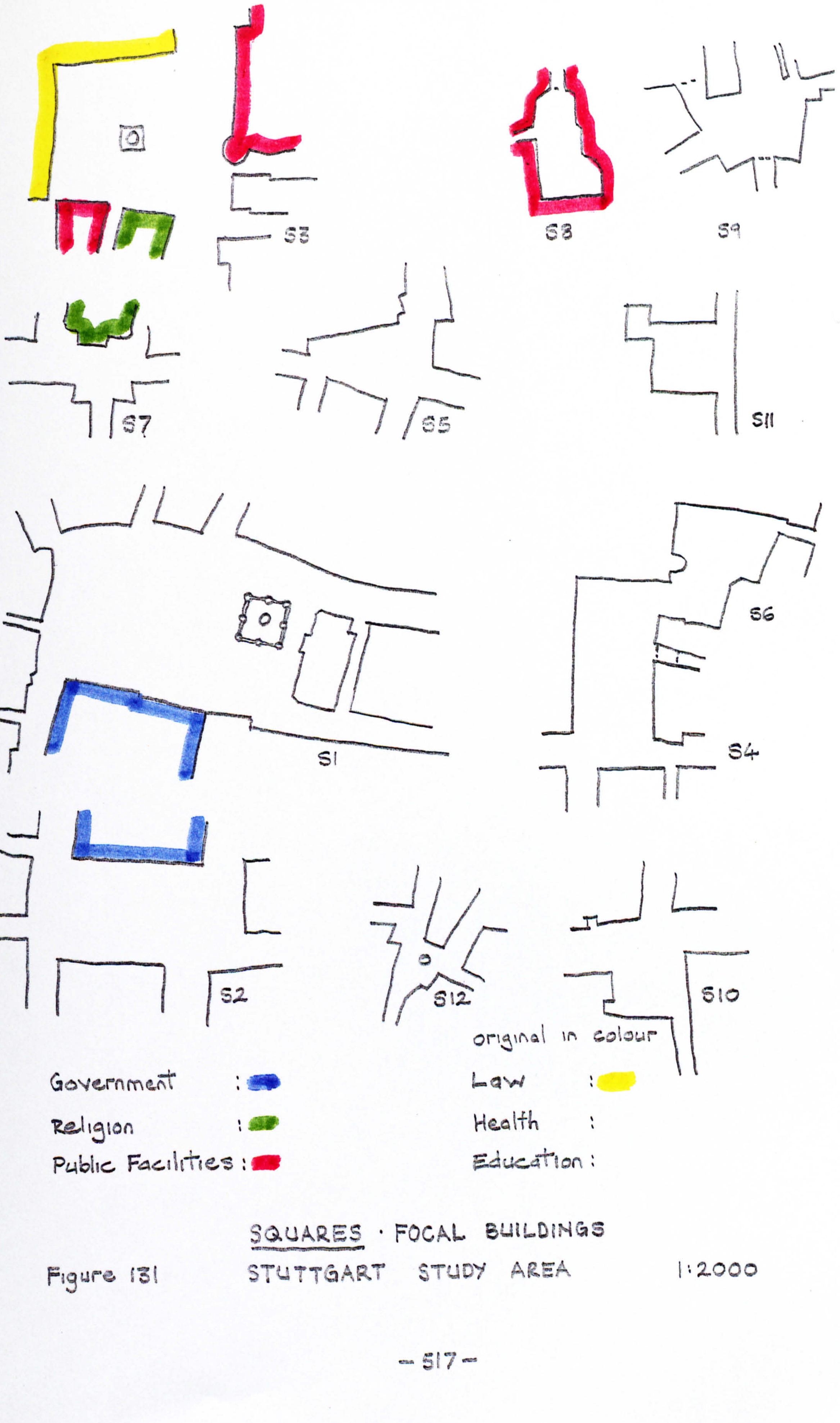
. focal building entrances via squares

. background buildings - care required with ground floor design - tend to be the most frequently altered part of the facade and can therefore lack consistency



SQUARES

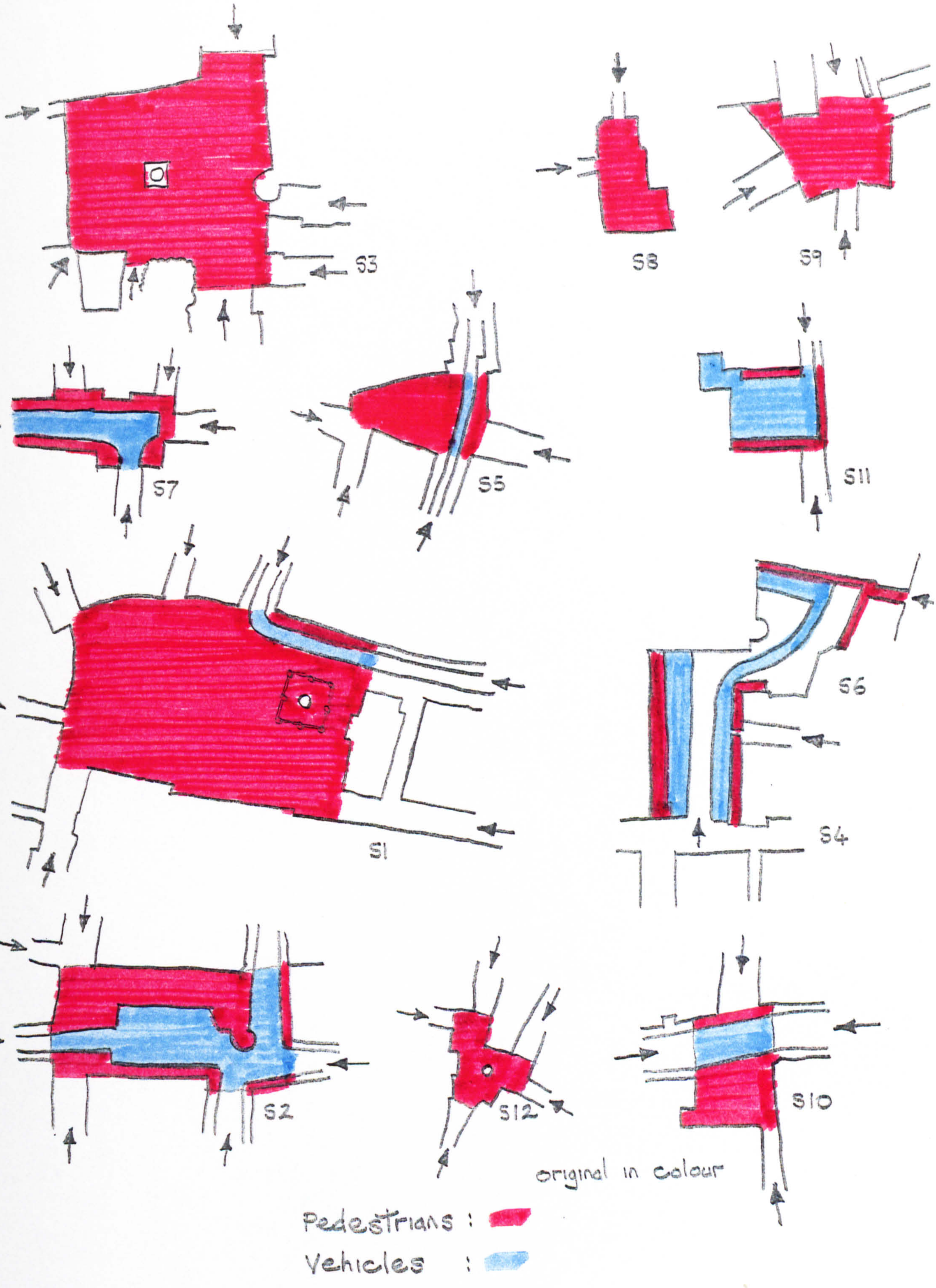
Figure 130 STUTTGART STUDY AREA 1:2000



original in colour

Government :
Religion :
Public Facilities :
Law :
Health :
Education :

Figure 131 SQUARES · FOCAL BUILDINGS
STUTTGART STUDY AREA 1:2000



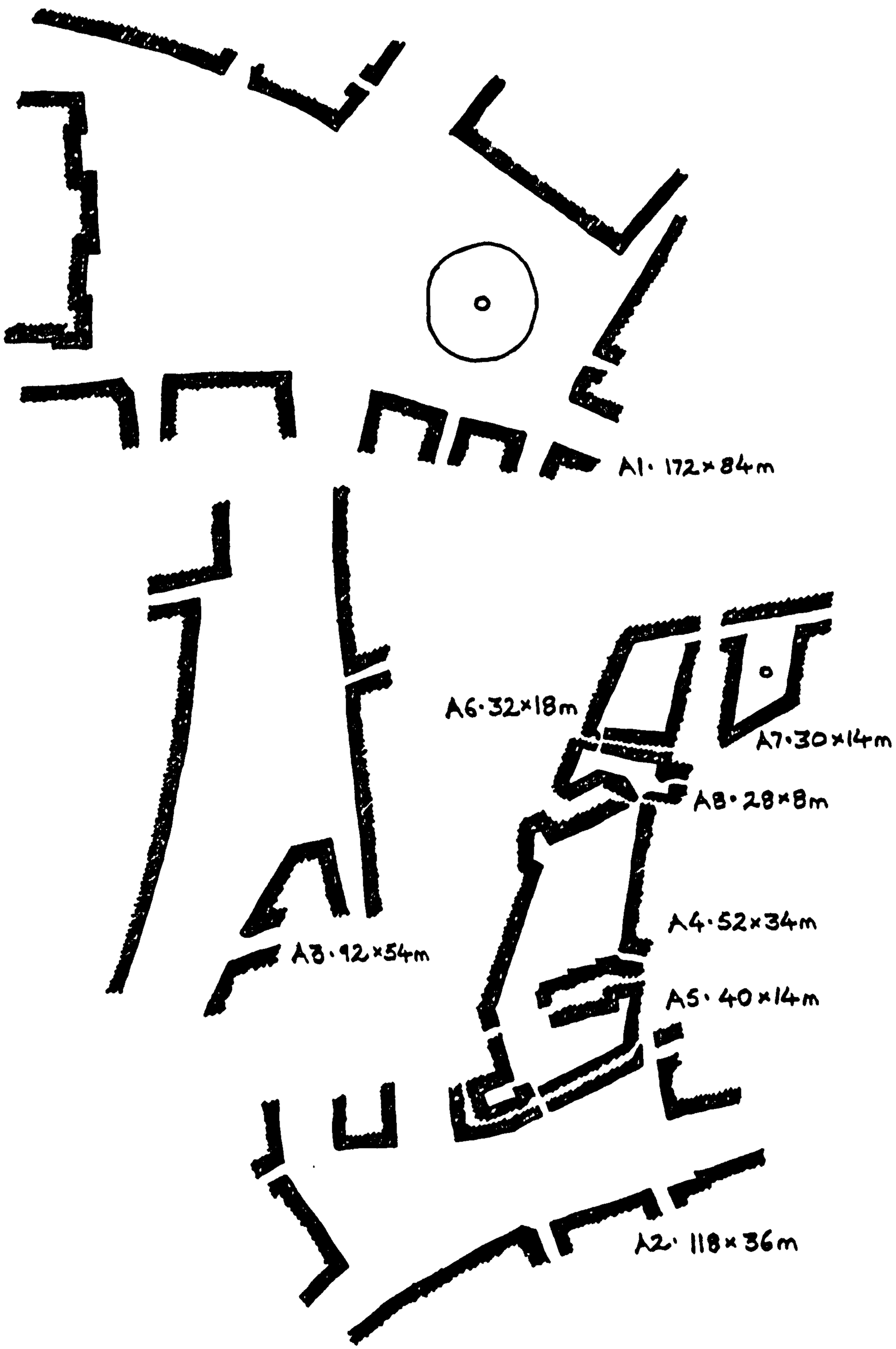
original in colour

Pedestrians :

Vehicles :

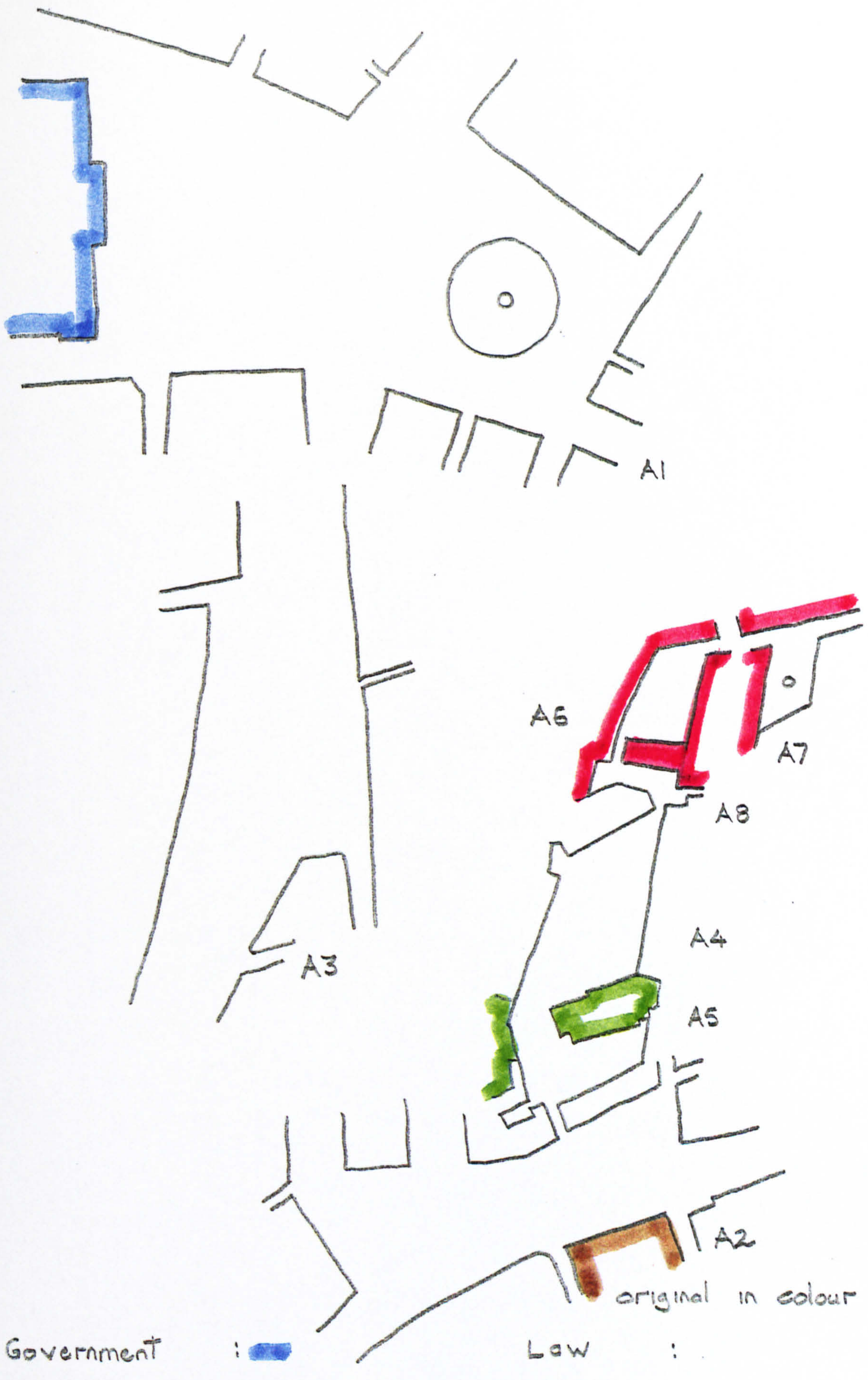
SQUARES · PROVISION FOR PEDESTRIANS + VEHICLES

Figure 132 STUTTGART STUDY AREA 1:2000



SQUARES

Figure 133 AMSTERDAM STUDY AREA 1:2000

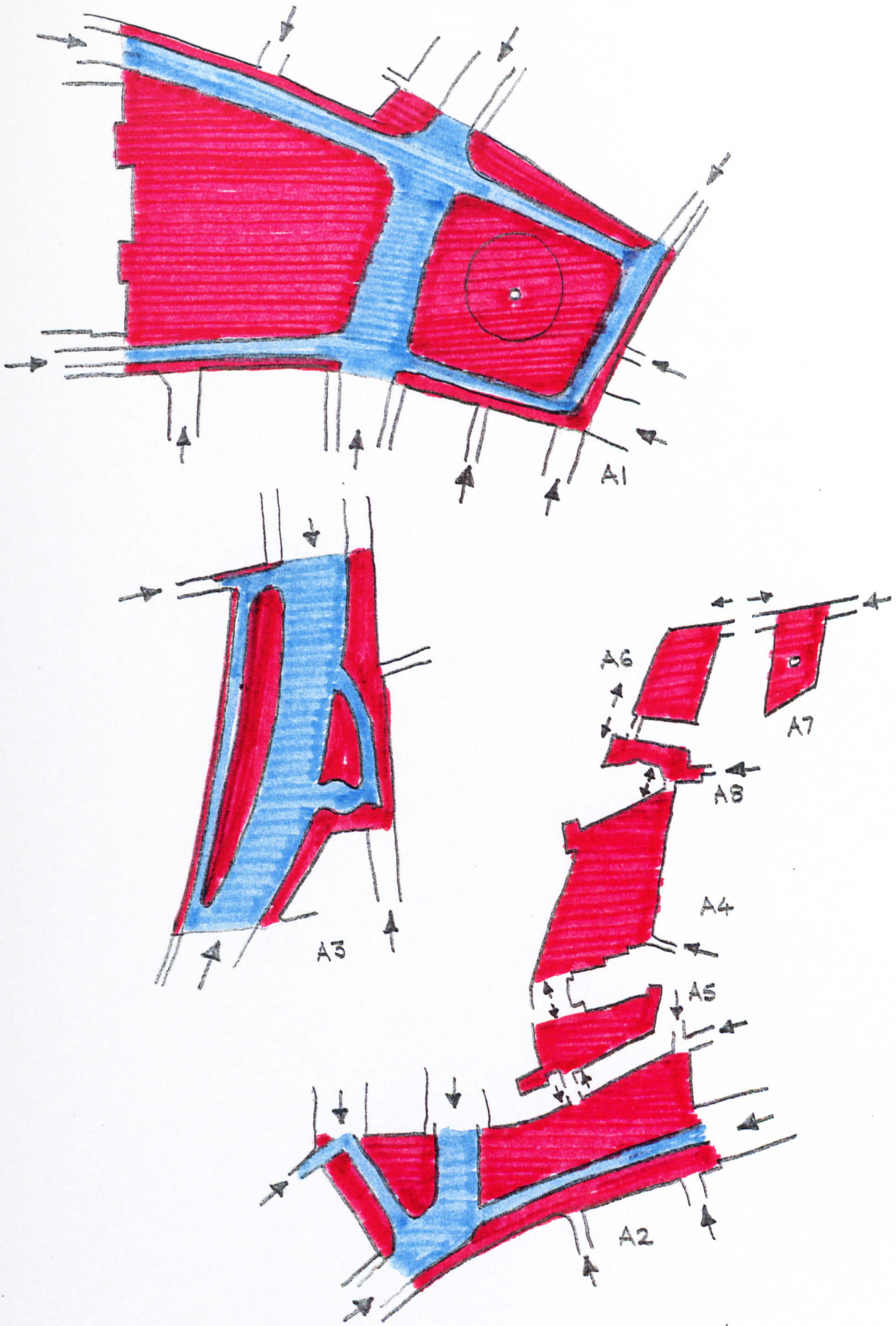


original in colour

Government :
Religion :
Public Facilities :
Law :
Health :
Education :

SQUARES · FOCAL BUILDINGS

Figure 134 AMSTERDAM STUDY AREA 1:2000



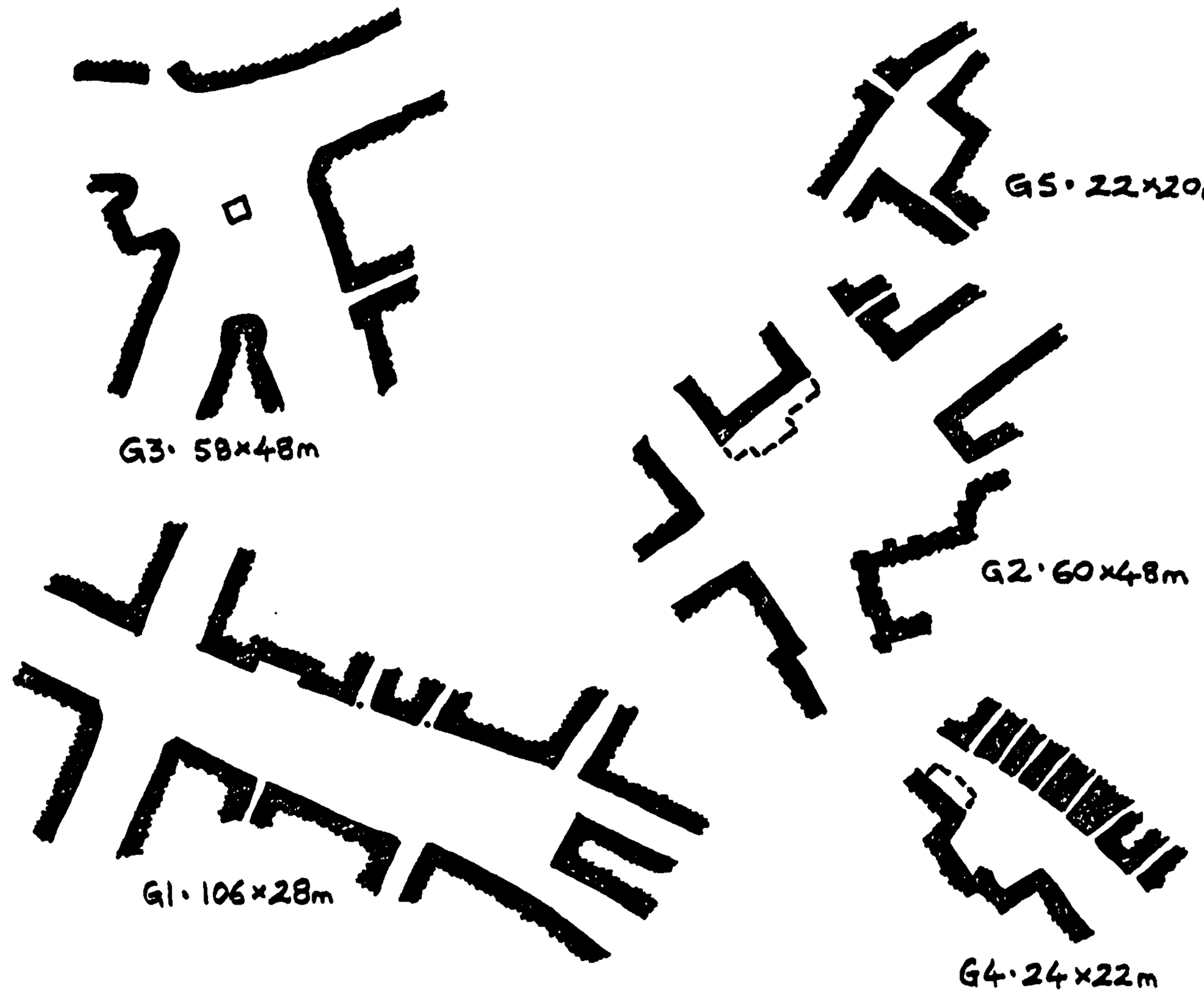
original in colour

Pedestrians :

Vehicles :

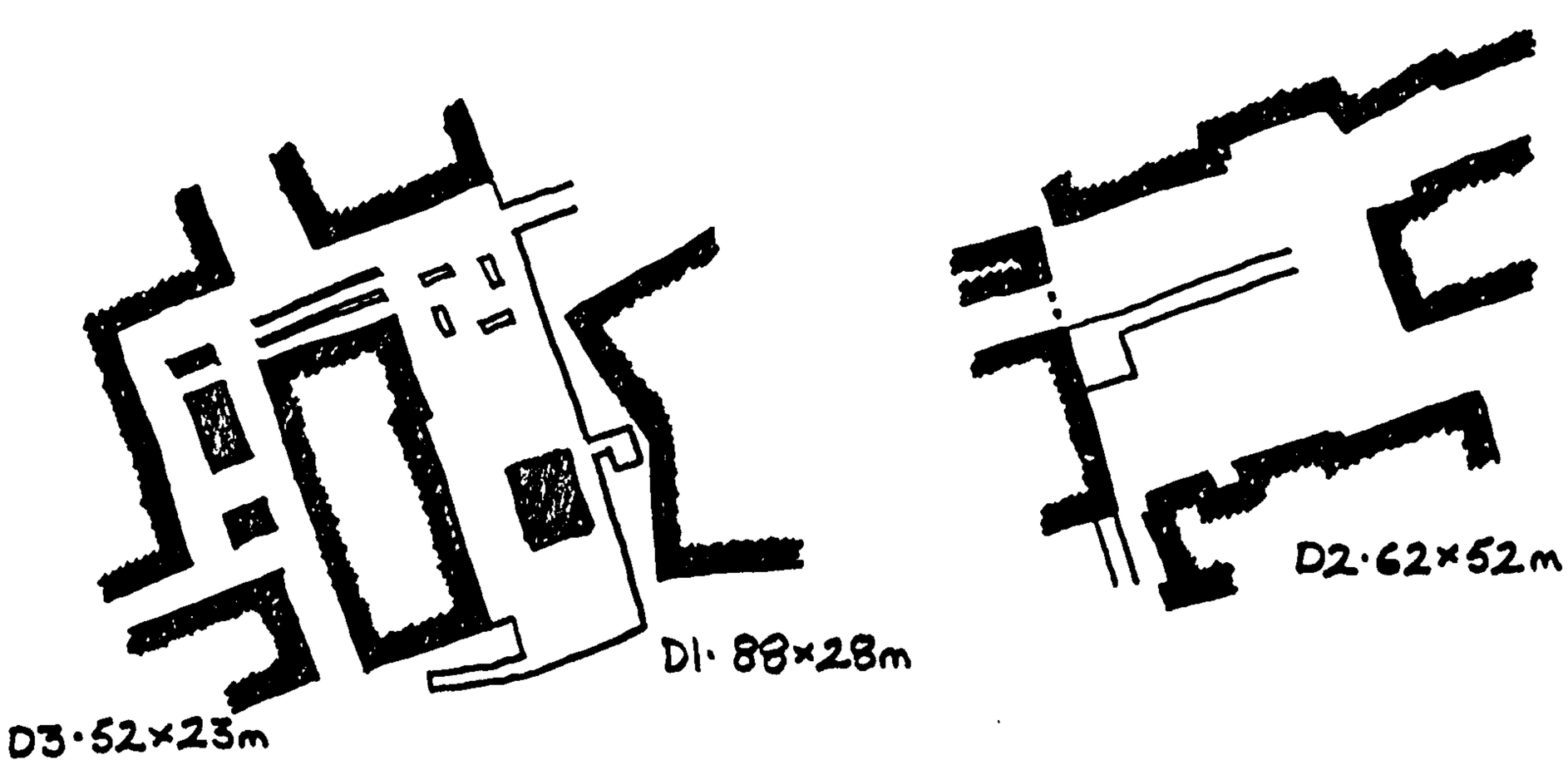
SQUARES · PROVISION FOR PEDESTRIANS + VEHICLES

Figure 135 AMSTERDAM STUDY AREA 1:2000



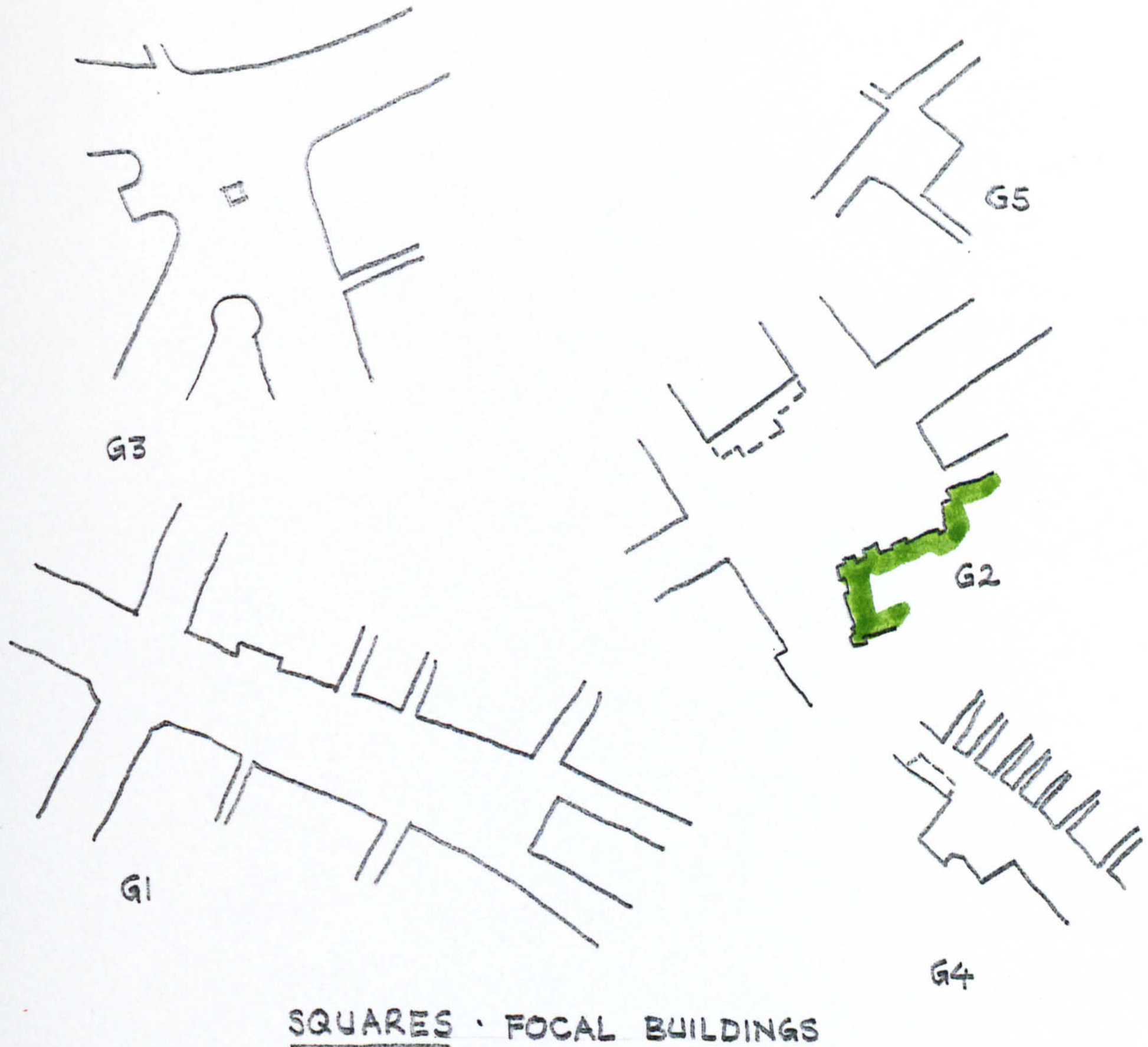
SQUARES

Figure 136 GREY STREET STUDY AREA 1:2000



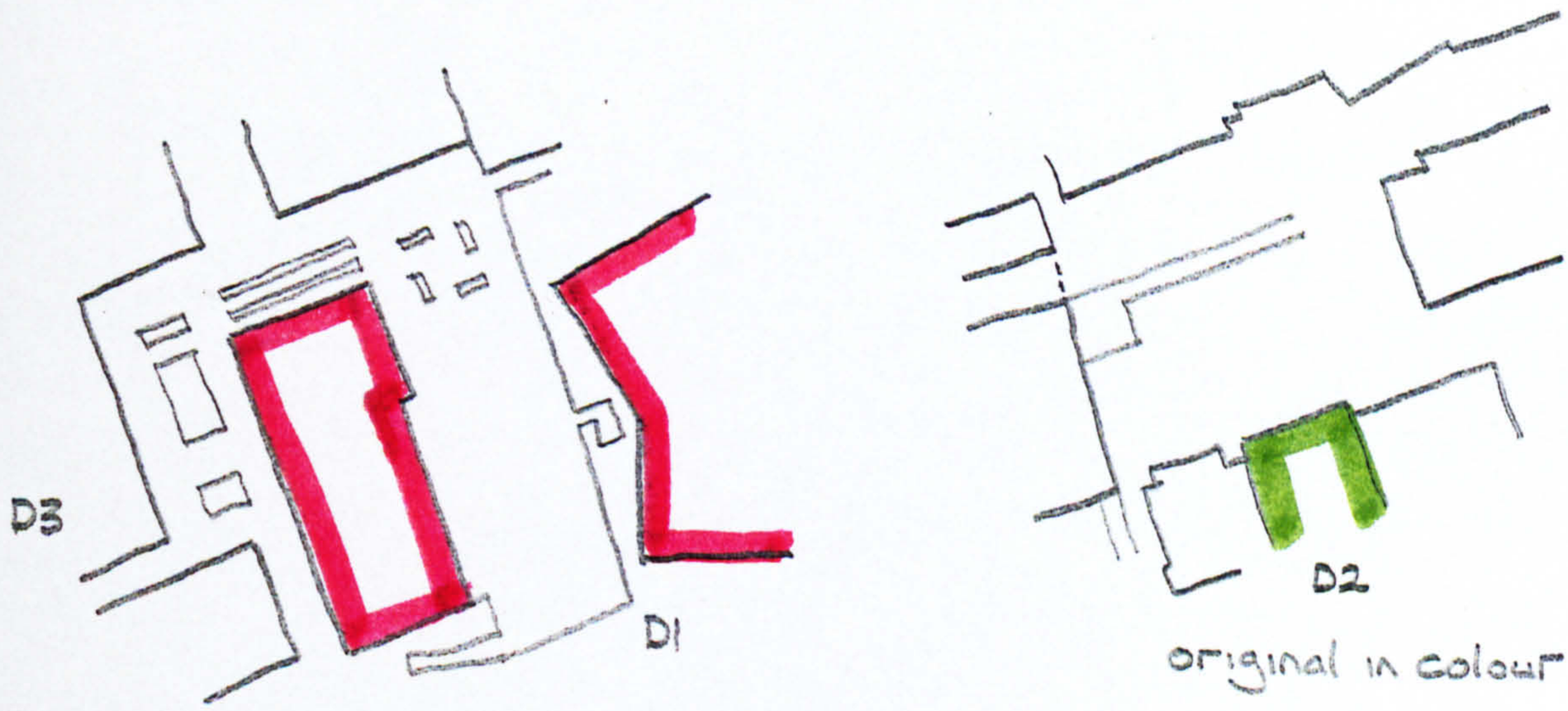
SQUARES

Figure 137 JOHN DOBSON STREET STUDY AREA 1:2000



SQUARES · FOCAL BUILDINGS

Figure 138 GREY STREET STUDY AREA 1:2000

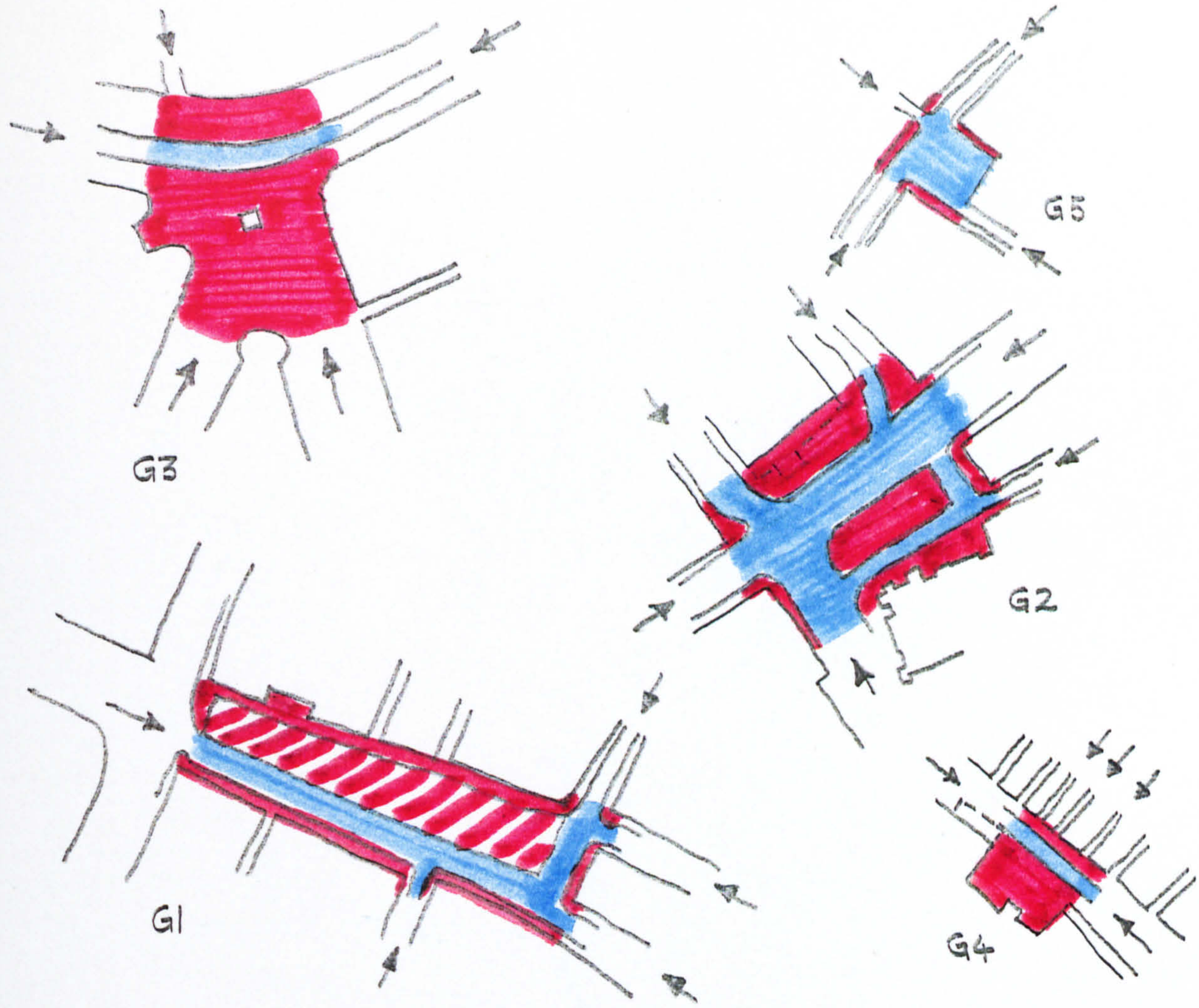


original in colour

Government :
Religion :
Public Facilities :
Law :
Health :
Education :

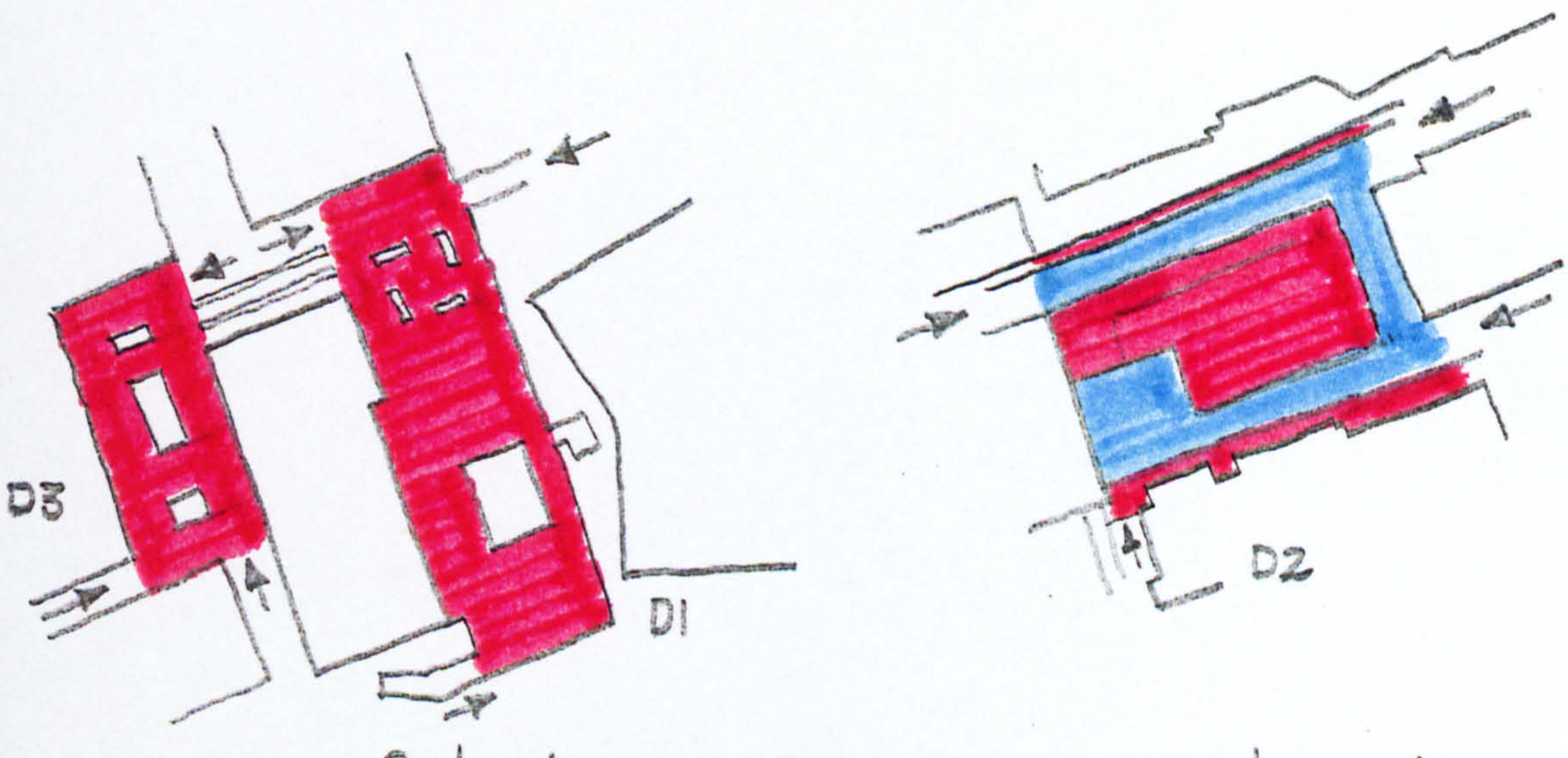
SQUARES · FOCAL BUILDINGS

Figure 139 JOHN DOBSON STREET STUDY AREA 1:2000



SQUARES · PROVISION FOR PEDESTRIANS + VEHICLES

Figure 140 GREY STREET STUDY AREA 1:2000



Pedestrians :

Vehicles :

original in colour

SQUARES · PROVISION FOR PEDESTRIANS + VEHICLES

Figure 141 JOHN DOBSON STREET STUDY AREA 1:2000

Ref	Nominal Size	Nominal Area	Actual Perimeter	Length : Width	Length : Height	Width : Height	%tage Opening	no of Openings	Openings not masked
A1	172x84	14448	548	2.05	7.0	3.4	27	11	0
A2	118x36	4248	334	3.28	8.5	2.6	28	9	0
S1	106x68	7208	332	1.56	5.7	4.0	20	7	0
A3	92x54	4968	297	1.70	6.1	3.6	32	5	2
S3	74x60	4440	286	1.23	3.7	3.2	22	6	2
G1	106x28	2968	265	3.79	open	1.9	22	5	1
S2	86x36	3096	248	2.39	4.8	2.0	31	6	2
D2	62x52	3224	229	1.19	3.5	3.7	10	4	0
G3	58x48	2784	218	1.21	3.6	3.0	40	5	0
D1	88x28	2464	215	3.14	open	2.7	35	3	3
S4	72x32	2304	211	2.25	4.1	2.3	23	5	2
G2	60x48	2880	205	1.25	4.0	2.3	43	6	4
A4	52x34	1768	184	1.53	4.3	2.8	10	3	0
S9	42x26	1092	163	1.62	2.4	1.2	36	5	2
S6	46x30	1380	161	1.53	3.3	2.1	11	2	0
D3	52x23	1196	151	2.26	7.4	2.2	19	3	0
S7	46x24	1104	141	1.92	3.3	1.7	35	5	2
S5	48x26	1248	139	1.85	4.6	2.5	35	4	0
S10	40x28	1120	134	1.42	2.2	1.6	40	4	2
S8	44x18	792	130	2.44	2.3	0.9	6	2	0
S11	32x30	960	121	1.07	2.3	1.7	13	3	2
A5	40x14	560	112	2.86	3.4	1.2	16	2	0
S12	24x16	384	103	1.50	1.4	0.9	36	5	0
G4	24x22	528	99	1.09	2.3	2.1	32	5	2
A7	30x14	420	98	2.14	3.4	1.6	8	2	2
A6	32x18	576	92	1.78	3.4	1.9	5	2	0
A8	28x 8	224	86	3.50	3.2	0.9	8	3	0
G5	22x20	440	82	1.10	1.6	1.9	22	4	0

Note: A . Amsterdam Study Area
S . Stuttgart Study Area
G . Grey Street Study Area
D . John Dobson Street Study Area

SQUARES

Figure 142 SUMMARY SHEET FOR STUDY AREAS

Ref	Good Pedes-trian Access	Pedes-trian through routes	Good vehicular access	Vehicular through routes	Dominated by Vehicles	Avoids Conflicts Pedes-trians/ Vehicles	Summary
A1	✓	✓	✓	✓	✓	✓	✓
A2	✓	✓	✓	✓	✓	✓	✓
S1	✓	✓	✓	✓	✓	✓	✓
A3	✓	✓	✓	✓	x	x	x
S3	✓	✓	NA	NA	✓	✓	✓
G1	✓	✓	✓	✓	✓	✓	✓
S2	✓	✓	✓	✓	x	x	x
D2	x	x	x	x	✓	✓	x
G3	✓	✓	x	x	✓	✓	x
D1	x	x	NA	NA	✓	✓	x
S4	x	x	✓	x	x	✓	x
G2	✓	✓	✓	✓	x	x	x
A4	✓	✓	NA	NA	✓	✓	✓
S9	✓	✓	NA	NA	✓	✓	✓
S6	x	x	✓	x	x	✓	x
D3	✓	✓	NA	NA	✓	✓	✓
S7	✓	✓	✓	x	x	x	x
S5	✓	✓	✓	✓	✓	✓	✓
S10	✓	✓	✓	✓	x	x	x
S8	x	✓	NA	NA	✓	✓	x
S11	x	✓	✓	x	x	x	x
A5	✓	✓	✓	✓	✓	✓	✓
S12	x	✓	NA	NA	✓	✓	x
G4	✓	✓	x	✓	✓	✓	x
A7	✓	✓	NA	NA	✓	✓	✓
A6	✓	✓	NA	NA	✓	✓	✓
A8	✓	✓	NA	NA	✓	✓	✓
G5	✓	✓	x	✓	x	✓	x

Figure 143 ANALYSIS OF PROVISION FOR PEDESTRIANS AND VEHICLES

Ref	Focal Building(s)	Pedestrians and Vehicles	Functions and Time Usage	Subjective Well-Being	Overall Solution
A1	✓	✓	✓✓	✓	✓
A2	✓	✓	✓✓	✓	✓
S1	✓	✓	✓✓	✓	✓
A3	x	x	✓	x	x
S3	✓✓✓	✓	✓✓	✓	✓
G1	demolished	✓	✓	✓	✓
S2	✓	x	x	x	x
D2	✓	x	✓	x	x
G3	x	x	✓	x	x
D1	✓	x	x	x	x
S4	x	x	x	✓	x
G2	✓	x	✓	x	x
A4	✓	✓	✓	✓	✓
S9	x	✓	x	x	x
S6	x	x	x	x	x
D3	✓	✓	✓	✓	✓
S7	✓	x	✓	x	x
S5	x	✓	✓	x	x
S10	x	x	x	x	x
S8	✓	x	✓	x	x
S11	x	x	x	✓	x
A5	✓	✓	✓	✓	✓
S12	x	x	x	x	x
G4	x	x	x	x	x
A7	✓	✓	✓	✓	✓
A6	✓	✓	✓	x	x
A8	✓	✓	x	x	x
G5	x	x	x		x

SQUARES

Figure 144 EVALUATION SHEET FOR STUDY AREAS

Name	Length	Width	Length : Width	Length : Height	Width : Height	Vehicle/ Pedes-trian
GREY STREET AREA						
Pilgrim Street	155	25	6.2	9.1	1.5	V x 2
Grey Street	250	23	10.9	14.7	1.4	V x 2
Blackett Street	73	21	3.5	4.3	1.2	V x 2
Grainger Street	130	19	6.8	7.6	1.1	V x 2
Market Street	76	19	4.0	4.8	1.2	V x 2
Hood Street	75	16	4.7	4.4	0.9	V x 1
Groat Market	114	14	8.1	10.4	1.3	V x 1
Cloth Market	70	14	5.0	6.4	1.3	V x 1
High Bridge	72	7	10.3	4.5	0.4	V x 1
High Friar Lane	75	5	15.0	4.4	0.3	P

STREETS

Figure 145 SUMMARY SHEET FOR GREY STREET STUDY AREA

Name	Length	Width	Length : Width	Length : Height	Width : Height	Vehicle/ Pedes-trian
JOHN DOBSON STREET						
Durant Road	200	*	*	*	*	V x 2
John Dobson Street	120	32?	3.8	*	*	V x 2
Pilgrim Street	110	25	4.4	6.5	1.5	V x 2
Northumberland Street	252	20	12.6	16.8	1.3	P
Market Street	130	19	6.8	8.1	1.2	V x 2
Northumberland Road	120	19	6.3	8.0	1.3	V x 1
New Bridge Street	110	19	5.8	7.3	1.3	V x 2
College Street	110	17	6.5	11.0	1.7	V x 2
Higham Place	72	12	6.0	7.2	1.2	V x 2
Saville Row	110	11	10.0	11.0	1.1	P
Oxford Street	60	8	7.5	10.0	1.3	V x 2
Lisle Street	65	7	9.3	4.3	0.5	V x 1
Northumberland Place	64	7	9.1	6.4	0.7	P

* Insufficient Definition

STREETS

Figure 146 SUMMARY SHEET FOR JOHN DOBSON STREET STUDY AREA

Name	Length	Width	Length : Width	Length : Height	Width : Height	Vehicle/ Pedes-trian
AMSTERDAM						
*Rokin	400	42	9.5	21.0	2.2	V x 2
Nieuwezijds Voorburgwal	190	22	8.6	12.7	1.5	V x 2
Spuistraat	370	19	19.5	24.7	1.3	V x 1
Paleisstraat	75	19	3.9	3.9	1.0	V x 1
Spui	50	11	4.5	3.8	0.8	V x 1
Kalverstraat	410	8	51.3	31.5	0.6	P
Wijdesteeg	52	6	8.7	3.7	0.4	V x 1
Wijde Kapelsteeg	46	6	7.7	4.2	0.5	P
Rozmarijnsteeg	36	6	6.0	3.0	0.5	V x 1
Gedempte/Begijnensloot	90	5	18.0	9.0	0.5	P
Begijnensteeg	40	5	8.0	4.0	0.5	P
Sint Luciensteeg	50	4	12.5	4.2	0.3	P
Taksteeg	50	4	12.5	3.8	0.3	P
Watersteeg	50	4	12.5	3.6	0.3	P
Enge Kapelsteeg	46	4	11.5	4.2	0.4	P
Rozenroomsteeg	36	4	9.0	2.4	0.3	P
Roskamsteeg	25	4	6.3	1.7	0.3	P
Jonge Roelensteeg	75	3	25.0	5.8	0.2	P
Papenbroeksteeg	41	3	13.7	1.6	0.1	P
Gapersteeg	39	3	13.0	3.0	0.2	P
Duifjessteeg	44	2	22.0	3.4	0.2	P
Spaarpotsteeg	40	2	20.0	3.0	0.2	P

Note * Street + car parking, due to width of former canal

STREETS

Figure 147 SUMMARY SHEET FOR AMSTERDAM STUDY AREA

Name	Length	Width	Length : Width	Length : Height	Width : Height	Vehicle/ Pedes-trian
STUTTGART						
Dorotheenstrasse	80	30	2.7	4.2	1.6	V x 2
Steinstrasse	72	18	4.0	4.0	1.0	V x 1
Breitestrasse	60	18	3.3	3.3	1.0	V x 2
Eberhardstrasse	130	16	8.1	7.2	0.9	V x 2
Marktstrasse	60	16	3.8	4.0	1.1	V x 1
Eichstrasse	46	14	3.3	2.2	0.7	V x 1
Schmalestrasse	88	13	6.8	4.9	0.7	V x 1
Hirschstrasse	82	13	6.3	3.9	0.6	P
Munzstrasse	45	13	3.5	2.6	0.8	V x 1
Sporerstrasse	70	12	5.8	5.0	0.9	P
Neue Brucke	46	12	3.8	2.6	0.7	V x 1
Stiftstrasse	105	11	9.5	5.3	0.6	P
Nadlerstrasse	85	11	7.7	5.7	0.7	V x 1
Kirchstrasse	46	11	4.2	2.7	0.6	P
Rathauspassage	66	10	6.6	4.4	0.7	P
Bebenhauser	48	8	6.0	3.4	0.6	V/P
Unter der Mauer	24	8	3.0	1.6	0.5	V x 2
Turmstrasse	15	8	1.9	1.9	1.0	V x 1
Schulstrasse	110	7	15.7	7.3	0.5	P
Topferstrasse	56	7	8.0	3.7	0.5	P
Geissstrasse	34	7	4.9	2.3	0.5	P
Barenstrasse	45	6	7.5	2.6	0.4	P
Am Fruchtkasten	24	4	6.0	1.7	0.3	P

