

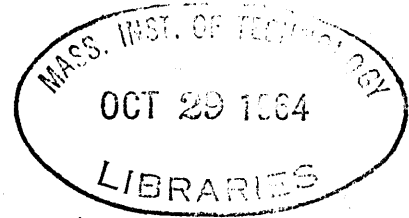
PERSPECTIVE ANALYSIS OF IMPORTANT CITY ELEMENTS

ALONG A PATH

by

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Bachelor's Degree in Civil Engineering
National Technical University of Athens
(1953)



SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE

DEGREE OF MASTER IN

CITY PLANNING

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

August, 1964

Signature of Author.....
Department of City and Regional Planning
August 24, 1964

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Chairman, Departmental Committee on Graduate Students

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ABSTRACT

This paper studies the elements and processes involved in single or sequential perspective views toward an important city element and suggests pertinent objectives and techniques for designing these views.

The hypothesis is that the long continuous and unnoticeable changing, and therefore perceptually weakened, view of the driver toward an important city element may be broken, by visual masks and sharp thematic transitions, into a sequence of shorter views which are proportioned, contrasting, rhythmic and yet continuous and vivid. Furthermore, it is assumed that, by applying proper criteria of analysis and design, we may achieve broader urban design objectives, such as those of effective orientation, information of the individual in the environment, and others.

In studying a single perspective view, the perspective field is first analyzed into its constituent perceptual elements: Floor, wall-screen and roof planar types, radial, circumferential and oblique directions in relation to the object, front, left and right positions in relation to the viewer etc. Subsequently the perspective field is analyzed into its thematic structures: structure of dominant spaces, structure of path and barriers, structure of dominant directions, structure of interest, structure of meaningful districts etc.

Tentative perceptual models are then applied and tested for each selected thematic structure: a tripartite organization of the perspective field consisting of the viewing place, the perspective space and the focal object's place; a sequential exploration and organization of the perspective field starting from the viewing place, ending at the focal object; an awareness of the act of seeing:

From here I see there through a medium . A sense of spatial locomotion and achievement: I attain the focal object, following paths and overcoming barriers etc.

Specific objectives are then set for each thematic structure or combination thereof, so that we clarify and reinforce the legibility and meaning of the perceptual mechanisms involved or we implement the general urban design goals of orientation, information etc. Examples of specific design goals are: Balance of the dominant directions so that they pinpoint the focal object, aerial division of interest so that the focal object dominates and the perspective space does not fade out, etc.

Finally, evaluation of the clarity and power of the thematic structures is made and design decisions are made.

In studying perspective views in sequence of an object as seen from a path, the different themes are first identified: Time duration of each view, front, left or right position of the object in relation to the viewer or of the viewer in relation to the object, the dominant direction in each view, open or close character of each viewing place, etc.

The types of the patterns of the themes are then studied: Growth patterns, evolution patterns, contrast patterns etc., and the types of structure readily offered for application are identified: Continuity, rhythm, balance, eliminating evolution, approach plot etc.

Finally, as in the case of single perspective views, specific design goals are set, evaluation is made and design decisions are made.

One case study was the basis of this research. The landmark-type apartment house of the First Realty Company on the Charles River, Cambridge, was selected and studied as it is seen under different circumstances when driving westward along Memorial Drive.

The findings of this study based on a case of rich and varied visual circumstance seem confirmed but they still bear the limitations of a study conducted in a limited and particular city environment, and in isolation from other city-wide design considerations. Similar

research in other types of environment, testing of the findings with subjects and coordination with other city-wide design considerations, should be undertaken to widen the knowledge on single perspective views and perspective views in sequence.

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Title: Associate Professor of City Planning

ACKNOWLEDGEMENTS

I wish to thank the Greek State Scholarship Foundation for having given me the financial support necessary to make the trip to this country and to study Urban Design at this University.

I wish to thank Professor John T. Howard, Head of the Department of City and Regional Planning, for his unlimited assistance in difficulties encountered.

I wish to thank Professor Kevin Lynch for the invaluable opportunity he gave me to be one of his students and for his helpful advice during the writing of this thesis.

I wish to thank Professor Georgy Kepes for his distinguished advice and interest in my studies.

Finally, I wish to thank Miss Phyllis Meserlian for having typed the thesis.

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II	Perspective Views in Sequence

INTRODUCTION

This paper studies the elements and processes involved in a single view or a sequence of views toward an important city element and suggests pertinent objectives and techniques for the design of these views.

The background assumption is that, among other ways, we build the non-time geometric image of the environment by assembling it from parts having the form of perspective views. In addition, it is assumed that landmark-type elements may consist of the most important source of view units which are critically arranged in space and persistent in memory. Landmarks therefore, it is assumed, may become the pivots of a perspective organization of the environment.

In connection with landmarks becoming the pivots of a structuring of the environment from perspective views we identify as major problems that the views - of the driving or riding person - toward the landmarks are perceptually weak because they are continuously, gradually and imperceptibly changing from view unit to view unit.

However, it is proposed in this paper that the long, continuous and imperceptibly changing, and therefore perceptually weakened, views of the driver toward an

important city element may be broken, by visual masks and sharp thematic transitions, into a sequence of shorter views which are proportioned, contradicting, rhythmic and yet continuous and vivid. Furthermore, it is assumed that, by applying proper criteria of analysis and design, we may achieve broader urban design objectives, such as those of effective orientation, information of the individual in the environment, and others.

Views were chosen to be studied in five steps:

1. Identification and graphic presentation of the perceptual elements involved in viewing.
2. Identification and graphic presentation of the perceptual and conceptual processes involved in viewing.
3. Establishment of the specific design objectives which clarify and reinforce the perceptual processes involved and implement the major urban design objectives of orientation, information etc.
4. Evaluation of the view structure on the basis of the specific design objectives.
5. Design decisions on the basis of the evaluation.

One case study is the basis of this research. The landmark-type apartment house of the First Realty Company on the Charles River, Cambridge, is chosen and studied as

it is seen under different circumstances as a driver drives westward along Memorial Drive during winter time.

In studying a single perspective view, the perspective field is first analyzed into its constituent perceptual elements: Floor, wall-screen and roof planar types, radial, circumferential and oblique directions in relation to the object, front, left and right positions in relation to the viewer etc. Subsequently the perspective field is analyzed into its thematic structures: structure of dominant spaces, structure of path and barriers, structure of dominant directions, structure of interest, structure of meaningful districts etc.

Tentative perceptual models are then applied and tested for each selected thematic structure: a tripartite organization of the perspective field consisting of the viewing place, the perspective space and the focal object's place; a sequential exploration and organization of the perspective field starting from the viewing place, ending at the focal object; an awareness of the act of seeing:

From here I see there through a medium. A sense of spatial locomotion and achievement: I attain the focal object, following paths and overcoming barriers etc.

Specific objectives are then set for each thematic structure or combination thereof, so that we clarify and reinforce the legibility and meaning of the perceptual mechanisms involved or we implement the general urban design goals of orientation, information etc. Examples of specific design goals are: Balance of the dominant directions so that they pinpoint the focal object, aerial division of interest so that the focal object dominates and the perspective space does not fade out, etc.

Finally, evaluation of the clarity and power of the thematic structures is made and design decisions are made.

In studying perspective views in sequence of an object as seen from a path, the different themes are first identified: Time duration of each view, front, left or right position of the object in relation to the viewer or of the viewer in relation to the object, the dominant direction in each view, open or close character of each viewing place, etc.

The types of the patterns of the themes are then studied: Growth patterns, evolution patterns, contrast patterns etc., and the types of structure readily offered for application are identified: Continuity, rhythm,

balance, eliminating evolution, approach plot, etc.

Finally, as in the case of single perspective views, specific design goals are set, evaluation is made and design decisions are made.

The findings of this study based on a case of rich and varied visual circumstances seem confirmed but they still bear the limitations of a study conducted in a limited and particular city environment, and in isolation from other city-wide design considerations. Similar research in other types of environment, testing of the findings with subjects and coordination with other city-wide design considerations, should be undertaken to widen the knowledge on single perspective views and perspective views in sequence.

I. A SINGLE PERSPECTIVE VIEW

A. The elements of the perspective view

In each spot of the field of the perspective view we encounter many perceptual elements, screens, colors, etc. As we move on the perspective axis from the view place toward the focal object, those encountered perceptual elements change in shape, direction, etc. We selected to represent this array of themes and their variation in a score form. On horizontal lines are shown the different themes encountered in the same spot, and on vertical lines are shown the thematic variations from spot to spot in the sequence as we meet them moving from the viewing place toward the focal object. All diagrams should be read from down to up and from left to right. Some vertical diagrams, for reading convenience, show two or more thematic variations together.

The following are the considered thematic variations.

1. Floor, screen-wall and roof planar types.

The characterization of the planar elements as floors, screen - walls or roofs depends on the spatial position and functional role that these elements possess in

regard to the meaningful activity they are assumed to be housing.

2. Meaningful districts

Every spot of the perspective field, no matter how small or large it is, may be given a name - grass strip, tree row etc. - or may be attributed such activities as may take place there - sitting on or crossing through the grass, crossing a tree row etc.

In selecting the size of the areas, in giving names and attributing activities, a guiding criterion consistently kept throughout the field is a prerequisite. In fact, the one or more guiding criteria used are all the possible logical and linguistic structures that the viewer may attribute to the perspective field.

The scale of areas and range of meanings and activities selected for this stage of analysis are as follows: A grass and tree row suggesting sitting on the grass or crossing the tree row and the grass etc. or road compelling you to leave, getting out, driving along, etc.

3. Radial, circumferential and oblique directions of the planes and objects in relation to the focal object.
4. Front, left and right positions of the planes and objects in relation to the viewer (when oriented toward the focal object).
5. Width, height and depth dimensions of the planes and objects.
6. Space and volumes.
7. Shapes.
8. Color, texture, light, etc.

B. Structure of the perspective view

The structure of the field of the perspective view may be studied by studying the structure of the themes separately and in combination. Therefore a score form analysis of the thematic structures is suggested.

Subsequently, for these thematic structures, we may test tentative perceptual models separately or in combination. We primarily need to identify and test models which stem in a direct way from the nature of the

act of perspective viewing an object within its environment and the characteristics of travelling along a path while viewing. Incidental patterns or too general organization forms have their place too, but they will not be discussed here.

Two overriding organization models relevant to the act of perspective viewing were tried in our case study: That the mind experiences and organizes the perspective field in a sequential way starting from the viewing place and ending at the focal object, and that the mind conceives of the perspective field as a tripartite entity consisting of the viewing place at one end, the focal object's place at the other end and the perspective space inbetween. In addition, some specific organization aspects, like that of balance, were also discussed for particular themes.

The perceptual organization models on the one hand and the general objectives of legibility, meaning, effective orientation and environmental information etc. on the other, may be used as criteria for evaluating and redesigning the structure of the view. In the graphic presentation strong elements are shown with strong lines, weak or disrupting elements are shown with weak or dotted lines,

and missing and suggested elements of various intensities are shown with dashed lines of corresponding intensities.

1. Structure of dominant spaces.

One organizational thought underlying the process of perspective viewing is sometimes that, from here, my place, I see there, through an intermediate medium.

If this is so, a tripartite composition of the space is primarily significant for the solid establishment of the sense of hereness and space possession, of the sense of thereness and of the medium extending between and connecting hereness and thereness.

The tripartite composition may be considered as the "standard" viewing condition. But a purposeful departure from that standard may be pursued in order to achieve special time and space effects along the path, like feelings of immediacy or remoteness of the object in relation to the viewer, feelings of floating within space or time etc. A blending, for instance, of the viewing place and perspective space, in the third view of our case study, creates a desirable tension in that section paralleling that of the rapid magnification of the object and the straightforward turn and approach of the viewer.

The shapes, relative dimensions, directions etc. of the floors, screens and walls and roofs, are the design elements of the space composition.

It is important for these elements to be seen in all the possible perceptual ways:

- a) Photographically, as projected on a two-dimensional screen
- b) Instantaneously, as elements arranged in space
- c) Sequentially, as elements experienced progressively by a viewer moving in an imaginary way from the viewing place to the viewed object, exploring the perspective field spot after spot. The structure of space in this latter case is conceived of as paralleling and supporting the structure of paths and barriers, dominant directions, interest, and meaning.

2. Structure of paths and barriers

Another organization thought underlying the process of perspective viewing sometimes is the viewer's understanding that he is in an imaginary way moving and accomplishing an action in space by following paths, overcoming barriers and reaching the focal object.

If this is so, then the presence both of paths and barriers, proper arrangement and sequence and a proper relation of strengths are very significant for establishing the idea of motivation, reacted locomotion and accomplishment.

The type of paths and barriers may be realistic, like a roadway, or mental like a tree row path. The strength of paths and barriers should be evaluated by reference to a selected standard unit and to the focal object. The focal object may present different attractive powers and may require different path and barrier structures for each viewing case. The attractive power of the focal object is a function of the shape and configuration that it displays each time, a function of the viewing distance etc. and it is manipulative .

