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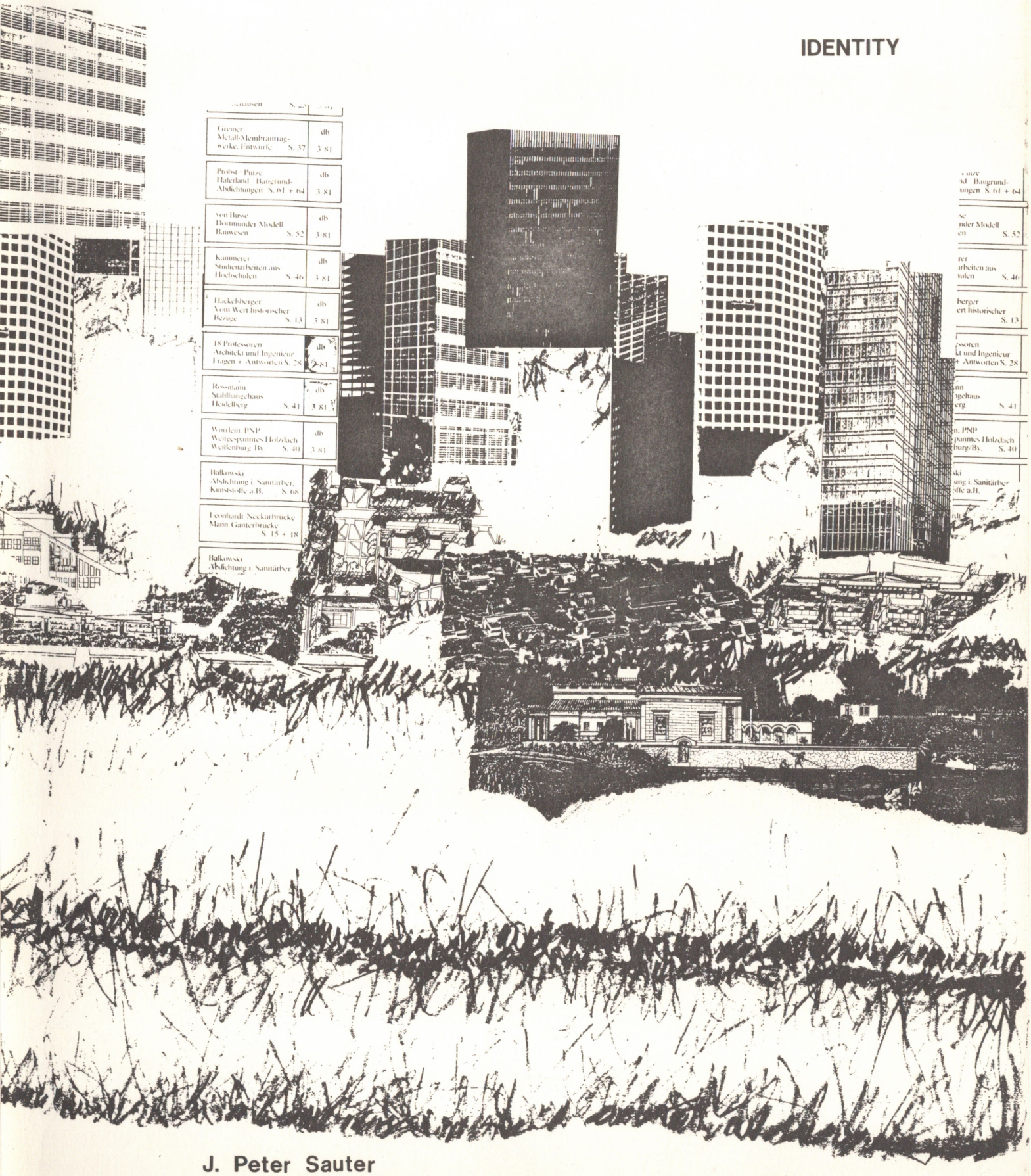

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AN INVESTIGATION OF IDENTITY

by

J. Peter Sauter

An undergraduate thesis submitted in partial
fulfillment of the requirements for the degree

of

BACHELOR OF ARCHITECTURE

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To My Mother and Father

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INTRODUCTION

The area of study of this thesis is high density housing within an urban environment. To develop a theory about urban housing and what it should be in relation to the city several concepts are discussed. These concepts are represented in the form of collages which reflect the ideas that are central to the development of my urban housing theory. These ideas are the topic of this thesis and are expressed in architectural form through the development of an urban housing project.

CITY

The city is a complex organism which acts as a gathering point for man's activities. The morphology of the city is influenced by many internal and external forces. Geographic, economic, cultural, historic and social forces all influence the city through time. The form of the city should communicate its structure in a coherent manner to the individuals experiencing it. The "legibility"[1] of an urban environment is very important because of its relation to orientation, identity and meaning.

All the city's parts should act together "as a balanced organization and an integrated structure, maintaining unity in diversity and continuity in change"[2] in time. These parts should form a coherent whole woven together through its formal and spacial structure. Kevin Lynch classifies the elements which organize man's perception of the city while moving through it as "paths, edges, districts, nodes and landmarks."[3] Christian Norberg Schultz describes these more generally as "centres, paths and domains."[4] These elements should overlap and mesh to form this complex internal structure.

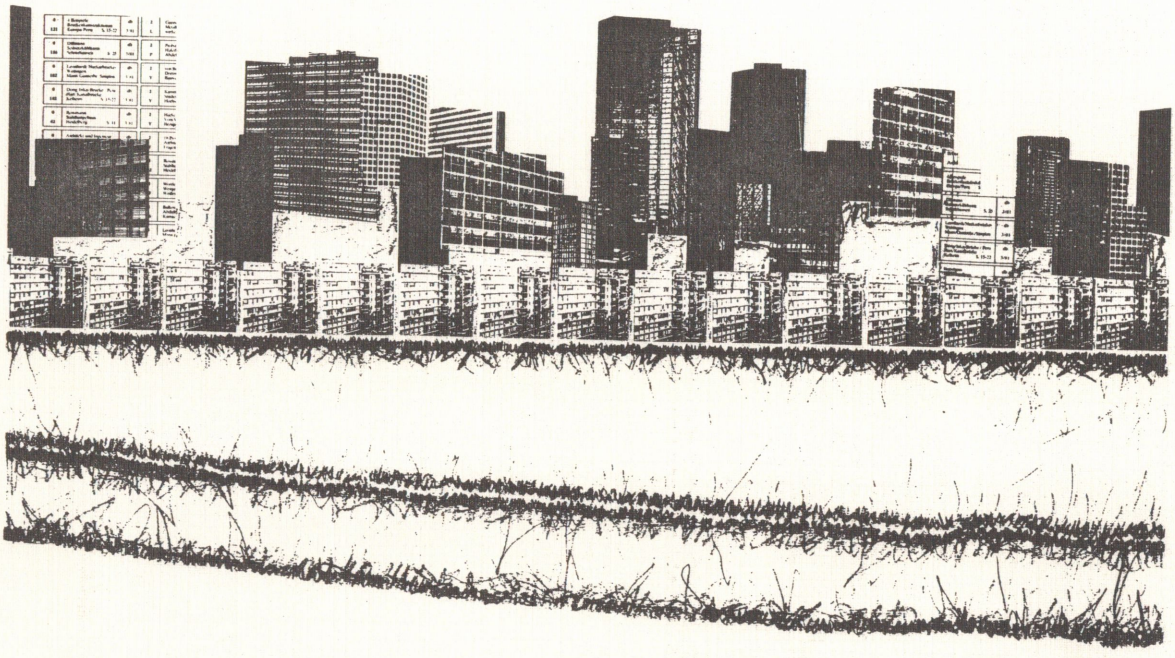
This structure forms a framework that the parts of the city should occur within while becoming an integrated whole. As the structure ties together the parts, the parts should also reinforce the structure while maintaining their own identity. The result being an understandable ordered whole.

1 Kevin Lynch, The Image of the City. (Cambridge: The M.I.T. Press, 1960), p. 2.

2 Lewis Mumford, The Urban Prospect. (New York: Harcourt Brace Jovanovich, 1968), p. 158.

3 Kevin Lynch, The Image of the City. (Cambridge: The M.I.T. Press, 1960), p. 46.

4 Christian Norberg-Schultz, Genius Loci. (New York: Rizzoli International Publications, Inc., 1980), p. 59.



1

URBAN CONCEPTS

Two extreme philosophies are described to develop my attitude about urban housing in this project. These philosophies are extremes in terms of density. One philosophy holds the view that urban housing should be a high density situation, while the other holds the view it should be low density. The central ideas that develop are tested through the use of the collages.

HIGH DENSITY URBAN CONCEPT

This high density urban concept is the philosophy developed by Le Corbusier. "In the clearest statement of his aims, Le Corbusier put forward his belief that

> Life flows between two powers each capable of attaining the sublime. One of these poles represents what man does alone: the exceptional, the moving, the holy act of individual creation.
>
> The other represents what men undertake when organized in groups, cities or nations: those forces, those great movements of the collectivity.
>
> Here, individual grandeur, the scope of genius.
>
> There, administration, order, direction, leadership, civic action."[1]

Le Corbusier saw technological society as needing a new physical expression reflecting modern mans thought. "The existing cities, he complained, were not dense enough. They offered too much expression to "anarchic individualism," too little scope for planning."[2]

His objective was an overall plan for the city that was rationally ordered, unified with nature and expressing individuals unified in a cooperative community. The community as a whole becomes the predominant expression. The technological models of honest design that he uses for inspiration are the automobile, airplane and ship.

1 Robert Fishman, Urban Utopias in the Twentieth Century. (New York: Basic Books, Inc., 1977), p. 202-203.

2 Ibid., p. 163.

3 Ibid., p. 180.

4 Ibid., p. 171.

5 Ibid., p. 203.

The city core would be the area of highest density and have a central position. It would take the form of high rise towers which would house the controlling authority. The towers would be the focus of the city becoming an expression of centralized power and authority. A grid of streets would be used to circulate traffic rapidly between the towers and extend out to connect the remainder of the city. This grid is an expression of rational thought.

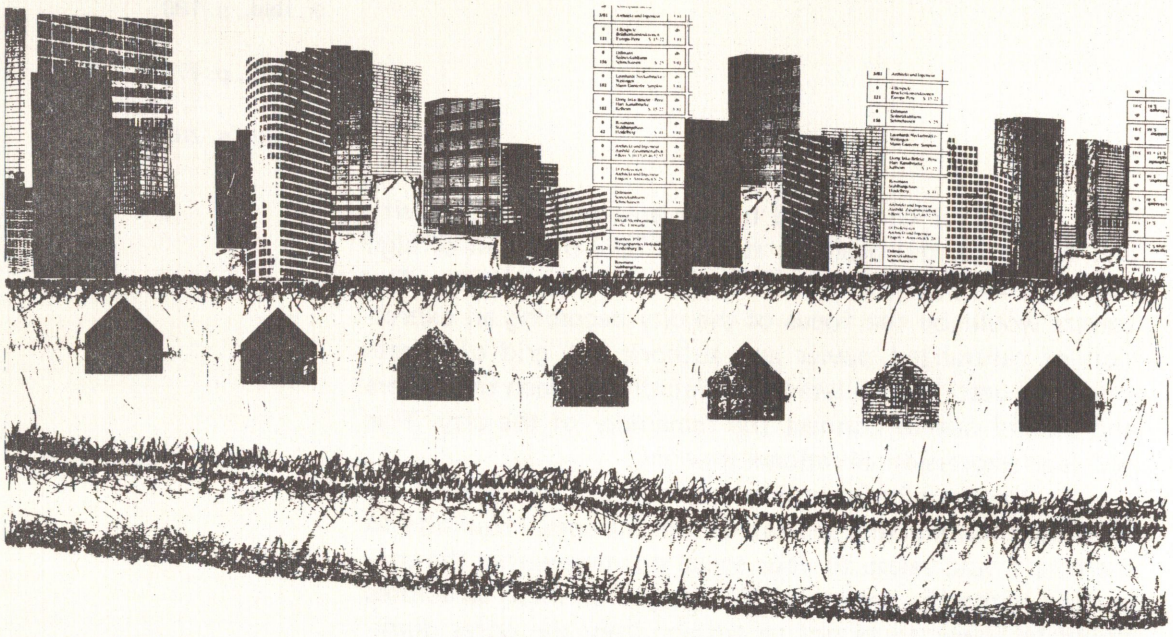
Housing within the city would form a belt around the perimeter, functionally separated from the core. Proximity to the core would relate to your social position within the controlling authority structure. The height of these structures would be lower so as not to detract from the cores dominance. The housing would consist of mass produced standardized units with the intention of supplying a home for everyone.

> "Le Corbusier realized that the use of uniform parts imposed a necessary uniformity on the houses, but he believed that this seeming limitation could become the basis of a new beauty. By grouping the individual houses into pleasing and well proportioned ensembles, the architect could create collective forms of harmony and balance. The details would be uniform, but the planner could achieve variety in the general effect. Each unit would contribute to the beauty and magnificance of the whole.'[3]

These units would be plugged into a structural grid allowing light, air, a view and contact with nature for every unit.

The city would take the form of high rises in parks to supply contact with nature for everyone. "He described his own studies 'with rage and joy I learned about the forces of nature. It's hard but beautiful, so logical, so perfect!' "[4]The rational order of the city would extend into nature uniting them in a harmonious whole.

> " 'In a chaotic nature man creates, for his security, a protected zone which is in accordance with what he is and what he thinks.' The city is the grip of man upon nature"; its geometrical form is the expression of a society liberated from the constraints of ignorance and conflict, a society which has organized itself according to the human laws of reason."[5]



2

LOW DENSITY URBAN CONCEPT

This low density urban concept is the philosophy developed by Frank Lloyd Wright.

> "He saw the big city as a monstrous aberration built by greed, destructive both to efficient production and to human values. Man would reap the benefits of the machine age, Wright proclaimed, only when he returned to his natural home, the land."[6]

Wright's central most concept was decentralization reinforcing the expression of individuality and allowing man to have greater contact with the land. "The union of the individual man with his fellow man and the harmony of the whole society with nature."[7]

He believed man should not dominate nature but become one with the natural environment. Wright expressed this by not allowing a recognizable physical center to form in his city resulting in the individual home becoming the central focus. He saw the individual home as an expression of the family and the center of power. Authority would come from the individual and not a centralized authoritative focus. The order of the city should find its inspiration in the order of nature. "Reconciliation of individuality and order was the goal of the whole city."[8]

The houses expression of the individual family and its contact with the natural environment should influence the form of the living unit. The result should then be each individual dwelling being different from all others. Wright organized the home around a central hearth which anchored the spaces within the home. These spaces flowed into each other and outside the building into nature reinforcing the idea of the house becoming an element integrated with nature.

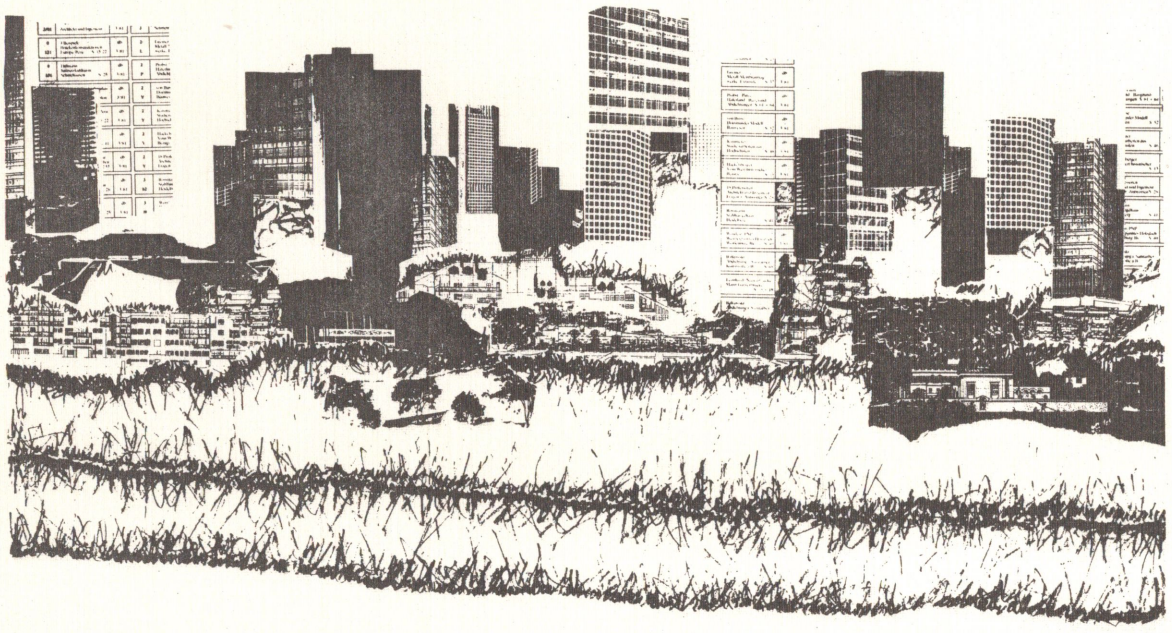
Nature was the overriding order that man should follow in creating his built environment. This was expressed by letting the natural context influence the form of the house. This would result in the organic order that Wright was looking for. "An organic order in which every living thing has a place and shape all its own and yet contributes to the harmony of the whole."[9]

6 Robert Fishman, Urban Utopias in the Twentieth Century. (New York: Basic Books Inc., 1977), p. 92.

7 Ibid., p. 141.

8 Ibid.

9 Ibid., p. 133.



3

COLLAGES

My interpretations of the urban concepts described are presented in the form of collages. These collages reflect the basic ideas of these urban concepts. The collages act as tests in that they show the major ideas of one concept and allow comparison with the major ideas of the other. The urban concepts attitudes concerning common ideas can also be identified. Through this comparison the most important ideas related to urban housing and its relation to the city become evident. These ideas are then expressed in the form of a collage which can also be compared to the preceding collages.

Le Corbusier's urban concept expresses housing within the city as an integral part that should be rationally ordered. (Fig. 1) The individuals identity is expressed by his relationship with the community. The community as a whole becomes the predominant expression. The uniformity in housing reinforces this idea and does not allow the diversity of the individuals which make up a city to be expressed. The urban housing community's identity is expressed as separate from that of the city core but one individual is not expressed as being different from another. The city should order nature in a rational manner.

Frank Lloyd Wright's urban concept focuses on decentralization reinforcing the expression of individuality. (Fig. 2) Individual identity is the predominant expression and as a result the communities expression plays a secondary role. Wright did not believe the city should have a centralized focus. Each living unit in his city would be different, reacting to the natural features on the site, as an expression of each individual being different from another. The city should be one with nature and reinforce an organic order.

The major ideas which are presented by these concepts are urban housing's relationship to the city or the parts relationship to the whole. Also expression of the individual and the community are the most prominent ideas. These are both expressions of identity and are closely related. (Fig. 3) Individual identity and community identity must both be expressed within the urban environment. One should not dominate the other. This is expressed in the collage expressing my attitude.

TOPIC

AN INVESTIGATION OF IDENTITY

IDENTITY

Identity in architecture is based on experiencing an entity as being unique. Websters Dictionary defines identity as "the state or fact of being some specific person or thing; individuality."[1] The conditions required for an entity to be experienced as having an identity are position and meaning. Position and meaning are perceived at the same time or experienced as one and can only be separated through analysis.

Identity is a central idea in relation to high density urban housing because of the nature of this type of housing and man's needs associated with dwelling and orientation within the environment.

1 David B. Guralnik, Websters New World Dictionary. (New York: Popular Library, 1975), p. 299.

POSITION

Position is an expressed location within the environment. Websters Dictionary defines position as "—the way in which a person or thing is placed or arranged.,—the place where one is; location."[1] For an entity to have a position it must be perceived as separable from its context establishing itself in the perceptual field. Kevin Lynch refers to this as "clarity of position."[2]

"Nothing is experienced by itself, but always in relation to its surroundings."[3] An entities position is established by its proximity and relationships with its context and the elements which make up that context. We reference an entity to its context the same way we orient ourselves to distinguishable features within our perceptual field. In an urban context these distinguishable features are the "paths, edges, districts, nodes and landmarks."[4] When speaking about architecture these features are elements or spaces within the built environment. These features are also referenced to the larger context.

An expressed position within an environment can also have meaning. In order for a position to have meaning it must be associated with an established model from our previous experience. This implies that we recognize it partially because of its position. This means that a particular entity with that position has an identity. It also means that there is a relationship established between an entity and its context that we recognize and therefore endow[5] it with meaning. The basic structure of the perceptual information we receive from the entity combined with the basic structure of its context and its position within that context matches a previously experienced model. The entity then has an identity.

1 David B. Guralnik, Websters New World Dictionary. (New York: Popular Library, 1975), p. 466.

2 Kevin Lynch, The Image of the City. (Cambridge: The MIT Press, 1960), p. 8.

3 Ibid., p. 1.

4 Ibid., p. 46.

5 Ibid., p. 6.

MEANING

Meaning is revealed to us through the ordering of sensory information which we collect through our perceptual powers.

> "By what means, then, does man gain the foothold and identity which are not offered him by nature? In general, he succeeds because of his ability to reach beyond the individual situation, that is, because of his ability to abstract and generalize. This means that man is capable of recognizing similarities and relationships between phenomena and discovering the laws which govern natural and human processes. What he abstracts from the continuous flow of phenomena constitutes his existential meanings. This implies that the meaning of any phenomenon is the context in which it appears, and that any man is the interrelationships or meanings which are accessible to him. The faculty of abstraction and generalization, or induction, is therefore the basic distinction of man, and the experience of meaning his basic need. To grow up signifies to become aware of meanings."[6]

Christian Norberg-Schultz talks of "flow of phenomena"[7] which I have interpreted as sensory information or the properties that we experience through perception. Through perception man collects this information from all entities and the flow of this information is "continuous"[8] from our environment.

The structuring or ordering of these properties and its referencing back to information collected from previous experience is the basis of recognition. Each person has his own individual collection of information due to their unique life experiences. Meaning must also be "socially valid"[9] or recognized by a group. In architecture we are concerned with learning to recognize and use these meanings in a conscious, intentional manner.

6 Christian Norberg-Schultz, Meaning in Western Architecture. (New York: Praeger Publishers, 1975), p. 428.

7 Ibid.

8 Ibid.

9 Ibid., p. 429.

Symbolization is man's "ability to reach beyond the individual situation."[10] Man accomplishes this through abstraction and generalization of those structured properties we perceive. "Abstraction, visually, is simplification toward a more intense and distilled meaning."[11] "The abstract conveys the essential meaning, cutting through the conscious to the unconscious, from the experience of the substance in the sensory field directly to the nervous system, from the event to perception."[12]

These abstracted generalized structures are recognized by a group because they retain the essence of an established model we have formed through similar previous experiences, a "class"[13] of structured properties. "Essentially the process involves learning whatever the varied instances have in common."[14]

I have interpreted the statement, "The faculty of abstraction and generalization, or induction, is therefore the basic distinction of man, and the experience of meaning his basic need. The grow up signifies to become aware of meanings,"[15] an an expression of man needing to belong and understand through communication. Man does this by learning symbol systems which when integrated "constitute the common order we call culture."[16] Through man's use of these symbol systems to communicate and understand, identifying himself with a group.

If meaning is revealed through information collected by our perceptual powers and its relation to information retained from previous experiences, it follows that the cues or generators of meaning come from our real environment. Basically this is theory proposed by Christian Norberg-Schultz and reinforced by Rudolf Arnheim and Kevin Lynch.

Christian Norberg-Schultz proposes, in his discussions on existential space, that our environment is more than the real world we experience. The information retained from previous experience is inseparable from the real world experienced and acts as a reference point which is one with what we perceive in the real environment. In other words meanings relationship with the real things which make up our environment is inseparable.