STREETS

Figure 148 SUMMARY SHEET FOR STUTTGART STUDY AREA

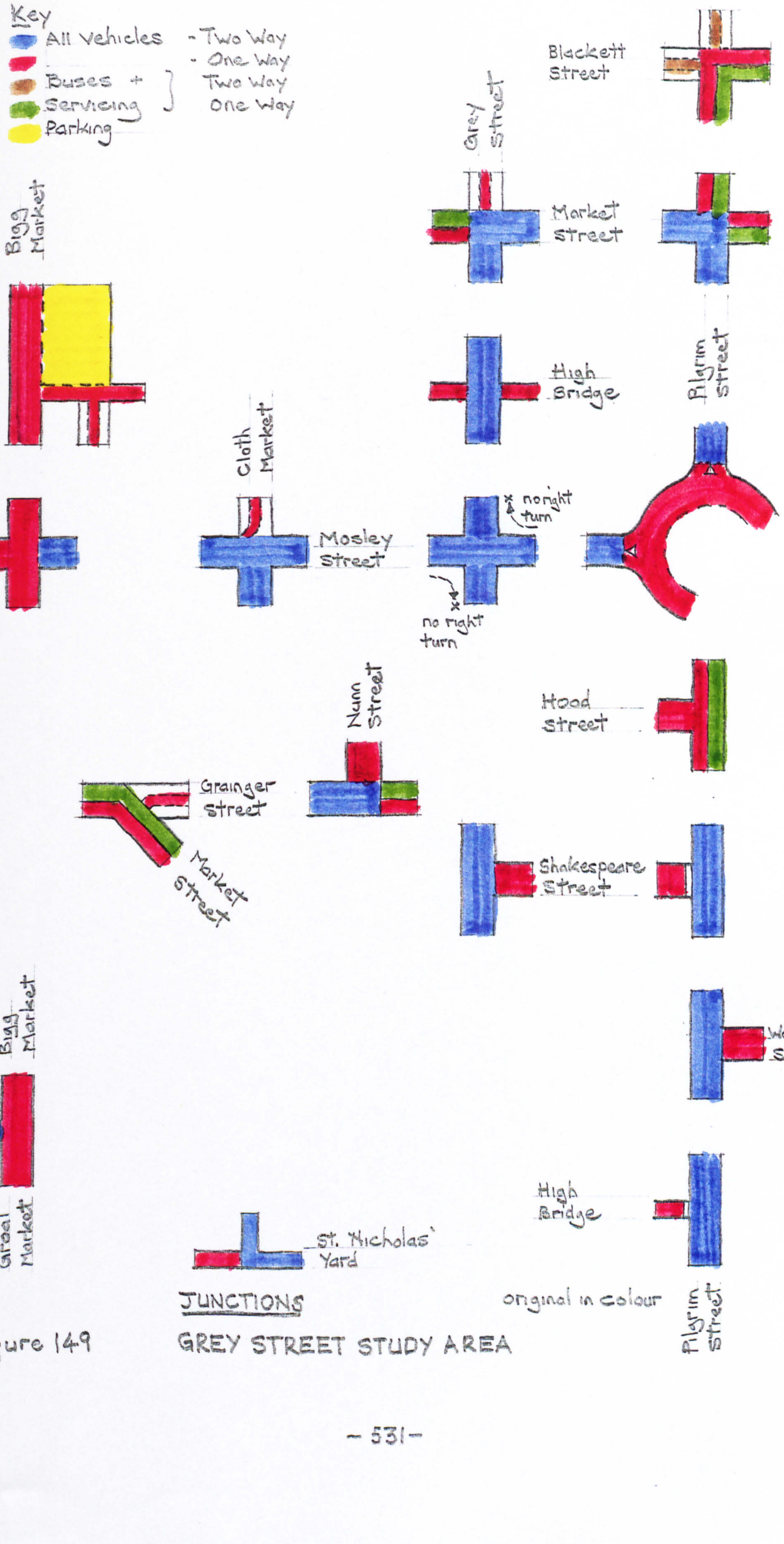
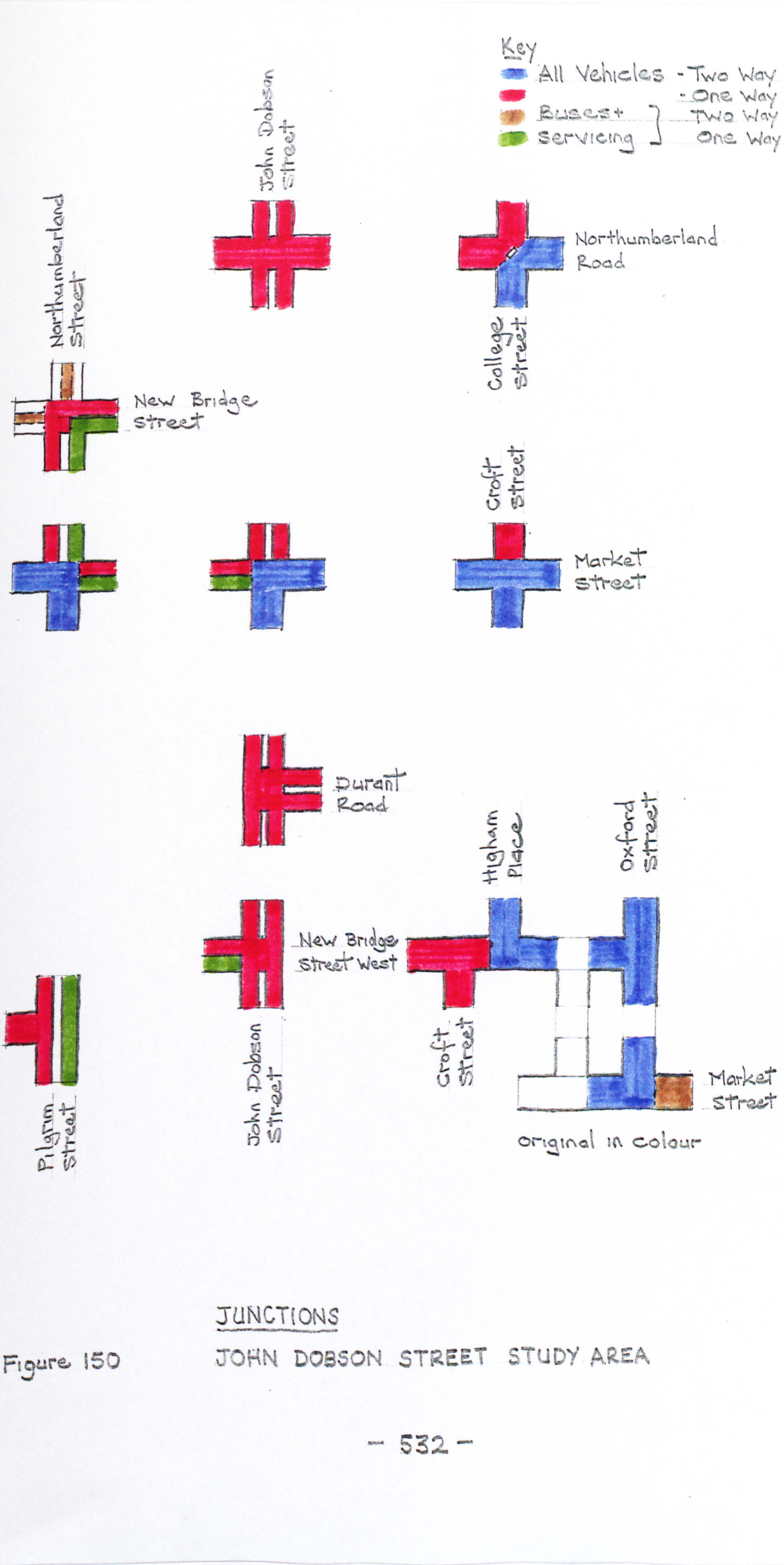
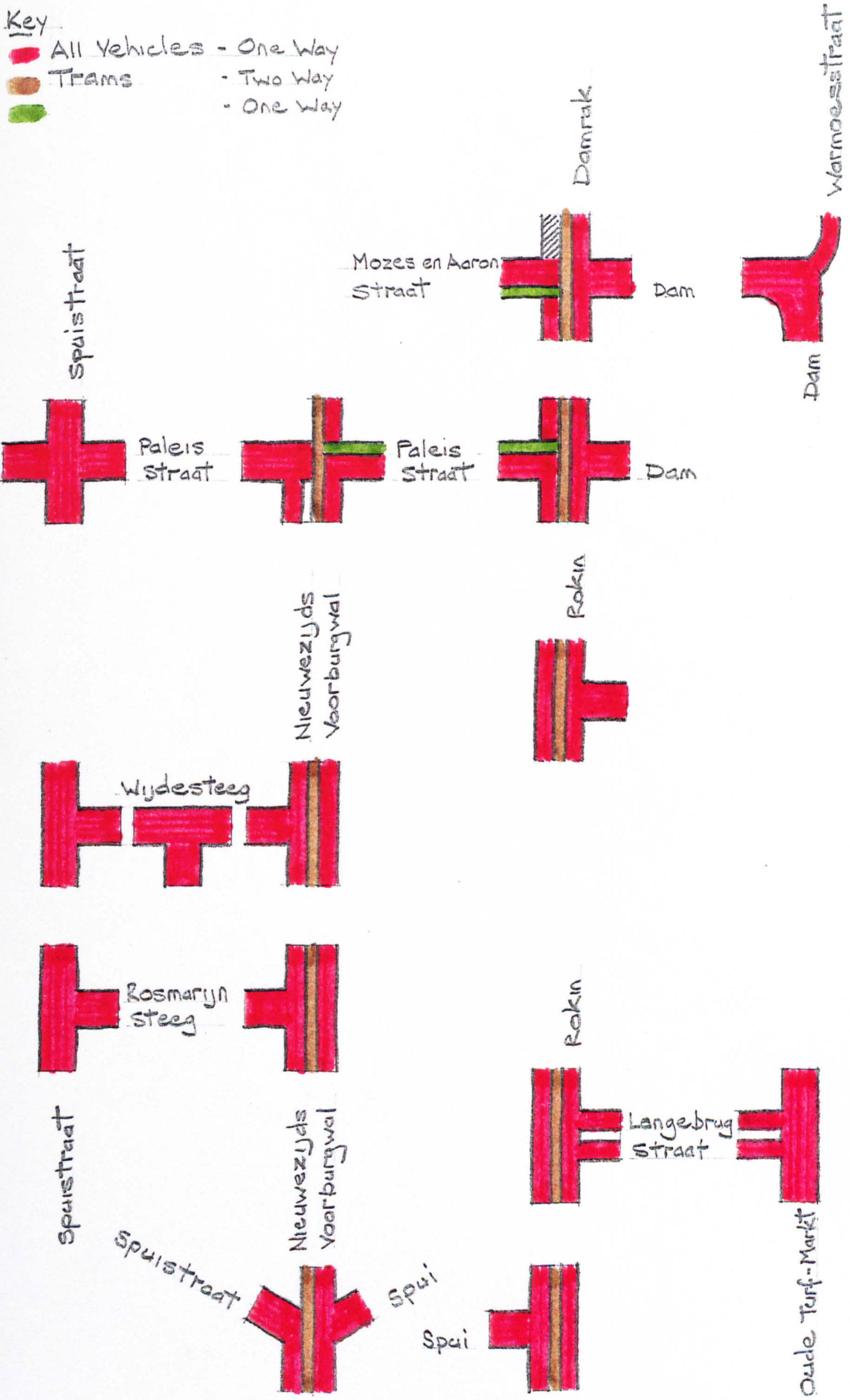


Figure 149 GREY STREET STUDY AREA



JUNCTIONS

Figure 150 JOHN DOBSON STREET STUDY AREA



original in colour

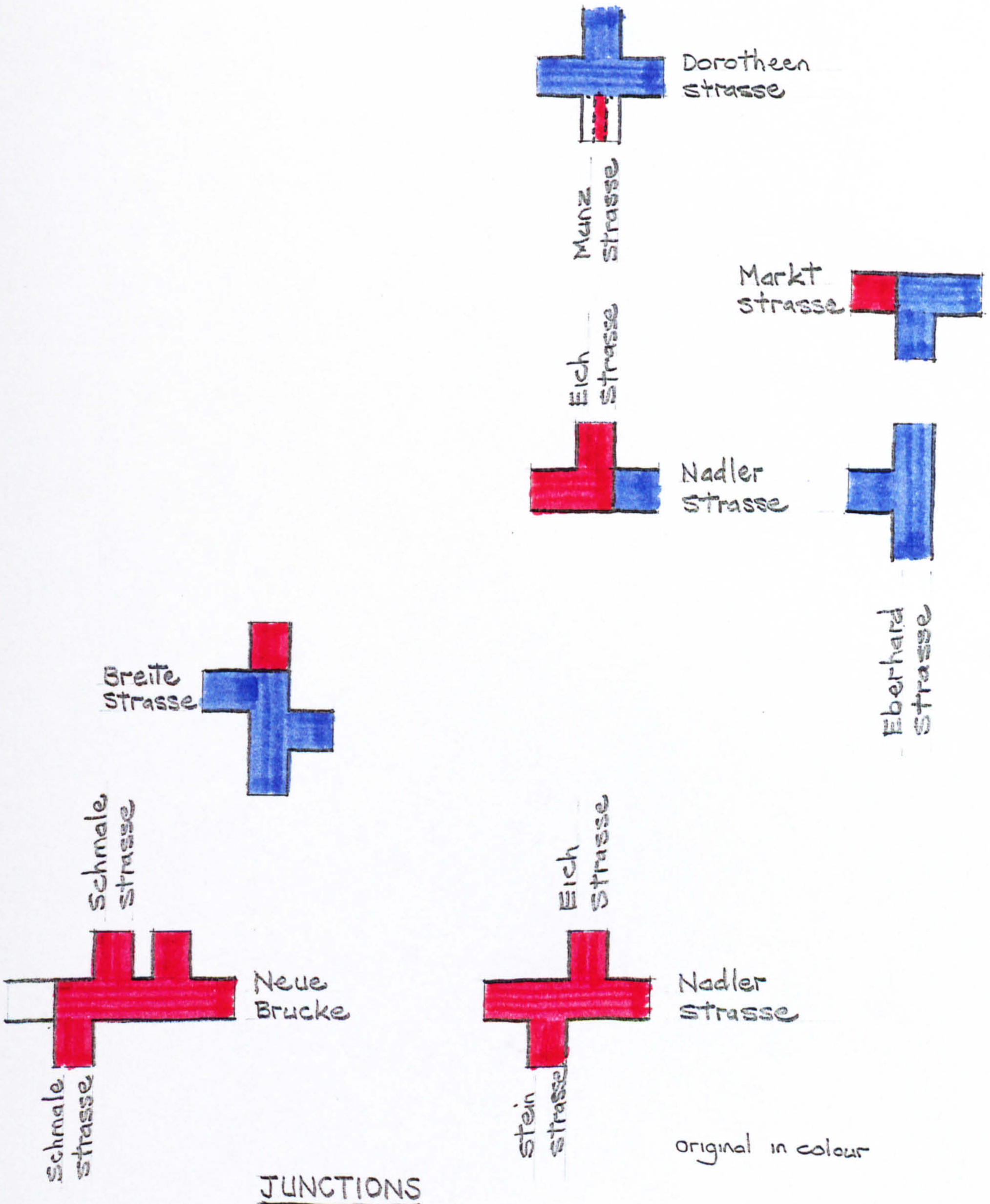
JUNCTIONS

Figure 151 AMSTERDAM STUDY AREA

Key

All Vehicles - Two Way

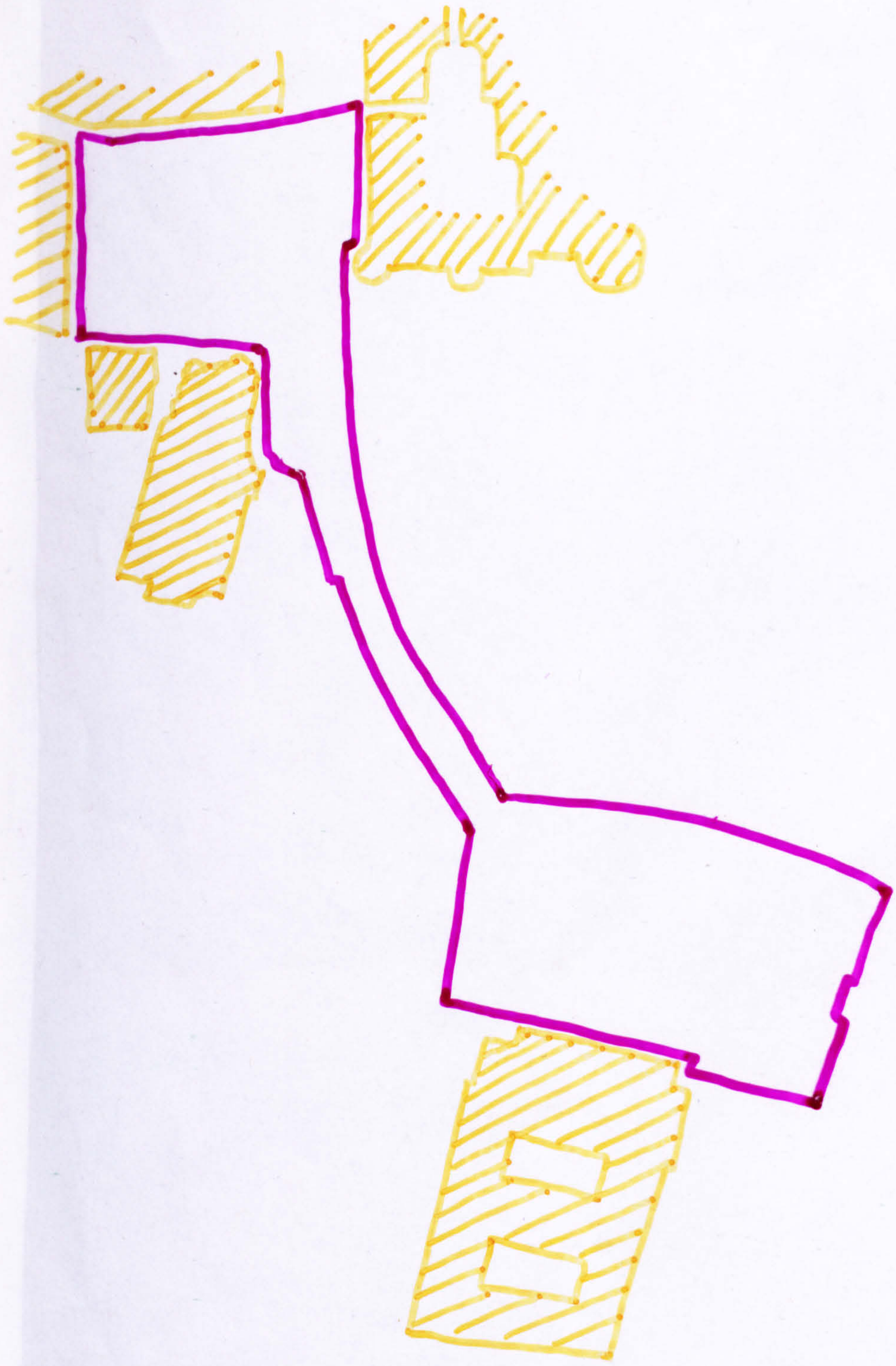
- One Way



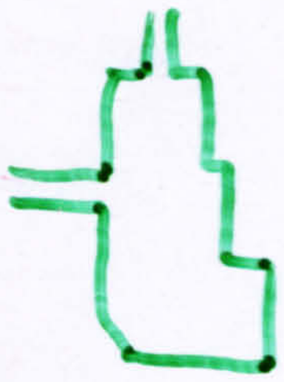
original in colour

JUNCTIONS

Figure 152 STUTTGART STUDY AREA



153 CENTRAL PLACES
+ FOCAL BUILDINGS

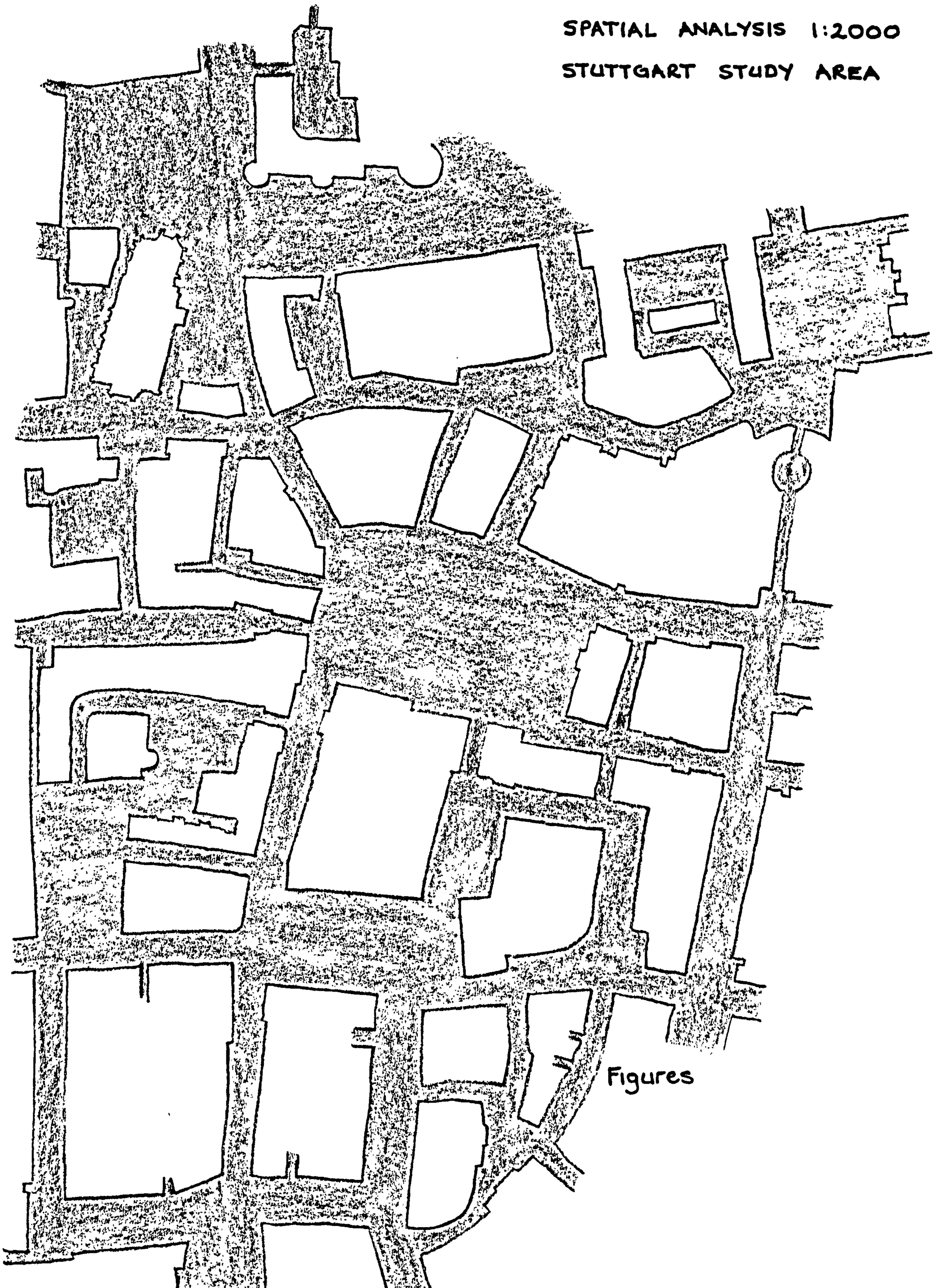


154 SECONDARY SQUARES
+ STREETS

155 PRIMARY SQUARES
+ STREETS

SPATIAL ANALYSIS 1:2000

STUTTGART STUDY AREA



Figures

SPATIAL ANALYSIS 1:2000

STUTTGART STUDY AREA

Figures

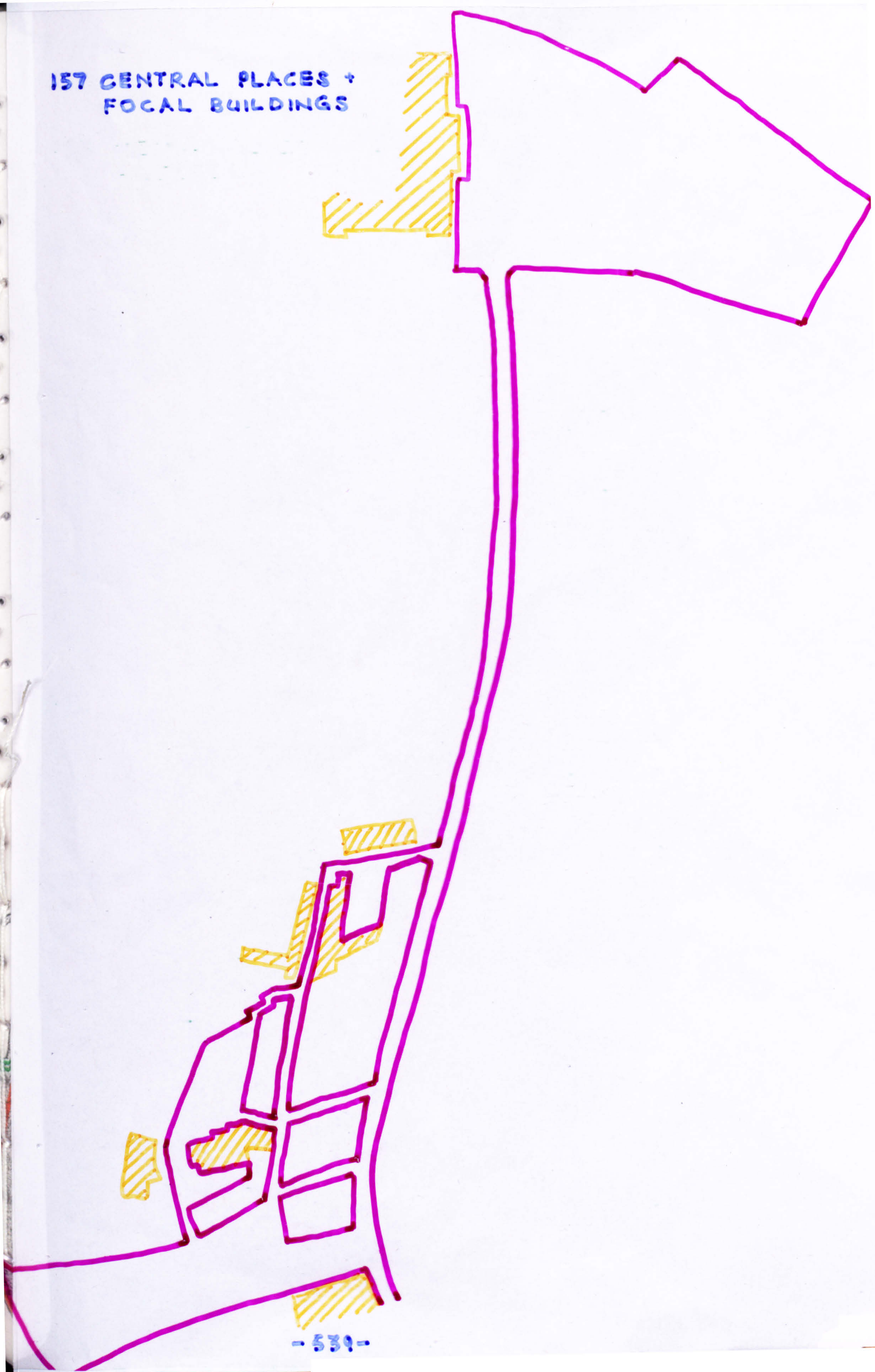
153 CENTRAL PLACES
+ FOCAL BUILDINGS

154 SECONDARY SQUARES
+ STREETS

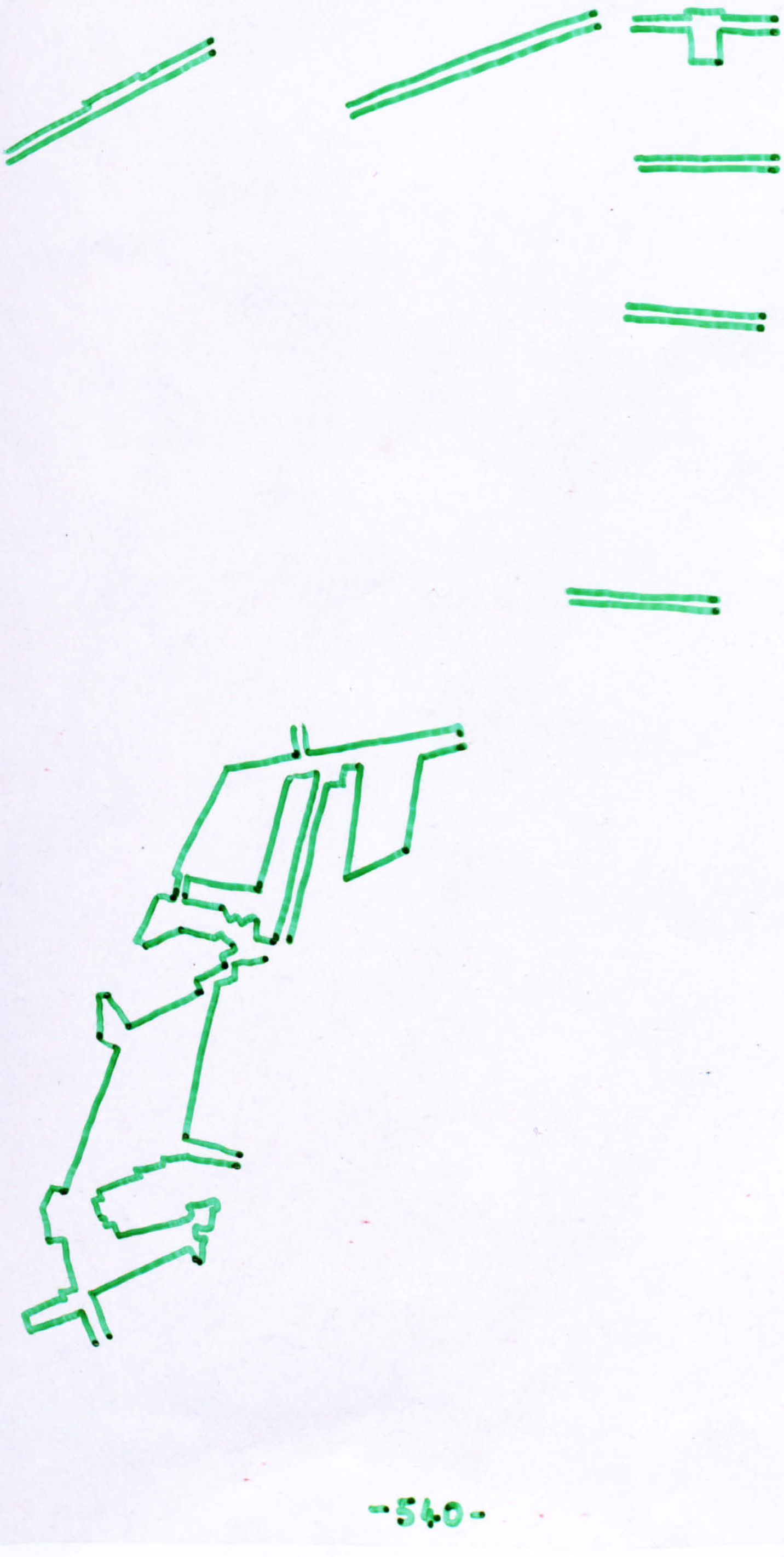
155 PRIMARY SQUARES
+ STREETS

156 SPATIAL PATTERN

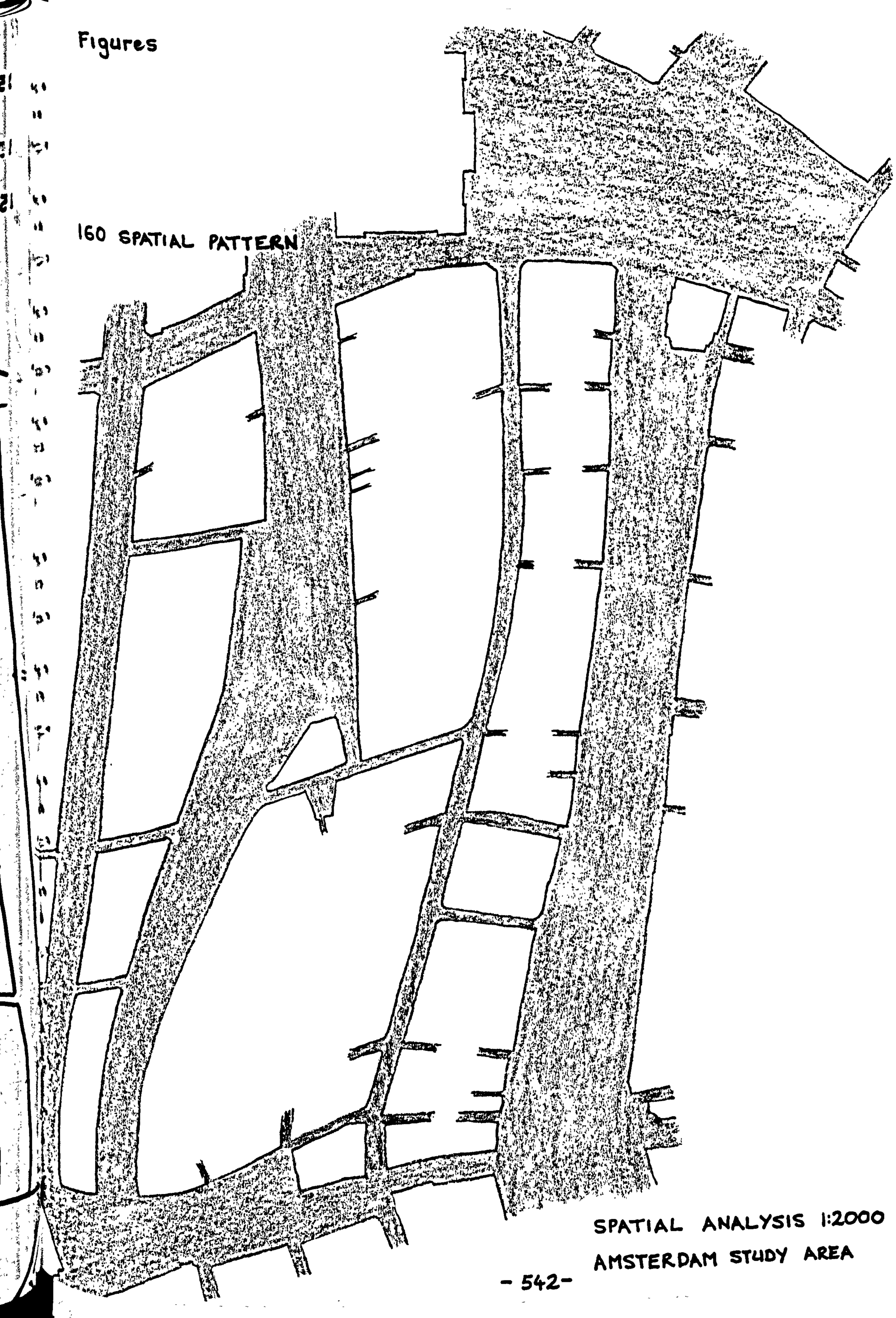
157 CENTRAL PLACES +
FOCAL BUILDINGS



158 SECONDARY SQUARES
+ STREETS



159 PRIMARY SQUARES + STREETS



SPATIAL ANALYSIS 1:2000
AMSTERDAM STUDY AREA

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157 CENTRAL PLACES + FOCAL BUILDINGS

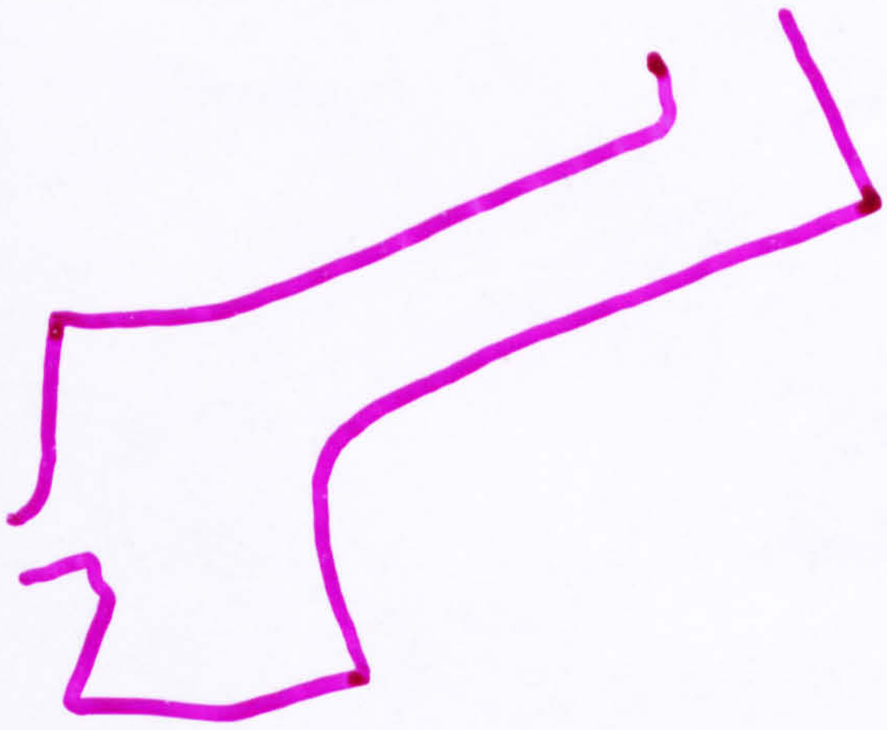
158 SECONDARY SQUARES + STREETS

159 PRIMARY SQUARES + STREETS

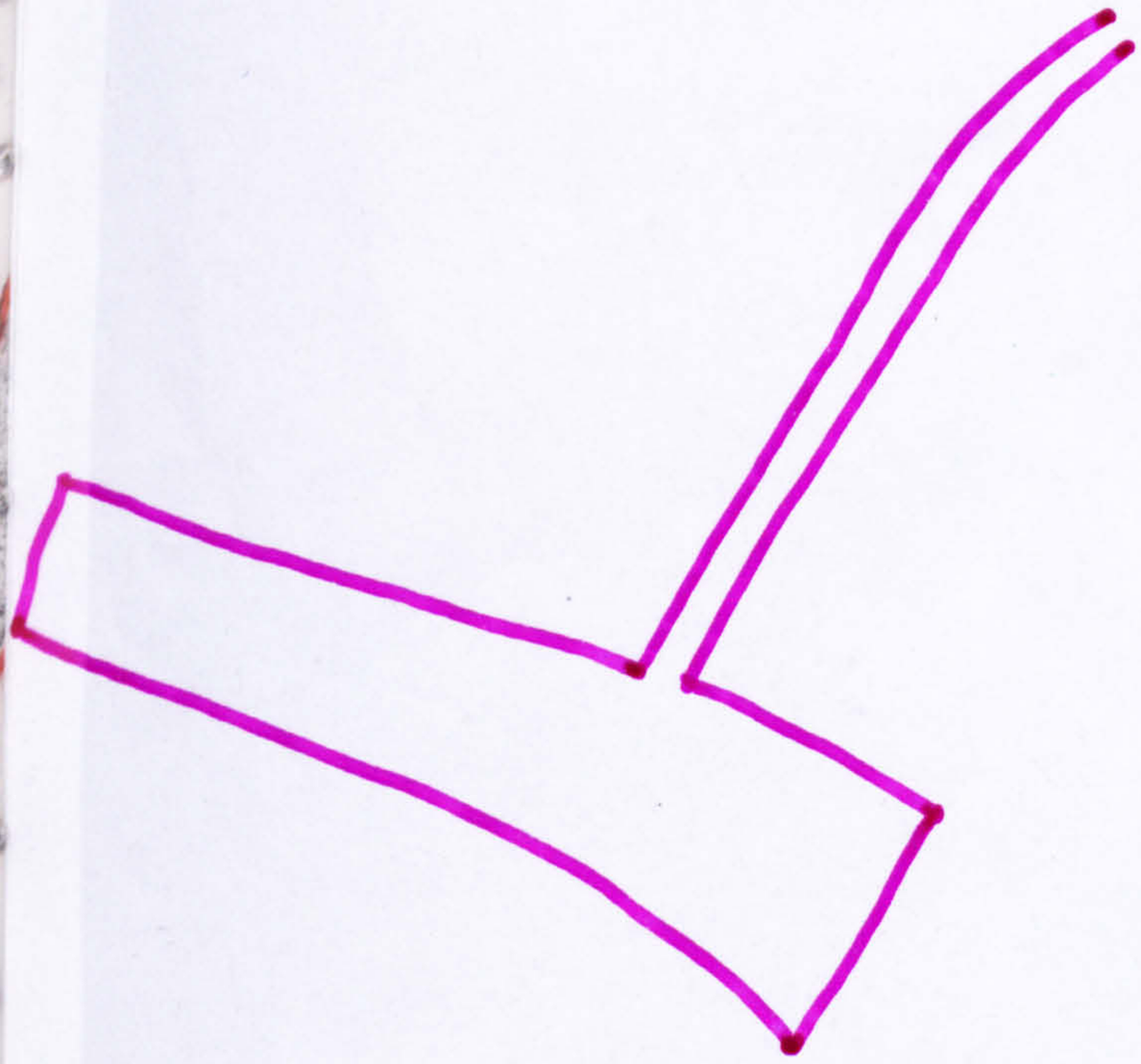
160 SPATIAL PATTERN

SPATIAL ANALYSIS 1:2000

AMSTERDAM STUDY AREA



161 CENTRAL PLACES



162. SECONDARY
SQUARES + STREETS

164 PRIMARY
SQUARES + STREETS

SPATIAL ANALYSIS 1:2000

GREY STREET STUDY AREA

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165 SPATIAL PATTERN

SPATIAL ANALYSIS 1:2000

GREY STREET STUDY AREA

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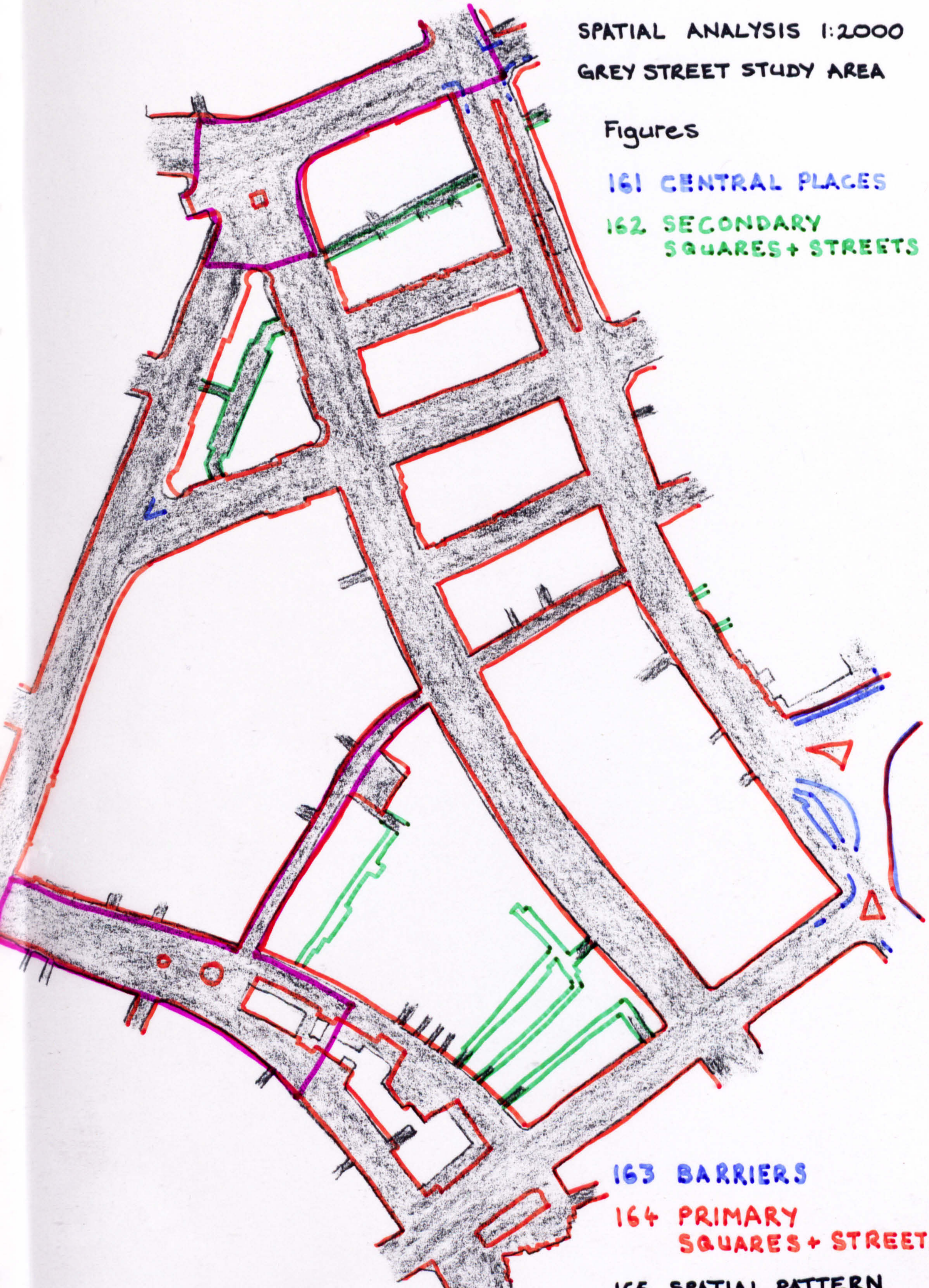
161 CENTRAL PLACES

162 SECONDARY SQUARES + STREETS

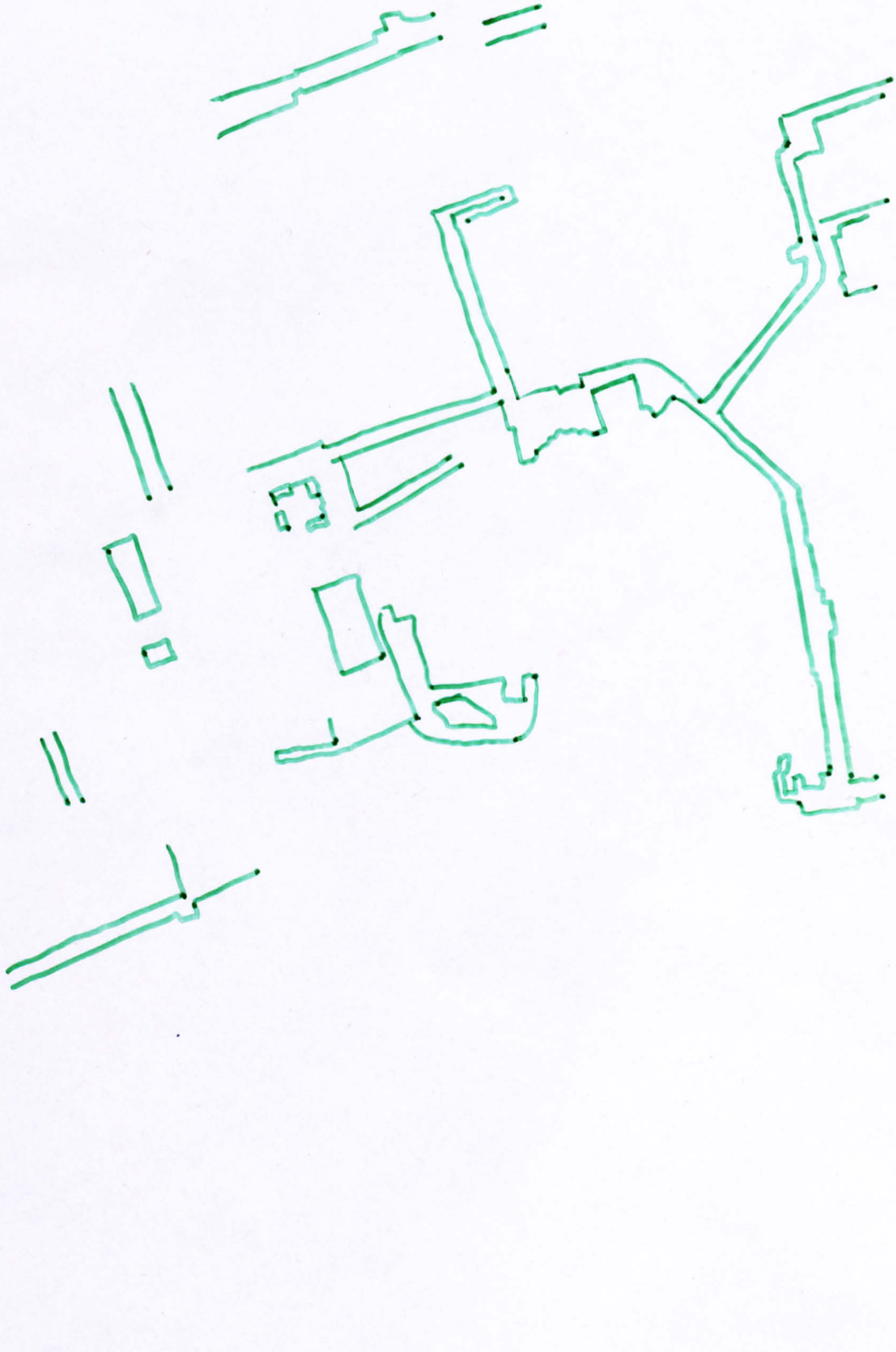


163 BARRIERS

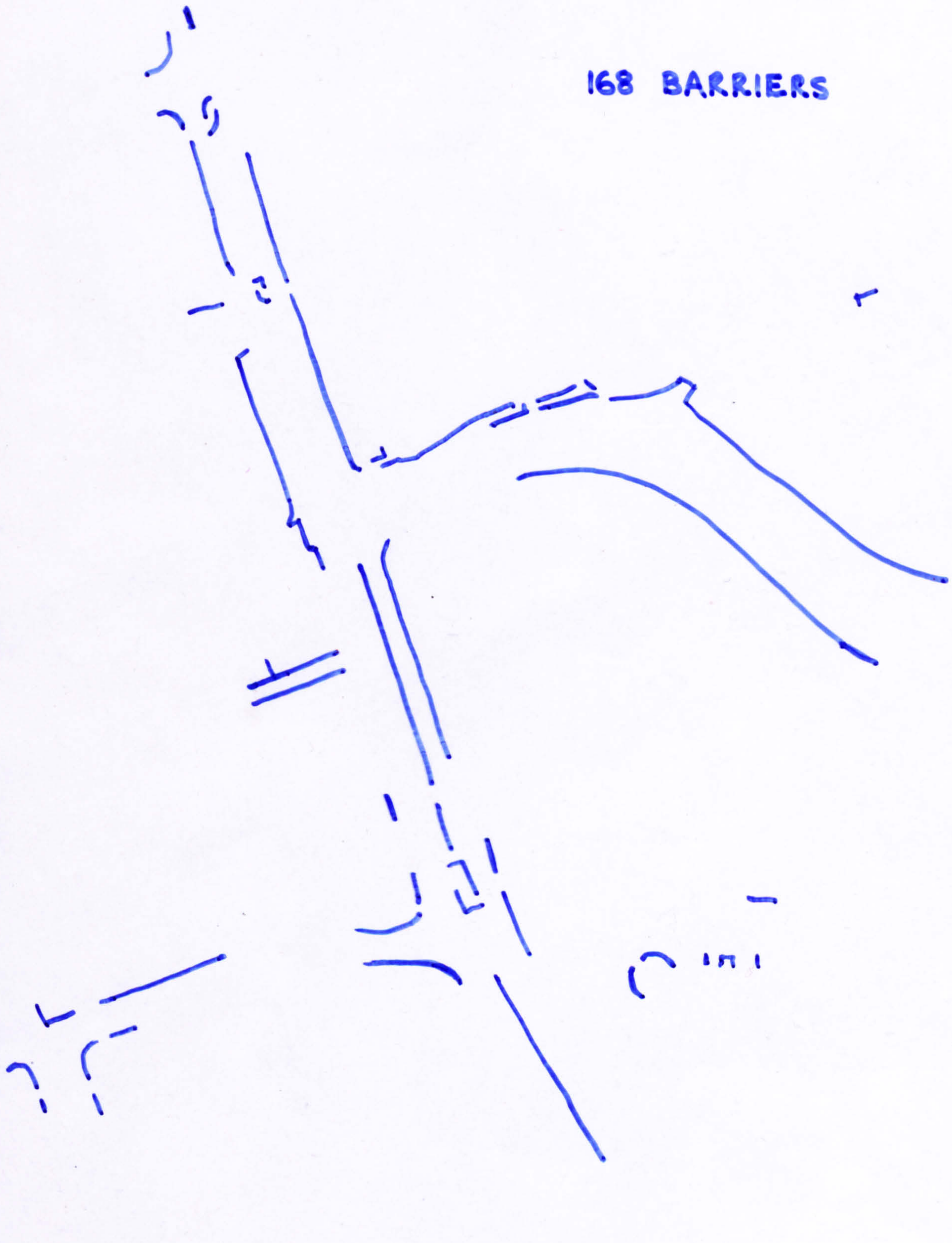
164 PRIMARY SQUARES + STREETS

165 SPATIAL PATTERN

167 SECONDARY
SQUARES + STREETS



168 BARRIERS



169 PRIMARY
SQUARES + STREETS

SPATIAL ANALYSIS 1:2000

JOHN DOBSON STREET STUDY AREA

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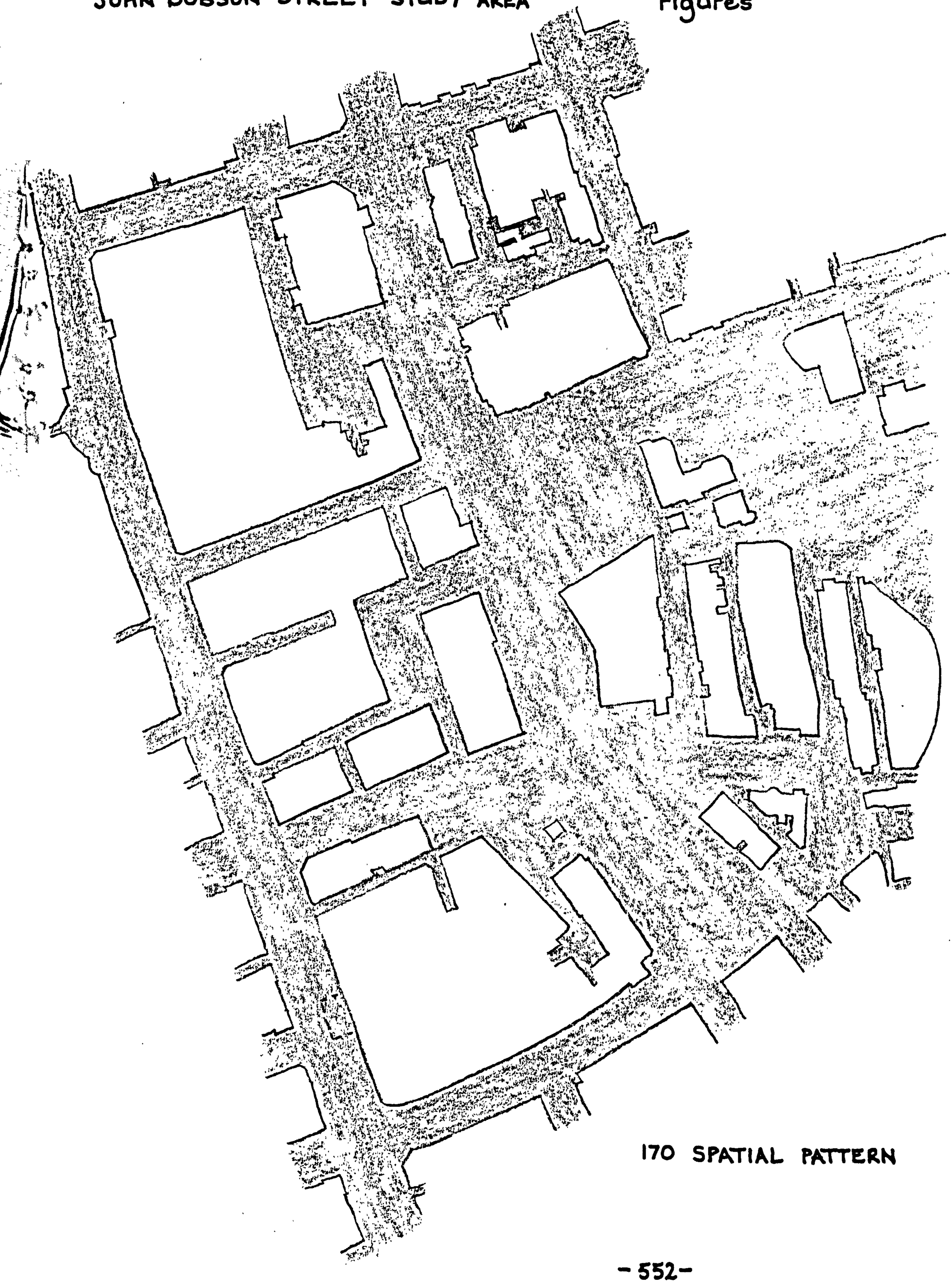