3. Structure of dominant directions.

Within the perspective field the lines and planes and volumes - spaces linear in character create visual trajectories which tend to induce the eye to move along them.

Radial and peripheral directions are directly built within the perspective system because they reinforce the parallel space and path and barrier systems. Oblique directions, in principle, tend to switch attention from the focal object and therefore act disruptively for the perspective view, though oblique directions may be constructively embodied in the perspective system if they are properly counterbalanced by other oblique directions. Then the system may be desirably tensioned, yet undisrupted and structured.

The design problem is to evaluate the force and axis of action of each direction and balance all so that their compound effect is that of pinpointing the focal object and reinforcing the perspective axis.

However, there are cases where we intentionally design unbalanced systems in order to take the unresolved imbalances over to the following perspective views and make out of them an evolving theme (see relevant paragraph in the chapter of perspective views in sequence).

4. Structure of Interest and Imageability

The different parts of the perspective space have different degrees of interest, and the eye and mind accordingly spend different amounts of time in focusing their attention on each one of them.

Also, the different parts of the perspective space have different degrees of imageability, that is, different degrees of visual persistence in memory when the viewer tries to recall and retrieve them later.

The relative degrees of interest or imageability that a part of the field possesses may depend on many factors: the animation of the apparent activity; the density of visual detail; the role of the part within the structure of spaces, directions, meanings, etc; the pleasure that the specific area would offer to the viewer if he were there, etc.

Diagrams of interest and imageability may be drawn for a range of factors taken separately or in combination according to the situation.

Diagrams should be drawn for a range of different subjects with different perceptual orientations. It is certain that these diagrams will show a wide variety.

These diagrams finally are used to check for proper distribution and balance of interest in the field. And the diagrams are used to check that the eye does not fail to notice and explore, and the memory does not fail to retain and retrieve, all the structurally important elements of the view .

5. Structure of Meaningful Districts

As was discussed earlier, each element of the prospective field - a grass strip, a river area, etc., collective meanings in the form of names, or mental actions and real and realistic activities may be attributed - the linear progression of a point along a tree row, sitting on the grass, "flying" over the river etc.

Here we investigate the possibility that individual elements are mentally grouped into larger entities to form more complex or more abstract meanings, and activities significant to the perspective view scale. The road, the grass strip, the river, plus pull-offs for drivers who want to stop and sit at the riverbank, may be compounded into the meaning of a viewing place where you have a choice: drive or stay for rest.

The apartment house, the sidewalk, the residential street, the grass strip and tree row plus a pedestrian overpass to the riverside may be compounded into the meaning of a homeplace linked with wider recreational areas.

This will be the case with a very good areal meaning definition; and it should be pursued whenever possible, if every different perspective space may be given a compact and well distinguishable meaning, which at the same time has both an organic connection with the viewing place and an organic connection with the focal object's place. The connections might lead to an instantaneous concept like "this is a kids' recreational area" and to a spatial reading over time like "I leave the path here, I park and leave the car there, I cross the grass and tree row, I take a bridge over the river and I reach the landmark-type marina at the other side".

LEGEND OF FIGURE I

ANALYSIS AND DESIGN OF A SINGLE PERSPECTIVE VIEW. CASE STUDY:

(Refer to chapter I)








Study of the First Realty Apartment House on Charles River,
Cambridge, single views from seven different points of

Memorial Drive. Analysis of the elements and structures
and evaluation of their quality. Design decisions ~~(see~~





~~Chapter I)~~ (in dashed lines)

1. View from the road
2. Plan of the environment and view
3. Planar types, directions, shapes etc.
4. Meaning
5. Perspective depth of the elements
6. Color
7. Plan of the view

8. Structure of dominant spaces

	strong boundary
	weak boundary
	very weak boundary
	screens
	roofs
	viewing place or object place
	suggested screen (design decisions)

9. Structure of paths and barriers

	unit of path and barriers
	strong path
	weak path
	suggested path (design decisions)

- ||||| strong barrier
- ||||| weak barrier
- ||||| suggested barrier (design decisions)

10. Structure of dominant directions

- ← strong direction
- ← weak direction
- ← long duration of the view
- ← short duration of the view
- ← suggested view directions (design decisions)

11. Structure of interest

- ▭ strong interest area
- ▭ weak interest area
- ▭ suggested interest (design decisions)

12. Structure of meaning

- strong areal meaning
- weak areal meaning
- very weak meaning
- suggested areal meaning (design decisions)

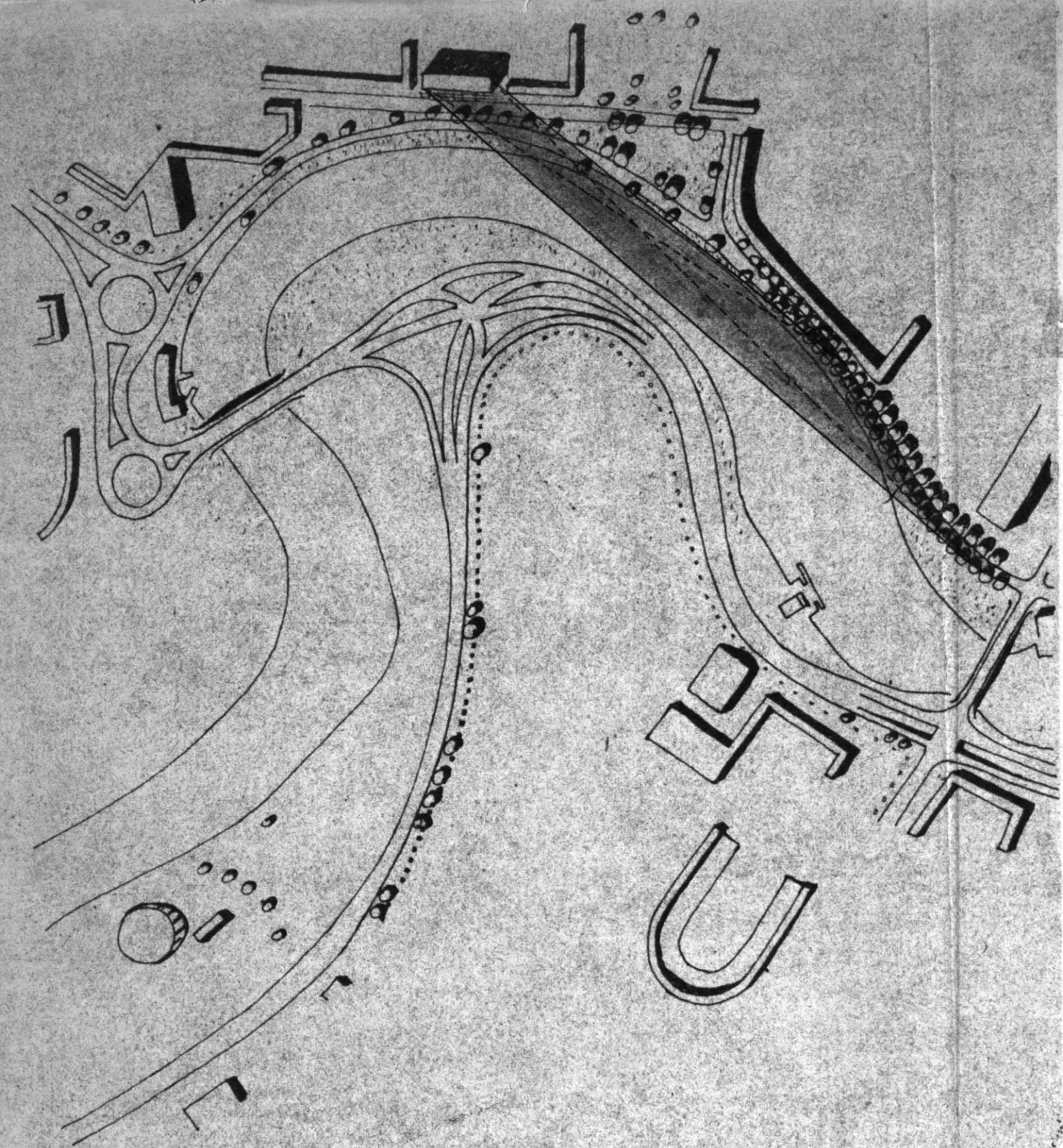
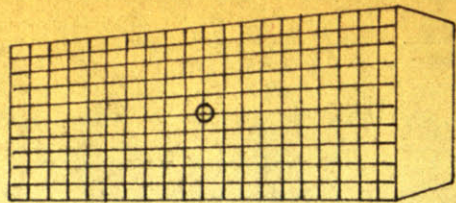


FIGURE I - VIEW A

1

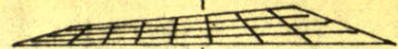
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APARTMENT BUILDING

1



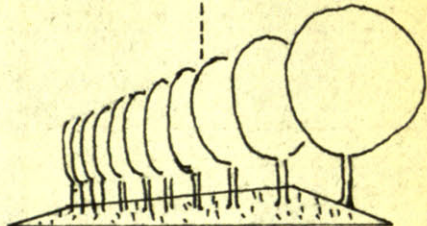
SIDEWALK

2



ROAD

3



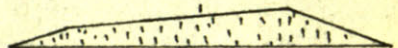
GRASS AND TREE ROW

4



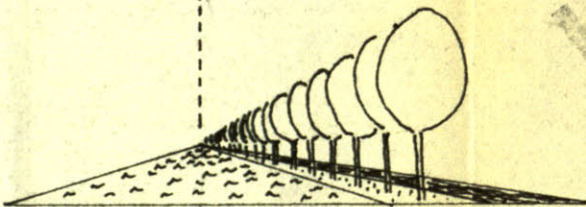
ROAD

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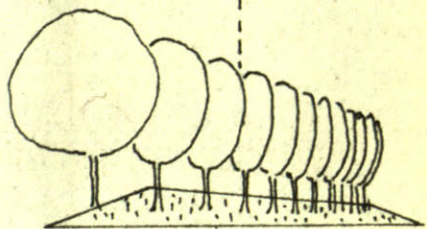
GRASS

6



RIVER, GRASS TREE ROW AND ROAD

7



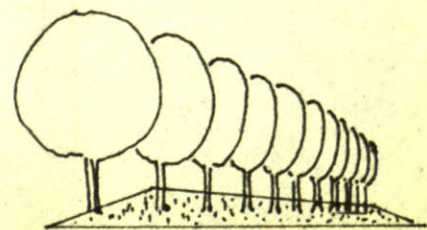
GRASS AND TREE ROW

8



ROAD

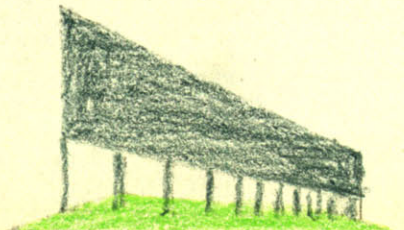
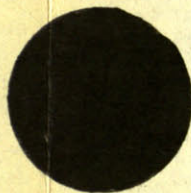
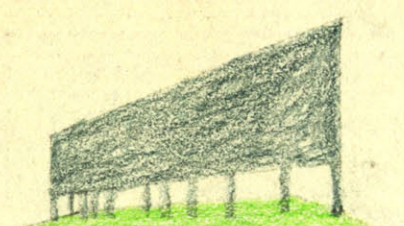
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GRASS AND TREE ROW

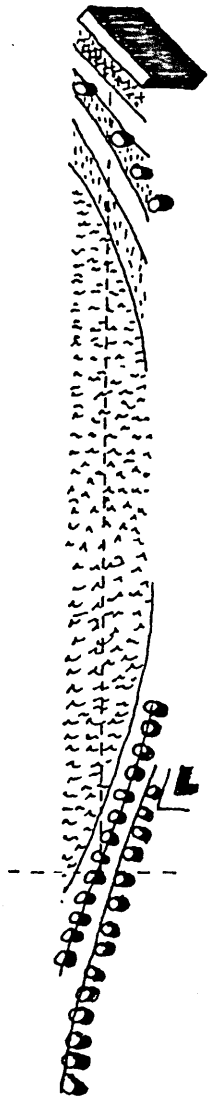
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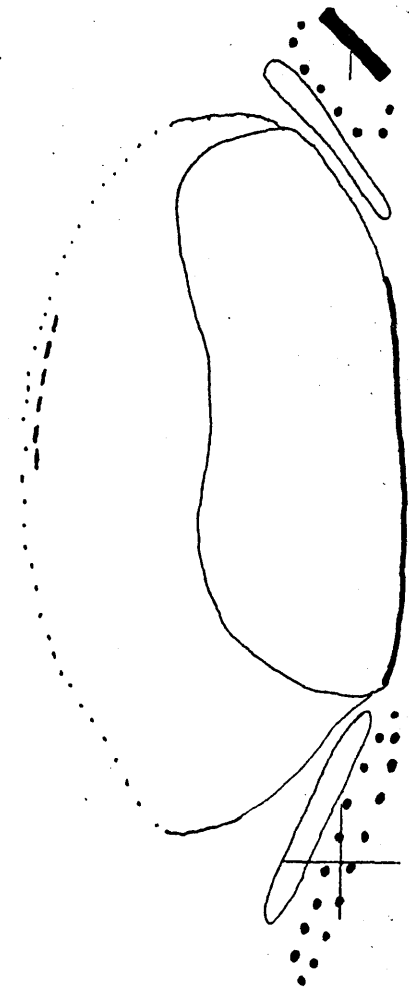