10 Ibid., p. 428.

11 A. Donis Dondis, A Primer of Visual Literacy. (Cambridge: The MIT Press, 1973), p. 74.

12 Ibid., p. 81.

13 Stephen Kaplan and Rachel Kaplan, Humanscape: Environments for People. (North Scituate: Duxbury Press, 1978), p. 33.

14 Ibid., p. 34.

15 Christian Norberg-Schultz, Meaning in Western Architecture. (New York: Praeger Publishers, 1975), p. 428.

16 Ibid.

This implies a two-way relationship between the perceived and the individual perceiving where both influence the resulting meaning. This is expressed in terms of visual perception by Donis A. Dondis when he writes "Meaning in visual message-making lies not only in the cumulative effects of the arrangement of the basic elements but also in the perceptual mechanism that is universally shared by the human organism."[16] Any entity within our perceptual range can be endowed with meaning depending on how it is presented and its context. This is what Christian Norberg-Schultz meant when he wrote "The meaning of any phenomenon is the context in which it appears."[17]

"Any human product may be considered a symbol or tool which serves the purpose of bringing order (meaning) into certain relations between man and his environment."[18]

This implies any image we perceive can be "endowed with meaning"[19] depending on the person perceiving it as well as the actual image. "Meaning also depends on the response of the viewer, who also modifies and interprets through the net of subjective judgment."[20] The intensity of the meaning also depends on the individual perceiving.

> "For example, we can all see and recognize a bird. We can extend this recognition to generalizing about an entire species and its attributes. To some observers, the visual information reaches no further than a primary level of information. To Leonardo da Vinci, a bird meant flying, and his investigation of that fact led him to try to invent flying machines. We see a bird, a dove, perhaps, and this has an extended meaning of love or peace. The visionary does not stop at the obvious; he sees beyond the surface visual facts into greater realms of meaning."[21]

16 A. Donis Dondis, A Primer of Visual Literacy. (Cambridge: The MIT Press, 1973), p. 20.

17 Christian Norberg-Schultz, Meaning in Western Architecture. (New York: Praeger Publishers, 1975), p. 428.

18 Ibid.

19 Kevin Lynch, The Image of the City. (Cambridge: The MIT Press, 1960), p. 6.

20 A. Donis Dondis, A Primer of Visual Literacy. (Cambridge: The MIT Press, 1973), p. 21.

21 Ibid., p. 68.

CHARACTER

Character is basically the feeling we get from a particular environment. It is the sum of the sensory information we collect through our perceptual powers combined with the meanings revealed through this information. In any location sensory information is revealed to us through perception that is unique to that location. This unique collection of information, or portions of it, will have meanings associated with it. These meanings will affect our impression of that location as much as the actual formal and spatial properties within our perceptual range. The real things in our environment are the cues or generators that make meanings available to us. These real things and the way they are arranged are the generators of character as experienced through our perception.

> " 'To be somewhere' implies more than location; it involves primarily identification with the particular character of the places, paths and domains in question. Here we return to the existential meanings proper. As has been maintained, any meaning is revealed in a particular place, and the character of the place is determined by this revelation, so existential meanings manifest themselves as "characters." The word "character" indicates an unmistakable totality, or gestalt, where each single part has a relevant function within the whole."[1]

An entities unique position within an environment results in it receiving a unique collection of information. As an entities position changes so does the information available from its environment. As a result the character experienced in a particular position is directly related to its environment or context and that character will be unique in any position. Of course this is dependent on this information be perceived.

An entity also has a character which it expresses. This is because any entity has the potential of making up a portion of the environment which is experienced from another location. When experienced from another location an entity is perceived with its environment. An entities environment or context affects the way it is perceived. When we perceive any entity it is always referenced to its context and as a result this has a major effect on the character of that entity. This implies the character experienced from an entity is insepar-

1 Christian Norberg-Schultz, Meaning in Western Architecture. (New York: Praeger Publishers, 1975), p. 432.

2 Ibid.

able from its environment and can only be separated when analyzing it. When designing an architectural project the architect predicts the character of that project and expresses it by the manner that the formal and spatial aspects of the project are handled. In this way the intended or appropriate character is revealed.

The architect is concerned with presenting a character which is understandable to a group. Meaning is an integral part of character and if the character is to be understood by a group it involves symbolization. Through the use of symbols, images and their position the architect makes the intended meanings available.

> "As the character of a natural or artificial place is determined by its formal articulation, character is described by means of concepts such as "closure," "openness," "width," "narrowness," "sombreness," "luminosity," etc., that is, qualities which depend upon plastic modelling, proportion, rhythm, scale, dimension, material texture and colour. Particularly important among the determinants of architectural character is the "play of forces" expressed by a real or fictitious construction."[2]

INDIVIDUAL IDENTITY

When we perceive a dwelling as having an identity it is through the sum of the sensory information available from that dwelling unit and its environment. This perceived totality is the character of the dwelling unit. The boundaries, spaces, the spaces arrangement and how the dwelling opens up to the context dictates what information is available to us. This information should reveal an abstracted generalized structure which we recognize. The recognized sensory information is part of a symbolic framework which reveals the dwelling as a dwelling. Some of the basic qualities which establish the abstract generalized structures which a dwelling should express are "territory, orientation, privacy, identity, convenience, accessibility and safety."[1] The information which allows us to experience the dwelling as having an individual identity is that information and associated meanings which are unique to that particular dwelling. If this unique sensory information is available and perceived the dwelling unit will have a unique character.

When we perceive a dwelling as having a position or an expressed location within its context it is basically by it being defined and expressed as a space which is separate. The space is defined by its enclosure or the manner in which it is enclosed. Space is enclosed through the use of real things defining the boundary of the space. Basically the real things which define a dwelling space are the walls, ceiling and floor of the dwelling unit.

> "The distinctive quality of any man-made place is enclosure, and its character and spatial properties are determined by how it is enclosed. Enclosure, thus, may be more or less complete, openings and implied directions may be present, and the capacity of the place varies accordingly. Enclosure primarily means a distinct area which is separated from the surroundings by means of a built boundary."[2]

1 Richard Untermann and Robert Small, Site Planning for Cluster Housing. (New York: Van Nostrand Reinhold Company, 1977), p. 39.

2 Christian Norberg-Schultz, Genius Loci—Towards a Phenomenology of Architecture. (New York: International Publications, Inc., 1979), p. 58.

A space expressing a position with meaning or identity is very important in terms of a dwelling. It offers man an opportunity to express his existence as an individual within a group and within society as a whole. The dwelling unit can become a strong reference point for man to experience the remainder of his environment. Christopher Alexander expresses this in his statement "People need an identifiable spatial unit to belong to."[3] Alexander is referring to a community but this idea is valid in terms of a dwelling unit, as expressed by Christian Norberg-Schultz. "From a spatial point of view man needs an enclosure."[4]

> "If the concept of 'centre of the world' designates an ideal, public goal, the word 'home' simply tells us that any man's personal world has its centre. From the beginning the centre represents to man what is known in contrast to the unknown and frightening world around. The places are goals or foci where we experience the meaningful events of our existence, but they are also points of departure from which we orient ourselves and take possession of the environment. The place is therefore experienced as an inside in contrast to the surrounding outside, and has to be relatively small to offer psychological security."[5]

The centre that Christian Norberg-Schultz is referring to is an expressed position.

Man gives his dwelling individual identity through the changes and additions made to the defined space. High density urban housing by its nature deals primarily with repetitive units. An individual takes possession of a space by personalizing it through these changes and additions. This can be considered a symbolic gesture through which an individual defines their territory. The way an individual does this and the things the individual brings into the space can have meaning.

The meanings associated with these changes and additions are familiar to the individual in a specific sense and are familiar to others in a general sense. The individual may associate these things with parts of their life, people they have known, experiences they have had and so on.

3 Christopher Alexander, A Pattern Language. (New York: Oxford University Press, 1977), p. 81.

4 Christian Norberg-Schultz, Genius Loci—Towards a Phenomenology of Architecture. (New York: International Publications, Inc., 1979), p. 170.

5 Christian Norberg-Schultz, Meaning in Western Architecture. (New York: Praeger Publishers, 1975), p. 430.

The important aspect here is that they do have meaning. These things may express an abstract general structure which anyone may recognize such as a photo of someone does. Others can recognize the photo as a photo of someone but because they do not recognize the individual in the photo do not experience the intensity of meaning which the owner of the photo does. They do recognize that it is not their own. When an individual fills his dwelling space with these things others recognize the space as being another individual's territory and not their own. Christopher Alexander expresses this when he wrote about "things from your life."[6]

> "It is far more fascinating to come into a room which is the living expression of a person, or a group of people, so that you can see their lives, their histories, their inclinations, displayed in manifest form around the walls, in the furniture, on the shelves."[7]

These changes and additions can be carried further in the case of a housing project if the tenant is allowed some input into the type of wall covering, floor covering, etc., that is in his dwelling unit. These changes and additions influence the character of the dwelling unit and reinforce the individual identity of that unit. The dwelling unit's character becomes an expression of that individual whose territory it is.

> "Home is the house and the occupants. Home becomes different with each occupant."[7]

Basically, individual identity is based on those things which are unique about an individual. An individual's dwelling should be an expression of their individuality with reference to a group. The changes and additions an individual makes to their dwelling are expressions of individuality or an expression of individual identity. This requires the expression of an individual position with individual meanings associated with it. The expression of a position is done with reference to a greater whole which implies the dwelling unit is referenced to its context. In terms of high density urban housing this context is the city and more specifically the community. The dwelling unit references itself to those features which constitute man's perception of the city and community.

6 Christopher Alexander, A Pattern Language. (New York: Oxford University Press, 1977), p. 1164.

7 Ibid., p. 1165.

The individual meanings associated with an individual's dwelling unit are also part of a greater whole. These meanings as a whole are the meanings we understand as a group. This group can be a society or a group within a society. Basically these are the meanings which are common to a group.

COMMUNITY IDENTITY

When we perceive a community as having an identity it is through the sum of the sensory information available from the community and its environment. This perceived totality is the character of the community or group. Websters Dictionary defines community as "—any group living in the same area or having interests, work, etc. in common. —A sharing in common."[1]

A community is a collection of dwelling units with attributes which are common to all the units.

These common attributes are a result of the expression of the common characteristics of the members of a particular group. The expression of these common characteristics are what hold a community of dwelling units together. This helps define the boundaries of the community which establishes its position. The character we experience as we pass from one community to another community should change if each expresses their own users and the users lifestyle or has a different function. This boundary can also be expressed through the use of real things such as a wall. This defines the community as a space.

This spaces definition and its relationships to its context help establish the position of the community.

> "In addition to centre and path, we have introduced the word domain to denote a basic type of enclosure. An urban district is such a domain, and again we find that the presence of a boundary is of decisive importance. A district, thus, is either defined by conspicuous edges of some kind, or at least by a change in urban texture which implies a boundary."[2]

The perceptual information from the community and its environment reveals the abstract generalized structure which we recognize as a residential community. This perceptual information and its associated meanings originates in the real things which make up the community. Basically these real things are the spacial and formal expressions of the dwelling units, the spaces related to them and their organization.

1 David B. Guralnik, Websters New World Dictionary. (New York: Popular Library, 1975), p. 126.

2 Christian Norberg-Schultz, Genius Loci—Towards A Phenomenology of Architecture. (New York: International Publications, Inc., 1979), p. 59.

The expression of the individual dwelling units coming together as a whole results in a texture and scale we associate with housing. We also associate particular elements with a dwelling function that also have associated meanings related with housing. Balconies, balcony spaces, types and quantities of windows are some of these elements which contribute to the meanings available. The dwelling units should be expressions of human spaces and as a result give the texture of the community a human scale. The activities which people are involved with in the community as well as the people themselves can have associated meanings.

The sum of these things which we perceive reveals an abstract generalized structure which indicates a type of built environment. We recognize this as a residential community. A residential community expresses community identity through the things which are unique to that particular community versus another community. The things which are common to all communities form a symbolic framework which establishes the abstract generalized structure.

The architect should be concerned with learning to recognize and use these symbolic meanings in a conscious, intentional manner. In terms of high density urban housing we should establish this symbolic framework through the spacial and formal aspects of the project so the individual is given a space which he can take possession of and which satisfies his needs.

PROGRAM

The program for this project is based on several assumptions which I am considering given. These assumptions follow the basic intentions of the Proposal Call for Lands in Eau Claire, the Downtown Plan and other documents published by the City of Calgary with the intention of developing housing in Calgary's downtown area. I am assuming that housing in the downtown area is economically feasible based on the conditions established by the economic studies completed for the City of Calgary. These conditions being the development of planned amenities and continued development of housing in the downtown area.

Source: Urban Life Consultants Ltd, Calgary Downtown Retail Study. (Calgary: City of Calgary Planning Department, 1978).

3 Richard Untermann and Robert Small, Site Planning for Cluster Housing. (New York: Van Nostrand Reinhold Company, 1977), p. 57.

DESCRIPTION OF USER

—Young professionals
—Single
—Work in downtown area
—Medium income group

ATTITUDES

—Almost all residents downtown walk to work and shopping.

—Most residents downtown have cars but rarely use them. (Pedestrian orientated)

—Express a desire for more Plus 15 development.

—Enjoy shopping downtown.

—The level of established amenities and convenience to recreational and cultural facilities are important considerations for downtown residents.

"YOUNG SINGLE. People in this group generally are only moderately concerned with territory. They tend to be more gregarious and seek maximum social interaction with their peer group.Being away from units during workdays and fairly mobile on weekends, they benefit less from orientation amenities. They seek privacy in an environment that enhances social interaction, mostly privacy inside their unit. Identity is generally not a great concern since young, single people are fairly mobile moving a lot and are not able to pay for the more unique physical amenities that give a housing environment strong identity. Inconvenience is generally acceptable if the trade-offs in the form of lower rent, more interesting setting, and neighbors are there; they tend to walk farther and climb more stairs to their unit; they have less personal property to pack in and out. They require a full measure of safety from theft during their extended absence, and being in an age bracket that is highly vulnerable to physical harm, they need security and protection. Young single best fit into efficiency or one-bedroom units which can either be integrated into interesting locations or clusters or larger house types."[3]

4 Ibid.

"YOUNG COUPLE. If both are working, the description of young single generally applies. However, if one person remains at home, there is an increase in several of the human needs. For the person at home the amenities of a good orientation—daylighting, sunshine, view—are essential. Privacy increases in importance. While peer socialization is still very important, young couples need more time to be by themselves. For the most part young couples get along quite well in one-bedroom units, and if they can afford it, may have a two-bedroom unit for the option of having a guest room or study. The one-bedroom unit, which need not be a ground-oriented one, has the same location adaptability as the young single unit."[4]

TABLE T1

GIVEN

User	(young single—medium income group)
Site	(3.47 acres)
Density	(50 units/acre—general)
Distribution	(35% efficiency)
	(60% one bedroom)
	(5% two bedroom)

TABLE T2

ACTIVITY	UNIT (BEDROOM COUNT)		
	EFFICIENCY	ONE	TWO
Sleeping	alcove	bedroom	2 bedroom
Living	combined	combined	combined
Eating			
Cooking	alcove	alcove	alcove
Hygiene	bath	bath	bath

TABLE T3

SPACE \ ACTIVITY	Sleeping	Living	Eating	Cooking	Hygiene	Study
Bed	X					X
Living	X	X	X			X
Dining			X			
Kitchen				X		
Bath					X	

RESIDENTIAL

The residential portion of the program has been developed as an expression of the users needs and life style as outlined in description. This expression assists in developing the users identity by associating him with a particular portion of society. The spaces in each unit and their relationships with each other are basically described in matrix form as derived from the user description. (T2 , T3) The basic space sizes have been taken from a table of minimums and then is adjusted through design considerations such as user need and convenience. (T4) This adjustment also allows for manipulation due to structural considerations.

TABLE T4

Name of Space	Minimum Area (Sq.Ft.)		
	LU with 0-BR	LU with 1-BR	LU with 2-BR
LR	NA	160	160
DR	NA	100	100
K	NA	60	60
Kette	30	40	NA
BR (primary)	NA	120	120
BR (secondary)	NA	NA	80
Total area, BR's	NA	120	200

Abbreviations: BR — Bedroom DR — Dining Room
LU — Living Unit LR — Living Room Kette — Kitchenette

TABLE T5

EFFICIENCY

Living—sleeping	(250 ft^2)
Dining	(100 ft^2)
Kitchenette	(30 ft^2)
Bath	(40 ft^2)
Storage	
General	(20 ft^2) (150 ft^3)
Regular	(20 ft^2) (150 ft^3)
Total	(500 ft^2)

ONE BEDROOM

Living	(160 ft^2)
Sleeping	(120 ft^2)
Dining	(100 ft^2)
Kitchenette	(40 ft^2)
Bath	(40 ft^2)
Storage	
General	(20 ft^2) (150 ft^3)
Regular	(20 ft^2) (150 ft^3)
TOTAL	(650 ft^2)

TABLE T5 (CONT.)

TWO BEDROOM

Living	(160 ft^2)
Sleeping	
Primary	(120 ft^2)
Secondary	(80 ft^2)
Dining	(100 ft^2)
Kitchenette	(60 ft^2)
Bath	(50 ft^2)
Storage	
General	(25 ft^2) (200 ft^3)
Regular	(25 ft^2) (200 ft^3)
TOTAL	(825 ft^2)

TABLE T6

OPEN SPACE

372 persons X 100 ft^2	(37,200 ft^2)

OPEN SPACE

The type of open or amenity space is dictated by user need and lifestyle. These spaces are also influenced by the open and amenity spaces in the vicinity. From the description of user it has been concluded that private and group open space are both necessary. The size of these spaces are dictated by use and design consideration. The primary use of these areas is social interaction, an important consideration with this user group. These areas should be oriented for daylight, sunshine and view.

The minimum required open space is 100 ft^2 per person as established by the Calgary Land-use Bylaw. If the number of persons is dictated as two people per sleeping area a base to work from is established. This figure remains flexible and is influenced by further design considerations.

TABLE T7

COMMUNITY BUILDING

Multi-purpose space	(1600 ft^2)
Kitchen	(150 ft^2)
Washrooms	(150 ft^2)
Storage	
Chair storage	(75 ft^2)
Coat storage	(50 ft^2)
General	(50 ft^2)
Work room	(300 ft^2)
TOTAL	(2375 ft^2)

COMMUNITY BUILDING

Due to the nature of the user and his dwelling, a place for larger groups to congregate becomes a positive addition to the development. A community building offers an opportunity for scheduled social events to occur. Events such as social group meetings, parties, etc., can include any individual from within the development and also individuals from outside the development who have been invited to these events. The function of the community building is generally gathering. There is no specific function other than this attached to it and as a result the major space must remain flexible. A kitchen is included for those gatherings which may involve food or beverage preparation and distribution. Storage for chairs, coats and general are included as well as washrooms. A small work room has been included for minor projects and repairs.

The size of the multi-purpose space should allow the majority of the tenants to gather at one time. It should also make provisions for separation into smaller gathering spaces.

TABLE T8

TYPE OF RETAIL	
Food related	(10 ft^2 /unit)
Drug-cosmetic related	(2 ft^2 /unit)
Apparel-shoe related	(3 ft^2 /unit)
Shopping in general	(10 ft^2 /unit)
TOTAL RETAIL GENERATED	(25 ft^2 /unit)
TOTAL	(4550 ft^2)

Source: Urban Life Consultants Ltd. Calgary Downtown Retail Study. (Calgary: City of Calgary Planning Department, 1978), p. 93-94.

RETAIL

5 Urban Life Consultants Ltd., Calgary Downtown Retail Study. (Calgary: City of Calgary Planning Department, 1978), p. 93.

The retail portion of the program has developed as a result of community or project convenience as well as offering some diversity of function in the area. Both these are stated as intentions of the Downtown Plan and the Proposal Call for Lands in Eau Claire. The amount of retail space included has been determined by the amount of support generated by the given number of units. The square footages related to the type of retail space per unit have been determined as:

The sizes of the retail spaces have been determined by the type of goods and services needed and desired by the described user. The Calgary Downtown Retail Study has determined that "normal outlet size would be 300 to 1,000 sq. ft. for specialty shops"[5] which is adjusted through design considerations. The retail spaces should consist of basically flexible space with the opportunity for convenient contact with the project users and necessary contact with public space. The visibility of these spaces is of prime importance for the purposes of convenience and advertising. Each retail space will be supplied with a washroom and a small office area. The retail spaces should also be in the vicinity of a garbage storage area.

TABLE T9

ADMINISTRATION	
Office space	(500 ft^2)
MAINTENANCE	
Tractor space	(100 ft^2)
Equipment storage	(100 ft^2)
Personnel space	(250 ft^2)
General storage	(600 ft^2)
TOTAL	(1550 ft^2)

ADMINISTRATION

The administration office would be a place where the project would be controlled from in terms of administration. It would be the place to go if you wanted to lease a unit or retail space as well as get information. It would also be the place to take complaints, pay rent or get access to the community facilities. It could also be the security office during off hours. These functions can be satisfied by a one person office with space for a desk, file cabinets, small waiting area, washroom and small storage area. The major design considerations which effect this space are that it is accessible and convenient for the public, visitors and tenants.

The maintenance area is also controlled through the administration office. The function of this space is basically to house the maintenance related equipment such as snow removal and gardening equipment. It also supplies the maintenance people with a place to change, wash up and eat their lunch. The major design considerations affecting these spaces are that they are basically central in location to allow visual access to all areas of project for the purpose of surveillance as well as proximity to the areas to be maintained.

TABLE T10

PARKING

Tenant	(186 stalls)
Visitor	(28 stalls)
Recreational vehicle	(4 stalls)
Retail	(8 stalls)
Administration	(1 stall)

LOADING SPACES

Residential	(1 stall)
Retail	(1 stall)
TOTAL	(229 stalls)

PARKING

The parking is established by user need through the Calgary Land-use Bylaw except in the case of tenant and retail parking. I have found the Calgary Land-use Bylaw insufficient in these areas. Tenant parking is dictated by the number of sleeping areas and retail parking is dictated by the number of shops. Proximity to and convenient access of parking to its related function is necessary.