170 SPATIAL PATTERN

SPATIAL ANALYSIS 1:2000

JOHN DOBSON STREET STUDY AREA

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166 CENTRAL PLACES

167 SECONDARY SQUARES + STREETS

168 BARRIERS

169 PRIMARY SQUARES + STREETS

170 SPATIAL PATTERN

Name	Study Area	Width	Width : Height	Length : Height	
Durant Road	D	*	*	*	
Rokin	A	42	2.2	21.0	
John Dobson Street	D	32?	*	*	
Dorotheenstrasse	S	30	1.6	4.2	
Pilgrim Street	D	25	1.5	6.5	
Pilgrim Street	G	25	1.5	9.1	
Grey Street	G	23	1.4	14.7	> Acceptable Range <
Nieuwezijds Voorburgwal	A	22	1.5	12.7	
Blackett Street	G	21	1.2	4.3	
New Bridge Street	D	19	1.3	7.3	
Market Street	G	19	1.2	4.8	
Market Street	D	19	1.2	8.1	
Grainger Street	G	19	1.1	14.7	
Breitestrasse	S	18	1.0	4.0	
College Street	D	17	1.7	11.0	
Eberhardstrasse	S	16	0.9	7.2	
Higham Place	D	12	1.2	7.2	
Oxford Street	D	8	1.3	10.0	
Unter de Mauer	S	8	0.5	1.6	

* Insufficient Definition

Figure 171 EVALUATION OF STREETS 1: STUDY AREAS - TWO WAY TRAFFIC

Name	Study Area	Width	Width : Height	Length : Height	
Northumberland Road	D	19	1.3	8.0	
Spuistraat	A	19	1.3	24.7	< Acceptable Range >
Paleisstraat	A	19	1.0	3.9	
Marktstrasse	S	16	1.1	4.0	
Hood Street	G	16	0.9	4.4	
Cloth Market	G	14	1.3	6.4	
Groat Market	G	14	1.3	10.4	
Eichstrasse	S	14	0.7	2.2	
Munzstrasse	S	13	0.8	2.6	
Schmalestrasse	S	13	0.7	4.9	
Neue Brucke	S	12	0.7	2.6	
Spui	A	11	0.8	3.8	
Nadlerstrasse	S	11	0.7	5.7	
Turmstrasse	S	8	1.0	1.9	
Lisle Street	D	7	0.5	4.3	
High Bridge	G	7	0.4	4.5	
Rosmarijnsteeg	A	6	0.5	3.0	
Wijdesteeg	A	6	0.4	3.7	

Figure 172 EVALUATION OF STREETS 2: STUDY AREAS - ONE WAY VEHICLES

Name	Study Area	Width	Width : Height	Length : Height	
Northumberland Street	D	20	1.3	16.8	
Hirschstrasse	S	13	0.6	3.9	∧
Sporerstrasse	S	12	0.9	5.0	
Saville Row	D	11	1.1	11.0	
Kirchstrasse	S	11	0.6	2.7	
Stiftstrasse	S	11	0.6	5.3	
Rathauspassage	S	10	0.7	4.4	
Bebenhauser	S	10	0.6	3.4	
Kalverstraat	A	8	0.6	31.5	
Northumberland Place	D	7	0.7	6.4	
Geissstrasse	S	7	0.5	2.3	
Topferstrasse	S	7	0.5	3.7	
Schulstrasse	S	7	0.5	7.3	
Wijde Kapelsteeg	A	6	0.5	4.2	
Barenstrasse	S	6	0.4	2.6	
Begijnensteeg	A	5	0.5	4.0	
Gedempte/Begijnensloot	A	5	0.5	9.0	
High Friar Lane	G	5	0.3	4.4	
Am Fruchtkasten	S	4	0.3	1.7	
Enge Kapelsteeg	A	4	0.4	4.2	
Roskamsteeg	A	4	0.3	1.7	
Rosenroomsteeg	A	4	0.3	2.4	
Watersteeg	A	4	0.3	3.6	
Taksteeg	A	4	0.3	3.8	
Sint Luciensteeg	A	4	0.3	4.2	∨ Acceptable Range
Gapersteeg	A	3	0.2	3.0	
Jonge Roelensteeg	A	3	0.2	5.8	
Papenbroeksteeg	A	3	0.1	1.6	
Spaarpotsteeg	A	2	0.2	3.0	
Duifiessteeg	A	2	0.2	3.4	

Figure 173 EVALUATION OF STREETS 3: STUDY AREAS - PEDESTRIANS

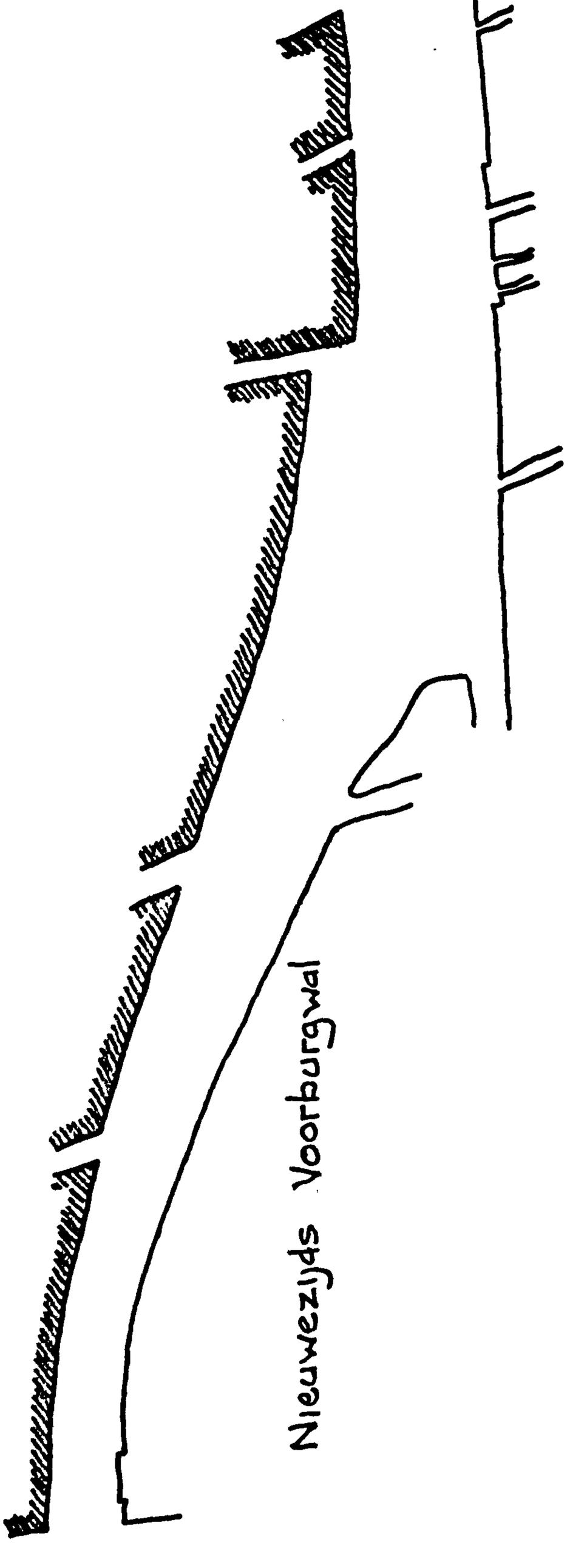


Figure 174 SAMPLE STREET
AMSTERDAM STUDY AREA

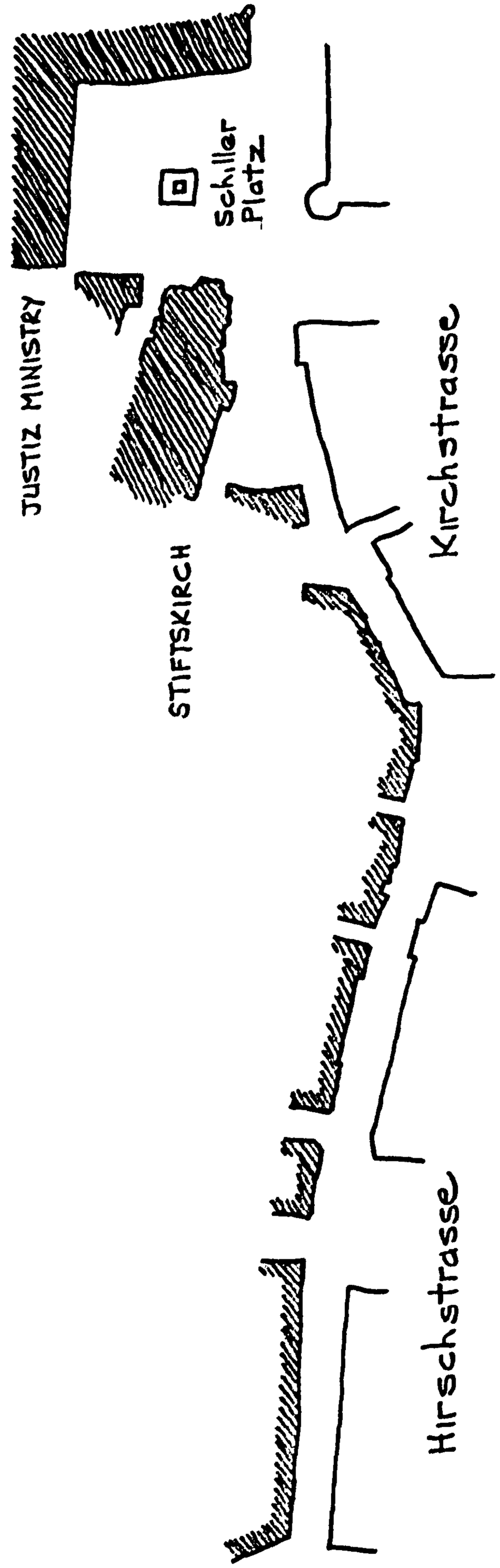


Figure 175 SAMPLE STREET
STUTTGART STUDY AREA

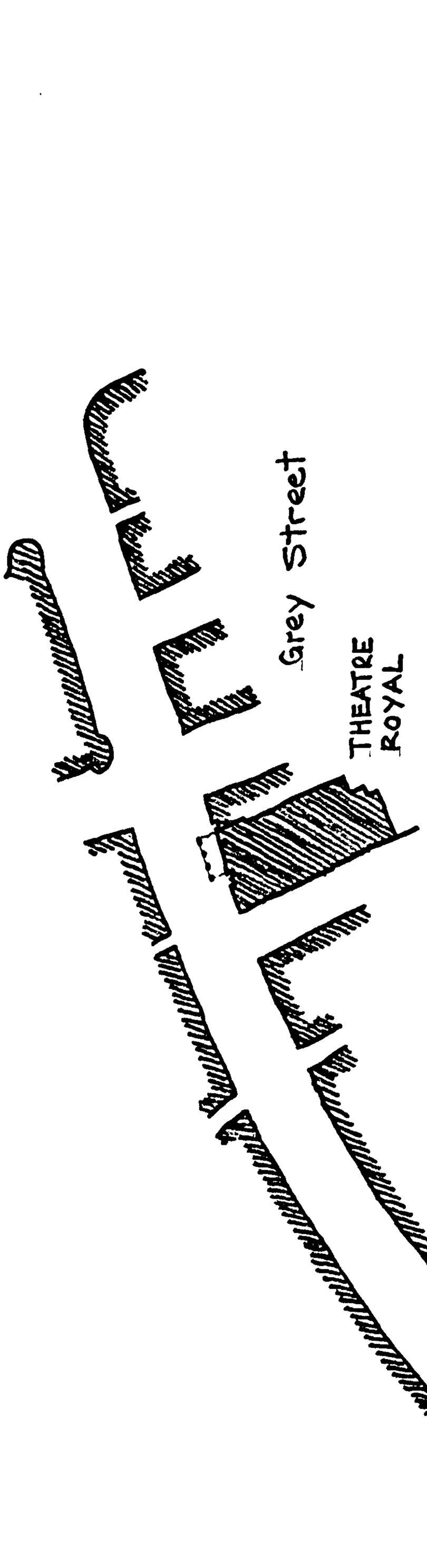


Figure 176 SAMPLE STREET
GREY STREET STUDY AREA

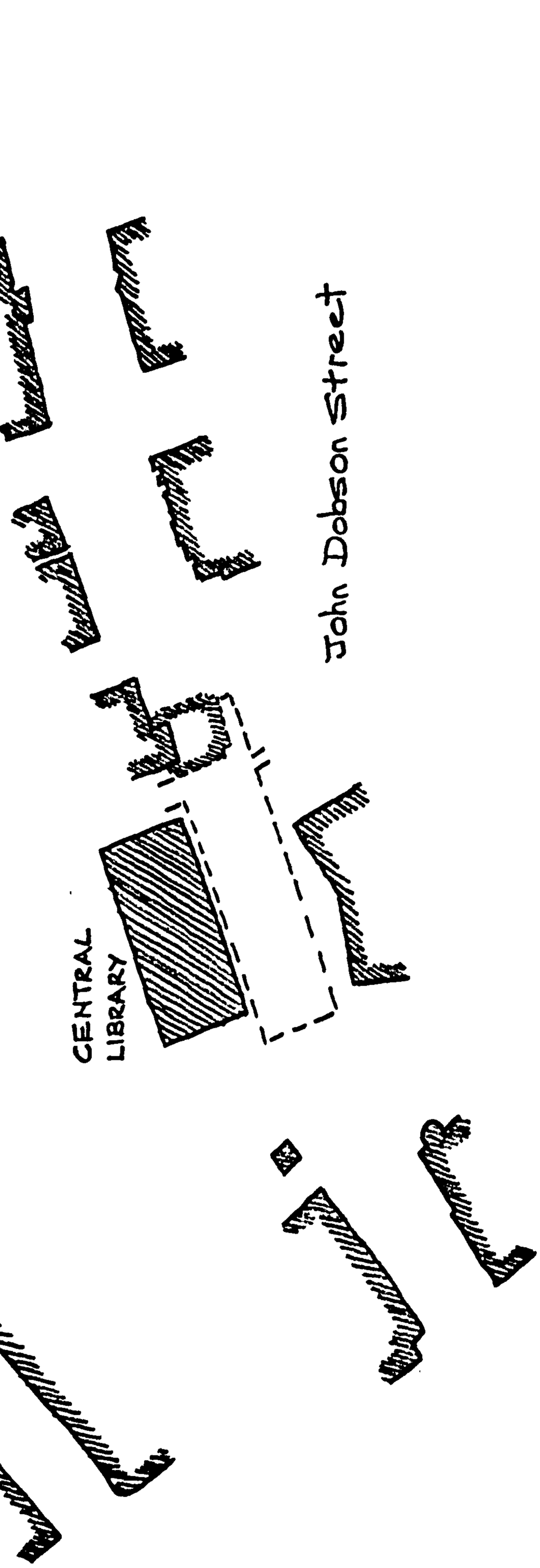


Figure 177 SAMPLE STREET
JOHN DOBSON STREET STUDY AREA

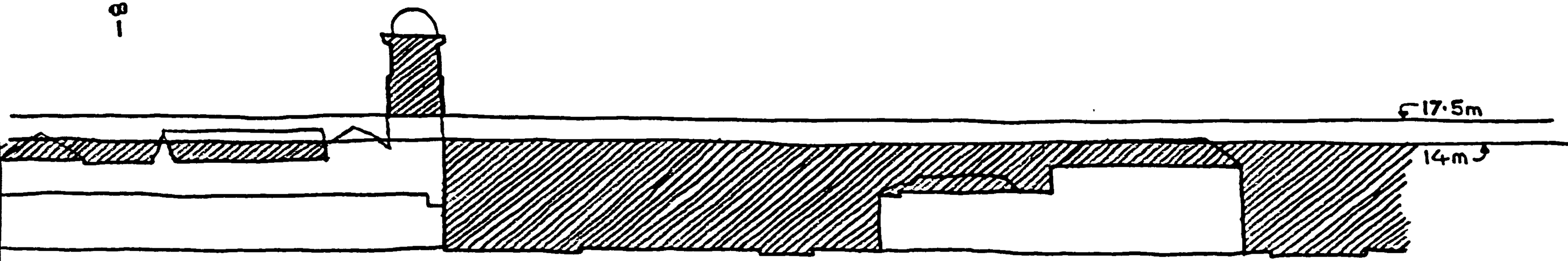


Figure 178 BUILDING HEIGHT ANALYSIS : JOHN DOBSON STREET · EAST SIDE

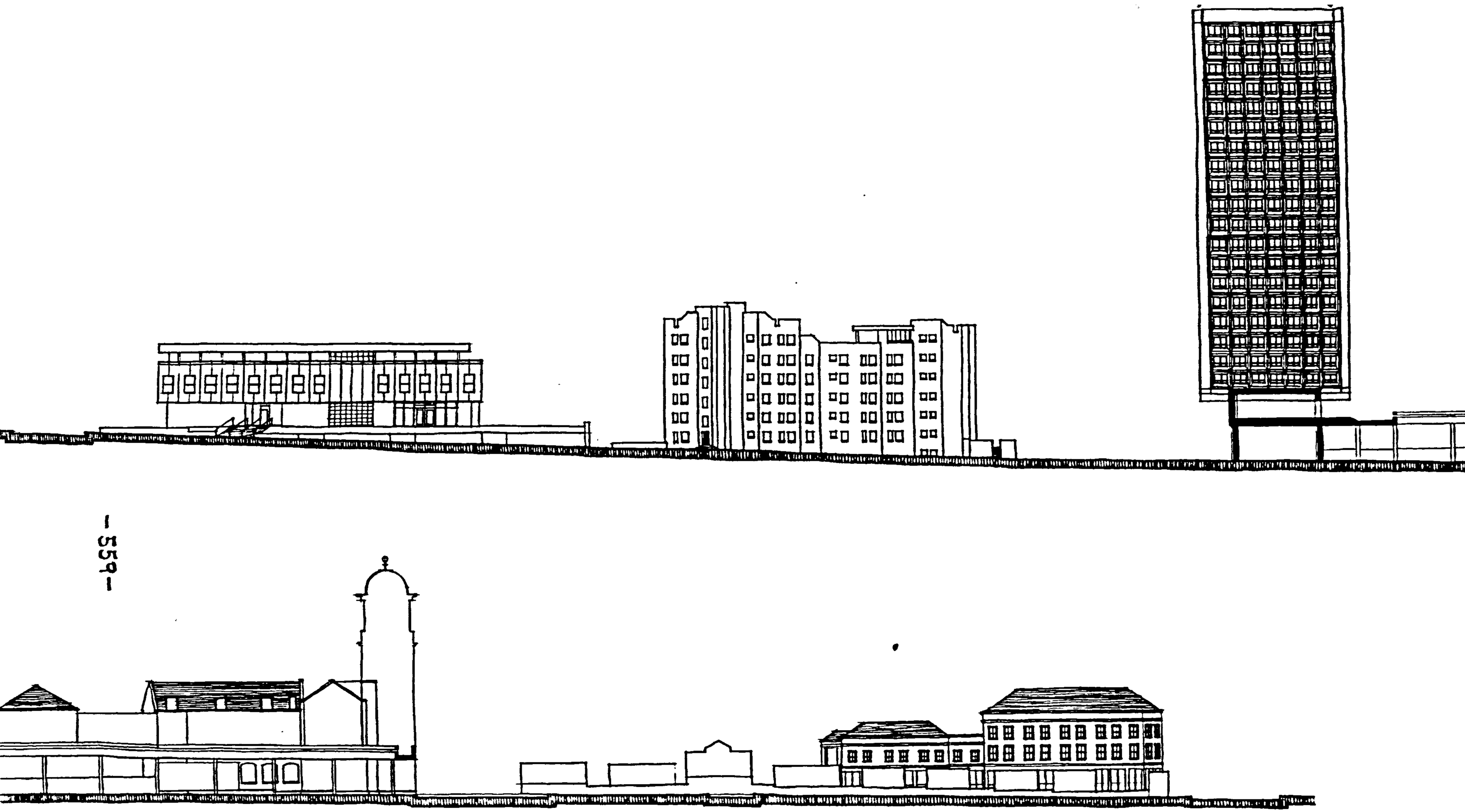


Figure 179 ELEVATIONS : JOHN DOBSON STREET · EAST SIDE

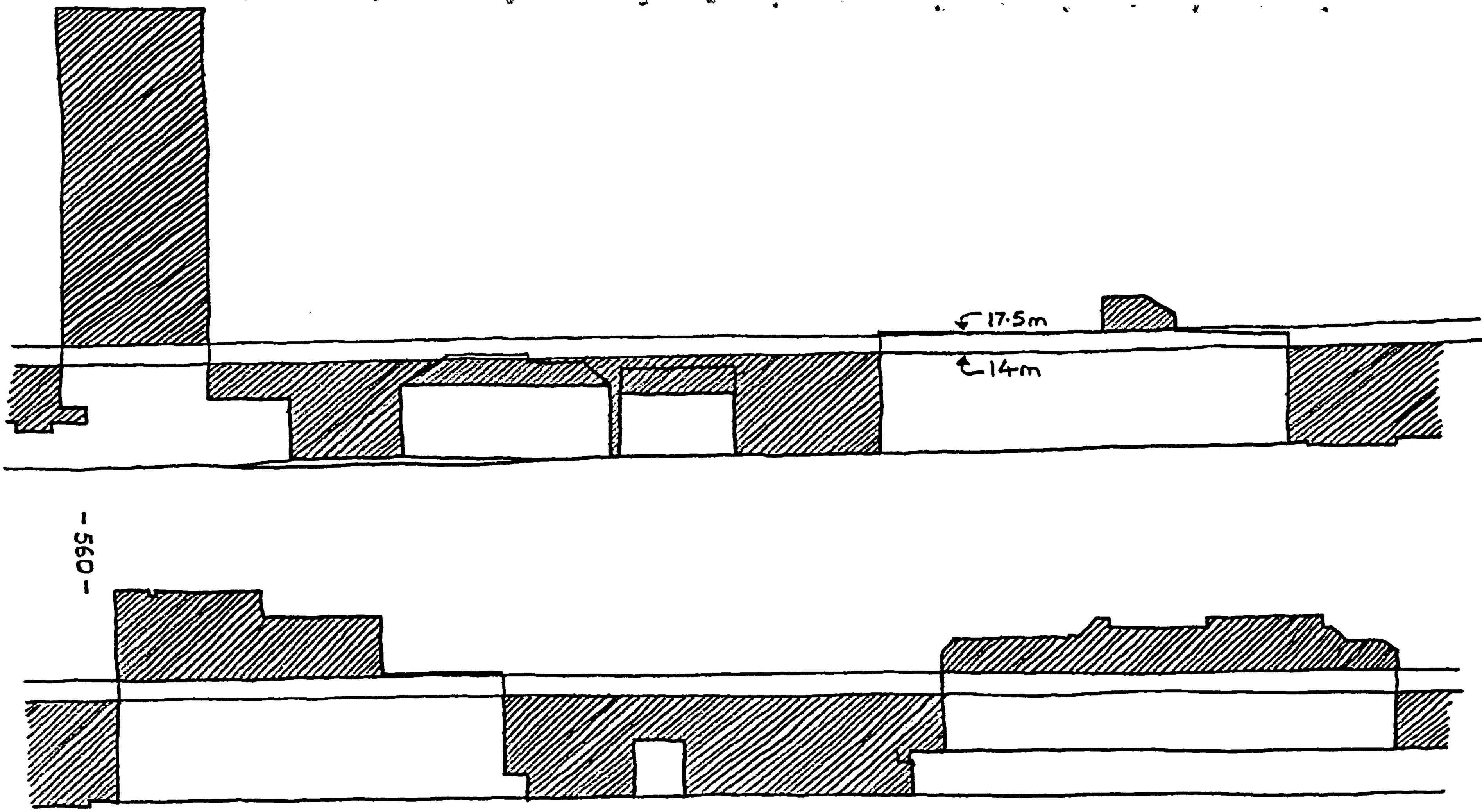


Figure 180 BUILDING HEIGHT ANALYSIS : JOHN DOBSON STREET : WEST SIDE

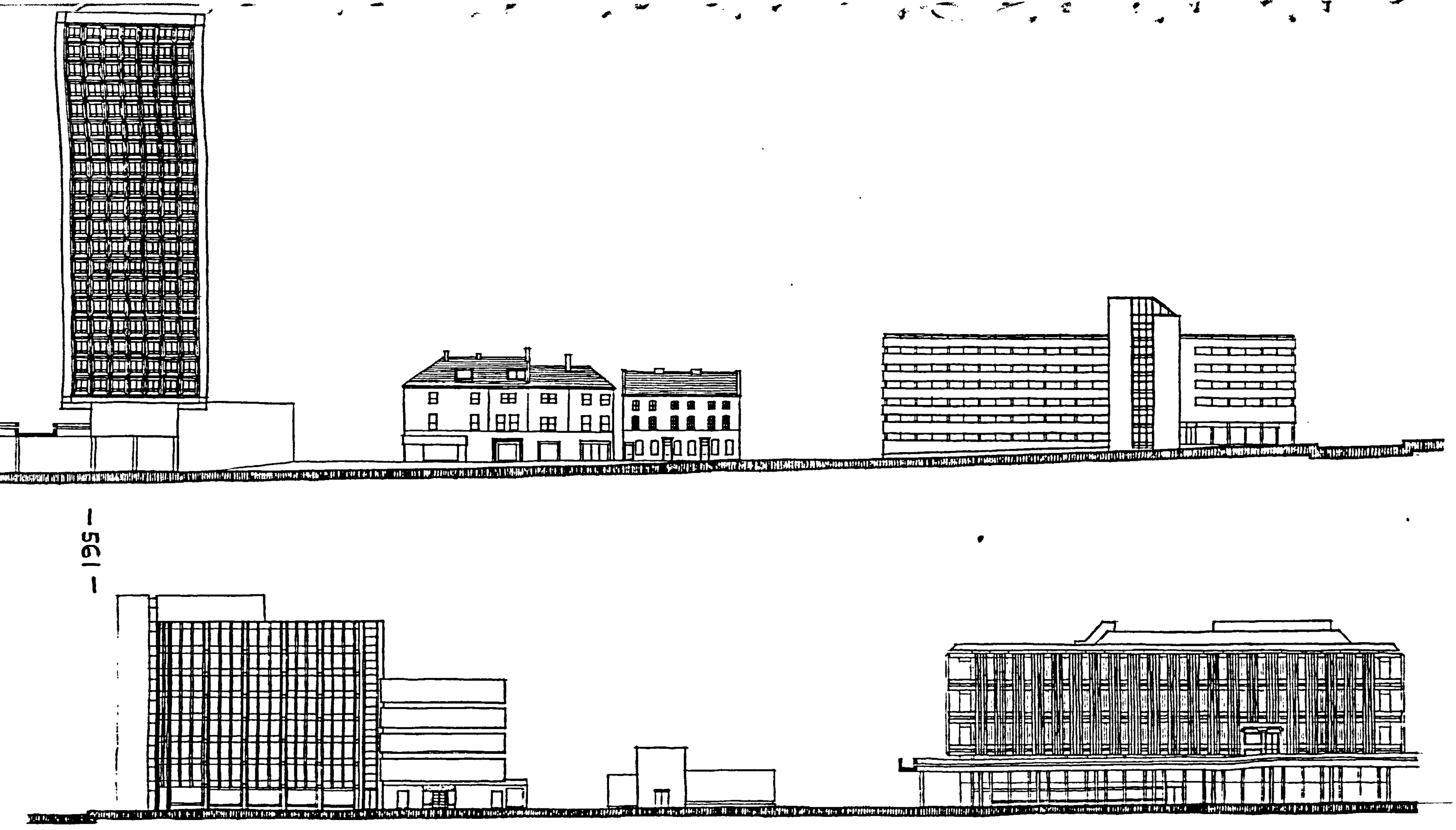


Figure 181 ELEVATIONS : JOHN DOBSON STREET · WEST SIDE

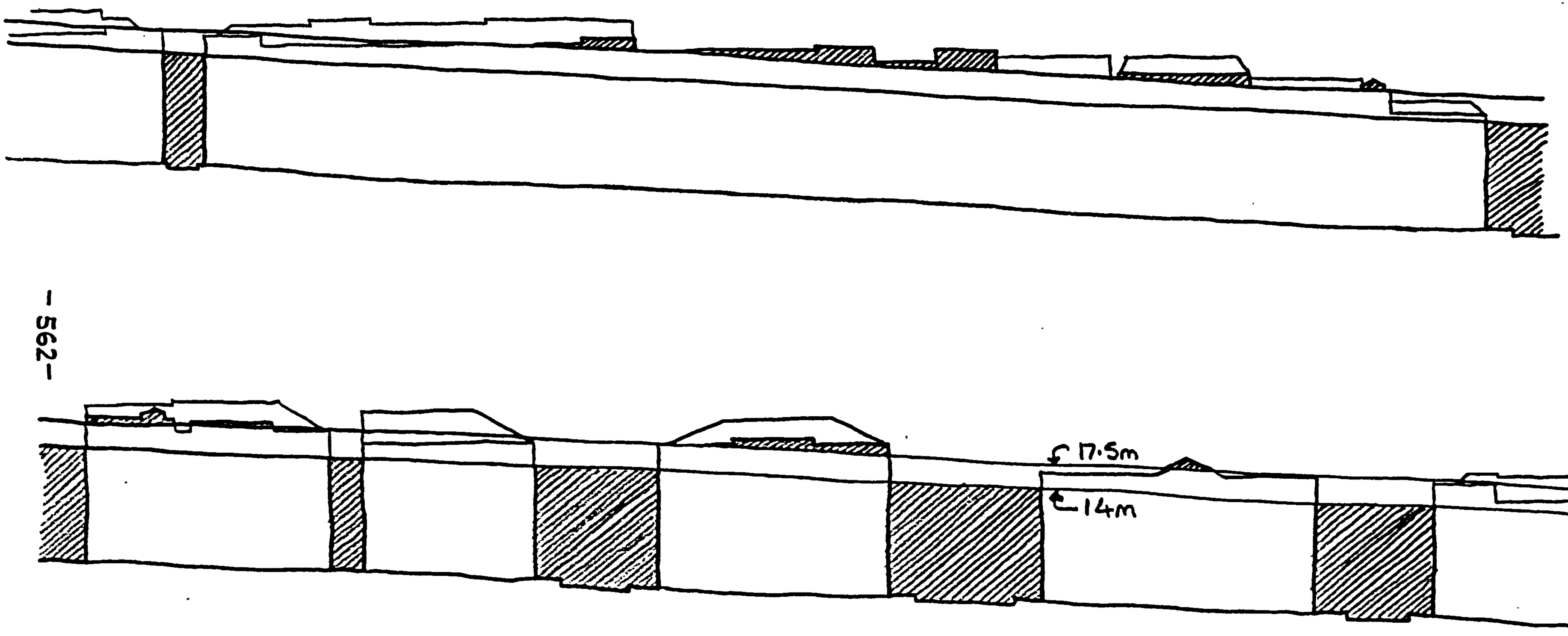


Figure 182 BUILDING HEIGHT ANALYSIS : GREY STREET · EAST SIDE

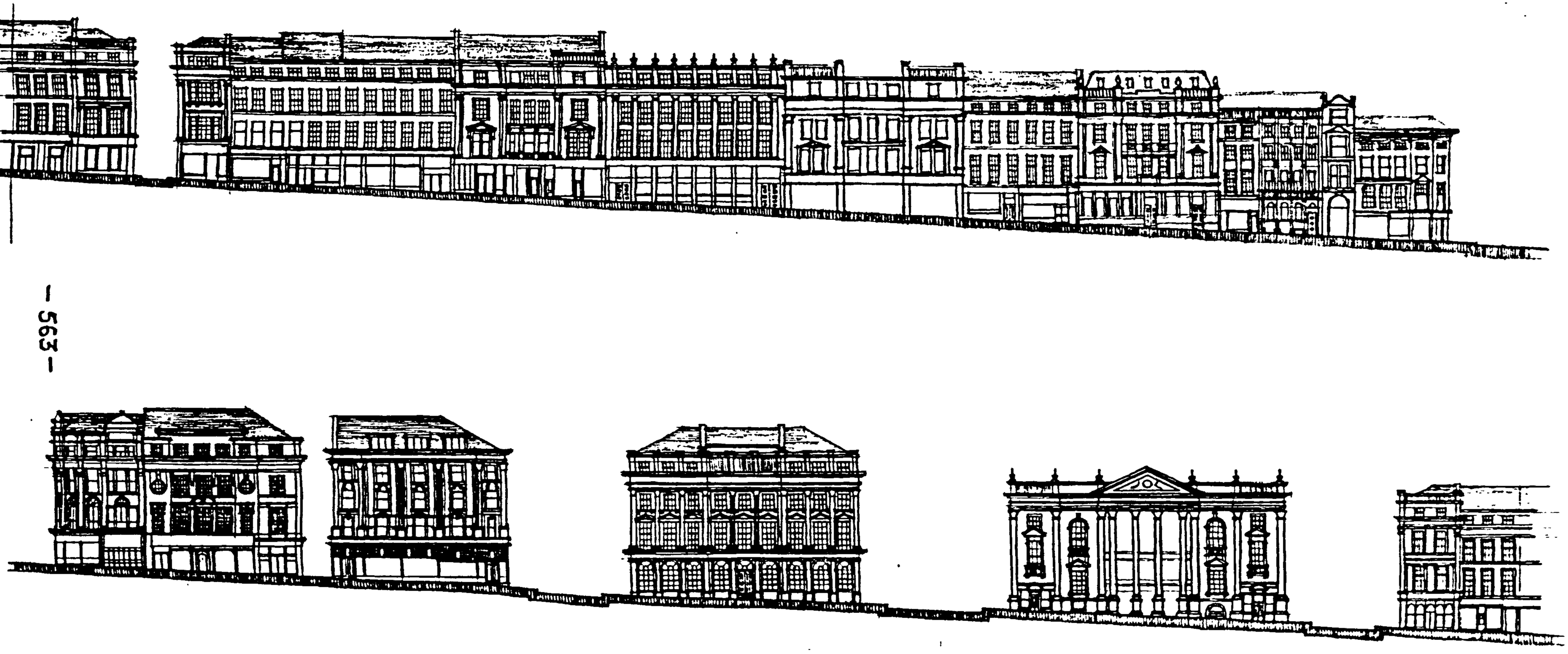


Figure 183 ELEVATIONS : GREY STREET · EAST SIDE

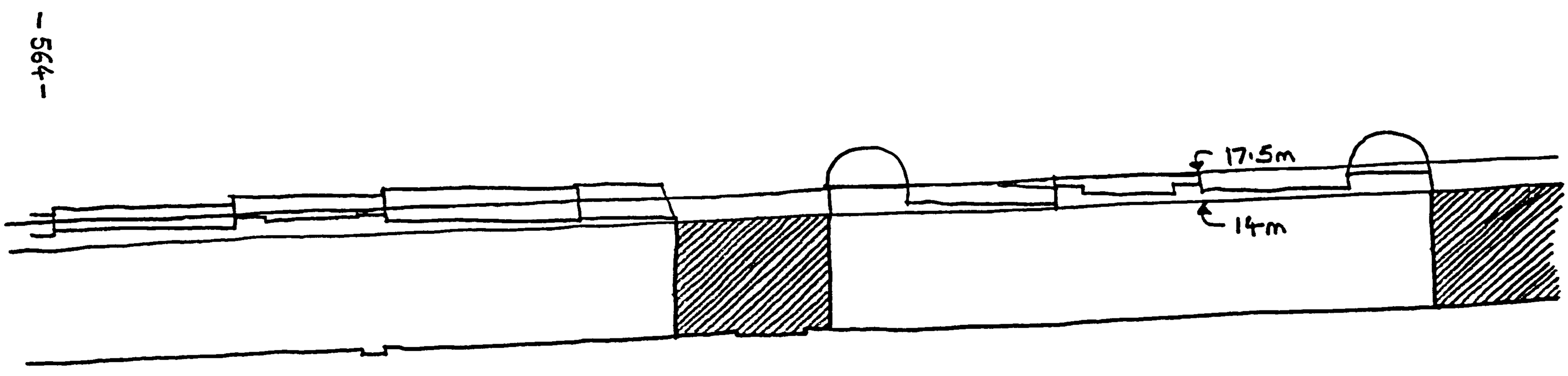


Figure 184 BUILDING HEIGHT ANALYSIS : GREY STREET · WEST SIDE

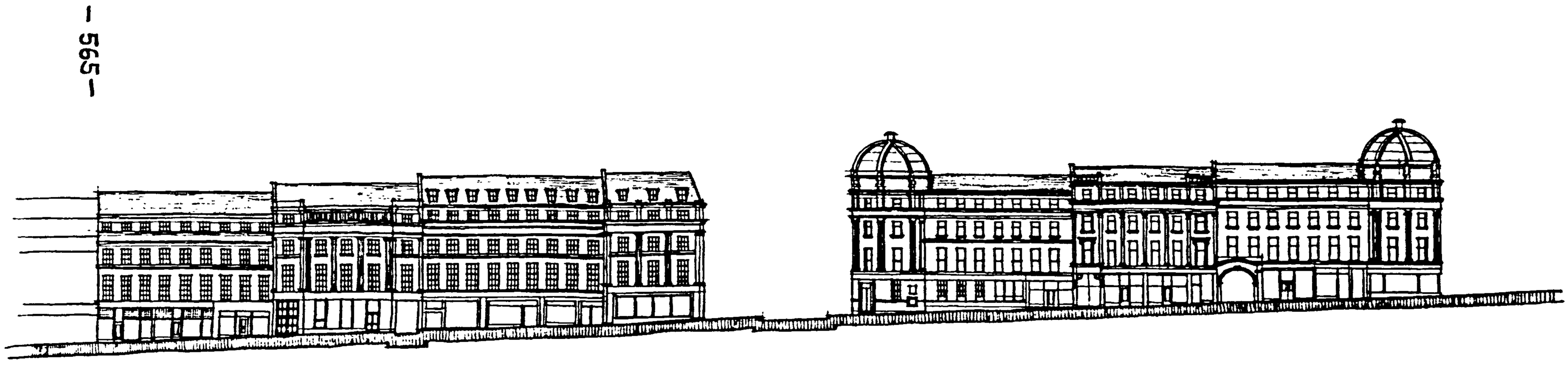


Figure 185 ELEVATIONS : GREY STREET · WEST SIDE

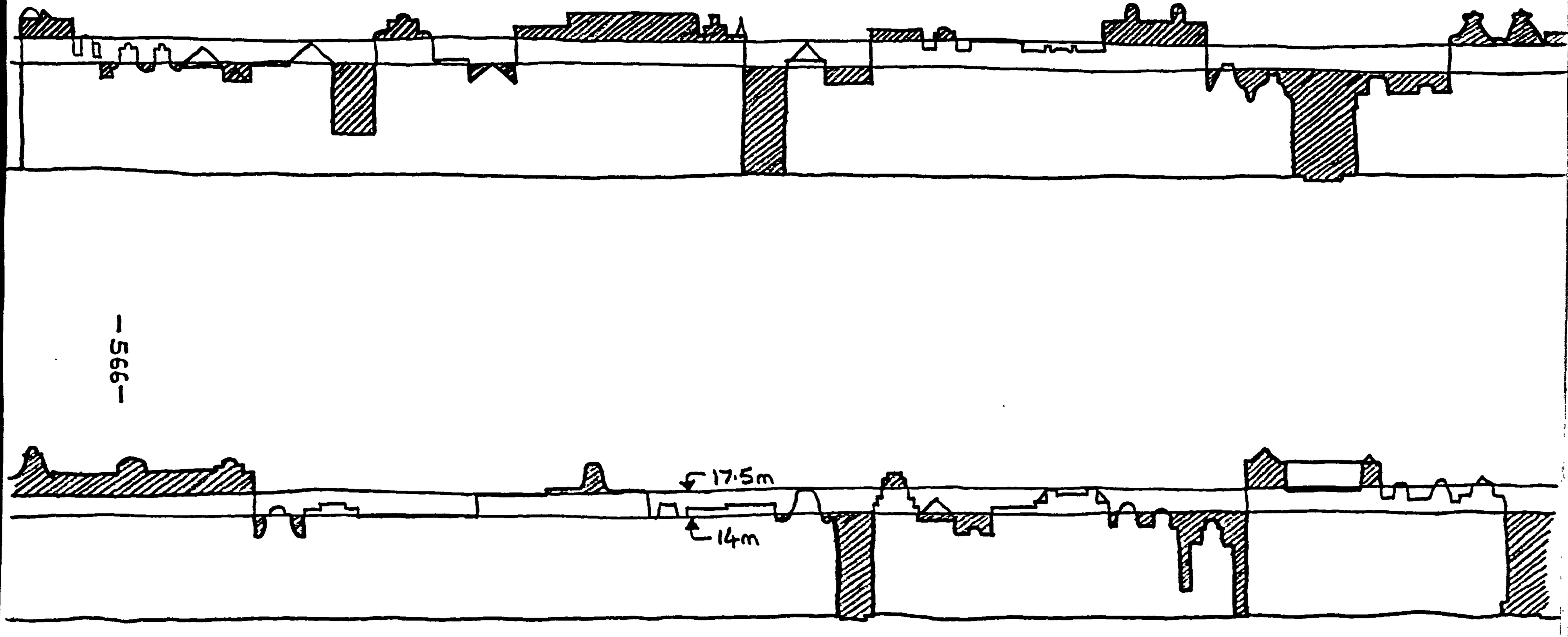


Figure 186 BUILDING HEIGHT ANALYSIS : NIEUWEZIJDS VOORBURGWAL

Figure 187 ELEVATIONS : NIEUWEZIJDS VOORBURGWAL

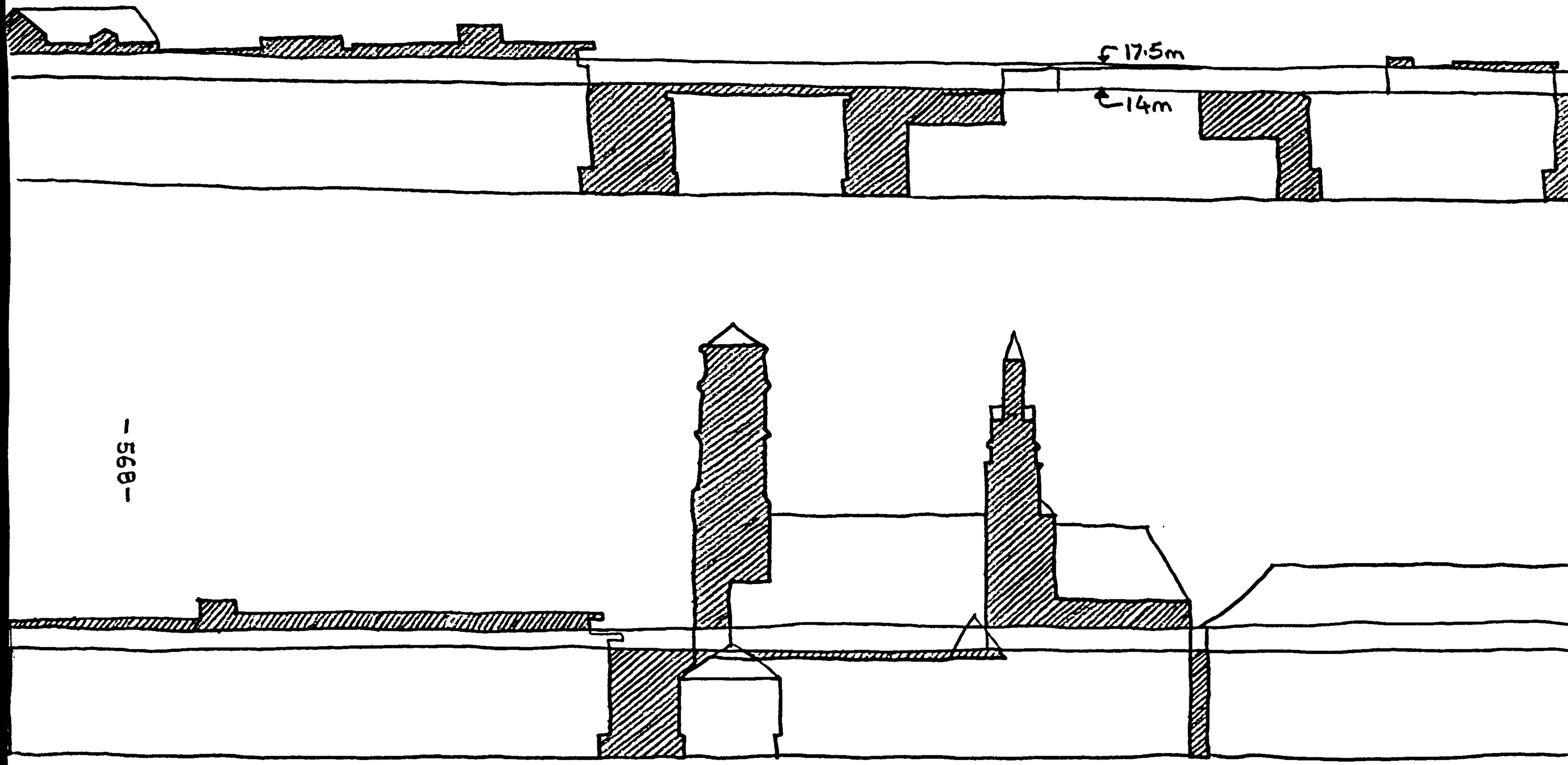


Figure 188 BUILDING HEIGHT ANALYSIS : HIRSCHSTRASSE - KIRCHSTRASSE

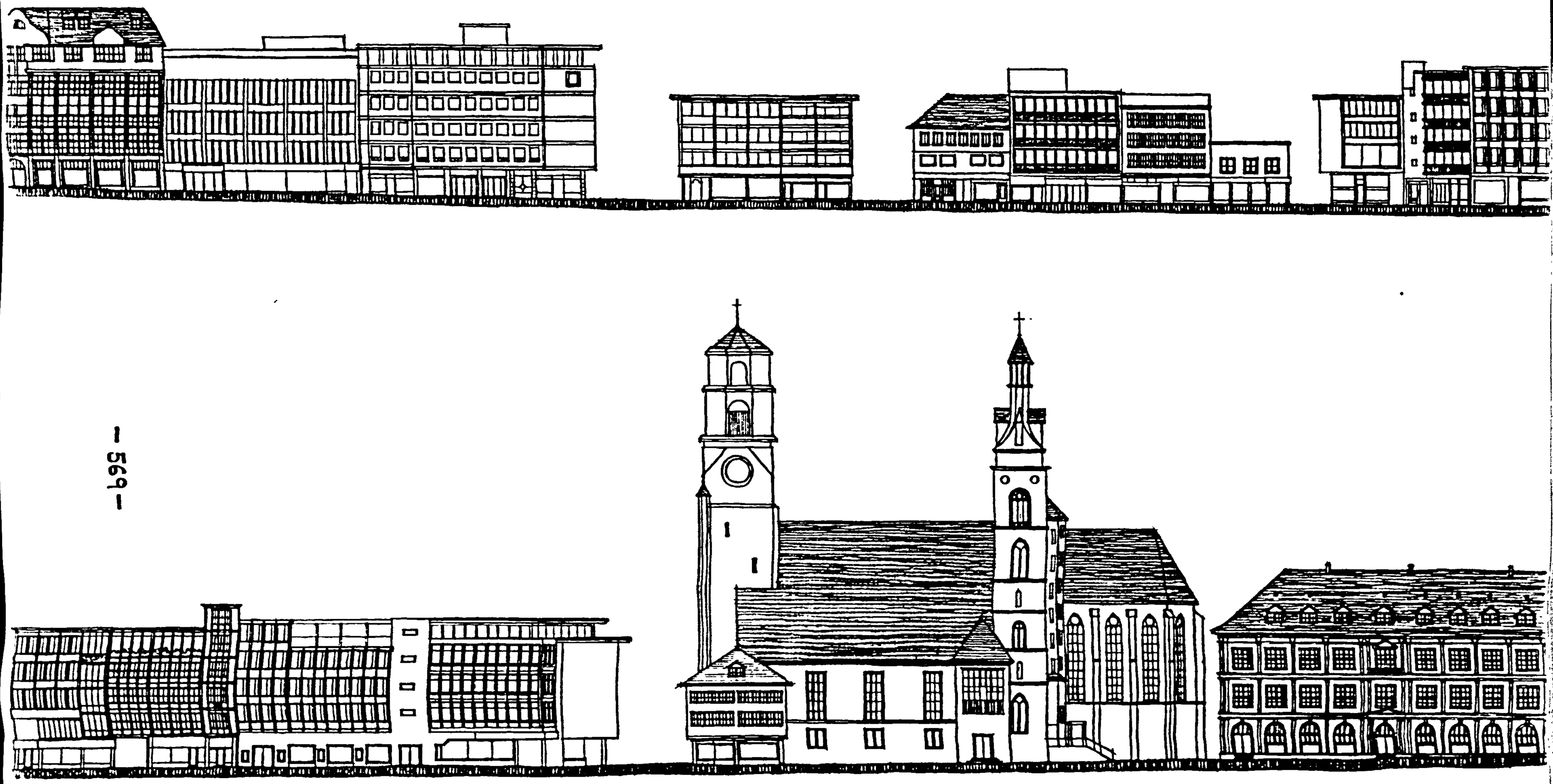
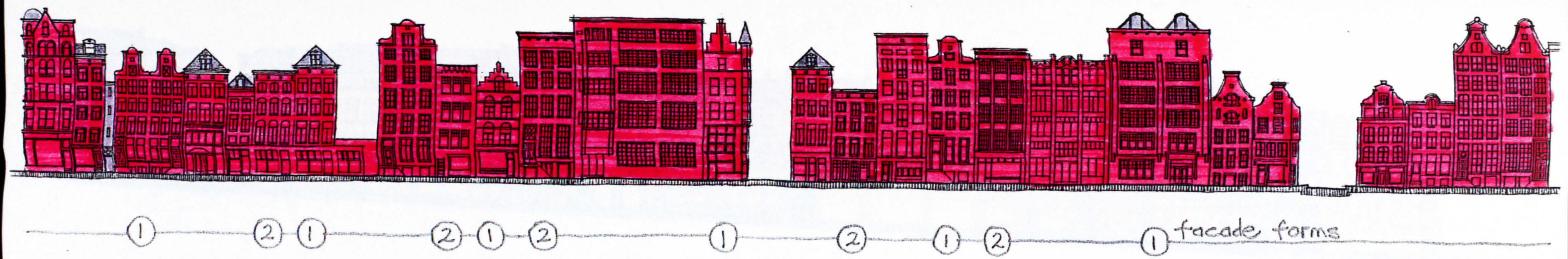