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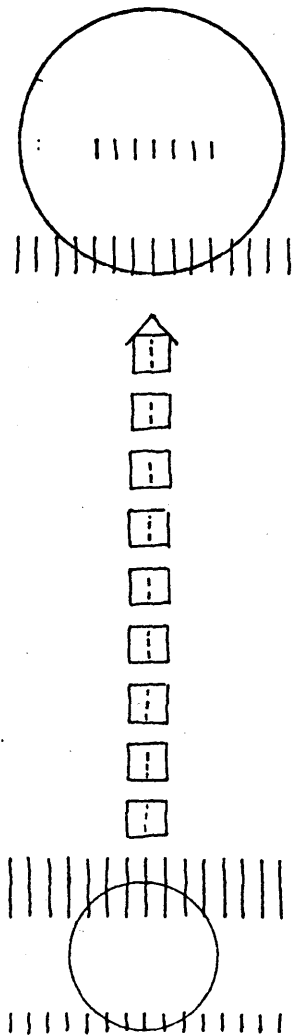
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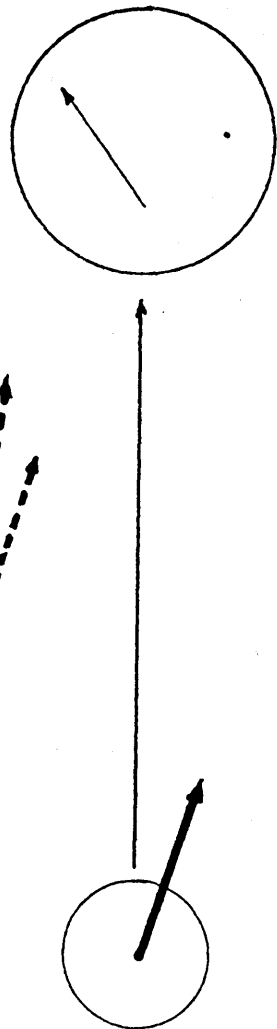
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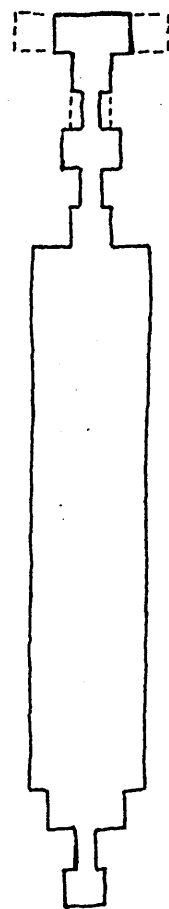
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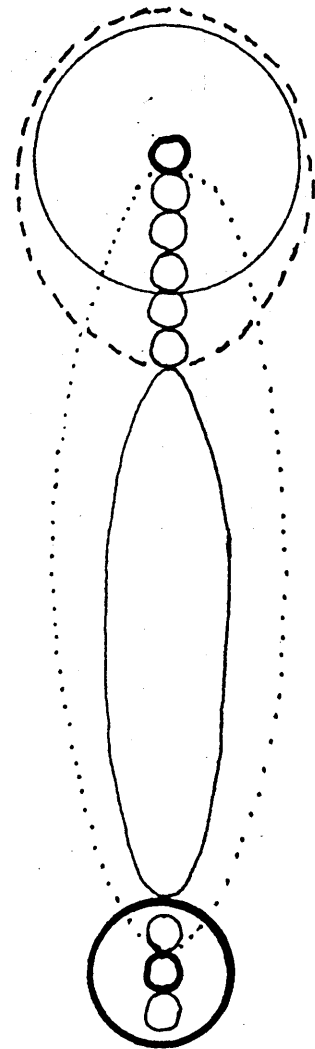
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10



11



12

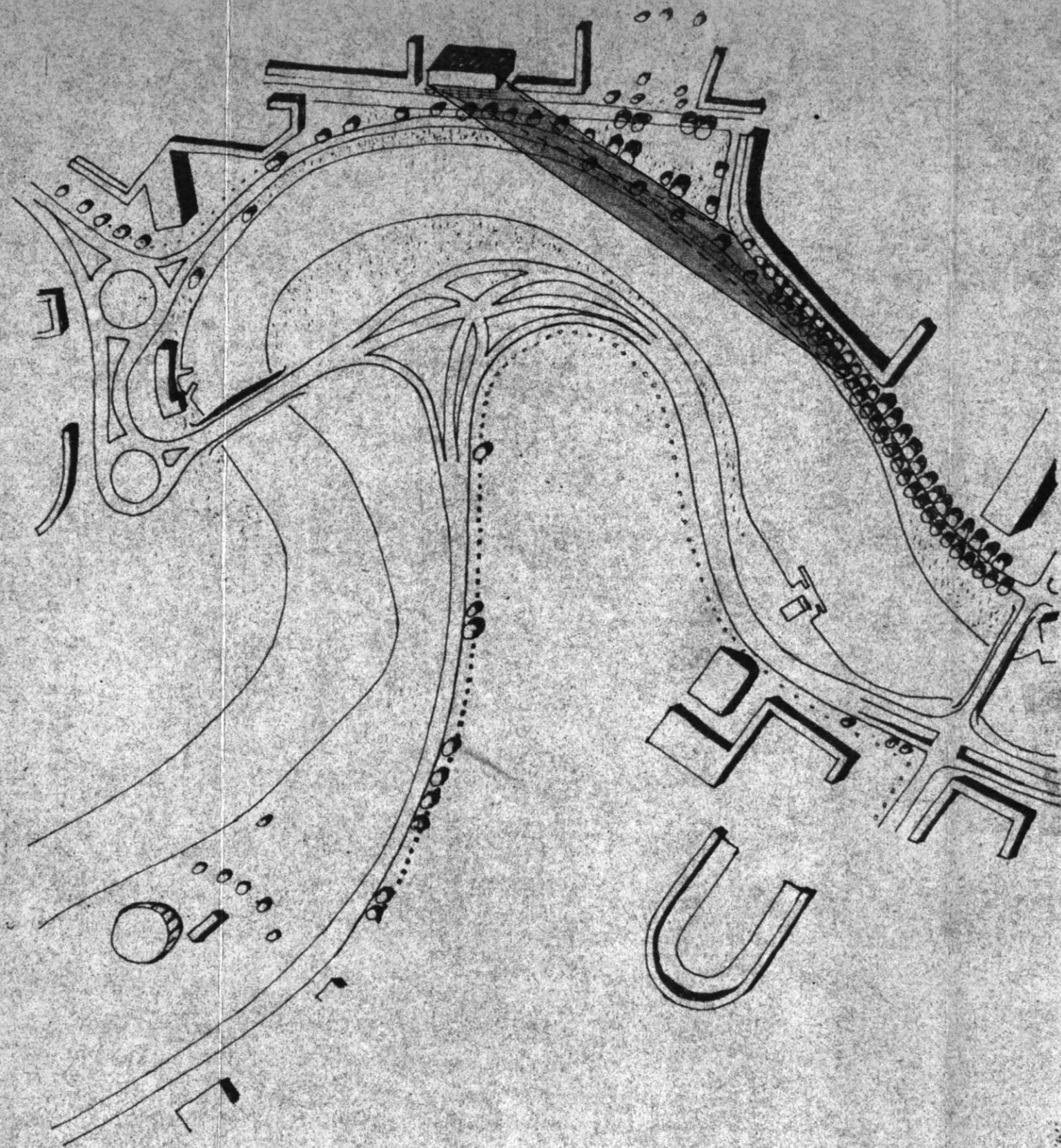
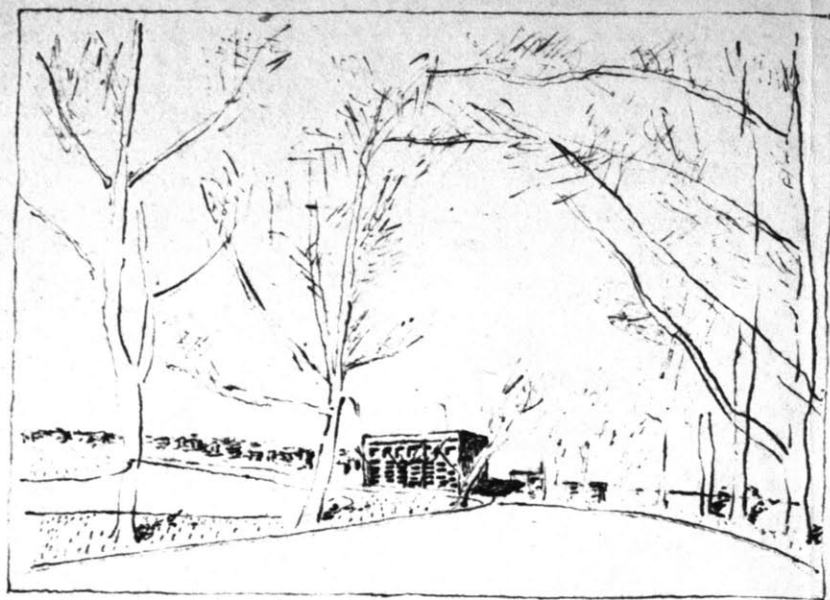
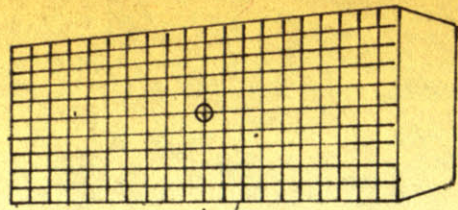


FIGURE 1 - VIEW B

1

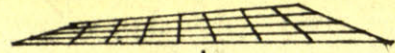
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APARTMENT BUILDING

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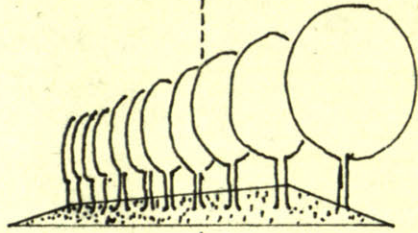
SIDEWALK

2



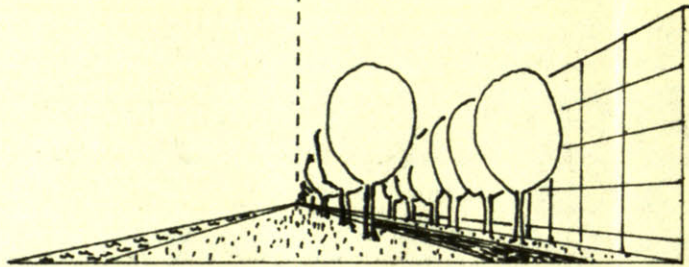
ROAD

3



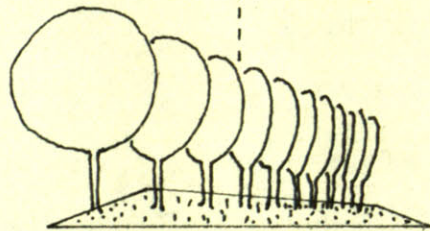
GRASS AND TREE ROW

4



RIVER, GRASS AND TREE ROW,
ROAD, GRASS AND TREE ROW, HOUSE ROW

5



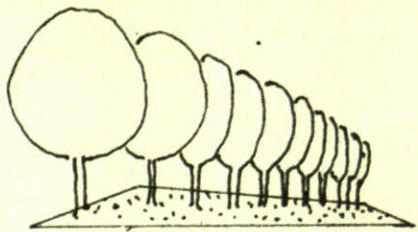
GRASS AND TREE ROW

6



ROAD

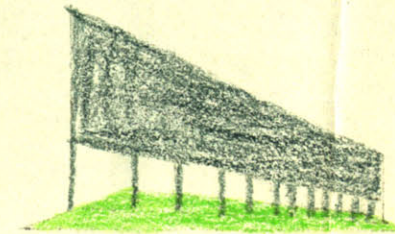
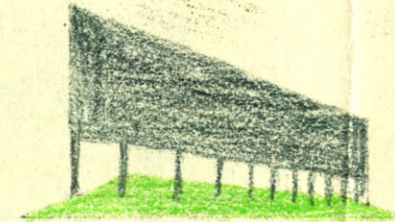
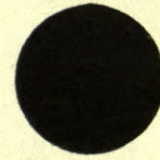
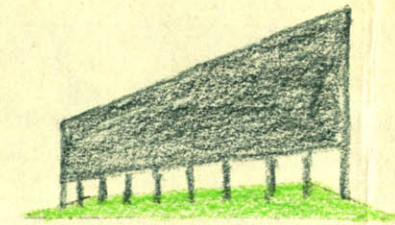
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GRASS AND TREE ROW