TABLE T11
PROGRAM OF REQUIRED AREAS

GIVEN	
User	(Young single—medium income group)
Site	(3.47 acres)
Density	(50 units/acre—general)
Distribution	(35% efficiency)
	(60% one bedroom)
	(5% two bedroom)
RESIDENTIAL	(180 units)
EFFICIENCY	(68 units) (500 ft^2)
Living—sleeping	(250 ft^2)
Dining	(100 ft^2)
Kitchenette	(30 ft^2)
Bath	(40 ft^2)
Storage	(20 ft^2) (150 ft^3)
TOTAL	(34,000 ft^2)
ONE BEDROOM	(106 units) (650 ft^2)
Living	(160 ft^2)
Sleeping	(120 ft^2)
Dining	(100 ft^2)
Kitchenette	(40 ft^2)
Bath	(40 ft^2)
Storage	(20 ft^2) (150 ft^3)
TOTAL	(68,900 ft^2)
TWO BEDROOM	(6 units) (825 ft^2)
Living	(160 ft^2)
Sleeping	(120 ft^2) (80 ft^2)
Dining	(100 ft^2)
Kitchenette	(60 ft^2)
Bath	(50 ft^2)
Storage	(25 ft^2) (200 ft^3)
TOTAL	(4,950 ft^2)

OPEN SPACE	(37,200 ft^2)
COMMUNITY BUILDING	(2,375 ft^2)
Multi-purpose space	(1,600 ft^2)
Kitchen	(150 ft^2)
Washrooms	(150 ft^2)
Storage	(175 ft^2)
Work room	(300 ft^2)
RETAIL	(4,550 ft^2)
ADMINISTRATION	(1,550 ft^2)
Office space	(500 ft^2)
MAINTENANCE	
Tractor space	(100 ft^2)
Equipment storage	(100 ft^2)
Personnel space	(250 ft^2)
General storage	(600 ft^2)
MECHANICAL	(as required)
PARKING	(229 stalls)
Tenant	(186 stalls)
Visitor	(28 stalls)
Recreational vehicle	(4 stalls)
Retail	(8 stalls)
Administration	(1 stall)
LOADING SPACES	
Residential	(1 stall)
Retail	(1 stall)
TOTAL	(153,525 ft^2) (plus parking)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City of Calgary Oct 29/80 1:3.1M

SITE

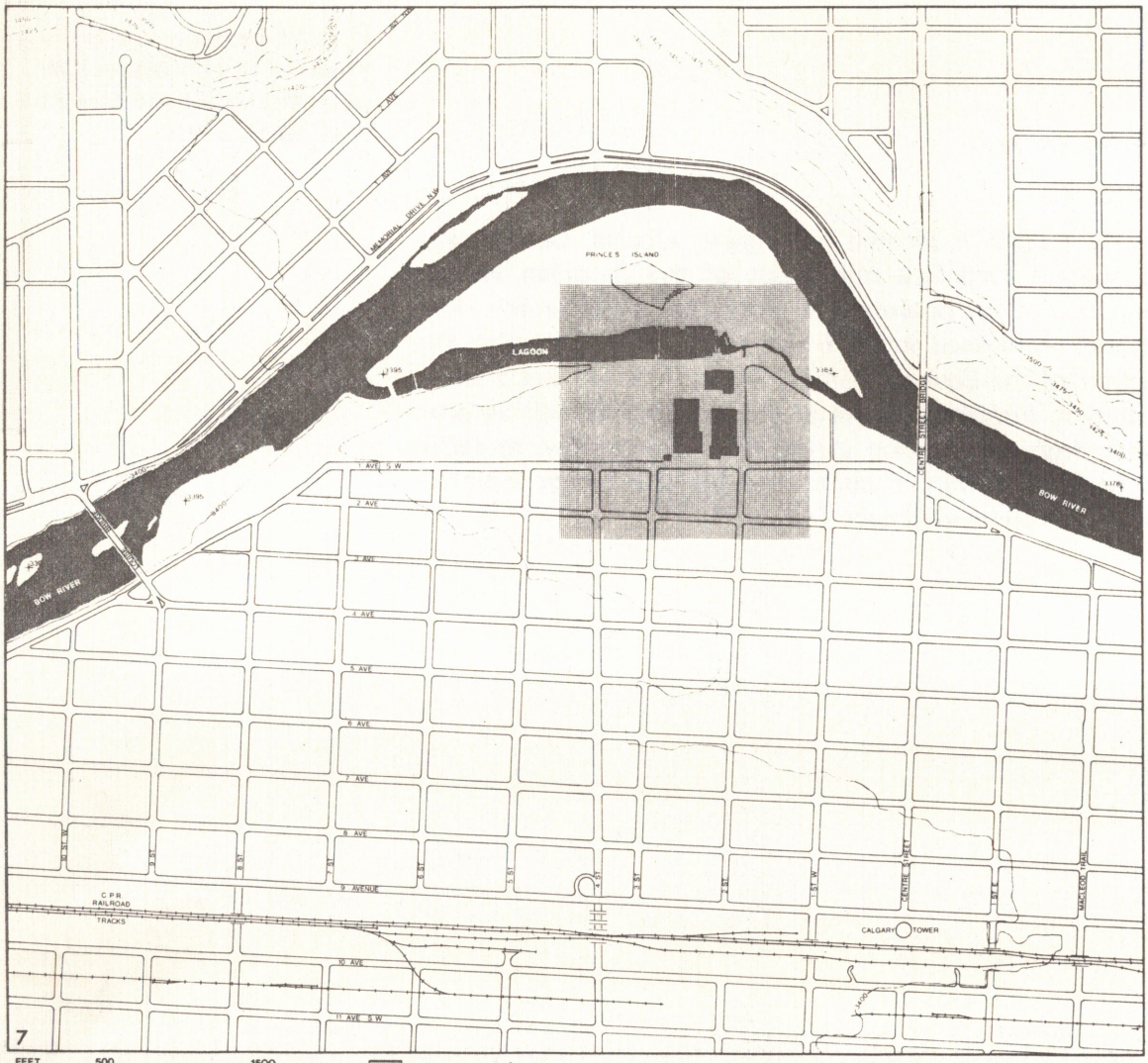


5

SITE HISTORY

The site is located in Calgary, Alberta, Canada, approximately forty-five miles east of the Canadian Rocky Mountains at the boundary of the foothills and prairie. The city was established in 1875 as a small R.C.M.P. fort at the junction of the Bow and Elbow Rivers. The site was chosen because it furnished ample and pure water as well as protection from its location in the Bow River Valley. In 1879 the first cattle were brought into the area which initiated Calgary's "cowtown"[1] image (Fig. 6).

1 A. W. Rasporich and Henry Klassen, Frontier Calgary. (Calgary: McClelland and Stewart West, 1975), p. VII.


PRINCES ISLAND
LAGOON
MEMORIAL DRIVE S.W.
BOW RIVER
BOW RIVER
CENTRE STREET BRIDGE
CENTRE STREET
1 AVE. S.W.
2 AVE.
3 AVE.
4 AVE.
5 AVE.
6 AVE.
7 AVE.
8 AVE.
9 AVENUE
10 AVE.
11 AVE. S.W.
C.P.R. RAILROAD TRACKS
CALGARY TOWER
MACLEOD TRAIL
7
FEET 0 500 1000 1500
SCALE 0 200 400
METERS 100 300 500
SITE AREA
EXISTING BUILDINGS
CONTOUR INTERVAL 25 FEET

In 1883 the first train from the east arrived initiating a farming community and establishing Calgary as a distribution centre for northern and southern Alberta. The Canadian Pacific Railroad located their depot where the Calgary tower is today. The railway depot is still located there today. Calgary's downtown core developed between the railroad depot and the Bow River (Fig. 7).

In 1886 Calgary had its first major fire which detroyed fourteen buildings on Atlantic Avenue (9th Avenue) and started a search for a fireproof material. The rebuilding of the downtown commercial district (8th Avenue pedestrian mall today) was done with sandstone which began Calgary's era of sandstone. In the next four years six sandstone quarries opened in the vicinity. They were so successful and the quality of sandstone was so high an export business began. By the 1890's fifty percent of the tradesmen in Calgary were stone masons. Calgary was often called the "sandstone city."[2]

By this time the wheat industry expanded significantly and large-scale production of flour began. In 1894 Calgary was incorporated as a city. Calgary's image was no longer one of a "frontier town"[3]but that of a "cowtown"[4]and a "pioneer business community."[5]In the 1900's irrigation began and Calgary was the most important city on C.P.R. line between Winnipeg and the west coast because of commercial endeavors such as ranching, meat packing, flour and natural gas. By this time sandstone became scarce and brick replaced it as a fire proof building material.

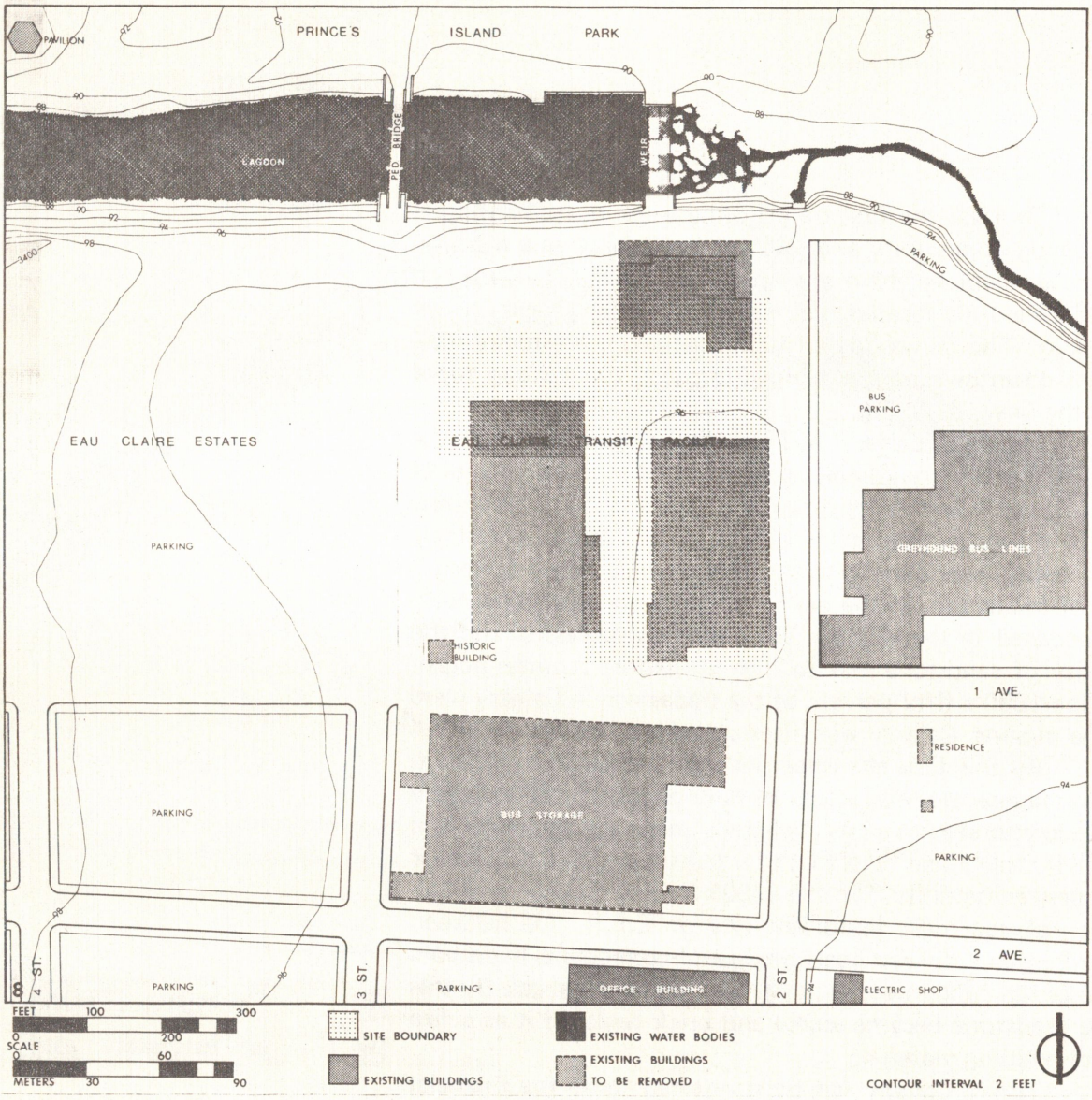
Today Calgary has been referred to as the financial centre of western Canada. Presently it is going through a tremendous growth unmatched in any other part of Canada. It has become the home of many banks and other financial institutions. It retains its role as the centre of large scale agricultural production as well as oil and gas development.

2 Ibid., p. VII.

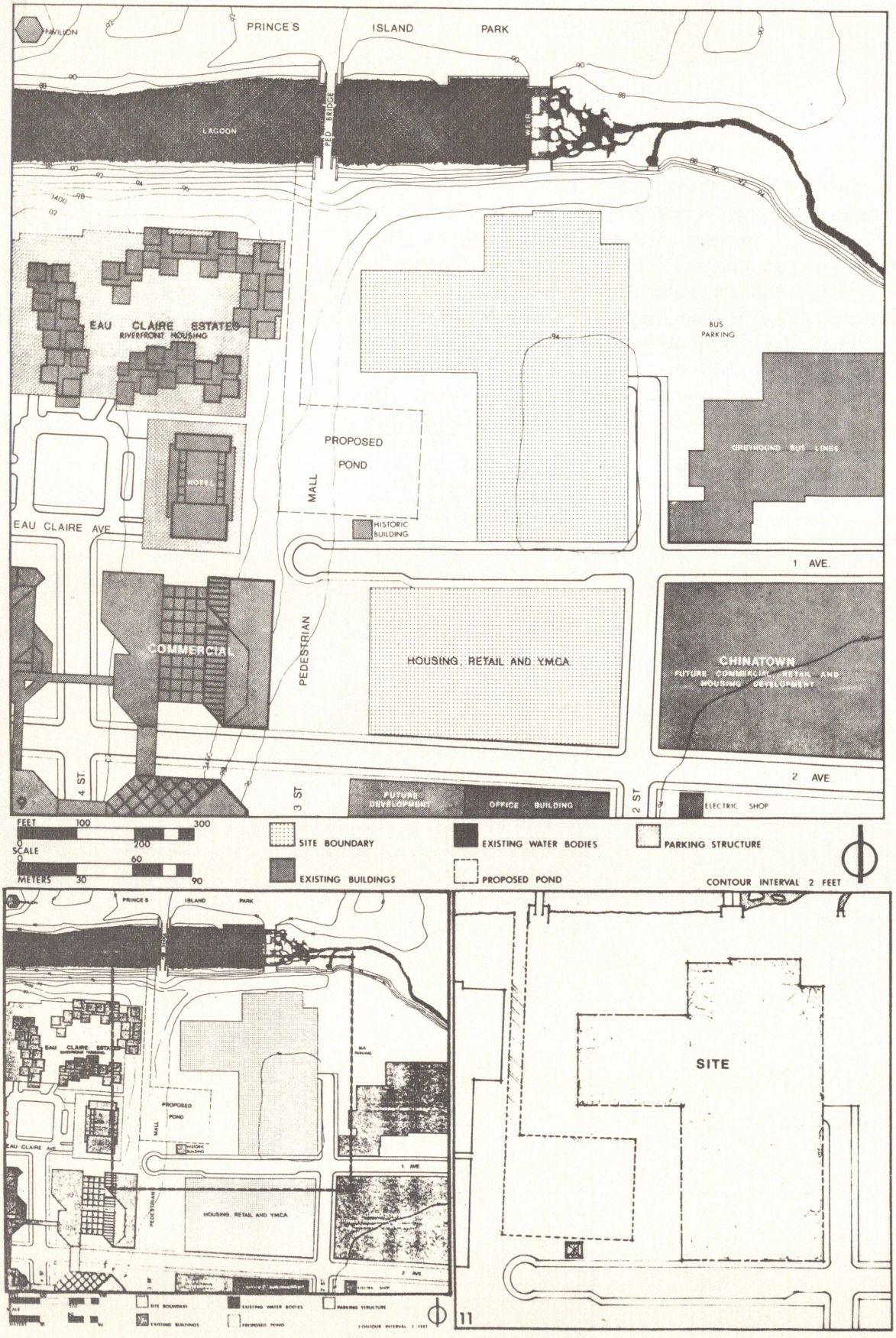
3 Ibid., p. 203.

4 Ibid., p. VII.

5 Ibid., p. XI.


PAVILION
PRINCE'S ISLAND PARK
LAGOON
PED. BRIDGE
WEIR
PARKING
BUS PARKING
EAU CLAIRE ESTATES
EAU CLAIRE TRANSIT FACILITY
GREYHOUND BUS LINES
HISTORIC BUILDING
1 AVE.
PARKING
BUS STORAGE
RESIDENCE
PARKING
2 AVE.
4 ST.
3 ST.
2 ST.
PARKING
PARKING
OFFICE BUILDING
ELECTRIC SHOP
FEET 0 100 200 300
SCALE
METERS 0 30 60 90
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
EXISTING BUILDINGS TO BE REMOVED
CONTOUR INTERVAL 2 FEET

In 1886 Peter Prince established the Eau Claire Lumber Company on what is now the site of the Eau Claire transit facility and this project (Fig. 8). The lagoon he created forming a bypass channel for the lumber mill also formed what is today Prince's Island Park (Fig. 7, 8). The lagoon provided a sluice for the storage of logs and was used for power generation supplying the mill and later the city of Calgary. The building which housed the office for the Eau Claire Lumber Company is presently intact and being used as a cafe. (Is indicated as historic building. Fig. 8, 9).

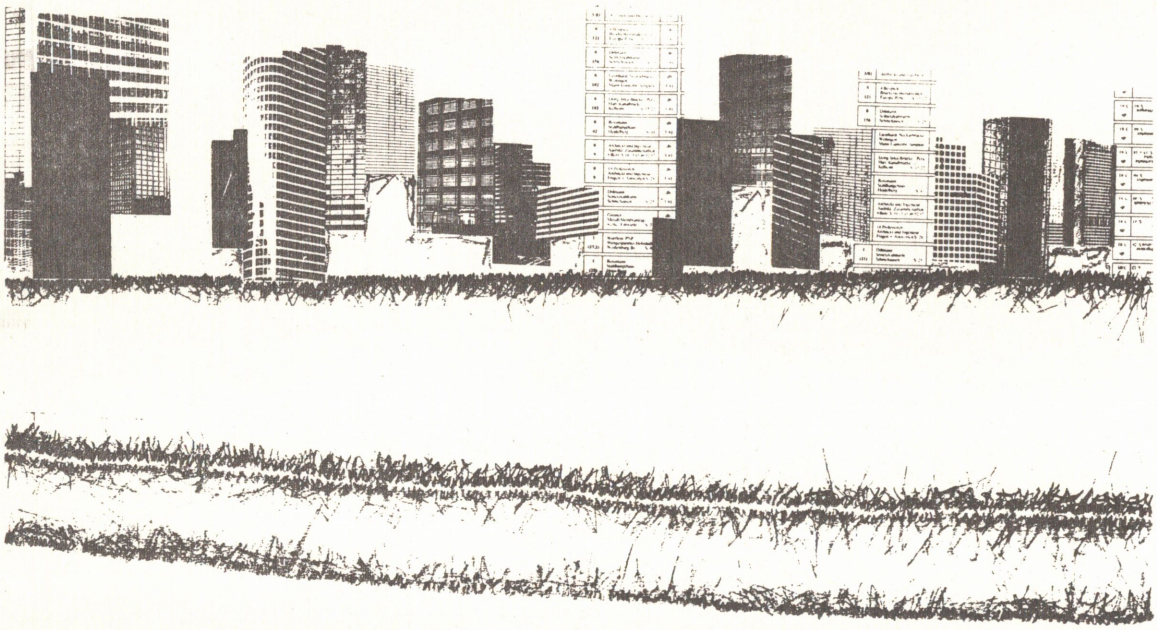

PAVILION
PRINCE'S ISLAND PARK
LAGOON
PED BRIDGE
WEIR
EAU CLAIRE ESTATES
RIVERFRONT HOUSING
HOTEL
EAU CLAIRE AVE
PROPOSED POND
MALL
HISTORIC BUILDING
BUS PARKING
GREYHOUND BUS LINES
1 AVE.
COMMERCIAL
PEDESTRIAN
HOUSING, RETAIL AND YMCA
CHINATOWN
FUTURE COMMERCIAL, RETAIL AND HOUSING DEVELOPMENT
4 ST.
3 ST.
FUTURE DEVELOPMENT
OFFICE BUILDING
2 ST.
2 AVE.
ELECTRIC SHOP
FEET 100 300
0 200
SCALE
METERS 30 90
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE
CONTOUR INTERVAL 2 FEET

SITE

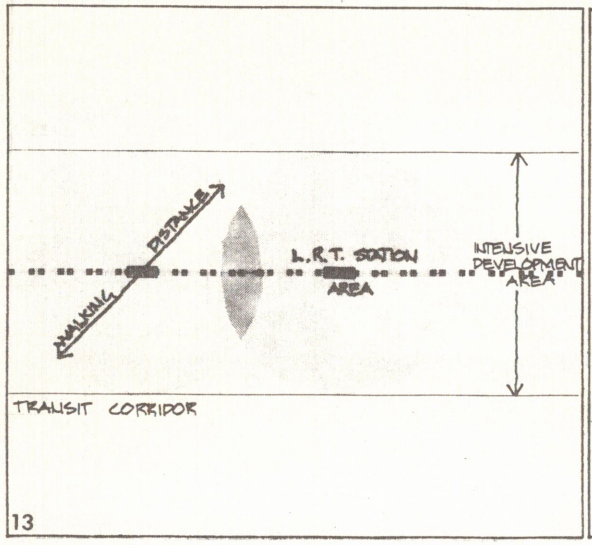
"The proposed site at present contains the city's main downtown transit storage and maintenance facility and Council wishes to relocate these as a start to implementing its recently adopted Downtown Plan. This plan, which was approved by City Council in February 1979, has as one of its main objectives the creation of downtown residential neighbourhoods. The subject lands we within one of these designated residential neighbourhoods, i.e. Eau Claire."[1]

The site as presented will be the focus of the environmental analysis (Fig. 9 , 10 , 11).

1 City of Calgary Planning Department, Proposal Call for Eau Claire. (Calgary: City of Calgary Planning Department, 1980), p. 3.



ENVIRONMENTAL ANALYSIS



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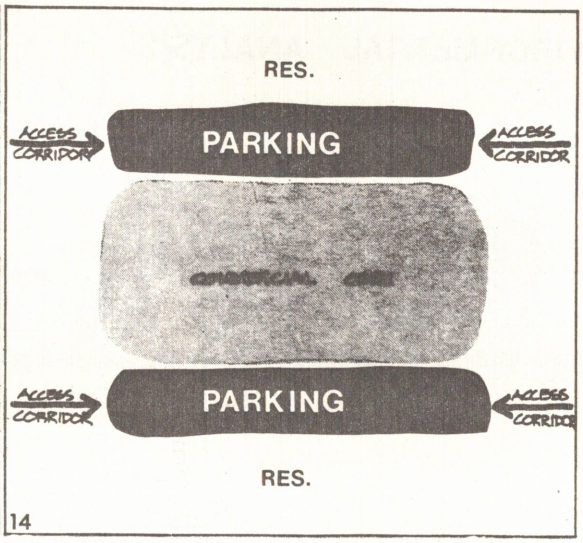

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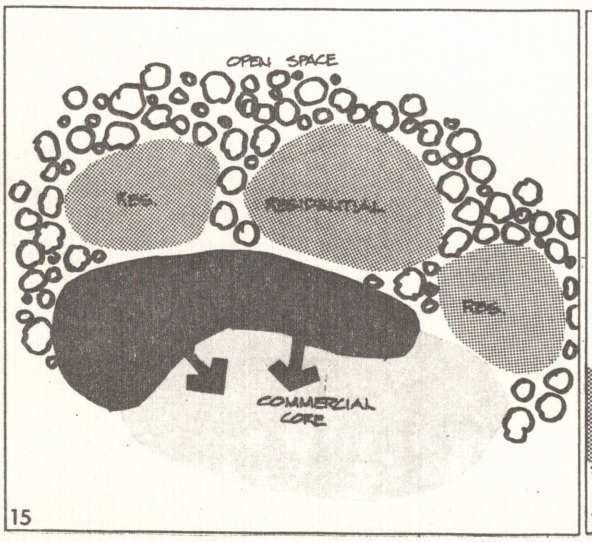

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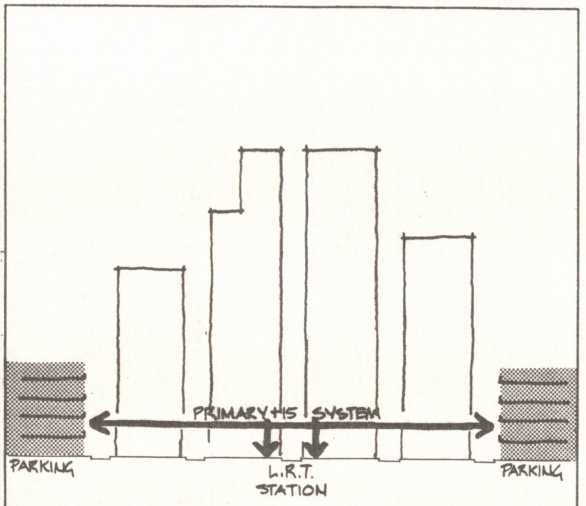

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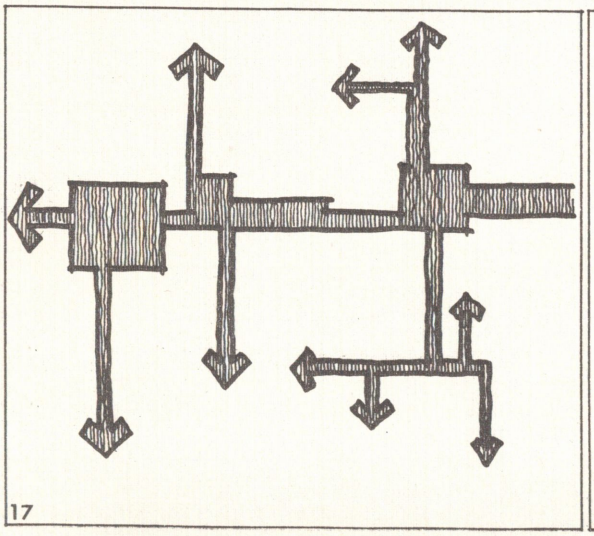
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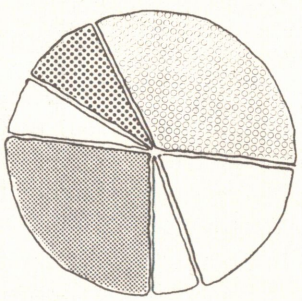
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Source: City of Calgary Planning Department, Proposed Downtown Plan. (Calgary, City of Calgary Planning Department, 1978), p. 79-82.