Figure 189 ELEVATIONS : HIRSCHSTRASSE - KIRCHSTRASSE



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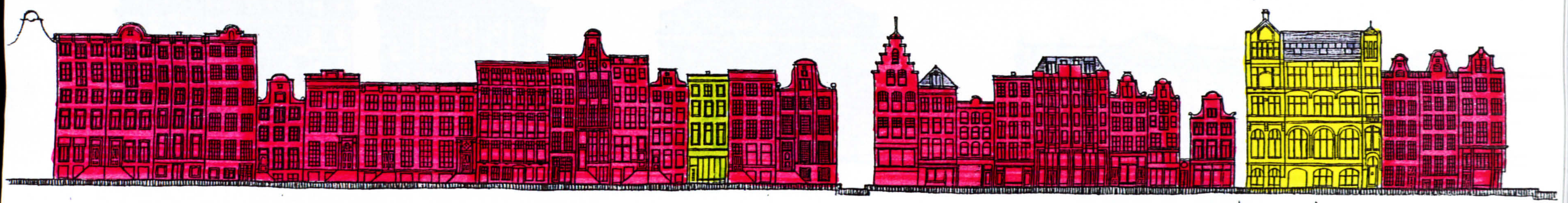


Figure 190 FACADE FORMS AND MATERIALS : NIEUWEZIJDS VOORBURGWAL

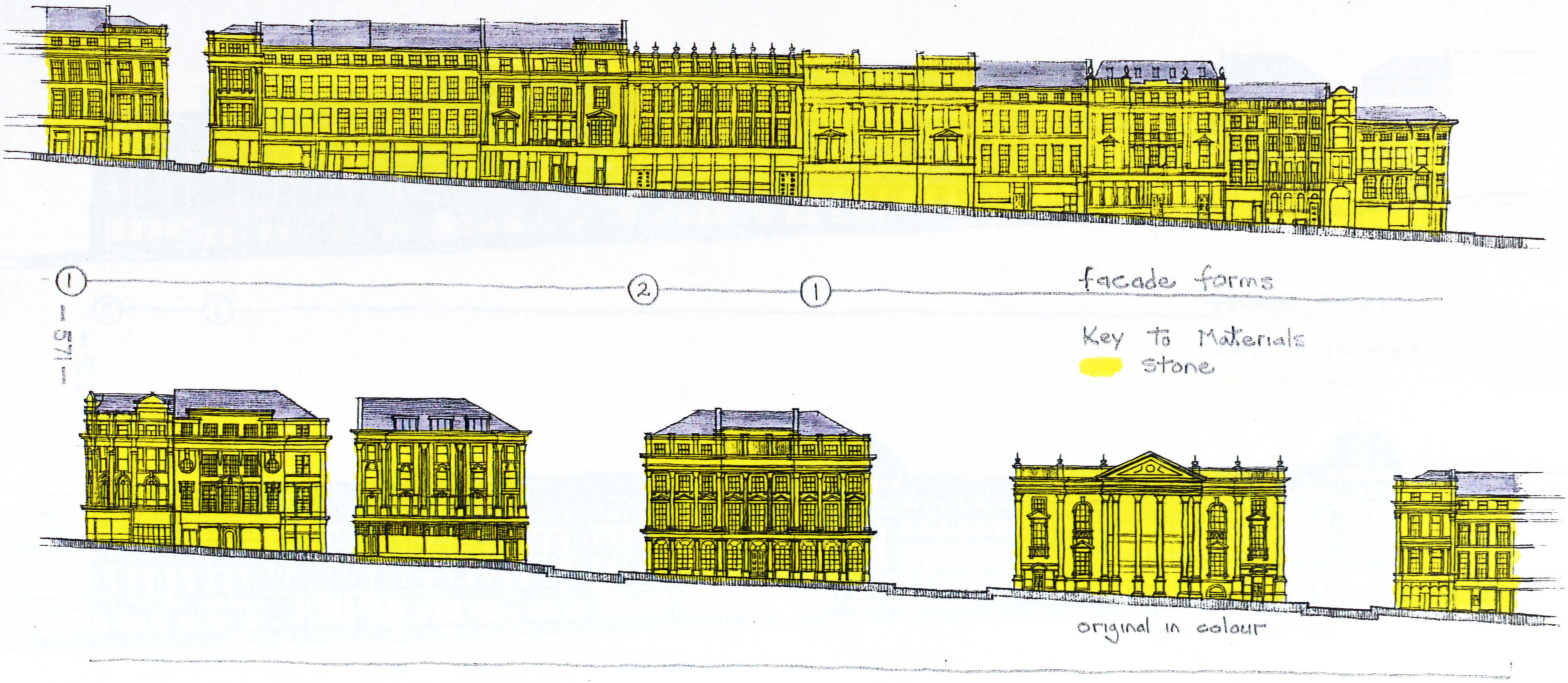


Figure 191 FACADE FORMS AND MATERIALS : GREY STREET · EAST SIDE

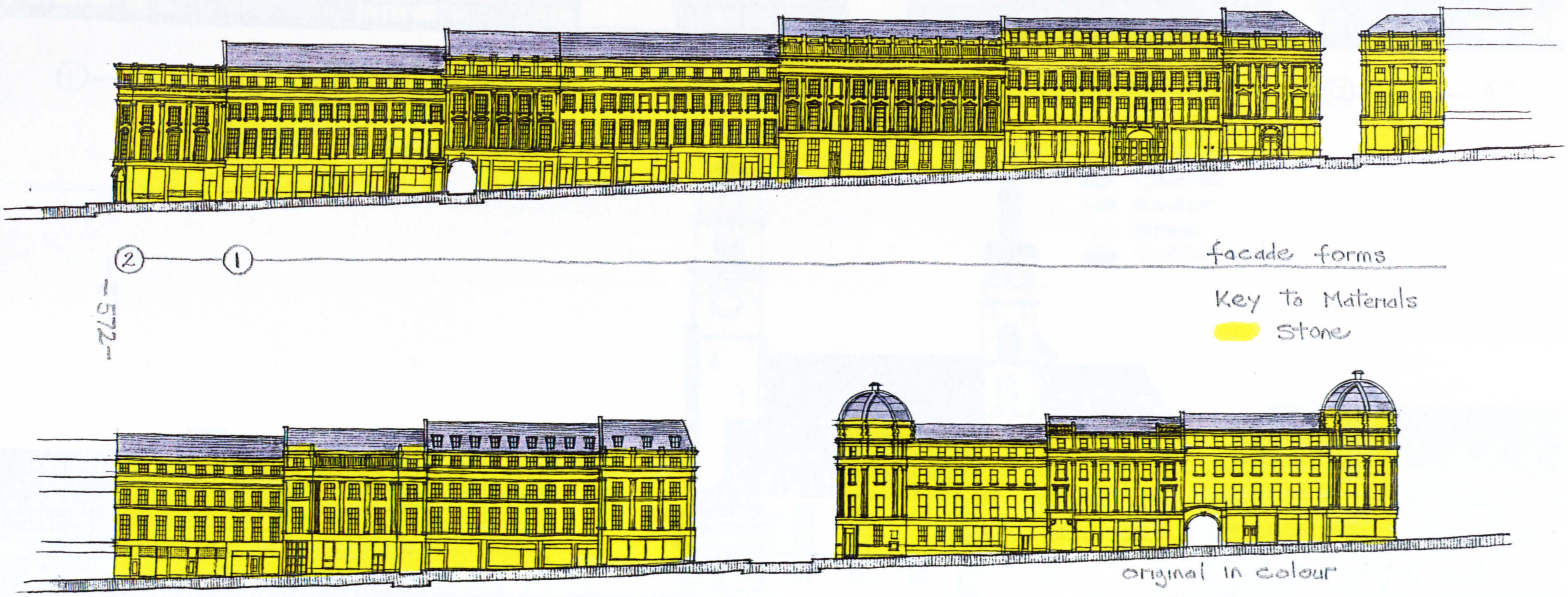


Figure 192 FACADE FORMS AND MATERIALS : GREY STREET · WEST SIDE

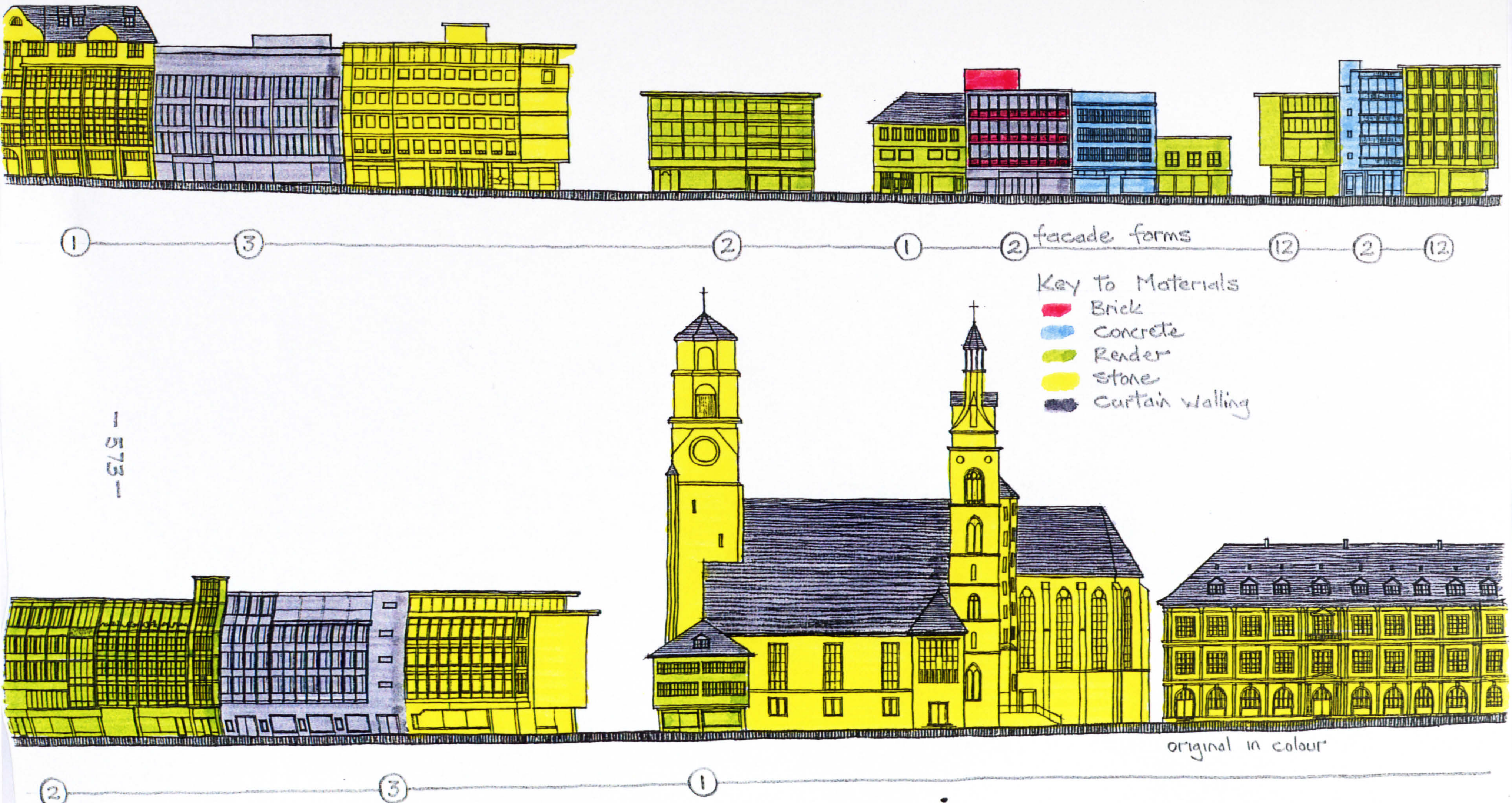


Figure 193 FACADE FORMS AND MATERIALS : HIRSCHSTRASSE - KIRCHSTRASSE

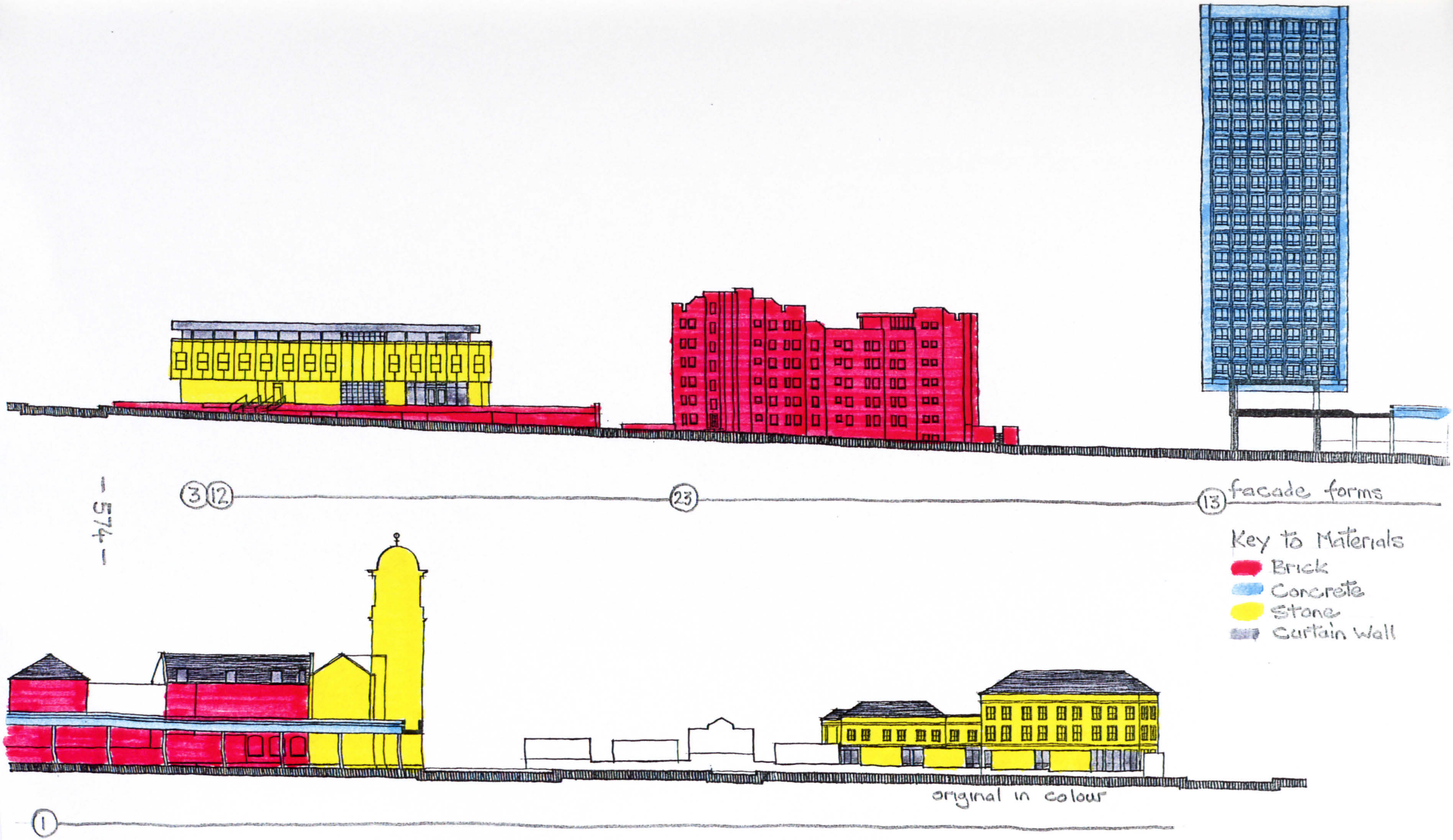


Figure 194 FACADE FORMS AND MATERIALS : JOHN DOBSON STREET · EAST SIDE

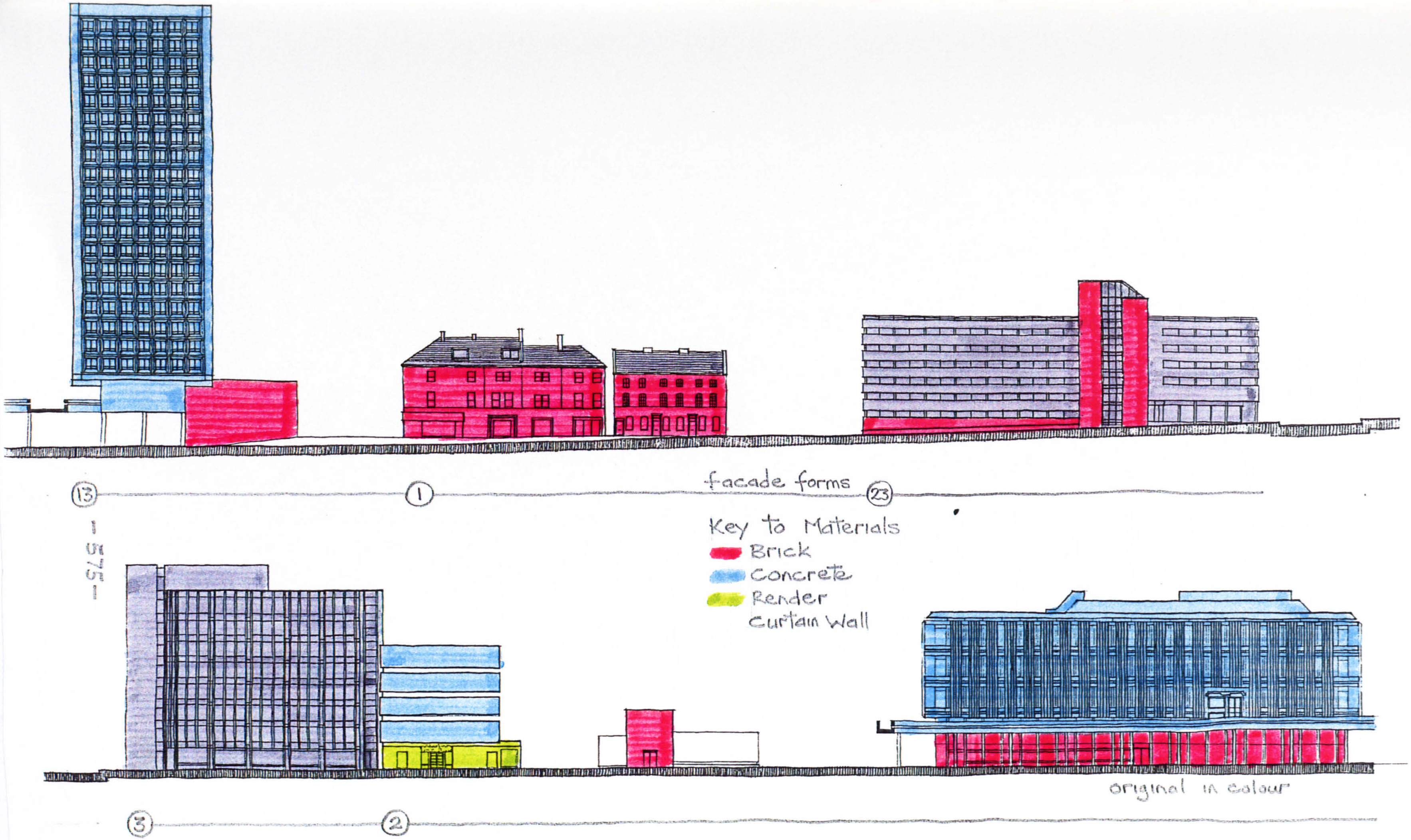


Figure 195 FACADE FORMS AND MATERIALS : JOHN DOBSON STREET · WEST SIDE

CHAPTER 5

THE POSSIBILITIES

1. SUGGESTIONS FOR THE STUDY AREAS

OBJECTIVES

First, it is important to establish aspects which are NOT within the scope of this section. The intention is NOT to produce a master plan. NOR is there an aim to introduce a comprehensive scheme for the Study Areas. NOR will any of the suggestions be presented as Design Proposals for the Areas.

The suggestions DO involve the Application of Urban Design Principles, using Urban Typologies to produce some possibilities. Successful devices and systems from the European Exemplars may be employed as alternatives to current detrimental situations in the Newcastle Study Areas. Further objectives involve the assessment of the suggestions, in terms of the Capability for Restoration in Newcastle's Urban Landscape. Also, the suggestions will form the basis for a Frame of Reference for Future Development in the City. The Frame of Reference will be aimed at a strategy for new development rather than rectifying adverse situations, such as those found in the two Study Areas.

As noted in the Introduction, all the suggestions relate to survey information which was collected in 1991. Some demolition and redevelopment have occurred since that time and therefore The Possibilities may not be totally representative of the city in 1994.

THE GREY STREET STUDY AREA

Legibility

Districts

The Grey Street Study Area is a positive district, in terms of legibility. While the dates of buildings in the Area actually span at least three centuries in reasonably equal proportions, there is nevertheless, a strong 19th Century flavour in the facades. This flavour is generally

based on a kind of classical post-Renaissance style, much of which is referred to, as 'Tyneside Classical'. The style of these buildings should be reinforced in any new background buildings to the main street frontages. As far as materials are concerned, there is considerable consistency. The majority of the street frontages are in stone, with gables and rear elevations in brickwork. The latter also provides the elevations to minor streets and lanes, and to the Groat Market - Cloth Market part of the Area. The predominant use of these materials needs to be continued in the described locations. Concrete is almost absent and although there are minor amounts of render and curtain walling, none of these three should be encouraged. Thus the apparent age of facades, the building style, and materials, all contribute greatly to the uniformity of appearance.

Paths

The vehicular and pedestrian circulation present quite a complex picture, which seems to lack both structure and hierarchy. Clearer movement patterns are found in the Application of Urban Design Principles and they could be suggested for this Area. The schematic layout is based on a hierarchical, one-way, articulated vehicular movement pattern. (See Figure 196) Grey Street is re-established as the principal street in the Area. The European Exemplars have illustrated the advantages of tramcars as a means of city transportation. Thus opposing vehicular directions are separated by a tramcar system. It is based on a proposal from the mid 1980's which aimed to link the Quayside with the city's plateau. It is called 'the Q', after the shape of its layout.(1) The layout enables all the vehicular movement channels to be one-way. Further, the tramcar system obviates the need for many of the bus routes in the Area, thus removing the desire for restricted access to any of the streets. Artificial devices such as barriers and central reservations are relatively rare in this Area, but any existing should be

removed. The illustrated arrangement is aimed at maintaining orientation through clearly directional routes. A more finely-grained car parking and servicing access would need to be overlaid upon this model. Also, there is scope for establishing a network of cycle ways, adjacent to the vehicular routes, and on pedestrian paths.

Pedestrian movement is suggested in two forms. First, each vehicular street is lined both sides with footpaths, in the traditional manner. Secondly, the circulating nature of the vehicular movement enables some relatively large areas of land to be dedicated to pedestrian exploration. The objectives in this case are to create a 'chain of interest as an alternative to direct movement channels' and 'to form a multiplicity of routes'. These are based on the existing spaces but adjustments are necessary. The first adjustment relates to access. It has been discovered that the target distances between points of access should be 20 - 30 m. Secondly, all existing cul-de-sacs need to become part of a continuous network. Existing spaces can be used for pedestrian activity if they are adjusted for access and continuity. There is also a need to form static spaces (minor squares) within the movement pattern. (See Figure 197) This could be achieved in two ways. First, a series of existing dynamic spaces may be collected together. This could be because they are tending to claustrophobic situations, and require opening out or reducing in length. The creation of minor squares can also give greater significance to the meeting of two or more dynamic spaces. Secondly, existing spaces may be too amorphous and/or too large. Thus the spaces should be formed into squares of appropriate size and shape. It is noted that irregularly shaped shapes can be retained if they are perceived as potentially useful squares. The existing roof plan (see Figure 198) has been amended to show the effect of the spatial reorganisation on the form of the built fabric. (See Figure 199)

Nodes

The aim is to produce a small number of coincident nodal positions at maximum distance from one another. This can be achieved with distances between coincident nodal positions ranging from 100 m to 270 m. The large scale vehicular nodes meet the objective of defining the main transportation layout. However, this is largely determined by the existing street layout and therefore locating these nodes exclusively at extremities is not consistent with the other requirements for street usage. Nevertheless, the large scale vehicular nodes are well spaced, at distances from 100 m to 300 m. Secondary vehicular nodes occur within that structure, at spacings of 60 m to 100 m. Large scale pedestrian nodes only occur at coincident positions, but small scale pedestrian nodes are considerably more finely-grained, with distances between nodes of 30 to 40 m. In this way, an understandable nodal hierarchy is achieved, which can produce a varied and contrasting spatial structure. (See Figure 200)

Edges

These are the seams of the city and therefore their impact needs to be minimised. In terms of pedestrian edges, there are no water courses at street level in the Study Area. Physical barriers are few, but it is suggested that they be removed. The Area is not subject to abrupt changes in level. The North end of Pilgrim Street is in dual-carriageway form, but this would be removed as part of the revised vehicular circulation pattern. The urban motorway does not impinge on the Study Area directly, but an approach road in the South East corner produces loss of spatial definition and a harsh pedestrian edge. The suggestion is that the South East corner be restored to a spatial pattern consistent with the Study Area.

The above points also apply to the difficulties in vehicular movement associated with urban motorways and dual-carriageways, which were explained previously in this

thesis. Traffic management, which restricts natural use of the streets, has been reconsidered as part of the revised vehicular circulation pattern, and dead ends due to parking facilities and pedestrianisation are avoided.

Landmarks

The existing landmarks would continue to provide full value. Attempts to create landmarks by excessively large structures, do not apply to this Study Area. There are three existing landmarks, ie Earl Grey Monument, Theatre Royal and cathedral church of St Nicholas. While it is not necessarily appropriate to increase the number of landmarks at the larger end of the scale, minor squares formed as part of the pedestrian network could receive enhanced individual character as places, with the inclusion of small scale landmarks. It is important that such landmarks should not be positioned in the middle of the squares, as this marginalises the space. Thus, positions to side or corner are preferable and attachment to a building is also favoured. Another aspect is the view of the landmarks from different directions and different approaches to the squares. By their nature, landmarks tend to be public sector artifacts, structures and buildings. However, at the smaller scale, it should be possible to incorporate landmark status into private sector buildings.

Context

Existing Recognisable Patterns

The almost parallel nature of Grey Street and Pilgrim Street, produces the basis of the primary directional structure. This is emphasised in revisions to the vehicle movement pattern and by the tramcar line which also provides clear two-way articulation. Thus, the structure is based on the North - South orientation of Grey Street, Pilgrim Street and Grainger Street - Cloth Market, with Blackett Street, Market Street and Mosley Street, generating East - West linkages. East - West pedestrian

orientation, is the basis for the suggested network, with North - South linkages. The buildings create the street lines in nearly all cases and their continuity needs to be maintained. A measurement of building grain has been established by the relationship of ground floor area with the number of properties. Thus results for this Study Area, showed the average plot size of 195 m^2. This is a relatively fine grain. It has been a detrimental trend in urban construction, that city grain has become progressively more coarse. Whereas, it is recognised that fine grained patterns offer more successful environments. Thus, developments which are related to a plot grain size of 150 - 200 m^2 should be encouraged in this Study Area. A hierarchy of spaces is clear in the street patterns and the suggested vehicular and pedestrian usage is based upon it. In terms of the static spaces, the Area does not possess a major square. Whilst this kind of urban element is desirable, it would not be consistent with the small scale pedestrian network. Therefore, a variety of minor squares is suggested.

Complexity Within Order

The order is generated by the existing major streets. Transportation by both public and private methods, requires the clarity associated with this kind of order. In certain circumstances, pedestrians also require direct routes based on an ordered system. This is provided by pavements on both sides of the streets and by the larger-scale pedestrian ways, ie High Bridge and Cloth Market. The need for small-scale complexity relates to the remaining pedestrian movement. In the lanes, passages and minor squares, there is ample opportunity to explore, while frequent access points to the nearby major streets prevent anxiety about becoming lost.

Definition

Clear Visual Forms

The identification of the limits of each building can be achieved through architectural treatment. A change in materials or staggers in facade line are not considered appropriate for this Study Area. Nevertheless, much can be achieved by limiting development size. If each development relates to the plot grain size, and large scale proposals are avoided, the clarity of individual buildings becomes easier to perceive. Definition of streets by building frontages is well established in this Area. It is important that the definition of all other spaces occurs in a similar manner. This introduces the concept of buildings which require two facades, often opening out onto two different kinds of space. In this Area, both the rear elevations and spaces behind the streets have been constantly ill-considered and neglected in the past. Thus facades, other than those onto the streets, will require a great deal of attention.

Sharpness of Boundaries

In order to assist the clarity of building lines, all artifacts adding to the confusion, need to be removed. These include decks, walls, walkways, steel barriers, inappropriate signs and street furniture. Fortunately, little of this clutter exists in the Grey Street Study Area. However, one building on pilotis, projects over part of Pilgrim Street. It would be greatly advantageous to remove the projection and form a new facade on the revised building line.

Sense of Containment of Spaces

The possibilities for the Area are based on a network of well-contained and contrasting spaces. The continuity of the movement pattern avoids spaces becoming isolated.

Scale

Height

Analysis of the existing Study Area shows a high proportion of four storey buildings. The classification as a Passive Architectural Framework confirms that building above four storeys should not be required. The building heights to eaves in these circumstances should be in the range of 14 - 17.5 m for streets in a width banding of 16 - 23 m. The target range for heights in narrow streets, ie 14 - 16 m wide, should be 10.5 - 17.5 m, while maintaining width:height ratios of within approximately 0.8 - 1.5, for all vehicular streets. The target range for the heights in pedestrian ways, ie 4 - 14 m, should also be in the 10.5 - 17.5 m band, while maintaining width:height ratios of within approximately 0.3 - 0.8. Narrow pedestrian paths may be subject to claustrophobic conditions within these parameters and therefore buildings of two and three storeys may be advisable. However, it is important to retain the high proportion of four storey buildings, throughout the Area.

Building heights around squares would also be preferably in the 10.5 - 17.5 m band. The width:height ratio for squares can be in the range of 0.9 - 4.0. Yet, due to claustrophobic and agoraphobic tendencies at the extremities, ratios from 1.2 to 2.0 may be more acceptable for minor squares. In very small squares, it is possible that the number of storeys may need to be reduced.

Grain

The first objective is to maintain consistency within the Area. It has already been established that a plot grain size of 150 - 200 m^2 should be encouraged for the Grey Street Study Area. This will not only ensure consistency but also produces the preferred fine grain pattern to the

building fabric. Secondly, a comparison will need to be made with the John Dobson Street Study Area, as similar grain in adjacent districts, assists the notion of the seamless city.

Density

Percentages of built area compared with overall ground area were taken at each floor level for all four Study Areas. The conclusion is that the Grey Street Study Area demonstrates appropriate density figures throughout. The existing percentages are as follows -

above fifth floor	0
fifth floor	1.5
fourth floor	10
third floor	30
second floor	37
first floor	42
ground floor	43 per cent

The introduction of new pedestrian spaces could reduce the target ground and first floor percentages, and it may be that 40% is a more realistic objective. Due to the need for lower heights adjacent to narrow spaces, the target may be 35%, by the third floor. As it has been established that for containment purposes, building above third floor is not necessary - the target thereafter should be zero. It is also noted that similar density in adjacent districts assists the notion of a seamless city and will need to be taken into account when assessing the John Dobson Street Study Area.

Access

Permeability

The suggestions for the pedestrian network are based on the theoretical distance between access points of 20 - 30 m. In practice, existing access points have produced occasional distances of 15 m. On the other hand, some

newly considered entries are up to 45 m apart. It is therefore concluded that the relatively narrow band of 10 m needs to be extended to take the topography of the Area into account.

Devices

In order to avoid fragmentation of spatial enclosure, frequent access points to pedestrian network need to be relatively narrow. All suggested entries from major streets also involve arches and passageways, to reduce their impact on the street form. Within the pedestrian network, there is considerable scope for gateways, arches, colonnades and arcades.

Sectors

In principle, all suggested spaces are in public sector control and open to all classes. The only exceptions are the existing chares, some of which are narrower than the recommended 4 m. A number of these could be reduced in length, to off set their claustrophobic atmosphere. However, some of them may also be gated and possibly controlled by owners of the adjacent buildings.

All changes in level other than those resulting from the natural terrain, have been avoided, and alternative routes are provided in all cases. Pedestrian routes are limited to 30 m, before entering a square or meeting another path.

Topography

Emphasis of the natural topography assists mobility and helps to define the identifiable character of the Area. The Earl Grey Monument is considered by many people to be the focus of the city. The way in which streets in the Study Area rise and culminate at this point is therefore, very appropriate. However, it is unfortunate that there is not scope for a major square with a symbolic focal building. Paving over the streets cannot make a square and it is suggested that vehicles resume their rightful

place on Blackett Street and along the full length of both Grey Street and Grainger Street. Perhaps Eldon Square will enjoy a renaissance as a symbolic place when the current love affair with retailing has passed.

Unity

Materials

During the 20th Century, there appears to have been a desire to introduce numerous different materials for the external treatment of buildings. It seems to have been a kind of misplaced notion that interest is created by a jumbled appearance. In an Assertive Architectural Framework, there is scope for a greater variety of materials, but in a Passive Architectural Framework such as the Grey Street Study Area, the use of materials needs to be as described in the 'legibility of the district'.

Technology

It is assumed that the fundamental technology for the Area will be loadbearing construction. However, columns and beams may be necessary to support larger spans. This assertion is based on the recommended material selection, plot grain size and the suggested building heights.

Scale, Style and Spaces

The above aspects have been covered in other sections. Unity is achieved by consistency of application and through an understandable hierarchy.

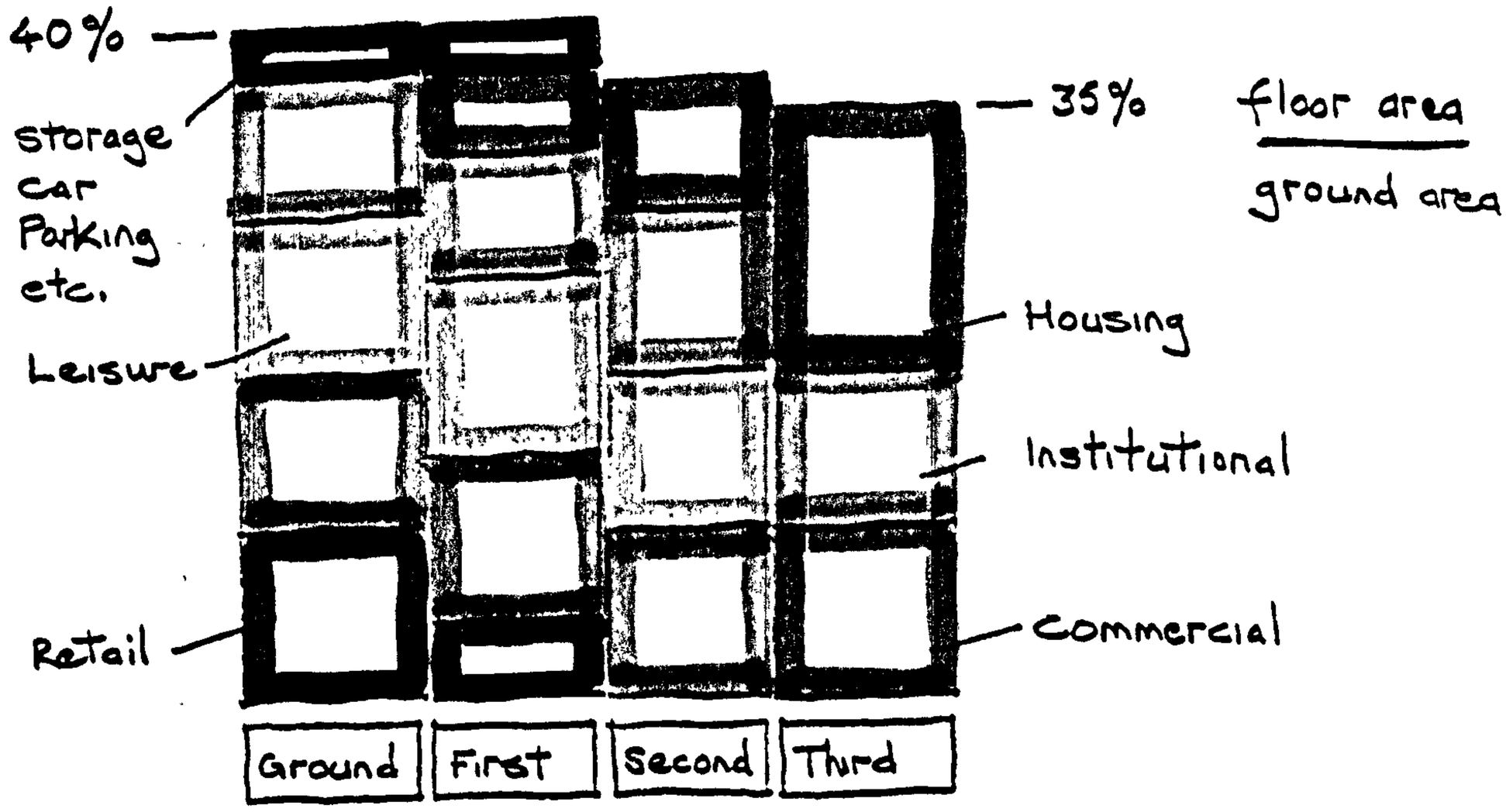
Large Scale Schemes

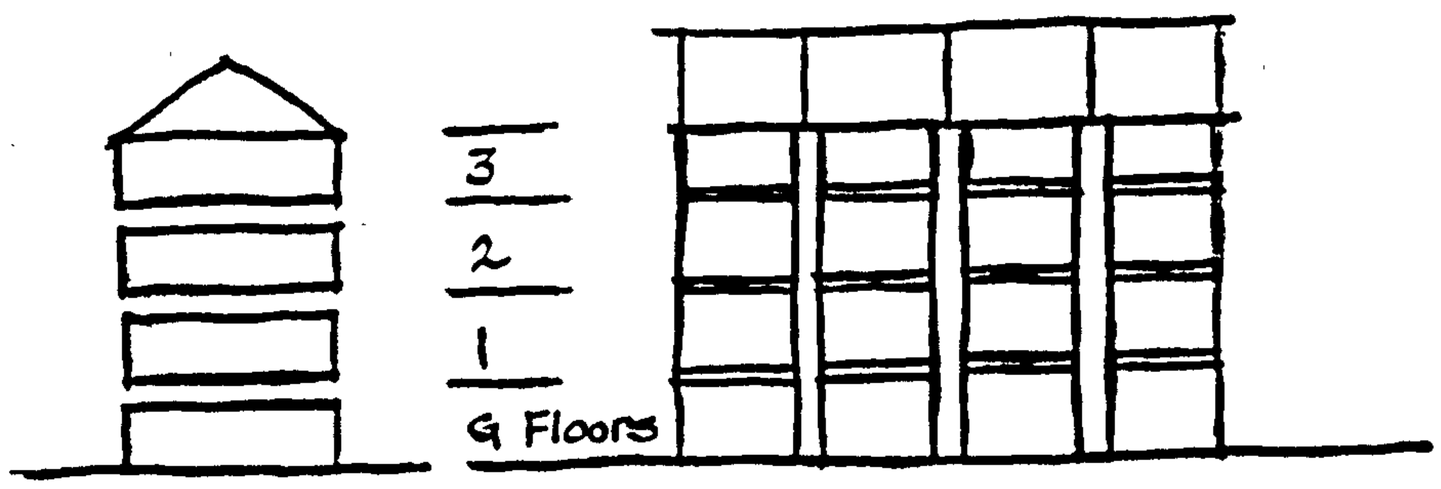
These are undesirable and avoidable in this Study Area.

Diversity

Uses

The objective is to maximise the number of compatible uses, and especially to increase the resident population. Thus, an arrangement for uses could be as follows -





While Institutional and Commercial uses could fit into a system which is divided vertically, ie separate buildings - the implication of the above diagram is that the majority separation would be horizontal. In the past, vertical separation has been preferred because of easier interpretation of Regulations, compatibility with ownership, simpler property management, etc. However, these preferences have mitigated against Housing use and created considerable empty space above Retail premises.

Residents

The European Exemplars demonstrate that a substantial residential population is a feasible option. The suggestion is that residential accommodation should be provided in first, second and third floors.

Age and Economic Yield

There is a high vacancy of property in the Grey Street Study Area. The notion that vacancy is related to the age of property is not proven. It is suggested that occupancy could be increased by discarding 20th Century zoning policies and pursuing a strategy of use diversification.

Re-Use

Initially, redundant buildings could be re-used as residences. In this respect, a philosophy of 'living over the shop' (2) has been clearly identified. Nevertheless, the modest proportion of Retail premises and the need for more extensive diversification, involves a broader investigation of possible uses.

Facadism

This is an acceptable strategy where the buildings were originally conceived as designed facades with traditional buildings constructed behind them. With the exception of the Theatre Royal, Central Exchange and the Grainger Market, all the buildings in the 1834 Central Area Development Scheme, were conceived in this way.

Joy

Intricacy and Visual Delight

These are primarily associated with the detail of buildings, artifacts and spaces. Features of existing buildings need to be rediscovered and documented. It is also important that buildings, artifacts and spaces created by the suggested pedestrian network should express these qualities.

Poetic and Symbolic

Symbolic buildings need appropriate settings, and the implication of the analysis, is that access via a form of square is a necessary requirement. Poetry is provided by contrasting spaces and atmospheres. It is therefore important that the suggested pedestrian network is responsive in this respect.

Meaning

The imagery of the names for suggested buildings and spaces should reinforce the social, historical, functional and physical characteristics of the Area. Further investigation is required to establish appropriate names for precise locations.

Vision

Objectives of Principal Players

This section about THE POSSIBILITIES FOR NEWCASTLE UPON TYNE and specifically in this case, SUGGESTIONS FOR THE GREY STREET STUDY AREA are set out as a framework, to which the principal players can respond.

Communication of the Vision

If proposals are to be based on these suggestions, clear guidance for development of each site will need to be readily available.

Squares

Sizes and Shapes

Compared with *Sitte's* absolute maximum of 145 x 60 m, the largest of the suggested squares, at 40 x 22 m, appears very small. (See Figure 201) Yet, it should be noted that 145 x 60 m relates to the main square in a city. Also, in the Grey Street Study Area, there are three relatively large scale squares already existing. In addition, the suggested network relates to minor squares. It is apparent from the analysis that about half of the new squares would be smaller than the least square on the

table of 'good models'. (See Figure 202) It is considered that minimum size is not determined by absolute dimensions, but assuming all the criteria are met, then squares of minimal size can be totally satisfactory. The length:width ratio ranges from 1.22 to 2.44, compared with the model range of 1.07 to 3.00. Thus, the suggested squares are well within acceptable limits.

Heights of Buildings

While it is accepted that smaller spaces tend towards claustrophobia, perhaps it is the nature of minor spaces within a city structure, that the ratios occur at the lower end of the scale, as follows -

	model	Grey Street Study Area
length:height ratio	8.5 - 1.4	2.9 - 1.4
width:height ratio	4.0 - 0.9	1.7 - 0.9

Openings

Larger openings which produce a bustling environment are provided by existing streets in this Study Area. Most of the streets contain vehicular activity, but it is intended that two of these, ie High Bridge and Cloth Market, should be pedestrianised. They offer direct access to the Bigg Market. The model minimum opening size is 4 m, and all the new openings are based on that dimension. Some of the existing streets eg Market Lane, are slightly larger and some of the medieval chares are as little as 2 m wide. The scale of the openings to the network of squares, is aimed to produce the secluded, slower atmosphere - in contrast to the existing streets and markets.

Smaller squares require fewer openings, but the number of openings is not restricted, provided containment is assured. Moreover, in situations where the length:height and width:height ratios are on the lower end of the scale,

the claustrophobic tendency can be relieved by percentage and number of openings, which are at the upper end of the scale. A comparison between the model and the suggestions for the Grey Street Study Area, is as follows -

	model	Grey Street Study Area
percentage opening	8 - 28	10 - 28
number of openings	2 - 9	2 - 7
perimeter size of squares (m)	98 - 334	50 - 126

The masking of openings is complete in 11 cases and the square is at the scale of a thoroughfare in 6 cases.

Focal Buildings

The quality of squares is certainly enhanced by focal buildings. Yet, there are size and shape requirements for squares to be able to support focal buildings. It may be that only squares G6, 8, 9, 10, 11, 12 and possibly 13 and 17 together, have the potential for focal buildings. In terms of type, the most likely uses are Public Facilities, Education and perhaps Law. The greatest opportunity is probably for a square or group of squares to be entirely defined by a focal building. Otherwise, some of the larger examples of squares could be the wide plan type.

Topographical Situations

The disposition and linkages of the squares, make full use of the natural land form. The more direct linkages tend to run along the contours, while alternative routes tend to be located on the gradient. All occur at natural ground level and the movement pattern ensures that there are no cul-de-sacs.

Functions and Time Usage

A specific function is not designated to the smaller squares, as a focal building is not necessarily appropriate. In these cases, the squares are part of the movement pattern but there can still be an association with buildings that have public functions, eg shops, cafés. It is likely that a number of the squares will act as places of trade, information and recreation, which will help to maximise their time usage.

Good Models

The suggested squares are consistent with the criteria of the models, except that a number of the suggested squares are smaller than any of the models.

Streets

Street Patterns

The spatial patterns in this Study Area are well established and changes to them would be undesirable and impractical.

Definitions

It is important to assess the width and ratio characteristics against the model bandings -

	Model	Grey Street Study Area
width -		
two-way vehicles	23 - 12	23
one-way vehicles	19 - 11	21 - 14
pedestrian	13 - 4	14 - 4 (2)

Alterations to the East side of Pilgrim Street at its Northern end, should aim to reduce the street width to a maximum of 20 m. The width of Blackett Street (21 m) emphasises the need for at least one-way vehicular movement. The suggestions also include the tramcar line, for part of that street. A small number of the existing

pedestrian ways (medieval chares) are 2 - 3 m wide. For historical reasons, these should not be increased to the normal minimum access width of 4 m.

The nature of the new pedestrian openings does not impinge upon containment of any of the streets and therefore the notional lengths remain unaltered.

	Model	Grey Street Study Area
ratios -		
length:width	12.6 - 6.0	10.9 - 3.5
length:height	16.8 - 1.7	14.7 - 4.3
width:height	1.5 - 0.3	1.4 - 0.3

Junctions

The aim, with both cross-roads and T junctions has been to produce a small number of generic types, to allow consistency of movement and assist motorists. The layout supports the aim by articulating junctions, and the tramcar system is very useful in this respect. (See Figure 203).

In terms of other forms, the Pilgrim Street roundabout has been amended to form a series of T junctions, and configurations which direct vehicles away from the natural line of the street have been avoided. Although not strictly a square, pedestrian space at the Earl Grey Monument would be used to separate the traffic lanes and simplify the junctions with Blackett Street. The Bigg Market square is also useful for the junction between Newgate Street, Grainger Street and Groat Market, to form a 'break in direction' cross roads.

Building Line

With the exception of two situations, the definition and delineation of streets is provided by the existing buildings. The two exceptions have already been noted,

but for clarity they are necessary revisions to the Pilgrim Street roundabout and reduction in width of the Northern part of Pilgrim Street. The alteration to the latter includes removal of a building projecting over part of the street, together with a central reservation and some minor barriers.

Observations about corners, containment and openings have been sufficiently expressed, previously. As far as conflicts are concerned, the principle of the widest street for two-way vehicular movement, mid-range streets for one-way vehicular movement and narrower streets being dedicated to pedestrian use, is being followed. Also, both pedestrians and vehicles remain in contact with the ground surface.

Grouped Spaces

The suggested network of pedestrian spaces offers visual variety and interest. Optional routes are associated with the network of squares, enabling landmarks and focal buildings to be viewed from different directions, with entry into the same square from a variety of approaches.

Central Places

While the suggested squares would not occupy the full range from active to reflective, nevertheless the potential for the active (Recreation and Trade) to the cultural (Information), would certainly extend and link the Area's central places.

Buildings

Focal and Background Buildings

Throughout the whole Study Area, it is reasonable to expect that there could be any of the uses of focal buildings (Government, Religion, Public Facilities, Law, Health, Education) and background buildings (Residences, Employment, Leisure, Shopping).

Layout and Form

Focal buildings require a square to their main entrance and background buildings need to define and contain urban space. Corners deserve particular attention, and in this Study Area, corner pavilions and features such as domes or turrets, are the most appropriate techniques. Focal buildings may be physically attached to the background frame, but in the suggestions for this Area it is not necessary, as visual detachment should not occur.

While the model dimensions for plan depth, external wall ratios and heights are the ideal in this Study Area, the dimensions are mainly determined by existing buildings which should be disturbed to the least possible extent.

