SCHOOLYARD REVEALED

by

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Abstract

Schoolyards in North America are isolated from their neighbourhood contexts. This isolation deprives schoolchildren of the many opportunities found in the local landscape and in the relationships with people in the surrounding community. Schoolyards have been, until most recently, overlooked as cultural resources for the communities they serve. Little attention has been given to their design or their purpose other than the containment of children and their engagement in gross motor activities. This paper describes the different ways that a schoolyard could be used while offering to schoolchildren opportunities for exploration, creative thinking and experiential learning. To explore the cultural importance of this public space, social and cultural programmes are integrated within the schoolyard design.

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1. Introduction

The physical environment is important to children's intellectual, emotional and physical development. Children learn by exploring and testing elements of their physical environment and by challenging their own physical prowess and intellectual abilities. Children can learn about their physical and cultural worlds by maneuvering through outdoor spaces rather than deriving their education solely in a classroom.

Figure 1 Green Maple Elementary Schoolyard. Source: Author 2003

The schoolyard is the logical place to explore non-formal education for children. It can provide children with a space that is `open to the indeterminableness of experience' (Ceppi, 1988). Children will learn through their explorations that they exist in a specific place at a specific time under specific conditions.

To expand the types of experiences available to children a schoolyard can be re-programmed to serve as the collection point for its surrounding community. These programs can range from athletics, social programs, cultural events and ecological strategies. The super-impositioning of these activities will encourage non-formal education for children through play, personal interpretation and multi-generation interaction. By rethinking what functions a schoolyard can perform we are essentially rethinking what our culture could be.

2. Children's Experiences of Place

Children's earliest encounters with the physical environment are sensorial. They use all of their senses, not simply those of sight or hearing, to evaluate and experience a place.

By exploring, touching and observing the responses of the physical environment, young children begin to understand the physical nature of a site. According to Edith Cobb, "outdoor play is essentially a quest for defining the genius loci....play is a sort of fingering over of the environment in sensory terms, a questioning of the power of materials as a preliminary to the creation of a higher organization of meaning" (Cobb, 1977, p.27).

By about the age of three, children are playing and exploring collectively. Their language and motor skills have developed sufficiently to allow them to maneuver more adeptly through their social and physical environments. Their ability to manipulate materials and to respond to them is vastly improved since infancy.

Figure 2 Green Maple Elementary
Services and Kindergarten Area
Source Author 2003
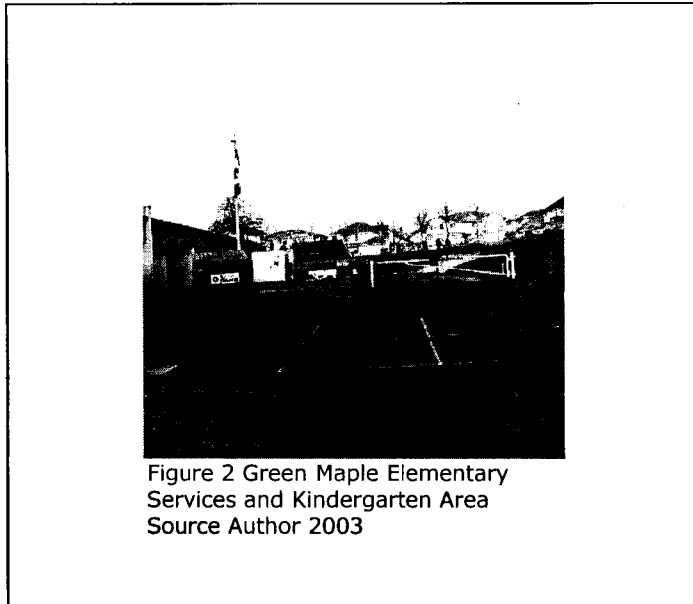
With little exposure to the accepted canons of beauty and other cultural opinions, pre-school children are often open and yielding to the authentic sensorial experience of each site. The ideas of beauty, composition, meaning or function are only just beginning to be formulated in their minds. Being unpracticed in the use of poetics or metaphors, their attempts at viewing places abstractly or of attributing them with human feelings are tentative. Yet, the physical landscape will eventually, with the passing of time and the maturation of each child, become permeated with meanings and personal impressions.

Children's impressions of a place become more specific as their cognitive skills develop. A landscape will become imbued with personal meaning for children with the slow accumulation of sentiment, memory and story. Features in the landscape such as, shifting light, swirling wind, a depression or a gnarled tree, will conjure images from the children's increasing anthology of stories and life experiences. A forest will no longer be a collection of shapes, smells and textures but becomes a dark place of mystery.

Eventually, children will develop language competency and be more adept in the use of poetic abstractions. They will assemble and disassemble possible realities to create metaphors within the landscape (Ceppi, 1988). They will frame their experiences in the physical and cultural landscapes within imaginative games of make-believe. Storytelling becomes a way for children to understand their physical and cultural structures (Egan, 1990).

3. Importance of Outdoor Public Spaces to Children

All too often every inch of a community is planned and programmed leaving no undefined areas for children to play in, manipulate, or call their own. Children become starved for spaces that they can change and make their own. Community designs rarely include "open" spaces that are available for children to explore so by enabling them to devise their own orders of the world.

Outdoor play activities allow children to exercise their physical abilities while simultaneously offering them experiential opportunities. Plants, water, dirt, wood, and sticks present a child with infinite possibilities to construct their own imagined or real landscapes (Nicholson, 1971). Exploring, discovering, and constructing within these play spaces is an empowering and creative process.

Children are curious about the physical world and adult life and are compelled to take independent steps away from home to discover new places for themselves. For example, the making of a fort is often a child's first effort to satisfy their curiosities, create their own stories and to develop their understanding of the nature of many
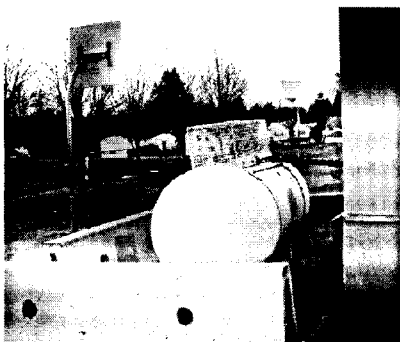
Figure 3 Green Maple Elementary Schoolyard. Source Author 2003

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natural materials found in their environment. A fort is the making of a literal place in the physical world in preparation to taking a figurative place in the adult world (Sobel, 1993).

> *"I suspect that it is the sense of self, the ego about to be born, that is sheltered in these private places. The onset of puberty in adolescence initiates an often-painful focus on "Who am I?" The construction of privates places is one of the ways that children physically and symbolically, prepare themselves, in middle childhood, for this significant transition"* (Sobel, 1993, p.48).

4. Schoolyards: The Logical Landscape for Experiential Learning
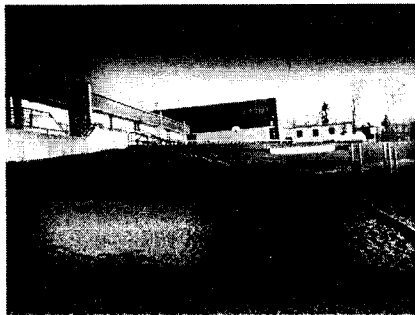
Figure 4 Green Maple Elementary Play Equipment Area.Source Author 2003

Schoolyards can fulfill the basic need children possess for independence, self-sufficiency, and experiential learning by providing them with loose parts and unprogrammed areas that they can use in the construction of their own private places.

Schoolyards are a ubiquitous feature of most urban and suburban landscapes. Their number and position within the urban/suburban fabric has been calculated to allow easy access to all children. In most Canadian cities, distances between each home and the schoolyard have been determined to be a reasonable and safe walking distance for young children.

Schoolyards are a familiar landscape to children as they are used on a daily basis for gym classes and recess periods. This familiarity would encourage the children to "inscribe

personal meaning and identity with their play landscape and thereby assume a level of ownership" (Herrington, 2002, p.90).

Unfortunately, most schoolyards are not available to children as their programming is quite rigid due to curriculum constraints. Schoolyards are designed to comply with archaic colonial programs and only facilitate physical development while ignoring opportunities to assist children in other realms of development. Schoolyards are often flat barren surfaces upon which selectively restricted activities are performed (Relph, 1976). These designs diminish children's opportunities to develop their creativity, imagination, and intellectual abilities. The natural elements of a site and the cultural elements of their neighbourhood, which would provide much more interesting stimulation to children, are usually removed or barred from the schoolyard.

Figure 5 Green Maple Elementary Sportsfield. Source Author 2003

5. The History of Schoolyard Design

For the first 130 years of its relatively short history, the schoolyard in British Columbia was used as a tool for social conditioning. It underwent perceptible transformations, both physical and ideological, in its attempt to facilitate new public programs targeted at combating specific societal afflictions that were perceived to threaten the integrity of civil society. By changing schoolyard programming and design, community leaders hoped to encourage orderly behaviour in its new citizens. By developing the moral, spiritual, physiological, and patriotic character of their young citizens, these leaders were protecting their own political and economic agendas. In this way, the schoolyard has had

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an active role in developing the socio-political character of the British Columbian society that has sponsored it.

If we presume that schoolyard design transmits societal values, we need to look at what our present designs are saying about the value we place on childhood and the importance of childhood education. We need to give more thought to their design to determine not only our socio-political climate, but more importantly, what our culture could be.

In British Columbia, the schoolyard was used primarily for physical education programs such as calisthenics, competitive sports, gymnastics, and military drills. The basic premise behind these programs was that a healthy body led to a healthy mind or conversely, deteriorating health lead to mental and moral degeneration. A student's body and mind had to be trained simultaneously to produce a complete and harmonious individual who would be capable of upholding the values and morals of a "fit" society.

Physical education programs were intended to instill in students those qualities of character needed to maintain order in society. It was believed that participation in athletics helped children learn respect for rules, laws, and legitimate authority. Children would learn loyalty to the group, self-discipline and control of one's body while developing social skills. They would learn that their success on the schoolyard, and by extension in all areas of their

Figure 6. Track Event. Source: Author

lives, was dependent on perseverance, planning and skill (Mott, 1986). As team players, these schoolyard athletes, who subordinated the self for the benefit of the group, would eventually mature into ideal citizens, workers and neighbours of the 20th century (Cavallo, 1981).

It was also assumed that gross motor activities increased students' general health and resistance to disease. Through active play in clean outdoor air, children would increase their physical strength to help them combat the periodic epidemics of diphtheria and tuberculosis that besieged their communities. To ensure that the welfare of all children in the province was being protected by these reforms, the Provincial *Public School Act* [1872] was adopted. This statute created a centralized regulatory agency, the Provincial Board of Education that oversaw the operation of all public schools (MUC, 2001).

The Board of Education regulated the day-to day operation of public schools, the method to certify teachers, which textbooks could be used and what subjects were to be taught. It published a document entitled the *Course of Study for Common Schools* [1890] that restricted coursework to: reading, writing, spelling; English grammar, composition and letter writing; written arithmetic; geography, English and Canadian history; anatomy, physiology, hygiene, and physical education (MUC, 2001).

Figure 7 Children in schoolyard, Port Alberni
Source: BC Archives C-03726

With the adoption of the *Course of Study*, the Board of Education eliminated the study of local ecologies, histories, or folklore from all of their schools' curriculums. Schools were strictly organized around the

factory model with authority centralized and teachers like assembly line workers manufacturing students (Meek, 1995). It is speculated that schoolwork became an abstraction to the school children holding little relevance or application in their immediate daily lives.

To accommodate the legislated physical education programs, the schoolyard was generally large, leveled and covered with gravel. Ample space was provided for the playing of team sports, track and field events, and group exercises. Little or no consideration was given to aesthetics or non-athletic programs in this exterior space. This design was the standard by which all schoolyards, including those of the present, complied.

Rather than keeping step with the society that sponsors it, our contemporary schoolyard appears stuck in the past. Little has changed in its physical design or its educational program in over 100 years other than the inclusion of mass produced play equipment. Current educational authorities appear hesitant to re-evaluate what functions a schoolyard can perform beyond accommodating athletic activities. Their hesitation could be due to financial restraints, labour issues, disinterest of the general public or litigation concerns.

Figure 8 Children playing in long grasses.
Source Author 2003

6. Rethinking the Schoolyard

In the Lower Mainland of British Columbia, it may be supposed that children hold a subordinate position in our society's framework if we take as evidence the cursory design of their schoolyards. These landscapes of childhood simply accommodate single-use programs such as the containment of children or their engagement in gross motor activities (McNiven,

2001). In the extreme cases, these schoolyard designs can be viewed as discursive devices for maintaining children's marginal position in our society by negating their participation in the design of their play/educational space.

In the interests of protecting students from harm or of controlling their behaviours, schools are fortified with protective barriers. These barriers are not simply the chain link fences that mark the boundaries of the schools, but the barriers that limit the types and number of experiences and contacts available to their students.

Figure 9 Boy constructing fort. Source Author 1993

Schoolyards are physically isolated within the built environment and partitioned from the surrounding culture and society.

"Contextuality celebrates the idiosyncratic environment and cultural languages of local and regional landscapes, and when applied to the landscape of the community school, can forge real connections between students, the larger community and their environment. Contextual design demonstrates how the particulars of the site or region provide a collective connection point for community education, dialogue and identity" (Herrington, 1997, p.26).

Schoolyards have great potential to direct children's experience of their cultural and physical landscape by serving as conduits for the transmittance of knowledge while providing opportunities for sensory-motor, cognitive and emotional stimulation. Furthermore, schoolyards can act as a cultural forum in which the issues of children's social identity and educational contexts can be explored.

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6.1 Inclusion of Children in the Creation of a Schoolyard

Figure 10 Children in fort.
Source Author 1993

The image of a child in society is a cultural phenomenon. Certain qualities and behaviours of children are valued and encouraged, while others are considered socially undesirable and hence discouraged [Ceppi, 1988]. How we imagine a child determines their social identity, their rights, the educational contexts offered to them, and the situations in which they can be an active participant.

Additionally, few mechanisms are in place in our society for involving children in the planning or design of their schoolyards. Children are continuously denied any opportunity to participate in the processes that direct the design and programming of their play and educational landscapes.

Important questions need to be addressed: How can schoolyards assist children in becoming active contributors to the social/cultural life of their communities? How can schoolyards help re-define what it means to be a child in our society? To answer these questions landscape architects need to identify methods to include children in the planning of their schoolyards. In doing so, they are not only assisting children in their socio-emotional development but are allowing children to take an active role in the physical and, more significantly, the cultural development of their community.

The inclusion of children in the design process necessitates the development of a mechanism to allow them to convey their ideas. Landscape architects need to employ materials, language and conventions that are familiar to children. Play-like strategies such

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as story-telling, play-acting, modeling in clay, drawing cartoons or playing games are effective methods for children to develop and communicate their ideas.

The effectiveness of these play-like strategies is based on the fact that play is an activity integral to children's lives and one they eagerly pursue. Children play games to mimic the world around them and to frame their experiences. It fulfills many formative functions while allowing children to feel a sense of control (Society, 1999). During game playing, children can control their level of engagement and stimulation. There is usually no adult agenda imposed upon them, no external rewards and no right or wrong way of performing.