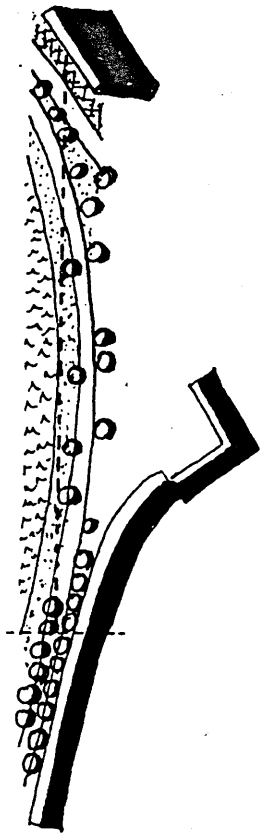
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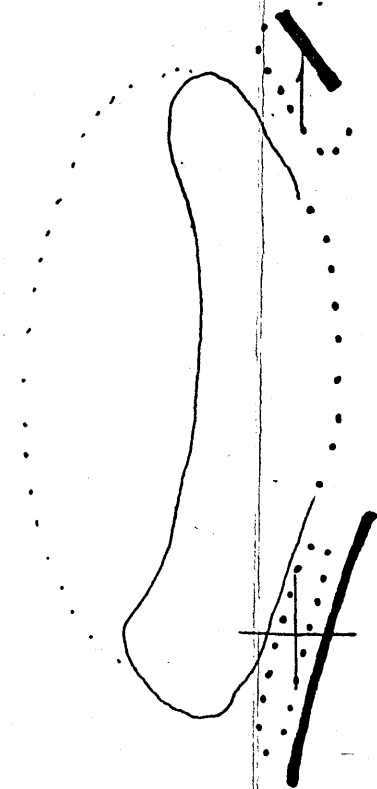


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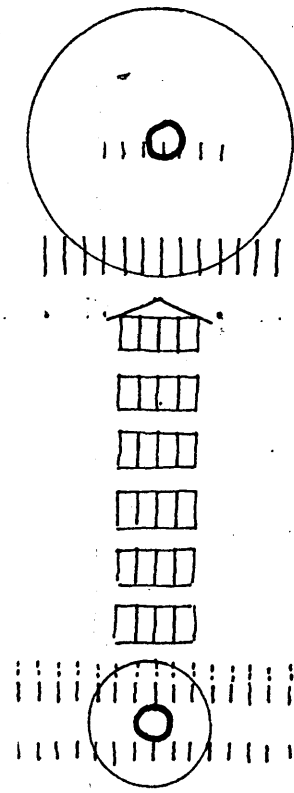
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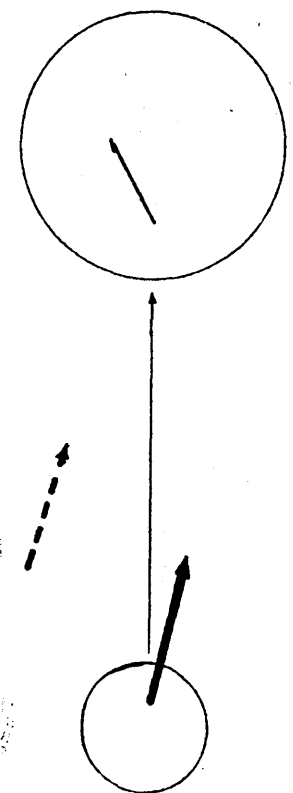
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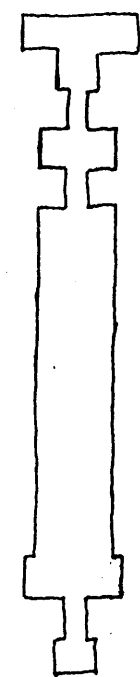
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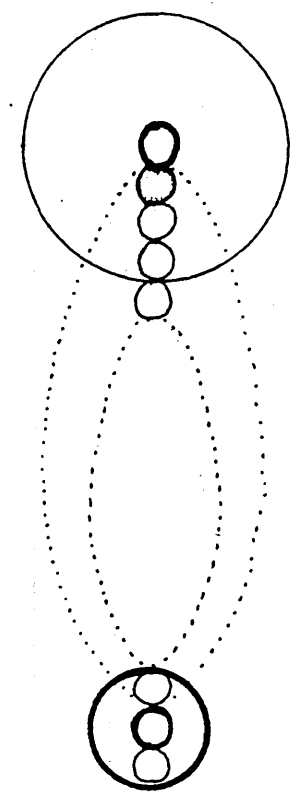
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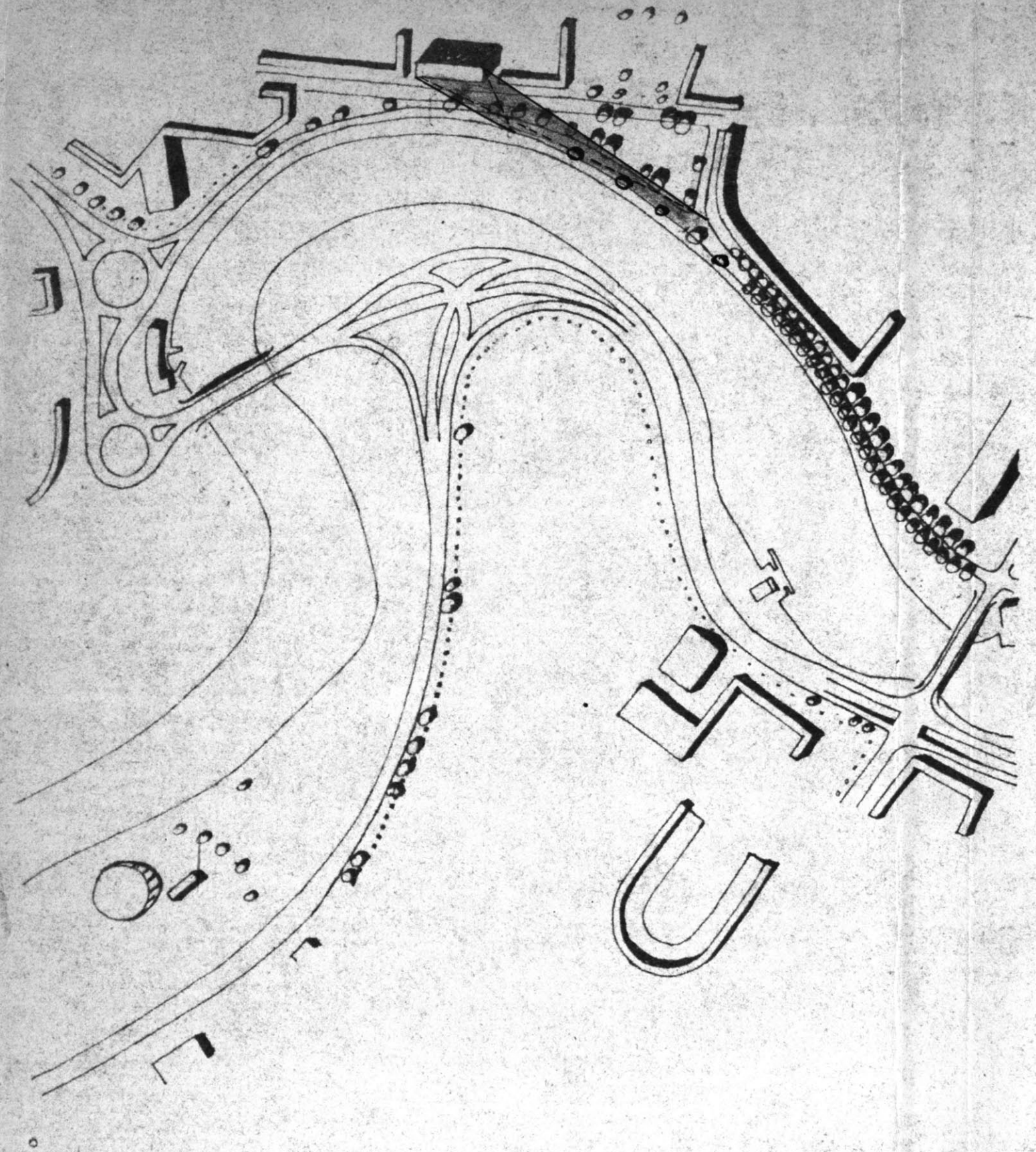
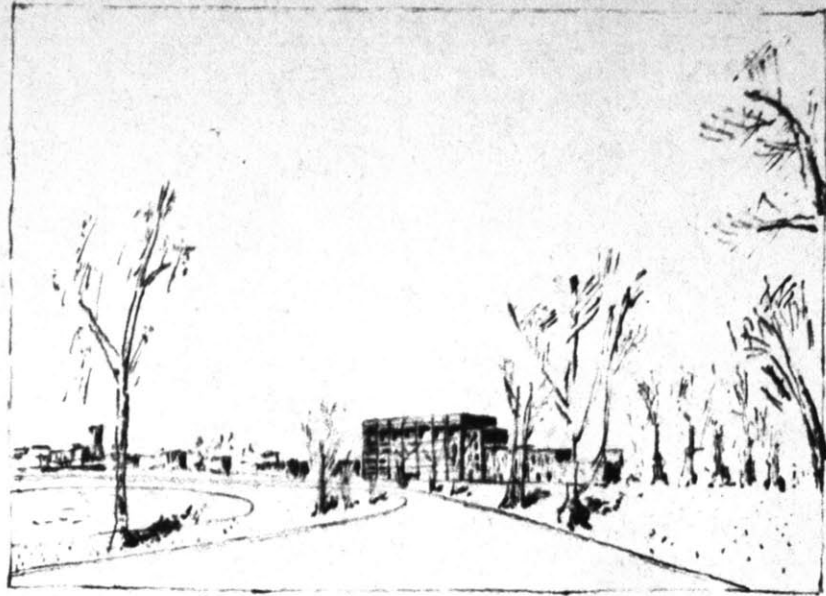
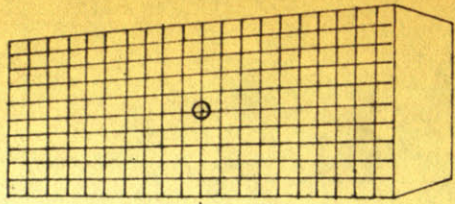


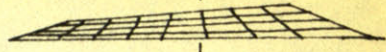
FIGURE I - VIEW C
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APARTMENT BUILDING

1



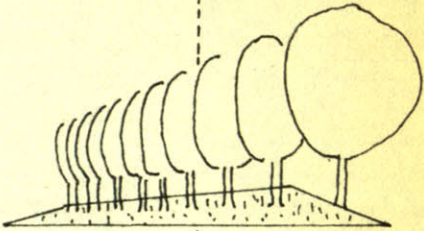
SIDEWALK

2



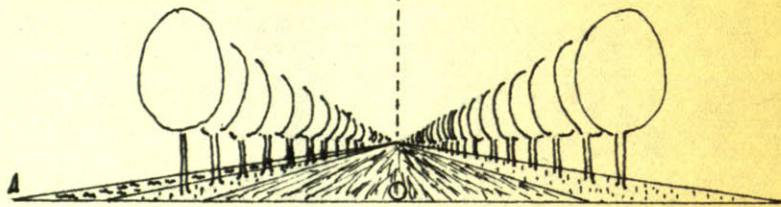
ROAD

3



GRASS AND TREE ROW

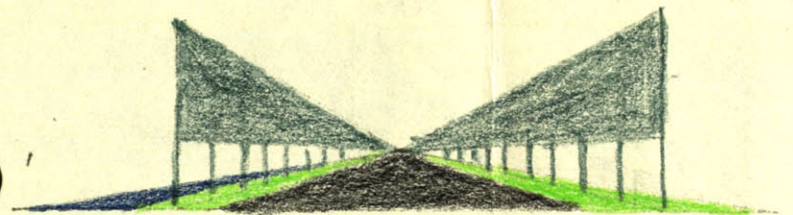
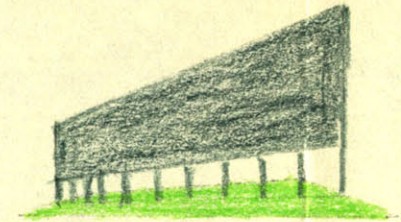
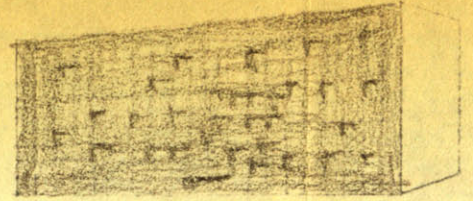
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RIVER, GRASS AND TREE ROW,
ROAD, GRASS AND TREE ROW