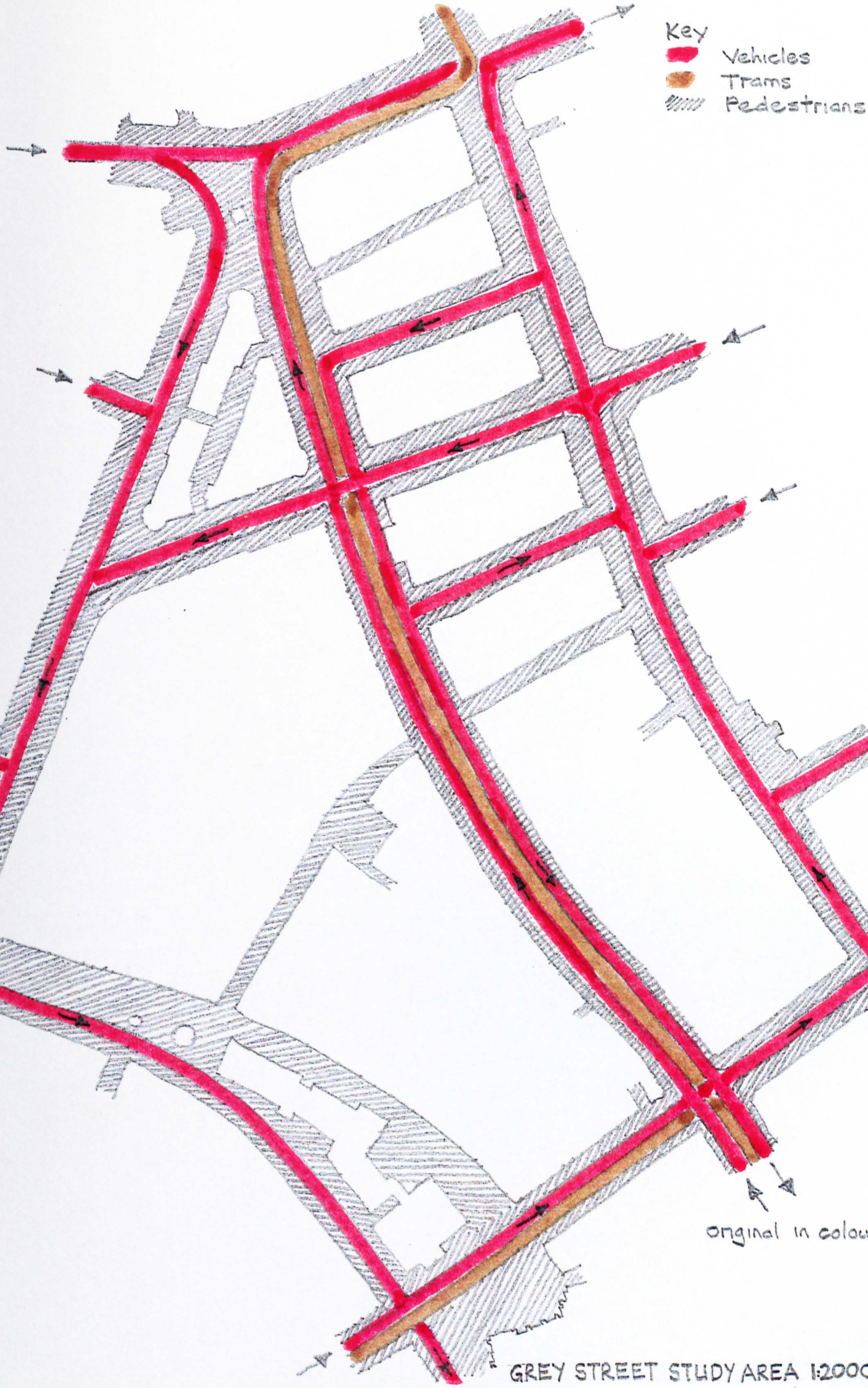
The expression of roof form is an important aspect and there should be a policy of pitched roofs for all buildings in the Area. This will provide a general facade form of 'plain elevations with traditional pitched roofs'. The occasional form of the 'top floor set back', may also be useful around some of the smaller spaces.

Architectural Character

Although it was only the Architectural Framework of Grey Street itself that was tested, nevertheless it is important that the whole Study Area should display a uniform Architectural Framework. Therefore, all development should reinforce a Passive/Tight framework, ie

formal
limited number of building styles
limited range of materials
simple elevations
minimal change in building line
little skyline interest
broader frontages

Anonymity in the facades must be avoided. Windows and entrances are vital elements in the facades. The windows need to relate to human scale and give indications as to the number and height of storeys. The most successful pattern for background buildings is likely to be 'walls pierced with a hierarchy of openings'. Entrances need to be 'a celebration' - welcoming, clear, bold, easy to see and decorated. Transitional spaces are advantageous. The minor squares may function in the role of courtyards and gardens, but arcades, porches and external steps could all be used. Particular care is required with ground floor design to ensure consistency throughout the facades.



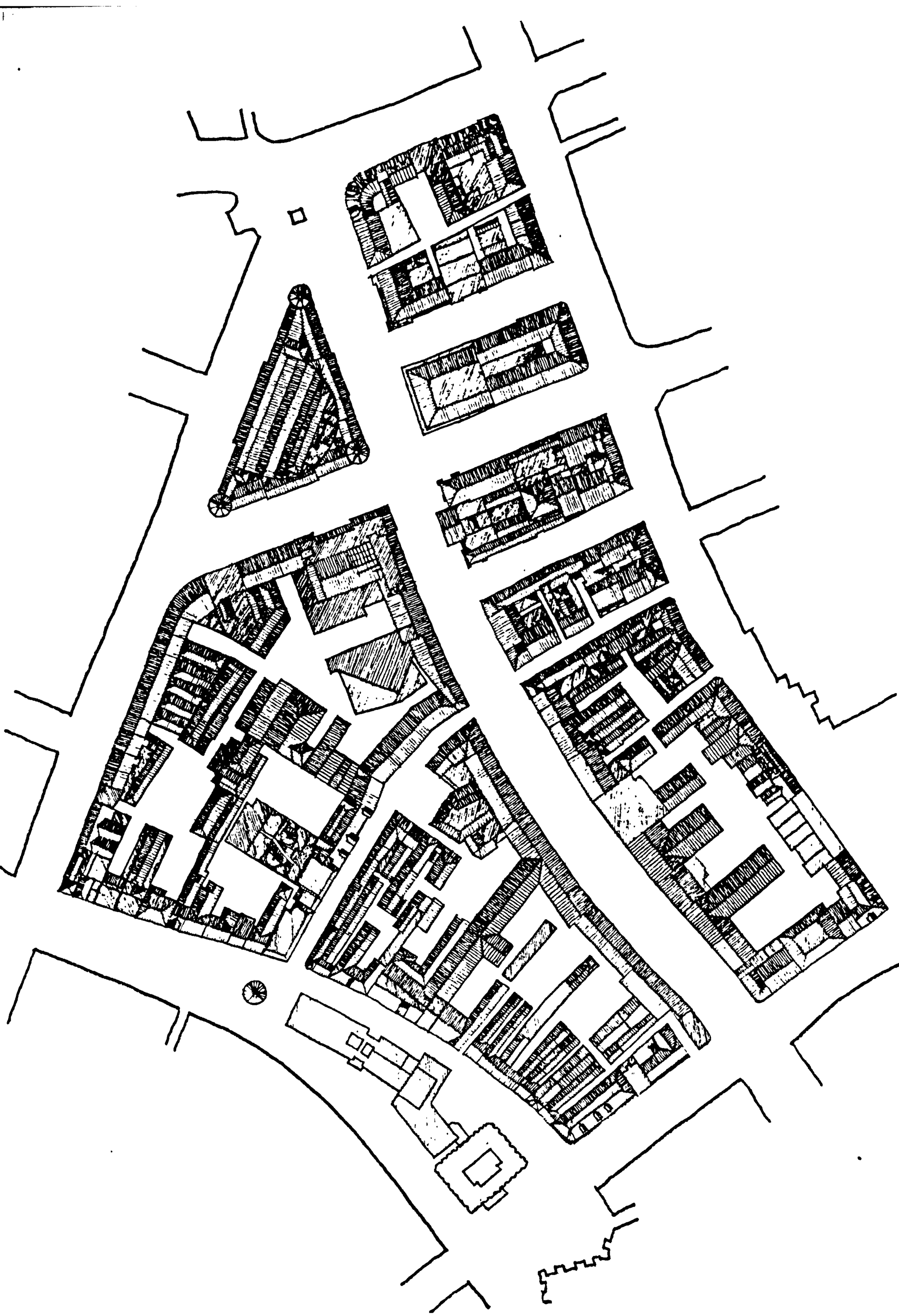
GREY STREET STUDY AREA 1:2000

Figure 196 SUGGESTED VEHICULAR MOVEMENT PATTERN

Figure 197 SUGGESTED ADJUSTMENTS TO EXISTING BUILDINGS + SPACES GREY STREET STUDY AREA 1:2000

GREY STREET STUDY AREA 1:2000
EXISTING ROOF PLAN

Figure 198



GREY STREET STUDY AREA 1:2000
SUGGESTED ROOF PLAN

Figure 199

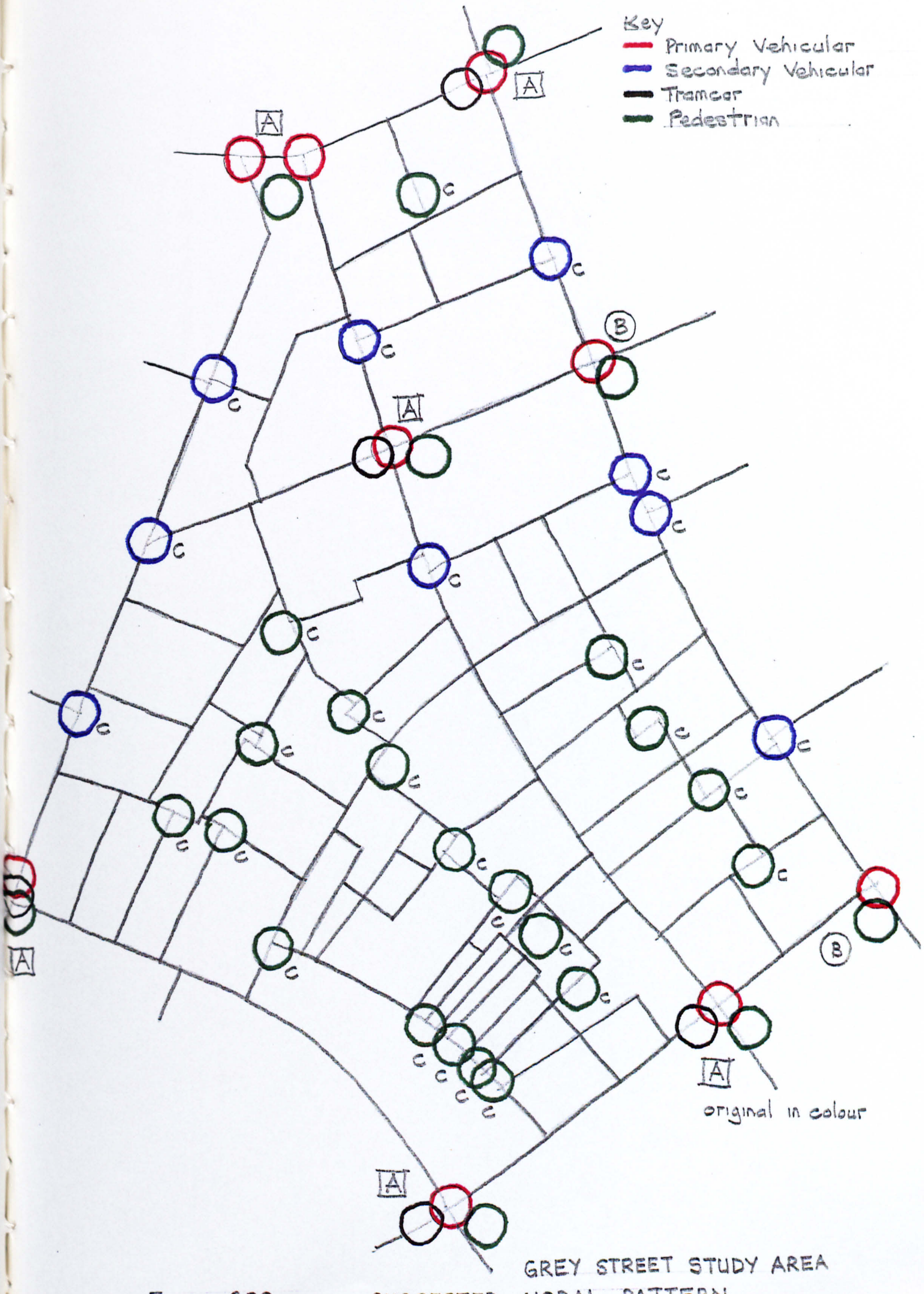


Figure 200 SUGGESTED NODAL PATTERN GREY STREET STUDY AREA

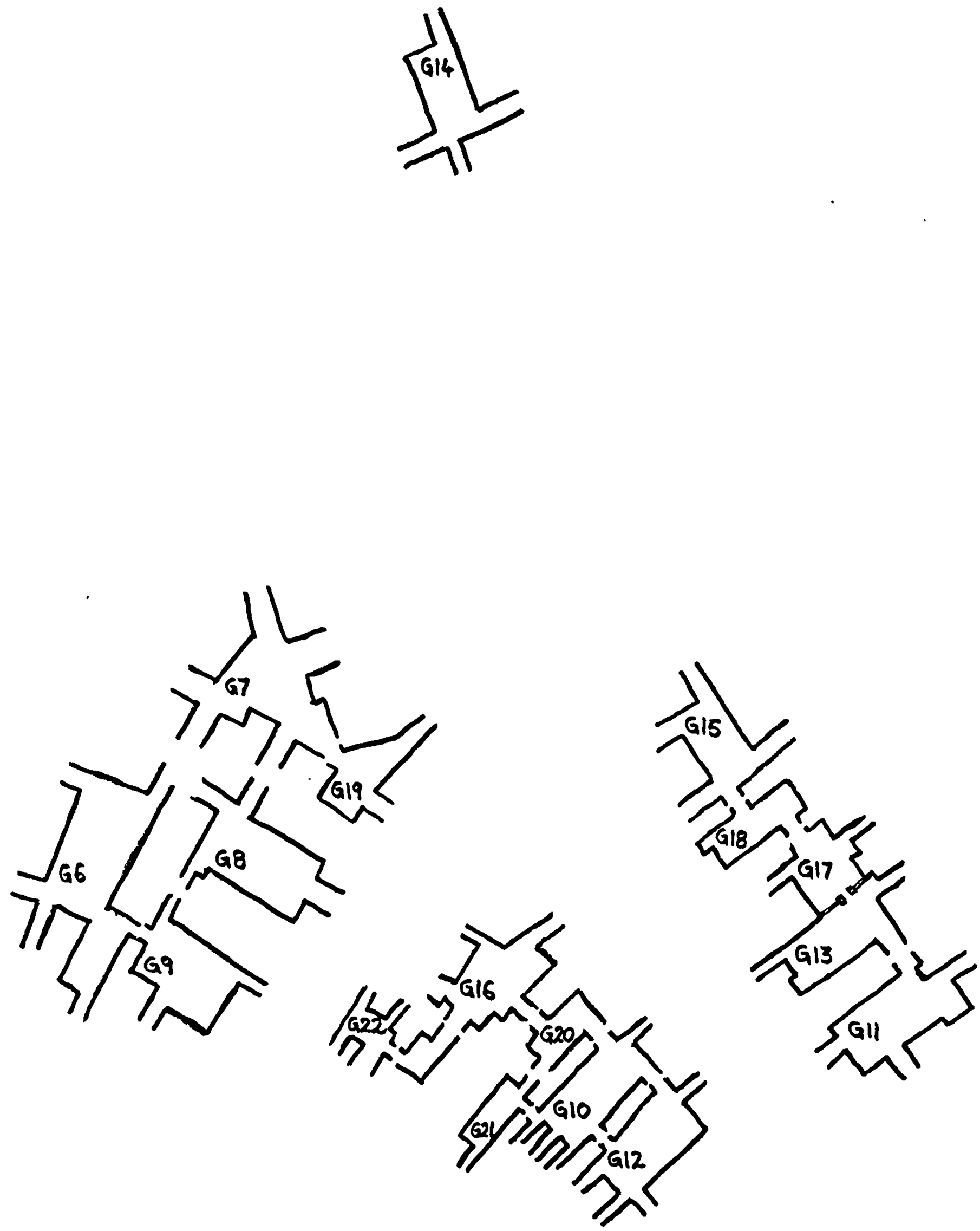
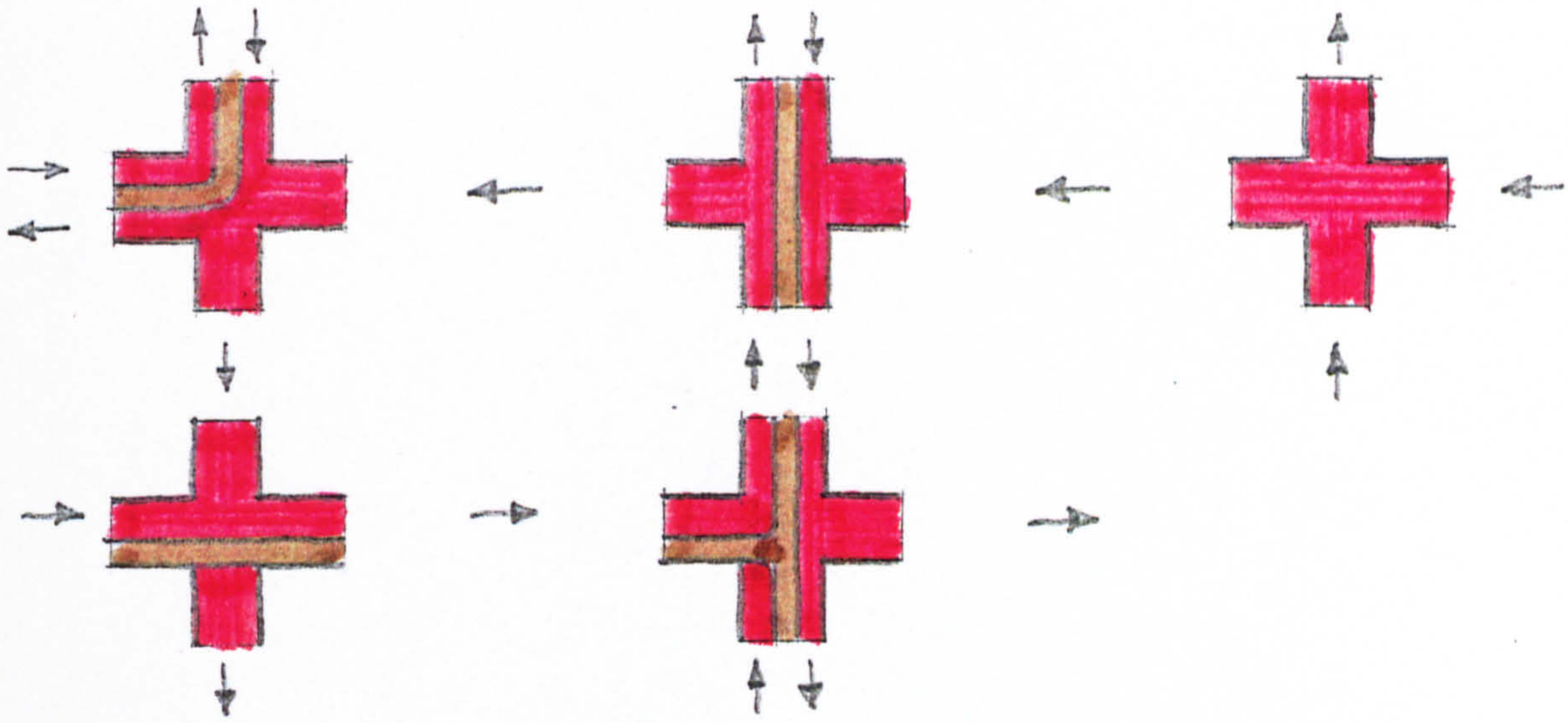


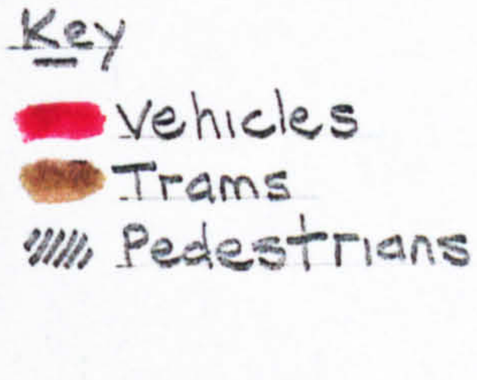
Figure 201 GREY STREET STUDY AREA 1:2000
SUGGESTED SQUARES

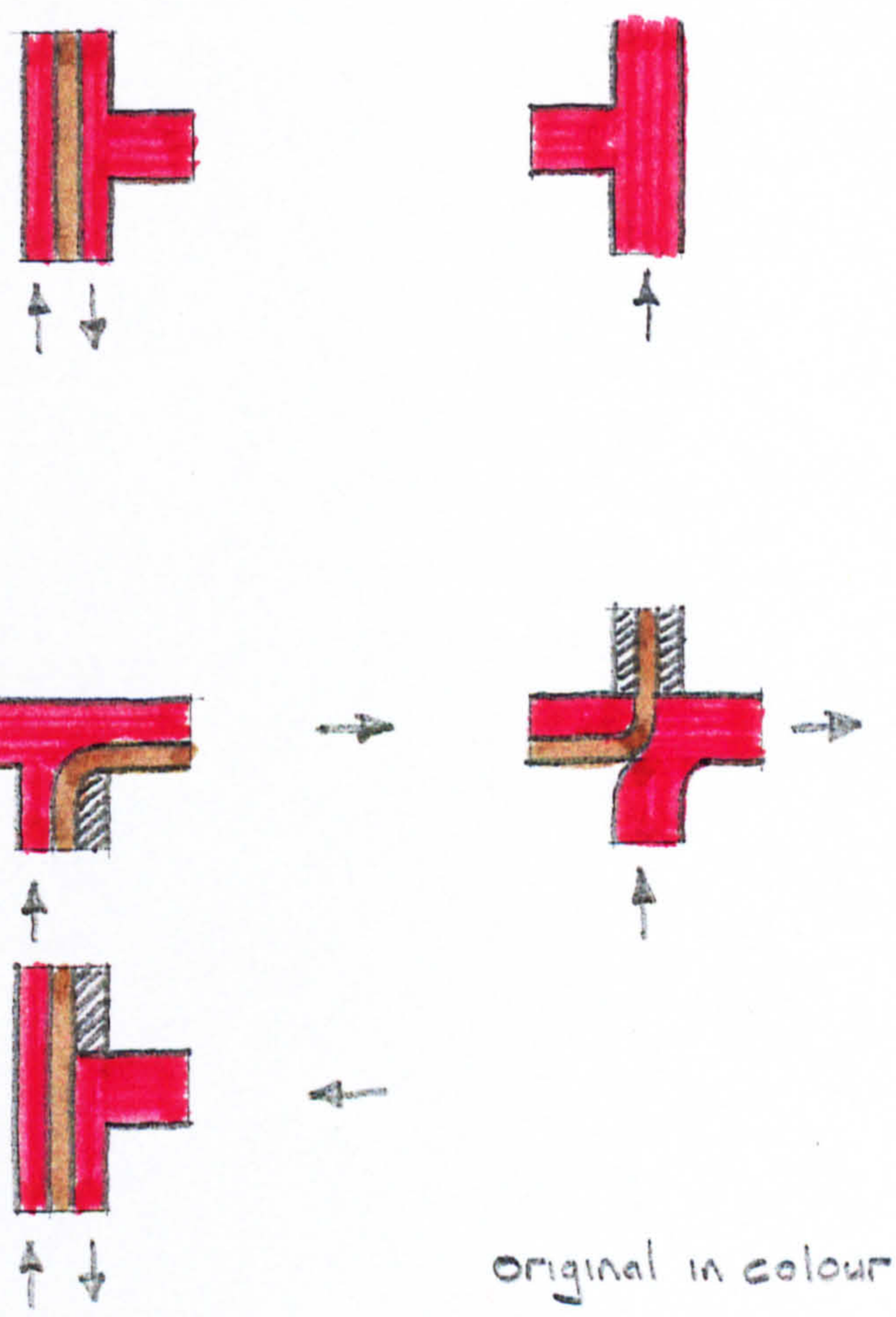
Ref	Nom-inal Size	Nom-inal Area	Actual Peri-meter	length / width	length / height	width / height	%tage open-ings	no of open-ings	Open-ings not masked
G6	40x22	880	126	1.82	2.9	1.6	17	5	0
G7	35x22	770	124	1.59	2.1	1.3	26	6	0
G8	36x18	650	112	2.00	2.6	1.3	14	4	0
G9	30x20	600	106	1.50	2.2	1.5	16	4	0
G10	35x16	560	102	2.19	3.3	1.5	22	7	2
G11	34x16	544	100	2.13	2.1	1.0	16	4	0
G12	34x16	544	100	2.13	2.5	1.7	24	6	0
G13	34x15	510	98	2.27	2.1	0.9	16	4	0
G14	30x15	450	90	2.00	1.8	0.9	20	4	2
G15	28x15	420	86	1.87	1.7	0.9	26	5	2
G16	23x18	414	84	1.28	1.4	1.1	24	5	0
G17	22x18	396	82	1.22	N/A	1.1	20	4	2
G18	28x12	336	80	2.33	2.7	1.1	10	2	0
G19	22x14	308	75	1.57	1.6	1.0	17	3	0
G20	20x11	220	62	1.82	1.9	1.0	19	3	0
G21	22x 9	198	62	2.44	2.1	0.9	13	2	2
G22	15x10	150	50	1.50	1.4	1.0	28	5	2

GREY STREET STUDY AREA

Figure 202 ANALYSIS OF SUGGESTED SQUARES







original in colour

Figure 203 GREY STREET STUDY AREA
SUGGESTED STREET JUNCTIONS

THE JOHN DOBSON STREET STUDY AREA

Legibility

Districts

The John Dobson Street Study Area is an identifiable district, although it could not be described as displaying positive legibility. The Area was mainly constructed during the 20th Century and a high proportion of the buildings date from the 1960's onwards. There is no consistency of building style and to many people, this Area represents the incoherence of modern planning. Therefore, it is necessary to adopt a style or code, for future background buildings. There is a strain of vernacular form, that runs through the Area, and this would seem to have the greatest potential in future development. There is a range of existing materials, but as a sizable minority of buildings, is constructed in brickwork, the aim of coherence might be best served by the use of that material.

Paths

The complexities of vehicular and pedestrian circulation in this Study Area have been well documented. If the Application of Urban Design Principles, is taken as the basis for a different kind of layout, some relatively major revisions are required. First, all structures which oppose the street pattern need to be removed. This includes elevated pedestrian walkways, the deck over John Dobson Street and in fact, Bewick Court. The latter is a major operation and further justification will be given under subsequent headings. Secondly, clear shape and form needs to be reintroduced to the streets. (See Figure 204). The system is based on a modified grid, which enables one-way circulation around blocks of building, with clear entry and exit points to the Area. The route of the 'Q Tramcar' continues along Northumberland Street. The dislocation of the Area and separation from the Manors, caused by the Central Motorway East, requires particular

attention. The motorway is in a cutting at the end of Ellison Place. Thus, it can be bridged at natural ground level, and a link created by both tramcar and street. The reinstatement of the streets generally means that all barriers and dual carriageways can be removed. Access for car parking and servicing becomes part of the layout and there is potential for cycle-ways to be added.

Pedestrian movement follows similar principles to the Grey Street Study Area. Both footpaths lining streets and pedestrian exploration, are part of the suggestions. Again, pedestrian access at about 30 m intervals is adopted. The pedestrian network comprises a series of squares, linked by paths. A proportion of existing space could be re-used, as well as space that would need to be created by adjustments to buildings. (See Figure 205) The existing roof plan (see Figure 206), has been amended to illustrate the effect of the spatial reorganisation on the form of the built fabric. (See Figure 207)

Nodes

The nodal structure (see Figure 208) appears quite rectilinear in form. Coincident nodes are few, and mainly occur around the perimeter at spacings in excess of 100 m. Secondary vehicular nodes are located between coincident nodes on primary vehicular paths. Large scale pedestrian nodes are positioned away from the vehicular routes, on major pedestrian paths across the middle of the Area. Small pedestrian nodes are at a much finer scale and appear as quite tight clusters, with centres often at 30 - 50 m within each group. Thus, the objective of a structural hierarchy is achieved. It is based on a logical layout for vehicular movement, bordering areas of interwoven pedestrian activity.

Edges

The strongest edge to this Study Area is generated by the Central Motorway East. Moreover, its presence is pulled into the Area by Durant Road. One of the objectives of the suggestions is to minimise the negative effects of the motorway. The reinstatement of a more traditional street pattern helps this situation by pushing the motorway code out of the Area, with the existing roundabout enabling one point of access and one point of egress.

The breakdown in spatial definition, evident in the existing Area, has resulted in a plethora of physical barriers. With the street pattern restored, all these barriers become unnecessary. Level changes in pedestrian movement have been generally due to the vertical segregation of vehicles and people. The response is to return all users to natural ground level. The other main obstruction for pedestrians, is John Dobson Street itself. The suggestion to remove the dual carriageway form and reduce its width, means that it appears as any other city street. The main obstacle for pedestrians beyond the Study Area, ie the motorway, is less penetrable. However, the suggested bridge which would extend Ellison Place over the motorway, at least produces one access to the Manors which does not currently exist.

By the nature of the motorway, it is not possible to introduce further vehicular junctions. Thus the Ellison bridge is useful as a device for enabling Eastward vehicular movement out of the Area. The inhibitions created by traffic management, would be considerably eased by the suggested adoption of continuous and interacting one-way loops of vehicular circulation. Northumberland Street and Saville Row are retained for pedestrian use but neither causes an obstruction to the vehicular flow. Parking facilities are also accessible from the rearrangement of the streets, without creating dead-end situation.

Landmarks

The two main existing landmarks are the Central Library and Laing Art Gallery. An improved setting for these buildings will be considered under a subsequent heading. Both are symbols of a cultured society, although currently, they lack distinctness. The library building is a product of its time and therefore needs to be accepted for what it is. On the other hand, the Laing Art Gallery needs reparation to its scarred Southern, Western and Northern facades. There is considerable scope in this Study Area, to introduce new landmarks and those with symbolic significance, certainly need to be encouraged. At the same time, more modest landmarks would assist individuality in the squares created by the pedestrian network. Major landmarks are likely to be derived from public sector development. However, with careful communication of the objectives, there is no reason why small scale landmarks could not be a product of private sector activity.

Context

Existing Recognisable Patterns

The existing street pattern is so confused that it is necessary to peel off the layers, to find an underlying structure. Having removed the elevated pedestrian walkways, the deck and Bewick Court, it becomes clear that the major conflict occurs between Durant Road and the Saville Row, Saville Place, Ellison Place, Oxford Street and Higham Place group. With historical reference to pre-motorway times, it is intended to remove Durant Road and reinstate the group of streets. This does not produce a strongly directional layout, but more like a modified North - South, East - West grid. The ill-defined amorphous spaces resulting from the motorway appendages, can regain definition and containment, as continuous street lines within the suggested rearrangement.

If the definition of building grain is taken as the measurement system, an existing average plot size of 595 m^2 is generated. While it is not necessary for the Areas of city to have the same building grain, nevertheless similar measurements do aid the notion of the seamless city. In addition, the average figure for the John Dobson Street Study Area is substantially greater, ie noticeably more coarse, than any of the other Study Areas. This adds to the proposition that cities are becoming more coarse grained with time. Whereas, fine grained patterns appear to offer more successful environments. The suggested plot grain size for the Grey Street Study Area is 150 - 200 m^2. It is therefore suggested that both the new pedestrian network permeating large-scale solid blocks of building, and the new buildings defining streets and squares, be constructed at a relatively fine grain. In order to reduce the average plot size to a reasonably compatible figure, eg 300 m^2, new building would probably need to be based on a plot grain size similar to that suggested for the Grey Street Area.

In terms of a hierarchical network of spaces, those dedicated to vehicular use are equal rather than hierarchical, to allow consistent traffic flow. Whereas, the pedestrian spaces display a noticeable hierarchy which ranges from major squares, such as Princess Square, the Laing Court and Ellison Place, to comparatively minor spaces at junctions of paths within the pedestrian network.

Complexity Within Order

The re-establishment of a street pattern in the area generates a well-ordered structure. It is based on existing streets, including a slimmed-down John Dobson Street, the re-introduction of Oxford Street and reinforcement of other routes like Saville Row, Saville Place, Ellison Place and New Bridge Street. A smaller scale complexity is found in the pedestrian network, with

optional routs passing through squares of different shapes and sizes. In a number of cases, the pedestrian network crosses streets, to add to the continuity of movement. While the street pattern is essentially a grid, it is not comprised of rigid straight lines. Most of the streets are either curved or contain changes in direction.

Definition

Clear Visual Forms

Several existing buildings in the Area have staggered facades, and this has not helped, in terms of clear definitions. A number of the buildings are spatially isolated, so identification of their limits is obvious. Yet, a number are in blocks where the extent of each building is not necessarily clear. Small scale development and the individual expression of buildings within the Architectural Framework are probably the most successful ways of defining each building. In the past, separation of built forms, wide variances in style, the use of a whole range of materials and so on, have not created clear visual forms, merely fragmentation and incoherence. It is essential that all spaces are defined by building frontages. Once again, this raises the need for carefully conceived service accesses, especially to large retail premises. It is not acceptable to allow city space to be blighted by the presence of an unloved service yard. In many cases, buildings need to be designed so that streets and squares to more than one facade can always be presented with an appropriate elevation and acceptable interface.

Sharpness of Boundaries

The intention to remove all confusion caused by decks, walls, walkways, barriers, signs, overhanging buildings, etc, has already been noted. This Area is laiden with such structures. Bewick Court and the deck over John Dobson Street are particularly harmful in this respect. Greatly enhanced clarity and the reclamation of useful

development land would be two of the advantages of their removal. The traditional rear facades of other buildings need specific attention if appropriate elevations are to be seen in all the urban spaces.

Sense of Containment of Spaces

One of the primary thrusts of the suggestions is to provide the containment of space, which is currently lacking in the Study Area. There is a danger in grid structures that the spaces can become isolated. Measures to avoid this difficulty include grouping of pedestrian spaces, extending the network by the continued pedestrianisation of Northumberland Street and Saville Row, and movement across streets, ie pedestrian routes immediately opposite one another. Contrasting static spaces are generated by variable sizes and shapes, together with variety in the width of dynamic spaces and types on entry.

Scale

Height

This Study Area suffers from a lack of consistency in building height. The quantity of buildings with six storeys and the even greater proportion over six storeys, are particularly disturbing. The demolition of Bewick Court would reduce the percentage of high building, but about 10% of overall ground area at five, six, and above six storeys, would still remain.

At the other end of the scale, the amount of building up to four storeys needs to be increased. Suggested building heights in relation to street and square width, are based on the same criteria as the Grey Street Study Area, ie -

Street Widths(m)	Building Heights (m)	Width:Height Ratios
17 - 20	11.3 - 17.5	0.8 - 1.5
11 - 16	10.5 - 17.5	0.8 - 1.5
4 - 7	10.5 - 17.5	0.3 - 0.8

Square Widths(m)	Building Heights (m)	Width:Height Ratios
12 - 35	10.5 - 17.5	0.9 - 4.0

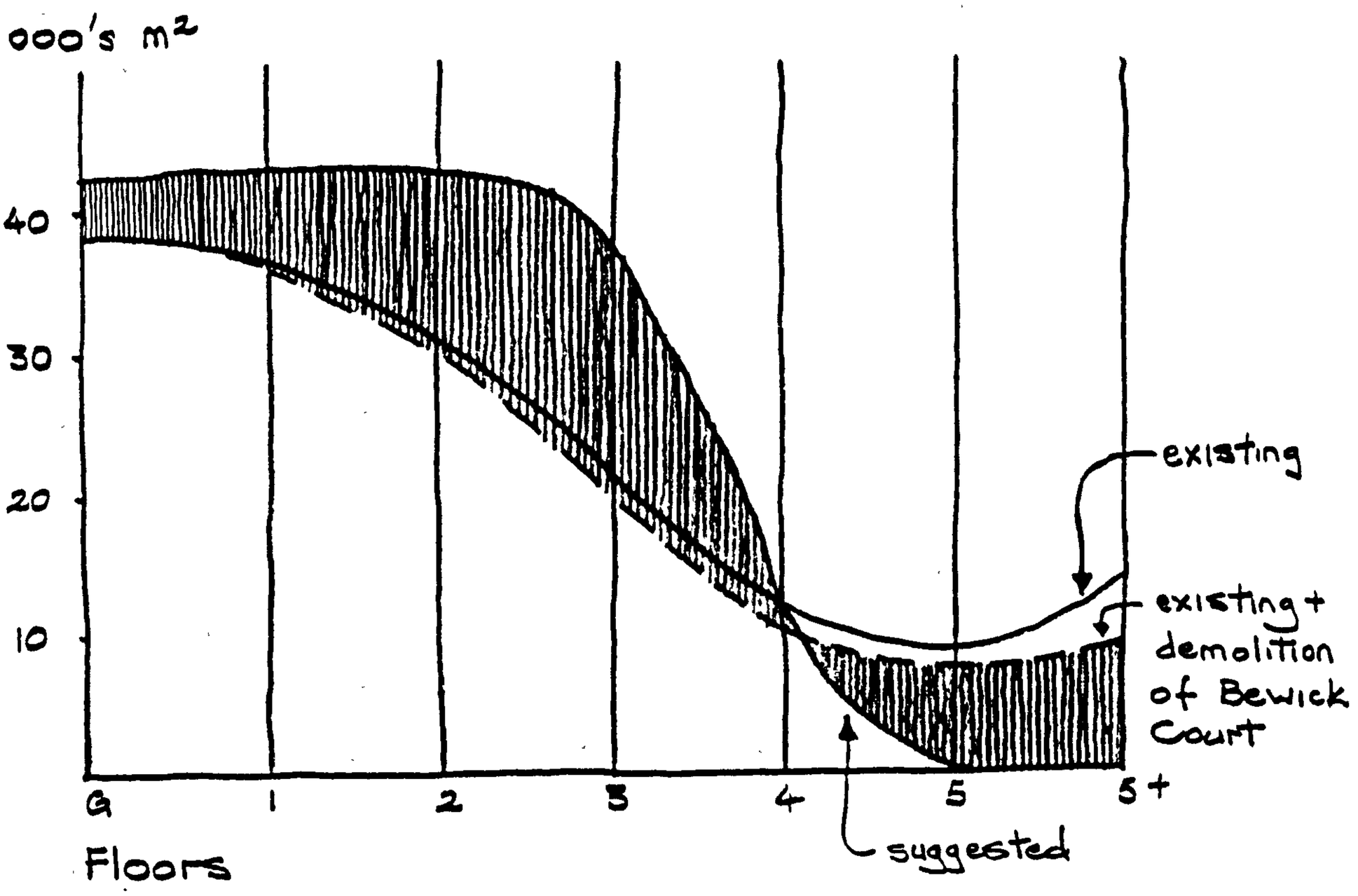
Proposed developments should meet the requirements in terms of actual height in relation to street/square width and be within the appropriate ratio band.

Grain

It has already been noted that the existing plot grain size is 595 m^2, and that a more finely grained structure is desirable. It would also assist the notion of a seamless city if there could be compatibility with the grain in the Grey Street Study Area, which is less than 200 m^2. The suggestion is that 300 m^2 would be within the scope of compatibility. However, to achieve that figure some extremely fine grained developments would be necessary. The result of this strategy would be that grain size within the Area would become very inconsistent. It may be that the reduction of the coarse grain structure will involve considerable timescale and therefore take place gradually. Nevertheless, the objective is to produce a finer grain, and development proposals need to respond accordingly.

Density

Further to considerations about the heights of buildings, the amount of building density at each floor level needs to be taken into account.



The above graph shows the differences in building density at each floor level, between the existing situation and the suggested targets. It should be possible to achieve a density of over 40% for the first three floors, and only a little less than that amount for the fourth floor. It is clear that a greater intensity of building will be required at the lower levels. Conversely, even with the demolition of Bewick Court, there is still a significant proportion of building at fifth floor and above. There needs to be a relatively long term strategy for reducing these figures to zero.

Access

Permeability

While parts of the Study Area do display reasonable permeability, the overwhelming feeling is of solid blocks of building set in large amorphous space. Therefore, while it is important to dramatically increase the quantity of built fabric, it is equally important to ensure accessibility. The pedestrian network is based on

pedestrian routes at about 30 m centres. The large scale nature of some of the buildings in the Area has resulted in some of the distances between paths, being increased to 50 - 60 m. Nevertheless, the adopted principle is to open out the building blocks to pedestrian activity. In this Study Area, considerable alterations to buildings will be required in certain instances and this has implications for ownership and use patterns.

Devices

The major pedestrian routes of Northumberland Street, Saville Row, Northumberland Place, Princess Square, etc, are retained. This enables secondary paths to be located in between. The secondary paths are small-scale and would be about 4 m in width. Each opens out to a major route or square within 30 - 40 m. The majority of secondary paths are arched-over, where they meet streets. This is to avoid fragmentation of spatial definition which may result from many access points to the same street. To avoid claustrophobia, enclosed passageways should be no longer than 12 m, and preferably less. Other devices which help to provide individuality and sense of place can also be part of the pedestrian network. These include gateways, arches, colonnades and arcades.

Sectors

An important objective of movement around the city and specifically around this Study Area, is that the paths should be open to all people. This implies public sector ownership and control. Even in the public sector, there are instances when open access may be limited on a time basis. Also, it may be that permeating some of the building blocks can only be achieved if private sector control is maintained on the newly-created adjacent spaces. Ideally, there would be unlimited access at all times. Restrictions may need to be introduced for practical purposes, but should not be permitted to impinge on the essence of freedom of movement.

The use of buildings to define spaces obviates the need for physical barriers. Changes in level will be considered under the heading of topography. Alternative routes are offered by the network of streets and pedestrian spaces, to improve conditions for mobility, and short routes for access also help in this respect.

TOPOGRAPHY

Much has happened to disguise the natural topography in this Area. In particular, the lowering of ground level in places and the creation of artificial levels with decks and walkways, have been detrimental developments. This part of the suggestions, is to revert to the natural ground form. In some instances, this will involve work to the buildings in terms of floor levels and entrances. A number of existing spaces will be enhanced by retaining their plan shape, and by allowing the floorscape to follow the natural sweep of the ground. In general terms, the land lies reasonably level in the East - West direction. From North to South, there is a fall, which is associated with the symbolism of movement down to the river.

UNITY

It has already been observed that while unity was a common feature of building in previous centuries, it has become considerably diluted in more recent times. This Study Area has become greatly fragmented by modern trends in building, and the reintroduction of some form of unity is vital to its restoration.

Materials

Especially since 1950, there has been a massive increase in the availability of all kinds of building materials. Use seems to have followed availability, and as a significant proportion of the Area has been constructed during the latter part of the 20th Century, the range of materials has an adverse affect on its unity. In the section on legibility, it was noted that if any theme of

material use occurs in the Area, it is probably based on brickwork. Thus, it is suggested that future buildings be constructed in that material.

Technology

The trend for larger scale buildings during this century has been met by the increased construction of framed buildings. These were predominantly concrete frames in the mid century, with greater use of steel frames more recently. Different kinds of cladding have been applied to the frames. In some instances, they are concrete or metal claddings, otherwise they are generally cloaked in brickwork or stone. Again, it was pointed out in the section on legibility that the existing vernacular form has the greatest potential in future developments. Brickwork buildings in vernacular form implies loadbearing construction. There is a general tendency towards framed buildings as the economic solution to the late 20th Century needs. However, if the height and size of buildings are based on the suggested limits, loadbearing construction can meet the requirements if supplemented by strategically positioned columns and beams for the occasional larger spans.

Scale

The notion of responding to surrounding scale, is not a helpful concept in this Study Area. Scale indices for all the Study Areas are derived from the cumulative density per floor and the average grain. The measure for the John Dobson Area is nearly five times that for Amsterdam, three times the figure for the Grey Street Area and one and a half times the amount for Stuttgart. In absolute terms, it is clear that the average scale of buildings in this Study Area, is too large. Also, with the objective of the seamless city, a figure closer to the value for the Grey Street Area would be necessary. The suggestions involve a

significant amount of new building. It would be beneficial if the new buildings corresponded more closely to the scale of the Grey Street or Amsterdam Areas, rather than the existing surroundings.

Style

It is unlikely that a particular style will become evident in this Study Area. The existing situation is a proliferation of buildings lacking form and consistency, as well as style. The suggestions indicate that an identifiable character can be achieved. If there is consistency in materials, technology, height, density, scale, etc, then a character will evolve. It is likely that in the circumstances, a traditional building form would predominate.

Spaces

The hierarchy and legibility of spaces is derived from the vehicular and pedestrian movement patterns. The establishment of a logical vehicular pattern, based on an adjusted grid, sets a clear basic structure. The pedestrian network is at a finer scale and occurs within the vehicular grid. The pedestrian layout displays its own hierarchy through the size and relationship of static and dynamic spaces.

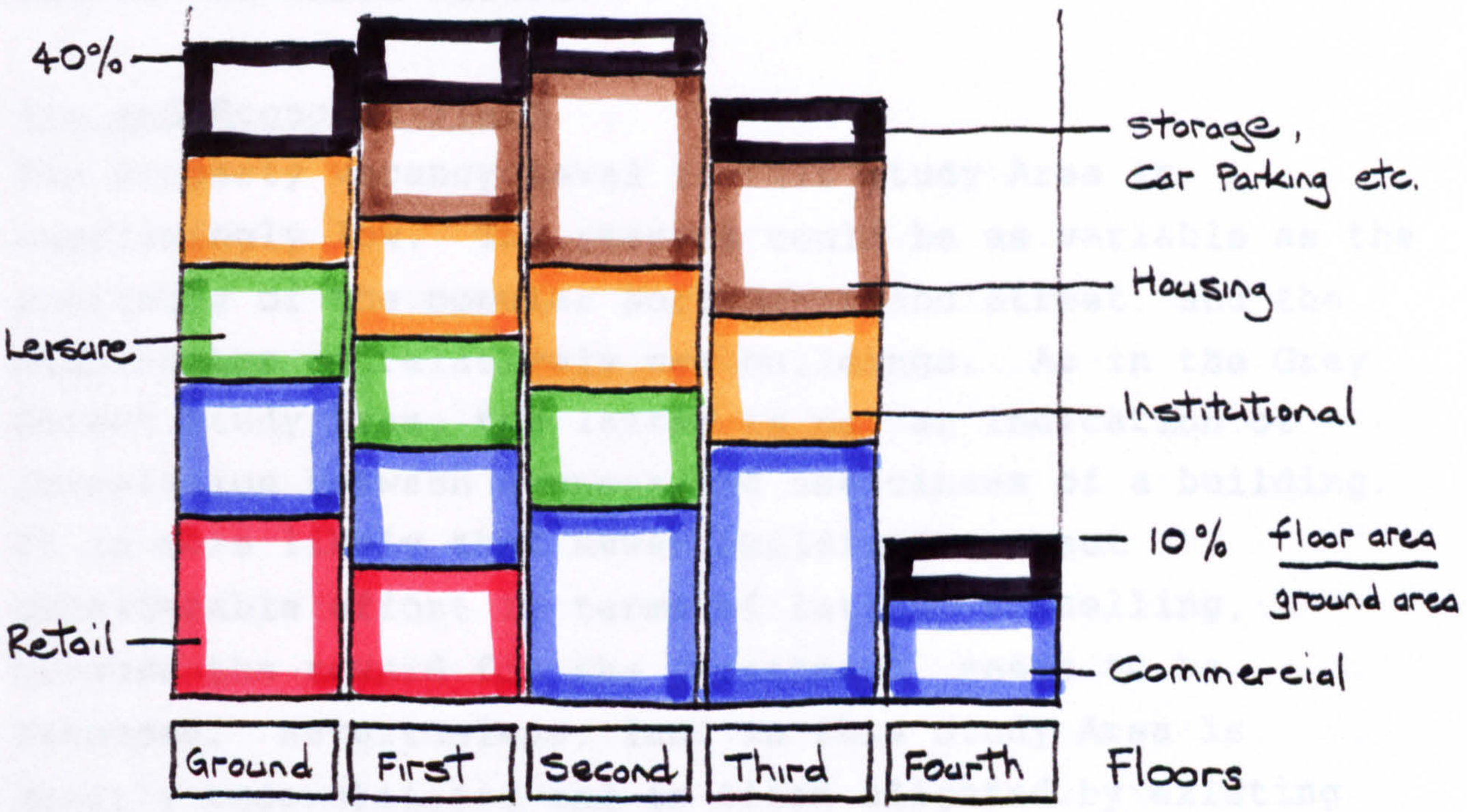
Large Scale Schemes

It is clear that large scale schemes, whether completed or incomplete, have been responsible for much of the impenetrability of the built form, vagueness and ambiguity of spaces and general incoherence. It would therefore be working in direct opposition to the suggestions, to allow the development of any large scale schemes in this Study Area.

Diversity

Uses

The objective is to maximise the number of compatible uses, and especially to increase the resident population. Thus, an arrangement for uses could be as follows -



The arrangement is based on a combination of existing uses and information gained from the theoretical model. It is deduced that industrial use is not compatible with the others, and is likely to be unachievable in any case. Of the other uses, retail appears to be most satisfactory when limited to ground and first floors. Commercial premises seem to work well at all levels. Leisure is best operated at the lower three floors and institutional buildings can function at any level, but preferably not above the third floor. Storage relates to retail uses, and car parking tends to occur in multi-storey facilities. The principles of vertical and horizontal separation were explained in the Grey Street Study Area and are equally applicable to this Study Area.

Residents

The conclusions regarding a resident population are also the same as in the Grey Street Study Area, ie the European Exemplars demonstrate that a substantial resident population is a feasible option. The suggestion is that residential accommodation should be provided on first, second and third floors.

Age and Economic Yield

The property vacancy level in this Study Area is surprisingly low. The reasons could be as variable as the proximity of the popular Northumberland Street, and the high number of relatively new buildings. As in the Grey Street Study Area, the latter is not an indication of correlation between newness and usefulness of a building. It is more likely that newer buildings attract considerable effort in terms of letting or selling, because the reward for the investment, needs to be recouped. Nevertheless, land in this Study Area is greatly underutilised and is often blighted by existing buildings and roads.

Re-Use

As previously pointed out, this is not a matter of reusing redundant buildings. It is the careful consideration of a strategy to reorder the balance of uses to a suggested pattern, from the existing situation.

Facadism

The system of facade with building behind, as a form of development does not apply to the John Dobson Street Area. Therefore, it appears that a facadist approach to redevelopment would not be appropriate in this Study Area.

Joy

Intricacy and Visual Delight

As in the Grey Street Study Area, these features of existing buildings need to be rediscovered and documented while new buildings, artifacts and spaces should express such attributes.

Poetic and Symbolic

Poetry can be provided by contrasting spaces and atmospheres, as previously discussed. One of the main aspects of suggestions for this Study Area, is to establish appropriate settings for the two existing symbolic buildings. A reformed Princess Square offers a more psychologically assured entry to the Central Library, while the other side of the building would face onto a traditional type of street. The Laing Art Gallery suffered particularly in the 1960's intervention. The suggestions involve fresh facades to New Bridge Street and John Dobson Street (opposite the Central Library). A new entrance would be formed to the North end of the building to open onto its own square.

Meaning

One of the most important aspects of restoration in the Area, is to expunge current failures and reintroduce past associations. Street names are particularly important in this context. Some of the historical streets have become debased in recent years, requiring a reinstatement of their form to once again act as city streets. This applies to Saville Place, Ellison Place, Oxford Street and Carliol Street in particular. While John Dobson Street has attracted the greatest hostility, it has become so definitely established that its name should continue to be used. Durant Road has never been more than an unpleasant link to the motorway and it is therefore wholly appropriate that both the name and road itself should cease to exist.

Vision

Objectives of Principal Players

This section about THE POSSIBILITIES FOR NEWCASTLE UPON TYNE and specifically in this case, SUGGESTIONS FOR THE JOHN DOBSON STREET STUDY AREA are set out as a framework, to which the principal players can respond.

Communication of the Vision

If proposals are to be based on these suggestions, clear guidance for development of each site will need to be readily available.

Squares

Sizes and Shapes

The squares in this Study Area are intended to assist the intricacy of the urban structure, as part of the pedestrian network. (See Figure 209) Therefore, none of them are large scale, and all are considerably less than *Sitte's* maximum for an urban square (145 x 60 m). (See Figure 210) The smallest space (D18) should really be regarded as an entrance courtyard, rather than a square. Thus, in terms of actual perimeter, only three of the spaces (D15, D16, D17) are smaller than any of the 'good models'. While there is not an ideal minimum size, the comparison shows that the squares in this Area, are predominantly larger than those in the Grey Street Study Area. The length:width ratios are 1.12 - 2.76, which fit well within the model range of 1.07 - 3.00.

Heights of Buildings

The height ratios would be as follows -

	Model	John Dobson Street Study Area
ratios -		
length:height	8.5 - 1.4	3.7 - 1.6
width:height	4.0 - 0.9	2.4 - 0.8

It is not a surprise that there is a tendency towards the lower end of the scale. Yet, the top end of the range shows larger ratios than the Grey Street Study Area, and this is another indicator of larger spaces. The smallest width:height ratio is not particularly significant as that parameter is fairly consistently under pressure. It may also be due to the excessive height of some of the existing buildings.