Figure 11 Child exploring in bog
Source Author 2003

It is easy to draw parallels between designing and game playing. Both involve teamwork, cooperation and the formation of a collective strategy (Herrington, 2002). By simply changing the materials and language of the design process, landscape architects are inviting children to play the game of schoolyard design. Furthermore, the game does not need to stop at the conceptual level of schoolyard design, but can be an ongoing process that allows children to direct the design and program of their schoolyard indefinitely. To feel like full participants with the schoolyard, children need to feel that they can continue to change site elements over time (Herrington, 2002).

Adulthood affords many opportunities for imprinting our personality on our daily landscapes. We can redecorate our homes or plant annuals in our backyard gardens. Children need equal opportunities to alter their landscapes in order to satisfy the basic human need to adapt our environments (Meek, 1995). Landscape architects can easily provide children with the means and the permission to interact with and manipulate their
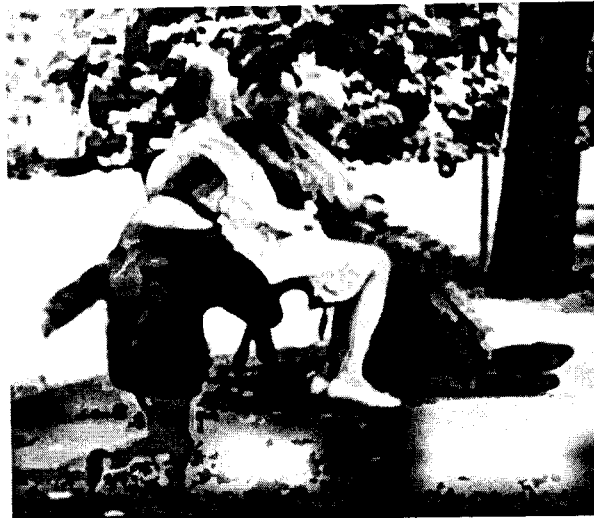
Figure 12 Toddler with Seniors. Source Author 1993

physical and cultural landscape, the schoolyard. They can create a space that is open to a variety of interpretations and whose elements can be freely fingered. By doing so, they include children in the development of their own public space.

The benefits of permitting children to be the shapers of their physical and cultural landscapes are great. Children will gain independence and self-confidence due to their increased profile within society. The image of children will become richer, which will allow them a larger role in society. The cultural constraints that determined what children can do in our society and in our public spaces will be lifted.

On the negative side, the adult community must surrender a degree of control of the appearance of children's landscapes. Children's activities, games and constructions may not fit aesthetic ideals favoured by the adult world. Hopefully, by educating the adult population as to the significance of these childhood landscapes, they will come to respect and accept the children's efforts and creations.

6.2 Schoolyards as a Community Landscape

Safety policies have isolated children's play and education behind the schoolyard fence. This isolation deprives children of the many opportunities found in the local cultural landscape and in the relationships with people in the surrounding community (McNiven, 2001). Consciousness of belonging to a social community is denied to children and they essentially become estranged from their cultural landscape. This isolation in turn deprives the community of the children's perspectives and energies. The opportunity of viewing a schoolyard as a relational space that could facilitate exchange between people and generations is generally missed by community planners and designers.

Given an opportunity to observe the behaviour of others or converse with children or adults, children will begin to understand the cultural and social processes of their community. Children will feel that they are part of a community and connected to a particular place. By re-conceiving the schoolyard as the heart of a community, landscape architects are essentially moving children and their activities from the fringes of our society and placing them in the hub of social and cultural activity.

*"By studying the landscapes of play we can begin to
understand what our culture is; in re-thinking these
landscapes we can entertain what culture could be.
By creating play spaces for children that express all
the complexities of landscape and that in turn support*

Figure13 Extended family in park .
Source Author 1995

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> *the social, emotional, physical and cognitive*
> *development of children, we will inspire their senses,*
> *their minds and their hearts"*
> [Herrington, 1997, p.158].

7. Conclusions

Schoolyard environments must be flexible and open to a variety of uses. They can act as the heart of the community by accommodating a variety of community needs encouraging a wide range of interactions and relationships. In doing so, they are enabling students to play an active role in their own education and in developing their own culture. Rather than acquiring their education principally in the classroom, children will learn through exploration of the physical and cultural world within the schoolyard. Children will be able to acknowledge the specific contexts in which they live. Landscape architects need to give more thought and consideration to schoolyard design and function to determine what our culture could be.

8. Inventory and Design Proposals

8.1 Thesis Goal and Objectives

Goal

The goal of this project is to design a schoolyard and adjoining public park that will extend the potential of these spaces for the surrounding community. This design seeks to encourage non-formal education for children and their communities through play, personal interpretation and multi-generation interaction.

Objectives

1. To provide opportunities for involving children in the planning and design of their schoolyard.
2. To develop means to link children's play experiences to the larger social context of their community.

3. To design a combined schoolyard community park as a collection point for the surrounding community

4. To reflect the different land uses (school and park grounds) in the physical design of these spaces.
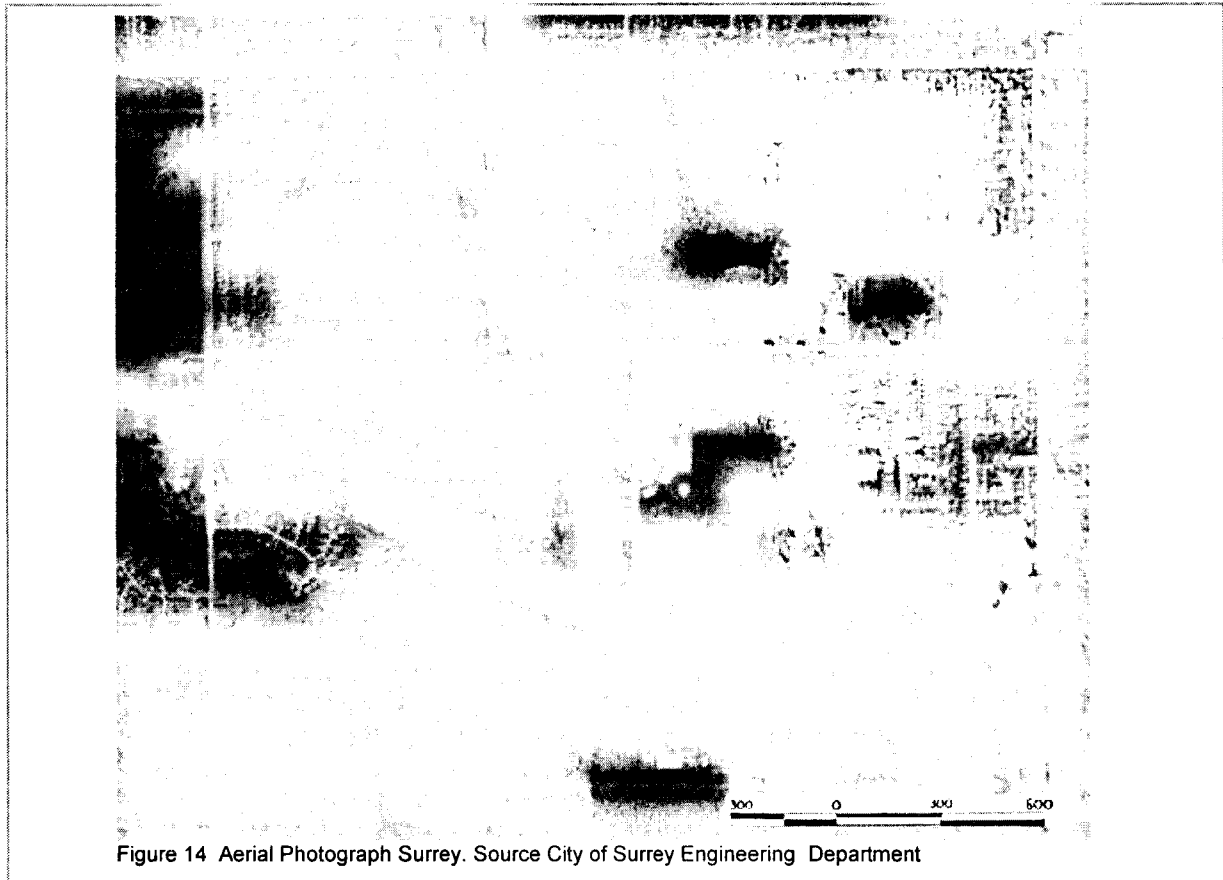

Figure 14 Aerial Photograph Surrey. Source City of Surrey Engineering Department

8.2 Site Analysis

<u>Physical Context of Maple Green Elementary</u>

A hierarchy of public spaces exists in the city of Surrey. Elementary schools are the most abundant and serve small catchment areas, generally around 1.5-2 square km. Next in the hierarchy are secondary schools that serve much larger catchment areas and finally, city parks serve multiple elementary and secondary school catchment areas. Each of these public spaces can be programmed for different types of functions according to their size and can serve their various communities in different ways.

The school site chosen is on Johnston Hill in central Surrey (one of the fastest growing school districts in North America). The schoolyard is delineated from the park by a chain link fence. The combined area of the school/public park is approximately 6 ha in area. The large combined area of the site allows for the implementation of a variety of school and community programs. Elementary schools can be programmed with services for seniors, pre-school children, school-aged children, teens and adults of their immediate catchment areas. This would include daycare facilities, senior drop-in services, classrooms for adult education, spaces for civic functions, and outdoor areas for education, recreation and social exchanges.

Views

The site is in an upland residential area with a southern exposure offering views to the south and southwest including the Cub Creek Valley.
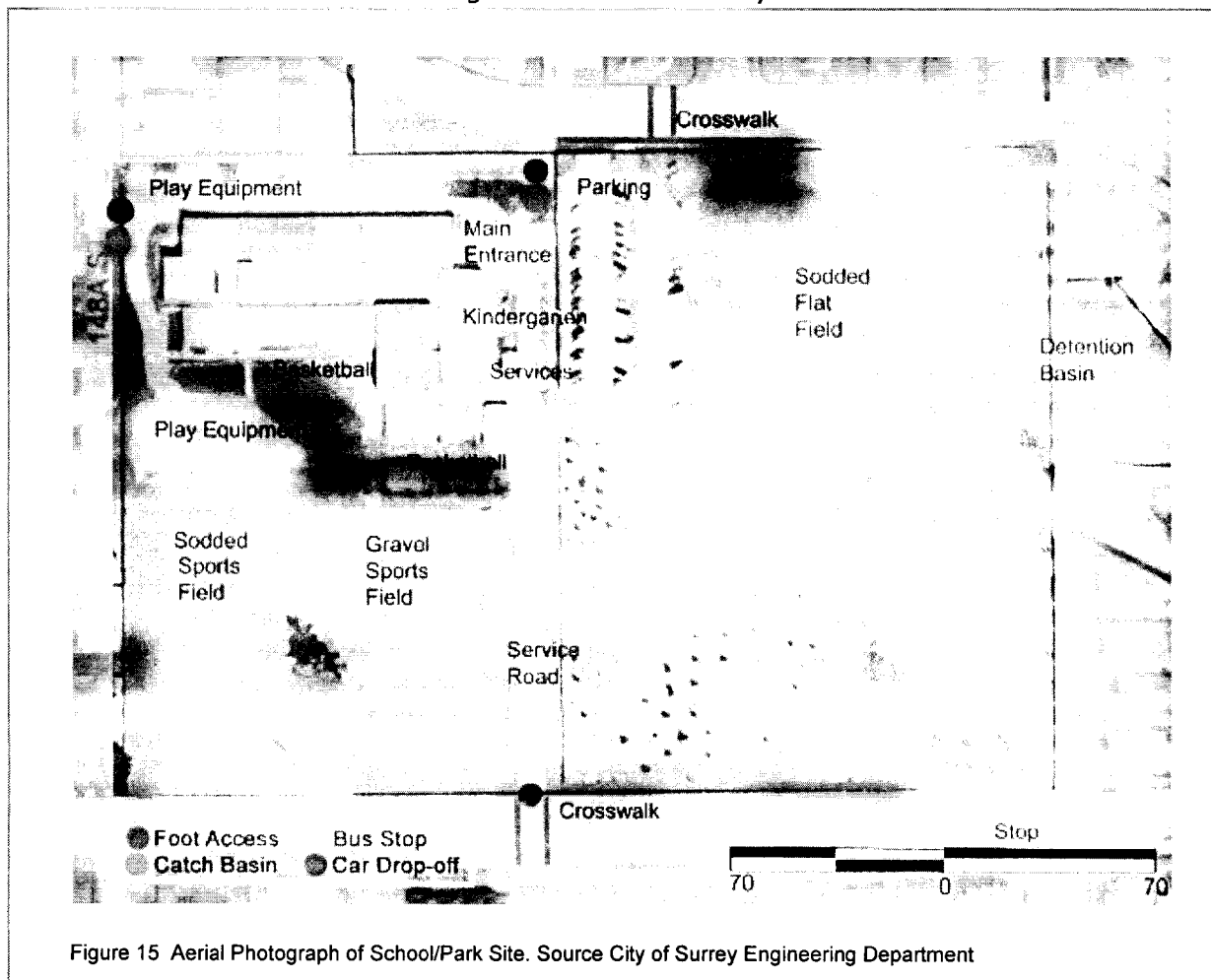

Figure 15 Aerial Photograph of School/Park Site. Source City of Surrey Engineering Department

Soils

Soils are generally poorly drained marine and glacio-marine stony deposits to stoneless silty loam. The depth of the soil ranges from 3 to 30 meters.

Topography

Slopes on the park area fall from the northeast corner and average 8%. One large flat area has been graded in the north portion of the park. It is frequently flooded making it inaccessible. The playing fields of the schoolyard have an average slope of 2% with edges averaging 20%. The main entrance to the school sits approximately 3 meters below grade and is accessed by a staircase and ramp. The entire site is drained with vertical drainage (Figure 15). Surface runoff is captured by curbs and street catch basins which discharge into nearby Enver Creek.

Access

The site is access by foot, by public transit, and has 3 drop-off areas for car access. Pedestrian pathways cut through housing blocks to the site. This is in compliance with the City of Surrey's Pedestrian Masterplan which requires that young pedestrians be separated from motor vehicle traffic whenever possible (City of Surrey, 1997). Access to the site along its edges is impeded on the west by chainlink fences and the southwest and east by private property enclosures.

Fire and service vehicles access the school via a paved central lane. A chainlink fence runs along this roadway between the school site and the park and is installed to restrict children's play within the schoolyard. The fence is breached at one point by a staircase. No seating is available in either the park or the schoolyard.

Vegetation

Both areas of the site are covered predominantly by sod. The schoolyard has a large gravel sportsfield, an asphalt yard, and a sand covered play equipment area. A small grouping of young native trees has been recently planted in the southwest area of the park.
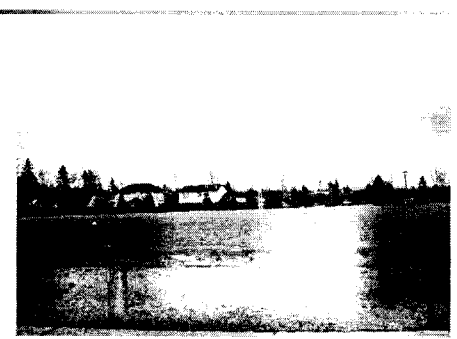
Community Context

School

The elementary has 568 students enrolled in 8 grades for Kindergarten to Grade 7. Thirty-seven percent of the children partake of an ESL programme. There are 23 classrooms and 36 teachers.