PHYSICAL ORGANIZATION

The following is an explanation of how Calgary's downtown physical organization is planned to develop. It is dealing on a purely conceptual level but is based on the existing downtown. The concepts will develop in point form.

—A high density core developing around a transit corridor which consists of a light rail transit (above ground subway) and bus system (Fig. 13).

—Access corridors developing along the periphery of the high density commercial core. These corridors allow access to both the commercial core and residential areas (Fig. 14).

—Parking structures are intended to be concentrated along these access corridors (Fig. 14).

—Large residential areas forming along the access corridors (Fig. 14).

—The residential areas are intended to develop with no through traffic and in the vicinity of amenity spaces (Fig. 15).

—The areas develop mixed use as intermediate areas between high density commercial core and residential areas (Fig. 15).

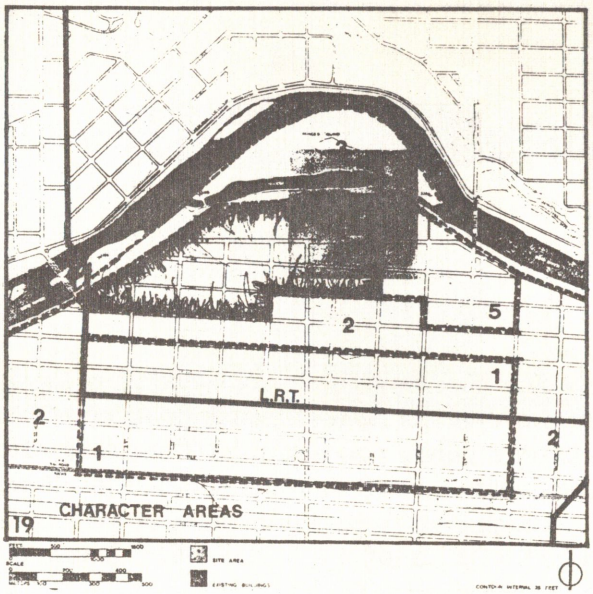
—To form an understandable hierarchy with transportation and pedestrian systems throughout the entire downtown area

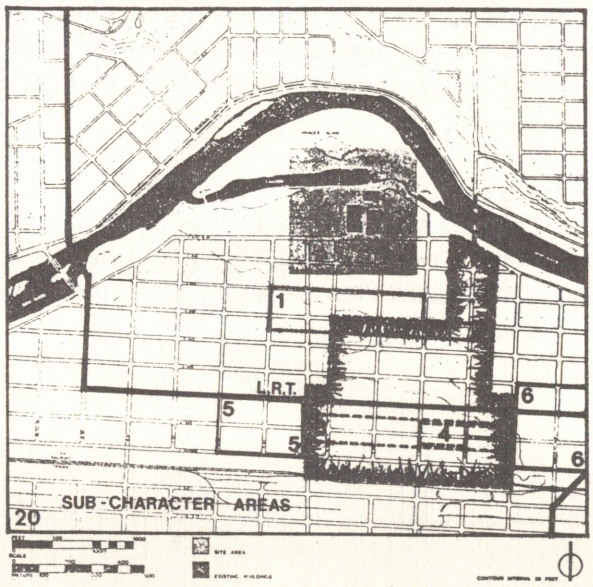
—The primary Plus 15 system (skywalks) is intended to link the parking along access corridors with the light rail transit stations in the high density commercial core (Fig. 16).

—To form an understandable continuous open space system (Fig. 17).

—The downtown becoming an integrated whole with identifiable parts (Fig. 18).

This description is an outline of the intended physical development of downtown Calgary and is part of the recently adopted Downtown Plan which controls development in the downtown area.


2
5
1
L.R.T.
2
1
2
19
CHARACTER AREAS


1
L.R.T.
6
5
4
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6
20
SUB-CHARACTER AREAS

Source: City of Calgary Planning Department, Proposed Downtown Plan. (Calgary: City of Calgary Planning Department, 1978).

CHARACTER AREAS

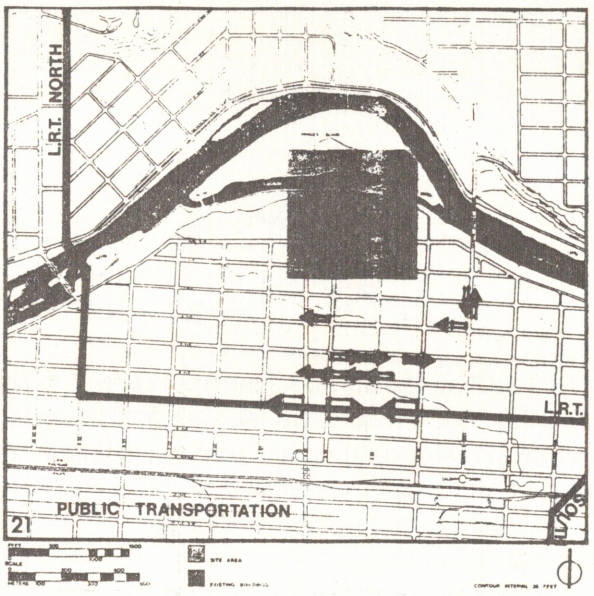
The Downtown Plan identifies several major character areas (Fig. 19). These areas will eventually have guidelines that control their development to establish their own identity. Conceptually this is expressed in the preceding section.

These character areas are broken down into sub-character areas (Fig. 20).

The site is located in the character area of Eau Claire, on the boundary between Eau Claire and Chinatown.

1—Commercial core area.
2—Core transition area.
3—Bow riverbank area.
4—Eau Claire area.
5—Chinatown area.

1—Hotel district.
2—Retail district.
3—8th Avenue pedestrian mall (retail district).
4—Heritage area (retail district).
5—Entertainment district.
6—Civic centre district.


L.R.T. NORTH
L.R.T.
L.R.T.
PUBLIC TRANSPORTATION
21

Source: City of Calgary Planning Department. Downtown and Inner City Transportation Data Package. (Calgary: City of Calgary Planning Department, 1978).

PUBLIC TRANSPORTATION

LIGHT RAIL TRANSIT

Light rail transit or L.R.T. is a ground level electrical passenger train system that has recently been installed in Calgary. At the present time it connects downtown with South Calgary, along the Macleod Trail corridor. The next stage to be completed will connect North Calgary with the downtown (Fig. 21).

BUS SYSTEM

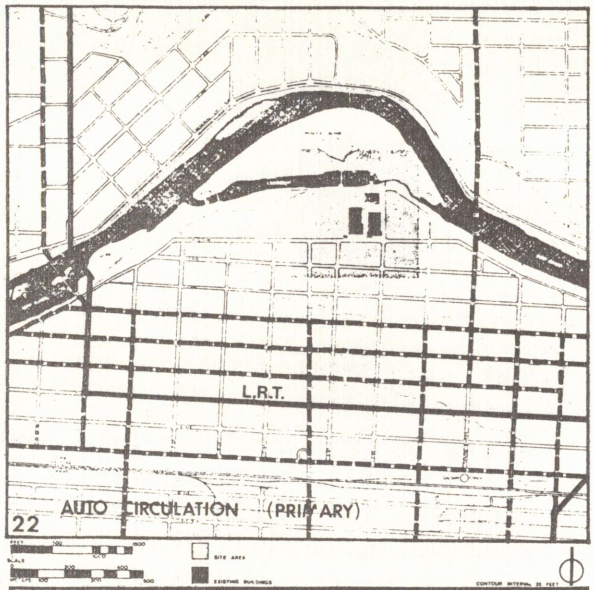
Calgary's bus system connects every part of the city with the downtown core. The system is broken down into several types of routes which focus on specific types of bus travel other than regular service.

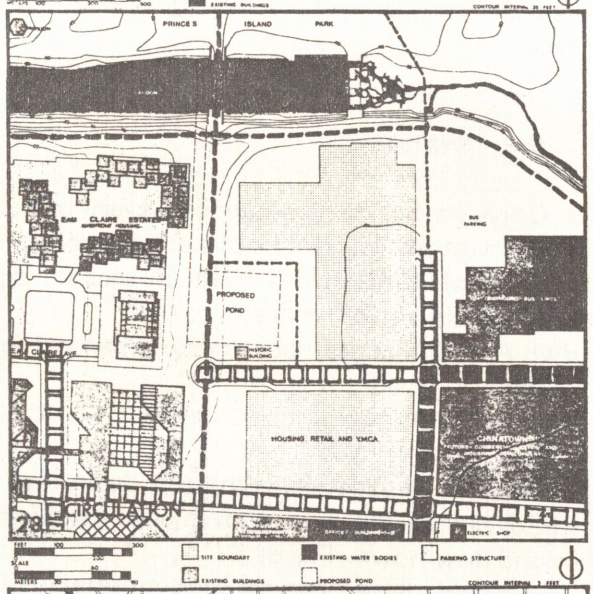
Blue Arrow: Service between suburban residential areas and the downtown core (Fig. 21).

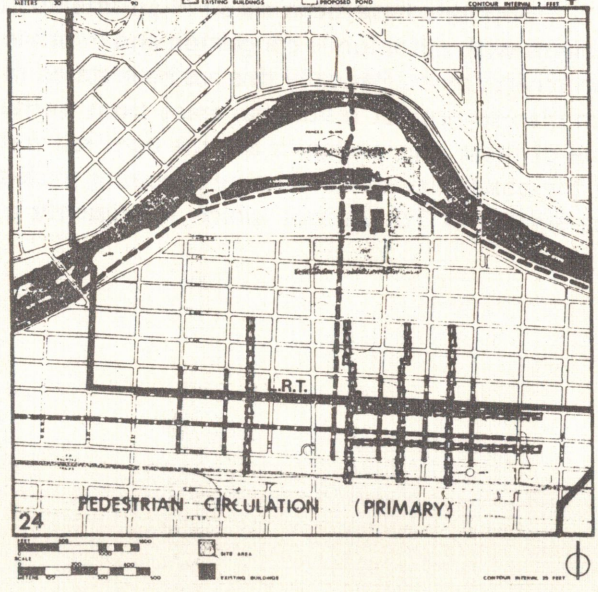
Express: Same as Blue Arrow except it only functions during peak hours (Fig. 21).

Downtown Shuttle: Runs through downtown core only. It is free of charge which is a convenience specifically for getting around downtown (Fig. 21).

Proposals have been made in an attempt to alleviate problems with automobile congestion and improve the downtown environment. Basically this has been stated in the downtown plan to protect residential areas from traffic problems. Some of these improvements are the light rail transit system and the possibility of 6th Avenue becoming exclusively a bus zone similar to 7th Avenue which is presently a bus zone.


L.R.T.
22
AUTO CIRCULATION (PRIMARY)
SITE AREA
EXISTING BUILDINGS


PRINCE'S ISLAND PARK
EAU CLAIRE ESTATES
PROPOSED POND
BUS PARKING
HOUSING RETAIL AND Y.M.C.A.
23
CIRCULATION
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE


L.R.T.
24
PEDESTRIAN CIRCULATION (PRIMARY)
SITE AREA
EXISTING BUILDINGS

Source: City of Calgary Planning Department Downtown and Inner City Open Space Study. (Calgary: City of Calgary Planning Department, 1978).

CIRCULATION

AUTO CIRCULATION

Primary thoroughfares: Handle major volume of traffic.

Secondary thoroughfares: To handle traffic between primary and local thoroughfares.

Local streets: To handle access to properties adjacent.

The primary thoroughfares going through the downtown core are located several blocks from the site (Fig. 22). This allows access when necessary but leaves the site buffered from detrimental effects such as noise.

It can be seen that two boundaries of the site allow vehicular contact with local thoroughfares (Fig. 23). The southeast corner of the site allows contact with a secondary thoroughfare.

PEDESTRIAN CIRCULATION

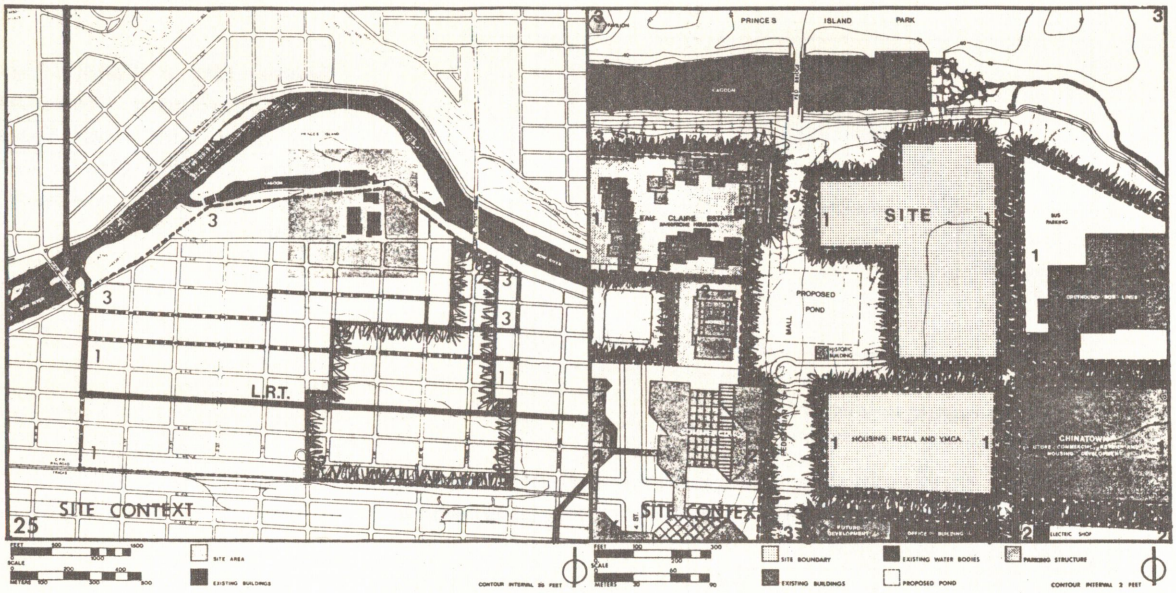
Because of the high density of the commercial core, pedestrian circulation becomes very important. It is possible for the pedestrian to walk virtually anywhere in the downtown area without a major effort.

The downtown core has a street level primary pedestrian circulation system which is integrated with a primary pedestrian Plus 15 system (Fig. 24).

The two systems meshing the commercial core are connected directly to the site through the proposed 3rd Street pedestrian mall. The mall itself will be a primary pedestrian circulation route which also connects the site to the public transportation system.

The site is located directly adjacent to the intersection of two primary pedestrian circulation routes (Fig. 23, 24). The already mentioned 3rd Street pedestrian mall and the pedestrian promenade. The pedestrian promenade runs along Prince's Island park and the river, through the riverbank character area. It allows access to Prince's Island and other recreational spaces.

The site is located so that there is immediate access to the pedestrian and vehicular circulation systems.



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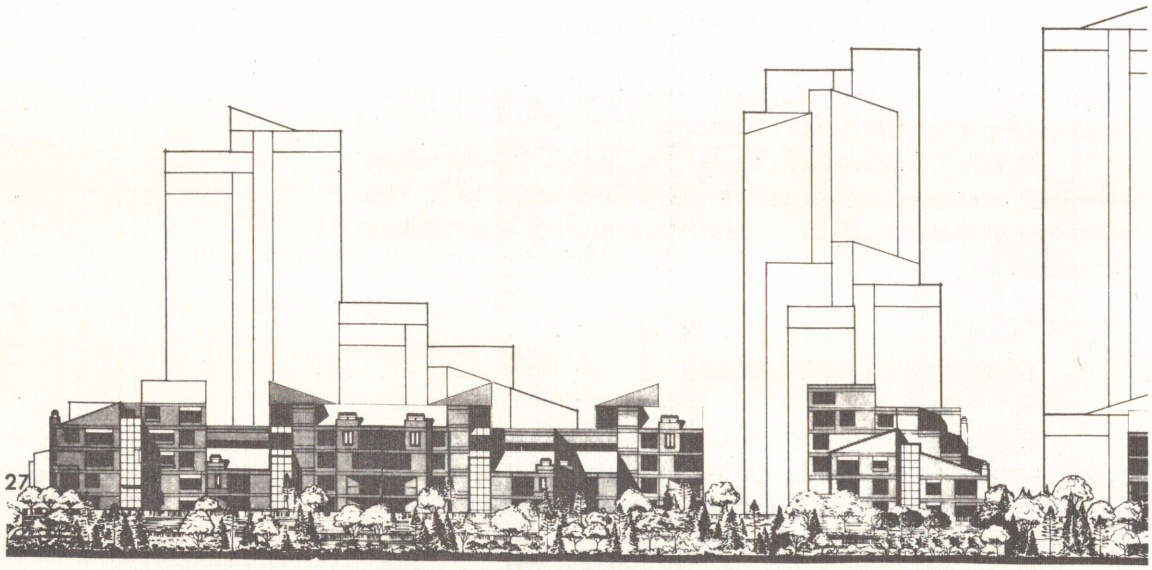

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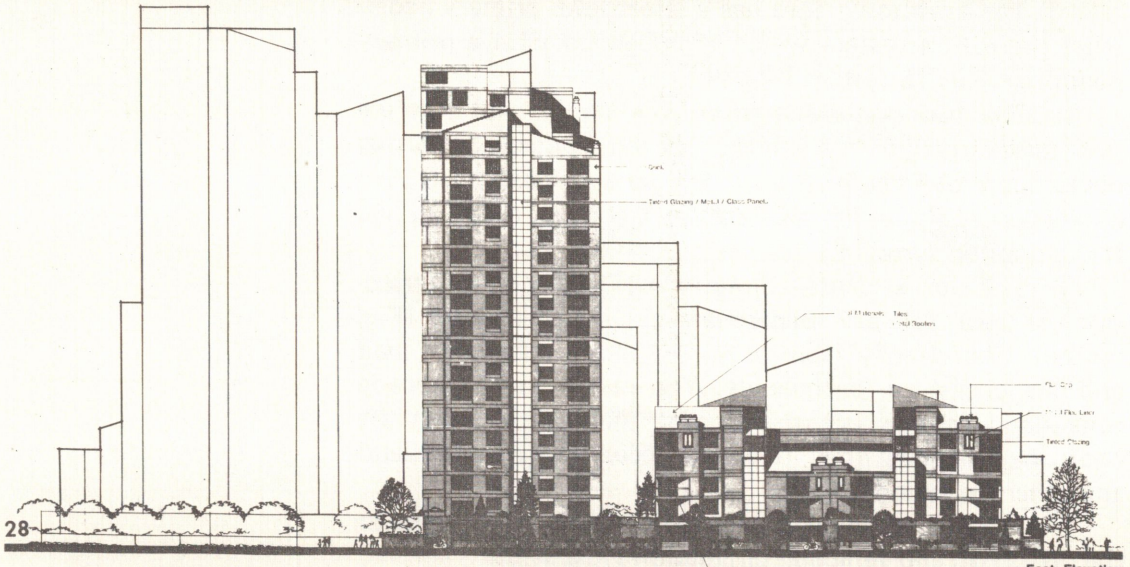


28

East Elevation

Source: City of Calgary Planning Department, Proposed Downtown Plan. (Calgary: City of Calgary Planning Department, 1978).

SITE CONTEXT

The site is located in the center of the downtown residential area. It is also within walking distance of the retail district and commercial core (Fig. 25).

1—Commercial core.

2—Retail district

3—Residential area

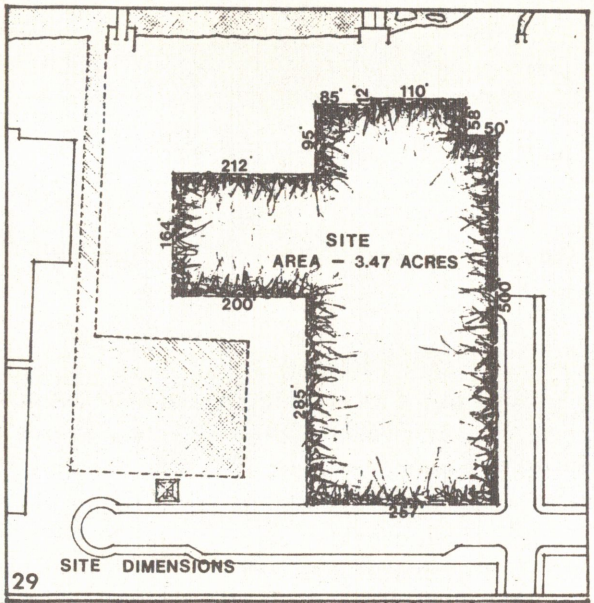
The immediate context is broken down into residential, commercial and public areas (Fig. 26). The development areas around the site are predominantly residential. To the north and immediate west are public areas consisting of Prince's Island, the proposed pedestrian promenade, a proposed pond and the proposed 3rd Street pedestrian mall. There is a commercial area to the southwest of the proposed pond.

1—Residential.

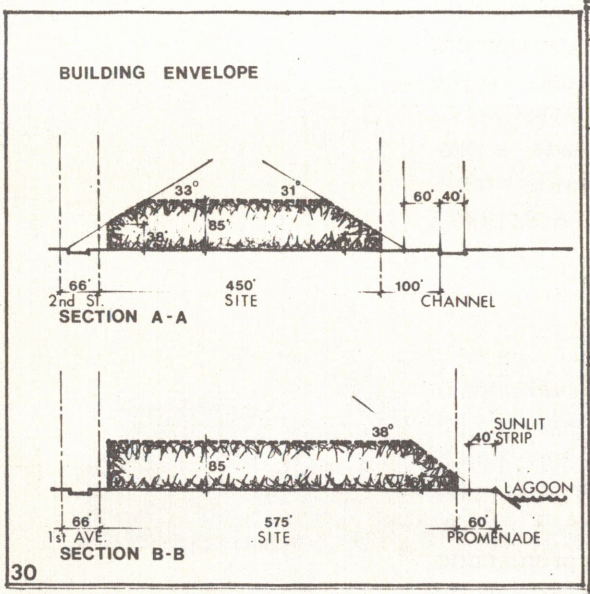
2—Commercial.