Openings

The existing openings tend to be at the larger end of the spectrum. In one case (D4), vehicles are directed along the edge of the square, in a similar manner to some of the Stuttgart squares. In this case, the openings are 10 and 14 m. Existing pedestrian openings are up to 8 m, and in those cases a quicker, bustling environment is provided. Some of the new openings are also dimensions which would continue this form of active movement, but most are at 4 m+, in order to produce more secluded spaces.

It is interesting to note from the analysis of percentage opening and number of openings, that while the percentage figures are moderate - high, the number of openings is a relatively small figure. This points to a more active environment and a different characteristic to the Grey Street Study Area. The ranges are as follows -

	model	John Dobson Street Study Area
percentage opening	8 - 28	11 - 22
number of openings	2 - 9	3 - 5
perimeter size of squares (m)	98 - 334	88 - 202

The masking is complete in 11 cases and the square is at the side of a thoroughfare in 3 cases.

Focal Buildings

The existing Princess Square (D3) already provides the main entrance to the Central Library. There is also a specific suggestion for a new entrance to the Laing Art Gallery, from square D5. The nature of the buildings around D4, the largest of the suggested squares, would make it difficult to support a focal building. There is potential for a focal building around two or three sides of D6 and between D7, D8, D9 and D16. The building between D11 and Oxford Street could be a focal type and Dobson's Lying-in Hospital in D12, could also be reused in that way. The possibilities for the incorporation of focal buildings to enhance the quality of squares are therefore, quite extensive.

The most appropriate types are likely to be Public Facilities and Education. In terms of size and position, the scope for deep plan squares is almost non-existent. However, there is considerable scope for both wide plan and squares totally defined by focal buildings.

Topographical Situations

A central square is not suited to this Study Area. All the squares are part of the movement pattern, and many existing cul-de-sacs have been eliminated. The reforming of the floorscape, back to natural ground levels, is an important aspect of the suggestions and artificial levels have been avoided. There is not a directional disposition and linkage of the squares, to follow the fall of the land in this Area. The spatial pattern is a more rectilinear type.

Functions and Time Usage

Focal buildings are encouraged as features of squares because they seem to confer a specific use for any particular square. Of the function categories - trade, information and recreation, all have potential. Trade and information are relatively well established, but past

zoning policies have tended to mitigate against recreation. Therefore, this function needs to be introduced, especially as it extends the use of squares to include both daytime and evening.

Good Models

The suggested squares are generally consistent with the criteria of the good models.

Streets

Street Patterns

The deficiencies of the existing street layout has been well documented. The suggested pattern is based on a grid, adjusted to suit the topography. It is a simple system of one-way vehicular flow, to emphasise both a recognisable and understandable structure. There are hints of the pre-motorway pattern, especially in the street names, but although a traditional approach has been adopted, there has not been a simplistic reintroduction of streets from earlier times. (See Figure 211)

Definitions

It is important to assess the width and ratio characteristics against the model bandings -

	Model	John Dobson Street Study Area
width -		
two-way vehicles	23 - 12	-
one-way vehicles	19 - 11	20 - 12
tramcar/pedestrian	-	20 - 11
pedestrian	13 - 4	7 - 4

Alterations to the East side of Pilgrim Street at its Northern end, should aim to reduce the street width to a maximum of 20 m, and John Dobson Street is narrowed to a similar dimension. Northumberland Street is too wide for

exclusive pedestrian use, but becomes acceptable with the introduction of the tramcar route. The pedestrian streets are noticeably narrower than the vehicular types and therefore clear distinction between the two kinds, is achieved.

The new pedestrian openings do not impinge upon the containment of the streets, but the notional lengths of several streets are altered by the new street pattern. The grid arrangement is strongly expressed by the consistency in the suggested notional street lengths, ie 100 - 140 m. There is also a good measure of consistency in the ratios.

	Model	John Dobson Street Study Area
ratios -		
length:width	12.6 - 6.0	10.0 - 5.9
length:height	16.8 - 1.7	11.0 - 5.6
width:height	1.5 - 0.3	1.7 - 0.8

Junctions

These are simplified in the suggestions for the John Dobson Street Study Area, by the introduction of one-way vehicular circulation. (See Figure 212) This enables the variety of cross roads to be reduced to one basic generic type. The T junction form also becomes essentially one type, with a dominant and a subordinate street, although two expressions of it, are introduced by the presence of the tramcar system. They involve asymmetrical arrangements and the creation of a small square at a crossroads with a double 'break in direction'. The result is that there is clarity through articulation for all user groups, and the consistency of movement and predictability of options at junctions, would certainly assist motorists.

Building Line

The definition of space is greatly lacking in this Area, so one of the main principles of the suggestions is to delineate the streets with buildings. To aid this process, all structures within the streets, such as central reservations, barriers and projecting buildings, would be removed. The composition is further strengthened by reducing the width of the Northern section of Pilgrim Street and all of John Dobson Street.

The corners are also a weakness and where possible, building lines should be extended to form positive junctions, rather than splayed or set back. Indeed, it is suggested that all setbacks to the building line should be avoided. Streets need not be consistent in width, throughout their length. The existing College Street narrows towards its junction with Saville Place. This feature is evident on many of the historical surveys of the town, and is one of the characteristics of Newcastle upon Tyne. It is intended that variations in width could occur especially in John Dobson Street and Oxford Street.

Grouped Spaces and Central Places

The observations about the Grey Street Study Area, apply to this Study Area.

Buildings

Focal and Background Buildings

This Study Area should also be able to support the full use range of focal and background buildings. However, as far as focal buildings are concerned, Public Facilities and Education are more likely to be developed than Government, Religion, Law and Health. In terms of background buildings, Retail use has probably reached saturation point, but there is considerable scope for Residences, Leisure and Employment.

Existing background buildings in this Study Area, generally have greater plan depths than 16 m. This is especially the case with mid-late 20th Century commercial and retail buildings, which comprise the majority of the built fabric. Some of these depths are as much as 70 m. The external wall:building frontage ratio is often relatively high in these instances and generally in excess of 3. The suggested pedestrian network decreases the scale of most of these large building blocks, although plan depths will continue to be 30 - 35 m in a number of locations. The ratio would probably be correspondingly reduced to acceptable limits (2.1 - 2.4). New background buildings have plan depths of approximately 10 - 16 m and are therefore within the model range (8 - 16 m). Plan depths of the Central Library and revised Laing Art Gallery are 30 m and average 50 m respectively. Other potential focal buildings have dimensions in excess of 16 m. Thus, these dimensions are also in accord with the model range (16 - 50 m). The heights of new buildings need to be cross-referenced with square and street requirements. Although, in general terms, there is a need to increase the number of four storey buildings and therefore target heights should be mainly in the 10.5 - 17.5 m range. Changing building heights at corners or employing techniques such as spires, domes, small gables, etc, would be especially valuable in this Study Area.

There is a high proportion of existing flat roof in the Area. Nevertheless, as the intended theme for background buildings is based on a kind of vernacular form, a general facade arrangement of 'plain elevations with traditional pitched roofs', seems to be the most appropriate.

Architectural Character

Assessment of the Architectural Framework of John Dobson Street was inconclusive in terms of whether it is predominantly Passive or Assertive. The analysis of facade form showed that the framework is tending to

disorder. It is therefore necessary to engender an appropriate framework, and the indications are that it should be the Assertive/Loose type. The conclusions are mainly based on information from John Dobson Street itself, but there is sufficient evidence to show that it is fairly representative. Thus, all development of background buildings in the Area should be directed towards the characteristics of an Assertive Framework, ie

informal
greater variety of building styles
greater variety of materials
more elaborate facades
emphatic changes in building line
raised skyline
narrower frontages

Confusion is evident in some of the existing facades and it is necessary to restate the human scale in building. It has been noted that windows are important elements in the comprehension of buildings. As with the Grey Street Study Area, the greatest potential is liable to be realised by adopting facades based on 'walls pierced with a hierarchy of openings', as a means of counteracting much of the existing anonymous grid elevations. Entrances have been downgraded in mid-late 20th Century buildings, which are prevalent in the Area. The notion of 'a celebration' has disappeared. So, careful design of ground floor facades, with prominent entrances, is essential. The suggestions include squares and courtyards, together with the possibilities for porches and arcades, which provide transitional spaces as proper settings for new entrances. (See Figures 213 and 214)

REFERENCES: Suggestions for Study Areas

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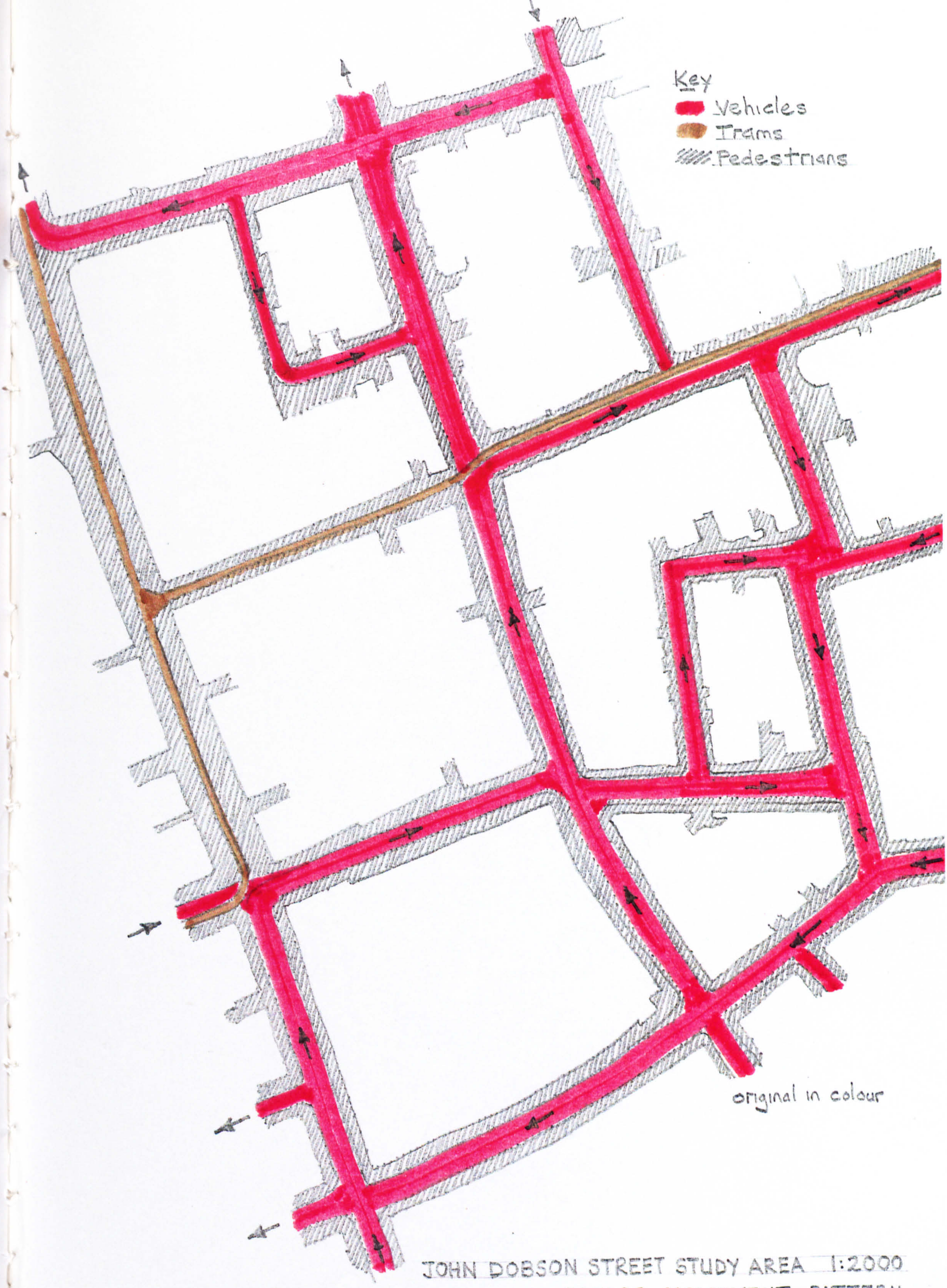
2. PETHERICK, A., FRASER, R., Living Over the Shop, A Handbook for Practitioners, (York: Living Over the Shop Project, 2nd Ed. 1992)



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JOHN DOBSON STREET STUDY AREA 1:2000

Figure 204 SUGGESTED VEHICULAR MOVEMENT PATTERN

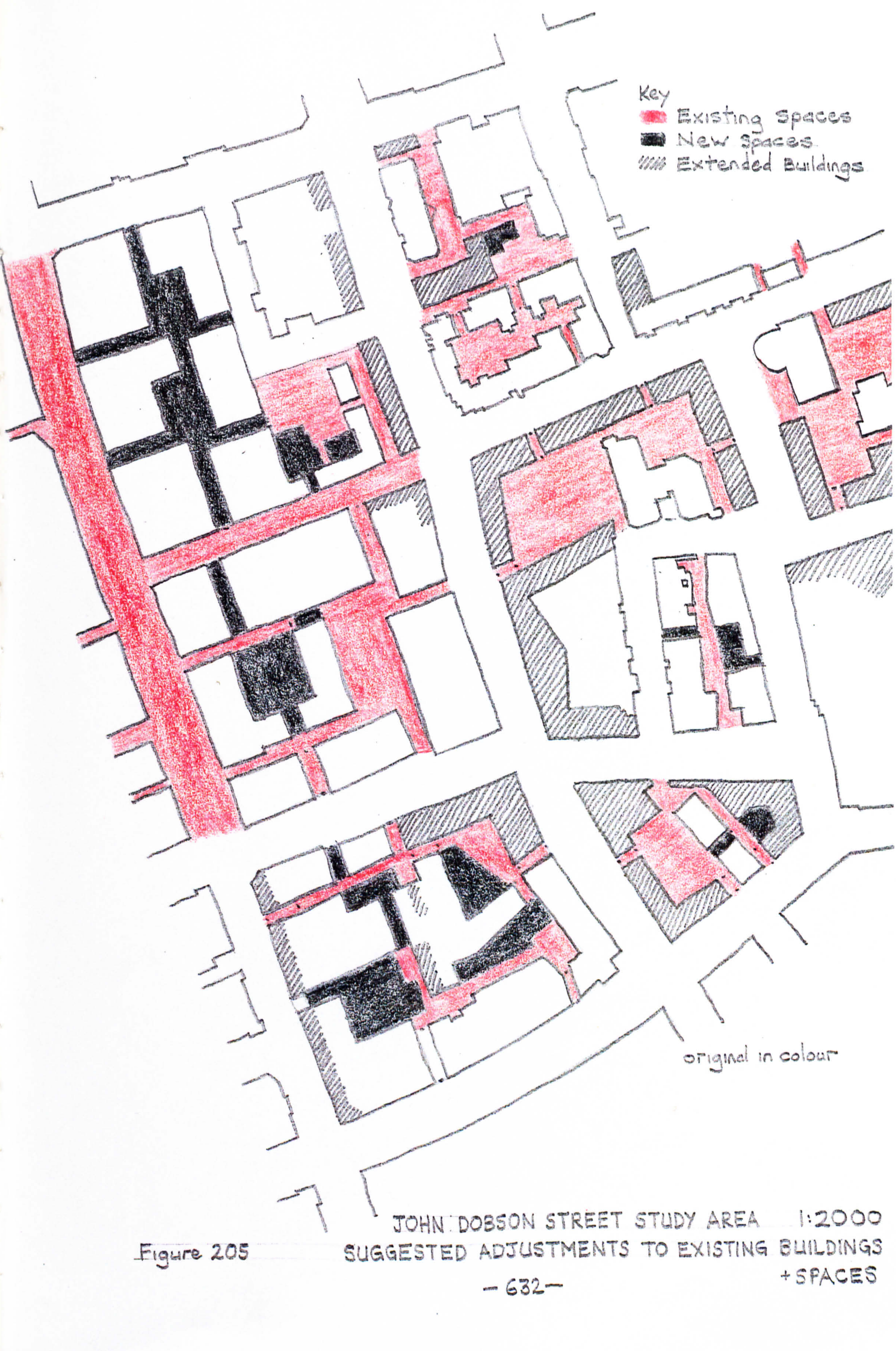
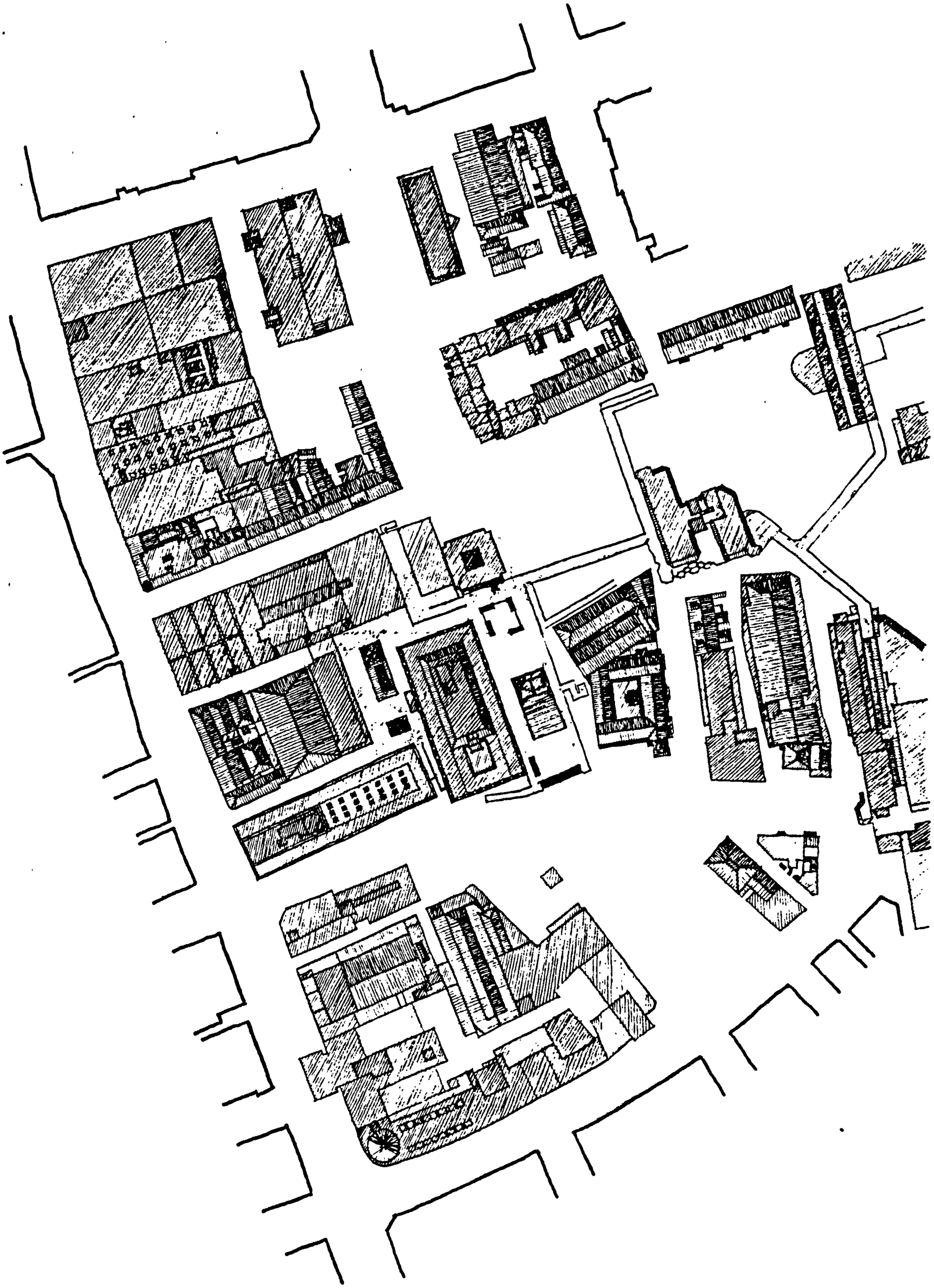
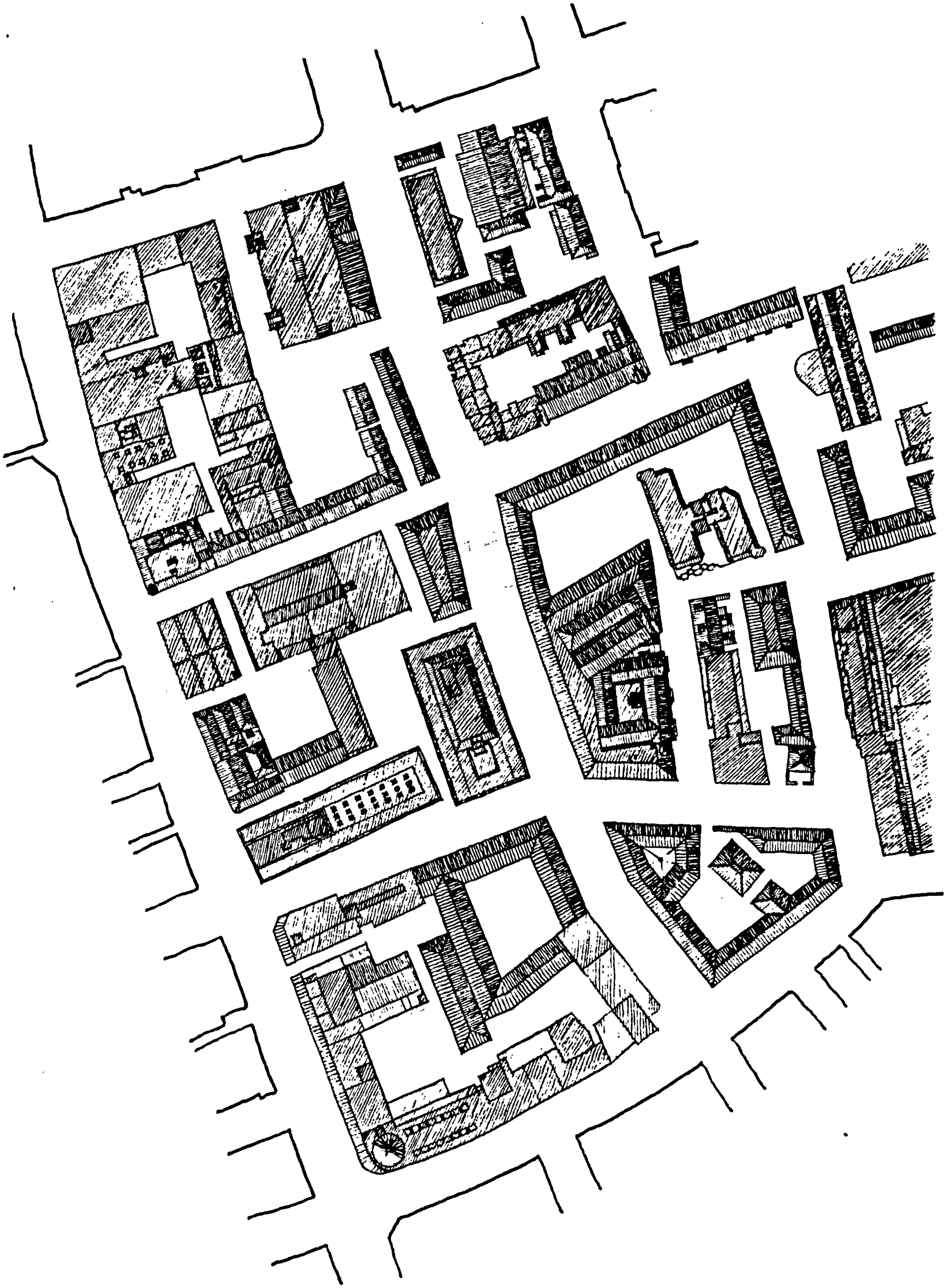


Figure 205 JOHN DOBSON STREET STUDY AREA 1:2000
SUGGESTED ADJUSTMENTS TO EXISTING BUILDINGS + SPACES



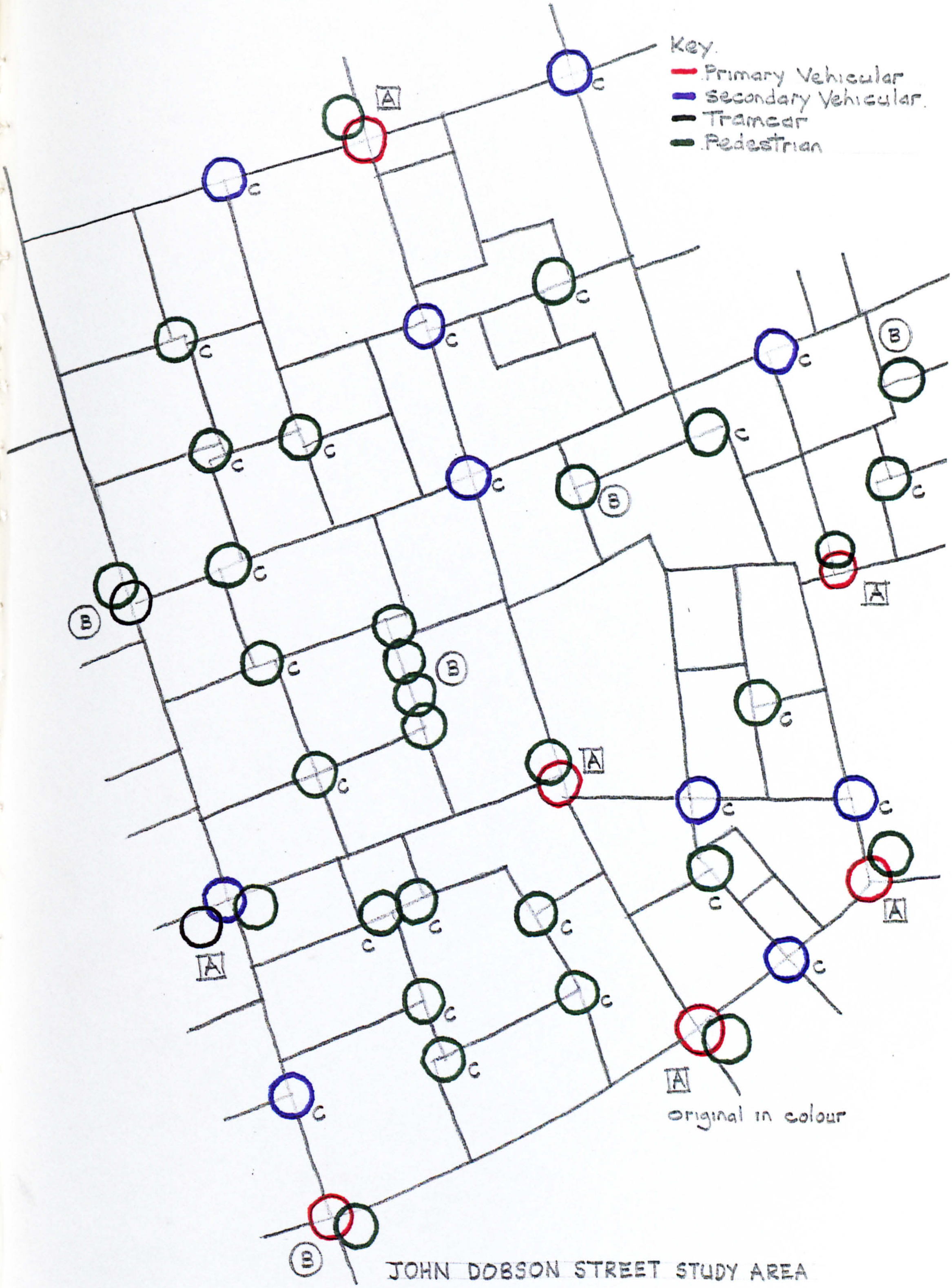
JOHN DOBSON STREET STUDY AREA 1:2000
EXISTING ROOF PLAN

Figure 206



JOHN DOBSON STREET STUDY AREA 1:2000
SUGGESTED ROOF PLAN

Figure 207



JOHN DOBSON STREET STUDY AREA
Figure 208 SUGGESTED NODAL PATTERN

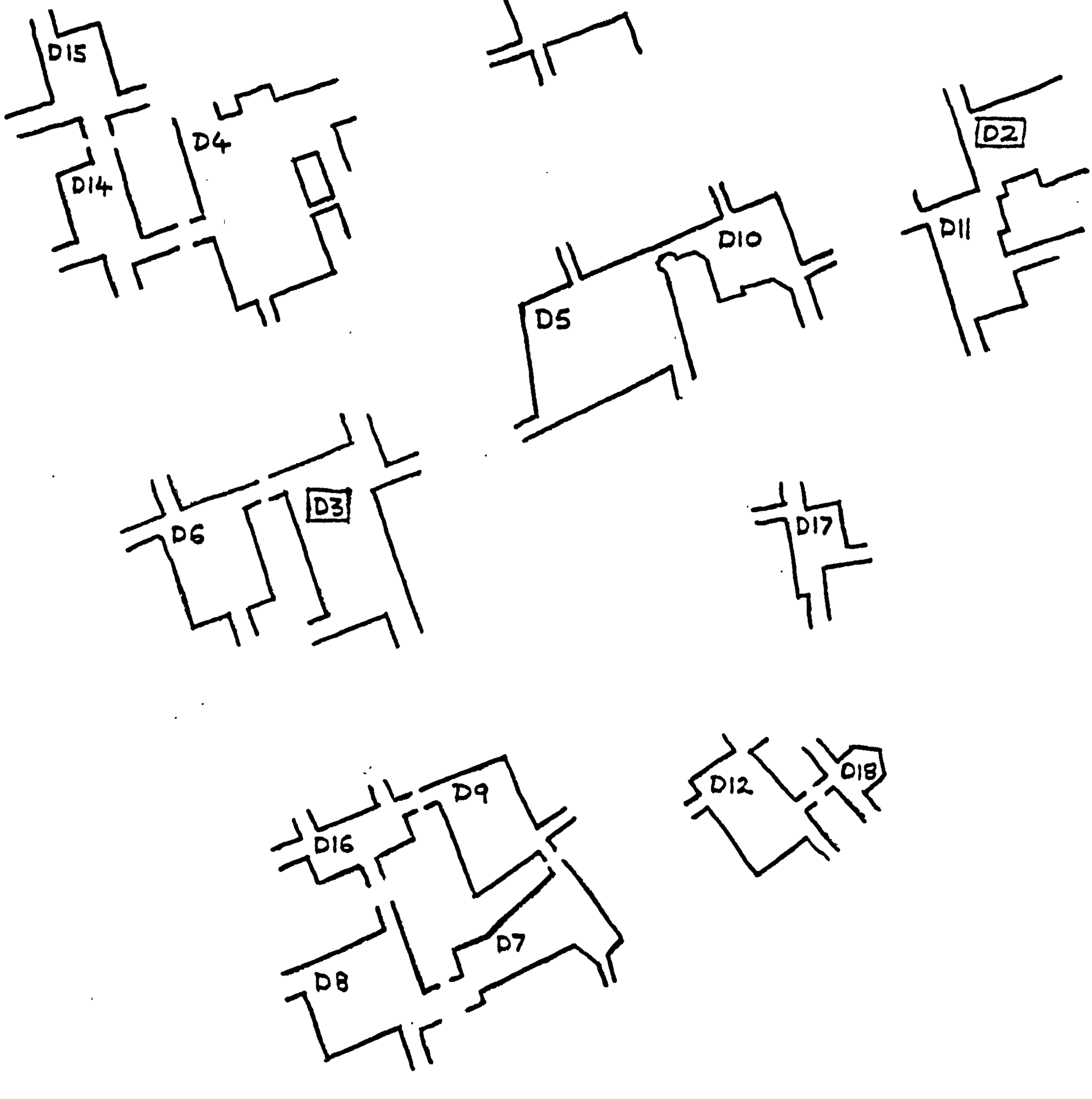


Figure 209 JOHN DOBSON STREET STUDY AREA 1:2000
SUGGESTED SQUARES

Ref	Nom-inal Size	Nom-inal Area	Actual Peri-meter	length / width	length / height	width / height	%tage open-ings	no of open-ings	Open-ings not masked
D4	55x33	1815	202	1.67	3.7	2.4	18	5	2
D5	52x25	1300	174	2.08	2.8	1.4	12	4	0
D6	35x27	945	124	1.30	2.0	1.5	15	4	2
D7	47x17	800	123	2.76	2.2	0.8	12	3	0
D8	34x27	918	122	1.26	1.9	1.5	16	4	0
D9	32x25	800	115	1.28	1.8	1.4	11	3	0
D10	29x26	754	114	1.12	1.6	1.4	22	4	0
D11	37x20	740	114	1.85	2.1	1.1	18	4	0
D12	35x21	735	112	1.67	2.6	1.6	11	4	0
D13	30x22	660	110	1.36	2.7	2.0	21	4	2
D14	30x20	600	108	1.50	1.7	1.1	15	4	0
D15	28x19	532	94	1.47	1.6	1.1	17	4	0
D16	33x14	462	94	2.36	1.9	0.8	21	5	0
D17	20x17	340	88	1.18	1.9	1.6	18	4	0
*D18	15x12	180	56	1.25	1.1	0.9	21	3	2

Note * Courtyard Scale

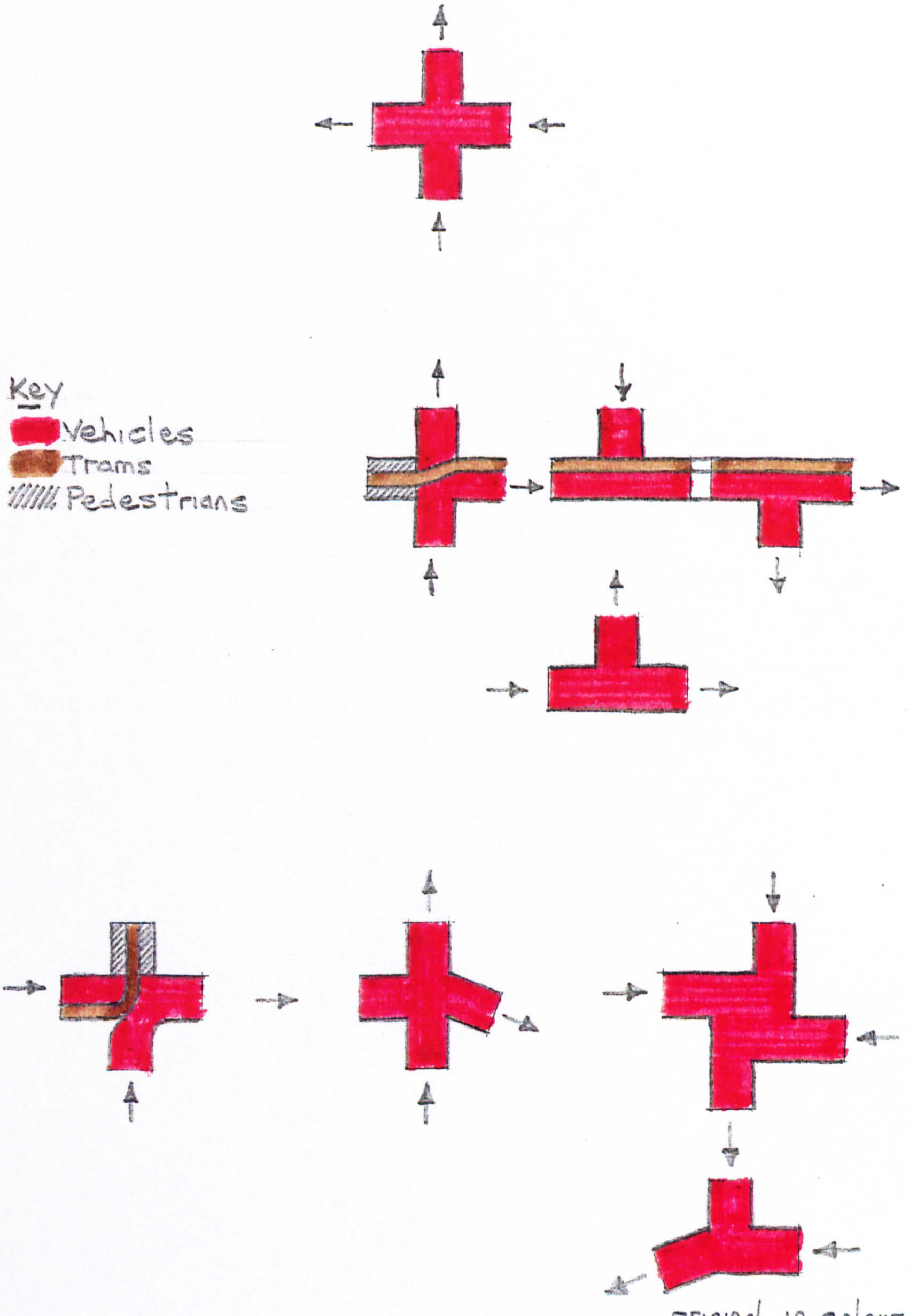
JOHN DOBSON STREET STUDY AREA

Figure 210 ANALYSIS OF SUGGESTED SQUARES

Name	Length	Width	length: width	length: height	width: height	Vehicle Tramcar Pedestrian
John Dobson Street	120	20	6.0	7.2	1.2	V x 1
Pilgrim Street	120	20	6.0	7.2	1.2	V x 1
Northumberland Street	140	20	7.0	9.1	1.3	T/P
Market Street	140	19	7.4	8.8	1.2	V x 1
Northumberland Road	120	19	6.3	8.2	1.3	V x 1
New Bridge Street	120	19	6.3	8.2	1.3	V x 1
Saville Place	110	18	6.1	6.1	1.0	T/V x 1
Carliol Street	100	17	5.9	5.9	1.0	V x 1
College Street	110	17	6.5	11.0	1.7	V x 1
Oxford Street	100	16	6.3	5.6	0.9	V x 1
John Dobson Place	100	14	7.1	5.7	0.8	V x 1
Higham Place	110	12	9.2	11.0	1.2	V x 1
Saville Row	110	11	10.0	11.0	1.1	T/P

JOHN DOBSON STREET STUDY AREA

Figure 211 ANALYSIS OF SUGGESTED STREETS



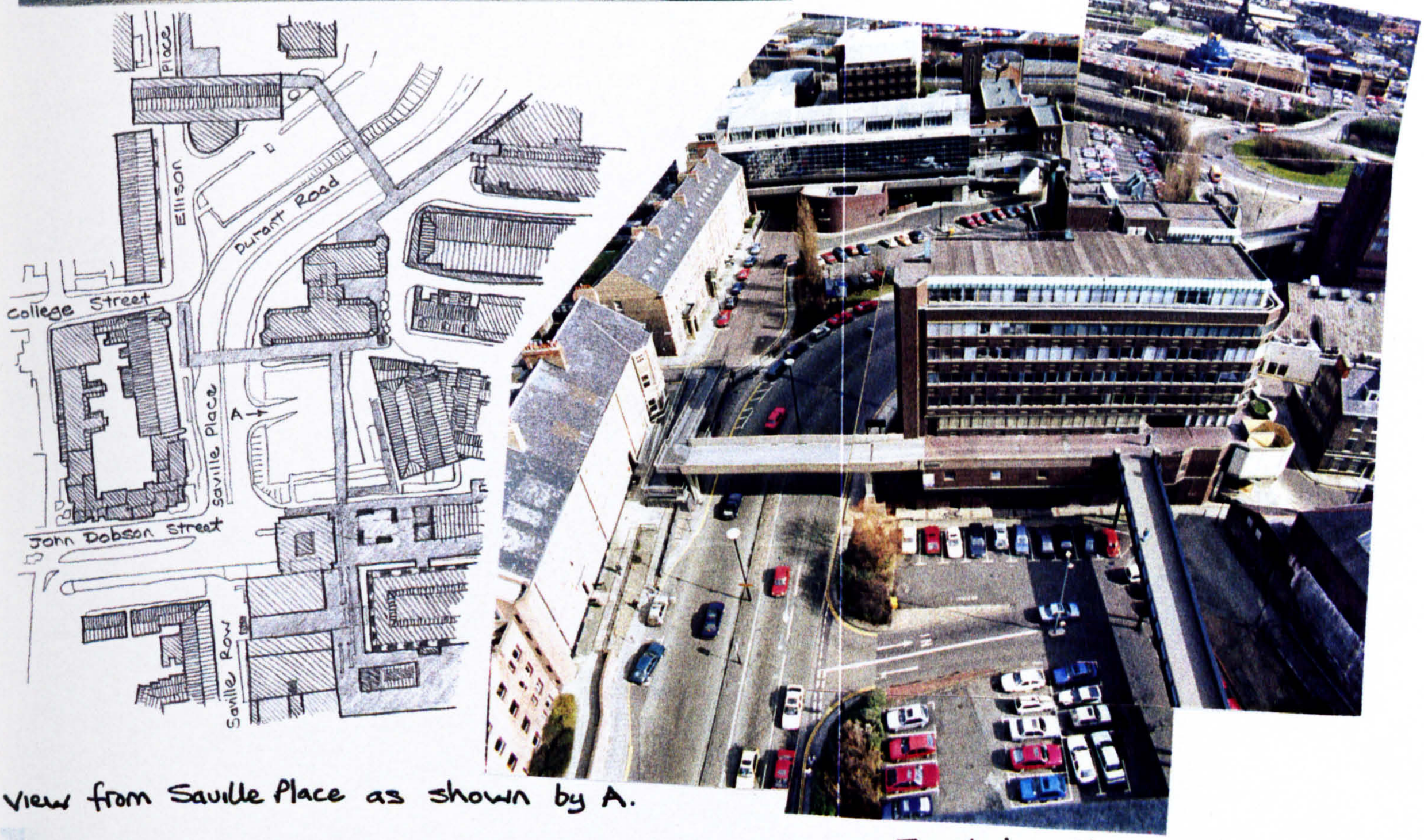
original in colour

Figure 2.12 JOHN DOBSON STREET STUDY AREA
SUGGESTED STREET JUNCTIONS

View from junction of John Dobson Street and Saville Row towards Saville Place Ellison Place and Durant Road

- 20th century buildings do not define space
- confusing street pattern - note Saville Place to Ellison Place
- Motorway disrupts continuous pattern - Ellison Place cul-de-sac.

Aerial View in same direction as noted above



View from Saville Place as shown by A.

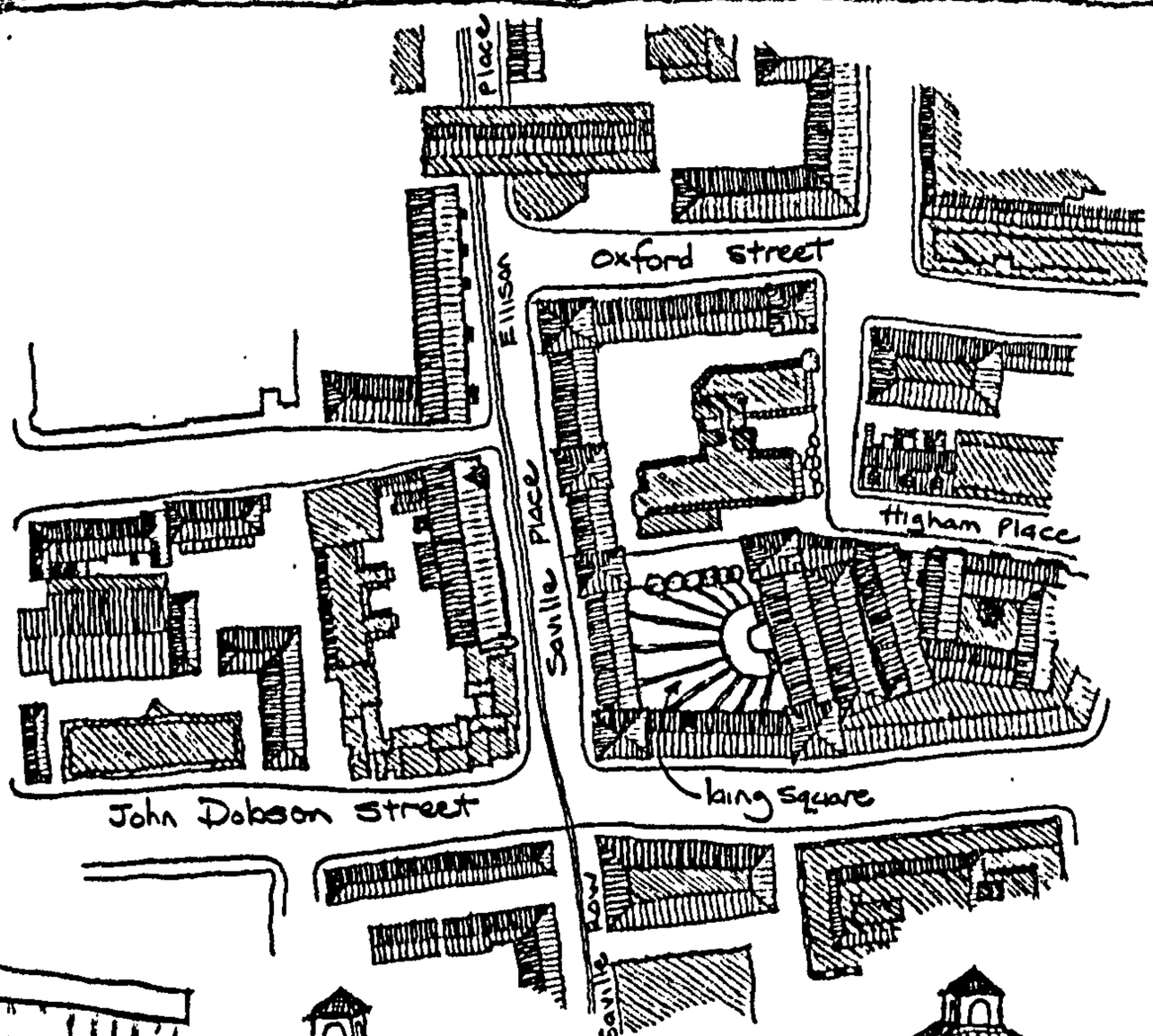
- Elevated walkways disrupt space and are inconvenient. to use
- High proportion of space but few squares

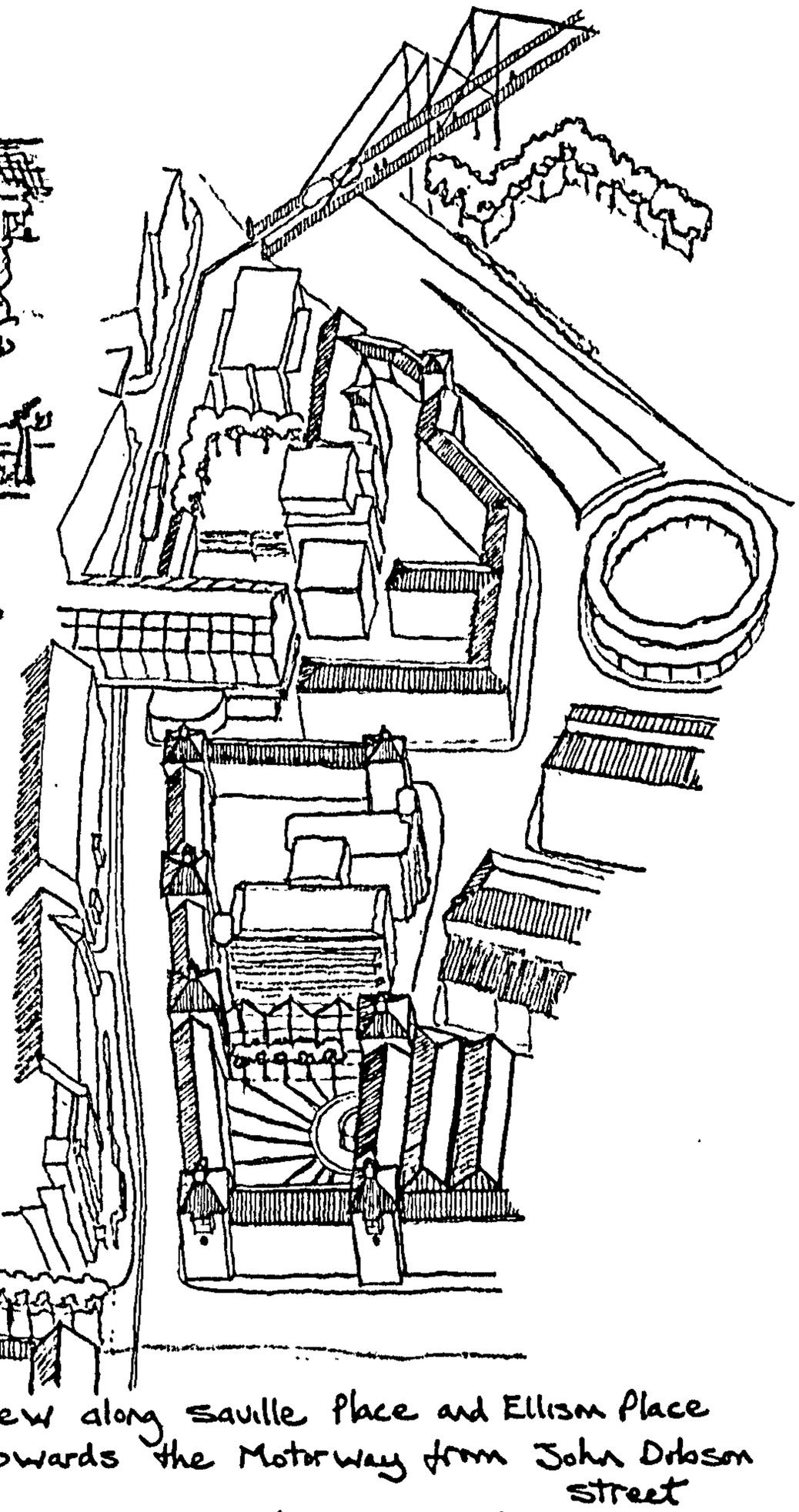
View of Saville Row and John Dobson street from Saville Place

- uncomfortable floorscape
- Durant Road - too ill-defined to assess width.
- steel barriers obstruct paths

Figure 213
JOHN DOBSON STREET STUDY AREA
EXISTING VIEWS

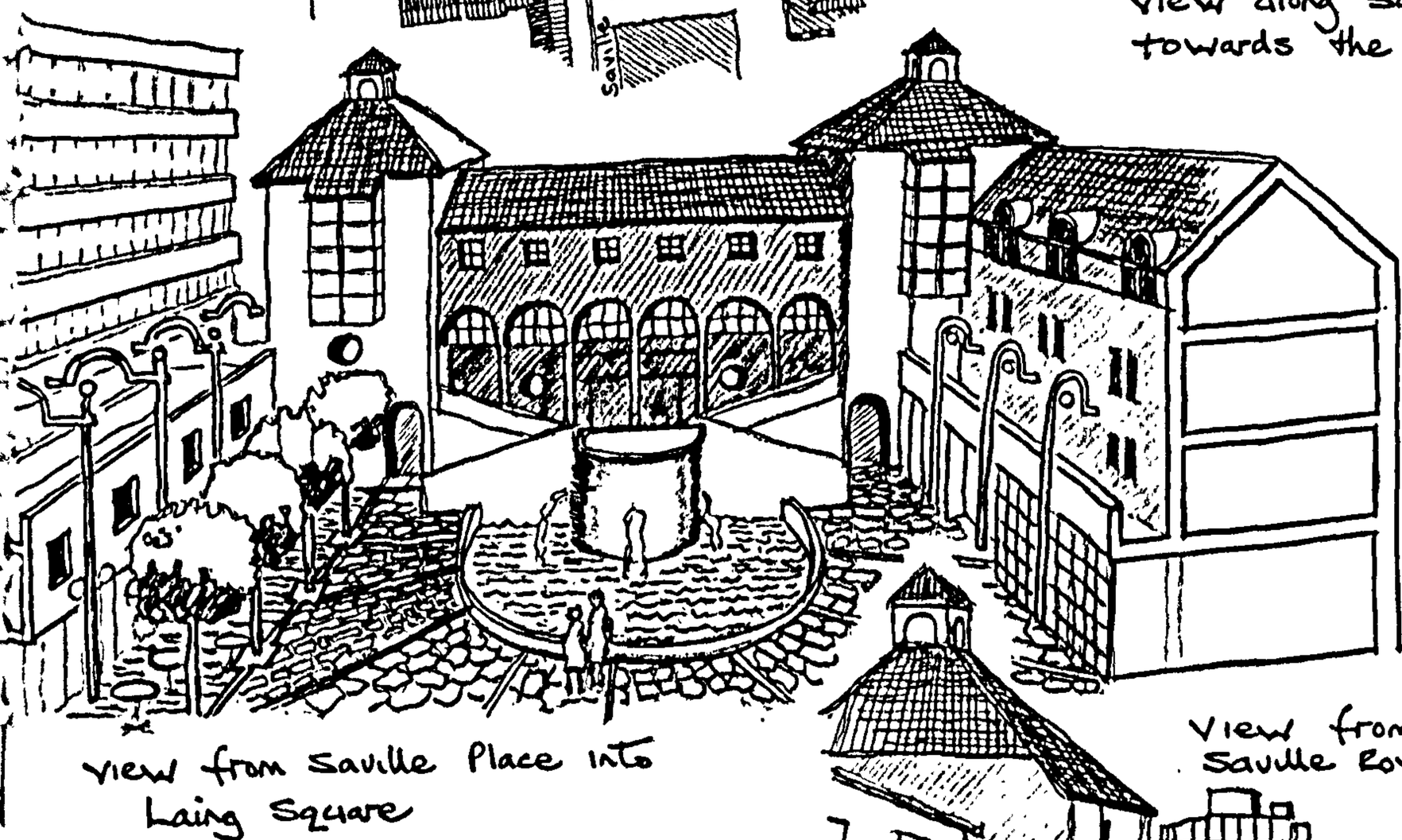
View from Saville Row across John Dobson Street to Saville Place and Ellison Place





View along Saville Place and Ellison Place towards the Motorway from John Dobson Street

- buildings define spaces
- facades to streets and squares
- bridge over motorway enables continuity to Ellison Place
- elevated walkways and barriers are avoided
- building heights 10.5-17.5m
- street width 11-20m



View from Saville Place into Laing Square

- squares 12-35m wide
- access provided by arches and colonades
- building depths 10-16m

View from Saville Place towards Saville Row, across John Dobson Street

Figure 214
JOHN DOBSON STREET STUDY AREA
ILLUSTRATED SUGGESTIONS

2. SUGGESTIONS FOR THE CITY

FRAME OF REFERENCE FOR FUTURE DEVELOPMENT

The Framework is presented in three sections, to respond to three fundamental questions about future development in the city -

What should be aimed for?	-	Objectives
What could be done?	-	Principles
How might it be done?	-	Criteria

Objectives

1.0 The Vision

1.1 'The Possibilities' need to be set out as a framework to which the principal players can respond. If proposals are to be based on these suggestions, clear guidance for development will need to be readily available for each site.