Catchment Area

The surrounding neighbourhood is composed primarily of single family detached homes with both a front and back yard. Ages of homes in neighbourhood range from 10-25 years. The median family income is $52,000. Thirty-six percent or the residents' primary language is not one of the official languages of Canada and 70% of which is Punjabi. Twenty-five percent of all seniors in the area live with family members and 12% of families are single parent (Statistics Canada, 1996, p.326-327).

8.3 Questionnaire

While it is readily agreed amoung designers that the inclusion of the broader community in the planning and implementation process of a public space is a positive practice, it is questionable if this sentiment is extended to include children. Designers and community planners need to reassess children as knowledgeable of their environments, as social actors in the research process and as citizens with a

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right to engage in the political process. To effectively design landscapes for children that reflect their desires and wishes, it is imperative that children are involved in the design process.

To meet my first objective of providing a mechanism for involving children in the planning and design of their schoolyard, I met with an 36 intermediate schoolchildren, aged from 10-12 years, to get their ideas as to what they would like to see and do in their schoolyard.

The questionnaire was comprised of five photo-compilations of landscapes near the school study site (Figure 16). The photographs showed: 1. a wooded site with animals, brush and a fort; 2. a stadium with different aged people involved in a variety of physical activities; 3. a construction site showing people in the act of designing and building; 4. a house with animals and gardens and finally; 5. an empty schoolyard. The 5 images were chosen because they were representative of prominent landscape types in the local context that would be familiar to the children. By showing the students these 5 images, I hoped that the children would be critically aware of the different types of landscapes around their neighbourhood and that these images would trigger their memories of positive experiences or pastimes they might have had in these types of environments.

It was a challenge to find ways to communicate in abstract ideas with the schoolchildren and to encourage them to think outside of the norm in regards to schoolyard function.
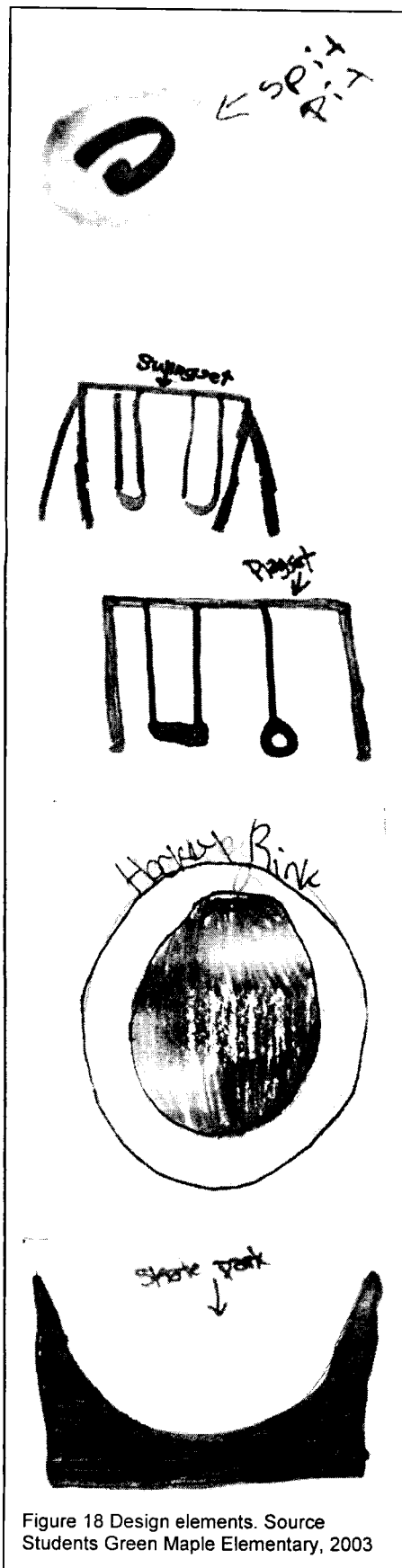

Figure 17 Swimming pool proposal.
Source Student Green Maple Elementary, 2003
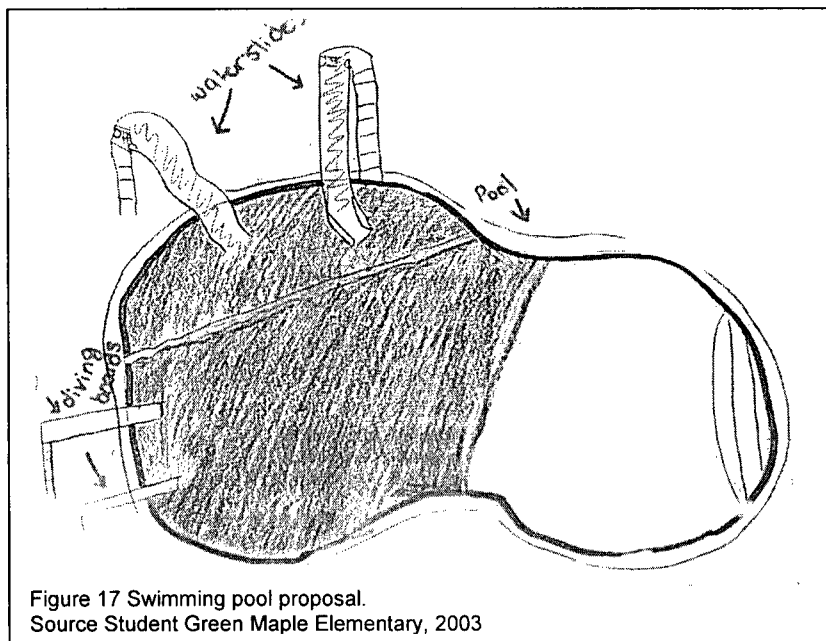
Figure 18 Design elements. Source
Students Green Maple Elementary, 2003

The participating children were active and eager participants. They listened and watched attentively to the presentation of the questionnaire. They then divided and worked in small groups or individually to developed proposals for a schoolyard.

The children were instructed to convey their proposals first as drawings on paper followed by a short oral presentation. For their paperwork, they could choose whatever format they felt most comfortable using, such as cartooning, mapping, storyboarding, or drawing. Most of the students decided to draw maps, with one group opting to draw a section/elevation (Appendix A). When the students presented their drawings to the class, they verbally elaborated their proposals (Appendix B).

The maps produced could be grouped into three general categories. The first group of maps were quite simple spatially, being divided into simple blocks or units. Each spatial unit contained pictures of an object that supported a specific activity. There was no structure or interrelation between the units and no attention was given to scale (Lynch, 1960). The separate elements in these maps held more importance than their placement in a wider context, their position in relation to each other or their relative proportions. The second group of maps were more structured spatially. The separate elements in

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each map were roughly related in terms of their general direction and relative distance from each other, while still remaining disconnected (Lynch, 1960). The final group of maps was much more structured. Not only were the various map elements interrelated but they were also connected to one another by circuitous paths. The paths were the dominant structural elements that organized the maps. The paths also functioned as tools for structuring a narrative. When presenting their maps, these students described the sensations one would feel moving along the pathway through the different activities and landscape types.

The one section/elevation drawing was the most developed out of all the proposals. This group conceived in three dimensions and envisioned moving both vertically and horizontally in the landscape. They developed mechanical means to move from one plane to another. They were also more sensitive to the sites' aesthetics and physical structure.

It was unfortunate that my meeting with the children fell after the deadline for my design proposal as many of the children's suggestions could easily have been incorporated into my plans for a schoolyard/public park. For example, their proposals for recreational facilities such as a skateboard park, a climbing wall, and street hockey facilities could easily have been layered upon parking, school or schoolyard structures. Their suggestions for medical clinics, outdoor washrooms and a recreational centre were all feasible for this project and could have been incorporated into existing or proposed building structures.

While a portion of the student's ideas were fanciful and impractical for a project of

Figure 19 Deer. Source Student Green Maple Elementary, 2003
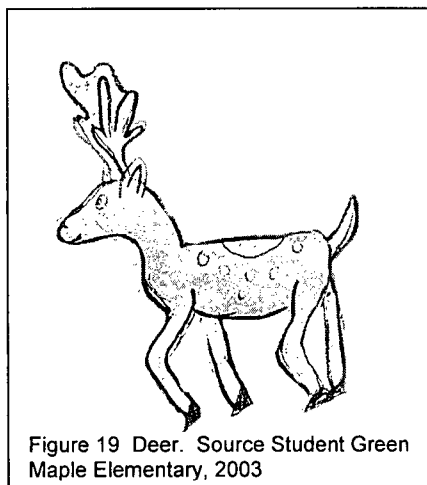
this scale, the exercise was still helpful in revealing the children's interests and concerns. The success of this session would encourage further inclusion of the children in the subsequent design stages. The children's awareness of their school and neighbourhood communities is acute and offers great insight into the concerns of the school site users. Their sensibilities and knowledge are a great resource, as they provide knowledge of the schoolyard

Figure 20 Program Bubble Diagram Source: Author 2003
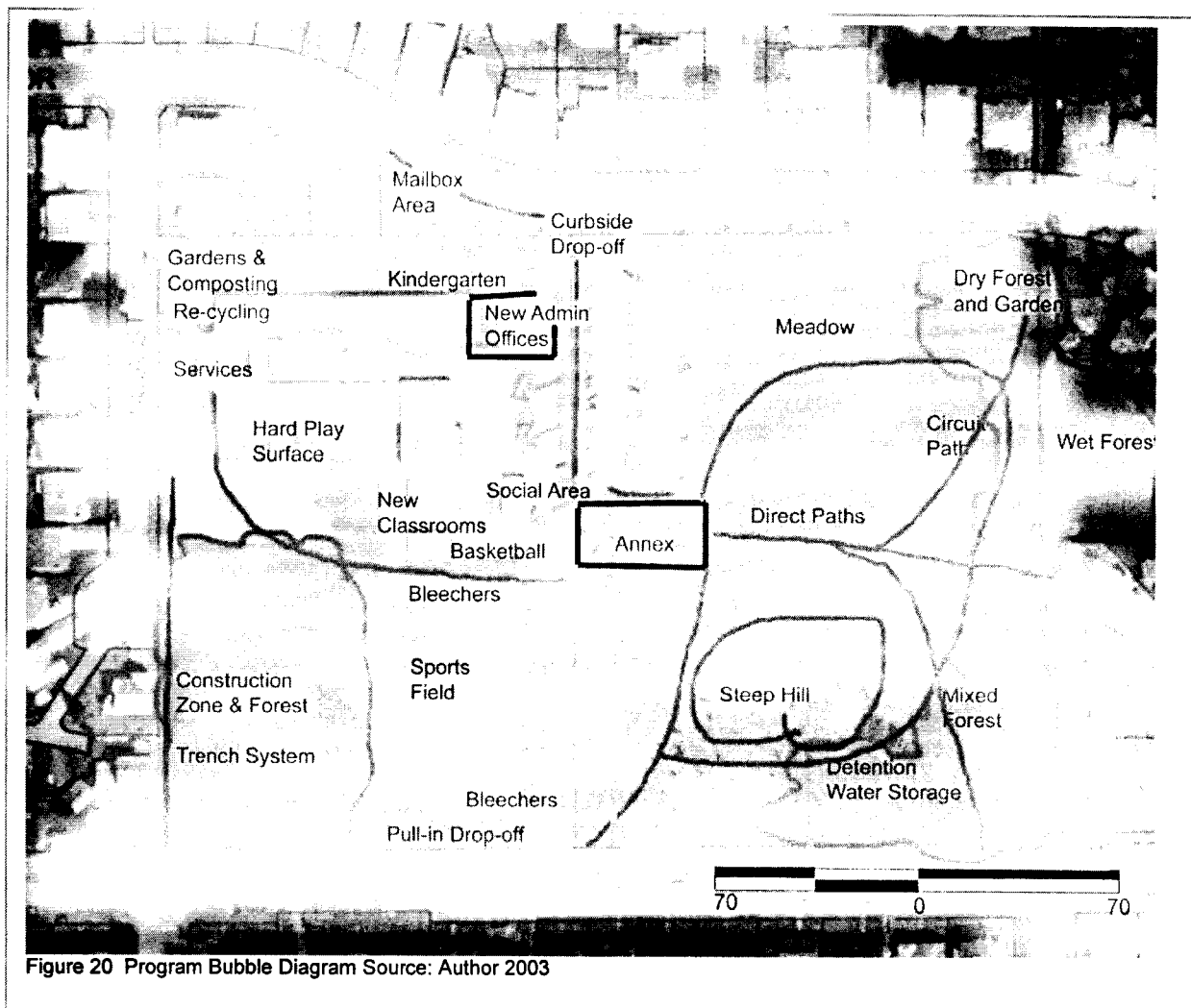
social structure, informal activities, spontaneous types of games and current recreational

trends.

8.4 Proposed Programs

School Site

- Children's experimental gardens
- Informal basketball facility of 25 meters by 15 meters.
- Informal Soccer field
- Informal Baseball field
- Two drop-off areas for cars with easy access to school entrance and schoolyard.
- Outside laboratory
- 40 parking stalls, 2 for handicapped stalls
- Covered play areas
- Intermediate play area
- Primary play area
- Construction zone
- Social areas
- Forest

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Park Site

- A small community multi-purpose building, with space for a daycare centre, after-school care and seniors centre.
- Set of washrooms
- Seating- benches and tables to be spaced approximately 25m. apart and designed specifically to meet seniors needs.
- Water fountain
- Community news pillar
- Gathering area for small groups of 25-30 people
- Community composting facilities
- Stormwater and infiltration systems
- Specific play areas for pre-school children and teens.
- Easy access points from surrounding neighbourhood
- 1.5m interior circulation paths to act as an exercise routes

8.5 Design Proposals

Grading and Drainage

The site was completely deforested and graded to accommodate the school building and the schoolyard sports fields. The site lacks any reference to its pre-development character and offers limited sensory experiences to the community. In my design proposal, the park site is graded to have an undulating hill in its northern half with a series of large