3—Public.

The only existing or soon to be existing buildings in the site's immediate context are across the proposed pond. They consist of a high income luxury condominium project called Eau Claire Estates Riverfront Housing. The complex has retail at the pedestrian level with five stories of housing immediately adjacent to the mall and pedestrian promenade. The east edge of the project faces the proposed pond and the site (Fig. 28). The north edge faces the pedestrian promenade, lagoon and Prince's Island (Fig. 27). The southern portion of the project consists of a 22 story highrise which is set back from the proposed pond.



29 SITE DIMENSIONS



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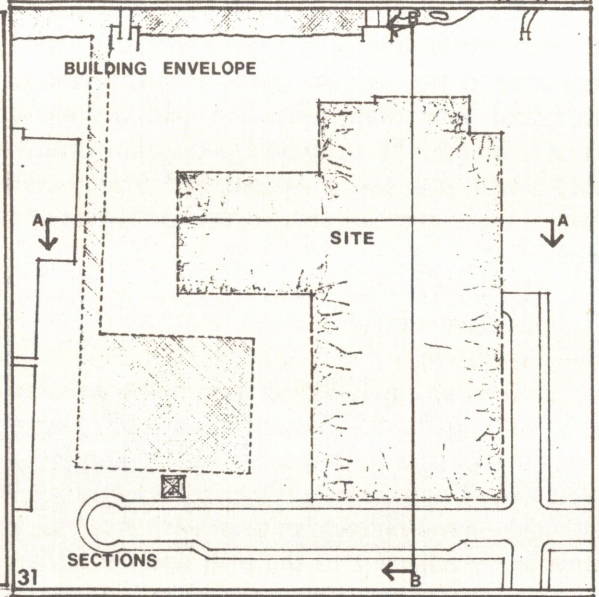

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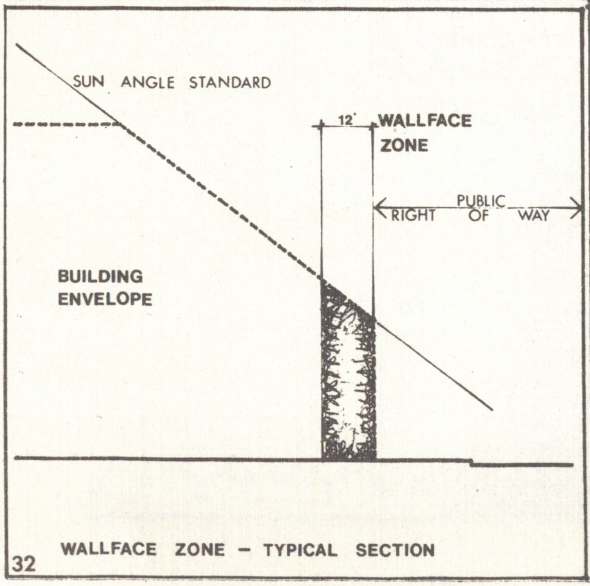
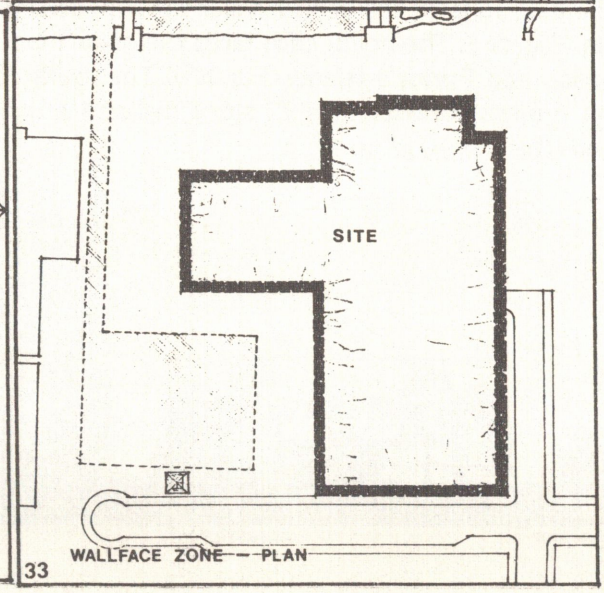


32 WALLFACE ZONE – TYPICAL SECTION



33 WALLFACE ZONE – PLAN

Source: City of Calgary Planning Department, Proposal Call for Eau Claire. (Calgary: City of Calgary Planning Department, 1980).

BUILDING ENVELOPE AND WALLFACE ZONE

The building envelope has been developed by the City of Calgary through the intentions of the Downtown Plan and the environmental standards established for the area. The basic intention of the environmental standards concerning the building envelope is to allow sunlight on the street from nine to three o'clock on the equinox. Any development on this site must keep within its intentions (Fig. 29, 30, 31).

The wallface zone is a twelve foot band around the outside of the building envelope which has certain restrictions placed on it (Fig. 32, 33)

RESTRICTIONS: (ROOM FOR INTERPRETATION)

—Building face occurs within wallface zone.

—Building face is continuous.

—Public and private outdoor space be distinctly indicated and separated.

—Outdoor space be an extension of each unit.

—Unbroken building face be no greater than 40 feet or two living units (least distance dominates).

—Every living unit in wallface zone have one room oriented overviewing the street.

Source: Wright, Mansell and Associates, The Economics of Downtown Residential Development. (Calgary: City of Calgary Planning Department, 1978).

ECONOMICS

There are many benefits associated with improving housing stock in downtown Calgary.

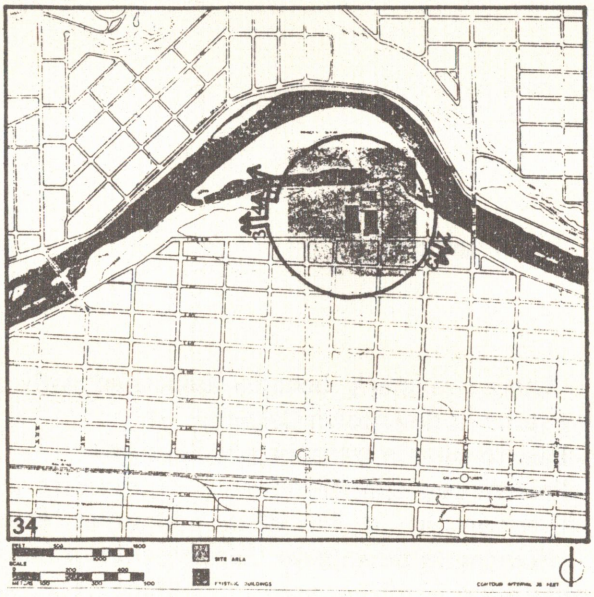
—Ease tension in transportation systems.

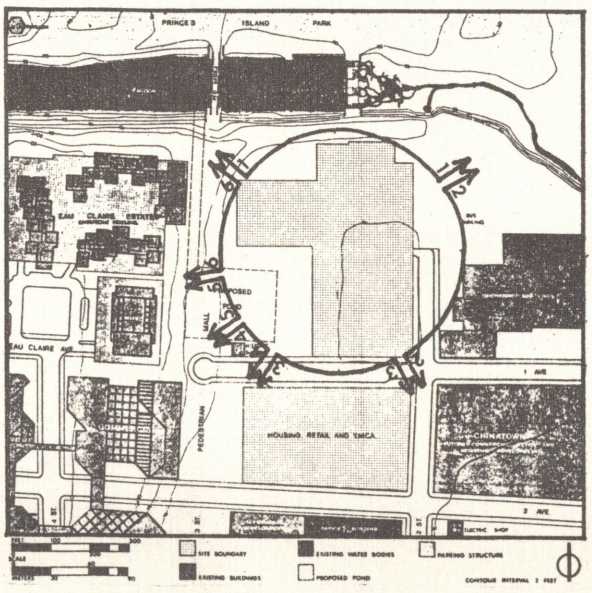
—Prevent over-specialization.

—Creation of a favorable pedestrian environment.

Housing in downtown Calgary will not become feasible until public funds are used to produce amenities such as parks and landscaping. The city must also formulate an imaginative land use plan as well as change the zoning in the area of the site. The change in zoning would show the city is committed to developing quality housing in downtown Calgary. It would also drive down the cost of the land because the commercial zoning is much more attractive to developers.

The characteristics of a residential neighborhood must also emerge.


34
SCALE
SITE AREA
CONTOUR INTERVAL 20 FEET


PRINCE'S ISLAND PARK
EAU CLAIRE ESTATES
EAU CLAIRE AVE
PROPOSED
HALL
PEDESTRIAN
HOUSING, RETAIL AND YMCA
1 AVE
2 AVE
ELECTRIC SHOP
SCALE
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE
CONTOUR INTERVAL 2 FEET

SITE ANALYSIS

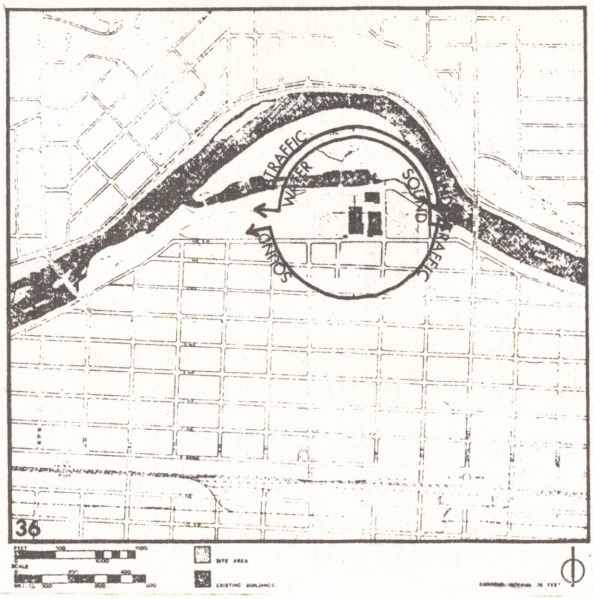
VIEWS

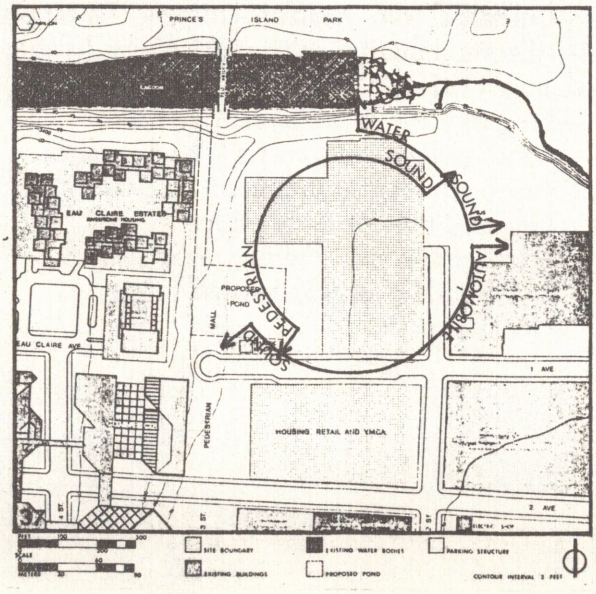
DOWNTOWN (Fig. 34)

1—Prince's Island and lagoon.
—Sunnyside hill in background (natural setting).
2—River and river valley.
—Centre Street Bridge.
3—Cityscape
—Dense high rises (highly developed setting).
4—Lagoon and river valley.
—Mountains on horizon.

LOCAL (Fig. 35)

1—Prince's Island and lagoon.
—Pedestrian bridge to park.
—Weir
—Sunnyside hill in background (natural setting)
2—Future site of housing and retail development for Chinatown.
—Centre Street Bridge.
—River and river valley.
3—Site of related housing, retail and Y.M.C.A. project.
—Cityscape on horizon (highly developed setting)
4—Historic building (Old Eau Claire lumber company office: now 1882 cafe)
—Proposed 3rd Street pedestrian mall.
—Commercial development in background
5—Proposed pond on proposed 3rd Street pedestrian mall.
—Proposed hotel in background.
6—Eau Claire Estates housing development
—Proposed 3rd Street pedestrian mall.
—Proposed pond


TRAFFIC
WATER
SOUND
SOUND
TRAFFIC
36
SITE AREA
EXISTING BUILDINGS


PRINCE'S
ISLAND
PARK
WATER
SOUND
SOUND
ATLANTIC OCEAN
PEDESTRIAN
MALL
PROPOSED
POND
EAU CLAIRE
EAU CLAIRE AVE
1 AVE
2 AVE
PEDESTRIAN
HOUSING RETAIL AND YMCA
37
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE

SOUND

DOWNTOWN (Fig. 36)

Traffic sound at a large scale will occur from all directions. This is to be expected because the site is in the downtown core area which is highly developed.

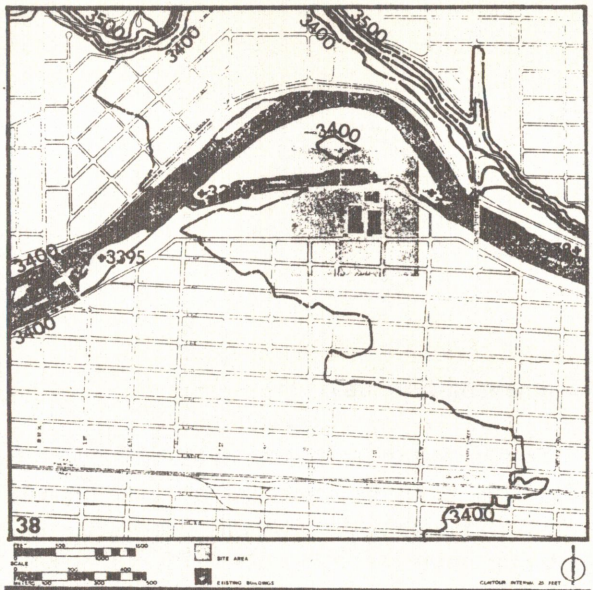
Water sounds coming from the river would again be a design consideration, possibly an asset. It would basically be coming from the north. It would have more influence on upper stories.

LOCAL (Fig. 37)

Pedestrian sound will be a prominent feature along north and west boundaries of site. This is where the promenade along the river and the 3rd Street pedestrian mall will be located. There is the possibility of a noise problem developing at focus points near site such as the intersection of promenade and mall. Or also near proposed pond, a recreation focus.

Automobile sound will be prominent along the southern and eastern boundaries of site. There should be no real problem because on the southern boundary, 1st Avenue forms a cul de sac with no through traffic. The eastern boundary or 2nd Street is for local traffic only.

There is a possibility of hearing the river from a northeast direction.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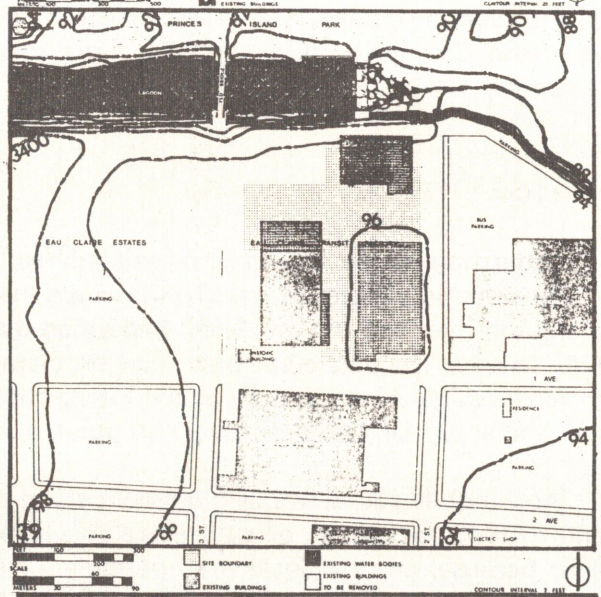
SITE AREA
EXISTING BUILDINGS


PRINCES ISLAND PARK
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EAU CLAIRE ESTATES
PARKING
BUS PARKING
1 AVE
2 AVE
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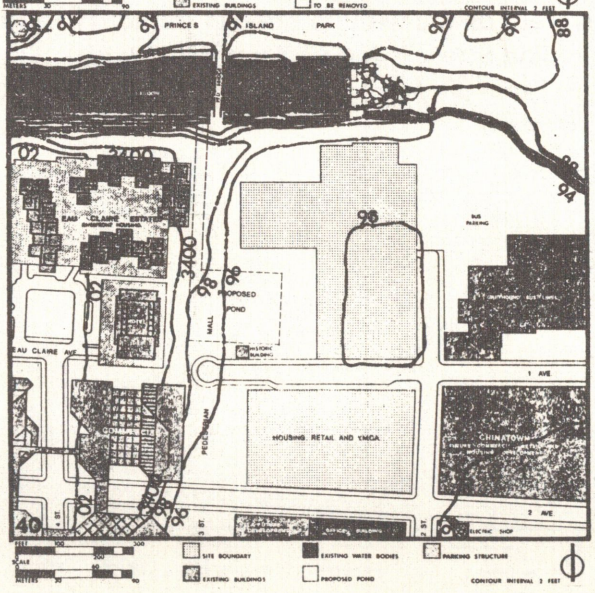
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
EXISTING BUILDINGS TO BE REMOVED
CONTOUR INTERVAL 2 FEET


PRINCES ISLAND PARK
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PROPOSED POND
MALL
EAU CLAIRE AVE
PEDESTRIAN
HOUSING, RETAIL AND YMCA
CHINATOWN
BUS PARKING
1 AVE
2 AVE
3 ST
4 ST
40
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE
CONTOUR INTERVAL 2 FEET

Source: City of Calgary Planning Department, Base Maps. (Calgary: City of Calgary Planning Department, 1973).

TOPOGRAPHY

DOWNTOWN LANDFORM (Fig. 38)

–Site located on flat flood plain in river valley
–150 foot bluff to the north.

LOCAL LANDFORM (Fig. 39,40)

–Basically a flat site (suitable for intense activity)
–Southern end of site raised slightly above surrounding area (2 feet)
–Eau Claire Estates to west of site has been filled in and raised approximately eight feet above level of site.
–Pedestrian mall area drains onto site. Because of the lack of slope on site there is potential for drainage problems. (Storm sewers can handle that problem.)

Source: J. I. Clark, Proposed Pedestrian Bridge, Prince's Island. (Calgary: Material Testing Laboratories, 1972).

SOIL

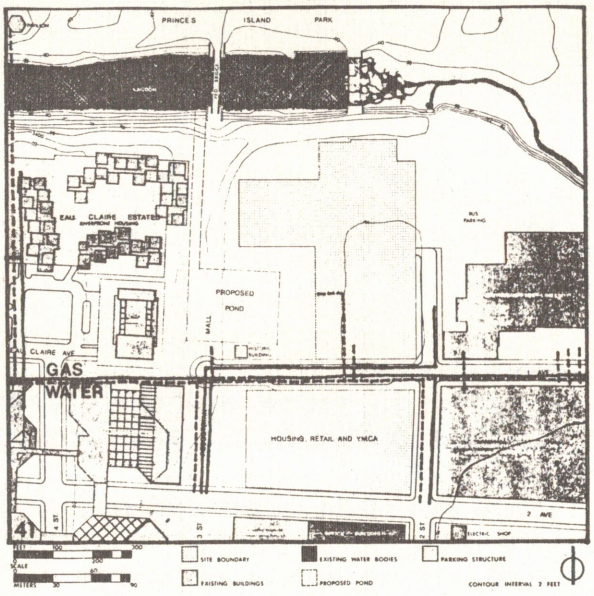
PROFILE OF SOIL

—Surface to 15 feet below surface is gravel. (Sandy, loose, occasional boulders, damp, medium dense, medium to coarse)

—Several feet of silt encountered after gravel. (Sandy, firm and grey)

—At 15 to 18 feet there is a layer of shale. It is weathered for the first 2 or 3 feet but then becomes very hard and sound. The shales in this area characteristically contain sandstone lenses and layers. (Surface of shale varies 1 to 2 feet)

CONCLUSION: Foundation conditions very good. Piers founded directly on gravel terrace could be supported either by a pile system or a spread footing foundation system. In order to provide sufficient depth for scour and frost action the footings would have to have approximately 7 feet of cover. This could present problems with dewatering which would probably make footings less economical than pile support.


PRINCE S
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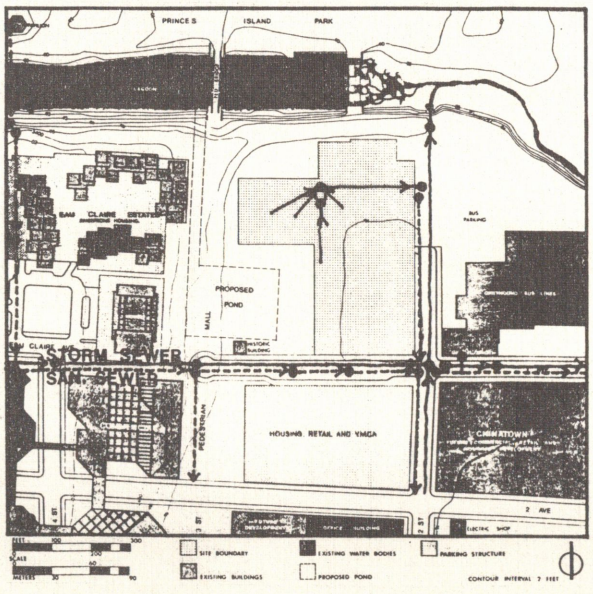
MALL
CLAIRE AVE.
GAS
WATER
HOUSING, RETAIL AND YMCA
BUS
PARKING
2 AVE
ELECTRIC SHOP
41
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE
CONTOUR INTERVAL 2 FEET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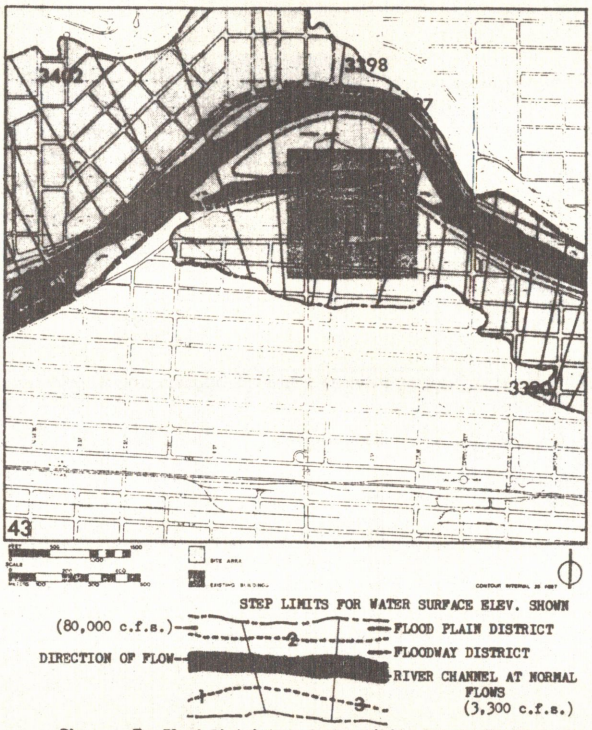
HOUSING, RETAIL AND YMCA
BUS
PARKING
CHINATOWN
2 AVE
ELECTRIC SHOP
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE
CONTOUR INTERVAL 2 FEET

UTILITIES

All utilities are available (Fig. 41 , 42)



STEP LIMITS FOR WATER SURFACE ELEV. SHOWN

(80,000 c.f.s.)