1.2 A framework is necessary because development cannot be based on unconscious and accidental character. It must come under the rules of conscious and ordered design.

1.3 Unlike the suggestions for the Study Areas, which were aimed at rectifying existing adverse situations, the framework is primarily directed towards new development.

1.4 Creation of wholeness can only occur as a process, and therefore deterministic instruments, such as Master Plans and Development Plans, should be avoided. To assist with the process, a great range of unofficial plans, ideas and opportunities should be welcomed.

1.5 A strategy for city development needs to promote the construction of groups of buildings, a few gardens, squares and streets - all contained by rows of buildings. At the same time, the traditional layout of the city should be retained and restored, to express its own individual atmosphere and appeal.

1.6 The Principles of the Frame of Reference should be encouraging, rather than restrictive, and enable owners and designers to view their buildings in relation to the whole picture.

1.7 Urban Space is essentially public rather than private. The Public Sector needs to adopt a supra-economic stance and proactive role on behalf of the community. At least, it should create a situation in which the Private Sector can perceive tangible benefits from developing the built environment in accordance with a development framework.

2.0 City Structure

2.1 The primary objective at CITY SCALE is the evolution of overlapping districts to provide a seamless city which is legible to all users.

2.1.1 A city structure needs to be based on the definition and containment of space.

2.1.2 Urban development should take place as part of the 'diversity within unity' concept. Unity is achieved by working within a planned structure while diversity is derived from the contribution of many individuals over a considerable timespan.

2.1.3 At the city scale,joy is often achieved through significant landmarks and major spaces. Intricacy and delight can be added by the details of buildings, artifacts and spaces. These need to be rediscovered and documented in terms of the existing, and incorporated into proposals for new development.

2.2 Analysis and suggestions at DISTRICT SCALE is a justifiable approach, and should lead to identifiable character and positive legibility. However, there is also need for a city scale overview to consider the potential for significant landmarks and major spaces.

2.3 SPACE rather than building should be the focus of future development, so that the urban system is based on <u>buildings containing space</u> rather than <u>space containing buildings</u>.

2.3.1 The spatial structure is derived from <u>complexity within order</u>. The order is provided by vehicular and large-scale pedestrian routes, whereas complexity is offered by networks of well-contained and contrasting pedestrian spaces, such as lanes, passage-ways, and minor squares which have frequent access to nearby major streets, which prevents anxiety about becoming lost.

2.3.2 Movement patterns should be organised in a hierarchical structure, with provision for public transport, vehicles, cycles and pedestrians - in an organised manner. Disorientation caused by changes in direction and confusion at junctions, needs to be minimised.

2.3.3 Grouped spaces, in the form of a pedestrian network, offer variety and interest through

- optional routes
- landmarks and focal buildings viewed from different directions
- entry into the same square from a variety of approaches.

2.3.4 Central places are achieved by devising a hierarchy of squares, with the Government Square at the apex, and ranging through -

.	active	(Recreation (Trade
.	cultural	Information
.	reflective	Piety

2.3.5 City spaces should be mainly in public sector control and open to all classes. Access to some spaces may need to be limited on a time basis.

2.3.6 All users need to occupy the ground, ie public transport passengers, motorists, cyclists, pedestrians. In particular, vertical segregation of user groups should be avoided, and the ground level permitted to follow the natural topography.

2.3.7 Proposals for irregularly-shaped spaces may require justification.

2.3.8 A <u>Vocabulary of Elements</u> should be assembled, which is derived from <u>types of space</u>, rather than aesthetical considerations.

2.4 There are two fundamental types of BUILDINGS - Focal and Background, for which a series of principles and criteria can be formulated.

2.4.1 The city should display a predominant building height, especially as far as Background Buildings are concerned.

2.4.2 Objectives should include maximising the variety of compatible uses, and especially increasing the resident population.

Principles

1.0 City Scale

1.1 EDGES are the seams in the city are therefore need to be minimised and penetrated. Different edges are apparent to various user groups, for example a pedestrian path can be a vehicular edge and vice versa.

1.2 ORIENTATION within a city is provided by the combination of landmarks and major spaces. These combinations therefore need to be developed in a coherent manner.

1.3 Rules of thumb are required to help create CENTRES, ie positive public space and landmarks.

1.4 DIVERSITY OF USE, rather than zoning by function, is the objective. The city needs to be considered four-dimensionally, to create islands of heterogeneity.

2.0 Districts

2.1 GRAIN of buildings, needs to be consistent within a district. Developments should tend towards fine grain patterns. Grain in adjacent districts needs to be comparable, if the objective of the seamless city is to be achieved. The existing/intended grain size should generate the size of new developments. Large scale schemes should be avoided, but if that is not possible, they need to be formal and based on established rules.

2.2 DENSITY of building should also be comparable between adjacent districts, to assist the objective of the seamless city.

2.3 MEANING needs to be encouraged in the various districts in the city. The imagery of names for buildings and spaces can reinforce specific historical, functional, social and physical characteristics of a district.

3.0 Spaces

3.1 All city spaces should be considered as either STATIC or DYNAMIC. The former is associated with SQUARES and the latter with STREETS.

3.2 Squares

3.2.1 There needs to be a hierarchy of squares which range from the large city square to small spaces which are part of a pedestrian network.

3.2.2 The function of a square is related to its focal building. If there is no focal building then a specific function may not be apparent. However, minor squares can be associated with a particular background building, eg a shop, a café, etc.

3.2.3 The use of a square needs to be maximised. Recreation functions create the most extensive time usage.

3.2.4 Public and private spaces should be clearly identified and well defined.

3.2.5 Geometric spaces require precise architectural form in the surrounding buildings, ie a recognised style, whereas irregular spaces are best served by variety of form, ie the vernacular tradition.

3.3 Streets

3.3.1 The most distinctive form of street pattern is a grid, modified by the topography - with clear entry and exit points to each district.

3.3.2 Initial classification of streets should be undertaken by means of a visual hierarchy -

wide . two-way vehicular
mid-range . one-way vehicular
narrow . pedestrian

3.3.3 Main streets and secondary streets are different in nature, character and use -

main streets -
. direct means of communication

secondary streets -
. mysterious network, but with a recognisable main street always, only a short distance away

3.3.4 Vehicular movement should be achieved by a continuous circulating pattern of interacting loops. Cul-de-sacs are to be specifically avoided.

3.3.5 There are two kinds of pedestrian movement

- footpaths lining streets
- pedestrian network

3.3.6 Pedestrian accesses from streets are to be secondary routes, ie frequent, narrow and with minimum effect on the containment of streets.

3.3.7 Scope for cycle-ways, needs to be included within one-way vehicular routes and pedestrian paths.

3.3.8 All structures and artifacts which dilute the spatial form and/or oppose the street pattern, should be avoided. These might include - decks, elevated walkways, walls, steel barriers, central reservations, inappropriate signs and street furniture. It also applies to building projecting into a space on pilotis and buildings bridging over a street.

3.3.9 Dual carriageway is not an appropriate form for a city street, but articulation of vehicle movement is useful.

3.3.10 Street jnctions should be based on cross roads and T junctions with dominant and subordinate streets. There should be a small number of generic forms of each type in the city. Articulated junctions are to be encourage and a tramcar line is very useful in this respect. The dominant route at junctions should not take vehicles away

from the natural line of the street. The 'break in direction' cross roads and the 'square at cross roads' are two forms which should be promoted.

3.3.11 Building lines should be used to define streets.

3.3.12 At corners, building lines should be extended to form positive junctions, or even projected as pinch points, but not splayed or set back unless forming a square.

3.3.13 Streets need not be consistent in width throughout their length. They should be straight for only relatively short distances, as curves and changes in direction help to contain the space.

4.0 Buildings

4.1 All city buildings are to be considered as either FOCAL or BACKGROUND.

4.2 Focal Buildings

4.2.1 These are essentially public, unique, symbolic, and should be in a style of high culture. The style of building can either be modern or historical.

4.2.2 Uses can be - Government, Religion, Public Facilities, Law, Health or Education.

4.2.3 Focal Buildings may be physically attached to adjacent Background Buildings, but it is not a necessity. The main requirement is to avoid visual detachment from the background frame.

4.2.4 Symbolic buildings need appropriate settings, and access from a square is particularly important. This should take the form of 'the celebration' of the main entrance in the square.

4.2.5 Focal Buildings generally enhance the quality of squares, especially where there is compatibility between the amount of facade available and the size of Focal Building.

4.2.6 There are three fundamental relationships between Focal Buildings and squares -

- Square or group of squares defined by a Focal Building
- Wide Plan Square - Focal Building at side
- Deep Plan Square - Focal Building at end (limited application)

4.2.7 Landmarks should be adjacent to, or attached to buildings. Positions in the middle of squares are unsatisfactory, as they marginalise space.

4.2.8 Landmarks need to be symbolic, and therefore are often associated with Focal Buildings. A variety of scale is required -
large scale - viewed at long distance
small scale - create a place
This leads to the opportunity for viewing from various directions at different distances.

4.2.9 Landmarks generally originate from the public sector, but can be generated by the private sector, at the small end of the scale.

4.3 Background Buildings

4.3.1 The essential role of Background Buildings is to define and contain urban space.

4.3.2 They can be in the public or private sector.

4.3.3 Usually part of the building tradition of a place, these buildings are generally in the vernacular. They can be constructed in a recognised architectural style, provided unity, harmony and respect for the context are maintained. Unity of materials, technology, scale, style, etc, are useful attributes for Background Buildings.

4.3.4 Identification of the physical limits of each building is important, but should be achieved without random changes between buildings, especially in terms of materials or staggers in the building line.

4.3.5 The height of the buildings should be related to the width of street and/or square.

4.3.6 New developments should present a 'face' to external public space. Buildings may need to define more than one space, and therefore all facades require careful attention.

4.3.7 The most successful facade arrangements for Background Buildings are -
'Plain elevations with traditional pitched roof' with occasional -
'top floor set back'.

4.3.8 Windows are essential to Background Buildings. They express the scale and offer assuring information such as the number of storeys. These buildings should generally relate to the human scale and the most successful elevational treatment is - 'walls pierced with hierarchy of openings'. Anonymity in facades must be avoided.

4.3.9 Expression of the roof form is highly desirable in Background Buildings.

4.3.10 The character of new Background Buildings should be determined by the Architectural Framework in which they are to be set.

4.3.11 In terms of response to the Architectural Framework, the following is often the case -
Passive/Tight/Formal -
. existing streets and facades to be retained
. renewal can take place to buildings and spaces behind facades
Assertive/Loose/Informal -
. constant small-scale renewal of complete buildings

4.3.12 Facadism is an acceptable technique, provided the buildings were originally conceived in that manner.

4.3.13 Corners and changes in direction of the built form are much neglected. They need to be expressed by changes in building height, pavilions, domes, cupolas, turrets, etc.

4.3.14 Building frontages are essential to good townscape and there must be a clear relationship between main street or square, and front door.

4.3.15 Entrances to buildings need to be perceived as 'a celebration' - welcoming, bold, easy to see and decorated. Transitional spaces such as courtyards, gardens, arcades, porches and possibly external steps - all add to the drama and the ease of entry.

4.3.16 The uses of Background Buildings are mainly categorised under - Residences, Employment, Leisure and Shopping.

4.3.17 A combination of horizontal and vertical separation of uses is needed. Horizontal separation has to overcome Regulations, Ownership, Property Management, etc.

4.3.18 In terms of Age and Economic Yield, there is no correlation between the newness and usefulness of buildings. Older buildings are often more adaptable, but difficulty and expense are encountered in raising them to current technical standards.

Criteria

1.0 Squares

1.1 Size and Shape

The absolute maximum size of the main city square should not be greater than 145 x 60 m. At the other end of the scale, squares as small as 15 x 9 m are probably more genuinely perceived as entrance courtyards. In this context, it is not possible to specify an absolute minimum size for a public square, but a size such as 30 x 12 m, could be considered as the bottom end of the range.

The term 'urban square', should not be associated with the geometric configuration. In fact, urban spaces should not be square on plan.

Length to width ratios are most satisfactory in the range of 1.22 - 2.44, although 1.07 - 3.00 are within acceptable limits.

1.2 Length to Width to Height Ratios

Width(m)	Length:Width	Height(m)	Length:Height	Width:Height
9 - 22	1.22 - 2.44 (1.07 - 3.00) footnote 1	10.5 - 17.5 footnote 2	1.4 - 2.9 (1.4 - 8.5)	1.2 - 2.0 (0.9 - 4.0)
12 - 35	1.12 - 2.76 (1.07 - 3.00)	10.5 - 17.5	1.6 - 3.7 (1.4 - 8.5)	0.8 - 2.4 (0.8 - 4.0)

Footnote 1: All numbers stated are within the preferred range, while figures given in brackets represent acceptable limits.

Footnote 2: Height = average height of buildings defining the space, measured from ground to eaves level.

1.3 Openings

%tage of $\frac{\text{total opening}}{\text{square perimeter}}$. 11 - 22 (8 - 28)

number of openings . 2 - 5 (2 - 7)

perimeter of square (m) . 85 - 200 (50 - 335)

Masking, ie arrangement of the openings to prevent views through the squares should preferably be complete. A small number of squares may be adjacent to a thoroughfare which is itself, not masked.

1.4 Vocabulary of Spatial Elements

2.0 Streets

2.1 Nodal Hierarchy

Structure of streets, based on the following nodes -

	Spacings (m)
Large scale vehicular Nodes and Primary Coincident Nodes, at perimeter of a District	100 - 300
Secondary Vehicular Nodes	60 - 100
Small-scale Pedestrian Nodes	30 - 50

2.2 Length to Width to Height Ratios

Two-Way Vehicular -

Width(m)	Length:Width	Height(m)	Length:Height	Width:Height
16 - 23	3.5 - 13.0	14.5 - 17.5	3.5 - 17.0	0.8 - 1.5

One-Way Vehicular -

Width(m)	Length:Width	Height(m)	Length:Height	Width:Height
11 - 20	3.5 - 13.0	10.5 - 17.5	3.5 - 17.0	0.8 - 1.5

Pedestrian -

Width(m)	Length:Width	Height(m)	Length:Height	Width:Height
4 - 14	3.5 - 13.0	10.5 - 17.5	1.3 - 9.5	0.3 - 1.5

2.3 Permeability

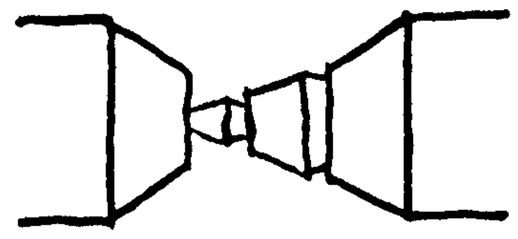
Frequency of access points from a vehicular street into a pedestrian network, is a measure of the permeability of the urban fabric. The criteria for access points, should be as follows -

Frequency (m) 20 - 30 m (15 - 50)

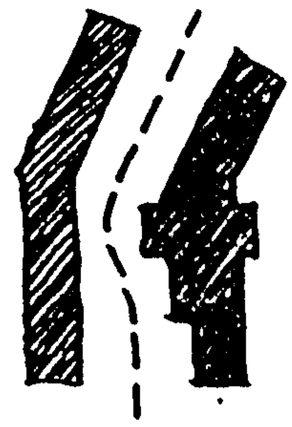
Width (m) 4 - 6

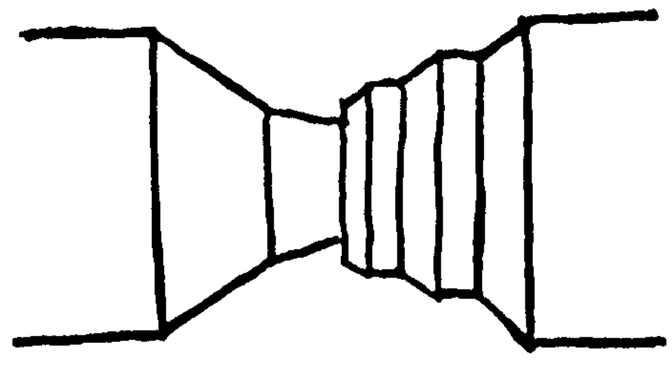
Devices	Arches, colonnades, passageways, gateways, arcades, etc, help to maintain definition of the vehicular street - but pedestrian routes should not be enclosed for more than 12 m, and enclosure is preferably minimised.

2.4 Vocabulary of Spatial Elements

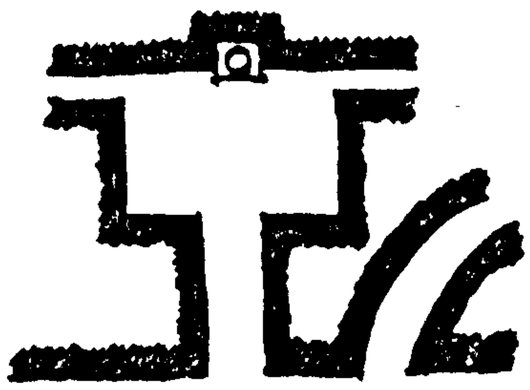


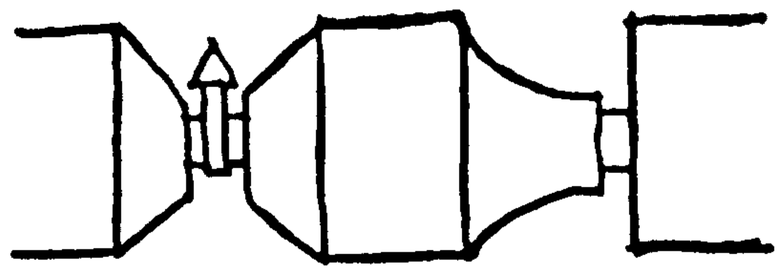
Deflection



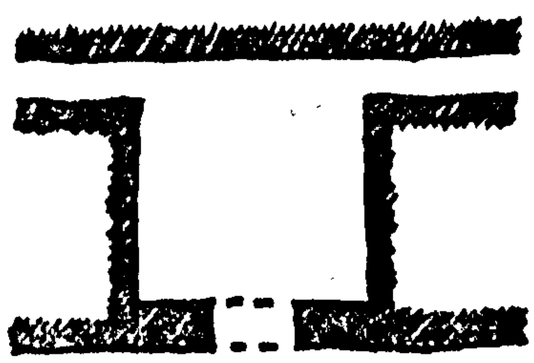


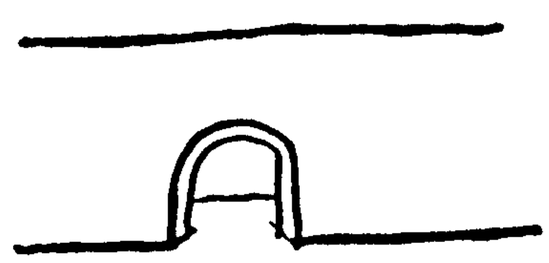
Constrictions, Angles + Wings



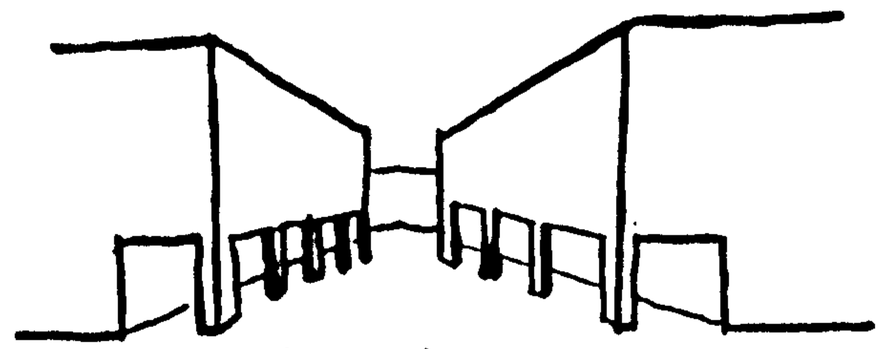


Multiple Views, Framing + Curves





The Arch



The Colonnade

3.0 Focal Buildings

3.1 The Principles

In relation to Focal Buildings, the principles are vastly more important than any specific criteria. These buildings need not conform to any of the guidelines about scale, grain, height, etc. However, it is expected that a Focal Building would not be smaller in any of these respects, than the surrounding Background Buildings.

3.2 Style

The elements of a Focal Building must be consistent, and it should be constructed to a recognised style. Contrast with the Background Buildings is recommended, and it may be the opportunity to explore modern styles of Architecture. However, an historic style can be equally acceptable.

4.0 Background Buildings

4.1 Grain

A figure for the average grain plot size helps to ensure that the grain structure in the city is not becoming too coarse, and assists in compatibility between adjacent districts.

average plot grain size

$$= \frac{\text{cumulative ground floor area}}{\text{number of properties}}$$

$$= 150 - 200\ m^2\ (150 - 300\ m^2)$$

4.2 Density

Building density values per floor are aimed at providing appropriate height and density characteristics within the city. These are represented as -

%tage of $\frac{\text{floor area at each level}}{\text{overall ground area}}$

A reasonable target would be as follows -

floors	percentage
Fifth	0
Fourth	10
Third	35
Second	42
First	42
Ground	40
	169 cumulative density

4.3 Scale

An average scale factor for the city can be derived from the cumulative density and grain -

$$\text{average plot grain size} \times \frac{\text{cumulative density}}{100}$$

$$= 150 \times \frac{169}{100} = 250$$

$$200 \times \frac{169}{100} = 340$$

$$300 \times \frac{169}{100} = 500$$

Scale factor range = 250 - 340 (250 - 500)

4.4 Heights and Depths

The objectives are that heights should relate to the Architectural Framework and width of street or square, and the depths should allow maximum day-lighting.

Heights . 10.5 - 17.5 m

Depths . 10 - 16 m (8 - 16 m)

External wall to building frontage ratio

. 2.1 - 2.4

4.5 Architectural Framework

PASSIVE/TIGHT FRAMEWORK	ASSERTIVE/LOOSE FRAMEWORK
formal	informal
limited number of building styles	greater variety of building styles
limited range of materials	greater variety of materials
simple elevations	more elaborate facades
minimal changes in building line	emphatic changes in building line
little skyline interest	raised skyline
broader frontages	narrower frontages

4.6 Uses

These need to be related to each floor level -

Commercial)	-	all levels
Institutional)		
Storage, car park, etc	-	all levels but minimise
Housing	-	first to third floors
Leisure	-	ground to second floors
Retail	-	ground to first floors

CAPABILITY FOR RESTORATION IN NEWCASTLE'S URBAN LANDSCAPE

City Scale

Districts

It has already been established that the understanding of a city is enhanced by consideration of the urban centre as a number of identifiable, but related and interlocking districts. To a certain extent, this was recognised by the City Centre Local Plan (July 1985), but unfortunately not apparent in the draft stage of the Unitary Development Plan (May 1991). The following districts are suggested (see Figure 213) -

Grey Street
John Dobson Street
Eldon Square
Haymarket
Leazes
Blackfriars
Central Station
Quayside

The first two districts formed the basis of the Newcastle Study Areas, selected for this thesis. The *Eldon Square District* is at the heart of the city. Its buildings comprise an almost solid mass of late 20th Century retail development, and the Grainger Market which was part of the 1834 Central Area Development. The Eldon Square Shopping Centre has caused the obliteration of some city streets, whilst others have been metamorphosised into indoor malls under private sector control. While the outcome of this 20th Century intervention is different to that of the *John Dobson Street District*, nevertheless it completely opposes nearly all the objectives and principles of urban restoration. The large scale and impenetrable nature of the development, means that restoration by adaptation will be extremely difficult to achieve. However, Eldon Square itself, still offers potential for renaissance as the major city square, and is probably best placed to achieve that objective. The *Haymarket District* has been the

subject of large scale comprehensive redevelopment proposals since the early 1960's. The non-realisation of those proposals, has left a rather neglected and downcast environment. Fortunately, the West Central Route will not be forced through, from Gallowgate to the Haymarket. Thus, provided the comprehensive proposals are not reinstated, the district has quite high restoration potential. The *Leazes District* has been blighted in recent years by the threat of the West Central Route, and by some inappropriate building projects such as the Department of the Environment's Regional Office at Welbar House and arguably the Newcastle United Football Ground improvements. Regardless of these negative aspects, parts of this district have great charm and its capability for restoration is excellent. The *Blackfriars District* is a particularly interesting area. A study by Newcastle University School of Architecture, commenced in the late 1970's, showed an outstanding variety of uses and fine grained activity. Since that time, Clayton Street has declined rapidly, but Stowell Street has flourished as the core of Newcastle's embryonic 'China Town'. The Blackfriars Monastery has been lovingly revitalised and there has been a small number of other excellent building projects. Among these, is the housing development which has completed the enclosure of the Blackfriars Quadrangle. Some of the most encouraging activity in the city, has been in this District. It is hoped that it will continue in a similar manner. The *Central Station District* is dominated by the station itself. Areas around city railway stations are often the least attractive parts of urban centres. This District suffers from some of the heaviest traffic movement in the city, but almost in contradiction, it has a number of virtually deserted streets. The station is in desperate need of a proper setting, ie an entrance square, but it is difficult to envisage how that might be readily achieved. There is much open space, some of which is redundant railway land. Most of this space is now controlled by the Tyne and Wear

Development Corporation, who have proposals for it. The *Quayside District* is also controlled by the Development Corporation, but unlike the *Central Station District*, there has been much recent activity along the river frontage. Many of the results have been very positive, including the environmental improvements, riverside walk, revitalisation and reuse of existing buildings. However, there are doubts about the overall structure of the District, and the capability for urban restoration is not enhanced by proposals such as the office development adjacent to the Copthorne Hotel. At the other end of the river frontage is the East Quayside Area. While, this is not strictly within the City Centre Area, nevertheless the proposals are so contrary to the objectives and principles of urban restoration, that concern needs to be recorded. The overall feeling about the *Quayside District* is that if the infrastructure were now to take precedence over individual building projects, the area could be delightfully restored.

Seamless City

There are two major aspects in achieving a seamless city. First, is the need for compatibility of urban fabric and spaces, between districts, without diminishing the individual character of the districts. Secondly, is the recognition of pedestrian and vehicular edges, and how these might be penetrated.

It is not within the scope of this thesis to produce a detailed analysis for each district. Yet, certain considerations are clearly emerging. It is evident that the size of developments is becoming larger, and thereby the grain is becoming more coarse and the scale is increasing. Therefore, districts which are predominantly late 20th Century contain more extensive blocks of building than those from earlier times. This is strikingly shown, when comparing the *Eldon Square District* with the *Grey Street Study Area*. There is also great

variance in style, technology, materials, scale, etc. Not only does this trend need to be halted, it actually needs to be reversed. It has been shown in the criteria for the Frame of Reference, that smaller grain and greater unity are needed. A difficulty then arises, in terms of the justification for altering, amending and demolishing the newer developments, while promoting often neglected older property, with technically lower standards. The late 20th Century has shown that any change is possible, but the desire and especially the finance for urban restoration may not be so forthcoming when it is realised that the most recent developments are high priority targets. The other major factor is the movement pattern. This seems to have become progressively more complex, illogical and difficult to comprehend. Too often, vehicular routes make disorientating changes of direction and disappear along back lanes. However, compared with the built fabric conundrum, the streets could be re-ordered with less obvious difficulty. Yet, movement patterns raise points which may be beyond the authority of the city council. Urban transport policy needs a co-ordinated base, which can only be achieved through public sector organisation. Deregulation of public transport has complicated urban transport provision and further confused the movement patterns. The introduction of the tramcar system would be greatly beneficial to communication within the city and act as a tourist attraction, but with current Government policy, public finance may not be available.

The penetration of edges, relates to the above points about buildings and streets. If movement can be organised in a logical manner and blocks of building can become permeable, most of the edges can be breached. One simple way of dealing with a number of edges, would be the immediate removal of all physical barriers.

Legibility

A clearly organised movement pattern is an important aid to orientation and therefore assists legibility. Also involved, is the provision of major spaces and landmarks. The latter is relatively easy to achieve. It does not even involve huge capital expenditure. More significant, is the evolution of a city culture in which landmarks are perceived as important and therefore worth both the development time and expenditure by public and private sectors. It has already been noted that the existing provision of major spaces in the city, is relatively low. While it is possible to identify sites for proposed major spaces, they appear isolated and lack association with the concept of central places. The reality is that Newcastle has not evolved with a number of major spaces, and to impose them may cut across other objectives in the city's restoration. An alternative strategy might be to generate more significance from the existing major spaces and to introduce extensive networks of minor spaces.

Diversity of Use

The city centre has been subjected to a policy of zoning by function for the last thirty years. Districts redeveloped within that period, tend to be functionally homogeneous. Whereas, districts which contain older property have escaped the zoning policy to varying extents, and tend to be more heterogeneous. One of the objectives of urban restoration, is to maximise the variety of compatible uses. Where greater diversity of use was planned in the past, it has involved vertical separation, ie different uses occupying independent buildings. *Burns'* concept of mixed use, as flats in towers overlooking commercial and retail property, is still evident in the city. It has been explained in the Suggestions for the Study Areas, that vertical separation leads to simpler solutions. However, it creates coarse grain patterns and mitigates against some uses in favour of others. Horizontal separation has not found favour in

the modern planning era, although it was often the traditional solution - especially where people lived above their workplace. Traditional buildings were readily adaptable for shop, workshop, house, office, etc. The demand for increased floor areas in commercial and retail premises, has created a scale differential which severely inhibits change of use. It is tempting to suggest a return to the 19th Century scale, but larger premises are necessary in some cases for the city to function. Nevertheless, modern shopping developments disguise the number of small scale retail outlets contained within them, and new office blocks often accommodate a number of small firms. Thus the case for larger buildings is invariably overstated, and buildings of traditional scale can serve many uses. The Unitary Development Plan (draft May 1991) seems to be offering a more flexible policy, with the undefined 'mixed use' covering a significant proportion of the city. However, the hard core single uses are still apparent. Providing that the necessity for large floor areas is not as great as generally assumed, newer buildings present greater obstacles for reuse than traditional alternatives. The tendency towards deep plans, high technology and specific design briefs, has created inflexibility in modern building. Yet, there is significant potential for diversity of use in the city's built fabric. Once the objective is established, the gradual dissolution of functional zones, will enable the most adaptable buildings to be reused initially, with redevelopment of inflexible property occurring on a small scale, over a long time period.

City Structure

Squares

In addition to the squares which form part of the Study Areas, there are a number of other significant spaces within the city including - Eldon Square, Charlotte Square, Blackfriars Courtyard, and the park between St Thomas' Church and the Civic Centre. The last of this

group is interesting in that its amorphous nature seems even to extend to imprecision in its name. Certainly, it does not fulfil the criteria of the City Square. A space which does fulfil these criteria is Eldon Square. Moreover, its pivotal position in the city and proximity to the Monument, add to the notion of a central place. The present surrounding buildings (with the possible exception of the East side) are inappropriate, in terms of both use and elevational treatment. At the earliest development opportunity, a focal building with accompanying background buildings, needs to be constructed around the square. If the City Council's office functions are to remain at the Civic Centre, then perhaps the ceremonial functions of Local Government should be developed at Eldon Square. *John Dobson's* idea of a Mansion House, or a centre for Regional Government, are possible options. It could be that two or more focal buildings are coupled together. For example, a Mansion House, together with a new City Hall and Museum could be suggested. Whatever the exact proposals, it is clear that Newcastle needs a definite centre, based on Eldon Square. Of the other existing spaces, Charlotte Square has great potential and links through to Blackfriars Courtyard where much potential has already been realised.

In considering new squares, it has been established that extensive networks of minor squares would be more acceptable than major new squares. Similar movement patterns to those suggested for the two Study Areas, could be applied throughout the city. The size, shape and complexity of the spaces, and indeed the network itself, would be determined by the existing districts. In this way, not only would existing character be retained, but it would also be enhanced. In practical terms, the possibilities for districts such as *Blackfriars* and *Leazes* are quite evident, although the proposed West Central Route, would be an unhelpful encumbrance. Districts like *Eldon Square*, and to a lesser extent *Haymarket*, would not

be so readily restored. The objective is to create the network of spaces behind the primary streets and within the blocks of building. Thus, the greatest opportunity is in blocks of small scale buildings and fine grain patterns. The trend for larger buildings and more coarse patterns, has already been identified. It is therefore, an unavoidable conclusion that districts containing older properties have greater capability for restoration than those containing newer buildings. The potential for grouped spaces and the creation of central places would be integral with the development of the network in each district. The progressive privatisation of public space, has been increasingly detrimental to the concept of spatial coherence. It has often created a kind of ambiguity of space, which has public access, but is really under private control. It may sound idealistic, but city space must be returned to the community. Privatisation does more than just inhibit access or even segregate classes of society. It attacks the confidence of city people and undermines the notion that it is <u>their</u> city. In terms of a community, that aspect is one of the most harmful of all. Despite Central Government policy, the public sector does have the power to own and control city space.

<u>Streets</u>

Notwithstanding interventions by successive City Engineers, the traditional street pattern is largely still intact. Districts which have been most affected are probably the *John Dobson Street Study Area* and the *Eldon Square District*. Therefore, the capability of the city to receive interlocking, continuous circulating movement patterns, is high. Recent plans by the Local Authority have recognised this kind of approach, but their proposals are on a city scale, rather than district scale, and are therefore too coarse. Also, a hierarchy of use, based on street width, and the problems of disorientation have not been taken into account by the Local Authority. Existing

junctions are particularly complex and confusing, but the introduction of articulated junctions with only a small number of generic types, is decided feasible. The pedestrianisation of narrower streets and their identification as secondary streets is also readily achievable. Permeability of primary streets is associated with the suggestion for pedestrian networks. Once again, the capability for penetration of building blocks is related to grain and scale. Modern, deep plan, large scale buildings will require considerable redevelopment, to achieve the objective of frequent pedestrian access. In the older parts of districts, many of the pedestrian access points already exist, and the introduction of others does not create great disturbance.

It has already been established that contact with the ground surface, is essential to user groups. This is coupled with the importance of following the natural topography of the ground. There are a few existing elevated pedestrian walkways towards the *Quayside District*, but the majority of aberrations have been tackled in the *John Dobson Street Study Area*. There are two 'bridges' which form part of the Eldon Square Shopping Centre. The width of these structures produces a deck-like appearance and an uncomfortable environment to Percy Street and Blackett Street, which pass underneath in each case. The removal of these structures could be completed as part of the reconstruction of the Eldon Square Shopping Centre. The notion of redeveloping a modern large-scale shopping centre may appear too radical. However, it should be remembered that demolition of large-scale developments, constructed in the 1960's and 70's, is now becoming a regular event, and a number of British cities already have new schemes for shopping centres from that period.

A simple starting point for overcoming unnecessary city structures, would be the removal of metal railings which seem to run almost continuously along some streets. More major operations are involved where buildings are concerned. Fortunately, there are only a few examples where buildings cut across the street pattern. The most obvious cases are Bewick Court, and MEA House in the *John Dobson Street Study Area*, Commercial Union, in Pilgrim Street, which is at the interface between the *Grey Street Study Area* and the *John Dobson Street Study Area*, and Norwich Union in Westgate Road. However, the clarity of building lines is an essential ingredient of the restored city, and streets contained by continuous rows of buildings, needs to be achieved. Generally, this situation does exist in Newcastle. The relatively few exceptions tend to be large scale modern buildings, which demonstrate their undesirability in a number of ways. The expression of positive building lines at junctions and corners, is also the majority case in the city. In situations where this does not occur, the most common cause is the demolition of an existing building, which can be rectified.

Focal Buildings

The nature of a focal building is that it should be unique, symbolic and public. The setting is extremely important, and entry should be gained from a square. Thus, there is an immediate association of focal buildings with squares. While the setting of most existing focal buildings can be improved, it is the development of new buildings of this kind, that requires particular attention. The role of Eldon Square, as the City Square was discussed in the last section. Suggestions for possible focal buildings were also put forward for that location. A framework for development which actively encourages the creation of networks of squares throughout the city, generates a range of opportunities for focal buildings which previously did not exist. The affect of

symbolic buildings on the psyche of a community cannot be overstated. Therefore, the desirability and opportunity for new focal buildings are not in doubt. It is the procurement that may present obstacles, and a number of these aspects will be investigated in the final section of this chapter. However, if focal buildings have the significance that is being suggested, then they need to be seen as the pinnacle of achievement in the built environment. It is essential that they are public buildings and unless a mechanism can be created in which the private sector constructs on behalf of the public sector, the responsibility falls on Central and/or Local Government. The former is committed to minimising public expenditure and the latter suffers from cumulative budget restrictions. At the same time, the quality demanded for buildings which represent the pinnacle of achievement, requires sufficient finance for it to be realised. The image of cheap, low quality, downcast focal buildings, with pieces falling off them into the square below - would be most harmful to the confidence of the community. So, the aspects of patronage and adequate budgets, need to be fully considered.

The role of the Design Team is crucial to these buildings. With parameters which include public use, symbolism, representation of high culture, individuality if not uniqueness - the established skills of Architects should come to the fore. It is also in these buildings that the dilemma of style and the conflict between modernists and traditionalists can be reconciled. The City of Newcastle has the capability to accept focal buildings in fine modern styles, as well as those from historical cultures. The emphasis is on style. One of the disappointments of a built environment survey of the city, is the difficulty in nominating high quality, stylish modern buildings. It is easy to understand the desire to promote recognisable historical styles, when faced with the apparent modern alternative. This does not have to be the case, and it is

suggested that modernist architects can propose designs of high quality and culture for new focal buildings in Newcastle. The essential factor is that Architects, the Design Team, clients and even the public, recognise the difference between focal and background buildings and do not try to impose the characteristics of one type on the other.

Background Buildings

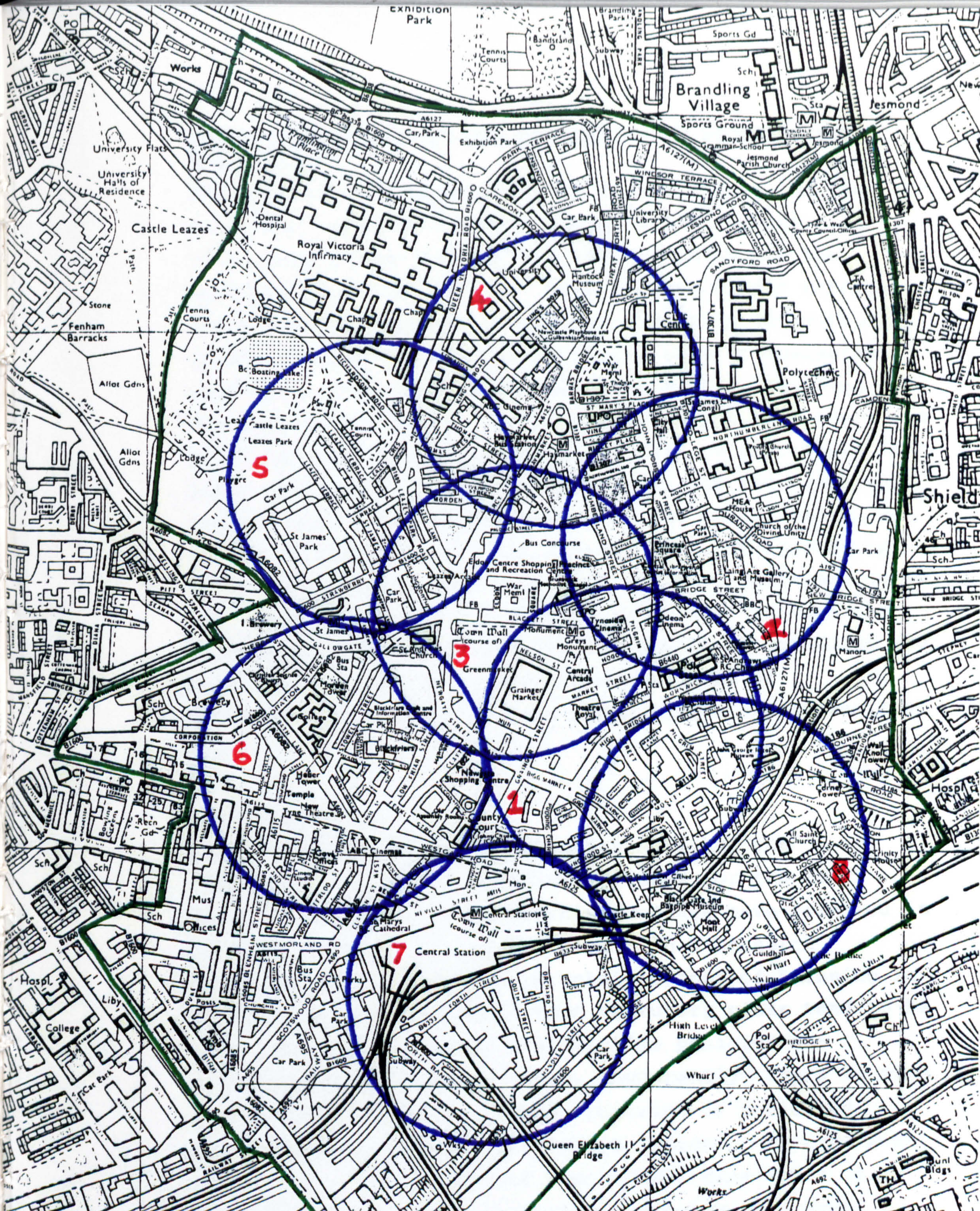
There will always be a continual demand for this group of buildings, because they house the majority of functions in the city. It is not the capability of Newcastle to accept these buildings which is the issue, because that is a fact of life. The important aspects relate to the criteria for new background buildings, and the future for existing examples which do not meet those criteria. As well as satisfying functional requirements, the role of background buildings is to define and contain urban space. This demands continued evolution of local building traditions to achieve unity of appearance, which is the essence of background buildings. Generally, the local building tradition is a vernacular form based on loadbearing construction with stone and/or brick facades and pitched roofs. This form suits the requirements for grain, density, height and depth. Yet, conflict can arise between the products of the local building tradition and the late 20th Century functional requirements. The most common conflict arises from demand for greater expanses of uninterrupted floor space. Buildings constructed during the 20th Century have often attempted to satisfy apparent needs for increased floor space and therefore have failed to meet the criteria for background buildings. This dilemma is not as insoluble as it might appear to be, at first. As previously pointed out, large scale development often disguises its small scale components. Further, there are imaginative projects throughout the country, which offer both the features of background buildings and solutions to the demands of late 20th Century society.

The situation with existing large scale buildings, again raises the contrary statement that newer buildings are less suited to urban restoration than their older counterparts.

One aspect which requires more detailed investigation in the city, is identification of Architectural Frameworks within the various districts. This is the stage reached in the pilot project for Amsterdam's Urban Quality Plan. Assessment of the components which produce the Architectural Framework for any particular district, can be used to establish the parameters for development of background buildings in that district. Intended uses relate to the movement away from zoning by function to the heterogeneity created by a diversity of compatible uses. It has already been discovered that some districts enjoy considerable diversity of uses. Homogeneity of use has almost exclusively resulted from planning policy, which appears to be the only impediment to diversity.

Background buildings can be either in the public or private sector. Given the limitations on the development of public focal buildings, opportunities for new buildings of the public background type, seem limited. It is therefore, a reasonable assumption that the majority of new background buildings will be in the private sector. Thus, an important priority is the encouragement for private sector developers to consider the built fabric patterns and to construct in accordance with the Frame of Reference. The Design Team, and particularly Architects, can assist in this objective. It has been a necessity for survival that has led Architects to become involved in the design of background buildings. Difficulties have arisen where Architects have tried to apply some of the focal building attributes to them, or where the context of the city has been submerged in favour of expression of a particular building and/or Architect. There is a particular role for Architects in synthesising functional

requirements with the parameters for background building. Yet, Architects and their clients need to realise that the form of the city fabric cannot be sacrificed in favour of speculative, short-term and individual functional preferences.



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Key To Districts

1 Grey Street
2 John Dobson Street
3 Eldon Square
4 Haymarket
5 Leazes
6 Blackfriars
7 Central Station
8 Quayside

Figure 215 SUGGESTED CITY DISTRICTS

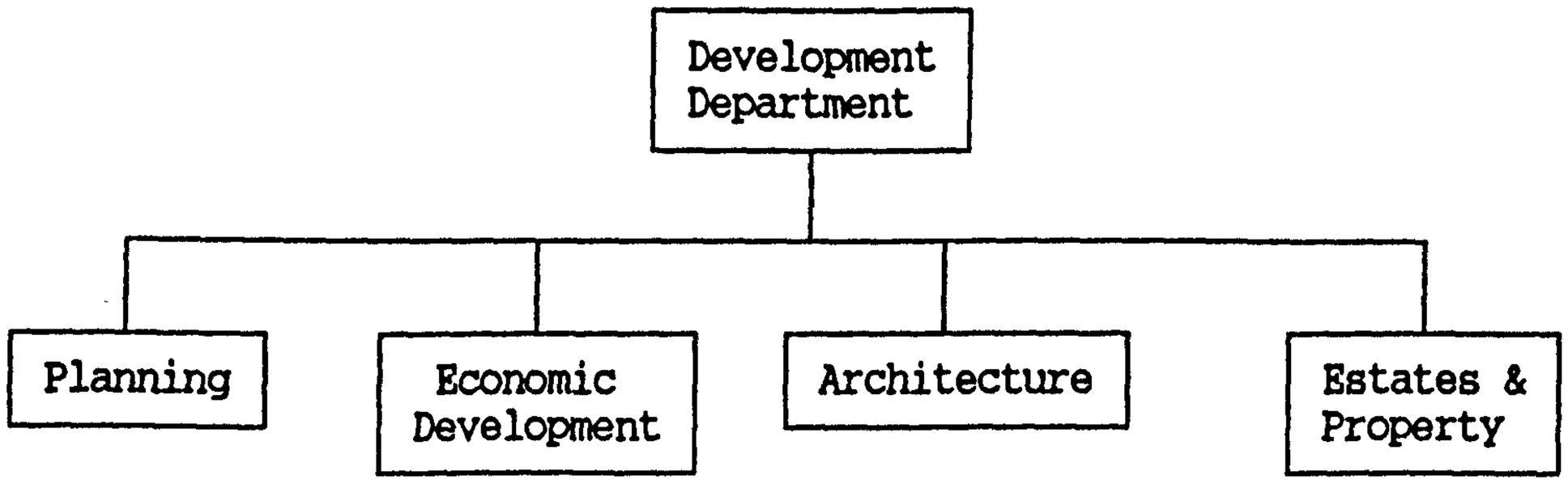
ORGANISATIONS, GROUPS AND MECHANISMS TO PROGRESS URBAN RESTORATION

The aims are dissemination of a common vision for the city, and to achieve action based on that vision. In 1961, *Jane Jacobs* pointed out that Planners and the Agencies of Action, did not have strategies for carrying out objectives such as catalysing diversity and nurturing lively streets.(1) Certainly in the case of Newcastle upon Tyne, that particular situation has not improved in the last thirty years. *Alfie Wood* believes that there are great dangers in over-planning and that we must learn to leave well alone. In his view, one of the most important requirements is co-ordination. 'In the public realm, we cannot be sure that all the players have the same script or are even in the same play.'(2) *Richard MacCormac* notes that we are looking at a process which lies between the statutory planning process and the design of buildings and must become a medium to which a whole range of participants subscribe and in which shared objectives are found.(3)

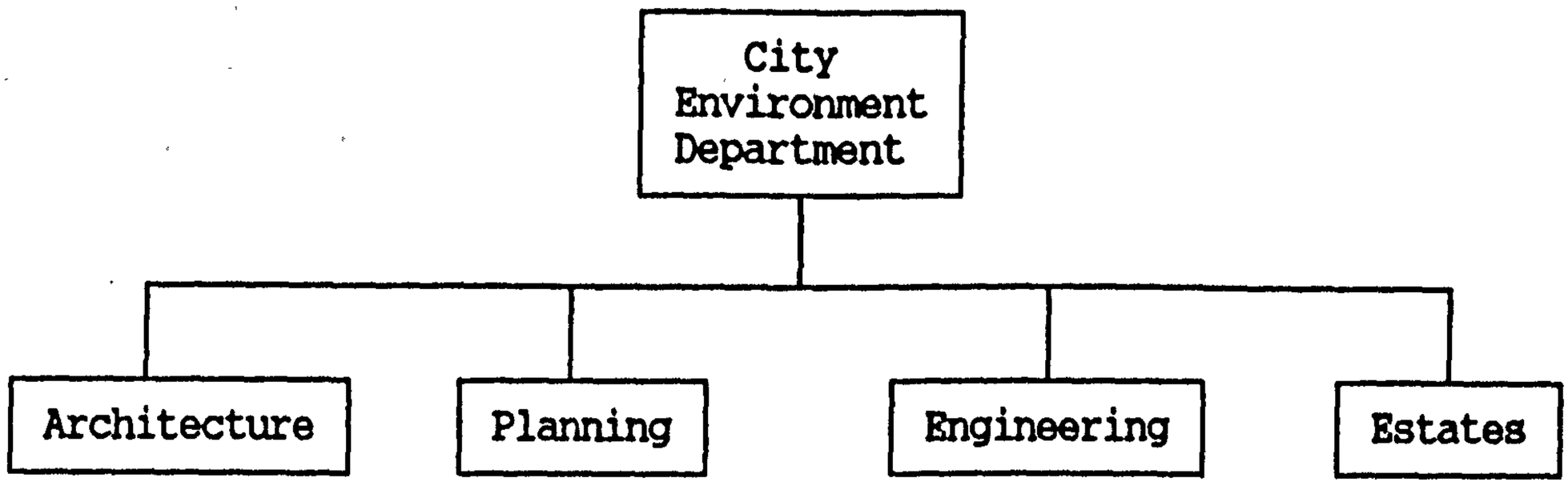
Local Authority

Since 1945, public sector planners have had the responsibility for determining a vision for the city. However, unsuccessful deterministic plans have resulted in considerable loss of their status. In a research programme by Birmingham Polytechnic School of Planning in 1990-92, it was discovered that statutory plans tend to be very generalised whereas prescriptive policies are targeted on conservation areas. Apparently, there is also a pronounced variation in the provision of published design guidance between and within regions. Perhaps most significant, is the lack of theoretical base which is indicated in the Research Team's discovery that Local Authority staff possess considerable local knowledge and design sensibility, but it is often expressed as personal opinion and vulnerable to personal changes. Unfortunately, Newcastle declined to take part in the programme.(4)

The downgrading of the Planning Department in Newcastle's Local Authority has already been explained. The consequential structure of the new Department is as follows -



Engineering, which includes the design of external public space, is found in a separate department, whereas it is debatable that Economic Development is compatible with the other activities. In Amsterdam, there is a clear distinction between economic and physical issues and this is emphasised in the title of '<u>Physical</u> Planning Department'. In Newcastle's neighbour, North Tyneside Metropolitan Borough Council, there has been a tentative move towards collecting the environmental professionals together. The Department is called 'Technical Services' and includes the Highway Engineers. Amongst their aims, is the provision of a 'one stop shop' approach, enabling prospective developers to discuss proposals with a multi-disciplinary area team. The role of urban design is not clear in this arrangement and it could be that there is too much emphasis on technical issues. If urban design is to impact upon the decision-making process, then perhaps its influence needs to be raised to at least Assistant Director level, as in Birmingham. An alternative structure for the Department in Newcastle, could be as follows -



In this structure, the strategy is for, and co-ordination of the built environment would be a major role for the chief officer. In addition, it would swing the direction away from the urgency for development of any kind, to a more considered and coherent vision for the city. *Richard MacCormac* appears to support this kind of approach. In his view,

> 'Local Authorities should produce strategic urban design plans with more detailed public realm plans, showing how individual parts could be improved .... This could be done effectively if a Local Authority gave one department, committee or agency, the duty and resources to produce plans for enhancing the urban area.' (5)

This statement endorses the 'Urban Quality Plan' philosophy, currently being investigated in Amsterdam. There is also support for the Stuttgart and Amsterdam approach of development parameters for each site, which include aspects such as - height of development, mix of uses, site density, access, bulk, urban character and context.