Figure 21 Grading and Drainage. Source Author 2003
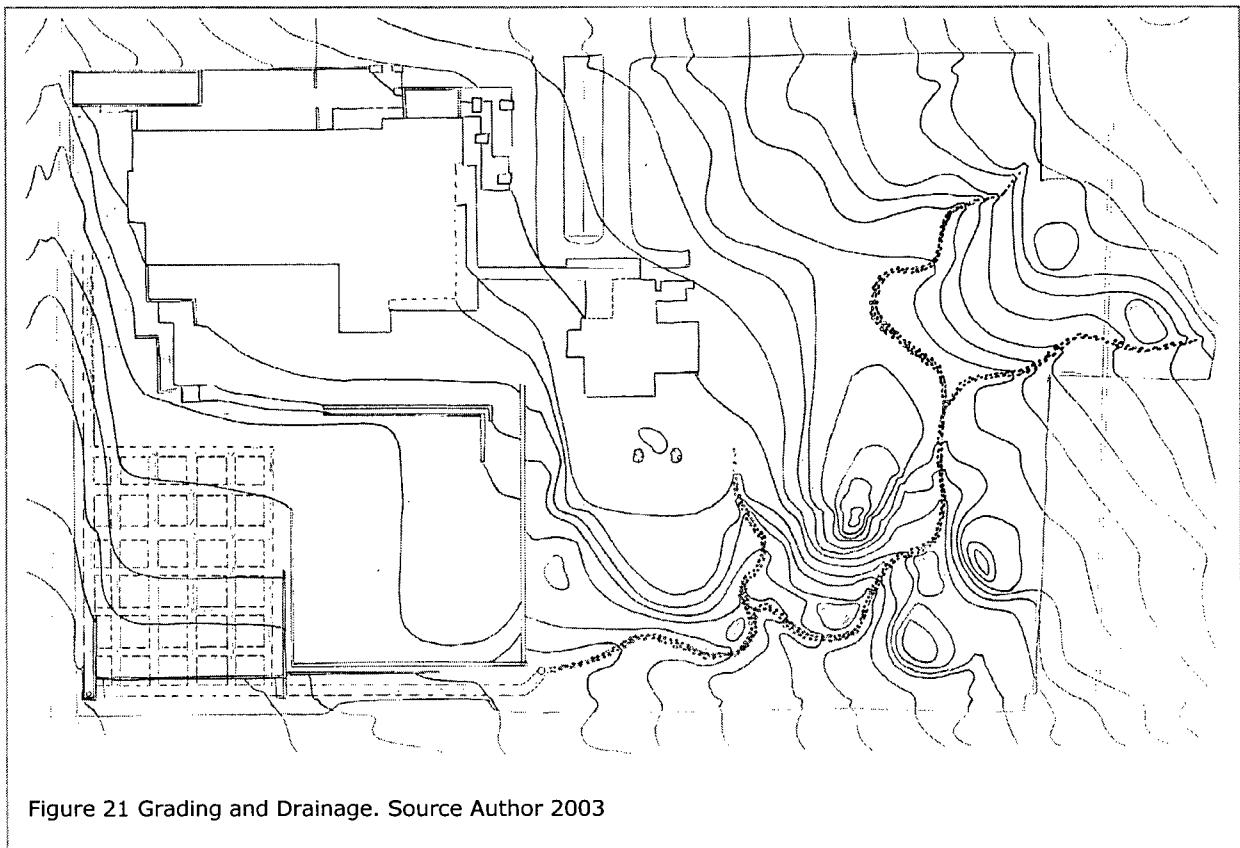
steep hills in its lower portion. A stream with a bed composed of homogenous black smooth stones winds its way down the site amoung the topography. The stream and the hills are abstractions of their natural counterparts and are designed to evoke a sense of extraordinariness in the site. The abstractions say explicably that this is a site designed and made by humans. The artful forms differentiate the park from the surrounding suburban landscape. The fantastic character of the park site encourages the community to engage with the landscape and helps them to distinguish it from the greater landscape.

The park and school site are structured differently. The park's forms and structures are irregular and informal while the schoolyard's are regular and formal. The schoolyard is graded to have one flat sports field and a large hard play surface. A large portion of the remaining schoolyard is composed of a hill with a constant gentle slope trending to the southwest. A gridiron of trenches filled with organics and gravel is incised into this slope. This gridiron acts effectively as an underground stream as it allows water to flow beneath grade eliminating any risk to the schoolchildren. The trenches have regularly installed dams that allowed water to pool beneath grade to encourage the water to infiltrate into the soil.

Figure 22 Valley Section/Elevation
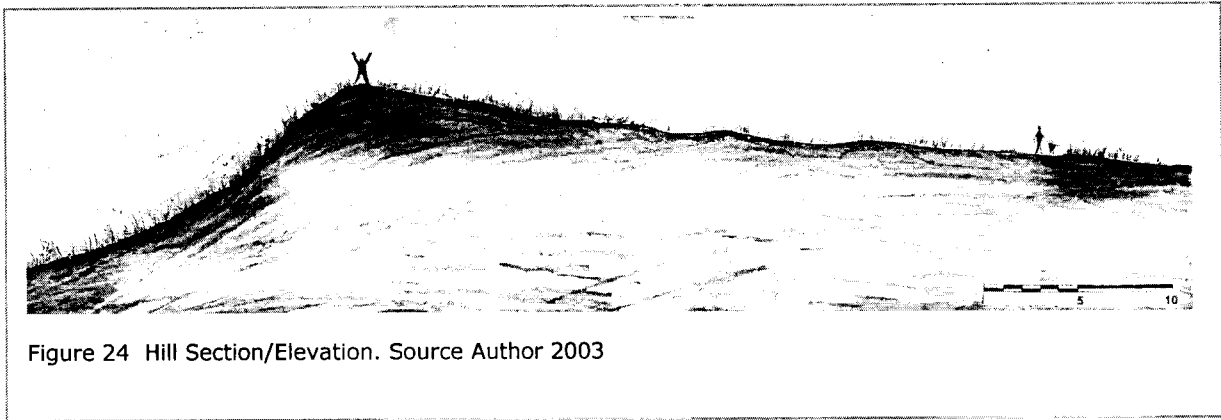Source Author 2003

Figure 23 Stream.

Figure 24 Hill Section/Elevation. Source Author 2003

Multi-functionality of design elements is integral to this design proposal. For example, retaining walls are designed to provide both flat playing surfaces and vertical members for play equipment, seating and planters.

The entrance to the school is re-graded and partially filled to reduce the existing elevation difference. This allows for easy access for children and offers clear sightlines to the teachers and school administrators. The steps can be used for formal or informal gatherings.

Circulation

A hierarchy of pathways is introduced into the site. A principle concrete axis runs between the schoolyard and the park, a system of primary pressed-stone pathways lead to the community annex and the school building, a secondary woodchip pathway takes a winding route around the park and two tertiary stepping stone pathways lead through marginal park areas (Figure 25).

Master Plan
(Figure 25)

Annex

A community building is placed in close proximity to the existing school. This facility has a senior drop-in centre, a daycare for preschool children and an after school care facility. Their close proximity allows for a sharing of resources, it reduces the distance schoolchildren have to travel to get to after school care, it allows seniors and preschool children to observe school activities and allows
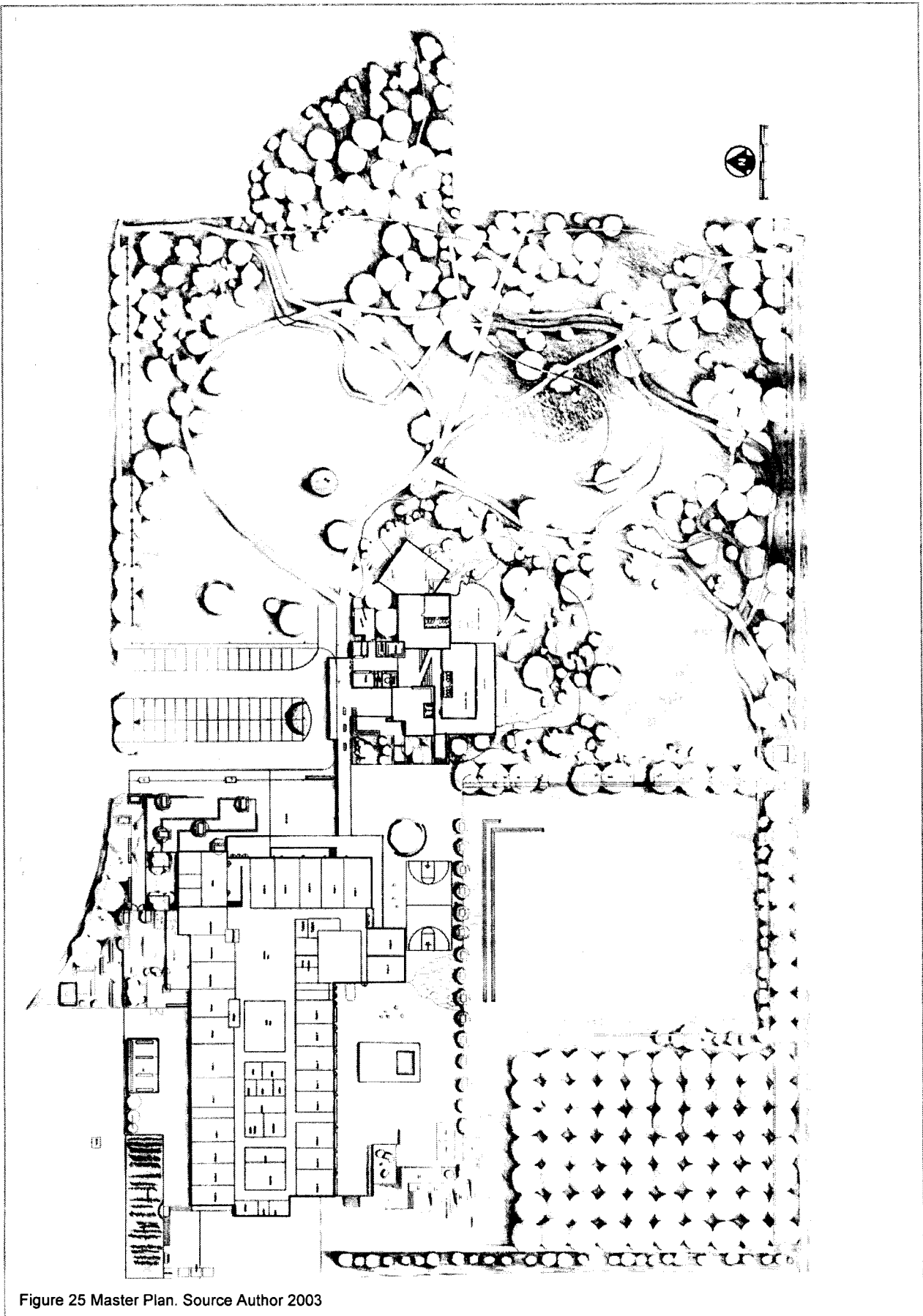
Figure 25 Master Plan. Source Author 2003

the school children the opportunity of interacting with members of their community in a safe supervised environment.

Coupling senior services with childcare facilities encourages multi-generational interactions and a sharing of histories or culture. Seniors would be able to lend assistance in the childcare facilities if they chose to by helping at lunchtime, reading at storytime, holding hands on short sojourns into the park and many other aspects of childcare. The children would provide companionship and stimulation to the seniors. Placing these facilities in the heart of the community will link children's play experiences to the larger social context of their community.

Each garden area for the community building is designed to have one prominent colour and a dominant olfactory sense. Memories of a place or experience can be called to mind by a scent, a song or a sound. The design encourages strong sensory associations to be made by the users of the outdoor gardens. The daycare is predominantly yellow; the aftercare garden is red and the seniors' garden is blue. Fragrances of sage, peony, lavender and lilac will waft through the outdoor spaces.
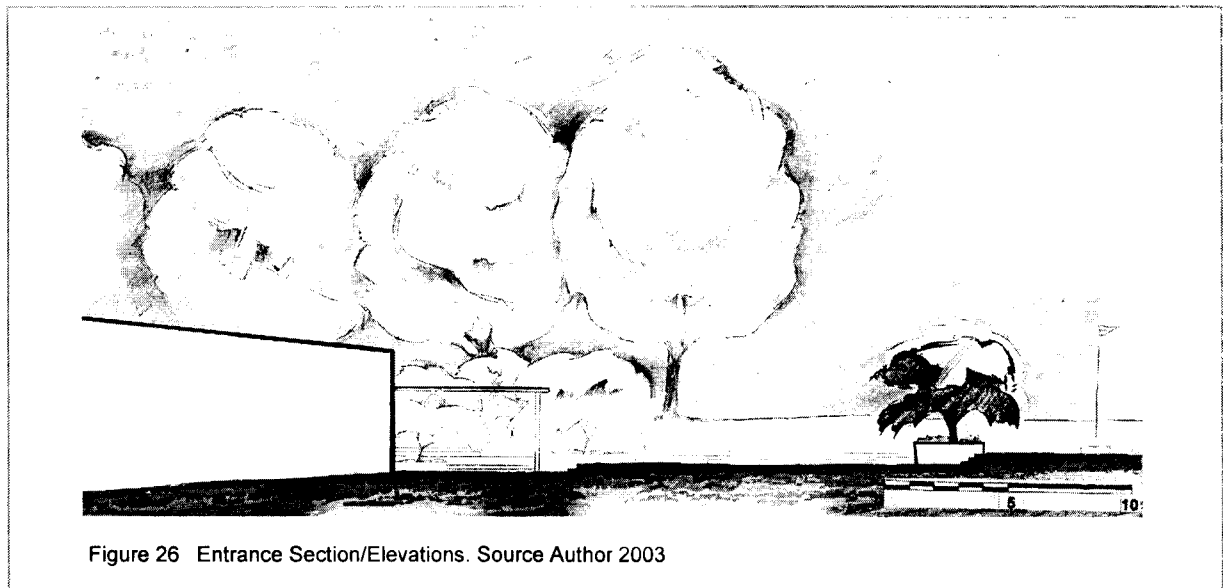

Figure 26   Entrance Section/Elevations. Source Author 2003

School Building

The school building is re-designed. The administration offices are placed in a slightly elevated position at the school entrance. This location offers better views of the schoolyard and its entrances.

The gaslines, hydro transformer boxes, and garbage dumpsters are relocated to the west of the school. The new location offers direct access to a road and removes these hazards from the children's immediate play area.

The kindergarten is relocated to the north-side of the school. This location provides easier access for the children and their caregivers. The kindergarten's outside play area has different elevations for play, a variety of ground and overhead treatments and much-textured plantings. The outside area is contained within fences and retaining walls; yet, sightlines are maintained to the drop-off areas.

The schoolyard is re-graded so that all classrooms are now wheelchair accessible to the outside area. Garden beds are dug outside each classroom and can be designed and planted by the children.
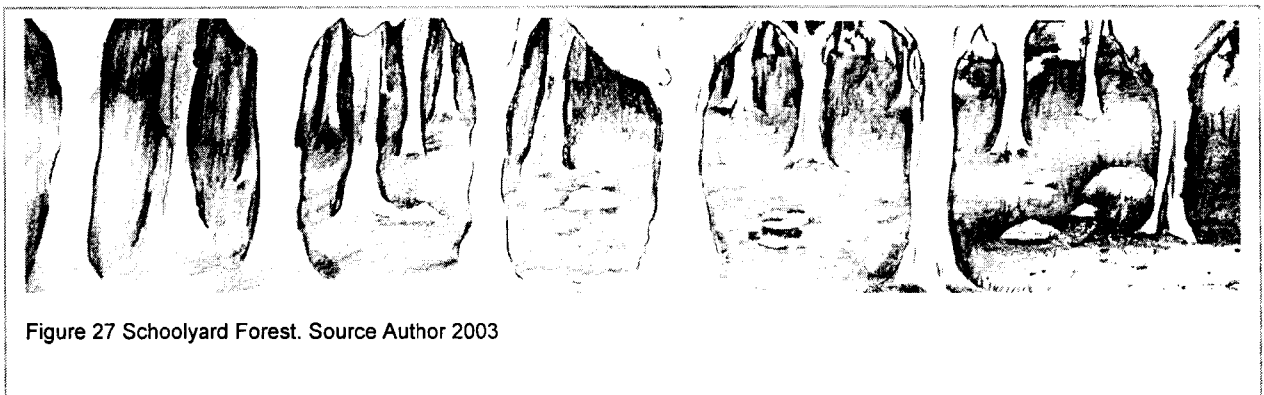

Figure 27 Schoolyard Forest. Source Author 2003

Schoolyard

A variety of play and learning landscapes are included in the schoolyard. There are areas were children can challenge their physical prowess, engage is team sports, socialize, construct, explore and manipulate. Social areas are created along retaining walls, platforms, and planters. Many features, utilitarian or aesthetic, are open to multiple interpretations and can be used as seating, skateboard ramps, balance beams or bases for forts.