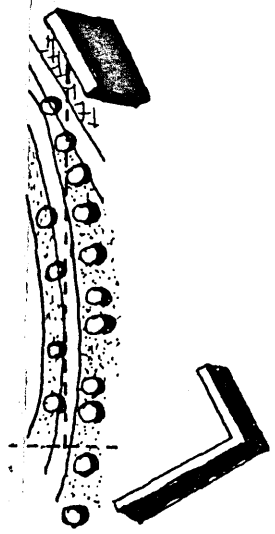
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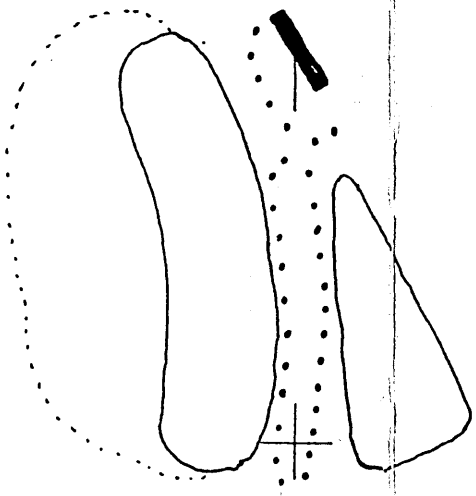


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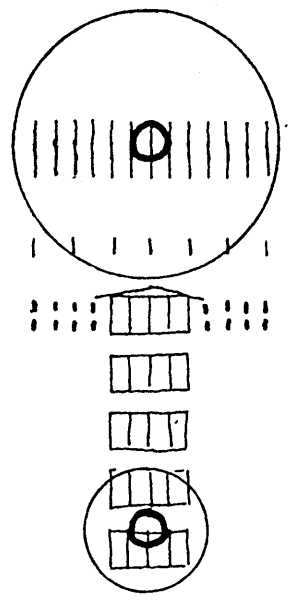
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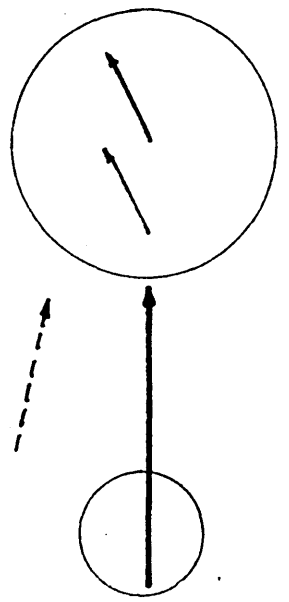
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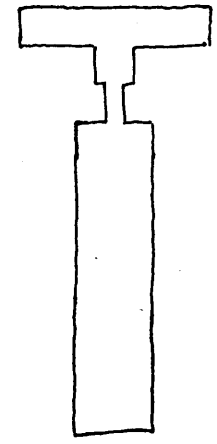
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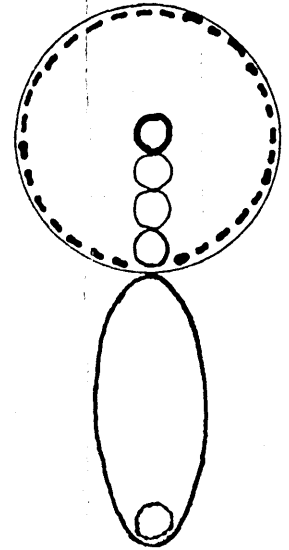
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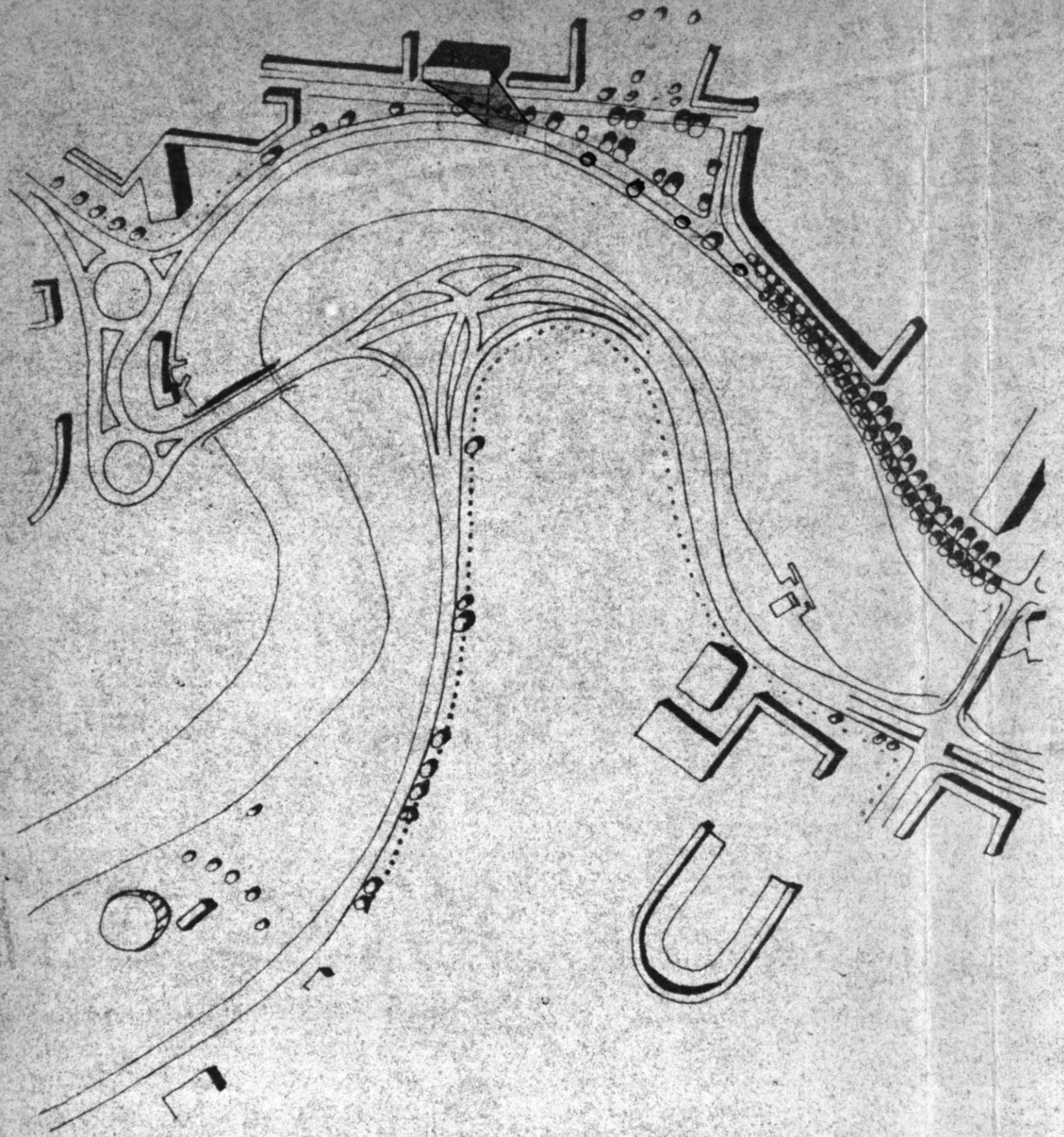
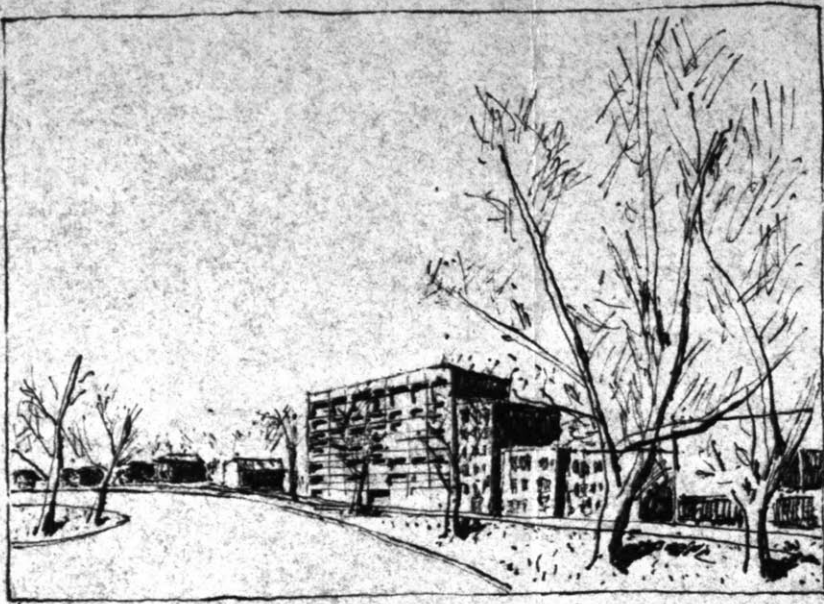
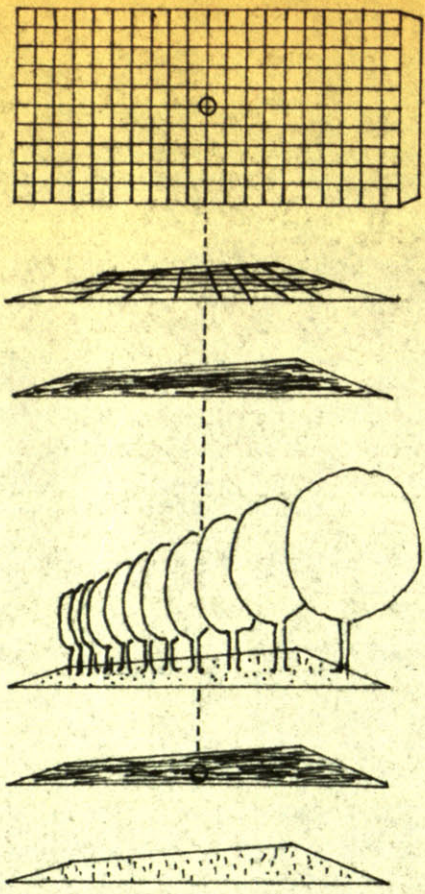