Newcastle City Council is experimenting itself, and a joint initiative with English Heritage is resulting in the appointment of 'The Grainger Town Development Officer'. Unfortunately, the area of the so-called Grainger Town, is not the identifiable district that the name suggests. Nevertheless, the principle could be related to actual city districts. Also, it is doubtful that one appointment

at mid-management level can have sufficient influence, especially without an appropriate departmental support structure. However, some of the terms of reference for the appointment are encouraging. In particular, the co-ordination of innovatory property management, grant packaging, environmental improvement and traffic management, together with helping owners and occupiers to improve their properties through information, advice and grants - are all useful concepts. Liaison is also a strong thread. It is intended that this should be with both private and public sector. The former relates to the Newcastle Initiative, the business community and trade organisations, while the latter is directed towards English Heritage and the Department of the Environment - to focus and co-ordinate public resources and statutory protection powers. The picture is completed by proposed contact with amenity societies, property agents, local architects and developers. This response has similarities with the panel of development advisers favoured by the Local Authority in Stuttgart.

Central Government

The divide in Central Government organisation between the Department of the Environment and the Department of Transport is unhelpful to the local urban scene. This tends to identify the road building programme as the Government's most proactive contribution to the built environment. At a time when the Government is reducing support to Local Authorities, applications for funding new road schemes are amongst the few ways that the City Council can be seen to be producing. This has a number of disadvantages. First, it promotes the notion that roads are a priority. Secondly, it allows them to be conceived independently from the other urban elements. Thirdly, it provides an incentive to construct large-scale engineering projects when the status-quo might be a preferable option. Finally, it perpetuates an argument for segregating the Highway Engineer from the other environmental

professionals in Local Authority organisations. The Department of the Environment has been rightly criticised for its ambivalent attitude to urban quality. However, more recently there have been hints of a change in position. For example, a new consensus on the relationship between planning and design is epitomised by PPG 1:March 1992. Yet, according to *Michael Bach* of Planning Information and Research Development at the Department of the Environment, very few cities have a vision of where they want to go. He intimates that the Department of the Environment would support a particular city's vision. This may well be rhetoric, but his case is made more convincing by a short list of recent initiatives in which they have been involved, viz -

. London's Image - street scene and street furniture
. ICE/AME: Urban Environmental Initiative
  - spaces and street scene
. BRE: Sunlight and Daylight
. Design Policies in Development Plans (6)

The implication is therefore, that cities providing a vision and coherent strategy will receive a sympathetic response from the Department of the Environment. At least, they will be sending a signal to Central Government about their perception of the priorities.

<u>Development Corporations</u>

If the objectives of Tyne and Wear Development Corporation's Chief Executive, are taken as representative of intent and action, the Development Corporation appears to be an ideal mechanism -

1. Vision . Preparation of the City and the region for 21st Century
2. Coherence . To calm the uncertainties in the private sector
3. Working with the market
   . Growth - but also being aware of market limits

4. Enrichment of Existing

   . Developments to complement existing fabric and townscape

5. Participation

   . Public involvement
   . Local Authorities
   . Local community
   . Local private sector (7)

However, the Development Corporation operates in a clearly defined geographical area, and its effect on the majority of the city needs to be taken into account. It has been suggested that most of Newcastle is being starved of action, because of the favourable conditions that can be created in the Development Corporation area. Moreover, the political commitment demands success. There is also concern that a coherent seamless city is unlikely to be achieved with different parts of the city controlled by fundamentally different organisations. In addition, the Local Authority claims that it could accomplish at least as much, if it had similar powers and funding arrangements.

The Development Corporation has the opportunity to offer a coherent strategy, set out the infrastructure and provide suitable conditions for private sector development. It is therefore, disappointing to discover that the infra-structure proposals are centred on an inappropriate road-building programme, while the Corporation has the ability to solve the most immediate transportation problem of a link between Quayside and plateau, with a tramcar system. While environmental works such as the riverside walk, are a great improvement, it is inescapable that the Development Corporation's attention is directed towards individual building projects. Evidence from other cities confirms the feeling that an opportunity is being lost and rather than promoting a coherent strategy, Development Corporations actually encourage the incoherence resulting

from each potential building project being considered individually. If the whole city were to be appraised, it is extremely unlikely that the East Quayside would appear as a priority, and possibly it would not be considered at all. The question is whether the Development Corporation approach could be applied to the whole city. The potential is apparent, but the Government would need to provide a significantly higher resource level and reverse its policy of targeting small areas of the city.

Public Sector Funding

Following considerable criticism regarding the complexities and delays inherent in the established grant system, the Department of the Environment introduced the City Grant in 1988. Its purpose is to provide support to private sector capital projects which benefit rundown urban areas and cannot proceed without assistance. Within the Tyne and Wear Development Corporation area, applications are made to the Corporation. In all other districts, applications are sent to the Department of the Environment. An important criterion is the projected number of jobs that will be created.

Thus, there are considerable limitations regarding urban restoration. First, City Grant is intended to encourage genuine private sector investment rather than providing an alternative source of funds for public sector projects. Secondly, a district must be considered as 'run down'. Thirdly, the award of a grant is unlikely, without significant job creation. Finally, there is a perception that the majority of City Grant funds are being awarded to the Development Corporation. It is therefore clear, that urban restoration requires alternative funding sources. Experience in cities such as Birmingham and Manchester, demonstrates that finance for public sector buildings and urban spaces can be obtained from the European Community. Newcastle seems to have been slow to generate finance from this source. While the private sector may eventually come

to appreciate the advantages of development that includes high quality external spaces, its ability to pay can only be realised in times of economic boom. In addition, developments which include mixed use, and especially those vertically separated, are more costly than other types. The conclusion is that urban restoration requires subsidy on a scale which cannot be met by European funds alone. A commitment to urban restoration is therefore needed by Central Government. This could take the form of an extended grant structure or additional funds to Local Authorities for the purpose. The present Government is dedicated to supporting the private sector and reducing finance to the City Council. Also, Central Government is involved in a general policy of cutting public expenditure. In these circumstances, potential for funding urban restoration from public sector sources, looks bleak without a philosophical change in political direction.

Private Sector Funding

In the wake of Thatcher's comments following the 1987 General Election, the private sector became very excited about the concept of inner city development as an urgent national priority. The Confederation of British Industry set up a Task Force to investigate the possibilities. They set out the principle issues as follows -

1. Business must provide the leadership, and in particular the vision to reverse the cycle of economic and social decline.
2. Urban decay is a problem whose solution lies beyond charity.
3. Urban Renewal programmes can follow a common process.
4. The business community should commit to a programme of action to provide leadership in major cities across the country. (8)

The Newcastle Initiative was founded in 1988, as a pilot project. It concluded that flagship schemes should be established, which would -

. Build on existing efforts within the city
. Heighten the distinctive image of Newcastle
. Mobilise local community pride
. Offer a good prospect of 'early wins'
. Exploit inherent strengths of the city
. Actively promote the agreed vision

It regards the key players as -

Tyne and Wear Development Corporation
City Action Team
Northern Development Company
Business in the Community
Chamber of Commerce
Newcastle City Council (9)

In the late 1980's, it was envisaged that the Newcastle Initiative would be able to unlock finance from pension funds, insurance companies, developers, banks and building societies, who according to *Peat Marwick McLintock*, were still reluctant to invest in urban regeneration.(10) The Confederation of British Industry had based much of its proposals on the Eastern Seaboard cities of the United States of America. One of the most important aspects to emerge from both sides of the Atlantic, is that tax incentives are a prerequisite to private sector investment.

The Initiative was severely curtailed by economic recession and has not lived up to the promises. Nevertheless, private sector involvement of this kind does have potential in the long term, provided Central Government ensures that the tax incentives are forthcoming and the swings of the trade cycle are taken into account.

Consultants

Investment in the city can be introduced by external consultants, acting on behalf of the Local Authority. As well as enhancing the commercial potential of the city, consultants can be engaged for other purposes. *Francis Tibbald's* 'Birmingham Urban Development Strategy' and *David Rock's* work in Royal Lemington Spa, are examples of this kind of work. An Urban Restoration strategy could be devised and implemented by a consultant over a period of say five to fifteen years. An appointment could be made for a particular district or for the whole city. The main objective would be the 'care' of the city over a relatively long-term period. This would enable consistent implementation of strategy which would avoid sudden changes. It could be argued that such activity is within the scope of the Local Authority. Yet, it has been shown that there are advantages in the neutral standpoint offered by an external agency. It avoids the history of past decisions and present local politics. It has also been discovered that Local Authority Officers are subject to a greater employment turnover than might be imagined. *David Rock* has commented that on several occasions, none of the original players were still working for particular Local Authorities, by the time that his consultancy was concluded. Consultants can also act informally and be effective in that situation. They are not part of the legislative process and therefore not bound by its rules. Finally, and contrary to common belief, Design Teams often prefer definite guidance, and this can help them in dealing with their clients.

A variation on the External Consultant model, is the involvement of University-based consultants. This model is used extensively in Europe, but has not really become established in this country. The advantages are similar to the External Consultants, with the additional factor of local knowledge. The Universities also have the facility of publishing information and proposals, which can act as

communication and influence. In the European Exemplars, *Rob Krier* acted in this way, by setting his book 'Urban Space' in Stuttgart, whereas the University of Amsterdam openly operates as the conscience of the Local Authority. Both the University of Newcastle upon Tyne and the University of Northumbria have the expertise to become involved in this way. At present, there is only the Centre for Urban and Regional Development Studies (CURDS). This group does not specifically concentrate on the city and is primarily concerned with economic issues. Perhaps the consultancy could be part of the role of a Centre for the Built Environment.

<u>Professionals</u>

The 19th Century obsession with professionalism has certainly created a 20th Century situation of environment professionals who are culturally different from each other and often unable to communicate. The Professional Institutes have exploited this position, rather than healed it, because of their own vested interests. In the recent deregulated world of professional services, the environmental professionals are being re-appraised. Planners have suffered from their alliance with the Engineers, as a means of forcing deterministic and logical plans on the city. Their public sector role is also being diminished, and some have moved into private sector consultancy. Planners have also felt insecure when negotiating with Developers and Architects, because of their lack of design education and the absence of a theoretical base for their decisions. It would seem that Planners are ideally situated to progress Urban Restoration, but they need to unload the baggage of past failures and re-educated themselves in the fundamentals of the City. Architects are also in crisis. Having allowed various of their roles to be usurped by others, throughout the 20th Century, they now face questions about the value of engaging an Architect at all. Building procurement methods are changing rapidly and Architects may rue the

days when they were so anxious to separate themselves from construction. Two distinct trends seem to be emerging in the Architectural Profession. It is interesting that they are closely paralleled to *Eduardo Lozano's* assertion about a 'professional tradition' and 'generation of human habitats'. It seems that we are moving into an era in which building design is divided between 'Architecture' and the 'popular design tradition'. These two strands also equate to focal and background buildings. There appears to be a small group of international superstar Architects who are creating specific buildings and monuments which represent a small but highly visible share of the built environment. Whereas, the others have taken on the realm of the vernacular building tradition. Moreover, the latter group is not necessarily comprised of Chartered Architects.

Highway Engineers are often regarded as the biggest obstacle to environmentally-friendly cities. It is astounding that the Newcastle Engineers are still forcing through roads which belong to a discredited strategy, at least thirty years old. Obsession with the motor car is a difficult phenomenon to overcome, because it is deeply embedded in the psyche of 20th Century man and woman. Yet, it is clear that there is a positive correlation between the area of road surface and the number of motor vehicles. Even Newcastle's Director of Engineering admits that building new roads is not the answer. Perhaps more significant, is the Engineer's obsession with regulations. While it has been shown that some of the techniques in Urban Restoration are - expressing the topography, completing the building line at street junctions and clarifying the use of urban space; the Engineers are tunnelling, grading and bridging to reduce gradients, insisting on sightlines, pedestrianising parts of streets

and restricting vehicular flow. It is essential that Highway Engineers secure a redefined role in the design and care of external public space and that their regulations are re-written as part of the process.

Property surveyors also need to be brought into the Urban Restoration Team. Apart from need to attract developers, owners and financiers, to invest in the City's buildings and spaces; property surveyors also have a role in the promotion of mixed use arrangements. The advantages of the vertical separation of uses have already been established, but the impediments to that pattern have also been pointed out. Property Surveyors need to be involved in breaking down the barriers to vertical mixed use and establish mechanisms which enable it to become normal practice.

A recent resurgence of interest in city environments has led to a sort of rebirth in Urban Design. The focus on urban space in the public realm, is understandable, especially as this has been so neglected. It needs to be emphasised that it is a laudable objective, but only part of the sphere of Urban Restoration which includes public and private sector, spaces and buildings. Urban Restoration requires a kind of Renaissance Man - or perhaps more correctly, a kind of Post-Renaissance Person. There is a requirement to co-ordinate the various disciplines, while understanding ingredients which range from knowledge of building construction, design of buildings and spaces, movement patterns, politics, economics, sociology, and policy-making.

<u>Education</u>

A greater understanding of professional objectives must emanate from close association in the education process. It is becoming recognised that education in glorious isolation, is no longer tenable, although there is concern about the potential loss of special characteristics in

certain disciplines. One tempting, but simplistic response, is joint education in the first year of University courses. This multi-disciplinary option does not lead to greater understanding. The more usual outcome is a curriculum offering generalities, which satisfies none of the hard-edged, discipline-based student enclaves. Another notion that Urban Design is at the interface between Architecture and Planning is also debatable. While that most able students will recognise the transferability of their skills, neither discipline is directed towards a three-dimensional vision of the city. A possible alternative is the establishment of study in the Built Environment, without the overtones of separate disciplines or their respective Professional Institutes. While not directly comparable, the Centre for Metropolitan Research in Amsterdam and the Stadtebauliches Institute in Stuttgart occupy similar territory. Another approach is Continuing Professional Development and in particular, a number of Local Authorities have recognised the need for advice, training and encouragement for developers, owners, private sector professionals and their own staff. Various methods include debates, seminars, design statements, competitions and awards. At least equally important, is debate and discussion which brings the issues to the attention of the community. The city belongs to the community. Education through entertainment can take place via the media. Exhibitions and public participation are further possibilities. It is essential that we lose the perception that the Local Authority has decided on its plans, but needs to go through the motions of a public participation exercise to satisfy a statutory requirement. Above all, is the necessity to restore civic pride. Instead of disappointment associated with lost buildings, lost places and lost opportunities, the people of Newcastle should be able to say proudly to others - 'That's our city!'

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CONCLUSIONS

REVIEW OF THE PROCESS

The process started with observations that too often, there is a lack of coherence in the urban environment and general dissatisfaction with city form. The Study set out to discover why this had occurred and what could be done about it. Initially, five questions were asked and it seems appropriate that the process should be reviewed as responses to those questions.

WHERE ARE WE NOW?

The Conservative Government is dedicated to reducing public expenditure and therefore investment in public buildings and spaces, seems to be very low on the political agenda. Alternatively, dramatic changes can be extremely damaging to the development of a city. Thus, there needs to be a consistency of operation to allow a place to flourish, and the boom and bust economy is particularly harmful in this respect. Further, recent Government policies have encouraged de-urbanisation, with large scale suburban housing areas and out-of-town retail and commercial developments. There is a special need to bring people back to the city and the re-introduction of a resident population is a major aim.

The rise and fall of Local Authorities from 1945-1990s, and the current attack on their services by Central Government, has hit the Planning Profession particularly hard. Planning on behalf of the community is at an all-time low and Central Government intervention seems to be the foreseeable future. The net result is that at the present time there is a total lack of an overall concept and vision for the city, as well as a framework in which to operate.

HOW DID WE GET HERE?

Post-war plans have followed the image of mechanised efficiency, and promoted new technology and provision for the motorcar. This ethos paid little attention to the psyche of human beings or the realities of urban development. Traditional patterns have become greatly distorted, and the twin threats of motorway madness and zoning by function have dramatically interrupted gradual urban evolution. Machine-age deterministic plans have no association with the organic or incremental. Their only chance of success is based on completion. Because they are also large scale and therefore long-term, completion can be prevented by a down-turn in the economic cycle.

WHERE SHOULD WE BE GOING?

City structure is composed of four primary elements - static and dynamic spaces (squares and streets) and focal and background buildings. Diversity within the framework is a fundamental principle. In particular, the diverse contributions that can be made by individuals over a long time period should be inherent in the planned unity. Squares and streets must be defined by building lines, and building frontages need to be well organised, especially in terms of the clear hierarchical relationship between main street and front door. For background buildings there are two types of Architectural Framework. The first type can be described as formal, passive and tight, whereas the second type is informal, assertive and loose. There is also a relationship between architectural language and adjacent spaces. The formal kind of Architecture is associated with geometric spaces, while the informal variety often relates well to irregular spaces. In addition, public and private spaces need to be clearly differentiated. Finally, zoning of use by function has been a particularly unsuccessful aspect of modern planning. It needs to be recognised that the city is four-dimensional in activity terms, and that a compatible diversity of uses should be promoted.

HOW DO WE GET THERE?

This is achieved by deriving a Frame of Reference which presents a vision for the city, based on Urban Design Principles and Urban Typologies. The resulting city structure should allow for the most significant attributes to flourish, ie seamless and legible patterns, buildings which define space, complexity within order, variety of elements based on types of spaces, clear orientation, minimal edges, positive urban space, landmarks and diversity of use. Also, the priorities of the four primary elements require highlighting. Squares need to be regarded in terms of a hierarchy from the main city square to the small pedestrian network. Each square should include a focal building or particular background building as a means of maximising use. Streets are most successful where there is a grid pattern, modified by the topography, with clear entry and exit points to each district. Focal buildings are unique, public, symbolic, in styles of high culture. They should be located in squares and carefully sited so that visual detachment from the surrounding frame does not occur. Background buildings define and contain urban space. They are part of building tradition and may be either public or private. A notion has been expressed that the framework for background buildings tends to favour historic forms. The important point in this context is that background buildings represent slow and gradual urban change. Modern Plans have produced sweeping changes, and so there is a necessity to redress the balance. In addition, positive differentiation between focal and background buildings assists clarity in the built environment.

WHO SHOULD RUN THE CITY?

It is clear that the city should be run by some form of Local Governance. The decline of Local Authorities and the distancing of Central Government have led to calls for a Regional Assembly. This may or may not be a good idea, but it is not the main issue. The important concept is that the city requires a City Government. It could be based on the current Local Authority system, but if so, there needs to be a reordering of priorities and a commitment from both Central Government and the Private Sector. The part of Local Government responsible for the built environment needs to promote a common vision, based on a kind of Urban Quality Plan. It has been suggested that a City Environment Department could undertake this work. Specifically, it would involve activities such as - the co-ordination of innovatory property management, a strategy for environmental improvement and traffic management, information, advice and grant packaging for owners and occupiers, reconciliation between the Public and Private Sectors - including the Confederation of British Industry, the Chamber of Commerce, English Heritage, the Department of the Environment, Amenity Societies, Property Agents, Local Architects and Developers. The Environmental Professions could be advised to educate themselves in the fundamentals of the city and take a lead in restoring civic pride in the community. There is certainly a need for the co-ordination of various disciplines which contribute - knowledge of building construction, design of buildings and spaces, study of movement patterns, the political, economical and sociological underpinning, and the resulting policy-making mechanism. Consultants may be useful in this work, whether they are 'external carers' or based in local Universities. There are many variations on the theme of how it might be organised, but the city does need to be run; and by an agency that can generate an ordered framework, while being flexible enough to allow for individual contributions.

FRAME OF REFERENCE: GENERIC APPLICATIONS

This Thesis is based on a reinterpretation of the theories and concepts of 19th and 20th Century pioneers, from which some general Principles and Typologies can be abstracted for application in Northern European Towns and Cities.

Urban Design Principles

LEGIBILITY

Districts .

areas of the city
- identifiable
- related
- interlocking

10-15 hectares

Paths .

vehicular
- streets

pedestrian
- lining streets
- passageways linking streets

Nodes .

focal points of activity

primary nodes
- vehicular) usually
- transport) coincident
- pedestrian)

secondary nodes
- vehicular) usually
- transport) separate
- pedestrian)

small scale nodes
- pedestrian

Spacings

100 - 300 m

60 - 100 m

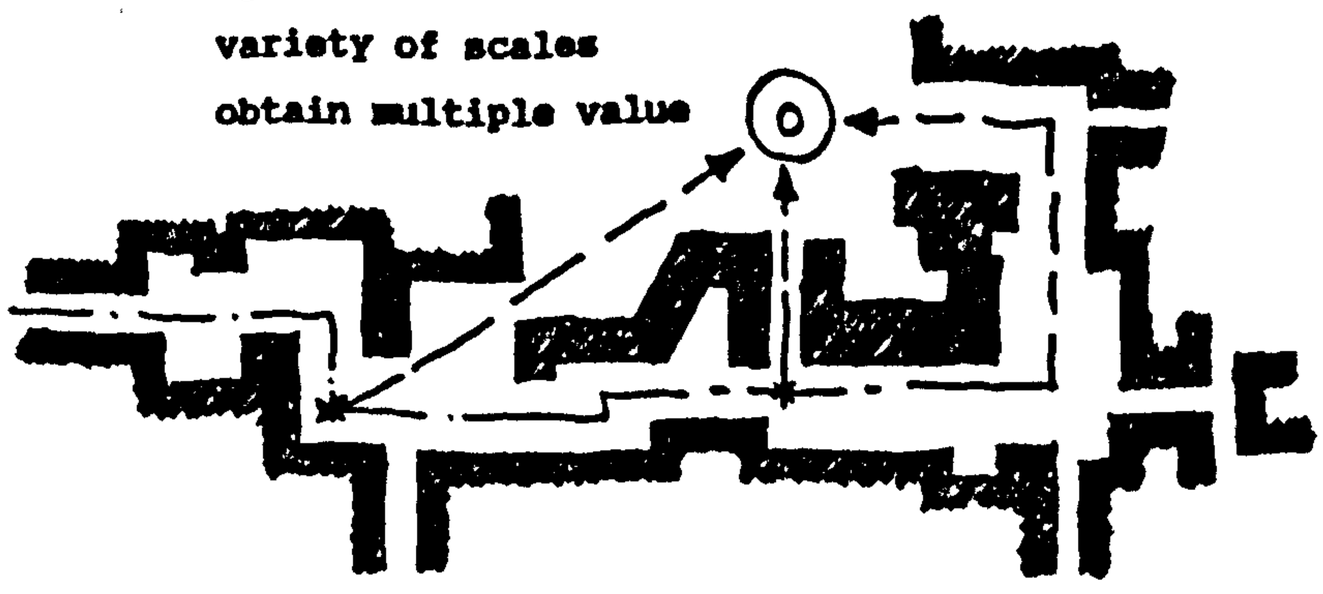
30 - 50 m

Edges .

loss of continuity in movement
- minimise
- penetrate
- different for vehicles and pedestrians

Landmarks .

individual
- distinctive
- symbolic
- variety of scales
- obtain multiple value

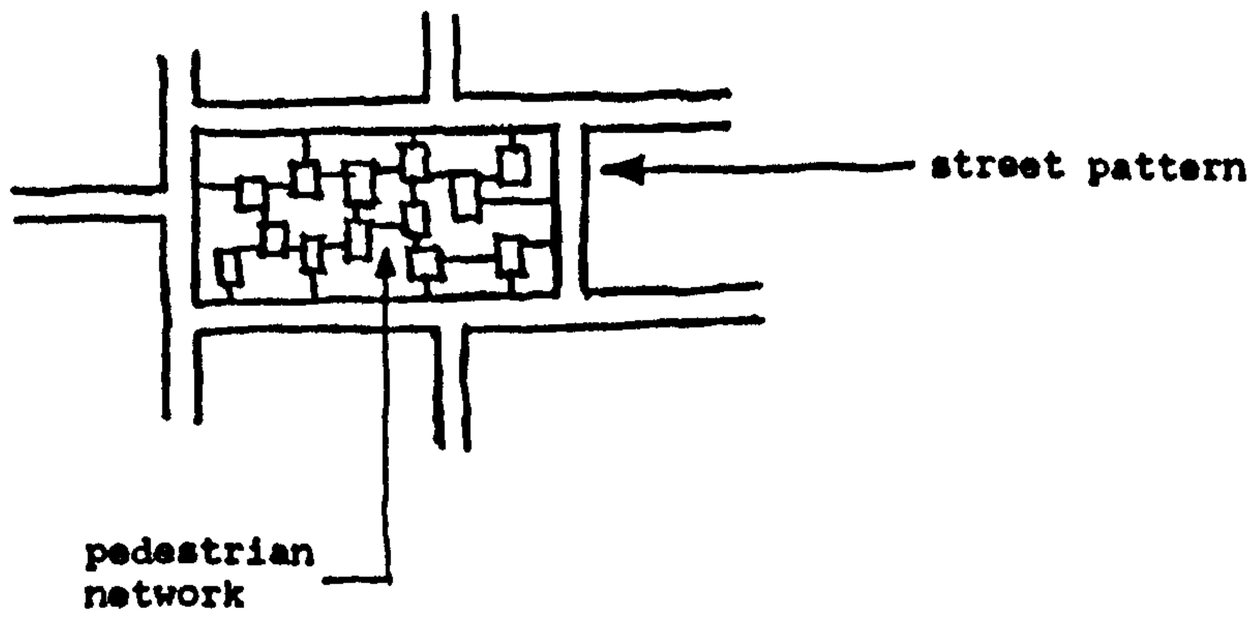


CONTEXT

Existing recognisable patterns

directional structure gives clear orientation
continuous street lines
hierarchical network of spaces

Complexity within order



DEFINITION

Clear visual forms

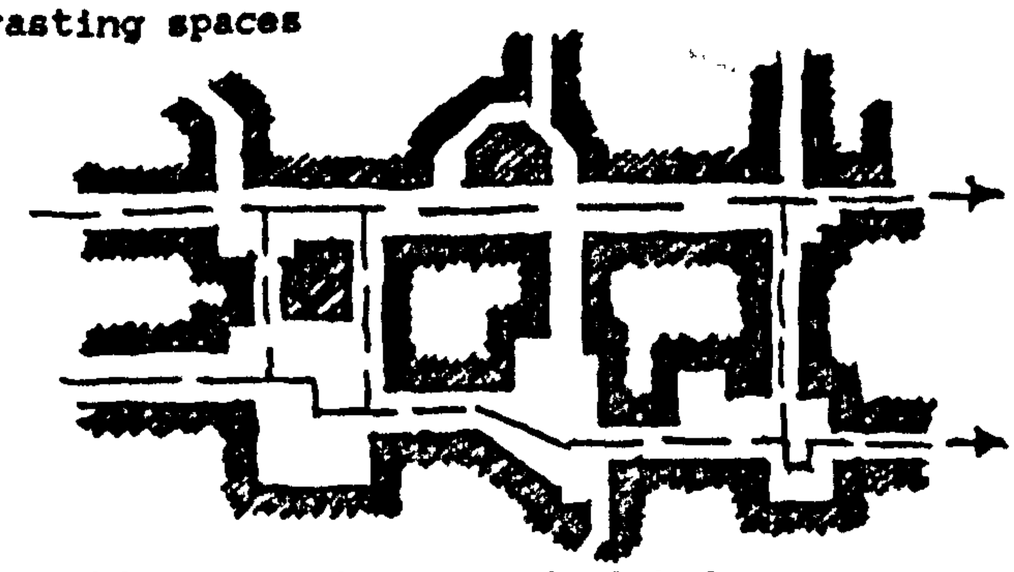
limits of each building clearly identified
definition of <u>all</u> spaces by building frontages

Sharpness of boundaries

clear building lines
<u>avoid</u> decks, walls, walkways, barriers
<u>minimise</u> signs, street furniture
to all facades of buildings,
ie not just front elevation

Spatial containment

network of well-contained and
contrasting spaces



avoids spaces becoming isolated

ACCESS

Permeability

access points from vehicular street into pedestrian network		
	frequency	15 - 50 m
	width	4 - 6 m

Devices

maintain definition of vehicular street arches, gateways, arcades, colonnades, arcades, passageways	
maximum length for enclosed path	12 m

TOPOGRAPHY

Emphasise natural topography

Man-made structures need to enhance natural features

Urban Typologies

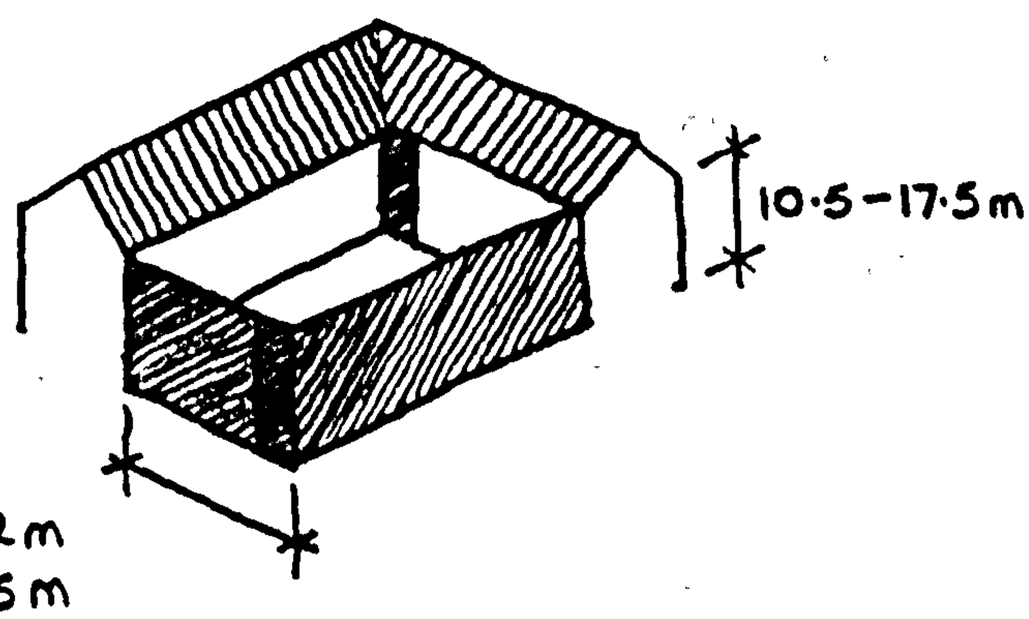
SPACE

SQUARES

Size and shape

absolute maximum for main city square	145 x 60 m
minimum size of squares	30 x 12 m
minimum size of courtyards	15 x 9 m

Length, Width and Height

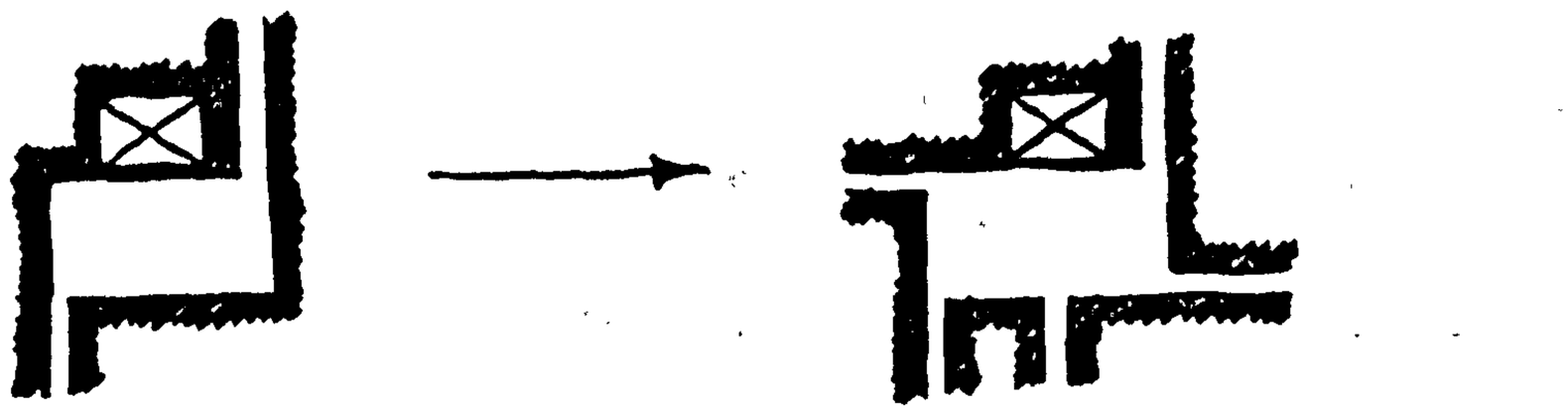


courtyards 9-22m
squares 12-35m

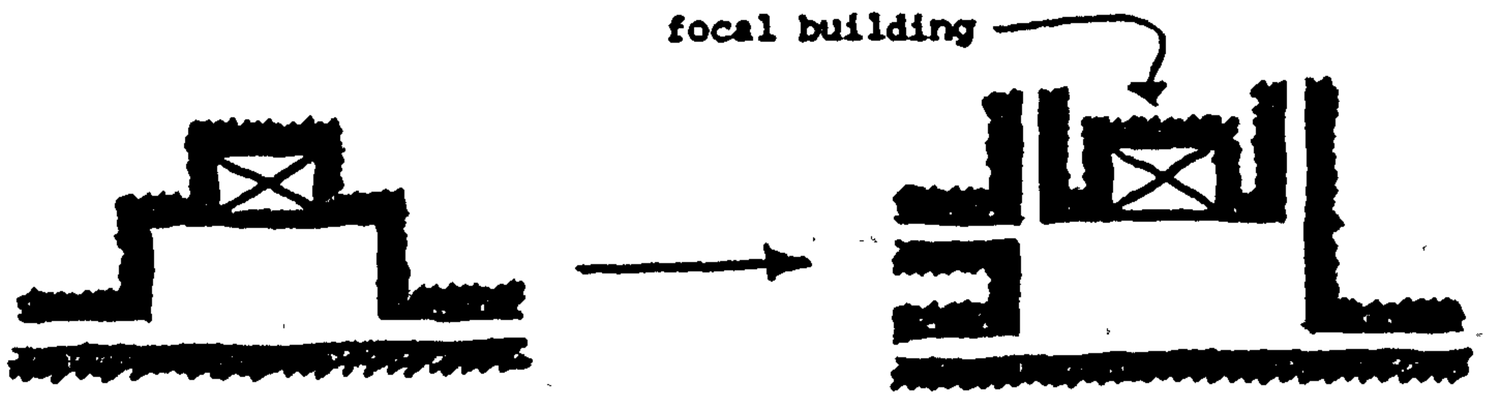
ratios	length : width	1.1 - 3.0
	length : height	1.4 - 8.5
	width : height	0.8 - 4.0

Openings

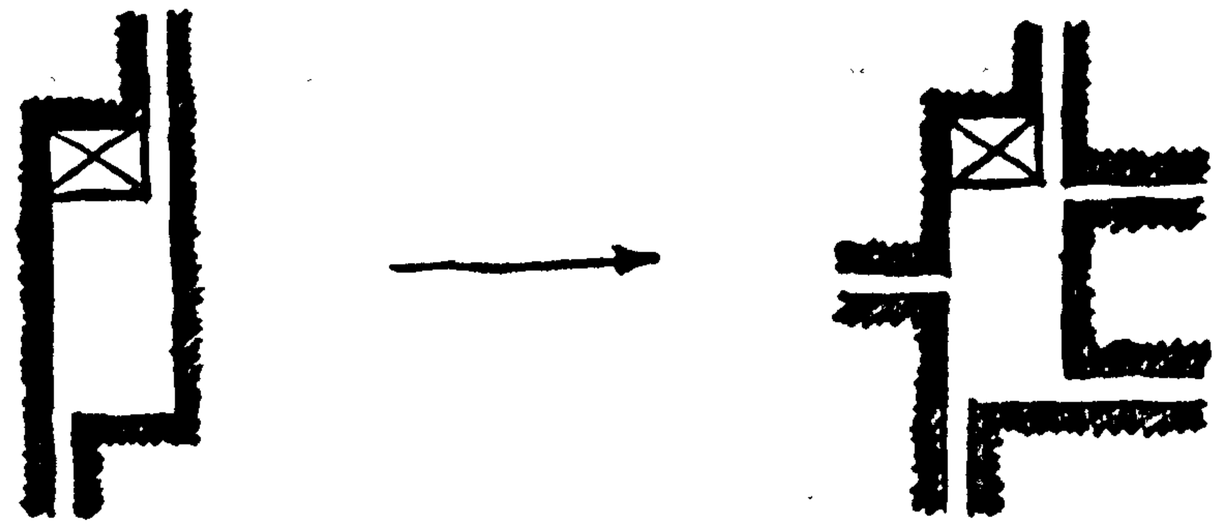
number of openings	2 - 5
total opening / square perimeter	8 - 28%
perimeter of squares	50 - 335 m
masking and focal buildings	



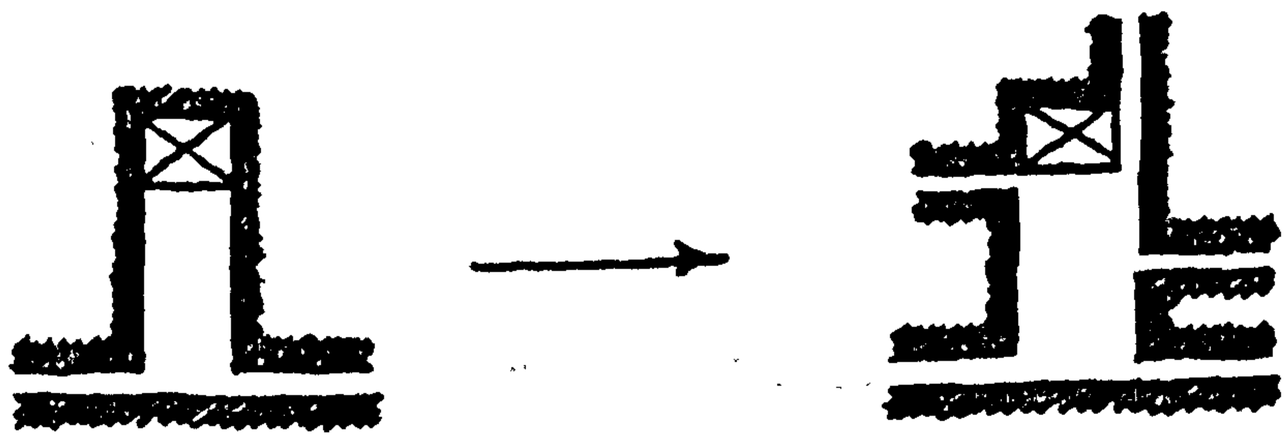
wide plan squares with masked openings



wide plan squares with two unmasked openings



deep plan squares with masked openings



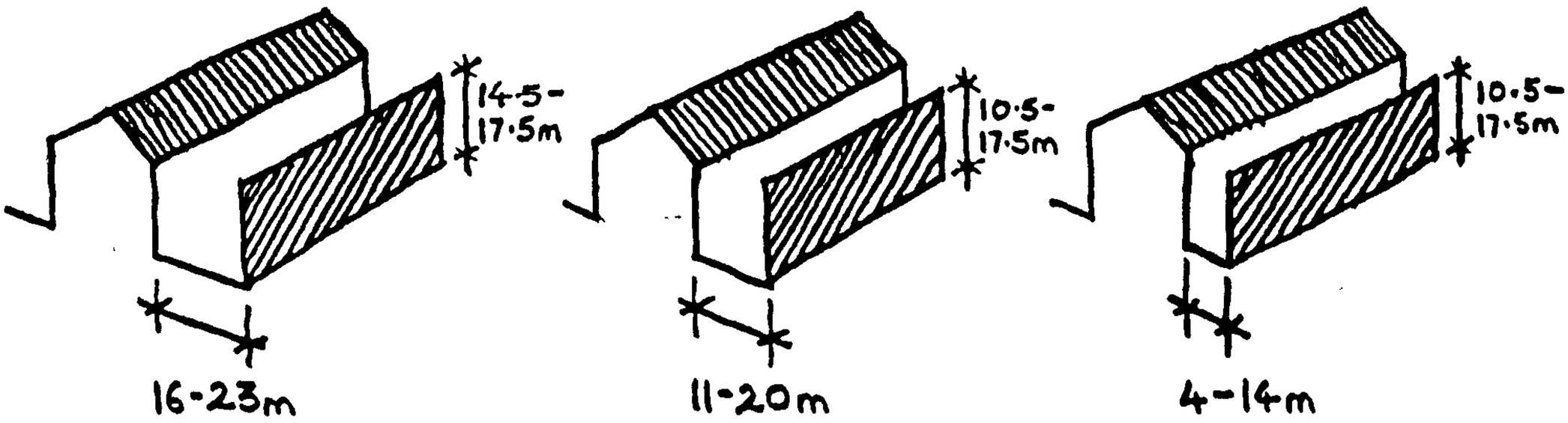
deep plan squares with two unmasked openings

STREETS

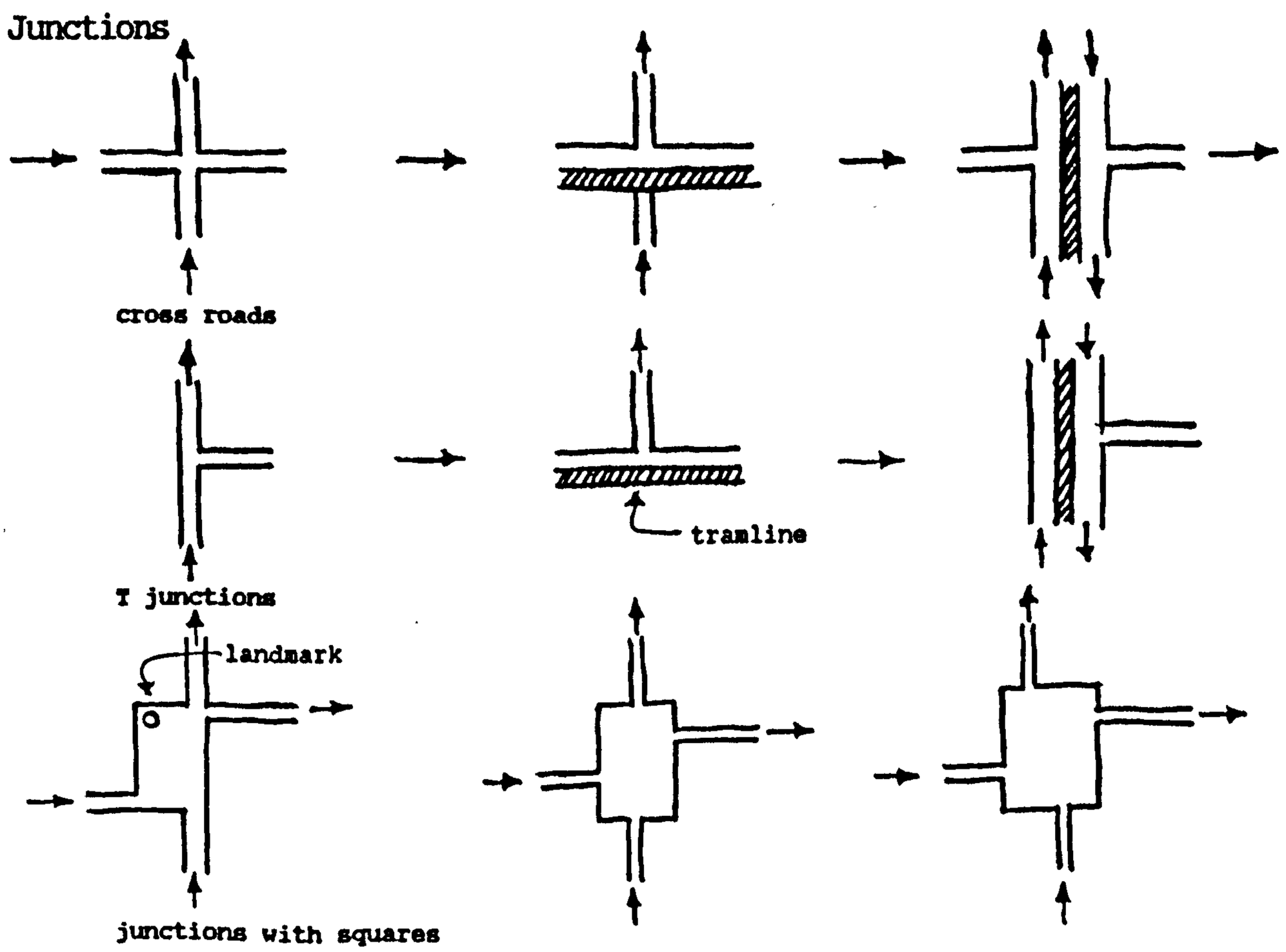
Pattern

grid modified by topography
clear entry and exit points to each district

Length, Width and Height



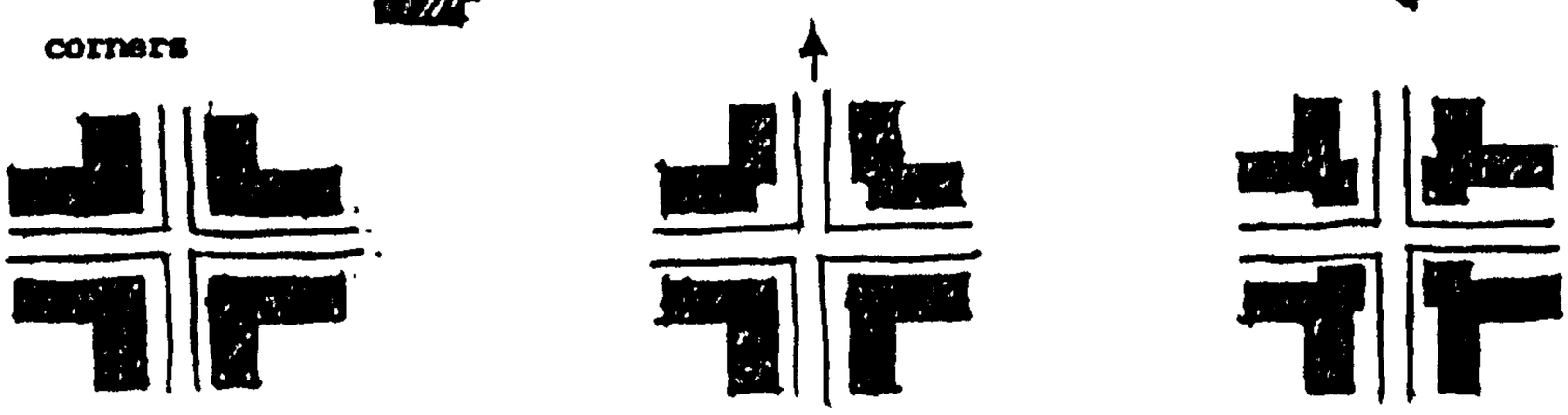
ratios	length : width		
	3.5 - 13.0	3.5 - 13.0	3.5 - 13.0
	length : height		
	3.5 - 17.0	3.5 - 17.0	1.3 - 9.5
	width : height		
	0.8 - 1.5	0.8 - 1.5	0.3 - 1.5



Building line

containment

corners



completion of building line

directional emphasis

pinchpoint

BUILDINGS

FOCAL

Definitions

public, unique, symbolic
in recognised style - modern or historical

Parameters

no specific dimensional criteria
not smaller than surrounding background buildings
and visually, if not physically linked to them

Uses

Government	castles, palaces, parliaments, town halls
Religion	temples, cathedrals, churches, mosques
Public Facilities	museums, theatres, exhibition halls
Law	courtrooms
Health	hospitals
Education	universities

BACKGROUND

Definitions

private or public, commonplace
vernacular or locally adopted style
define and contain urban space
provide frame for focal buildings

Parameters

grain

average plot grain size

= $\frac{\text{cumulative ground floor area}}{\text{number of properties}}$ = **150 - 300 m²**

density

floors	stage of total ground area
Fifth	0
Fourth	10
Third	35
Second	42
First	42
Ground	40
	169 cumulative density

scale

= average plot grain size x $\frac{\text{cumulative density}}{100}$ = **250 - 500**

heights and depths

heights **10.5 - 17.5 m**

depths **10 - 16 m**

ratio of external wall to building frontage **2.1 - 2.4**

architectural frameworks

passive/tight	assertive/loose
formal	informal
limited number of building styles	greater variety of building styles
limited range of materials	greater variety of materials
simple elevations	more elaborate facades
minimal changes in building line	emphatic changes in building line
little skyline interest	raised skyline
broader frontages	narrower frontages

Uses

Commercial	all floors
Institutional	all floors
Storage, car park, etc	all floors but minimise
Housing	first to third floors
Leisure	ground to second floors
Retail	ground to first floors

SYNOPSES OF POSSIBLE FUTURE RESEARCH PROGRAMMES

This thesis is viewed as part of a developing literature about the future of cities. The following programmes are suggestions for research which could be based on this study.

1. TESTING THE FRAME OF REFERENCE

The Framework has been extrapolated from the work of 19th and 20th Century pioneers and four case studies based on city districts. There is scope for refinement and adjustment based on data from other existing districts in the cities of Northern Europe. One approach could be to select a group of districts which have been acclaimed for their quality and a group of districts which are noted for dissatisfaction. These could then be tested for positive and negative correlation with the principles and typologies established in the Framework. The results may lead to a focusing and/or revision of the recommendations in the Frame of Reference.

2. DESIGN STUDIES BASED ON THE FRAME OF REFERENCE

A practical test of the Framework is the quality of urban design that arises from it. *Christopher Alexander* has pioneered this kind of approach. His experiments are based on student design projects and a similar methodology would also be appropriate in this case. The concern of practitioners with city form could mean that additionally, interdisciplinary groups of practitioners may also be involved in testing the Framework with design studies. Thirdly, there is scope for the principles and typologies to be applied to actual projects. Feedback is essential to the process and therefore social science research methods would be employed to assess public response to the proposals.

3. FLEXIBILITY OF THE FRAME OF REFERENCE

It is generally accepted that city form is constantly in process. Therefore, it is a major criticism of Development Plans, Master Plans and even Design Guides that they are deterministic and static in nature. Research is needed to ensure that the Frame of Reference maintains flexibility. In particular, further study should be directed towards presentation of the Framework in a manner that it can be updated as a result of future research.

4. RECONCILIATION BETWEEN THE UNIVERSAL AND THE CONTEXTURAL

Two main research traditions can be identified as the Universal and the Contextural. Much debate has resulted from the tension between these two philosophies. A research programme could be specifically aimed at identifying which Principles and Typologies are of universal application, and which of them are related to the uniqueness of place.

5. MICROCLIMATIC STUDIES

Testing the Frame of Reference could take the form of three-dimensional modelling of buildings and spaces derived from it. Suggested parameters for squares and streets have been established in terms of plan dimensions and the heights of buildings defining the spaces. These three-dimensional limits may be tested for effects on -

. Sunlight penetration
. Daylight levels
. Air movement
. Temperature levels
. Sound reverberation

A second layer of experimentation could result from variations to the following -

. Facade and floorscape materials
. Solid and void ratios in facades
. Introduction of planting and water

6. SOCIOLOGICAL AND PSYCHOLOGICAL STUDIES

The University of Amsterdam, Centre for Metropolitan Research (CGO) continues to undertake a variety of studies in that city. The studies range from the perceptions of different parts of the city by various social groups, to official and sub-cultural use of urban space. These kinds of studies could be applied to the groups of districts identified in 'Testing the Frame of Reference'. The overall concept is to study the reactions of people to places. A further strand of research could be a reassessment of the professionals involved in shaping city form. Perhaps interdisciplinary perspectives of the city should extend beyond the established Built Environment Professionals.

7. BUILDING TYPES AND THE FUTURE OF ARCHITECTS AND PLANNERS

In this context, building types are identified as Focal and Background. *Eduardo Lozano* recognises their origins in the styles of high culture and the building tradition. In recent times, this clarity has become confused. Modern styles of high culture are less easily identified than their historical counterparts and the building tradition has suffered great decline. Research is required into an updated interpretation of Focal and Background buildings. This could include their language, materials and constructions. Although, equally important is an investigation into organisational systems for the procurement and design of these buildings and their associated spaces. This may involve a re-appraisal of the Architectural and Planning Professions, together with their educational processes.

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