The schoolyard is designed so that children will play on the south-side of the building only, leaving the north-side for gardens, a weather station, an outside laboratory and the kindergarten play area. The division of the schoolyard makes teacher supervision easier and more efficient.

Figure 28 Central Axis. Source Author 2003
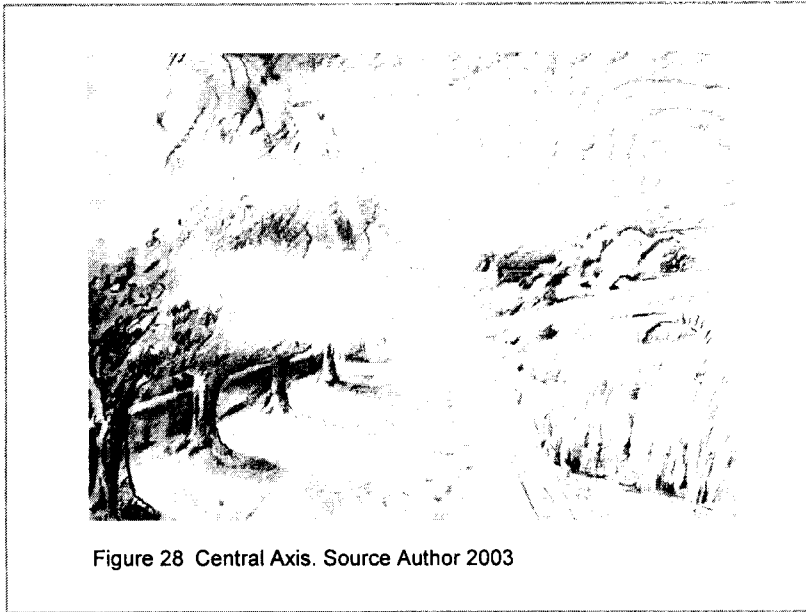
Central Axis

The division between the park and the schoolyard is highly emphasized by the design of the central pathway. It has a strong dialectic nature- orthogonal and regimental on the west, irregular and fragmented on the east. Its design reflects the formal qualities of the flanking schoolyard and park. The axis' school side is heavy with a fence, gates, retaining wall, and a line of Maple and Ash trees. Its park side is undulating, fragmented and interspersed with boulders and grasses. The axis passes between the regularity of the schoolyard and the soft undulations of the grassed hills in the park. The axis articulates the different types of learning responses and social interactions intended for the two sites. Within the schoolyard, learning is formalized and segregated; in the park learning is open and malleable. Both systems offer interesting ways for the children to interact with their physical and cultural landscapes.

8.6 Planting List

To provide a variety of sensory experiences, a myriad of flowers, grasses, sedges, rushes, shrubs and trees are planted on the site. In the selection process, much attention was given to their texture, form, seasonal habit, colour, smell, and taste. Different types of experiences are encouraged by the different plantings: expanses of meadow grasses, grassy knolls crowned with gnarled Pines; a drought tolerant forest of Arbutus, Oak and Pine; a wet forest with puddles and rushes; a mixed forest and a gridiron forest.

Aside from the sports field and meadow area in the park, maintenance requirements are kept to a minimum. Grasses are kept long on steep slopes; broken branches and leaves

are left to rest on the forest floors; birds and insects feed on fallen seeds and fruits; colours and textures mingle offering many play, sensory and learning experiences to children and their communities.

School Site

Figure 29 Children Climbing Trees
Source Author 1995

In reflective pond
Dwarf Japanese Cattail -Typha minima

Entrance Gardens
Japanese Maple- Acer palmatum
Lemon Thyme -Thymus xcitriodorus

Kindergarten Area
Hens and Chickens - Sempervivum tectorum
spongy texture
Lambs Ears - Stachys byzantina, soft foliage
Pansy - Viola x wittrockiana
Sunflowers - Helianthus annuus

Mailbox Area [white]
Katsura - Cericidiphyllum Japonica-12-18m high; 6-9m wide
Star Jasmine - Trachelospermum jasminoides fragrant flowers
Sweet Alyssum - Lobularia maritima
Whirlgig - Osteosperum
Frosted Jade Hosta
Bugbane - Cimicifuga acerina

School Field
Red Maple - Acer rubrum -12-18m high [red winged seeds and twigs]
Green Ash - Fraxinus pennsylvanica - 15-18m high [winged seeds that grow in pompoms]
Pussy Willow - Salix discolor 5-8m high; 4-5m wide [soft catkins]
Norway Maple - Acer Platanoides- 12-15m high; 8-15m wide
Katsura - Cericidiphyllum Japonica-12-18m high; 6-9m wide
Bitter Cherry - Prunus emarginata 9m high [hummingbirds]

Trees in School Social Areas
Flowering Crabapple - Malas floribunda 4-5-7.5m high [heavy loam, acid, full sun, deep pink flowers, fragrant]
Japanese Maple - Acer palmatum

Park Site

Accent Trees
Eastern White Pine- Pinus strobus 15-24m high
Lodgepole Pine - Pinus contorta var. conterta Dougl. 7.5-9m high [accent, lower branches touch ground]

Garry Oak - Quercus garryanna
Purpleblow Maple - Acer truncatum 6-7.5m high [dark green leaves, fall colour, streets, drought tolerant]
Cedar Lebanon - Cedrus libani ssp atlantica clugo 12-18m high
Japanese White Pine - Pinus parviflora 7.6-15m high

Mixed Forest Park

Hedge Maple - Acer Campestre 7-10m high
Coliseum Maple - Acer Cappadocium 7.5-9m high [Great fall colour, flowers, samara]
Red Maple - Acer rubrum -12-18m high [red winged seeds and twigs]
Katsura - Cericidiphyllum Japonica-12-18m high; 6-9m wide
Douglas Maple - Acer glabrum 1-7m high
Salal -Gautheria shallon
Green Ash - Fraxinus pennsylvanica

Wet Forest Park

Red Osier Dogwood - Cornus stolonifera
Blue Elderberry - Sambucus cerulea
Paper Birches - Betula papyrifera
Pin Cherry - Prunus pennsylvanica 1-5m high [white flowers]
Red Maple - Acer rubrum - red winged seeds and twigs
Grasses - Glyceria elata, Deschampampsia caespitosa
Sedge - Carex spp
Rushes - Juncus

Dry Rocky Hill Forest Park

Japanese White Pine - Pinus parviflora 7.6-15m high [accent, graceful, artistic, perfect for smaller places]
Garry Oak - Quercus garryana
Madrone - Arbutus menziesii 6-15m high
Grasses: Idaho fescue - Festuca idahoensis, California fescue - F. californica, Wild rye - Elymus glaucus, Onion grassees - Melica spp, Festuca viridula
Perennials: Dwarf Hulsea , Sedum, Cosmos – Cosmos bipinnatus-butterflies, California poppy- Eschscholzia californica, African Daisy - Gazania rigens, Alpine Timothy -Phleum alpinum, Yarrow - Achillea ageratum, Cinquefoil - Potentilla fruticosa.

<u>Annex Gardens</u>

Seniors Area [blue]

Atlas Cedar - Cedrus atlantica 12-18m high; 9-12m wide
Lilac - Syringae reticulata
Lavender - Lavandula angustifolia [perfume]
Corsican Mint - Mentha requinii [perfume, tiny gr leaves, mauve flowers, between paving stones]
Hydrangea paniculata
Forget Me Nots - Myosotis sylvatica
Lobelia - Lobelia erinus
Chickory - Cichorium intybus

Figure 30 Girl Climbing Tree Source Author 1995

Solitary Clematis - Clematic integrifolia
Geranium - Geranium x John's Blue
Heliotrope - Heliptropoim arborescens "Marine" [vanilla smell]

Daycare Play Area [yellow]

Pinapple Guava - Acca sellowiana edible petals and soft silvery leaves
Forsythia - Forsythia x intermedia 3metershigh= width [early bloom]
Lambs Ears - Stachys byzantina, soft foliage
Common Sage - Salvia officinalis
Mexican Feather grass - Stipa tenuissima
Pansy - Viola x wittrockiana
Sunflowers - Helianthus annuus
Cotton Grass - Eriphorum chamissonis
Daisy - Bellis perennis
Calendula - Calendula officinalis
Golden Weeping Willow - Salix x chrysocoma 25m
Northwester White Birch - Betula papyrifera 20 m
Pacific Dogwood - Cornus nuttallii shrub to 15m high
Crocus - Crocus sativus
Buttercup Winterhazel - Corylopsis pauciflora 1.2m

After Care Play Area [red]

Paperback Maple - Acer Griseum 6-9m high
Fountain Grass - Pennisetum setaceum 'Rubrum'
Hens and Chickens - Sempervivum tectorum spongy texture
Highbush Cranberry - Viburnum trilobum
Red Maple - Acer Rubrum
Peony Paeonia - Nippon Beauty
Japanese Blood Grass - Imperata cylindrica
Japanese Silver Grass - Miscanthus sinensis purpurascens
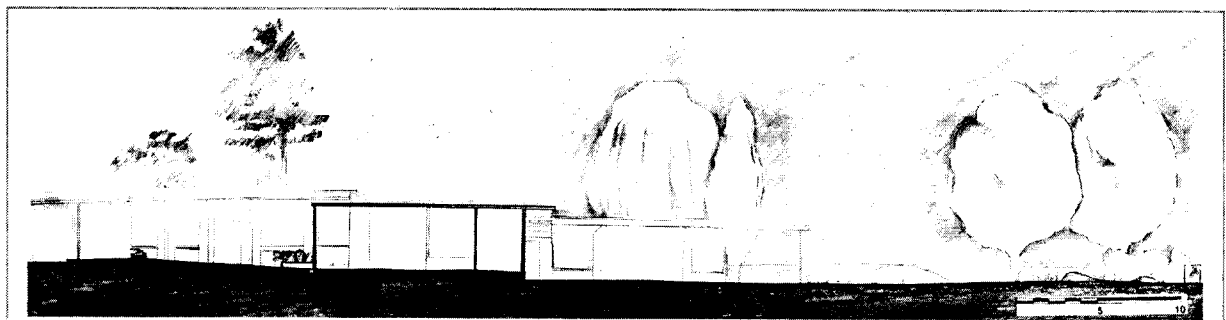Wild Strawberry - Fragarua vesca
(Kruckeberg, 1982; Valleau, 1998).

Figure 31 Section/Elevation of Annex. Source Author 2003

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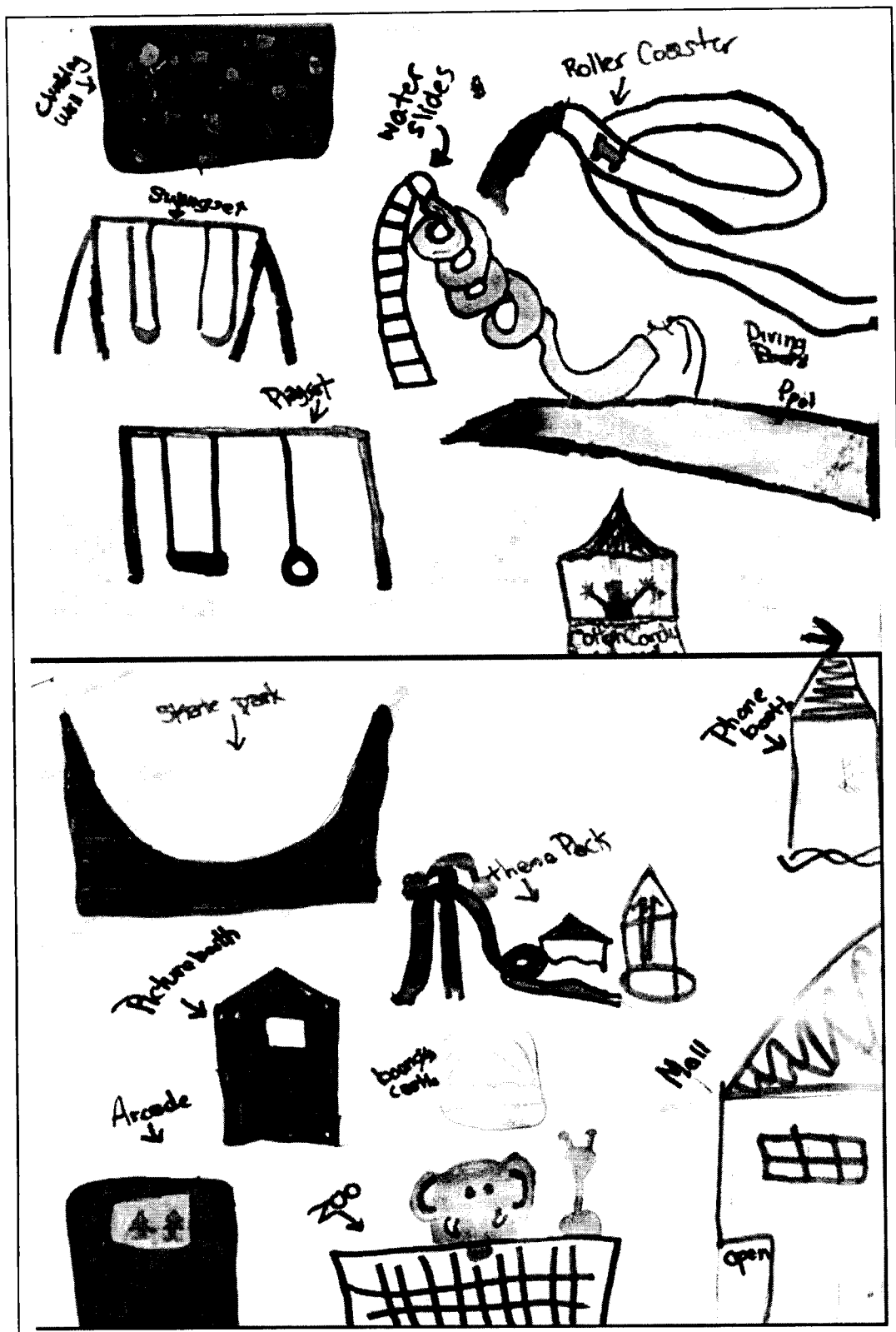Statistics Canada (1996). *Profile of Census Tracts in Abbotsford and Vancouver*. Victoria: BC Stats.