DIRECTION OF FLOW

FLOOD PLAIN DISTRICT

FLOODWAY DISTRICT

RIVER CHANNEL AT NORMAL FLOWS (3,300 c.f.s.)

Fig. The Flood Districts and Step Limits for the Bow River in the vicinity of site.

HYDROLOGY

The most prominent body of water in the vicinity of the site is the Bow River. Originating in the Rocky Mountains it flows from west to east and forms the northern boundary of the downtown area. It is a fast flowing river, at 3,300 c.f.s.[1] (cubic feet per second), during normal low flow, which is subject to frequent and inconstant flooding.

Immediately north of the site and separating Prince's Island from the downtown area there is a lagoon. It was created in 1886 by Peter Prince when starting the Eau Claire Lumber Company. He "blasted through the neck of connecting land, making the little peninsula truly an island"[2] and forming a bypass channel for the lumber mill. As well as providing a sluice for the storage of logs it also was used for power generation supplying the mill and later the City of Calgary.

When the Eau Claire Lumber Co. vacated the site the channel was maintained as a necessary flood control device. In 1968, as proposed by Lombard North Group, Prince's Island became a park with the channel forming a lagoon. The lagoon was created by blocking off the west end of the channel and the addition of weirs on both ends. It is one of the primary recreation foci for the park and retains its role as a flood water bypass. During the summer it is used for boating and in winter for skating.

Presently the lagoon is approximately one hundred feet wide and two feet deep.

West of the site there has been a proposal for a proposed pond which would terminate the third street mall.

The watertable on the site is very high because it is in the flood plain district. It has been established within one foot of the level of the river or approximately 3384 foot elevation. This can cause some problems with construction as is outlined at the end of this section. Fluctuation of the watertable correlates with the water level of the river.

The problem of flooding in the downtown area has been the subject of studies for many years. This is because the flood plain includes a large portion of developed land on the edge of the downtown core.

1 Montreal Engineering Company, Limited, 1968 Bow River Flood Plain Report. (Calgary: Montreal Engineering Company, 1968), p. 1-17.

2 A. W. Rasporich and Henry Klassen, Frontier Calgary. (Calgary: McClelland & Stewart West, 1975), p. 13.

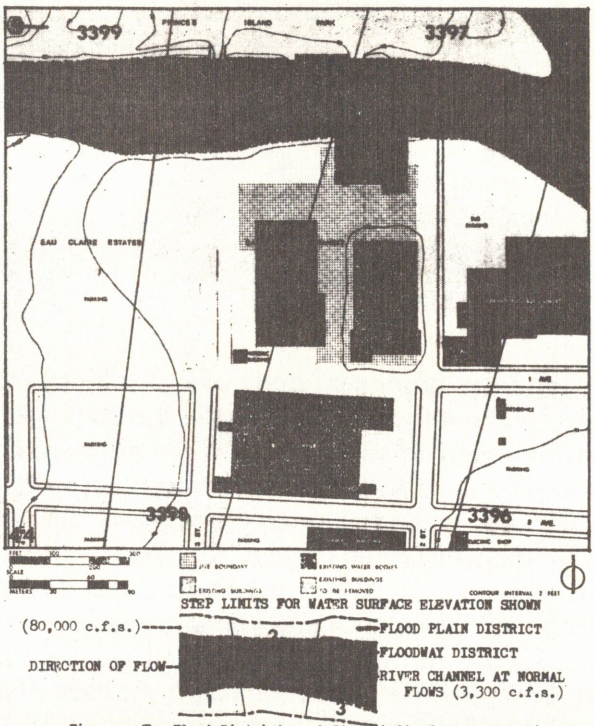


Fig. The Flood Districts and Step Limits for the Bow River in the vicinity of site.

There have been several floodings of the Bow River which have supplied information for the study of the problem. The most intense flood in record is that of 1897 which brought the volume of water flowing through the river up to 80,000 c.f.s.[3] This is considered a very rare flood and the estimated return period is 70 years.

In the area of the Centre street bridge flooding does not affect development areas until the rivers flow achieves 60,000 c.f.s.[4]

The cause of the floods has been established as rainstorms from cumulonimbus cloud formations in the Bow River Basin. The reason for the inconstant flood-frequency data is that if these cloud formations occur over neighbouring river basins it will not effect the Bow River as directly as if it did. The formations position is inconstant."[5]

The city has adopted a two district flood management policy with minor engineering activities. The Flood Plain District is defined by a flood water flow of 80,000 c.f.s. Within this district is the Floodway District which is defined by the most intense and swiftest water movement in flood conditions. In this area there is no development of a structural nature allowed to ensure a clear path for the major flood flow. This area can be developed as parks, golf courses, playgrounds, farming, grazing, horticulture and other activities of this nature. The Flood Plain District does allow for development of a structural nature but must be designed for conditions it would experience in a flood situation as to minimize damage (Fig. 43, 44).

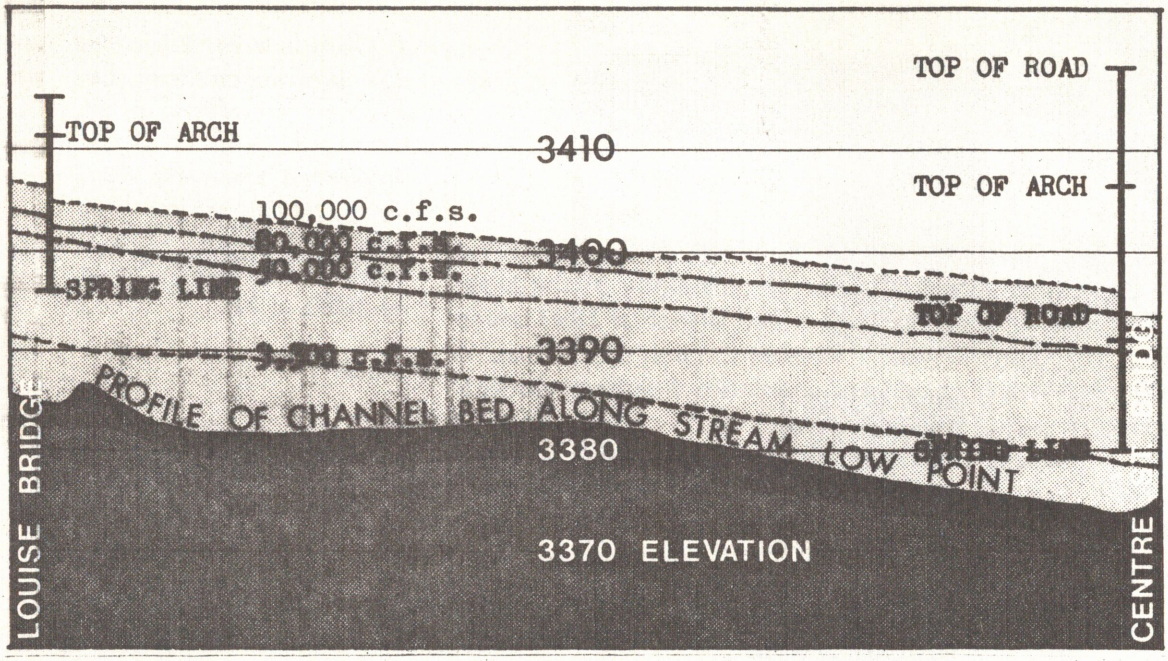
The city has restricted the development of institutions for senior citizens, incarceration, schools, mentally or physically ill and of this nature in this district. Also not allowed are developments that involve something that could be carried away by flood waters causing more damage, such as mobile homes.

The building site is located in the Flood Plain District, as mentioned and I have made a list of design implications.

3 Lombard North Group, The Bow River Impact Study. (Calgary: , 1973), p. 14.

4 Montreal Engineering Company, Limited, 1968 Bow River Flood Plain Report. (Calgary: Montreal Engineering Company, 1968), p. 2-8.

5 Ibid.


TOP OF ROAD
TOP OF ARCH
3410
TOP OF ARCH
100,000 c.f.s.
3400
SPRING LINE
TOP OF ROAD
3390
PROFILE OF CHANNEL BED ALONG STREAM
3380
LOW POINT
3370 ELEVATION
LOUISE BRIDGE
CENTRE

DESIGN IMPLICATIONS:[6,7]

—raising grade levels of new buildings.

—reserving ground floors for car parks or other low damage occupancies.

—first floors of new structures should be situated above the step limit elevations (Fig. 44).

—all principal electrical, heating or mechanical services should be at or above the step limit elevations (Fig. 44).

—buildings be elevated on suitably designed piles of columns such that all floors, equipment rooms and closed areas are above the step limit elevations (Fig. 44).

—where shown necessary by engineering studies, be anchored to resist flotation and later movement.

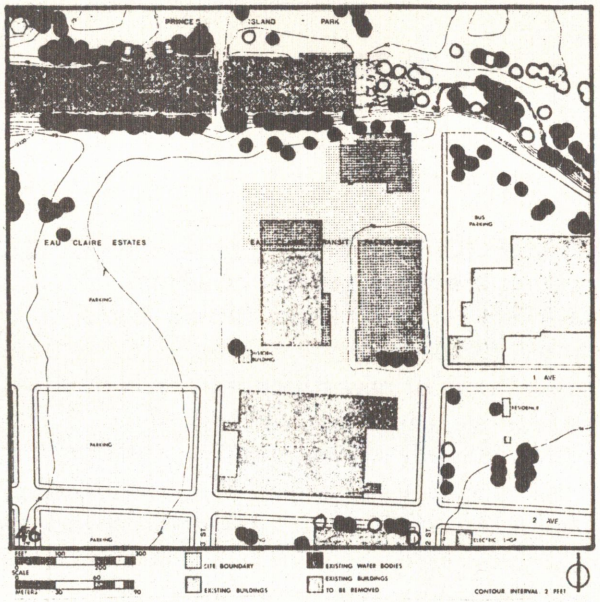
—if filling to achieve this elevation then it is recommended the fill extend at least 15 feet beyond the limits of any building erected there on.

—if a floor is constructed below the step limit elevation, it should not be used for human habitation (Fig. 44).

—construction to withstand rupture and collapse due to hydrostatic pressures of an elevated water table.

6 Montreal Engineering Company, Limited, 1968 Bow River Flood Plain Report. (Calgary: Montreal Engineering Company, 1968).

7 Lombard North Group, The Bow River Impact Study. (Calgary, , 1973).


PRINCE'S
ISLAND
PARK
EAU CLAIRE ESTATES
PARKING
BUS PARKING
1 AVE
2 AVE
2 ST
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
EXISTING BUILDINGS TO BE REMOVED
CONTOUR INTERVAL 2 FEET

Source: Harry Chang, Landscape Architect, Dodds, Tomlinson and Associates, Landscape Architects, Calgary.

ECOLOGY

ANIMAL LIFE

Within the boundaries of the site there is no significant plant life. This is because the site is presently developed and is paved over with asphalt or concrete. The existing functions on the site will be removed in the near future and for the purposes of this project will be considered non-existant.

The surrounding area has a varied and rich amount of plant life.

North of the site Prince's Island and the lagoon are surrounded and covered with natural and introduced species of trees, shrubs and grasses.

PRINCE'S ISLAND AND LAGOON:

—All mature trees and shrubs are native and indegenous.

—The newer and immature vegetation (especially shrubs) are introduced species.

—Since the island and riverbank have been filled and raised a considerable amount to make park and for flood protection, the present environment is largely man-made.

BELOW WEIR:

—The vegetation below the Weir is more indicative of the natural vegetation of the river valley because there has been less disturbance by man.

—Native poplar, alder and willows are the predominant trees whereas the shrub layer is dominated by willow.

—In very wet areas and/or areas of relatively still water bulrushes, horsetail and sedges dominate.

To the west of the site is the proposed pond and 3rd Street pedestrian mall. These will also be landscaped and for the purposes of this project I will assume it will be either natural or introduced or both species.

ANIMAL LIFE

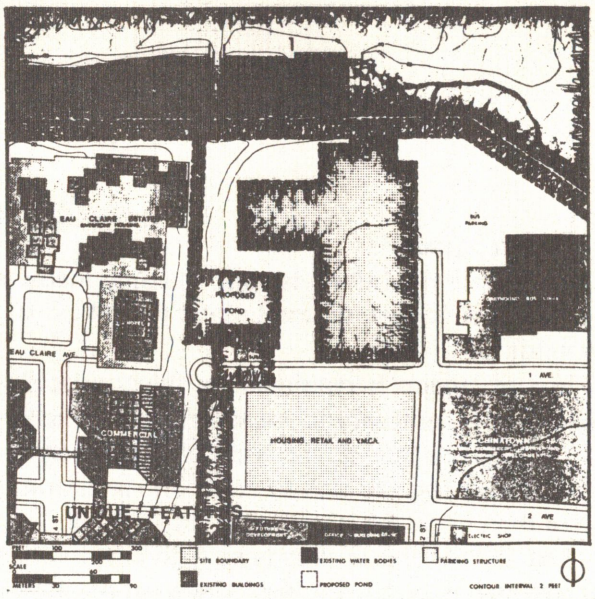
—Any natural wildlife has left the area many years ago.

—The present level of use is already too high to facilitate use by wildlife.

—Use of lagoon is restricted to "highly sociable" birds, who can easily habituate to mans presence. (mallard ducks)

—The high degree of use and disturbance by man (especially in winter) and the lack of cover and an island sanctuary precludes the use of the lagoon as a nesting area.

—The level of use is already so high that further increase is unlikely to measurably affect the existing wildlife population which is composed almost exclusively of birds.


EAU CLAIRE AVE.
PROPOSED POND
COMMERCIAL
HOUSING, RETAIL AND YMCA
1 AVE
2 AVE
SITE BOUNDARY
EXISTING BUILDINGS
EXISTING WATER BODIES
PROPOSED POND
PARKING STRUCTURE
CONTOUR INTERVAL 2 FEET

2—Site is located directly off 3rd Street pedestrian mall. (Primary pedestrian circulation.) Pedestrian access to downtown core (Fig. 47).

3—Located directly adjacent to pedestrian promenade. (Primary pedestrian circulation.) (Fig. 47).

1—Located adjacent to lagoon and river area (recreation) (Fig. 47).

6—Site has direct access to Prince's Island park (regional park: summer and winter recreation) (Fig. 47).

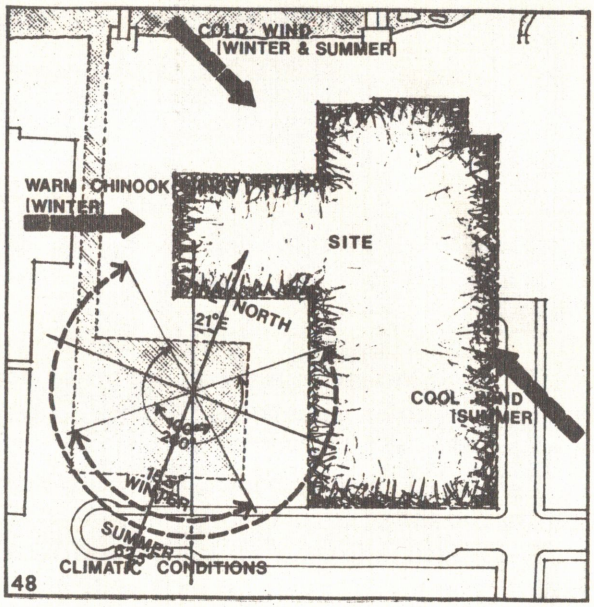
6—Site has an excellent view of park, river, and lagoon (Fig. 47).

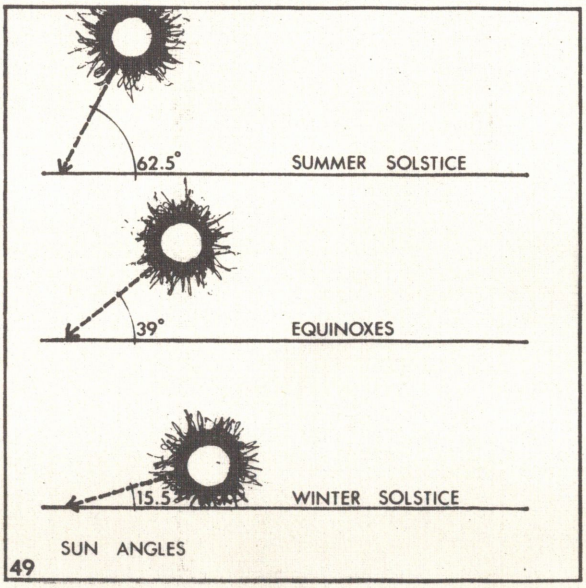
4—Site is adjacent to proposed pond or water feature (summer and winter recreation) (Fig. 47).

6—Site is adjacent to proposed new Y.M.C.A. facility (Fig. 47).

6—Site itself is significant in the early history and beginnings of Calgary (Fig. 47).

5—Site is located adjacent to historic building (the office of the Eau Claire Lumber Company) (Fig. 47).


COLD WIND
(WINTER & SUMMER)
WARM CHINOOK
(WINTER)
SITE
NORTH
21°E
COOL WIND
(SUMMER)
WINTER
SUMMER
CLIMATIC CONDITIONS
48


62.5°
SUMMER SOLSTICE
39°
EQUINOXES
15.5°
WINTER SOLSTICE
SUN ANGLES
49

CLIMATE

The Calgary area has a climate which is classified as cold temperate and has an abundant amount of sunshine. Cold temperatures during the winter months are broken up by the occasional chinook, which is a warm, dry, westerly wind.

Chinooks have been known to raise winter temperatures 30° F in one hour and 60° F in a day. The temperature extremes go from a high in summer of 90° F to a low in winter of -49° F.

In this area the summer sunshine hours are among the highest in western Canada. The percent of possible sunshine during the summer is 50 to 60 percent and during the winter 30 to 40 percent (TAB. T15).

In order to better understand the sites solar situation I have plotted the horizon line on sun angle charts for the area taken from 9 points on the site (Fig. 50).

TABLE T12

TEMPERATURE—DAILY MEAN

January	13° F
February	17° F
March	26° F
April	40° F
May	56° F
June	56° F
July	62° F
August	60° F
September	51° F
October	42° F
November	28° F
December	19° F

TABLE T13

WIND

	PRIMARY	SECONDARY	MEAN MONTHLY SPEEDS	
			CITY	AREA
January	N.W. (32%)	W. (19%)	7 m.p.h.	10 m.p.h.
February	N.W. (31%)	W. (13%)	7 m.p.h.	10 m.p.h.
March	N.W. (27%)	S.E. (18%)	8 m.p.h.	10 m.p.h.
April	N.W. (27%)	S.E. (21%)	8 m.p.h.	12 m.p.h.
May	N.W. (31%)	S.E. (19%)	8 m.p.h.	11 m.p.h.
June	N.W. (32%)	S.E. (17%)	8 m.p.h.	10 m.p.h.
July	N.W. (30%)	S.E. (18%)	7 m.p.h.	9 m.p.h.
August	N.W. (32%)	S.E. (14%)	7 m.p.h.	9 m.p.h.
September	N.W. (32%)	S.E. (13%)	7 m.p.h.	10 m.p.h.
October	N.W. (31%)	W. (16%)	7 m.p.h.	10 m.p.h.
November	N.W. (32%)	W. (18%)	7 m.p.h.	10 m.p.h.
December	N.W. (35%)	W. (16%)	7 m.p.h.	10 m.p.h.

TABLE T14

PRECIPITATION

	MEAN TOTAL	MAX./24 HRS.
January	0.5"	2.0"
February	0.6"	1.09"
March	0.8"	0.53"
April	0.9"	1.27"
May	2.2"	1.60"
June	3.2"	1.83"
July	2.5"	2.66"
August	2.3"	3.18"
September	1.5"	1.20"
October	0.7"	0.66"
November	0.7"	1.11"
December	0.5"	0.54"

TABLE T15

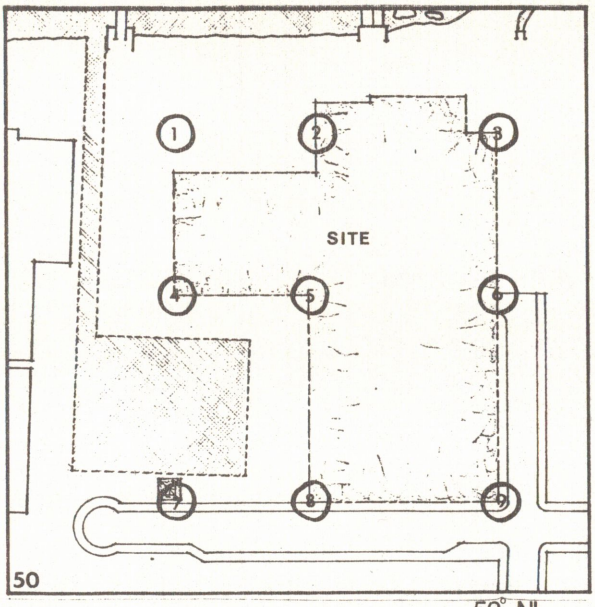
SUNSHINE

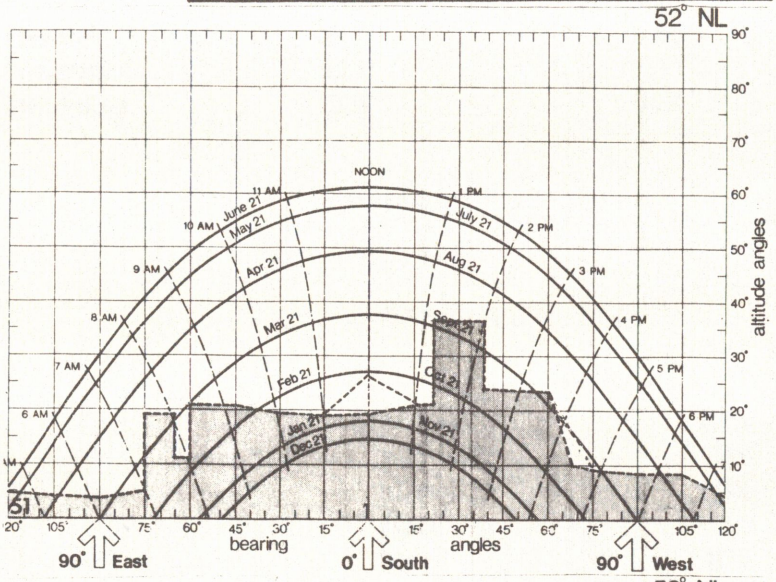
	HOURS
January	106
February	126
March	153
April	191
May	242
June	236
July	315
August	268
September	189
October	163
November	114
December	94
TOTAL	2197

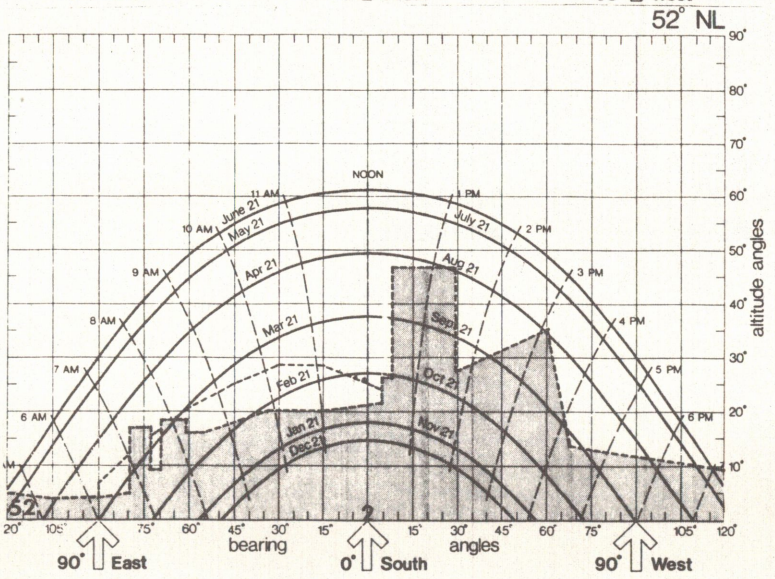
TABLE T16

RELATIVE HUMIDITY

January	67%
February	70%
March	63%
April	47%
May	46%
June	51%
July	48%
August	49%
September	47%
October	55%
November	66%
December	73%