FIGURE I - VIEW D

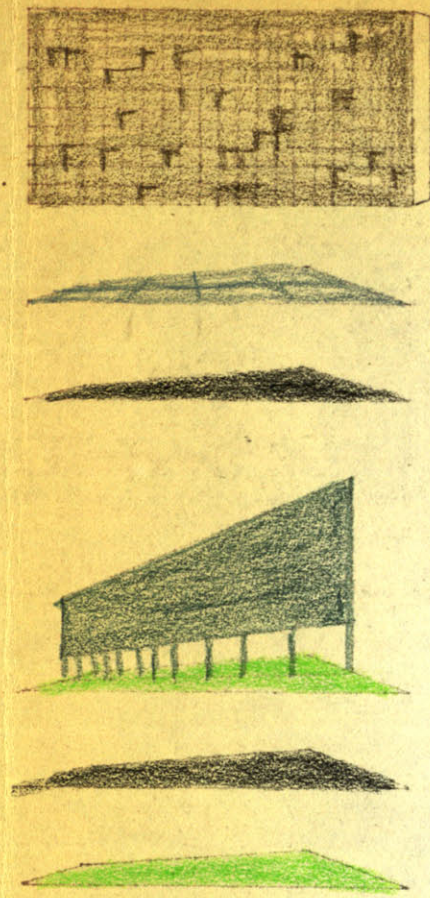
1

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APARTMENT BUILDING
SIDEWALK
ROAD
GRASS AND TREE ROW
ROAD
GRASS

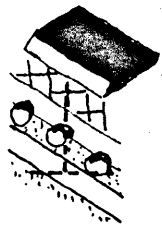


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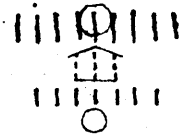
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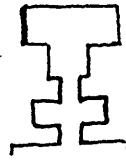
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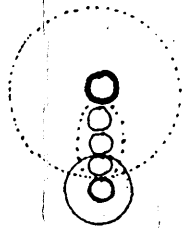
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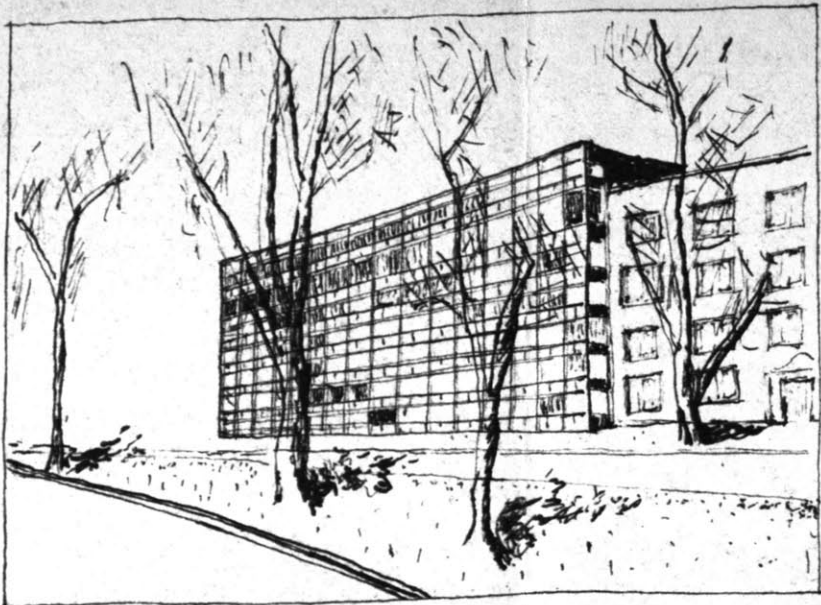
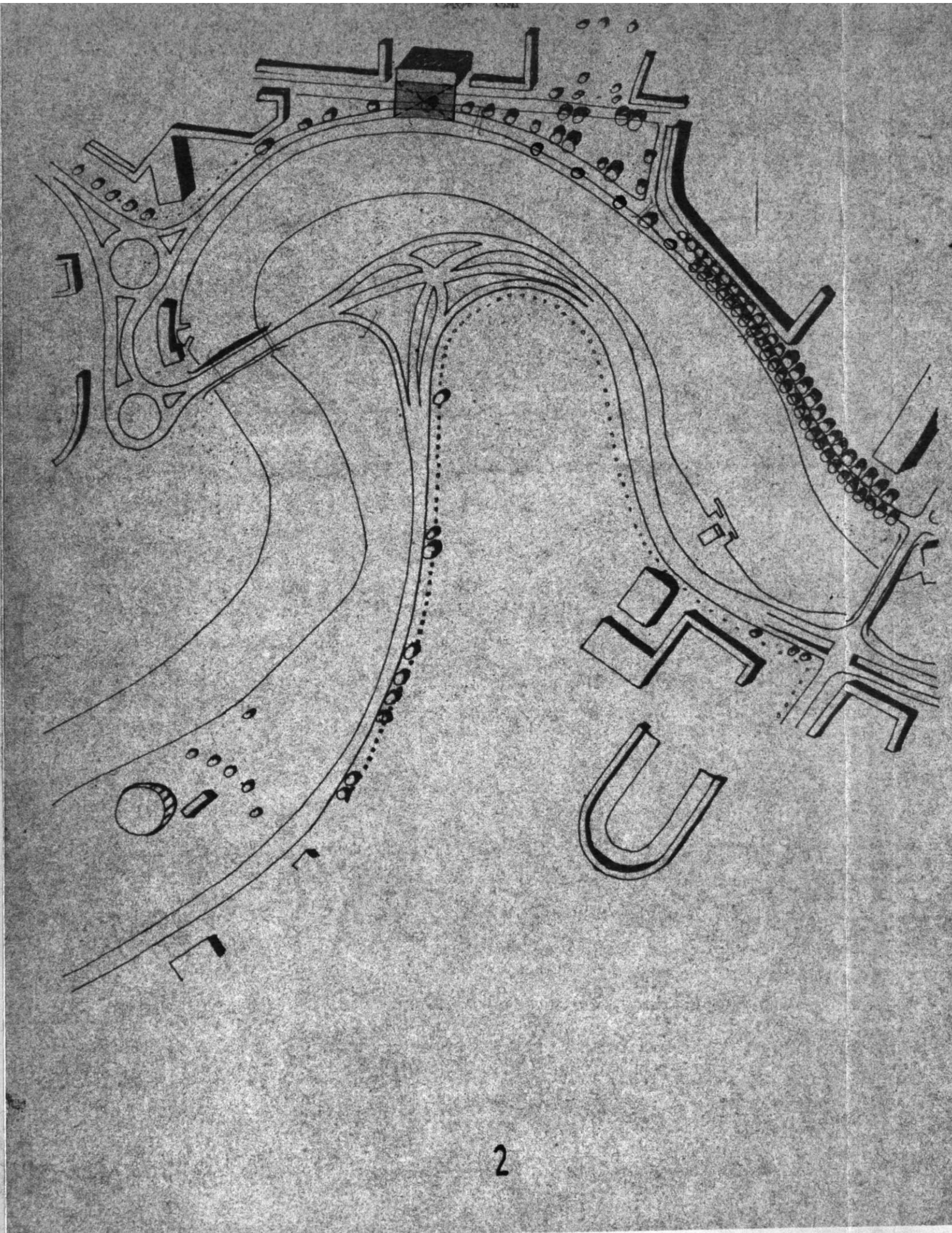


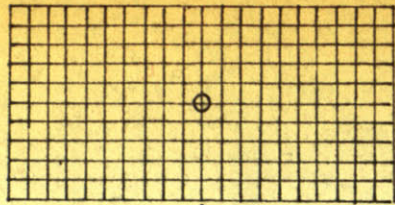
FIGURE I - VIEW E

1

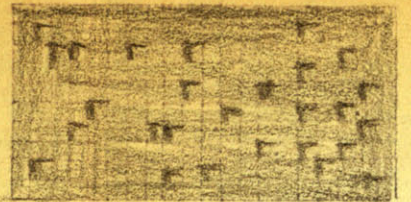


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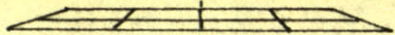
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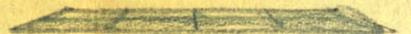
APARTMENT BUILDING



1



SIDEWALK



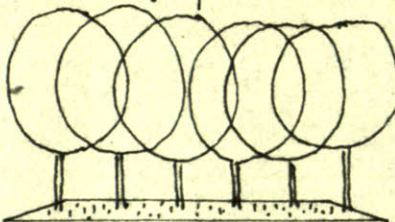
2



ROAD



3



GRASS AND TREE ROW



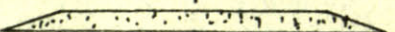
4



ROAD



5



GRASS

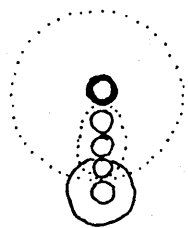
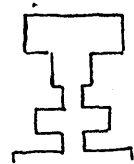
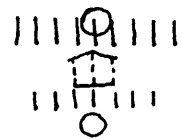
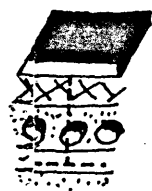


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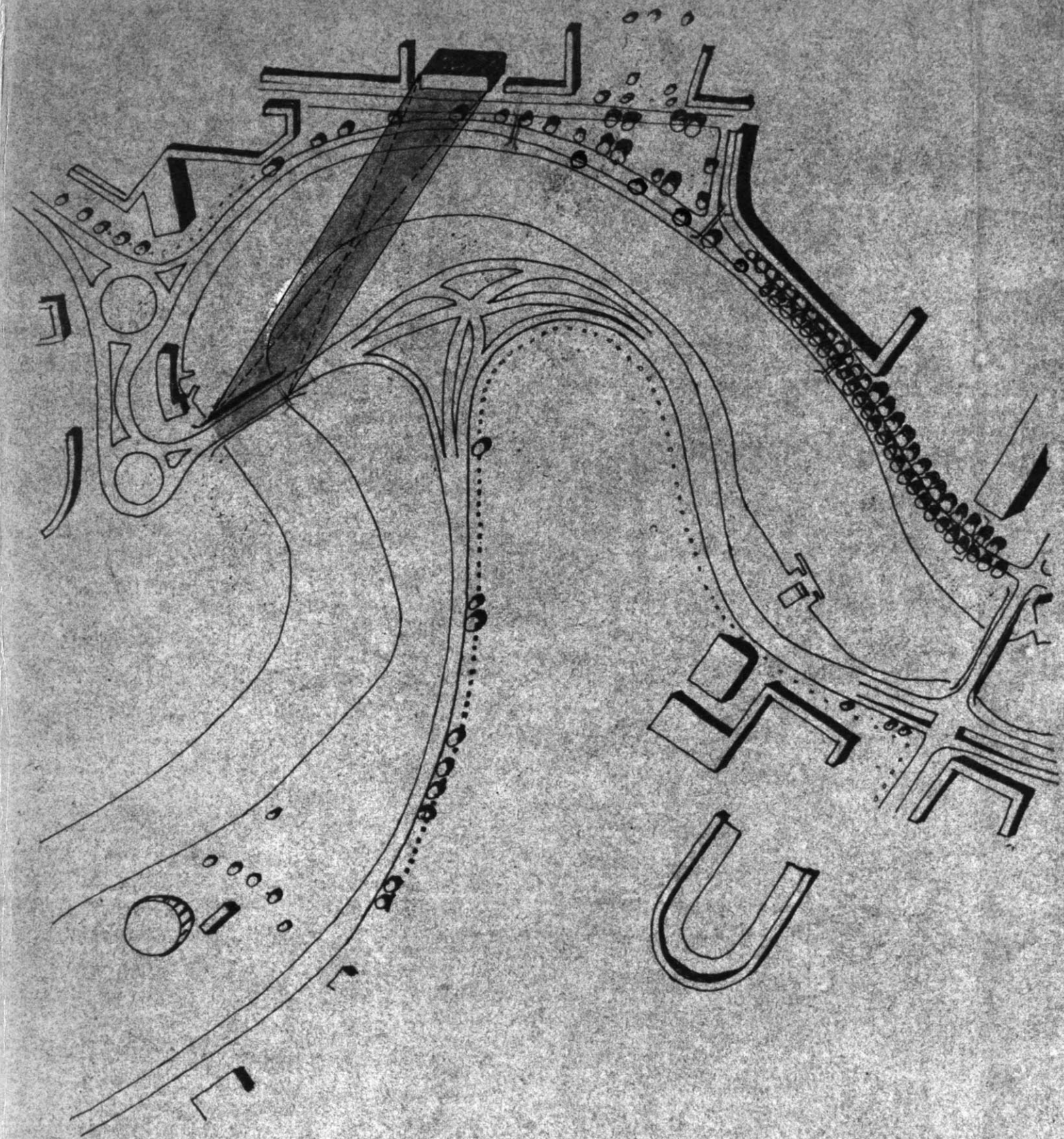
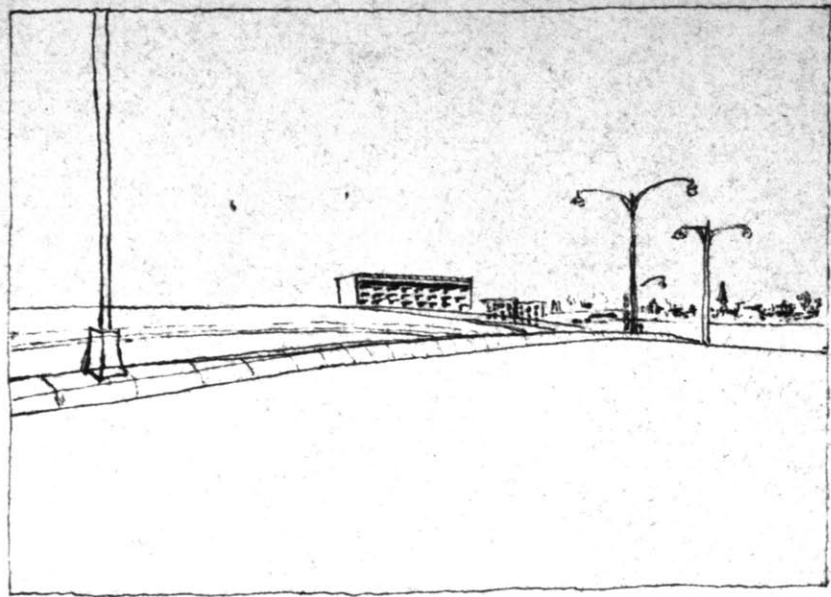
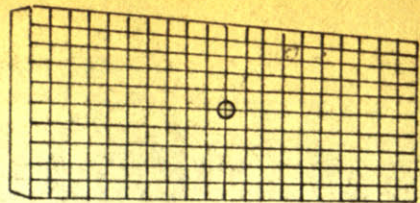


FIGURE I - VIEW F

1

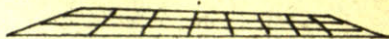
2

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APARTMENT BUILDING

1



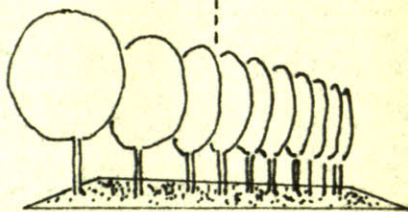
SIDEWALK

2



ROAD

3



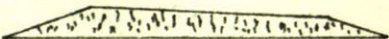
GRASS AND TREE ROW

4



ROAD

5



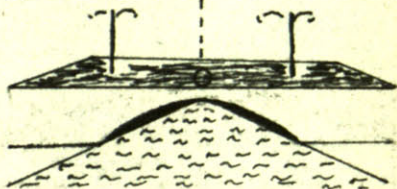
GRASS

6



GRASS, RIVER, GRASS

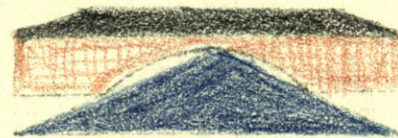
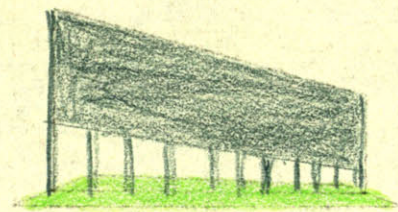
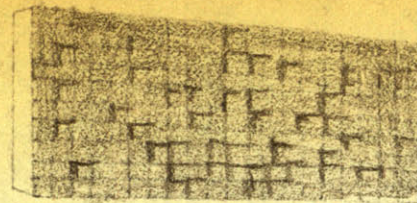
7