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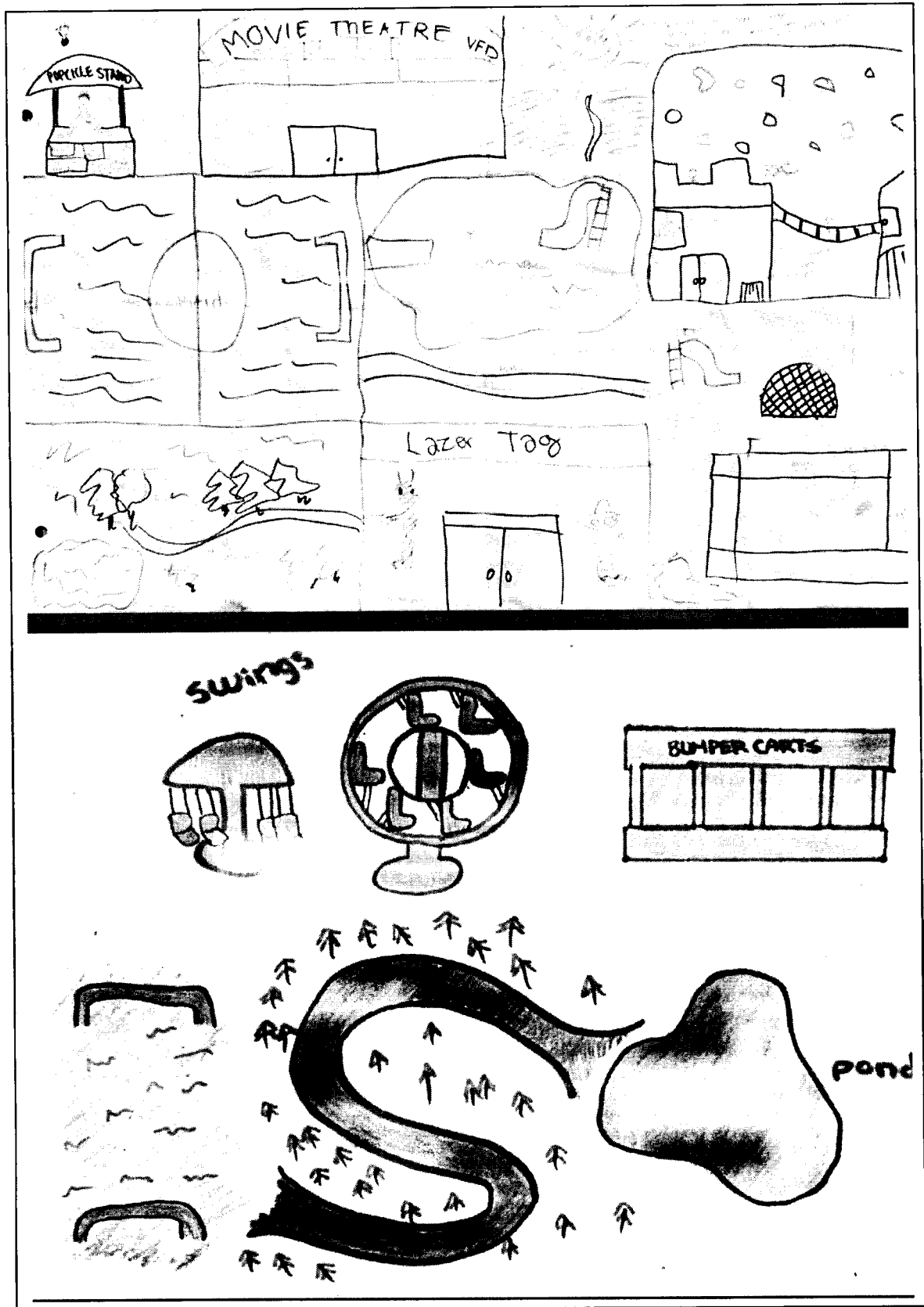
Figure 32 4-square Source Student
Green Maple Elementary, 2003