1
2
3
SITE
4
5
6
7
8
9
50


52° NL
NOON
11 AM
1 PM
10 AM
June 21
May 21
July 21
2 PM
9 AM
Apr 21
Aug 21
3 PM
8 AM
Mar 21
Sept 21
4 PM
7 AM
Feb 21
Oct 21
5 PM
6 AM
Jan 21
Nov 21
6 PM
Dec 21
51
altitude angles
bearing
angles
90° East
0° South
90° West


52° NL
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Jan 21
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Dec 21
52
altitude angles
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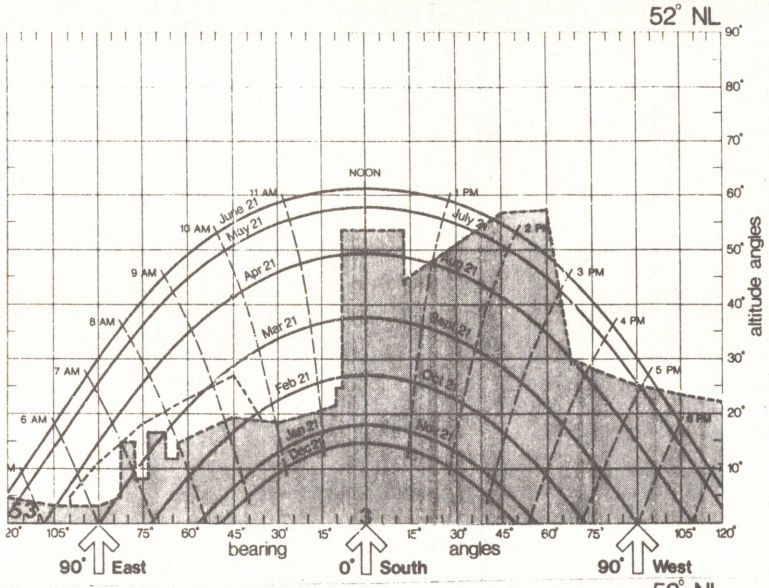
0° South
90° West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80°
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20° 105° 75° 60° 45° 30° 15° 15° 30° 45° 60° 75° 105° 120°
bearing
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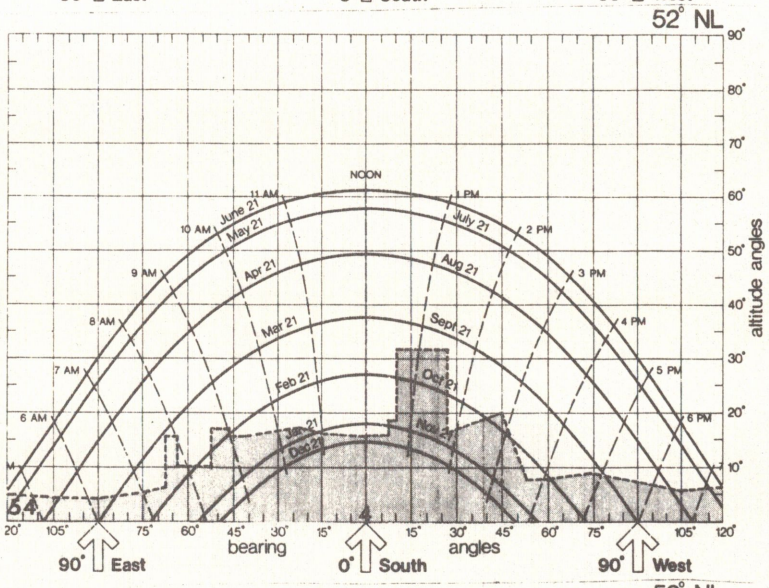
90° West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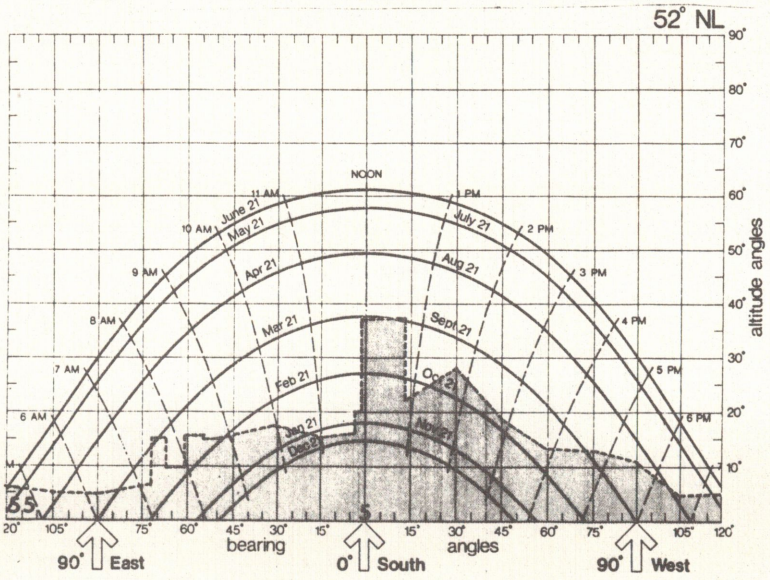
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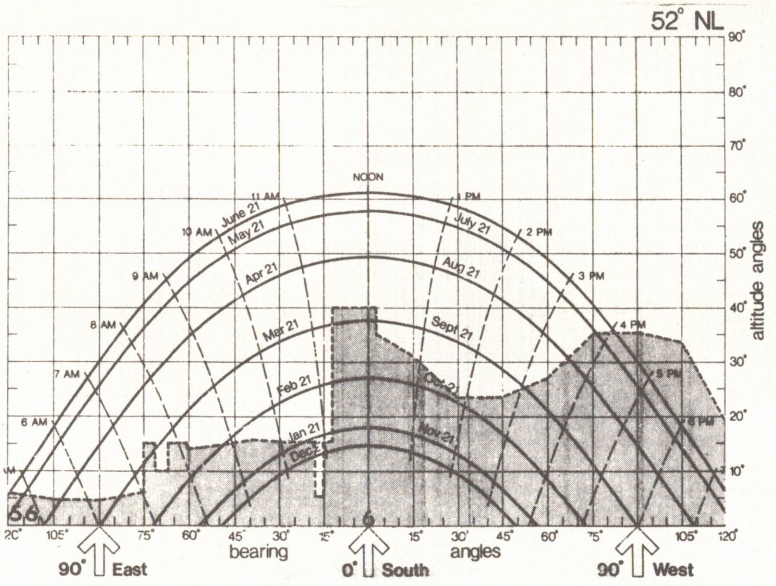
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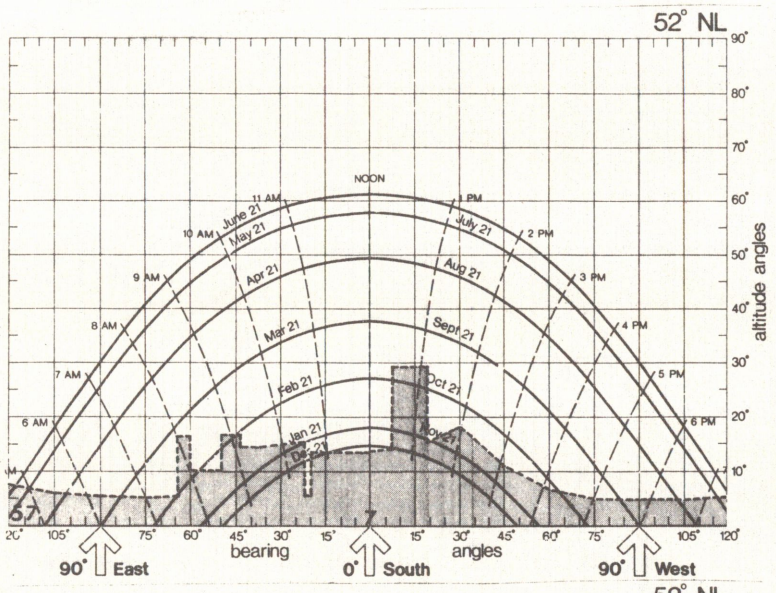
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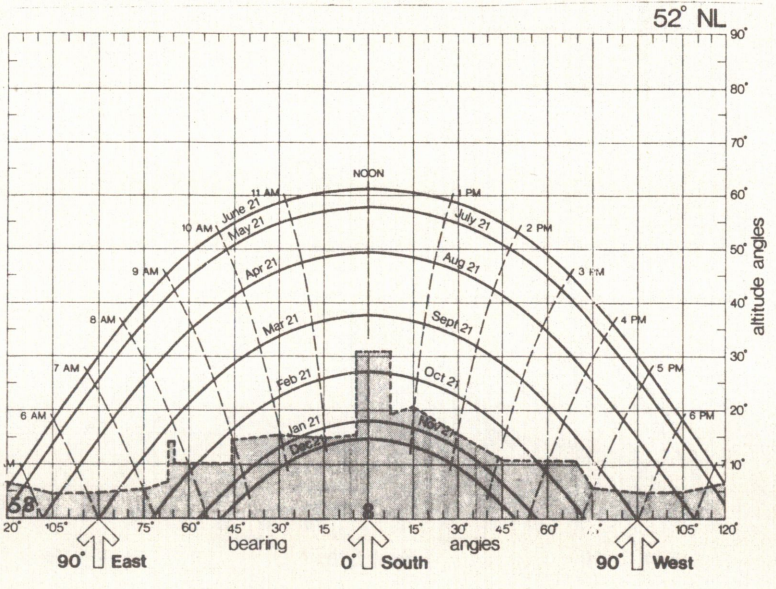
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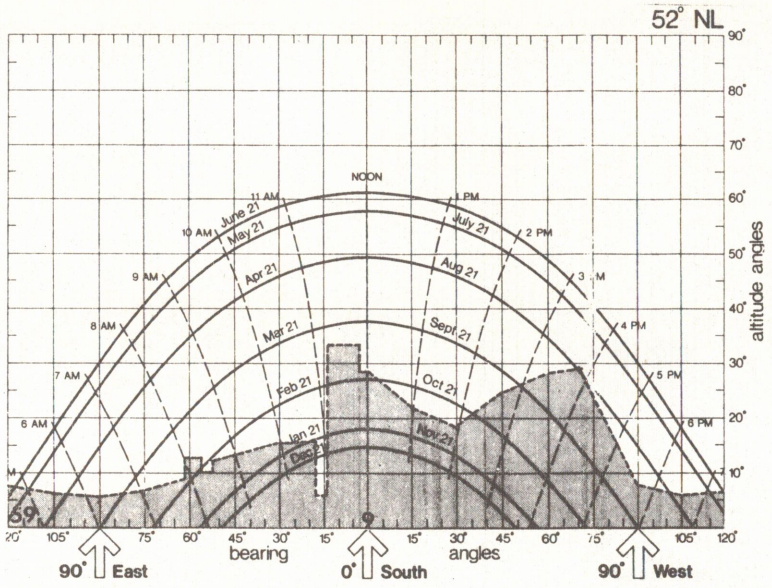
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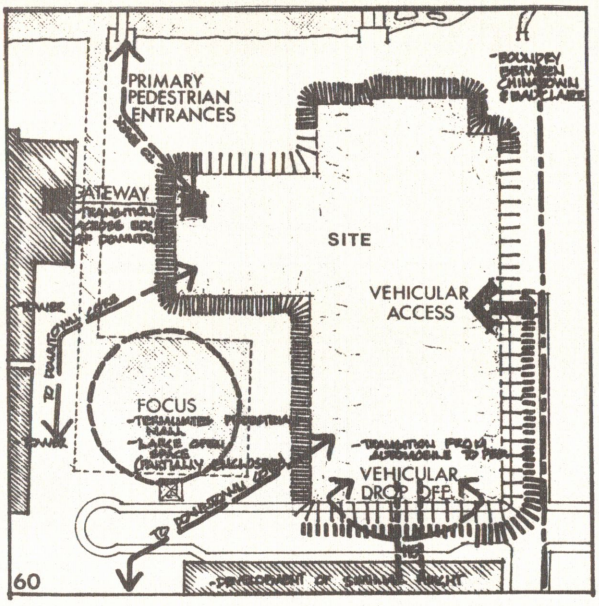

VEHICULAR CONTACT
MAJOR VEHICULAR CONTACT
PEDESTRIAN CONTACT
MAJOR PEDESTRIAN CONTACT



MAJOR SITE CONSIDERATIONS

The investigation of the conditions which have the potential of effecting the resulting project are stated in the environmental analysis. The environmental analysis has resulted in major site considerations (Fig. 60).

The site's location within downtown Calgary has many benefits to offer a housing project. It is within reasonable walking distance of the downtown core which offers contact with commercial, retail and cultural facilities. The site also has close contact with amenity spaces which have a great recreational potential such as Prince's Island Park, the pedestrian promenade and the 3rd Street pedestrian mall. These features offer visual as well as active relief from the city. All these diverse activities are connected by well developed automobile and pedestrian circulation systems which also connect this site with the public transportation systems. The area is also intended to develop with no through traffic which will benefit the area in its attempt to develop a residential character.

There is a residential area developing along the edge of the downtown and is being promoted by the city of Calgary through its planning intentions and changes as the area develops.

There are also problems with the site that have been recognized through the environmental analysis. Solar access and the site being located within a flood plain district are the major problems associated with this site. There are also problems typical to housing within the city such as a public to private hierarchy developing. These also become major considerations in the development of this project.

Source: National Building Code, National Building Code of Canada 1980. (Ottawa: National Research Council of Canada, 1980).

CODES

The buildings will conform to the standards established by the National Building Code of Canada, 1980.

TYPICAL OCCUPANCIES	CLASSIFICATION
Apartments	Group C, _____
Garages	Group F, Division 3
Community Facilities	Group A, Division 2
Retail	Group E, _____

SIZE AND OCCUPANCY REQUIREMENTS FOR FIRE SAFETY. [APPENDIX – TABLE T17]

EXIT REQUIREMENTS

CLASSIFICATION	MAXIMUM TRAVEL DISTANCE
Group C	150 feet
Group F, Division 3	150 feet
Group A, Division 2	150 feet
Group E	100 feet

Source: City of Calgary Planning Department, Land Use By-Law No. ZP80. (Calgary: City of Calgary Planning Department, 1980).

CALGARY LAND-USE BYLAW

The following is an outline of the information found in the Calgary land-use bylaw which is relevant to the site. At present the site is zoned CM-1, which is a central business commercial district.

DENSITY OF DEVELOPMENT

Gross floor area = 4 X site area

OPEN SPACE

100 ft^2/person

Number of persons determined by type of occupancy rate. The number of persons in a development is based on the following occupancy rates:

Bachelor (1.2 persons)
One bedroom (1.7 persons)
Two bedroom (2.3 persons)
Three bedroom (2.4 persons)
Four bedroom (2.7 persons)

PLUS 15

Development must make provision for connection to and maintaining the continuity of the Plus 15 system.

PARKING

Not withstanding the requirements of Section 18 (loading), the following rules shall apply:

—One stall per dwelling unit plus one stall per 1500 ft^2 of commercial net floor area.

—Visitor parking—0.15 spaces/dwelling unit

—Recreational vehicles—0.02 spaces/dwelling unit.

—Provision of on site parking must not disrupt the continuity of any pedestrian system.

—All at-grade parking stalls shall be landscaped and screened to the satisfaction of the approving authority.

SITE ACCESS

Except for emergency purposes, no vehicular access is allowed from 7th and 8th Avenues south and any vehicular access elsewhere shall be so designed to create minimum disruption to traffic flows.

BUILDING FINISHES

All buildings shall have finishes which normally will not require reapplication during the life of the building and are an integral part of the cladding of the development.

BUILDING ORIENTATION

Building orientation shall be such as to create minimal adverse effects on surrounding properties with regard to wind, shadowing, sound and ventilation of mechanical floors.

GARBAGE STORAGE

Garbage shall:

—Be stored in weatherproof and animal proof containers.

—Be screened from adjacent sites and public thoroughfares.

—Be in a location readily accessible for pick-up.

—Comply with the provisions of the waste by-law.

—Be provided with a storage area sufficient for three days accumulation or refuse.

—Outside storage not allowed.

LOADING

—Restaurants and drinking establishments or theatres require a minimum of one loading space.

—Retail, commercial, business and hotel developments require one space for the first 25,000 ft^2 of usable floor area and one space for each additional 50,000 ft^2 of usable floor area or portion thereof.

—Residential developments require one space for the first 100 dwelling units plus one space for each additional 200 dwelling units or portion thereof.

—Provision must be made in the structure of any new building to support any future plazas or pedestrian bridges which are required to ensure the continuity of the Plus 15 system.

CONDITIONS OF DEVELOPMENT

The approving authority may not approve an application for a development permit if development:

—Unduly interfere with the amenities of the neighborhood, or

—Materially interfere with or affect the use, enjoyment or value of neighbouring properties.

DOWNTOWN DEVELOPMENT STANDARDS OBJECTIVES

—Maximize development potential and design in accordance with the Calgary general municipal plan adopted or under preparation.

—Co-ordinate development of the downtown areas in order to maximize the efficiency of public expenditures for utility and service systems.

—Organization of block developments around open areas and public plazas.

APPENDIX

TABLE T17

Group C, up to 3 Storeys

3.2.2.26.(1) A *building* classified as Group C shall conform to Sentences (2) and (3) provided the *building*

(a) is not more than 3 *storeys* in *building height*,

(b) if unsprinklered, is not greater in *building area* than the value in Table 3.2.2.D., and

(c) if *sprinklered*, is not greater than twice the area limits of Clause (b).

Table 3.2.2.D.
Forming Part of Sentence 3.2.2.26.(1)

No. of *Storeys*	Unsprinklered Maximum Area, m^2		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	1 200	1 500	1 800
2	900	1 125	1 350
3	600	750	900
Column 1	2	3	4

(2) The *building* shall be of *combustible* or *noncombustible construction* used either singly or in combination, and

(a) basements, cellars and crawl spaces shall be subdivided by a ¾ h *fire separation* into areas not exceeding 500 m^2, or they shall be *sprinklered*,

(b) floor assemblies immediately above basements or cellars shall be a ¾ h *fire separation*,

(c) other floor assemblies, except floors over crawl spaces, shall be a ¾ h *fire separation* (see Article 3.2.2.3.),

(d) *mezzanines* shall have, if of *combustible construction*, a ¾ h *fire-resistance rating*, and

(e) all *loadbearing* walls, columns and arches shall have a *fire-resistance rating* at least equivalent to that required for the supported assembly.

(3) When *buildings* contain *dwelling units* consisting of more than 1 *storey*, as provided in Article 3.3.4.2., the provisions of Sentences (1) and (2) shall apply, except that subject to the provision of Sentence 3.3.4.2.(2), the floor assemblies, including floors over basements or cellars, which are entirely contained within such *dwelling units*, shall have a ¾ h *fire-resistance rating* and need not be constructed as a *fire separation;* in *buildings* where there is no *dwelling unit* above another, the *fire-resistance rating* for the floor assemblies within the *dwelling unit* is waived.

Group C, up to 6 Storeys

3.2.2.27.(1) A *building* classified as Group C shall conform to Sentences (2) and (3) provided the *building*

(a) is not more than 6 *storeys* in *building height*,

(b) if unsprinklered, is not greater in *building area* than the value in Table 3.2.2.E.,

(c) if *sprinklered*, is not greater than twice the area limits of Clause (b).

(2) The *building* shall be of *noncombustible construction*, and

(a) basements and cellars shall be subdivided by a 2 h *fire separation* into areas not exceeding 500 m^2, or they shall be *sprinklered*,

(b) floor assemblies immediately above basements or cellars shall be a 2 h *fire separation*,

(c) floor assemblies immediately above crawl spaces shall have a 1 h *fire-resistance rating*, except that this requirement is waived if the crawl spaces are subdivided by a 1 h *fire separation* into areas not exceeding 500 m², or they are *sprinklered* (see Article 3.2.2.3.),

(d) other floor assemblies shall be a 1 h *fire separation*,

(e) *mezzanines* shall have a 1 h *fire-resistance rating*,

(f) except as provided in Article 3.2.2.8., roof assemblies shall have a 1 h *fire-resistance rating*, and

(g) all *loadbearing* walls, columns and arches shall have a *fire-resistance rating* at least equivalent to that required for the supported assembly.

Table 3.2.2.E.
Forming Part of Sentence 3.2.2.27.(1)

No. of *Storeys*	Unsprinklered Maximum Area, m²		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	unlimited	unlimited	unlimited
2	6 000	unlimited	unlimited
3	4 000	5 000	6 000
4	3 000	3 750	4 500
5	2 400	3 000	3 600
6	2 000	2 500	3 000
Column 1	2	3	4

(3) When *buildings* contain *dwelling units* consisting of more than 1 *storey*, as provided in Article 3.3.4.2., the provisions of Sentences (1) and (2) shall apply, except that subject to the provision of Sentence 3.3.4.2.(2), the floor assemblies, including floors over basements or cellars, which are entirely contained within such *dwelling units*, shall have a 1 h *fire-resistance rating* and need not be constructed as a *fire separation*.

Table 3.2.2.V.
Forming Part of Sentence 3.2.2.48.(1)

No. of *Storeys*	Unsprinklered Maximum Area, m²		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	5 600	7 000	8 400
Column 1	2	3	4

Group F, Division 3, 1 Storey

3.2.2.48.(1) A *building* classified as Group F, Division 3 shall conform to Sentence (2) provided the *building*

(a) is not more than 1 *storey* in *building height*, and

(b) if unsprinklered, is not greater in *building area* than the value in Table 3.2.2.V., and

(c) if *sprinklered*, is not greater than twice the area limits of Clause (b).

(2) The *building* shall be of *heavy timber* or *noncombustible construction* used either singly or in combination, and

(a) basements and cellars shall be subdivided by a ¾ h *fire separation* into areas not exceeding 500 m², or they shall be *sprinklered*,

(b) floor assemblies immediately above basements or cellars shall be a ¾ h *fire separation*, and

(c) all *loadbearing* walls, columns and arches supporting an assembly required to have a *fire-resistance rating* shall be of *heavy timber* or *noncombustible construction*, except that such members and assemblies supporting a *fire separation* as described in Clause (b) shall have a ¾ h *fire-resistance rating*.

Group A, Division 2, 1 and 2 Storeys, Sprinklered

3.2.2.13.(1) A *building* classified as Group A, Division 2 shall conform to Sentence (2) provided the *building*

(a) is not more than 2 *storeys* in *building height*,

(b) is *sprinklered*, and

(c) is not greater in *building area* than

(i) 400 m² if facing 1 *street*,

(ii) 500 m² if facing 2 *streets*, or

(iii) 600 m² if facing 3 *streets*.

(2) The *building* shall be of *combustible* or *noncombustible construction* used either singly or in combination, and

(a) floor assemblies immediately above basements or cellars shall be a ¾ h *fire separation* (see Article 3.2.2.3.), and

(b) all *loadbearing* walls, columns and arches shall have a *fire-resistance rating* at least equivalent to that required for the supported assembly.

GROUP E—MERCANTILE BUILDINGS

Group E, 1 and 2 Storeys

3.2.2.33.(1) A *building* classified as Group E shall conform to Sentence (2) provided the *building*

(a) is not more than 2 *storeys* in *building height*,

(b) if unsprinklered, is not greater in *building area* than the value in Table 3.2.2.1., and

(c) if *sprinklered*, is not greater than twice the area limits of Clause (b).