ROAD

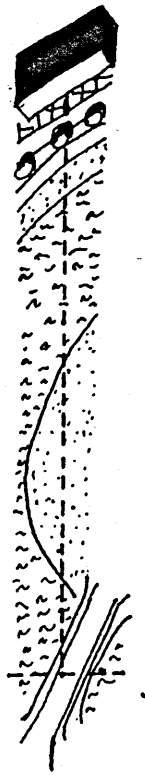
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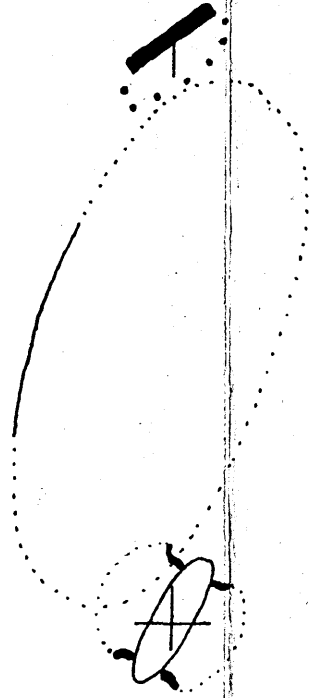


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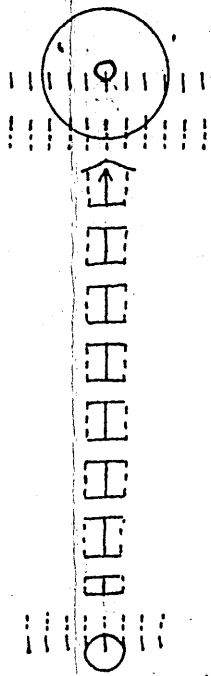
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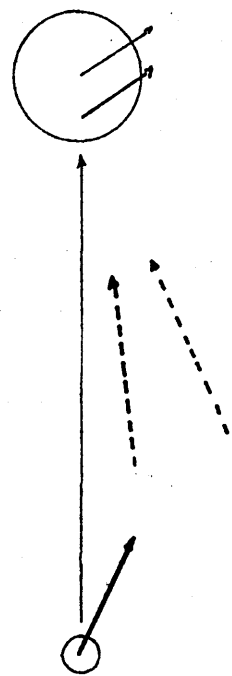
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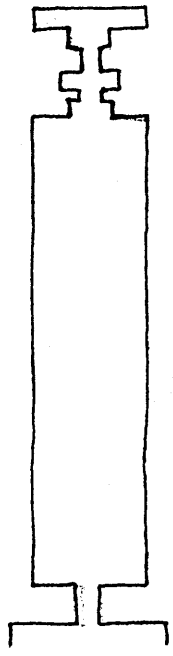
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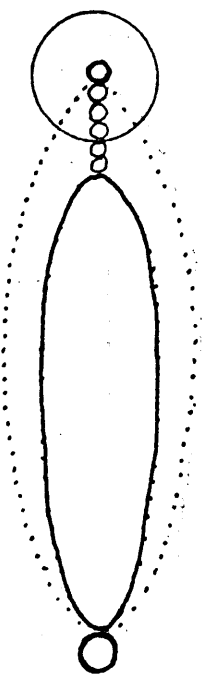
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12

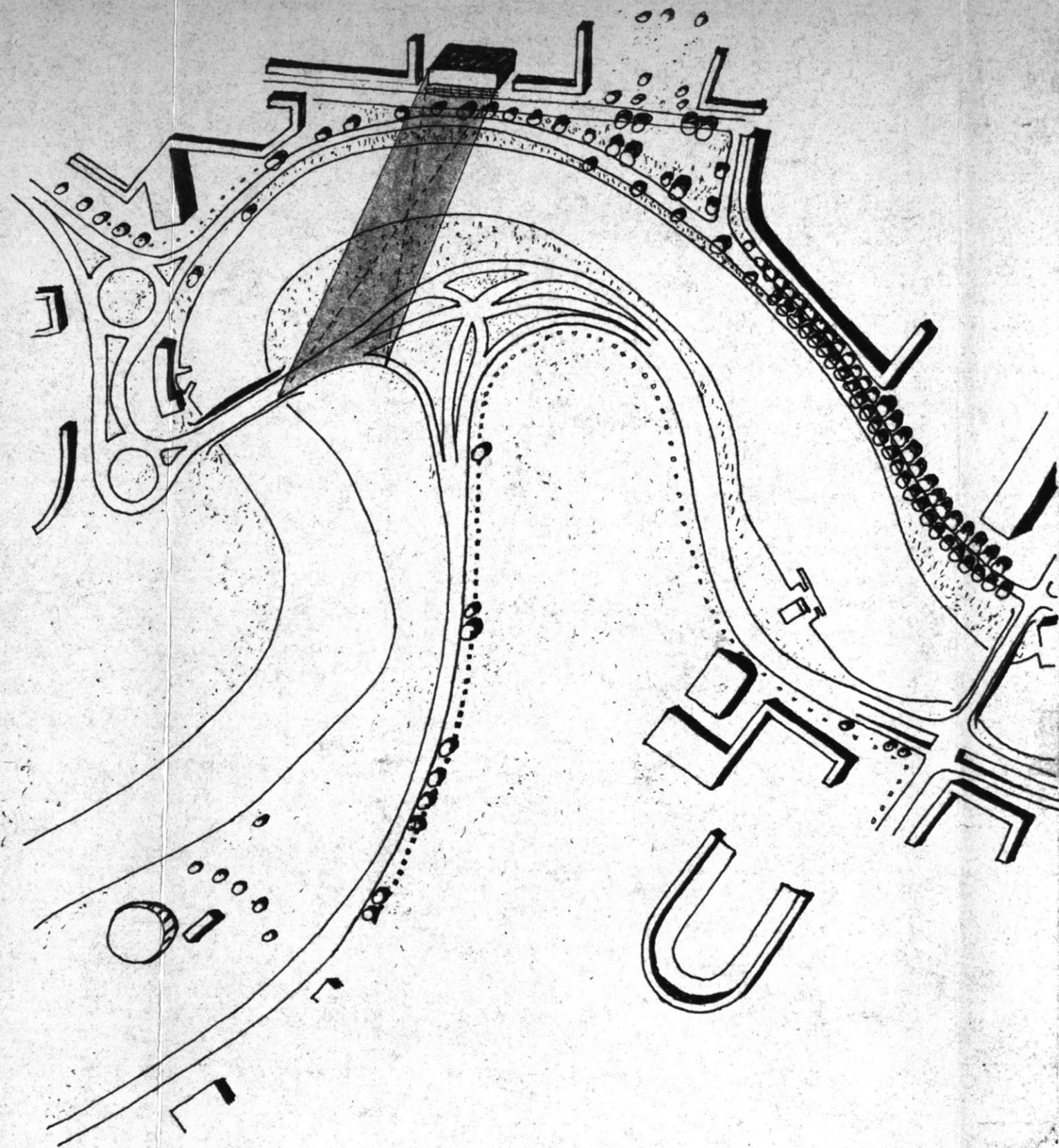
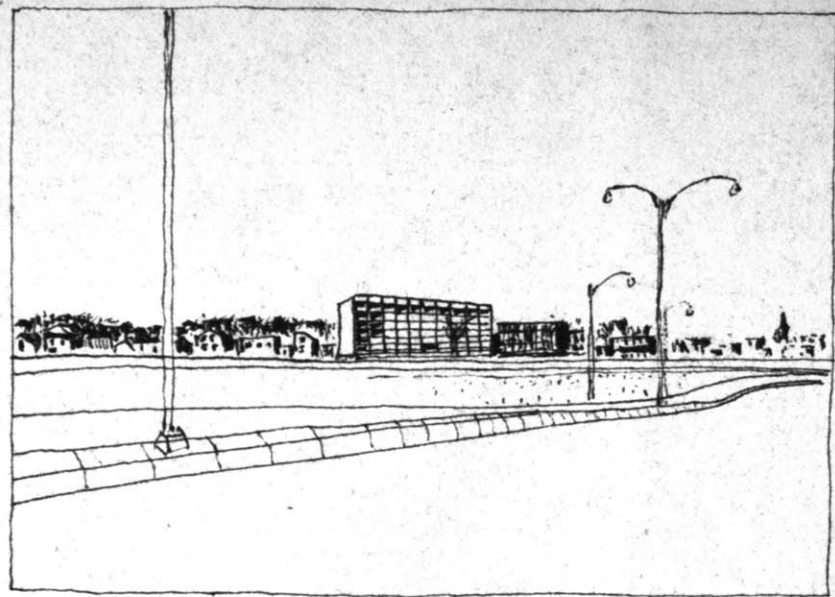
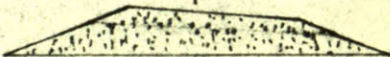
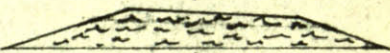
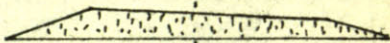
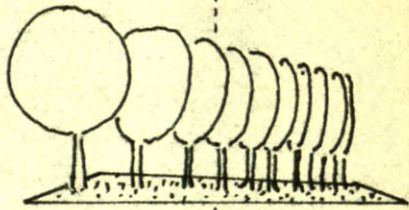
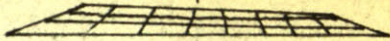
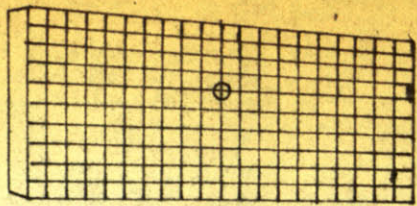


FIGURE I - VIEW G

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APARTMENT BUILDING

SIDEWALK

ROAD

GRASS AND TREE ROW

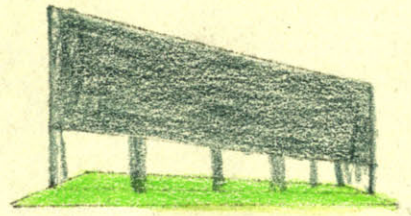
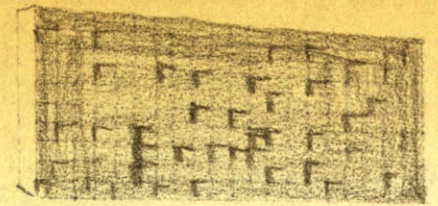
ROAD

GRASS

RIVER

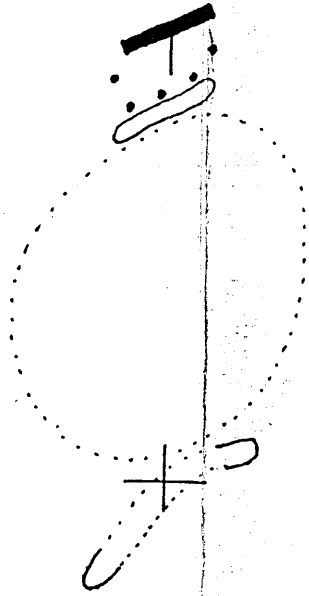
GRASS

ROAD

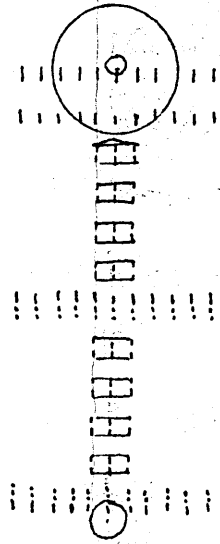




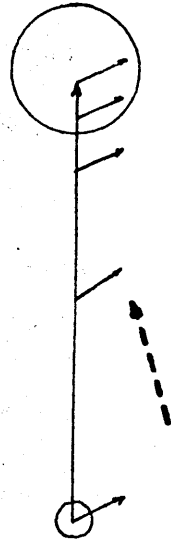
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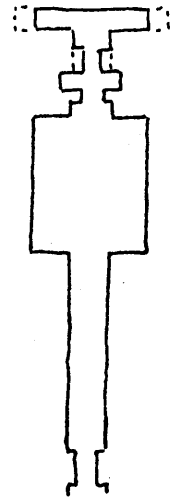
8



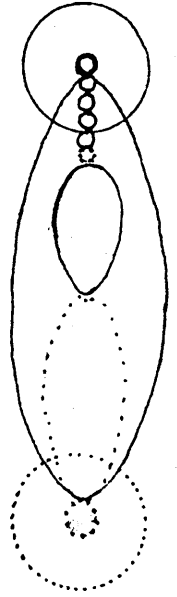
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II. PERSPECTIVE VIEWS IN SEQUENCE

In the preceding Chapter we discussed the problem of structure of the single perspective view. The whole discussion was based on the study of several separate views of a landmark-type apartment house on the Charles River in Cambridge, as seen from seven different points on Memorial Drive. We analyzed first the single perspective field into its constituent perceptual elements and into its thematic structures using a score form graphic presentation. Tentative perceptual models were then applied and tested for each selected thematic structure separately or in combination. For the reinforcement of the perceptual models or the implementation of general urban design goals, specific design goals were set. Finally, on the basis of the specific design goals, evaluation of the thematic structures and design decisions were made. In this Chapter we intend to consider the characteristics of each view as it is led to the next, to constitute thematic continuities when they are considered separately, or to constitute the whole visual sequence when they are considered in combination. The whole discussion is based on the study of the seven separate views of the landmark-type apartment house of the

previous chapter, as seen in sequence when driving along Memorial Drive.