Map Group 1

Map Group 1

Bike Ramp

Baseball Field

Gun Club

Hockey Rink

Mini Golf

Map Group 2

Swingset

A Basketball court

School

Pool

A track

Football Field

Burger King

Food Court

Hockey rink

Washroom

track

School

Baseball Field

Soccer

Swimming Pool

Playground

38

Map Group 2

Swimming Pool

Baseball Field

Mini Golf

Skate Park

Basketball Court

Hockey Rink

Soccer Field

forest

Volleyball Court

Bow n Arrow Park

Track Park

school

Lacrosse Park

MAP

Corner Store

Football Field

Rollercoaster

Ultimate Field Frisbee

Aquarium

Track/Swimming Pool

Skateboarding Park

Amusement Park

FOOD

Regular playground

39

Map Group 2

FOREST AREA

TRACK + FIELD

Turf Field

B. Ball

Tennis Court

School

PLAYGROUND 8

Swings

MONKEY BARS

Hockey Rink

Slide

Change room

Swimming Pool

Enterence

Sand box

Gardens

Gardens

Baseball Diamond

Track Feild

School

Tennis Court

Basketball Court

Washroom

Burger King

Soccer Feild

Hockey Rink

McDonald

Swimming Pool

Map Group 2

ote Park

Wash. rooms

The School

parallel bars

Ambulance

Playground

Stores

phone booth

Football Field

Soccer Field

B·ball courts

Basketball Court

Indoor Mini Golf

Go Karts

Football / Rugby Field

Soccer Field

Food Centre

Swimming Pool

Regular School

Amusment Park

Soccer Field

Map Group 2

Map Group 3
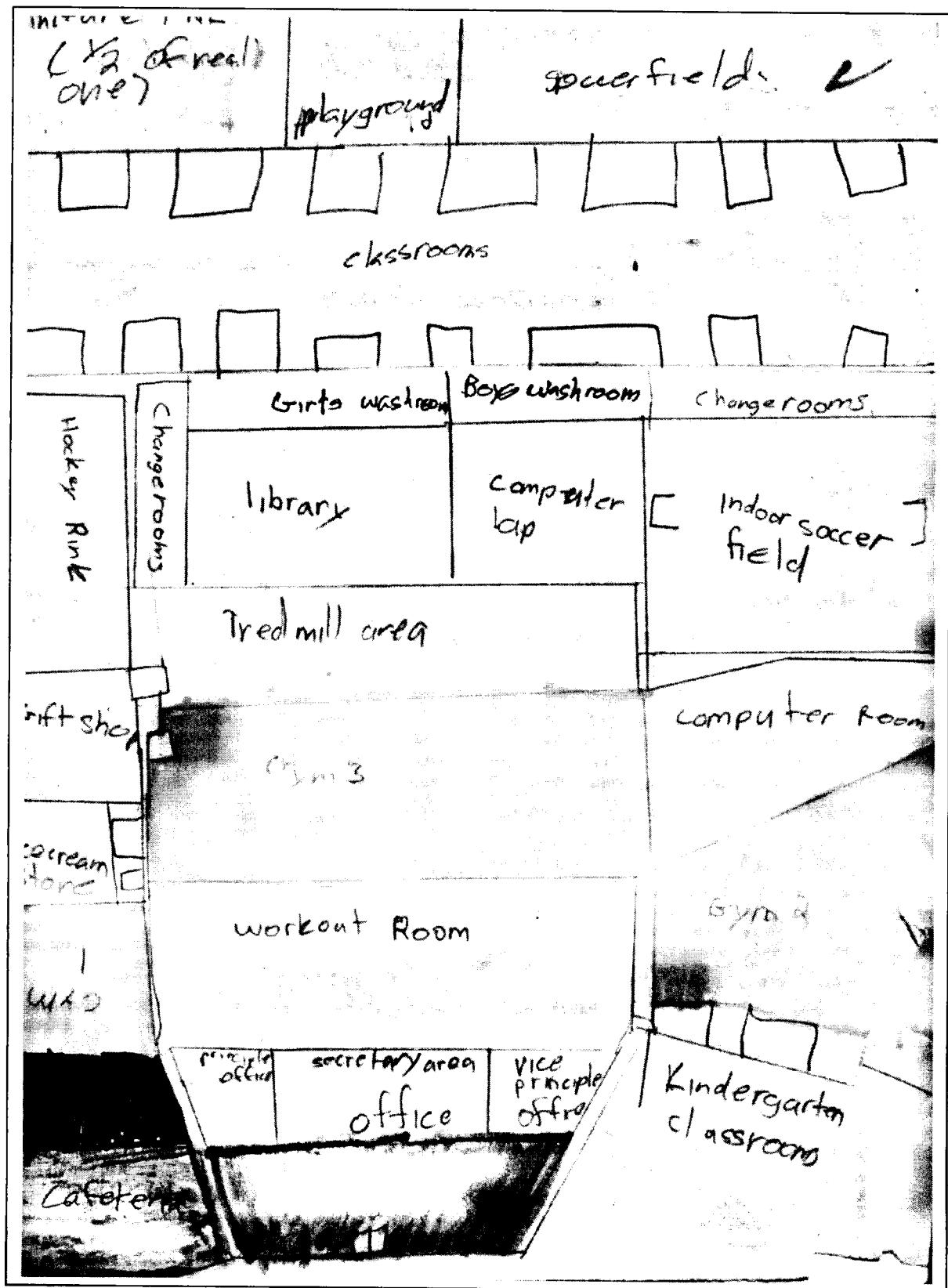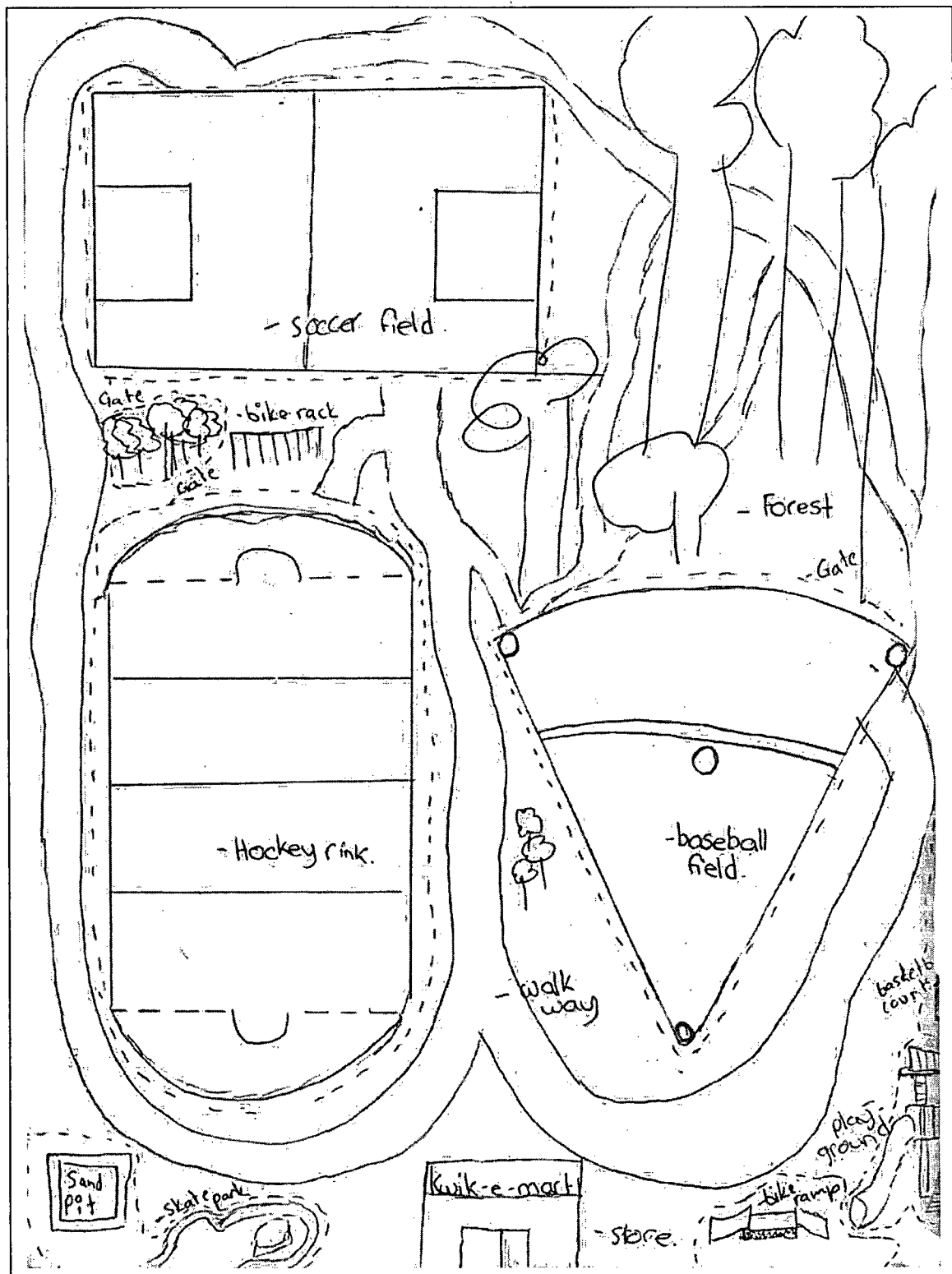
Map Group 3
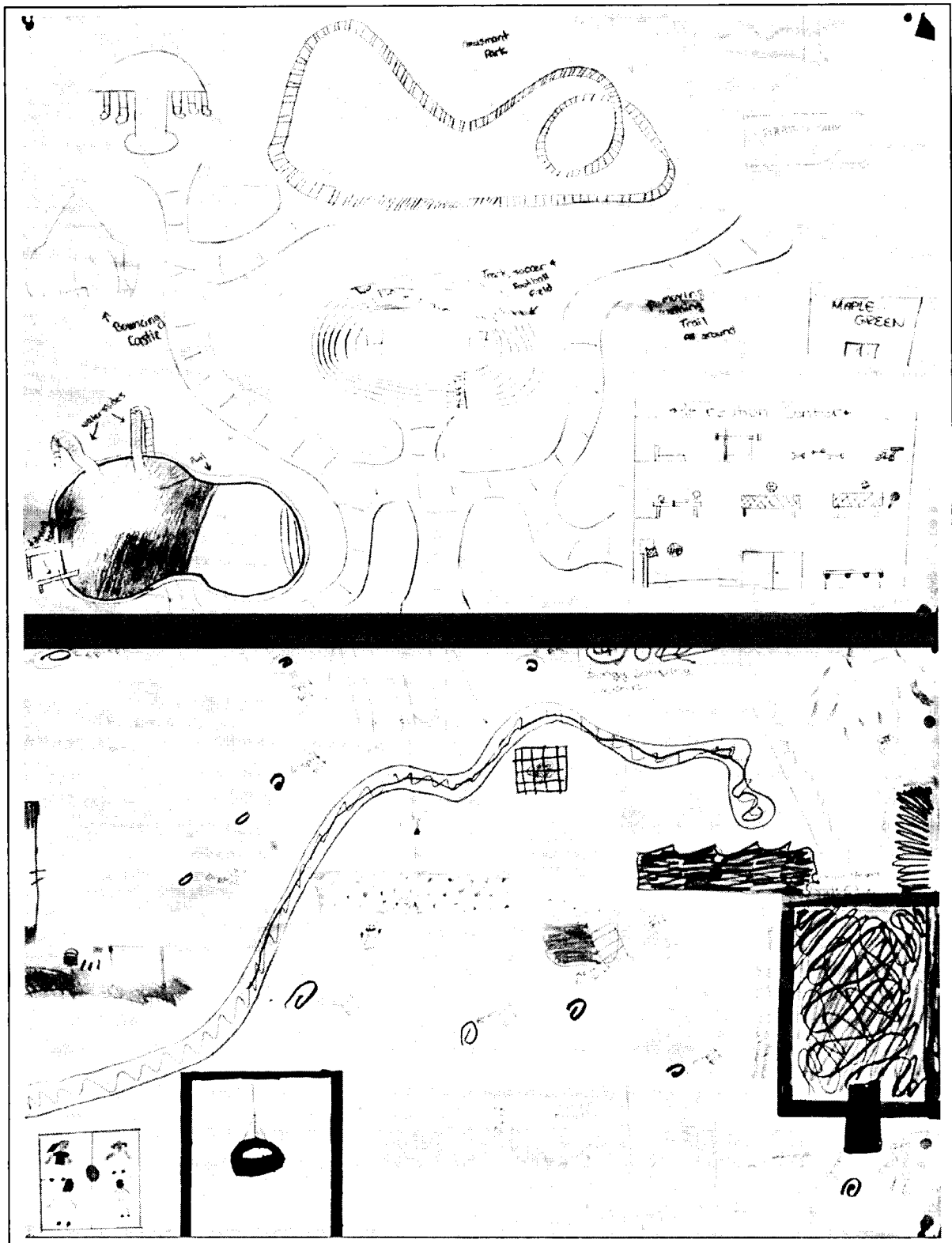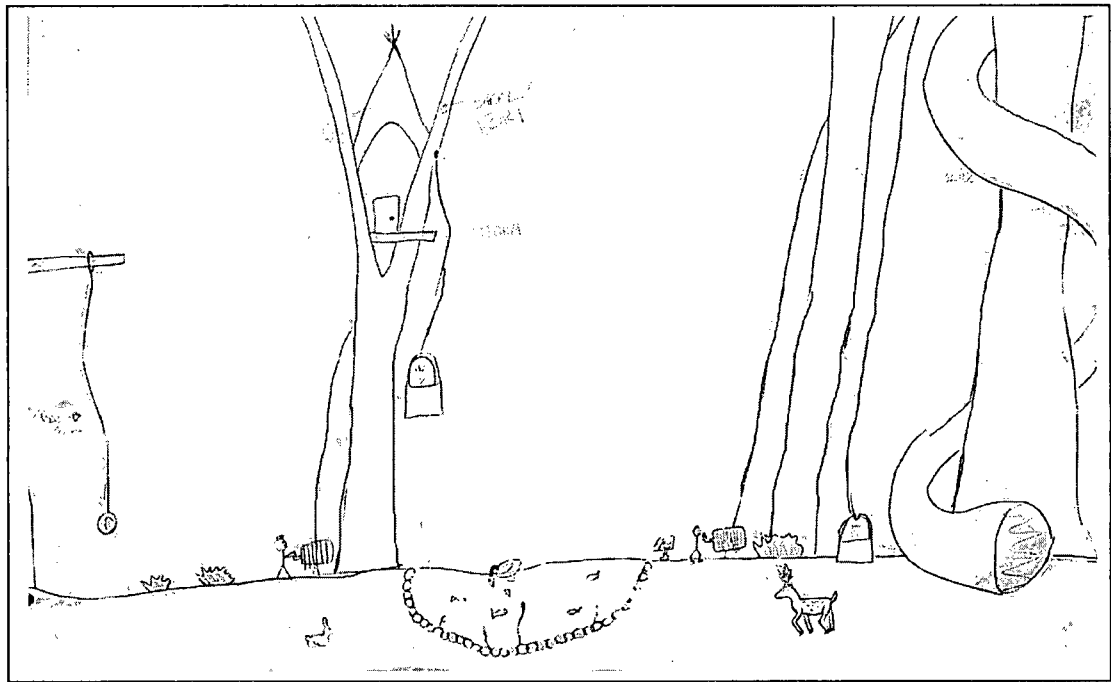
Appendix B - Elements within Children's Proposals
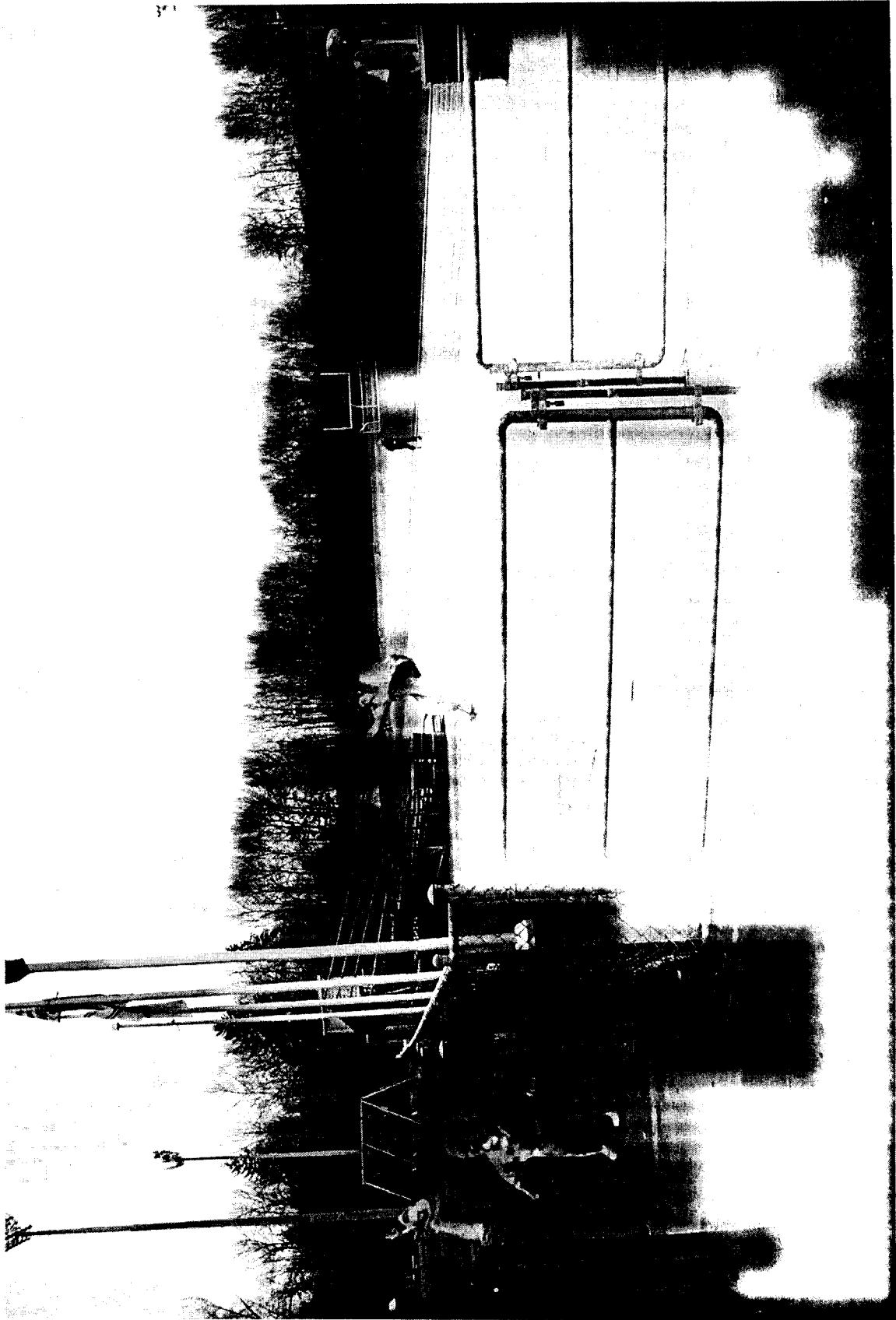
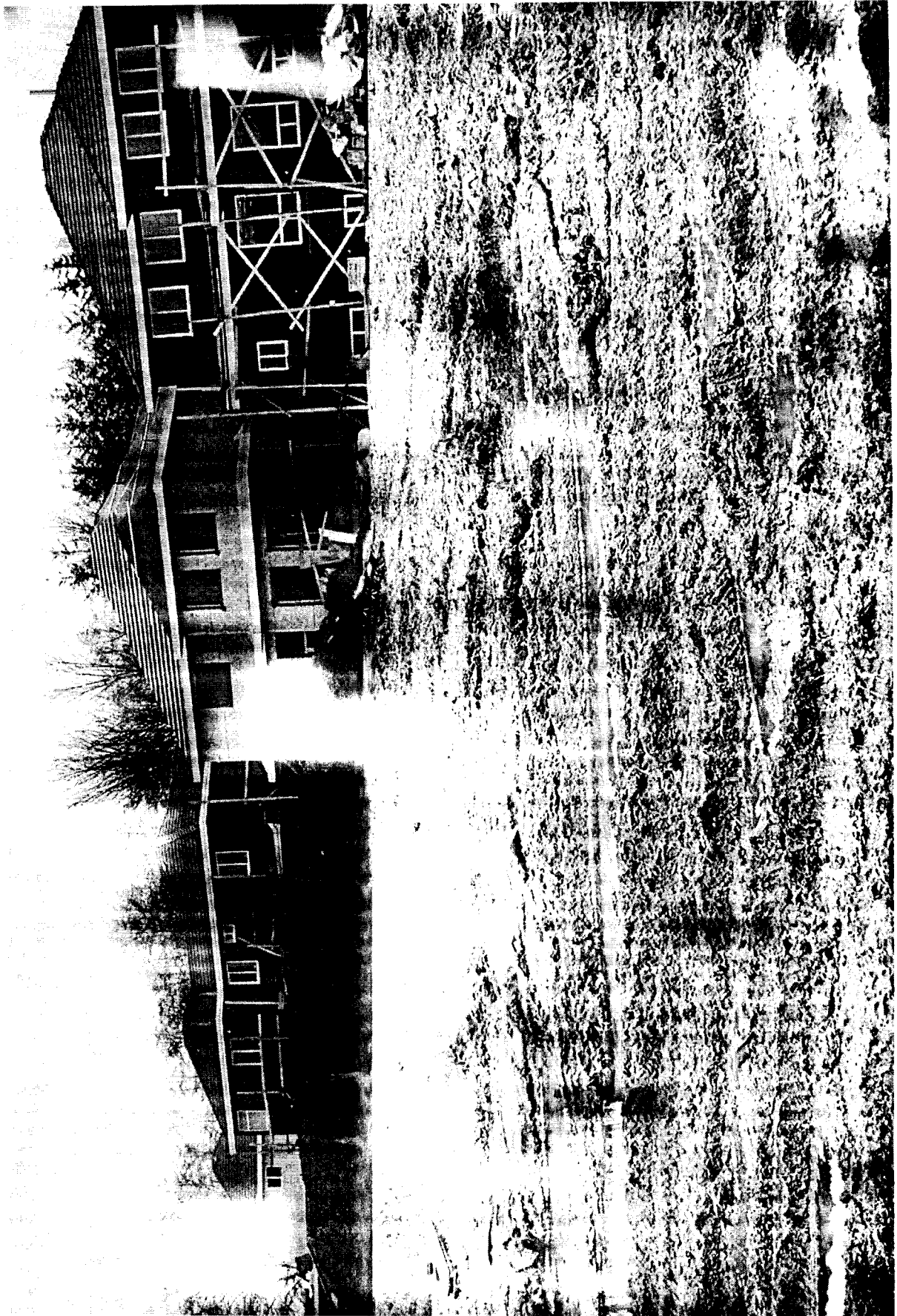|	
Group Sport Facilities	outdoor turf soccer field indoor soccer field ice hockey rink [to allow for a hockey league] football field track around pool or soccer field tennis courts volleyball basketball court baseball diamond for wider community use lacrosse beach volleyball rugby field
Commercial Facilities	gift shop mall corner store Macs Milk movie theatre
Eating Facilities	cafeteria ice cream store Burger King food court Macdonald's popsicle stand vending machines food centre berry bushes
Misc	phone booth amusement park arcade picture booth spit pits [to keep schoolyard clean] zoo
Nature	pond trail through woods gardens sand pit piranha tanks flower pits [to pick] stream for ducks and swimming monkeys strawberry bushes for snacks banana trees for snacks forest with trail, pond, benches and ducks 2 forests one for kids the other fenced for wild animals pond with food dispenser for ducks trail system that passes between sports playing fields, through forest and past commercial activities