(2) The *building* shall be of *combustible* or *noncombustible construction* used either singly or in combination, and

(a) crawl spaces in a *building* of *combustible construction* and basements and cellars in every *building* shall be subdivided by ¾ h *fire separations* into areas not exceeding 500 m², or they shall be *sprinklered*,

(b) floor assemblies immediately above basements or cellars shall be a ¾ h *fire separation* (see Article 3.2.2.3.),

(c) other floor assemblies, except floors over crawl spaces, shall be a ¾ h *fire separation*, and

(d) all *loadbearing* walls, columns and arches shall have a *fire-resistance rating* at least equivalent to that required for the supported assembly.

Table 3.2.2.1.
Forming Part of Sentence 3.2.2.33.(1)

No. of *Storeys*	Unsprinklered Maximum Area, m²		
	Facing 1 *Street*	Facing 2 *Streets*	Facing 3 *Streets*
1	1 000	1 250	1 500
2	600	750	900
Column 1	2	3	4

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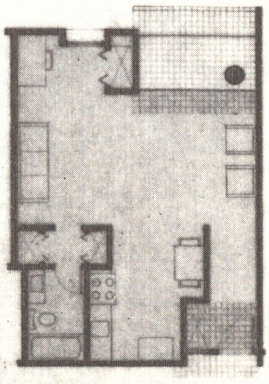
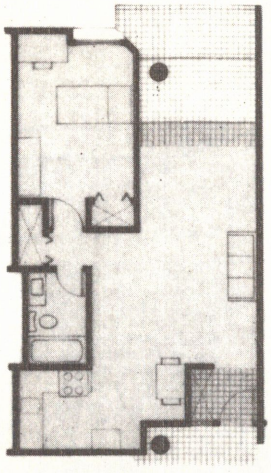
PROJECT DESIGN

UNIT FLOOR PLANS



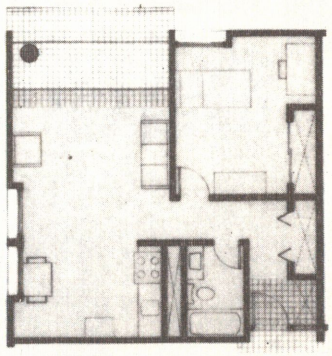
EFFICIENCY
INTERIOR SPACE 500 ft²
OPEN SPACE 75ft²

UNIT 1



ONE BEDROOM
INTERIOR SPACE 650 ft²
OPEN SPACE 115 ft²

UNIT 2



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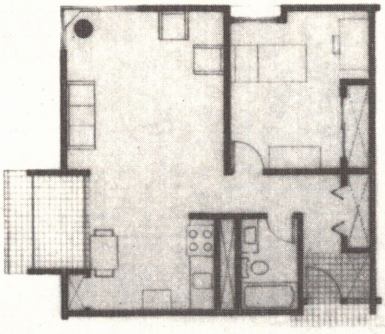
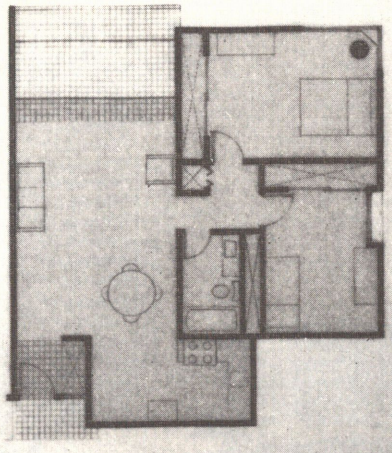
INTERIOR SPACE 525 ft²
OPEN SPACE 100 ft²

UNIT 3



ONE BEDROOM
INTERIOR SPACE 675ft²
OPEN SPACE 85ft²

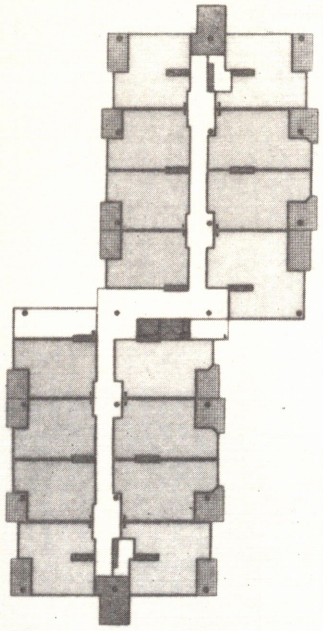
UNIT 4



TWO BEDROOM
INTERIOR SPACE 925 ft²
OPEN SPACE 110 ft²

UNIT 5

SCALE 1/4"=1'-0"



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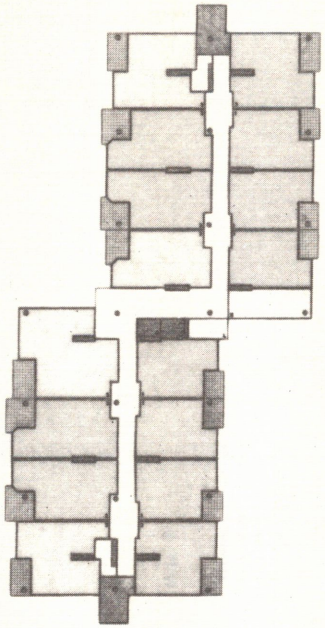

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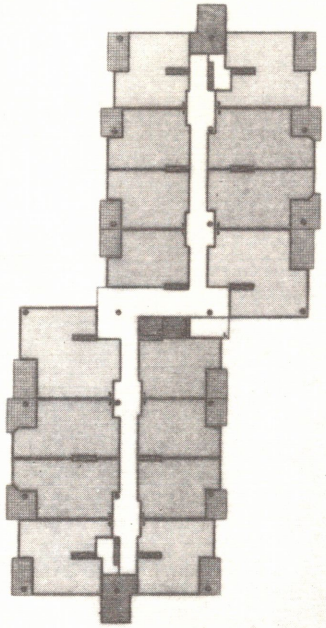

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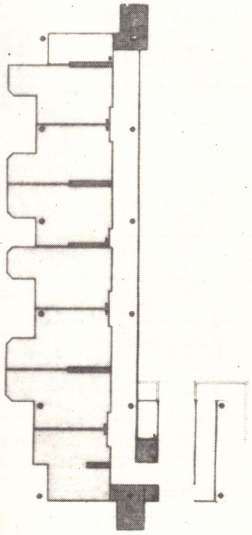

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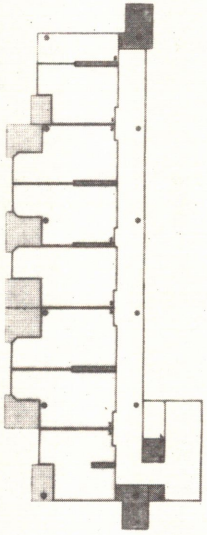

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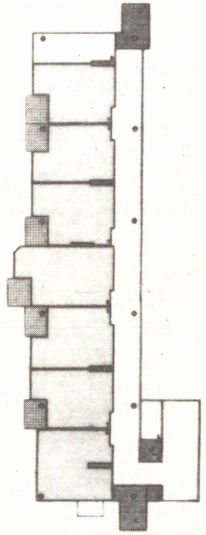

THIRD FLOOR

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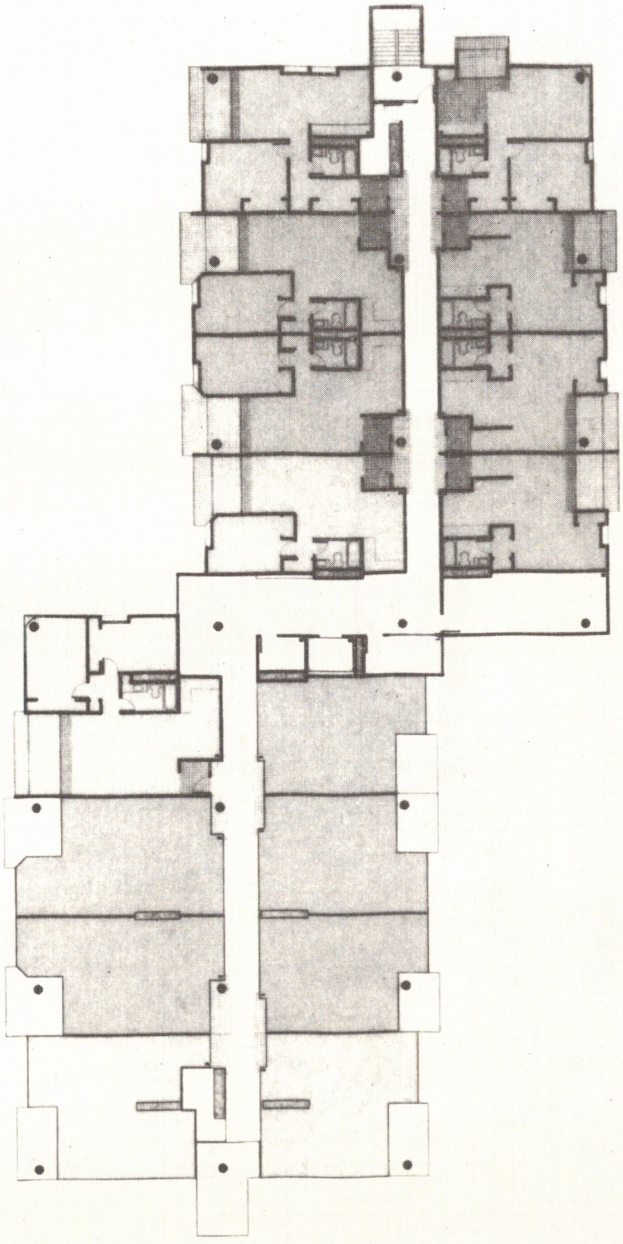

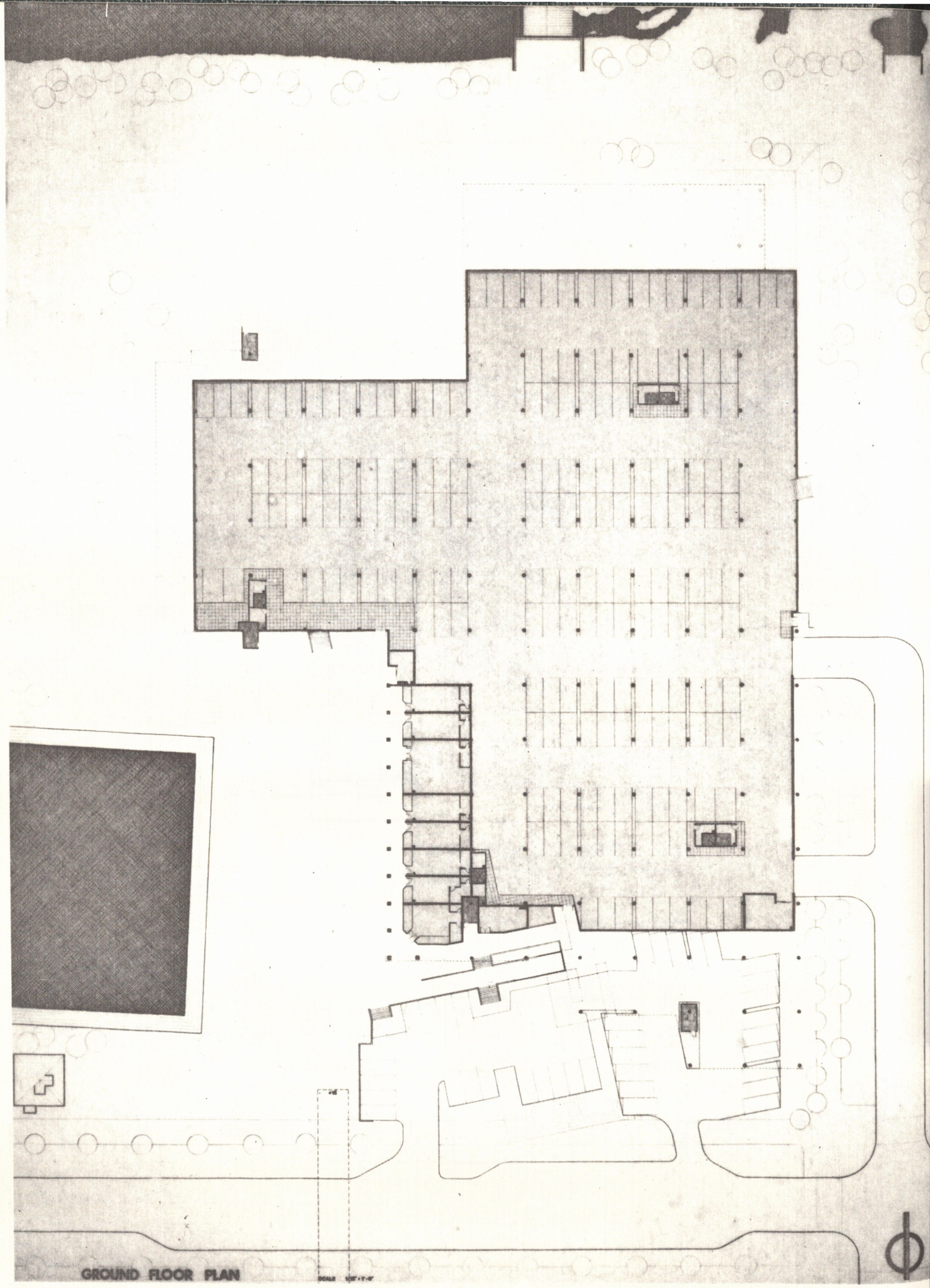
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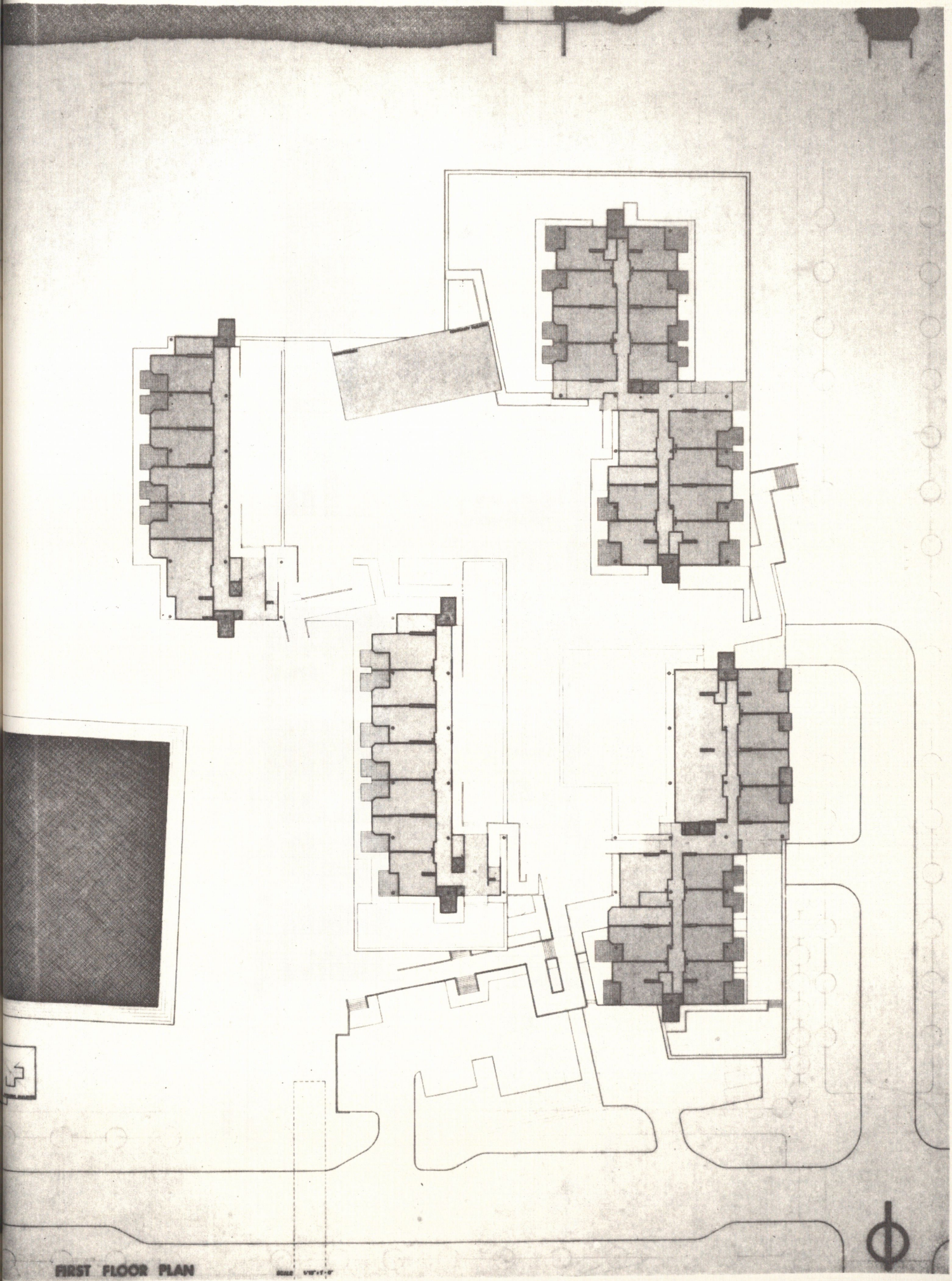

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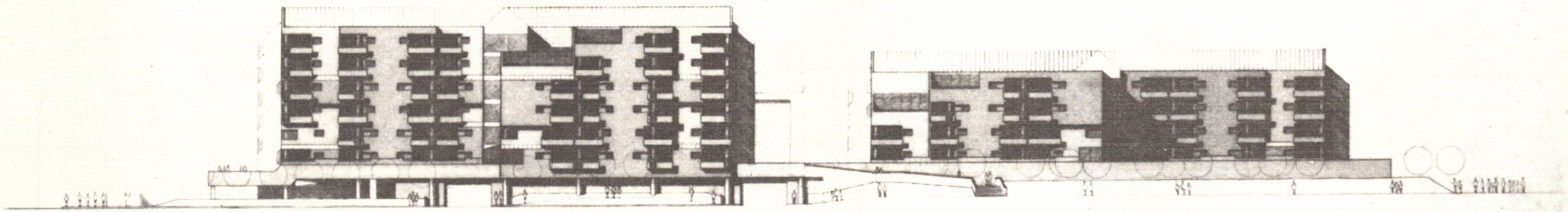

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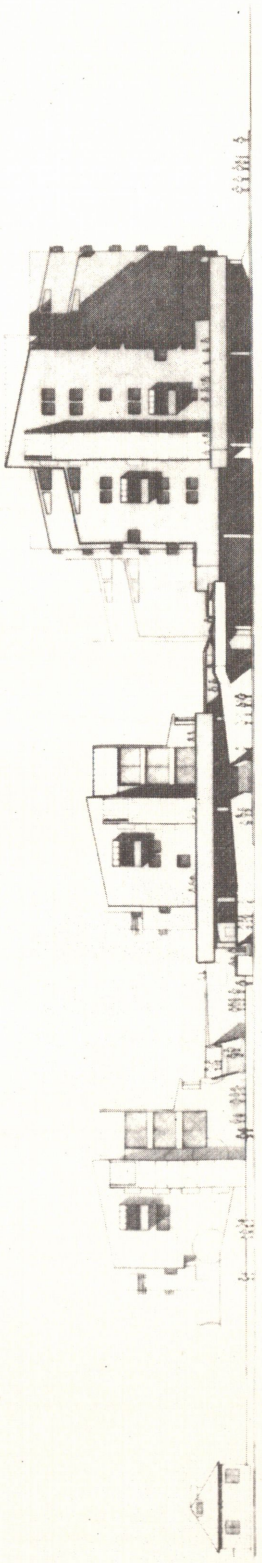

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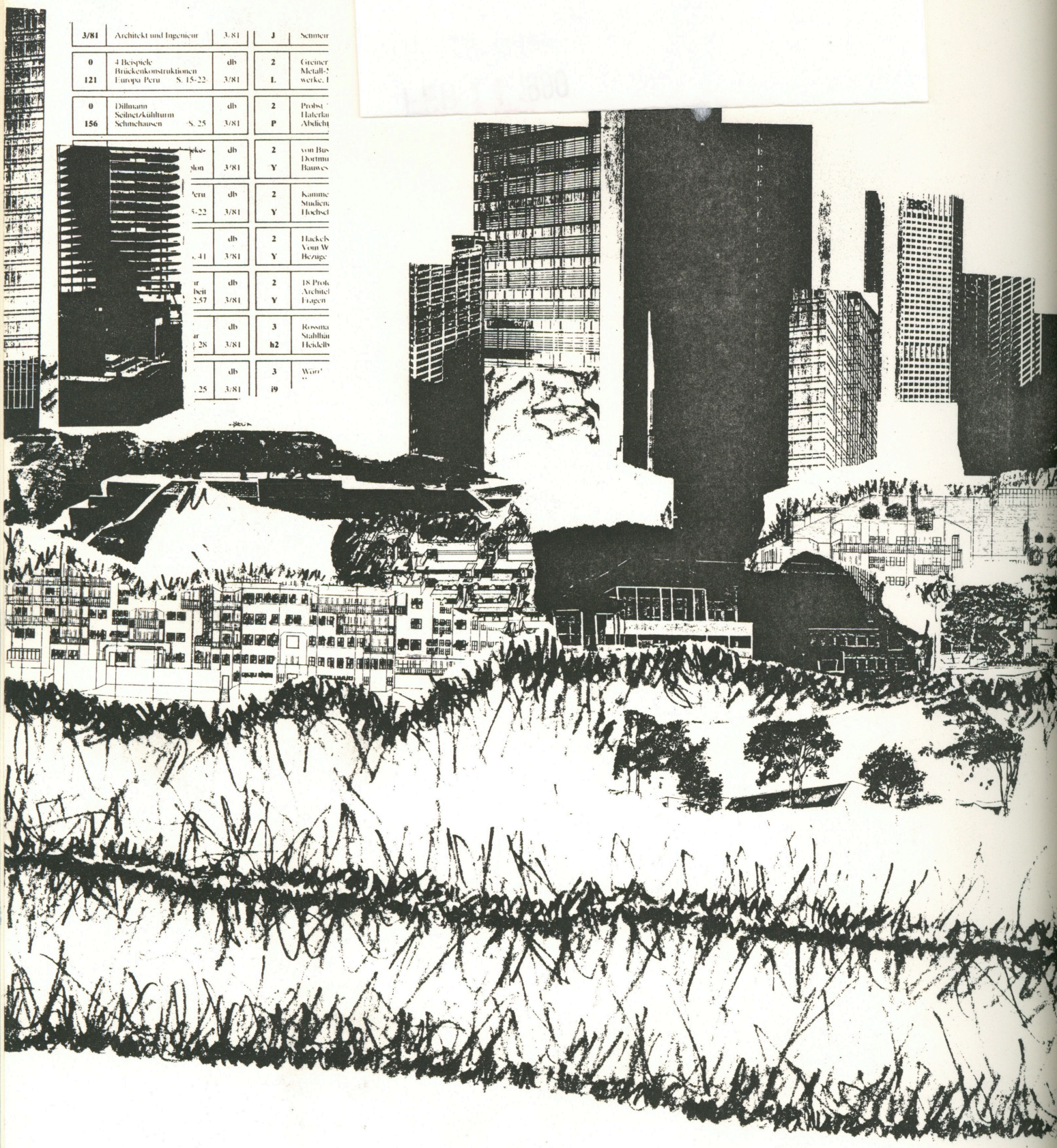
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