In all respects, the method of approach to the problem of this chapter is the same as that of the preceding chapter. Emphasis only has been shifted from one point to another in order to meet the particularities of the new case.

A. The Variables of Perspective Views in Sequence and Their Types of Patterns

In each perspective view we encounter many perceptual characteristics: time duration of the view, distance of the viewer from the focal object, meaning of the viewing place etc. As we move along the road from viewing place to viewing place, those encountered perceptual characteristics change in degree, type, etc. We selected to represent this array of themes and their variation in a score form. On horizontal lines are shown the different characteristics encountered in the same perspective view and on vertical lines are shown their thematic variations, as we move from perspective view to perspective view. All diagrams should be read from down to up and from left to right. Some vertical diagrams, for

reading convenience, show two or more variables together or show the same variable in two or more different associations (see Figure II).

The following are the considered variables.

1. General variable of the perspective views

- a. Time duration of views and masked intervals.

The time duration of each view or masked interval is decisive for the proportions and form of all the thematic patterns and therefore decisive for the imageability, legibility and meaning of these patterns: a regular recurrence of views and masked intervals may create a rhythm; a proportion of golden mean between the time duration of two views may create a sense of closed and finished structure for some variables; a properly proportioned time duration of the views in sequence may balance the dominant directions of the visual fields around a desired center or an axis, and so on.

The time durations may be shown in the form of road intervals covered, if traveling speed is uniform, or in the form of time units lapsed and road intervals covered, if the traveling speed is non-uniform.

- 2. Variables of the Focal Object.

a. Front, left or right position of the travelling viewer by reference to the frontal axis of the object he is approaching from variable directions.

b. Front, left or right position of the focal object by referring to the continuously changing orientation of the frontal axis of the travelling viewer.

c. Level position of the viewer by referring to the invariable ground level of the object.

d. Distance of the viewer from the focal object; relative magnification measured by the angle under which the object's contour is seen; perspective volume represented by the pyramid created with the viewer's eye as top and the object's contour as base.

e. Foreshortening of the focal object represented by the perspective shortening of the linear dimensions of the object.

f. Tilt of the viewer's eyes over his horizon while looking at the object's center.

g. Types of patterns or shapes of the focal object presented to the viewer under different distances and different directions of approach.

All variables of the focal object lend themselves to exact quantitative measure or qualitative representation.

Most of the patterns of change like those of orientation, tilt, etc. in the object's variables, are growth patterns due to the quantitative character of the variables and the direct and continuous type of their dependence on the gradually changing distance of the viewer.

Some of the patterns of change, like those of the object's shape and pattern, are evolutionary patterns due to the qualitative character of the variables and the continuity of the object.

However, both growth and evolutionary patterns may become contrast patterns in cases of a sequence of far-distant stages of growth or evolution.

3. Variables of the Viewing Place

All the types of perceptual characteristics, into which the perspective space was analyzed, may be variables of the viewing place when considered in time. They are as follows:

- a. Floor, walls-screens, roofs
- b. Meaning
- c. Direction
- d. Orientation

- e. Dimension
- f. Dominant Spaces
- g. Shape or Pattern
- h. Color, Texture, Light, etc., Optional Types,
depending on the encountered situation.

The patterns of change in the variables of the viewing place are mostly continuity, contrast or random patterns and only incidentally growth or evolutionary ones. This is largely due to the more or less qualitative character of the variables and their small dependence on the time flow and space continuity.

4. Variables of the Perspective Space.

Some types of the thematic structures of single perspective views may be recurrent and imageable and, therefore, may become themes of the sequence. In the following, some variations in thematic structures of single perspective views are considered.

- a. Variation of the structure of paths and
barriers

As the diagram of the paths and barriers system is representative of the highly abstract idea of accomplishment and reaching the focal object by following paths overcoming barriers; and as that idea constantly recurs with

each new perspective view, an evolution of the type of structure of the paths and barriers, may become noticeable and be taken into account by the viewer. The general type of path and barrier structure of our case study is that of barriers of various intensities separating viewing places and object place from the perspective space, and of paths of various lengths and intensities coinciding with the perspective space and linking viewing places and object place.

b. Variation of the resultant dominant direction
In cases of travel at rather high speeds and in cases of the recollection in mind of the different phases of the sequence in succession, especially noticeable is an interaction of all the dominant directions (or of their result) and of each view (and viewing place).

The impact of each direction depends on the strength each direction manifests in static vision, on the time duration of the viewer's exposure to it and the speed of travel. If the static force of a dominant direction is presented by the thickness of an arrow and the time factor by the length of the same arrow and if the speed is considered constant, then we may record the pattern of change of the resultant dominant direction of the views in sequence.

These patterns may be growth, evolutionary or contrast patterns.

B. The Structure of the Perspective Views in Sequence.

From the previous analysis we conclude that the prevalent types of change patterns of the variables of the views in sequence are: growth of measures; evolution of types; and contrast with distant stages of growth and evolution.

The general types of structures most readily offered to us to deal with these patterns are: continuity, rhythm, balance.

The general objectives are those of vivid visual experience, effective orientation and information of the individual within the environment, etc.

Specific design objectives may be the establishment of the object's approach plot, the balance of all dominant directions around a meaningful environmental axis (say, that of the object's front), etc.

However useful it might be, it is beyond the limits of this study to present in a systematic way all the available structural types, and the general and specific design objectives and their combined uses for giving form to

the system of patterns of variables. Instead, this study attempts a brief application in the hope of giving an indication of the usefulness and correctness of the approach.

In the following, the application is in the form of design decisions interrelating form and objectives (see Figure II).

1. We suggest to mask views B and G and consolidate views C, D and E.

This way, the sequence acquires the rhythm of view-mask-view-mask-view.

By masking view G we eliminate a soft finish. The now final view F is more vivid because of its characteristic viewing place and perspective space - the bridge and the river, respectively. In addition, view F recalls to the viewer the view of the beginning A through the similarity of the perspective space - river and river - and the similarity and contrast of the viewing places - both are linear, but F has an open and exposed viewing space, while A has a closed and protected one.

By keeping A, C-D-E and F we keep in sharp view and we embody in a structure critical information of the environment: the sycamores of Memorial Drive, the

immediate space and the landmark itself, and the fact of passage to the other side of the river over the bridge.

2. We suggest building a pedestrian overpass linking the park area and the immediate environment of the apartment house to the riverbank recreational area.

By this bridge we define the focal object's place and meaning and we enhance most of the thematic structures of the single perspective views. Also, we articulate the sequence C and D - E by providing a break inbetween them in the form of an overpass. Also, we enhance the approach plot of the object along the path as follows:

View A: First physical hint of the goal, mental attainment of it.

Masked area: Suspense

View C: Starting direct action for physical attainment of the goal; parallel mental attainment of it.

View D-E: Physical attainment of the goal by entering the object's place at the bridge; parallel climax of all visual variables of the object (magnification, tilt, etc.)

Masked area: Repose

View F: Recapitulation; mental attainment of the goal, recollection of the beginning view A, through the similarity of the perspective spaces and the contrast of the viewing places.

Also, we enhance the thematic continuity of the viewing places as follows:

View A: Viewer under trees, closed space, no bridge.

View C-D-E: Viewer confined by trees, semi-closed space, viewer under bridge.

View C: No trees, open space, viewer on bridge.

LEGEND OF FIGURE II

ANALYSIS AND DESIGN OF PERSPECTIVE VIEWS IN SEQUENCE.

CASE STUDY:

(Refer to Chapter II)

Study of the First Realty Apartment House on Charles River, Cambridge. Sequential views from Memorial Drive. Analyzing the elements and structures and evaluation of their quality.

Design decisions (~~see Chapter III~~) (in dashed lines)

1. View from the road
2. Plan of environment and view
3. View to the object and view to the road interrelated
4. Plan of the view
5. General environmental situation: path intervals; distances; front-left-right relative position of the viewer in relation to the object and of the object in relation to the viewer; approach plot etc.
6. Foreshortening; magnification; front-left-right relative positions of viewer and object in relation of one to the other.
7. Front-left-right relative positions of the object in relation to the viewer; distance; path intervals.
8. Front-left-right relative position of the viewer in relation to the object and object's apparent turning.
9. Level position of the viewer in relation to the object's base.
10. Tilt of the viewer's eyes over the horizon when looking at the object's center.
11. Magnifications of the object.
12. Magnification and foreshortening of the object.
13. Perspective pyramid: volume, angle, distance.

14. Characteristics of the viewing place: planar types, direction, shape etc. (see legend of Figure I).
15. Variation of the structure of paths and barriers (see legend of Figure I).
16. Variations of the resultant dominant directions.

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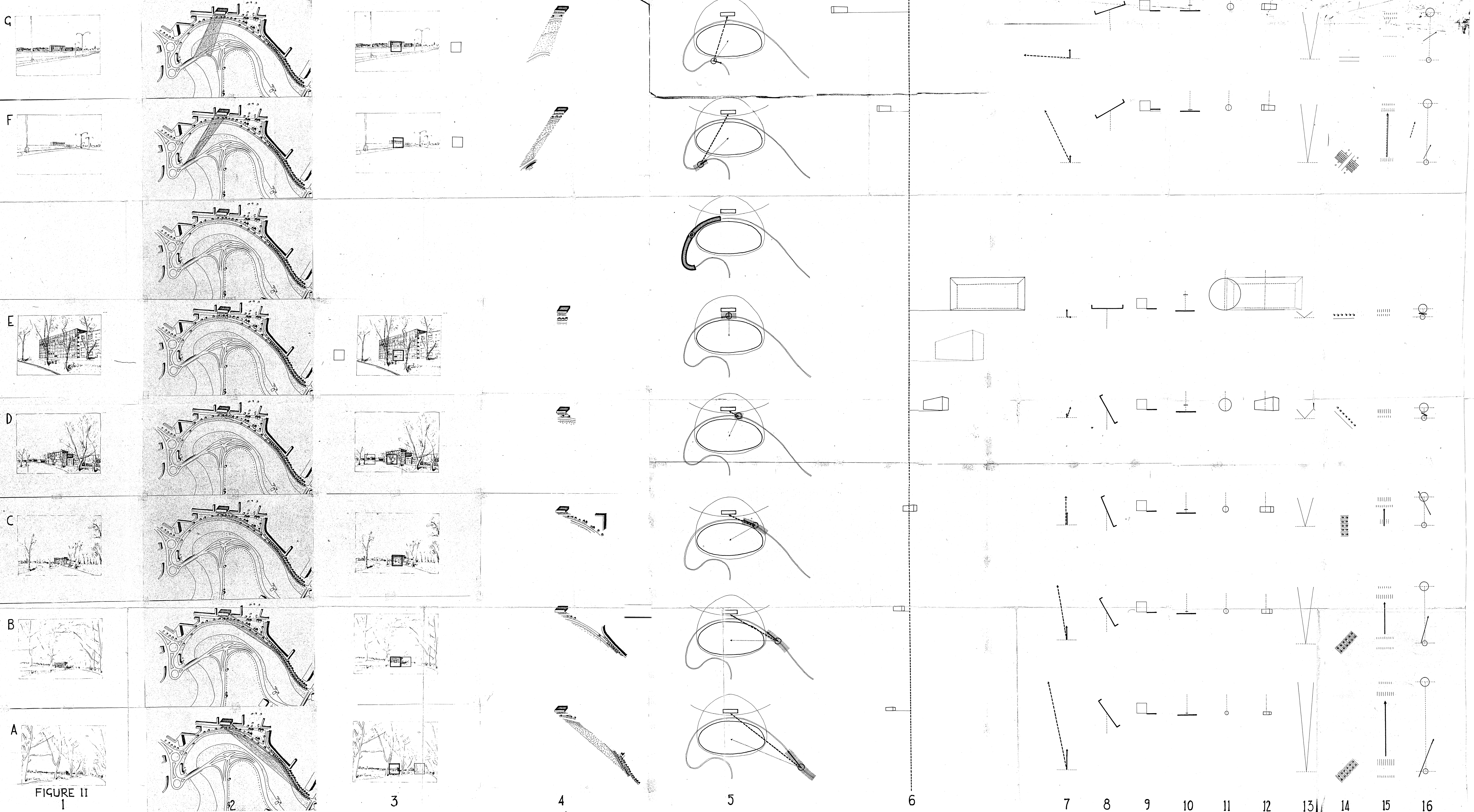


FIGURE II