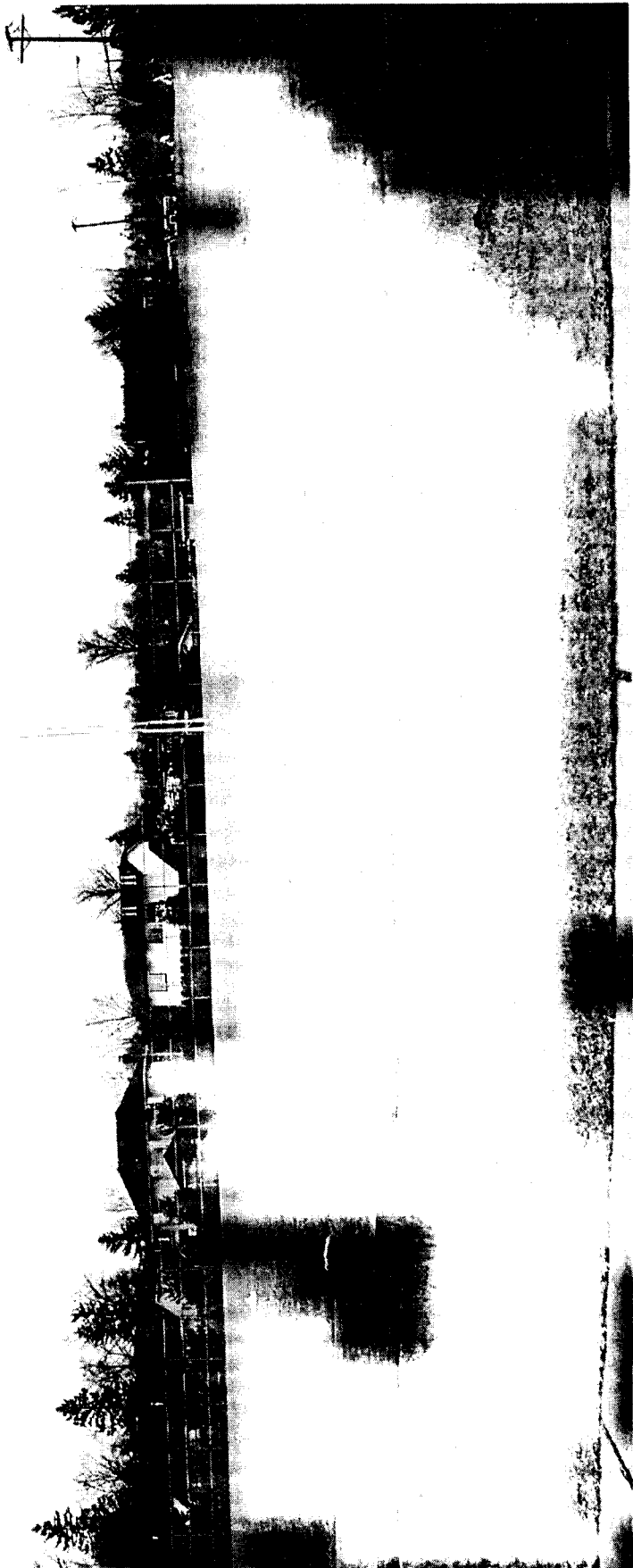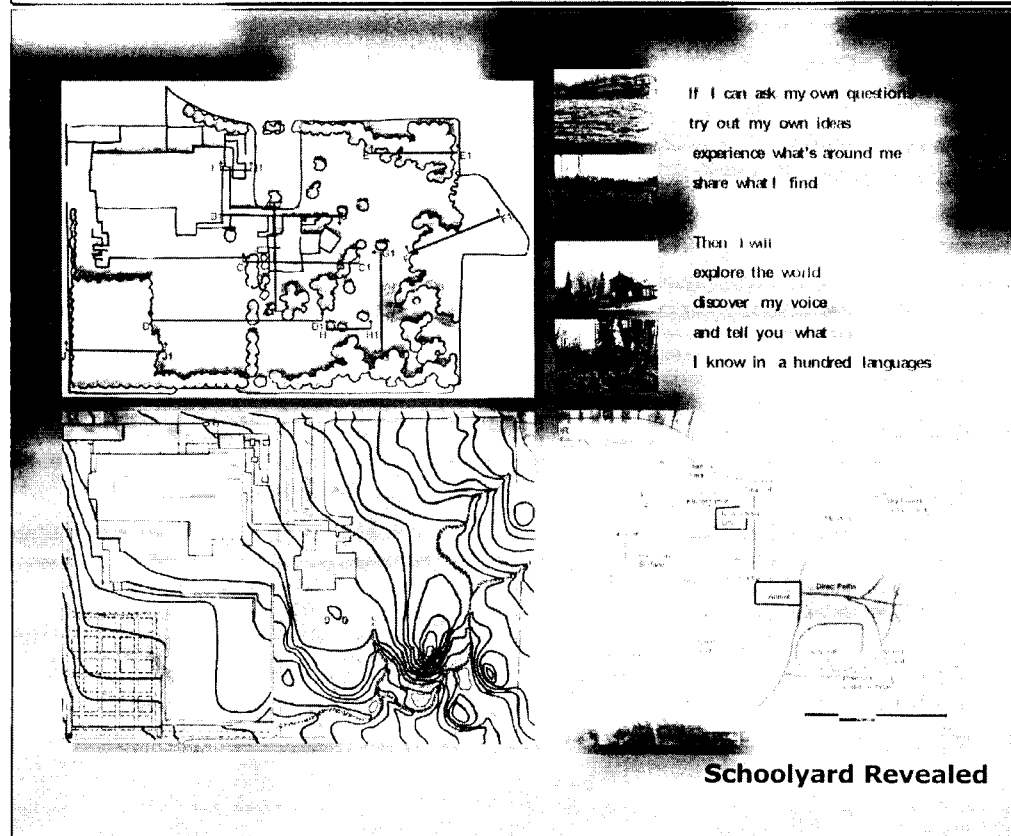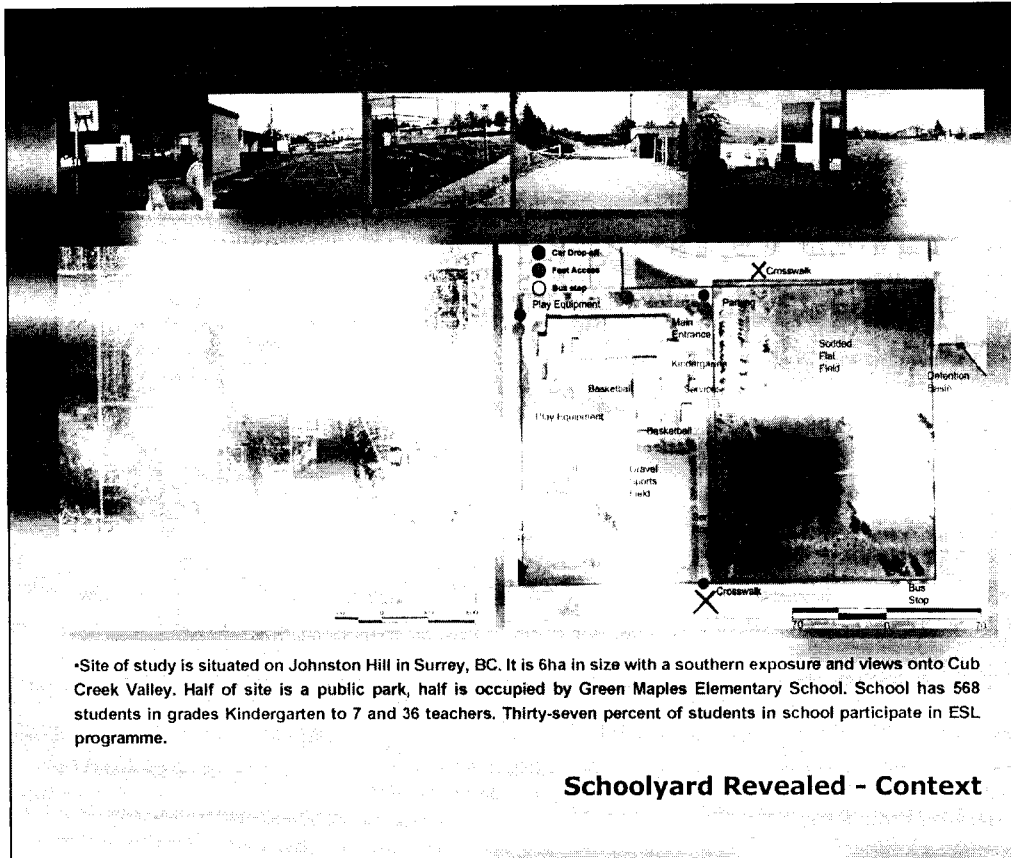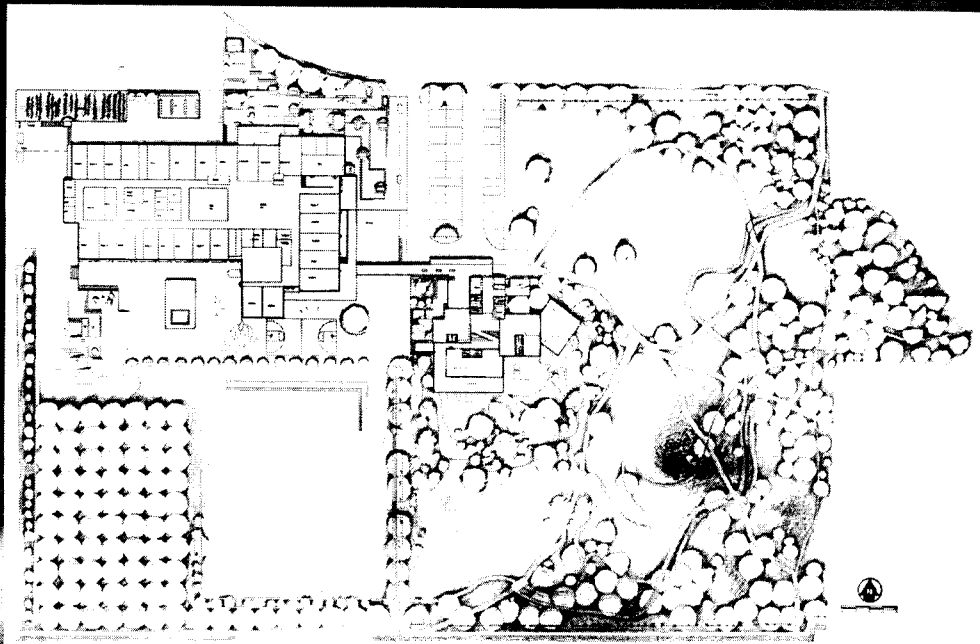| Recreational Activities	skateboard park
	playground [castle, bridge, dungeon, haunted house, triangle dome, rope ladder and slides]
	climbing walls
	miniature golf
	ultimate frisbee
	bow-n arrow club
	rifle range
	bike ramp
	go-carts
	dodgeball wall
	tire or rope swing on tree
	4-square
	laser tag
	paintball
	base jumping
	street hockey
	rollerblade area
	swimming pool [one for young children, one for older]
	swimming pool with slides and diving boards
	water slide
Community Facilities	hospital
	outdoor washrooms
	outdoor changerooms
	recreation centre-billiards, weightroom, pingpong
	free medical clinic
	moving sidewalk
	indoor treadmill area
	workout room
	track and field to serve for minimeets
	tennis for adults after school
Educational Activities	swimming lessons
	bungy jumping lessons
	school in tree tops with wild animals free below

Appendix C - Full Questionnaire

Appendix D - Final Design Boards

•Site of study is situated on Johnston Hill in Surrey, BC. It is 6ha in size with a southern exposure and views onto Cub Creek Valley. Half of site is a public park, half is occupied by Green Maples Elementary School. School has 568 students in grades Kindergarten to 7 and 36 teachers. Thirty-seven percent of students in school participate in ESL programme.

Schoolyard Revealed - Context

If I can ask my own questions
try out my own ideas
experience what's around me
share what I find

Then I will
explore the world
discover my voice
and tell you what
I know in a hundred languages
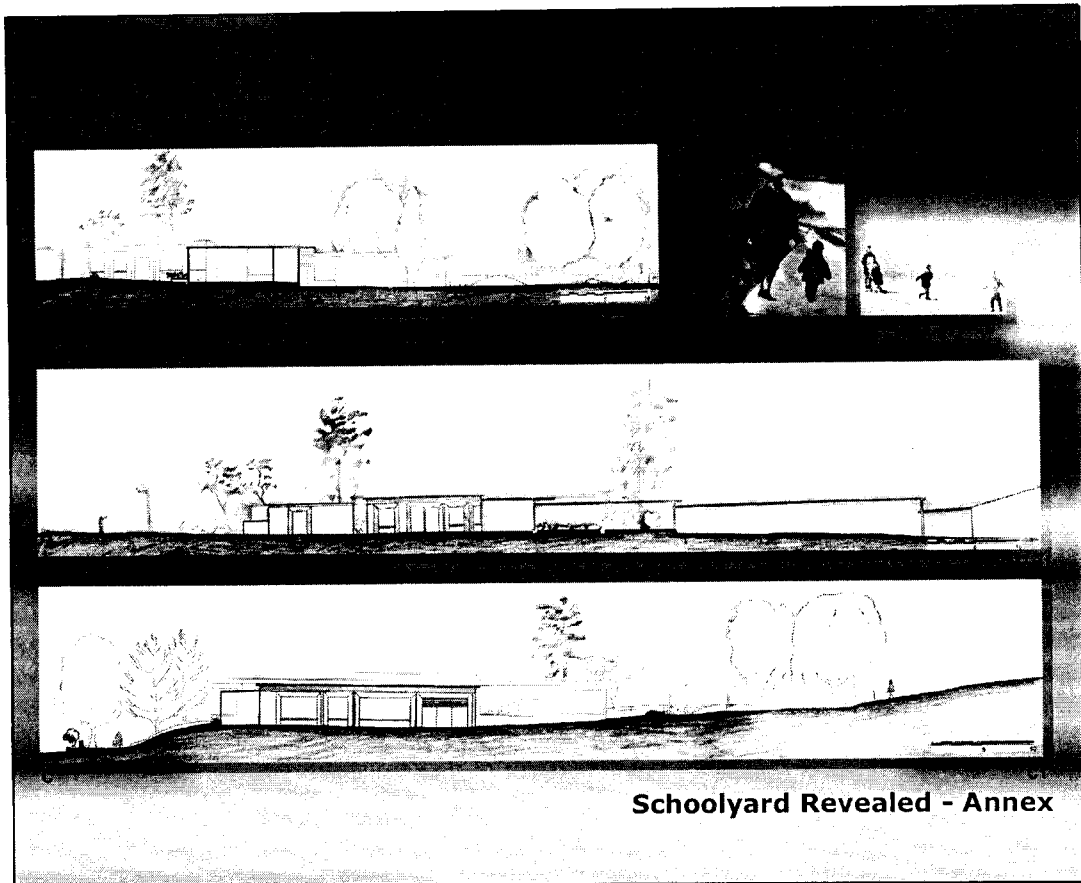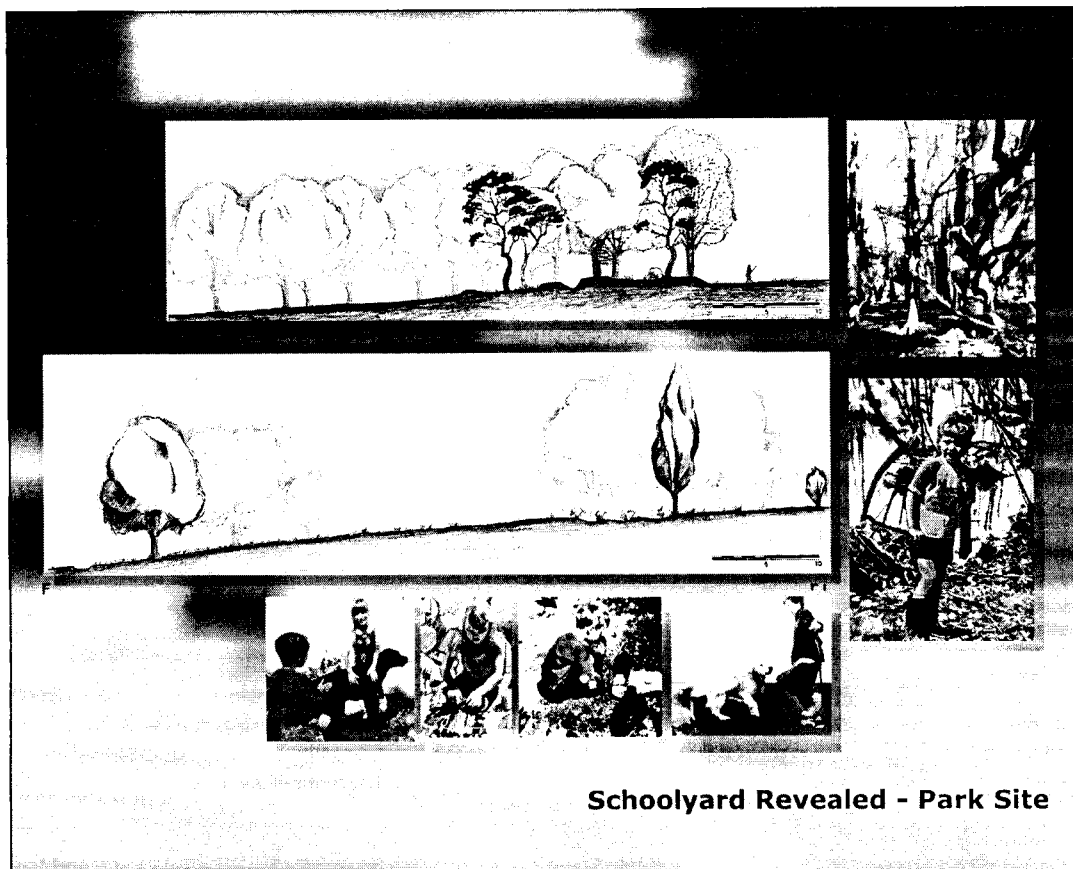
Schoolyard Revealed

Schoolyard Revealed - Master Plan
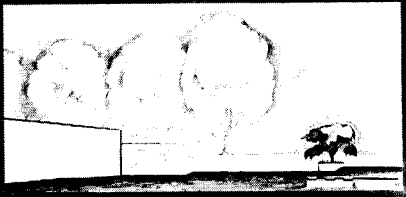

Schoolyard Revealed - Annex

Schoolyard Revealed - Annex

Schoolyard Revealed - Park Site

Schoolyard Revealed - Park Site

Schoolyard Revealed - School Site

Schoolyard Revealed - Kindergarten/Mail Area

Schoolyard Revealed - Axis